

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
August 2012

Prepared By:



September 14, 2012

Lakeland Industry & Community Association Ambient Air Monitoring Maskwa

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Maskwa
Data Period: August 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 - Maskwa Air Monitoring Stations conform to the following Maxxam Standard Operation Procedures:

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

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – MASKWA

Continuous Ambient Monitoring – August 2012

LICA MASKWA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0.63	14	11	19	3.8	298(WNW)	4.4	25	99.9
H2S (PPB)	10	3	0	0	0.30	3	8	22, 23	6.5, 7.2	113(ESE), 199(SSW)	1.0	17	99.9
THC (PPM)	-	-	-	-	2.14	3.2	17	5	4	213(SSW)	2.5	21	100.0
NOx (PPB)	-	-	-	-	2.86	32	24	15	7.5	302(WNW)	13.0	25	100.0
NO (PPB)	-	-	-	-	0.67	14	25	0	6.5	141(SE)	5.6	25	100.0
NO ₂ (PPB)	159	-	0	-	2.20	20	24	15	7.5	302(WNW)	7.4	25	100.0
VECTOR WS (KPH)	-	-	-	-	4.33	15.1	4	11	-	195(SSW)	6.1	4	100.0
VECTOR WD (DEGREES)	-	-	-	-	247(WSW)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	71.59	93	VAR	VAR	VAR	VAR	87.9	2	100.0
TEMPERATURE (DEG C)	-	-	-	-	16.65	29.9	20	14	4.5	201(SSW)	20.5	8	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	942	951	12	VAR	VAR	VAR	949.3	15	100.0
PRECIPITATION (MM)	-	-	-	-	0.07	6.9	23	22	2.4	242(WSW)	12.1	2	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 August 13th. One hourly maximum reading on August 19th at hour 6 was invalidated due to a small power outage. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on August 13th. One hourly maximum reading on August 19th at hour 6 was invalidated due to a small power outage. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on August 13th. The span gas cylinder was replaced on August 13th. One hourly maximum reading on August 19th at hour 6 was invalidated due to a small power outage. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – Maskwa

Nitrogen Dioxide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on August 13th. One hourly maximum reading on August 19th at hour 6 was invalidated due to a small power outage. Data was corrected using daily zero information.

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

- System make / model - 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. One hourly maximum reading for wind speed on August 19th at hour 6 was invalidated due to a small power outage.

Five hours of WS maximum data were invalidated as the reading went above the full scale: on August 11th at hour 0, August 12th at hour 22, on August 13 at hour 21, on August 16th at hour 20, and on August 25th at hour 0.

Relative Humidity (PERCENT)

- System make / model - Met One 083

No operational issues were observed during the month.

Precipitation (MM)

- System make / model - Met One 387

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.

Ambient Temperature (DEGC)

- System make / model - Met One 060

No operational issues were observed during the month.

Trailer Temperature (DEG C)

- System make / model – R&R 61

No operational issues were observed during the month.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H

No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Datalogger

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

No operational issues were observed during the month.

Trailer

The manifold was cleaned on August 13th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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19	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
21	0	0	IZS	0	0	0	0	0	0	1	4	5	6	1	1	1	1	1	1	1	0	0	0	0	6	1.0	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
22	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
23	IZS	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	1	0	2	0	0	IZS	2	0.3	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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25	8	6	3	2	2	1	0	1	4	6	7	7	4	6	7	2	4	2	4	10	5	IZS	6	4	10	4.4	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
26	2	4	4	6	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	6	1.0	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	0	0	0	1	0.0	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
28	0	0	0	0	0	0	0	0	3	1	0	1	2	1	0	0	0	0	IZS	0	0	0	1	0	3	0.4	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
29	0	0	0	0	0	2	5	2	1	3	3	0	0	0	0	0	0	IZS	0	0	0	0	0	0	5	0.7	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	IZS	0	0	0	0	0	0	0	1	0.0	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	1	0	0	0	0	0	0	0	1	0.1	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
HOURLY MAX	8	6	9	6	11	7	5	4	5	6	7	7	6	6	7	11	4	6	10	14	6	8	6	6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
HOURLY AVG	0.3	0.4	0.5	0.6	0.5	0.4	0.3	0.5	0.7	0.9	1.0	0.9	0.7	0.6	0.8	0.8	0.4	0.7	0.9	1.2	0.8	0.4	0.4	0.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

STATUS FLAG CODES

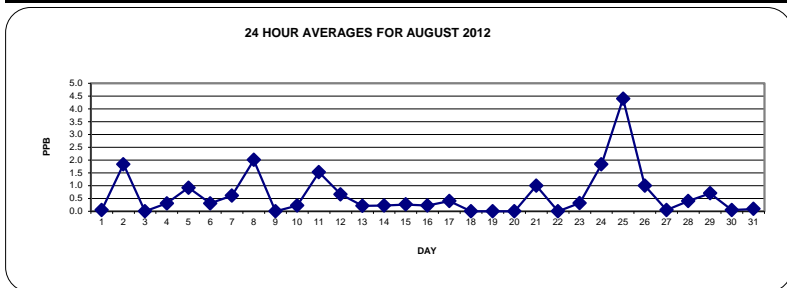
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

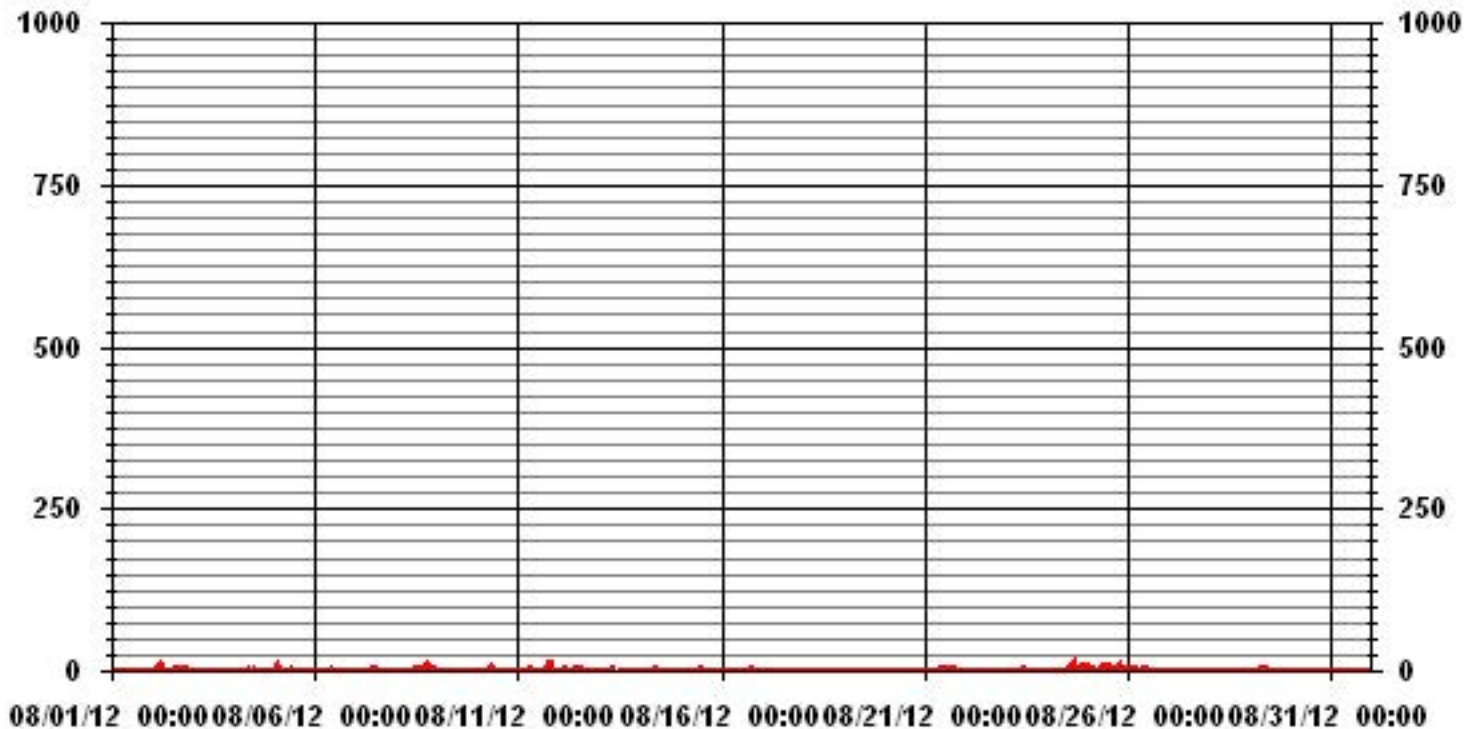
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	175		
MAXIMUM 1-HR AVERAGE:	14 PPB @ HOUR(S) 19 ON DAY(S) 11		
MAXIMUM 24-HR AVERAGE:	4.4 PPB ON DAY(S) 25		
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	1.63	MONTHLY AVERAGE:	0.63 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	1	0	0	0	0	0	0	1	1	0	1	6	6	0	8	0	0	0	0	1	1	1	1	1	8	1.2	24	
2	1	0	1	17	18	15	4	3	5	4	3	1	1	6	5	6	9	1	4	3	3	IZS	0	1	18	4.8	24	
3	1	1	1	1	0	1	1	1	0	1	1	0	0	0	0	1	1	0	0	0	IZS	0	0	0	1	0.5	24	
4	0	0	0	0	0	0	0	1	0	2	2	1	1	1	1	1	1	1	1	IZS	3	6	1	0	6	1.0	24	
5	5	11	17	13	1	1	0	8	5	4	6	5	0	0	8	6	9	IZS	2	1	0	1	0	17	4.5	24		
6	0	0	0	0	0	0	0	2	3	5	5	4	3	2	0	0	0	IZS	1	1	1	1	2	1	5	1.3	24	
7	1	0	0	0	0	0	1	1	2	5	3	5	5	3	6	2	IZS	0	1	0	0	0	0	0	6	1.5	24	
8	0	0	0	0	0	0	0	0	2	6	2	3	3	3	3	IZS	6	9	12	11	9	6	8	2	12	3.7	24	
9	1	1	1	1	1	1	1	1	1	1	1	0	1	1	IZS	0	0	0	0	0	0	0	0	0	1	0.6	24	
10	0	0	0	0	0	0	0	3	14	2	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	14	0.8	24	
11	0	0	0	0	0	2	6	7	7	6	6	3	IZS	1	7	1	1	14	10	23	4	1	1	1	23	4.4	24	
12	1	1	1	2	2	2	2	4	2	8	8	IZS	4	6	5	2	1	1	2	1	1	1	1	1	8	2.6	24	
13	1	1	1	1	1	1	1	1	1	C	C	C	C	C	1	M	0	1	1	1	3	1	1	1	3	1.1	23	
14	0	0	0	1	2	1	1	6	3	IZS	1	1	1	0	0	0	0	0	0	0	0	0	1	1	6	0.8	24	
15	1	1	1	1	1	1	1	1	1	IZS	5	6	4	6	5	3	1	0	0	0	0	0	0	0	6	1.7	24	
16	0	0	0	0	0	0	0	IZS	1	2	2	2	1	1	1	1	1	2	2	1	1	1	0	1	2	0.9	24	
17	0	1	0	0	0	0	IZS	2	2	2	1	1	1	1	4	9	6	6	2	1	0	0	0	0	9	1.7	24	
18	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	1	0.3	24	
19	1	0	0	0	IZS	0	P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	23	
20	1	1	1	IZS	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
21	0	0	IZS	1	1	1	1	1	1	2	6	11	12	3	1	1	1	1	1	1	1	1	1	1	12	2.2	24	
22	1	IZS	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0.3	24
23	IZS	0	0	1	0	0	0	0	3	4	2	4	1	5	4	0	0	0	3	3	9	6	0	IZS	9	2.0	24	
24	0	0	0	0	0	0	0	0	0	3	3	0	0	8	16	19	1	1	2	3	11	13	IZS	12	19	4.0	24	
25	14	16	7	4	7	2	1	2	8	11	11	13	12	14	16	8	9	10	10	17	13	IZS	10	12	17	9.9	24	
26	8	8	9	11	5	5	0	2	8	3	5	4	7	0	3	0	0	0	0	0	IZS	0	0	0	11	3.4	24	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	2	IZS	0	0	0	0	2	0.2	24	
28	0	0	0	0	0	0	0	0	9	2	1	4	8	2	1	1	1	1	IZS	0	0	0	3	0	9	1.4	24	
29	0	0	0	0	2	3	10	9	9	9	11	3	0	0	0	0	0	IZS	0	0	0	0	0	0	11	2.4	24	
30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	IZS	0	0	0	0	0	0	0	7	0.3	24	
31	0	0	0	0	0	0	0	0	0	1	1	0	1	3	4	IZS	6	0	0	0	0	0	0	0	6	0.7	24	
HOURLY MAX	14	16	17	17	18	15	10	9	14	11	11	13	12	14	16	19	9	14	12	23	13	13	10	12				
HOURLY AVG	1.3	1.4	1.3	1.8	1.5	1.2	1.0	1.9	3.0	3.1	3.0	2.6	2.6	2.3	3.3	2.3	1.8	2.1	1.9	2.4	2.2	1.4	1.1	1.2				

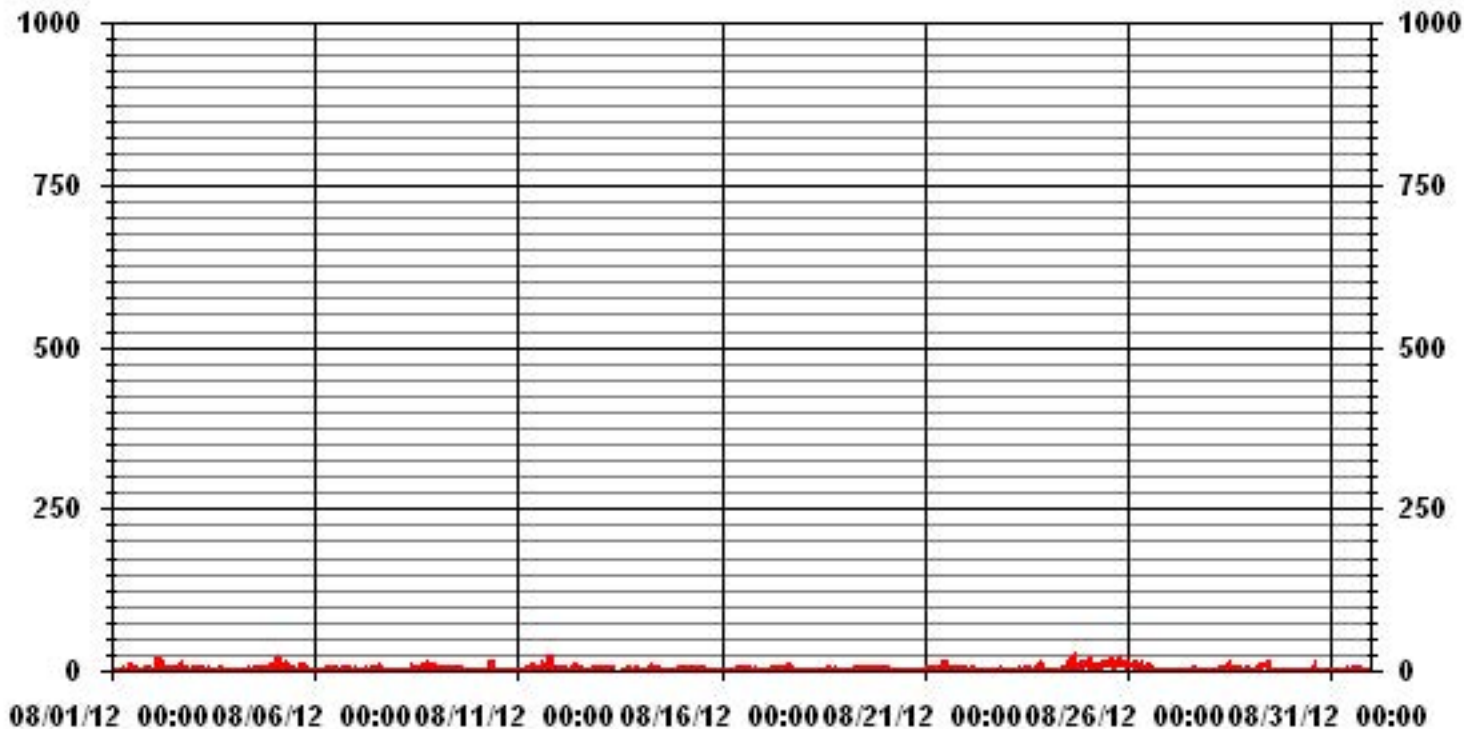
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	388					
MAXIMUM INSTANTANEOUS VALUE:	23	PPB	@ HOUR(S)	19	ON DAY(S)	11
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	3.42					

01 Hour Averages



— LICA30 SO2MAX PPB

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

August 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	4.94	3.67	5.08	3.95	2.25	3.81	4.09	7.34	7.62	14.26	7.34	5.93	7.06	10.16	8.47	3.95	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	4.94	3.67	5.08	3.95	2.25	3.81	4.09	7.34	7.62	14.26	7.34	5.93	7.06	10.16	8.47	3.95	

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	35	26	36	28	16	27	29	52	54	101	52	42	50	72	60	28	708
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	35	26	36	28	16	27	29	52	54	101	52	42	50	72	60	28	

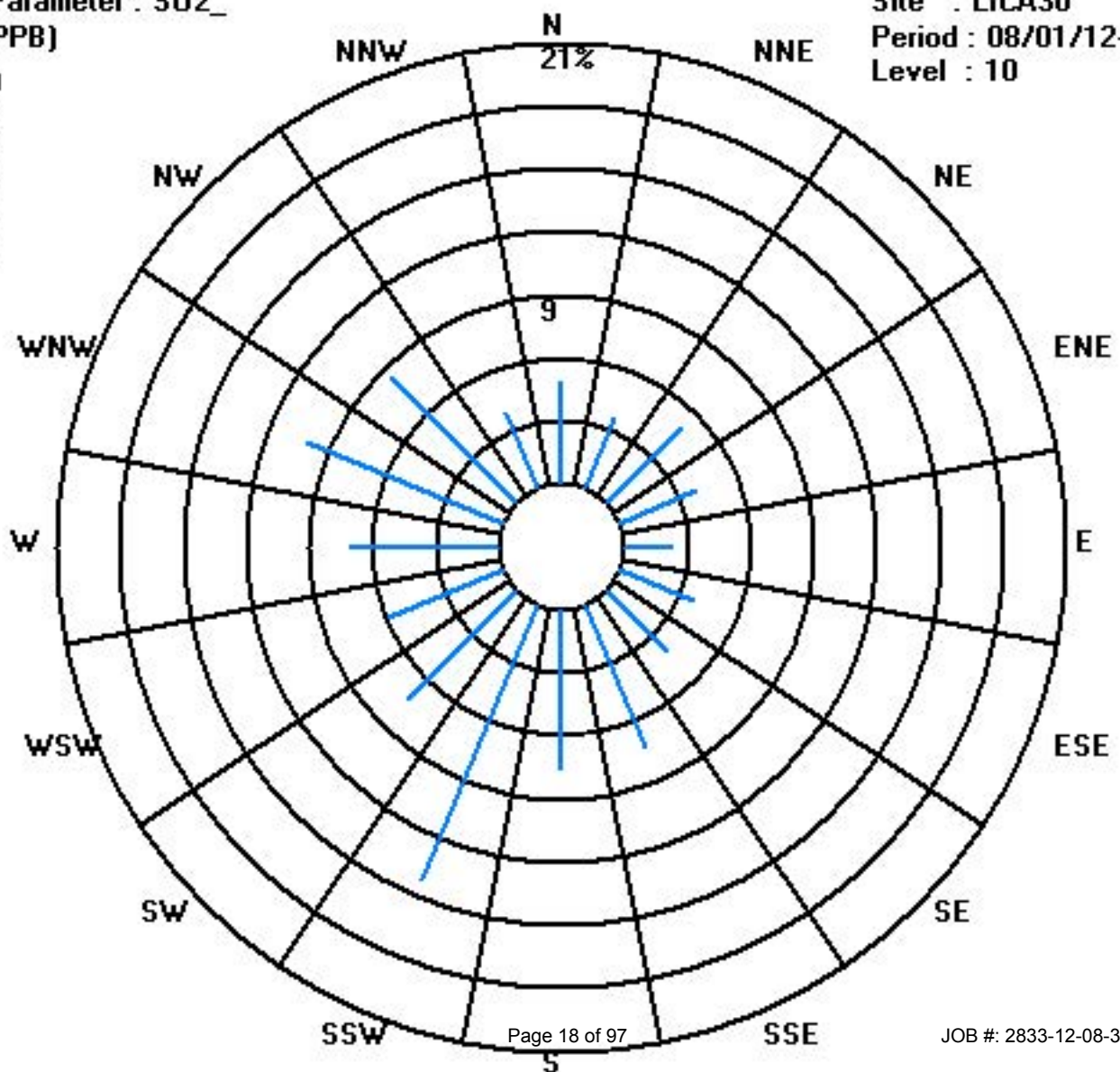
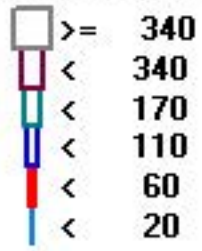
Calm : .00 %

Total # Operational Hours : 708

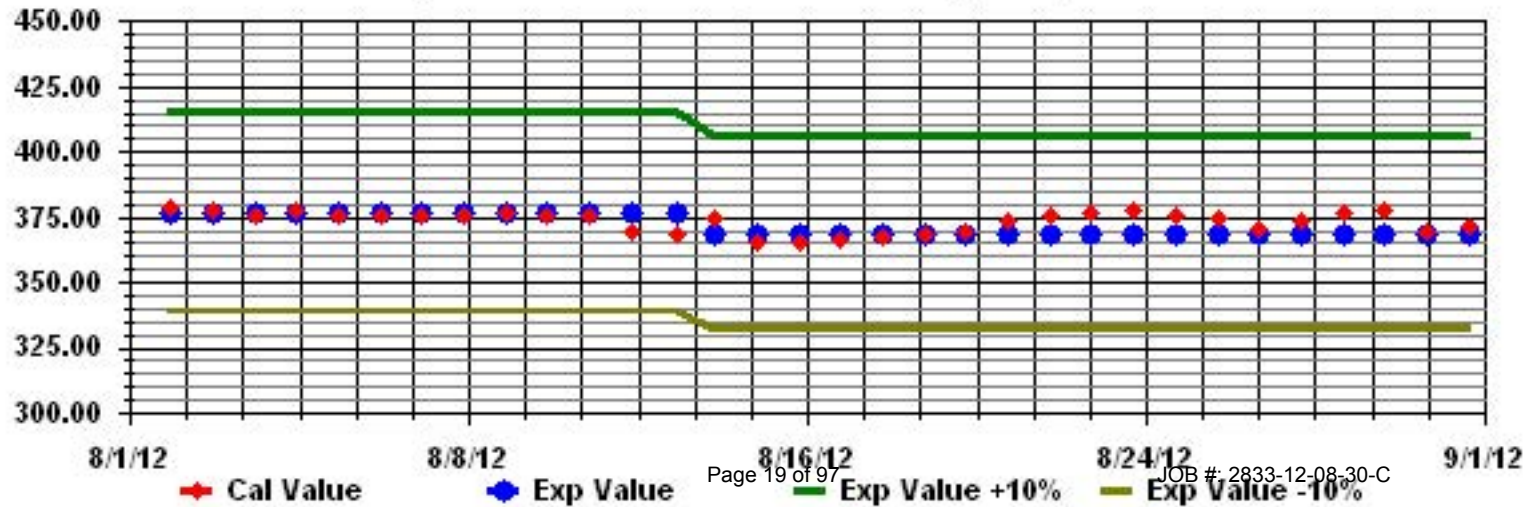
Class Limits (PPB)

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

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	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	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
2	0	0	0	0	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
3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	24
4	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	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	1	0	1	0.0	24	
6	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
7	0	1	1	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	1	2	1	1	1	2	0.7	24
8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	3	3	3	3	0.5	24	
9	1	0	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	1	0.3	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.0	24
11	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.1	24
12	0	0	0	1	1	0	0	0	0	0	1	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	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	23
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	0.0	24
15	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
16	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	2	0.6	24
17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1.0	24
18	1	1	1	1	1	1	0	1	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0.4	24
19	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
20	1	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	1	0.1	24
21	1	1	1	1	1	1	1	3	1	1	1	1	1	2	1	1	1	1	0	1	1	0	0	0	0	0	3	0.8	24	
22	0	0	0	0	0	1	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	0	0	1	0.3	24	
23	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.2	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	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	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	0	1	0.2	24
27	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0.4	24
28	2	2	1	1	1	1	0	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.7	24
29	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5	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	0.0	24
31	1	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
HOURLY MAX	2	2	1	1	2	2	2	3	2	2	2	2	2	2	1	2	1	1	2	1	1	2	2	3	3					
HOURLY AVG	0.4	0.3	0.2	0.3	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.3	0.3	0.2	0.3	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.3						

STATUS FLAG CODES

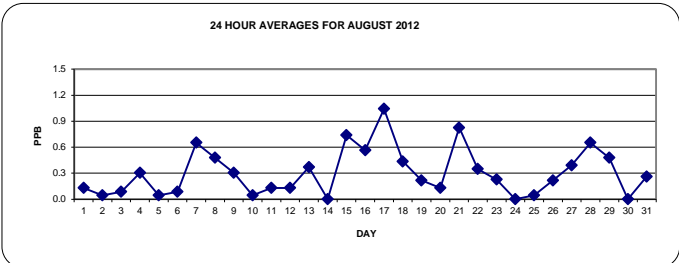
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

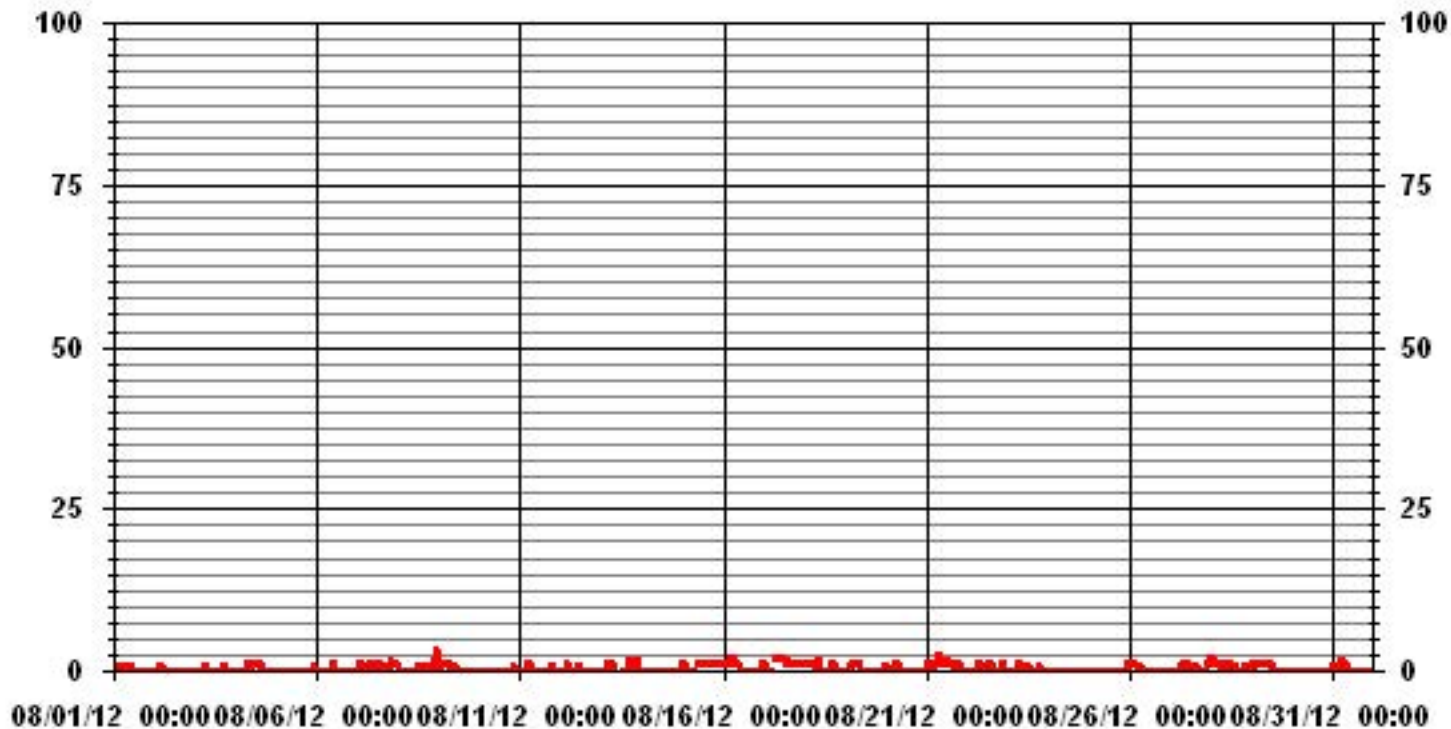
ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	3	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	189					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	22, 23	ON DAY(S)	8
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	17
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.54		MONTHLY AVERAGE:	0.30	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST																									DAILY	24-HOUR		
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	MAX.	AVG.	RDGS.
1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	2	1	1	0	0	0	1	1	IZS	1	2	0.7	24	
2	1	0	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0.7	24
3	1	1	1	1	1	1	1	1	0	0	0	1	1	1	0	0	1	2	1	0	IZS	1	1	1	2	0.8	24	
4	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
5	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	1	0.2	24
6	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	IZS	0	1	1	1	0	0	1	0.7	24
7	1	1	1	1	1	0	0	1	1	1	2	2	1	1	1	1	IZS	1	0	1	3	2	1	1	3	1.1	24	
8	1	0	0	0	1	1	2	0	0	1	0	2	2	2	1	IZS	1	2	1	1	1	6	9	9	9	1.9	24	
9	2	1	3	3	2	2	1	1	1	1	0	1	1	0	IZS	0	1	0	0	1	1	0	0	0	3	1.0	24	
10	1	1	0	0	0	0	0	0	1	1	1	1	1	1	IZS	1	0	0	0	1	1	1	1	0	1	1	0.6	24
11	1	1	1	1	1	1	1	0	0	0	1	0	IZS	1	1	1	1	1	1	1	3	1	0	0	0	3	0.8	24
12	0	0	1	2	2	1	0	0	0	0	1	IZS	0	0	1	1	0	0	1	1	0	0	0	1	2	0.5	24	
13	1	0	1	1	1	1	1	1	1	C	C	C	C	0	0	M	1	5	0	0	4	9	0	0	9	1.4	23	
14	0	0	0	0	0	0	0	0	0	IZS	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0.3	24
15	1	1	0	0	1	0	1	1	IZS	2	2	1	2	2	1	1	1	1	1	1	2	2	1	2	2	1.2	24	
16	1	1	2	1	2	3	2	IZS	1	1	1	0	1	1	0	0	0	0	0	0	0	1	0	1	2	3	0.9	24
17	1	1	1	0	0	1	IZS	2	2	2	2	3	2	2	2	2	1	1	2	2	2	1	1	2	3	1.5	24	
18	2	2	1	1	1	IZS	1	1	2	1	1	0	1	1	0	2	2	2	2	1	1	0	0	1	2	1.1	24	
19	0	1	1	1	IZS	2	P	1	1	1	1	1	1	1	0	0	1	0	1	1	0	0	1	1	2	0.8	23	
20	1	0	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.9	24	
21	1	1	IZS	1	1	1	4	5	2	1	2	2	2	1	1	1	1	1	1	1	0	1	1	0	5	1.4	24	
22	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0.9	24
23	IZS	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.9	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	1	0.0	24
25	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.2	24
26	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	0	0	0	IZS	1	1	0	1	0.7	24
27	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	IZS	0	2	1	4	4	0.9	24
28	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	3	1.2	24
29	1	1	1	1	1	1	1	1	3	3	1	1	1	0	1	1	1	1	IZS	1	1	1	1	1	1	3	1.1	24
30	1	1	0	1	1	0	1	0	0	1	1	0	0	1	1	0	IZS	1	1	0	1	1	1	1	1	1	0.7	24
31	1	1	0	1	3	3	1	1	1	1	0	0	1	0	0	IZS	0	0	0	1	1	0	1	1	3	0.8	24	
HOURLY MAX	3	3	3	3	3	3	4	5	3	3	2	3	2	2	2	2	2	2	5	2	3	4	9	9	9			
HOURLY AVG	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.8	0.9	0.7	0.6	0.7	0.7	0.9	0.7	0.8	0.9	1.2	1.0	1.2				

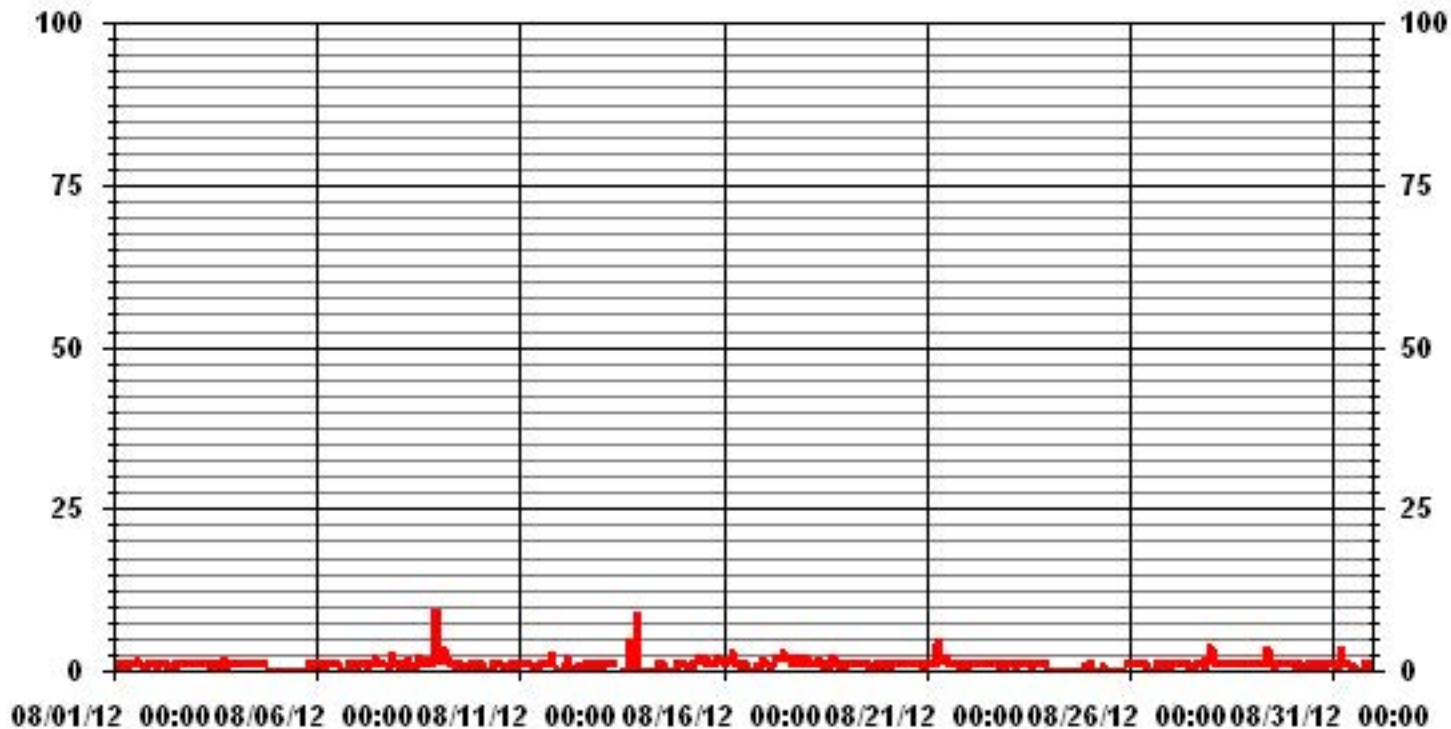
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	484					
MAXIMUM INSTANTANEOUS VALUE:	9	PPB	@ HOUR(S)	22, 23	ON DAY(S)	8
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.91					

01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

August 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	4.94	3.53	5.08	3.95	2.25	3.67	4.09	7.34	7.62	14.12	7.34	5.93	7.06	10.16	8.47	3.95	99.57
< 10	.00	.14	.00	.00	.00	.14	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.42
< 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	4.94	3.67	5.08	3.95	2.25	3.81	4.09	7.34	7.62	14.26	7.34	5.93	7.06	10.16	8.47	3.95	

Calm : .00 %

Total # Operational Hours : 708

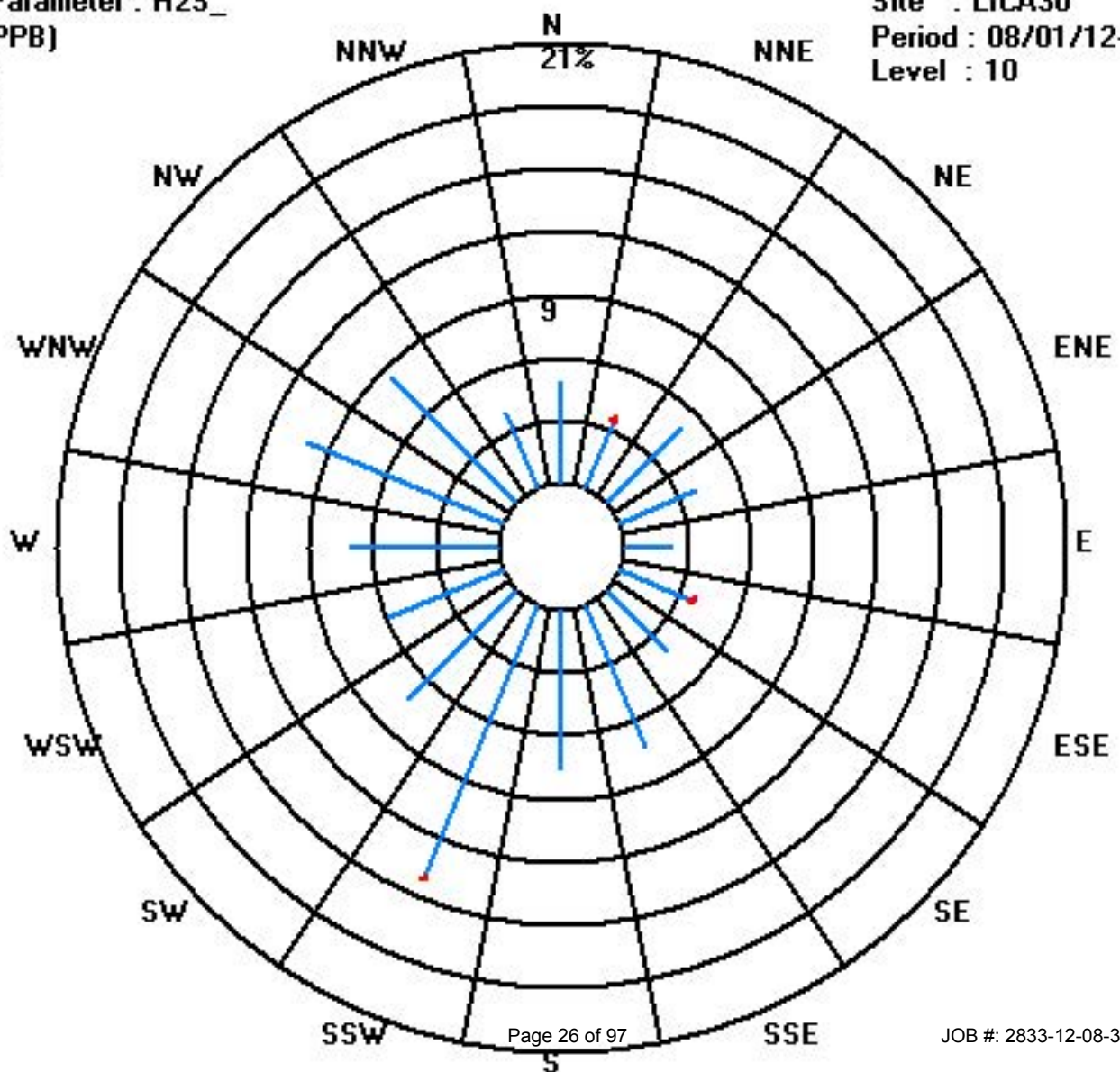
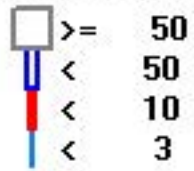
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	35	25	36	28	16	26	29	52	54	100	52	42	50	72	60	28	705
< 10		1				1				1							3
< 50																	
>= 50																	
Totals	35	26	36	28	16	27	29	52	54	101	52	42	50	72	60	28	

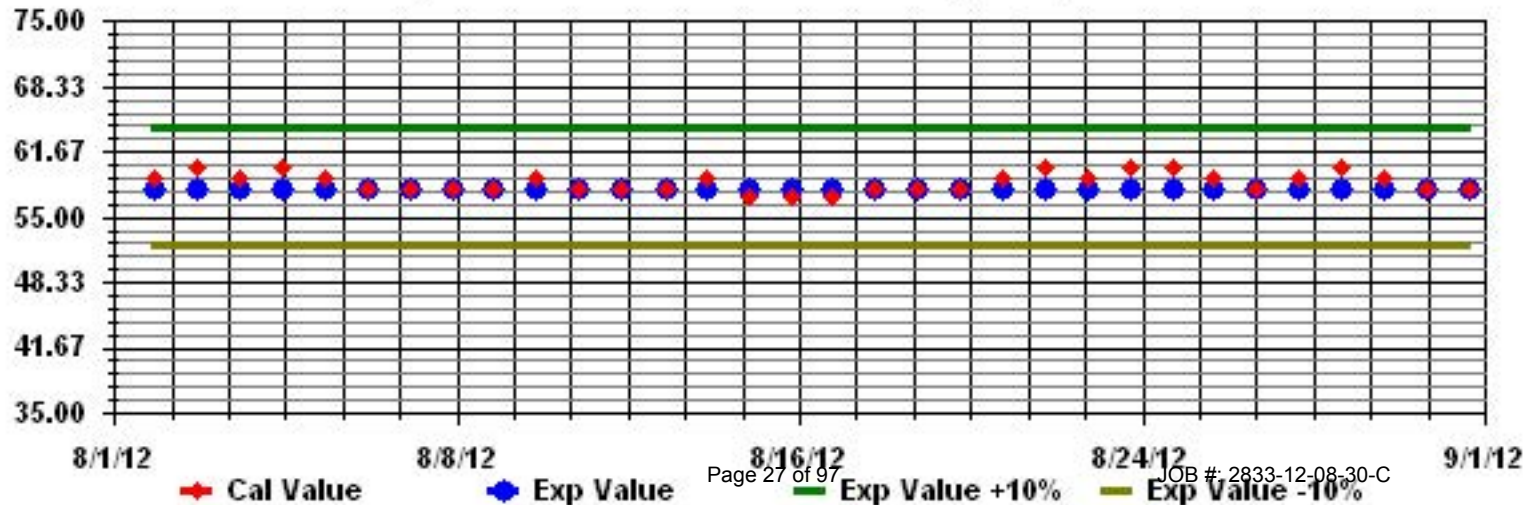
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

AUGUST 2012

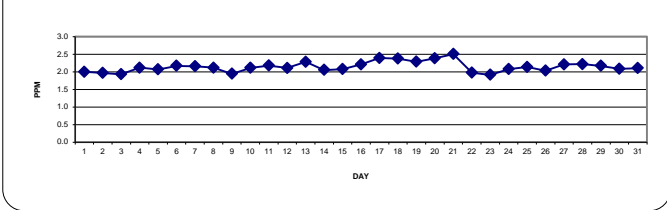
TOTAL HYDROCARBONS hourly averages in ppm

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	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.
1		2.1	2	2.1	2.1	2.1	2.2	2.1	2	2	1.9	1.9	1.9	2	1.9	2	1.9	1.9	1.9	1.9	1.9	2	2.1	IZS	2.1	2.2	2.0	24	
2		2.1	2.1	2.2	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	IZS	1.9	2	2.2	2.0	24	
3		2	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	IZS	2	2.1	2.1	1.9	24	
4		2	2	2.2	2.4	2.6	2.6	2.6	2.5	2.3	2.2	2.1	2.1	2	2	2	1.9	1.9	1.8	1.8	IZS	1.9	2	1.9	1.9	2.6	2.1	24	
5		2.1	2.4	2.2	2	2.1	2.1	2.1	2.1	1.9	1.9	2	2	2	1.9	1.9	2	2	2	IZS	2	2	2.1	2.5	2.3	2.5	2.1	24	
6		2.3	2.2	2.3	2.5	2.3	2.7	2.7	2.3	2.1	2	2.1	2.1	2	2	2	2	2	IZS	2	2	2	2	2	2.1	2.2	2.7	2.2	24
7		2.1	2.2	2.3	2.3	2.4	2.5	2.3	2.2	2	2.2	2.1	2.1	2	2	2.1	2	IZS	2	2.1	2.1	2.2	2.1	2.2	2.2	2.5	2.2	24	
8		2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2	2.1	2	2	2	2.1	2	IZS	2.1	2.2	2.4	2.3	2.2	2	2.2	1.9	2.4	2.1	24	
9		1.9	1.9	2	1.9	2	2	2	2	2	1.9	1.9	1.8	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	2	2	2	2.1	2.1	1.9	24	
10		2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.1	2.2	2	2	2	2.2	IZS	2.1	2	1.9	1.9	2	2.1	2.1	2.2	2.3	2.4	2.4	2.1	24	
11		2.3	2.3	2.5	2.5	2.6	2.4	2.3	2.1	2	2.1	2	2	IZS	2	2	2	2	2	2	2.2	2.4	2.1	2.1	2.1	2.1	2.6	2.2	24
12		2.2	2.2	2.2	2.5	2.4	2.2	2.1	2.1	2	2	2	2	IZS	2	2	2	2	2	2	2	2	2	2.1	2.2	2.3	2.5	2.1	24
13		2.3	2.3	2.4	2.6	2.9	2.9	2.6	2.3	2.3	2.2	IZS	2.2	C	C	C	C	2.1	2.2	2	2	2.1	1.9	2	2.1	2.9	2.3	24	
14		2.2	2.2	2.2	2.7	2.4	2.3	2.1	2.1	2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.7	2.1	24	
15		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2	2	2	2	2.1	2.1	2	2	2	2	2	2	2.1	2.2	2.2	2.3	2.3	2.1	24
16		2.4	2.4	2.5	2.4	2.4	2.4	2.4	IZS	2.3	2.4	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2.1	2.1	2.1	2.2	2.2	2.5	2.2	24
17		2.2	2.3	2.4	2.5	2.8	3.2	IZS	2.9	2.4	2.8	2.7	2.6	2.3	2.2	2.1	2.1	2	2	2	2.1	2	2.1	2.2	2.4	2.7	3.2	2.4	24
18		3	2.7	2.8	2.8	2.8	IZS	2.9	2.7	2.4	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	2.4	2.3	3.0	2.4	24	
19		2.3	2.3	2.4	2.6	IZS	2.5	2.5	2.4	2.4	2.4	2.3	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.6	2.3	24	
20		2.5	2.6	2.7	IZS	2.8	2.8	2.9	3	2.6	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.4	2.4	3.0	2.4	24	
21		2.6	2.5	IZS	2.8	2.7	2.8	3	3.1	2.9	2.6	2.6	2.7	2.6	2.4	2.5	2.4	2.4	2.3	2.4	2.2	2.1	2	2	2	3.1	2.5	24	
22		2	IZS	2.1	2.2	2.3	2	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	2	2	1.9	1.9	1.9	2	2	2	2.3	2.0	24	
23		IZS	1.9	1.9	2	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	1.9	1.9	IZS	2.0	1.9	24	
24		2	2	2	2	2	2	2	2	2	2	2.1	2	2	2.1	2.2	2.1	2.1	2	2.1	2.3	2.2	2.3	IZS	2.2	2.3	2.1	24	
25		2.2	2.3	2.3	2.3	2.3	2.3	2.1	2.3	2.2	2.1	2	2.1	2.1	2	2	2	2	2	2.1	2.2	2.1	2	IZS	2	2	2.3	2.1	24
26		2.1	2.1	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2	1.9	2	1.9	1.9	2	2	2	IZS	2.1	2.2	2.2	2.0	24	
27		2.3	2.5	2.4	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2	2	2	2	2	2	IZS	2.1	2.2	2.2	2.4	2.5	2.2	24
28		2.4	2.5	2.4	2.3	2.4	2.3	2.5	2.3	2.4	2.1	2	2	2.1	1.9	1.9	1.9	2	2.1	IZS	2.2	2.3	2.4	2.4	2.2	2.5	2.2	24	
29		2.3	2.6	2.4	2.5	2.5	2.4	2.1	2.1	2.7	2.2	2.1	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2.7	2.2	24
30		2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	IZS	2	2	2	2	2.1	2.1	2.1	2.2	2.1	24	
31		2.2	2.2	2.2	2.2	2.4	2.6	2.5	2.4	2.1	2	2	2	2	2	2.1	IZS	2	1.9	1.9	1.9	1.9	2	2	2	2.6	2.1	24	
HOURLY MAX		3.0	2.7	2.8	2.8	2.9	3.2	3.0	3.1	2.9	2.8	2.7	2.7	2.6	2.4	2.5	2.4	2.4	2.3	2.4	2.4	2.3	2.4	2.5	2.7				
HOURLY AVG		2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2			

STATUS FLAG CODES

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

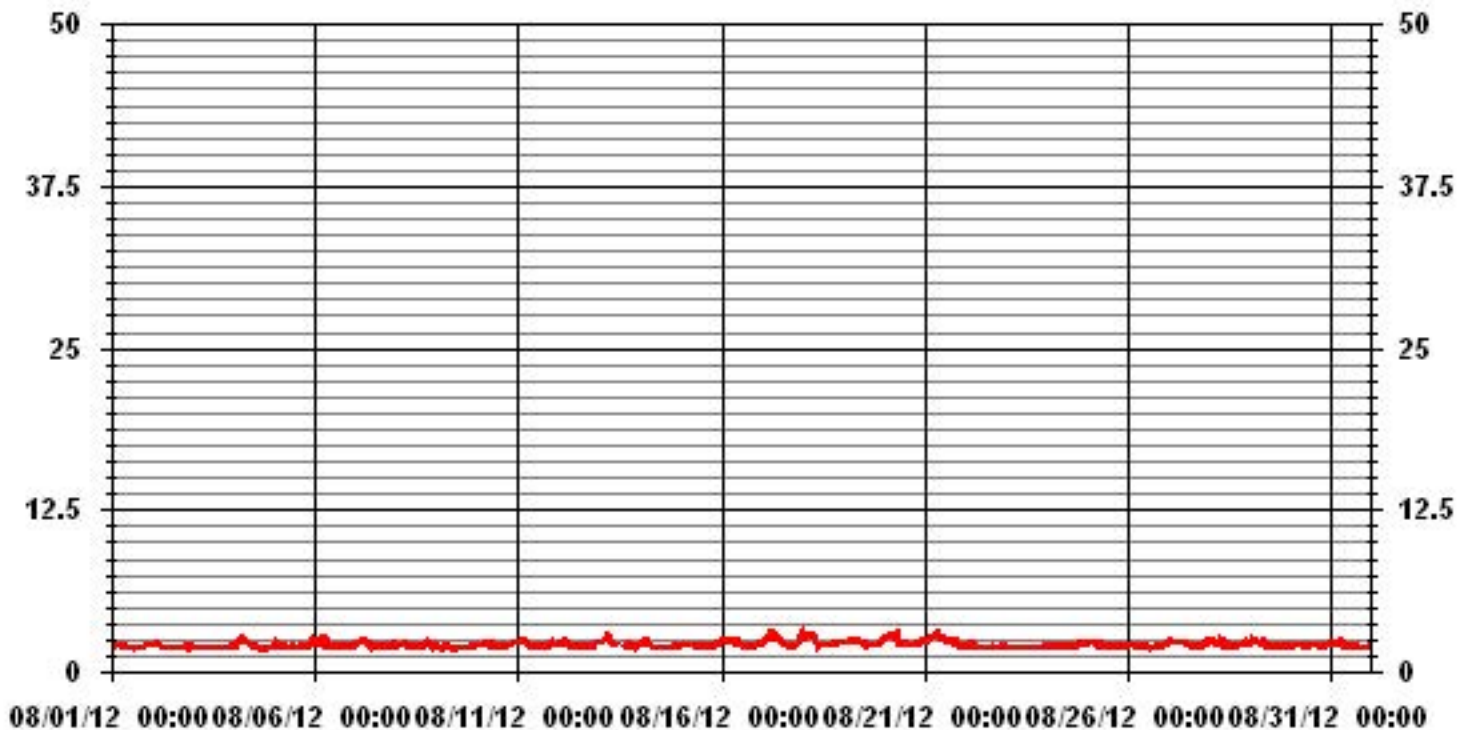
24 AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708
MAXIMUM 1-HR AVERAGE:	3.2 PPM @ HOUR(S) 5 ON DAY(S) 17
MAXIMUM 24-HR AVERAGE:	2.5 PPM ON DAY(S) 21
	VAR- VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.23
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	2.14 PPM

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST																									DAILY	24-HOUR	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00			
DAY																											
1	2.5	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2	2	2.1	2.2	2.5	2	2.9	2	1.9	1.9	1.9	1.9	2.1	2.1	IZS	2.2	2.9	2.1	24
2	2.2	2.2	2.3	2.5	2.4	2.2	1.9	2	1.9	1.9	2	1.9	1.9	2.2	1.9	1.9	2	1.9	1.9	2	2.5	IZS	2	2	2.5	2.1	24
3	2	2	1.9	1.9	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2.1	1.9	2	2	IZS	2	2.1	2.1	2.1	2.0	24
4	2	2.1	2.3	2.5	2.7	2.7	2.6	2.5	2.4	2.2	2.1	2.2	2.2	2	2	1.9	2	1.8	1.8	IZS	2.5	2.5	1.9	1.9	2.7	2.2	24
5	2.9	2.9	2.5	2.3	2.5	2.2	2.1	2.3	2	2	2.2	2.2	2.2	2	2	2.2	2.1	2.3	IZS	2.1	2.1	2.3	3.1	2.4	3.1	2.3	24
6	2.4	2.3	2.6	2.7	2.5	2.9	2.8	2.6	2.3	2.3	2.2	2.1	2	2	2	2	IZS	2	2	2	2	2.1	2.6	2.5	2.9	2.3	24
7	2.2	2.2	2.4	2.4	2.4	2.8	2.5	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.3	2.2	IZS	2	2.2	2.1	2.5	2.2	2.2	2.2	2.8	2.3	24
8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.5	2.2	2.3	2.2	2.4	2.2	IZS	2.4	2.6	2.7	2.7	2.5	2.4	2.6	2	2.7	2.3	24
9	1.9	1.9	2.2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.1	2.1	2.1	2.2	2.0	24
10	2.2	2.2	2.1	2.2	2.2	2.3	2.6	2.2	2.5	2.1	2	2.2	2.2	IZS	2.2	2.1	2	2	2.1	2.1	2.2	2.2	2.4	2.4	2.6	2.2	24
11	2.3	2.4	2.5	2.7	2.8	2.7	3	2.3	2.2	2.3	2.2	2.2	IZS	2.3	2.2	2.1	2.1	2.2	2.4	3.7	2.4	2.1	2.2	2.2	3.7	2.4	24
12	2.2	2.2	3	3.1	3	2.6	2.2	2.1	2.1	2.2	2.1	IZS	2.1	2.2	2.1	2.2	2	2.1	2.1	2	2.2	2.3	2.3	3.1	2.3	24	
13	2.4	2.4	2.7	2.9	3.2	3.1	3	2.4	2.3	2.3	IZS	2.5	C	C	C	2.2	2.3	2.4	2.3	2	2	2.2	3.2	2.5	2.5	24	
14	2.2	2.2	2.5	3.7	2.8	2.7	2.2	2.4	2	IZS	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.1	3.7	2.2	24	
15	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2	2	2.1	2.2	2.2	2.3	2.4	2.4	2.1	24
16	2.4	2.5	2.5	2.5	2.4	2.5	2.5	IZS	2.4	2.5	2.2	2.1	2.1	2.1	2	2	2	2	2.1	2.1	2.2	2.3	2.2	2.5	2.2	2.4	24
17	2.3	2.5	2.4	2.6	3.1	3.3	IZS	3.2	2.6	3	2.8	2.8	2.5	2.2	2.5	2.6	2.2	2.2	2.1	2.1	2.2	2.2	2.9	3	3.3	2.6	24
18	3.2	2.9	2.9	3	3	IZS	3.2	2.8	2.6	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.6	2.3	3.2	2.5	24
19	2.3	2.4	2.5	2.8	IZS	2.6	P	2.5	2.4	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.3	2.4	2.5	2.8	2.3	23
20	2.6	2.7	2.8	IZS	2.9	3	3.4	3.7	3	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.4	2.3	2.5	2.7	3.7	2.5	24
21	2.7	2.7	IZS	3	2.8	3.1	3.2	3.2	3	2.8	2.7	3	3	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.1	2.1	2	2.1	3.2	2.6	24
22	2.2	IZS	2.2	2.5	3.1	2	1.9	1.9	1.9	1.9	2	2	2.1	2	1.9	1.9	2.4	2.1	2	2	2	2.4	2.3	3.1	2.1	24	
23	IZS	1.9	2.2	2.2	2	2	2	2	2	2.1	2	1.9	2	1.9	2	1.9	2	2.1	2.3	1.9	2.5	2.3	1.9	IZS	2.5	2.0	24
24	2	2	2	2.1	2	2	2	2	2	2.1	2.6	2.2	2.2	2.3	2.6	2.4	2.4	2	2.3	2.5	2.4	3.3	IZS	2.4	3.3	2.3	24
25	2.4	2.6	2.4	2.3	2.4	2.4	2.2	2.9	2.7	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.2	2.3	2.4	2.3	2.2	IZS	2.3	2.3	2.9	2.3	24
26	2.2	2.2	2.9	2.3	2.4	2.1	2	2.1	2.1	2	2.2	2.1	2	2	2	1.9	2	2	2	2.1	IZS	2.2	2.1	2.4	2.9	2.1	24
27	2.8	2.8	2.6	2.4	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2	2	2	2.1	IZS	2.3	2.3	2.3	2.6	2.8	2.3	24
28	2.5	2.6	2.7	2.6	2.6	2.3	2.9	2.4	3.2	2.2	2	2.4	2.4	2	1.9	2	2.1	2.1	IZS	2.2	2.4	2.6	2.7	2.5	3.2	2.4	24
29	2.6	4.4	2.5	2.7	2.8	2.7	2.4	2.9	5	3.5	2.2	2.3	2	2	2	2	IZS	2	2	2	2	2	2	5	2.5	24	
30	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.3	2.3	2.3	2.3	2.2	IZS	2	2	2	2.3	2.1	2.2	2.3	2.3	2.2	24
31	2.2	2.3	2.3	2.3	2.7	2.7	2.7	2.6	2.2	2.2	2.2	2	2.2	2.3	2.3	IZS	2.4	2	1.9	1.9	1.9	2	2	2	2.7	2.2	24
HOURLY MAX	3	4	3	4	3	3	3	4	5	4	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3		
HOURLY AVG	2.3	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3			

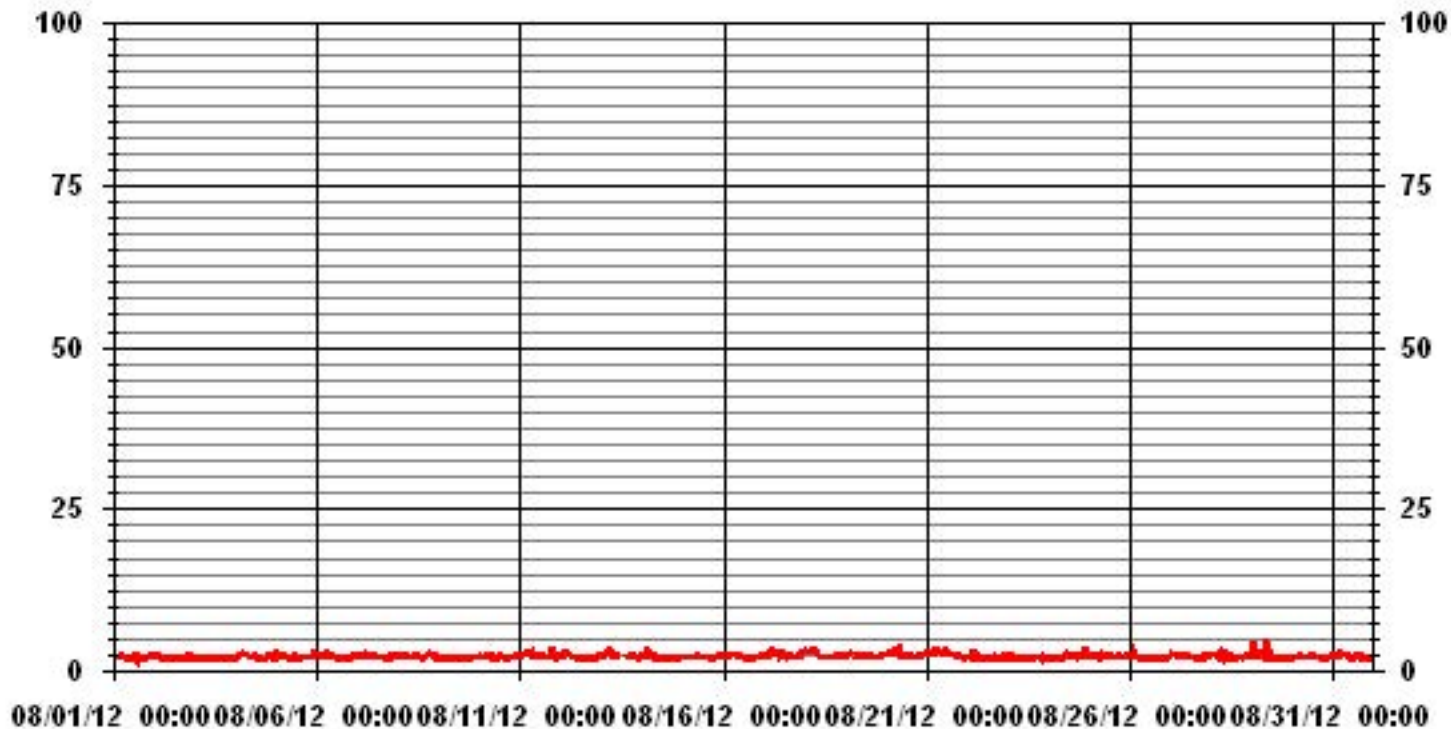
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM INSTANTANEOUS VALUE:	5.0	PPM	@ HOUR(S)	8	ON DAY(S)	29
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.34					

01 Hour Averages



LICA30
 THC / WDR Joint Frequency Distribution (Percent)

August 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	4.94	3.53	5.08	3.95	2.25	3.81	4.09	7.20	7.62	13.98	7.34	5.93	7.06	10.16	8.47	3.81	99.29
< 10.0	.00	.14	.00	.00	.00	.00	.00	.14	.00	.28	.00	.00	.00	.00	.00	.14	.70
< 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	4.94	3.67	5.08	3.95	2.25	3.81	4.09	7.34	7.62	14.26	7.34	5.93	7.06	10.16	8.47	3.95	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	35	25	36	28	16	27	29	51	54	99	52	42	50	72	60	27	703
< 10.0		1						1		2						1	5
< 50.0																	
>= 50.0																	
Totals	35	26	36	28	16	27	29	52	54	101	52	42	50	72	60	28	

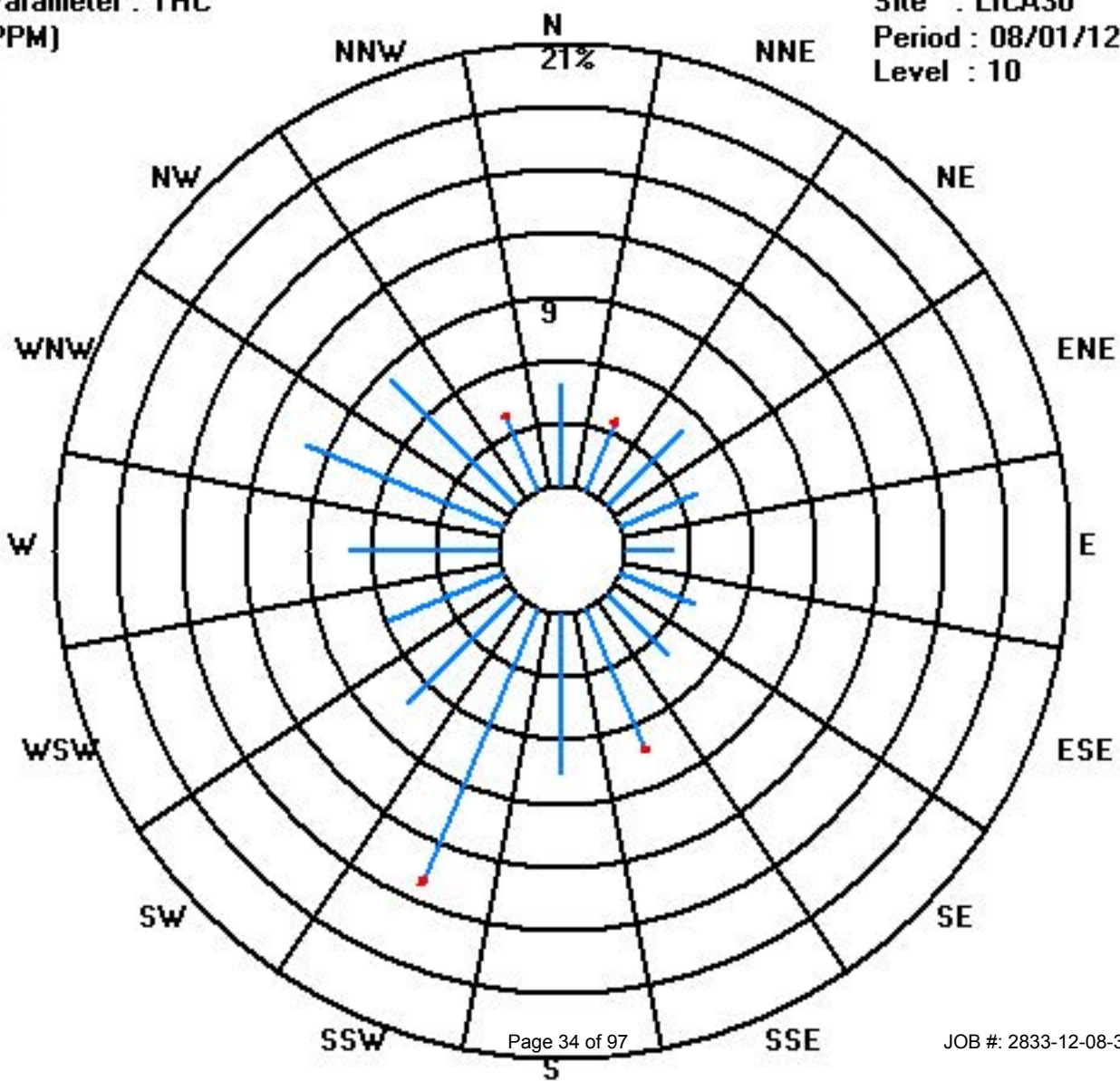
Calm : .00 %

Total # Operational Hours : 708

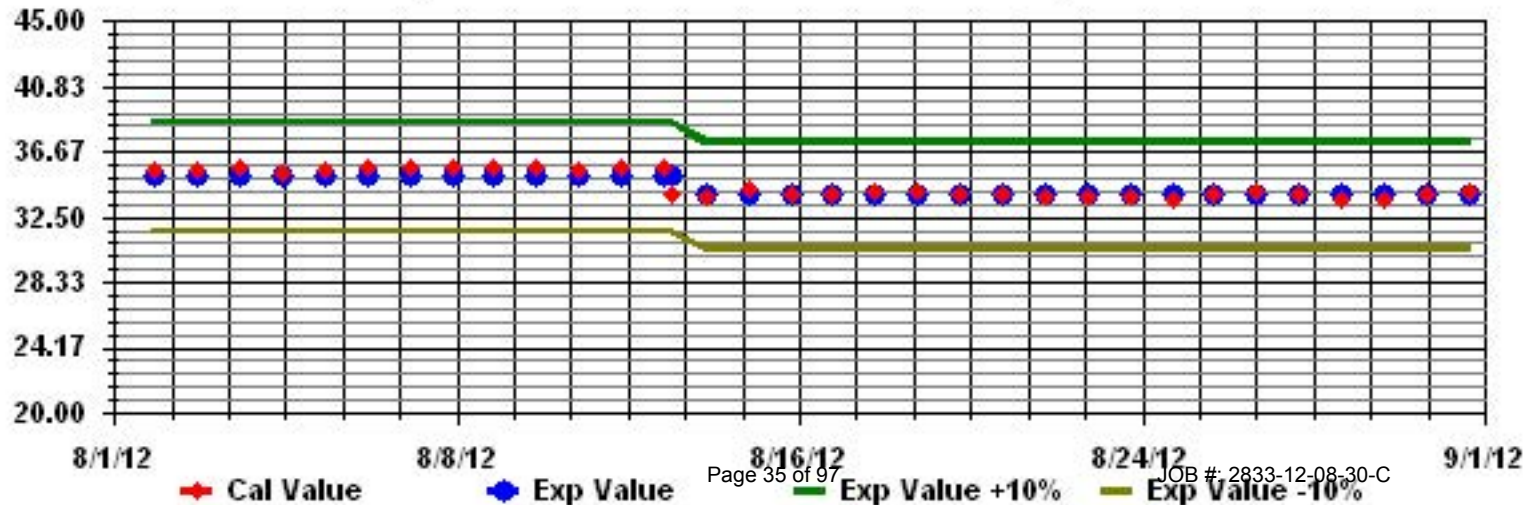
Class Limits (PPM)

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

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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			
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	1	0	0	1	2	3	2	2	1	0	1	1	1	1	0	0	0	0	0	0	1	IZS	1	4	1.0	24		
2	1	1	2	10	13	10	3	3	5	5	4	2	3	9	5	6	2	1	3	2	7	IZS	1	2	13	4.3	24		
3	3	1	1	1	2	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	IZS	1	1	1	3	0.7	24		
4	0	1	1	2	2	2	2	1	1	1	2	2	2	1	1	2	0	0	0	IZS	3	11	6	2	11	2.0	24		
5	6	8	12	5	4	4	4	4	4	1	2	3	3	1	0	1	2	1	4	IZS	4	4	2	4	2	12	3.5	24	
6	1	1	1	1	1	2	1	2	1	2	3	3	4	2	2	2	1	IZS	1	1	1	1	1	3	2	4	1.7	24	
7	1	1	1	1	1	2	7	5	3	5	4	5	4	2	3	1	IZS	1	1	1	1	0	0	0	7	2.2	24		
8	0	0	0	0	0	0	0	0	2	3	2	2	2	2	3	IZS	3	6	11	8	8	5	9	1	11	2.9	24		
9	2	1	2	2	1	3	3	3	2	1	1	1	1	1	IZS	1	0	0	0	0	0	0	0	1	0	3	1.1	24	
10	1	1	1	0	1	2	3	6	10	3	2	1	3	IZS	3	1	1	1	1	1	1	1	2	2	2	10	2.1	24	
11	2	3	2	2	2	5	6	6	4	3	4	2	2	IZS	0	1	0	1	5	9	17	3	3	1	1	17	3.6	24	
12	1	1	1	8	8	6	4	3	1	2	3	4	IZS	2	2	1	0	0	0	1	1	1	1	1	1	8	2.1	24	
13	1	1	1	1	1	1	1	2	1	C	C	C	C	C	C	C	2	4	2	2	6	2	0	0	6	1.6	24		
14	0	0	0	1	2	7	4	9	2	IZS	1	1	1	0	0	0	0	0	0	0	0	2	2	3	9	1.5	24		
15	3	3	3	2	1	2	2	2	IZS	1	4	2	2	2	2	1	0	0	0	0	1	1	2	2	2	4	1.7	24	
16	3	3	4	3	3	3	3	IZS	2	3	2	2	1	1	1	1	1	2	1	1	1	1	1	2	4	2.0	24		
17	1	1	1	2	5	9	IZS	6	7	4	4	4	4	1	1	1	5	1	6	2	0	0	0	0	9	2.7	24		
18	0	0	0	0	0	IZS	1	3	1	1	1	0	0	1	0	0	1	1	1	1	2	1	1	2	3	0.8	24		
19	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.2	24	
20	0	0	0	IZS	1	1	2	4	4	4	3	1	1	1	1	2	1	1	1	1	1	1	1	1	1	4	1.4	24	
21	0	1	IZS	0	0	0	2	8	6	5	7	6	6	1	2	1	1	0	0	0	0	1	0	0	8	2.0	24		
22	0	IZS	1	1	4	1	2	1	1	1	1	2	3	2	1	1	2	3	0	1	3	9	1	9	1.8	24			
23	IZS	0	1	11	3	1	2	2	3	4	2	4	1	2	3	0	1	1	4	2	7	4	1	IZS	11	2.7	24		
24	0	0	0	1	1	2	1	1	2	8	6	2	2	7	15	20	6	5	10	7	14	14	IZS	11	20	5.9	24		
25	14	11	7	6	7	7	7	7	9	10	9	7	6	8	8	3	4	4	6	11	6	IZS	8	5	14	7.4	24		
26	4	5	7	7	3	3	2	2	3	2	2	3	3	2	2	1	1	0	1	1	IZS	2	2	2	7	2.6	24		
27	1	1	0	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	2	IZS	0	0	0	0	2	0.9	24		
28	0	0	0	0	0	0	0	0	5	1	0	0	3	1	0	0	0	1	IZS	1	1	2	6	1	6	1.0	24		
29	2	2	1	2	2	12	13	6	4	9	6	4	0	1	1	0	0	IZS	0	0	0	0	0	1	13	2.9	24		
30	0	0	1	1	2	3	3	1	1	1	0	0	1	0	2	1	IZS	0	0	0	1	1	1	1	3	0.9	24		
31	2	1	1	1	1	1	1	1	1	0	1	0	0	1	3	IZS	1	0	0	0	0	0	0	0	3	0.7	24		
HOURLY MAX		14	11	12	11	13	12	13	9	10	10	9	7	6	9	15	20	6	6	11	17	14	14	9	11				
HOURLY AVG		1.8	1.7	1.8	2.4	2.4	3.1	2.8	3.1	2.9	3.0	2.6	2.1	1.9	1.8	2.2	1.9	1.1	1.6	2.0	2.2	2.4	2.2	2.2	1.6				

STATUS FLAG CODES

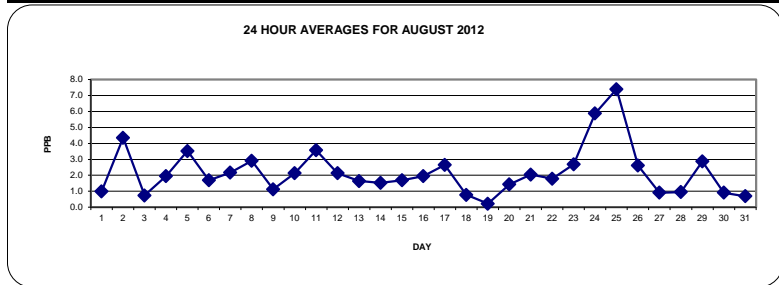
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

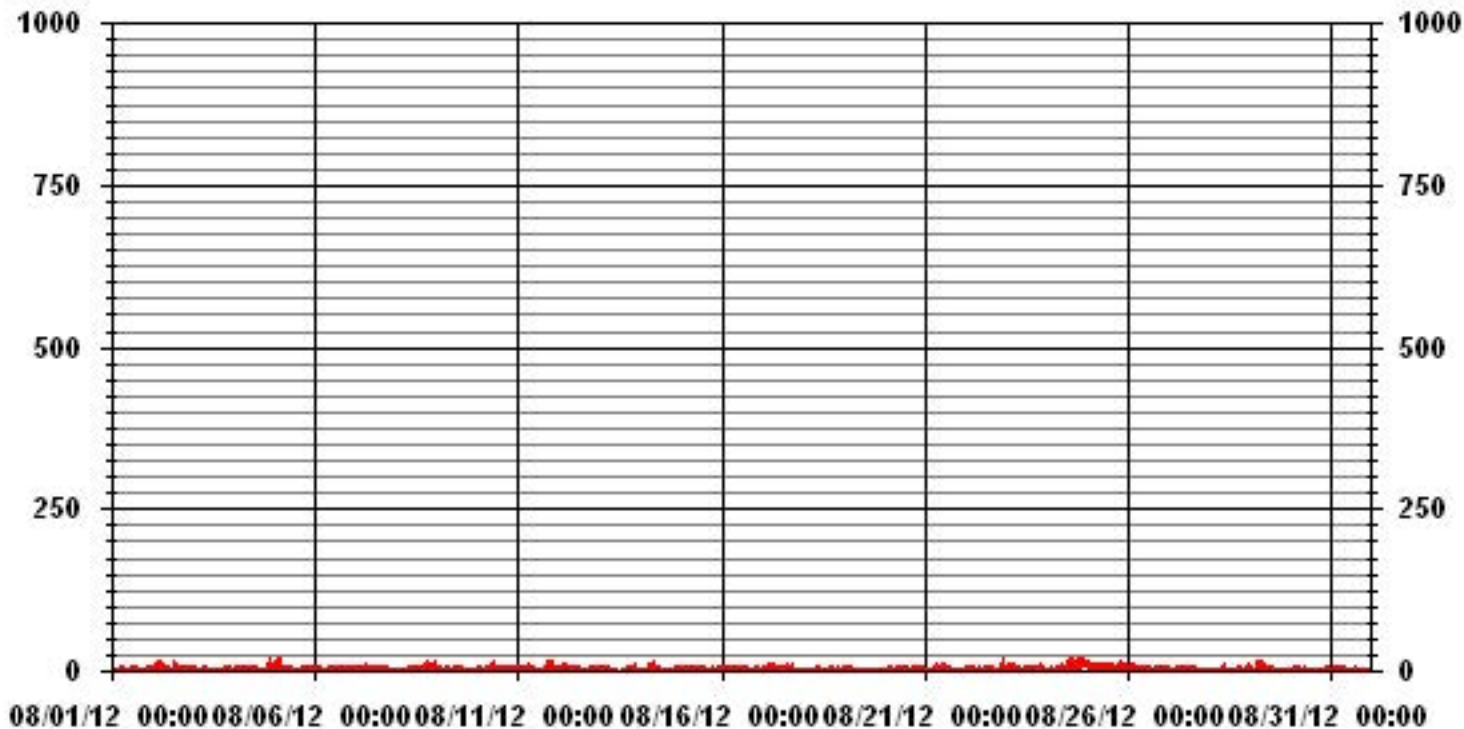
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	545					
MAXIMUM 1-HR AVERAGE:	20	PPB	@ HOUR(S)	15	ON DAY(S)	24
MAXIMUM 24-HR AVERAGE:	7.4	PPB			ON DAY(S)	25
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	2.71		MONTHLY AVERAGE:	2.20	PPB	



01 Hour Averages



— LICA30 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	7	3	0	1	1	4	4	5	4	1	1	5	5	1	11	1	0	0	0	0	1	3	IZS	1	11	2.6	24
2	1	1	7	17	17	17	10	8	9	7	8	4	3	12	10	13	10	2	6	9	9	IZS	2	2	17	8.0	24
3	3	2	2	2	2	2	2	1	2	1	1	0	0	0	0	2	2	0	0	0	IZS	1	1	1	3	1.1	24
4	1	1	1	2	2	2	2	2	1	2	14	2	2	1	1	2	1	0	0	IZS	10	16	10	6	16	3.5	24
5	11	11	13	14	7	6	5	7	4	4	6	6	2	1	1	9	7	9	IZS	6	6	2	6	3	14	6.3	24
6	2	2	1	2	2	3	2	3	3	4	5	5	4	3	2	2	1	IZS	1	1	1	2	5	3	5	2.6	24
7	1	1	1	1	1	3	17	7	3	6	4	6	7	4	7	4	IZS	1	2	1	1	1	0	0	17	3.4	24
8	0	0	0	0	0	0	0	0	4	7	2	4	4	4	4	IZS	6	7	13	13	11	9	13	2	13	4.5	24
9	2	2	3	2	1	7	5	3	2	1	1	1	1	1	IZS	1	0	0	1	1	1	1	1	1	7	1.7	24
10	1	1	1	1	1	4	9	12	18	8	4	5	5	IZS	3	1	1	1	1	2	2	2	2	3	18	3.8	24
11	3	3	3	2	3	9	11	10	8	7	7	4	IZS	1	7	0	1	16	13	23	11	4	1	1	23	6.4	24
12	1	1	4	13	12	8	5	6	2	7	5	IZS	5	7	4	3	2	1	2	3	3	2	2	2	13	4.3	24
13	3	2	2	2	2	2	3	3	3	C	C	C	C	C	C	C	2	6	5	5	12	3	1	1	12	3.4	24
14	1	1	1	1	8	14	9	16	7	IZS	2	2	2	1	1	2	1	2	2	2	2	3	4	5	16	3.9	24
15	5	4	5	4	4	3	4	4	IZS	5	9	3	5	5	3	1	1	0	1	1	2	3	2	3	9	3.3	24
16	4	4	4	3	3	5	4	IZS	3	4	4	3	2	2	4	4	3	3	3	3	3	4	2	4	5	3.4	24
17	2	2	2	3	9	10	IZS	10	8	7	5	6	3	2	6	10	6	31	7	2	1	1	1	1	31	5.9	24
18	1	1	1	1	1	IZS	1	4	2	1	1	1	1	1	1	1	1	1	1	2	3	1	2	2	4	1.4	24
19	2	2	2	1	IZS	2	P	2	1	1	1	2	1	1	1	1	1	1	1	2	2	2	2	2	2	1.5	23
20	2	2	2	IZS	1	3	3	8	7	6	3	1	1	1	3	2	2	1	1	1	1	1	1	1	8	2.3	24
21	1	1	IZS	1	1	3	10	10	10	9	9	10	11	4	4	3	14	2	1	1	1	1	1	1	14	4.7	24
22	1	IZS	1	2	14	2	5	4	2	2	3	3	7	3	2	2	4	6	2	2	3	10	13	7	14	4.3	24
23	IZS	1	4	18	6	2	3	4	9	10	5	8	3	8	7	1	3	1	9	5	18	13	1	IZS	18	6.3	24
24	0	1	1	2	2	4	1	2	4	17	12	6	5	27	25	27	8	8	13	9	19	18	IZS	18	27	10.0	24
25	18	20	13	10	14	10	11	12	11	12	12	16	11	12	13	8	7	8	10	15	15	IZS	9	11	20	12.1	24
26	9	8	8	10	6	5	3	2	5	4	6	5	7	2	5	1	1	1	1	1	IZS	3	2	2	10	4.2	24
27	2	2	1	1	1	1	1	1	2	2	1	1	2	1	1	2	1	1	3	IZS	1	2	1	1	3	1.4	24
28	1	1	1	1	1	0	10	2	10	5	1	5	9	4	1	1	1	3	IZS	1	4	7	13	1	13	3.6	24
29	3	2	2	2	6	19	24	21	19	17	15	8	1	7	1	1	0	IZS	0	0	0	0	1	1	24	6.5	24
30	1	1	1	1	2	13	5	2	1	1	0	0	2	1	9	2	IZS	0	0	1	2	1	1	2	13	2.1	24
31	2	2	1	1	1	2	5	1	1	1	1	0	0	3	6	IZS	8	0	0	0	1	1	0	0	8	1.6	24
HOURLY MAX	18	20	13	18	17	19	24	21	19	17	15	16	11	27	25	27	14	31	13	23	19	18	13	18			
HOURLY AVG	3.0	2.8	2.9	4.0	4.4	5.5	6.0	5.8	5.5	5.5	4.9	4.2	3.9	4.1	4.9	3.8	3.3	3.9	3.4	3.9	5.0	4.0	3.4	2.9			

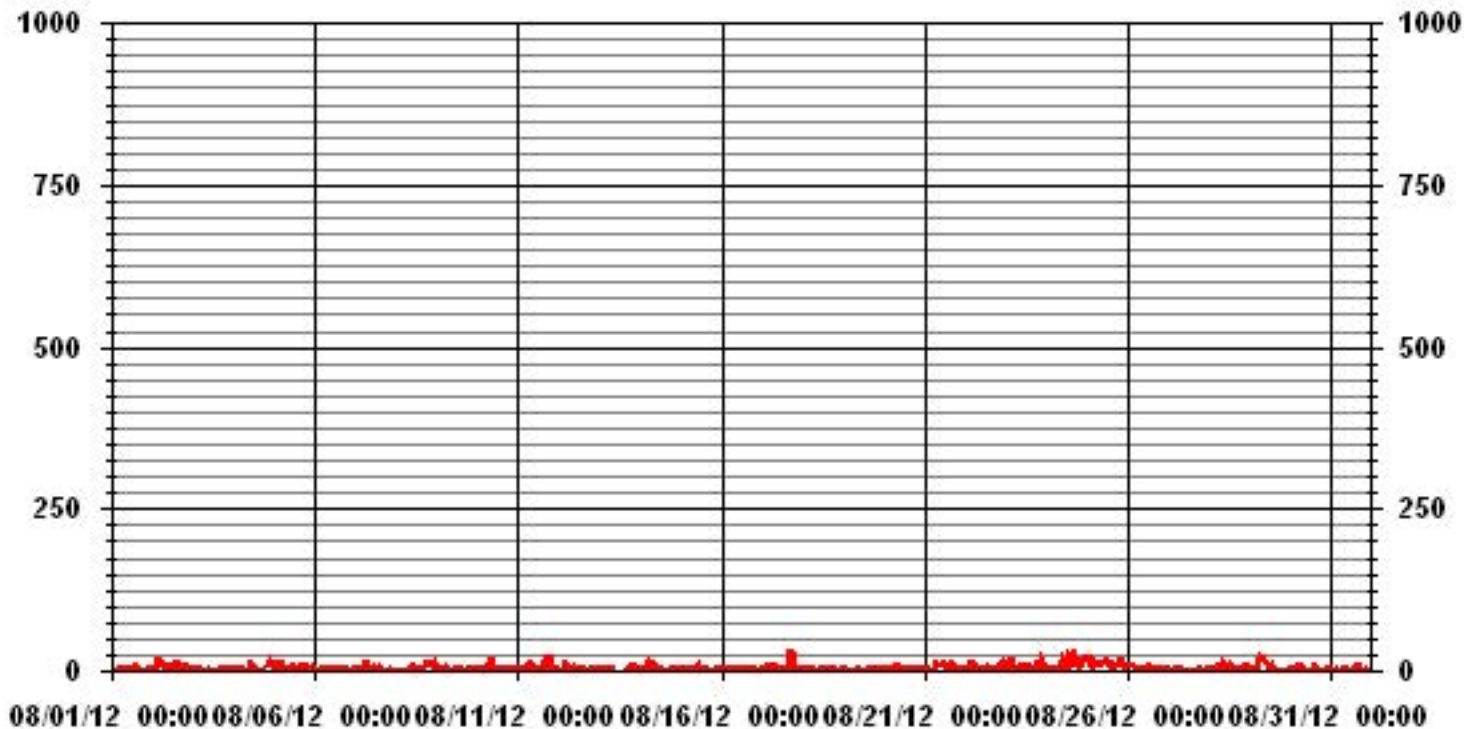
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	659					
MAXIMUM INSTANTANEOUS VALUE:	31	PPB	@ HOUR(S)	17	ON DAY(S)	17
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	4.64					

01 Hour Averages



— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

August 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4.95	3.68	5.09	3.96	2.26	3.82	4.10	7.08	7.64	14.30	7.36	5.94	7.08	10.19	8.49	3.96	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.95	3.68	5.09	3.96	2.26	3.82	4.10	7.08	7.64	14.30	7.36	5.94	7.08	10.19	8.49	3.96	

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	35	26	36	28	16	27	29	50	54	101	52	42	50	72	60	28	706
< 110																	
< 210																	
>= 210																	
Totals	35	26	36	28	16	27	29	50	54	101	52	42	50	72	60	28	

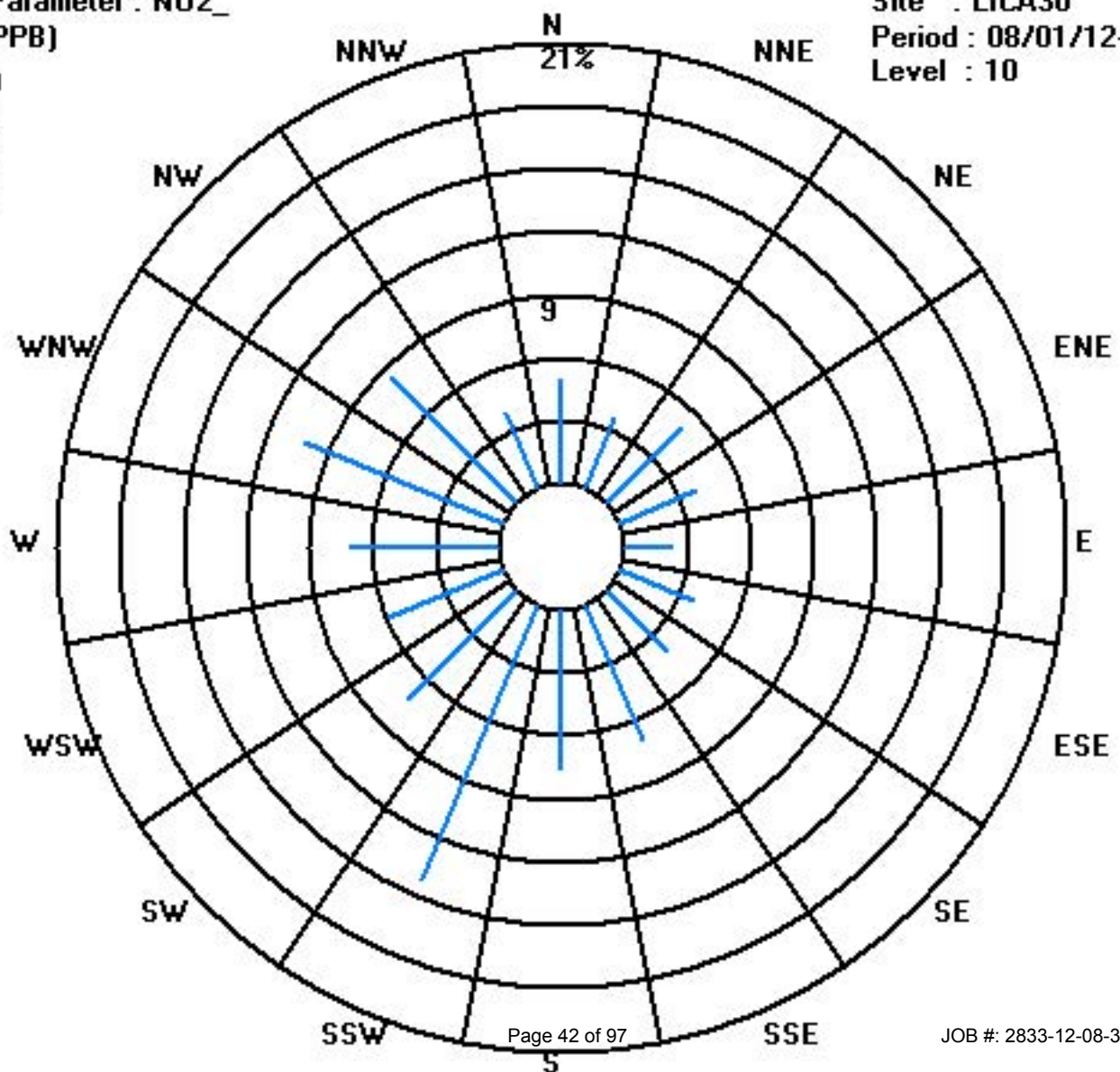
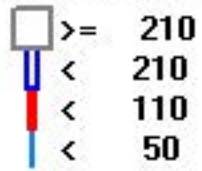
Calm : .00 %

Total # Operational Hours : 706

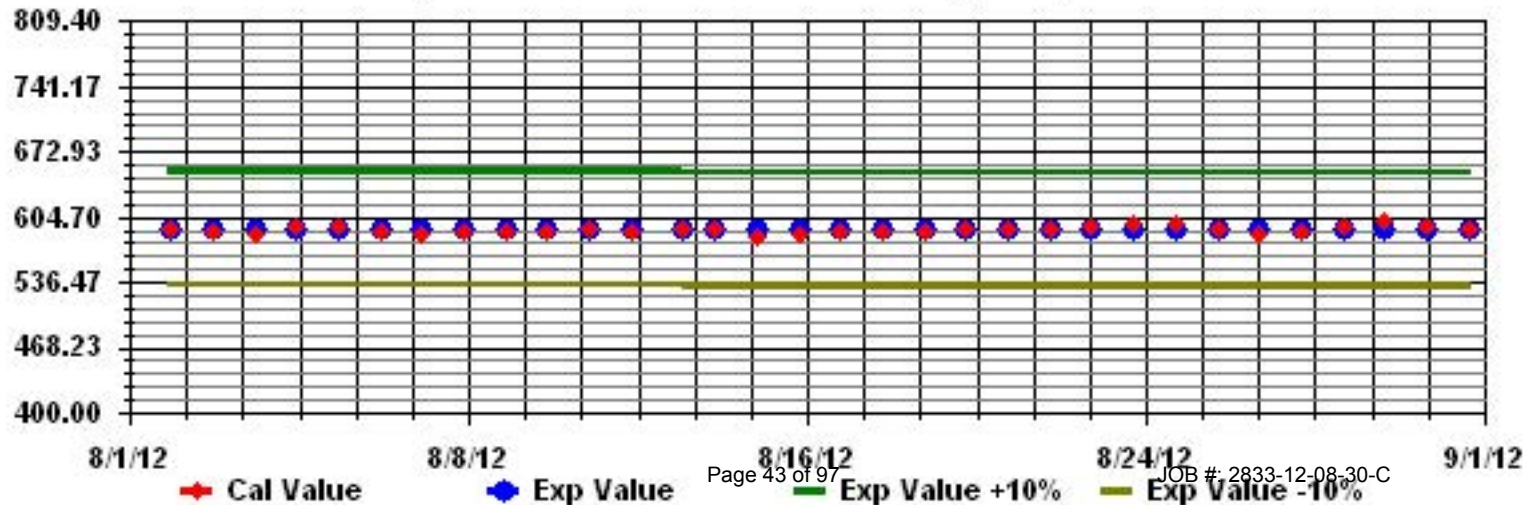
Class Limits (PPB)

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

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

AUGUST 2012

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24
2	0	0	0	6	11	4	0	0	0	1	1	0	0	3	2	2	2	0	0	0	0	0	0	0	0	11	1.4	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
5	1	2	8	2	0	1	2	2	1	0	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	8	1.0	24
6	0	0	0	0	0	2	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
7	0	0	0	0	0	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.2	24
8	0	0	0	0	0	0	0	0	0	2	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.5	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	2	4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.5	24
11	0	0	0	0	0	1	1	3	1	1	2	1	0	0	1	0	0	2	2	6	0	0	0	0	0	6	0.9	24
12	0	0	0	4	3	2	1	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.9	24
13	0	0	0	0	0	0	1	0	1	C	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	1	0.1	24
14	0	0	0	0	0	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.3	24
15	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
16	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
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	3	0.3	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	2	0.2	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	2	0.2	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1.7	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	1	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	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	13	3.1	24
25	14	11	4	2	4	2	1	2	8	11	8	8	5	7	7	2	3	2	4	10	4	13	13	6	4	14	5.6	24
26	2	4	4	7	1	2	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7	1.1	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	1	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.3	24
29	0	0	0	0	0	1	5	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.4	24
30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0.1	24
31	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0.2	24
HOURLY MAX	14	11	8	7	11	4	5	9	8	11	8	8	5	7	12	12	3	2	4	10	13	13	6	9				
HOURLY AVG	0.6	0.6	0.5	0.8	0.7	0.7	1.0	1.3	1.1	0.9	0.8	0.6	0.4	0.7	1.0	0.7	0.3	0.3	0.4	0.7	0.7	0.5	0.2	0.4				

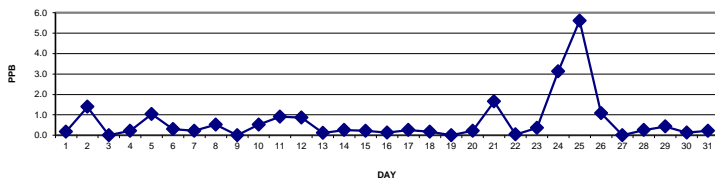
STATUS FLAG CODES

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

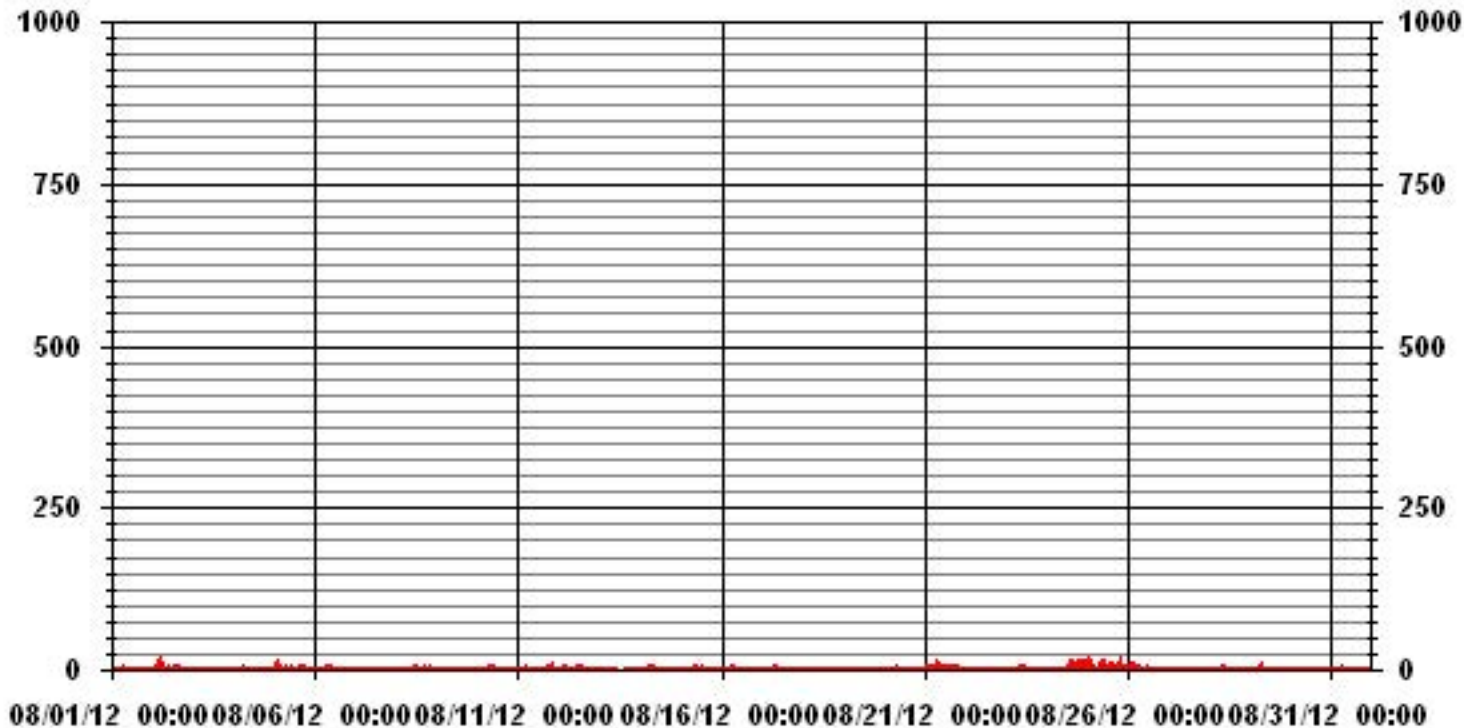
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	183
MAXIMUM 1-HR AVERAGE:	14 PPB @ HOUR(S) 0 ON DAY(S) 25
MAXIMUM 24-HR AVERAGE:	5.6 PPB ON DAY(S) 25
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	1.81
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0.67 PPB

24 HOUR AVERAGES FOR AUGUST 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	1	1	1	1	1	2	2	4	3	1	1	3	3	1	12	1	0	0	1	0	1	1	IZS	1	12	1.8	24	
2	1	0	1	20	24	12	1	2	2	2	2	1	1	7	5	6	10	1	2	0	2	IZS	0	1	24	4.5	24	
3	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	1	1	0	IZS	1	1	1	1	0.7	24	
4	0	1	0	1	1	1	3	2	1	1	24	1	1	0	1	1	1	0	1	IZS	2	8	1	1	24	2.3	24	
5	5	11	16	14	2	4	5	6	3	3	4	4	1	1	1	6	4	5	IZS	1	1	1	1	1	16	4.3	24	
6	0	0	1	1	1	9	3	2	3	2	2	2	1	1	1	1	1	IZS	1	1	1	1	1	1	9	1.6	24	
7	0	0	0	1	0	2	19	4	1	2	1	2	1	1	1	1	IZS	1	0	1	0	0	0	0	19	1.7	24	
8	0	0	0	0	0	0	1	0	3	6	2	2	2	3	2	IZS	3	3	4	3	2	1	2	1	6	1.7	24	
9	0	0	0	0	1	3	1	1	1	0	1	2	0	0	IZS	1	0	0	1	1	0	0	0	0	3	0.6	24	
10	0	1	0	1	0	1	4	8	17	3	2	1	1	IZS	1	1	1	0	1	0	0	1	1	1	17	2.0	24	
11	0	1	0	0	1	5	4	6	6	6	5	3	IZS	1	5	1	1	8	5	11	1	1	1	1	11	3.2	24	
12	1	0	1	14	9	3	3	6	2	6	5	IZS	3	6	4	2	1	1	1	1	1	1	1	1	14	3.2	24	
13	1	1	1	1	1	1	2	1	1	C	C	C	C	C	C	C	C	1	1	2	2	1	1	1	0	2	1.1	24
14	0	0	0	1	2	25	3	13	4	IZS	1	1	0	0	0	0	0	0	0	0	0	0	1	0	25	2.2	24	
15	1	0	1	0	1	1	1	2	IZS	4	6	2	4	4	2	1	1	1	1	1	1	1	1	1	6	1.7	24	
16	1	1	1	1	1	2	2	IZS	1	2	1	0	1	0	1	1	1	0	0	0	0	0	0	0	2	0.7	24	
17	0	0	0	0	0	2	IZS	8	3	3	1	1	0	0	1	2	0	27	0	0	0	0	0	0	27	2.1	24	
18	0	0	0	0	0	IZS	6	5	2	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	6	0.7	24	
19	0	1	1	0	IZS	1	P	2	0	0	1	1	1	0	1	0	0	1	1	1	0	0	1	1	2	0.6	23	
20	1	1	1	IZS	1	6	8	3	2	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	8	1.2	24	
21	0	0	IZS	1	1	4	16	15	10	3	4	4	3	2	2	1	12	1	1	1	1	1	1	1	16	3.7	24	
22	1	IZS	1	0	4	0	0	0	0	0	1	0	3	1	1	0	0	1	0	0	0	1	1	0	4	0.7	24	
23	IZS	0	1	4	0	0	2	3	8	8	3	3	1	5	4	0	1	0	1	1	8	5	0	IZS	8	2.6	24	
24	0	0	0	0	1	1	0	1	0	4	10	5	2	30	25	26	1	1	7	7	26	27	IZS	20	30	8.4	24	
25	25	32	10	7	15	4	4	7	14	17	15	29	16	16	20	9	9	11	9	18	17	IZS	10	15	32	14.3	24	
26	11	10	10	17	4	5	1	4	6	2	3	3	3	2	2	0	0	0	0	0	0	0	0	0	17	3.6	24	
27	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	IZS	0	0	0	0	1	0.5	24	
28	0	1	0	0	0	1	24	2	11	3	0	1	2	1	0	0	1	0	IZS	0	1	2	3	0	24	2.3	24	
29	0	0	0	1	1	3	20	3	3	5	9	3	0	14	1	1	0	IZS	1	0	0	0	0	0	20	2.8	24	
30	0	0	1	0	1	14	1	1	1	2	1	1	1	1	10	2	IZS	1	1	1	1	1	1	1	14	1.9	24	
31	1	1	1	1	1	2	14	2	1	1	1	0	1	3	4	IZS	5	0	0	0	0	0	0	1	14	1.7	24	
HOURLY MAX	25	32	16	20	24	25	24	15	17	17	24	29	16	30	25	26	12	27	9	18	26	27	10	20				
HOURLY AVG	1.7	2.1	1.7	2.9	2.5	3.9	5.2	3.8	3.7	3.1	3.6	2.7	1.8	3.5	3.8	2.3	1.9	2.2	1.5	1.8	2.3	1.9	1.0	1.7				

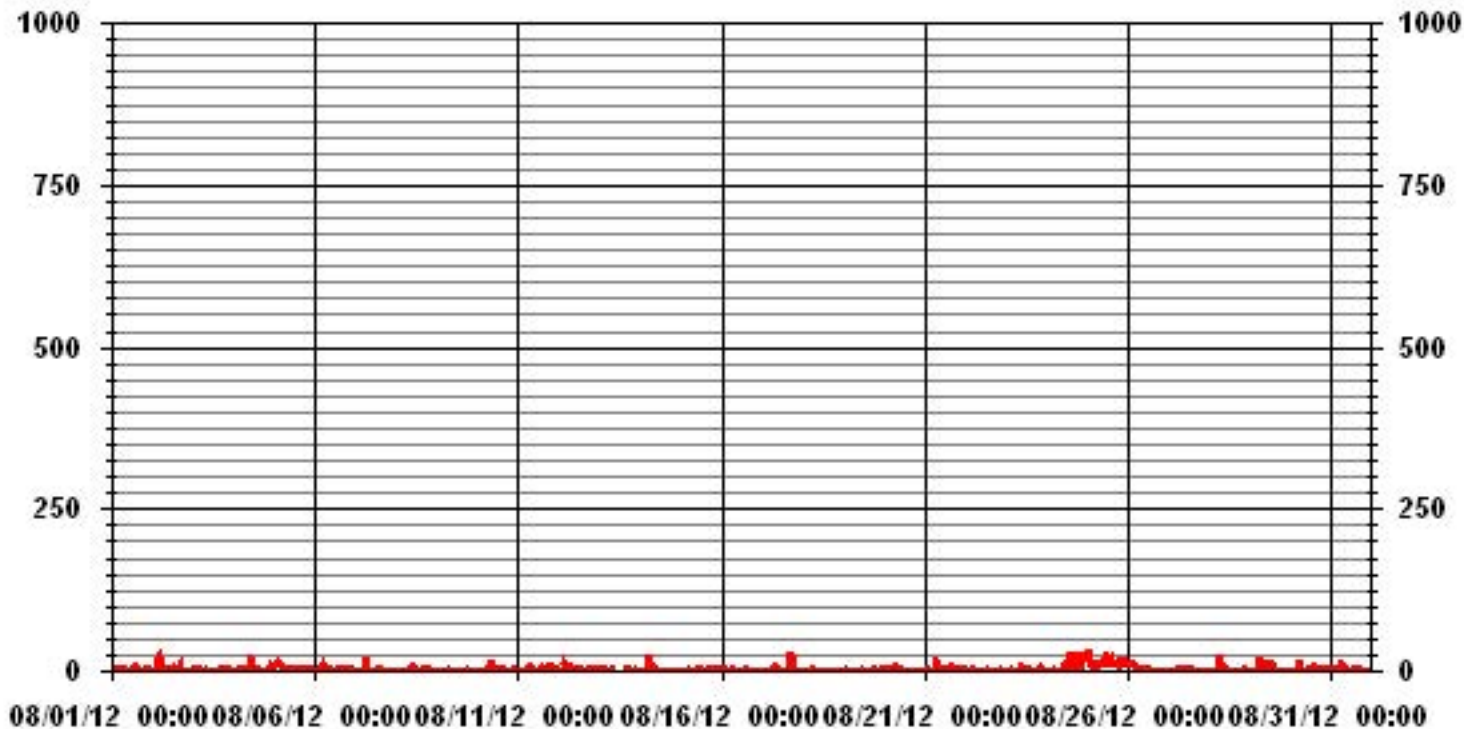
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	492					
MAXIMUM INSTANTANEOUS VALUE:	32	PPB	@ HOUR(S)	1	ON DAY(S)	25
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	4.81					

01 Hour Averages



LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

August 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	4.95	3.68	5.09	3.96	2.26	3.82	4.10	7.08	7.64	14.30	7.36	5.94	7.08	10.19	8.49	3.96	100.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	4.95	3.68	5.09	3.96	2.26	3.82	4.10	7.08	7.64	14.30	7.36	5.94	7.08	10.19	8.49	3.96		

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	35	26	36	28	16	27	29	50	54	101	52	42	50	72	60	28	706	
< 110																		
< 210																		
>= 210																		
Totals	35	26	36	28	16	27	29	50	54	101	52	42	50	72	60	28		

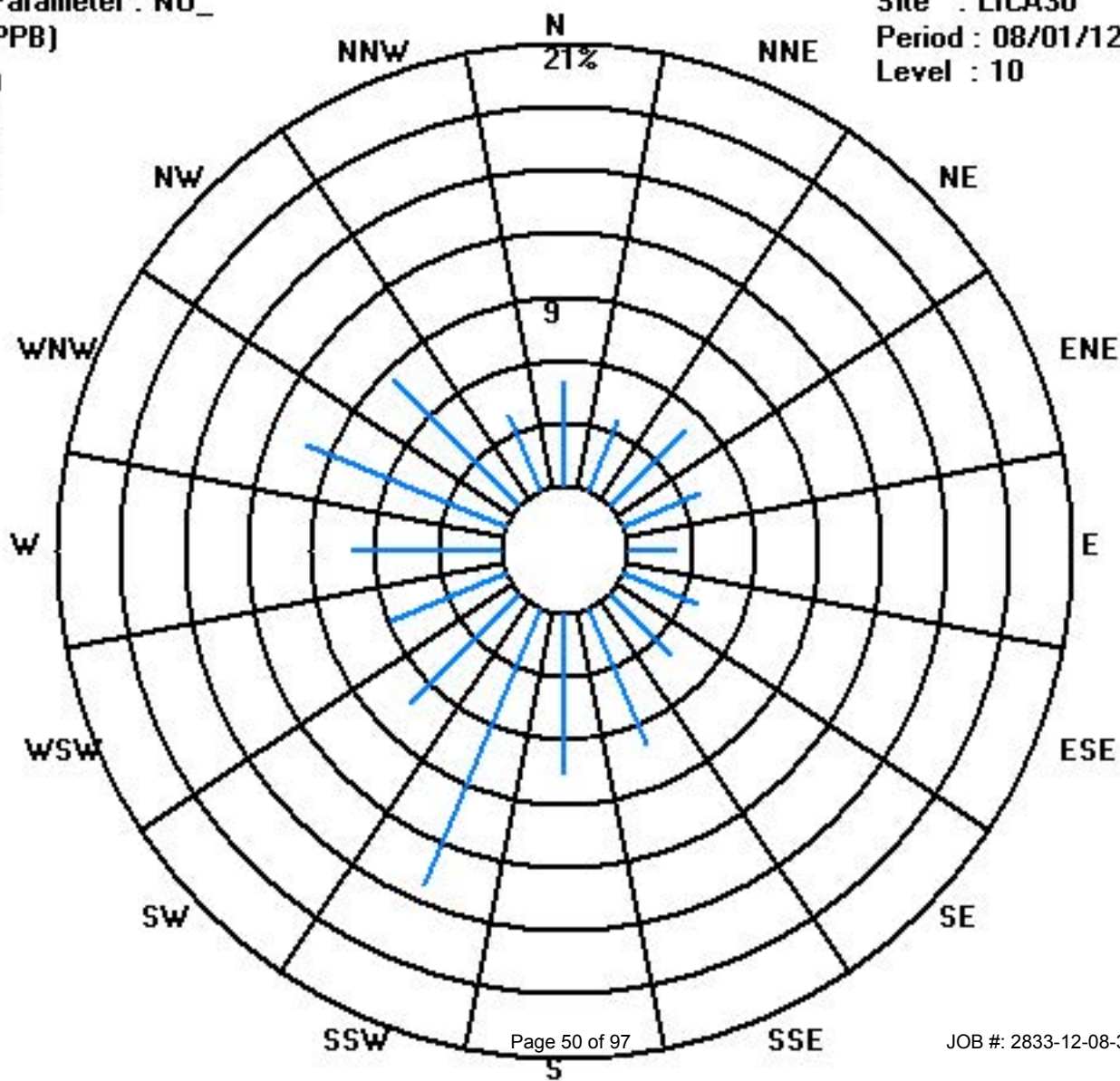
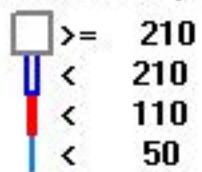
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)

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

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2012

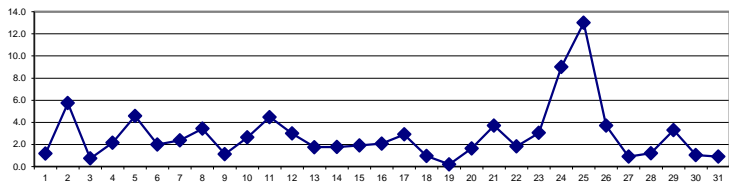
OXIDES OF NITROGEN hourly averages in ppb

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	4	1	0	0	1	2	4	3	3	1	0	1	1	1	2	1	0	0	0	0	0	1	IZS	1	4	1.2	24	
2	1	1	2	16	24	14	3	3	5	6	5	2	3	12	7	8	4	1	3	2	7	IZS	1	2	24	5.7	24	
3	3	1	1	1	2	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	IZS	1	1	1	3	0.7	24	
4	0	1	1	2	2	2	3	2	1	2	3	2	1	1	1	2	0	0	0	IZS	3	13	6	2	13	2.2	24	
5	7	10	20	7	4	5	6	6	2	2	4	4	1	0	1	3	2	5	IZS	4	4	2	4	2	20	4.6	24	
6	1	1	1	1	1	4	2	3	2	2	4	4	4	2	2	2	1	IZS	1	1	1	1	3	2	4	2.0	24	
7	1	1	1	1	1	2	10	6	3	6	4	5	4	2	3	1	IZS	1	1	1	1	0	0	0	10	2.4	24	
8	0	0	0	0	0	0	0	0	2	5	2	3	3	3	3	IZS	4	8	13	9	9	5	9	1	13	3.4	24	
9	2	1	2	2	1	3	3	3	2	1	1	1	1	1	IZS	1	0	0	0	0	0	0	1	0	3	1.1	24	
10	1	1	1	0	1	2	5	10	16	3	2	1	3	IZS	3	1	1	1	1	1	1	2	2	2	16	2.7	24	
11	2	3	2	2	2	6	7	9	5	4	6	3	IZS	0	2	0	1	7	11	23	3	3	1	1	23	4.5	24	
12	1	1	1	12	11	8	5	5	2	3	5	IZS	3	3	2	1	0	0	1	1	1	1	1	1	12	3.0	24	
13	1	1	1	1	1	1	2	2	2	C	C	C	C	C	C	C	2	4	2	2	6	2	0	0	6	1.8	24	
14	0	0	0	1	2	8	5	13	2	IZS	1	1	1	0	0	0	0	0	0	0	0	2	2	3	13	1.8	24	
15	3	3	3	2	1	1	2	3	IZS	2	5	2	3	3	2	1	0	0	0	1	1	2	2	2	5	1.9	24	
16	3	3	4	3	3	4	4	IZS	2	4	2	2	1	1	1	1	1	1	2	1	1	1	1	2	4	2.1	24	
17	1	1	1	2	5	9	IZS	9	8	5	4	4	1	1	1	5	1	7	2	0	0	0	0	0	9	2.9	24	
18	0	0	0	0	0	IZS	2	5	2	1	1	0	0	1	0	0	1	1	1	1	2	1	1	2	5	1.0	24	
19	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.2	24
20	0	0	0	IZS	1	2	4	5	5	4	3	1	1	1	1	2	1	1	1	1	1	1	1	1	5	1.7	24	
21	0	1	IZS	1	1	1	6	17	11	7	10	8	8	2	3	2	2	1	1	1	1	1	0	0	17	3.7	24	
22	0	IZS	1	1	4	1	2	1	1	1	1	2	4	2	1	1	2	3	0	0	1	3	9	1	9	1.8	24	
23	IZS	0	1	12	3	1	2	2	4	5	3	5	1	2	4	0	1	1	4	2	9	4	1	IZS	12	3.0	24	
24	0	0	0	1	1	2	1	1	2	9	8	3	2	12	27	32	6	5	12	9	27	27	IZS	20	32	9.0	24	
25	28	22	11	8	11	9	8	9	17	21	17	15	11	15	15	5	7	6	10	21	10	IZS	14	9	28	13.0	24	
26	6	9	11	14	4	5	3	3	4	2	2	4	4	2	2	1	1	0	1	1	IZS	2	2	2	14	3.7	24	
27	1	1	0	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	2	IZS	0	0	0	0	2	0.9	24	
28	0	0	0	0	0	0	1	0	9	2	0	0	3	1	0	0	0	1	IZS	1	1	2	6	1	9	1.2	24	
29	2	2	1	2	2	13	18	7	4	10	8	4	0	1	1	0	0	IZS	0	0	0	0	0	1	18	3.3	24	
30	0	0	1	1	2	4	3	1	1	1	0	0	1	0	4	1	IZS	0	0	0	1	1	1	1	4	1.0	24	
31	2	1	1	1	1	1	2	2	1	0	1	0	0	1	5	IZS	2	0	0	0	0	0	0	0	5	0.9	24	
HOURLY MAX	28	22	20	16	24	14	18	17	17	21	17	15	11	15	27	32	7	8	13	23	27	27	14	20				
HOURLY AVG	2.4	2.2	2.3	3.2	3.1	3.7	3.8	4.4	4.0	3.9	3.5	2.7	2.3	2.4	3.2	2.6	1.4	1.9	2.4	2.9	3.1	2.7	2.4	2.0				

STATUS FLAG CODES

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

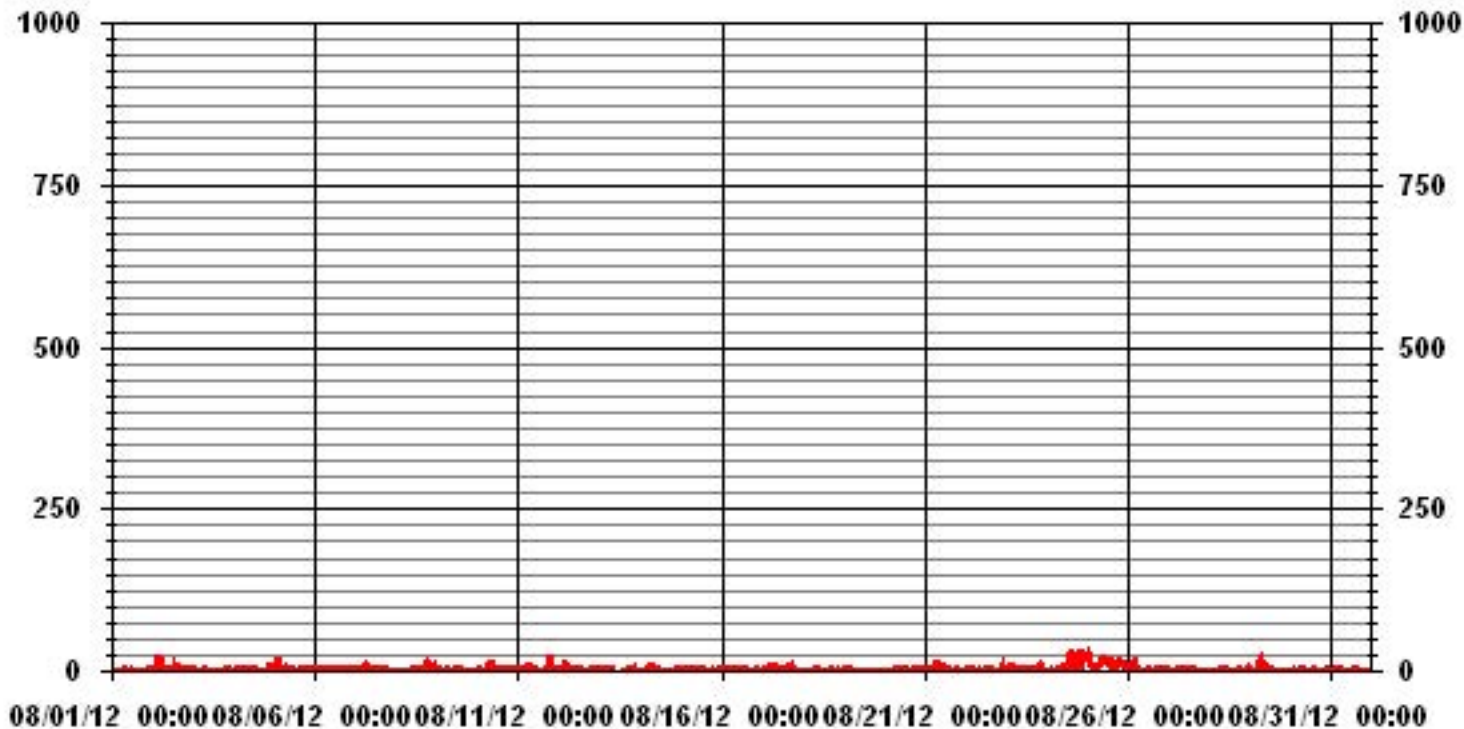
24 HOUR AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	554					
MAXIMUM 1-HR AVERAGE:	32	PPB	@ HOUR(S)	15	ON DAY(S)	24
MAXIMUM 24-HR AVERAGE:	13.0	PPB			ON DAY(S)	25
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	4.25		MONTHLY AVERAGE:	2.86	PPB	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	8	3	1	1	2	5	7	9	7	1	2	9	9	2	23	2	1	1	1	1	1	4	IZS	2	23	4.4	24	
2	2	1	8	37	41	29	12	10	11	10	10	5	4	19	14	19	20	2	9	9	11	IZS	2	3	41	12.5	24	
3	4	2	3	2	2	3	2	3	1	1	1	1	1	1	0	3	4	1	1	IZS	2	2	1	4	1.8	24		
4	1	1	2	2	3	2	5	3	3	3	35	2	2	2	3	3	1	1	1	IZS	12	25	11	7	35	5.7	24	
5	17	23	30	28	9	10	11	13	7	8	11	10	3	1	1	16	12	13	IZS	7	7	3	7	3	30	10.9	24	
6	2	2	1	2	2	13	5	5	6	6	7	7	5	4	3	3	2	IZS	2	1	2	3	5	4	13	4.0	24	
7	2	2	2	1	1	5	33	11	4	8	5	8	8	5	8	4	IZS	2	2	2	2	1	1	1	33	5.1	24	
8	0	1	1	1	1	1	1	1	7	13	5	6	6	7	6	IZS	9	11	17	16	14	11	15	3	17	6.7	24	
9	3	2	4	2	2	10	7	4	3	2	2	3	2	2	IZS	2	1	1	1	1	1	1	1	1	10	2.5	24	
10	2	2	1	1	2	6	13	21	35	11	6	6	6	IZS	5	2	3	1	2	2	2	2	2	4	35	6.0	24	
11	3	3	3	3	3	13	14	17	14	14	13	8	IZS	3	13	1	2	25	19	34	12	5	1	1	34	9.7	24	
12	1	1	5	28	21	11	8	12	4	13	10	IZS	7	12	7	4	1	1	3	2	3	1	1	2	28	6.9	24	
13	2	2	2	2	1	2	3	2	3	C	C	C	C	C	C	C	C	3	7	8	8	12	4	1	2	12	3.8	24
14	1	1	1	1	10	38	10	29	11	IZS	2	2	1	1	1	1	0	1	1	1	1	3	3	4	38	5.4	24	
15	4	4	4	3	4	3	4	4	IZS	10	15	6	10	9	5	2	1	1	1	2	2	3	2	3	15	4.4	24	
16	4	4	5	3	3	7	6	IZS	4	6	4	4	3	2	5	5	4	2	3	2	2	5	2	3	7	3.8	24	
17	2	2	2	3	9	11	IZS	18	10	10	6	6	3	2	7	13	6	56	7	1	1	0	0	0	56	7.6	24	
18	0	0	0	1	0	IZS	7	10	4	1	2	1	1	1	1	2	2	1	1	2	3	2	3	2	10	2.0	24	
19	2	2	2	2	IZS	1	P	3	1	1	1	1	1	0	1	0	0	0	1	1	1	1	1	2	3	1.1	23	
20	1	1	1	1	IZS	2	9	12	11	10	8	4	2	2	5	3	2	1	1	2	1	2	2	2	12	3.7	24	
21	1	1	IZS	1	1	5	25	25	19	11	12	13	14	5	5	4	25	2	2	2	2	1	1	1	25	7.7	24	
22	1	IZS	1	1	18	2	5	3	2	2	3	3	9	3	2	2	4	7	1	1	2	11	13	7	18	4.5	24	
23	IZS	1	5	23	6	3	6	7	18	18	8	12	4	13	11	2	4	2	10	7	27	19	1	IZS	27	9.4	24	
24	1	1	1	2	2	5	2	4	5	22	23	11	7	56	50	52	9	10	20	16	44	45	IZS	38	56	18.5	24	
25	43	51	24	17	28	15	14	19	26	29	28	45	28	29	33	17	16	19	20	33	32	IZS	20	26	51	26.6	24	
26	20	18	19	28	11	11	5	7	12	6	10	8	11	4	8	1	1	1	2	2	IZS	3	3	3	28	8.4	24	
27	2	2	1	1	1	2	2	2	3	3	2	2	3	2	2	2	2	2	4	IZS	1	1	0	0	4	1.8	24	
28	0	0	0	0	0	0	33	3	20	7	0	6	11	4	1	1	3	IZS	2	6	9	17	2	33	5.5	24		
29	3	3	2	3	7	21	44	25	23	22	24	12	1	20	2	3	1	IZS	1	1	1	1	1	1	44	9.7	24	
30	1	1	2	1	2	24	6	2	3	3	1	1	3	1	19	3	IZS	1	1	1	2	1	1	2	24	3.6	24	
31	3	2	2	2	2	4	15	2	2	3	3	1	1	6	11	IZS	14	1	1	1	1	1	1	1	15	3.5	24	
HOURLY MAX	43	51	30	37	41	38	44	29	35	29	35	45	28	56	50	52	25	56	20	34	44	45	20	38				
HOURLY AVG	4.5	4.6	4.5	6.7	6.5	9.0	10.9	9.5	9.3	8.7	8.5	6.9	5.7	7.5	8.7	6.0	5.2	6.2	4.9	5.6	7.2	5.9	4.1	4.4				

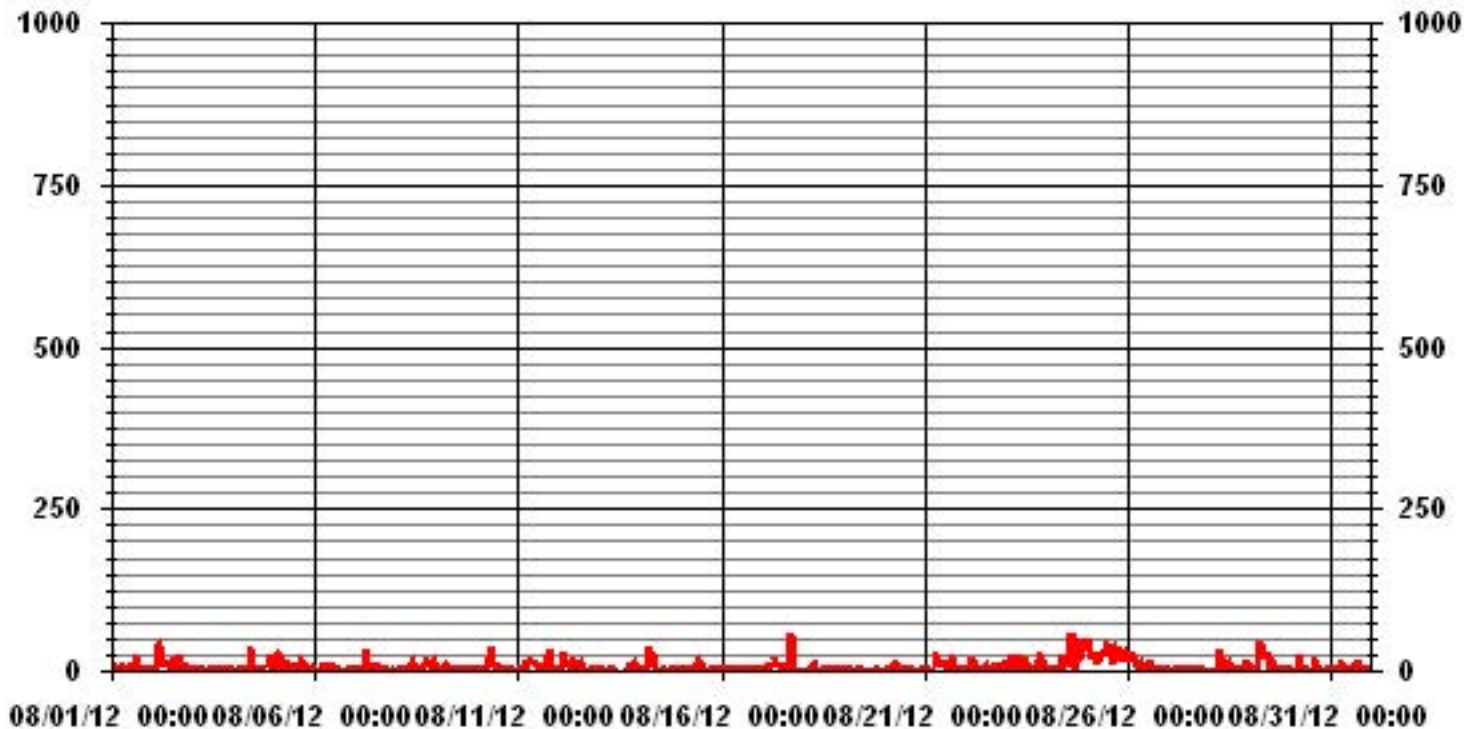
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	682					
MAXIMUM INSTANTANEOUS VALUE:	56	PPB	@ HOUR(S)	17	ON DAY(S)	17
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	8.96					

01 Hour Averages



LICA30
 NOX_ / WDR Joint Frequency Distribution (Percent)

August 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4.95	3.68	5.09	3.96	2.26	3.82	4.10	7.08	7.64	14.30	7.36	5.94	7.08	10.19	8.49	3.96	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.95	3.68	5.09	3.96	2.26	3.82	4.10	7.08	7.64	14.30	7.36	5.94	7.08	10.19	8.49	3.96	

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	35	26	36	28	16	27	29	50	54	101	52	42	50	72	60	28	706
< 110																	
< 210																	
>= 210																	
Totals	35	26	36	28	16	27	29	50	54	101	52	42	50	72	60	28	

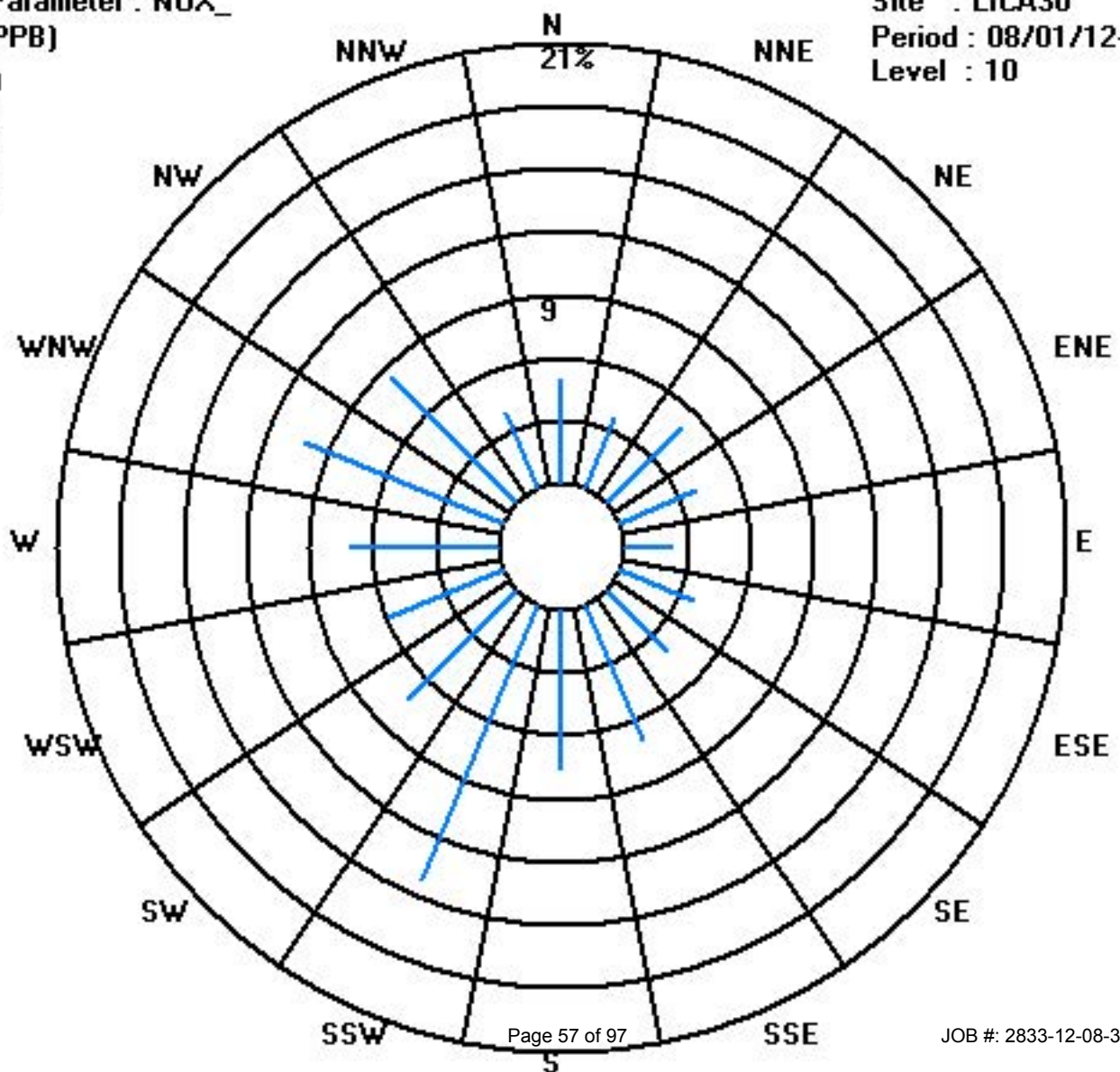
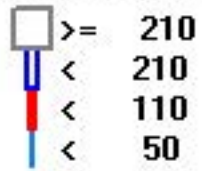
Calm : .00 %

Total # Operational Hours : 706

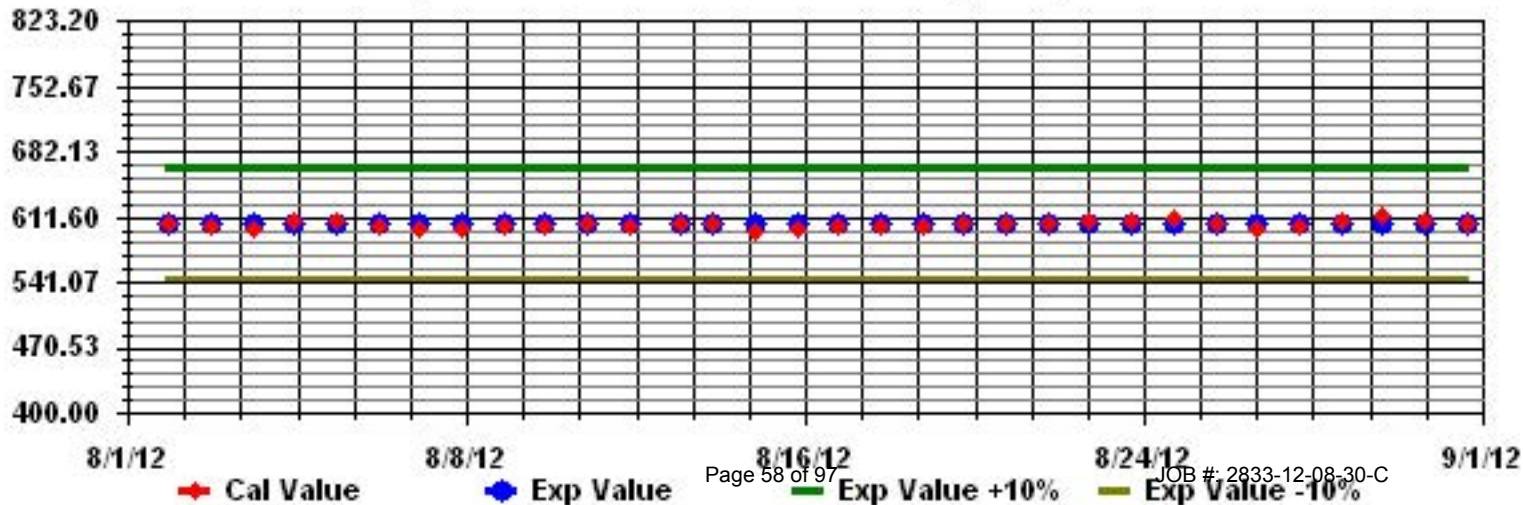
Class Limits (PPB)

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

Level : 10



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



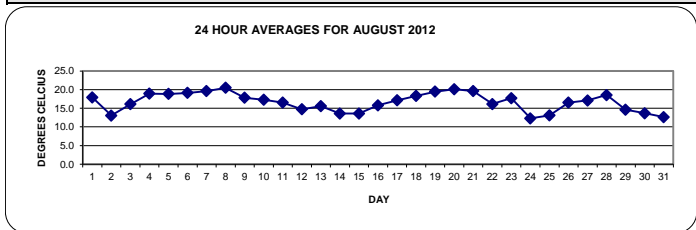
Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
AUGUST 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	11	10.6	10	9.6	8.8	10.3	13.8	18.1	21.2	22.8	23.7	24.9	25.1	25.4	25.6	25	24.7	23.7	22.8	18.4	15.2	14.1	12.2	11.9	25.6	17.9	24
2	2	11.5	11.4	11.1	13.7	14.1	13.8	12.9	12.3	12.6	13.1	13.7	12.9	13	13.4	13.6	13.5	14.4	14.1	13.9	13.4	13.2	13.2	12.4	12.2	14.4	13.1	24
3	3	12.2	11.8	11.9	12.1	12.4	12.7	13.4	14.6	15.8	17.2	19.7	19.8	18.9	20.7	20.4	20	19.6	20.5	18.1	16.5	15.2	15	14.9	13.6	20.7	16.1	24
4	4	12.6	12.3	12	11.9	11.7	12.1	13.4	15.7	17.7	19.5	21	22.1	23.9	25.2	25.9	25.9	27	26.5	24.9	22	19.3	18.5	16.9	16.9	27.0	19.0	24
5	5	16.8	16.2	16.2	15.2	12.3	12.1	14	18.3	20.5	22	23.2	24	24.4	25.2	25.5	25.5	25	24.5	23.6	19.2	14.6	12.4	11.8	10.4	25.5	18.9	24
6	6	9.7	10.1	11.1	10.2	10.1	11.2	13.8	17.6	21.4	23.7	25.2	26	26.2	26.7	26.5	26.8	26.6	26	24	20	16.8	15.6	17.5	15.9	26.8	19.1	24
7	7	16.4	15.9	14.2	12.9	12.3	12.8	15.2	19.8	21.8	23.8	24.8	26.6	27	28.2	23.9	21.8	22	24.4	23.3	19.9	17.4	16	15.2	14.4	28.2	19.6	24
8	8	13.7	13.4	13.3	12.9	12.3	11.9	13.9	18.8	22.4	23.6	24.5	25.6	25.8	26.6	27.2	26.5	26	25.4	23.7	22.3	21.5	20.9	20.6	18.9	27.2	20.5	24
9	9	16.8	16.1	14.9	14.7	15	14.8	15.2	16.4	18.1	19.4	19.7	19	18.9	21.2	22.8	24.6	24.4	23.4	21.2	17.6	15.9	12.6	12.5	13	24.6	17.8	24
10	10	10.9	11.9	10.1	9.7	8.9	9.6	12.1	17	20.7	22.1	22.9	23.2	20.5	21.7	23	24.6	23.6	22.2	21	18.3	16.6	15.5	14.6	14.4	24.6	17.3	24
11	11	14.7	14.2	13.9	12.8	13	13.6	14.3	16.7	19.2	20.4	21.1	21.7	21.6	21.4	21.4	21.8	21.3	20.2	18.5	16.1	11.7	9.6	8.2	9.8	21.8	16.6	24
12	12	9.3	8.7	7.5	8.6	8.4	8.8	10.9	13.9	16.4	18.1	19.5	20.6	21.2	22.2	22.2	21.8	20.9	20.2	19.5	14.8	12.9	10.4	8.8	7.6	22.2	14.7	24
13	13	7.7	8	6.5	6.9	7.6	9.2	11.3	15.9	18.8	20.9	21.8	22.4	23	22.4	22.5	20.5	18.4	17.7	16.9	16.3	15.3	15.5	15.1	13.4	23.0	15.6	24
14	14	12.2	11.7	11.9	12.6	12.8	13	13.2	14.3	14.8	15.2	17.2	17.1	17.5	16.6	14.6	14.3	14.3	13.3	12.6	12.4	12	11.4	10.6	10.7	17.5	13.6	24
15	15	10.7	10.5	10.2	10	9.7	9.2	9	11.4	13.3	14.5	15.6	16.7	17.8	18.8	19.5	19.5	19.4	19	17	13.7	11.2	10.3	9.9	9.1	19.5	13.6	24
16	16	8.6	8.5	8.3	8	7.9	7.8	9.1	11.7	14.4	17.3	19.8	21.6	22.8	23.3	23.4	24.1	23.9	23.1	21	17.4	15.1	14.6	14.1	13.5	24.1	15.8	24
17	17	11.8	11.7	12.5	11.6	10.3	11.3	12.2	16.3	17.9	19.9	20.5	21.3	23.6	24.9	24	23.9	22.7	24	21.5	17.4	14.6	13.3	12.6	11.7	24.9	17.1	24
18	18	10.6	9.8	9.2	8.6	7.7	7.5	9.5	13.8	20.3	23.1	24.6	25.5	26.8	27.1	27.4	27.5	27	26.3	23.2	18.9	17	17.3	14.9	16.4	27.5	18.3	24
19	19	16.5	15	12.8	9.9	8.9	8.4	11.1	17.6	19.7	21.9	24.6	26.6	27.5	28.2	28.3	28	27.9	26.7	23.1	20.3	17.9	16.7	15.6	13.7	28.3	19.5	24
20	20	12.3	11.6	10.9	10.6	10.2	9.9	11.4	17.2	22.4	24.9	26.4	28.3	29.3	29.3	29.7	29.7	28.9	28.5	25	21.8	19.8	16.5	14.5	13.2	29.9	20.1	24
21	21	12.6	12.2	11.7	10.9	10.4	10.5	12.6	15	17.7	20.2	23	26.5	27.8	27.4	27.2	28.8	29.2	28.4	24.8	21.7	19.8	18.2	17.4	16.8	29.2	19.6	24
22	22	15.4	14.5	13.4	14	15.7	16.2	15.8	16.5	16.9	17.2	17.7	17	17.5	17.4	17.1	17.1	17.4	17.2	16.6	16.1	15.7	15.4	15.1	14.4	17.7	16.1	24
23	23	13.9	13.7	12.9	13.9	13.9	13.9	13.6	14.4	16	19.1	20.7	22.7	23.7	24.9	25.3	24.1	23.7	21.4	18.7	17.7	17	14.9	12.6	12.2	25.3	17.7	24
24	24	11.9	11.7	11.7	12.1	12	11.9	12	12.4	13.3	13.6	13	13	12.7	11.5	12.7	12.7	11.9	12	12.1	12.3	12.4	12.3	11.9	11.7	13.6	12.3	24
25	25	11.7	11.5	11.3	10.9	10.8	10.4	10.3	10.9	11.7	12.5	13.3	14.3	14.5	14.6	15.1	15	15	16.2	14.9	14.4	14	13.8	13.9	13.4	16.2	13.1	24
26	26	13	13.3	13.4	13.3	13.2	12.9	12.4	15.4	16.6	18.5	19.8	20.7	21.6	21.7	21.9	20	22.6	21.7	18.2	14.7	13.3	13.5	13.7	11.6	22.6	16.5	24
27	27	10.2	9	8	7.8	7.6	7.8	9.7	14.2	18	19.8	22.1	23.8	24.9	25.9	26.5	26	26.5	25.6	21.6	18.8	17	14.3	13.2	12.4	26.5	17.1	24
28	28	12.2	11.1	10.7	10.6	9.3	9.7	10.1	13.6	18.3	21.7	24	27	28.1	28	28.2	27.6	27.2	26.2	22.6	18.2	15.9	14.8	15.9	14.2	28.2	18.6	24
29	29	12.7	12.8	11.9	11.3	10.9	12	15	15.7	14	15	15.4	14.3	15.6	16	17.8	20.2	20.2	19.4	17.1	14.4	13.1	12.6	12.2	11.1	20.2	14.6	24
30	30	10.5	9.7	9.2	8.8	8.5	8	8.6	12	15.4	16.9	18.4	19.4	20.1	20.2	20.7	21.1	20.6	19.4	16.2	13	10.5	8.2	6.5	5.8	21.1	13.7	24
31	31	4.9	3.7	3.5	3.1	2.3	1.8	3.1	7.3	12.3	15.2	17.3	18.2	19.9	20.5	20.8	20.3	19.1	20.4	18.4	16.1	15.2	14.3	13.2	12.2	20.8	12.6	24
HOURLY MAX		16.8	16.2	16.2	15.2	15.7	16.2	15.8	19.8	22.4	24.9	26.4	28.3	29.3	29.3	29.9	29.7	29.2	28.5	25.0	22.3	21.5	20.9	20.6	18.9			
HOURLY AVG		12.1	11.7	11.2	10.9	10.6	10.8	12.0	15.0	17.4	19.1	20.5	21.4	22.0	22.5	22.6	22.5	22.3	21.9	19.9	17.2	15.4	14.2	13.5	12.8			

STATUS FLAG CODES

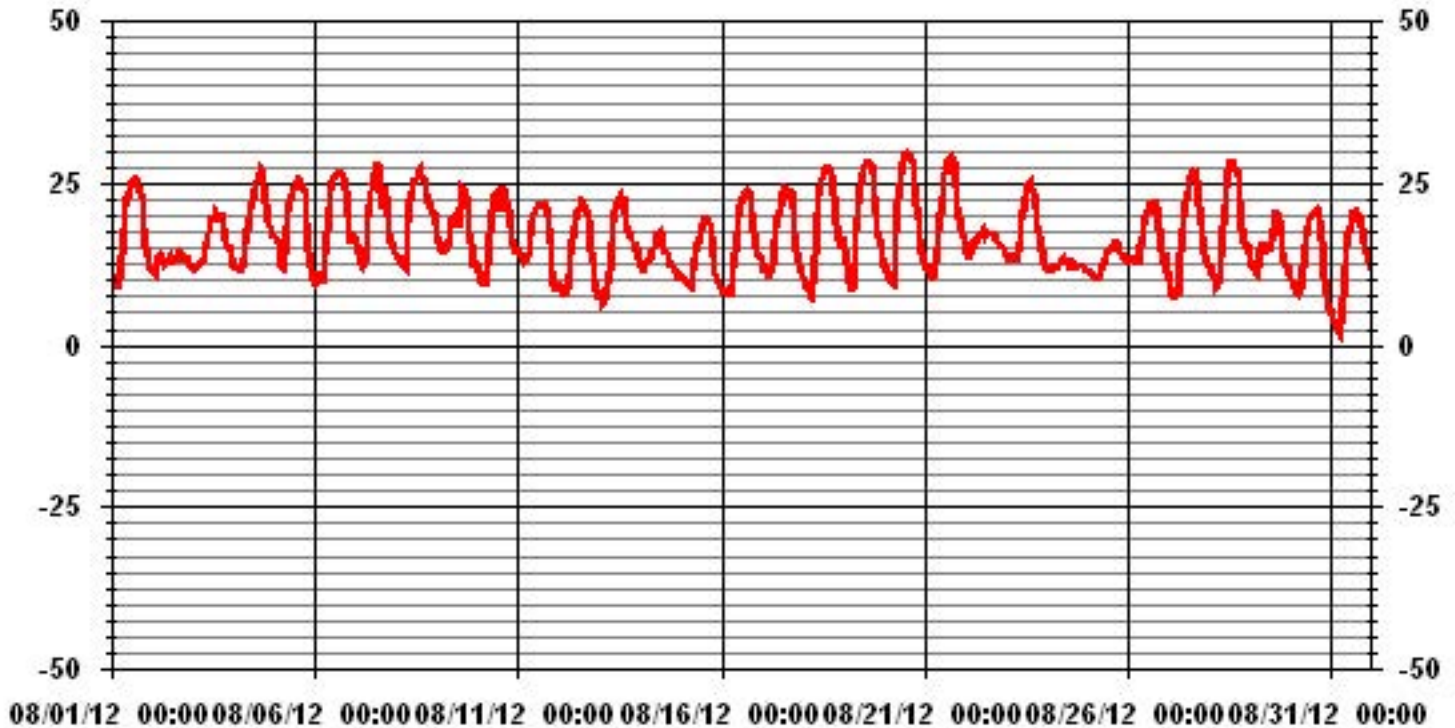
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	1.8 °C	@ HOUR(S)	5	ON DAY(S)	31
MAXIMUM 1-HR AVERAGE:	29.9 °C	@ HOUR(S)	14	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	20.5 °C			ON DAY(S)	8
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS		
STANDARD DEVIATION:	5.63	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	16.65 °C		

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2012

PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	DAILY TOTAL	RDGS.		
DAY																															
1		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24		
2		0	0	0	0	0	0	0.9	1.2	0.9	0.8	0.2	0.5	0.5	0.7	2.5	0.7	0.1	0.3	1.1	0.6	0.3	0.1	0.5	0.2	2.5	12.1	24			
3		0.4	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.8	24	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	24	
7		0.1	0.1	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.4	24
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.1	2.1	2.1	24	
9		5.2	5.9	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.9	11.2	24		
10		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	0.1	24	
11		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	24	
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0.3	0	0.2	0	0	0	0	0	0	0	0.6	1.1	24	
14		0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
16		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
18		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	0.1	24	
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	24	
22		0	0	0	0	0	0	0	0	0	0.1	0	0.7	1.1	0.8	0.1	0	0	0	0	0	0.3	0.1	0	0	0	1.1	3.2	24		
23		0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	2.7	6.9	0.5	6.9	10.3	24			
24		0	0.1	0	0.3	0.1	0	0	0	0	0.1	1.2	0.1	0.7	0.9	0	0.1	0.1	0.2	0.1	0.2	1.2	0	1.2	0	1.2	5.5	24			
25		0.3	0	0.2	0.1	0.1	0.8	0.1	0	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0.8	1.9	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	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
29		0	0	0	0	0	0	0	0.1	0.1	0	0.1	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	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		5.2	5.9	0.2	0.3	0.1	0.8	0.9	1.2	0.9	0.8	1.2	0.7	1.1	0.9	2.5	0.7	0.3	0.3	1.1	0.6	0.3	2.7	6.9	2.1						

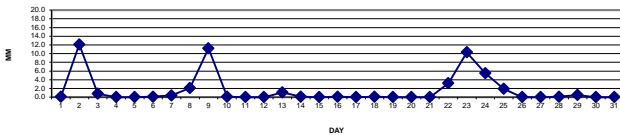
STATUS FLAG CODES

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

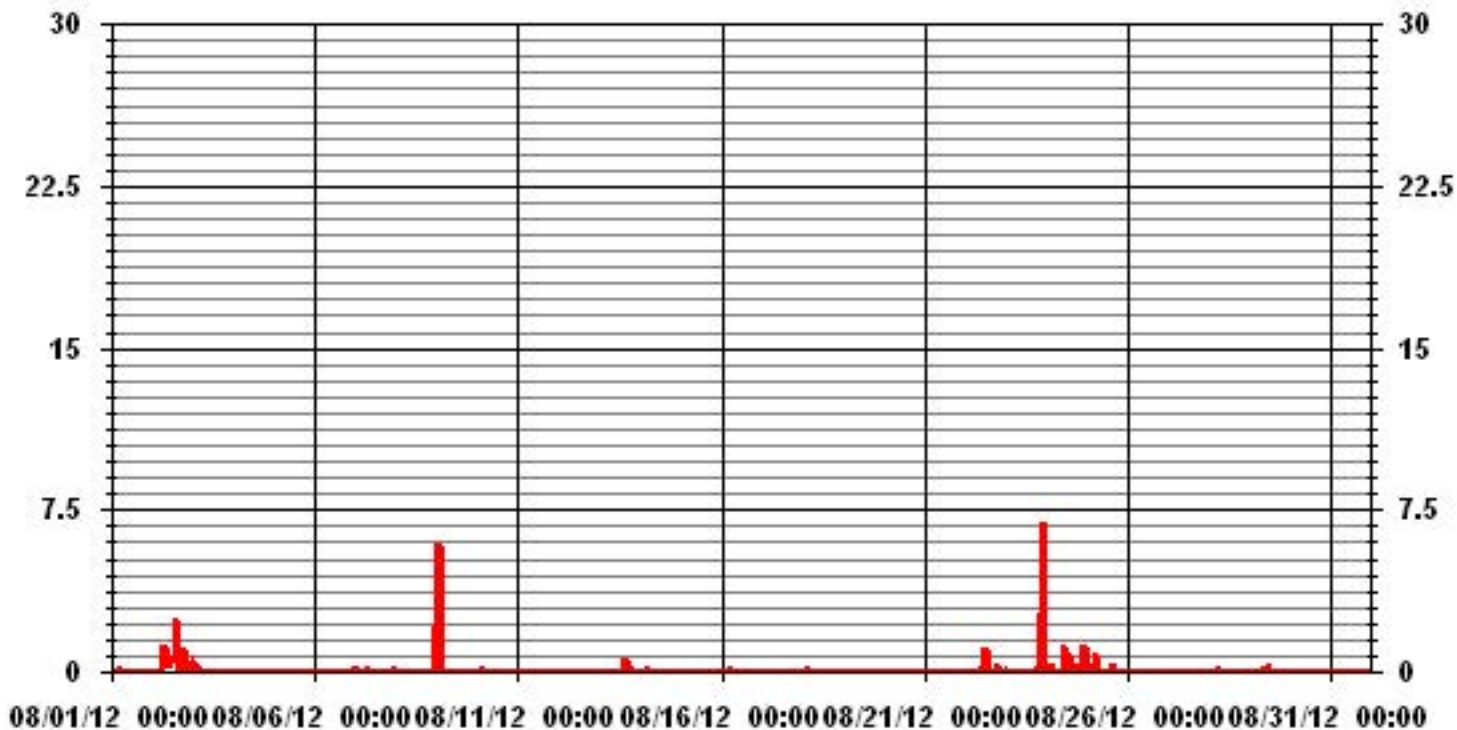
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	6.9	MM	22	ON DAY(S)	23
MAXIMUM DAILY TOTAL	12.1	MM		ON DAY(S)	2
MONTHLY TOTAL	49.8	MM			
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	0.43		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	0.07	MM

DAILY TOTALS FOR AUGUST 2012



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2012

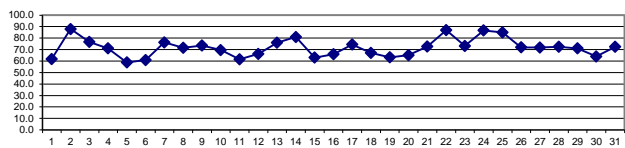
RELATIVE HUMIDITY hourly averages (%)

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		88	89	90	89	91	89	76	64	54	50	46	40	33	32	31	32	33	37	42	59	72	75	84	86	91	61.8	24	
2		87	86	89	79	78	82	85	89	89	88	87	90	90	90	90	88	89	90	90	91	91	91	90	91	91	87.9	24	
3		91	90	90	91	92	92	90	85	80	74	65	63	66	61	61	62	65	60	69	76	80	80	76	81	92	76.7	24	
4		83	85	87	89	90	90	86	81	75	68	63	62	59	57	57	57	51	48	55	63	71	73	79	78	90	71.1	24	
5		78	80	78	78	89	88	79	63	53	44	38	33	33	33	32	31	32	33	35	52	74	83	83	89	89	58.8	24	
6		89	88	86	88	89	88	76	58	47	39	37	36	37	36	38	38	40	42	49	58	73	79	70	79	89	60.8	24	
7		82	87	91	92	93	93	91	74	64	60	60	54	50	49	62	73	73	63	69	83	90	92	93	93	93	76.3	24	
8		93	93	93	93	93	93	90	74	60	53	52	52	53	51	51	52	55	59	66	72	75	78	81	84	93	71.5	24	
9		90	89	91	92	93	92	92	88	81	75	72	71	70	62	56	46	41	45	52	62	68	80	79	76	93	73.5	24	
10		84	79	86	88	90	90	85	69	54	48	46	47	62	60	59	47	45	55	61	74	79	84	89	89	90	69.6	24	
11		87	91	91	92	92	87	77	59	47	39	37	37	37	38	37	35	37	41	45	53	70	78	86	81	92	61.4	24	
12		84	86	90	89	88	87	81	70	60	52	48	45	42	40	39	39	42	44	51	71	75	85	91	92	92	66.3	24	
13		92	92	92	92	91	89	82	65	58	54	53	51	50	53	54	67	84	83	86	82	86	87	88	91	92	75.9	24	
14		92	93	93	93	93	93	91	85	83	83	76	73	69	70	74	75	73	80	81	76	74	74	75	73	93	80.9	24	
15		74	74	75	78	78	78	76	66	59	53	49	46	44	42	43	43	44	45	53	67	77	80	82	86	86	63.0	24	
16		87	87	88	87	86	86	83	74	66	58	52	46	41	40	41	39	40	44	51	67	76	78	82	84	88	66.0	24	
17		90	91	87	88	92	92	89	74	69	66	66	67	52	49	51	51	53	49	60	81	90	92	93	93	93	74.4	24	
18		93	93	93	93	93	93	93	90	70	58	51	44	39	38	37	39	42	43	50	64	71	73	80	71	93	67.1	24	
19		69	73	80	88	91	92	87	67	62	57	51	42	40	35	34	38	38	41	54	64	71	76	81	87	92	63.3	24	
20		91	92	93	93	93	93	93	82	55	49	44	38	34	35	35	35	36	36	55	64	65	76	86	89	93	65.1	24	
21		92	92	93	93	93	93	92	88	77	66	59	53	48	48	53	50	49	49	65	72	75	80	81	83	93	72.7	24	
22		86	88	90	91	84	82	82	80	81	80	81	87	89	89	88	87	87	87	89	91	92	92	91	92	92	86.9	24	
23		93	93	93	93	93	93	93	91	82	71	63	56	50	44	40	39	43	53	65	71	75	83	90	89	93	73.2	24	
24		90	91	92	91	91	90	90	90	86	85	88	90	88	83	76	72	81	86	87	87	85	86	88	89	92	86.8	24	
25		89	88	88	87	87	89	90	89	88	86	83	79	80	80	78	82	82	77	81	84	87	87	87	88	90	84.8	24	
26		89	89	87	88	88	89	90	80	75	66	57	54	50	49	49	59	47	50	64	78	82	81	80	86	90	72.0	24	
27		90	91	92	92	92	93	93	84	67	63	57	52	47	46	44	45	42	47	62	72	79	89	92	92	93	71.8	24	
28		93	93	93	93	93	93	93	93	77	62	52	43	39	42	40	43	45	50	65	83	90	92	85	87	93	72.5	24	
29		90	90	92	92	92	85	71	68	78	74	68	79	72	68	60	50	45	46	52	63	65	65	68	72	92	71.0	24	
30		74	76	79	79	80	80	78	69	61	55	49	44	41	39	39	41	42	44	55	67	76	85	90	91	91	63.9	24	
31		91	91	92	92	92	92	89	71	61	54	51	49	48	49	53	59	57	63	72	77	79	82	84	92	92	72.5	24	
HOURLY MAX		93	93	93	93	93	93	93	93	89	88	88	90	90	90	90	88	89	90	91	92	92	93	93	93	93	93	93	93
HOURLY AVG		87.1	87.7	88.8	89.1	89.7	89.2	86.0	77.4	68.7	62.5	58.2	55.6	53.4	51.8	51.5	51.9	52.7	54.3	62.0	71.5	77.8	81.7	83.9	85.4	85.4	85.4	85.4	

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

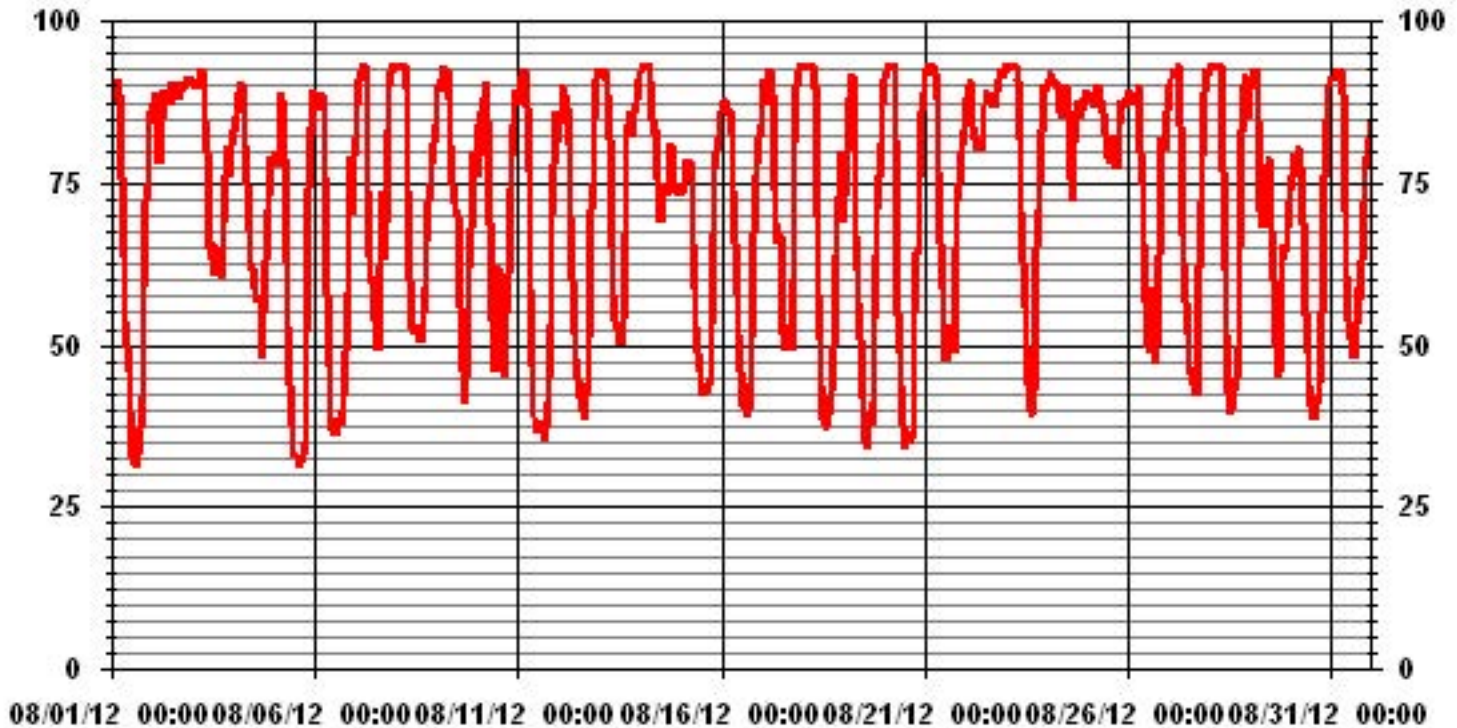
24 HOUR AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	93	%	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	87.9	%			ON DAY(S)	2
VAR-VARIOUS						
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	18.72		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	71.59	%	

01 Hour Averages



Barometric Pressure

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2012

WIND SPEED hourly averages (km/hr)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	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		2.3	2.9	3.6	3.1	2.8	2.8	2.6	4.3	4.6	4.9	6.8	7.9	8.5	6.5	6.3	7.1	6.8	5.3	3.6	2.6	4.1	3.7	2.6	1.5	8.5	3.9	24
2		2.7	1.5	2.4	4.3	6.1	6.3	4.7	3.8	2	3.1	3.3	3.2	2.2	4	4.8	4.8	5.3	3.7	3.6	2.4	2.2	3.3	3.4	3.1	6.3	3	24
3		4.6	4.2	3.4	4	5.6	5.4	5.5	7.2	6.8	7.2	5.2	4.1	7.5	6.9	6.8	5.9	5.8	6	3.2	2.6	4.1	5.5	5.9	4.8	7.5	2.8	24
4		3.7	4.3	6.6	6	6	8.3	8.7	6.6	8.7	11.7	13.3	15.1	11.9	10.1	8.2	6.8	7	6	3.9	3.5	3.2	3.2	2.2	2.6	15.1	6.1	24
5		3.1	3.3	3.9	2.5	1.8	1.8	2.7	4.9	4.6	5.6	6.5	7.2	7	6	6.1	6.7	6.6	5.5	5.3	2	3.1	2	1.5	1.5	7.2	3.5	24
6		0.9	1.3	0.7	2	0.8	1	2.3	2.9	2.4	1.5	0.7	2	2	2.4	5.8	4.6	4.2	5.8	5.5	4.7	2.5	3.2	3.9	2.5	5.8	1.9	24
7		4	2.6	0.8	0.6	1.6	2.1	2.6	1.1	0.8	2.9	3.8	3.1	3.2	5	4.4	2.9	4.1	3.2	2.8	1.9	1.4	1.8	1.7	2.6	5	1.4	24
8		2.7	3.3	2.8	3.4	3.5	2.4	4.1	3.9	4.7	6.4	7.9	7.3	8.1	7.9	8.5	7.1	6.5	6.5	5.7	5.1	7	6.7	6.5	7.2	8.5	4.9	24
9		3.1	4.4	2.4	4.5	7.1	6.1	6.2	5	5.5	7.5	7.3	6.4	4.5	5.9	6.8	7.1	5.4	3.7	3.9	3	4.2	1.6	4.5	4	7.5	4.3	24
10		3	4.7	1.6	3.4	2.5	2.3	0.9	2.8	3.3	2.8	3.8	4.3	7.6	6.2	5.4	4.4	3.4	3.9	5	4.6	4.1	3	1.5	3.7	7.6	3.3	24
11		2.8	1.9	2.1	0.7	2.2	1.4	3.1	3.9	4.9	6.6	7.4	7.7	8	9.6	9.2	9.4	8.7	6.7	6.6	3.8	1.8	2.4	2.7	2.1	9.6	4.2	24
12		2.9	1.9	1.6	3.1	2.9	2.1	4.1	4.1	4	4.3	5.4	5.2	6.1	5.7	4.6	4.4	3.4	2.9	1	3.6	3.8	1.5	1.2	0.5	6.1	2.1	24
13		2.6	2.9	0.8	1	0.8	0.9	3.8	7.1	6.9	7.8	9	9	9.3	9.2	9.1	3.9	2.3	4.1	3.2	4.3	5.3	4.1	0.5	0.3	9.3	3.9	24
14		0.7	0.6	1.9	1.3	1.6	2.3	3	4.1	4.8	7.5	6.7	11.2	11.9	11.1	12.2	10.1	8.4	10.5	10	10.5	8	6.8	7.3	5.6	12.2	5.7	24
15		5.8	5.8	5.3	4.6	4.7	5	5.2	4.7	4.9	6.5	5.5	5.5	5.1	3.5	4	4	4.2	4.3	2.3	3.5	4.7	5.3	5.2	4.5	6.5	2.9	24
16		5	6	5.7	6.1	5.6	6.1	7.7	6.8	6.3	6.7	6.7	6.7	5.4	6	5.2	4.5	6.3	5.3	3.5	4.3	2.3	1.1	3.6	1	7.7	4.8	24
17		1.2	2.9	2.3	1.9	3.1	4	3.1	2.4	1.9	3.8	4	4.5	6.8	6.5	2.1	4.5	2.2	0.9	0.5	0.9	0.9	1.2	1.8	1.3	6.8	2	24
18		0.8	0.8	0.5	0.6	0.6	0.5	0.8	1.7	1	4.1	5.1	5.8	2.9	4.6	4.2	5.1	6.7	5.3	5.1	3.8	4.9	5.6	2.4	5.9	6.7	2.9	24
19		6.2	4.2	1.8	1.5	1.6	0.6	2.7	5.7	6.6	6.5	7.7	8.3	8.2	9.2	9.6	8.4	8.7	7	4.1	3.9	3.9	2.6	3.2	0.3	9.6	4.8	24
20		0.7	0.6	0.8	0.6	1	0.3	0.3	1.2	2.5	3.9	4.8	4.3	4.8	7	4.5	4.7	5.7	4.5	3.3	3.7	4.3	1.5	1	0.7	7	2.6	24
21		0.7	0.8	0.4	0.6	0.8	1.5	0.8	0.8	0.1	2.4	1.8	2.5	3.4	4.9	3.7	4.7	5	2.2	3.3	4.5	4.5	4	4	4.8	5	1.5	24
22		3	3.6	1.6	1.2	3.8	5.6	3.8	4	3.6	3.8	2.4	2.4	2.2	3.4	4.3	3.7	2.2	2.5	2.8	1.1	1.8	2.3	3.1	2.4	5.6	1.9	24
23		2.4	1.9	2.1	2.9	2.8	2.8	3.2	3.1	4.6	3.7	4.1	3.6	3.9	4.2	3.7	4.6	2.7	2.3	4.6	5.1	6.1	6.9	6.4	5.6	6.9	3.2	24
24		4	3.5	1.3	2.9	3.3	3.4	2.6	2.6	2.9	4	4.1	4.1	6.5	10.5	8.3	7.5	4.2	3.6	4.1	6.1	8.5	6.5	7	6.3	10.5	4.2	24
25		6.5	7.7	8.6	8.2	7.2	7.8	6	7.2	7.3	7.7	6.8	7.1	7	7.5	7.9	6.4	4.8	6	5.9	7	6.2	5.4	5	5	8.6	6.1	24
26		3.7	3.8	4.3	3.5	2.2	2.4	1.5	2.7	3.3	2.9	3.7	3.4	2.9	2.7	2.5	1.4	2.7	5.3	4.2	4.5	4.2	5.2	5.4	2.2	5.4	1.1	24
27		2.8	2.3	0.7	2.4	2.2	3.1	2.4	4.8	7.4	8.6	9.6	10.3	10.7	9.7	9.8	8.4	8.8	4.8	3.9	4.3	1.2	0.6	1.2	0.9	10.7	4.1	24
28		0.8	1.1	1.4	2.8	1.4	2.4	1.3	0.8	1.4	3.8	6.6	3.9	2.3	4.7	4	6	6.4	5	3.1	3.3	1.5	0.5	2.3	2.1	6.6	0.9	24
29		0.8	1.9	0.5	0.3	1.3	5.4	10.6	8.3	4.4	6.9	7.1	4	6.3	6.3	6.2	8.7	9.6	8.3	5.6	3.7	3.8	4	4.3	3.5	10.6	4.6	24
30		3.3	3.2	4.5	4.3	5.4	5.1	3.7	4.6	6.6	7.7	8.3	7.8	8.5	10.2	8	5.9	6.4	6.9	3.4	2.9	2.4	1.2	0.7	1.4	10.2	4.3	24
31		1.4	0.7	1.2	1.3	0.8	1.1	1.2	3.5	6.2	6.6	6.6	7.8	7.2	7.6	8.2	6.5	5.9	6.3	5.7	4.8	4.7	4.3	4.6	4.7	8.2	4	24
HOURLY MAX		6.5	7.7	8.6	8.2	7.2	8.3	10.6	8.3	8.7	11.7	13.3	15.1	11.9	11.1	12.2	10.1	9.6	10.5	10.0	10.5	8.5	6.9	7.3	7.2			
HOURLY AVG		2.8	2.9	2.5	2.8	3.0	3.3	3.6	4.1	4.4	5.5	5.9	6.0	6.2	6.6	6.3	5.8	5.5	5.0	4.2	3.9	3.9	3.5	3.4	3.1			

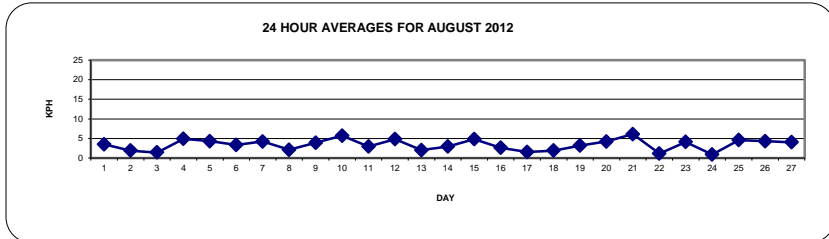
STATUS FLAG CODES

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

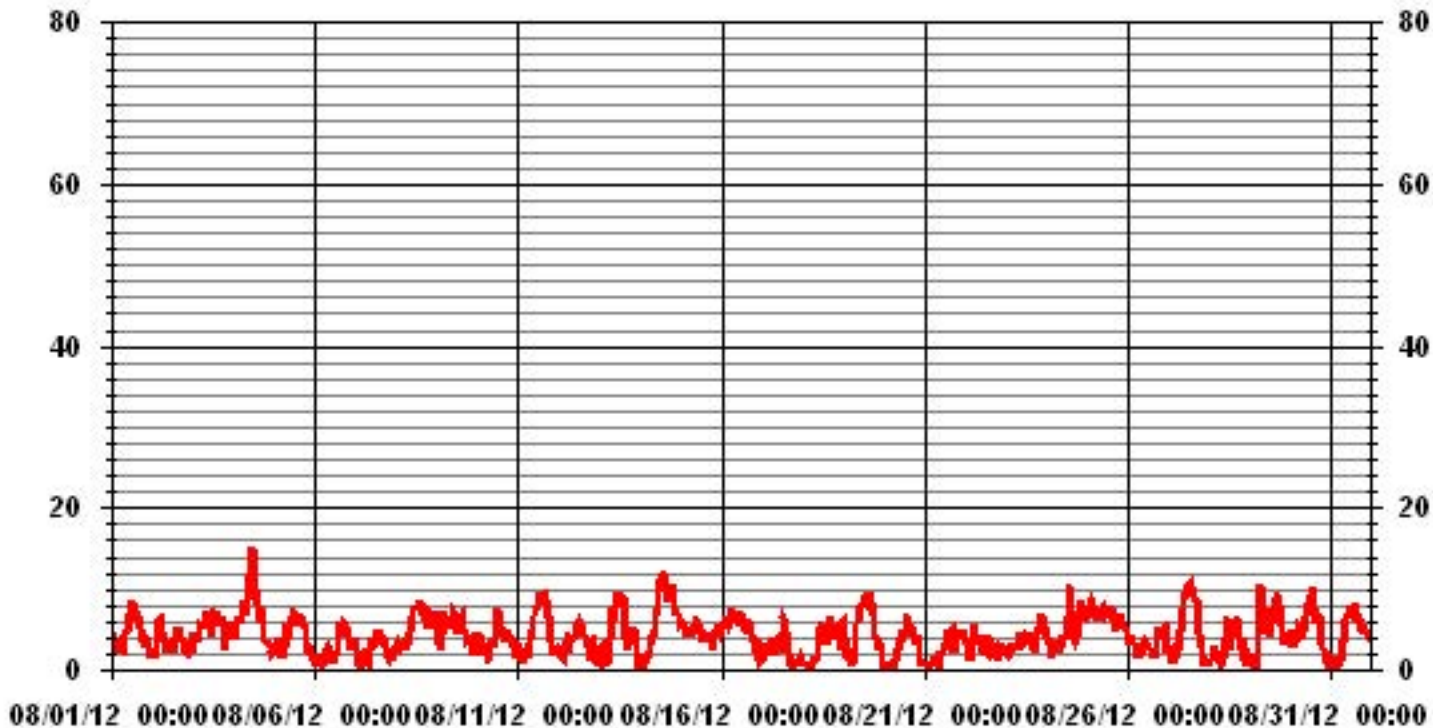
LAST CALIBRATION: December 20, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	15.1 KPH	@ HOUR(S)	11	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	6.1 KPH			ON DAY(S)	4
CALMS (≤ 1 KPH)	6.72 %	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	2.47	MONTHLY AVERAGE:	4.33	KPH	



01 Hour Averages



— LICA30 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	8.7	7.8	7.6	6.9	5.6	7.6	12.8	19.6	19.6	25.5	30.1	36.2	38.2	33.4	36	35.1	31.9	24.9	18.5	10.9	10	8.7	7.8	6.7	38.2		
2	6.3	5.8	12	19.2	23.3	32.4	22.8	13.6	9	12.2	14.4	13.5	12.6	18.5	19.6	17.2	18.1	17.4	12.4	14.4	11.8	14.8	13.3	11.5	32.4		
3	14.6	15.7	13.3	16.1	15.2	18.3	17.4	19.9	17.9	22.7	22.9	17	21.6	25.5	28.6	20.9	22.5	15.5	10.7	7.4	10.3	16.4	15.6	12.5	28.6		
4	10.6	13.5	17.4	17.9	16.6	19.6	20.3	17.4	27.3	29.5	40	39.1	40.2	28.8	28.6	32.3	36.5	35.8	16.8	19.6	13	16.3	12.8	12.4	40.2		
5	10.9	14.4	15.7	17	8.2	8	13	18.1	17	25.7	26.6	32.3	27.7	26.6	31.2	32.5	24.2	27	27.3	12.6	6.4	4.6	3.7	4.8	32.5		
6	6.6	5	3.6	7.1	3.9	3.9	7.8	7.8	10.9	10	14.4	15.7	15.4	22.9	20.3	17.2	15	15.2	18.1	13.5	10	13.1	12.8	13.1	22.9		
7	13.3	10.6	3.9	3.9	6.7	15.7	10.2	6.9	14.6	13.9	18.3	15.7	18.3	22.5	22.2	11.3	17.2	13.5	15	5.6	4.3	6.4	5.2	8.1	22.5		
8	7.2	7.4	7.7	8.5	8	8	10.9	11.5	22.9	29.5	33.6	31.6	31.6	31	34.5	32.1	27.9	34.9	28.1	20	31.2	24.9	26.4	53.3	53.3		
9	18.3	24.6	13.1	14.6	18.1	18.5	21.8	18.5	23.3	39.8	35.1	29	25.3	25.3	30.8	33	27.7	25.5	20.9	18.5	11.5	6.9	14.6	10.9	39.8		
10	7.6	11.4	10.3	7.4	7	7.6	7.3	11.3	10	11.7	13.5	17.6	19.4	15.4	13.7	17.4	14.3	10.2	11.5	10.6	9.5	8.5	5.4	9.8	19.4		
11	N	8.2	4.5	3.4	8.7	9.8	14.6	16.8	20.9	24.2	28.8	39.7	37.1	43	36.2	41.1	38.4	33	26.8	20.3	8.2	7.4	6.5	11.3	43		
12	7.9	9.4	10.3	11.6	15	11.3	15.5	12.6	15.2	20.7	22	24.4	27.5	20.5	23.8	16.3	12.4	12	7.8	8.9	7.8	5.4	N	2.3	27.5		
13	8.9	7.8	7.1	11.1	8	9.8	16.6	25.8	22.8	29.3	31.5	25	28.9	28	33.4	15.4	12.8	15	46.5	22.9	18.3	N	9.8	4.1	46.5		
14	5.2	8.2	7.1	6.7	10	9.5	11.5	21.1	17.9	19	20.1	29.2	32.8	32.6	38	30.4	35.8	36.1	37.4	29	26.6	29	28.8	21	38		
15	22.3	21.7	20.3	18.1	21.8	18.5	16.6	16.6	19.2	31	27.5	23.1	33.6	21.6	20.7	22	21.6	17.6	12.2	12.4	9.3	10.9	11.3	9.1	33.6		
16	11.8	13.1	10.4	21.4	13.4	13.8	18.2	17	16.6	17	17.4	23.5	24	26.2	24.9	23.1	21.6	20.1	13.7	9.8	N	18.8	9.5	9.3	26.2		
17	3.9	7.3	9.1	5.2	10.2	9.5	7.8	10	8	10.9	12	15.7	20.3	23.8	40.6	22	22	7.3	4.7	5.8	3	3.4	3.9	3.1	40.6		
18	3.3	2.2	3.6	2.5	1.9	2.5	3.2	4.1	7.3	12.8	14.1	21.1	22.4	19.2	16.1	23.7	25.1	24.4	15	8.9	12.8	15.5	11.5	16.8	25.1		
19	17	13	8.9	3.9	4.3	4.5	P	16.3	17.6	15.9	21.3	23.5	23.3	23.7	26.2	22	22	20.5	11.1	9.1	9.2	7.2	8.6	3.7	26.2		
20	2.8	2.2	2.8	3.9	3.2	3.6	3.2	8	11.3	11.1	14.1	22.2	16.5	19.6	19.6	17.8	16.1	15	10.2	10.4	8.5	7.6	4.7	2.8	22.2		
21	3	3.9	3	3.4	4.3	4.3	4.5	5.2	7.8	8	12	19.6	23.5	15.7	18.3	18.4	18.2	13.8	11	15.5	11.6	9.6	9.4	11.7	23.5		
22	9.5	11.8	6.5	6.7	24.6	23.8	14.1	14.1	14.8	12.2	9.1	7.6	13.3	14.6	17.9	16.1	12.8	11.3	8.9	6	8.7	12.6	14.6	12	24.6		
23	11.3	13.5	11.1	16.1	11.3	9.3	13.7	13.1	17.4	15.2	16.1	15.9	18.7	21.8	22.7	20.6	12.1	13.4	22.3	21.9	27.1	34	30.2	27.5	34		
24	12.8	12.2	6.1	12.4	10.2	9.8	6.7	10.6	11.8	15.7	18.8	21.4	32.6	39.3	27.9	28.2	15.5	14.8	13.9	29.9	27.7	26.4	28.4	19.4	39.3		
25	N	27.6	33.1	26.7	25.1	25.8	26	28.6	28.4	31.4	25.3	29	28.6	32.1	33.6	26.4	20.9	29.5	22.7	27.5	22.5	21.6	21.1	20.9	33.6		
26	14.4	14.8	15.9	14.1	11.5	10.2	7.6	10.2	12.4	13.5	15.3	16.6	18.2	14.4	13.6	15.3	12.7	14	11.6	9.2	11.1	12.4	12.6	9.5	18.2		
27	10.9	6.7	3.4	5.6	6.5	6.9	7.8	19.8	24.4	25.7	29.9	31.4	32.1	30.6	34.5	27	32.1	15.9	11.1	11.1	9.8	5.6	6.1	5.2	34.5		
28	3	6.3	4.5	9.5	4.7	8.6	6.1	7.7	6.1	13.9	16.8	20.5	15.7	14.6	13.3	15.7	17.9	14.3	7.6	5.8	3.4	4.7	12.8	7.1	20.5		
29	5.6	10.4	3.9	5.6	10.2	27.1	39.6	41.1	28.1	27.5	38.5	19.6	28.1	29.5	33.2	38.2	48.1	39.3	25.7	16.8	14.4	19.6	21.4	13.3	48.1		
30	12.7	16.7	14.5	13.1	15	15.7	14.8	20.1	29.3	35.6	37.1	40.9	35.4	36	28.6	26.6	27.5	27.7	14.1	9.3	9.8	7.4	4.7	3.9	40.9		
31	3.6	2.1	4.1	5	3.7	3.4	4.7	10	18.1	21.6	24.4	31.9	34.9	32.5	32.5	29.9	23.8	26.6	26	15	13.7	11.3	9.3	12.8	34.9		
PEAK	22.3	27.6	33.1	26.7	25.1	32.4	39.6	41.1	29.3	39.8	40.0	40.9	40.2	43.0	40.6	41.1	48.1	39.3	46.5	29.9	31.2	34.0	30.2	53.3			

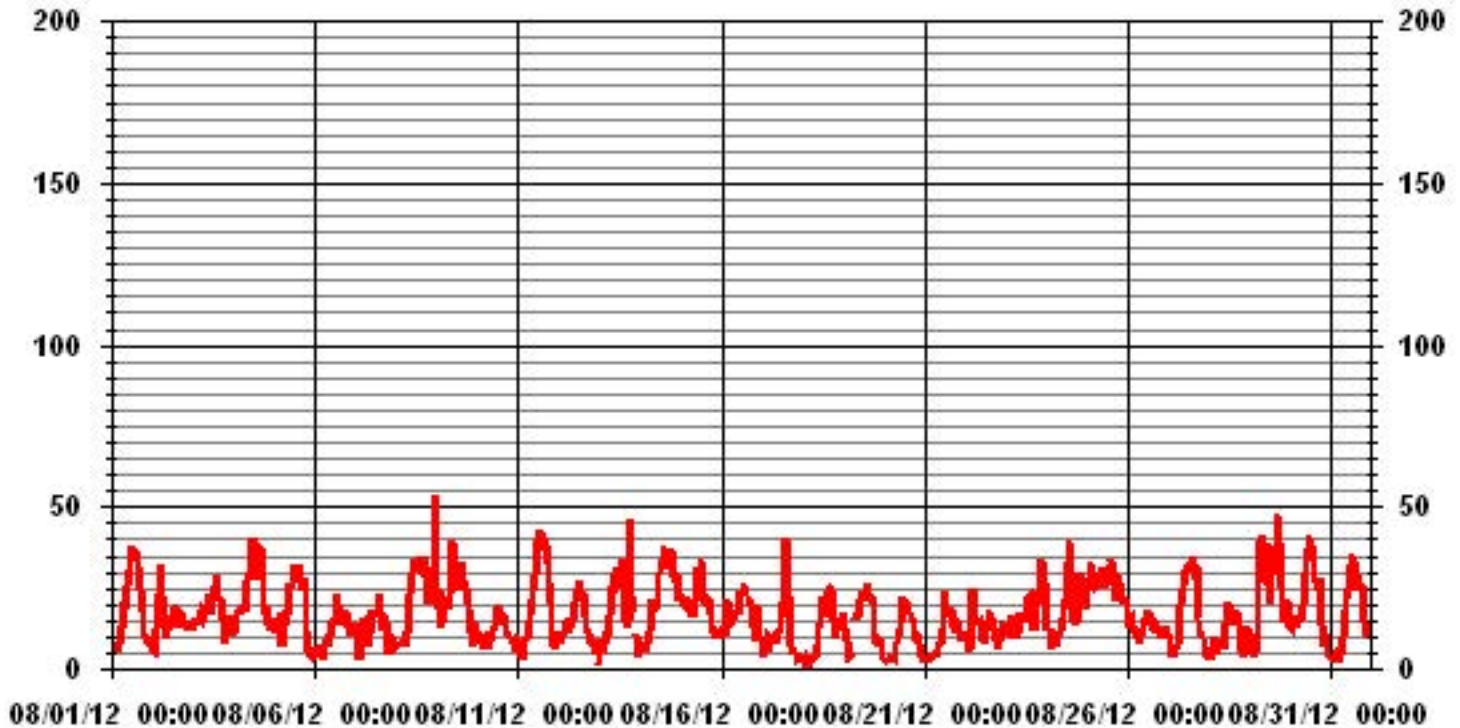
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	53.3	KPH	@ HOUR(S)	23
			ON DAY(S)	8

01 Hour Averages



LICA30
WSP / WDR Joint Frequency Distribution (Percent)

August 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	3.36	3.09	4.03	3.36	1.74	2.41	3.62	5.91	6.18	9.81	6.31	5.51	4.30	4.97	5.77	3.62	74.05
< 12.0	1.47	.67	.80	.53	.40	1.61	.53	2.01	1.34	4.16	.67	.40	2.68	5.24	2.68	.26	25.53
< 20.0	.13	.00	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00	.00	.40
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.97	3.76	4.83	3.89	2.15	4.03	4.16	7.93	7.52	14.24	6.98	5.91	6.98	10.21	8.46	3.89	

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	25	23	30	25	13	18	27	44	46	73	47	41	32	37	43	27	551
< 12.0	11	5	6	4	3	12	4	15	10	31	5	3	20	39	20	2	190
< 20.0	1									2							3
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	37	28	36	29	16	30	31	59	56	106	52	44	52	76	63	29	

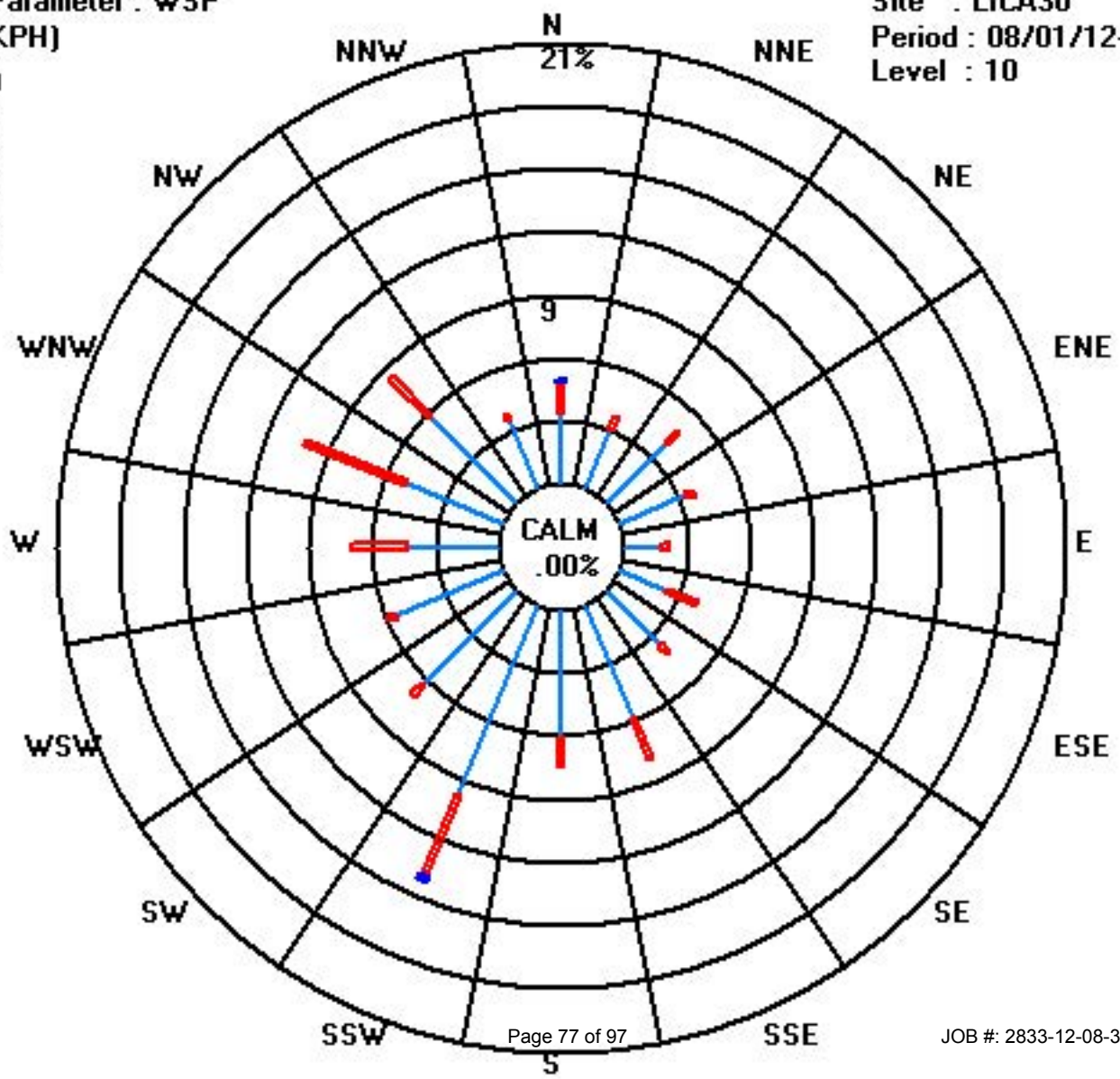
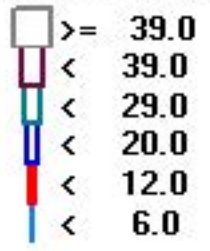
Calm : .00 %

Total # Operational Hours : 744

Class Limits (KPH)

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

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	214	215	203	213	208	218	237	269	280	266	278	289	282	264	282	263	262	264	254	231	211	211	208	223	254	WSW	24
2	208	199	221	305	312	314	312	1	287	313	300	257	273	309	316	319	316	335	326	328	307	349	342	357	312	NW	24
3	356	7	343	351	14	8	17	17	14	19	11	20	45	53	55	60	130	145	140	147	154	157	159	171	49	NE	24
4	189	185	187	193	190	195	195	189	188	194	192	195	201	212	226	233	246	269	250	276	286	284	265	273	209	SSW	24
5	286	299	301	286	236	239	249	300	325	328	296	297	282	278	273	300	316	318	293	270	206	199	152	151	290	WNW	24
6	112	193	67	181	39	172	33	34	54	182	123	113	225	157	169	204	189	163	143	148	139	161	165	204	157	SSE	24
7	202	197	123	160	175	168	200	187	156	51	54	159	94	136	109	56	13	58	117	127	93	59	64	62	111	ESE	24
8	46	51	63	58	56	43	53	57	83	104	83	118	102	105	114	103	100	107	108	107	109	114	113	199	98	E	24
9	219	207	114	200	201	197	212	236	242	277	277	273	254	240	243	269	265	258	254	235	221	224	212	216	238	SW	24
10	210	214	217	204	203	215	223	282	312	270	252	231	203	202	203	246	254	209	202	203	208	218	204	205	220	SW	24
11	207	222	199	251	220	291	309	316	325	305	311	290	282	282	285	279	281	289	297	298	239	211	199	225	283	W	24
12	215	235	249	267	266	282	322	323	335	325	319	315	313	305	304	289	346	2	313	140	146	146	178	300	302	WNW	24
13	192	194	302	176	190	147	153	148	155	151	152	151	157	165	166	179	97	89	71	101	111	125	120	332	149	SSE	24
14	72	146	234	250	242	229	243	301	346	22	8	15	7	8	11	5	360	3	9	9	5	349	350	349	1	N	24
15	351	353	350	333	334	335	341	342	339	341	310	331	329	310	265	269	241	252	235	217	205	207	207	208	307	NW	24
16	202	204	207	206	209	204	202	208	206	206	220	250	233	247	247	228	225	225	207	188	51	171	181	213	213	SSW	24
17	216	211	223	212	213	213	207	253	217	206	209	176	203	211	61	107	71	290	242	84	177	190	211	179	198	SSW	24
18	159	165	138	161	223	141	29	31	199	187	190	181	195	207	184	153	125	142	157	151	149	151	159	178	164	SSE	24
19	185	191	200	20	107	111	172	185	189	188	175	177	199	202	200	196	193	194	184	184	183	200	201	204	189	S	24
20	195	160	176	171	198	145	256	206	237	191	198	220	197	194	201	204	196	191	153	165	186	199	215	353	195	SSW	24
21	183	166	301	140	85	131	341	18	91	179	51	107	118	180	160	174	160	156	56	52	57	51	66	47	108	ESE	24
22	77	65	54	299	331	358	18	37	39	21	353	25	287	320	339	324	313	299	22	325	248	267	267	260	353	N	24
23	246	250	248	267	239	234	234	256	281	314	338	318	285	291	291	274	274	285	317	334	314	265	242	2	287	WNW	24
24	26	18	331	7	3	14	35	353	319	310	288	276	283	293	306	302	286	268	281	296	304	307	307	301	309	NW	24
25	141	297	298	297	298	292	285	292	304	307	315	304	302	303	309	328	328	295	299	314	316	313	309	322	304	WNW	24
26	299	304	296	307	294	336	313	312	316	308	1	294	277	270	229	143	159	158	159	162	163	160	163	172	243	WSW	24
27	164	25	349	19	38	31	66	139	147	150	145	153	162	162	156	159	177	160	145	139	110	73	98	70	148	SE	24
28	143	79	46	61	30	87	336	28	356	37	43	78	127	190	208	204	192	205	195	188	176	347	303	131	152	SSE	24
29	194	211	209	135	350	286	313	317	302	294	296	269	265	265	277	272	276	272	269	252	243	258	249	258	278	W	24
30	235	251	217	222	218	219	229	276	286	285	285	289	290	295	297	275	287	287	265	234	352	21	15	139	273	W	24
31	120	163	154	187	146	91	45	39	42	53	70	73	78	86	108	102	73	77	74	59	54	47	39	35	71	ENE	24
HOURLY AVG	356	353	350	351	350	358	341	353	356	341	353	331	329	320	339	328	360	335	326	334	352	349	350	357			

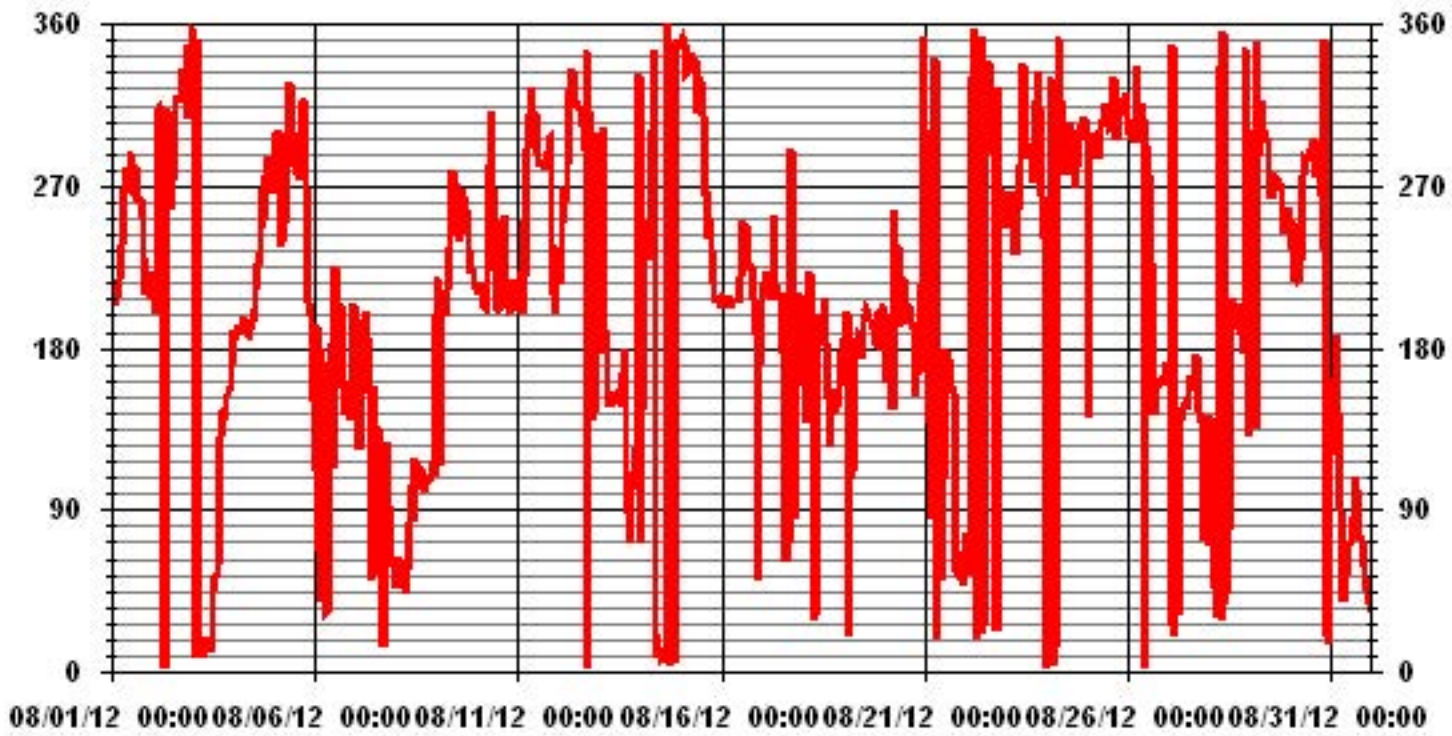
STATUS FLAG CODES

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

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	93.22	AMD OPERATION UPTIME:	100.0 %
		MONTHLY AVERAGE:	247 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	34	22	12	24	18	24	40	42	46	49	43	45	39	48	48	45	45	45	47	32	17	16	20	46
2	18	46	33	44	37	42	53	35	41	41	45	40	51	45	42	39	38	44	40	49	49	35	40	32
3	31	23	39	38	21	24	23	22	26	24	33	39	29	32	32	30	28	27	22	20	17	16	21	22
4	24	21	18	20	20	18	19	26	24	21	21	21	23	28	36	37	42	50	42	48	39	38	45	46
5	38	34	38	36	45	42	42	35	43	44	44	44	46	50	47	41	38	43	39	38	16	14	23	26
6	46	32	50	32	67	59	49	19	36	72	69	63	47	67	39	45	41	23	20	18	26	35	25	52
7	26	33	53	73	42	59	38	66	38	57	36	44	45	43	34	25	36	29	31	30	30	24	28	24
8	20	19	18	18	19	21	23	26	37	36	33	39	37	41	38	39	39	36	35	36	38	30	35	35
9	41	52	49	20	18	20	27	38	39	38	42	40	46	40	41	45	45	50	42	34	24	48	18	26
10	22	18	57	13	22	42	40	41	34	51	39	42	20	24	31	44	38	20	15	13	13	21	50	22
11	27	32	19	37	29	63	46	44	45	39	46	43	45	42	41	41	39	41	37	38	45	30	15	53
12	21	45	44	42	45	43	44	40	42	49	45	45	44	45	54	42	41	37	52	15	9	43	46	42
13	29	21	55	53	56	69	37	27	32	30	31	29	28	27	28	25	40	29	57	44	28	33	61	67
14	61	69	33	59	46	37	34	46	40	21	29	24	26	27	24	28	29	28	25	24	26	37	33	45
15	38	36	34	41	44	37	39	40	46	39	50	46	52	51	56	58	49	43	45	23	11	11	11	12
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17	34	30	29	33	16	16	27	45	41	34	33	41	25	34	44	44	49	60	48	49	42	36	23	26
18	47	29	44	60	43	43	53	23	57	34	34	45	64	47	46	42	33	29	17	12	14	15	64	22
19	20	21	49	36	41	68	50	24	24	26	30	28	29	25	24	27	22	19	15	12	13	16	21	64
20	50	31	45	48	57	66	42	43	42	35	35	39	40	29	48	42	25	23	16	13	11	67	20	53
21	35	46	48	49	42	32	69	76	67	38	55	67	62	30	49	43	34	44	29	21	22	20	21	20
22	31	23	28	58	49	34	29	46	56	26	43	30	46	47	39	46	52	47	31	52	52	46	39	44
23	40	52	37	44	37	33	34	43	41	45	46	50	54	54	54	42	53	46	41	39	39	40	42	47
24	27	34	49	46	27	26	24	37	45	35	36	41	37	33	33	32	36	35	38	31	31	34	36	33
25	59	32	31	33	35	34	39	36	35	38	39	41	42	37	41	41	42	39	38	34	38	42	40	36
26	35	37	32	42	42	49	59	43	40	52	51	44	57	53	52	28	42	24	14	11	15	15	17	52
27	32	34	52	21	24	21	26	31	29	29	28	28	27	28	29	29	25	21	16	15	31	61	50	57
28	51	57	39	23	37	21	31	42	45	46	26	44	60	48	45	28	23	20	24	11	33	55	51	47
29	47	52	56	52	60	39	35	39	48	38	40	42	44	44	47	41	38	41	43	41	37	46	41	43
30	34	41	23	28	21	23	36	44	39	41	41	42	41	36	38	44	40	36	38	33	38	43	63	33
31	37	43	43	32	37	56	37	22	23	34	36	35	40	37	39	40	30	33	30	25	23	18	13	14

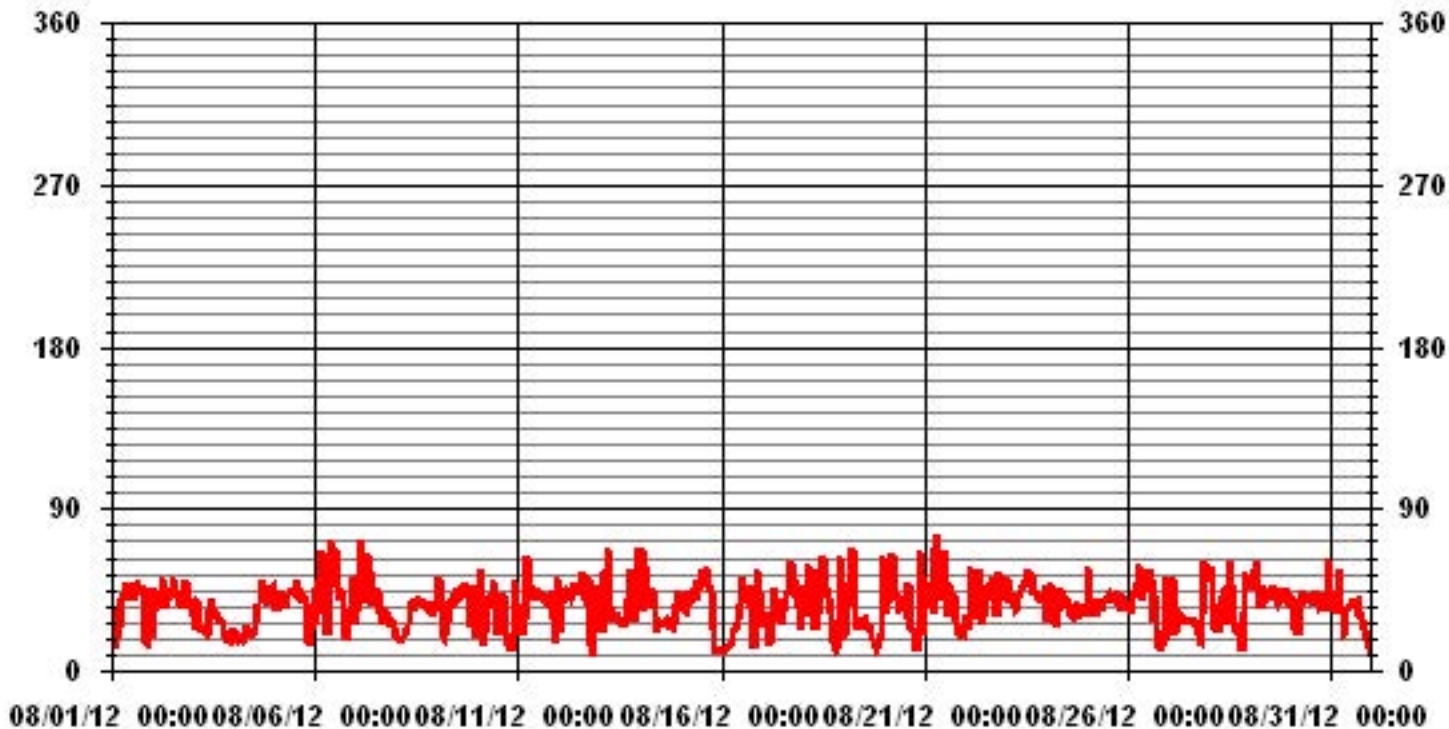
STATUS FLAG CODES

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	August 13, 2012	Previous Calibration	July 10, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	9:26	End Time (MST)	13:14
Reason:	Monthly Calibration		
Barometric Pressure	946 mmHg	Station Temperature	25 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	601 ccm	31.6 Deg C	601 ccm
HVPS / Lamp Setting	494	2415	494
PMT / RxCell Temp	7.7 Deg C	50 Deg C	7.7 Deg C
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C
Offset / Slope	45.6	1.235	48.2
			1.229

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	2	N/A
4994	0	0	0	N/A
4921	75.5	749	754	0.9940
4921	75.5	749	750	0.9993
4955	40.3	400	396	1.0105
4976	20.2	201	198	1.0128
4995	0	0	1	N/A
Sum of Least Squares				1.0023
New Correction Factor				0.9993

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	2.2		1.0
Auto Span	370.0		369.0
Sample Lines Connected			YES

Percent Change

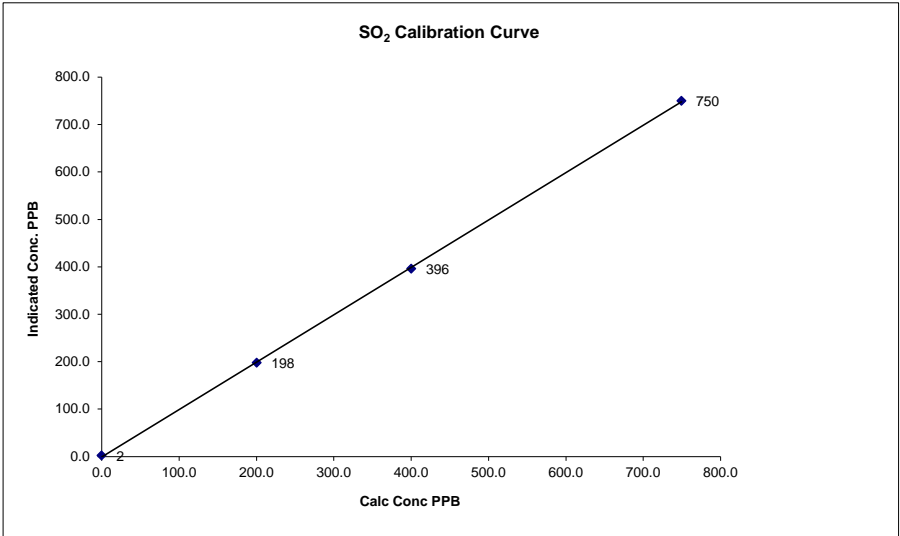
Previous Month's Calibration Correction Factor:	0.9980
Current Correction Factor Before Span Adjust:	0.9940
Percent Change:	0.4%

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

SO₂ Calibration Curve

Calibration Date	August 13, 2012
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	9:26
End Time (MST)	13:14

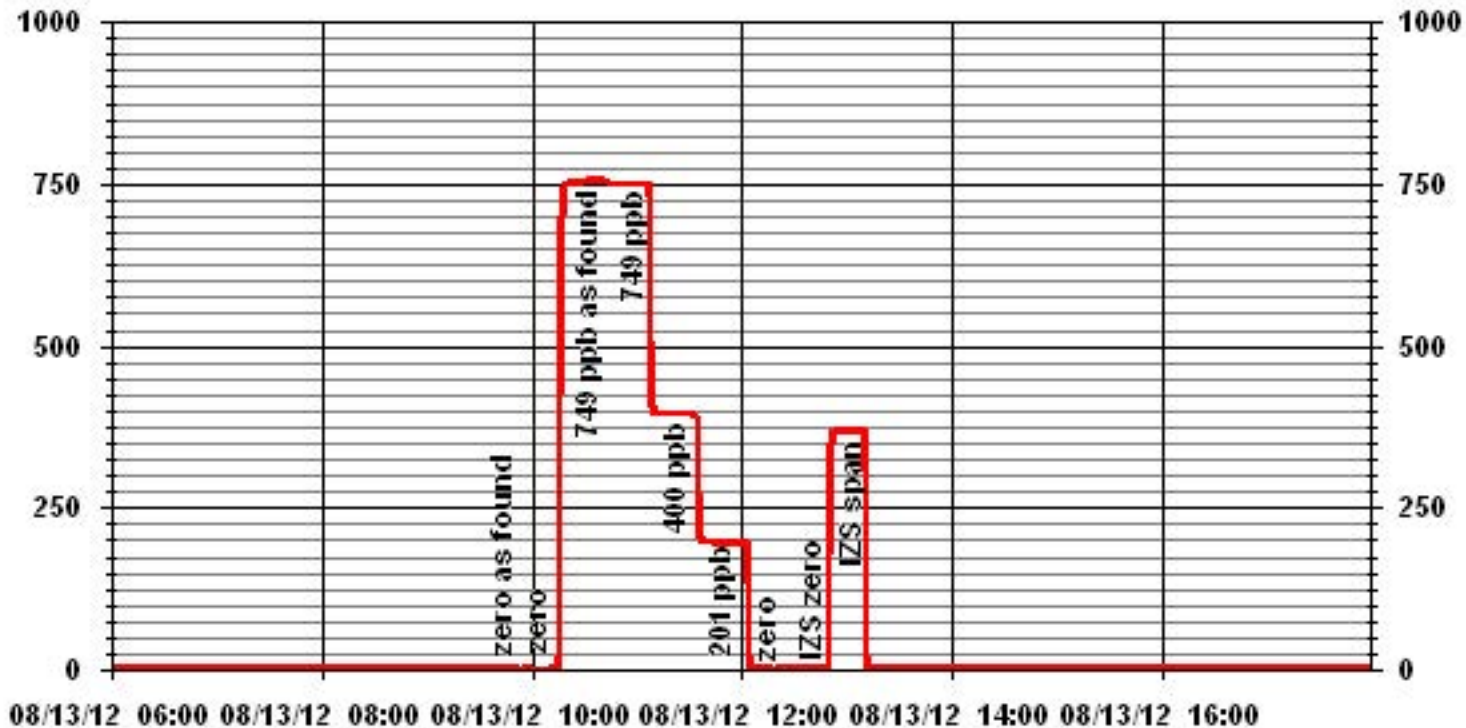
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	2	n/a		0.999924
201	198	1.0128		0.998775
400	396	1.0105		-0.629808
749	750	0.9993		



Notes:

Calibration Performed by: Ting Xu

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	August 13, 2012	Previous Calibration	July 10, 2012
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	9:26	End Time (MST)	12:35
Reason:	Monthly Calibration		
Barometric Pressure	946 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		
Sample Flow / Box Temp	477 ccm 32 Deg C	478 ccm 30.8 Deg C	
HVPS / Lamp Setting	552 2355	552 2358	
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	315 Deg C 45 Deg C	315 Deg C 45.0 Deg C	
Offset / Slope	36.8 0.837	36.8 0.837	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	0	NA
	No Zero Adj.			
4958	40.0	80	81	0.9880
	No Span Adj.			
4977	20.0	40	40	1.0000
4987	11.5	23	23	1.0000
4998	0	0	0	NA
Sum of Least Squares New Correction Factor				0.9911

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.1		0.6
Auto Span	57.6		58.0
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9880
Percent Change:	1.2%

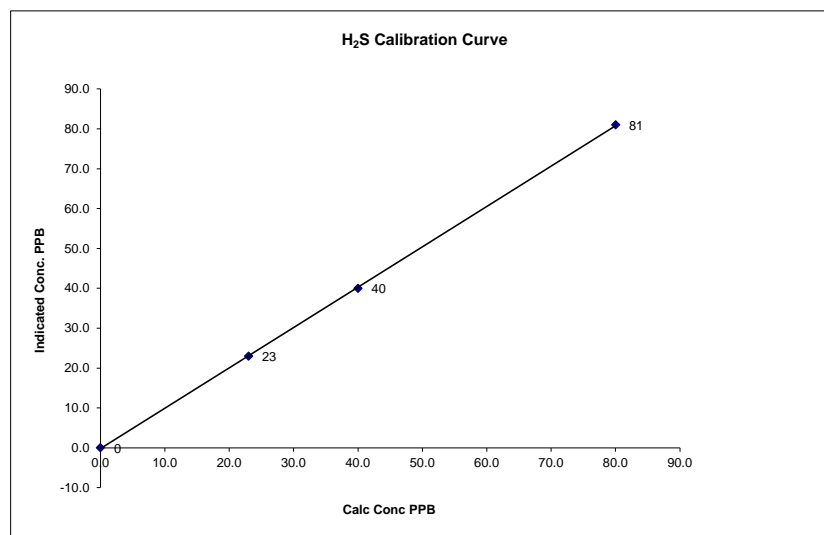
Notes:	NA : Not Applicable

Calibration Performed by: Ting Xu

H₂S Calibration Curve

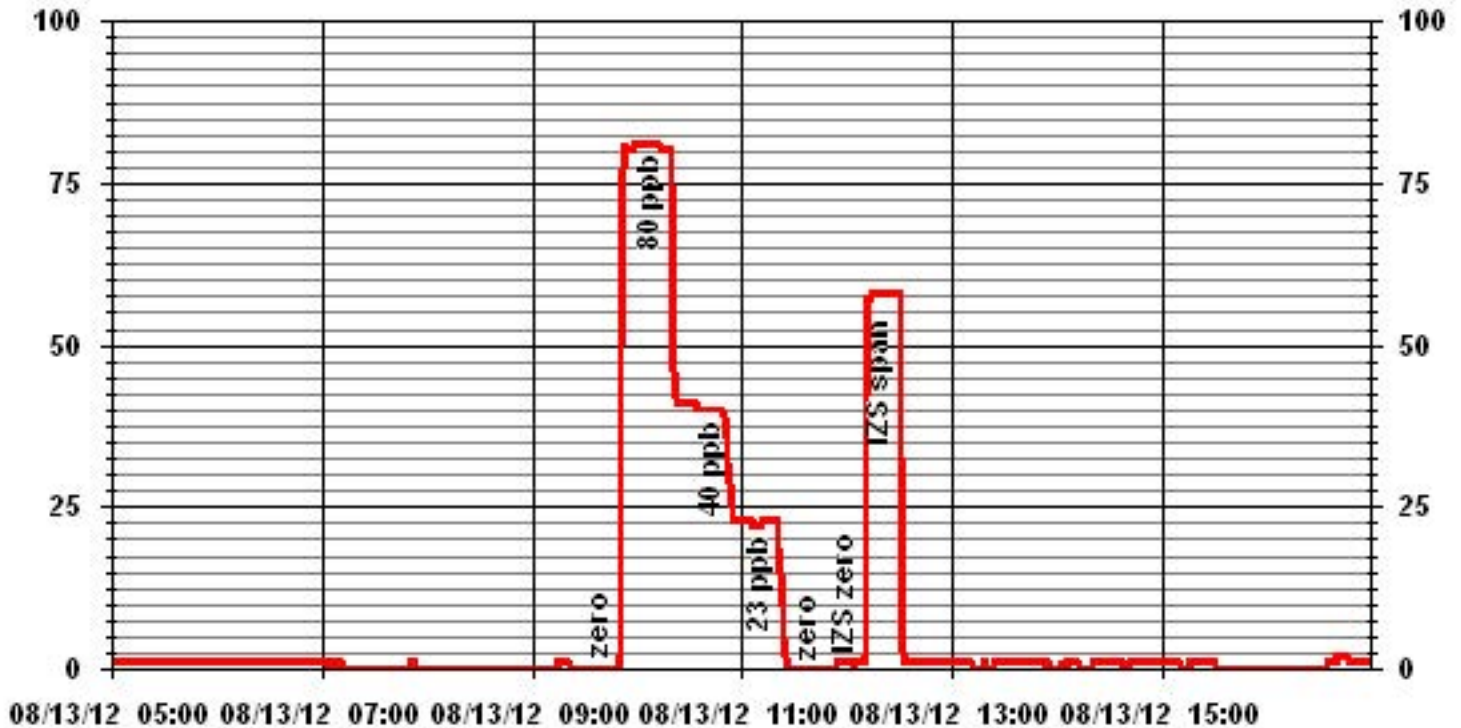
Calibration Date	August 13, 2012		
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	9:26	End Time (MST)	12:35

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999948 1.012526
0	0		Intercept	(± 3% F.S.)	-0.213744
23	23	1.0003			
40	40	1.0006			
80	81	0.9880			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	August 13, 2012	Previous Calibration	July 10, 2012
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	Maskwa		
Start Time (MST)	12:06	End Time (MST)	15:31
Reason:	Monthly Calibration		
Barometric Pressure:	944 mmHg	Station Temperature:	23 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 - 1 VDC	Chart Speed:	NA mm/hr

Analyzer Information

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

Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	NA
	No Zero Adj.			
2000	74.0	41.4	41.7	0.9934
	No Span Adj.			
2000	37.0	21.1	21.2	0.9947
2000	20.0	11.5	11.7	0.9825
2000	0.0	0.0	0.0	NA
New Correction Factor:				0.9934

Percent Change

Previous Calibration Correction Factor:	0.9934
Current Correction Factor Before Span Adjust:	0.9934
Percent Change:	0.0%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.1
Auto Span	35.6	33.9
Sample Lines Connected	YES	

Cylinder Pressures			
Span	2000 psi	Hydrogen	2400 psi
		Zero Air	32 psi

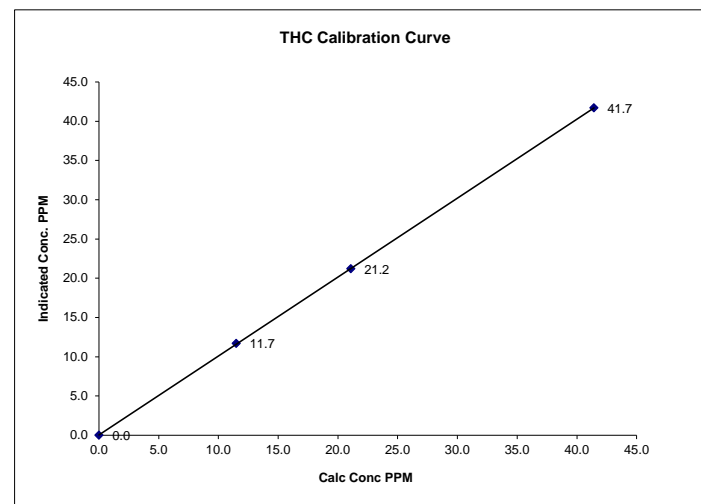
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

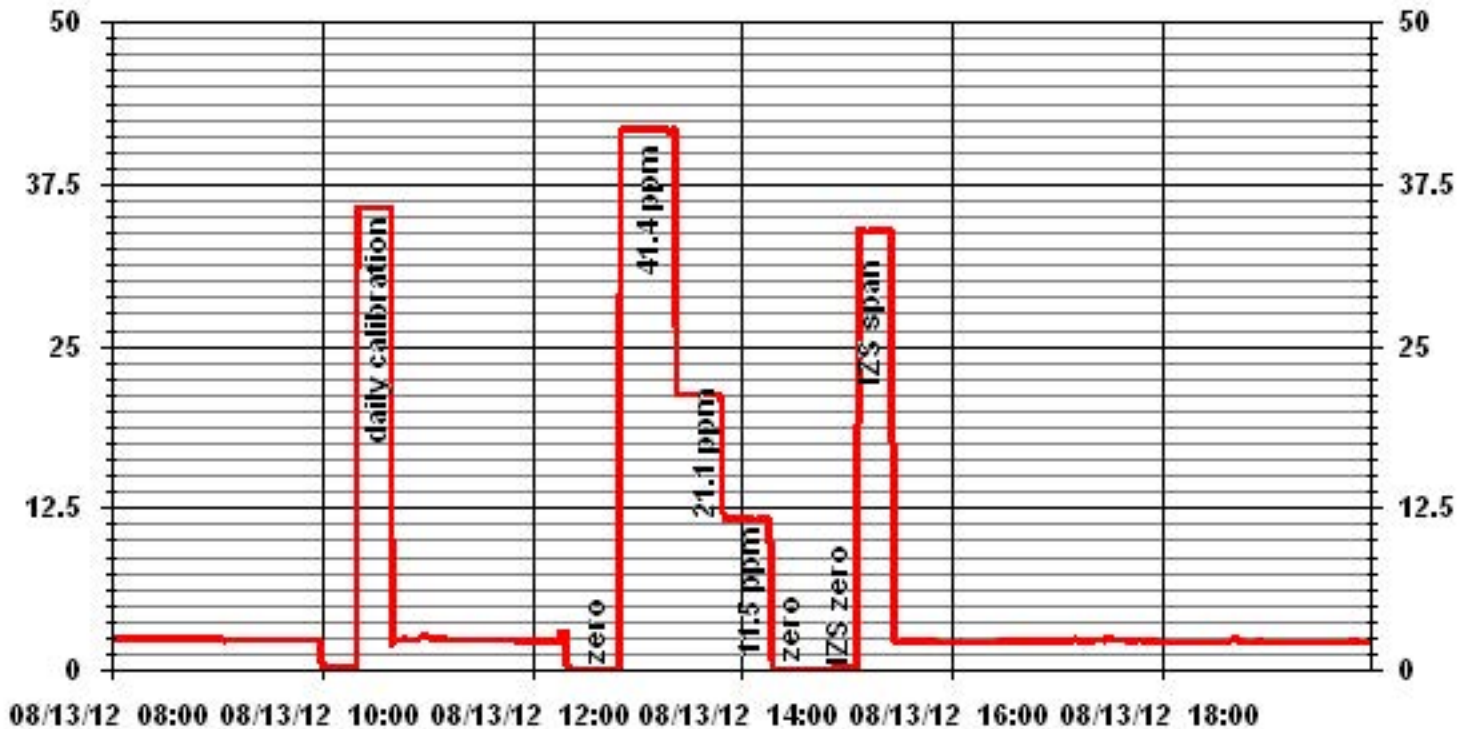
Calibration Date	August 13, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Maskwa		
Start Time (MST)	12:06	End Time (MST)	15:31

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient	Slope	Intercept	(≥ 0.995)	(0.85 to 1.15)	(± 3% F.S.)
0.0	0.0	NA				0.999985	1.005601	0.04445
11.5	11.7	0.9825						
21.1	21.2	0.9947						
41.4	41.7	0.9934						



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	August 13, 2012	Previous Calibration	July 10, 2012
Company	LICA	Plant/Location	Maskwa
Start Time (MST)	9:26	End Time (MST)	15:31
Reason:	Monthly Calibration		
Barometric Pressure	946 mBar	Station Temperature	25 Deg C
Cal Gas Concentration	NOx 49.6 ppm	NO	49.5 ppm
Cal Gas Cylinder #	LL42496	Cal Gas Expiry date	January 16, 2014
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	462 ccm			0 - 1000 ppb				
Sample Flow/Conv. Temp	317	Deg C		456	ccm	317	Deg C	
Ozone Flow / Vacuum	79	ccm	5.6	*Hg-A	79	ccm	5.7	*Hg-A
HVPS / A ZERO	767	Volts	18.0	MV	767	Volts	17.7	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	40.1	Deg C	30.3	Deg C	40.2	Deg C
Offset	0.9	NOx	0.8	NO	-0.3	NOx	-0.5	NO
Slope	1.225	NOx	1.213	NO	1.224	NOx	1.217	NO
NO2 COEF / Conv Efficiency	NA	NO2	0.994		NA	NO2	0.994	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	-1	-1	0	NA	NA
4994	0.0	NA	0	0	NA	0	0	0	NA	NA
4921	75.5	NA	749	748	NA	749	744	6	1.0000	1.0040
4921	75.5	NA	749	748	NA	750	748	3	0.9980	1.0000
4955	40.3	NA	400	399	NA	399	397	2	1.0004	1.0034
4976	20.2	NA	201	200	NA	200	199	1	0.9977	1.0007
4995	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		
4920	75.5	NA	750	748	NA	749	747	2	NA	NA
	No Adj.									
4920	75.5	600	750	NA	528	748	221	527	1.0019	99.81%
4920	75.5	250	750	NA	225	749	524	225	1.0000	100.00%
4920	75.5	140	750	NA	127	750	622	128	0.9922	100.80%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.001	NO= 1.005	NO2= 1.001
				NOx= 0.9980	NO= 1.0000	NO2= 1.0019
				Average Converter Efficiency= 100.20%		

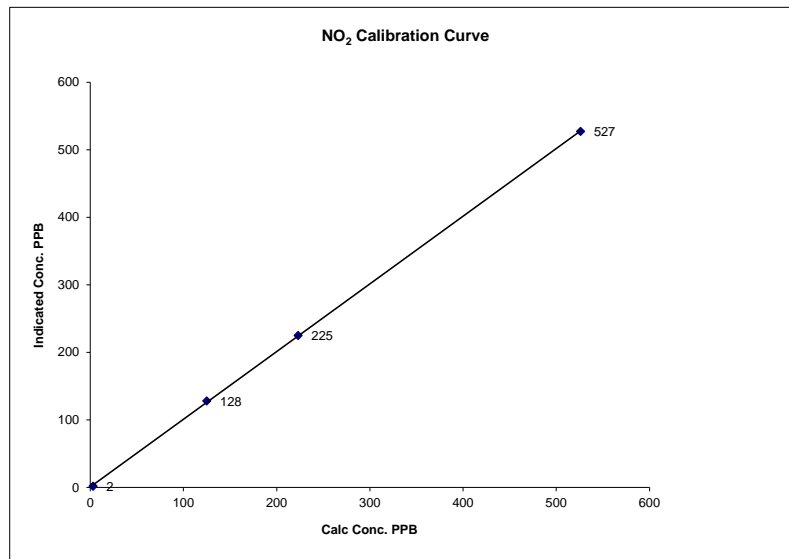
IZS Calibration Data

Before Calibration				After Calibration				
Auto Zero	-0.2	NOx	0.4	NO2	0.9	NOx	0.9	NO2
Auto Span	601	NOx	590	NO2	604	NOx	592	NO2
		Sample Lines Connected				YES		
Percent Change from Previous Calibration		NOx	-0.2%	NO	-0.1%	NO2	0.0%	
Notes	NA : Not Applicable							
Calibration Performed by:	Ting Xu							

NO2 Calibration Curve

Calibration Date	August 13, 2012
Company	LICA
Plant / Location	Maskwa
Start Time (MST)	9:26
End Time (MST)	15:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999944
3	2	N/A	Intercept	(± 3% F.S.)	1.001654
125	128	0.9766			0.88728
223	225	0.9911			
526	527	0.9981			

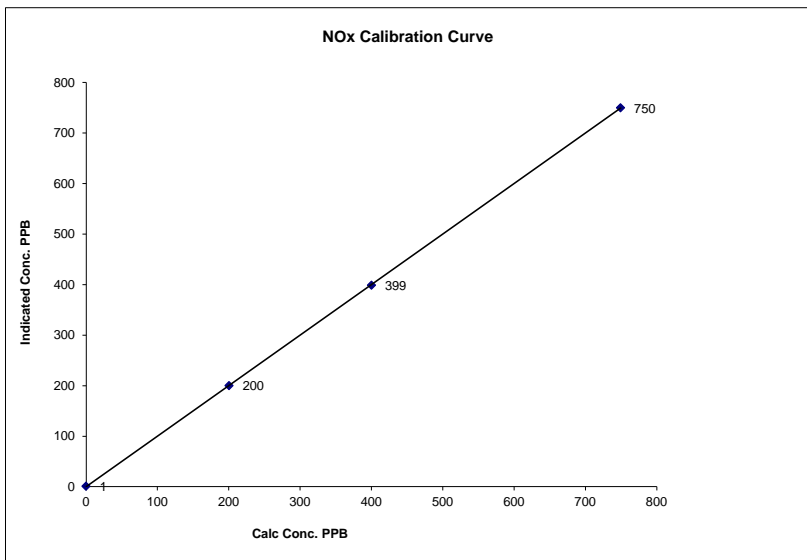


Notes:

NOx Calibration Curve

Calibration Date	August 13, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	9:26	End Time (MST)	15:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999991
0	1	N/A	Slope (0.85 to 1.15)	0.999596
201	200	1.0027	Intercept (± 3% F.S.)	0.09322
400	399	1.0029		
749	750	0.9993		

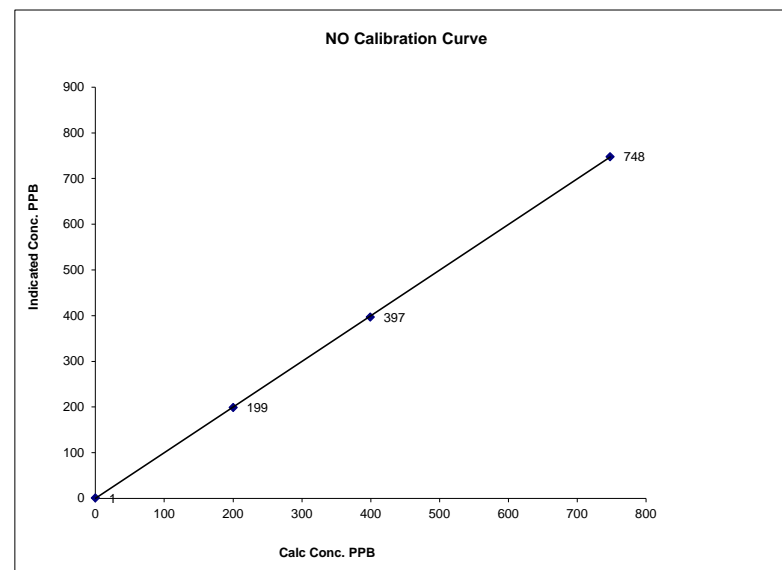


Notes:

NO Calibration Curve

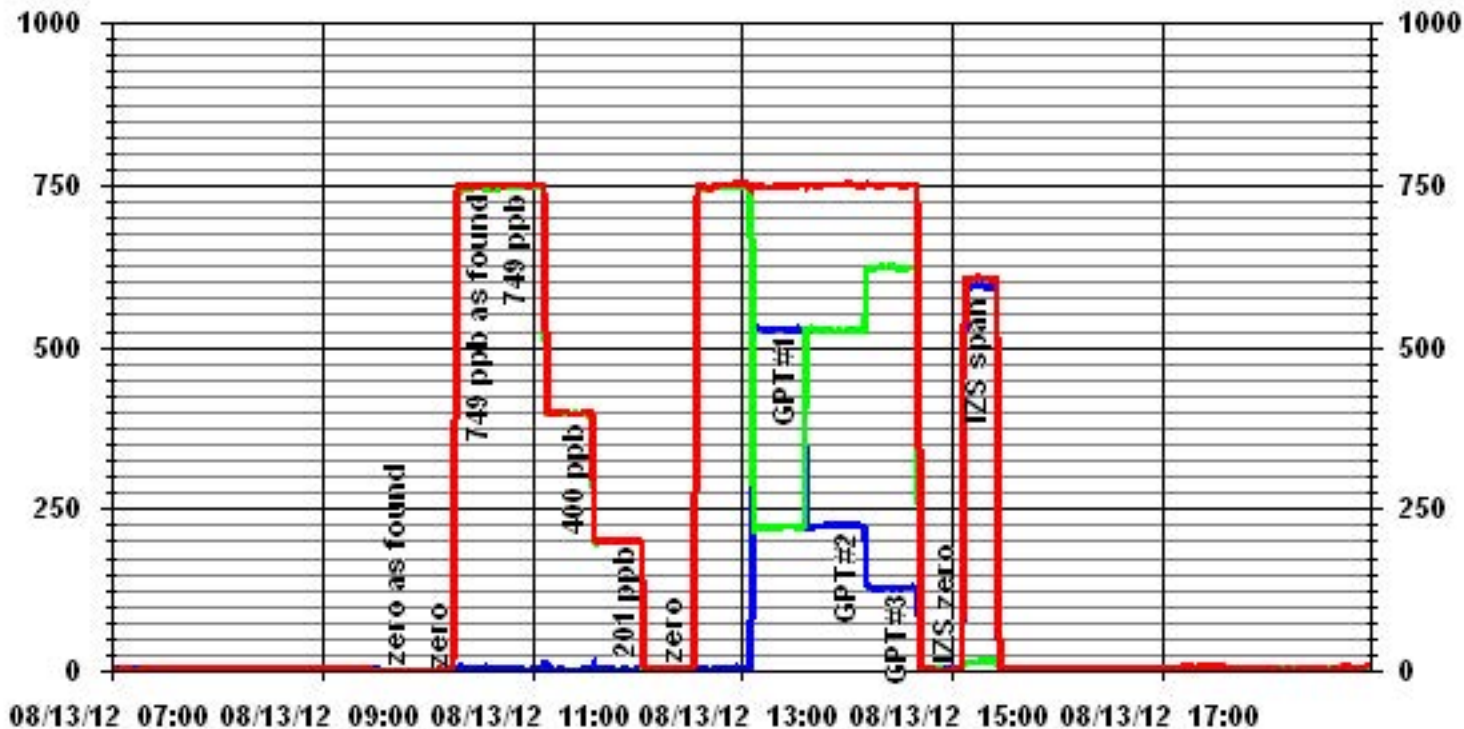
Calibration Date	August 13, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	9:26	End Time (MST)	15:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999980
0	1	N/A	Slope (0.85 to 1.15)	1.002644
200	199	1.0057	Intercept (± 3% F.S.)	-5.0622
399	397	1.0059		
748	748	1.0000		



Notes:

01 Minute Averages



Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site

Ambient Air Monitoring Data Report

For

August 2012

Prepared By:



September 18, 2012

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

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Portable / Elk Point Airport
Data Period: August 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

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

Calibration Procedure

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 – PORTABLE –
 - ELK POINT AIRPORT -

Continuous Ambient Monitoring – August 2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABEL / ELK POINT AIRPORT 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	1	VAR	VAR	VAR	VAR	0.5	13	99.7
H ₂ S (PPB)	10	3	0	0	0.10	2	VAR	VAR	VAR	VAR	0.6	16	99.6
THC (PPM)	-	-	-	-	2.78	8.6	18	3	3.8	310(NW)	4.8	16	98.5
NO ₂ (PPB)	159	-	0	-	3.94	24	16	21	1.5	349(NNW)	7.3	16	99.6
NO (PPB)	-	-	-	-	1.41	33	18	3	3.8	310(NW)	7.7	18	99.6
NO _x (PPB)	-	-	-	-	5.35	42	18	3	3.8	310(NW)	13.6	18	99.6
O ₃ (PPB)	82	-	0	-	22.26	60	28	17	10.4	246(WSW)	28.4	22, 23	99.6
PM 2.5 (UG/M ³)	-	30	-	0	6.74	33.2	7	17	16.3	337(NNW)	13.2	21	94.4
VECTOR WS (KPH)	-	-	-	-	9.97	36.7	23	20	-	313(NW)	21.4	25	99.9
VECTOR WD (DEGREES)	-	-	-	-	320(NW)	-	-	-	-	-	-	-	99.9

VAR-VARIOUS

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

- PORTABLE – Elk Point Airport Site

Xontech Model 910A – August 01, 2012

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

Xontech Model 910A – August 06, 2012

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

Xontech Model 910A – August 13, 2012

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

Xontech Model 910A – August 19, 2012

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

Xontech Model 910A – August 25, 2012

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: Sample result for August 25th is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

Xontech Model 910A – August 31, 2012

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

- PORTABLE – Elk Point Airport Site

PUF cartridge – August 01, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.05	3-Methylcholanthrene

PUF cartridge – August 07, 2012

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

PUF cartridge – August 13, 2012

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

PUF cartridge – August 19, 2012

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

PUF cartridge – August 25, 2012

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

PUF cartridge – August 31, 2012

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

Note: Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

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 was working well throughout the month. The monthly calibration was performed on August 15th. The inlet filter was replaced before the monthly calibration was started. Hourly data on August 23rd at hour 9 was invalidated due to a power failure. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

The analyzer was working well throughout the month. The monthly calibration was performed on August 14th. The inlet filter was replaced before the monthly calibration was started. Hourly data on August 23rd at hour 9 was invalidated due to a power failure. Data was corrected using daily zero information.

THC (PPM)

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

The monthly calibration was performed on August 14th. The inlet filter and the H2 gas cylinder were replaced on August 14th. An as found points check was performed on August 15th to check the analyzer's functionality; the result was good. Hourly data on August 23rd at hour 9 was invalidated due to a power failure. The analyzer flamed out after the power failure, and it was re-lit on August 23rd at hour 11. One hour of data was invalidated due to this issue. The hourly reading was low on August 30th due to the pump issue. Following the as found points check on August 30th, a new inside pump was replaced on August 30th. A post-repair calibration then was performed. Six hours of data was invalidated due to this issue. 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

The analyzer was working well throughout the month. The inlet filter was replaced before the monthly calibration was started on August 14th. Hourly data on August 23rd at hour 9 was invalidated due to a power failure. Data was corrected using daily zero information.

Ozone (PPB)

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

It was noticed that the reading on the data logger stuck at 6 ppb on August 10th. Re-started the analyzer and run a daily calibration checked on August 10th. One hour of data was invalidated due to this issue. The monthly calibration was performed on August 15th. The inlet filter was replaced before the monthly calibration was started. Hourly data on August 23rd at hour 9 was invalidated due to a power failure. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

- Analyzer make / model –TEOM 1405F, S/N: 1405A207691003 replaced to TEOM 1400a, S/N: 30002

It was noticed that the PM2.5 reading stuck at -50 ug/m³ on August 10th. Performed troubleshooting by re-starting the Teom unit on August 10th. One hour of data were invalidated due to this issue. The A teom audit was performed on August 15th. Following the audit, the Teom was replaced to Teom 1400a. The configuration changes were made before the unit installation. An installation audit was performed on the Teom 1400a on August 15th. Temperature, pressure and flow rate calibrations were performed during the installation audit. 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. 40 hours of data were invalidated as they were below -3.0 ug/m³. Hourly data on August 23rd at hour 9 was invalidated due to a power failure.

General Monthly Summary

AQM STATION – LICA – PORTABLE

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

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

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

No operational issues were observed this month. Hourly data on August 23rd at hour 9 was invalidated due to a power failure.

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

The manifold was cleaned on August 15th.

Air Quality Index (AQI)

No AQI report is included in this report, as the AQI value is no longer used by Alberta Environment.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Volatile Organics (VOCs)

The volatile organics were sampled from August 1st to August 31st. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs in this report were reported as ug/m³ in 3 significant figures. Sample results for August 25th and August 31st are not included in this monthly report because they are not available when the monthly report was preparing. The results will be included in the following monthly report.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled from August 1st to August 31st. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs in this report were reported as ng/m³. Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2012

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

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

STATUS FLAG CODES

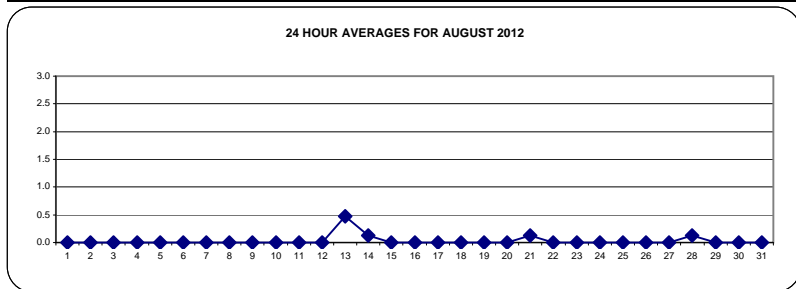
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

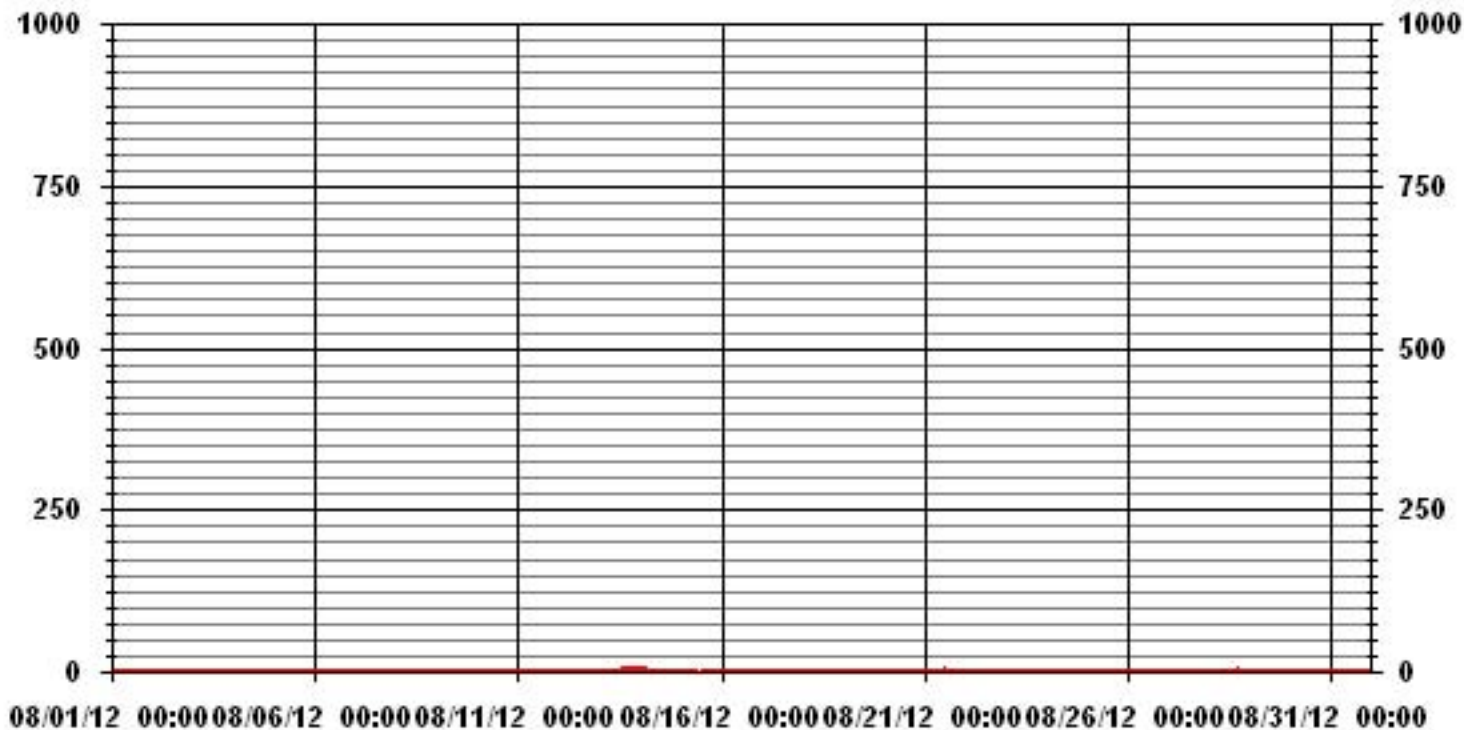
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	20					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.5	PPB			ON DAY(S)	13
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	0.17		MONTHLY AVERAGE:	0.03	PPB	



01 Hour Averages



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

AUGUST 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1		0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
2		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
3		1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	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	3	1	3	1.1	24	
5		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	
6		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	
7		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
8		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1.0	24	
9		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	0.4	24	
10		0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
11		1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
12		0	0	0	0	0	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	3	0.9	24	
13		1	1	1	1	1	1	1	1	1	1	2	1	3	1	2	2	2	2	2	2	2	2	2	2	2	2	3	1.6	24
14		2	2	2	1	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
15		1	0	1	1	1	1	0	2	2	C	C	C	C	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
16		1	1	1	1	1	1	1	1	1	1	3	1	1	1	M	1	1	1	1	1	1	1	1	1	1	3	1.1	23	
17		1	0	1	1	0	0	1	0	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.4	24	
18		0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.3	24	
19		0	0	0	0	0	0	1	0	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	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
21		1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	2	1	1	1	1	1	1	1	2	1.1	24	
22		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0.3	24	
23		1	1	1	1	1	1	1	1	1	P	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	0.9	23	
24		0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0.1	24		
25		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0	24		
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0.4	24	
27		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.6	24	
28		0	0	0	0	0	1	1	3	1	1	1	1	1	1	3	2	2	2	2	2	1	1	1	1	3	1.1	24		
29		1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	0	0	1	3	0	0	3	0.7	24		
30		0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.0	24		
31		0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.7	24	
HOURLY MAX		2	2	2	1	1	1	3	2	1	4	2	3	1	3	3	3	2	2	2	2	2	3	3	2	2	2			
HOURLY AVG		0.7	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.6	1.0	0.8	0.8	0.6	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7			

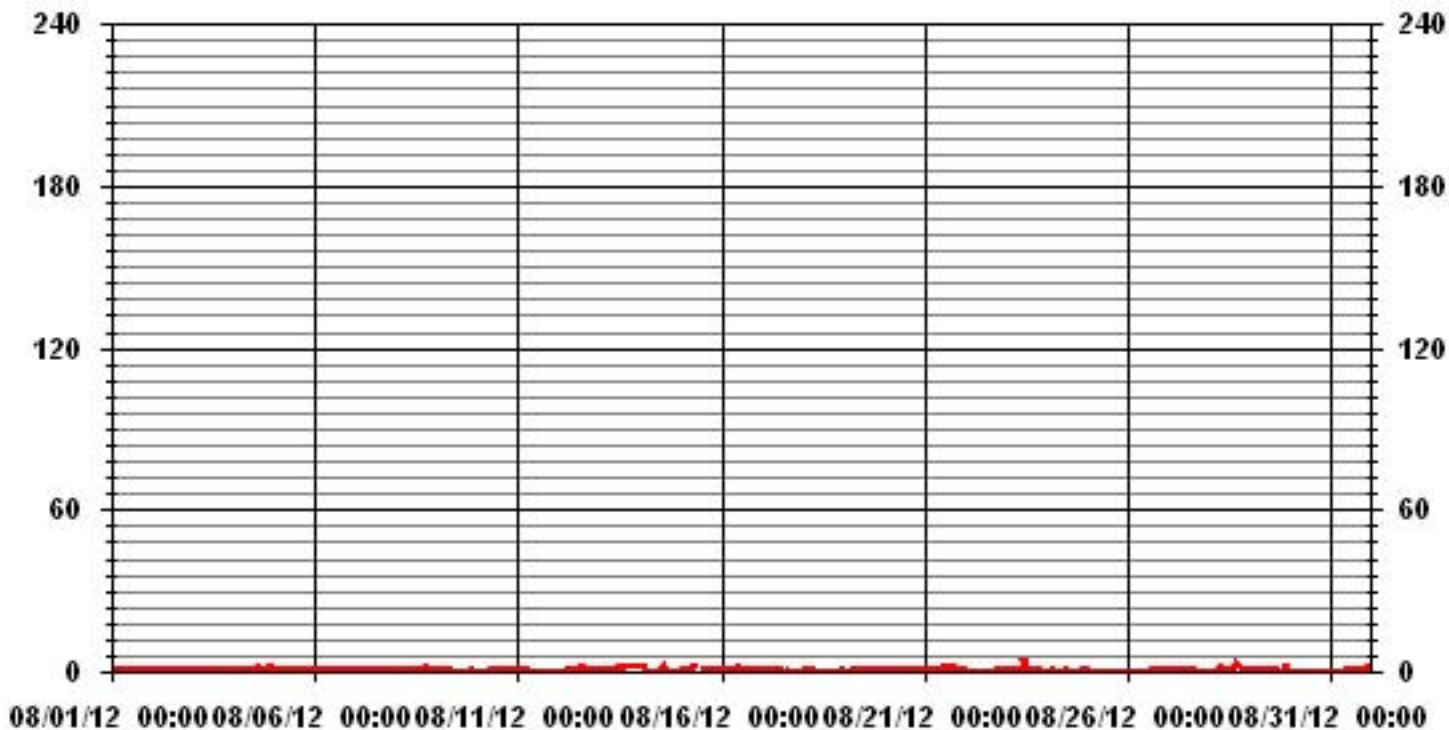
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	466					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	10	ON DAY(S)	23
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.60					

01 Hour Averages



— LICA35 SO2MAX PPB

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

August 2012

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : SO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	5.24	.99	1.27	2.83	7.50	11.33	7.93	5.09	2.54	.99	1.41	2.97	8.64	10.19	16.28	14.73	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.24	.99	1.27	2.83	7.50	11.33	7.93	5.09	2.54	.99	1.41	2.97	8.64	10.19	16.28	14.73	

Calm : .00 %

Total # Operational Hours : 706

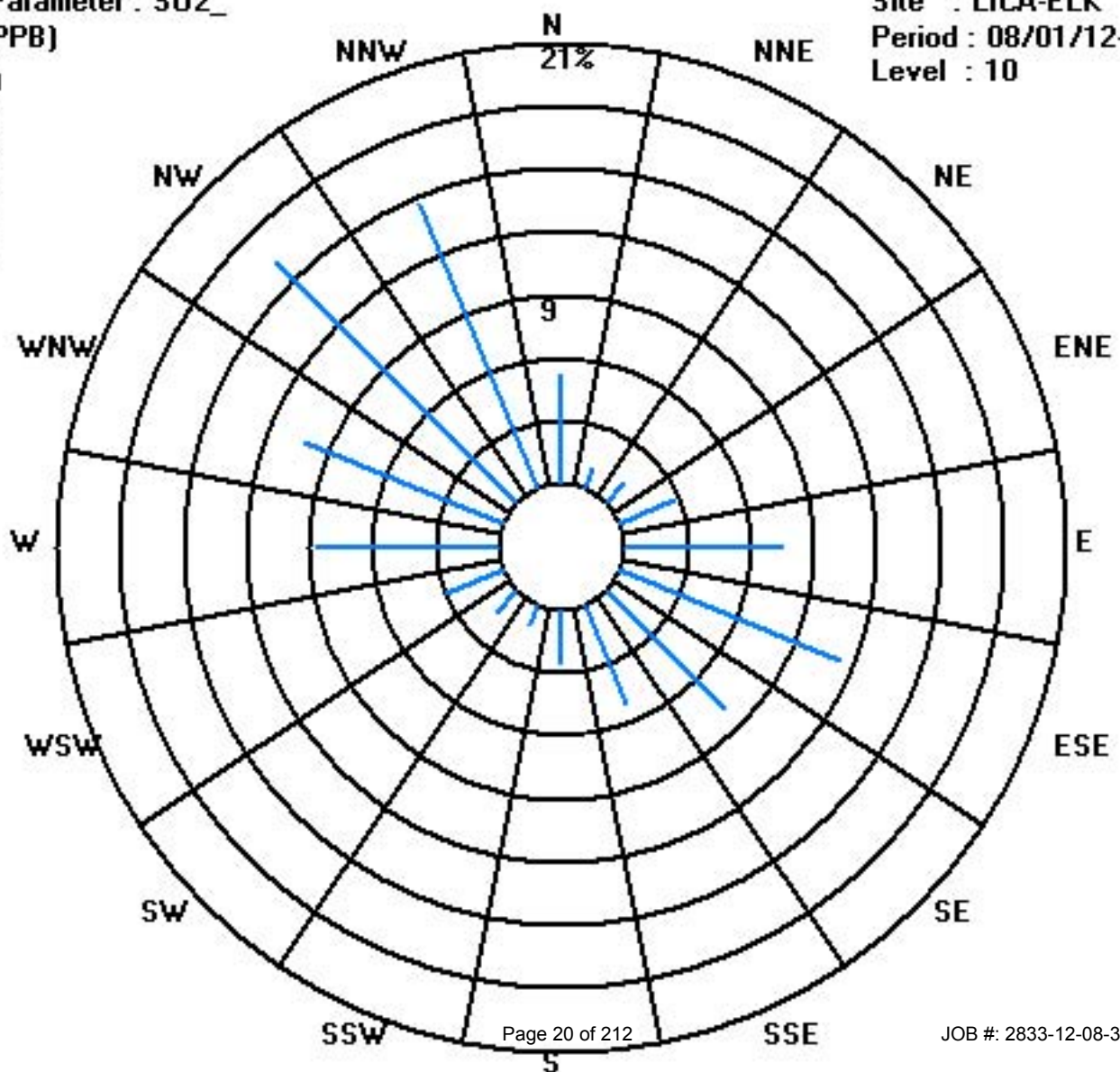
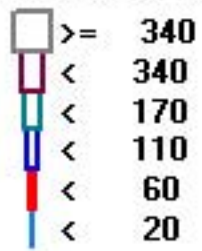
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	37	7	9	20	53	80	56	36	18	7	10	21	61	72	115	104	706
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	37	7	9	20	53	80	56	36	18	7	10	21	61	72	115	104	

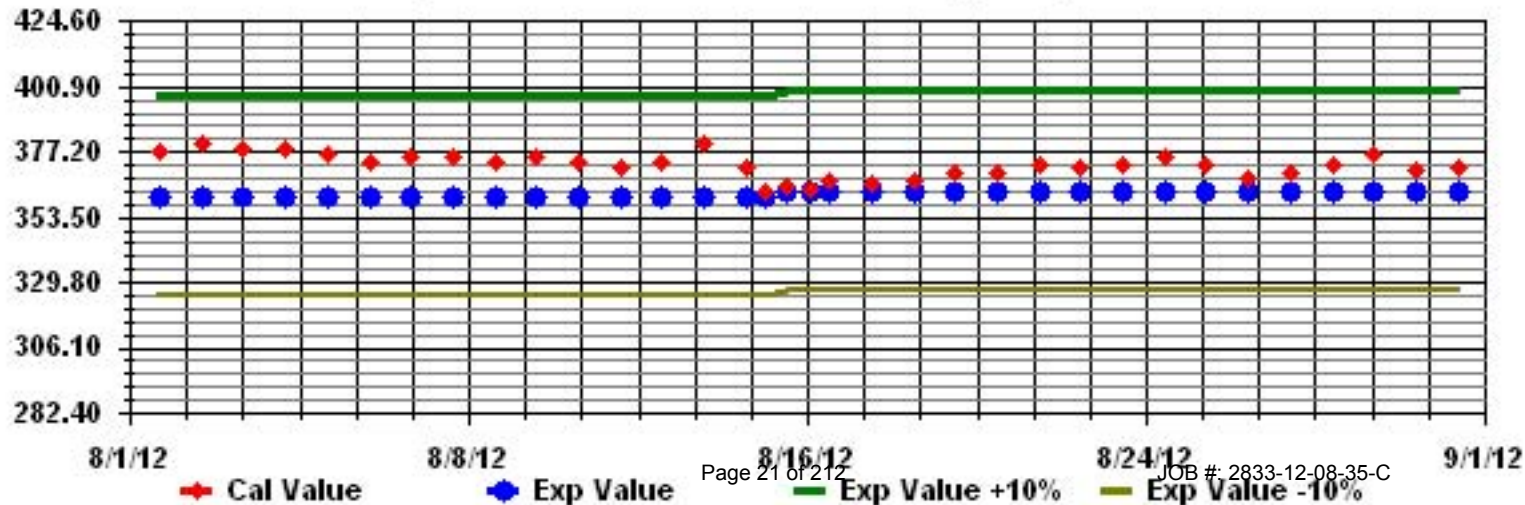
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE - Elk Point Airport

AUGUST 2012

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

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

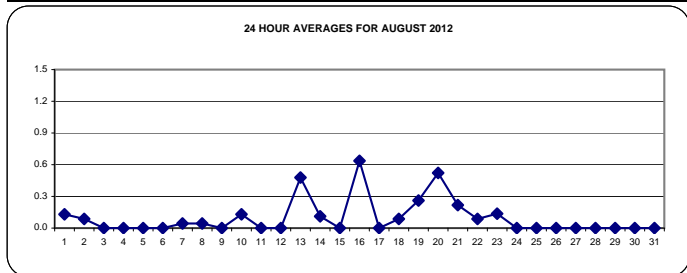
OBJECTIVE LIMIT:

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

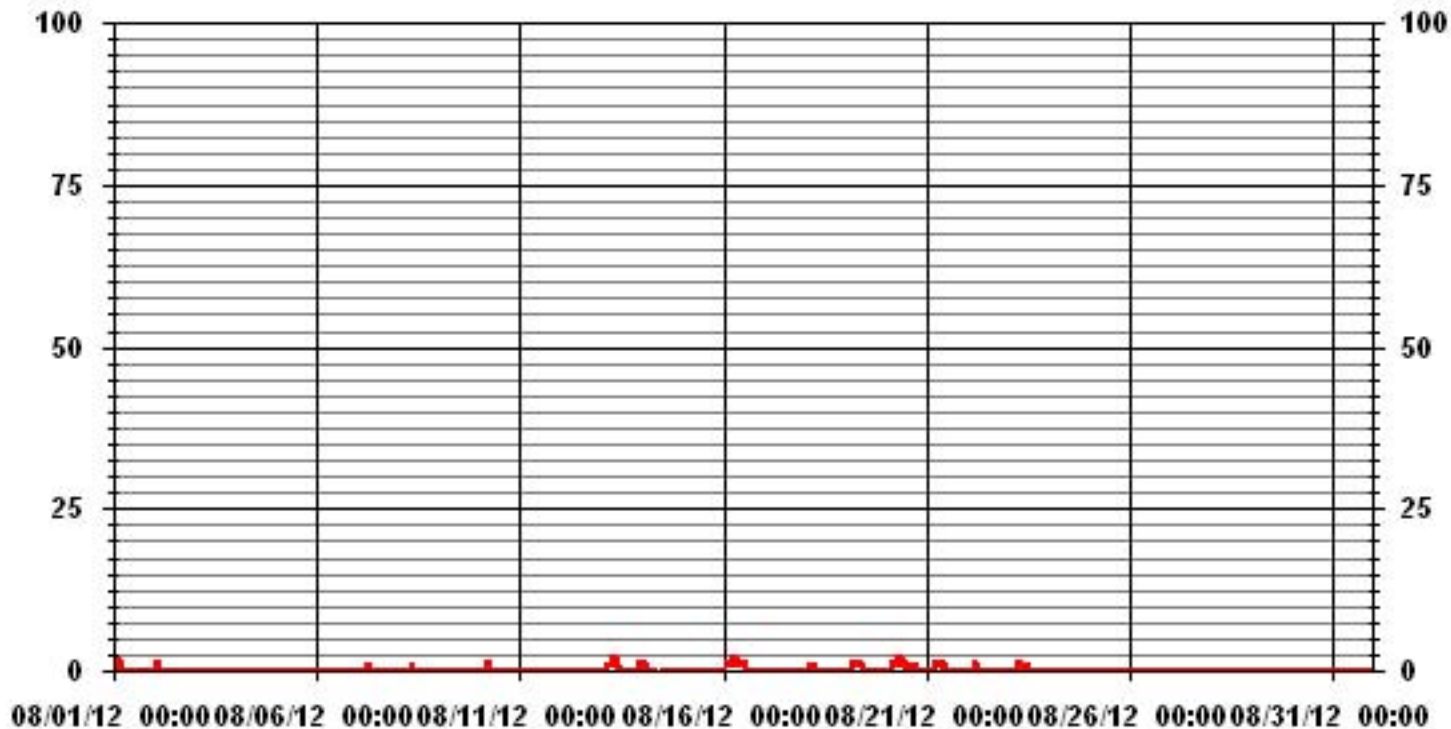
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF 24-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	57				
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	0.6	PPB			ON DAY(S)
					VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	99.6	%
STANDARD DEVIATION:	0.34		MONTHLY AVERAGE:	0.10	PPB

24 HOUR AVERAGES FOR AUGUST 2012



01 Hour Averages



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

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

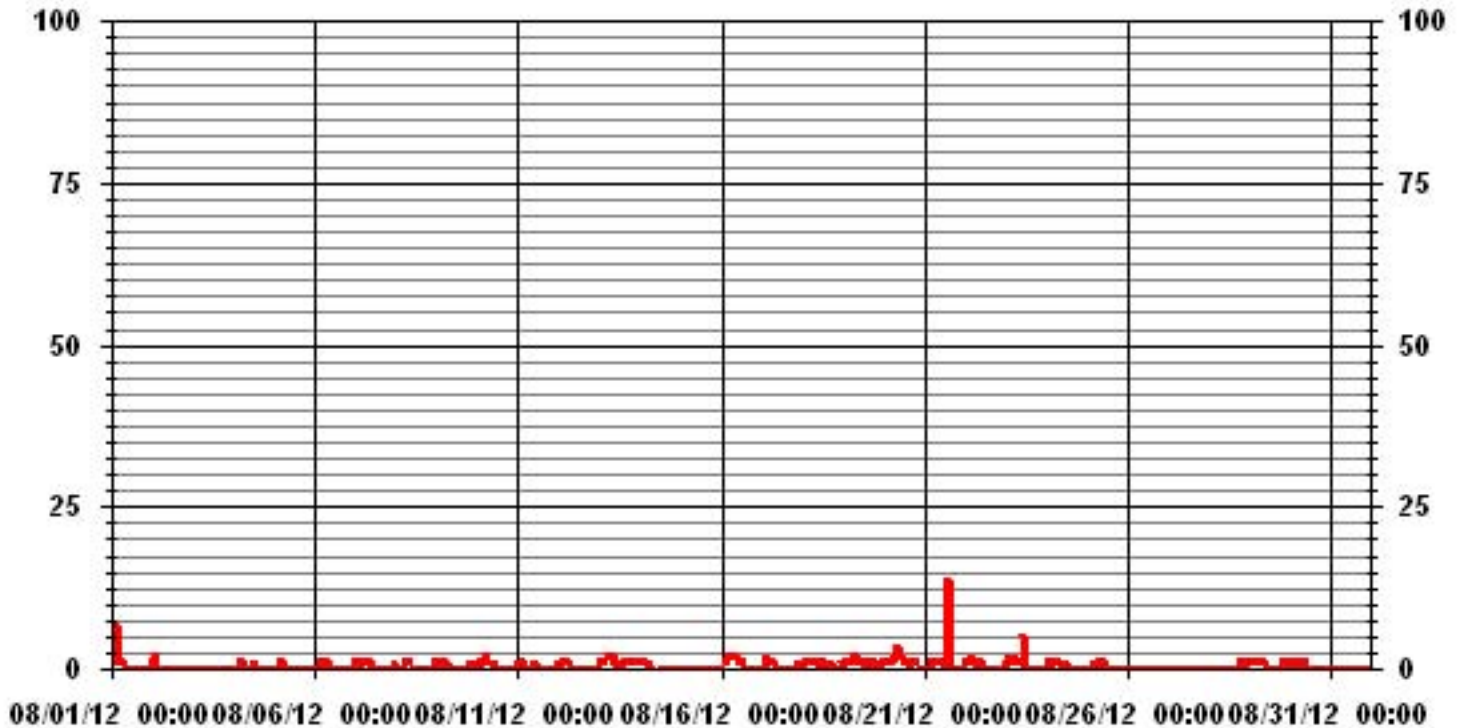
STATUS FLAG CODES

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:	213				
MAXIMUM INSTANTANEOUS VALUE:	14	PPB	@ HOUR(S)	14	ON DAY(S) 21
VAR - VARIOUS					
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS
MONTHLY CALIBRATION TIME:	5	HRS			
STANDARD DEVIATION:	0.82				

01 Hour Averages



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

August 2012

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : H2S_
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	
< 3	4.68	.99	1.27	2.84	7.52	11.36	7.95	5.11	2.55	.99	1.42	2.98	8.66	10.22	16.33	15.05	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.68	.99	1.27	2.84	7.52	11.36	7.95	5.11	2.55	.99	1.42	2.98	8.66	10.22	16.33	15.05	

Calm : .00 %

Total # Operational Hours : 704

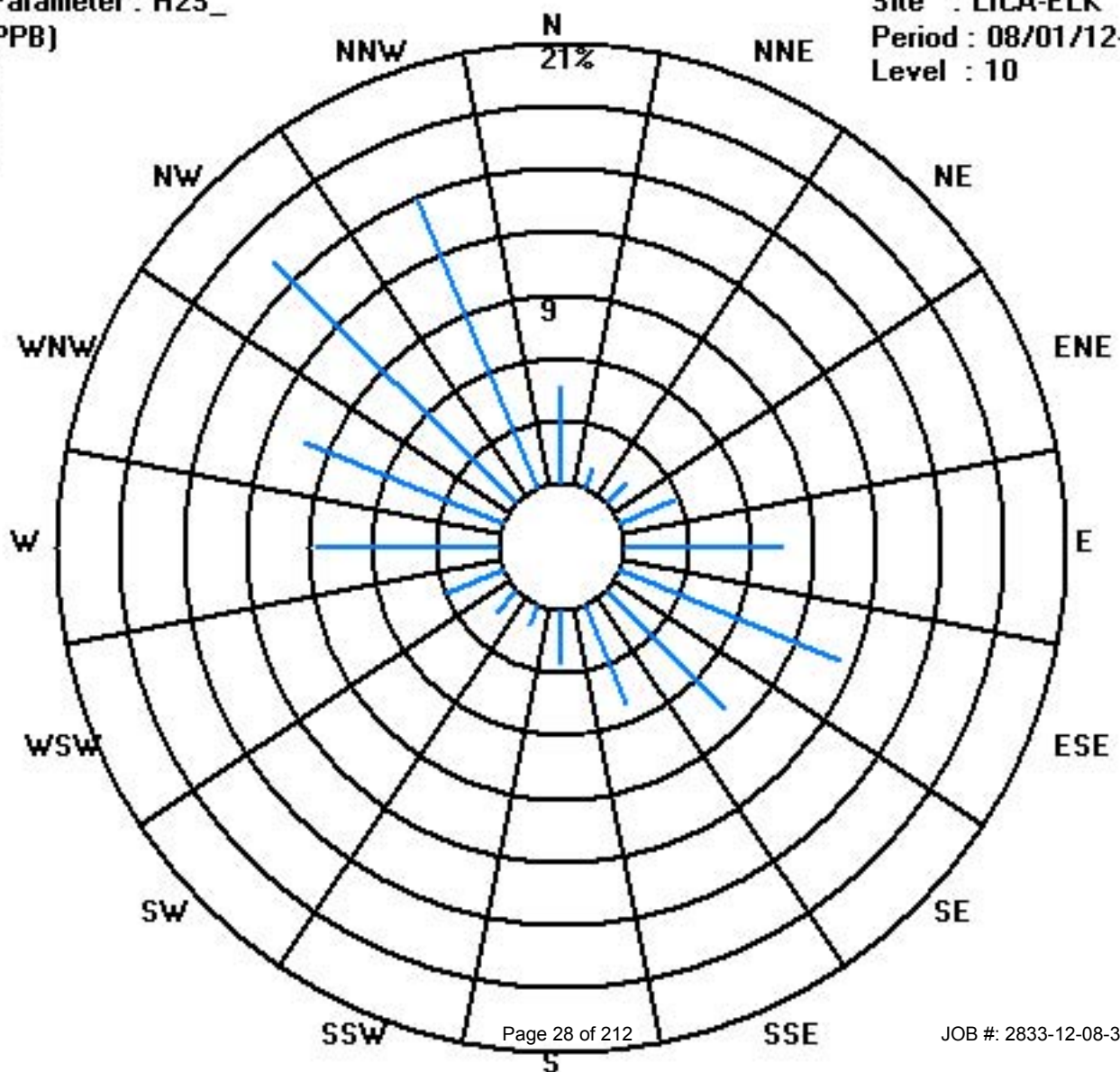
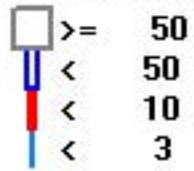
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	33	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	704
< 10																	
< 50																	
>= 50																	
Totals	33	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	

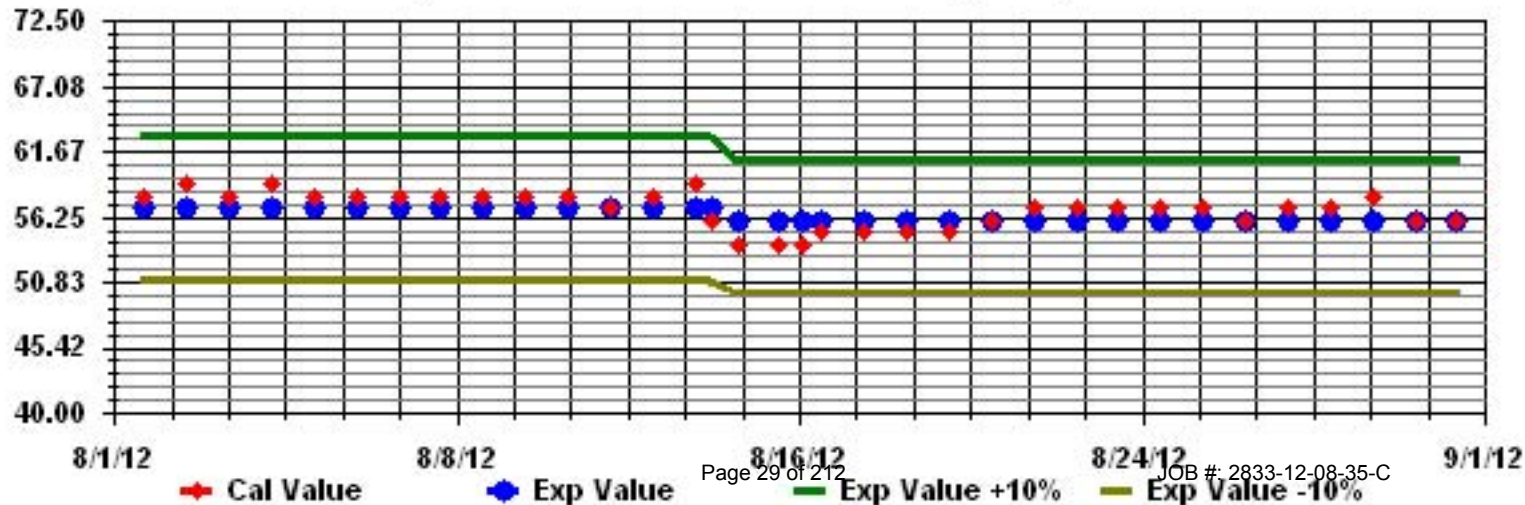
Calm : .00 %

Total # Operational Hours : 704

Class Limits (PPB)



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



Particulate Matter 2.5

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

AUGUST 2012

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		7.3	2.7	5.7	3.2	5.2	7.3	2.2	5.7	2.7	N	11.7	1.7	3.7	13.2	1.7	2.2	3.7	4.8	2.7	12.2	16.2	7.3	9.2	10.7	16.2	6.2	23	
2		8.8	7.7	12.8	3.7	1.3	3.2	4.8	0	5.7	3.7	0.8	0.2	2.2	10.7	N	N	N	0	N	9.7	1.2	0	0.7	3.7	12.8	4.0	20	
3		2.2	0	1.3	3.3	3.3	1.7	3.7	5.7	13.8	N	24.7	0.7	2.2	12.3	7.7	5.7	6.7	12.3	0	8.2	11.8	N	11.3	0	24.7	6.3	22	
4		4.2	1.7	3.7	4.2	3.7	1.8	1.8	6.7	6.2	8.8	8.8	2.2	9.7	15.2	14.3	7.7	5.2	4.8	2.2	0.2	N	9.7	10.7	12.2	15.2	6.3	23	
5		8.3	N	1.3	3.7	13.8	N	0	7.8	8.8	0.2	9.7	0	1.3	N	0	8.3	0	0	8.8	N	5.2	10.7	0	4.2	13.8	4.6	20	
6		5.2	5.2	6.7	6.7	8.3	3.7	5.7	5.7	3.7	4.8	0.2	N	0	7.7	N	9.2	12.3	13.2	1.7	2.2	2.8	0	13.8	9.2	13.8	5.8	22	
7		5.7	28.3	3.7	0	0	8.3	1.3	5.7	5.7	10.7	13.2	5.7	18.2	10.7	2.7	8.2	11.7	33.2	0.8	1.3	8.3	9.2	0	0	33.2	8.0	24	
8		10.3	N	4.2	2.8	4.2	2.2	0.2	7.8	6.2	3.7	6.2	1.2	15.3	12.7	0.7	5.7	7.7	11.7	4.8	17.7	7.3	12.2	11.7	9.7	17.7	7.2	23	
9		N	3.3	10.7	N	13.2	0	0.8	N	7.7	14.3	0	0	10.2	0.8	N	15.7	2.2	9.2	12.8	N	8.2	10.2	N	5.7	15.7	6.9	18	
10		3.7	6.2	3.3	3.7	3.7	12.8	0	7.3	14.7	23.2	5.2	N	N	M	3.2	4.9	10.1	8.1	1.6	11.1	9.3	0	6.5	12.9	23.2	7.2	21	
11		16.8	4.8	11.1	9.7	0.9	10.3	12.8	5.1	7.2	5.1	18.3	N	12.4	N	9.5	3.9	0.6	7	2.5	N	2.8	3.1	5.2	5.7	18.3	7.4	21	
12		5.9	0	3	4.1	1.2	3.7	2.7	3.8	8.6	0	14.4	N	11.5	7.2	5.7	5.4	6.2	9.6	7.1	6.1	14.7	13.2	6.7	8.2	14.7	6.5	23	
13		7.8	7.2	7.8	7.6	7.9	6.2	8.3	5.2	6.3	13.2	6.6	5.7	4.2	10.6	2.2	0	11.7	6.2	0	11.2	5.2	10.7	4.8	3.6	13.2	6.7	24	
14		N	15.5	1.7	6.2	N	21.2	0	12.7	N	6.2	0	7.3	1.2	11.7	5.7	25.2	25.2	N	4.2	3.2	5.7	3.7	2.2	3.7	25.2	8.1	20	
15		7.3	4.2	4.8	4.2	6.2	0	4.8	8.8	0	0	N	N	N	13.8	12.2	1.7	0.7	3.3	8.3	4.2	4.2	4.2	7.3	8.2	13.8	5.2	21	
16		4.8	3.3	1.7	1.7	3.3	5.2	4.2	0	N	C	M	M	C	0	0	N	N	N	0	0	0.6	2	2.1	2.6	5.2	2.0	18	
17		2	3.2	3.5	2.9	3.8	4.8	6.4	7.8	10.8	12	13.7	9.8	8.9	7.5	8.2	10	9.5	10.9	12.1	9.8	11.3	11	11	12.1	13.7	8.5	24	
18		11	9.9	8.8	9	5.8	7.4	12.9	10.6	14.2	14.5	12.4	8.8	6.2	6.5	6.5	8	7.5	8	8.5	12.1	12	10.4	11.1	10.7	14.5	9.7	24	
19		11.8	10.7	11.2	9.8	10	11.3	13.5	14.1	14.3	13.2	13.9	9.9	8.9	9.6	10.8	10.8	12.3	13.4	14.6	15.8	12.3	13	13.1	9.3	15.8	12.0	24	
20		7.4	5.5	7.4	5.7	8.1	8.9	18	12.5	17.3	19.5	14.8	10.1	3.2	8.3	8.8	8.3	13.4	18.7	16.1	17.2	16.1	15.1	15.5	13.2	19.5	12.0	24	
21		12.9	12	11.3	9.8	9.8	11.2	16.6	13.8	16.1	20.4	20.5	16.3	15.6	20.2	9.4	5	14.2	13.2	12.7	12.4	12.8	14.3	8.8	7.6	20.5	13.2	24	
22		10.5	11.9	8.8	9	11.7	7.6	4.4	6.3	6.2	7.5	8.1	8.5	5.1	6.1	6.2	5.5	6.1	2.7	6.6	6.8	4.5	5.7	6.1	2.9	11.9	6.9	24	
23		3.7	2.4	2.3	1.5	1.5	2.5	7.5	4.9	11.6	N	1.5	6.3	5.5	7.1	6	7.1	9.3	3.5	6.6	8.4	6.7	0	0.8	3	11.6	4.8	23	
24		1.4	4.3	1.3	5	3.5	2.8	4.8	4.8	5.2	5.5	4.1	4.9	4.4	3.8	3.4	3.9	2.2	3.4	3.1	4.3	5.9	3.4	2.7	1.4	5.9	3.7	24	
25		2.6	2.2	2.5	2.9	4.1	4	4	2.8	4.5	5.1	5.8	6.2	4.3	5	4	5.3	5.4	3	6.3	3.1	5.5	2.9	4.6	4.1	6.3	4.2	24	
26		3.8	3	3.5	3.5	2.9	3.9	7.1	6.9	7.8	5.8	5.4	3.6	2.4	5.2	1.7	4.7	3.2	5.4	7.3	6.9	7.4	4.2	4.3	5.3	7.8	4.8	24	
27		5.2	4.2	1.9	4.9	2.6	4.4	7	7.3	3.6	3.8	3	7.6	5.5	6.5	7.9	9.6	10.5	8.9	8.9	8.2	10.8	10.4	3.4	9.7	10.8	6.5	24	
28		3.2	3.3	3.4	0.6	3.4	5.8	13	11.2	7.5	8	7.3	4.2	10.1	11	10	8	13.2	13.4	11.8	14.2	10.7	18	10.7	10.5	18.0	8.9	24	
29		6.2	8.8	5	6.1	4.9	5	5.2	5.4	8.6	4.4	4.7	3.2	3.6	1.4	3	1.2	0.9	3.8	3.8	2.9	4.1	4.5	3.4	3.1	8.8	4.3	24	
30		2.7	3.6	2.5	3.6	4.3	4	6	5.7	4.6	3.6	4.7	1.2	12.6	5.3	5.1	20.1	5.3	6.7	11.2	4.2	1.4	4.9	2.3	4.1	20.1	5.4	24	
31		3.1	2.6	3.6	0.9	3.1	3.3	4.8	4	4	2.4	4.5	3.6	0.8	6.2	1.6	4.2	0	4.3	6.7	6.3	4.1	1.6	1.5	1.9	6.7	3.3	24	
HOURLY MAX		17	28	13	10	14	21	18	14	17	23	25	16	18	20	14	25	25	33	16	18	16	18	16	13				
HOURLY AVG		6.4	6.1	5.2	4.7	5.2	5.8	6.0	6.9	8.1	8.1	8.4	5.2	6.8	8.4	5.7	7.4	7.5	8.4	6.5	7.9	7.6	7.2	6.4	6.4				

STATUS FLAG CODES

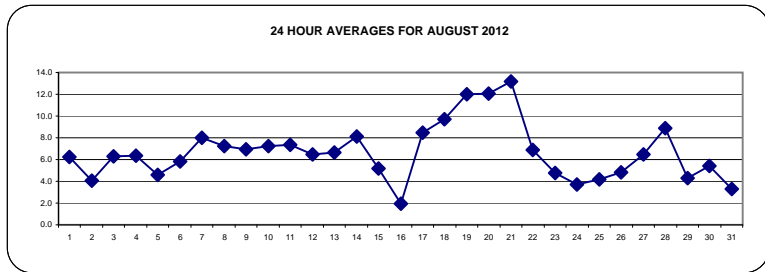
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

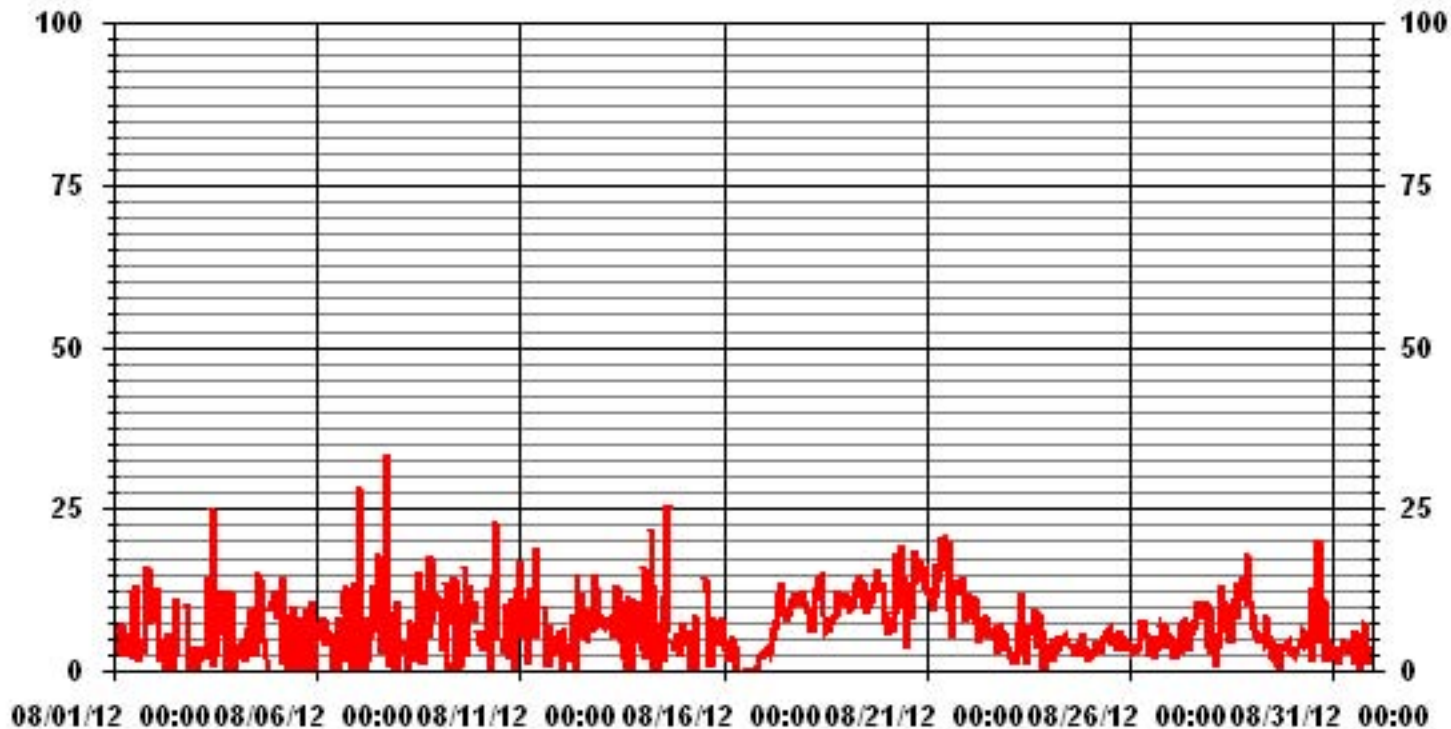
ALBERTA ENVIRONMENT:	1-HR	-	PPB	24-HR	30	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	661		
MAXIMUM 1-HR AVERAGE:	33.2 UG/M ³ @ HOUR(S) 17 ON DAY(S) 7		
MAXIMUM 24-HR AVERAGE:	13.2 UG/M ³ ON DAY(S) 21		
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	702 HRS
MONTHLY CALIBRATION TIME:	2 HRS	AMD OPERATION UPTIME:	94.4 %
STANDARD DEVIATION:	4.79	MONTHLY AVERAGE:	6.74 UG/M ³



01 Hour Averages



— LICA35 PM2 UG/M3

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

August 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	4.71	1.00	1.28	2.57	7.57	11.85	8.28	5.28	2.85	.85	1.14	2.85	8.14	10.57	16.57	14.28	99.85
< 60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.14
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.71	1.00	1.28	2.57	7.57	11.85	8.28	5.28	2.85	.85	1.14	2.85	8.14	10.57	16.57	14.42	

Calm : .00 %

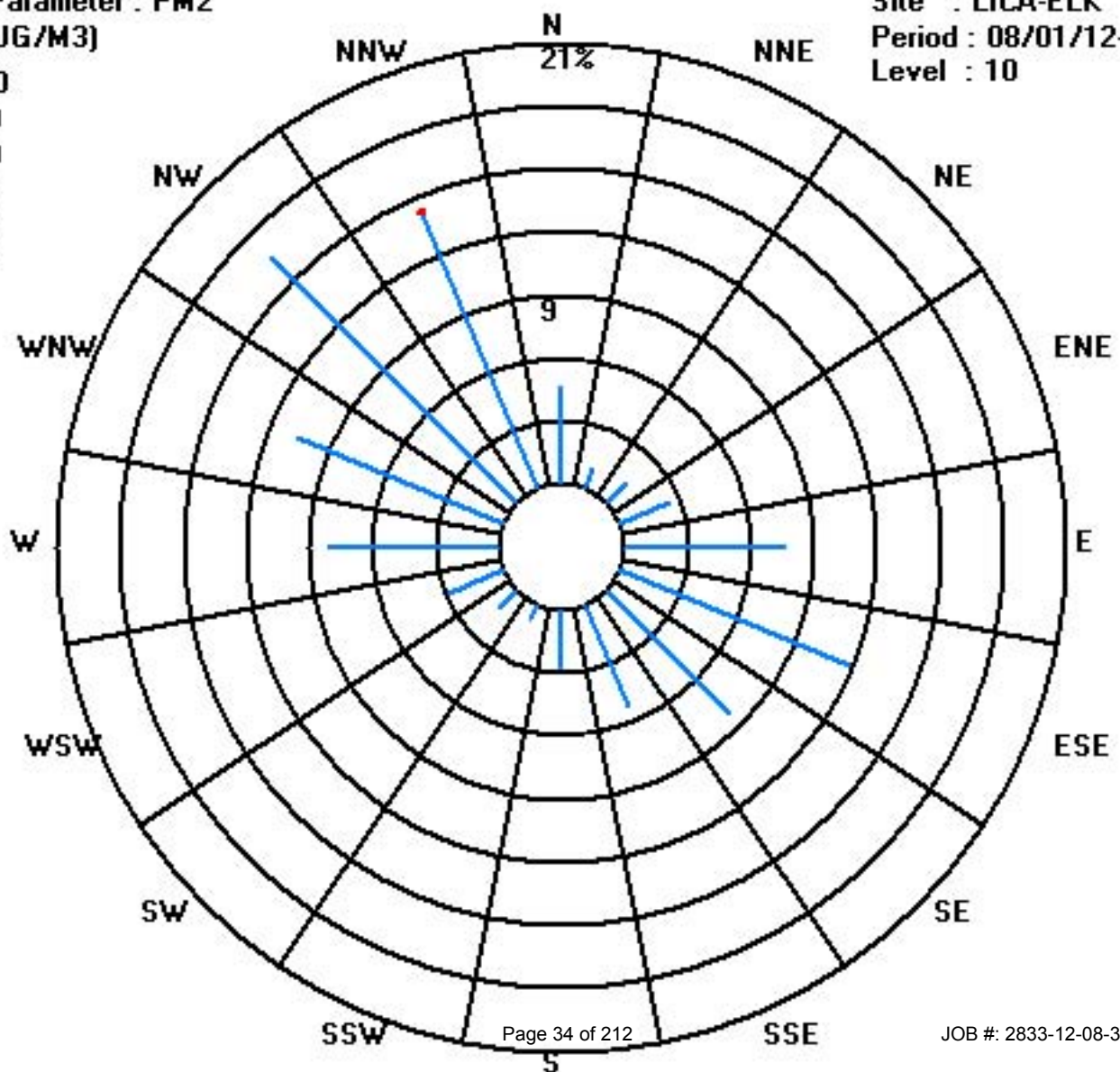
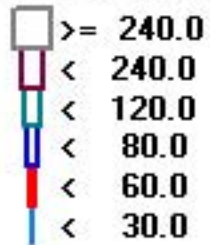
Total # Operational Hours : 700

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	33	7	9	18	53	83	58	37	20	6	8	20	57	74	116	100	699
< 60.0																1	1
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	33	7	9	18	53	83	58	37	20	6	8	20	57	74	116	101	

Calm : .00 %

Total # Operational Hours : 700



Nitrogen Dioxide

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

AUGUST 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	
HOUR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	6	5	8	4	3	5	3	2	2	1	1	3	1	0	0	2	IZS	1	2	1	8	15	13	14	15	4.3	24
2	8	11	10	2	2	0	1	4	1	3	2	1	1	2	0	IZS	0	0	0	3	8	5	7	2	11	3.2	24
3	2	0	0	0	0	0	1	1	1	1	1	0	0	0	IZS	0	0	0	0	3	6	4	5	6	6	1.3	24
4	6	6	6	4	5	4	3	2	1	1	1	1	1	IZS	0	1	1	0	1	6	6	6	3	4	6	3.0	24
5	6	6	5	3	3	3	3	4	1	0	0	0	IZS	0	0	0	0	0	0	7	5	7	7	7	7	2.6	24
6	7	7	7	8	8	7	5	3	2	1	0	IZS	1	0	0	0	0	0	1	3	5	6	9	6	9	3.7	24
7	6	3	3	3	6	6	6	3	2	1	IZS	1	1	1	2	1	4	2	6	3	11	10	7	8	11	4.2	24
8	11	10	8	7	8	7	5	4	3	IZS	1	1	1	1	1	2	2	2	2	3	3	2	1	2	11	3.8	24
9	4	2	5	6	4	6	3	2	IZS	0	1	1	1	1	1	1	1	2	3	6	14	9	15	13	15	4.4	24
10	11	10	12	9	8	8	9	IZS	7	3	2	4	2	1	0	0	0	1	3	6	5	5	7	5	12	5.1	24
11	8	9	5	1	4	5	IZS	3	1	0	0	0	0	1	1	1	1	2	1	2	9	11	11	5	11	3.5	24
12	5	7	8	11	8	IZS	5	3	1	0	0	0	0	0	0	0	0	0	0	4	7	11	8	8	11	3.7	24
13	6	10	9	7	IZS	6	5	3	2	1	1	1	1	1	1	2	2	1	3	3	5	3	4	4	10	3.5	24
14	5	8	5	IZS	12	7	1	1	C	C	C	C	C	C	C	0	0	0	0	0	1	1	1	1	12	2.6	24
15	1	1	IZS	1	1	2	1	1	1	0	0	0	0	M	0	0	0	0	1	6	11	8	10	14	14	2.7	23
16	13	IZS	7	9	10	8	5	6	5	3	1	1	1	M	0	0	1	1	5	14	10	24	20	17	24	7.3	23
17	IZS	15	13	15	14	12	8	5	2	2	2	2	1	1	1	1	0	0	0	8	13	14	IZS	15	5.9	24	
18	10	12	11	9	7	8	8	7	8	7	5	2	1	1	1	1	1	1	5	6	10	8	IZS	6	12	5.9	24
19	5	4	5	7	8	12	9	4	3	1	2	1	1	1	1	1	1	4	5	13	11	IZS	12	12	13	5.3	24
20	11	9	7	9	9	10	9	9	9	8	5	3	1	1	1	1	1	3	5	14	IZS	15	12	9	15	7.0	24
21	8	8	9	10	12	13	10	7	6	4	4	3	2	2	3	2	2	3	6	IZS	8	8	8	12	13	6.5	24
22	10	5	7	9	2	2	1	1	1	1	1	1	1	0	1	0	1	IZS	5	9	12	10	5	12	3.7	24	
23	4	4	3	5	9	8	7	3	4	P	0	0	0	1	1	1	1	IZS	1	1	1	0	0	1	9	2.5	23
24	1	2	0	1	1	1	1	1	1	1	2	1	1	0	0	1	IZS	2	2	2	3	2	3	4	4	1.4	24
25	3	1	2	2	2	2	2	2	1	0	1	1	1	0	0	IZS	1	1	0	3	3	3	3	3	3	1.6	24
26	4	2	4	4	3	4	4	4	3	2	0	0	0	0	IZS	0	0	1	3	6	10	13	11	10	13	3.8	24
27	8	8	6	7	7	7	7	3	2	2	0	0	1	IZS	1	1	2	4	9	16	13	8	8	7	16	5.5	24
28	6	7	10	12	9	7	9	9	4	1	1	1	IZS	1	1	1	2	4	13	17	14	9	14	3	17	6.7	24
29	7	3	2	1	3	4	0	1	1	1	2	IZS	1	0	1	1	1	0	2	7	5	4	4	4	7	2.4	24
30	5	6	3	5	9	9	6	3	1	1	IZS	1	0	0	0	0	1	0	0	1	0	2	3	4	9	2.6	24
31	2	4	4	4	5	6	4	1	0	IZS	0	0	0	0	0	0	1	1	2	1	0	1	1	1	6	1.7	24
HOURLY MAX	13	15	13	15	14	13	10	9	9	8	5	4	2	2	3	2	4	4	13	17	14	24	20	17			
HOURLY AVG	6.3	6.2	6.1	5.8	6.1	6.0	4.7	3.4	2.6	1.7	1.3	1.1	0.8	0.7	0.6	0.8	0.9	1.2	2.7	5.2	7.0	7.4	7.7	6.6			

STATUS FLAG CODES

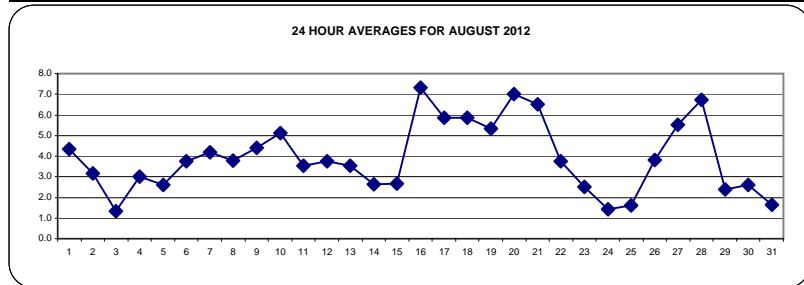
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

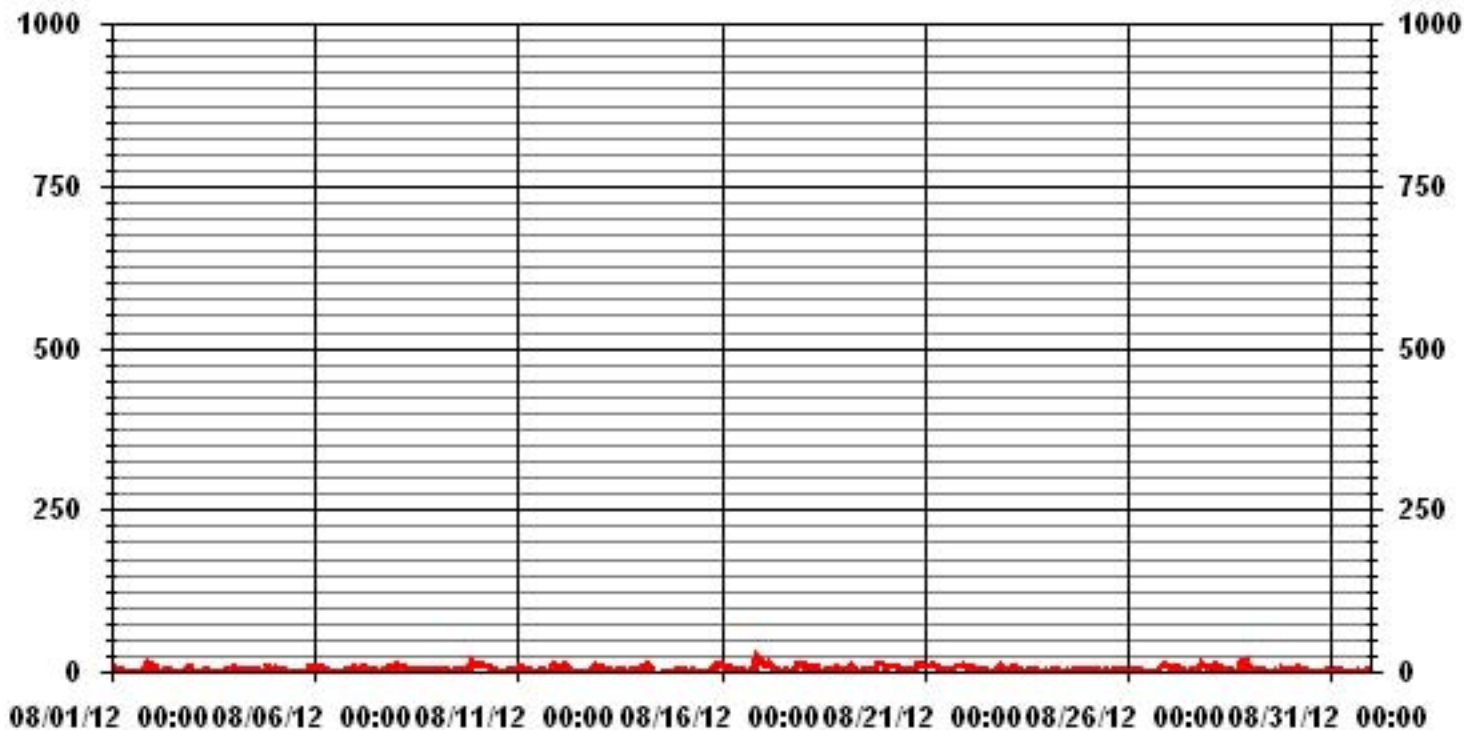
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	587					
MAXIMUM 1-HR AVERAGE:	24	PPB	@ HOUR(S)	21	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	7.3	PPB			ON DAY(S)	16
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.6	%	
STANDARD DEVIATION:	3.95		MONTHLY AVERAGE:	3.94	PPB	



01 Hour Averages



— LICA35 NO2_ PPB

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

AUGUST 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	12	10	11	7	5	7	7	4	2	2	3	63	2	4	2	3	IZS	5	8	2	15	23	17	22	63	10.3	24	
2	10	15	15	4	4	1	6	9	4	6	5	4	3	4	1	IZS	1	1	1	16	16	14	11	6	16	6.8	24	
3	6	1	1	1	1	1	2	2	2	1	1	1	1	1	IZS	1	1	1	7	9	10	8	9	10	3.0	24		
4	8	8	8	6	6	6	6	4	3	2	2	2	2	IZS	3	2	2	1	4	8	10	12	10	6	12	5.3	24	
5	11	13	12	8	4	5	8	6	4	1	1	1	IZS	1	1	1	2	1	1	1	18	17	11	11	18	6.0	24	
6	8	10	9	11	10	9	8	6	3	2	2	IZS	1	1	1	1	1	2	2	11	10	10	23	7	23	6.4	24	
7	8	7	5	7	9	11	11	5	4	3	IZS	2	2	4	3	2	9	6	13	7	16	21	9	17	21	7.9	24	
8	16	12	9	9	10	10	8	7	5	IZS	2	2	2	2	2	3	4	3	3	5	7	3	2	8	16	5.8	24	
9	5	4	15	9	6	12	6	3	IZS	2	2	2	2	2	2	2	2	5	5	13	30	15	19	15	30	7.7	24	
10	13	14	15	13	10	12	14	IZS	10	6	8	9	6	1	1	1	1	2	6	12	10	8	16	15	16	8.8	24	
11	10	12	9	5	7	11	IZS	9	1	1	1	1	1	2	2	1	3	3	3	10	17	16	15	10	17	6.6	24	
12	7	9	10	12	11	IZS	8	6	3	4	1	1	1	1	1	1	1	1	1	16	12	14	13	11	16	6.3	24	
13	9	13	11	8	IZS	8	9	4	4	2	2	2	2	2	3	3	3	5	5	9	6	6	5	13	5.3	24		
14	8	11	10	IZS	14	12	2	2	C	C	C	C	C	C	C	C	1	1	1	1	1	2	2	2	14	4.7	24	
15	2	1	IZS	1	1	12	2	1	1	1	1	1	1	1	M	1	1	1	2	4	21	21	11	18	18	21	5.6	23
16	17	IZS	11	11	18	18	9	7	7	4	6	2	2	M	2	2	2	2	13	20	16	28	26	21	28	11.1	23	
17	IZS	19	16	23	17	14	11	7	4	4	5	5	2	2	2	2	1	1	1	2	15	16	16	IZS	23	8.4	24	
18	14	15	12	12	9	13	9	9	9	9	7	4	2	1	2	2	2	2	14	10	38	15	IZS	8	38	9.5	24	
19	6	6	7	11	11	21	16	5	5	3	2	2	1	2	2	2	2	12	12	20	18	IZS	16	15	21	8.6	24	
20	12	11	10	11	12	23	12	12	10	8	7	4	3	2	2	3	2	5	10	22	IZS	22	16	11	23	10.0	24	
21	11	13	11	12	20	15	14	9	7	5	5	5	4	5	6	4	3	7	15	IZS	33	14	11	15	33	10.6	24	
22	14	9	9	17	6	3	3	2	3	3	3	3	2	1	1	2	1	5	IZS	10	11	18	13	8	18	6.4	24	
23	6	5	5	8	12	10	10	6	6	P	1	2	2	2	3	2	2	IZS	3	3	3	2	2	3	12	4.5	23	
24	3	5	1	3	4	2	2	2	2	2	4	4	3	2	1	2	IZS	4	7	15	11	10	13	8	15	4.8	24	
25	5	4	4	3	4	4	4	3	3	3	2	3	3	2	2	IZS	2	3	5	7	7	6	5	6	7	3.9	24	
26	7	4	6	8	5	6	7	7	5	4	2	1	2	3	IZS	1	1	1	15	13	14	17	13	13	17	6.7	24	
27	12	11	9	9	9	9	5	3	3	2	2	2	2	IZS	3	3	5	10	19	22	22	13	11	12	22	8.9	24	
28	9	10	13	14	11	12	12	17	11	2	2	3	IZS	3	3	3	3	8	37	37	23	16	22	12	37	12.3	24	
29	15	5	8	2	9	9	1	3	4	3	6	IZS	2	2	1	2	2	3	14	15	9	7	6	7	15	5.9	24	
30	9	8	5	12	17	14	10	6	3	2	IZS	1	1	1	1	1	2	3	1	2	2	3	5	7	17	5.0	24	
31	3	6	5	6	8	10	14	7	2	IZS	1	1	1	1	1	1	1	2	3	3	1	2	1	3	14	3.6	24	
HOURLY MAX	17	19	16	23	20	23	16	17	11	9	8	63	6	5	6	4	9	12	37	37	38	28	26	22				
HOURLY AVG	9.2	9.0	9.1	8.8	9.0	10.0	8.0	5.8	4.5	3.3	3.1	4.8	2.1	2.1	1.9	2.0	2.2	3.5	7.6	11.2	14.1	12.4	11.9	10.4				

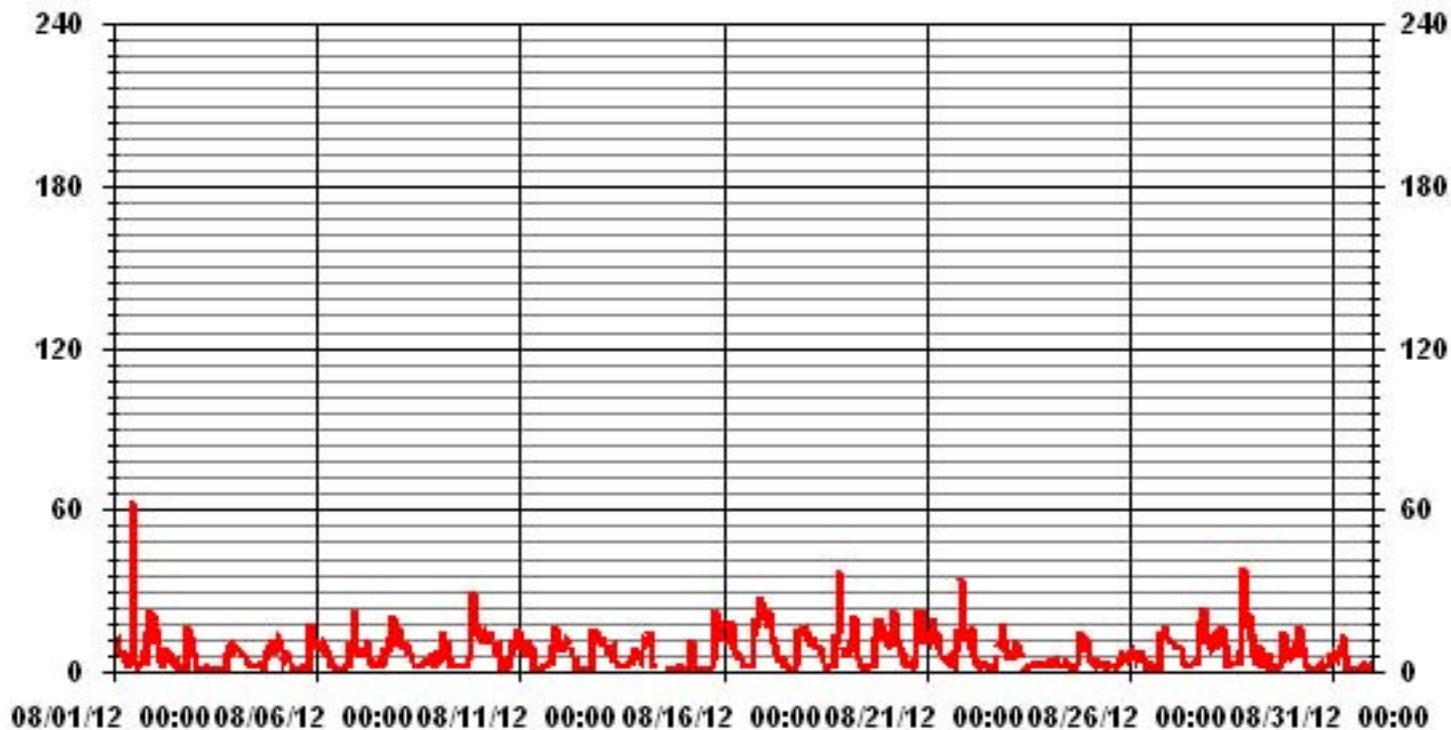
STATUS FLAG CODES

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:	701					
MAXIMUM INSTANTANEOUS VALUE:	63	PPB	@ HOUR(S)	11	ON DAY(S)	1
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	6.33					

01 Hour Averages



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

August 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	4.41	.99	1.28	2.84	7.54	11.39	7.97	5.12	2.56	.99	1.42	2.99	8.68	10.25	16.38	15.09	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	4.41	.99	1.28	2.84	7.54	11.39	7.97	5.12	2.56	.99	1.42	2.99	8.68	10.25	16.38	15.09	

Calm : .00 %

Total # Operational Hours : 702

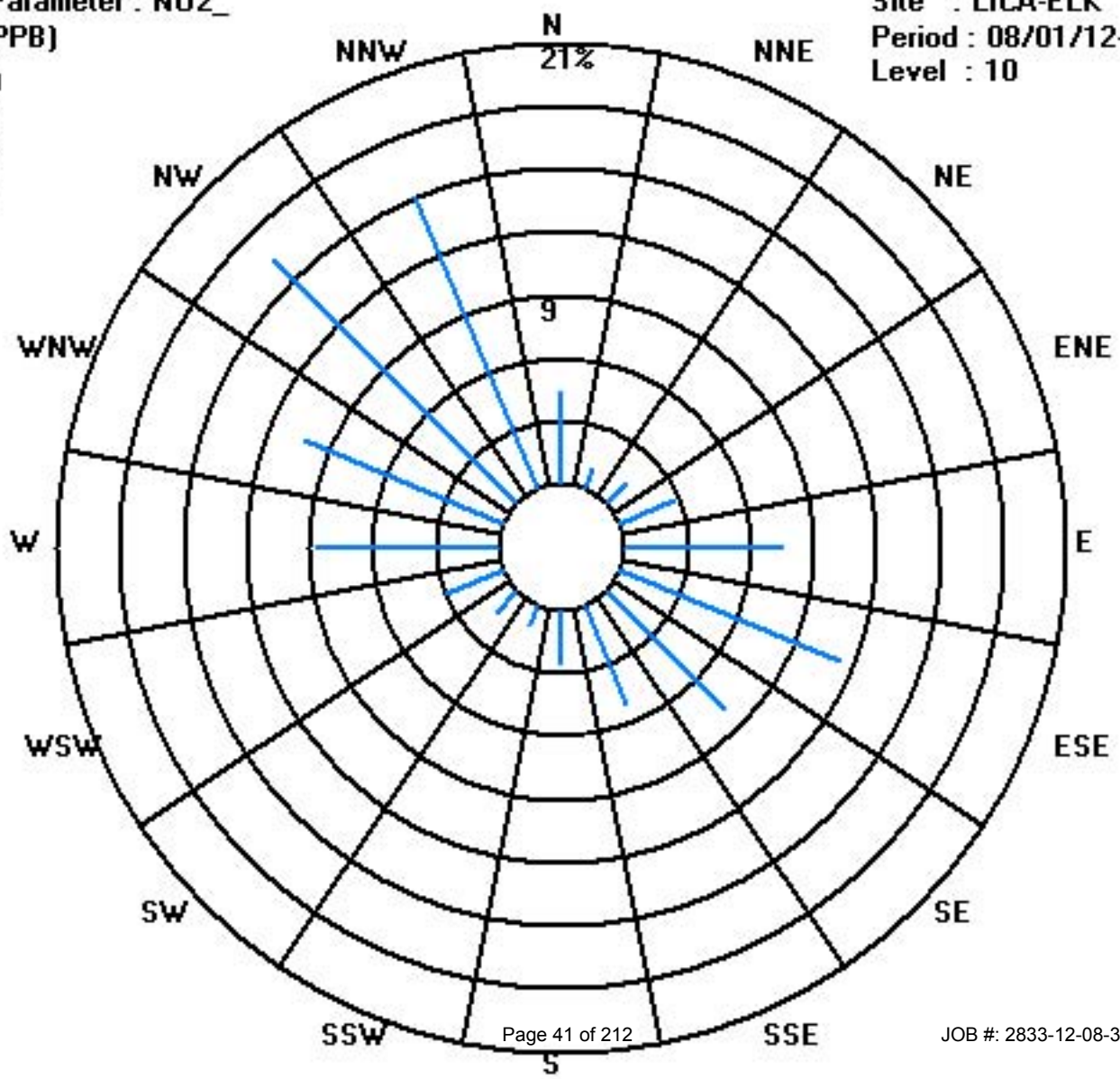
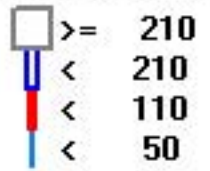
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	702
< 110																	
< 210																	
>= 210																	
Totals	31	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	

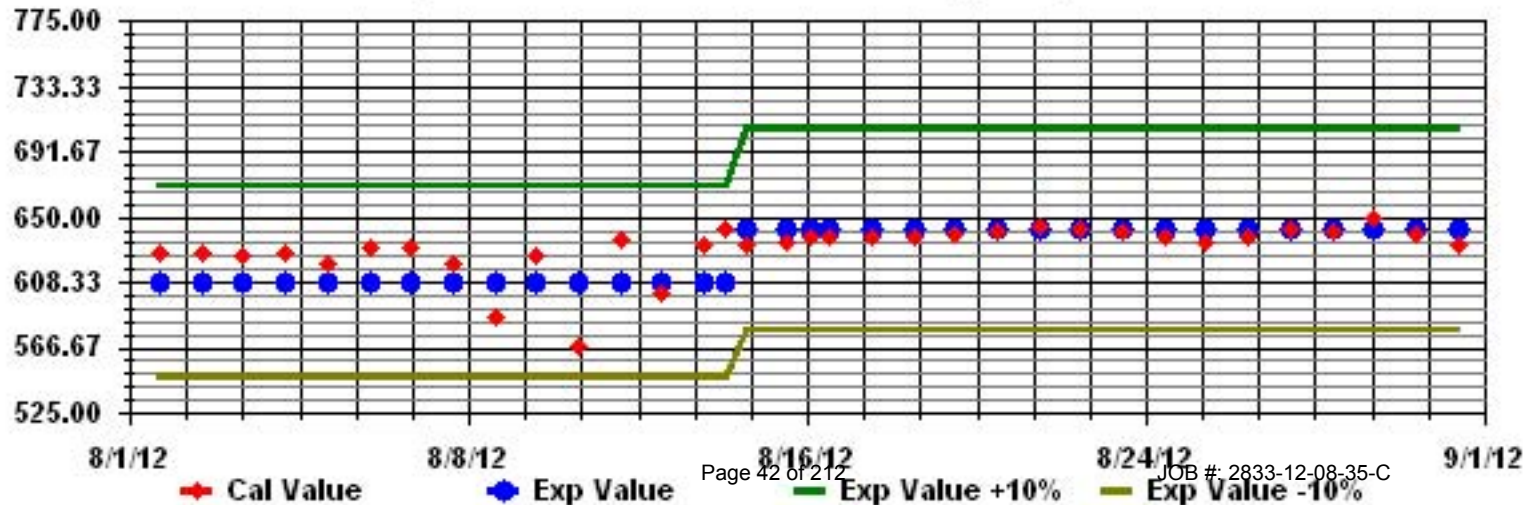
Calm : .00 %

Total # Operational Hours : 702

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

AUGUST 2012

NITRIC OXIDE hourly averages in ppb

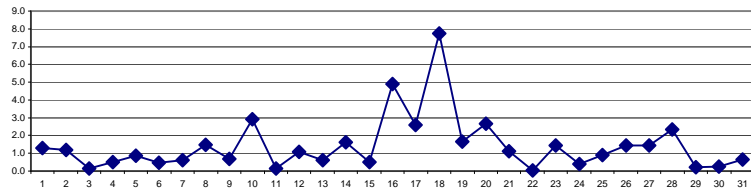
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	3	3	2	0	0	0	2	0	0	0	0	IZS	1	1	0	1	2	2	13	13	1.3	24	
2	4	9	10	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0	2	1	0	10	1.2	24
3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0.1	24
4	0	0	1	0	1	1	2	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0.5	24
5	1	1	1	1	0	1	3	5	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	5	0.9	24
6	1	1	1	2	0	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0.5	24
7	0	0	0	0	0	1	3	2	2	1	IZS	0	0	0	0	0	1	0	0	0	0	1	0	3	3	0.6	24	
8	4	5	2	4	5	5	3	3	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1.5	24
9	0	0	0	0	0	0	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	1	8	1	1	2	8	0.7	24
10	5	6	13	9	3	6	6	IZS	6	1	1	1	1	0	0	0	0	0	0	0	0	0	4	5	13	2.9	24	
11	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0.1	24	
12	0	0	0	9	4	IZS	3	3	1	1	0	0	0	0	0	0	0	0	0	0	2	0	0	1	9	1.1	24	
13	1	1	1	1	IZS	2	3	2	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0.6	24	
14	0	1	2	IZS	17	4	0	0	C	C	C	C	C	C	C	1	1	0	0	0	0	0	0	0	17	1.6	24	
15	0	0	IZS	0	0	2	0	0	0	0	0	0	0	0	M	0	0	0	0	0	1	1	0	1	6	0.5	23	
16	9	IZS	6	7	14	23	18	11	3	1	1	0	0	M	1	0	0	0	0	1	2	1	7	2	1	23	4.9	23
17	IZS	5	10	16	3	5	6	4	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	2	IZS	16	2.6	24
18	3	11	27	33	16	25	25	18	12	4	1	0	0	0	0	0	0	0	0	1	0	2	0	IZS	0	33	7.7	24
19	0	0	0	1	1	14	10	3	2	1	0	0	0	0	0	0	0	0	1	1	1	0	IZS	1	2	14	1.7	24
20	3	3	4	2	5	13	8	7	6	5	2	0	0	0	0	0	0	0	0	1	0	IZS	1	1	0	13	2.7	24
21	0	1	0	0	5	5	4	2	2	2	1	1	0	0	0	0	0	0	0	1	IZS	1	1	0	5	1.1	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0	24
23	0	0	0	0	4	6	16	2	4	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	1.5	23	
24	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	0.4	24	
25	1	1	1	0	1	0	1	0	1	0	1	0	1	1	0	1	IZS	1	1	1	3	2	2	1	0	3	0.9	24
26	1	1	2	1	0	3	4	6	4	2	1	0	0	1	IZS	1	0	0	1	1	1	1	1	1	1	6	1.4	24
27	1	1	1	1	1	4	7	2	2	1	1	1	0	IZS	1	1	1	1	1	2	2	1	1	0	7	1.4	24	
28	0	1	1	1	2	7	22	9	2	1	0	0	0	IZS	1	1	0	0	1	1	1	0	1	2	0	22	2.3	24
29	0	0	0	0	0	0	0	0	0	0	1	IZS	1	1	0	0	0	0	0	0	1	1	0	0	0	1	0.2	24
30	0	0	0	0	1	1	2	1	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
31	0	0	0	1	2	4	5	2	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.7	24	
HOURLY MAX	9	11	27	33	17	25	25	18	12	5	2	2	1	1	1	1	1	1	2	3	8	7	4	13				
HOURLY AVG	1.2	1.6	2.8	3.0	2.8	4.6	5.2	3.0	1.9	0.9	0.5	0.3	0.1	0.1	0.2	0.1	0.1	0.2	0.4	0.6	0.8	0.9	0.8	1.3				

STATUS FLAG CODES

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

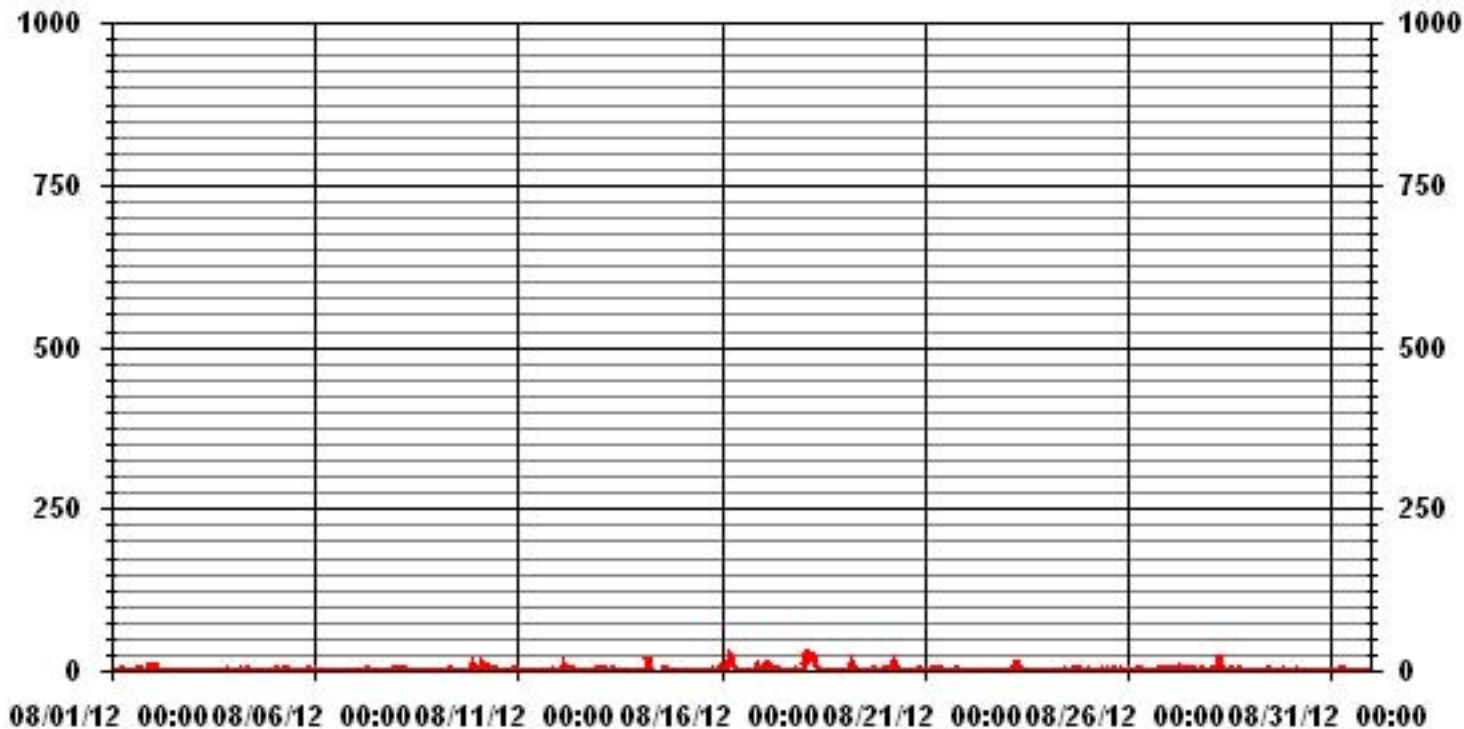
24 HOUR AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	306					
MAXIMUM 1-HR AVERAGE:	33	PPB	@ HOUR(S)	3	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	7.7	PPB			ON DAY(S)	18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.6	%	
STANDARD DEVIATION:	3.42		MONTHLY AVERAGE:	1.41	PPB	

01 Hour Averages



— LICA35 NO_ PPB

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

AUGUST 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	2	1	2	1	1	7	7	2	1	1	1	73	1	3	1	1	IZS	2	2	1	4	5	4	28	73	6.6	24
2	10	15	24	2	1	0	1	2	1	1	1	1	1	1	0	IZS	1	1	1	2	2	6	4	2	24	3.5	24
3	3	1	0	0	0	0	1	1	1	1	1	1	1	1	IZS	1	1	1	1	2	3	3	1	1	3	1.1	24
4	1	1	3	1	2	3	5	2	2	1	1	1	1	IZS	1	1	1	1	1	2	2	6	1	1	6	1.8	24
5	4	3	2	5	2	2	12	9	3	0	1	0	IZS	1	1	1	1	1	0	0	6	3	3	11	12	3.1	24
6	3	4	4	5	1	5	3	4	1	1	1	IZS	1	1	1	1	0	1	1	2	1	2	28	1	28	3.1	24
7	1	1	1	0	1	5	5	3	3	1	IZS	1	1	1	1	4	1	3	0	4	7	1	23	23	3.0	24	
8	20	7	4	8	10	7	5	4	4	IZS	1	1	1	1	1	1	1	1	1	1	2	1	0	1	20	3.6	24
9	0	0	1	0	1	2	1	1	IZS	1	1	1	1	1	1	1	1	9	1	4	149	4	3	4	149	8.2	24
10	8	33	23	18	13	15	15	IZS	10	4	6	2	3	1	1	1	1	1	1	2	1	1	44	43	44	10.7	24
11	1	1	2	1	1	1	IZS	2	1	1	1	1	2	1	1	1	2	1	1	3	4	4	1	1	4	1.5	24
12	1	2	4	18	16	IZS	7	6	2	3	1	1	0	0	1	0	0	0	1	19	2	2	3	3	19	4.0	24
13	2	2	2	2	IZS	3	5	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	5	1.6	24
14	1	4	5	IZS	39	8	1	0	C	C	C	C	C	C	C	C	1	1	1	1	1	1	0	0	39	4.3	24
15	0	1	IZS	1	1	9	1	1	1	1	1	0	M	1	1	0	1	1	3	4	1	8	13	13	2.3	23	
16	14	IZS	8	10	40	103	26	13	10	2	12	1	1	M	1	1	1	1	2	5	1	14	5	3	103	12.5	23
17	IZS	10	26	85	6	8	10	11	1	1	1	1	1	1	1	0	0	0	1	4	3	4	IZS	85	8.0	24	
18	9	28	35	51	38	33	31	24	15	9	3	1	1	1	1	1	1	1	2	1	21	1	IZS	1	51	13.4	24
19	1	1	1	5	2	50	26	4	4	2	1	1	1	1	1	1	1	1	5	1	IZS	5	8	50	5.4	24	
20	8	7	12	4	11	55	11	9	8	7	4	1	1	1	1	1	1	1	2	1	IZS	4	3	1	55	6.7	24
21	1	4	1	2	63	12	6	5	3	3	3	2	1	1	1	1	1	1	2	IZS	23	2	1	2	63	6.1	24
22	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	0	0	1	IZS	1	1	4	1	1	4	1.1	24
23	1	1	1	2	12	13	30	6	6	P	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	30	3.9	23
24	0	1	1	1	0	0	0	1	1	1	3	3	3	1	1	1	IZS	3	3	10	7	3	3	3	10	2.2	24
25	2	2	2	1	2	1	2	2	2	1	1	2	1	1	1	IZS	2	2	3	6	5	3	2	1	6	2.0	24
26	3	1	5	2	1	7	10	13	8	4	1	1	1	2	IZS	1	1	1	4	5	3	7	3	2	13	3.7	24
27	3	3	3	3	3	8	11	4	3	3	1	1	1	IZS	2	1	2	2	4	5	4	3	1	1	11	3.1	24
28	1	6	3	3	4	33	36	24	8	1	1	1	IZS	1	1	1	1	1	4	4	1	2	10	2	36	6.5	24
29	1	0	1	1	2	2	0	1	1	1	2	IZS	2	1	1	1	1	1	2	3	5	1	1	1	5	1.4	24
30	1	1	1	1	5	3	4	3	2	1	IZS	1	1	1	0	1	1	1	5	1	1	1	1	2	5	1.7	24
31	0	1	0	5	4	10	32	9	2	IZS	1	1	1	1	1	1	1	1	1	0	0	0	0	0	32	3.1	24
HOURLY MAX	20	33	35	85	63	103	36	24	15	9	12	73	3	3	2	1	4	9	5	19	149	14	44	43			
HOURLY AVG	3.4	4.8	5.9	8.0	9.4	13.5	10.2	5.7	3.7	2.0	1.9	3.7	1.1	1.1	1.0	0.9	1.0	1.4	1.8	3.1	8.8	3.2	4.7	5.4			

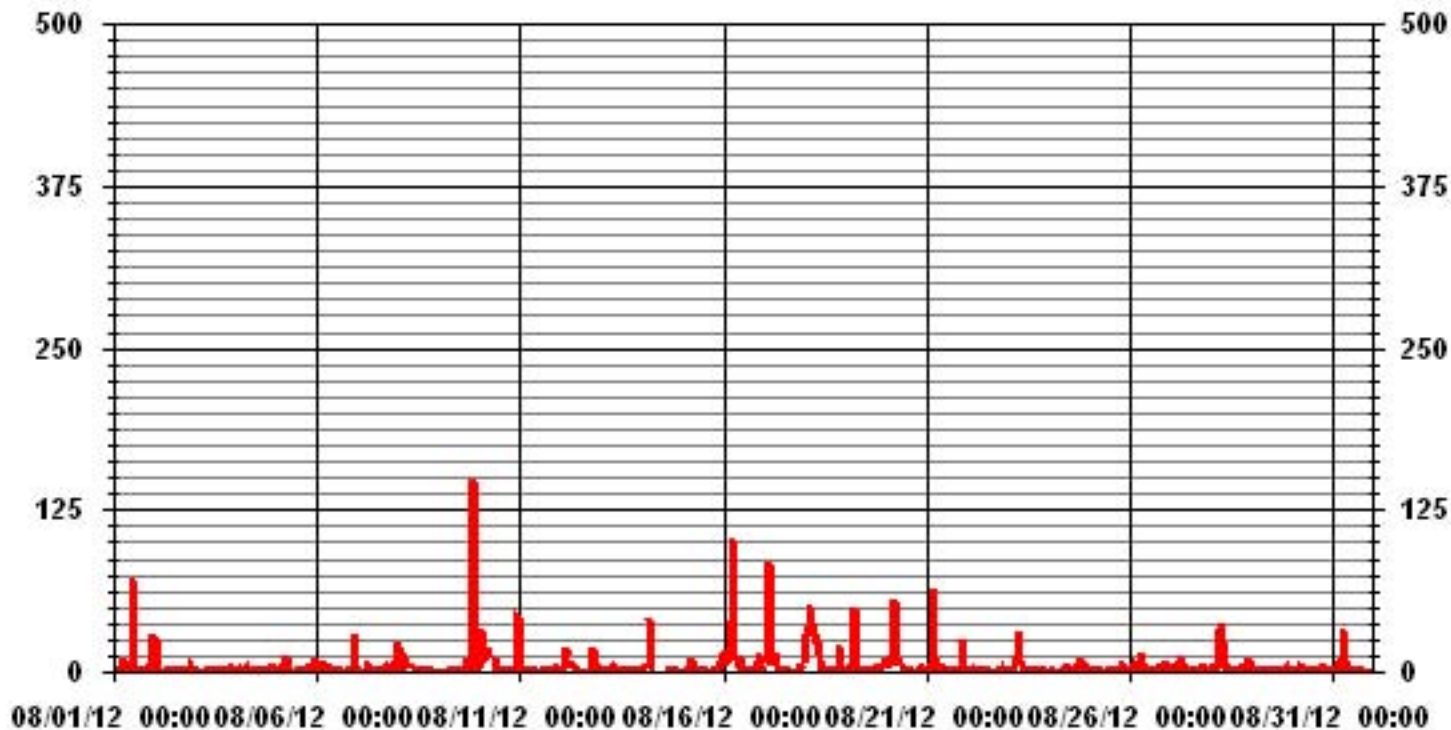
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	653					
MAXIMUM INSTANTANEOUS VALUE:	149	PPB	@ HOUR(S)	20	ON DAY(S)	9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	10.65					

01 Hour Averages



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

August 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	4.41	.99	1.28	2.84	7.54	11.39	7.97	5.12	2.56	.99	1.42	2.99	8.68	10.25	16.38	15.09	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	4.41	.99	1.28	2.84	7.54	11.39	7.97	5.12	2.56	.99	1.42	2.99	8.68	10.25	16.38	15.09	

Calm : .00 %

Total # Operational Hours : 702

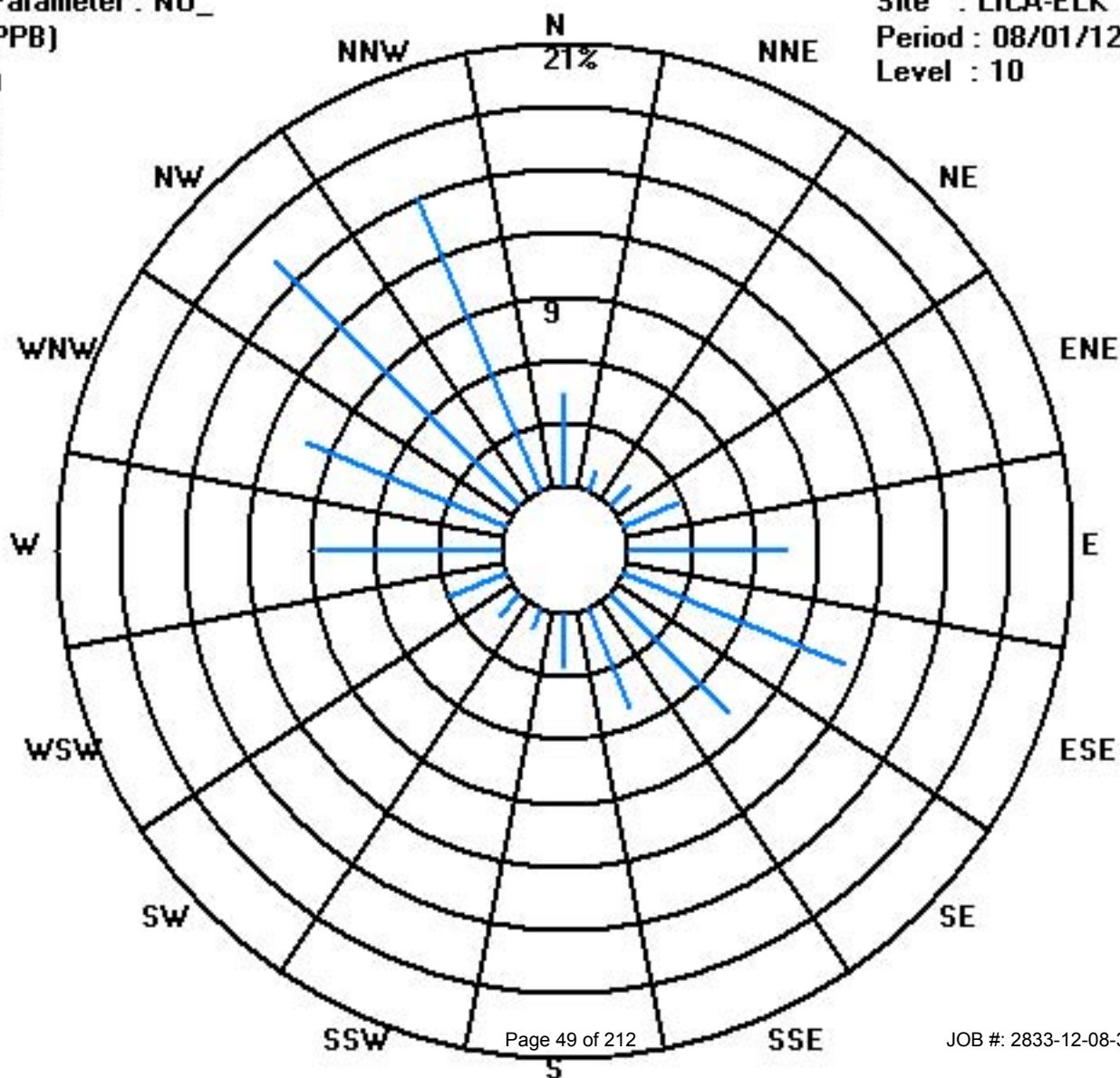
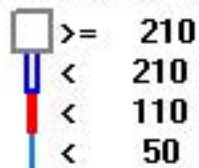
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	702
< 110																	
< 210																	
>= 210																	
Totals	31	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	

Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)



Oxides of Nitrogen

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

AUGUST 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	6	5	8	4	3	8	6	4	2	1	1	5	1	0	0	2	IZS	2	3	1	9	17	15	27	27	5.7	24
2	12	20	20	2	2	0	1	4	1	3	2	1	1	2	0	IZS	0	0	0	4	8	7	8	2	20	4.3	24
3	3	0	0	0	0	0	1	1	1	1	1	0	0	0	IZS	0	0	0	0	3	7	5	5	6	7	1.5	24
4	6	6	7	4	6	5	5	3	2	2	2	1	1	IZS	1	1	1	0	1	7	6	7	3	4	7	3.5	24
5	7	7	6	4	3	4	6	9	2	0	0	0	IZS	0	0	0	0	0	0	8	6	8	10	10	10	3.5	24
6	8	8	8	10	8	9	6	5	2	1	0	IZS	1	0	0	0	0	0	1	3	5	6	10	6	10	4.2	24
7	6	3	3	3	6	7	9	5	4	2	IZS	1	1	1	2	1	5	2	6	3	11	11	7	11	11	4.8	24
8	15	15	10	11	13	12	8	7	5	IZS	2	1	1	1	1	2	2	2	2	3	3	2	1	2	15	5.3	24
9	4	2	5	6	4	6	4	3	IZS	1	1	1	1	1	1	1	1	2	3	7	22	10	16	15	22	5.1	24
10	16	16	25	18	11	14	15	IZS	13	4	3	5	3	1	0	0	0	1	3	6	5	5	11	10	25	8.0	24
11	8	9	5	1	4	5	IZS	4	1	0	0	0	0	1	1	1	1	2	1	2	10	12	11	5	12	3.7	24
12	5	7	8	20	12	IZS	8	6	2	1	0	0	0	0	0	0	0	0	0	6	7	11	9	9	20	4.8	24
13	7	11	10	8	IZS	8	8	5	3	2	1	1	1	1	1	2	2	2	3	3	5	3	4	4	11	4.1	24
14	5	9	7	IZS	29	11	1	1	C	C	C	C	C	C	C	1	1	0	0	0	1	1	1	1	29	4.3	24
15	1	1	IZS	1	1	4	1	1	1	0	0	0	0	M	0	0	0	0	1	7	12	8	11	20	20	3.2	23
16	22	IZS	13	16	24	31	23	17	8	4	2	1	1	M	1	0	1	1	6	16	11	31	22	18	31	12.2	23
17	IZS	20	23	31	17	17	14	9	3	3	3	3	1	1	1	1	0	0	0	9	14	16	IZS	16	31	8.5	24
18	13	23	38	42	23	33	33	25	20	11	6	2	1	1	1	1	1	6	6	12	8	IZS	6	42	13.6	24	
19	5	4	5	8	9	26	19	7	5	2	2	1	1	1	1	1	5	6	14	11	IZS	13	14	26	7.0	24	
20	14	12	11	11	14	23	17	16	15	13	7	3	1	1	1	1	3	6	14	IZS	16	13	9	23	9.7	24	
21	8	9	9	10	17	18	14	9	8	6	5	4	2	2	3	2	2	3	7	IZS	9	9	8	12	18	7.7	24
22	10	5	7	9	2	2	1	1	1	1	1	1	1	1	0	1	0	1	IZS	5	9	13	10	5	13	3.8	24
23	4	4	3	5	13	14	23	5	8	P	0	0	0	1	1	1	1	IZS	1	1	1	0	0	1	23	4.0	23
24	1	2	0	1	1	1	1	1	1	1	3	2	1	0	0	1	IZS	3	3	3	4	2	4	6	6	1.8	24
25	4	2	3	2	3	2	3	2	2	1	1	2	2	0	1	IZS	2	2	1	6	5	5	4	3	6	2.5	24
26	5	3	6	5	3	7	8	10	7	4	1	0	0	1	IZS	1	0	1	4	7	11	14	12	11	14	5.3	24
27	9	9	7	8	8	11	14	5	4	3	1	1	1	IZS	2	2	3	5	11	18	14	9	8	7	18	7.0	24
28	6	8	11	13	11	14	31	18	6	2	1	1	IZS	2	2	1	2	5	14	18	14	10	16	3	31	9.1	24
29	7	3	2	1	3	4	0	1	1	1	3	IZS	2	1	1	1	1	0	2	8	6	4	4	4	8	2.6	24
30	5	6	3	5	10	10	8	4	2	1	IZS	1	0	0	0	0	1	0	0	1	0	2	3	4	10	2.9	24
31	2	4	4	5	7	10	9	3	1	IZS	0	0	0	0	0	0	1	1	2	1	0	1	1	1	10	2.3	24
HOURLY MAX	22	23	38	42	29	33	33	25	20	13	7	5	3	2	3	2	5	5	14	18	22	31	22	27			
HOURLY AVG	7.5	7.8	8.9	8.8	8.9	10.5	9.9	6.4	4.5	2.6	1.8	1.4	0.9	0.8	0.8	0.9	1.0	1.5	3.1	5.8	7.8	8.3	8.5	7.9			

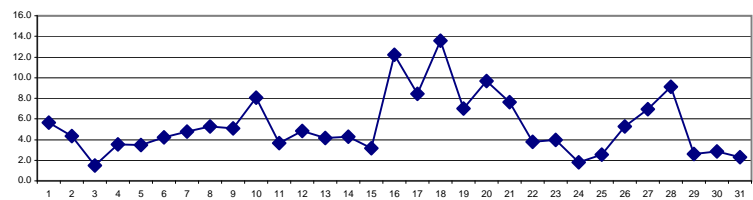
STATUS FLAG CODES

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

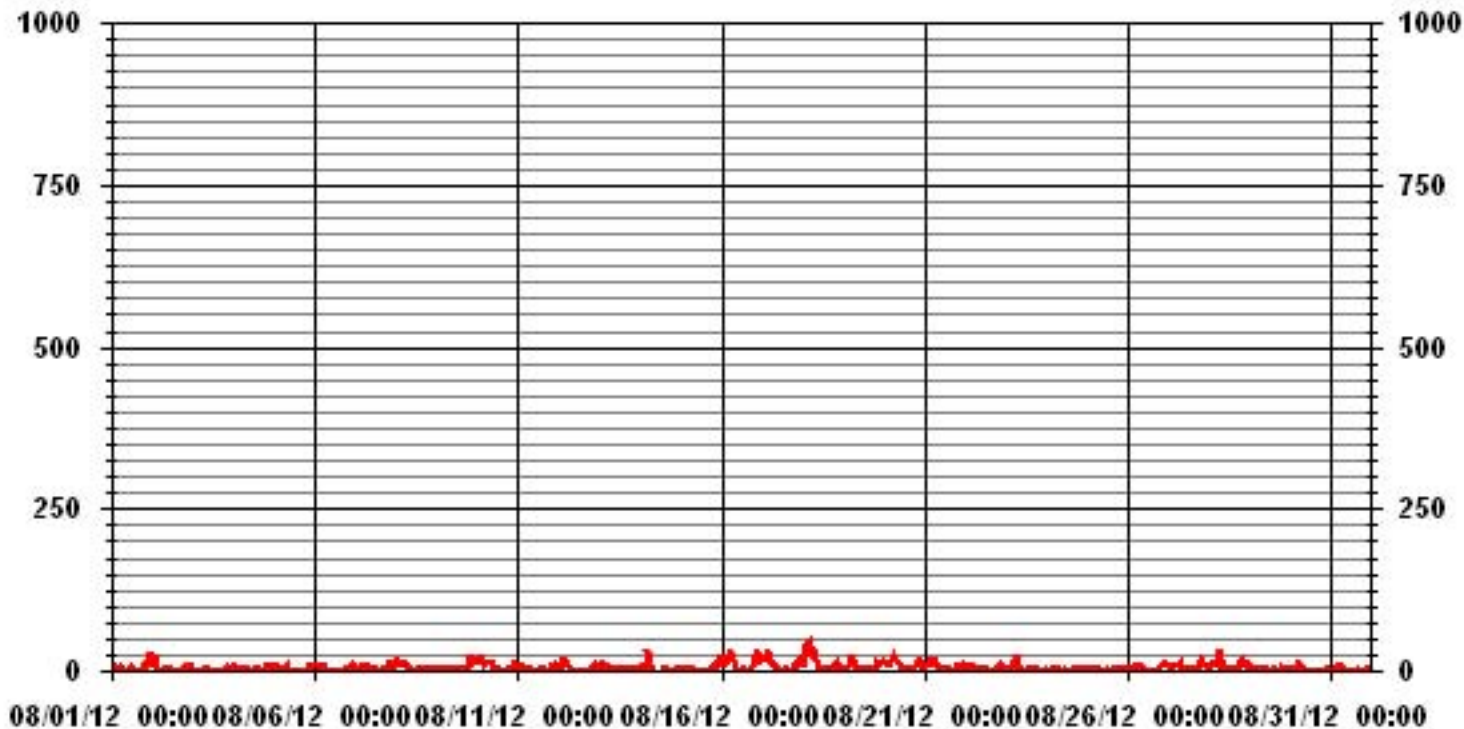
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	603					
MAXIMUM 1-HR AVERAGE:	42	PPB	@ HOUR(S)	3	ON DAY(S)	18
MAXIMUM 24-HR AVERAGE:	13.6	PPB			ON DAY(S)	18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.6	%	
STANDARD DEVIATION:	6.25		MONTHLY AVERAGE:	5.35	PPB	

24 HOUR AVERAGES FOR AUGUST 2012



01 Hour Averages



— LICA35 NOX_ PPB

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

AUGUST 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		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		13	9	12	8	5	14	13	5	3	2	4	135	2	6	1	3	IZS	7	9	1	18	26	20	44	135	15.7	24	
2		19	27	36	6	4	0	6	10	4	7	5	4	3	4	1	IZS	1	0	1	16	16	19	13	7	36	9.1	24	
3		8	1	1	1	1	1	2	2	1	1	1	1	0	0	IZS	1	1	1	1	8	10	13	8	9	13	3.2	24	
4		8	8	10	6	7	8	10	5	4	2	3	2	1	IZS	3	3	2	1	4	10	11	18	10	6	18	6.2	24	
5		14	15	14	11	5	7	20	15	6	1	0	0	IZS	1	1	1	1	1	0	1	22	18	14	21	22	8.2	24	
6		11	13	11	15	10	13	10	9	3	1	1	IZS	1	1	1	1	1	2	2	12	10	11	45	7	45	8.3	24	
7		8	7	4	7	9	15	15	7	6	3	IZS	2	2	4	3	2	13	6	15	6	20	27	9	40	40	10.0	24	
8		36	18	13	15	20	16	12	10	8	IZS	3	3	2	2	3	4	3	3	5	8	2	2	8	36	8.6	24		
9		5	3	15	9	6	13	7	3	IZS	2	2	2	2	2	3	2	2	14	5	14	171	19	20	18	171	14.7	24	
10		19	47	36	30	22	24	26	IZS	20	7	13	10	9	1	1	2	1	2	6	13	11	8	59	58	59	18.5	24	
11		10	12	10	5	7	11	IZS	10	2	1	1	1	1	2	2	2	5	4	4	12	20	19	15	10	20	7.2	24	
12		7	10	13	29	26	IZS	15	11	5	6	0	0	1	0	1	0	0	0	1	31	12	14	15	13	31	9.1	24	
13		9	14	12	9	IZS	10	14	7	6	3	2	3	2	3	2	3	4	4	5	6	9	6	6	5	14	6.3	24	
14		9	14	14	IZS	52	19	2	2	C	C	C	C	C	C	C	C	1	1	1	1	1	1	1	1	52	8.0	24	
15		1	1	IZS	1	1	21	3	1	1	1	1	1	0	M	1	1	1	2	4	23	23	11	25	31	31	7.0	23	
16		30	IZS	19	20	57	113	32	19	16	6	16	2	2	M	1	1	2	2	14	25	16	41	31	23	113	22.2	23	
17		IZS	25	40	105	22	21	18	18	4	4	6	5	2	2	2	2	1	1	1	1	17	18	20	IZS	105	15.2	24	
18		22	40	46	62	46	42	38	33	23	17	8	4	2	1	2	2	2	2	16	11	56	15	IZS	8	62	21.7	24	
19		6	6	6	16	12	68	41	8	8	4	2	3	1	2	2	2	2	12	13	25	18	IZS	21	22	68	13.0	24	
20		19	17	22	13	20	68	21	21	16	14	11	5	3	2	2	3	2	6	10	22	IZS	25	17	11	68	15.2	24	
21		11	16	11	13	77	26	19	12	9	8	7	5	4	5	6	4	3	7	16	IZS	54	15	11	15	77	15.4	24	
22		14	8	9	19	6	3	2	2	3	4	3	3	2	1	1	1	1	5	IZS	10	11	20	13	8	20	6.5	24	
23		6	5	5	9	23	22	38	12	12	P	1	2	2	1	3	2	2	IZS	3	3	3	2	2	3	38	7.3	23	
24		2	5	1	3	4	2	1	2	2	2	7	6	5	1	1	1	IZS	5	10	24	17	12	15	10	24	6.0	24	
25		7	5	5	3	5	4	5	4	4	3	2	4	4	2	3	IZS	3	4	8	13	11	9	6	6	13	5.2	24	
26		9	5	9	9	5	12	17	18	13	6	3	1	2	4	IZS	1	1	1	18	17	15	21	16	14	21	9.4	24	
27		14	13	11	12	11	17	19	8	5	5	2	2	2	IZS	3	3	6	11	23	26	26	15	12	12	26	11.2	24	
28		9	16	15	16	13	44	47	40	19	3	2	3	IZS	3	3	3	8	40	40	24	17	30	13	47	17.9	24		
29		15	4	8	2	11	9	1	3	4	3	7	IZS	3	2	1	2	2	2	15	17	12	7	6	6	17	6.2	24	
30		9	8	5	13	21	17	13	7	4	2	IZS	1	1	1	1	1	2	3	2	2	2	3	5	9	21	5.7	24	
31		3	7	4	10	11	19	44	15	3	IZS	1	1	1	1	1	1	1	2	3	2	1	1	1	3	44	5.9	24	
HOURLY MAX		36	47	46	105	77	113	47	40	23	17	16	135	9	6	6	4	13	14	40	40	171	41	59	58				
HOURLY AVG		11.8	12.6	13.9	15.9	17.3	22.0	17.0	10.6	7.4	4.4	4.1	7.5	2.2	2.1	1.9	1.9	2.4	4.0	8.4	13.2	21.5	14.4	15.6	14.7				

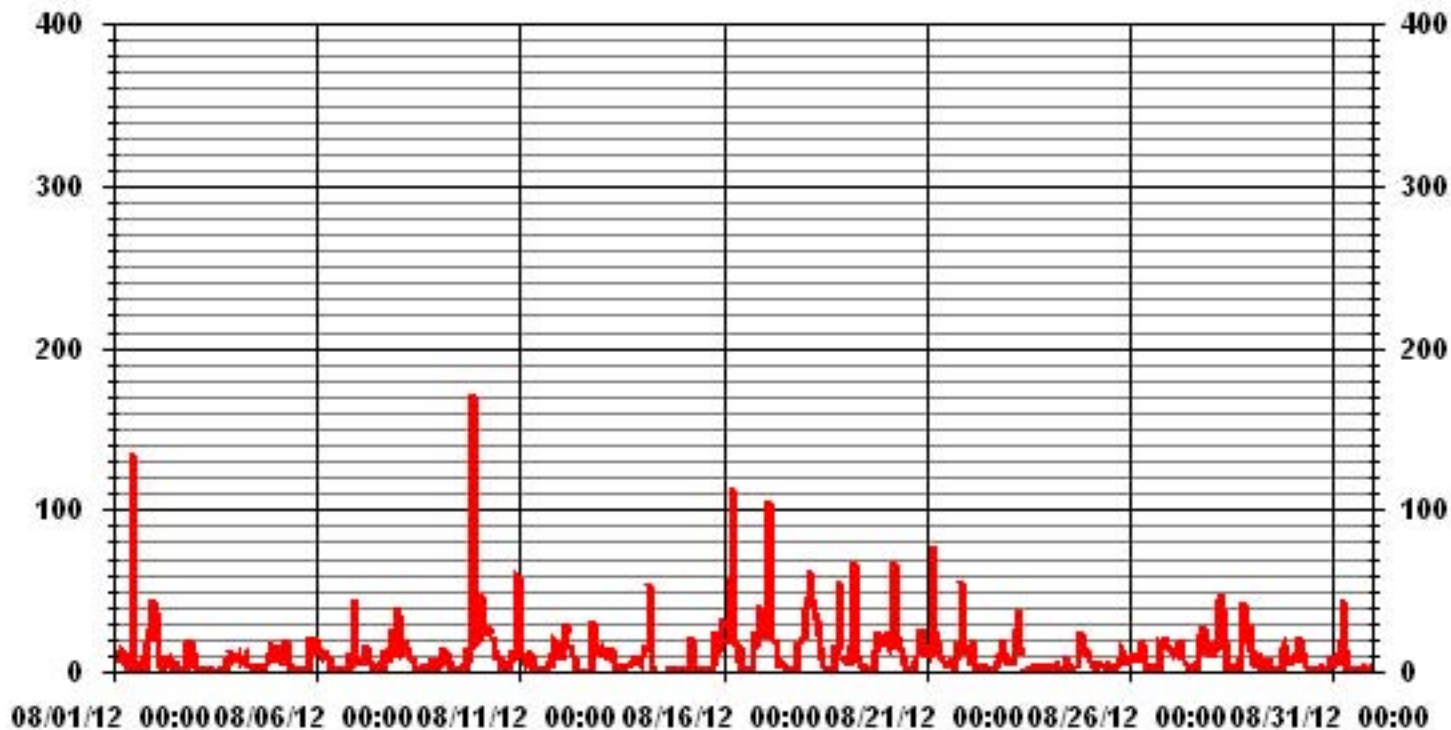
STATUS FLAG CODES

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:	687
MAXIMUM INSTANTANEOUS VALUE:	171 PPB @ HOUR(S) 20 ON DAY(S) 9
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION	14.47
OPERATIONAL TIME:	741 HRS

01 Hour Averages



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

August 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	4.41	.99	1.28	2.84	7.54	11.39	7.97	5.12	2.56	.99	1.42	2.99	8.68	10.25	16.38	15.09	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	4.41	.99	1.28	2.84	7.54	11.39	7.97	5.12	2.56	.99	1.42	2.99	8.68	10.25	16.38	15.09	

Calm : .00 %

Total # Operational Hours : 702

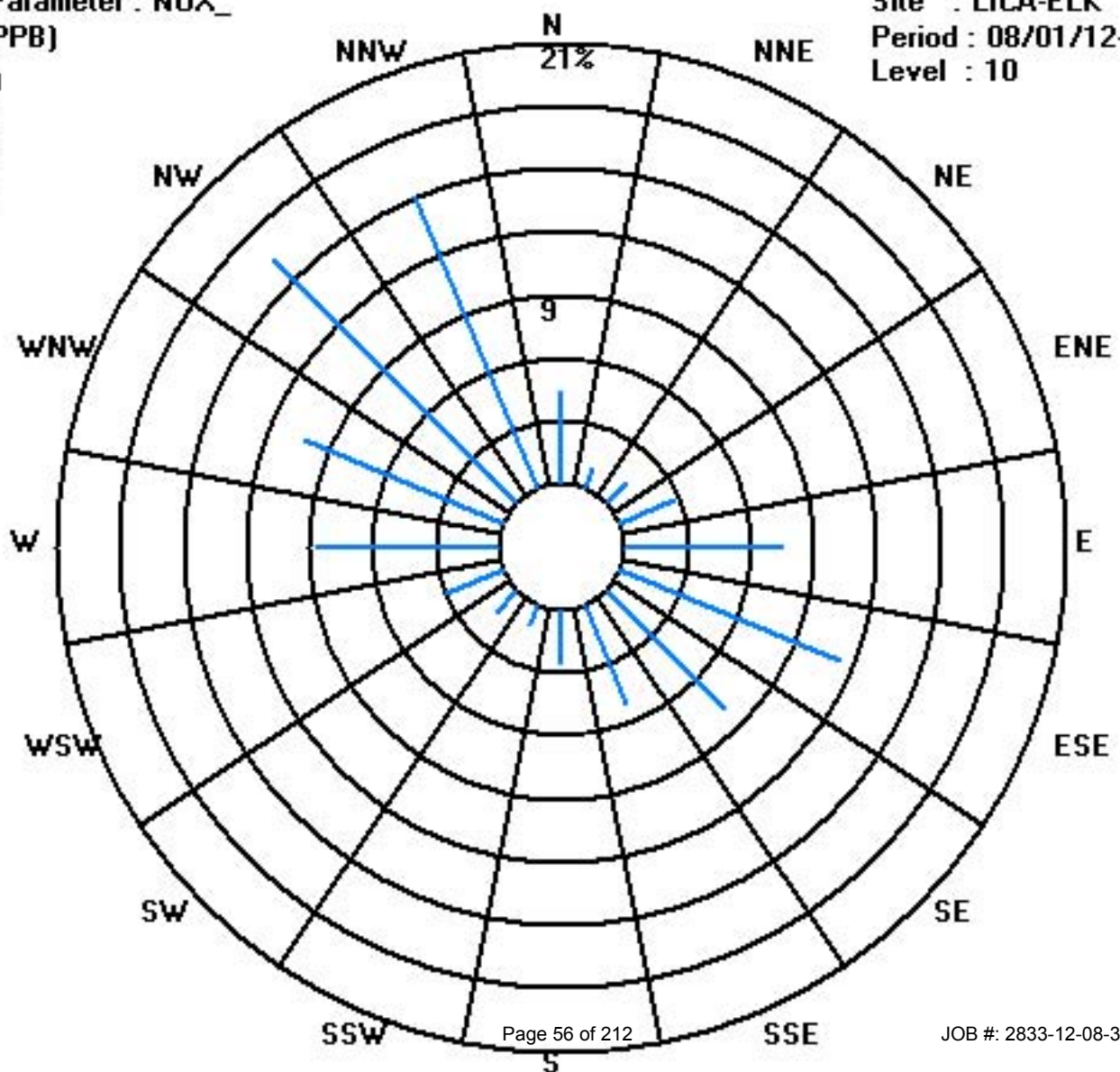
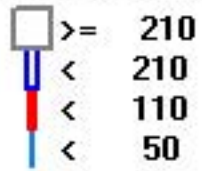
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	702
< 110																	
< 210																	
>= 210																	
Totals	31	7	9	20	53	80	56	36	18	7	10	21	61	72	115	106	

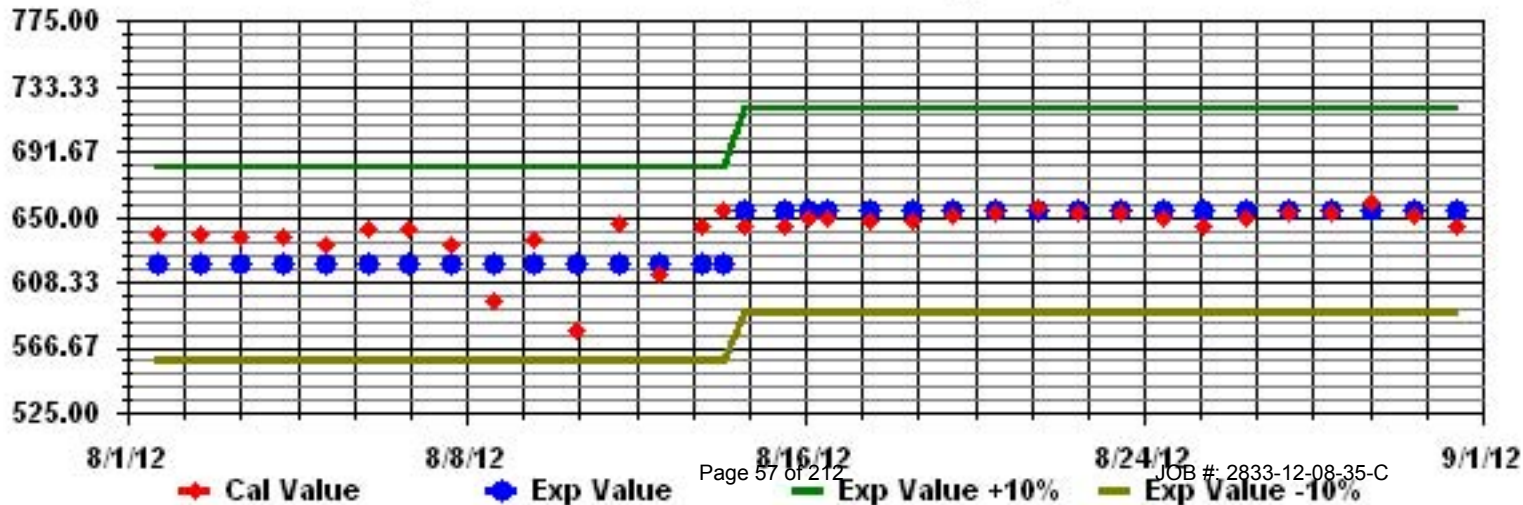
Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)



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



Ozone

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

AUGUST 2012

OZONE (O₃) hourly averages in ppb

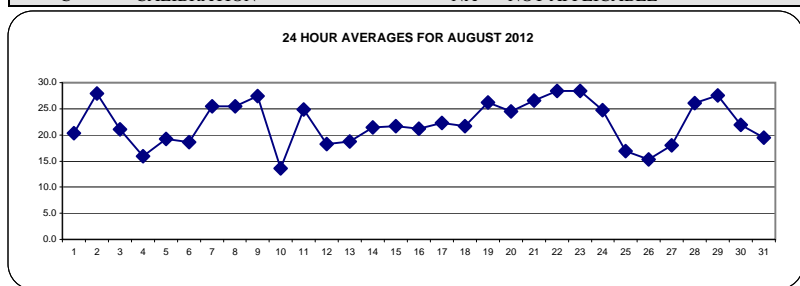
MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
1	12	13	9	11	10	6	10	17	28	31	31	34	35	35	36	35	IZS	34	31	28	12	4	4	1	36	20.3	24
2	1	1	5	20	25	35	35	33	40	38	40	42	39	38	39	IZS	41	41	38	29	18	14	11	20	42	28.0	24
3	17	16	19	18	20	24	18	17	20	22	25	28	31	33	IZS	35	34	30	23	18	10	10	8	8	35	21.0	24
4	7	5	3	7	4	4	6	9	16	23	27	30	33	IZS	34	30	28	22	20	12	11	10	12	13	34	15.9	24
5	9	10	8	10	10	10	8	10	22	30	31	33	IZS	32	33	32	31	30	29	27	16	10	7	3	33	19.2	24
6	3	3	2	1	4	6	11	19	28	30	31	IZS	35	34	33	33	33	32	28	20	16	11	8	8	35	18.7	24
7	6	31	33	26	17	14	14	16	20	29	IZS	40	41	38	43	43	34	42	31	27	13	12	13	4	43	25.5	24
8	3	1	2	1	1	3	12	15	23	IZS	38	40	42	42	43	42	42	39	34	28	25	24	39	47	47	25.5	24
9	37	40	36	31	31	28	26	28	IZS	36	39	37	34	32	33	33	34	32	28	20	7	6	3	1	40	27.5	24
10	2	1	0	1	2	5	3	IZS	7	20	25	12	6	N	C	39	35	32	29	20	20	12	3	11	39	13.6	23
11	8	6	10	34	38	34	IZS	25	26	28	30	31	31	31	30	30	28	28	28	28	18	16	15	19	38	24.9	24
12	16	12	8	2	5	IZS	11	14	18	21	26	26	28	28	27	27	28	28	25	18	11	8	5	28	18.2	24	
13	4	4	4	3	IZS	5	9	13	19	24	29	32	33	32	32	30	28	26	24	23	17	17	13	10	33	18.7	24
14	8	4	4	IZS	1	7	26	29	28	30	25	29	33	32	30	26	24	24	22	22	23	23	22	22	33	21.5	24
15	22	22	IZS	22	20	16	17	21	24	30	C	C	C	C	31	33	33	33	32	22	15	10	7	1	33	21.6	24
16	0	IZS	0	0	0	1	3	6	24	32	41	44	45	M	45	46	46	45	35	22	23	3	4	2	46	21.2	23
17	IZS	1	1	1	2	3	6	18	32	33	37	43	42	42	40	37	39	36	30	28	14	4	2	IZS	43	22.3	24
18	2	0	0	0	0	1	2	5	9	26	38	40	41	43	45	44	43	41	34	30	21	20	IZS	14	45	21.7	24
19	14	13	12	8	8	3	8	14	19	30	36	42	46	49	50	52	51	46	40	23	22	IZS	10	6	52	26.2	24
20	3	2	1	1	2	1	4	12	16	19	32	48	52	52	53	53	54	49	46	29	IZS	15	11	9	54	24.5	24
21	13	13	9	8	3	3	8	13	14	20	31	46	53	51	46	52	52	51	32	IZS	28	25	22	18	53	26.6	24
22	18	23	19	16	23	26	28	29	29	29	32	35	37	37	40	42	43	43	IZS	30	22	16	17	20	43	28.4	24
23	18	14	10	8	2	2	4	13	15	P	35	37	39	43	43	40	36	IZS	30	34	53	53	50	45	53	28.4	23
24	43	40	40	40	35	33	32	28	26	23	14	15	15	18	21	19	IZS	19	20	19	17	18	17	18	43	24.8	24
25	22	21	18	19	20	18	16	14	14	15	16	21	23	24	23	IZS	18	17	15	12	12	12	11	9	24	17.0	24
26	6	7	6	6	6	4	5	7	11	17	20	24	26	30	IZS	34	33	33	25	18	13	8	7	6	34	15.3	24
27	6	4	3	3	3	3	5	9	13	19	27	32	35	IZS	40	39	40	35	27	13	15	16	14	14	40	18.0	24
28	12	8	4	3	3	3	2	8	18	27	31	41	IZS	46	47	49	54	60	53	36	28	27	12	29	60	26.1	24
29	21	27	27	30	30	29	35	39	37	33	25	IZS	24	28	30	30	31	31	26	20	20	20	22	19	39	27.6	24
30	16	16	17	16	13	10	14	20	24	27	IZS	32	33	33	33	32	31	29	27	22	21	16	11	11	33	21.9	24
31	11	8	8	5	4	3	5	9	12	IZS	20	24	26	24	24	26	32	30	29	29	30	31	30	28	32	19.5	24
HOURLY MAX	43	40	40	40	38	35	35	39	40	38	41	48	53	52	53	53	54	60	53	36	53	53	50	47			
HOURLY AVG	12.0	12.2	10.6	11.7	11.4	11.3	12.8	17.0	21.1	26.5	29.7	33.5	34.2	35.7	36.6	36.7	36.4	34.6	29.8	23.8	19.3	15.8	13.8	14.0			

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

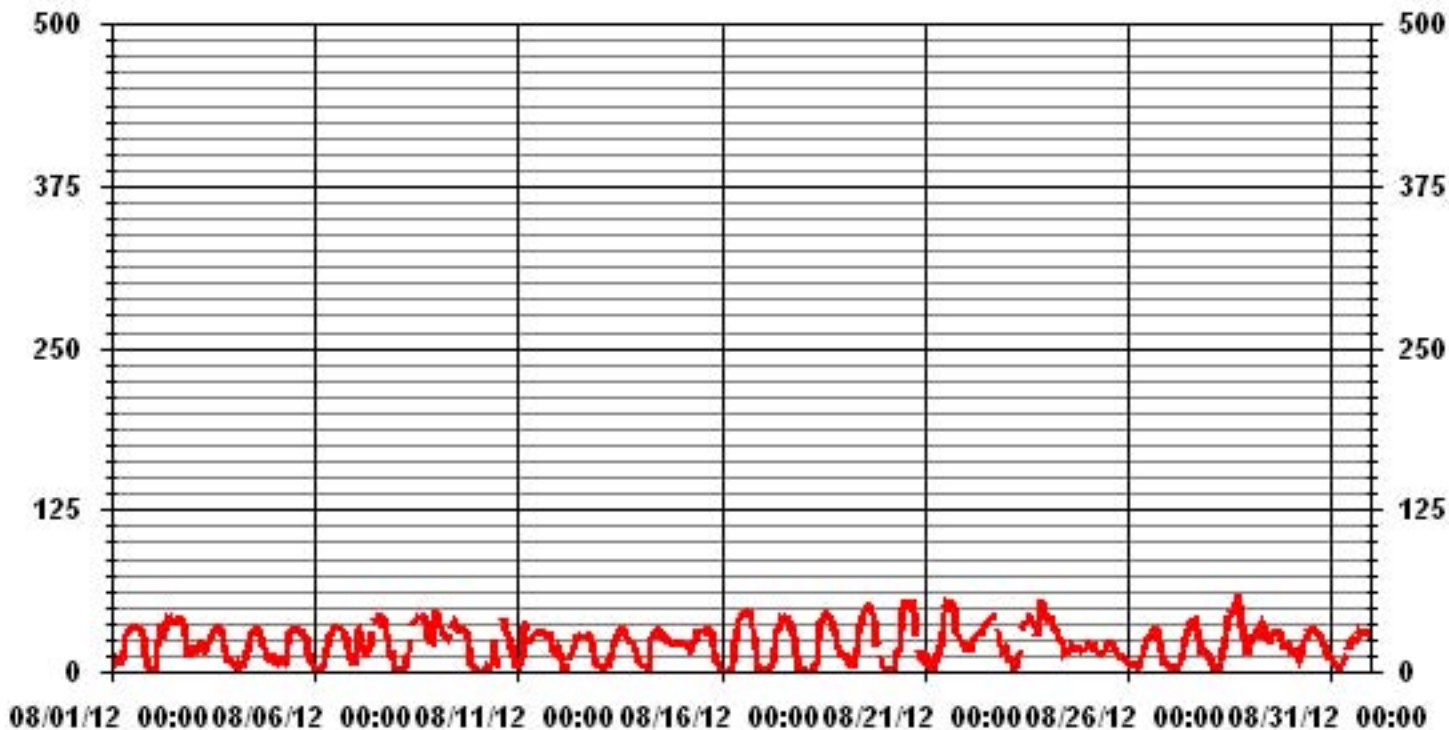
ALBERTA ENVIRONMENT: 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	695					
MAXIMUM 1-HR AVERAGE:	60	PPB	@ HOUR(S)	17	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	28.4	PPB			ON DAY(S)	22, 23
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME	99.6	%	
STANDARD DEVIATION	13.56		MONTHLY AVERAGE	22.26	PPB	

01 Hour Averages



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

AUGUST 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	17	15	14	14	11	10	14	25	31	32	32	36	36	36	37	37	IZS	37	33	31	25	9	8	3	37	23.6	24	
2	2	2	17	23	33	38	39	39	43	45	43	46	42	41	42	IZS	43	44	42	36	26	21	19	22	46	32.5	24	
3	20	19	24	19	24	25	21	19	22	25	28	30	34	36	IZS	37	36	35	24	22	17	12	11	10	37	23.9	24	
4	10	7	6	12	6	6	10	12	21	27	30	33	36	IZS	36	33	32	26	23	17	16	15	15	15	36	19.3	24	
5	17	15	14	13	13	12	10	17	27	33	32	35	IZS	34	34	34	32	32	31	29	26	17	13	6	35	22.9	24	
6	7	6	4	3	8	9	15	26	30	31	34	IZS	37	36	34	35	34	34	31	24	20	15	10	10	37	21.4	24	
7	9	45	38	31	22	18	17	18	27	32	IZS	41	42	42	47	48	42	46	39	32	22	21	21	7	48	30.7	24	
8	6	3	5	3	4	8	15	17	28	IZS	40	42	44	44	45	44	45	42	37	31	28	26	52	52	52	28.7	24	
9	45	43	40	39	34	33	30	32	IZS	38	42	40	36	34	34	34	36	35	31	26	12	10	5	3	45	31.0	24	
10	9	4	1	4	5	11	11	IZS	14	26	32	29	6	N	C	44	37	36	33	26	25	19	8	19	44	19.0	23	
11	19	9	15	51	45	45	IZS	29	28	31	32	32	33	31	32	30	30	31	30	29	23	20	21	51	29.5	24		
12	21	15	11	9	10	IZS	15	19	20	24	27	28	29	29	28	28	28	29	30	30	24	21	13	10	30	21.7	24	
13	6	6	6	6	IZS	6	12	17	22	27	32	34	34	34	33	32	30	27	26	25	22	21	17	13	34	21.2	24	
14	11	8	7	IZS	2	23	30	33	36	34	28	32	36	35	31	29	25	25	23	23	25	24	24	23	36	24.7	24	
15	22	22	IZS	23	22	20	22	27	C	C	C	C	C	33	35	35	35	34	29	21	19	10	4	35	24.1	24		
16	1	IZS	1	1	1	1	5	10	30	38	45	45	46	M	47	48	47	47	44	30	28	15	10	5	48	24.8	23	
17	IZS	2	1	2	6	6	8	30	36	35	39	46	44	43	43	39	41	39	33	31	24	11	5	IZS	46	25.6	24	
18	4	1	1	1	1	1	3	9	13	32	43	43	43	45	47	47	45	44	40	33	32	25	IZS	17	47	24.8	24	
19	17	15	15	12	10	9	15	16	24	34	39	45	49	51	52	53	53	51	45	30	30	IZS	17	13	53	30.2	24	
20	6	4	3	3	6	2	7	17	19	23	41	52	53	54	55	55	55	54	50	47	IZS	23	15	14	55	28.6	24	
21	20	22	13	14	10	5	14	15	17	25	39	52	56	56	51	55	54	53	42	IZS	34	32	27	22	56	31.7	24	
22	24	29	26	26	26	28	30	30	31	32	36	38	40	39	42	45	45	45	IZS	36	29	21	21	22	45	32.2	24	
23	21	16	12	12	4	3	13	14	19	P	36	39	42	44	45	45	39	IZS	31	52	56	56	53	49	56	31.9	23	
24	47	45	42	44	39	36	34	34	29	25	19	17	17	19	22	21	IZS	22	23	23	21	21	22	22	47	28.0	24	
25	26	24	21	20	22	21	19	15	15	16	19	26	26	26	26	IZS	20	18	18	16	15	15	13	11	26	19.5	24	
26	9	8	9	9	8	5	6	8	16	19	23	27	32	32	IZS	35	34	36	32	24	19	12	11	11	36	18.5	24	
27	7	7	5	4	4	4	8	11	16	24	30	34	38	IZS	41	41	42	41	37	25	23	20	18	18	42	21.7	24	
28	14	13	6	4	6	7	6	17	26	28	38	44	IZS	48	48	54	58	64	64	48	41	35	30	34	64	31.9	24	
29	28	34	34	36	34	35	40	42	39	37	29	IZS	26	30	31	32	33	32	30	27	23	23	24	21	42	31.3	24	
30	19	20	20	21	20	15	19	21	27	30	IZS	33	33	33	33	34	33	31	29	26	23	20	15	14	34	24.7	24	
31	13	10	9	9	6	6	9	11	15	IZS	25	27	28	26	27	29	35	32	30	30	31	32	31	30	35	21.8	24	
HOURLY MAX	47	45	42	51	45	45	40	42	43	45	45	52	56	56	55	55	58	64	64	52	56	56	53	52				
HOURLY AVG	15.9	15.6	14.0	15.6	14.7	14.9	16.5	20.8	24.9	29.7	33.3	36.6	36.3	37.7	38.4	39.1	38.6	37.4	33.9	29.6	25.6	21.1	18.6	17.4				

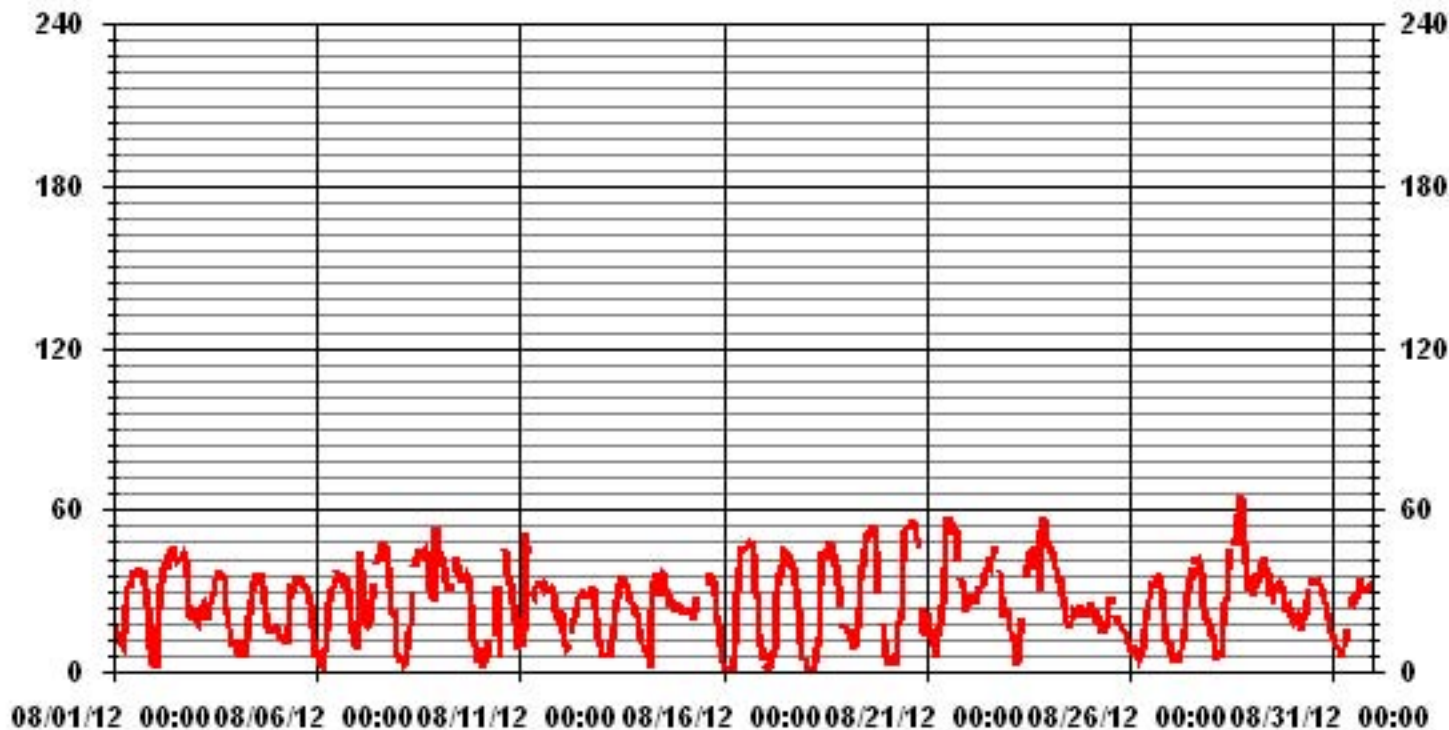
STATUS FLAG CODES

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:	703					
MAXIMUM INSTANTANEOUS VALUE:	64	PPB	@ HOUR(S)	17, 18	ON DAY(S)	28
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION	13.63					

01 Hour Averages



— LICA35 O3MAX PPB

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

August 2012

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : O3_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	5.11	.99	1.27	2.84	7.52	11.36	7.67	3.83	2.55	.85	1.42	2.69	8.52	10.22	16.05	14.34	97.30
< 110	.00	.00	.00	.00	.00	.00	.28	1.27	.00	.14	.00	.28	.14	.00	.28	.28	2.69
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.11	.99	1.27	2.84	7.52	11.36	7.95	5.11	2.55	.99	1.42	2.98	8.66	10.22	16.33	14.63	

Calm : .00 %

Total # Operational Hours : 704

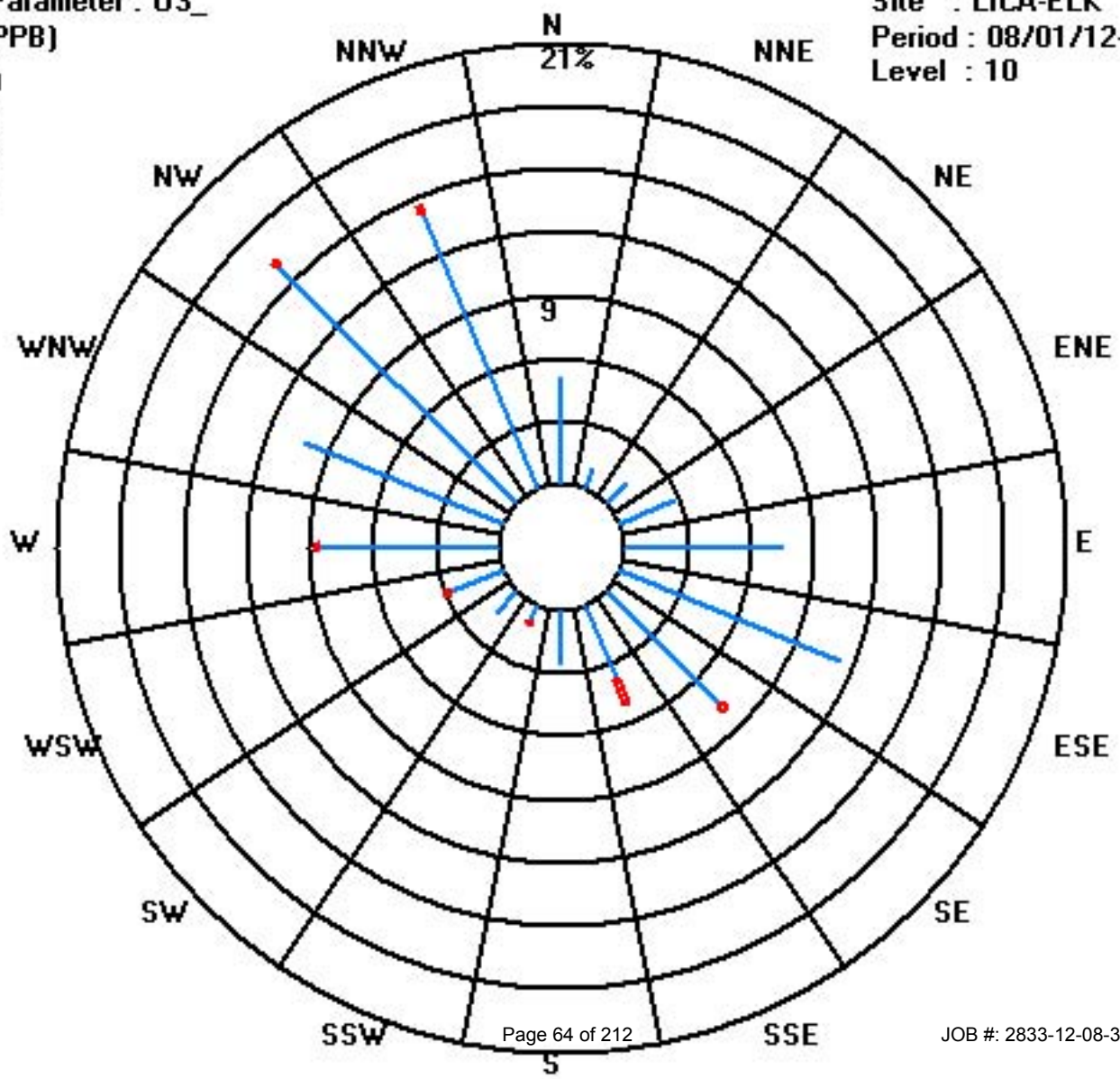
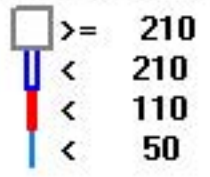
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	36	7	9	20	53	80	54	27	18	6	10	19	60	72	113	101	685
< 110							2	9		1		2	1		2	2	19
< 210																	
>= 210																	
Totals	36	7	9	20	53	80	56	36	18	7	10	21	61	72	115	103	

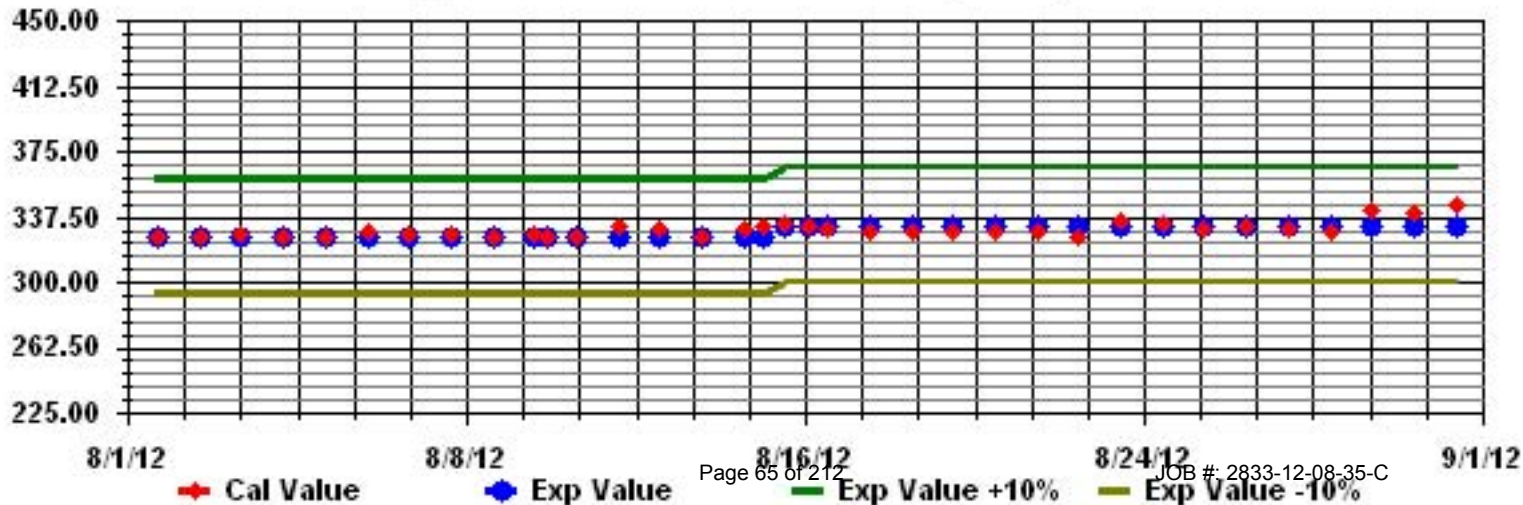
Calm : .00 %

Total # Operational Hours : 704

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

AUGUST 2012

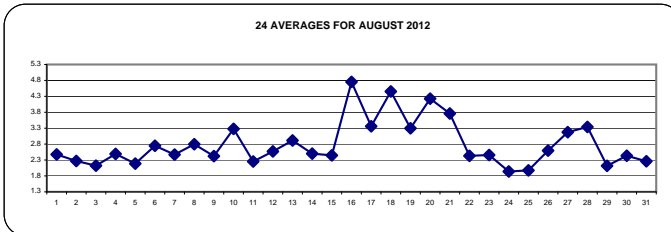
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	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	2.5	2.8	3.2	2.6	2.4	2.7	2.5	2.2	2	1.9	1.9	1.9	1.9	1.8	1.8	1.9	IZS	1.9	1.9	1.9	2.3	3.8	3.5	5.6	5.6	2.5	24		
2	4.8	4.3	4.4	2	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.8	IZS	1.8	1.8	1.8	2.1	2.3	2.2	2.3	1.9	4.8	2.3	24		
3	2.1	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	IZS	1.8	1.9	1.9	2	2	3.1	3	3.2	3.3	3.3	2.1	24		
4	3.4	3.4	3.3	3.2	3.8	3.4	2.8	2.7	2.4	2.2	2.1	2	1.9	IZS	1.9	1.8	1.8	1.8	1.8	2.4	2.3	2.3	2.2	2.4	3.8	2.5	24		
5	2.4	2.4	2.8	2.5	2.1	2.1	2.1	2.5	2	1.9	1.9	1.9	IZS	1.8	1.9	1.9	1.9	1.8	1.9	2	2.1	2.3	3.3	2.8	3.3	2.2	24		
6	2.8	3.4	4	4.3	3.9	3.9	3.6	3	2.5	2.2	2.1	IZS	2	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.4	2.8	3.5	3.3	4.3	2.7	24		
7	3.2	2.2	2	2.3	2.5	2.7	2.7	2.8	2.6	2.2	IZS	2.1	2	2.1	2	1.9	2	2	2.3	2.1	3.3	3.1	3	3.7	3.7	2.5	24		
8	4.4	4.1	4.4	4.1	4.6	4.7	3.8	3.8	3.1	IZS	1.9	1.9	2	2	2	2	1.9	1.9	2	2	2	2	1.8	1.8	4.7	2.8	24		
9	2.1	2	2.2	2.6	2.1	2.1	1.9	1.8	IZS	1.8	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.9	2	2.3	3.5	3.6	4.7	6	6.0	2.4	24		
10	5.1	6.5	6.6	4.8	3.4	3.5	4.2	IZS	3.8	2.4	2.2	2.2	2.1	1.9	1.9	1.9	1.9	2.1	2.1	2.4	2.9	2.8	3.1	3.5	4	6.6	3.3	24	
11	3.4	3.7	2.8	2.1	2.2	2.5	IZS	2.1	2	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.6	2.5	2.5	2.5	3.7	2.3	24		
12	2.6	3.1	3.7	4.6	3.3	IZS	2.5	2.2	2	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2	2.9	3.6	3.8	4.4	4.6	2.6	24		
13	4.5	5.2	4.6	4.6	IZS	4.2	3.7	3.3	2.9	2.4	2	2	2	2	2	2	2	2.1	2.1	2.2	2.2	2.5	2.6	2.9	3	5.2	2.9	24	
14	3.1	3.5	3.4	IZS	5.9	4.1	2.1	2	2	1.8	1.9	1.9	C	C	C	C	1.9	1.9	1.9	2	2	2	2	2	2.1	5.9	2.5	24	
15	2.1	2.1	IZS	2	2	2.1	2	2	2	2	2	2	2	M	2	2	2	2	2	2	2.8	3.5	3.8	4.1	5.3	5.3	2.4	23	
16	6.7	IZS	6.3	6.3	6.3	6.7	6.6	6	C	C	M	M	C	C	2	2	2	2	2.1	2.1	2.6	2.7	3.1	6.7	6.2	6.4	6.7	4.8	22
17	IZS	6.5	6.2	5.9	5.5	5.7	4.7	3.8	2.3	2.2	2.2	2.1	2.1	2	2	2	2	2	2	2	2.2	2.9	3.5	4.1	IZS	6.5	3.4	24	
18	4.8	5.6	7.8	8.6	8.3	8.1	7.5	6.3	5.7	4.5	3.6	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.4	2.8	3	4	IZS	3.4	8.6	4.5	24		
19	3.4	3.3	3.6	4.1	4.5	4.7	5.1	3.8	3.4	2.7	2.6	2.3	2.1	2.1	2.1	2.1	2.1	2.3	2.3	3.3	3.8	IZS	5.2	4.9	5.2	3.3	24		
20	5.4	5.1	5.9	5.5	5.4	6.5	6.4	5.7	5.5	5.2	4.3	3.1	2.3	2.2	2.2	2.3	2.5	2.7	3.1	IZS	4.4	4.7	4.6	6.5	4.6	5.2	4.2	24	
21	4.3	4.3	5.2	6	6.1	5.7	5.3	4.8	4.4	3.9	3.2	2.6	2.3	2.2	2.3	2	2.2	2.2	2.8	IZS	3.2	3.4	3.6	4.5	6.1	3.8	24		
22	4.8	3.6	3.8	3.5	2.6	2.3	2	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.8	IZS	2.3	2.5	2.6	2.8	2.5	4.8	2.4	24		
23	2.3	2.4	2.4	2.5	5.3	4.2	4.7	2.3	2.5	P	N	1.9	1.9	1.9	2	2	2	IZS	2	1.9	1.8	1.9	1.8	1.9	5.3	2.5	22		
24	2	2	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	IZS	1.9	1.9	1.9	1.9	2	2.1	2.1	1.9	24		
25	2	1.9	1.9	1.9	2	1.9	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	IZS	1.9	2	1.9	2.1	2.1	2	2.1	2.3	2.3	2.0	24		
26	2.4	2.2	2.3	2.5	2.4	2.4	2.5	2.5	2.3	2.2	2.1	2	2	2	IZS	2	2.1	2.2	2.3	2.7	3.5	4.3	4.2	4.6	4.6	2.6	24		
27	4	4.3	4.5	4.2	4.2	3.9	4	3.1	2.9	2.5	2.1	2.1	2	IZS	2	2.2	2.2	2.3	2.9	3.7	3.7	3.3	3.4	3.5	4.5	3.2	24		
28	3.7	4.4	4.8	4.8	4.6	4.3	4.5	4.3	3.1	2.4	2.3	2.2	IZS	2.1	2.2	2.1	2	2.1	2.5	3	3.6	3.7	5.9	2.2	5.9	3.3	24		
29	2.2	2.3	2.1	2	2.1	2	1.9	1.9	1.9	2	IZS	2	2	2	2	2	2	2	2	2.2	2.6	2.3	2.4	2.4	2.5	2.6	2.1	24	
30	2.6	2.4	2.3	2.4	2.9	2.5	2	N	N	N	N	N	N	C	C	C	C	C	C	2.2	2.1	2.5	2.8	2.5	2.9	2.4	18		
31	2.1	2.3	2.4	2.5	2.8	2.7	2.7	2.3	2	IZS	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.3	2.3	2.2	2.2	2.3	2.8	2.3	24		
HOURLY MAX	6.7	6.5	7.8	8.6	8.3	8.1	7.5	6.3	5.7	5.2	4.3	3.1	2.3	2.3	2.3	2.2	2.3	2.5	2.9	3.7	3.8	6.7	6.2	6.4					
HOURLY AVG	3.4	3.4	3.8	3.6	3.6	3.6	3.4	3.0	2.7	2.4	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	2.7	3.1	3.3	3.4				

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
BB	- BELOW BACKGROUND OF 1.5 PPM		

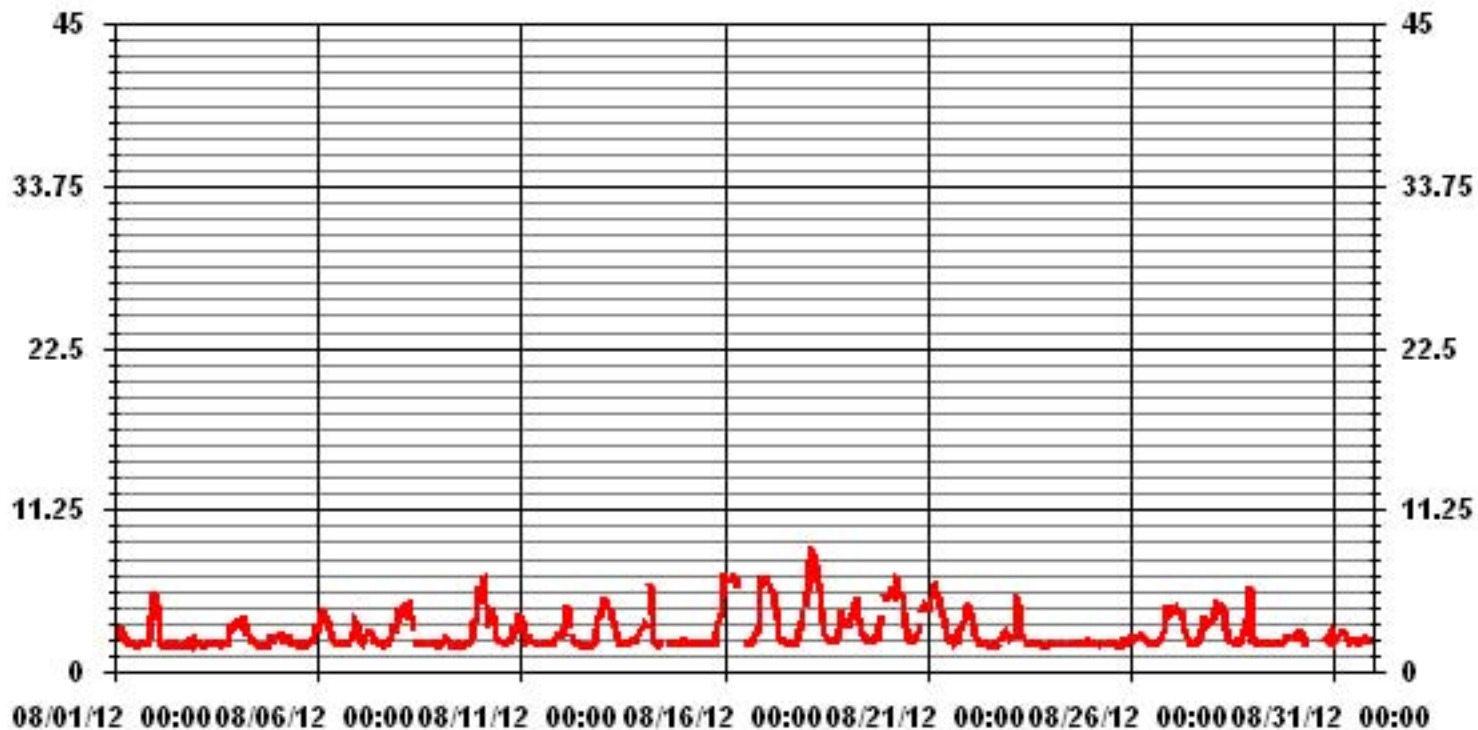
24 AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	688		
MAXIMUM 1-HR AVERAGE:	8.6 PPM	@ HOUR(S)	3 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	4.8 PPM		16 ON DAY(S)
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	733 HRS
MONTHLY CALIBRATION TIME:	14 HRS	AMD OPERATION UPTIME:	98.5 %
STANDARD DEVIATION:	1.23	MONTHLY AVERAGE:	2.78 PPM

01 Hour Averages



— LICA35 THC PPM

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

AUGUST 2012

TOTAL HYDROCARBONS MAX instantaneous maximum 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	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		3.3	3.4	4.1	3.2	2.5	3.2	2.9	2.3	2.1	2	2	2.1	2	1.9	1.9	2.1	IZS	2.1	2.1	2.4	3.1	6.1	4.3	7.4	7.4	3.0	24	
2		7.7	5.5	10.5	2.2	2.1	1.8	2.1	2.1	2.1	2.2	2.1	2	2	2.2	1.8	IZS	1.8	1.8	1.9	3.4	2.9	3.2	2.9	2.1	10.5	3.0	24	
3		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	IZS	1.9	1.9	2	2.2	2.7	4.1	4.2	4.3	4	4.3	2.4	24		
4		4.2	3.9	3.7	4.7	4.7	5.1	3.6	2.9	2.5	2.3	2.5	2.6	2	IZS	2.1	2	2	1.9	2.1	2.6	2.8	2.6	3.3	3	5.1	3.0	24	
5		3.2	2.9	3.5	3.6	2.4	2.3	2.8	3.1	2.4	1.9	1.9	1.9	IZS	1.9	1.9	1.9	2	1.9	2.1	2.1	2.4	3.1	7	3.4	7	2.7	24	
6		3.3	4.5	4.4	4.9	4.1	4.5	4.3	3.6	2.7	2.3	2.3	IZS	2.1	2	2	2	1.9	1.9	2.1	2.3	2.7	3.4	5.8	5.5	5.8	3.2	24	
7		4	3.7	2.5	3.4	3.6	3	3	3.3	2.8	2.4	IZS	2.4	2.1	2.2	2.1	2.1	2.1	2.8	2.6	2.9	2.4	4.3	4.1	3.9	4.5	4.5	3.0	24
8		6.3	5.3	4.8	4.6	5.5	5.2	4.5	4.8	4	IZS	2.1	2.1	2.1	2	2.1	2.1	2	2.1	2.3	2.4	2.2	2.2	2.1	2	6.3	3.3	24	
9		2.7	2.5	5.8	3	2.7	2.5	2.5	2	IZS	1.9	2	2	2	2	1.9	2	1.9	2	2.1	4	4.7	7.2	5.6	7.2	7.2	3.1	24	
10		7.9	9.5	9.4	6.8	4.7	4.3	4.7	IZS	5.6	3.4	8.1	2.7	2.4	2	1.9	2	2.2	2.4	2.8	3.6	4.1	3.7	10	11.7	11.7	5.0	24	
11		4.1	4.3	3.7	2.5	3	3.3	IZS	2.8	2.1	2	2	4.5	3.7	2	2.1	2	2.1	2.1	2.1	2.2	3.5	3.1	2.7	2.6	4.5	2.8	24	
12		3	3.5	4.3	5.5	4.3	IZS	2.9	2.7	2.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.5	3.8	4.9	4.6	6.3	6.3	3.0	24	
13		6.6	7.8	5.1	5.2	IZS	4.8	4	3.9	3.2	2.6	2.2	2.6	2.1	2.1	2	2.1	2.6	2.5	2.5	2.5	3.2	2.8	3.7	3.3	7.8	3.5	24	
14		3.5	6.6	4.6	IZS	8.2	6.2	2.3	2.1	2.1	1.9	1.9	C	C	C	C	C	C	2	2	2	2.1	2.1	2.1	2.2	8.2	3.2	24	
15		2.2	2.2	IZS	2	2.1	2.7	2.2	2	2	2.1	2.2	2	2.1	M	2.1	2.1	2.1	2.1	2.1	5.2	4.7	4.5	7.5	7.3	7.5	3.0	23	
16		10.7	IZS	7.6	7.3	6.8	7.6	8.9	6.7	C	C	M	M	C	C	2.1	2.1	2.2	2.1	3.5	3	4.6	9	7.8	7.4	10.7	5.8	22	
17		IZS	8.2	8.8	7.3	7.3	6.9	5.8	5.8	2.5	2.3	2.3	2.3	2.2	2.1	2.2	2.2	2	2	2.2	3.2	3.6	4.7	5.1	IZS	8.8	4.1	24	
18		5.4	7.5	9.6	11.2	26.8	9.3	8.5	7.4	6.2	5.5	4.2	3.2	2.5	2.5	2.3	2.3	2.2	2.3	2.6	3.6	3.7	6.2	IZS	3.9	26.8	6.0	24	
19		3.6	3.5	4	4.9	5.9	5.6	9.4	4.1	3.6	3.3	2.7	2.5	2.5	2.3	2.2	2.2	2.2	2.5	2.5	4.6	5.2	IZS	7.5	7.2	9.4	4.1	24	
20		8.1	7.6	19.4	6.3	6.5	7.8	8.9	6.5	6	5.8	5.3	3.6	2.8	2.3	2.4	2.5	2.4	3.2	3.2	3.6	IZS	5.3	5.7	5.1	19.4	5.7	24	
21		4.7	5.5	6	8.7	7.3	6.5	7.4	5.2	4.9	4.5	3.6	2.9	2.5	2.4	5	2.2	2.3	2.3	4.2	IZS	4.8	5.2	4.8	6.4	8.7	4.8	24	
22		6.1	4.8	5	3.8	4.4	2.4	2.2	2	2.1	2.2	2	2.1	2	1.9	1.9	1.9	1.9	2.1	IZS	3.3	2.6	2.8	3	2.8	6.1	2.8	24	
23		2.5	2.8	2.7	4	38.9	6.6	7.3	2.8	2.9	P	N	2	2	2	2.2	2.2	2.1	IZS	2.3	2.1	2	2	2	2.4	38.9	4.6	22	
24		2.4	2.4	1.9	2.2	2.3	1.9	1.9	2	2	1.9	2.2	2.3	2.3	2	1.9	2.1	IZS	2.1	2.3	2.4	2.3	3.1	2.9	2.3	3.1	2.2	24	
25		2.3	2.1	2.1	2.1	2.2	2	2.3	2	2.2	2	2	2	2.1	2	2	IZS	2.2	2.2	2.3	2.7	2.5	2.2	2.5	2.6	2.7	2.2	24	
26		2.7	2.3	2.9	2.9	2.6	2.6	2.6	2.8	2.6	2.3	2.3	2.2	2.2	2.1	IZS	2.1	2.3	2.8	2.7	3.9	4.6	6	4.6	5.6	6	3.0	24	
27		5.1	6.5	5.7	5.2	4.7	4.2	6.8	3.8	3.6	2.7	2.4	2.2	2.1	IZS	2.1	2.3	3.3	3.1	5.5	4.7	5.7	4.1	4	4.4	6.8	4.1	24	
28		4.3	10.7	5.9	5.3	5.1	4.8	5	5.7	3.9	2.5	2.4	2.3	IZS	2.2	2.3	2.2	2.1	2.7	3	9.1	5.4	5	8.9	2.6	10.7	4.5	24	
29		2.6	2.8	2.6	2.1	2.4	2.7	1.9	2	2.2	2	2.1	IZS	2.1	2	2	2.1	2.2	2.1	3.3	3.2	2.8	2.7	2.6	2.7	3.3	2.4	24	
30		2.9	2.8	2.6	2.9	3.9	3.9	2.9	N	N	N	N	N	N	C	C	C	C	C	C	2.9	3	3.2	3.4	3.2	3.9	3.1	18	
31		2.3	2.4	2.5	3.4	5.2	3.3	3.4	2.6	2.3	IZS	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.4	2.5	2.6	2.2	2.4	2.3	2.8	5.2	2.6	24	
HOURLY MAX		10.7	10.7	19.4	11.2	38.9	9.3	9.4	7.4	6.2	5.8	8.1	4.5	3.7	2.5	5.0	2.5	3.3	3.2	5.5	9.1	5.7	9.0	10.0	11.7				
HOURLY AVG		4.3	4.6	5.3	4.4	6.1	4.3	4.3	3.5	3.0	2.6	2.6	2.4	2.2	2.1	2.2	2.1	2.2	2.2	2.6	3.2	3.5	4.0	4.6	4.5				

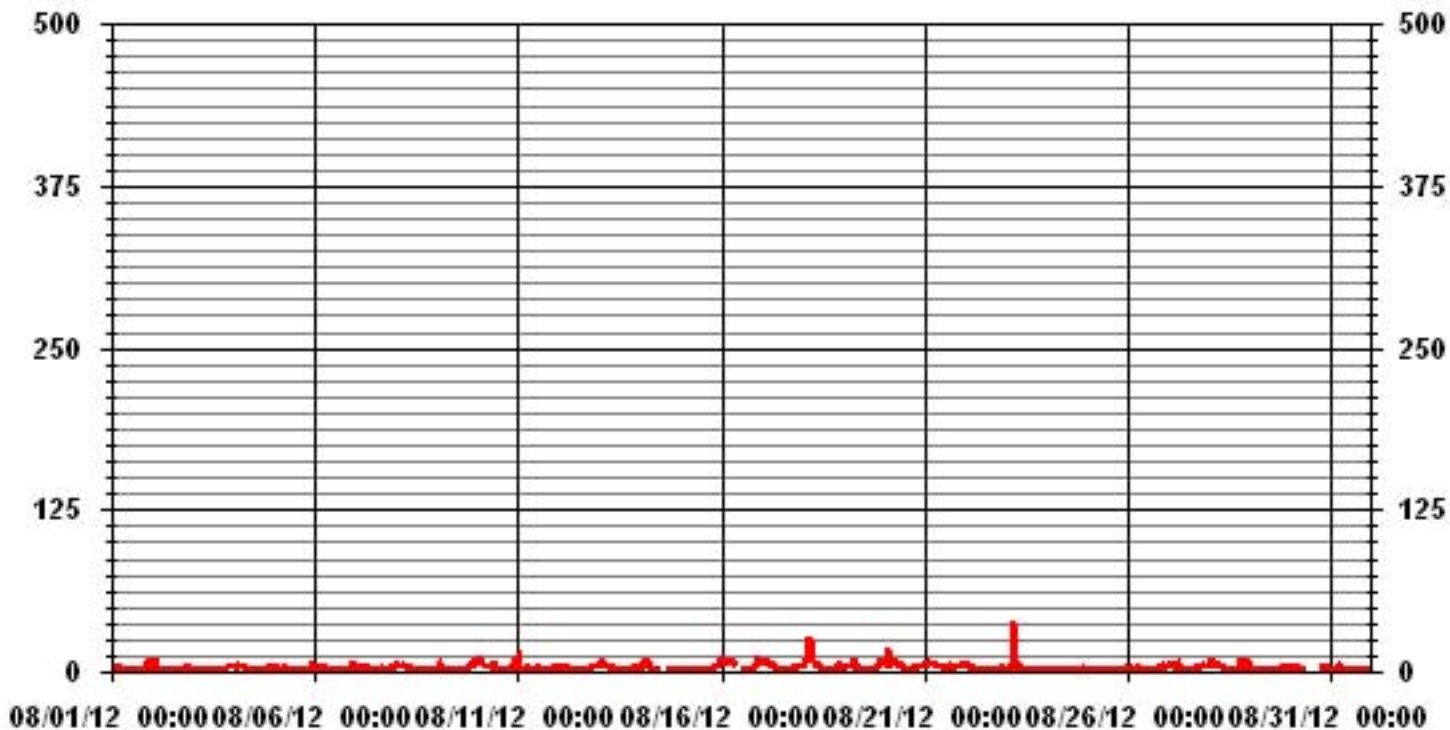
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	686					
MAXIMUM INSTANTANEOUS VALUE:	38.9	PPB	@ HOUR(S)	4	ON DAY(S)	23
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	733	HRS	
MONTHLY CALIBRATION TIME:	16	HRS				
STANDARD DEVIATION	2.53					

01 Hour Averages



— LICA35 THCMAX PPM

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

August 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	4.06	.87	1.01	1.45	3.77	3.77	4.06	4.79	2.32	.87	.43	2.18	7.84	7.26	13.37	13.22	71.36
< 10.0	.72	.14	.29	1.45	3.92	7.84	4.06	.43	.29	.00	.58	.87	.72	2.18	3.05	2.03	28.63
< 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	4.79	1.01	1.30	2.90	7.70	11.62	8.13	5.23	2.61	.87	1.01	3.05	8.57	9.44	16.42	15.26	

Calm : .00 %

Total # Operational Hours : 688

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	28	6	7	10	26	26	28	33	16	6	3	15	54	50	92	91	491
< 10.0	5	1	2	10	27	54	28	3	2		4	6	5	15	21	14	197
< 50.0																	
>= 50.0																	
Totals	33	7	9	20	53	80	56	36	18	6	7	21	59	65	113	105	

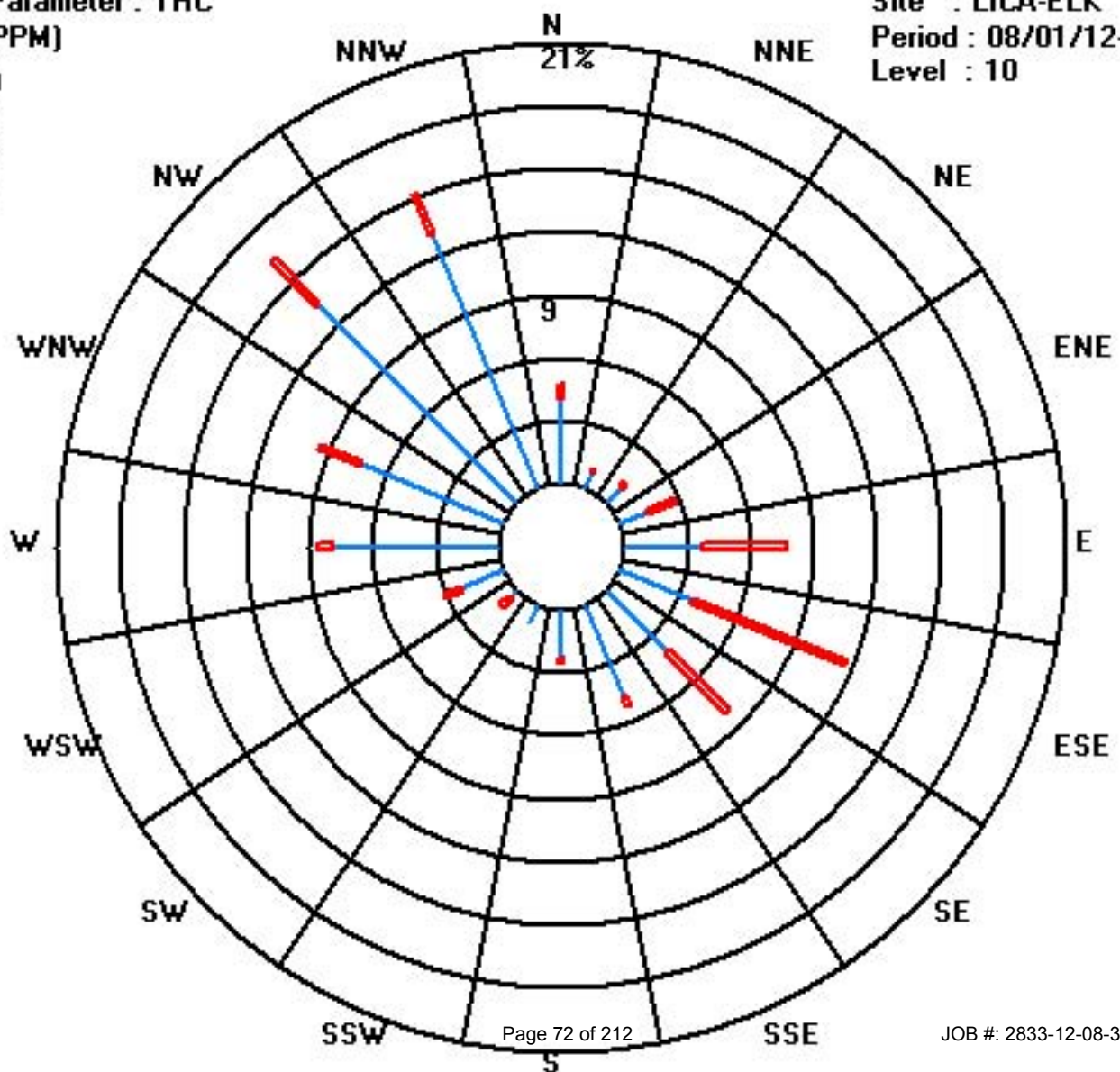
Calm : .00 %

Total # Operational Hours : 688

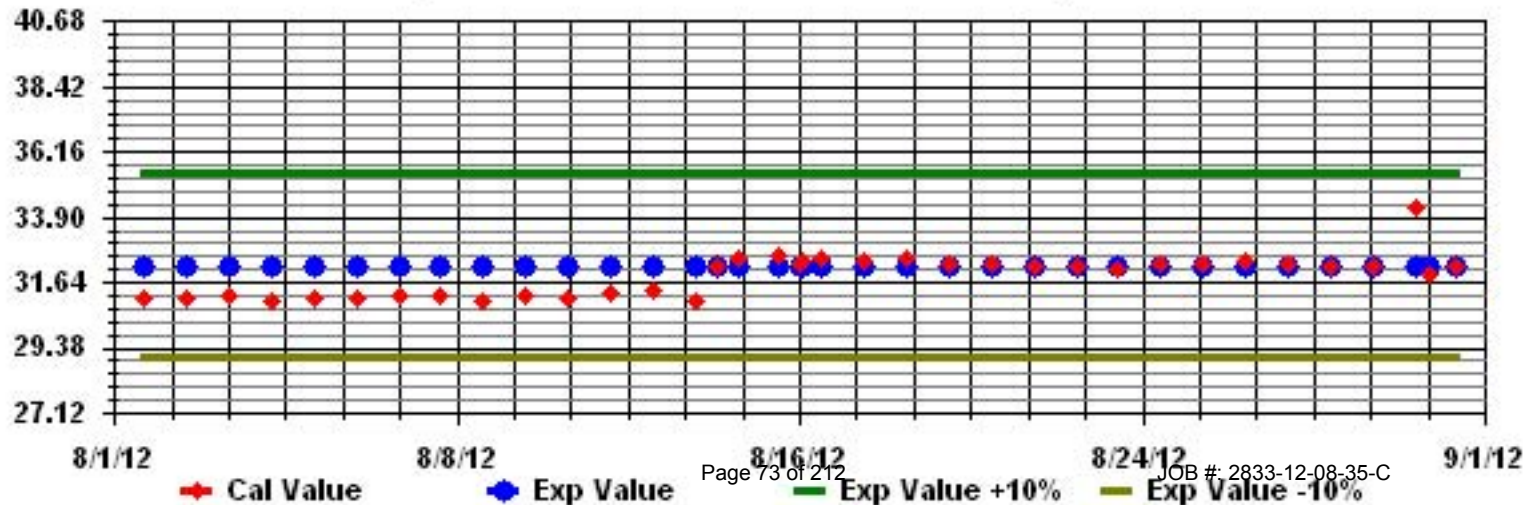
Class Limits (PPM)

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

Level : 10



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



Vector Wind Speed

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

AUGUST 2012

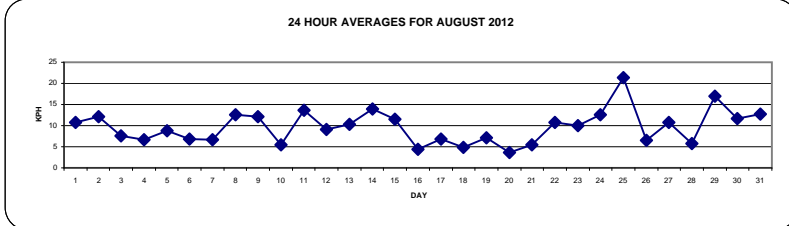
VECTOR WIND SPEED (WS) hourly averages (km/hr)

Table with columns: HOUR START, HOUR END, DAY (1-31), and hourly wind speed data for each hour from 0:00 to 23:00, plus DAILY MAX, 24-HOUR AVG, and RDGS.

STATUS FLAG CODES

Table listing status flag codes: S - OUT OF SERVICE, N - INVALID DATA, D - INSTRUMENT DRIFT, C - CALIBRATION, IZS - IZS - DAILY ZERO/SPAN CHECK, M - MISSING DATA, P - POWER FAILURE, NA - NOT APPLICABLE.

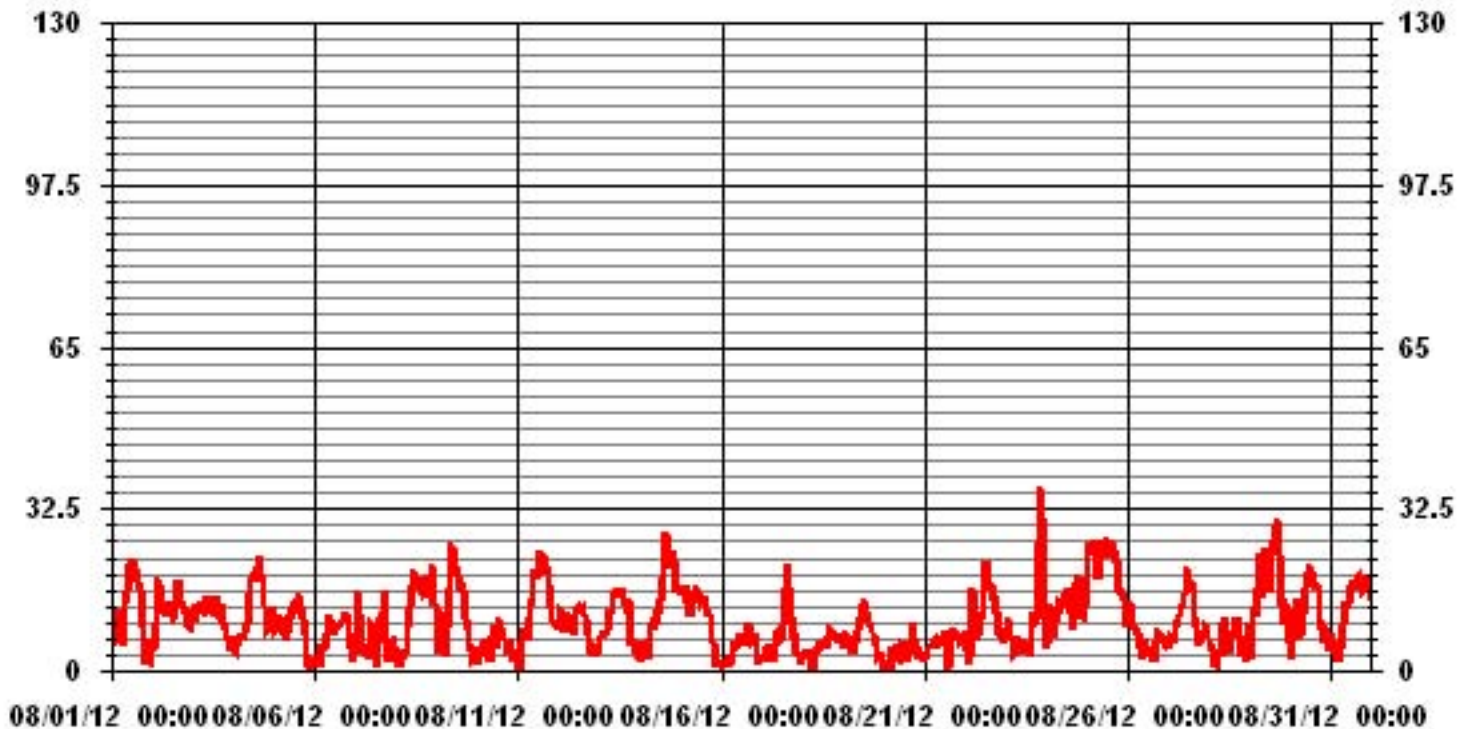
LAST CALIBRATION: November 24, 2011



MONTHLY SUMMARY

Summary table with fields: MAXIMUM 1-HR AVERAGE (36.7 KPH @ 20 ON DAY(S) 23), MAXIMUM 24-HR AVERAGE (21.4 KPH ON DAY(S) 25), CALMS (0.27 %), MONTHLY CALIBRATION TIME (0 HRS), STANDARD DEVIATION (6.32), OPERATIONAL TIME (743 HRS), AMD OPERATION UPTIME (99.9 %), MONTHLY AVERAGE (9.97 KPH).

01 Hour Averages



— LICA35 WSP KPH

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

AUGUST 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		8.8	14.1	13.6	18.4	17.4	11.3	10.7	18.6	22.9	27	34.1	35.9	38.1	33.3	35	32.3	28.7	28.9	16.8	7.7	4.1	8.1	5.9	9.4	38.1	
2		7.9	6.3	32.1	29.5	29.5	32	25.1	20.4	22.7	20.7	21.7	19.6	19.4	20.8	25.5	29.9	30.2	28.3	23.5	20.6	14.4	13.7	18.7	20.3	32.1	
3		19.7	17.8	25.5	19.9	25.7	23.8	19.5	19.2	22.7	25.1	25	23.4	22.5	28.3	23.4	24.3	22.7	19	16.8	13.8	9.8	10.8	8	8	28.3	
4		8.6	9.8	8.3	11.8	9.4	11.2	11.9	13.2	18.7	27.6	30.7	30.7	34.6	39.9	32.2	42.4	36	32.1	26.2	17.9	17.8	16.4	17.8	22.6	42.4	
5		14.2	13.4	13.5	20.8	15.4	16.7	13.1	10.1	14.6	21.9	23.3	24.5	31.6	30.4	25.5	35.4	26	18.2	14.4	12.3	5.9	7.1	5.6	5.8	35.4	
6		6.5	8.2	6.1	6.2	9.3	10.6	9	15	20.9	17.3	17.6	15.9	22.6	19.6	21.2	18.8	17.5	18	18.7	16.2	10.8	8.6	7.9	9.9	22.6	
7		10.7	83.4	25.4	18.2	11.1	8.2	11.1	7.6	14.7	17	19	17.7	14.8	32.7	28.2	28.1	26	46.8	18.5	14.5	15.2	12.5	7	7.1	83.4	
8		8.1	5.2	4.3	4.9	5.6	6.5	8.2	14.1	21.4	32.5	29.6	35.5	29.4	30.6	29.4	27.4	28.7	26.7	26.7	29.2	38.6	69.3	48.7	69.3	69.3	
9		30	23.8	12.9	23.2	22.1	12.3	20.5	32.6	39.1	37.9	40.4	38.8	33.3	30.2	29.4	31.7	35.3	27.1	18.1	8.2	7.7	5.7	6.3	10.6	40.4	
10		9.7	6.9	8.1	9.6	9.9	12.9	18.3	15.3	20.4	17.3	21.4	42.2	19.1	19	16.6	12.3	11.4	8.3	8.7	10.3	7	9.6	16.8	17.9	42.2	
11		15	7.7	30.7	70.2	15	13.4	20.1	26.1	27.6	32.2	31.8	31.1	35.2	40.5	36.9	38	35.4	34.6	32.4	21	13	11.4	11.7	14.4	70.2	
12		15.5	16	14.7	9.7	17	17	16.5	16.3	16.9	15.7	20.7	23.1	25.7	24.4	22.6	21.9	21.2	15	12.4	9.2	8.5	5.4	5.8	7.1	25.7	
13		8.5	11.3	10.5	11.1	11.6	13.2	20	17.9	23.9	28.6	30.2	30.3	29	28.2	28.2	26.4	23.9	26.4	15.6	15.1	10.7	9.2	9.2	4.9	30.3	
14		6.8	9.3	10.9	10.5	9.4	22.3	21.7	16.4	22.4	21.2	20.6	22.6	26.4	40.5	38.5	46.8	40.5	35.5	41.6	37.9	40.5	30.3	29.6	25.2	46.8	
15		24.9	28.3	27.6	22.2	22	17.8	28.4	26	24.7	31.7	29.5	26.2	27.4	28	29.4	23.1	22.3	19.7	16.1	7.4	7.8	7.6	4.2	3.3	31.7	
16		3.1	3.6	4	3.3	5.3	3.7	4.5	8.4	13	12.8	17.1	18.5	17.6	20.8	17.7	18.8	17.4	11.3	9.7	10.4	10.7	5.4	4.6	6	20.8	
17		6.2	5.9	10	12.9	9.5	6.1	6.5	13	13.2	15.7	14.7	15.5	16.4	24.4	29.3	36.1	31.5	18.8	14	12.6	8.5	10.4	5.9	5.6	36.1	
18		5.8	7	7	6	2.7	3.6	4.5	6.3	10.8	13.3	12.1	15.6	16.1	16.8	17.4	17.2	17	16	11.1	12.3	10.5	9.4	9.8	9.3	17.4	
19		8.2	12.3	10.6	9.2	10.7	6.9	13.9	12.5	17	15.8	20.9	28.4	26	22.1	21.7	20.1	17.4	13.2	10.7	8.3	5.7	5.6	7.2	1.7	28.4	
20		3.9	3.8	5.4	5.5	4.6	7.3	5.2	10.8	8.6	9.1	10.9	13.4	16.2	20.7	14.8	16.2	13.7	14.4	11.8	9.5	5	5.5	7.3	5	20.7	
21		5.8	5.6	6.8	7.4	7.5	11.1	11.5	10.3	10.9	11.4	14.5	16.1	15.7	14.9	16.7	15.9	15	16.9	9.8	10.1	10.3	10.9	12.9	9.1	16.9	
22		10.4	13.6	31.7	23.4	28.9	21.3	15.6	17.6	15.5	20.4	21.2	36.8	36.9	34.5	29	28.8	24.4	29.2	21.8	11.1	10.6	10.8	9.6	13.3	36.9	
23		12.6	17.4	14.9	15.5	11.8	7.5	11.8	14.9	12.8	P	15.3	13.5	15.5	13.9	13.7	15.6	22.2	22.5	22	68.4	69.5	50.6	36.2	18.7	69.5	
24		23.3	22.5	27.9	20.3	15.4	21.9	19.3	23.3	21.6	24.1	25.4	27.8	27.9	26.9	21.8	14.9	19.5	31.8	30	25	21.6	22.7	23.2	37.6	37.6	
25		38	43.6	40.8	41.8	42.2	35.2	32.7	32.6	36.6	41.4	40.4	43.5	36.1	43.5	42.5	37.9	41.1	37	28.5	27	26.7	25	19.9	14.1	43.6	
26		18	21.5	14.5	14	14.7	12	13	10.2	8.7	11.2	13.7	12.7	10.5	10.2	12.4	10.9	15.2	14.5	11.7	8.4	8.5	8.4	8.5	7.8	21.5	
27		8	9.3	9.5	8.9	11.9	14.4	17.9	18.9	22.6	26.6	36.2	34.8	31.6	36	33.6	21	21.3	13	10.9	10.3	10.2	11.6	12.9	10.2	36.2	
28		8.4	6.5	5.8	4.9	4.8	9.3	7.8	8.4	16.4	16.4	15.7	9.6	15.6	17.3	20.8	22.3	16.1	20.9	16.2	6.5	7.8	9.1	17.5	18	22.3	
29		7.2	31.2	21.5	17.1	27.7	40.5	41.8	29.3	44.1	41.5	36.7	33.6	32.8	39	49.3	45.5	47.6	41.7	23.4	14.8	17.3	18.1	19	17	49.3	
30		8.2	16.2	13.9	13.9	23.3	18.6	20.3	21.8	25.2	28.4	31	34.2	33.5	33.6	32.6	29.8	30.3	21	16.3	9.4	16.9	13.8	7.1	13.1	34.2	
31		17.4	9.1	9.7	6.2	11.3	7.9	10.3	16.7	21.8	22.6	27.6	27.8	32	27.3	28	29.9	35.8	28	26.1	25.4	27.1	28.5	26.7	24.6	35.8	
PEAK		38.0	83.4	40.8	70.2	42.2	40.5	41.8	32.6	44.1	41.5	40.4	43.5	38.1	43.5	49.3	46.8	47.6	46.8	41.6	68.4	69.5	50.6	69.3	48.7		

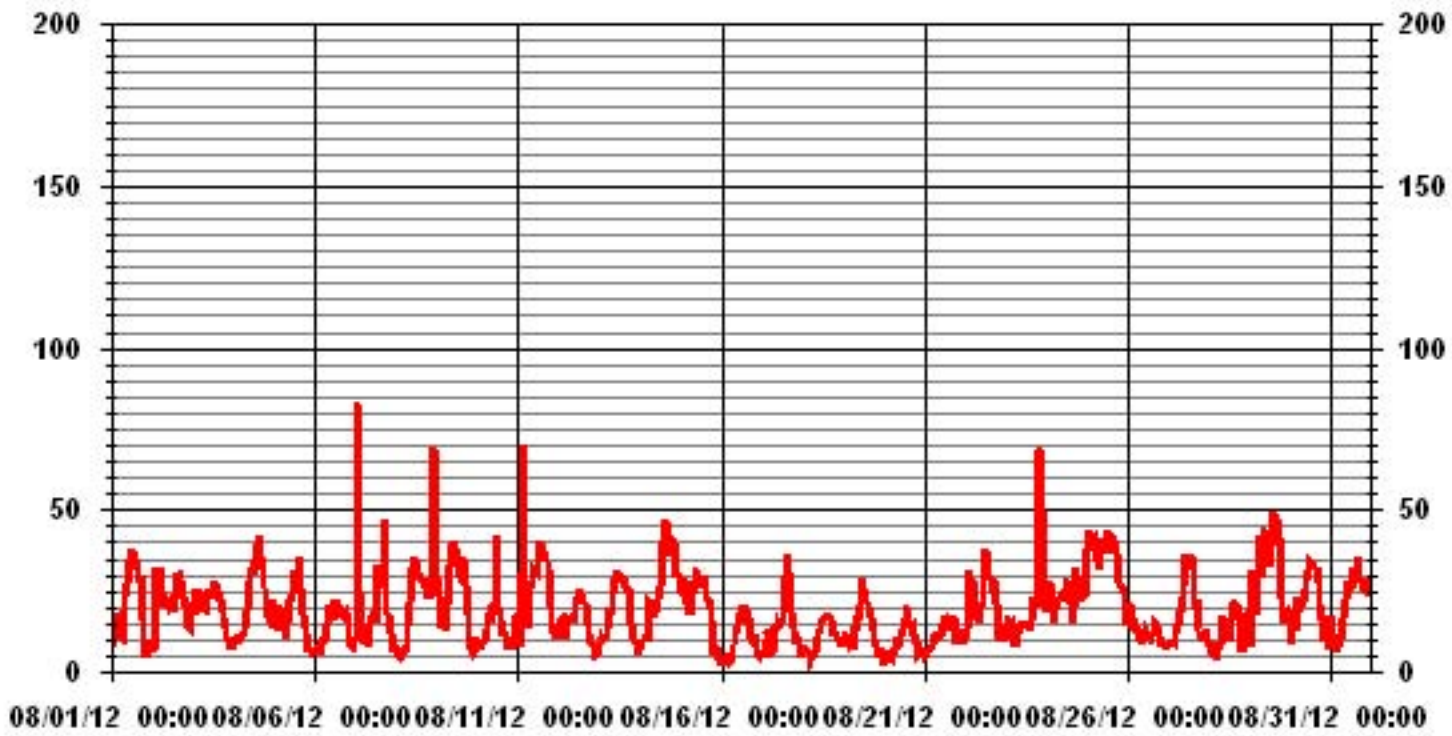
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	83.4	KPH	@ HOUR(S)	1
			ON DAY(S)	7

01 Hour Averages



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

August 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	1.21	.67	.67	1.88	3.49	5.38	2.96	1.21	.94	.26	.94	1.07	1.61	2.82	3.36	2.69	31.22
< 12.0	1.34	.13	.67	.80	2.69	4.71	2.55	2.42	.80	.26	.40	1.07	5.92	2.82	4.03	5.24	35.93
< 20.0	1.61	.13	.00	.00	1.21	1.21	2.15	1.21	.94	.40	.13	.80	.80	3.09	4.97	6.46	25.16
< 29.0	.94	.00	.00	.00	.00	.00	.26	.13	.00	.00	.00	.00	.00	1.48	3.63	.67	7.13
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.26	.13	.13	.53
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.11	.94	1.34	2.69	7.40	11.30	7.94	4.97	2.69	.94	1.48	2.96	8.34	10.49	16.15	15.20	

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	9	5	5	14	26	40	22	9	7	2	7	8	12	21	25	20	232
< 12.0	10	1	5	6	20	35	19	18	6	2	3	8	44	21	30	39	267
< 20.0	12	1			9	9	16	9	7	3	1	6	6	23	37	48	187
< 29.0	7						2	1						11	27	5	53
< 39.0														2	1	1	4
>= 39.0																	
Totals	38	7	10	20	55	84	59	37	20	7	11	22	62	78	120	113	

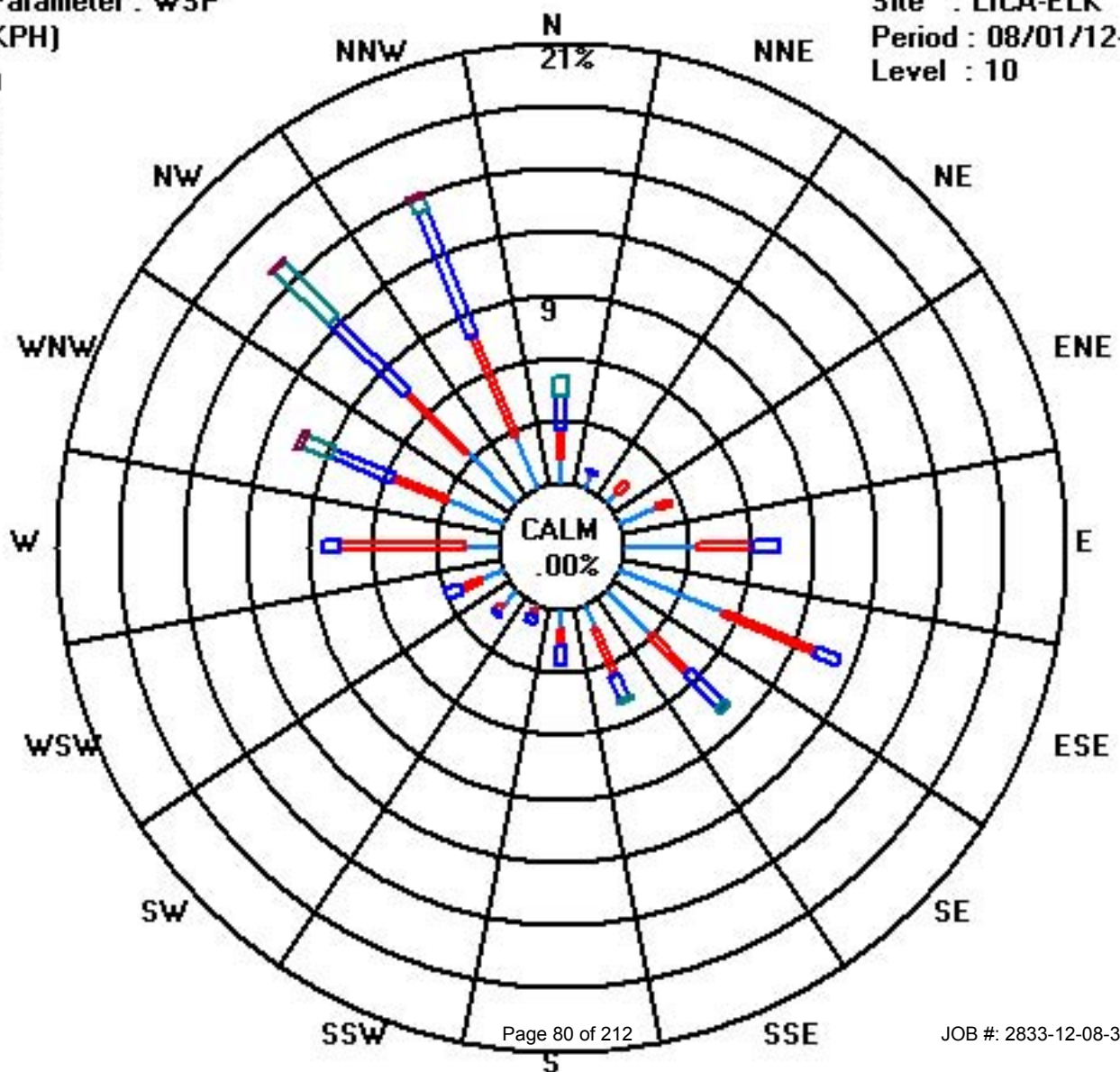
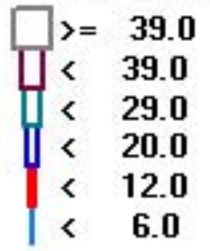
Calm : .00 %

Total # Operational Hours : 743

Class Limits (KPH)

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

Level : 10



Vector Wind Direction

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

AUGUST 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	QUADRANT	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	292	270	255	267	265	298	299	277	283	308	317	315	314	308	303	304	299	313	327	349	265	175	325	322	301	WNW	24	
2	322	303	311	309	320	339	326	316	331	317	317	326	317	325	332	337	341	338	333	316	293	311	313	318	323	NW	24	
3	315	334	334	330	328	333	346	358	3	5	358	359	7	329	332	356	10	66	103	126	133	138	128	115	357	N	24	
4	121	113	120	135	111	109	128	140	168	188	192	195	206	226	242	289	289	290	283	271	281	275	273	257	230	SW	24	
5	309	268	305	279	263	270	289	315	323	335	346	335	328	312	301	313	310	344	356	37	80	261	332	281	313	NW	24	
6	294	11	128	237	47	116	78	100	110	97	104	97	98	97	92	89	93	109	107	112	107	119	87	90	99	E	24	
7	91	19	172	131	101	93	99	97	152	188	184	191	275	98	159	95	283	337	91	15	294	77	110	309	112	ESE	24	
8	324	66	92	69	114	94	106	111	114	126	133	133	135	136	137	135	137	131	130	128	131	129	237	290	133	SE	24	
9	112	103	202	257	244	232	266	289	294	291	305	312	305	299	272	281	284	272	281	249	235	231	2	345	285	WNW	24	
10	262	336	290	300	302	245	322	128	302	326	309	330	346	349	348	41	68	71	103	132	42	329	306	343	337	NNW	24	
11	188	100	324	287	234	280	303	329	331	343	341	339	325	320	315	317	321	317	321	326	321	299	292	280	319	NW	24	
12	268	265	272	309	283	268	268	298	321	331	337	349	346	346	331	342	341	2	38	73	139	107	111	102	319	NW	24	
13	110	109	105	106	106	112	134	128	139	149	166	171	172	174	169	164	158	149	123	128	110	86	113	65	143	SE	24	
14	75	313	323	311	283	327	1	338	329	355	352	2	5	359	2	2	360	354	352	355	355	354	349	348	353	N	24	
15	347	345	345	343	335	326	328	337	333	336	338	335	340	313	318	312	323	325	306	249	235	241	352	333	330	NNW	24	
16	83	351	78	139	129	119	117	108	216	202	232	233	259	309	323	329	298	291	252	246	253	349	320	327	268	W	24	
17	342	323	320	270	300	328	37	292	266	265	273	289	260	275	296	327	339	336	333	341	302	285	337	296	307	NW	24	
18	321	306	323	310	275	125	33	112	105	127	144	175	180	220	187	178	166	165	161	156	152	107	106	93	151	SSE	24	
19	87	95	100	103	102	100	125	123	132	151	145	167	176	170	166	166	168	162	169	141	116	108	337	104	145	SE	24	
20	118	130	74	7	282	127	96	128	107	87	94	148	164	158	146	166	154	126	150	164	103	105	95	82	128	SE	24	
21	60	100	115	128	117	117	126	141	143	137	133	159	145	309	122	212	164	161	128	136	102	101	93	108	131	SE	24	
22	111	92	292	341	338	53	0	348	345	339	346	337	336	335	341	331	339	327	322	301	303	290	281	269	335	NNW	24	
23	274	266	276	270	228	296	285	284	281	P	347	330	27	156	109	98	65	54	29	304	313	333	345	343	324	NW	23	
24	85	307	331	344	335	350	345	332	334	333	321	325	333	330	340	347	331	318	321	320	333	317	312	315	329	NNW	24	
25	317	317	309	309	311	306	297	292	298	300	302	314	308	311	310	310	312	316	323	314	314	316	302	286	309	NW	24	
26	283	293	309	281	275	267	267	300	320	310	313	298	281	249	190	19	93	105	112	112	120	112	129	119	280	W	24	
27	107	111	114	106	114	121	124	126	125	140	154	153	161	159	163	163	192	188	152	119	117	115	114	101	139	SE	24	
28	96	101	108	65	91	311	325	318	329	336	345	128	249	278	267	263	278	246	246	248	96	144	329	325	296	WNW	24	
29	310	352	325	333	321	317	337	322	308	319	301	287	266	287	293	301	302	308	299	272	261	256	253	261	301	WNW	24	
30	331	271	285	261	247	272	263	275	291	299	303	301	293	293	296	301	314	325	339	354	342	348	345	347	300	WNW	24	
31	58	57	45	69	32	74	39	67	94	95	92	97	97	96	90	97	103	100	102	105	109	113	113	109	96	E	24	
HOURLY AVG	347	352	345	344	338	350	346	358	345	355	358	359	346	359	348	356	360	354	356	355	355	354	352	348				

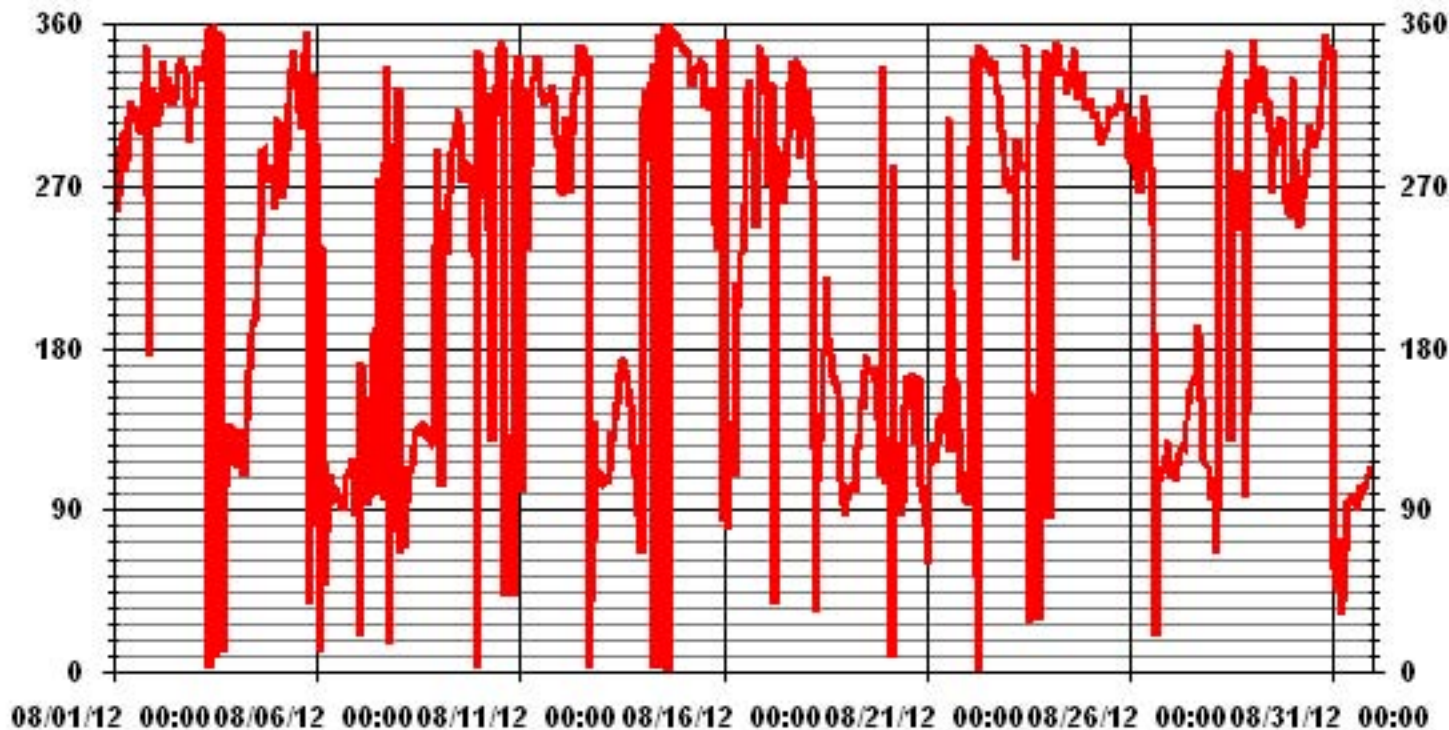
STATUS FLAG CODES

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	102.93	AMD OPERATION UPTIME	99.9 %
		MONTHLY AVERAGE	320 DEG

01 Hour Averages



Standard Deviation Wind Direction

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

AUGUST 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00		
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		14	6	7	8	5	8	17	15	13	14	10	16	11	16	17	10	13	10	10	6	15	16	33	5		
2		6	12	14	9	11	12	10	11	11	10	8	9	12	10	12	13	11	12	12	7	10	12	9	7		
3		8	9	9	9	9	9	10	11	11	14	17	17	20	15	18	14	20	17	10	6	3	5	10	8		
4		12	5	10	16	7	7	13	11	14	11	12	12	14	15	14	11	13	9	10	11	22	18	13	12		
5		10	10	8	21	10	11	11	14	21	17	17	20	20	20	12	18	14	11	10	11	22	38	26	42		
6		44	28	38	55	12	25	16	16	13	16	22	27	28	19	20	16	14	14	8	6	8	8	26	20		
7		11	48	17	34	11	15	20	25	19	17	22	30	72	13	14	19	43	29	43	43	26	38	32	26		
8		8	32	16	13	17	24	13	12	12	10	11	11	15	13	14	13	12	8	7	7	7	7	30	28		
9		45	11	14	12	11	30	14	12	8	11	13	11	12	16	17	14	11	14	12	13	8	37	28	47		
10		27	17	10	17	20	36	58	34	23	24	20	45	14	17	13	15	14	12	9	9	23	21	20	29		
11		47	38	11	20	21	14	9	11	10	11	11	12	16	14	12	12	11	9	8	6	3	6	6	10		
12		6	5	7	8	11	8	9	11	14	26	12	14	16	19	17	15	13	15	12	20	18	12	12	11		
13		7	7	5	4	5	6	7	9	8	12	16	15	14	13	13	14	13	11	25	18	32	20	18	22		
14		30	9	13	12	23	25	11	11	10	13	12	13	15	13	14	14	13	13	12	11	12	10	10	10		
15		9	9	9	9	11	8	9	10	11	13	20	17	18	21	18	20	16	13	11	4	4	25	9	7		
16		31	21	13	20	9	4	14	14	27	35	37	32	48	35	33	31	14	17	9	4	20	16	7	19		
17		9	19	10	34	28	22	19	31	16	17	22	26	22	21	12	11	10	9	9	5	22	32	26	14		
18		14	14	12	11	26	49	22	12	18	22	26	39	33	37	40	36	16	13	10	8	8	5	3	5		
19		8	6	6	9	9	9	7	11	17	17	17	17	17	19	19	13	10	8	6	12	25	8	9			
20		4	4	10	28	50	7	11	12	26	35	21	35	33	48	53	55	43	7	7	7	9	11	27	7		
21		9	14	9	5	6	9	8	16	25	18	22	22	26	42	45	31	25	12	6	11	11	8	13	14		
22		10	8	53	54	10	27	20	19	15	12	18	15	10	10	12	13	11	11	7	8	5	7	8	8		
23		10	10	17	16	17	41	14	14	27	P	29	39	33	45	43	14	13	11	11	20	10	10	14	41		
24		46	16	8	18	18	10	10	10	10	8	9	10	10	11	12	9	8	7	5	10	9	8	7			
25		7	7	8	7	8	7	10	7	8	7	7	9	10	10	9	9	8	8	10	6	7	8	9	9		
26		10	5	6	10	10	8	10	16	32	47	27	44	40	27	65	51	42	9	5	7	5	7	8	4		
27		6	5	4	6	5	4	7	8	10	12	14	13	14	14	13	14	14	11	7	7	5	5	5	7		
28		11	6	12	21	21	21	12	14	10	10	23	44	59	27	23	18	15	12	7	20	12	32	47	8		
29		36	26	7	6	7	12	10	12	10	11	8	11	13	12	10	10	9	8	6	9	5	5	6	25		
30		47	24	15	18	8	18	28	14	10	9	11	12	17	13	16	15	12	15	7	6	8	4	7	14		
31		14	29	8	14	26	26	15	13	12	14	18	14	12	10	13	10	10	8	7	6	6	7	6	6		

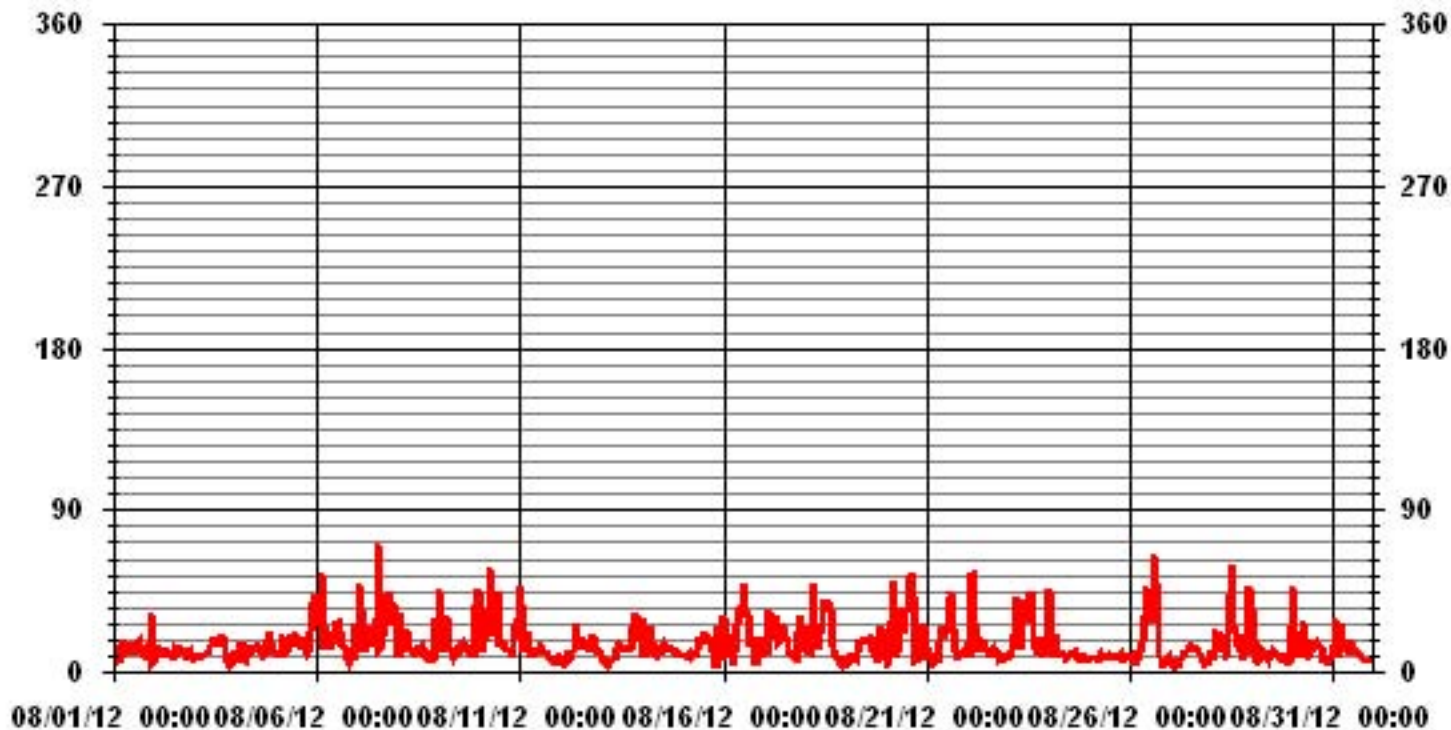
STATUS FLAG CODES

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

LAST CALIBRATION:	November 24, 2011
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CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	743 HRS
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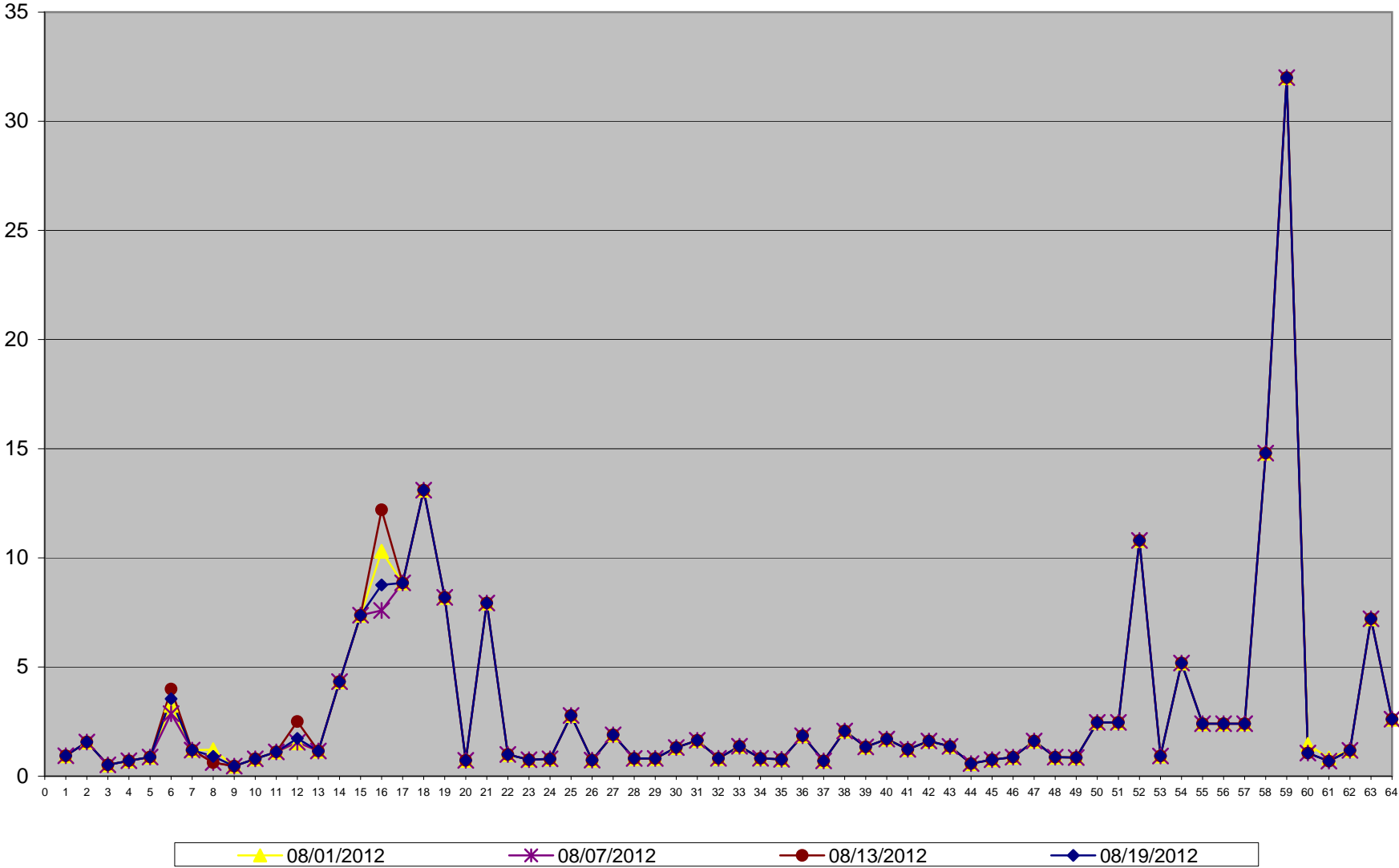
01 Hour Averages



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 August 2012

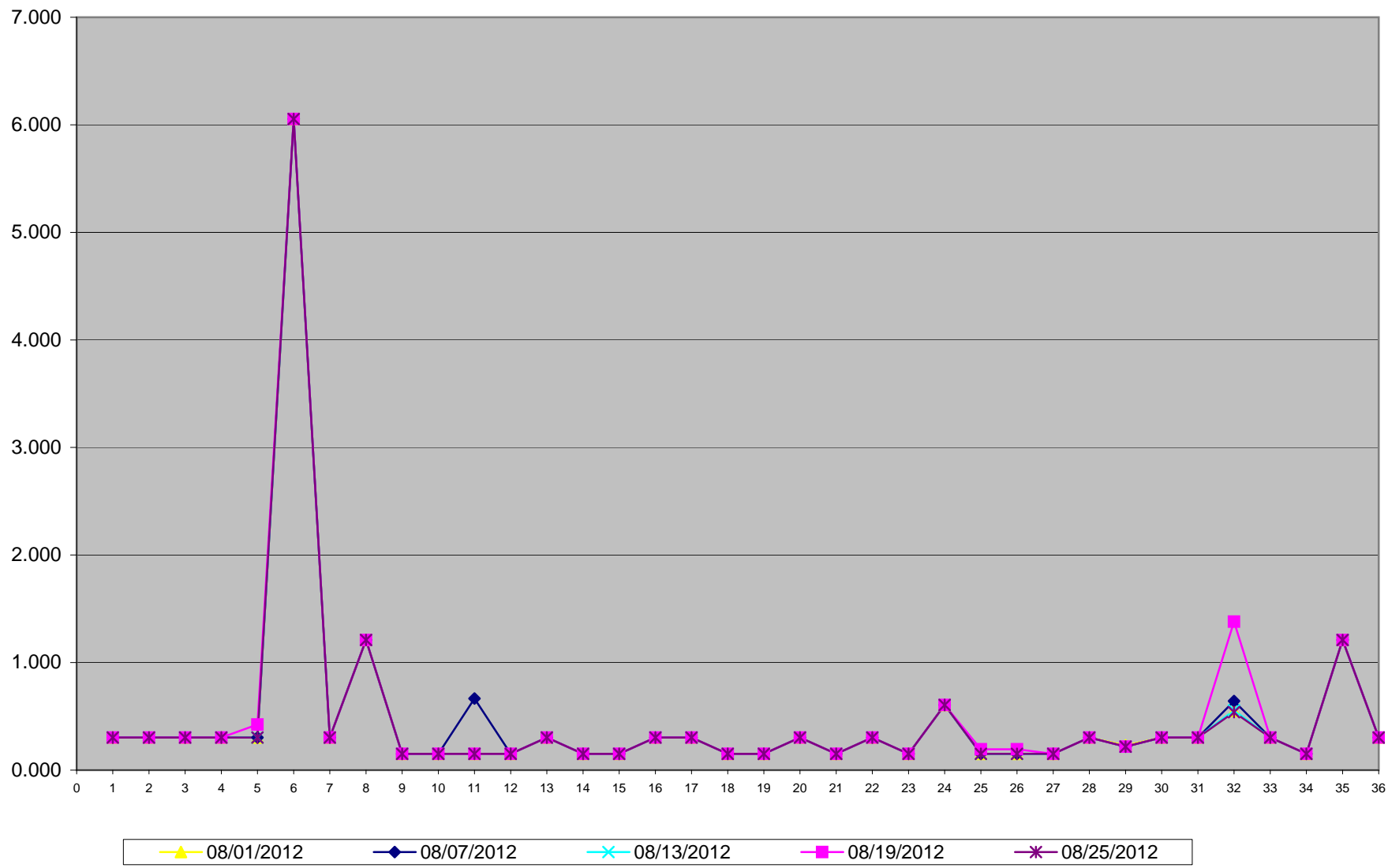
LICA - Portable Site - Elk Point Airport

Unit: ng/m³

PAHs	08/01/2012	08/07/2012	08/13/2012	08/19/2012	08/25/2012	08/31/2012
Sample Volume (unit: m3)	330.33	330.34	330.34	330.33	330.33	330.34
1 1-Methylnaphthalene	0.303	0.303	0.303	0.303	0.303	NA
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303	NA
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303	NA
4 2-Methylantracene	0.303	0.303	0.303	0.303	0.303	NA
5 2-Methylnaphthalene	0.303	0.303	0.303	0.424	0.303	NA
6 3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054	NA
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303	NA
8 9,10-Dimethylanthracene	1.211	1.211	1.211	1.211	1.211	NA
9 Acenaphthene	0.151	0.151	0.151	0.151	0.151	NA
10 Acenaphthylene	0.151	0.151	0.151	0.151	0.151	NA
11 Anthracene	0.151	0.666	0.151	0.151	0.151	NA
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151	NA
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303	NA
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151	NA
15 Benzo(b)fluoranthene	0.151	0.151	0.151	0.151	0.151	NA
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303	NA
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303	NA
18 Benzo(g,h,l)perylene	0.151	0.151	0.151	0.151	0.151	NA
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151	NA
20 Biphenyl	0.303	0.303	0.303	0.303	0.303	NA
21 Chrysene	0.151	0.151	0.151	0.151	0.151	NA
22 Coronene	0.303	0.303	0.303	0.303	0.303	NA
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151	NA
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605	NA
25 Fluoranthene	0.151	0.151	0.151	0.194	0.151	NA
26 Fluorene	0.151	0.151	0.151	0.194	0.151	NA
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151	NA
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303	NA
29 Naphthalene	0.230	0.218	0.218	0.218	0.218	NA
30 o-Terphenyl	0.303	0.303	0.303	0.303	0.303	NA
31 Perylene	0.303	0.303	0.303	0.303	0.303	NA
32 Phenanthrene	0.551	0.642	0.557	1.380	0.539	NA
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303	NA
34 Pyrene	0.151	0.151	0.151	0.151	0.151	NA
35 Quinoline	1.211	1.211	1.211	1.211	1.211	NA
36 Tetralin	0.303	0.303	0.303	0.303	0.303	NA

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.
 - Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result for August 31st will be included in the following monthly report.

PAHs in ng/m3 Site: LICA - Portable - Elk Point Airport



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

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	August 15, 2012	Previous Calibration	July 30, 2012
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Elk Poin Airport		
Start Time (MST)	9:53	End Time (MST)	13:50
Reason:	Monthly Calibration		
Barometric Pressure	0.946 atm	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	597 ccm	30.7 Deg C	597 ccm	30.6 Deg C	
HVPS / Lamp Setting	612	1721	612	1715	
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	86.7	1.236	88.8	1.22	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	2	N/A
4995	0	0	0	N/A
4924	75.6	750	759	0.9882
4924	75.6	750	750	1.0000
4953	40.3	400	403	0.9933
4982	17.1	170	171	0.9922
4995	0	0	0	N/A
Sum of Least Squares				0.9983
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	2.5	Auto Zero	1.1
Auto Span	372.0	Auto Span	363.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0014
Current Correction Factor Before Span Adjust:	0.9882
Percent Change:	1.3%

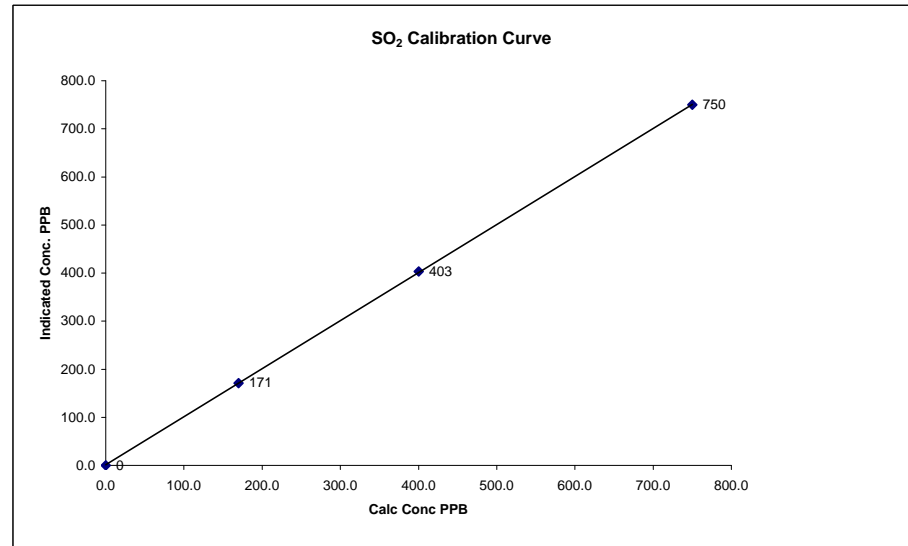
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

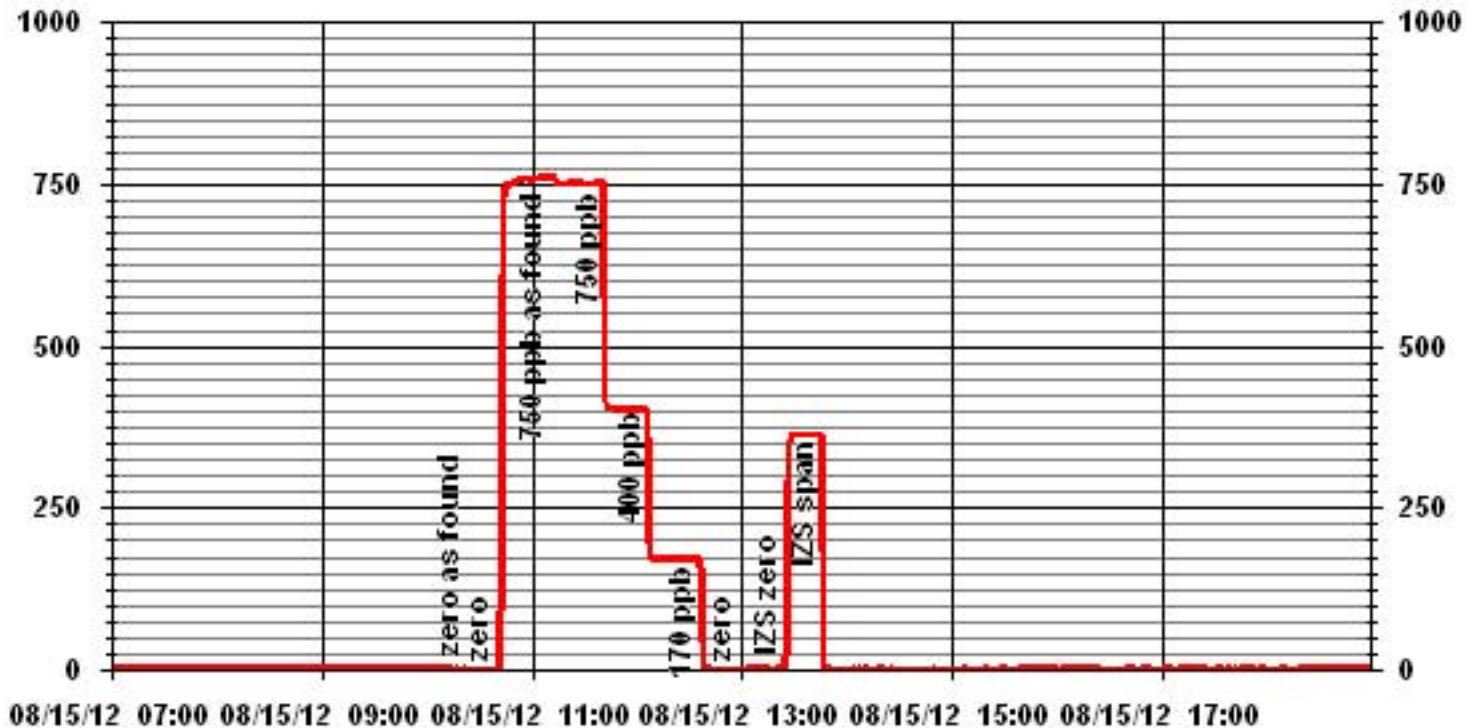
Calibration Date	August 15, 2012
Company	Lakeland Community and Industry Association
Plant / Location	Portable / Elk Poin Airport
Start Time (MST)	9:53
End Time (MST)	13:50

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept (± 3% F.S.)	(≥ 0.995) 0.999984
0	0	n/a		0.999903
170	171	0.9922		1.035117
400	403	0.9933		
750	750	1.0000		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	August 14, 2012	Previous Calibration	July 11, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable/ Elk Point Airport		
Start Time (MST)	8:35	End Time (MST)	12:31
Reason:	Monthly Calibration		
Barometric Pressure	0.93 atm	Station Temperature	22 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 :	509	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	A0717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100 ppb		
Sample Flow / Box Temp	517 ccm 31.1 Deg C	519 ccm 29.5 Deg C	
HVPS / Lamp Setting	540 2014	540 2015	
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	315 Deg C 45 Deg C	314 Deg C 45.0 Deg C	
Offset / Slope	83.8 1.001	88.4 0.983	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	1	NA
4995	0	0	0	NA
4960	40.0	80	83	0.9639
4960	40.0	80	80	1.0000
4977	20.0	40	41	0.9762
4987	11.5	23	24	0.9586
4996	0	0	0	NA
Sum of Least Squares				0.9928
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	2.5		0.0
Auto Span	59.4		55.9
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9877
Current Correction Factor Before Span Adjust:	0.9639
Percent Change:	2.5%

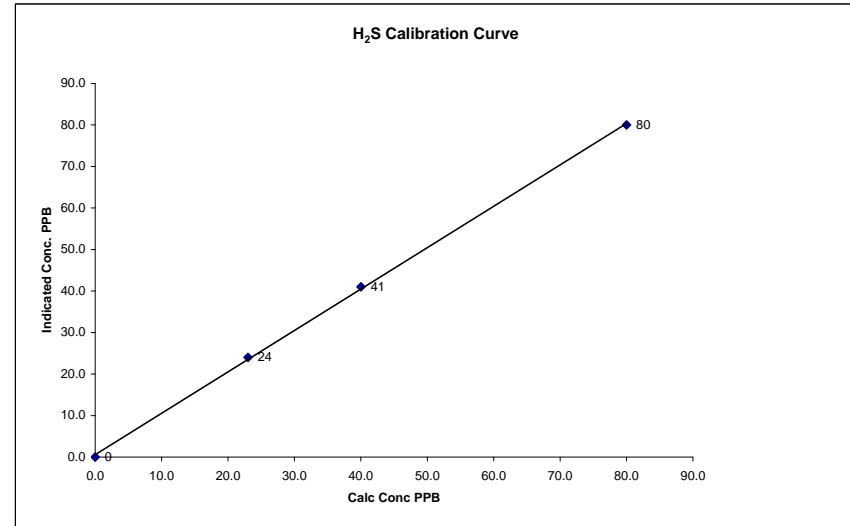
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

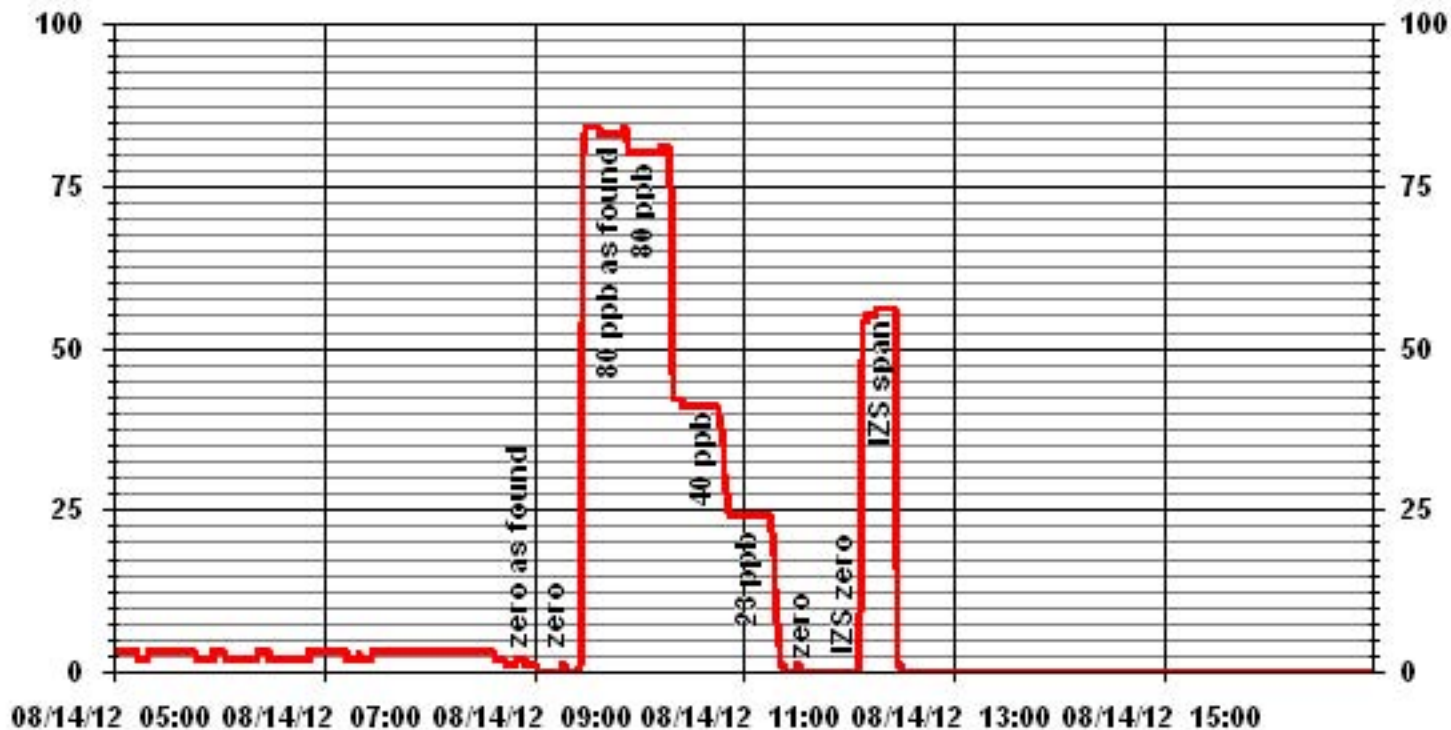
Calibration Date	August 14, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	Portable/ Elk Point Airport
Start Time (MST)	8:35
End Time (MST)	12:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0			0.999721
23	24	0.9586		0.997513
40	41	0.9762		0.581216
80	80	1.0000		



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	August 14, 2012	Previous Calibration	July 11, 2012
Company:	Lakeland Industry and Community Association		
Plant / Location:	ELICA Portable Station / Elk Point Airport		
Start Time (MST)	11:54	End Time (MST)	16:03
Reason:	Monthly Calibration		
Barometric Pressure:	0.931 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. #	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
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Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	2.3	NA
2000	0.0	0.0	0.0	NA
2000	74.0	41.4	42.0	0.9863
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	0.0	NA
New Correction Factor:				0.9958

Percent Change

Previous Calibration Correction Factor:	0.9982
Current Correction Factor Before Span Adjust:	0.9863
Percent Change:	1.2%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.4	0.0
Auto Span	31.0	32.2
Sample Lines Connected		YES

Cylinder Pressures			
Span	1600 psi	Hydrogen	2350 psi
		Zero Air	34 psi

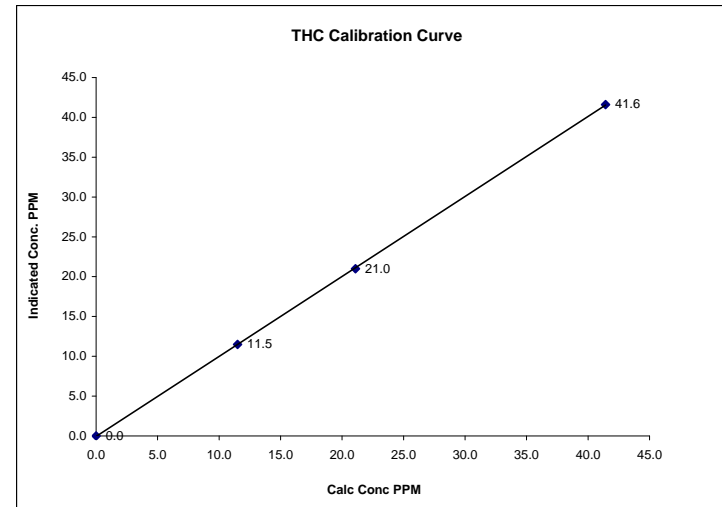
Notes: **NA : Not Applicable**
 When finished the A/F span points, wrong gas concentration was input causing data to drop. Fixed the issue and re-did the point.
 The H2 gas was replaced before the calibration was started.

Calibration Performed by: Ting Xu

THC Calibration Curve

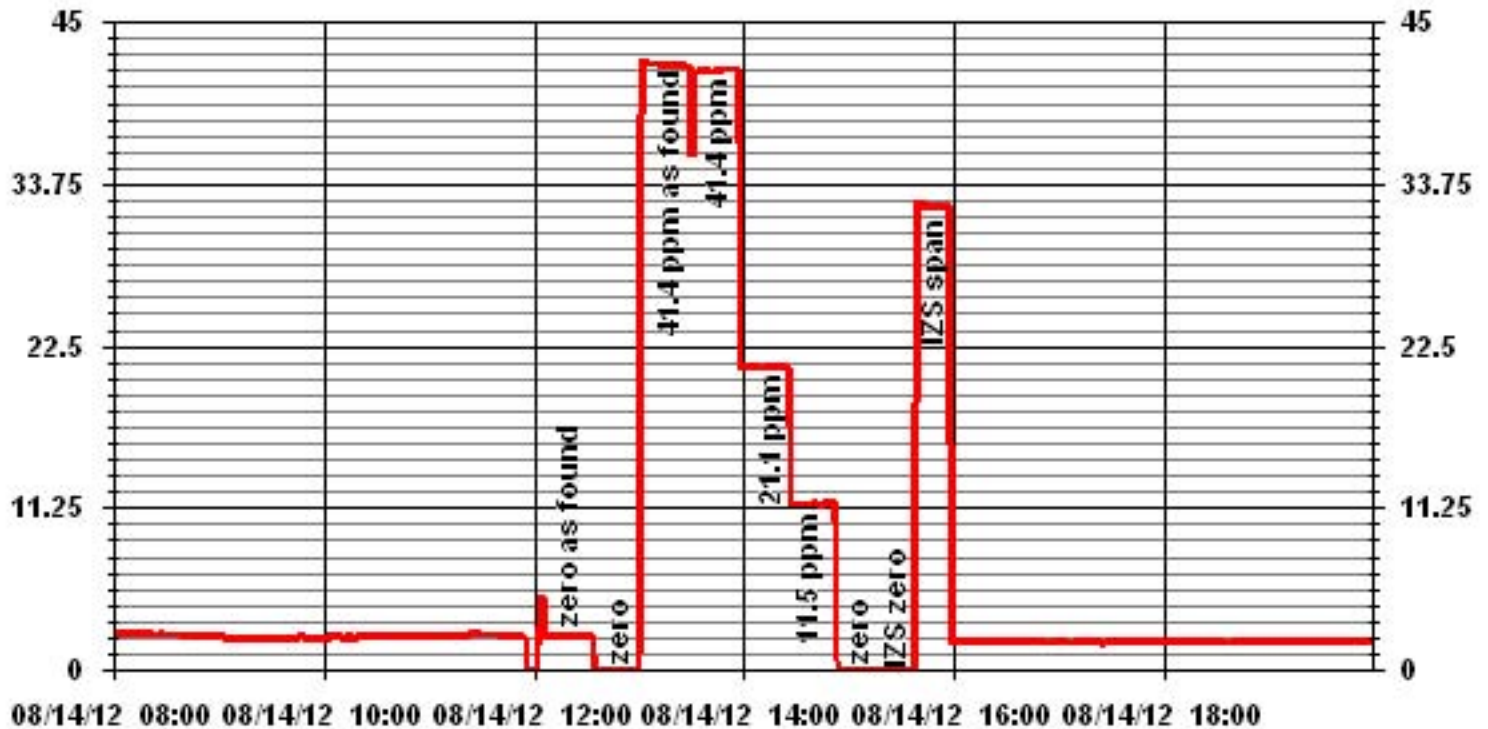
Calibration Date	August 14, 2012
Company	Lakeland Industry and Community Association
Plant / Location	ELICA Portable Station / Elk Point Airport
Start Time (MST)	11:54
End Time (MST)	16:03

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	0.99977	1.004076
11.5	11.5	0.9996		-0.05234
21.1	21.0	1.0042		
41.4	41.6	0.9958		



Notes:

01 Minute Averages



THC Calibration Report

Station Information			
Calibration Date:	August 16, 2012	Previous Calibration:	August 14, 2012
Company:	Lakeland Industry and Community Association		
Plant / Location:	ELICA Portable Station / Elk Point Airport		
Start Time (MST):	9:48	End Time (MST):	12:25
Reason:	As Found		
Barometric Pressure:	27.95 inHg	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
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Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.1	NA
2000	No Zero Adj. 74.0	41.4	41.8	0.9910
New Correction Factor:				0.9910

Percent Change

Previous Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	0.9910
Percent Change:	0.5%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.4	0.0
Auto Span	31.0	32.2
Sample Lines Connected	YES	

Cylinder Pressures			
Span	1600 psi	Hydrogen	2350 psi
		Zero Air	34 psi

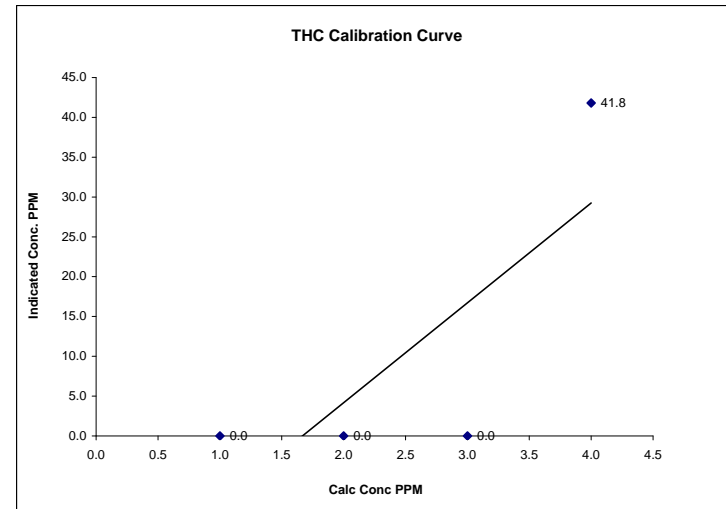
Notes: **NA : Not Applicable**
 Performed the A/F check to verify the analyzer functionality.

Calibration Performed by: Ting Xu

THC Calibration Curve

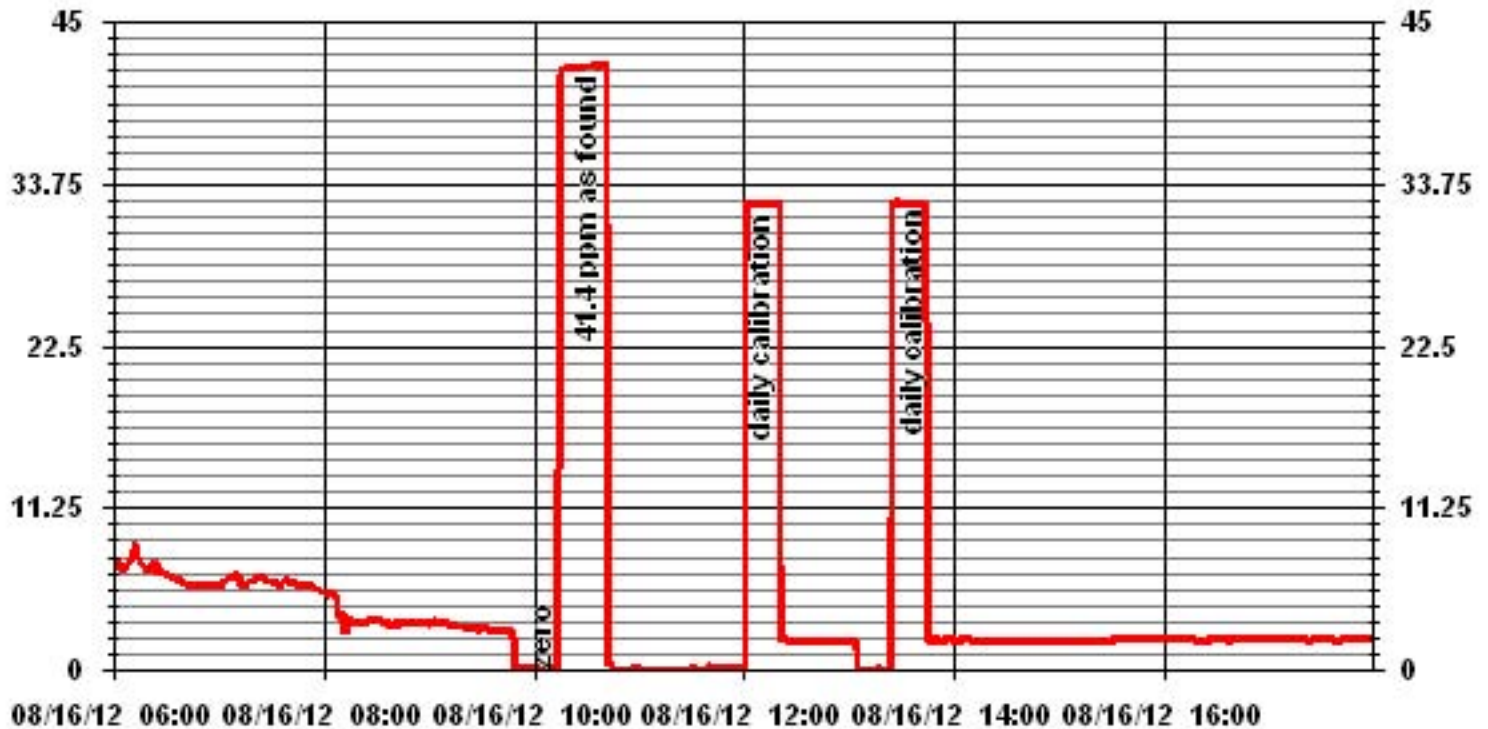
Calibration Date	August 16, 2012
Company	Lakeland Industry and Community Association
Plant / Location	ELICA Portable Station / Elk Point Airport
Start Time (MST)	9:48
End Time (MST)	12:25

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	#DIV/0!
	0.0	NA	Intercept (± 3% F.S.)	#DIV/0!
	0.0	#VALUE!		
	0.0	#VALUE!		
41.4	41.8	0.9910		



Notes:

01 Minute Averages



THC Calibration Report

Station Information
Calibration Date: August 30, 2012
Company: Lakeland Industry and Community Association
Plant / Location: ELICA Portable Station / Elk Point Airport
Start Time (MST): 13:23, End Time (MST): 14:21
Reason: As Found
Barometric Pressure: 27.81 inHg, 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

Concentration Range: 0 - 50 ppm
Sample Pressure: 6.8 psi
Hydrogen Pressure: 8 psi
Air Pressure: 21 psi

Calibration Data

Table with 5 columns: Dilution Flow, Source Gas Flow, Calculated Concentration, Indicated Concentration, Correction Factor. Data points include 2000 flow with 0.0 and 74.0 source gas flows.

Percent Change

Previous Calibration Correction Factor: 0.9958
Current Correction Factor Before Span Adjust: 0.9934
Percent Change: 0.2%

IZS Calibration Data

Table with 2 columns: Before Calibration, After Calibration. Values for Auto Zero, Auto Span, and Sample Lines Connected.

Cylinder Pressures
Span: 1350 psi, Hydrogen: 2100 psi, Zero Air: 34 psi

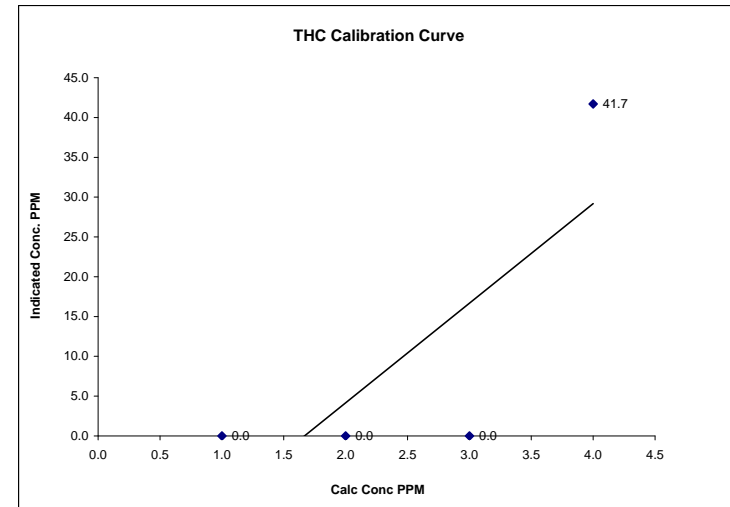
Notes: NA : Not Applicable
Following the A/F points, a new inside pump was replaced.

Calibration Performed by: Ting Xu

THC Calibration Curve

Calibration Date: August 30, 2012
Company: Lakeland Industry and Community Association
Plant / Location: ELICA Portable Station / Elk Point Airport
Start Time (MST): 13:23, End Time (MST): 14:21

Table with 6 columns: Calculated Conc. ppm, Indicated Response ppm, Correction Factor, Correlation Coefficient, Slope, Intercept. Data points for 0.0 and 41.4 calculated concentrations.



Notes:

THC Calibration Report

Station Information			
Calibration Date:	August 30, 2012	Previous Calibration	August 30, 2012
Company:	Lakeland Industry and Community Association		
Plant / Location:	ELICA Portable Station / Elk Point Airport		
Start Time (MST)	15:54	End Time (MST)	18:55
Reason:	Post Repair Calibration		
Barometric Pressure:	27.81 inHg	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
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Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	-0.1	NA
	No Zero Adj.			
2000	74.0	41.4	41.6	0.9958
	No Span Adj.			
2000	37.0	21.1	20.7	1.0188
2000	20.0	11.5	11.2	1.0263
2000	0.0	0.0	-0.3	NA
New Correction Factor:				0.9958

Percent Change

Previous Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	0.9958
Percent Change:	0.0%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-	-0.4
Auto Span	-	31.9
Sample Lines Connected		YES

Cylinder Pressures			
Span	1350 psi	Hydrogen	2100 psi
		Zero Air	34 psi

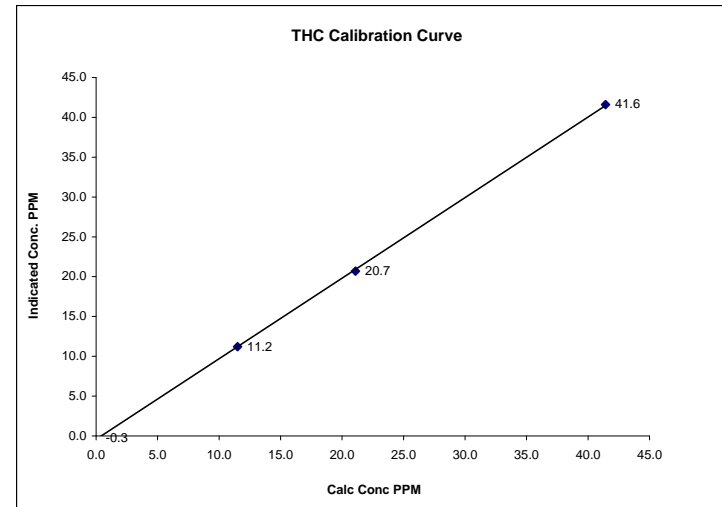
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

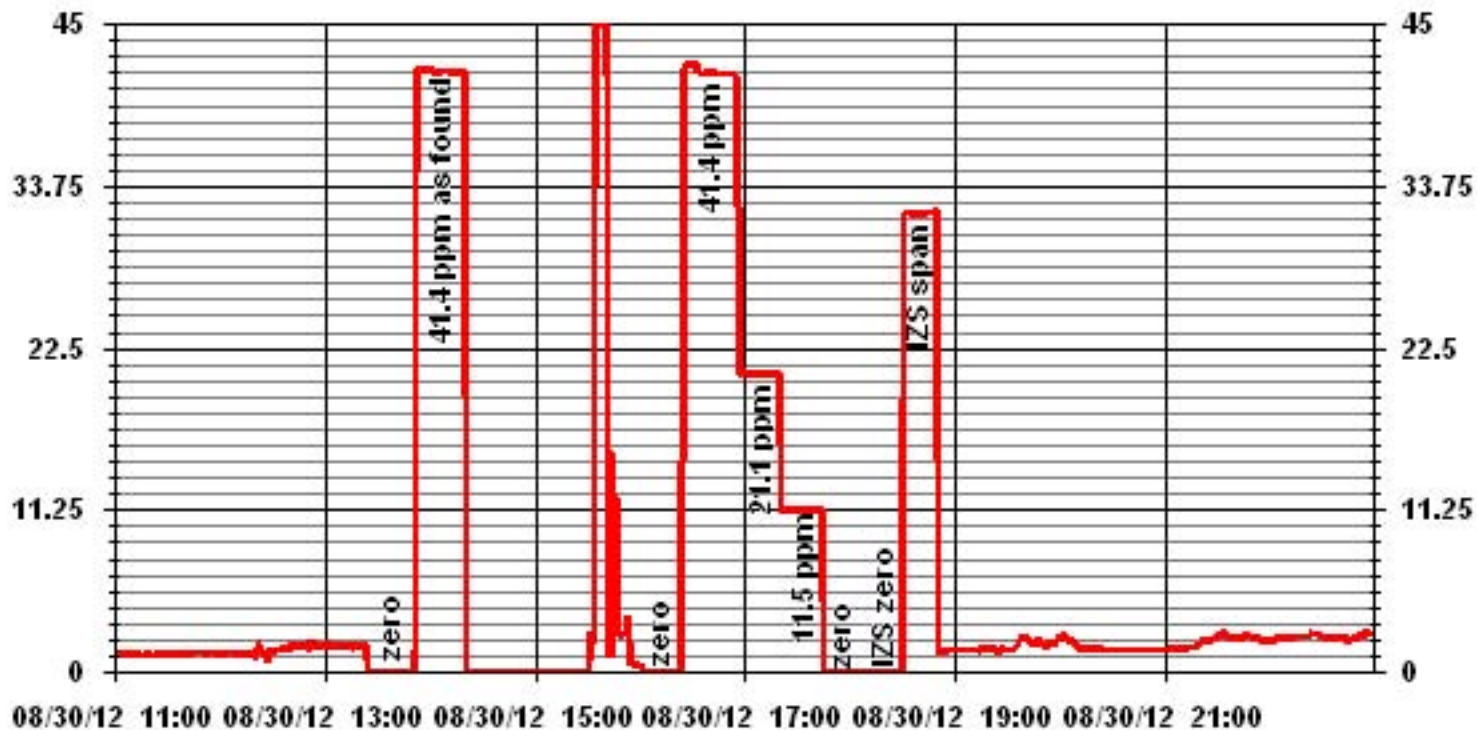
Calibration Date	August 30, 2012		
Company	Lakeland Industry and Community Association		
Plant / Location	ELICA Portable Station / Elk Point Airport		
Start Time (MST)	15:54	End Time (MST)	18:55

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	
0.0	-0.3	NA	Slope (0.85 to 1.15)	1.011522
11.5	11.2	1.0263	Intercept (±3% F.S.)	-0.41511
21.1	20.7	1.0188		
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:	August 16, 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 (%)	33.3%
Firmware Ver.	1.52	K _o Factor	13125
Parameter	PM 2.5 (with FDMS)	Temp (°C)	15.0
		Press (ATM)	0.938

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	0.049	Warnings	None
Pump Vacuum <0.40atm	0.32	Pump Gauge (inHg)	-19
Temperature/Pressure		D °C	
Measured Temp (± 2 °C)	14.4		0.6
Measured Press (± 0.01atm)	0.935	DATM	0.003
Flow Audit		Main Flow Drift (±10.0%)	
Indicated Main Flow (l/min)	3.00		2.35%
Measured Main Flow (l/min)	2.97	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	0.42%
Measured Bypass Flow (l/min)	13.65	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: 8:08 **Finish Time:** 9:00

Sample Inlet Cleaned: No **New Filters Installed:** No

New Filter Loading %: NA

Comments: Removal audit

Auditor/s: Ting Xu

TEOM Calibration

	<u>Station</u>		<u>Transfer Standard</u>
Date:	August 16, 2012	Make/Model:	Bios DryCal DC-2
Station Name:	Lafarge	Serial Number:	1193
Location:	Exshaw - Lagoons	Cell s/n:	2272
Operator:	Maxxam Analytics	Thermometer s/n:	MetOne 083D (B1484)
<u>Sampler</u>		<u>Set-up and current Sampler readings</u>	
Make/Model	R&P Teom 1400a	F-Main Set Pt (l/min)	3.00
Unit #	30002	F-Aux Set Pt (l/min)	13.67
Control unit s/n	140AB229030002	Filter Load (%)	7%
Transducer s/n	140AB229030002	K _o Factor	14568
Parameter	PM 2.5	Temp (°C)	21.0
		Press (ATM)	0.933

Conversion from mmHg or "Hg to ATM (Atmospheres)

$$\text{ATM} = (\text{mmHg}) \times (1.316 \times 10^{-3}) \quad \text{or} \quad \text{ATM} = (\text{"Hg}) \times (3.34207 \times 10^{-2})$$

Note: Tolerances are noted as BOLD in Brackets

Calibration

Zero flow			
	Pump Off		Pump On (Time to reach set points)
F-Main (l/min)	0.07		(45-60 Sec) 35
F-Aux (l/min)	0.16		(45-60 Sec) 45
Temperature/Pressure			
Measured Temp (± 1 °C)	20.8	D °C	-0.2
Measured Press ($\pm 1.5\%$ ATM)	0.933	D % ATM	0.0%
Flow Audit			
Indicated Main/Aux Flow (l/min)	2.98 / 13.64	D % from Set-pt	
Total Flow = Main + Aux (l/min)	16.62	($\pm 2\%$)	0.7% / 0.2%
Measured Total Flow (l/min)	16.82	($\pm 2\%$)	0.3%
Measured Main Flow (l/min)	3.048	(± 1.0 l/min. (5.65%))	-1.2%
		(± 0.2 l/min. (6.25%))	-2.2%
Leak Check			
Main (< 0.15 l/min)	0.05	Actual leakage = Pump On - Pump Off	
Aux (< 0.15 l/min)	0.19	-0.02	
		0.03	
K_o Factor			
Measured	NA		
K _o Difference ($\pm 2.5\%$)	NA		

Start Time: 12:00 **Finish Time:** 12:30
Sample Inlet Cleaned: YES **Sample Inlet Connected:** YES

Comments: Analog input and output audit. Pressure and temperature calibrated. Flow calibrated. Changed Main and Aux orifice.

Calibrator/s: Ting Xu / Theo McLaren / Limin Li

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	August 14, 2012		Previous Calibration		July 11, 2012	
Company	LICA		Plant/Location		Portable/Elk Point Airport	
Start Time (MST)	8:35		End Time (MST)		15:11	
Reason:	Monthly Calibration					
Barometric Pressure	0.93 atm	Station Temperature	22 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 - 1 Volts	Chart Rec. Output	NA Volts			

Equipment Information

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

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow/Conv. Temp	467 ccm	314 Deg C		472 ccm	216 Deg C		
Ozone Flow / Vacuum	78 ccm	4.5 °Hg-A		78 ccm	4.5 °Hg-A		
HVPS / A ZERO	646 Volts	6.8 MV		646 Volts	6.7 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.7 Deg C		50.0 Deg C	6.7 Deg C		
Box Temp / IZS Temp	31.0 Deg C	45.2 Deg C		30.8 Deg C	45.3 Deg C		
Offset	0.5 NOx	0.2 NO		0.5 NOx	0.2 NO		
Slope	1.287 NOx	1.251 NO		1.303 NOx	1.291 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	0	0	0	NA	NA
No Zero Adj.										
4921	75.5	NA	749	748	NA	739	725	13	1.0142	1.0317
4921	75.5	NA	749	748	NA	748	747	2	1.0020	1.0013
4954	40.3	NA	400	399	NA	397	396	1	1.0081	1.0086
4977	20.2	NA	200	200	NA	199	199	1	1.0075	1.0055
4994	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		
4918	75.5	NA	750	748	NA	750	748	2	NA	NA
4918	75.5	600	750	NA	535	749	215	534	1.0019	99.81%
No Adj. Needed										
4918	75.5	250	750	NA	226	751	524	227	0.9956	100.45%
4918	75.5	140	750	NA	127	752	623	129	0.9845	101.60%

Linearity OK?	Yes	Sum of Least Squares	NOx= 1.004	NO= 1.003	NO2= 1.000
		Correction Factors:	NOx= 1.0020	NO= 1.0013	NO2= 1.0142
		Average Converter Efficiency=	100.62%		

IZS Calibration Data

Before Calibration					After Calibration				
Auto Zero	-0.3	NOx	0.1	NO2	-0.2	NOx	-0.2	NO2	
Auto Span	644	NOx	633	NO2	645	NOx	642	NO2	
		Sample Lines Connected	YES						
Percent Change from Previous Calibration		NOx	-1.6%	NO	-3.1%	NO2	-0.2%		

Notes **NA : Not Applicable**

Additional point done for ozone cal: O3 set point 420, NOx 752, NO 371, NO2 381

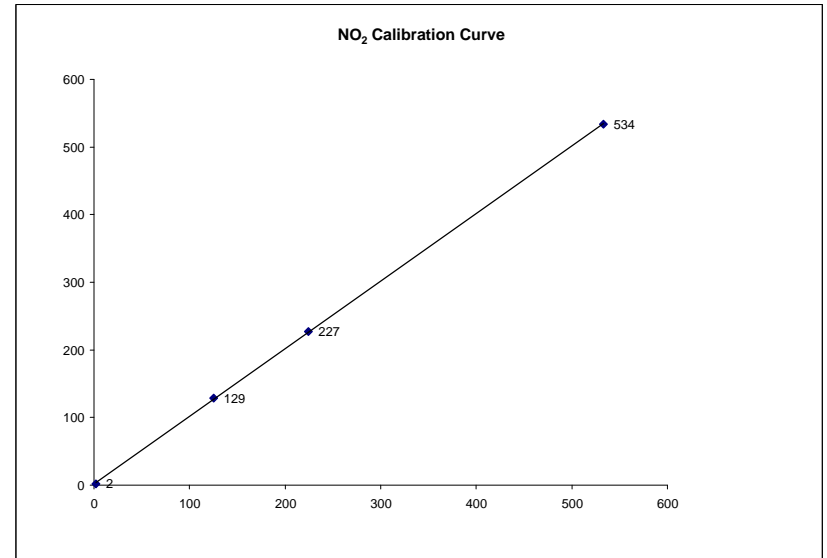
The zero air supply is used to provide air to 2 calibrators. During the 1st GPT point, the air supply to the second calibrator was tempory disconnect to allow for addition of a catalytic oxidizer for a THC calibration.

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	August 14, 2012	
Company	LICA	
Plant / Location	Portable/Elk Point Airport	
Start Time (MST)	8:35	End Time (MST) 15:11

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999935 0.999592 2.09010
2	2	N/A			
125	129	0.9690			
224	227	0.9868			
533	534	0.9981			

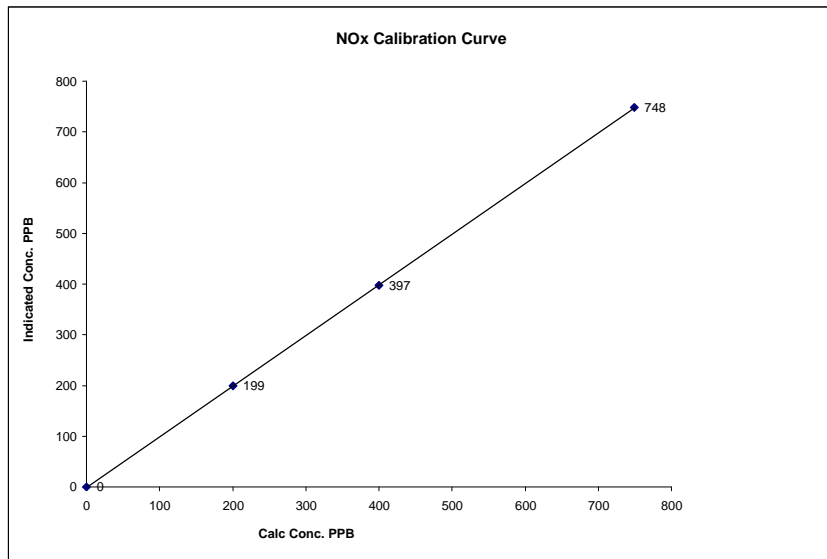


Notes:

NOx Calibration Curve

Calibration Date	August 14, 2012	
Company	LICA	
Plant / Location	Portable/Elk Point Airport	
Start Time (MST)	8:35	End Time (MST) 15:11

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999987
0	0	N/A	Slope (0.85 to 1.15)	0.998012
200	199	1.0075	Intercept (± 3% F.S.)	-0.88215
400	397	1.0081		
749	748	1.0020		

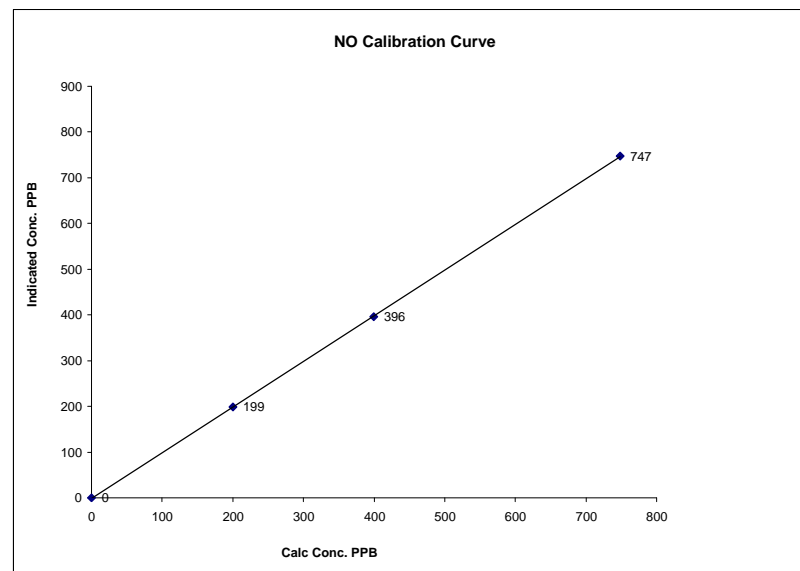


Notes:

NO Calibration Curve

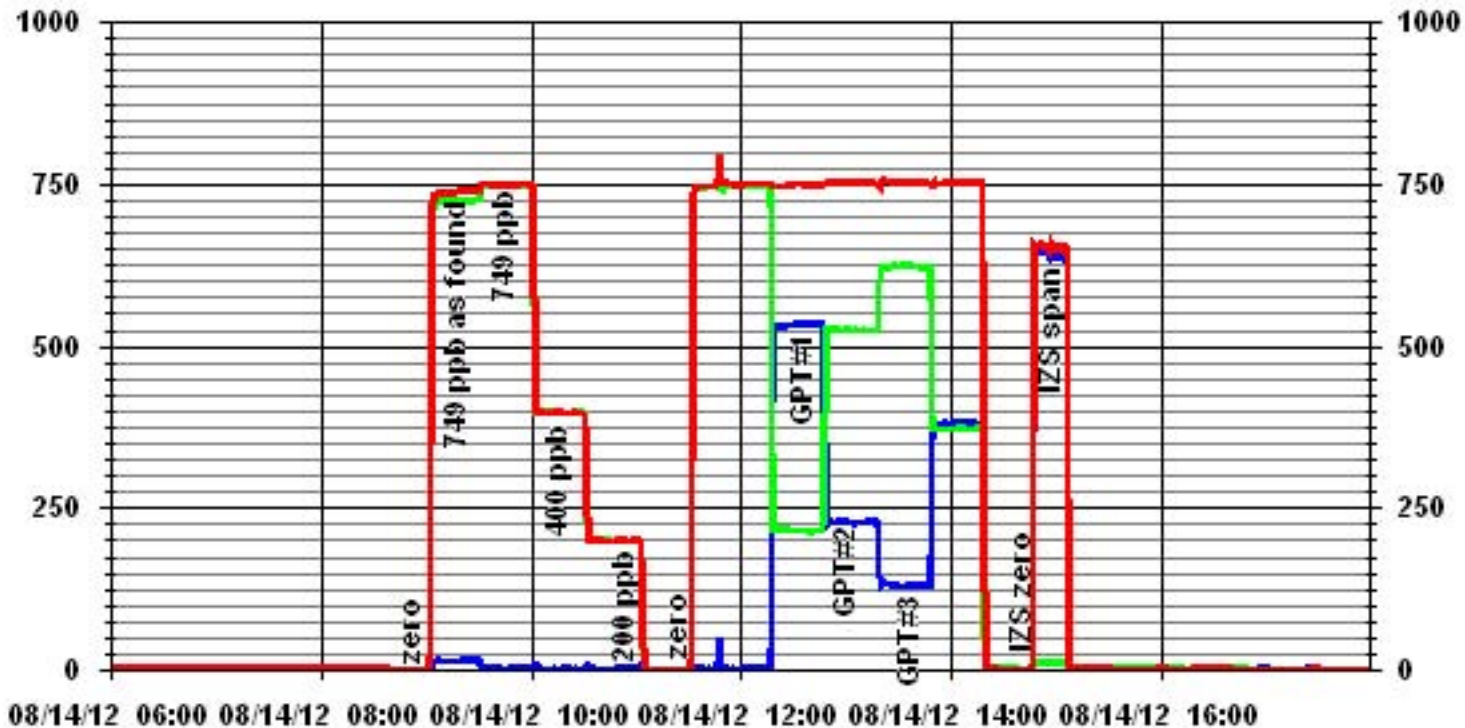
Calibration Date	August 14, 2012	
Company	LICA	
Plant / Location	Portable/Elk Point Airport	
Start Time (MST)	8:35	End Time (MST) 15:11

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999982
0	0	N/A	Slope (0.85 to 1.15)	1.000985
200	199	1.0055	Intercept (± 3% F.S.)	-6.2350
399	396	1.0086		
748	747	1.0013		



Notes:

01 Minute Averages



Ozone

O₃ Calibration Report

Station Information

Calibration Date	August 15, 2012	Previous Calibration	July 12, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Elk Point Airport		
Start Time (MST)	9:53	End Time (MST)	13:09
Reason:	Monthly Calibration		
Barometric Pressure	0.946 atm	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:	Enviroics 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	758 ccm	764 ccm	760 ccm	766 ccm
Pressure	699 mmHg		702 mmHg	
Bench Lamp	54.1 Deg C		54.1 Deg C	
O3 Lamp / Box Temp	68.2 Deg C	30.4 Deg C	68.2 Deg C	30.4 Deg C
Offset / Slope	-0.2	1.005	-0.2	1.005

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	NA
	No Zero Adj.			
4994	420	377	376	1.0027
	No Span Adj.			
4994	250	224	226	0.9912
4994	140	125	127	0.9843
4994	0	0	0	NA
Sum of Least Squares				0.9985
New Correction Factor				1.0027

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	-0.1
Auto Span	331.0	333.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		0.9921
Current Correctio Factor Before Span Adjust:		1.0027
Percent Change:		-1.1%

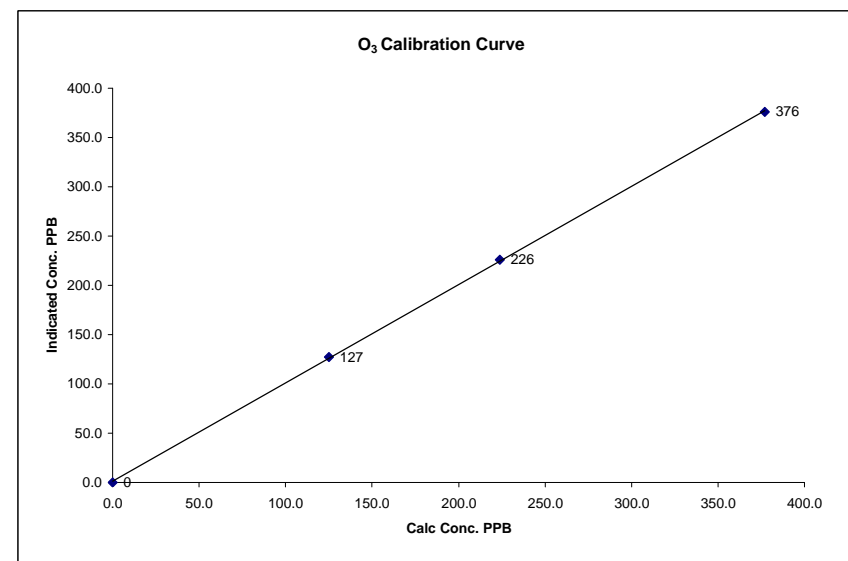
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

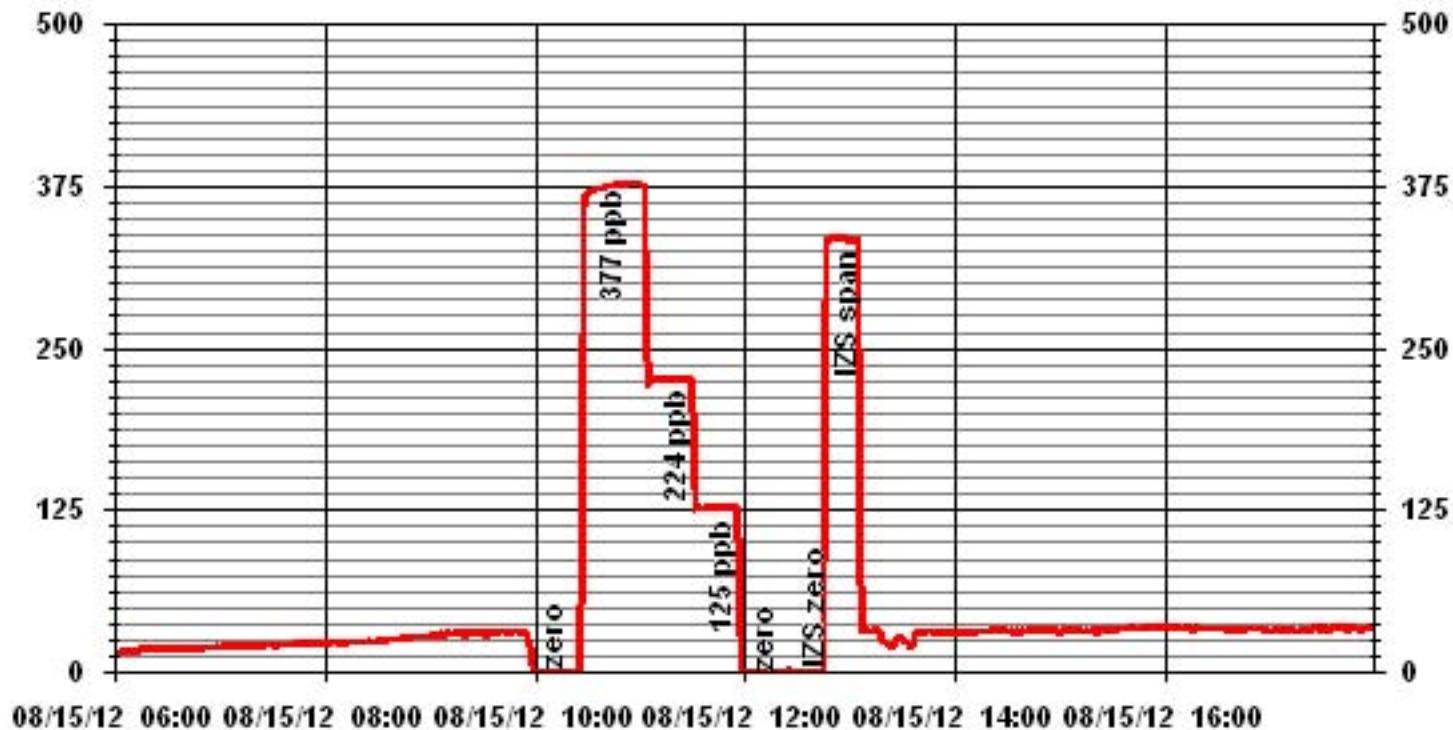
Calibration Date	August 15, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Elk Point Airport		
Start Time (MST)	9:53	End Time (MST)	13:09

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999920
125	127	0.9843		0.997065
224	226	0.9912		1.282625
377	376	1.0027		



Notes:

01 Minute Averages



Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 309
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Jul 30, 12 @ 13:38 mst
Field Sample ID: LICA VOC/PORT/ Aug 01, 12 Canister Removal Date/Time: Aug 02, 12 @ 9:36 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Aug-12	08/01/2012 0:00	08/02/2012 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 # 11237

Technician Signature: Ting Xu_____

Your C.O.C. #: 11237

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

Report Date: 2012/08/20

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2B8607****Received: 2012/08/07, 08:30**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2012/08/08	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2012/08/16	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/16	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 11

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

RESULTS OF ANALYSES OF AIR

Maxxam ID		OJ9066	OJ9067	
Sampling Date		2012/08/01	2012/08/01	
COC Number		11237	11237	
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	LICA VOC/PORT/AUG 01 - 12 / 309	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2941721

QC Batch = Quality Control Batch

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OJ9066			OJ9067				
Sampling Date		2012/08/01			2012/08/01				
COC Number		11237			11237				
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 01 - 12 / 309	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	2941848
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2941848
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2941848
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2941848
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2941848
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	3.33	0.989	0.66	0.20	3.24	0.989	2941848
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2941848
Chloromethane	ppbv	0.62	1.28	0.620	0.59	0.30	1.21	0.620	2941848
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2941848
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2941848
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2941848
Trichlorofluoromethane (FREON 11)	ppbv	0.29	1.60	1.12	0.27	0.20	1.53	1.12	2941848
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2941848
Ethanol (ethyl alcohol)	ppbv	2.6	4.97	4.33	<2.3	2.3	<4.33	4.33	2941848
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2941848
2-Propanone	ppbv	4.07	9.68	1.90	4.32	0.80	10.3	1.90	2941848
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2941848
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2941848
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2941848
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2941848
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2941848
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2941848
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2941848
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2941848
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2941848
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2941848
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2941848
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2941848
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2941848
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2941848
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2941848

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OJ9066			OJ9067				
Sampling Date		2012/08/01			2012/08/01				
COC Number		11237			11237				
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 01 - 12 / 309	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	2941848
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2941848
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2941848
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2941848
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2941848
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2941848
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2941848
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2941848
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2941848
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2941848
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2941848
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2941848
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2941848
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2941848
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2941848
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2941848
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2941848
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2941848
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2941848
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2941848
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2941848
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2941848
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2941848
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2941848
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2941848
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2941848
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2941848
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2941848
Hexane	ppbv	<0.30	<1.06	1.06	0.41	0.30	1.45	1.06	2941848
Cyclohexane	ppbv	0.27	0.937	0.688	0.24	0.20	0.829	0.688	2941848
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2941848
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2941848
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2941848

QC Batch = Quality Control Batch

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OJ9066			OJ9067				
Sampling Date		2012/08/01			2012/08/01				
COC Number		11237			11237				
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 01 - 12 / 309	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	82	N/A	N/A	81		N/A	N/A	2941848
D5-Chlorobenzene	%	86	N/A	N/A	83		N/A	N/A	2941848
Difluorobenzene	%	85	N/A	N/A	83		N/A	N/A	2941848

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

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

Test Summary

Maxxam ID OJ9066
Sample ID LICA VOC/CLS/AUG 01 - 12 / 146
Matrix AIR

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2941721	N/A	2012/08/08	Yao Liang Sun
Volatile Organics in Air (TO-15)	GC/MS	2941848	N/A	2012/08/16	Yao Liang Sun

Maxxam ID OJ9067
Sample ID LICA VOC/PORT/AUG 01 - 12 / 309
Matrix AIR

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2941721	N/A	2012/08/16	Yao Liang Sun
Volatile Organics in Air (TO-15)	GC/MS	2941848	N/A	2012/08/16	Yao Liang Sun

Maxxam Job #: B2B8607
Report Date: 2012/08/20

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: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	Spiked Blank	Bromochloromethane	2012/08/16		99	%	60 - 140
		D5-Chlorobenzene	2012/08/16		101	%	60 - 140
		Difluorobenzene	2012/08/16		102	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/16		91	%	70 - 130
		Carbon Disulfide	2012/08/16		88	%	70 - 130
		Propene	2012/08/16		83	%	70 - 130
		Vinyl Acetate	2012/08/16		88	%	70 - 130
		Vinyl Bromide	2012/08/16		92	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/08/16		78	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/16		96	%	70 - 130
		Chloromethane	2012/08/16		83	%	70 - 130
		Vinyl Chloride	2012/08/16		84	%	70 - 130
		Chloroethane	2012/08/16		82	%	70 - 130
		1,3-Butadiene	2012/08/16		88	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/16		84	%	70 - 130
		Trichlorotrifluoroethane	2012/08/16		85	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/16		62 (1)	%	70 - 130
		2-propanol	2012/08/16		83	%	70 - 130
		2-Propanone	2012/08/16		85	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/16		81	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/16		83	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/16		82	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/16		87	%	70 - 130
		Ethyl Acetate	2012/08/16		89	%	70 - 130
		1,1-Dichloroethylene	2012/08/16		85	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/16		86	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/16		88	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/16		77	%	70 - 130
		Chloroform	2012/08/16		85	%	70 - 130
		Carbon Tetrachloride	2012/08/16		84	%	70 - 130
		1,1-Dichloroethane	2012/08/16		84	%	70 - 130
		1,2-Dichloroethane	2012/08/16		85	%	70 - 130
		Ethylene Dibromide	2012/08/16		82	%	70 - 130
		1,1,1-Trichloroethane	2012/08/16		85	%	70 - 130
		1,1,2-Trichloroethane	2012/08/16		83	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/16		78	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/16		83	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/16		84	%	70 - 130
		1,2-Dichloropropane	2012/08/16		82	%	70 - 130
		Bromomethane	2012/08/16		84	%	70 - 130
		Bromoform	2012/08/16		90	%	70 - 130
		Bromodichloromethane	2012/08/16		89	%	70 - 130
		Dibromochloromethane	2012/08/16		88	%	70 - 130
		Heptane	2012/08/16		86	%	70 - 130
		Trichloroethylene	2012/08/16		83	%	70 - 130
		Tetrachloroethylene	2012/08/16		84	%	70 - 130
		Benzene	2012/08/16		84	%	70 - 130
		Toluene	2012/08/16		83	%	70 - 130
		Ethylbenzene	2012/08/16		83	%	70 - 130
		p+m-Xylene	2012/08/16		81	%	70 - 130
		o-Xylene	2012/08/16		81	%	70 - 130
		Styrene	2012/08/16		67 (1)	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/16		76	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/16		74	%	70 - 130
		4-ethyltoluene	2012/08/16		83	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	Spiked Blank	Chlorobenzene	2012/08/16		82	%	70 - 130
		Benzyl chloride	2012/08/16		75	%	70 - 130
		1,3-Dichlorobenzene	2012/08/16		73	%	70 - 130
		1,4-Dichlorobenzene	2012/08/16		72	%	70 - 130
		1,2-Dichlorobenzene	2012/08/16		70	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/16		74	%	70 - 130
		Hexachlorobutadiene	2012/08/16		74	%	70 - 130
		Hexane	2012/08/16		88	%	70 - 130
		Cyclohexane	2012/08/16		87	%	70 - 130
		Tetrahydrofuran	2012/08/16		87	%	70 - 130
		1,4-Dioxane	2012/08/16		82	%	70 - 130
		Xylene (Total)	2012/08/16		81	%	70 - 130
	Method Blank	Bromochloromethane	2012/08/16		83	%	60 - 140
		D5-Chlorobenzene	2012/08/16		82	%	60 - 140
		Difluorobenzene	2012/08/16		85	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/16	<0.20		ppbv	
		Carbon Disulfide	2012/08/16	<0.50		ppbv	
		Propene	2012/08/16	<0.30		ppbv	
		Vinyl Acetate	2012/08/16	<0.20		ppbv	
		Vinyl Bromide	2012/08/16	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/08/16	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/16	<0.17		ppbv	
		Chloromethane	2012/08/16	<0.30		ppbv	
		Vinyl Chloride	2012/08/16	<0.18		ppbv	
		Chloroethane	2012/08/16	<0.30		ppbv	
		1,3-Butadiene	2012/08/16	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/16	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/08/16	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/08/16	<2.3		ppbv	
		2-propanol	2012/08/16	<3.0		ppbv	
		2-Propanone	2012/08/16	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/16	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/16	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/16	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/16	<0.20		ppbv	
		Ethyl Acetate	2012/08/16	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/16	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/16	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/16	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/16	<0.80		ppbv	
		Chloroform	2012/08/16	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/16	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/16	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/16	<0.20		ppbv	
		Ethylene Dibromide	2012/08/16	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/16	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/16	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/16	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/16	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/16	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/16	<0.40		ppbv	
		Bromomethane	2012/08/16	<0.18		ppbv	
		Bromoform	2012/08/16	<0.20		ppbv	
		Bromodichloromethane	2012/08/16	<0.20		ppbv	
		Dibromochloromethane	2012/08/16	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	Method Blank	Heptane	2012/08/16	<0.30		ppbv	
		Trichloroethylene	2012/08/16	<0.30		ppbv	
		Tetrachloroethylene	2012/08/16	<0.20		ppbv	
		Benzene	2012/08/16	<0.18		ppbv	
		Toluene	2012/08/16	<0.20		ppbv	
		Ethylbenzene	2012/08/16	<0.20		ppbv	
		p+m-Xylene	2012/08/16	<0.37		ppbv	
		o-Xylene	2012/08/16	<0.20		ppbv	
		Styrene	2012/08/16	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/08/16	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/16	<0.50		ppbv	
		4-ethyltoluene	2012/08/16	<2.2		ppbv	
		Chlorobenzene	2012/08/16	<0.20		ppbv	
		Benzyl chloride	2012/08/16	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/16	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/16	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/16	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/16	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/16	<3.0		ppbv	
		Hexane	2012/08/16	<0.30		ppbv	
		Cyclohexane	2012/08/16	<0.20		ppbv	
		Tetrahydrofuran	2012/08/16	<0.40		ppbv	
		1,4-Dioxane	2012/08/16	<2.0		ppbv	
		Xylene (Total)	2012/08/16	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/08/16	NC		%	25
		Carbon Disulfide	2012/08/16	1.7		%	25
		Propene	2012/08/16	0.3		%	25
		Vinyl Acetate	2012/08/16	NC		%	25
		Vinyl Bromide	2012/08/16	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/08/16	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/08/16	NC		%	25
		Chloromethane	2012/08/16	NC		%	25
		Vinyl Chloride	2012/08/16	NC		%	25
		Chloroethane	2012/08/16	NC		%	25
		1,3-Butadiene	2012/08/16	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/08/16	NC		%	25
		Trichlorotrifluoroethane	2012/08/16	NC		%	25
		Ethanol (ethyl alcohol)	2012/08/16	NC		%	25
		2-propanol	2012/08/16	NC		%	25
		2-Propanone	2012/08/16	0.04		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/08/16	NC		%	25
		Methyl Isobutyl Ketone	2012/08/16	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/08/16	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/08/16	NC		%	25
		Ethyl Acetate	2012/08/16	NC		%	25
		1,1-Dichloroethylene	2012/08/16	NC		%	25
		cis-1,2-Dichloroethylene	2012/08/16	NC		%	25
		trans-1,2-Dichloroethylene	2012/08/16	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/08/16	NC		%	25
		Chloroform	2012/08/16	NC		%	25
		Carbon Tetrachloride	2012/08/16	NC		%	25
		1,1-Dichloroethane	2012/08/16	NC		%	25
		1,2-Dichloroethane	2012/08/16	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/08/16	NC		%	25
		1,1,1-Trichloroethane	2012/08/16	NC		%	25
		1,1,2-Trichloroethane	2012/08/16	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/08/16	NC		%	25
		cis-1,3-Dichloropropene	2012/08/16	NC		%	25
		trans-1,3-Dichloropropene	2012/08/16	NC		%	25
		1,2-Dichloropropane	2012/08/16	NC		%	25
		Bromomethane	2012/08/16	NC		%	25
		Bromoform	2012/08/16	NC		%	25
		Bromodichloromethane	2012/08/16	NC		%	25
		Dibromochloromethane	2012/08/16	NC		%	25
		Heptane	2012/08/16	1.0		%	25
		Trichloroethylene	2012/08/16	NC		%	25
		Tetrachloroethylene	2012/08/16	NC		%	25
		Benzene	2012/08/16	1.5		%	25
		Toluene	2012/08/16	0.7		%	25
		Ethylbenzene	2012/08/16	0.8		%	25
		p+m-Xylene	2012/08/16	0.2		%	25
		o-Xylene	2012/08/16	0.6		%	25
		Styrene	2012/08/16	NC		%	25
		1,3,5-Trimethylbenzene	2012/08/16	0.9		%	25
		1,2,4-Trimethylbenzene	2012/08/16	1.5		%	25
		4-ethyltoluene	2012/08/16	NC		%	25
		Chlorobenzene	2012/08/16	NC		%	25
		Benzyl chloride	2012/08/16	NC		%	25
		1,3-Dichlorobenzene	2012/08/16	NC		%	25
		1,4-Dichlorobenzene	2012/08/16	NC		%	25
		1,2-Dichlorobenzene	2012/08/16	NC		%	25
		1,2,4-Trichlorobenzene	2012/08/16	NC		%	25
		Hexachlorobutadiene	2012/08/16	NC		%	25
		Hexane	2012/08/16	0.4		%	25
		Cyclohexane	2012/08/16	7.4		%	25
		Tetrahydrofuran	2012/08/16	NC		%	25
		1,4-Dioxane	2012/08/16	NC		%	25
		Xylene (Total)	2012/08/16	0.3		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 136
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Aug 02, 12 @ 9:45 mst
Field Sample ID: LICA VOC/PORT/ Aug 07, 12 Canister Removal Date/Time: Aug 08, 12 @ 9:46 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Aug-12	08/07/2012 0:00	08/08/2012 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 # 11338

Technician Signature: Ting Xu_____

Your C.O.C. #: 11338

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

Report Date: 2012/08/22

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C1204****Received: 2012/08/10, 11:15**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/08/20	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/20	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 10

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

RESULTS OF ANALYSES OF AIR

Maxxam ID		OL3522	OL3523	
Sampling Date		2012/08/07	2012/08/07	
COC Number		11338	11338	
	Units	LICA VOC/CLS/AUG 07,2012 - 250	LICA VOC/PORT/AUG 07,2012 - 136	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2945804

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OL3522			OL3523				
Sampling Date		2012/08/07			2012/08/07				
COC Number		11338			11338				
	Units	LICA VOC/CLS/AUG 07,2012 - 250	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 07,2012 - 136	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	2945792
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2945792
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2945792
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2945792
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2945792
Dichlorodifluoromethane (FREON 12)	ppbv	0.56	2.78	0.989	0.58	0.20	2.86	0.989	2945792
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2945792
Chloromethane	ppbv	<0.30	<0.620	0.620	<0.30	0.30	<0.620	0.620	2945792
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2945792
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2945792
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2945792
Trichlorofluoromethane (FREON 11)	ppbv	0.28	1.55	1.12	0.28	0.20	1.55	1.12	2945792
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2945792
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2945792
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2945792
2-Propanone	ppbv	4.10	9.75	1.90	3.19	0.80	7.59	1.90	2945792
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2945792
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2945792
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2945792
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2945792
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2945792
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2945792
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2945792
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2945792
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2945792
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2945792
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2945792
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2945792
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2945792
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2945792
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2945792
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2945792

RDL = Reportable Detection Limit

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OL3522			OL3523				
Sampling Date		2012/08/07			2012/08/07				
COC Number		11338			11338				
	Units	LICA VOC/CLS/AUG 07,2012 - 250	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 07,2012 - 136	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2945792
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2945792
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2945792
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2945792
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2945792
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2945792
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2945792
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2945792
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2945792
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2945792
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2945792
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2945792
Toluene	ppbv	0.43	1.60	0.753	<0.20	0.20	<0.753	0.753	2945792
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2945792
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2945792
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2945792
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2945792
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2945792
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2945792
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2945792
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2945792
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2945792
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2945792
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2945792
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2945792
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2945792
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2945792
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2945792
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2945792
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2945792
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2945792
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2945792
Surrogate Recovery (%)									
Bromochloromethane	%	70	N/A	N/A	70		N/A	N/A	2945792

N/A = Not Applicable

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OL3522			OL3523				
Sampling Date		2012/08/07			2012/08/07				
COC Number		11338			11338				
	Units	LICA VOC/CLS/AUG 07,2012 - 250	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 07,2012 - 136	RDL	ug/m3	DL (ug/m3)	QC Batch

D5-Chlorobenzene	%	66	N/A	N/A	67		N/A	N/A	2945792
Difluorobenzene	%	70	N/A	N/A	71		N/A	N/A	2945792

N/A = Not Applicable

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

Test Summary

Maxxam ID OL3522
Sample ID LICA VOC/CLS/AUG 07,2012 - 250
Matrix AIR

Collected 2012/08/07
Shipped
Received 2012/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2945804	N/A	2012/08/20	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	2945792	N/A	2012/08/20	Spomenka Smiljanic

Maxxam ID OL3523
Sample ID LICA VOC/PORT/AUG 07,2012 - 136
Matrix AIR

Collected 2012/08/07
Shipped
Received 2012/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2945804	N/A	2012/08/20	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	2945792	N/A	2012/08/20	Spomenka Smiljanic

Maxxam Job #: B2C1204
Report Date: 2012/08/22

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2C1204

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2945792 S_S	Spiked Blank	Bromochloromethane	2012/08/20		92	%	60 - 140
		D5-Chlorobenzene	2012/08/20		91	%	60 - 140
		Difluorobenzene	2012/08/20		94	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/20		106	%	70 - 130
		Carbon Disulfide	2012/08/20		104	%	70 - 130
		Propene	2012/08/20		86	%	70 - 130
		Vinyl Acetate	2012/08/20		107	%	70 - 130
		Vinyl Bromide	2012/08/20		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/08/20		95	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/20		106	%	70 - 130
		Chloromethane	2012/08/20		98	%	70 - 130
		Vinyl Chloride	2012/08/20		90	%	70 - 130
		Chloroethane	2012/08/20		91	%	70 - 130
		1,3-Butadiene	2012/08/20		92	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/20		94	%	70 - 130
		Trichlorotrifluoroethane	2012/08/20		94	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/20		81	%	70 - 130
		2-propanol	2012/08/20		96	%	70 - 130
		2-Propanone	2012/08/20		111	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/20		92	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/20		100	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/20		102	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/20		106	%	70 - 130
		Ethyl Acetate	2012/08/20		105	%	70 - 130
		1,1-Dichloroethylene	2012/08/20		97	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/20		99	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/20		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/20		90	%	70 - 130
		Chloroform	2012/08/20		94	%	70 - 130
		Carbon Tetrachloride	2012/08/20		97	%	70 - 130
		1,1-Dichloroethane	2012/08/20		96	%	70 - 130
		1,2-Dichloroethane	2012/08/20		97	%	70 - 130
		Ethylene Dibromide	2012/08/20		95	%	70 - 130
		1,1,1-Trichloroethane	2012/08/20		95	%	70 - 130
		1,1,2-Trichloroethane	2012/08/20		92	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/20		91	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/20		100	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/20		107	%	70 - 130
		1,2-Dichloropropane	2012/08/20		92	%	70 - 130
		Bromomethane	2012/08/20		92	%	70 - 130
		Bromoform	2012/08/20		105	%	70 - 130
		Bromodichloromethane	2012/08/20		104	%	70 - 130
		Dibromochloromethane	2012/08/20		104	%	70 - 130
		Heptane	2012/08/20		104	%	70 - 130
		Trichloroethylene	2012/08/20		95	%	70 - 130
		Tetrachloroethylene	2012/08/20		94	%	70 - 130
		Benzene	2012/08/20		95	%	70 - 130
		Toluene	2012/08/20		97	%	70 - 130
		Ethylbenzene	2012/08/20		99	%	70 - 130
		p+m-Xylene	2012/08/20		96	%	70 - 130
		o-Xylene	2012/08/20		94	%	70 - 130
		Styrene	2012/08/20		86	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/20		91	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/20		93	%	70 - 130
		4-ethyltoluene	2012/08/20		112	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C1204

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2945792 S_S	Spiked Blank	Chlorobenzene	2012/08/20		92	%	70 - 130
		Benzyl chloride	2012/08/20		113	%	70 - 130
		1,3-Dichlorobenzene	2012/08/20		89	%	70 - 130
		1,4-Dichlorobenzene	2012/08/20		88	%	70 - 130
		1,2-Dichlorobenzene	2012/08/20		85	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/20		99	%	70 - 130
		Hexachlorobutadiene	2012/08/20		88	%	70 - 130
		Hexane	2012/08/20		108	%	70 - 130
		Cyclohexane	2012/08/20		102	%	70 - 130
		Tetrahydrofuran	2012/08/20		110	%	70 - 130
		1,4-Dioxane	2012/08/20		109	%	70 - 130
		Xylene (Total)	2012/08/20		95	%	70 - 130
	Method Blank	Bromochloromethane	2012/08/20		83	%	60 - 140
		D5-Chlorobenzene	2012/08/20		78	%	60 - 140
		Difluorobenzene	2012/08/20		85	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/20	<0.20		ppbv	
		Carbon Disulfide	2012/08/20	<0.50		ppbv	
		Propene	2012/08/20	<0.30		ppbv	
		Vinyl Acetate	2012/08/20	<0.20		ppbv	
		Vinyl Bromide	2012/08/20	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/08/20	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/20	<0.17		ppbv	
		Chloromethane	2012/08/20	<0.30		ppbv	
		Vinyl Chloride	2012/08/20	<0.18		ppbv	
		Chloroethane	2012/08/20	<0.30		ppbv	
		1,3-Butadiene	2012/08/20	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/20	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/08/20	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/08/20	<2.3		ppbv	
		2-propanol	2012/08/20	<3.0		ppbv	
		2-Propanone	2012/08/20	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/20	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/20	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/20	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/20	<0.20		ppbv	
		Ethyl Acetate	2012/08/20	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/20	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/20	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/20	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/20	<0.80		ppbv	
		Chloroform	2012/08/20	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/20	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/20	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/20	<0.20		ppbv	
		Ethylene Dibromide	2012/08/20	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/20	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/20	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/20	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/20	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/20	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/20	<0.40		ppbv	
		Bromomethane	2012/08/20	<0.18		ppbv	
		Bromoform	2012/08/20	<0.20		ppbv	
		Bromodichloromethane	2012/08/20	<0.20		ppbv	
		Dibromochloromethane	2012/08/20	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C1204

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2945792 S_S	Method Blank	Heptane	2012/08/20	<0.30		ppbv	
		Trichloroethylene	2012/08/20	<0.30		ppbv	
		Tetrachloroethylene	2012/08/20	<0.20		ppbv	
		Benzene	2012/08/20	<0.18		ppbv	
		Toluene	2012/08/20	<0.20		ppbv	
		Ethylbenzene	2012/08/20	<0.20		ppbv	
		p+m-Xylene	2012/08/20	<0.37		ppbv	
		o-Xylene	2012/08/20	<0.20		ppbv	
		Styrene	2012/08/20	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/08/20	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/20	<0.50		ppbv	
		4-ethyltoluene	2012/08/20	<2.2		ppbv	
		Chlorobenzene	2012/08/20	<0.20		ppbv	
		Benzyl chloride	2012/08/20	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/20	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/20	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/20	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/20	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/20	<3.0		ppbv	
		Hexane	2012/08/20	<0.30		ppbv	
		Cyclohexane	2012/08/20	<0.20		ppbv	
		Tetrahydrofuran	2012/08/20	<0.40		ppbv	
		1,4-Dioxane	2012/08/20	<2.0		ppbv	
		Xylene (Total)	2012/08/20	<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: 7840
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Aug 10, 12 @ 13:00 mst
Field Sample ID: LICA VOC/PORT/ Aug 13, 12 Canister Removal Date/Time: Aug 14, 12 @ 12:52 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-Aug-12	08/13/2012 0:00	08/14/2012 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 # 11475

Technician Signature: Ting Xu_____

Your C.O.C. #: 11475

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

Report Date: 2012/08/30

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C7255****Received: 2012/08/21, 09:40**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/08/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/28	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 14

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

RESULTS OF ANALYSES OF AIR

Maxxam ID		OO1320	OO1321	
Sampling Date		2012/08/13 00:00	2012/08/13 00:00	
COC Number		11475	11475	
	Units	LICA VOC/CLS/AUG 13,2012 - 305	LICA VOC/PORT/AUG 13,2012 - 7840	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	21	2953156
QC Batch = Quality Control Batch				

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1320				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/CLS/AUG 13,2012 - 305	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	0.20	3.99	0.989	2954529
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2954529
Chloromethane	ppbv	<0.30	0.30	<0.620	0.620	2954529
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2954529
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2954529
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2954529
Trichlorofluoromethane (FREON 11)	ppbv	0.44	0.20	2.47	1.12	2954529
Ethanol (ethyl alcohol)	ppbv	3.3	2.3	6.24	4.33	2954529
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2954529
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2954529
2-Propanone	ppbv	5.41	0.80	12.8	1.90	2954529
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2954529
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2954529
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2954529
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2954529
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2954529
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2954529
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2954529
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2954529
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2954529
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2954529
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2954529
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2954529
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2954529
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2954529
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2954529
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2954529
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2954529
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1320				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/CLS/AUG 13,2012 - 305	RDL	ug/m3	DL (ug/m3)	QC Batch

1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2954529
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2954529
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2954529
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2954529
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2954529
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2954529
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2954529
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2954529
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2954529
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2954529
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2954529
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2954529
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2954529
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2954529
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2954529
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2954529
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2954529
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2954529
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2954529
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2954529
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2954529
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2954529
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2954529
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2954529
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2954529
Propene	ppbv	<0.30	0.30	<0.516	0.516	2954529
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2954529
QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1320				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/CLS/AUG 13,2012 - 305	RDL	ug/m3	DL (ug/m3)	QC Batch
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2954529
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2954529
Surrogate Recovery (%)						
Bromochloromethane	%	68		N/A	N/A	2954529
D5-Chlorobenzene	%	64		N/A	N/A	2954529
Difluorobenzene	%	69		N/A	N/A	2954529
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1321				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/PORT/AUG 13,2012 - 7840	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	0.20	3.99	0.989	2954529
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2954529
Chloromethane	ppbv	<0.30	0.30	<0.620	0.620	2954529
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2954529
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2954529
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2954529
Trichlorofluoromethane (FREON 11)	ppbv	0.44	0.20	2.50	1.12	2954529
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2954529
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2954529
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2954529
2-Propanone	ppbv	5.15	0.80	12.2	1.90	2954529
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2954529
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2954529
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2954529
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2954529
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2954529
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2954529
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2954529
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2954529
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2954529
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2954529
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2954529
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2954529
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2954529
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2954529
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2954529
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2954529
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2954529
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1321				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/PORT/AUG 13,2012 - 7840	RDL	ug/m3	DL (ug/m3)	QC Batch

1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2954529
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2954529
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2954529
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2954529
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2954529
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2954529
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2954529
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2954529
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2954529
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2954529
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2954529
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2954529
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2954529
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2954529
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2954529
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2954529
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2954529
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2954529
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2954529
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2954529
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2954529
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2954529
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2954529
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2954529
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2954529
Propene	ppbv	<0.30	0.30	<0.516	0.516	2954529
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2954529
QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1321				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/PORT/AUG 13,2012 - 7840	RDL	ug/m3	DL (ug/m3)	QC Batch
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2954529
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2954529
Surrogate Recovery (%)						
Bromochloromethane	%	66		N/A	N/A	2954529
D5-Chlorobenzene	%	66		N/A	N/A	2954529
Difluorobenzene	%	69		N/A	N/A	2954529
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

Test Summary

Maxxam ID OO1320
Sample ID LICA VOC/CLS/AUG 13,2012 - 305
Matrix AIR

Collected 2012/08/13
Shipped
Received 2012/08/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2953156	N/A	2012/08/28	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	2954529	N/A	2012/08/28	Branko Vrzic

Maxxam ID OO1321
Sample ID LICA VOC/PORT/AUG 13,2012 - 7840
Matrix AIR

Collected 2012/08/13
Shipped
Received 2012/08/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2953156	N/A	2012/08/28	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	2954529	N/A	2012/08/28	Branko Vrzic

Maxxam Job #: B2C7255
Report Date: 2012/08/30

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: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	Spiked Blank	Bromochloromethane	2012/08/28		99	%	60 - 140
		D5-Chlorobenzene	2012/08/28		99	%	60 - 140
		Difluorobenzene	2012/08/28		101	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/28		116	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/28		133 (1)	%	70 - 130
		Chloromethane	2012/08/28		107	%	70 - 130
		Vinyl Chloride	2012/08/28		102	%	70 - 130
		Chloroethane	2012/08/28		106	%	70 - 130
		1,3-Butadiene	2012/08/28		94	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/28		132 (1)	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/28		82	%	70 - 130
		Trichlorotrifluoroethane	2012/08/28		102	%	70 - 130
		2-propanol	2012/08/28		94	%	70 - 130
		2-Propanone	2012/08/28		123	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/28		89	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/28		89	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/28		87	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/28		112	%	70 - 130
		Ethyl Acetate	2012/08/28		97	%	70 - 130
		1,1-Dichloroethylene	2012/08/28		112	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/28		103	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/28		107	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/28		97	%	70 - 130
		Chloroform	2012/08/28		110	%	70 - 130
		Carbon Tetrachloride	2012/08/28		112	%	70 - 130
		1,1-Dichloroethane	2012/08/28		104	%	70 - 130
		1,2-Dichloroethane	2012/08/28		123	%	70 - 130
		Ethylene Dibromide	2012/08/28		92	%	70 - 130
		1,1,1-Trichloroethane	2012/08/28		112	%	70 - 130
		1,1,2-Trichloroethane	2012/08/28		90	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/28		94	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/28		102	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/28		112	%	70 - 130
		1,2-Dichloropropane	2012/08/28		90	%	70 - 130
		Bromomethane	2012/08/28		106	%	70 - 130
		Bromoform	2012/08/28		103	%	70 - 130
		Bromodichloromethane	2012/08/28		123	%	70 - 130
		Dibromochloromethane	2012/08/28		111	%	70 - 130
		Trichloroethylene	2012/08/28		81	%	70 - 130
		Tetrachloroethylene	2012/08/28		83	%	70 - 130
		Benzene	2012/08/28		94	%	70 - 130
		Toluene	2012/08/28		90	%	70 - 130
		Ethylbenzene	2012/08/28		93	%	70 - 130
		p+m-Xylene	2012/08/28		92	%	70 - 130
		o-Xylene	2012/08/28		94	%	70 - 130
		Styrene	2012/08/28		71	%	70 - 130
		4-ethyltoluene	2012/08/28		104	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/28		90	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/28		91	%	70 - 130
		Chlorobenzene	2012/08/28		82	%	70 - 130
		Benzyl chloride	2012/08/28		105	%	70 - 130
		1,3-Dichlorobenzene	2012/08/28		82	%	70 - 130
		1,4-Dichlorobenzene	2012/08/28		80	%	70 - 130
		1,2-Dichlorobenzene	2012/08/28		80	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/28		103	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	Spiked Blank	Hexachlorobutadiene	2012/08/28		108	%	70 - 130
		Hexane	2012/08/28		95	%	70 - 130
		Heptane	2012/08/28		89	%	70 - 130
		Cyclohexane	2012/08/28		88	%	70 - 130
		Tetrahydrofuran	2012/08/28		91	%	70 - 130
		1,4-Dioxane	2012/08/28		84	%	70 - 130
		Xylene (Total)	2012/08/28		93	%	70 - 130
		Vinyl Bromide	2012/08/28		107	%	70 - 130
		Propene	2012/08/28		81	%	70 - 130
		2,2,4-Trimethylpentane	2012/08/28		90	%	70 - 130
		Carbon Disulfide	2012/08/28		106	%	70 - 130
	Method Blank	Vinyl Acetate	2012/08/28		95	%	70 - 130
		Bromochloromethane	2012/08/28		85	%	60 - 140
		D5-Chlorobenzene	2012/08/28		81	%	60 - 140
		Difluorobenzene	2012/08/28		89	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/28	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/28	<0.17		ppbv	
		Chloromethane	2012/08/28	<0.30		ppbv	
		Vinyl Chloride	2012/08/28	<0.18		ppbv	
		Chloroethane	2012/08/28	<0.30		ppbv	
		1,3-Butadiene	2012/08/28	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/28	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/08/28	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/08/28	<0.15		ppbv	
		2-propanol	2012/08/28	<3.0		ppbv	
		2-Propanone	2012/08/28	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/28	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/28	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/28	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/28	<0.20		ppbv	
		Ethyl Acetate	2012/08/28	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/28	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/28	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/28	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/28	<0.80		ppbv	
		Chloroform	2012/08/28	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/28	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/28	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/28	<0.20		ppbv	
		Ethylene Dibromide	2012/08/28	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/28	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/28	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/28	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/28	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/28	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/28	<0.40		ppbv	
		Bromomethane	2012/08/28	<0.18		ppbv	
		Bromoform	2012/08/28	<0.20		ppbv	
		Bromodichloromethane	2012/08/28	<0.20		ppbv	
		Dibromochloromethane	2012/08/28	<0.20		ppbv	
		Trichloroethylene	2012/08/28	<0.30		ppbv	
		Tetrachloroethylene	2012/08/28	<0.20		ppbv	
		Benzene	2012/08/28	<0.18		ppbv	
		Toluene	2012/08/28	<0.20		ppbv	
		Ethylbenzene	2012/08/28	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	Method Blank	p+m-Xylene	2012/08/28	<0.37		ppbv	
		o-Xylene	2012/08/28	<0.20		ppbv	
		Styrene	2012/08/28	<0.20		ppbv	
		4-ethyltoluene	2012/08/28	<2.2		ppbv	
		1,3,5-Trimethylbenzene	2012/08/28	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/28	<0.50		ppbv	
		Chlorobenzene	2012/08/28	<0.20		ppbv	
		Benzyl chloride	2012/08/28	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/28	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/28	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/28	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/28	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/28	<3.0		ppbv	
		Hexane	2012/08/28	<0.30		ppbv	
		Heptane	2012/08/28	<0.30		ppbv	
		Cyclohexane	2012/08/28	<0.20		ppbv	
		Tetrahydrofuran	2012/08/28	<0.40		ppbv	
		1,4-Dioxane	2012/08/28	<2.0		ppbv	
		Xylene (Total)	2012/08/28	<0.60		ppbv	
		Vinyl Bromide	2012/08/28	<0.20		ppbv	
		Propene	2012/08/28	<0.30		ppbv	
		2,2,4-Trimethylpentane	2012/08/28	<0.20		ppbv	
		Carbon Disulfide	2012/08/28	<0.50		ppbv	
		Vinyl Acetate	2012/08/28	<0.20		ppbv	
	RPD - Sample/Sample Dup	Dichlorodifluoromethane (FREON 12)	2012/08/28	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/08/28	NC		%	25
		Chloromethane	2012/08/28	NC		%	25
		Vinyl Chloride	2012/08/28	NC		%	25
		Chloroethane	2012/08/28	NC		%	25
		1,3-Butadiene	2012/08/28	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/08/28	NC		%	25
		Ethanol (ethyl alcohol)	2012/08/28	NC		%	25
		Trichlorotrifluoroethane	2012/08/28	NC		%	25
		2-propanol	2012/08/28	NC		%	25
		2-Propanone	2012/08/28	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/08/28	NC		%	25
		Methyl Isobutyl Ketone	2012/08/28	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/08/28	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/08/28	NC		%	25
		Ethyl Acetate	2012/08/28	NC		%	25
		1,1-Dichloroethylene	2012/08/28	NC		%	25
		cis-1,2-Dichloroethylene	2012/08/28	NC		%	25
		trans-1,2-Dichloroethylene	2012/08/28	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/08/28	NC		%	25
		Chloroform	2012/08/28	NC		%	25
		Carbon Tetrachloride	2012/08/28	NC		%	25
		1,1-Dichloroethane	2012/08/28	NC		%	25
		1,2-Dichloroethane	2012/08/28	NC		%	25
		Ethylene Dibromide	2012/08/28	NC		%	25
		1,1,1-Trichloroethane	2012/08/28	NC		%	25
		1,1,2-Trichloroethane	2012/08/28	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/08/28	NC		%	25
		cis-1,3-Dichloropropene	2012/08/28	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	RPD - Sample/Sample Dup	trans-1,3-Dichloropropene	2012/08/28	NC		%	25
		1,2-Dichloropropane	2012/08/28	NC		%	25
		Bromomethane	2012/08/28	NC		%	25
		Bromoform	2012/08/28	NC		%	25
		Bromodichloromethane	2012/08/28	NC		%	25
		Dibromochloromethane	2012/08/28	NC		%	25
		Trichloroethylene	2012/08/28	NC		%	25
		Tetrachloroethylene	2012/08/28	NC		%	25
		Benzene	2012/08/28	NC		%	25
		Toluene	2012/08/28	NC		%	25
		Ethylbenzene	2012/08/28	NC		%	25
		p+m-Xylene	2012/08/28	NC		%	25
		o-Xylene	2012/08/28	NC		%	25
		Styrene	2012/08/28	NC		%	25
		4-ethyltoluene	2012/08/28	NC		%	25
		1,3,5-Trimethylbenzene	2012/08/28	NC		%	25
		1,2,4-Trimethylbenzene	2012/08/28	NC		%	25
		Chlorobenzene	2012/08/28	NC		%	25
		Benzyl chloride	2012/08/28	NC		%	25
		1,3-Dichlorobenzene	2012/08/28	NC		%	25
		1,4-Dichlorobenzene	2012/08/28	NC		%	25
		1,2-Dichlorobenzene	2012/08/28	NC		%	25
		1,2,4-Trichlorobenzene	2012/08/28	NC		%	25
		Hexachlorobutadiene	2012/08/28	NC		%	25
		Hexane	2012/08/28	NC		%	25
		Heptane	2012/08/28	NC		%	25
		Cyclohexane	2012/08/28	NC		%	25
		Tetrahydrofuran	2012/08/28	NC		%	25
		1,4-Dioxane	2012/08/28	NC		%	25
		Xylene (Total)	2012/08/28	NC		%	25
		Vinyl Bromide	2012/08/28	NC		%	25
		Propene	2012/08/28	NC		%	25
		2,2,4-Trimethylpentane	2012/08/28	NC		%	25
		Carbon Disulfide	2012/08/28	NC		%	25
		Vinyl Acetate	2012/08/28	NC		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 144
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Aug 16, 12 @ 12:30 mst
Field Sample ID: LICA VOC/PORT/ Aug 19, 12 Canister Removal Date/Time: Aug 20, 12 @ 09:08 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-Aug-12	08/19/2012 0:00	08/20/2012 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 # 10992

Technician Signature: Ting Xu_____

Your C.O.C. #: 10992

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

Report Date: 2012/09/05

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C8002****Received: 2012/08/22, 09:39**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/08/31	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/31	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

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JOB #: 2833-12-08-35-C

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

RESULTS OF ANALYSES OF AIR

Maxxam ID		OO4300	OO4301	
Sampling Date		2012/08/19 00:00	2012/08/19 00:00	
COC Number		10992	10992	
	Units	LICA VOC\CLSL AUG 19,12	LICA VOC\PORT\ AUG 19,12	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2958396
QC Batch = Quality Control Batch				

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4300				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC\CLS\	RDL	ug/m3	DL (ug/m3)	QC Batch
		AUG 19,12				

Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.66	0.20	3.26	0.989	2958404
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2958404
Chloromethane	ppbv	0.49	0.30	1.02	0.620	2958404
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2958404
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2958404
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2958404
Trichlorofluoromethane (FREON 11)	ppbv	0.30	0.20	1.71	1.12	2958404
Ethanol (ethyl alcohol)	ppbv	3.4	2.3	6.40	4.33	2958404
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2958404
2-propanol	ppbv	3.1	3.0	7.53	7.37	2958404
2-Propanone	ppbv	4.32	0.80	10.3	1.90	2958404
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2958404
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2958404
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2958404
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2958404
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2958404
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2958404
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2958404
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2958404
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2958404
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2958404
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2958404
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2958404
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2958404
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2958404
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2958404
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2958404
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2958404
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2958404
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4300				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC\CLS\	RDL	ug/m3	DL (ug/m3)	QC Batch
		AUG 19,12				
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2958404
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2958404
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2958404
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2958404
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2958404
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2958404
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2958404
Toluene	ppbv	0.20	0.20	0.769	0.753	2958404
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2958404
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2958404
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2958404
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2958404
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2958404
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2958404
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2958404
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2958404
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2958404
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2958404
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2958404
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2958404
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2958404
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2958404
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2958404
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2958404
Propene	ppbv	<1.3	1.3	<2.29	2.29	2958404
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2958404
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2958404
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2958404
QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4300				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC\CLS\ AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	90		N/A	N/A	2958404
D5-Chlorobenzene	%	88		N/A	N/A	2958404
Difluorobenzene	%	95		N/A	N/A	2958404

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

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4301				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC/PORT AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.72	0.20	3.54	0.989	2958404
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2958404
Chloromethane	ppbv	0.44	0.30	0.902	0.620	2958404
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2958404
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2958404
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2958404
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.73	1.12	2958404
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2958404
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2958404
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2958404
2-Propanone	ppbv	3.69	0.80	8.76	1.90	2958404
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2958404
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2958404
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2958404
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2958404
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2958404
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2958404
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2958404
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2958404
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2958404
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2958404
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2958404
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2958404
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2958404
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2958404
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2958404
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2958404
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2958404
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4301				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC/PORT AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch

1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2958404
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2958404
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2958404
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2958404
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2958404
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2958404
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2958404
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2958404
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2958404
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2958404
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2958404
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2958404
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2958404
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2958404
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2958404
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2958404
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2958404
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2958404
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2958404
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2958404
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2958404
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2958404
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2958404
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2958404
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2958404
Propene	ppbv	<0.30	0.30	<0.516	0.516	2958404
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2958404
QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4301				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC/PORT AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2958404
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2958404
Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2958404
D5-Chlorobenzene	%	79		N/A	N/A	2958404
Difluorobenzene	%	87		N/A	N/A	2958404
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

Test Summary

Maxxam ID OO4300
Sample ID LICA VOC\CLSI AUG 19,12
Matrix AIR

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2958396	N/A	2012/08/31	Melanie Mabini
Volatile Organics in Air (TO-15)	GC/MS	2958404	N/A	2012/08/31	Melanie Mabini

Maxxam ID OO4301
Sample ID LICA VOC\PORT\ AUG 19,12
Matrix AIR

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2958396	N/A	2012/08/31	Melanie Mabini
Volatile Organics in Air (TO-15)	GC/MS	2958404	N/A	2012/08/31	Melanie Mabini

Maxxam Job #: B2C8002
Report Date: 2012/09/05

GENERAL COMMENTS

In the initial 6-pt calibration 3 compounds (Dibromochloromethane, bromoform and Benzyl chloride) had $\text{rsd}'\text{s} > 30\%$. The continuing calibration and reference std were acceptable for these compounds. The data should not be affected, since there were no positives found for these compounds.

Sample OO4300-01: Increase MDL for propene due to matrix interference on a possible positive.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2C8002

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2958404 MM2	Spiked Blank	Bromochloromethane	2012/08/31		98	%	60 - 140
		D5-Chlorobenzene	2012/08/31		96	%	60 - 140
		Difluorobenzene	2012/08/31		100	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/31		115	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/31		129	%	70 - 130
		Chloromethane	2012/08/31		116	%	70 - 130
		Vinyl Chloride	2012/08/31		110	%	70 - 130
		Chloroethane	2012/08/31		106	%	70 - 130
		1,3-Butadiene	2012/08/31		108	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/31		104	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/31		77	%	70 - 130
		Trichlorotrifluoroethane	2012/08/31		107	%	70 - 130
		2-propanol	2012/08/31		117	%	70 - 130
		2-Propanone	2012/08/31		113	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/31		118	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/31		112	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/31		112	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/31		114	%	70 - 130
		Ethyl Acetate	2012/08/31		118	%	70 - 130
		1,1-Dichloroethylene	2012/08/31		108	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/31		107	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/31		110	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/31		102	%	70 - 130
		Chloroform	2012/08/31		108	%	70 - 130
		Carbon Tetrachloride	2012/08/31		122	%	70 - 130
		1,1-Dichloroethane	2012/08/31		114	%	70 - 130
		1,2-Dichloroethane	2012/08/31		108	%	70 - 130
		Ethylene Dibromide	2012/08/31		113	%	70 - 130
		1,1,1-Trichloroethane	2012/08/31		113	%	70 - 130
		1,1,2-Trichloroethane	2012/08/31		111	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/31		111	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/31		117	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/31		121	%	70 - 130
		1,2-Dichloropropane	2012/08/31		112	%	70 - 130
		Bromomethane	2012/08/31		107	%	70 - 130
		Bromoform	2012/08/31		129	%	70 - 130
		Bromodichloromethane	2012/08/31		116	%	70 - 130
		Dibromochloromethane	2012/08/31		121	%	70 - 130
		Trichloroethylene	2012/08/31		109	%	70 - 130
		Tetrachloroethylene	2012/08/31		114	%	70 - 130
		Benzene	2012/08/31		113	%	70 - 130
		Toluene	2012/08/31		115	%	70 - 130
		Ethylbenzene	2012/08/31		110	%	70 - 130
		p+m-Xylene	2012/08/31		109	%	70 - 130
		o-Xylene	2012/08/31		111	%	70 - 130
		Styrene	2012/08/31		82	%	70 - 130
		4-ethyltoluene	2012/08/31		124	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/31		105	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/31		100	%	70 - 130
		Chlorobenzene	2012/08/31		108	%	70 - 130
		Benzyl chloride	2012/08/31		127	%	70 - 130
		1,3-Dichlorobenzene	2012/08/31		94	%	70 - 130
		1,4-Dichlorobenzene	2012/08/31		93	%	70 - 130
		1,2-Dichlorobenzene	2012/08/31		95	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/31		71	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C8002

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2958404 MM2	Spiked Blank	Hexachlorobutadiene	2012/08/31		89	%	70 - 130
		Hexane	2012/08/31		117	%	70 - 130
		Heptane	2012/08/31		115	%	70 - 130
		Cyclohexane	2012/08/31		114	%	70 - 130
		Tetrahydrofuran	2012/08/31		115	%	70 - 130
		1,4-Dioxane	2012/08/31		116	%	70 - 130
		Vinyl Bromide	2012/08/31		104	%	70 - 130
		Propene	2012/08/31		108	%	70 - 130
		2,2,4-Trimethylpentane	2012/08/31		115	%	70 - 130
		Carbon Disulfide	2012/08/31		108	%	70 - 130
		Vinyl Acetate	2012/08/31		122	%	70 - 130
	Method Blank	Bromochloromethane	2012/08/31		87	%	60 - 140
		D5-Chlorobenzene	2012/08/31		84	%	60 - 140
		Difluorobenzene	2012/08/31		92	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/31	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/31	<0.17		ppbv	
		Chloromethane	2012/08/31	<0.30		ppbv	
		Vinyl Chloride	2012/08/31	<0.18		ppbv	
		Chloroethane	2012/08/31	<0.30		ppbv	
		1,3-Butadiene	2012/08/31	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/31	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/08/31	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/08/31	<0.15		ppbv	
		2-propanol	2012/08/31	<3.0		ppbv	
		2-Propanone	2012/08/31	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/31	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/31	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/31	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/31	<0.20		ppbv	
		Ethyl Acetate	2012/08/31	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/31	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/31	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/31	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/31	<0.80		ppbv	
		Chloroform	2012/08/31	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/31	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/31	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/31	<0.20		ppbv	
		Ethylene Dibromide	2012/08/31	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/31	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/31	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/31	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/31	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/31	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/31	<0.40		ppbv	
		Bromomethane	2012/08/31	<0.18		ppbv	
		Bromoform	2012/08/31	<0.20		ppbv	
		Bromodichloromethane	2012/08/31	<0.20		ppbv	
		Dibromochloromethane	2012/08/31	<0.20		ppbv	
		Trichloroethylene	2012/08/31	<0.30		ppbv	
		Tetrachloroethylene	2012/08/31	<0.20		ppbv	
		Benzene	2012/08/31	<0.18		ppbv	
		Toluene	2012/08/31	<0.20		ppbv	
		Ethylbenzene	2012/08/31	<0.20		ppbv	
		p+m-Xylene	2012/08/31	<0.37		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C8002

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2958404 MM2	Method Blank	o-Xylene	2012/08/31	<0.20		ppbv	
		Styrene	2012/08/31	<0.20		ppbv	
		4-ethyltoluene	2012/08/31	<2.2		ppbv	
		1,3,5-Trimethylbenzene	2012/08/31	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/31	<0.50		ppbv	
		Chlorobenzene	2012/08/31	<0.20		ppbv	
		Benzyl chloride	2012/08/31	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/31	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/31	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/31	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/31	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/31	<3.0		ppbv	
		Hexane	2012/08/31	<0.30		ppbv	
		Heptane	2012/08/31	<0.30		ppbv	
		Cyclohexane	2012/08/31	<0.20		ppbv	
		Tetrahydrofuran	2012/08/31	<0.40		ppbv	
		1,4-Dioxane	2012/08/31	<2.0		ppbv	
		Xylene (Total)	2012/08/31	<0.60		ppbv	
		Vinyl Bromide	2012/08/31	<0.20		ppbv	
		Propene	2012/08/31	<0.30		ppbv	
		2,2,4-Trimethylpentane	2012/08/31	<0.20		ppbv	
		Carbon Disulfide	2012/08/31	<0.50		ppbv	
		Vinyl Acetate	2012/08/31	<0.20		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/Jul Aug 01, 12

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Jul 30, 2012 @ 13:56 mst
 Removal Date/Time: Aug 02, 2012 @ 10:30 mst vb

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Aug-12	08/01/2012 0:00	08/02/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
26-Jul-12	02-Aug-12	08-Aug-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	18.0	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 # 11999
GB2B0051 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 01 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 11999

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

Report Date: 2012/08/21

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2B8599****Received: 2012/08/07, 08:25**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/08	2012/08/17	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2B8599
 Report Date: 2012/08/21

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

Maxxam ID		OJ9023	OJ9024		
Sampling Date		2012/08/01	2012/08/01		
COC Number		11999	11999		
	Units	LICA PUFF+QFF/CLS/AUG 01,12	LICAPUFF+QFF/PORT/AUG 01,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2931595
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2931595
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2931595
2-Methylantracene	ug	<0.10	<0.10	0.10	2931595
2-Methylnaphthalene	ug	<0.10	0.10	0.10	2931595
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2931595
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2931595
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2931595
Acenaphthene	ug	0.086	<0.050	0.050	2931595
Acenaphthylene	ug	<0.050	<0.050	0.050	2931595
Anthracene	ug	<0.050	<0.050	0.050	2931595
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2931595
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2931595
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2931595
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2931595
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2931595
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2931595
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2931595
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2931595
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2931595
Biphenyl	ug	<0.10	<0.10	0.10	2931595
Chrysene	ug	<0.050	<0.050	0.050	2931595
Coronene	ug	<0.10	<0.10	0.10	2931595
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2931595
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2931595
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2931595
Fluoranthene	ug	<0.050	<0.050	0.050	2931595
Fluorene	ug	0.090	<0.050	0.050	2931595
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2931595
m-Terphenyl	ug	<0.10	<0.10	0.10	2931595
Naphthalene	ug	<0.072	0.076	0.072	2931595
o-Terphenyl	ug	<0.10	<0.10	0.10	2931595

RDL = Reportable Detection Limit

Maxxam Job #: B2B8599
 Report Date: 2012/08/21

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

Maxxam ID		OJ9023	OJ9024		
Sampling Date		2012/08/01	2012/08/01		
COC Number		11999	11999		
	Units	LICA PUFF+QFF/CLS/AUG 01,12	LICAPUFF+QFF/PORT/AUG 01,12	RDL	QC Batch

Perylene	ug	<0.10	<0.10	0.10	2931595
Phenanthrene	ug	0.354	0.182	0.050	2931595
p-Terphenyl	ug	<0.10	<0.10	0.10	2931595
Pyrene	ug	<0.050	<0.050	0.050	2931595
Quinoline	ug	<0.40	<0.40	0.40	2931595
Tetralin	ug	<0.10	<0.10	0.10	2931595
Triphenylene	ug	0.10	<0.10	0.10	2931595
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	50	52		2931595
D10-Fluoranthene	%	90	90		2931595
D10-Fluorene (FS)	%	5.8 (1)	5.4 (1)		2931595
D10-Phenanthrene	%	76	74		2931595
D12-Benzo(a)anthracene	%	78	82		2931595
D12-Benzo(a)pyrene	%	80	82		2931595
D12-Benzo(b)fluoranthene	%	84	80		2931595
D12-Benzo(ghi)perylene	%	78	80		2931595
D12-Benzo(k)fluoranthene	%	84	94		2931595
D12-Chrysene	%	90	88		2931595
D12-Indeno(1,2,3-cd)pyrene	%	74	76		2931595
D12-Perylene	%	84	84		2931595
D14-Dibenzo(a,h)anthracene	%	76	78		2931595
D14-Terphenyl (FS)	%	88	88		2931595
D8-Acenaphthylene	%	52	54		2931595
D8-Naphthalene	%	50	52		2931595

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

Maxxam Job #: B2B8599
 Report Date: 2012/08/21

Test Summary

Maxxam ID OJ9023
Sample ID LICA PUFF+QFF/CLS/AUG 01,12
Matrix PUF AND FILTER

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2931595	2012/08/08	2012/08/17	Lidija Tomic

Maxxam ID OJ9024
Sample ID LICAPUFF+QFF/PORT/AUG 01,12
Matrix PUF AND FILTER

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2931595	2012/08/08	2012/08/17	Lidija Tomic

Maxxam Job #: B2B8599
Report Date: 2012/08/21

GENERAL COMMENTS

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.05ug x split.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl. Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

Low recovery for Naphthalene, Acenaphthylene, Acenaphthene, Fluorene and Phenanthrene in Spike and Spike Dup. Reported values are based on theoretical amount added to spike and spike dup. A method spike was prepared using the spiking solution and these results were low for these 5 compounds.

% Recovery in Spike vs. MSPIKE: Naphthalene-86%;
Acenaphthylene-72%;
Acenaphthene-75%;
Fluorene-74%;
Phenanthrene -84%

% Recovery in Spike Dup vs. MSPIKE: Naphthalene-88%;
Acenaphthylene-71%;
Acenaphthene-75%;
Fluorene-75%;
Phenanthrene -85%

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2B8599

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2931595 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/17		58	%	50 - 150
		D10-Fluoranthene	2012/08/17		84	%	50 - 150
		D10-Phenanthrene	2012/08/17		74	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/17		76	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/17		84	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/17		76	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/17		80	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/17		92	%	50 - 150
		D12-Chrysene	2012/08/17		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/17		76	%	50 - 150
		D12-Perylene	2012/08/17		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/17		76	%	50 - 150
		D8-Acenaphthylene	2012/08/17		60	%	50 - 150
		D8-Naphthalene	2012/08/17		56	%	50 - 150
		RPD	Acenaphthene	2012/08/17		57 (1)	%	60 - 130
	RPD	Acenaphthene	2012/08/17	0.9		%	50
	Spiked Blank	Acenaphthylene	2012/08/17		54 (1)	%	60 - 130
	RPD	Acenaphthylene	2012/08/17	1.4		%	50
	Spiked Blank	Anthracene	2012/08/17		61	%	60 - 130
	RPD	Anthracene	2012/08/17	0.4		%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/17		68	%	60 - 130
	RPD	Benzo(a)anthracene	2012/08/17	1.1		%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/17		64	%	60 - 130
	RPD	Benzo(a)pyrene	2012/08/17	1.9		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/17		67	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/08/17	1.1		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/17		71	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/08/17	0.4		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/17		89	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/08/17	0.6		%	50
	Spiked Blank	Chrysene	2012/08/17		76	%	60 - 130
	RPD	Chrysene	2012/08/17	1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/17		74	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/08/17	1.4		%	50
	Spiked Blank	Fluoranthene	2012/08/17		75	%	60 - 130
	RPD	Fluoranthene	2012/08/17	1		%	50
	Spiked Blank	Fluorene	2012/08/17		59 (1)	%	60 - 130
	RPD	Fluorene	2012/08/17	0.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/17		71	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/08/17	0.7		%	50
	Spiked Blank	Naphthalene	2012/08/17		53 (1)	%	60 - 130
	RPD	Naphthalene	2012/08/17	1.9		%	50
	Spiked Blank	Phenanthrene	2012/08/17		53 (1)	%	60 - 130
	RPD	Phenanthrene	2012/08/17	0.9		%	50
	Spiked Blank	Pyrene	2012/08/17		69	%	60 - 130
RPD	Pyrene	2012/08/17	0.7		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/17		62	%	50 - 150	
	D10-Fluoranthene	2012/08/17		82	%	50 - 150	
	D10-Phenanthrene	2012/08/17		70	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/17		70	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/17		82	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/17		80	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/17		78	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/17		86	%	50 - 150	
	D12-Chrysene	2012/08/17		86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8599

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2931595 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/17		74	%	50 - 150
		D12-Perylene	2012/08/17		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/17		74	%	50 - 150
		D8-Acenaphthylene	2012/08/17		62	%	50 - 150
		D8-Naphthalene	2012/08/17		60	%	50 - 150
		1-Methylnaphthalene	2012/08/17	<0.10		ug	
		1-Methylphenanthrene	2012/08/17	<0.10		ug	
		2-Chloronaphthalene	2012/08/17	<0.10		ug	
		2-Methylanthracene	2012/08/17	<0.10		ug	
		2-Methylnaphthalene	2012/08/17	<0.10		ug	
		3-Methylcholanthrene	2012/08/17	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/17	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/17	<0.40		ug	
		Acenaphthene	2012/08/17	<0.050		ug	
		Acenaphthylene	2012/08/17	<0.050		ug	
		Anthracene	2012/08/17	<0.050		ug	
		Benzo(a)anthracene	2012/08/17	<0.050		ug	
		Benzo(a)fluorene	2012/08/17	<0.10		ug	
		Benzo(a)pyrene	2012/08/17	<0.050		ug	
		Benzo(b)Anthracene	2012/08/17	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/17	<0.050		ug	
		Benzo(b)fluorene	2012/08/17	<0.10		ug	
		Benzo(e)pyrene	2012/08/17	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/17	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/17	<0.050		ug	
		Biphenyl	2012/08/17	<0.10		ug	
		Chrysene	2012/08/17	<0.050		ug	
		Coronene	2012/08/17	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/17	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/17	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/17	<0.20		ug	
		Fluoranthene	2012/08/17	<0.050		ug	
		Fluorene	2012/08/17	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/17	<0.050		ug	
		m-Terphenyl	2012/08/17	<0.10		ug	
		Naphthalene	2012/08/17	<0.072		ug	
		o-Terphenyl	2012/08/17	<0.10		ug	
		Perylene	2012/08/17	<0.10		ug	
		Phenanthrene	2012/08/17	<0.050		ug	
		p-Terphenyl	2012/08/17	<0.10		ug	
		Pyrene	2012/08/17	<0.050		ug	
		Quinoline	2012/08/17	<0.40		ug	
		Tetralin	2012/08/17	<0.10		ug	
		Triphenylene	2012/08/17	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Elk Point Airport
 Station ID: Lica 35 (Portable)
 Field Sample ID: LICA PUF/PORT/Jul Aug 07, 12

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Aug 02, 2012 @ 10:50 mst
 Removal Date/Time: Aug 08, 2012 @ 09:58 mst vb

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Aug-12	08/07/2012 0:00	08/08/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Jul-12	08-Aug-12	13-Aug-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	19.2	330.34

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

Comments: COC # 11339

GB2B0052 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 07 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 11339

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

Report Date: 2012/08/29

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C2901****Received: 2012/08/14, 09:27**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/18	2012/08/28	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2C2901
 Report Date: 2012/08/29

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

Maxxam ID		OM1335	OM1336		
Sampling Date		2012/08/07	2012/08/07		
COC Number		11339	11339		
	Units	LICA PUFF+QFF/CLS/AUG 07,12	LICA PUFF+QFF/PORT/AUG 07,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.11	<0.10	0.10	2943046
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2943046
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2943046
2-Methylantracene	ug	<0.10	<0.10	0.10	2943046
2-Methylnaphthalene	ug	0.19	<0.10	0.10	2943046
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2943046
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2943046
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2943046
Acenaphthene	ug	0.074	<0.050	0.050	2943046
Acenaphthylene	ug	<0.050	<0.050	0.050	2943046
Anthracene	ug	<0.050	0.220	0.050	2943046
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2943046
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2943046
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2943046
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2943046
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Biphenyl	ug	<0.10	<0.10	0.10	2943046
Chrysene	ug	<0.050	<0.050	0.050	2943046
Coronene	ug	<0.10	<0.10	0.10	2943046
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2943046
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2943046
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2943046
Fluoranthene	ug	0.108	0.050	0.050	2943046
Fluorene	ug	0.158	<0.050	0.050	2943046
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2943046
m-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Naphthalene	ug	0.212	<0.072	0.072	2943046

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		OM1335	OM1336		
Sampling Date		2012/08/07	2012/08/07		
COC Number		11339	11339		
	Units	LICA PUFF+QFF/CLS/AUG 07,12	LICA PUFF+QFF/PORT/AUG 07,12	RDL	QC Batch

o-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Perylene	ug	<0.10	<0.10	0.10	2943046
Phenanthrene	ug	0.808	0.212	0.050	2943046
p-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Pyrene	ug	0.080	<0.050	0.050	2943046
Quinoline	ug	<0.40	<0.40	0.40	2943046
Tetralin	ug	<0.10	<0.10	0.10	2943046
Triphenylene	ug	0.10	<0.10	0.10	2943046
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	64		2943046
D10-Fluoranthene	%	96	96		2943046
D10-Fluorene (FS)	%	6.6 (1)	5.6 (1)		2943046
D10-Phenanthrene	%	86	86		2943046
D12-Benzo(a)anthracene	%	92	78		2943046
D12-Benzo(a)pyrene	%	84	84		2943046
D12-Benzo(b)fluoranthene	%	88	88		2943046
D12-Benzo(ghi)perylene	%	88	88		2943046
D12-Benzo(k)fluoranthene	%	86	86		2943046
D12-Chrysene	%	88	84		2943046
D12-Indeno(1,2,3-cd)pyrene	%	88	86		2943046
D12-Perylene	%	86	84		2943046
D14-Dibenzo(a,h)anthracene	%	90	90		2943046
D14-Terphenyl (FS)	%	95	97		2943046
D8-Acenaphthylene	%	66	64		2943046
D8-Naphthalene	%	68	62		2943046

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 #: B2C2901
 Report Date: 2012/08/29

Test Summary

Maxxam ID OM1335
Sample ID LICA PUFF+QFF/CLS/AUG 07,12
Matrix PUF AND FILTER

Collected 2012/08/07
Shipped
Received 2012/08/14

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam ID OM1336
Sample ID LICA PUFF+QFF/PORT/AUG 07,12
Matrix PUF AND FILTER

Collected 2012/08/07
Shipped
Received 2012/08/14

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam Job #: B2C2901
Report Date: 2012/08/29

GENERAL COMMENTS

PAHMS-F:

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.05ug x split.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl. Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

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

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2C2901

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/28		70	%	50 - 150
		D10-Fluoranthene	2012/08/28		90	%	50 - 150
		D10-Phenanthrene	2012/08/28		82	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/28		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/28		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Chrysene	2012/08/28		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/28		86	%	50 - 150
		D12-Perylene	2012/08/28		86	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		D8-Acenaphthylene	2012/08/28		70	%	50 - 150
		D8-Naphthalene	2012/08/28		72	%	50 - 150
		Acenaphthene	2012/08/28		68	%	60 - 130
	RPD	Acenaphthene	2012/08/28	5.8		%	50
	Spiked Blank	Acenaphthylene	2012/08/28		67	%	60 - 130
	RPD	Acenaphthylene	2012/08/28	6.2		%	50
	Spiked Blank	Anthracene	2012/08/28		74	%	60 - 130
	RPD	Anthracene	2012/08/28	3.0		%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/28		77	%	60 - 130
	RPD	Benzo(a)anthracene	2012/08/28	17.6		%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/28		67	%	60 - 130
	RPD	Benzo(a)pyrene	2012/08/28	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/28		75	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/08/28	1.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/28		76	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/08/28	0.7		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/28		84	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/08/28	0.6		%	50
	Spiked Blank	Chrysene	2012/08/28		74	%	60 - 130
	RPD	Chrysene	2012/08/28	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/28		83	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/08/28	0		%	50
	Spiked Blank	Fluoranthene	2012/08/28		84	%	60 - 130
	RPD	Fluoranthene	2012/08/28	2.1		%	50
	Spiked Blank	Fluorene	2012/08/28		71	%	60 - 130
	RPD	Fluorene	2012/08/28	4.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/28		78	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/08/28	0.3		%	50
Spiked Blank	Naphthalene	2012/08/28		72	%	60 - 130	
RPD	Naphthalene	2012/08/28	5.1		%	50	
Spiked Blank	Phenanthrene	2012/08/28		75	%	60 - 130	
RPD	Phenanthrene	2012/08/28	2.3		%	50	
Spiked Blank	Pyrene	2012/08/28		76	%	60 - 130	
RPD	Pyrene	2012/08/28	2.0		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/28		76	%	50 - 150	
	D10-Fluoranthene	2012/08/28		92	%	50 - 150	
	D10-Phenanthrene	2012/08/28		86	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/28		88	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/28		88	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Chrysene	2012/08/28		84	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C2901

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/28		88	%	50 - 150
		D12-Perylene	2012/08/28		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		D8-Acenaphthylene	2012/08/28		76	%	50 - 150
		D8-Naphthalene	2012/08/28		74	%	50 - 150
		1-Methylnaphthalene	2012/08/28	<0.10		ug	
		1-Methylphenanthrene	2012/08/28	<0.10		ug	
		2-Chloronaphthalene	2012/08/28	<0.10		ug	
		2-Methylanthracene	2012/08/28	<0.10		ug	
		2-Methylnaphthalene	2012/08/28	<0.10		ug	
		3-Methylcholanthrene	2012/08/28	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/28	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/28	<0.40		ug	
		Acenaphthene	2012/08/28	<0.050		ug	
		Acenaphthylene	2012/08/28	<0.050		ug	
		Anthracene	2012/08/28	<0.050		ug	
		Benzo(a)anthracene	2012/08/28	<0.050		ug	
		Benzo(a)fluorene	2012/08/28	<0.10		ug	
		Benzo(a)pyrene	2012/08/28	<0.050		ug	
		Benzo(b)Anthracene	2012/08/28	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/28	<0.050		ug	
		Benzo(b)fluorene	2012/08/28	<0.10		ug	
		Benzo(e)pyrene	2012/08/28	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/28	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/28	<0.050		ug	
		Biphenyl	2012/08/28	<0.10		ug	
		Chrysene	2012/08/28	<0.050		ug	
		Coronene	2012/08/28	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/28	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/28	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/28	<0.20		ug	
		Fluoranthene	2012/08/28	<0.050		ug	
		Fluorene	2012/08/28	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/28	<0.050		ug	
		m-Terphenyl	2012/08/28	<0.10		ug	
		Naphthalene	2012/08/28	<0.072		ug	
		o-Terphenyl	2012/08/28	<0.10		ug	
		Perylene	2012/08/28	<0.10		ug	
		Phenanthrene	2012/08/28	<0.050		ug	
		p-Terphenyl	2012/08/28	<0.10		ug	
		Pyrene	2012/08/28	<0.050		ug	
		Quinoline	2012/08/28	<0.40		ug	
		Tetralin	2012/08/28	<0.10		ug	
		Triphenylene	2012/08/28	<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/Jul Aug 13, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Aug 10, 2012 @ 13:15 mst
Removal Date/Time: Aug 14, 2012 @ 12:58 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-Aug-12	08/13/2012 0:00	08/14/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
09-Aug-12	15-Aug-12	22-Aug-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	16.5	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 # 11476

GB2B4261 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 13 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 11476

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

Report Date: 2012/08/29

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C5494**

Received: 2012/08/17, 08:40

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/18	2012/08/28	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2C5494
 Report Date: 2012/08/29

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

Maxxam ID		ON3084	ON3085		
Sampling Date		2012/08/13	2012/08/13		
COC Number		11476	11476		
	Units	LICA FUFF+QFF/CLS/AUG 13,12	LICA FUFF+QFF/PORT/AUG 13,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2943046
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2943046
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2943046
2-Methylantracene	ug	<0.10	<0.10	0.10	2943046
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2943046
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2943046
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2943046
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2943046
Acenaphthene	ug	<0.050	<0.050	0.050	2943046
Acenaphthylene	ug	<0.050	<0.050	0.050	2943046
Anthracene	ug	<0.050	<0.050	0.050	2943046
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2943046
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2943046
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2943046
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2943046
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Biphenyl	ug	<0.10	<0.10	0.10	2943046
Chrysene	ug	<0.050	<0.050	0.050	2943046
Coronene	ug	<0.10	<0.10	0.10	2943046
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2943046
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2943046
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2943046
Fluoranthene	ug	<0.050	<0.050	0.050	2943046
Fluorene	ug	<0.050	<0.050	0.050	2943046
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2943046
m-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Naphthalene	ug	<0.072	<0.072	0.072	2943046

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		ON3084	ON3085		
Sampling Date		2012/08/13	2012/08/13		
COC Number		11476	11476		
	Units	LICA FUFF+QFF/CLS/AUG 13,12	LICA FUFF+QFF/PORT/AUG 13,12	RDL	QC Batch

o-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Perylene	ug	<0.10	<0.10	0.10	2943046
Phenanthrene	ug	0.330	0.184	0.050	2943046
p-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Pyrene	ug	<0.050	<0.050	0.050	2943046
Quinoline	ug	<0.40	<0.40	0.40	2943046
Tetralin	ug	<0.10	<0.10	0.10	2943046
Triphenylene	ug	<0.10	<0.10	0.10	2943046
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	64	68		2943046
D10-Fluoranthene	%	96	94		2943046
D10-Fluorene (FS)	%	6.0 (1)	5.8 (1)		2943046
D10-Phenanthrene	%	86	84		2943046
D12-Benzo(a)anthracene	%	78	88		2943046
D12-Benzo(a)pyrene	%	82	82		2943046
D12-Benzo(b)fluoranthene	%	86	84		2943046
D12-Benzo(ghi)perylene	%	88	84		2943046
D12-Benzo(k)fluoranthene	%	84	84		2943046
D12-Chrysene	%	84	84		2943046
D12-Indeno(1,2,3-cd)pyrene	%	86	82		2943046
D12-Perylene	%	84	82		2943046
D14-Dibenzo(a,h)anthracene	%	88	84		2943046
D14-Terphenyl (FS)	%	97	94		2943046
D8-Acenaphthylene	%	66	68		2943046
D8-Naphthalene	%	60	64		2943046

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 #: B2C5494
 Report Date: 2012/08/29

Test Summary

Maxxam ID ON3084
Sample ID LICA FUFF+QFF/CLS/AUG 13,12
Matrix PUF AND FILTER

Collected 2012/08/13
Shipped
Received 2012/08/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam ID ON3085
Sample ID LICA FUFF+QFF/PORT/AUG 13,12
Matrix PUF AND FILTER

Collected 2012/08/13
Shipped
Received 2012/08/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam Job #: B2C5494
Report Date: 2012/08/29

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: GB2C5494

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/28		70	%	50 - 150
		D10-Fluoranthene	2012/08/28		90	%	50 - 150
		D10-Phenanthrene	2012/08/28		82	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/28		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/28		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Chrysene	2012/08/28		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/28		86	%	50 - 150
		D12-Perylene	2012/08/28		86	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		RPD	D8-Acenaphthylene	2012/08/28		70	%	50 - 150
	D8-Naphthalene		2012/08/28		72	%	50 - 150
	RPD	Acenaphthene	2012/08/28		68	%	60 - 130
		Acenaphthene	2012/08/28	5.8		%	50
	Spiked Blank	Acenaphthylene	2012/08/28		67	%	60 - 130
		Acenaphthylene	2012/08/28	6.2		%	50
	Spiked Blank	Anthracene	2012/08/28		74	%	60 - 130
		Anthracene	2012/08/28	3.0		%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/28		77	%	60 - 130
		Benzo(a)anthracene	2012/08/28	17.6		%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/28		67	%	60 - 130
		Benzo(a)pyrene	2012/08/28	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/28		75	%	60 - 130
		Benzo(b)fluoranthene	2012/08/28	1.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/28		76	%	60 - 130
		Benzo(g,h,i)perylene	2012/08/28	0.7		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/28		84	%	60 - 130
		Benzo(k)fluoranthene	2012/08/28	0.6		%	50
	Spiked Blank	Chrysene	2012/08/28		74	%	60 - 130
		Chrysene	2012/08/28	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/28		83	%	60 - 130
		Dibenz(a,h)anthracene	2012/08/28	0		%	50
	Spiked Blank	Fluoranthene	2012/08/28		84	%	60 - 130
		Fluoranthene	2012/08/28	2.1		%	50
	Spiked Blank	Fluorene	2012/08/28		71	%	60 - 130
		Fluorene	2012/08/28	4.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/28		78	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2012/08/28	0.3		%	50
Spiked Blank	Naphthalene	2012/08/28		72	%	60 - 130	
	Naphthalene	2012/08/28	5.1		%	50	
Spiked Blank	Phenanthrene	2012/08/28		75	%	60 - 130	
	Phenanthrene	2012/08/28	2.3		%	50	
Spiked Blank	Pyrene	2012/08/28		76	%	60 - 130	
	Pyrene	2012/08/28	2.0		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/28		76	%	50 - 150	
	D10-Fluoranthene	2012/08/28		92	%	50 - 150	
	D10-Phenanthrene	2012/08/28		86	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/28		88	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/28		88	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Chrysene	2012/08/28		84	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C5494

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/28		88	%	50 - 150
		D12-Perylene	2012/08/28		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		D8-Acenaphthylene	2012/08/28		76	%	50 - 150
		D8-Naphthalene	2012/08/28		74	%	50 - 150
		1-Methylnaphthalene	2012/08/28	<0.10		ug	
		1-Methylphenanthrene	2012/08/28	<0.10		ug	
		2-Chloronaphthalene	2012/08/28	<0.10		ug	
		2-Methylanthracene	2012/08/28	<0.10		ug	
		2-Methylnaphthalene	2012/08/28	<0.10		ug	
		3-Methylcholanthrene	2012/08/28	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/28	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/28	<0.40		ug	
		Acenaphthene	2012/08/28	<0.050		ug	
		Acenaphthylene	2012/08/28	<0.050		ug	
		Anthracene	2012/08/28	<0.050		ug	
		Benzo(a)anthracene	2012/08/28	<0.050		ug	
		Benzo(a)fluorene	2012/08/28	<0.10		ug	
		Benzo(a)pyrene	2012/08/28	<0.050		ug	
		Benzo(b)Anthracene	2012/08/28	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/28	<0.050		ug	
		Benzo(b)fluorene	2012/08/28	<0.10		ug	
		Benzo(e)pyrene	2012/08/28	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/28	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/28	<0.050		ug	
		Biphenyl	2012/08/28	<0.10		ug	
		Chrysene	2012/08/28	<0.050		ug	
		Coronene	2012/08/28	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/28	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/28	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/28	<0.20		ug	
		Fluoranthene	2012/08/28	<0.050		ug	
		Fluorene	2012/08/28	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/28	<0.050		ug	
		m-Terphenyl	2012/08/28	<0.10		ug	
		Naphthalene	2012/08/28	<0.072		ug	
		o-Terphenyl	2012/08/28	<0.10		ug	
		Perylene	2012/08/28	<0.10		ug	
		Phenanthrene	2012/08/28	<0.050		ug	
		p-Terphenyl	2012/08/28	<0.10		ug	
		Pyrene	2012/08/28	<0.050		ug	
		Quinoline	2012/08/28	<0.40		ug	
		Tetralin	2012/08/28	<0.10		ug	
		Triphenylene	2012/08/28	<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/Jul Aug 19, 12

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Aug 16, 2012 @ 12:48 mst
 Removal Date/Time: Aug 20, 2012 @ 09:19 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-Aug-12	08/19/2012 0:00	08/20/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
14-Aug-12	20-Aug-12	27-Aug-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	18.7	330.33

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

Comments: COC # 10993

GB2B4292 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 19 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 10993

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

Report Date: 2012/08/31

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C8130****Received: 2012/08/22, 08:55**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/24	2012/08/31	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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2C8130
 Report Date: 2012/08/31

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

Maxxam ID		OO4887	OO4888		
Sampling Date		2012/08/19	2012/08/19		
COC Number		10993	10993		
	Units	LICA PUFF+QFF/CLS/AUG 19, 12	LICA PUFF+QFF/PORT/AUG 19, 12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2949029
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2949029
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2949029
2-Methylantracene	ug	<0.10	<0.10	0.10	2949029
2-Methylnaphthalene	ug	<0.10	0.14	0.10	2949029
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2949029
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2949029
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2949029
Acenaphthene	ug	<0.050	<0.050	0.050	2949029
Acenaphthylene	ug	<0.050	<0.050	0.050	2949029
Anthracene	ug	<0.050	<0.050	0.050	2949029
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2949029
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2949029
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2949029
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2949029
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2949029
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2949029
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2949029
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2949029
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2949029
Biphenyl	ug	<0.10	<0.10	0.10	2949029
Chrysene	ug	<0.050	<0.050	0.050	2949029
Coronene	ug	<0.10	<0.10	0.10	2949029
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2949029
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2949029
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2949029
Fluoranthene	ug	<0.050	0.064	0.050	2949029
Fluorene	ug	0.090	0.064	0.050	2949029
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2949029
m-Terphenyl	ug	<0.10	<0.10	0.10	2949029
Naphthalene	ug	<0.072	<0.072	0.072	2949029

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		OO4887	OO4888		
Sampling Date		2012/08/19	2012/08/19		
COC Number		10993	10993		
	Units	LICA PUFF+QFF/CLS/AUG 19, 12	LICA PUFF+QFF/PORT/AUG 19, 12	RDL	QC Batch

o-Terphenyl	ug	<0.10	<0.10	0.10	2949029
Perylene	ug	<0.10	<0.10	0.10	2949029
Phenanthrene	ug	0.498	0.456	0.050	2949029
p-Terphenyl	ug	<0.10	<0.10	0.10	2949029
Pyrene	ug	<0.050	<0.050	0.050	2949029
Quinoline	ug	<0.40	<0.40	0.40	2949029
Tetralin	ug	<0.10	<0.10	0.10	2949029
Triphenylene	ug	<0.10	<0.10	0.10	2949029
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	58	66		2949029
D10-Fluoranthene	%	82	82		2949029
D10-Fluorene (FS)	%	4.4 (1)	5.6 (1)		2949029
D10-Phenanthrene	%	66	68		2949029
D12-Benzo(a)anthracene	%	70	72		2949029
D12-Benzo(a)pyrene	%	76	78		2949029
D12-Benzo(b)fluoranthene	%	76	76		2949029
D12-Benzo(ghi)perylene	%	74	76		2949029
D12-Benzo(k)fluoranthene	%	86	88		2949029
D12-Chrysene	%	82	84		2949029
D12-Indeno(1,2,3-cd)pyrene	%	50	52		2949029
D12-Perylene	%	78	80		2949029
D14-Dibenzo(a,h)anthracene	%	52	54		2949029
D14-Terphenyl (FS)	%	81	83		2949029
D8-Acenaphthylene	%	56	64		2949029
D8-Naphthalene	%	52	60		2949029

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 #: B2C8130
Report Date: 2012/08/31

Test Summary

Maxxam ID OO4887
Sample ID LICA PUFF+QFF/CLS/AUG 19, 12
Matrix PUF AND FILTER

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2949029	2012/08/24	2012/08/31	Lidija Tomic

Maxxam ID OO4888
Sample ID LICA PUFF+QFF/PORT/AUG 19, 12
Matrix PUF AND FILTER

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2949029	2012/08/24	2012/08/31	Lidija Tomic

Maxxam Job #: B2C8130
Report Date: 2012/08/31

GENERAL COMMENTS

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.05ug x split.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl. Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

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: GB2C8130

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2949029 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/31		76	%	50 - 150
		D10-Fluoranthene	2012/08/31		78	%	50 - 150
		D10-Phenanthrene	2012/08/31		64	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/31		82	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/31		80	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/31		78	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/31		72	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/31		86	%	50 - 150
		D12-Chrysene	2012/08/31		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/31		50	%	50 - 150
		D12-Perylene	2012/08/31		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/31		52	%	50 - 150
		D8-Acenaphthylene	2012/08/31		74	%	50 - 150
		D8-Naphthalene	2012/08/31		72	%	50 - 150
		RPD	Acenaphthene	2012/08/31		77	%	60 - 130
	Spiked Blank	Acenaphthene	2012/08/31	0.6		%	50
	RPD	Acenaphthylene	2012/08/31		78	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/08/31	1		%	50
	RPD	Anthracene	2012/08/31		78	%	60 - 130
	Spiked Blank	Anthracene	2012/08/31	1.3		%	50
	RPD	Anthracene	2012/08/31		1.3	%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/31		81	%	60 - 130
	RPD	Benzo(a)anthracene	2012/08/31		1.9	%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/31		69	%	60 - 130
	RPD	Benzo(a)pyrene	2012/08/31		4.1	%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/31		78	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/08/31		4.6	%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/31		75	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/08/31		2.0	%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/31		83	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/08/31		3.1	%	50
	Spiked Blank	Chrysene	2012/08/31		76	%	60 - 130
	RPD	Chrysene	2012/08/31		2.3	%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/31		77	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/08/31		3.0	%	50
	Spiked Blank	Fluoranthene	2012/08/31		85	%	60 - 130
	RPD	Fluoranthene	2012/08/31		2.7	%	50
	Spiked Blank	Fluorene	2012/08/31		79	%	60 - 130
	RPD	Fluorene	2012/08/31		2.2	%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/31		79	%	60 - 130
RPD	Indeno(1,2,3-cd)pyrene	2012/08/31		2.6	%	50	
Spiked Blank	Naphthalene	2012/08/31		82	%	60 - 130	
RPD	Naphthalene	2012/08/31		0.9	%	50	
Spiked Blank	Phenanthrene	2012/08/31		75	%	60 - 130	
RPD	Phenanthrene	2012/08/31		1.3	%	50	
Spiked Blank	Pyrene	2012/08/31		76	%	60 - 130	
RPD	Pyrene	2012/08/31		2.7	%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/31		76	%	50 - 150	
	D10-Fluoranthene	2012/08/31		80	%	50 - 150	
	D10-Phenanthrene	2012/08/31		72	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/31		64	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/31		78	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/31		74	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/31		74	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/31		88	%	50 - 150	
	D12-Chrysene	2012/08/31		86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C8130

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2949029 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/31		50	%	50 - 150
		D12-Perylene	2012/08/31		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/31		52	%	50 - 150
		D8-Acenaphthylene	2012/08/31		74	%	50 - 150
		D8-Naphthalene	2012/08/31		72	%	50 - 150
		1-Methylnaphthalene	2012/08/31	<0.10		ug	
		1-Methylphenanthrene	2012/08/31	<0.10		ug	
		2-Chloronaphthalene	2012/08/31	<0.10		ug	
		2-Methylanthracene	2012/08/31	<0.10		ug	
		2-Methylnaphthalene	2012/08/31	<0.10		ug	
		3-Methylcholanthrene	2012/08/31	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/31	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/31	<0.40		ug	
		Acenaphthene	2012/08/31	<0.050		ug	
		Acenaphthylene	2012/08/31	<0.050		ug	
		Anthracene	2012/08/31	<0.050		ug	
		Benzo(a)anthracene	2012/08/31	<0.050		ug	
		Benzo(a)fluorene	2012/08/31	<0.10		ug	
		Benzo(a)pyrene	2012/08/31	<0.050		ug	
		Benzo(b)Anthracene	2012/08/31	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/31	<0.050		ug	
		Benzo(b)fluorene	2012/08/31	<0.10		ug	
		Benzo(e)pyrene	2012/08/31	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/31	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/31	<0.050		ug	
		Biphenyl	2012/08/31	<0.10		ug	
		Chrysene	2012/08/31	<0.050		ug	
		Coronene	2012/08/31	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/31	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/31	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/31	<0.20		ug	
		Fluoranthene	2012/08/31	<0.050		ug	
		Fluorene	2012/08/31	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/31	<0.050		ug	
		m-Terphenyl	2012/08/31	<0.10		ug	
		Naphthalene	2012/08/31	<0.072		ug	
		o-Terphenyl	2012/08/31	<0.10		ug	
		Perylene	2012/08/31	<0.10		ug	
		Phenanthrene	2012/08/31	<0.050		ug	
		p-Terphenyl	2012/08/31	<0.10		ug	
		Pyrene	2012/08/31	<0.050		ug	
		Quinoline	2012/08/31	<0.40		ug	
		Tetralin	2012/08/31	<0.10		ug	
		Triphenylene	2012/08/31	<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: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Jul Aug 25, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Aug 25, 2012 @ 11:45 mst
Removal Date/Time: Aug 27, 2012 @ 10:52 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
25-Aug-12	08/25/2012 0:00	08/26/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
21-Aug-12	27-Aug-12	03-Sep-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)
703	229	13.2	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 # 10923

GB2B4294 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 25 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 10923

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

Report Date: 2012/09/12

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2D3171****Received: 2012/08/30, 09:18**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/31	2012/09/07	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2D3171
 Report Date: 2012/09/12

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

Maxxam ID		OR2290	OR2291		
Sampling Date		2012/08/25	2012/08/25		
COC Number		10923	10923		
	Units	LICA PUFF+QFF/CLS/AUG 25,12	LICA PUFF+QFF/PORT/AUG 25,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2956570
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2956570
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2956570
2-Methylantracene	ug	<0.10	<0.10	0.10	2956570
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2956570
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2956570
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2956570
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2956570
Acenaphthene	ug	<0.050	<0.050	0.050	2956570
Acenaphthylene	ug	<0.050	<0.050	0.050	2956570
Anthracene	ug	<0.050	<0.050	0.050	2956570
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2956570
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2956570
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2956570
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2956570
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2956570
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2956570
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2956570
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2956570
Biphenyl	ug	<0.10	<0.10	0.10	2956570
Chrysene	ug	<0.050	<0.050	0.050	2956570
Coronene	ug	<0.10	<0.10	0.10	2956570
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2956570
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2956570
Fluoranthene	ug	<0.050	<0.050	0.050	2956570
Fluorene	ug	0.070	<0.050	0.050	2956570
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2956570
m-Terphenyl	ug	<0.10	<0.10	0.10	2956570
Naphthalene	ug	<0.072	<0.072	0.072	2956570
o-Terphenyl	ug	<0.10	<0.10	0.10	2956570
Perylene	ug	<0.10	<0.10	0.10	2956570

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B2D3171
 Report Date: 2012/09/12

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

Maxxam ID		OR2290	OR2291		
Sampling Date		2012/08/25	2012/08/25		
COC Number		10923	10923		
	Units	LICA PUFF+QFF/CLS/AUG 25,12	LICA PUFF+QFF/PORT/AUG 25,12	RDL	QC Batch

Phenanthrene	ug	0.278	0.178	0.050	2956570
p-Terphenyl	ug	<0.10	<0.10	0.10	2956570
Pyrene	ug	<0.050	<0.050	0.050	2956570
Quinoline	ug	<0.40	<0.40	0.40	2956570
Tetralin	ug	<0.10	<0.10	0.10	2956570
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	74	68		2956570
D10-Fluoranthene	%	98	90		2956570
D10-Fluorene (FS)	%	5.6 (1)	4.8 (1)		2956570
D10-Phenanthrene	%	90	80		2956570
D12-Benzo(a)anthracene	%	106	92		2956570
D12-Benzo(a)pyrene	%	88	86		2956570
D12-Benzo(b)fluoranthene	%	96	90		2956570
D12-Benzo(ghi)perylene	%	88	90		2956570
D12-Benzo(k)fluoranthene	%	82	76		2956570
D12-Chrysene	%	80	70		2956570
D12-Indeno(1,2,3-cd)pyrene	%	90	92		2956570
D12-Perylene	%	84	80		2956570
D14-Dibenzo(a,h)anthracene	%	88	94		2956570
D14-Terphenyl (FS)	%	86	76		2956570
D8-Acenaphthylene	%	76	72		2956570
D8-Naphthalene	%	64	64		2956570

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 #: B2D3171
 Report Date: 2012/09/12

Test Summary

Maxxam ID OR2290
Sample ID LICA PUFF+QFF/CLS/AUG 25,12
Matrix PUF AND FILTER

Collected 2012/08/25
Shipped
Received 2012/08/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2956570	2012/08/31	2012/09/07	Lidija Tomic

Maxxam ID OR2291
Sample ID LICA PUFF+QFF/PORT/AUG 25,12
Matrix PUF AND FILTER

Collected 2012/08/25
Shipped
Received 2012/08/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2956570	2012/08/31	2012/09/07	Lidija Tomic

Maxxam Job #: B2D3171
Report Date: 2012/09/12

GENERAL COMMENTS

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: GB2D3171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2956570 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/09/07		74	%	50 - 150
		D10-Fluoranthene	2012/09/07		80	%	50 - 150
		D10-Phenanthrene	2012/09/07		74	%	50 - 150
		D12-Benzo(a)anthracene	2012/09/07		82	%	50 - 150
		D12-Benzo(a)pyrene	2012/09/07		84	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/09/07		90	%	50 - 150
		D12-Benzo(ghi)perylene	2012/09/07		82	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/09/07		78	%	50 - 150
		D12-Chrysene	2012/09/07		70	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/09/07		80	%	50 - 150
		D12-Perylene	2012/09/07		78	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/09/07		82	%	50 - 150
		D8-Acenaphthylene	2012/09/07		72	%	50 - 150
		D8-Naphthalene	2012/09/07		70	%	50 - 150
		Acenaphthene	2012/09/07		74	%	60 - 130
	RPD	Acenaphthene	2012/09/07	10.9		%	50
	Spiked Blank	Acenaphthylene	2012/09/07		71	%	60 - 130
	RPD	Acenaphthylene	2012/09/07	14.2		%	50
	Spiked Blank	Anthracene	2012/09/07		68	%	60 - 130
	RPD	Anthracene	2012/09/07	9.8		%	50
	Spiked Blank	Benzo(a)anthracene	2012/09/07		84	%	60 - 130
	RPD	Benzo(a)anthracene	2012/09/07	7.4		%	50
	Spiked Blank	Benzo(a)pyrene	2012/09/07		69	%	60 - 130
	RPD	Benzo(a)pyrene	2012/09/07	4.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/09/07		83	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/09/07	1.2		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/09/07		69	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/09/07	2.9		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/09/07		81	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/09/07	10		%	50
	Spiked Blank	Chrysene	2012/09/07		72	%	60 - 130
	RPD	Chrysene	2012/09/07	6.4		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/09/07		65	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/09/07	4.2		%	50
	Spiked Blank	Fluoranthene	2012/09/07		81	%	60 - 130
	RPD	Fluoranthene	2012/09/07	0.3		%	50
	Spiked Blank	Fluorene	2012/09/07		73	%	60 - 130
	RPD	Fluorene	2012/09/07	12.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/09/07		68	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/09/07	5.4		%	50
	Spiked Blank	Naphthalene	2012/09/07		78	%	60 - 130
	RPD	Naphthalene	2012/09/07	11.0		%	50
	Spiked Blank	Phenanthrene	2012/09/07		75	%	60 - 130
	RPD	Phenanthrene	2012/09/07	9.2		%	50
	Spiked Blank	Pyrene	2012/09/07		70	%	60 - 130
	RPD	Pyrene	2012/09/07	0.4		%	50
	Method Blank	D10-2-Methylnaphthalene	2012/09/07		86	%	50 - 150
		D10-Fluoranthene	2012/09/07		78	%	50 - 150
		D10-Phenanthrene	2012/09/07		78	%	50 - 150
		D12-Benzo(a)anthracene	2012/09/07		82	%	50 - 150
		D12-Benzo(a)pyrene	2012/09/07		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/09/07		96	%	50 - 150
		D12-Benzo(ghi)perylene	2012/09/07		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/09/07		80	%	50 - 150
		D12-Chrysene	2012/09/07		76	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2D3171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2956570 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/09/07		86	%	50 - 150
		D12-Perylene	2012/09/07		80	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/09/07		84	%	50 - 150
		D8-Acenaphthylene	2012/09/07		82	%	50 - 150
		D8-Naphthalene	2012/09/07		82	%	50 - 150
		1-Methylnaphthalene	2012/09/07	<0.10		ug	
		1-Methylphenanthrene	2012/09/07	<0.10		ug	
		2-Chloronaphthalene	2012/09/07	<0.10		ug	
		2-Methylantracene	2012/09/07	<0.10		ug	
		2-Methylnaphthalene	2012/09/07	<0.10		ug	
		3-Methylcholanthrene	2012/09/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/09/07	<0.10		ug	
		9,10-Dimethylantracene	2012/09/07	<0.40		ug	
		Acenaphthene	2012/09/07	<0.050		ug	
		Acenaphthylene	2012/09/07	<0.050		ug	
		Anthracene	2012/09/07	<0.050		ug	
		Benzo(a)anthracene	2012/09/07	<0.050		ug	
		Benzo(a)fluorene	2012/09/07	<0.10		ug	
		Benzo(a)pyrene	2012/09/07	<0.050		ug	
		Benzo(b)fluoranthene	2012/09/07	<0.050		ug	
		Benzo(b)fluorene	2012/09/07	<0.10		ug	
		Benzo(e)pyrene	2012/09/07	<0.10		ug	
		Benzo(g,h,i)perylene	2012/09/07	<0.050		ug	
		Benzo(k)fluoranthene	2012/09/07	<0.050		ug	
		Biphenyl	2012/09/07	<0.10		ug	
		Chrysene	2012/09/07	<0.050		ug	
		Coronene	2012/09/07	<0.10		ug	
		Dibenz(a,h)anthracene	2012/09/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/09/07	<0.20		ug	
		Fluoranthene	2012/09/07	<0.050		ug	
		Fluorene	2012/09/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/09/07	<0.050		ug	
		m-Terphenyl	2012/09/07	<0.10		ug	
		Naphthalene	2012/09/07	<0.072		ug	
		o-Terphenyl	2012/09/07	<0.10		ug	
		Perylene	2012/09/07	<0.10		ug	
		Phenanthrene	2012/09/07	<0.050		ug	
		p-Terphenyl	2012/09/07	<0.10		ug	
		Pyrene	2012/09/07	<0.050		ug	
		Quinoline	2012/09/07	<0.40		ug	
		Tetralin	2012/09/07	<0.10		ug	

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

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

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

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

Lakeland Industry & Community Association

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

Prepared By:



September 14, 2012

@_Y'UbX'≠bXi ghf m' '7 ca a i b]hm5 ggc W]U]cb'
 Gh' @bU
 5 a V]Ybh5]f'Acb]hcf]b[

HUV'Y'cZ7 cbhYb]g	DU Y			DU Y
≠bfcXi W]cb			7 U]VfU]cb'FYdcf]g'	- +
7 U]VfU]cb'DfcWXi fY'	(		.....Gi`d\i f'8]cl]XY''	- ,
Acbh`m7 cb]bi ci g'Gi a a Ufmi	)		.....<nXfc[Yb'Gi`d\]XY''	%%%
; YbYfU'Acbh`mGi a a Ufmi	*		.....HcHJ`<nXfcWUfVcbg''	%(
7 cb]bi ci g'Acb]hcf]b[	%,		.....B]hcf[Yb'8]cl]XY''	%%+
.....Acbh`mGi a a Uf]Ygž; fUd\ g/ 'K]bX'FcgYg'	%,		.....CncbY	%%/%%
.....Gi`d\i f'8]cl]XY'	%,		.....DUf]W`Uhf'A Uhf'&')	%%/
.....<nXfc[Yb'Gi`d\]XY''	&\$			
.....HcHJ`<nXfcWUfVcbg''	&			
.....CncbY	*			
.....B]hcf[Yb'8]cl]XY''	((
.....B]f]WCI]XY'')&			
.....CI]XYg'cZB]hcf[Yb)-			
.....DUf]W`Uhf'A Uhf'&')	*+			
.....HYa dYfUhf fY'	+&			
.....6 Ufca Yf]WDfYggi fY'	+)			
.....FYUhfj Y'<i a]X]mi	+,			
.....DfYV]d]hU]cb	, %			
.....JYWfc'K]bX'GdYYX''	, (
.....JYWfc'K]bX'8]fYW]cb''	-%			
.....GhUbXUfX'8 Yj]U]cb'K]bX'8]fYW]cb''	-(

Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: St. Lina
Data Period: August 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 – August 2012

LICA ST. LINA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)		
						OBJECTIVES					EXCEEDENCES					1-HOUR			24-HOUR
PARAMETER	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	19	9, 10	11.1, 10.4	187(S), 186(S)	0.3	19	100.0
H2S (PPB)	10	3	0	0	0.40	2	VAR	VAR	VAR	VAR	1.3	13	99.9		
THC (PPM)	-	-	-	-	2.12	3.3	28	6	1.4	96(E)	2.4	8, 28	97.3		
OZONE (PPB)	82	-	0	-	26.3	54	21	17	6	167(SSE)	40.4	20	100.0		
NOx (PPB)	-	-	-	-	1.03	16	20	6	4.5	235(SW)	2.6	17	99.9		
NO (PPB)	-	-	-	-	0.40	7	20	6	4.5	235(SW)	1.1	17	99.9		
NO ₂ (PPB)	159	-	0	-	0.63	9	20	6	4.5	235(SW)	2.1	28	99.9		
PM2.5 (ug/m3)	-	30	-	0	5.66	21.1	4	13	20.3	234(SW)	10.5	28	99.9		
TEMPERATURE (DEGREE C)	-	-	-	-	17.50	29.7	20	13	6	222(SW)	22.7	20	100.0		
BP (MILLIBAR)	-	-	-	-	928	936	12	VAR	VAR	VAR	934.5	15	100.0		
RH (%)	-	-	-	-	66.59	92	VAR	VAR	VAR	VAR	82.2	25	100.0		
PRECIPITATION (MM)	-	-	-	-	0.10	11.8	7	0	8.7	48(NE)	31.0	23	100.0		
VECTOR WS (KPH)	-	-	-	-	8.84	25.9	8	22	-	229(SW)	13.3	25	99.9		
VECTOR WD (DEGREES)	-	-	-	-	268(W)	-	-	-	-	-	-	-	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 low on August 7th. An as found points check was performed on August 10th. The result was within 2%, and no issue was noticed. As a result, all data were kept. The monthly calibration was performed on August 10th. The inlet filter was changed before the monthly calibration was performed. Five hourly maximum data were invalidated due to small power outage: on August 6th at hour 23, on August 8th at hour 22, on August 9th at hour 6, on August 16 at hour 0, and on August 16 at hour 6. 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 August 9th. Five hourly maximum data were invalidated due to small power outage: on August 6th at hour 23, on August 8th at hour 22, on August 9th at hour 6, on August 16 at hour 0, and on August 16 at hour 6. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)

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

The analyzer flamed out on August 7th at hour 0 and August 8th at hour 22 due to power failures. It was relit and a daily calibration was triggered to verify the analyzer's functionality on August 7th at hour 8 and on August 9 at hour 7, respectively. A total of 17 hours of data was invalidated. The monthly calibration was performed on August 9th. The inlet filter was changed before the monthly calibration was started. Five hourly maximum data were invalidated due to small power outage: on August 6th at hour 23, on August 8th at hour 22, on August 9th at hour 6, on August 16 at hour 0, and on August 16 at hour 6. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

Ozone (PPB)

Analyzer make / model Thermo 49C, S/N: 49C-54926-302

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on August 10th. An hourly maximum value recorded on August 29th at hour 10 was invalid due to the analyzer spiked. Five hourly maximum data were invalidated due to small power outage: on August 6th at hour 23, on August 8th at hour 22, on August 9th at hour 6, on August 16 at hour 0, and on August 16 at hour 6. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

The analyzer was working well throughout the month. The monthly calibration was performed on August 9th. The inlet filter was changed before the calibration was started. Five hourly maximum data were invalidated due to small power outage: on August 6th at hour 23, on August 8th at hour 22, on August 9th at hour 6, on August 16 at hour 0, and on August 16 at hour 6. 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 August 9th. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. One hourly data was invalidated as the data was below –3 ug/m3.

General Monthly Summary

AQM STATION – LICA – St. Lina

Temperature (Degree C)

Analyzer make / model – Met One 060

No operational issues were observed during the month.

Barometric Pressure (Millibar)

Analyzer make / model - Met One 092

No operational issues were observed during the month.

Relative Humidity (%)

Analyzer make / model - Met One 083

No operational issues were observed during the month.

Precipitation (MM)

Analyzer make / model - Met One 387

No operational issues were observed during the month. The rain gauge was checked and verified on August 7th.

General Monthly Summary

AQM STATION – LICA – St. Lina

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

System make / model –MetOne 50.5H Sonic, S/N: H12635

No operational issues were observed during the month. Five hourly WS maximum data were invalidated due to small power outage: on August 6th at hour 23, on August 8th at hour 22, on August 9th at hour 6, on August 16 at hour 0, and on August 16 at hour 6. The manufacturer performed the MetOne wind system calibration on June 12th, 2012.

During the site visit on August 15th, it was noticed that the magnetic declination was not applied on the calculation when the wind system was re-installed after the 2-Year wind system calibration on August 18th. The wind direction sensor was adjusted so that it is facing the true north on August 15th. Hourly data for wind direction between August 1st t hour 0 and August 15th at hour 15 were corrected by subtracting 13 degree.

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 August 9th.

Air Quality Index (AQI)

No AQI report is included in this report, as the AQI value is no longer used by Alberta Environment.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA
AUGUST 2012
SULPHUR DIOXIDE (SO₂) hourly averages in ppb

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

STATUS FLAG CODES

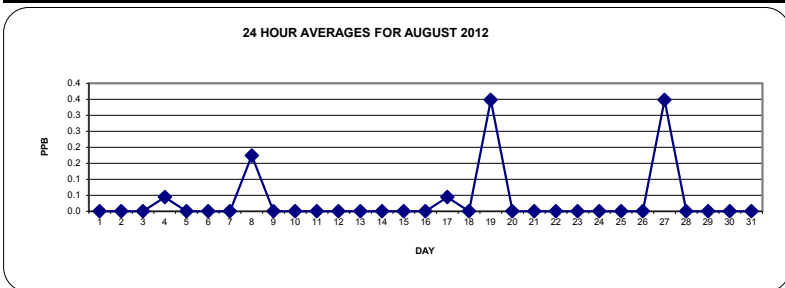
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

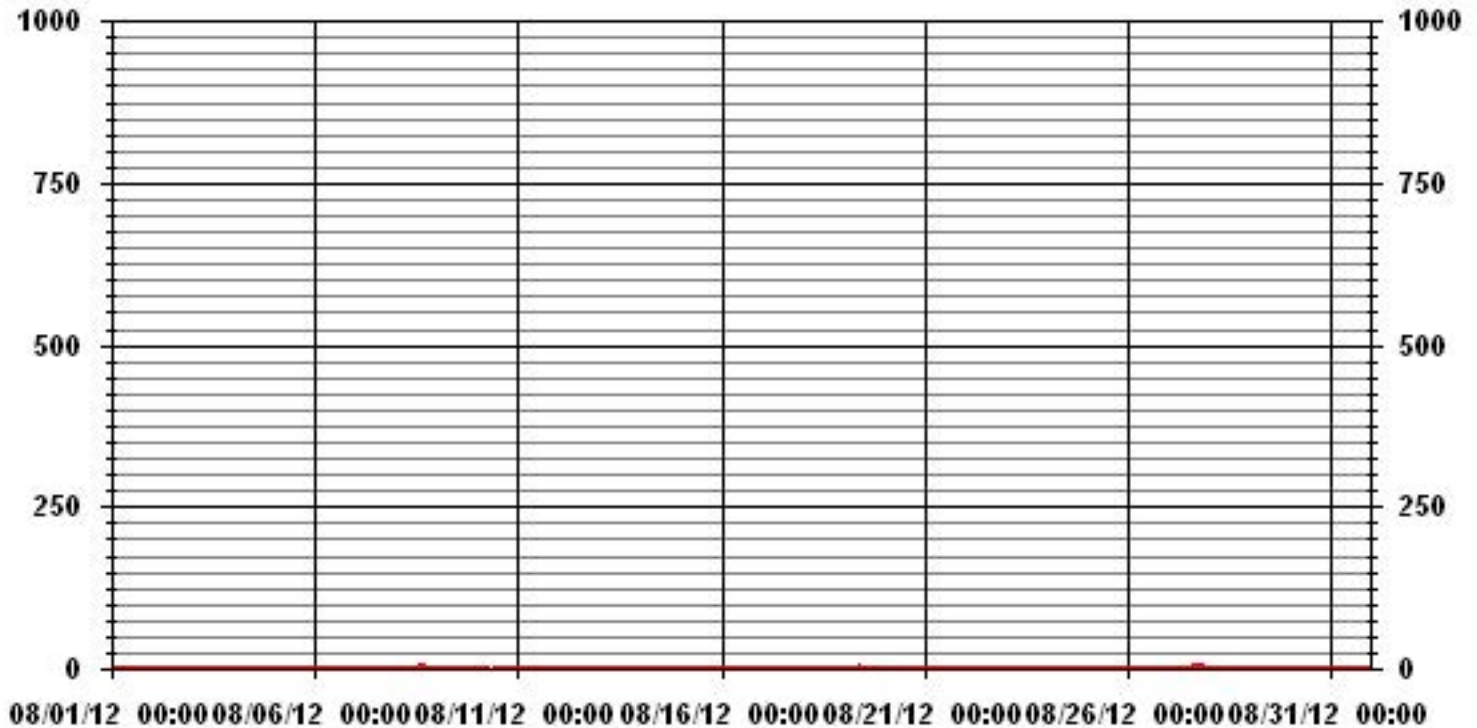
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	18					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	9, 10	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	0.3	PPB			ON DAY(S)	19
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.22		MONTHLY AVERAGE:	0.03	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	1	IZS	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
2	IZS	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	0	IZS	1	0.8	24
3	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	1	0	0	1	0	IZS	1	1	0.6	24		
4	1	1	1	0	1	0	0	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	IZS	1	1	2	1.0	24	
5	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	1.0	24	
6	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	P	1	0.9	23	
7	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	5	1.2	24	
8	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	IZS	1	1	1	1	P	1	2	1.2	23	
9	1	1	1	1	1	1	P	1	0	0	0	0	0	0	1	0	IZS	0	0	1	0	0	0	0	0	1	0.4	23	
10	0	1	0	0	0	0	0	C	C	C	C	C	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	0.7	24	
11	1	1	1	1	1	0	0	0	1	0	0	1	0	0	IZS	0	0	1	0	0	0	0	0	0	0	1	0.3	24	
12	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	1	0.0	24	
13	0	0	0	1	0	1	1	1	1	1	1	2	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9	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	0	0	1	0.9	24	
15	0	0	0	0	0	0	0	0	2	1	IZS	0	1	0	1	1	0	1	0	1	0	0	1	0	2	0.4	24		
16	P	1	1	1	1	1	P	1	1	IZS	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1.0	22	
17	1	1	1	1	1	1	1	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
18	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
19	1	1	1	1	1	1	IZS	1	2	5	8	5	1	1	1	1	1	1	1	1	1	1	1	1	1	8	1.7	24	
20	2	1	1	1	1	IZS	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
21	0	0	0	0	IZS	0	0	0	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.6	24	
22	1	1	0	IZS	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
23	0	0	IZS	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
24	0	IZS	0	0	1	1	0	1	0	0	0	0	1	1	1	0	0	1	0	1	0	1	0	0	1	0.4	24		
25	IZS	1	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0.0	24	
27	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	IZS	1	2	1.3	24
28	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	1	0.9	24	
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	0	1	1	1.0	24	
30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0.0	24	
31	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	IZS	0	1	0	0	0	1	1	0.2	24	
HOURLY MAX	5	1	1	1	1	1	1	2	2	5	8	5	2	2	2	2	2	2	2	2	2	2	2	1	1	1			
HOURLY AVG	0.8	0.8	0.6	0.6	0.6	0.7	0.5	0.7	0.7	0.7	0.9	0.8	0.7	0.7	0.8	0.7	0.7	0.8	0.6	0.7	0.6	0.6	0.6	0.6	0.6				

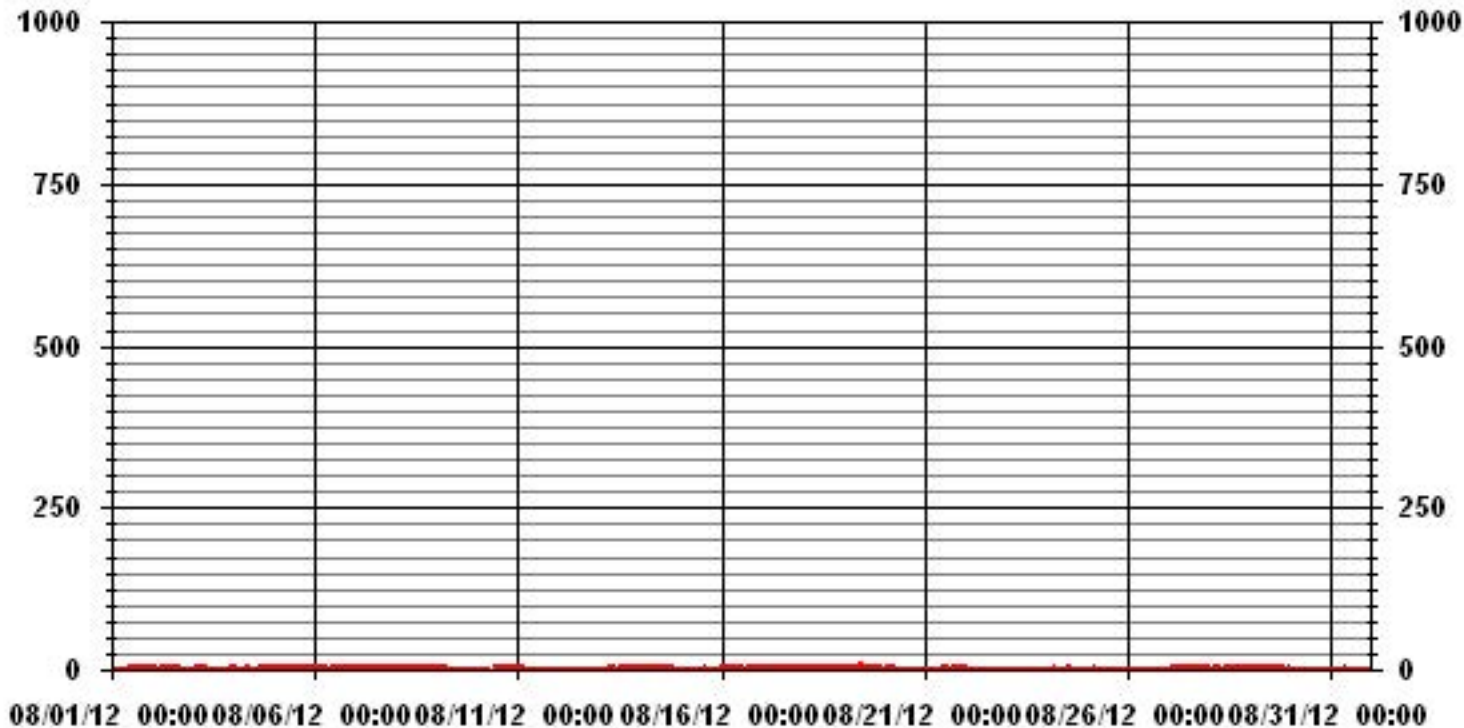
STATUS FLAG CODES

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:	433			
MAXIMUM INSTANTANEOUS VALUE:	8	PPB	@ HOUR(S)	10 ON DAY(S) 19
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	739 HRS
MONTHLY CALIBRATION TIME:	5	HRS		
STANDARD DEVIATION:	0.67			

01 Hour Averages



LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

August 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	3.40	1.56	2.97	5.24	5.39	2.55	3.12	7.37	7.94	3.68	6.24	6.24	11.20	14.04	14.04	4.96	100.00	
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	3.40	1.56	2.97	5.24	5.39	2.55	3.12	7.37	7.94	3.68	6.24	6.24	11.20	14.04	14.04	4.96		

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	24	11	21	37	38	18	22	52	56	26	44	44	79	99	99	35	705
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	24	11	21	37	38	18	22	52	56	26	44	44	79	99	99	35	

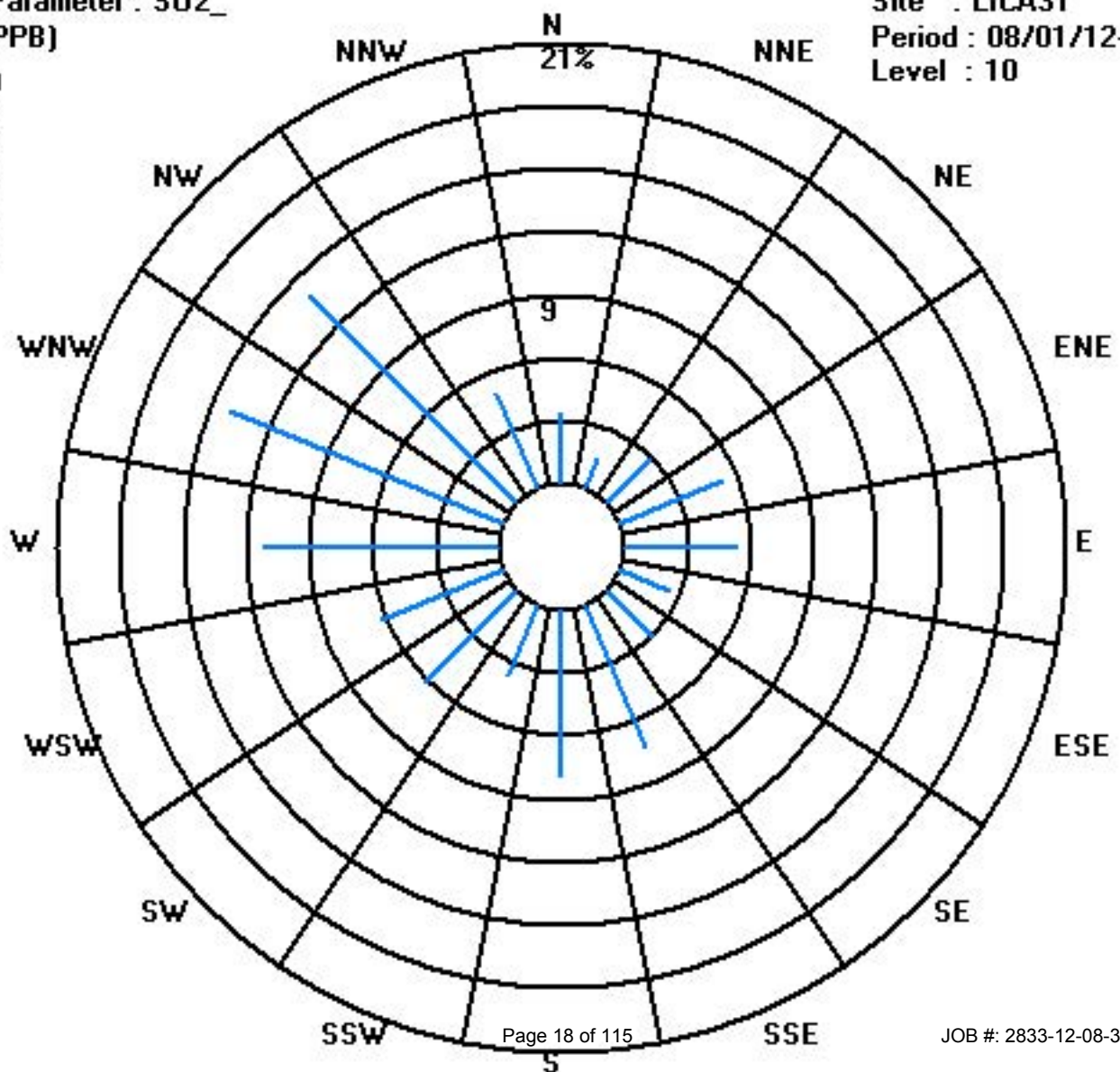
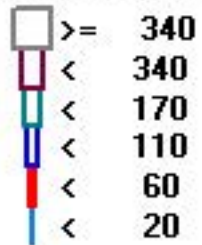
Calm : .00 %

Total # Operational Hours : 705

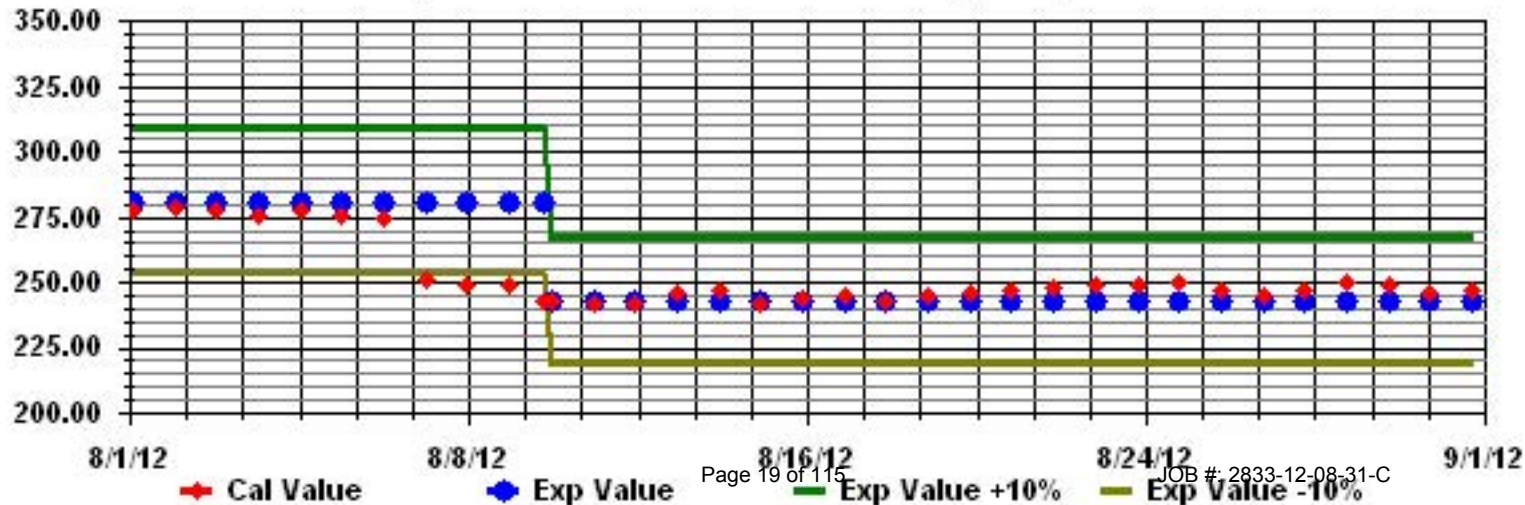
Class Limits (PPB)

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

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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 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.		
1		0	IZS	0	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	0.5	24		
2		IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0	1	IZS	1	0.8	24		
3		1	1	1	1	1	1	0	1	0	0	0	1	1	1	1	0	1	0	0	1	1	0	IZS	1	1	0.7	24		
4		1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	0.9	24		
5		0	1	1	1	1	1	1	0	0	0	1	0	0	1	1	0	0	0	1	1	IZS	0	0	0	1	0.5	24		
6		0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.1	24	
7		0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0.2	24	
8		1	0	1	1	1	2	2	1	1	1	1	1	1	1	0	1	1	IZS	0	0	0	0	0	0	0	2	0.7	24	
9		0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24	
10		0	0	0	1	0	1	1	0	0	0	0	M	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.1	23	
11		0	0	0	0	0	0	1	0	0	0	0	0	0	0	IZS	0	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	1	1	1	0	0	0	0	1	1	1	0	1	0.3	24	
13		1	1	1	1	1	2	2	2	2	1	1	1	1	IZS	1	1	1	1	1	1	2	1	2	2	1	2	1.3	24	
14		1	2	1	2	2	2	2	2	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.7	24	
15		0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0.4	24	
16		1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1.0	24	
17		1	1	1	2	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
18		0	0	0	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	24	
19		1	0	1	1	1	1	IZS	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
20		0	0	1	1	1	IZS	1	0	1	1	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	0.6	24	
21		1	1	1	1	IZS	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
22		1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
23		0	0	IZS	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
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	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	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	IZS	1	0.0	24	
27		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	1	0.9	24
28		0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	1	0	1	0.2	24	
29		1	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.3	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	0	IZS	0	0	0	0	0	0	0	0.0	24	
HOURLY MAX		1	2	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	2	2	1				
HOURLY AVG		0.4	0.4	0.4	0.6	0.5	0.7	0.7	0.6	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.2	0.3	0.4	0.3	0.3	0.3	0.3					

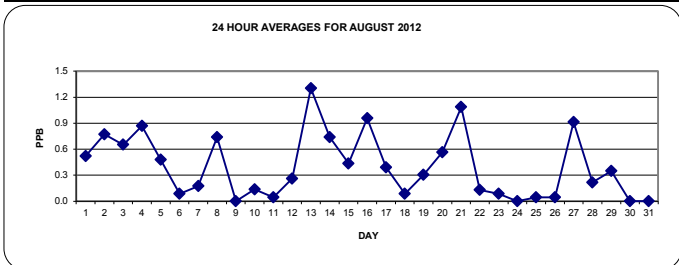
STATUS FLAG CODES

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

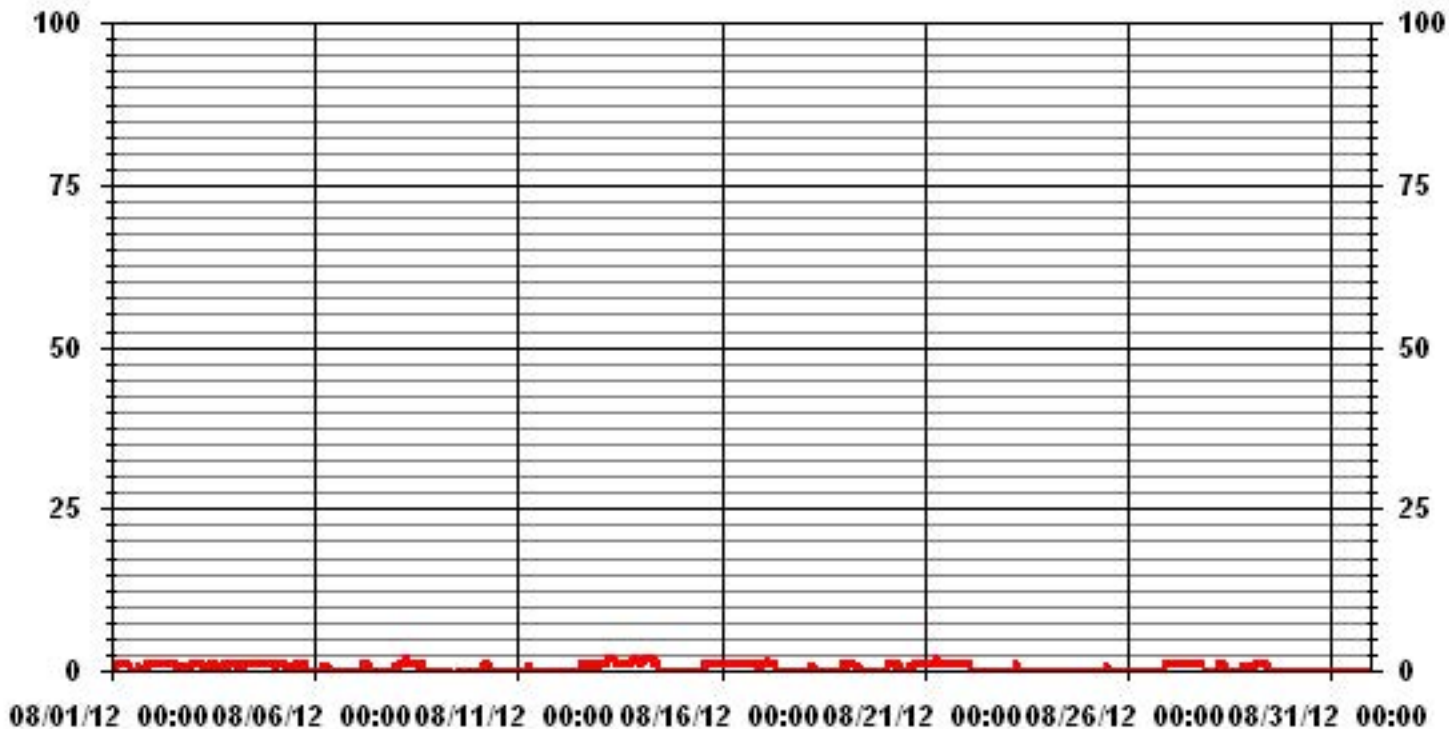
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 10 PPB | 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:		0			
NUMBER OF 24-HR EXCEEDENCES:		0			
NUMBER OF NON-ZERO READINGS:		266			
MAXIMUM 1-HR AVERAGE:	2 PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	1.3 PPB			ON DAY(S)	13
VAR-VARIOUS					
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	743 HRS		
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.9 %		
STANDARD DEVIATION:	0.54	MONTHLY AVERAGE:	0.40 PPB		



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

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

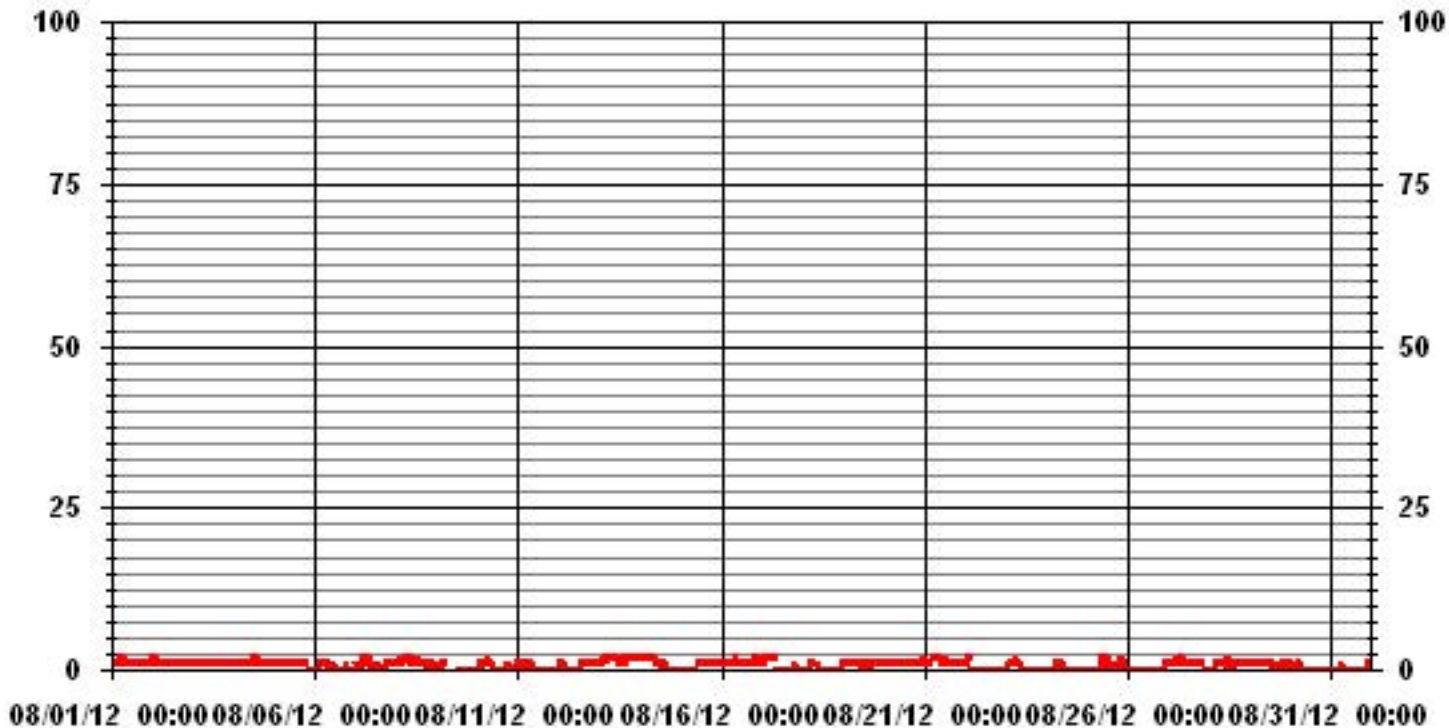
STATUS FLAG CODES

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:	414					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.64					

01 Hour Averages



— LICA31 H2S MAX PPB

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

August 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	3.40	1.56	2.98	5.25	5.39	2.55	3.12	7.38	7.95	3.69	6.25	6.10	11.07	14.20	14.06	4.97	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.40	1.56	2.98	5.25	5.39	2.55	3.12	7.38	7.95	3.69	6.25	6.10	11.07	14.20	14.06	4.97	

Calm : .00 %

Total # Operational Hours : 704

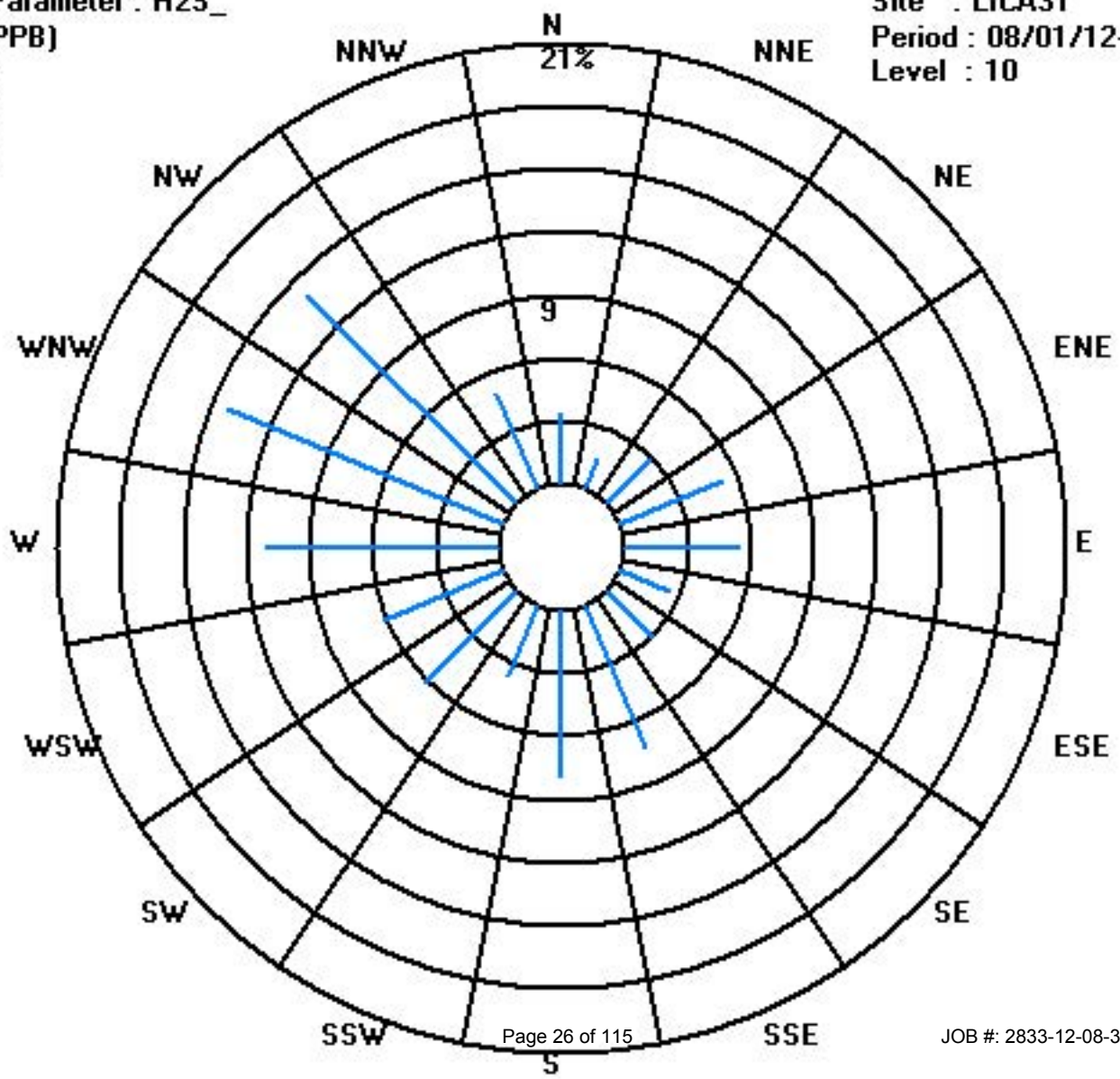
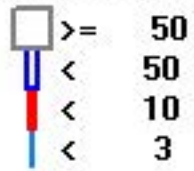
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	24	11	21	37	38	18	22	52	56	26	44	43	78	100	99	35	704
< 10																	
< 50																	
>= 50																	
Totals	24	11	21	37	38	18	22	52	56	26	44	43	78	100	99	35	

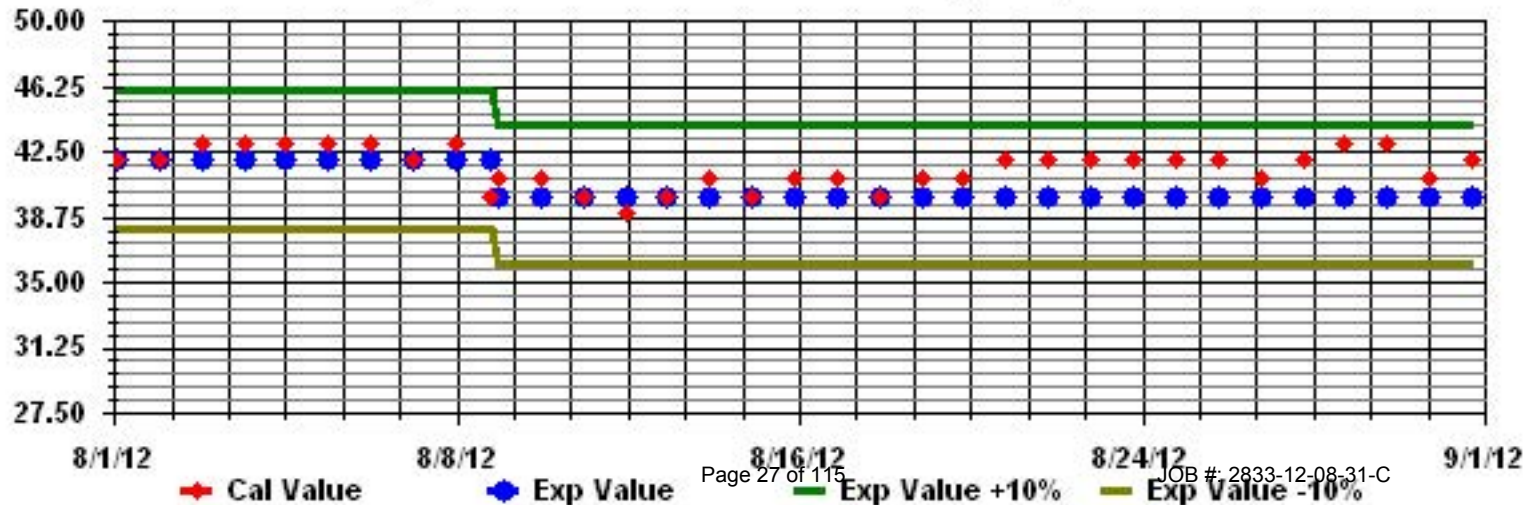
Calm : .00 %

Total # Operational Hours : 704

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

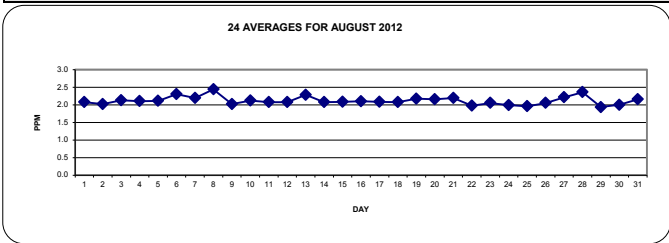
TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

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

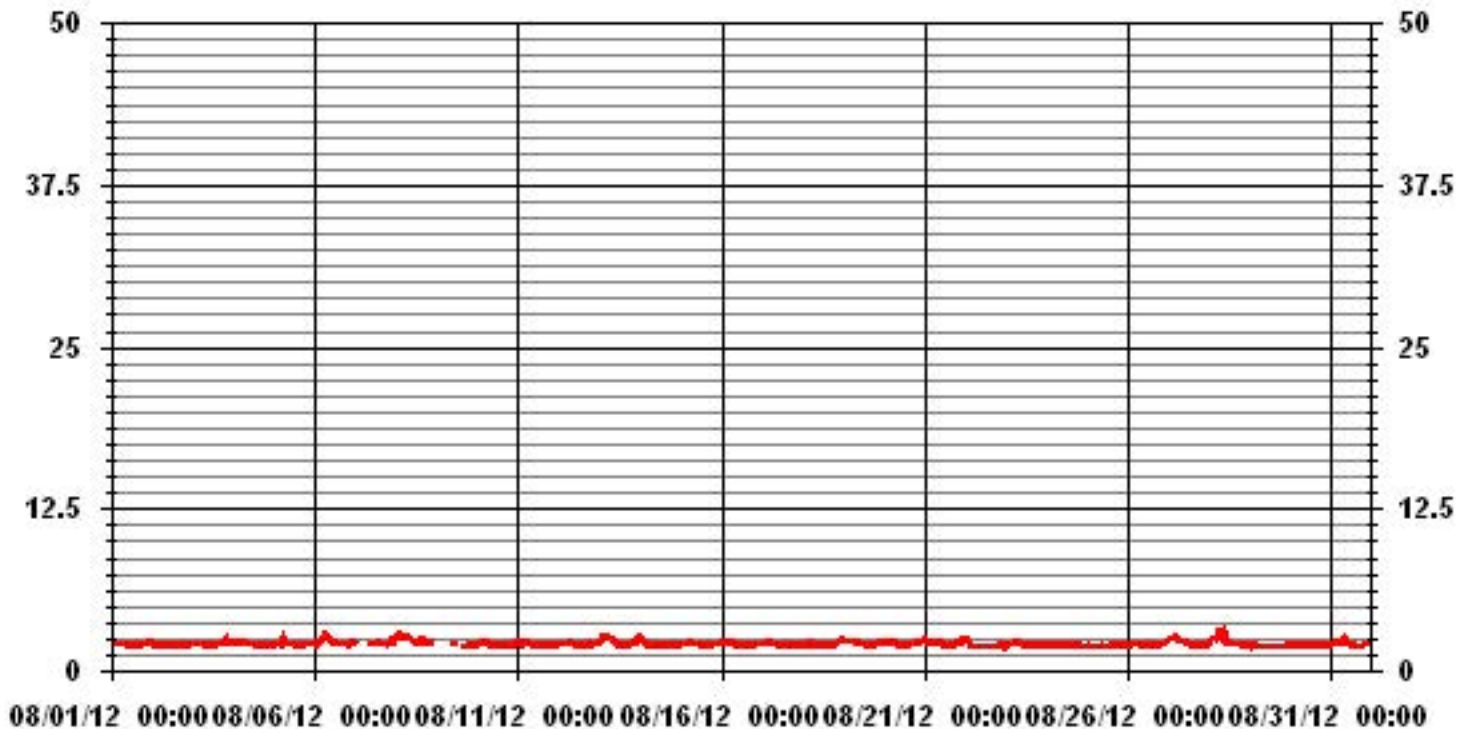
24 AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685					
MAXIMUM 1-HR AVERAGE:	3.3	PPM	@ HOUR(S)	6	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	2.4	PPM			ON DAY(S)	8, 28
					VAR- VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	724	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	97.3	%	
STANDARD DEVIATION:	0.18		MONTHLY AVERAGE:	2.12	PPM	

01 Hour Averages



— LICA31 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	MAX.	AVG.	RDGS.		
DAY																													
1	2.1	IZS	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5	2.6	2.8	2.3	2.3	2.3	2.3	2.8	2.2	24	
2	IZS	2.3	2.5	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	3.2	2.2	2.2	2.1	2.1	2	2.1	2.1	2.3	2.6	2.8	2.3	IZS	IZS	3.2	2.3	24	
3	2.6	2.4	2.3	2.6	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.2	2.2	2.3	2.5	2.5	3.2	3.8	3.7	2.3	IZS	IZS	2.3	3.8	2.5	24	
4	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2	2	2	2.2	2.1	2.1	2.1	IZS	2.1	2.1	2.3	2.2	2.2	24	
5	2.1	2.2	2.2	2.9	2.5	7.5	2.8	2.3	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.3	3.2	IZS	2.3	2.2	2.2	7.5	2.5	24		
6	2.7	2.4	2.5	2.6	2.6	2.9	3.3	3	2.6	2.5	2.4	2.3	6.9	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.1	2.2	2.5	P	6.9	2.7	23		
7	N	N	N	N	N	N	N	N	M	C	2.2	2.2	2.2	2.3	2.3	2.2	2.3	IZS	2.5	2.4	2.4	2.4	2.8	2.8	2.3	15			
8	2.7	2.9	3	3	2.8	2.7	2.8	2.8	2.6	2.5	2.3	2.4	2.4	2.2	2.4	2.5	2.5	IZS	2.2	2.3	2.2	2.2	P	N	3	2.5	22		
9	N	N	N	N	N	N	N	M	C	C	C	2.4	C	C	C	C	C	2	2	2	2	2.7	2.3	2.4	2.3	2.7	2.3	16	
10	2.6	2.7	2.6	2.6	2.5	3.1	2.8	2.3	3.6	2.2	3	M	2.1	2.1	2.1	IZS	2.1	2.4	2.3	2.3	2.1	2.7	2.8	2.4	3.6	2.5	23		
11	2.4	2.3	2.3	2.3	2.6	2.4	2.7	2.3	2.2	2.1	2.1	2.1	2.3	2.1	IZS	2.4	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.7	2.2	24		
12	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.1	2.1	IZS	2.2	2.4	2.4	2.1	2.2	2.3	2.3	2.3	2.3	2.1	2.4	2.2	24		
13	2.2	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.4	2.3	2.3	2.1	IZS	2	2	2	2.2	2.1	2.3	2.2	2.3	5.4	3.4	2.7	5.4	2.5	24		
14	2.6	2.7	2.5	2.2	2.1	2.1	2.1	2.1	2	2	2	IZS	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2	2.1	2.7	2.1	24	
15	2.1	2.1	2.1	2.7	2.5	2.5	2.6	2.3	2.3	2.2	IZS	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.5	2.6	2.3	2.1	2.1	2.2	2.7	2.3	24		
16	P	2.2	2.2	2.2	2.2	2.2	P	2.2	2.2	IZS	2.1	2.1	2.3	2.4	2.3	2.2	2.1	2	2.1	2.1	2.2	2.2	2.3	2.4	2.2	2.2	22		
17	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	IZS	2.2	2.2	2.1	2.1	2	2.6	2.2	2.1	2.1	2.3	2.2	2.3	2.3	2.1	2.1	2.6	2.2	24		
18	2.1	2	2.6	2	2.7	2.6	2.2	IZS	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2	2.1	2.1	2.2	2.3	2.4	2.7	2.2	24	
19	2.4	2.4	2.3	2.3	2.3	2.3	IZS	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.2	24		
20	2.3	2.3	2.2	2.3	2.3	IZS	2.3	2.3	2.2	2.2	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.2	24		
21	2.4	2.4	2.4	2.2	IZS	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2	2	2	2	2	2.7	2.9	2.3	2.4	2.6	2.6	2.9	2.3	24		
22	2.6	2.7	2.5	IZS	1.9	1.9	1.9	2	2.4	2	2.2	2.2	2.1	2	2	2.6	2.1	2.2	2.1	2.1	2.1	2.2	2	2.7	2.2	2.2	24		
23	2	2	IZS	2.1	2.1	2.2	2.2	3.3	3.4	2.6	2.1	2.5	2.1	2.1	2	2	2	2	2.1	2	2	2.2	2.2	2.3	3.4	2.2	24		
24	2.4	IZS	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2	2	2.4	2.2	24		
25	IZS	2.7	2.1	2	2	2	2	2	2.2	2.4	2	2.1	2	2.1	2.1	3	2.1	2.1	2.2	2.2	2.1	2.3	2.3	IZS	3	2.2	24		
26	2.7	3.2	2.8	2.5	2.6	2.2	2.3	2.3	2.1	2	2.4	2.1	2.1	2	2	2	2	2	2	2.3	2.3	2.2	IZS	2.4	3.2	2.3	24		
27	2.5	2.5	2.5	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2.1	IZS	2.1	2.3	2.6	2.3	24	
28	2.4	2.6	2.6	2.7	2.8	3.2	4.3	3.3	3.1	3	2.4	2.2	2.2	2.2	2.1	2.1	2.2	2.5	2.5	2.2	IZS	2.1	2.1	2.5	4.3	2.6	24		
29	4.2	2.1	2	2.1	2.1	2.1	2.2	2	2	2	2.8	2	1.9	2	2	2	2	2	2	2	IZS	2	2	2	4.2	2.2	24		
30	2.1	2	2	2	2	2.1	2.1	2	2.2	2.3	2.1	2	2	2	2	2	2	2.1	IZS	2	2	2.1	2	2.1	2.3	2.1	24		
31	2.1	2.1	2.3	2.3	2.2	2.3	2.5	2.8	2.6	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.2	2.1	2.8	2.2	24		
HOURLY MAX	4.2	3.2	3.0	3.0	2.8	7.5	4.3	3.3	3.6	3.0	3.0	3.2	6.9	2.3	2.6	3.0	2.5	2.5	3.2	3.8	3.7	5.4	3.4	2.8					
HOURLY AVG	2.4	2.4	2.4	2.4	2.3	2.5	2.4	2.4	2.4	2.2	2.2	2.2	2.3	2.1	2.1	2.2	2.1	2.1	2.2	2.3	2.3	2.4	2.3	2.3					

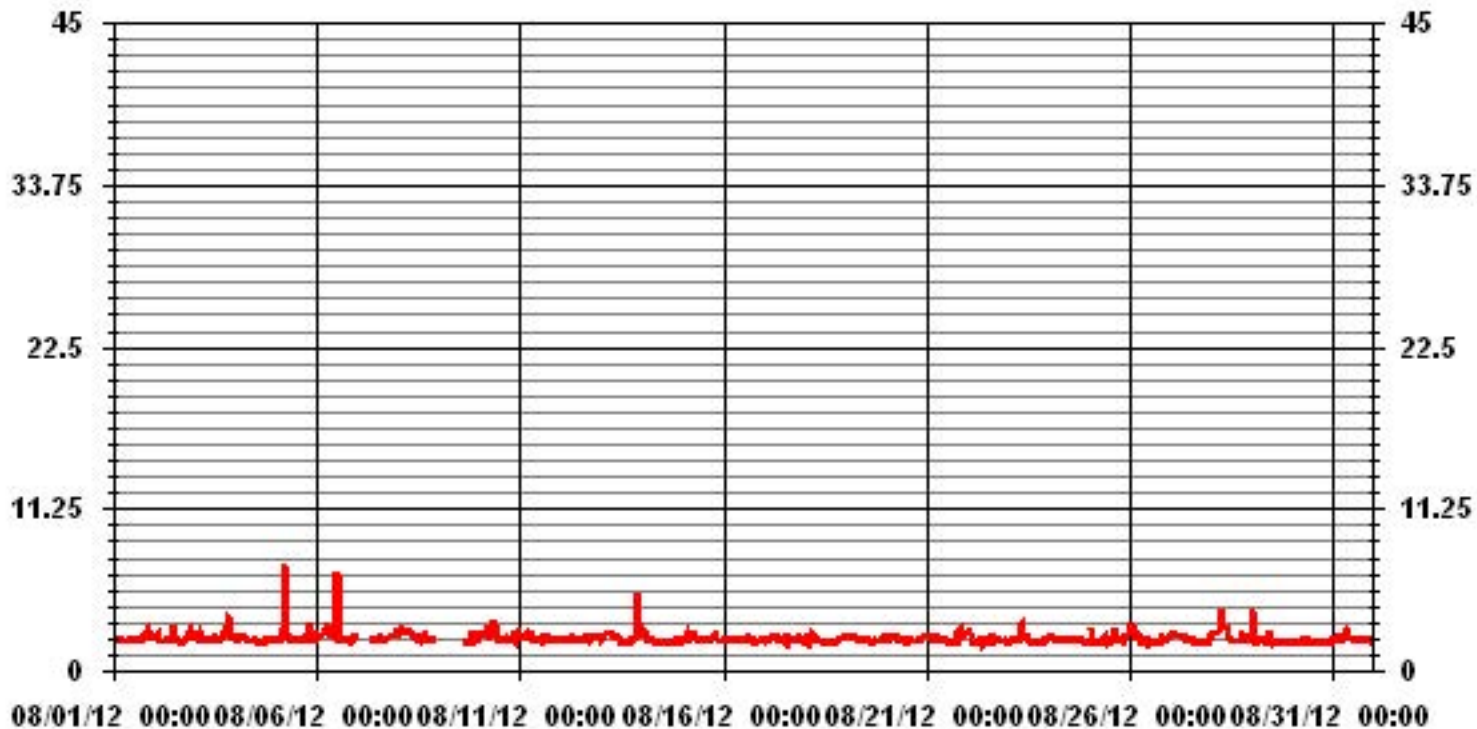
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	680					
MAXIMUM INSTANTANEOUS VALUE:	7.5	PPM	@ HOUR(S)	5	ON DAY(S)	5
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	721	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	0.41					

01 Hour Averages



LICA31
 THC / WDR Joint Frequency Distribution (Percent)

August 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	3.36	1.60	2.77	5.40	5.40	2.33	2.92	7.01	7.74	3.65	5.55	5.84	11.69	14.61	14.47	5.11	99.56
< 10.0	.14	.00	.14	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.43
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.50	1.60	2.92	5.40	5.55	2.33	2.92	7.01	7.74	3.65	5.55	5.84	11.69	14.61	14.47	5.11	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	23	11	19	37	37	16	20	48	53	25	38	40	80	100	99	35	681
< 10.0	1		1		1												3
< 50.0																	
>= 50.0																	
Totals	24	11	20	37	38	16	20	48	53	25	38	40	80	100	99	35	

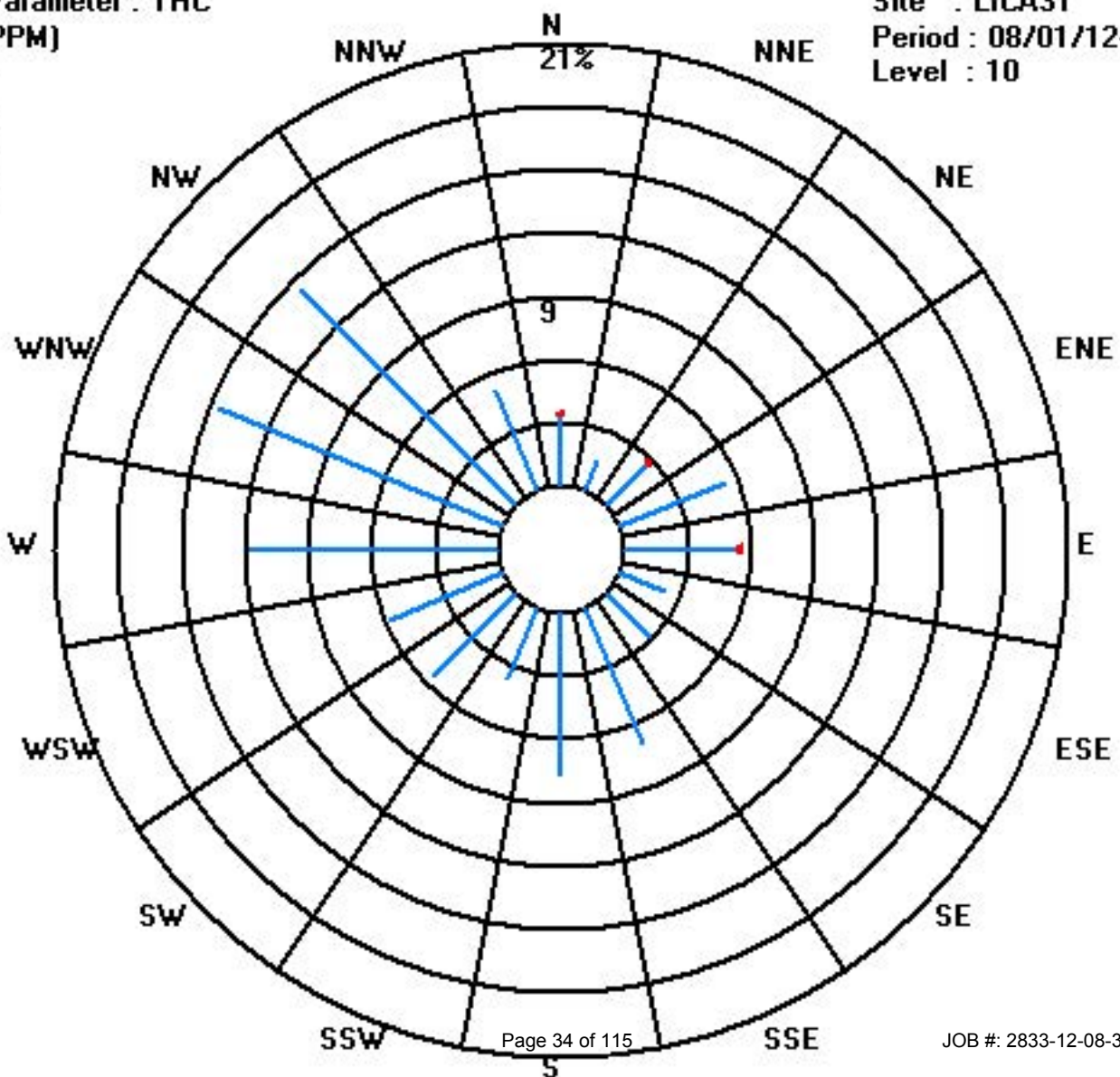
Calm : .00 %

Total # Operational Hours : 684

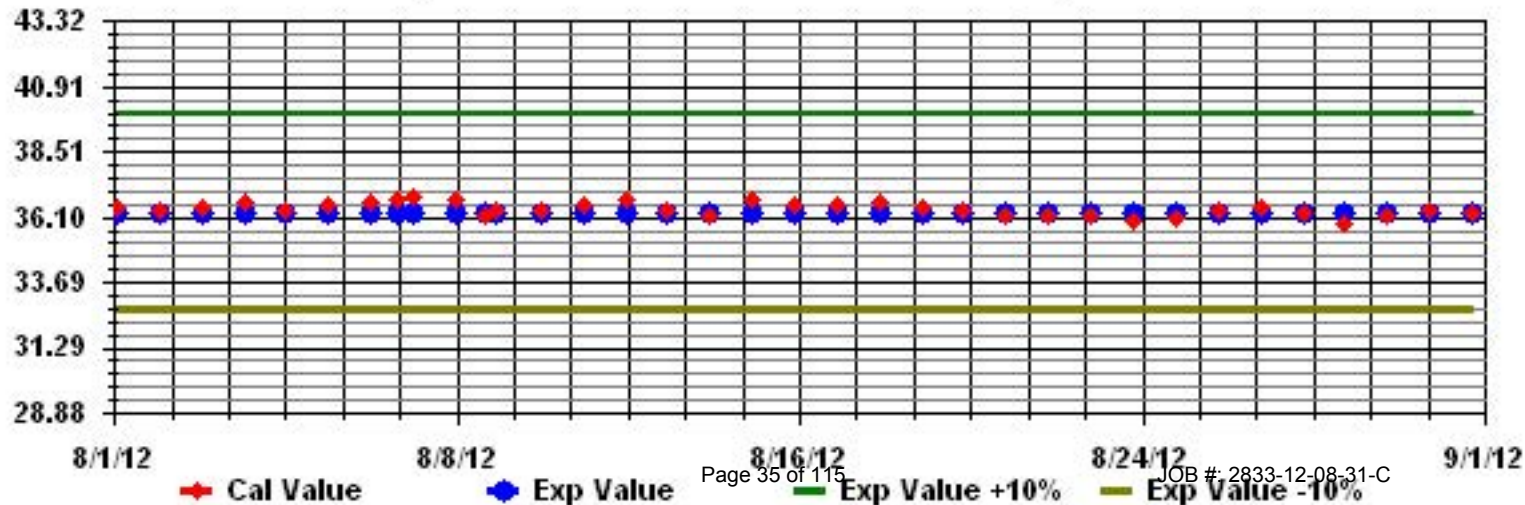
Class Limits (PPM)

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

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

OZONE (O₃) hourly averages in ppb

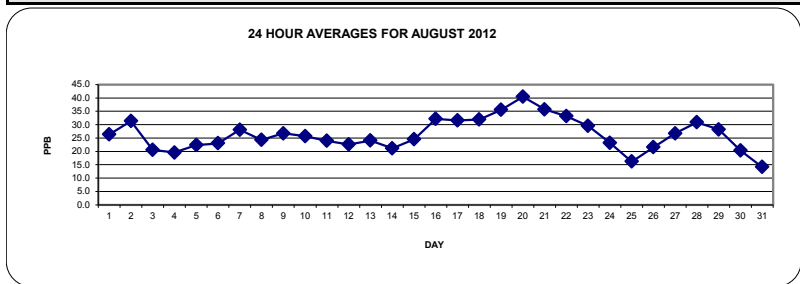
MST																								DAILY	24-HOUR		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	17	IZS	21	21	19	19	18	23	25	26	30	32	32	32	32	33	31	32	29	30	30	26	24	23	33	26.3	24
2	IZS	19	27	33	38	44	40	39	37	41	44	38	36	33	32	28	27	27	28	23	22	18	16	IZS	44	31.4	24
3	14	14	18	17	15	14	17	16	16	18	19	20	24	28	27	29	29	30	26	27	20	19	IZS	15	30	20.5	24
4	17	16	15	15	16	16	16	20	23	25	27	30	31	32	20	20	20	18	17	15	13	IZS	14	14	32	19.6	24
5	13	13	12	12	13	12	12	16	22	24	26	27	27	30	31	30	29	30	29	26	IZS	26	27	27	31	22.3	24
6	24	23	20	18	17	13	11	17	22	24	27	28	30	31	31	30	30	29	25	IZS	20	20	19	20	31	23.0	24
7	35	37	31	31	32	30	24	21	25	27	31	30	28	28	29	28	32	31	IZS	33	27	22	19	14	37	28.0	24
8	10	9	8	9	9	10	9	13	17	22	28	32	32	32	38	42	41	IZS	35	30	27	28	39	39	42	24.3	24
9	35	33	28	28	24	19	19	24	27	31	28	26	26	27	30	33	IZS	30	28	25	25	23	23	23	35	26.7	24
10	29	23	20	12	15	20	13	C	C	C	C	C	34	34	37	IZS	37	31	28	26	29	29	26	20	37	25.7	24
11	17	23	28	17	19	17	13	20	23	25	25	27	25	27	IZS	27	28	30	31	29	28	26	24	22	31	24.0	24
12	22	20	18	17	19	19	18	16	16	20	22	26	26	IZS	25	24	24	23	22	23	23	29	34	33	34	22.6	24
13	31	27	23	23	23	22	20	19	22	23	28	31	IZS	35	32	29	27	25	21	21	20	20	21	10	35	24.0	24
14	11	14	19	21	27	26	20	20	19	20	21	IZS	24	26	21	22	23	23	22	22	22	21	22	20	27	21.1	24
15	20	22	20	19	16	13	13	19	24	27	IZS	27	30	32	31	31	30	29	28	27	26	25	23	32	32	24.5	24
16	23	20	20	23	22	18	16	19	23	IZS	35	38	40	41	43	42	41	40	37	34	38	40	43	43	43	32.1	24
17	41	39	34	34	27	20	19	21	IZS	27	34	36	33	34	35	35	35	32	29	32	32	32	33	33	41	31.6	24
18	34	35	33	33	19	17	27	IZS	26	27	32	34	37	37	37	38	37	37	34	35	34	33	30	28	38	31.9	24
19	27	26	25	24	25	24	IZS	26	30	33	38	40	42	45	45	47	46	43	42	39	36	36	39	39	47	35.5	24
20	41	42	41	37	36	IZS	27	31	34	34	40	45	45	47	48	48	47	45	41	42	41	41	39	38	48	40.4	24
21	38	35	32	33	IZS	22	20	18	21	24	28	36	40	43	45	46	51	54	45	40	42	46	35	28	54	35.7	24
22	30	30	31	IZS	32	33	29	27	32	33	31	34	37	37	39	38	39	38	38	34	33	32	29	26	39	33.1	24
23	25	21	IZS	23	21	18	15	16	19	26	28	28	30	34	31	30	30	30	27	43	46	46	46	47	47	29.6	24
24	43	IZS	37	37	31	24	17	15	14	16	17	17	19	20	21	21	21	23	25	23	23	23	24	23	43	23.2	24
25	IZS	18	18	20	19	17	16	16	15	16	19	20	21	18	17	16	15	14	14	14	12	10	11	IZS	21	16.2	24
26	11	11	12	12	11	11	11	13	15	18	22	26	29	31	32	32	32	33	31	27	26	27	IZS	22	33	21.5	24
27	21	20	20	19	18	20	19	17	20	21	24	27	30	33	36	37	38	36	32	31	28	IZS	35	33	38	26.7	24
28	31	24	23	20	20	17	9	10	13	21	31	37	40	43	44	46	46	43	44	41	IZS	35	36	37	46	30.9	24
29	35	41	39	31	27	32	31	28	27	24	23	24	24	26	27	27	29	28	27	IZS	25	25	25	23	41	28.2	24
30	22	22	23	20	20	19	19	19	21	21	22	23	25	26	25	25	24	23	IZS	19	16	12	11	11	26	20.3	24
31	11	10	9	9	9	7	7	7	9	11	14	18	20	20	20	25	22	IZS	20	17	15	14	15	16	25	14.1	24
HOURLY MAX	43	42	41	37	38	44	40	39	37	41	44	45	45	47	48	48	51	54	45	43	46	46	46	47			
HOURLY AVG	25.1	23.7	23.5	22.3	21.3	19.8	18.2	19.5	22.0	24.3	27.4	29.6	30.6	32.1	32.0	32.0	32.1	31.3	29.5	28.6	26.9	27.1	27.0	25.9			

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

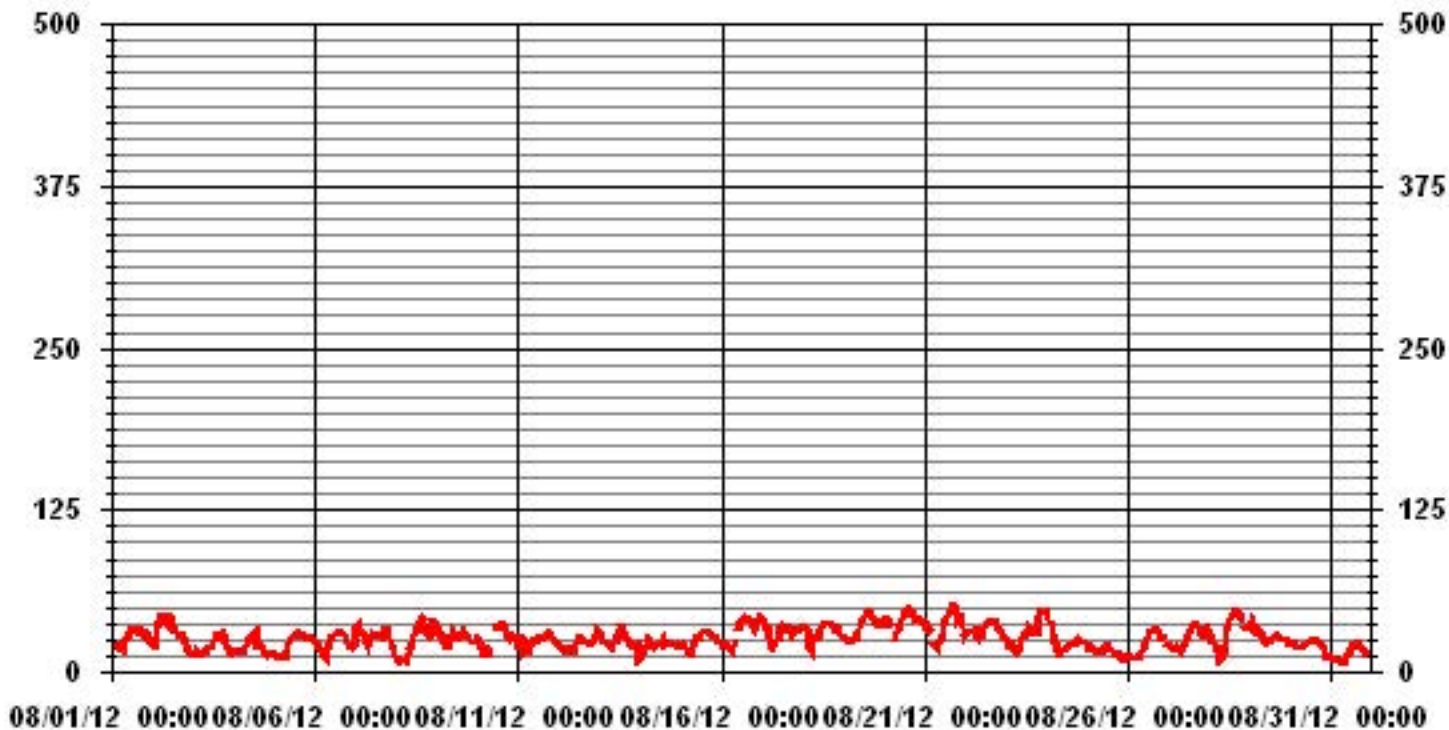
ALBERTA ENVIRONMENT: 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	706					
MAXIMUM 1-HR AVERAGE:	54	PPB	@ HOUR(S)	17	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	40.4	PPB			ON DAY(S)	20
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	9.01		MONTHLY AVERAGE:	26.3	PPB	

01 Hour Averages



— LICA3T 03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	18	IZS	24	24	20	22	24	26	28	31	33	33	33	34	34	33	33	30	31	32	30	27	27	34	28.1	24		
2	IZS	25	30	36	42	46	44	42	38	44	46	42	38	36	33	30	28	29	29	26	23	20	17	IZS	46	33.8	24	
3	15	16	19	18	16	16	18	17	18	19	21	24	27	29	29	30	31	32	30	31	30	20	IZS	16	32	22.7	24	
4	18	18	16	16	17	16	18	22	25	26	29	32	33	39	22	20	20	20	17	16	15	IZS	15	15	39	21.1	24	
5	13	13	13	12	14	14	14	18	24	26	28	28	29	31	31	31	30	30	31	30	IZS	29	28	28	31	23.7	24	
6	27	27	21	19	19	15	14	21	24	26	28	29	32	32	31	31	31	31	27	IZS	21	21	20	P	32	24.9	23	
7	42	40	31	31	32	31	27	22	27	30	32	31	32	31	32	31	34	35	IZS	38	29	28	20	17	42	30.6	24	
8	13	10	9	10	11	11	11	17	19	24	31	33	35	33	42	43	43	IZS	37	33	28	28	P	42	43	25.6	23	
9	38	38	32	32	27	22	P	26	30	36	30	27	27	28	32	34	IZS	32	29	27	27	24	24	24	38	29.4	23	
10	32	29	30	21	25	32	28	C	C	C	C	C	39	36	40	IZS	39	36	30	27	31	30	28	24	40	30.9	24	
11	23	30	32	25	21	18	16	23	25	26	27	27	27	28	IZS	28	29	30	32	31	28	27	24	22	32	26.0	24	
12	22	21	19	19	20	20	19	18	18	22	23	28	28	IZS	26	25	25	24	24	24	25	34	35	34	35	24.0	24	
13	33	28	25	25	24	23	21	21	22	26	31	34	IZS	38	34	31	30	28	26	22	22	22	24	12	38	26.2	24	
14	13	15	21	26	29	28	22	21	20	22	22	IZS	26	27	23	23	25	25	24	24	23	21	22	22	29	22.8	24	
15	22	23	21	20	17	14	16	21	27	28	IZS	30	31	33	32	32	32	31	32	31	28	27	25	25	33	26.0	24	
16	P	22	24	25	24	21	P	22	25	IZS	40	40	41	43	44	44	42	42	40	37	40	42	44	44	44	44	35.5	22
17	43	42	36	36	32	22	21	24	IZS	29	37	37	35	36	38	37	35	35	31	33	33	33	34	34	43	33.6	24	
18	36	35	34	34	33	22	29	IZS	28	32	34	36	37	38	38	40	38	38	35	35	35	34	31	29	40	34.0	24	
19	27	27	26	25	25	25	IZS	29	32	36	39	43	45	46	47	49	48	45	44	40	37	38	40	39	49	37.0	24	
20	42	43	42	40	37	IZS	36	37	36	38	44	47	47	50	49	49	49	47	43	43	42	42	41	38	50	42.7	24	
21	38	36	33	34	IZS	26	23	19	23	26	32	42	43	45	46	48	55	56	51	41	48	49	41	30	56	38.5	24	
22	31	32	33	IZS	35	35	33	30	37	37	32	36	39	39	40	41	41	40	40	36	34	34	31	29	41	35.4	24	
23	27	24	IZS	25	24	19	16	18	25	29	30	31	33	35	35	33	32	32	31	51	50	49	48	49	51	32.4	24	
24	45	IZS	39	39	33	29	19	16	15	17	18	18	20	21	22	22	22	23	26	24	23	24	24	24	45	24.5	24	
25	IZS	19	19	20	19	18	17	16	16	18	22	22	22	21	17	17	15	14	14	15	13	11	12	IZS	22	17.1	24	
26	12	11	13	12	12	11	12	14	17	21	25	31	31	32	34	33	33	34	33	29	28	28	IZS	23	34	23.0	24	
27	22	21	21	20	19	20	20	18	21	23	26	29	32	35	37	39	39	38	33	32	30	IZS	36	35	39	28.1	24	
28	32	28	24	22	22	12	12	15	25	37	40	42	45	47	49	48	47	46	44	IZS	38	38	40	49	33.7	24		
29	40	45	43	33	30	38	37	31	29	25	IZS	25	26	27	27	28	29	29	28	IZS	26	26	24	45	30.5	23		
30	23	24	25	21	20	21	22	21	22	22	23	24	26	26	26	26	25	24	IZS	21	19	14	12	12	26	21.7	24	
31	12	11	11	9	9	8	8	8	10	12	16	20	20	21	21	28	24	IZS	20	19	16	15	15	17	28	15.2	24	
HOURLY MAX	45	45	43	40	42	46	44	42	38	44	46	47	47	50	49	49	55	56	51	51	50	49	48	49				
HOURLY AVG	27.1	26.0	25.5	24.3	23.6	22.1	21.3	21.7	23.9	26.7	29.8	31.7	32.5	33.8	33.6	33.5	33.5	33.1	31.5	30.7	28.8	28.9	27.9	27.7				

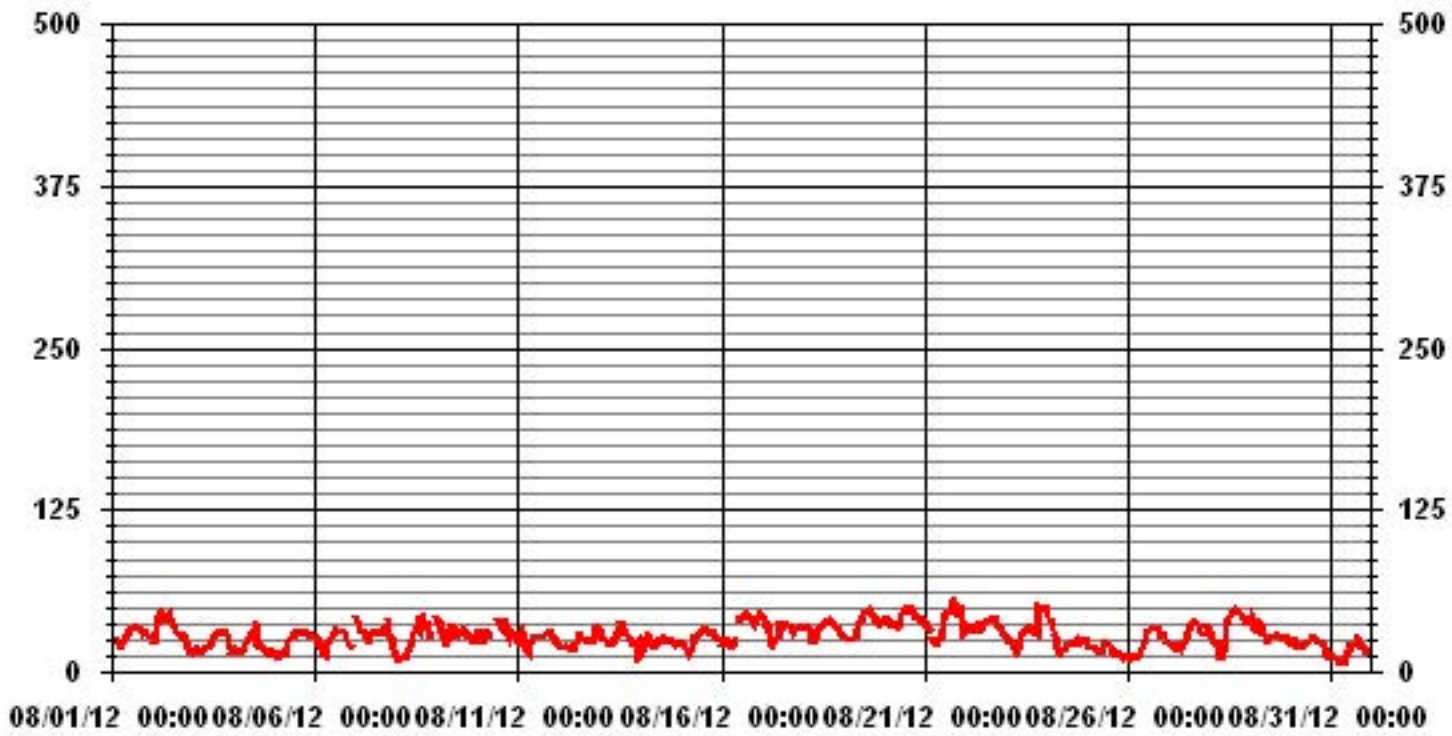
STATUS FLAG CODES

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:	700					
MAXIMUM INSTANTANEOUS VALUE:	56	PPB	@ HOUR(S)	17	ON DAY(S)	21
IZS CALIBRATION TIME:	34	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	9.31					

01 Hour Averages



— LICA31 O3MAX PPB

LICA31
 O3_ / WDR Joint Frequency Distribution (Percent)

August 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	3.40	1.56	2.97	5.24	5.39	2.55	3.12	7.23	7.80	3.68	6.24	6.24	11.20	14.04	14.04	4.96	99.71
< 110	.00	.00	.00	.00	.00	.00	.00	.14	.14	.00	.00	.00	.00	.00	.00	.00	.28
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.40	1.56	2.97	5.24	5.39	2.55	3.12	7.37	7.94	3.68	6.24	6.24	11.20	14.04	14.04	4.96	

Calm : .00 %

Total # Operational Hours : 705

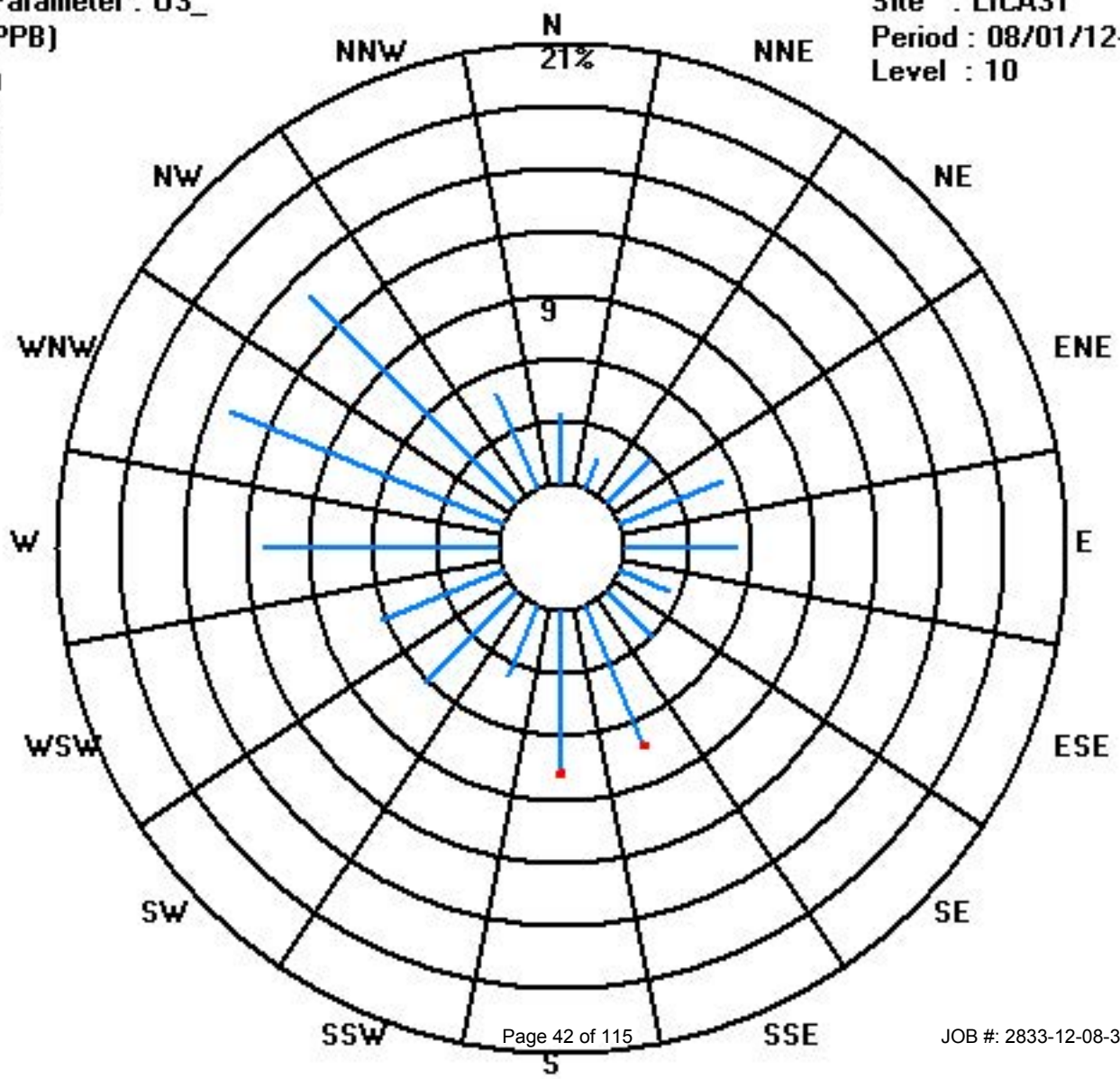
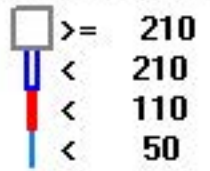
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	24	11	21	37	38	18	22	51	55	26	44	44	79	99	99	35	703
< 110								1	1								2
< 210																	
>= 210																	
Totals	24	11	21	37	38	18	22	52	56	26	44	44	79	99	99	35	

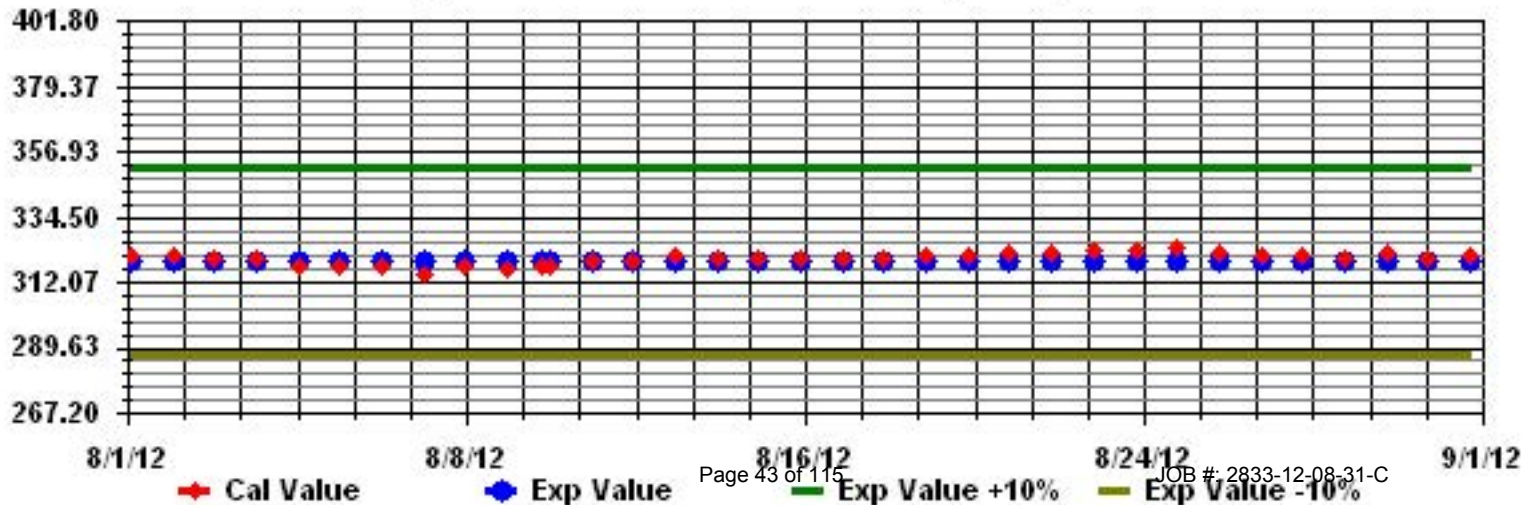
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	RDGS.	
DAY	DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0:00	MAX.	AVG.		
1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
2	2	IZS	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0.1	24
3	3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	2	0	0	0	IZS	0	2	0.2	24	
4	4	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0.1	24
5	5	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0.3	24	
6	6	0	0	2	2	2	4	4	2	1	1	0	1	1	0	0	0	0	0	0	IZS	1	1	1	2	4	1.1	24	
7	7	1	1	1	1	1	1	0	1	0	0	0	1	1	2	2	2	1	1	IZS	1	1	2	1	3	3	1.1	24	
8	8	1	2	3	2	2	2	2	1	1	0	1	0	1	3	1	1	1	IZS	0	0	0	0	1	0	3	1.1	24	
9	9	0	0	0	0	0	1	0	0	0	C	C	C	C	C	C	C	C	0	0	1	0	0	0	0	1	0.1	24	
10	10	0	0	0	1	1	0	0	0	0	0	0	M	0	0	0	IZS	0	1	0	0	0	0	1	1	1	0.2	23	
11	11	2	2	1	1	1	1	1	0	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	2	0.4	24
12	12	0	0	0	1	1	0	0	1	0	2	0	0	0	IZS	0	0	0	0	0	0	0	1	1	0	0	2	0.3	24
13	13	0	1	2	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	0	1	1	3	2	1	2	3	1.1	24	
14	14	3	3	2	1	1	0	2	1	1	1	0	IZS	0	1	0	0	1	0	1	1	0	0	0	0	3	0.8	24	
15	15	0	0	0	0	1	1	0	0	0	0	IZS	0	0	0	0	1	0	0	1	1	1	1	1	1	1	0.4	24	
16	16	1	1	1	2	2	2	2	2	1	IZS	1	1	1	1	1	1	0	1	1	1	1	1	1	1	2	1.2	24	
17	17	1	1	2	2	3	3	4	4	IZS	3	2	1	1	1	0	1	0	0	1	0	1	1	0	1	4	1.4	24	
18	18	0	0	0	0	1	2	1	IZS	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0.5	24	
19	19	1	1	1	1	1	1	IZS	0	1	2	2	1	0	0	1	1	0	0	0	1	1	1	1	1	2	2	0.9	24
20	20	1	1	1	1	1	IZS	9	3	2	2	2	1	0	0	0	0	0	0	0	1	1	1	2	2	9	1.3	24	
21	21	2	2	2	2	IZS	3	2	3	2	2	1	1	1	1	0	1	1	1	1	1	1	2	3	3	3	1.6	24	
22	22	2	2	1	IZS	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0.4	24	
23	23	0	0	IZS	0	0	1	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	IZS	0	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
25	25	IZS	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	IZS	1	0.1	24	
26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
27	27	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	0	0	1	1	1	IZS	0	1	1	0.7	24	
28	28	2	2	2	3	3	4	6	3	3	2	2	3	1	1	2	1	2	2	2	1	IZS	0	1	0	6	2.1	24	
29	29	0	0	0	0	1	0	2	1	1	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	2	0.3	24	
30	30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.0	24	
31	31	0	1	1	2	2	3	3	2	3	1	0	0	0	0	0	0	0	0	IZS	0	0	1	1	1	3	1.0	24	
HOURLY MAX		3	3	3	3	3	4	9	4	3	3	2	2	3	3	2	2	1	2	2	2	3	2	2	3				
HOURLY AVG		0.7	0.8	0.8	0.8	0.9	1.2	1.4	0.9	0.7	0.8	0.5	0.5	0.3	0.4	0.3	0.4	0.2	0.2	0.4	0.5	0.6	0.5	0.6	0.8				

STATUS FLAG CODES

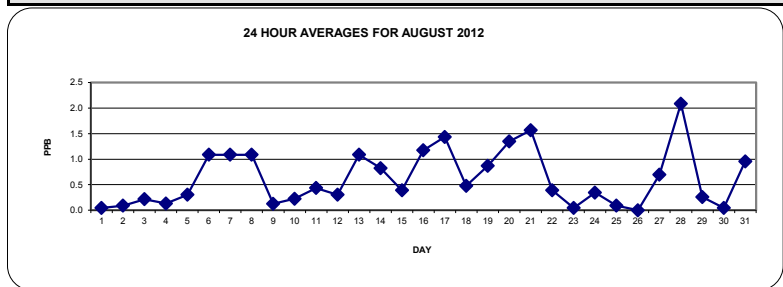
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

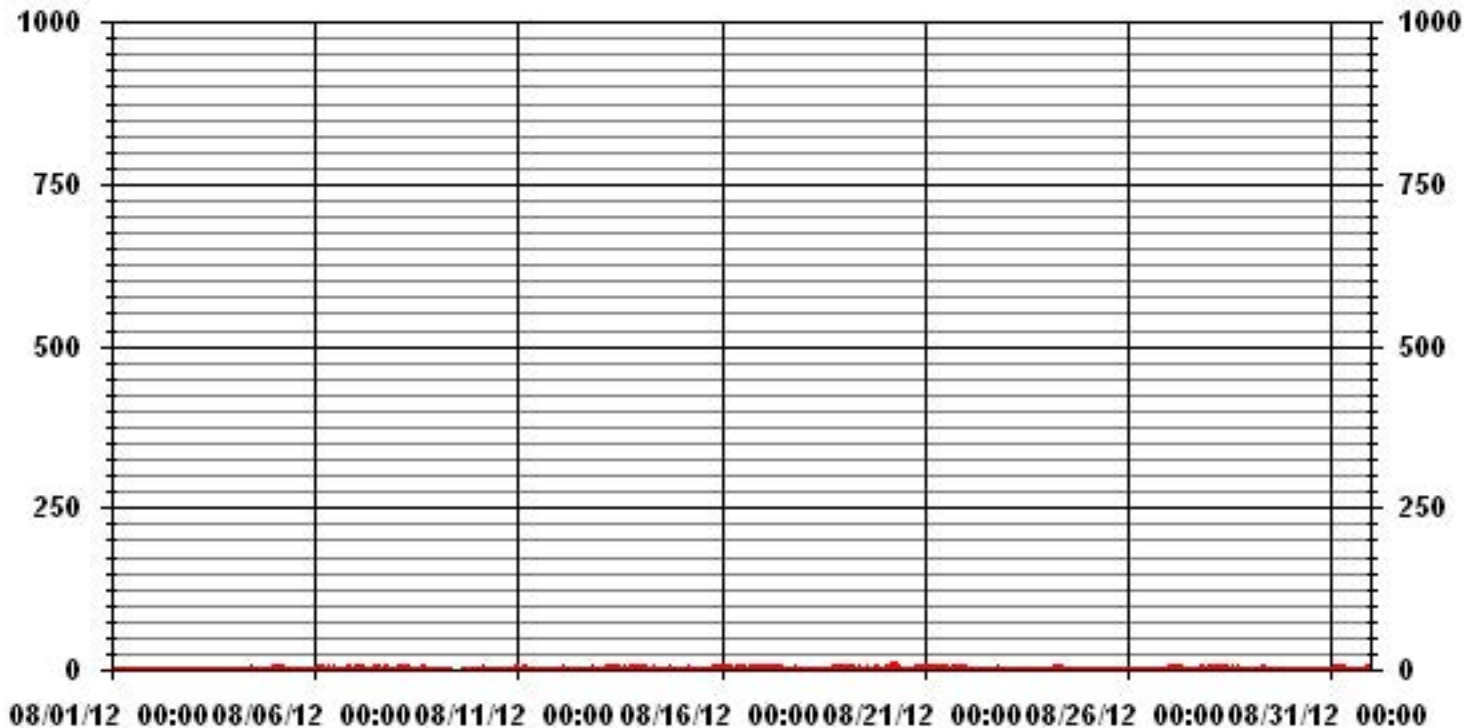
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	308			
MAXIMUM 1-HR AVERAGE:	9	PPB	@ HOUR(S)	6
MAXIMUM 24-HR AVERAGE:	2.1	PPB	ON DAY(S)	20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	99.9
STANDARD DEVIATION:	0.91		MONTHLY AVERAGE:	0.63
				PPB



01 Hour Averages



— LICA31 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	3	2	2	2	2	12	2	12	2	2	7	2	2	2	3	3	5	5	2	3	12	3.5	24
2	IZS	1	0	0	1	1	1	1	1	1	1	14	4	2	2	1	0	1	1	1	0	1	1	1	IZS	14	1.6	24
3	0	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	2	4	1	1	IZS	1	4	1.0	24	
4	1	2	2	2	2	2	2	2	2	3	3	3	2	3	2	1	2	2	2	2	2	2	IZS	1	1	3	2.0	24
5	1	1	1	1	1	1	1	0	0	1	1	1	0	1	0	0	1	1	1	1	1	IZS	1	1	1	1	0.8	24
6	1	1	2	2	3	4	5	3	2	1	1	1	2	1	1	1	1	1	1	1	IZS	2	1	2	P	5	1.8	23
7	2	1	2	2	1	1	1	1	1	1	1	2	3	2	2	2	2	2	2	IZS	1	2	2	2	3	3	1.7	24
8	3	4	4	4	3	3	2	3	2	2	2	1	3	5	1	2	2	IZS	0	1	1	0	P	0	5	2.2	23	
9	1	1	1	1	1	1	P	0	C	C	C	C	C	C	C	C	C	1	1	3	3	2	1	1	3	1.3	23	
10	1	1	2	2	2	2	2	1	2	2	2	M	1	1	1	IZS	1	1	1	1	1	1	1	2	2	1.4	23	
11	3	2	1	1	1	2	2	1	1	1	1	1	1	1	IZS	0	0	0	1	0	1	1	1	1	3	1.0	24	
12	1	1	1	1	1	1	1	12	1	56	1	1	1	IZS	1	1	1	1	1	1	1	1	2	1	1	56	3.9	24
13	1	2	2	2	2	1	1	2	1	2	2	2	IZS	0	4	3	2	1	1	2	9	5	2	2	9	2.2	24	
14	3	4	2	1	2	1	3	1	1	1	1	IZS	1	2	2	2	2	2	2	3	2	2	1	2	4	1.9	24	
15	2	2	1	2	2	2	2	2	15	2	IZS	17	1	1	2	1	1	3	3	3	2	1	1	17	3.0	24		
16	P	2	2	2	3	6	P	2	3	IZS	1	16	2	2	16	3	1	1	2	2	2	2	2	2	16	3.5	22	
17	2	2	2	3	7	4	18	5	IZS	20	2	1	16	1	2	13	2	1	2	1	3	2	1	1	20	4.8	24	
18	1	0	1	1	3	3	1	IZS	2	2	2	2	1	1	1	2	1	2	2	2	2	2	3	3	3	1.7	24	
19	3	3	3	3	2	2	IZS	2	2	4	4	2	2	3	2	3	2	2	2	2	2	3	3	3	4	2.6	24	
20	3	3	3	3	5	IZS	29	10	27	5	4	3	2	3	2	2	2	2	2	2	2	3	3	4	29	5.4	24	
21	3	3	3	3	IZS	22	4	4	4	3	2	1	2	1	1	1	1	1	1	1	1	2	1	3	3	22	3.0	24
22	2	2	2	IZS	1	2	2	2	2	2	15	1	14	2	2	1	21	11	3	3	15	3	1	1	21	4.7	24	
23	1	1	IZS	1	1	12	1	1	14	3	1	1	1	12	1	6	2	1	1	1	1	1	1	0	14	2.8	24	
24	1	IZS	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	0	1	0.8	24	
25	IZS	0	1	1	2	2	1	1	2	2	2	2	2	1	2	2	1	1	1	1	2	1	2	IZS	2	1.5	24	
26	1	0	0	1	1	1	1	10	1	10	2	1	0	0	1	1	0	0	0	1	1	1	IZS	2	10	1.6	24	
27	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	IZS	2	3	3	2.2	24	
28	3	4	4	4	4	6	10	8	4	4	4	3	16	3	4	5	3	28	8	2	IZS	1	0	1	28	5.6	24	
29	1	1	1	1	1	1	4	2	2	9	1	1	0	0	7	1	0	1	1	IZS	1	2	0	1	9	1.7	24	
30	1	1	1	1	1	2	2	1	1	0	1	0	0	0	1	1	1	1	IZS	1	1	1	1	1	2	0.9	24	
31	1	2	3	3	3	4	4	4	4	3	2	1	2	1	1	2	2	IZS	1	2	2	2	2	2	4	2.3	24	
HOURLY MAX	3	4	4	4	7	22	29	12	27	56	4	17	16	12	16	21	11	28	8	15	9	5	3	4				
HOURLY AVG	1.7	1.8	1.7	1.8	2.1	3.2	3.8	2.9	3.6	5.8	1.7	3.8	2.5	1.9	2.4	2.8	1.6	2.2	1.7	2.1	2.2	1.7	1.5	1.6				

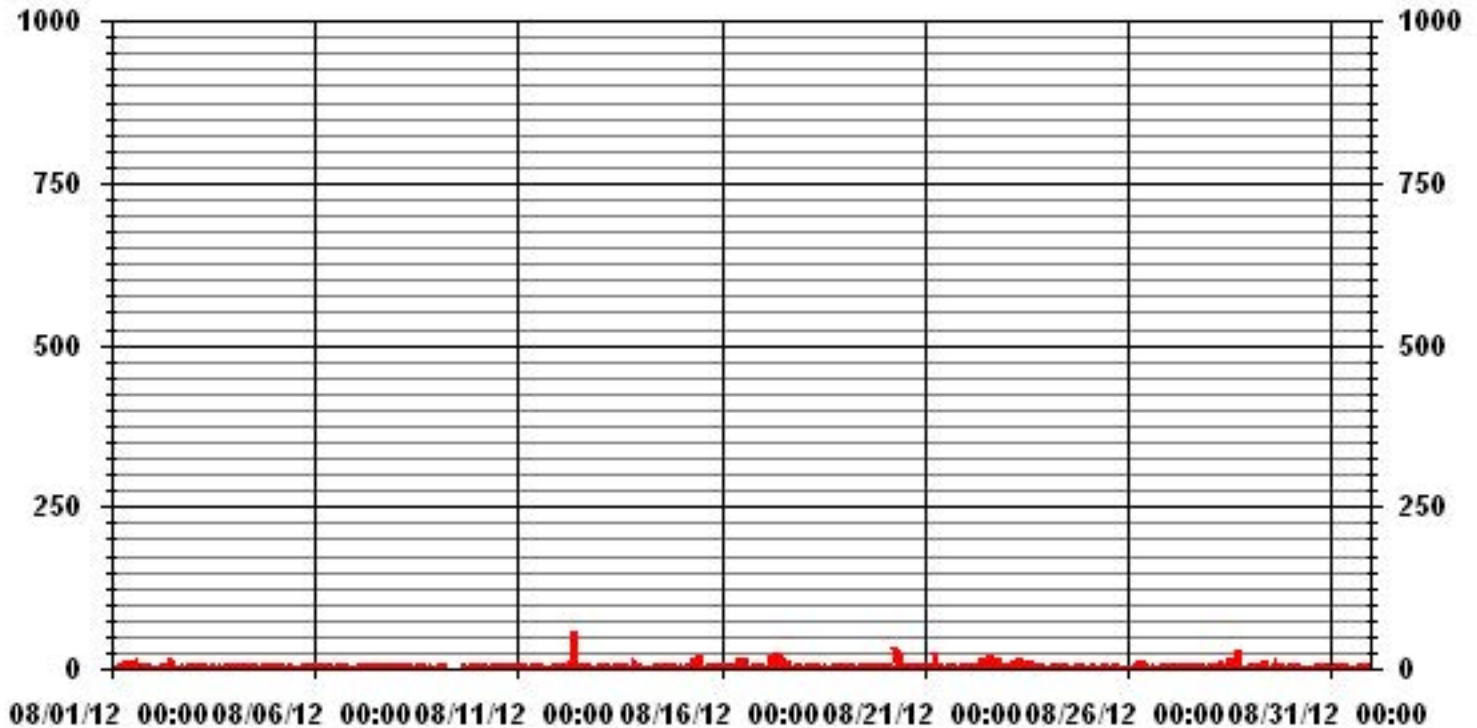
STATUS FLAG CODES

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:	651					
MAXIMUM INSTANTANEOUS VALUE:	56	PPB	@ HOUR(S)	9	ON DAY(S)	12
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	3.81					

01 Hour Averages



LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

August 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	3.41	1.56	2.99	5.27	5.41	2.56	3.13	7.40	7.97	3.70	6.26	5.84	11.11	14.24	14.10	4.98	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.41	1.56	2.99	5.27	5.41	2.56	3.13	7.40	7.97	3.70	6.26	5.84	11.11	14.24	14.10	4.98	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	24	11	21	37	38	18	22	52	56	26	44	41	78	100	99	35	702
< 110																	
< 210																	
>= 210																	
Totals	24	11	21	37	38	18	22	52	56	26	44	41	78	100	99	35	

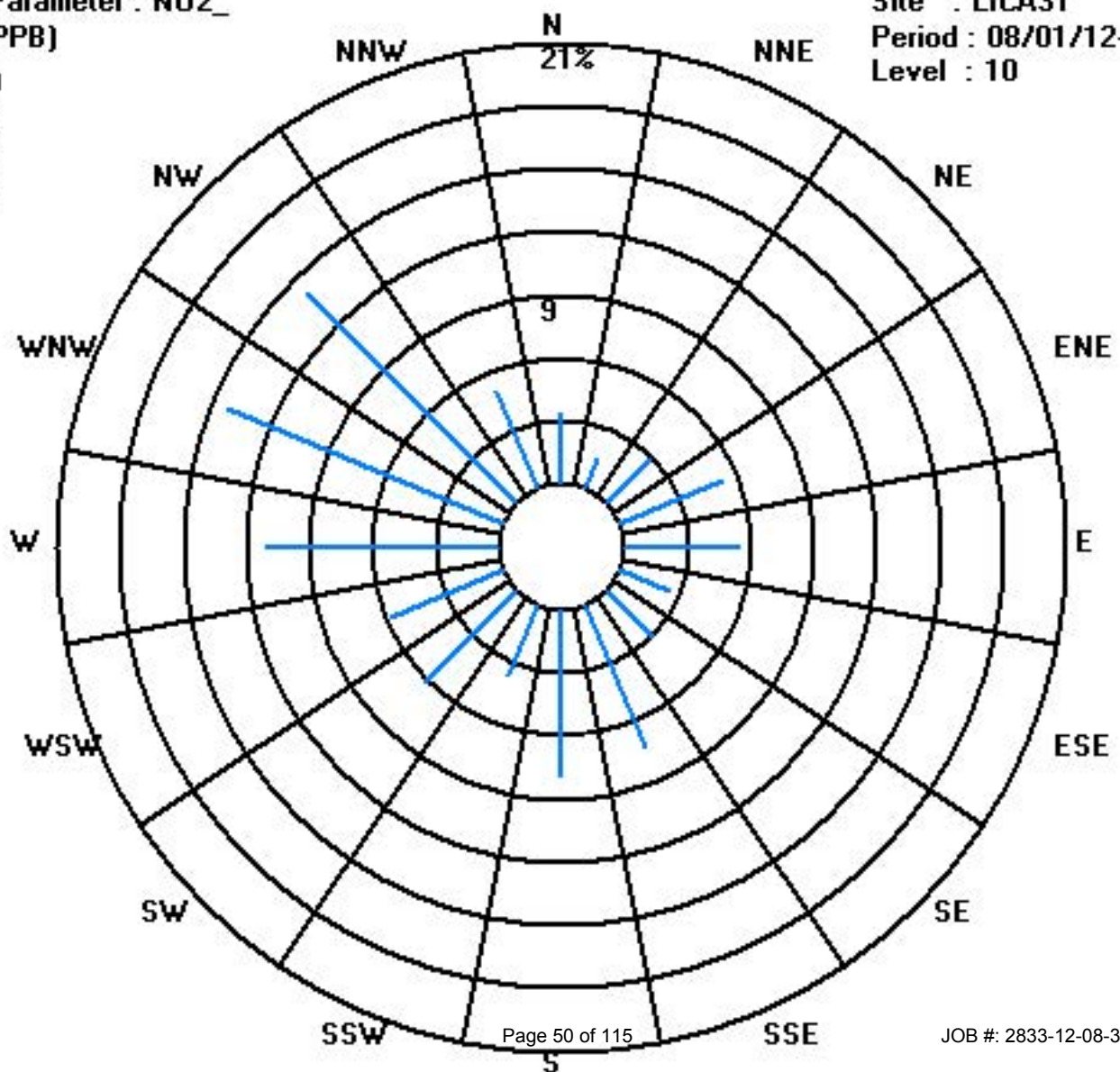
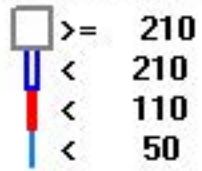
Calm : .00 %

Total # Operational Hours : 702

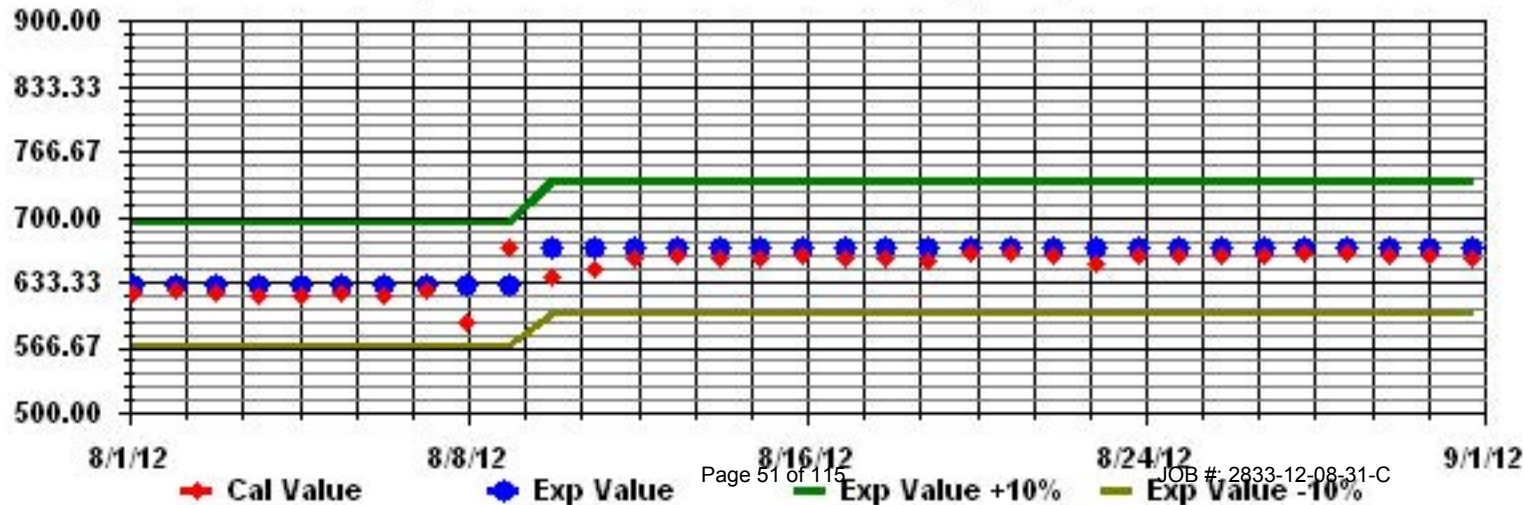
Class Limits (PPB)

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

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNICATY ASSOCIATION - ST. LINA

AUGUST 2012

NITRIC OXIDE hourly averages in ppb

MST

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

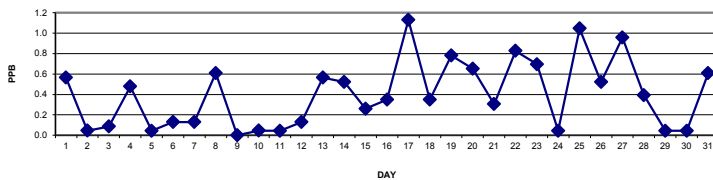
STATUS FLAG CODES

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

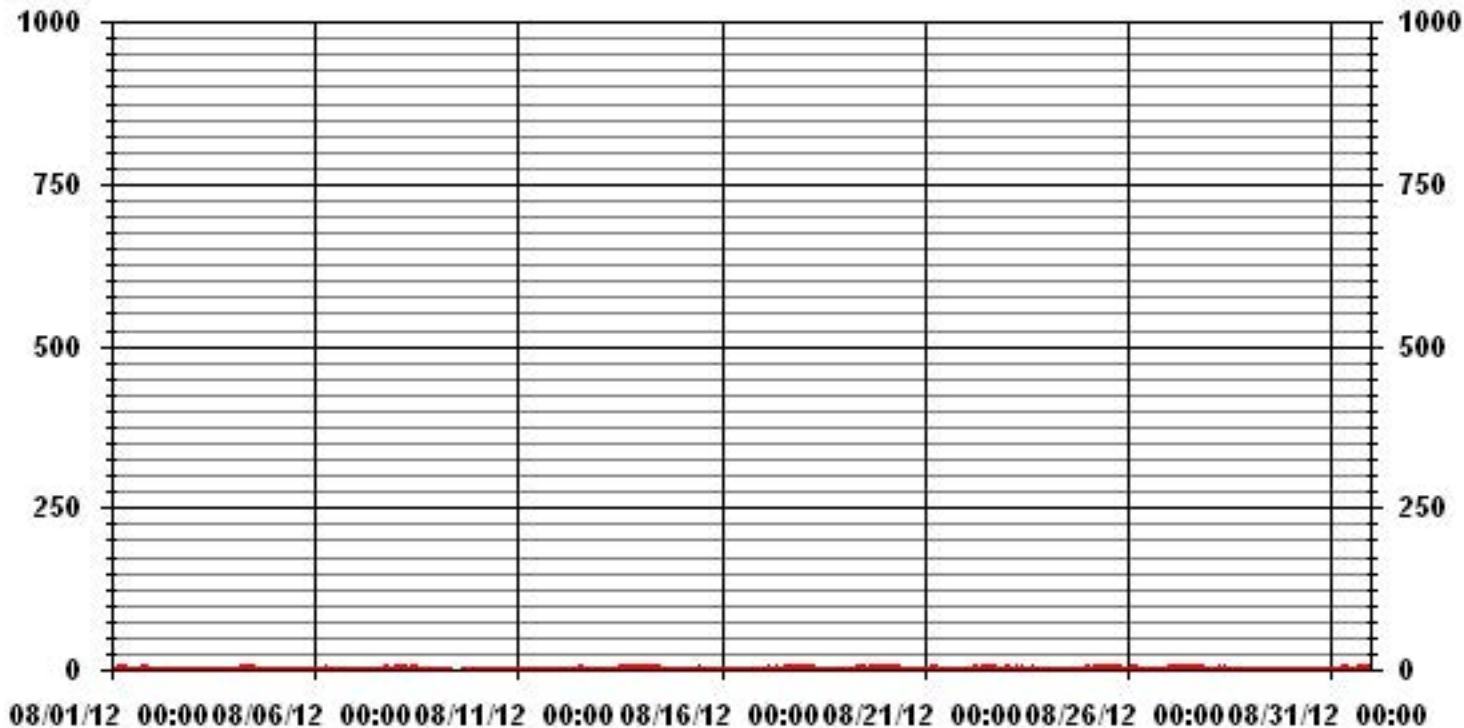
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	240			
MAXIMUM 1-HR AVERAGE:	7	PPB	@ HOUR(S)	6
MAXIMUM 24-HR AVERAGE:	1.1	PPB	ON DAY(S)	17
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	99.9
STANDARD DEVIATION:	0.66		MONTHLY AVERAGE:	0.40
				%

24 HOUR AVERAGES FOR AUGUST 2012



01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	IZS	4	2	2	3	3	2	3	22	2	6	2	1	9	4	2	2	2	2	4	2	1	2	22	3.6	24	
2	IZS	3	1	0	1	1	0	1	1	1	1	24	2	2	1	0	0	1	1	0	1	1	1	IZS	24	2.0	24	
3	3	1	1	0	1	1	1	1	1	1	0	1	0	0	0	1	0	0	1	1	0	0	IZS	4	4	0.8	24	
4	2	1	2	1	1	1	1	2	2	2	2	2	1	1	2	2	1	3	2	1	1	IZS	2	1	3	1.6	24	
5	1	1	0	1	1	1	1	0	0	0	1	1	0	0	0	0	1	0	0	0	IZS	2	1	1	2	0.6	24	
6	1	0	0	1	1	1	2	2	1	1	0	0	2	0	0	0	0	0	0	0	IZS	3	1	1	P	3	0.8	23
7	1	1	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	IZS	3	1	1	1	1	1	3	0.9	24
8	1	1	2	1	2	1	2	2	2	2	1	1	1	1	1	1	1	IZS	2	1	1	1	1	P	0	2	1.2	23
9	0	1	0	0	1	1	P	1	C	C	C	C	C	C	C	C	C	1	1	1	0	1	1	0	1	0.6	23	
10	0	1	1	1	3	1	1	1	1	0	2	M	0	1	0	IZS	3	1	0	1	1	0	0	0	3	0.9	23	
11	1	1	1	0	0	1	2	1	1	1	1	1	0	1	IZS	3	1	1	1	0	1	1	0	0	3	0.9	24	
12	0	0	1	0	1	1	1	28	1	3	1	1	1	IZS	2	2	1	1	1	1	0	0	0	0	28	2.0	24	
13	1	1	1	1	0	0	1	1	1	1	1	1	IZS	4	5	2	2	2	2	1	8	3	1	2	8	1.8	24	
14	2	2	2	1	2	2	4	2	2	2	1	IZS	3	1	1	1	1	0	0	1	0	0	0	0	4	1.3	24	
15	1	0	0	0	1	2	1	0	22	1	IZS	25	3	1	2	1	1	1	2	2	1	0	0	1	25	3.0	24	
16	P	1	1	1	2	6	P	1	3	IZS	3	22	1	2	16	2	0	1	1	1	1	1	1	1	22	3.2	22	
17	1	0	1	0	3	3	62	3	IZS	27	3	2	26	2	2	18	2	2	2	2	2	2	2	2	62	7.3	24	
18	2	2	1	1	2	2	2	IZS	4	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	4	1.3	24	
19	0	1	1	1	0	1	IZS	5	2	3	2	1	2	2	1	2	2	1	1	2	2	1	2	2	5	1.6	24	
20	2	2	2	1	2	IZS	39	5	32	3	3	1	1	1	1	1	0	0	0	1	0	0	0	1	39	4.3	24	
21	0	1	1	1	IZS	36	3	2	4	1	0	0	1	1	0	1	1	1	0	0	1	0	1	0	36	2.4	24	
22	1	1	0	IZS	4	2	2	2	3	25	2	7	2	3	1	25	14	3	3	18	1	2	1	1	25	5.3	24	
23	1	1	IZS	4	2	23	3	2	32	4	2	2	2	15	1	5	1	1	1	1	1	2	2	1	32	4.7	24	
24	1	IZS	3	1	1	1	2	2	1	2	2	1	1	1	1	1	1	2	2	1	0	1	0	0	3	1.2	24	
25	IZS	5	3	2	1	2	2	2	1	2	2	2	1	2	2	2	2	2	1	1	3	1	1	IZS	5	1.9	24	
26	3	2	2	2	2	1	36	60	1	43	3	2	1	1	1	1	1	2	1	1	2	1	IZS	3	60	7.5	24	
27	2	2	2	2	2	1	1	2	2	2	2	2	1	2	1	2	2	1	2	1	2	IZS	2	1	2	1.7	24	
28	1	1	0	1	1	2	11	8	2	2	2	1	10	1	1	2	1	26	2	0	IZS	2	1	1	26	3.4	24	
29	0	0	0	0	0	1	1	2	4	12	1	2	1	1	10	0	1	1	1	IZS	3	1	1	1	12	1.9	24	
30	1	1	0	1	1	2	2	1	2	1	1	1	1	1	1	3	1	1	IZS	3	1	1	1	1	3	1.3	24	
31	1	1	0	1	1	1	1	4	3	3	2	0	0	1	0	0	1	IZS	4	2	2	2	2	2	4	1.5	24	
HOURLY MAX	3	5	4	4	4	36	62	60	32	43	3	25	26	15	16	25	14	26	4	18	8	3	2	4				
HOURLY AVG	1.1	1.2	1.1	0.9	1.4	3.4	6.7	4.8	4.7	5.8	1.6	4.0	2.3	1.8	2.2	2.9	1.5	2.0	1.3	1.7	1.5	1.1	1.0	1.1				

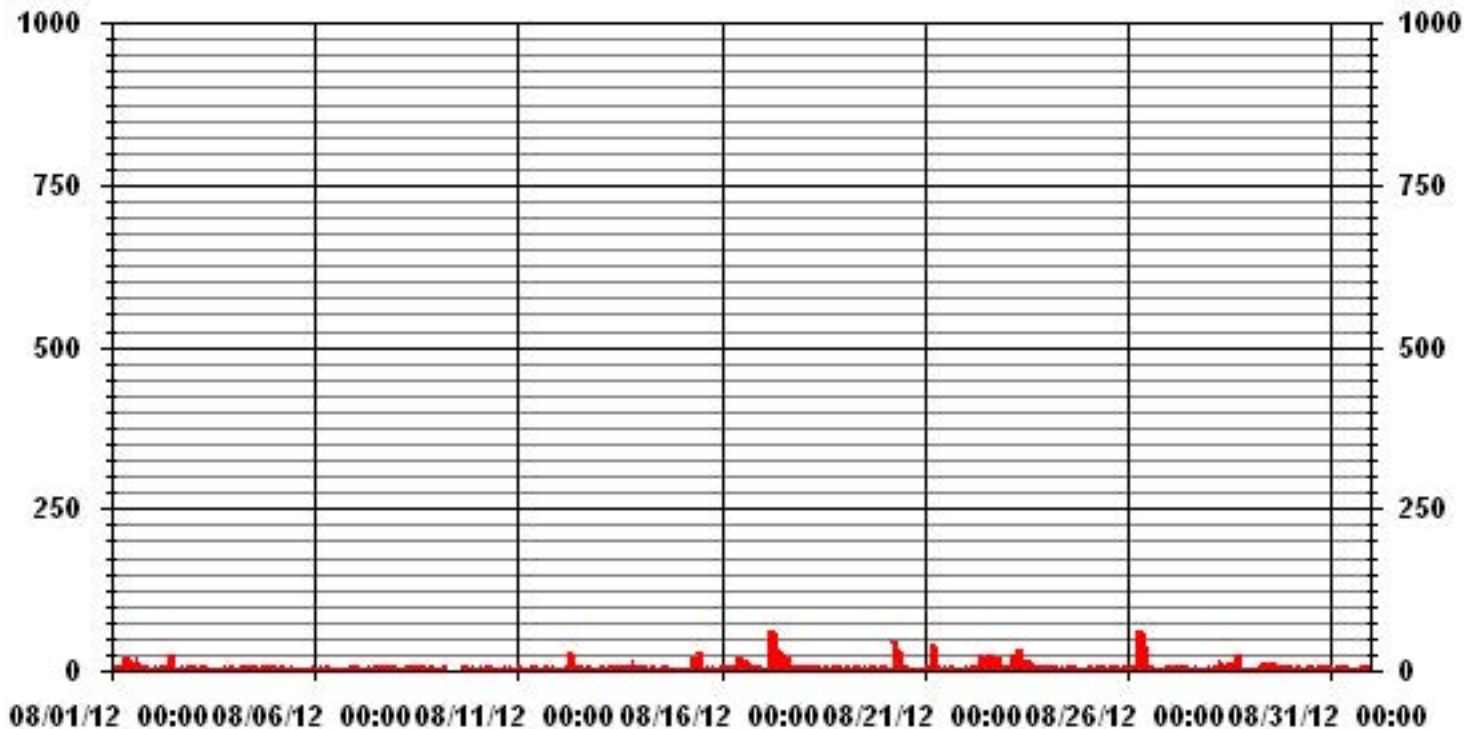
STATUS FLAG CODES

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:	576					
MAXIMUM INSTANTANEOUS VALUE:	62	PPB	@ HOUR(S)	6	ON DAY(S)	17
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	5.70					

01 Hour Averages



LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

August 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	3.41	1.56	2.99	5.27	5.41	2.56	3.13	7.40	7.97	3.70	6.26	5.84	11.11	14.24	14.10	4.98	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.41	1.56	2.99	5.27	5.41	2.56	3.13	7.40	7.97	3.70	6.26	5.84	11.11	14.24	14.10	4.98	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	24	11	21	37	38	18	22	52	56	26	44	41	78	100	99	35	702
< 110																	
< 210																	
>= 210																	
Totals	24	11	21	37	38	18	22	52	56	26	44	41	78	100	99	35	

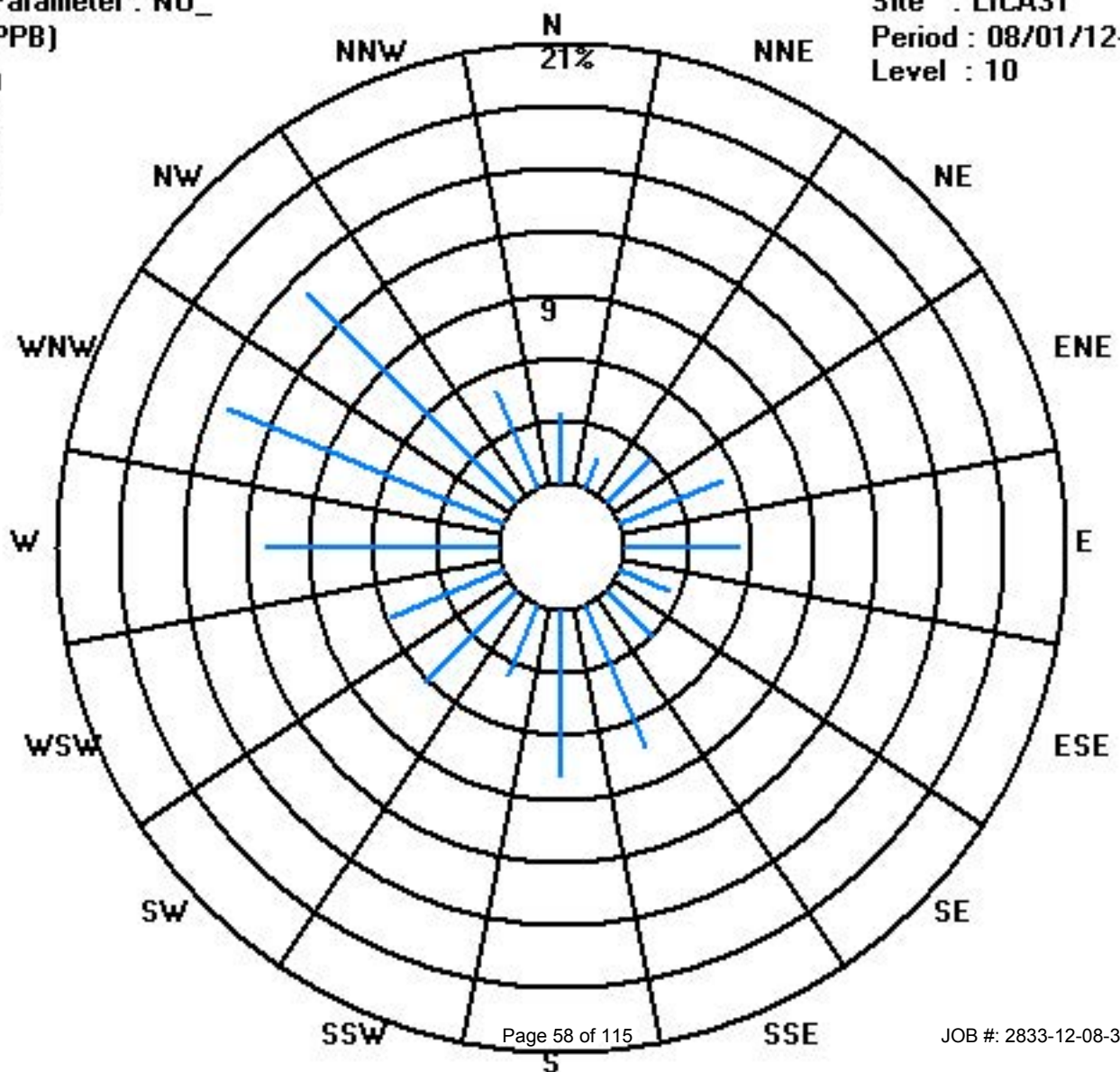
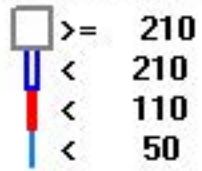
Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)

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

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

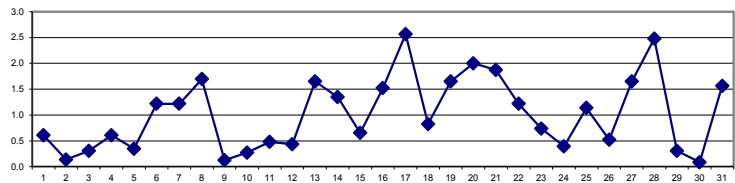
OXIDES OF NITROGEN hourly averages in ppb

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	1	IZS	1	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	1	1	1	1	0	1	1	1	0.6	24
2	IZS	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0.1	24
3	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	0	IZS	1	2	0.3	24	
4	0	0	0	0	1	1	1	1	1	1	2	2	1	1	0	0	0	0	0	0	0	IZS	1	1	2	0.6	24	
5	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	1	0.3	24	
6	0	0	2	2	2	4	5	3	1	1	0	1	1	0	0	0	0	0	0	IZS	2	1	1	2	5	1.2	24	
7	1	1	1	1	1	1	0	1	0	0	0	1	1	2	2	2	1	1	IZS	2	2	2	2	3	3	1.2	24	
8	2	3	4	3	3	3	3	3	2	1	1	1	2	3	1	1	1	IZS	1	0	0	0	1	0	4	1.7	24	
9	0	0	0	0	0	1	0	0	0	C	C	C	C	C	C	C	C	0	0	1	0	0	0	0	1	0.1	24	
10	0	0	0	1	1	0	0	0	0	0	0	M	0	0	0	IZS	1	1	0	0	0	0	1	1	1	0.3	23	
11	2	2	1	1	1	1	1	0	1	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	2	0.5	24
12	0	0	0	1	1	0	0	2	0	2	0	0	0	IZS	1	1	0	0	0	0	1	1	0	0	2	0.4	24	
13	0	1	2	1	1	1	1	1	1	1	1	1	IZS	2	3	2	2	1	2	2	4	3	2	3	4	1.7	24	
14	4	4	3	2	2	1	3	2	2	2	1	IZS	1	1	0	0	1	0	1	1	0	0	0	0	4	1.3	24	
15	0	0	0	0	1	1	0	0	1	0	IZS	3	1	0	1	1	0	0	1	1	1	1	1	1	3	0.7	24	
16	1	1	1	2	2	3	5	2	2	IZS	3	2	1	1	1	1	0	1	1	1	1	1	1	1	5	1.5	24	
17	1	1	2	2	4	4	7	5	IZS	7	4	2	3	2	1	2	1	1	2	1	2	2	1	2	7	2.6	24	
18	1	1	1	1	2	3	2	IZS	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	3	0.8	24	
19	1	1	1	1	1	1	IZS	3	2	3	3	2	1	1	1	2	1	1	1	2	2	2	2	3	3	1.7	24	
20	2	2	2	2	2	IZS	16	4	3	3	2	1	0	0	0	0	0	0	0	1	1	1	2	2	16	2.0	24	
21	2	2	2	2	IZS	7	3	4	3	2	1	1	1	1	1	0	1	1	1	1	1	1	2	3	7	1.9	24	
22	2	2	1	IZS	2	2	1	1	1	3	1	1	1	1	0	1	1	1	1	3	1	0	1	0	3	1.2	24	
23	1	1	IZS	2	1	3	1	1	2	1	1	0	0	1	0	1	1	0	0	0	0	0	0	0	3	0.7	24	
24	0	IZS	1	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24	
25	IZS	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
26	1	0	1	1	1	1	1	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	0.5	24	
27	2	2	2	2	2	2	2	2	2	2	1	1	1	2	1	2	1	1	2	2	2	IZS	1	1	2	1.7	24	
28	2	2	2	3	3	4	8	6	4	3	3	2	3	1	1	2	1	2	2	1	IZS	1	1	0	8	2.5	24	
29	0	0	0	0	1	0	0	2	1	1	2	0	0	0	0	0	0	0	0	IZS	0	0	0	0	2	0.3	24	
30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	1	0.1	24	
31	0	1	1	2	2	3	3	4	5	2	1	0	0	0	0	0	0	IZS	2	2	2	2	2	2	5	1.6	24	
HOURLY MAX	4	4	4	3	4	7	16	6	5	7	4	3	3	3	3	2	2	2	2	3	4	3	2	3				
HOURLY AVG	1.0	1.1	1.1	1.1	1.4	1.8	2.3	1.7	1.3	1.4	0.9	0.9	0.7	0.7	0.5	0.7	0.5	0.4	0.7	0.9	0.9	0.8	0.8	1.0				

STATUS FLAG CODES

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

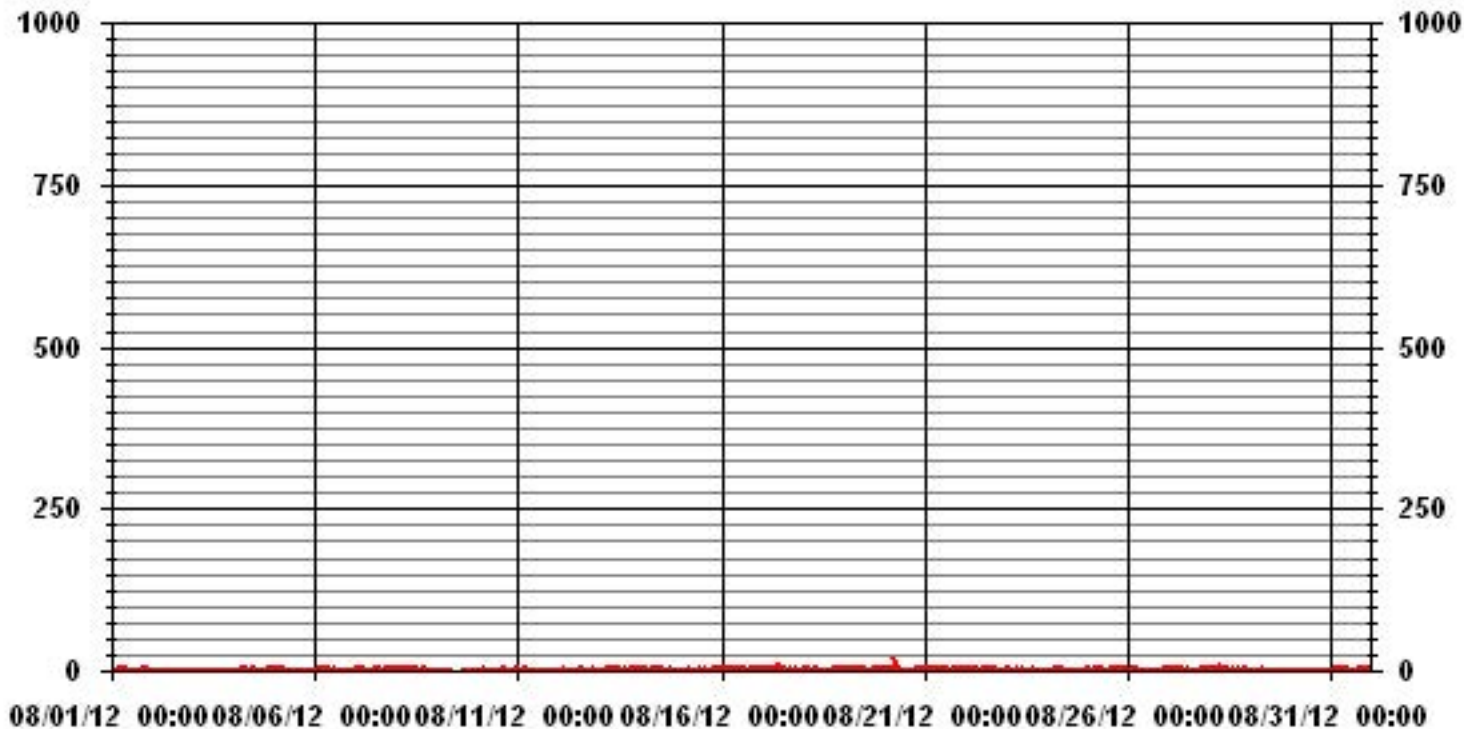
24 HOUR AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	433
MAXIMUM 1-HR AVERAGE:	16 PPB @ HOUR(S) 6 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	2.6 PPB ON DAY(S) 17
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	1.27
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	1.03 PPB

01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	1	IZS	3	1	2	3	3	2	3	30	1	16	3	1	13	4	2	2	4	3	7	6	1	2	30	4.9	24
2	IZS	4	1	1	2	2	2	2	2	1	1	36	7	4	3	1	1	2	1	1	2	2	2	IZS	36	3.6	24
3	3	1	1	1	1	2	1	2	1	1	1	1	1	1	0	1	1	1	3	6	1	1	IZS	3	6	1.5	24
4	1	1	1	1	1	1	1	1	2	3	3	3	2	2	2	1	0	3	2	1	1	IZS	2	1	3	1.6	24
5	1	2	2	2	2	2	2	1	1	2	2	1	1	1	1	1	1	0	1	1	IZS	2	1	1	2	1.3	24
6	1	1	3	3	3	5	7	4	2	2	1	1	4	1	1	1	1	1	1	IZS	3	2	2	P	7	2.3	23
7	2	2	2	2	1	2	2	2	1	1	1	2	3	3	2	2	2	2	IZS	3	2	3	3	3	3	2.1	24
8	3	4	5	4	3	3	4	4	3	2	2	2	4	6	2	2	2	IZS	2	1	1	1	P	1	6	2.8	23
9	0	1	1	1	1	3	P	1	C	C	C	C	C	C	C	C	0	0	4	3	3	1	1	4	1.4	23	
10	1	0	1	2	4	2	2	1	2	1	4	M	0	0	1	IZS	3	2	1	1	1	1	2	2	4	1.5	23
11	4	3	2	2	2	2	4	1	3	1	2	1	1	1	IZS	3	1	1	1	1	2	2	1	1	4	1.8	24
12	1	1	1	2	1	2	1	36	1	59	2	2	2	IZS	3	2	1	1	1	1	1	2	1	1	59	5.4	24
13	1	2	3	2	2	2	2	2	2	3	2	4	IZS	4	9	4	3	2	3	4	17	8	3	4	17	3.8	24
14	5	5	4	3	4	3	7	3	3	2	2	IZS	2	2	1	2	1	1	1	3	1	1	1	1	7	2.5	24
15	1	1	1	1	2	3	1	1	32	2	IZS	41	4	2	3	2	2	2	4	4	4	2	2	1	41	5.1	24
16	P	2	2	2	5	12	P	3	6	IZS	4	36	3	3	29	5	2	2	3	3	3	2	2	2	36	6.2	22
17	2	2	2	4	10	7	78	8	IZS	48	5	4	40	3	3	30	4	3	4	2	5	4	3	3	78	11.9	24
18	2	2	2	2	5	4	3	IZS	3	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	5	2.0	24
19	2	2	2	2	2	2	IZS	5	3	5	5	3	2	4	3	4	2	2	2	3	3	3	3	3	5	2.9	24
20	3	3	3	3	6	IZS	65	14	55	6	5	3	1	2	2	1	1	1	1	2	2	2	2	3	65	8.1	24
21	2	2	2	3	IZS	56	7	6	8	4	2	2	3	2	1	1	2	1	1	2	2	2	4	3	56	5.1	24
22	3	3	2	IZS	3	3	2	2	3	34	2	21	3	4	1	41	23	5	5	31	3	2	1	2	41	8.7	24
23	1	1	IZS	3	2	35	3	1	40	6	3	1	2	25	1	10	2	1	1	1	2	1	1	1	40	6.3	24
24	1	IZS	3	1	1	2	3	3	2	2	2	1	2	1	2	1	1	2	2	2	1	1	1	1	3	1.7	24
25	IZS	3	2	2	2	2	2	2	2	2	2	4	2	2	3	2	3	2	2	2	4	2	2	IZS	4	2.3	24
26	3	1	2	2	2	2	37	65	1	47	4	1	1	1	0	1	1	0	0	1	1	1	IZS	3	65	7.7	24
27	3	3	3	3	3	3	3	2	2	3	2	2	2	2	2	3	2	2	3	3	3	IZS	2	2	3	2.5	24
28	3	3	3	4	3	7	20	15	5	5	5	3	23	3	4	5	2	49	8	2	IZS	3	1	1	49	7.7	24
29	1	1	1	1	1	2	4	4	6	21	1	3	2	1	13	1	1	2	2	IZS	3	2	0	0	21	3.2	24
30	0	0	0	0	2	3	3	1	2	0	0	0	0	0	0	3	0	1	IZS	2	1	1	1	1	3	0.9	24
31	1	2	2	3	3	3	4	7	6	5	3	1	1	1	1	1	1	IZS	3	3	3	3	3	3	7	2.7	24
HOURLY MAX	5	5	5	4	10	56	78	65	55	59	5	41	40	25	29	41	23	49	8	31	17	8	4	4			
HOURLY AVG	1.9	2.0	2.1	2.1	2.7	6.0	9.8	6.7	7.0	10.3	2.4	7.0	4.2	2.9	3.7	4.7	2.3	3.2	2.2	3.3	2.9	2.3	1.8	1.9			

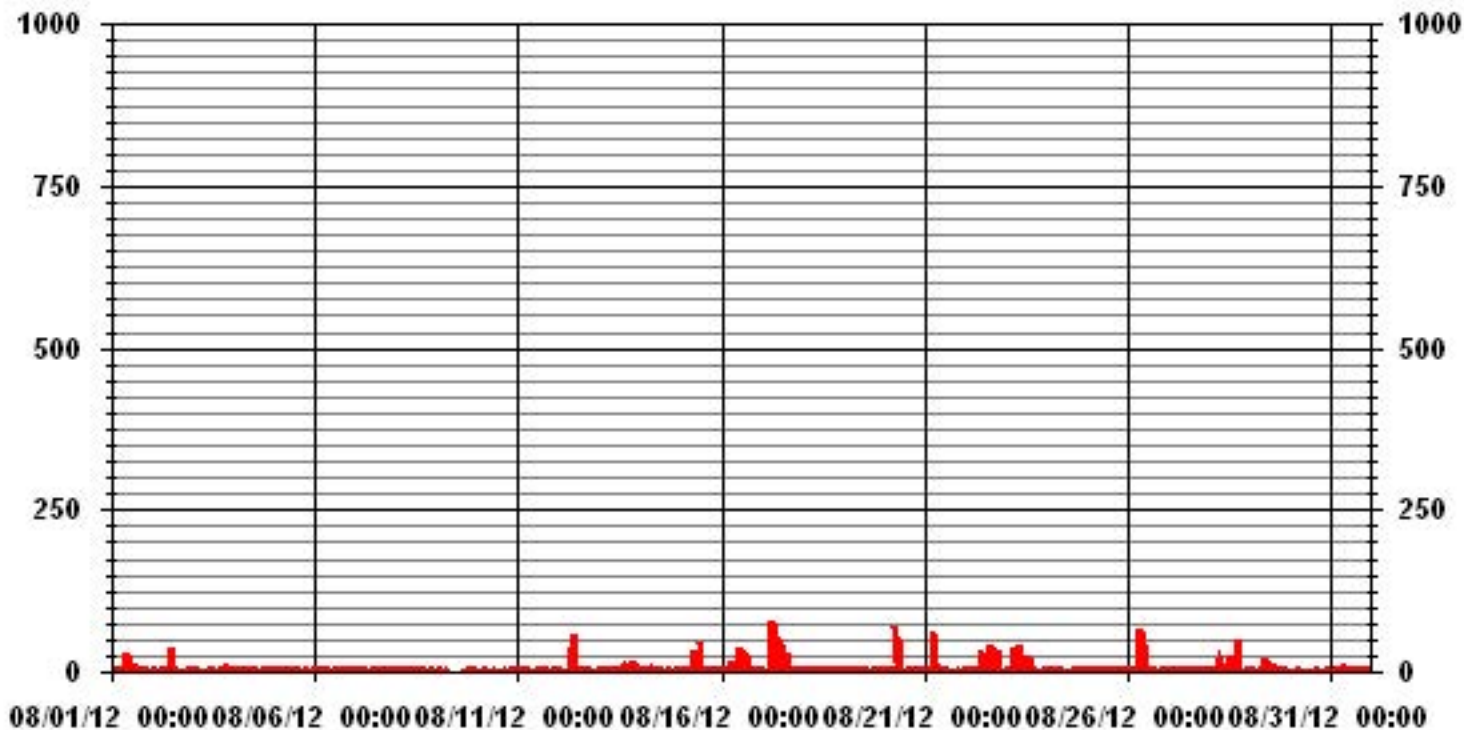
STATUS FLAG CODES

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:	672
MAXIMUM INSTANTANEOUS VALUE:	78 PPB @ HOUR(S) 6 ON DAY(S) 17
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	9 HRS
OPERATIONAL TIME:	738 HRS
STANDARD DEVIATION:	8.31

01 Hour Averages



LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

August 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	3.41	1.56	2.99	5.27	5.41	2.56	3.13	7.40	7.97	3.70	6.26	5.84	11.11	14.24	14.10	4.98	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.41	1.56	2.99	5.27	5.41	2.56	3.13	7.40	7.97	3.70	6.26	5.84	11.11	14.24	14.10	4.98	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	24	11	21	37	38	18	22	52	56	26	44	41	78	100	99	35	702
< 110																	
< 210																	
>= 210																	
Totals	24	11	21	37	38	18	22	52	56	26	44	41	78	100	99	35	

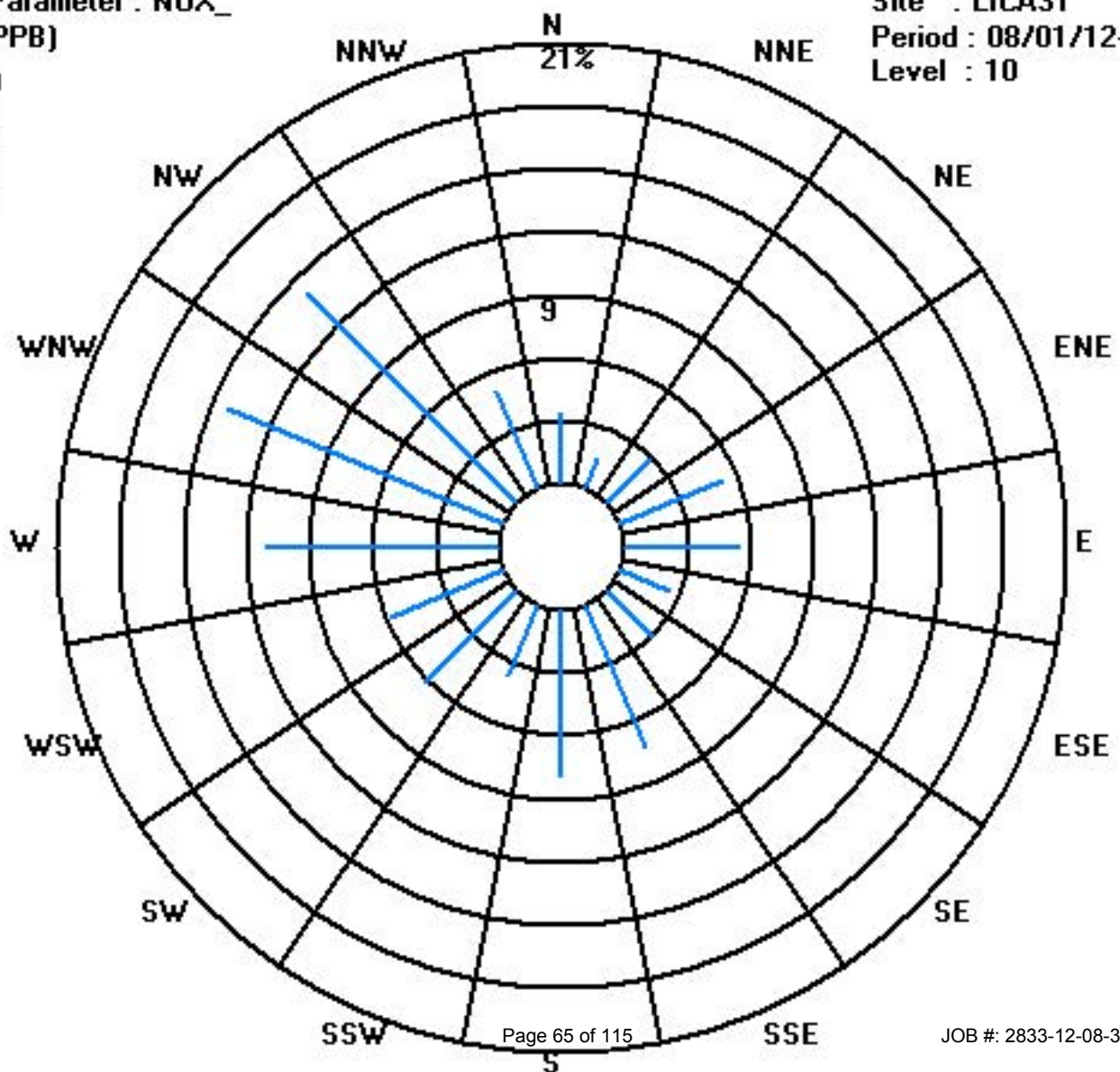
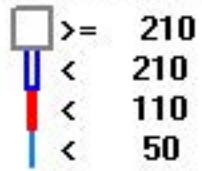
Calm : .00 %

Total # Operational Hours : 702

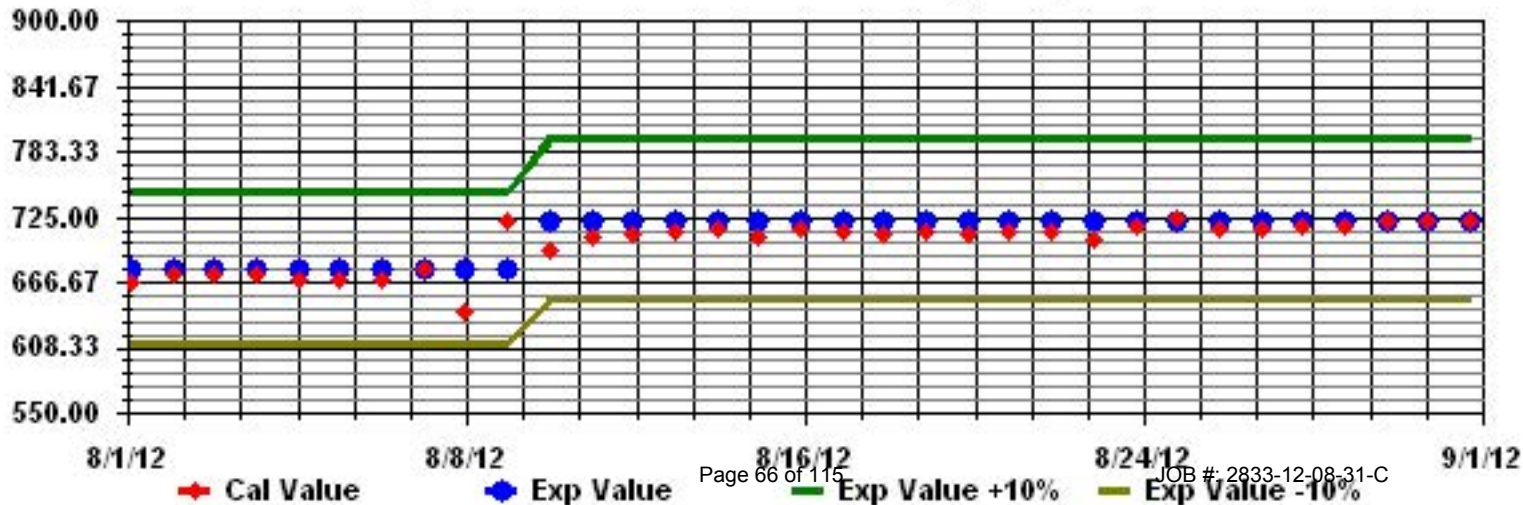
Class Limits (PPB)

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

Level : 10



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

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

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	4.6	6.6	5.1	4.6	4.6	4	3	3	4.6	4.6	7.6	2.6	2.6	5.1	7.6	5.1	3.6	5.5	5.1	3	9.6	5.5	5.1	7.6	9.6	5.0	24	
2	4.6	8.1	5.1	0	0	3	0	0	2.1	3	2.6	6.1	0	3.5	4	3	1.5	2.1	4	4.6	3	3	3.6	4	8.1	3.0	24	
3	5.1	2.1	4.6	0.5	2.6	4.6	8.1	6.6	7.6	6.6	6.1	5.5	6.1	5.5	6.1	0	6.1	6.6	5.1	4.6	7.6	4.6	4	3	8.1	5.0	24	
4	4	7.1	2.6	6	4	2.6	4	6.1	8.6	3	9.6	11	9.1	21.1	3	4	6.6	6.6	3	4	8	8	9.6	10.1	21.1	6.7	24	
5	1.1	4.6	4.6	7.1	4.6	3.5	4.6	4.6	6.6	4.6	5.1	5.1	2.6	6.1	3	5.5	3.6	7.1	2.6	4	3	8.6	3	5.5	8.6	4.6	24	
6	8.6	6.1	6.1	4.6	7.1	7.1	9.6	5.5	0.5	5.1	6.1	6.1	6.1	7.6	4	5.5	11.1	5.5	10.1	5.5	7.6	5.5	9.6	N	11.1	6.7	23	
7	1.1	3	5.5	6.1	3.5	2.6	7.6	5.5	7.1	4.1	6.1	5.1	7.6	9.1	5.5	9.6	2.1	9.1	0	14.1	5.1	3.6	8.6	11.6	14.1	6.0	24	
8	10.1	0	0	0	0	2.6	3.6	8.1	2.6	5.5	13.6	14.6	4.6	15.1	14.6	9.6	8.6	7.6	9.1	12.1	10.5	8	0.5	0	15.1	6.7	24	
9	8.1	2.6	4.6	6.6	3.6	7.1	0.5	4	5.1	C	C	4	7.1	1.1	0	0.5	3	4	3.1	6.6	2.6	0.5	4.6	6.1	8.1	3.9	24	
10	7.1	4.6	8.1	7.6	2.6	4	3	5.5	3.6	6.1	4.6	3.6	7.1	9.1	5.1	7.6	7.1	7.1	6.1	8.1	9.6	6.6	7.6	9.6	9.6	6.3	24	
11	8.6	7.6	7.6	9.1	9.6	6.6	6.1	4.6	4	4	1.5	3.6	0	1.1	2.6	3.1	5.5	1.1	1.5	1.1	1.5	3.6	2.1	4.6	9.6	4.2	24	
12	2.6	2.6	3.1	1.1	3.1	2.1	6.6	2.1	2.1	3.6	1.1	5.5	4.6	5.5	4.6	6.1	0.5	3	3	8.6	6.1	9.1	11.6	8.1	11.6	4.4	24	
13	6.6	7.6	10.1	8.6	6.6	8.6	6.1	5.5	4.6	5.5	3.1	7.1	3.1	5.5	8.6	5.1	5.1	2.1	8.1	3.6	9.1	9.6	10.1	8.6	10.1	6.6	24	
14	6.6	6.6	6.1	7.6	8.6	9.6	7.6	8.6	6.6	7.1	5.1	8.6	6.1	13.6	9.1	3	2.6	7.6	5.1	8.1	4.6	4	2.1	1.1	13.6	6.5	24	
15	1.5	3.1	0	1.1	4.6	2.1	4.6	3.6	5.1	2.1	2.1	0	3.1	0	3.6	6.6	1.5	2.6	2.1	7.6	6.6	5.1	5.5	6.6	7.6	3.4	24	
16	1.5	6.1	9.6	8.6	9.1	11.1	0.5	6.1	7.1	7.6	8.1	6.1	4.6	5.5	7.1	7.1	2.6	4	6.1	7.1	3.6	6.1	11.6	8.6	11.6	6.5	24	
17	7.6	9.1	10.5	10.5	10.1	12.1	12	10.1	12	13.6	9.5	8.6	8.6	8.6	7.6	11	11.1	8	8.6	7.6	5.5	7.6	6	5.5	13.6	9.2	24	
18	4.6	10.1	12	9.6	10.5	10.5	8.6	8.1	6.1	7.1	8.1	5.1	4.6	5.5	8	7.6	8	3.1	10.1	8.6	9.1	8.6	9.1	7.1	12.0	7.9	24	
19	12.6	11.1	11.1	7.1	11.6	10.5	9.1	9.6	11.1	10.5	11.6	10.5	9.1	10.1	10	8.6	7.6	14.1	12.1	13.6	7.1	12.1	9.1	8.6	14.1	10.4	24	
20	9.1	5.5	11.5	9.1	7.1	8.6	7.1	7.1	7.6	8.1	11.1	7.6	6.6	7.6	8.1	8.6	7.1	8.6	5.1	9.1	7.1	8.6	8.6	10.1	11.5	8.1	24	
21	12.6	11.1	10.1	9.6	10.5	10.1	10.1	6.6	8.1	15.1	11.5	13.1	6.1	7.1	6.6	9.1	11.6	10.1	9.6	16.6	11.6	15.6	8.6	7.6	16.6	10.4	24	
22	13.1	13.1	6.6	7.6	5.1	2.6	1.1	2.6	5.1	4	6.1	4	2.6	1.5	3.6	2.6	5.1	6.1	2.6	1.1	6.1	3	5.5	3	13.1	4.7	24	
23	5.1	4	4	3.6	5.1	4	3.6	5.5	5.5	8.6	7.6	9.1	9.1	5.5	6.1	4.6	5.5	6.6	6.6	7.6	2.1	0	2.1	0.5	9.1	5.1	24	
24	1.1	0	1.1	2.6	3.6	4	6.1	0.5	3.6	4	5.1	3.1	1.5	2.1	1.1	3.6	0	2.1	2.1	3.6	2.6	0	4.6	2.6	6.1	2.5	24	
25	1.1	2.1	2.1	1.1	4.6	0	1.5	2.6	2.6	0	4	4	6.6	3	3.6	1.1	3	4.6	1.5	4	1.5	3	0	2.6	6.6	2.5	24	
26	2.6	2.1	0	3.6	4.6	1.1	2.6	6.6	4	6.1	4.6	3	5.1	2.1	2.6	4	0.5	4	1.5	0.5	0	4	5.5	4.6	6.6	3.1	24	
27	4.6	6.1	8.1	7.1	4.6	3.6	5.1	3	1.1	4.6	5.1	5.1	4	7.1	9.1	8.6	9.1	7.6	8	7.6	14.1	14.1	11.1	7.1	14.1	6.9	24	
28	10.5	11.6	7.6	9.6	10.5	7.6	13.6	7.1	7.1	8.6	11.6	12.6	12.1	11.6	9.1	11.1	11.6	11.6	8.6	14.6	9.6	16	5.5	12.6	16.0	10.5	24	
29	8.6	6.6	11.6	7.6	7.6	3	4.6	3.6	1.5	5.1	4.6	2.6	0	6.6	0.5	2.6	3	3.6	1.1	2.1	0.5	1.5	1.1	3	11.6	3.9	24	
30	0	5.1	2.1	2.6	1.5	2.6	0.5	1.1	4	1.5	0	1.5	4	1.5	1.1	4	2.1	2.1	4.6	1.1	0	2.1	0.6	3.6	5.1	2.1	24	
31	5.1	0.5	1.1	0	0	0	0	1.5	1.1	0.5	0.5	5.5	1.1	2.1	9.6	4	4.6	3	0	12.6	5.1	0	2.1	2.1	12.6	2.6	24	
HOURLY MAX	13.1	13.1	12.0	10.5	11.6	12.1	13.6	10.1	12.0	15.1	13.6	14.6	12.1	21.1	14.6	11.1	11.6	14.1	12.1	16.6	14.1	16.0	11.6	12.6				
HOURLY AVG	5.8	5.7	5.9	5.5	5.5	5.2	5.2	5.0	5.1	5.7	6.1	6.1	5.1	6.3	5.7	5.6	5.2	5.7	5.0	6.9	5.8	6.1	5.8	5.9				

STATUS FLAG CODES

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

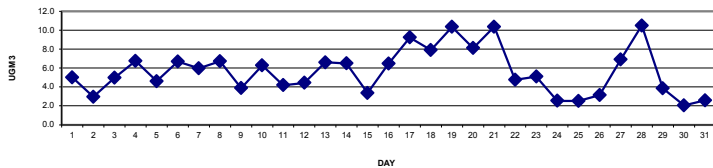
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	-	ug/m ³	24-HR	30	ug/m ³
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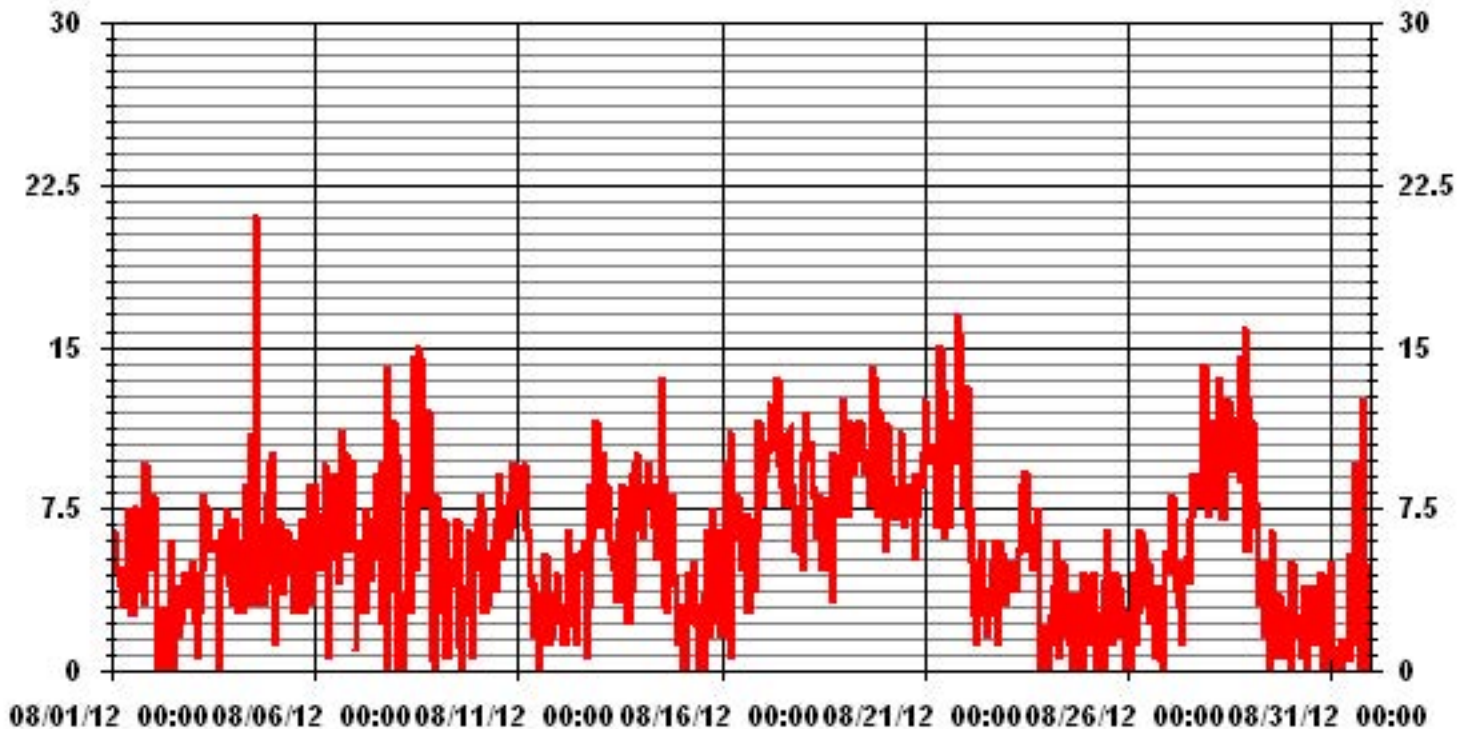
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	705		
MAXIMUM 1-HR AVERAGE:	21.1 UG/M ³ @ HOUR(S) 13 ON DAY(S) 4		
MAXIMUM 24-HR AVERAGE:	10.5 UG/M ³ ON DAY(S) 28		
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	2 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	3.49	MONTHLY AVERAGE:	5.66 UG/M ³

24 HOUR AVERAGES FOR AUGUST 2012



01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

August 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	3.24	1.62	2.97	5.00	5.54	2.56	2.97	7.29	7.83	3.91	6.21	6.75	10.94	14.05	13.91	5.13	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	3.24	1.62	2.97	5.00	5.54	2.56	2.97	7.29	7.83	3.91	6.21	6.75	10.94	14.05	13.91	5.13	

Calm : .00 %

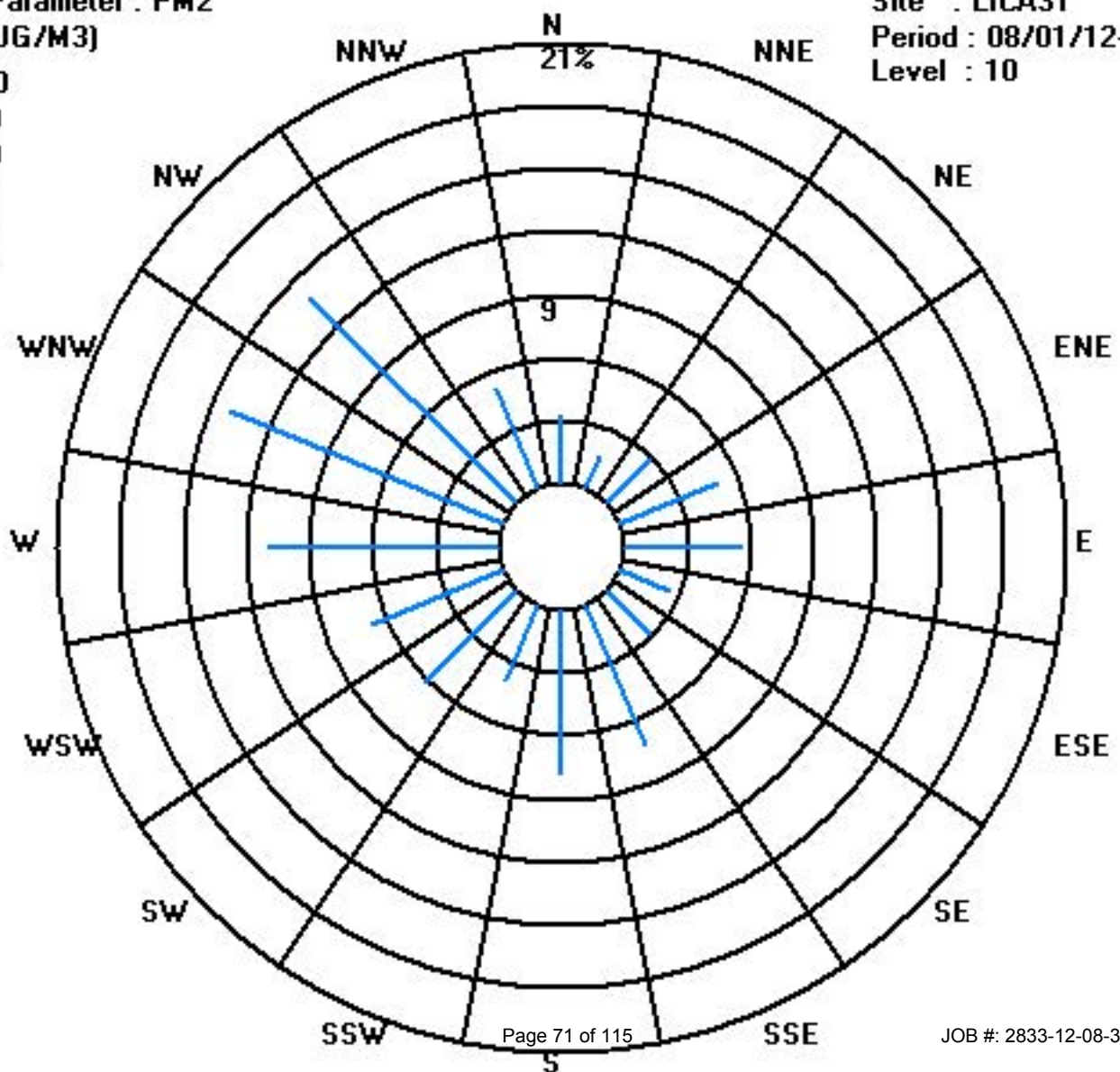
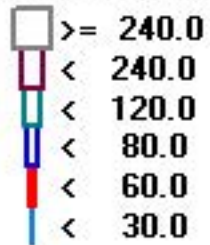
Total # Operational Hours : 740

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	24	12	22	37	41	19	22	54	58	29	46	50	81	104	103	38	740
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	24	12	22	37	41	19	22	54	58	29	46	50	81	104	103	38	

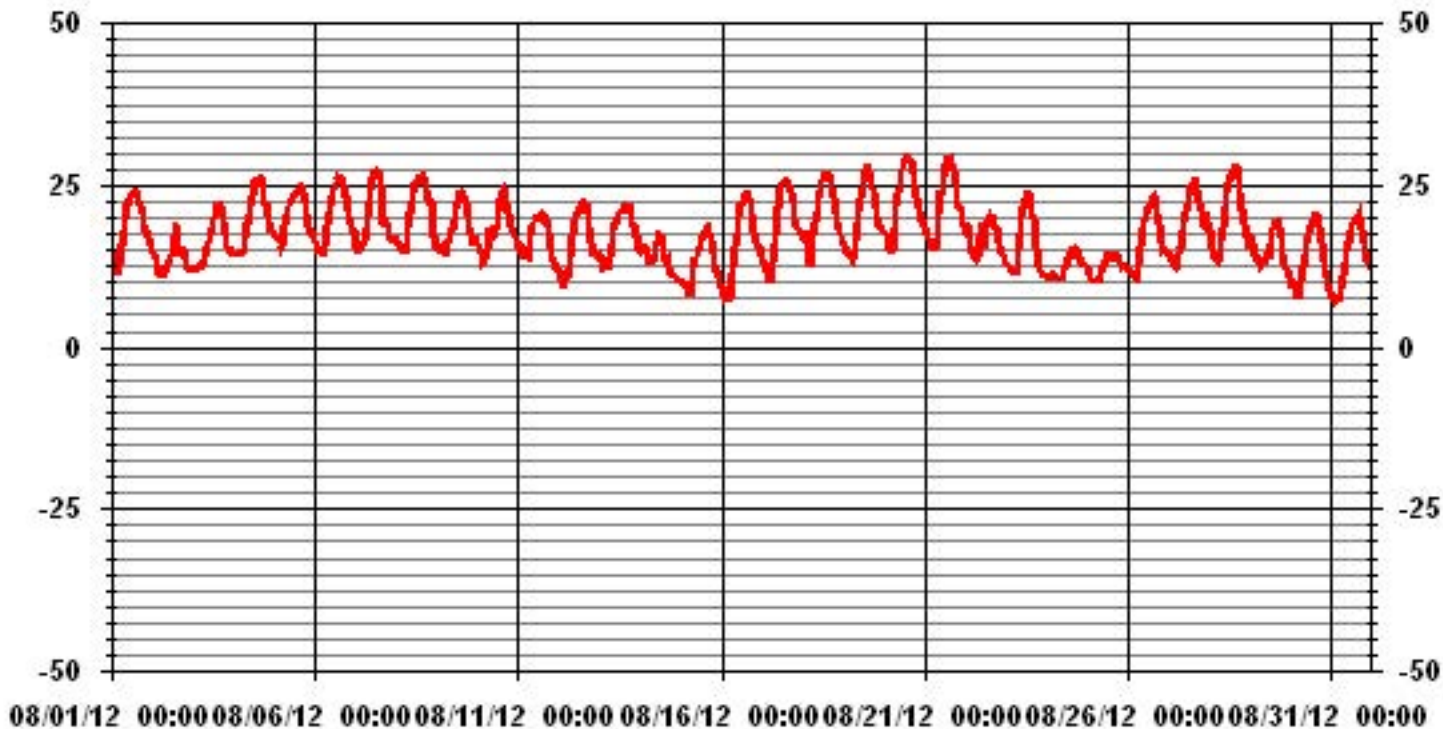
Calm : .00 %

Total # Operational Hours : 740



Temperature

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

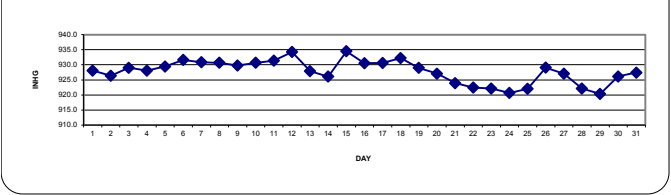
BAROMETRIC PRESSURE hourly averages (millibar)

MST DAY	HOUR START																								DAILY MAX.	24-HOUR AVG.	RDGS.		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				0:00	
1	928	928	928	928	928	928	928	929	929	929	929	929	929	929	929	928	928	928	928	927	927	927	926	926	929	928.0	24		
2	926	926	927	926	926	926	926	926	926	926	926	926	926	926	926	927	927	926	926	927	927	927	927	926	927	926	927	926.3	24
3	927	927	927	927	927	927	928	928	929	929	929	929	930	930	930	930	930	930	931	931	930	930	930	930	930	931	931	929.0	24
4	930	930	930	929	929	929	929	928	928	928	928	928	928	928	927	927	927	927	927	927	927	927	927	927	928	930	928.0	24	
5	928	928	928	928	928	929	929	930	930	930	931	930	930	930	930	930	930	930	930	929	929	930	930	930	931	931	929.5	24	
6	930	930	930	930	931	931	931	932	932	933	933	933	933	933	933	933	932	932	932	931	931	931	931	931	931	933	931.6	24	
7	932	931	930	930	930	930	930	930	930	931	931	931	931	931	931	931	931	931	932	932	931	931	931	931	932	932	930.9	24	
8	932	932	932	932	932	932	932	932	932	932	932	932	932	932	931	931	930	929	929	928	927	927	929	929	929	932	930.7	24	
9	928	927	927	928	928	928	928	929	929	930	930	931	931	931	931	931	931	931	931	931	931	930	931	931	931	931	929.8	24	
10	931	931	931	931	931	931	931	932	932	932	932	932	932	931	931	931	930	930	930	929	929	929	929	929	929	932	930.7	24	
11	929	929	929	929	929	930	931	931	931	931	932	932	932	932	932	932	932	932	932	933	933	933	933	933	933	933	931.4	24	
12	933	933	933	933	934	934	934	935	935	935	936	936	936	935	935	935	935	935	934	934	933	933	933	933	936	934.3	24		
13	932	932	932	931	931	930	930	930	929	929	929	928	928	927	927	927	926	926	925	925	924	924	924	924	924	932	927.9	24	
14	923	923	923	923	923	924	924	923	923	923	924	924	924	925	926	927	928	929	929	930	931	932	932	933	933	933	926.1	24	
15	933	933	934	934	935	935	935	935	936	936	936	936	936	936	935	935	935	934	934	933	933	933	933	932	936	934.5	24		
16	932	932	931	931	931	930	930	931	931	931	931	931	931	931	931	931	930	930	930	930	929	929	929	929	932	930.5	24		
17	929	929	929	929	929	929	929	930	930	930	931	931	931	931	931	932	932	932	932	932	932	932	932	932	932	932	930.6	24	
18	932	932	932	932	932	932	933	933	933	934	934	934	934	933	933	933	932	932	931	931	931	931	930	930	934	932.3	24		
19	930	930	930	929	929	929	929	929	929	930	930	930	929	929	929	929	929	928	928	928	928	928	928	928	930	929.0	24		
20	928	928	927	927	927	927	927	927	928	928	928	928	928	928	927	927	927	926	927	926	926	926	926	926	928	927.1	24		
21	926	925	925	924	924	924	924	924	924	925	925	925	925	925	924	924	924	923	923	923	923	922	922	921	926	923.9	24		
22	921	922	922	922	922	922	921	921	922	922	923	923	923	923	923	923	923	923	923	923	923	923	923	923	922	923	922.4	24	
23	922	922	922	922	922	922	922	922	922	923	923	923	923	922	922	921	922	922	922	922	923	923	920	920	923	922.1	24		
24	920	920	920	920	920	920	920	920	920	920	921	921	921	921	921	921	921	921	921	922	921	921	921	921	922	920.6	24		
25	921	921	920	920	920	920	920	920	920	920	921	921	922	922	922	923	923	924	924	924	925	925	925	926	926	922.0	24		
26	926	927	927	927	927	928	928	929	930	930	931	930	930	930	931	931	930	931	930	929	929	929	929	929	931	929.1	24		
27	929	929	929	929	928	928	928	928	928	928	928	928	927	927	927	926	926	926	925	925	925	925	925	925	929	927.0	24		
28	924	924	923	923	922	922	923	923	923	923	923	923	923	923	922	922	922	922	921	921	920	920	920	919	924	922.1	24		
29	919	919	919	918	918	918	917	918	919	919	920	920	920	921	921	922	922	922	922	922	922	923	923	923	923	923	920.3	24	
30	923	923	923	923	924	924	925	925	926	926	926	927	927	927	927	927	928	928	928	928	928	928	928	928	928	928	926.1	24	
31	928	928	928	928	929	929	929	929	929	929	929	929	929	928	928	927	927	926	926	925	925	925	925	925	929	927.4	24		
HOURLY MAX	933	933	934	934	935	935	935	935	936	936	936	936	936	936	935	935	935	935	934	934	933	933	933	933	933				
HOURLY AVG	927	927	927	927	927	927	927	928	928	928	928	928	928	928	928	928	928	928	928	928	927	928	927	927	927				

STATUS FLAG CODES

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

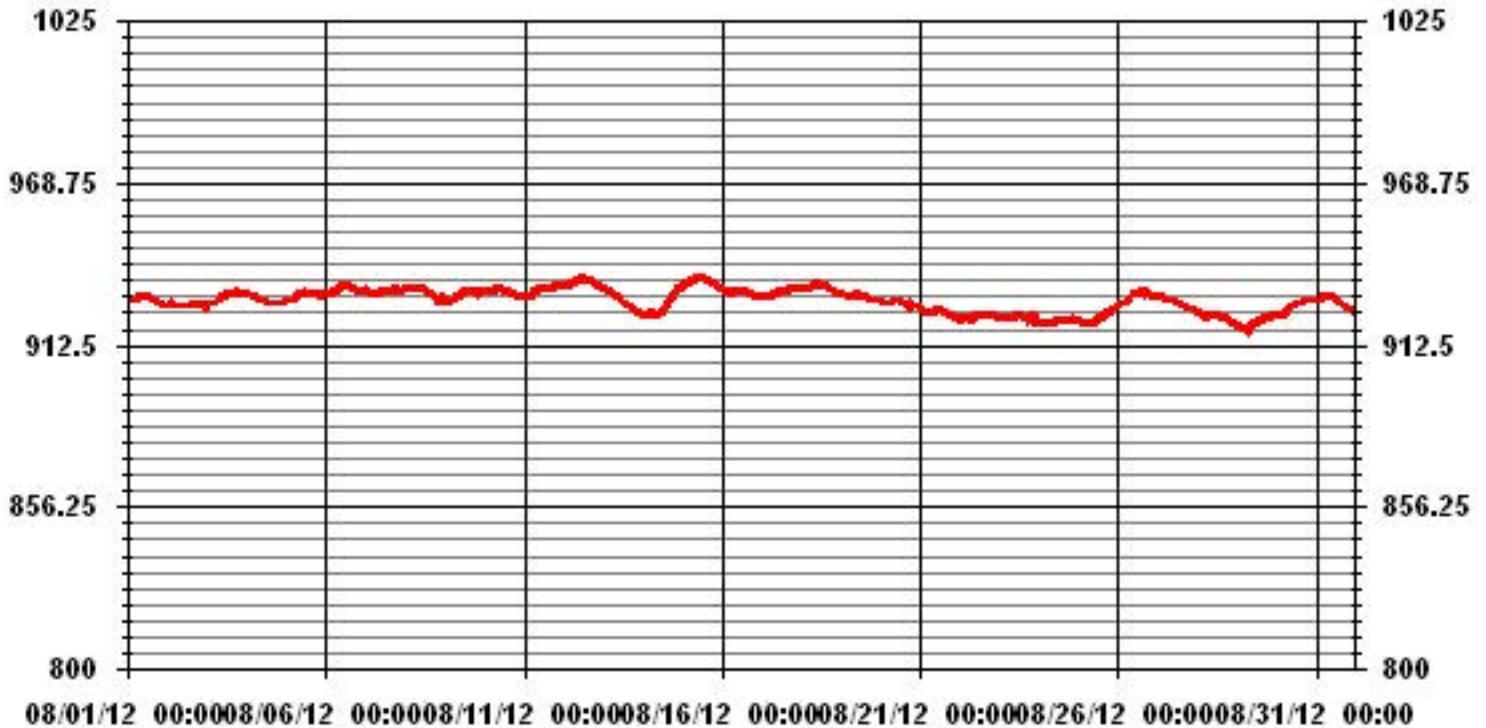
24 HOUR AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	936	MB	@ HOUR(S)	VAR	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	934.5	MB			ON DAY(S)	15
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	4.05		MONTHLY AVERAGE:	928	MB	

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

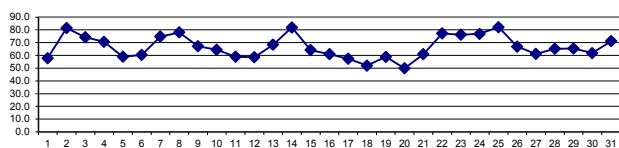
RELATIVE HUMIDITY hourly averages (%)

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		80	83	78	77	82	77	67	60	54	49	42	38	37	38	38	38	43	43	50	54	56	64	68	71	83	57.8	24	
2		83	78	76	80	85	88	89	89	88	86	83	80	74	68	61	75	82	82	77	79	86	89	89	90	90	90	81.5	24
3		90	90	90	90	91	91	88	86	82	79	74	70	63	52	54	50	49	50	58	61	76	81	83	85	91	74.3	24	
4		82	83	85	85	84	84	82	73	68	67	65	62	58	54	51	51	51	58	68	70	75	79	81	81	85	70.7	24	
5		83	83	84	85	84	81	71	63	53	50	48	45	45	40	37	38	40	42	48	56	59	60	60	61	85	59.0	24	
6		66	68	69	68	69	76	69	61	54	56	48	47	46	44	46	46	47	51	59	66	70	70	75	76	76	60.3	24	
7		83	83	85	81	76	76	76	75	68	64	58	57	63	63	65	67	75	77	74	72	84	89	92	92	92	74.8	24	
8		92	92	92	92	92	92	91	84	78	74	67	64	64	61	62	62	66	72	78	81	77	87	91	92	92	78.0	24	
9		90	89	91	91	91	90	81	76	72	68	62	55	50	45	39	37	40	47	55	62	66	71	72	71	91	67.1	24	
10		64	75	78	87	81	76	77	62	71	67	63	65	45	49	41	40	41	52	59	66	65	68	74	80	87	64.4	24	
11		83	78	70	82	82	83	85	63	53	44	42	43	43	41	41	39	40	43	48	53	58	63	68	70	85	59.0	24	
12		68	72	76	76	72	71	66	65	61	52	49	44	43	42	43	42	44	49	57	65	70	62	58	60	76	58.6	24	
13		62	67	72	72	72	75	72	67	60	58	58	57	58	59	58	64	65	66	72	75	77	83	83	89	89	68.4	24	
14		91	90	86	82	78	86	88	89	88	82	78	72	71	72	82	82	78	83	86	85	82	80	77	79	91	82.0	24	
15		78	76	78	81	85	87	77	69	59	56	53	51	49	47	47	46	47	49	55	61	67	71	74	78	87	64.2	24	
16		80	84	87	86	85	84	73	71	63	59	50	44	41	37	37	36	40	42	51	61	62	63	61	65	87	60.9	24	
17		68	70	76	75	83	86	74	68	66	58	50	41	41	38	38	34	37	44	50	54	55	57	58	56	86	57.4	24	
18		56	53	54	58	80	83	62	58	55	52	45	39	33	33	32	30	36	37	48	55	59	59	64	68	83	52.0	24	
19		70	71	73	74	74	76	73	68	62	57	52	48	42	37	37	38	44	48	50	59	65	66	63	64	76	58.8	24	
20		61	59	60	67	68	70	61	53	50	51	41	35	36	32	29	31	31	36	45	50	53	55	61	64	70	50.0	24	
21		64	67	70	69	74	77	78	78	67	61	62	54	46	42	41	36	39	43	56	67	63	62	72	76	78	61.0	24	
22		72	71	81	85	86	86	87	86	76	70	79	80	70	67	65	66	64	68	70	79	83	85	87	90	90	77.2	24	
23		91	91	91	91	91	92	90	80	74	65	60	56	54	44	53	58	61	66	77	87	89	90	89	88	92	76.2	24	
24		88	88	88	87	87	87	87	85	84	80	75	75	72	70	69	67	66	65	66	72	73	72	72	71	88	76.9	24	
25		70	72	77	81	82	83	83	82	82	81	78	82	78	82	83	86	84	82	85	86	89	89	87	88	89	82.2	24	
26		88	90	90	90	90	91	84	76	70	64	59	55	48	44	41	39	42	45	51	66	68	68	70	74	91	66.8	24	
27		76	77	76	78	78	74	70	70	63	60	57	54	51	46	42	41	42	48	56	60	68	67	56	60	78	61.3	24	
28		65	77	80	84	85	87	85	76	72	63	56	52	49	45	46	44	44	50	56	66	75	68	68	71	87	65.2	24	
29		69	59	66	74	77	79	83	84	81	75	71	68	63	53	49	47	43	46	52	62	66	66	66	71	84	65.4	24	
30		74	70	70	75	76	77	67	64	63	59	56	52	47	43	43	44	45	47	56	64	66	71	76	79	79	61.8	24	
31		82	84	85	85	83	84	80	75	71	67	62	56	54	54	57	55	56	59	65	72	77	81	82	82	85	71.2	24	
HOURLY MAX		92	92	92	92	92	92	91	89	88	86	83	82	78	82	83	86	84	83	86	87	89	90	92	92				
HOURLY AVG		76.4	77.1	78.5	80.3	81.4	82.2	77.9	72.8	68.0	63.7	59.5	56.2	52.7	49.7	49.2	49.3	50.9	54.3	60.4	66.5	70.4	71.8	73.3	75.5				

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

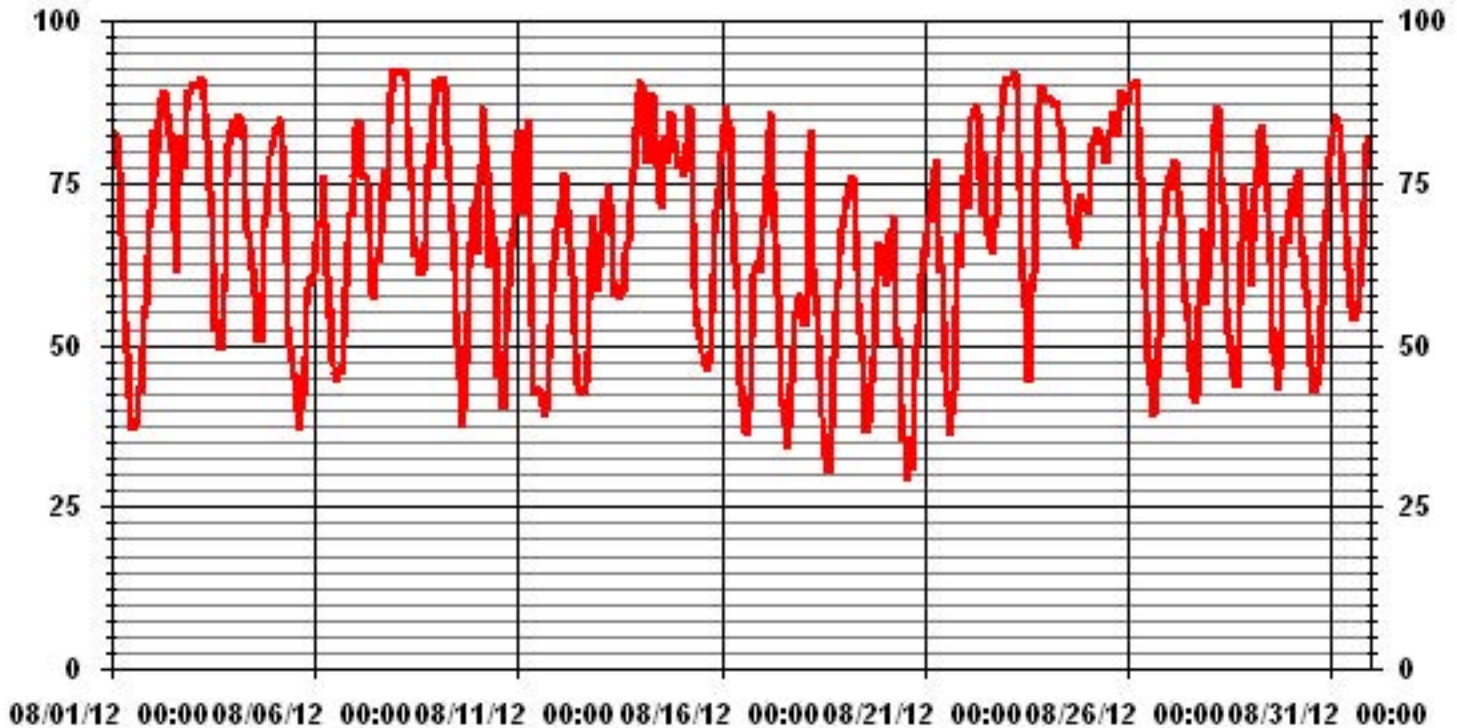
24 HOUR AVERAGES FOR AUGUST 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	92	%	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	82.2	%			ON DAY(S)	25
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	15.62		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	66.59	%	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY	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	1.4	1.3	0.6	0.8	0	0	0	0	0	0	4.3	0	0	0.1	0	0	0	0.2	0.1	4.3	8.8	24		
3		0	0	0	0.7	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0.8	24	
4		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	0.1	0.1	24	
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
7	11.8	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	11.8	11.9	24	
8		0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.7	3.5	4.7	8.4	24	
9		0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2	24	
10		0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.4	24	
11		0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	24	
12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1.4	1.4	0.3	1.2	0.1	0	0	0	0	0	0.5	0.2	0	1.5	0.2	0	0	0	0	0	1.5	6.8	24	
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
22		0	0	0.1	0.5	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.9	24	
23		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	1.8	7.8	8.5	10.4	2.4	0	10.4	31.0	24		
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.2	0	0.1	0	0	0	0	0	0	0.2	0.6	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	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.3	24	
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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		11.8	0.0	0.1	0.7	1.4	1.4	0.6	1.2	0.1	0.0	0.0	0.4	0.0	0.1	0.5	4.3	0.1	1.5	1.8	7.8	8.5	10.4	4.7	3.5				

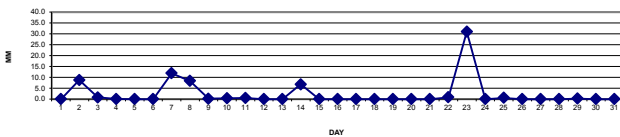
STATUS FLAG CODES

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

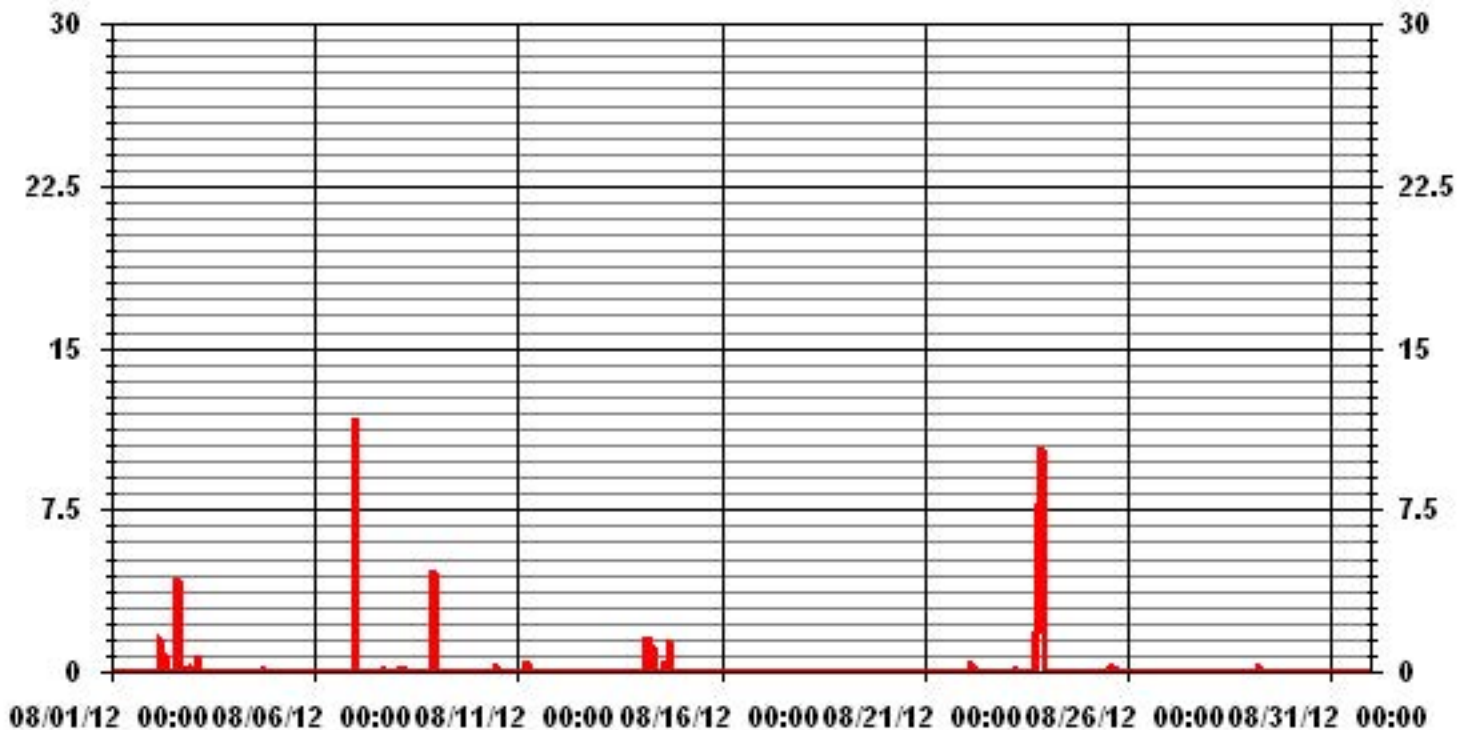
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	11.8	MM	HOURLY(S)	0	ON DAY(S)	7
MAXIMUM DAILY TOTAL	31.0	MM			ON DAY(S)	23
MONTHLY TOTAL	70.7	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.78		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.10	MM	

DAILY TOTALS FOR AUGUST 2012



01 Hour Averages



— LICA31 PRECIP MM

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	7	8	8.9	8.2	9.2	8.4	9.2	10.6	10	9.4	12.7	12	12.5	10.5	12.2	12.7	10	9.8	5	5.5	4.7	4.2	4.7	4.4	12.7	8.2	24	
2	5.3	15.8	16.6	15.9	11.4	9.5	6.1	5	8.1	9.9	9.5	8.7	7.4	6.3	7.5	9.3	8.8	6.7	8.6	8.1	7.7	6.8	8.3	9.1	16.6	8.5	24	
3	7.4	7.5	7.4	8.2	9.1	10.1	9.7	8.5	8.9	8.4	7.4	5.1	5.3	7.2	6.6	8	5.8	5	3.2	3.8	6.2	7.8	8.1	9.2	10.1	4.5	24	
4	9.7	9.8	11.1	12.7	11.7	11.3	11.7	13.9	13.8	12.8	14	14.4	17.6	20.3	21.1	13.7	10.1	8.4	7.3	6.7	8.1	8.1	7.5	8.5	21.1	9.3	24	
5	8.4	9.4	7.3	6.9	6.7	4.2	3.8	4.4	6.2	6.9	6.7	8.1	8.4	9.4	9.4	8.7	7	5.5	4.2	2.9	4.5	4.3	5.3	5.4	9.4	4.9	24	
6	5.6	8.6	9.2	9.5	9.2	8.6	7.5	7.7	7.5	7.1	8.7	7.1	6.1	6.1	6	7.3	7.1	7.7	7	9.4	11	9.2	7.1	5.8	11	7.2	24	
7	8.7	8.5	8.8	10	9.8	9.7	7.8	7.8	6.2	4.3	2.3	3.1	6.4	6.6	6.1	7.4	10.8	4.2	3.6	3.9	7.4	7.5	7.4	3	10.8	4	24	
8	2.1	3.9	5.3	5.8	8.8	9.4	8.5	7.3	9.3	9.9	12.5	12.7	13.3	13.6	14.1	13.7	13.5	13.6	12.2	11.7	13.4	10.1	25.9	7.8	25.9	7.7	24	
9	7.6	3.3	11.7	10.4	9.4	8.2	17.2	15.3	15.2	17.4	14.2	15.3	16.3	15.1	17.1	15.7	13.1	12.7	11.1	5.5	6.9	6.3	7.6	6.6	17.4	10.2	24	
10	4.7	5.9	4.3	6.3	6.1	6.7	5	7	4.5	6.1	6.9	4.8	5.3	3.6	3.2	2.7	2.1	2.3	3.1	3.7	3.3	1.4	5	5.3	7	2.8	24	
11	6	6.3	7.7	5.5	4.2	2.9	4	7.3	9.3	10.3	10.7	14.5	14.1	14.9	15.6	15.6	15.5	15	9.5	8.2	7.9	7.9	8	9.5	15.6	9	24	
12	9.2	8.7	9.4	10.5	11.1	11.3	9.2	6.4	5.5	4.5	4.4	7.4	6.5	5.5	6.1	6	3.9	3.7	5.1	6.1	7.6	8.8	9.6	10.6	11.3	2.8	24	
13	10	10.6	11.1	12	11.6	11.1	11.6	11.5	13.5	12.1	14	14	12.4	16.1	13.8	5.6	1.4	2.4	2.8	3.3	3.9	5.4	5.4	4.7	16.1	7.8	24	
14	5.8	6.4	7.5	8.5	9.6	7.7	7.4	7.6	7.1	6.3	9.4	11.7	13.7	14.5	13.5	13.2	12.9	11.6	10.9	10.9	12.3	10.8	10.8	9.6	14.5	9.8	24	
15	11.9	10.5	8.3	7.9	7.2	7.1	7.1	8.4	9.3	9.7	9.8	9.9	10.4	9.8	8.7	M	6.3	4.3	2.7	2.2	5.1	6	6.1	6.3	11.9	6.3	23	
16	6.2	7.1	7.4	7.3	7.1	7.2	7.6	7.5	5.8	6.2	7.5	7.8	7.6	8.2	7.7	7	6.5	7.6	7	7.2	10.6	11.2	8	5.9	11.2	6.7	24	
17	8.9	9.6	8.9	9.6	7.3	7.8	9.4	8.1	8.1	6.4	7.1	12.9	12.1	11.5	10.5	11.9	9.9	5.2	3.9	5.4	6.8	6.9	6.5	6.3	12.9	6.7	24	
18	5	3.2	2.3	3.3	3.7	5	5.6	3.6	4.1	4.9	6.5	4.9	6.3	3.8	4.8	6.2	8.6	8.5	7.2	10.3	11	11.1	10.3	10.6	11.1	5.3	24	
19	10.9	11.8	12	12.6	14	13.1	12.6	12.7	10.7	11.1	10.4	13.2	12.2	13.3	10.3	10.4	8.1	8.2	7.6	8.3	9.5	9.2	9.8	8.7	14	10.8	24	
20	9	9.3	8	6.8	6.5	7.4	4.5	2.3	4.8	4.1	3.5	4.9	5.4	6	5.9	6.1	6	6.8	5.3	8.1	8.9	9.2	9.6	10.3	10.3	5.7	24	
21	9.9	9	10.3	10.8	8	7.1	4.9	4.6	3.2	3.4	4.9	5.4	4.6	6	6.9	5.9	8.4	6	5	7.7	9.7	8.2	8.9	9.9	10.8	4.8	24	
22	9.9	3.1	12.9	15.2	15.7	10.4	8.6	5.2	4.2	6.7	9.7	14.2	14.4	13.8	10.4	8.1	11.5	7.2	6.7	7	7.2	6.7	6.1	4.9	15.7	7.1	24	
23	8.4	9.5	9	8.5	7.3	7.8	9.7	7.8	5.1	5.1	3.4	3.8	4.4	5.3	5.4	6.7	7.9	11.6	14.2	17.2	12.8	4.2	12.2	6.9	17.2	5.4	24	
24	6.8	8	10.5	8.6	6.1	9.8	8.7	7.7	10.2	10.9	9.7	11.1	11.7	12.2	11	11.1	11.7	11.6	15.5	10.9	10.4	12.9	12.4	15.6	15.6	10.5	24	
25	17.7	14.9	14.7	14.5	15.6	15.2	13.8	15.8	15.6	16.5	15.8	13.8	13.7	14	15	14.1	12.4	12.2	11.2	10.4	8.8	9.7	8.1	8.2	17.7	13.3	24	
26	8.7	8.5	6.6	7.7	6.7	7.5	5.8	5.1	4.5	6.1	3.4	2.5	2.9	2.6	5.1	2.6	3.3	3.7	5.4	7.5	10.2	12.5	12.9	12.9	1.3	2.4	24	
27	11.9	10.9	10.3	10.4	11.3	12.6	14.2	11.8	15.9	15.5	15.1	14.5	15.5	15.2	15.1	13.6	11.3	8.5	7.6	8.5	6.9	5.1	4	7	15.9	10.9	24	
28	5.1	8.3	8.5	8.1	7.3	6	1.4	3.9	5.9	5.6	3.9	3.4	1.3	2.9	4.4	5.5	5.5	3.1	3.4	1.3	6.3	9.9	7.1	6.2	9.9	2.2	24	
29	8.6	11.7	10.6	10.5	14.5	12.8	7.1	13.4	13.8	15.2	15.1	15.3	18.6	18.8	21.1	18.6	18.9	12.2	9.3	7.5	8.4	7.2	10.6	9.3	21.1	12	24	
30	9.8	11	10.5	11.4	8.9	7.4	9	12	15	12.3	14.4	15.4	15.6	13.9	11.6	11.4	11.9	8	5.3	6.2	7	8.4	9.2	8.2	15.6	8.4	24	
31	8.2	7	7.7	8.1	8.7	8.7	8.5	10	9.7	11.8	15.1	15.3	14.8	16.1	12.9	9.8	12.7	15	13.5	12.9	12.6	12.5	12.9	12.6	16.1	11.2	24	
HOURLY MAX	17.7	15.8	16.6	15.9	15.7	15.2	17.2	15.8	15.9	17.4	15.8	15.4	18.6	20.3	21.1	18.6	18.9	15.0	15.5	17.2	13.4	12.9	25.9	15.6				
HOURLY AVG	8.2	8.6	9.2	9.4	9.2	8.8	8.3	8.4	8.7	8.9	9.3	9.9	10.2	10.4	10.3	9.6	9.1	8.0	7.2	7.4	8.3	8.0	8.9	8.0				

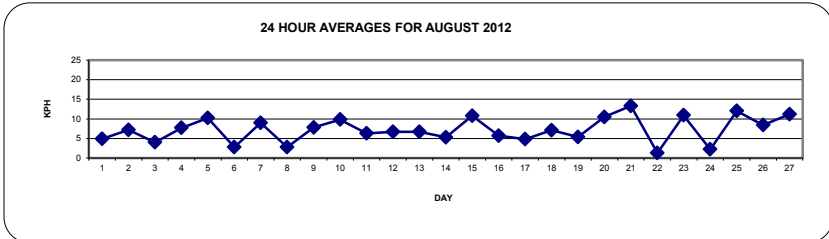
STATUS FLAG CODES

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

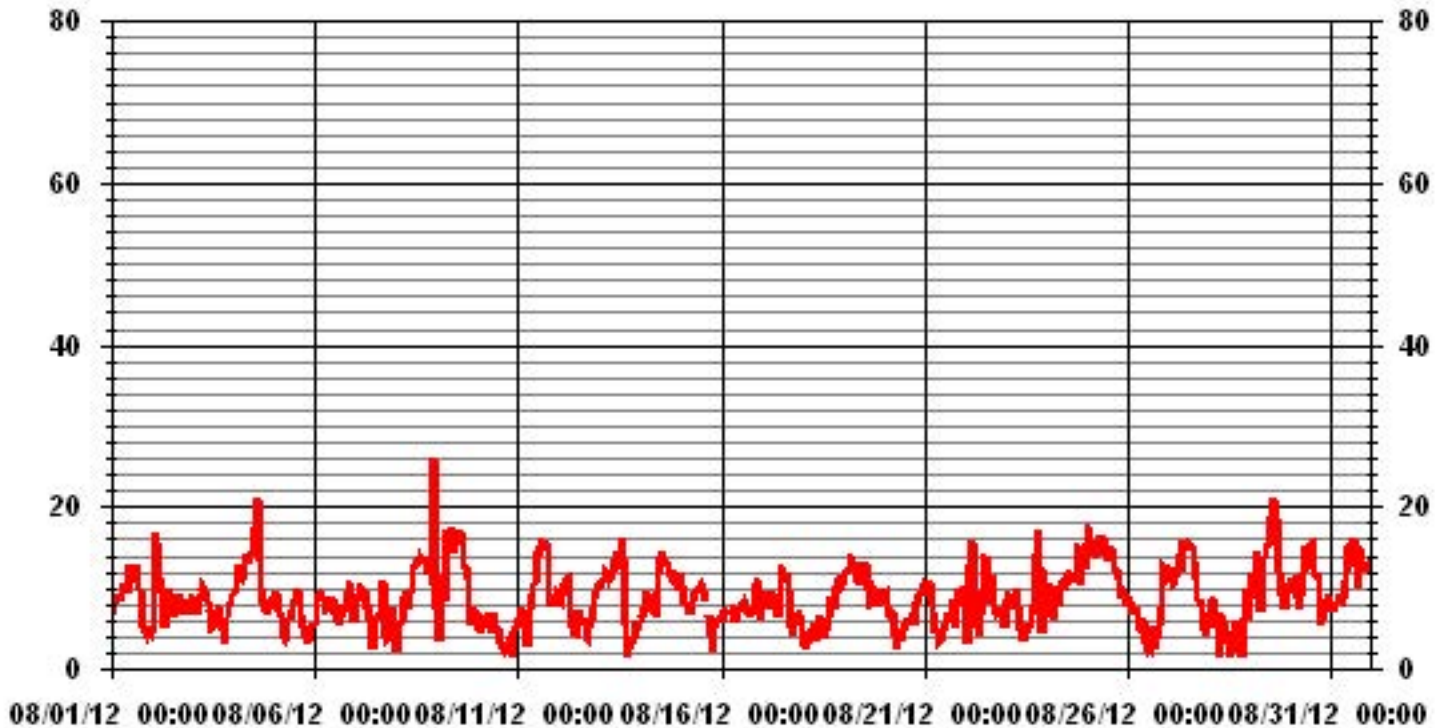
LAST CALIBRATION: June 12, 2012

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	25.9 KPH	@ HOUR(S)	22	ON DAY(S)	8
MAXIMUM 24-HR AVERAGE:	13.3 KPH			ON DAY(S)	25
CALMS (≤ 0 KPH)	0.00 %	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	3.68	MONTHLY AVERAGE:		8.85	KPH



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
hour START	hour END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		14.2	11.8	16.7	16.7	12.3	11	14.9	20.2	20.2	28.9	32.9	27.4	28.9	31.3	49.9	37.4	24.1	29.3	11	8.8	8.1	5.9	6.8	7.2	49.9	
2		9.6	38.4	37.7	40.9	32.4	23.6	21.2	12.1	18.9	22.6	21.3	21.5	18	17.3	20.4	27.4	21.7	16.7	23	25.8	16.4	17.3	19.7	19.3	40.9	
3		17.1	18.2	21	22.5	25.4	27.4	25.5	24.1	20.8	21.9	22.8	15.6	25.6	28	18.5	21.2	17.1	15.3	8.6	6.6	12.7	15.6	16.4	25.2	28	
4		24.3	23.6	29.1	32.2	29.4	26.8	29.8	32.6	38.1	32.9	39.8	37	36.8	43.6	48.8	47.3	25.4	21.7	18.4	12.9	16.5	12.9	12.5	16.4	48.8	
5		18	19.7	16.7	16.5	14.1	13.6	13.4	14	15.6	17.5	17.1	23.2	23.6	22.3	24.3	22.3	20.6	12.7	9.6	5.8	7.7	6.6	8.3	7.9	24.3	
6		8.6	16	18.2	18	18.8	16.4	16.9	21.7	18	18	20.4	17.7	17.3	16	18.2	19.1	21.4	18.6	16.7	17.8	19.3	23.2	14.9	P	23.2	
7		51.6	23.2	22.6	16.7	15.3	23	24.5	21	22.8	16.5	20.6	14.5	20.8	18.4	18.2	47.7	44.7	15.3	11	8.8	11.6	13.8	13.6	14	51.6	
8		7.3	18.2	15.6	19.5	24.5	25	22.6	17.3	20.6	23.6	28	29.4	31.8	38.5	36.8	29.8	27.6	31.8	27.6	23.6	25.8	26.7	P	22.6	38.5	
9		27.8	22.8	23	27.6	28.5	21.2	P	40.9	35.9	46.8	35.9	48.1	38.5	37.5	46.6	46.2	32	23.2	19.1	10.8	13.6	14.2	14.9	11.4	48.1	
10		8.8	12.3	10.1	10.1	10.1	11.8	11.4	22.3	20.2	15.8	14.5	11	17.2	12.9	15.1	17.3	9	8.8	8.1	5.5	6.4	4.9	9.4	8.3	22.3	
11		9	13.2	14.2	12.6	11.4	12.5	14.9	18.2	23.6	29.1	33.6	36.6	47.1	43.8	39.2	35.7	37.4	38.7	26	18.2	14	14.2	12.9	17.5	47.1	
12		16.4	12.3	12.9	16.7	19.3	21	19.5	15.8	13.2	16	19.5	20.6	23.9	18.6	22.3	24.3	25.8	12.7	11.4	10.3	11.9	14.2	16.9	18.7	25.8	
13		18.9	23	25	29.4	25.2	23.9	27.6	30.4	34.2	32	37.9	35.3	34.4	41.2	44.2	23.4	10.3	8.6	10.5	7.5	5.7	7.9	11.2	9.7	44.2	
14		11.8	14	16.7	29.1	23.9	18	20.9	20.6	25.8	17.8	31.1	35	40.9	39.2	41.8	36.8	38.5	38.3	31.1	26.9	33.6	37.9	27.4	23.9	41.8	
15		30	33.5	21.5	17.1	15.1	16.4	16.2	23	21.7	27.4	28.3	25.6	26.7	28	25.6	M	18.8	14.2	8	7	8.1	10.8	10.5	12.9	33.5	
16		P	15.1	15.6	16.9	17.1	13.6	P	16.7	16.1	19.3	20.6	21.7	21.5	23.9	22.8	24.3	15.8	17.3	13.2	10.3	16	18	17.1	13.8	24.3	
17		14.5	18.2	12.5	12.9	9.9	11.4	13.2	15.8	15.8	13.8	18.8	28	29.3	28.9	26.5	34.2	26.9	22.5	9.9	8.8	9.7	11.6	12.1	10.8	34.2	
18		9.2	5.1	4	4.9	9.9	7.9	9.5	12.5	13.8	20.4	19.3	19.9	21.9	15.1	22.2	24.9	23.6	18.8	15.3	20.4	21	26.8	24.7	25.6	26.8	
19		22.5	27.6	26.5	26.9	29.6	30.5	29.6	31.1	29.3	31.8	26.9	39	34	36.1	31.3	30	26.7	22.5	22.1	14	20.6	21.9	16.6	14.5	39	
20		14.5	16.2	13.4	11	10.1	10.5	9	8.3	12.1	14.2	10.1	22.4	25.4	16.9	23.2	23.6	18.6	14.5	9.7	13.6	14	14.5	22.1	24.3	25.4	
21		16.9	17.3	21.1	25.6	17.3	14.7	11.8	11.2	9.4	14.2	16.7	20.4	21.7	22.5	28.2	23.4	24.3	20.8	9.2	12.7	17.7	16.9	20.1	21.5	28.2	
22		26.9	27.4	43.5	44	49.5	33.5	21.3	18	14.1	21.2	23.6	39	31.8	36.8	30.7	24.3	25.9	21.7	17.3	13.6	13.2	12.7	10.1	9	49.5	
23		14.2	13.8	14.9	13.8	11.4	11.6	20.9	22.8	15.6	16	15.3	15.1	16.4	18.4	19.1	18	28.7	34.6	42.3	41.4	26.1	16.2	34.7	31.1	42.3	
24		18.6	18	26.3	22.3	17.1	24.6	20.6	20.4	23	26.3	22.3	26.5	27.6	28.5	26.9	25.2	28	29.8	35.9	25.5	26.5	26.9	28.9	41.6	41.6	
25		48.6	37	30.9	29.8	36.3	35.7	34.8	35.9	38.1	40.8	36.6	38.8	34.2	33.3	39	39	30.2	30	28.5	26.5	17.5	22.3	19.7	15.8	48.6	
26		15.6	16	13.6	13.8	13.2	13.2	11.7	11.5	10.5	16	17.1	12.5	15.3	14.7	13	16.6	13.6	17.3	9.4	10.3	21.2	23.2	24.3	24.3	24.3	
27		23.6	23.9	25.6	24.3	27.8	28.3	31.8	30.9	40.7	37.2	37.2	37.4	37.9	40.6	37.2	36.6	30	24.1	20.6	21	11.6	8	7.4	9.6	40.7	
28		14.7	10.5	11.6	12.5	11.2	11.8	11.2	19.3	17.5	18.8	18.4	14.4	14.4	16.2	16.2	16	24.7	8.8	7.9	6.4	13.8	29.8	26.7	22.1	29.8	
29		30.7	22.8	23.2	23.9	35	40.3	29.8	32.4	35	39.9	35.1	46.6	42.9	51.4	55.6	54.1	47.1	31.3	17.8	13.2	15.3	15.6	24.7	16.7	55.6	
30		16.4	22.8	19.5	17.5	14.9	14	18	24.1	27.6	26.3	32.4	44.9	46	29.8	26.9	28.1	27.2	21.2	14	13.4	14.7	19.1	24.6	19.1	46	
31		15.3	14.5	14.9	13.4	16	16.9	18	25.4	23.4	30	36.3	42	48	44	32	23	37.9	37.7	45.5	28	25.2	25.8	25.4	27.6	48	
PEAK		51.6	38.4	43.5	44.0	49.5	40.3	34.8	40.9	40.7	46.8	39.8	48.1	48.0	51.4	55.6	54.1	47.1	38.7	45.5	41.4	33.6	37.9	34.7	41.6		

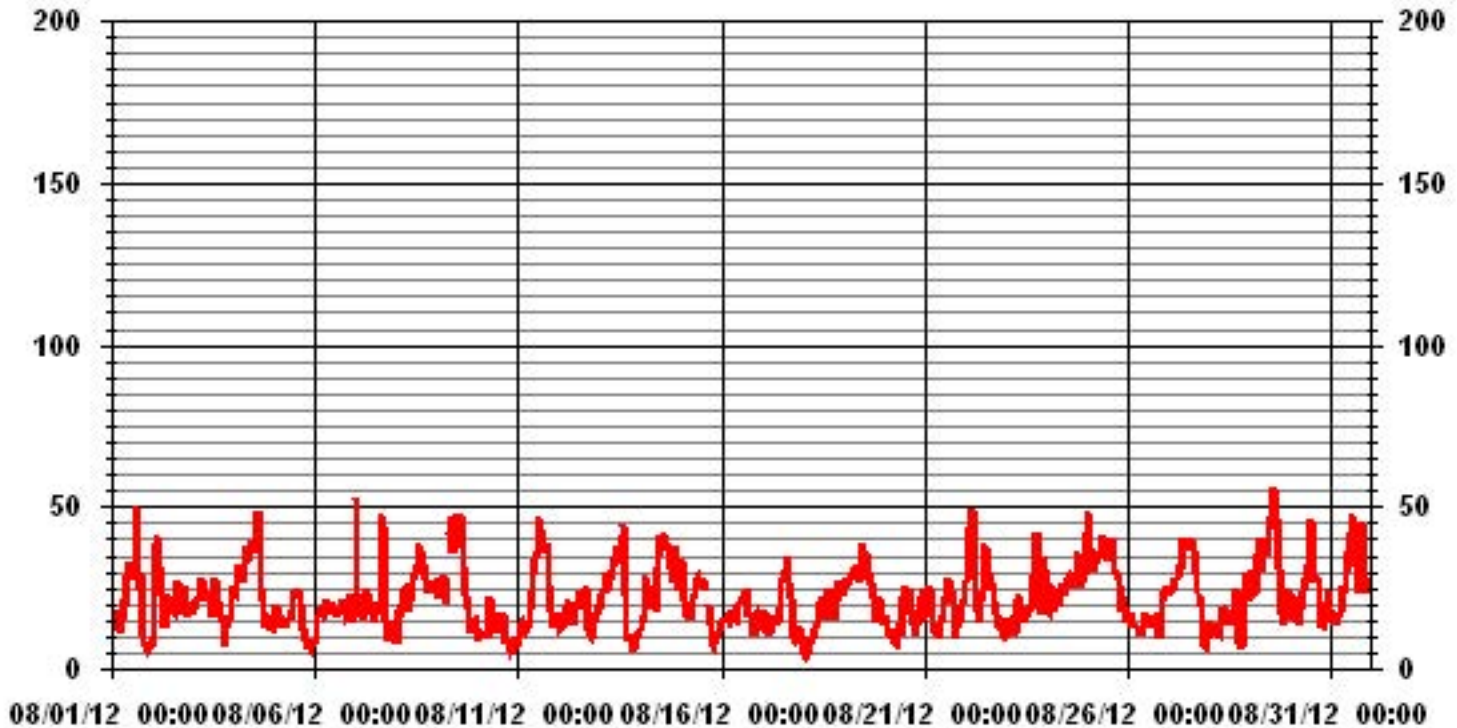
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	55.6	KPH	@ HOUR(S)	14
			ON DAY(S)	29

01 Hour Averages



LICA31
WSP / WDR Joint Frequency Distribution (Percent)

August 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	1.48	.80	.80	1.07	1.34	.00	.53	1.34	2.01	.94	3.23	.67	1.34	2.01	2.15	1.74	21.53
< 12.0	1.48	.80	2.01	3.36	2.28	1.88	2.01	3.76	4.03	2.42	2.55	4.71	7.13	7.40	9.82	2.28	58.00
< 20.0	.26	.00	.13	.53	1.88	.67	.53	2.15	1.74	.53	.13	1.21	2.55	4.57	1.88	1.07	19.91
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.26	.13	.13	.00	.00	.00	.53
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.23	1.61	2.96	4.97	5.51	2.55	3.09	7.26	7.80	3.90	6.19	6.72	11.17	13.99	13.86	5.11	

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	11	6	6	8	10		4	10	15	7	24	5	10	15	16	13	160
< 12.0	11	6	15	25	17	14	15	28	30	18	19	35	53	55	73	17	431
< 20.0	2		1	4	14	5	4	16	13	4	1	9	19	34	14	8	148
< 29.0											2	1	1				4
< 39.0																	
>= 39.0																	
Totals	24	12	22	37	41	19	23	54	58	29	46	50	83	104	103	38	

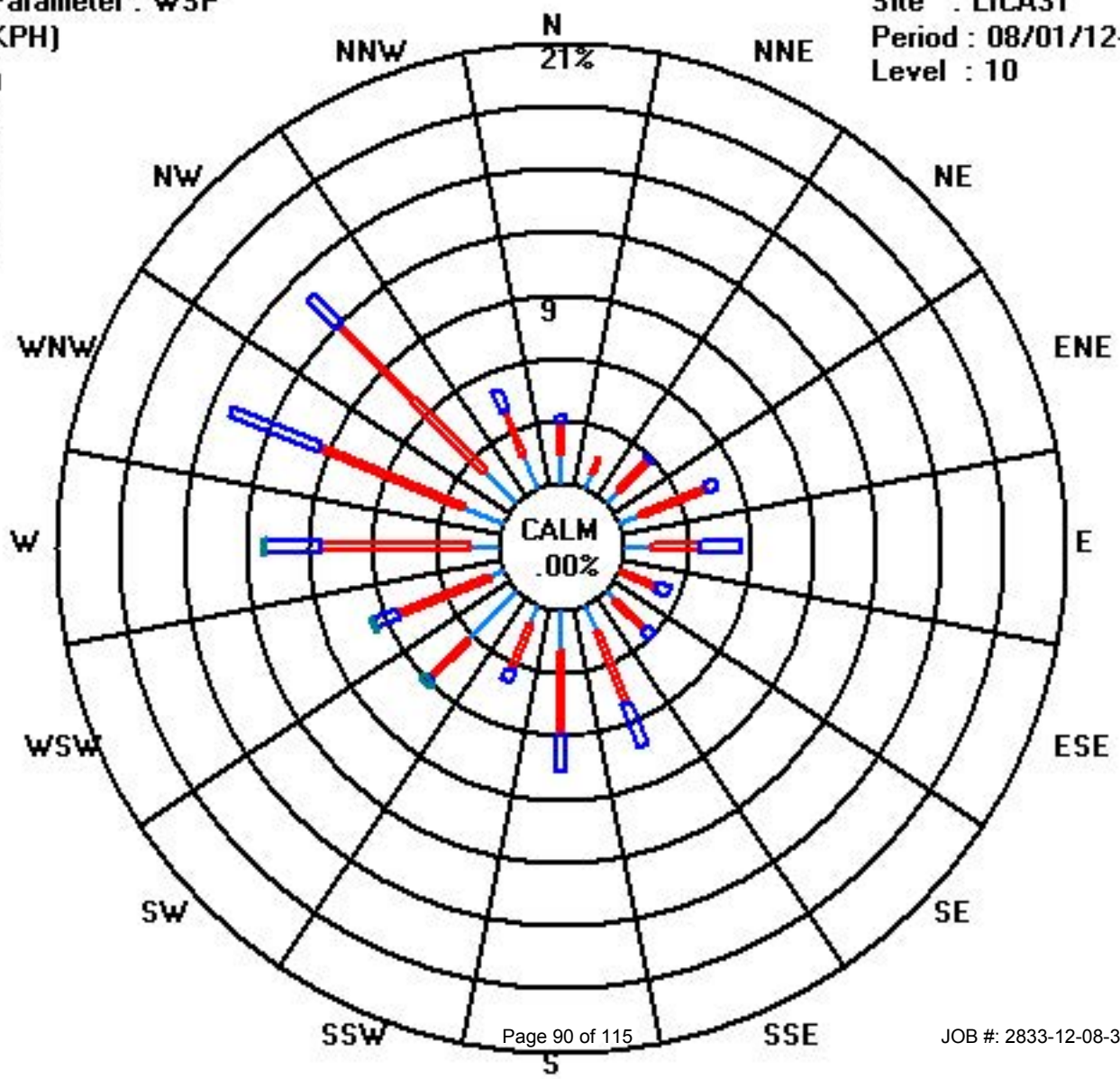
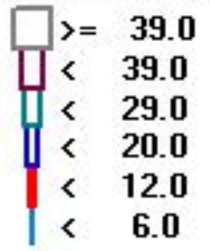
Calm : .00 %

Total # Operational Hours : 743

Class Limits (KPH)

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

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

AUGUST 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	266	245	261	254	236	237	241	251	265	262	277	297	285	283	263	269	275	291	288	283	282	217	218	210	265	W	24	
2	208	280	288	298	307	318	289	307	268	272	262	275	270	307	302	318	310	314	292	298	289	292	301	309	292	WNW	24	
3	300	296	304	299	293	325	329	325	322	326	326	354	349	322	318	294	311	280	300	303	79	123	147	160	314	NW	24	
4	164	163	164	166	171	165	167	163	175	190	193	195	211	234	238	255	264	276	283	244	248	247	247	250	207	SSW	24	
5	271	280	283	297	320	292	304	305	294	296	296	288	269	278	285	297	294	297	310	4	34	34	80	98	298	WNW	24	
6	57	44	55	57	78	40	50	77	65	69	80	81	73	61	77	70	72	67	84	93	99	114	121	133	75	ENE	24	
7	48	112	150	146	147	158	146	147	170	176	173	72	45	49	32	34	27	50	94	101	42	30	34	77	93	E	24	
8	76	353	33	58	61	64	60	78	76	85	93	95	101	106	102	111	101	103	99	93	97	119	229	235	97	E	24	
9	114	232	236	192	179	214	232	253	253	264	268	264	255	253	251	257	254	244	240	225	222	255	293	298	246	WSW	24	
10	295	272	228	206	205	243	231	265	288	261	256	230	252	312	315	325	284	342	47	42	81	158	190	179	252	WSW	24	
11	222	237	290	228	275	229	243	314	302	305	292	286	285	279	285	282	281	285	301	294	268	263	259	260	280	W	24	
12	262	238	235	252	267	267	274	296	303	311	309	310	297	299	326	320	341	4	41	67	84	93	107	125	288	WNW	24	
13	122	134	149	146	144	148	148	146	152	158	166	162	156	151	160	149	299	75	83	144	184	232	278	352	152	SSE	24	
14	346	319	336	344	327	320	314	309	348	354	339	331	334	333	350	342	338	348	341	321	328	319	322	319	333	NNW	24	
15	315	326	324	301	294	298	296	306	308	304	298	272	272	287	280	M	289	304	310	224	218	198	203	212	289	WNW	23	
16	209	213	223	221	220	229	224	212	217	201	218	233	245	277	279	284	276	267	261	253	255	259	273	268	244	WSW	24	
17	251	268	259	262	237	236	246	247	250	237	239	265	296	310	330	318	333	336	342	337	296	312	331	334	284	WNW	24	
18	348	18	76	100	196	162	169	178	188	165	193	185	164	166	155	162	145	146	142	142	147	161	169	176	159	SSE	24	
19	173	176	180	178	177	182	184	189	192	187	186	180	184	194	192	183	172	176	177	175	180	187	185	189	183	S	24	
20	189	193	194	227	210	241	235	237	221	210	232	205	190	222	178	159	155	138	146	143	152	164	175	182	187	S	24	
21	185	194	191	188	209	232	221	233	196	186	142	153	195	180	161	167	183	167	95	98	113	103	65	76	164	SSE	24	
22	113	221	301	345	356	351	39	59	16	324	303	307	319	327	352	324	307	322	325	321	313	309	306	266	329	NNW	24	
23	274	269	268	273	259	258	264	289	317	340	16	338	350	328	22	6	7	359	318	292	267	157	56	347	308	NW	24	
24	334	318	317	323	308	303	316	325	310	312	319	308	312	306	304	296	295	305	309	305	312	308	301	307	310	NW	24	
25	306	295	289	290	295	300	294	297	299	303	311	308	308	303	301	315	317	315	312	311	294	299	314	290	302	WNW	24	
26	288	291	310	303	305	295	298	306	256	250	274	338	1	311	265	233	171	174	158	112	119	131	133	140	239	WSW	24	
27	139	144	153	168	168	160	162	164	162	168	159	160	159	169	188	189	181	180	174	182	216	223	179	134	168	SSE	24	
28	93	95	83	80	82	37	96	310	351	1	11	14	260	216	231	240	264	331	283	217	30	327	1	21	19	NNE	24	
29	337	326	312	314	300	331	349	298	299	301	290	275	268	283	281	290	286	294	279	264	261	278	274	255	292	WNW	24	
30	253	270	256	255	251	277	275	260	266	281	275	271	274	291	290	309	304	317	335	360	357	9	21	37	288	WNW	24	
31	51	50	61	67	75	73	64	69	80	84	88	87	94	102	100	108	89	87	80	74	72	74	79	73	81	E	24	
HOURLY AVG	348	353	336	345	356	351	349	325	351	354	339	354	350	333	352	342	341	359	342	360	357	327	331	352				

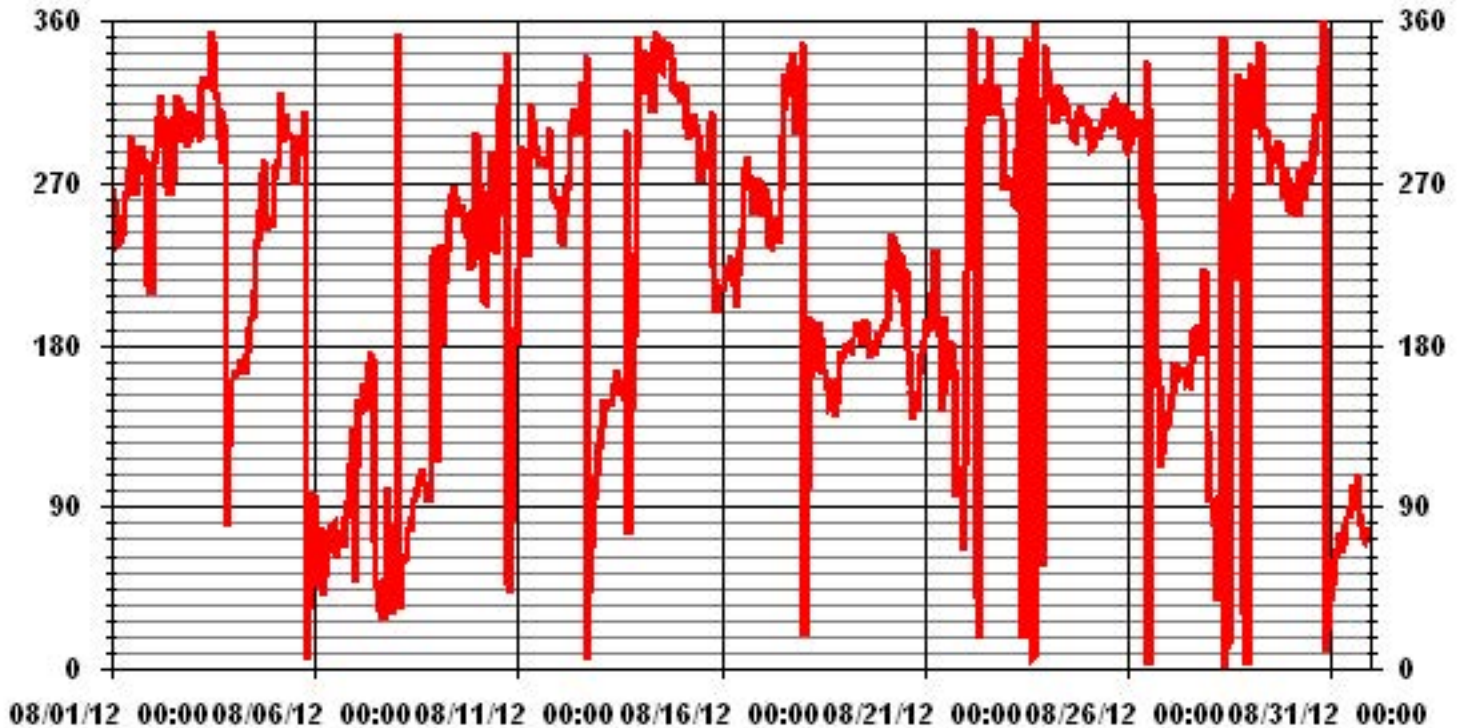
STATUS FLAG CODES

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

LAST CALIBRATION:	June 12, 2012
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	92.09	AMD OPERATION UPTIME:	99.9 %
		MONTHLY AVERAGE:	268 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

AUGUST 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	11	6	9	9	5	4	6	12	17	23	21	21	22	27	24	19	18	15	14	9	10	10	5	9
2	10	16	17	17	18	19	23	22	17	17	19	21	21	27	26	24	19	18	17	16	13	14	15	15
3	17	15	18	17	18	19	23	20	20	22	23	34	35	29	30	22	36	27	17	10	18	13	13	13
4	12	12	13	14	14	12	14	14	19	23	22	23	18	15	13	17	19	17	13	9	15	9	8	14
5	13	13	14	14	16	25	21	26	22	27	26	25	29	26	23	25	25	22	18	16	7	19	12	14
6	11	7	11	12	13	10	15	18	22	21	23	30	31	29	25	25	23	20	17	11	10	12	13	10
7	23	21	11	9	9	10	14	18	26	31	59	50	27	26	27	19	21	38	31	14	8	9	9	17
8	53	27	15	32	14	14	15	20	20	22	20	22	19	21	17	15	18	14	13	14	13	21	P	42
9	42	27	11	18	16	17	10	16	18	17	19	21	18	19	16	17	16	10	8	7	9	10	11	12
10	16	10	14	7	9	9	22	21	20	23	17	28	34	43	51	53	48	39	22	14	19	28	11	9
11	10	12	14	15	45	28	24	21	20	23	24	21	23	24	20	21	20	18	18	12	11	10	10	10
12	10	4	4	7	11	12	14	19	25	37	43	33	39	38	31	33	54	29	13	11	6	9	9	10
13	12	12	13	14	14	13	14	16	16	17	19	18	16	16	20	29	30	29	21	12	10	6	16	13
14	12	15	16	17	17	16	17	18	22	27	22	20	21	27	22	18	20	23	20	19	24	18	18	18
15	18	19	19	15	14	15	16	20	22	24	26	30	26	27	36	M	28	27	23	12	9	8	8	12
16	13	16	14	16	17	13	18	19	24	24	25	27	29	29	30	30	23	17	8	4	4	4	8	6
17	4	13	5	3	6	7	7	14	13	20	23	18	22	22	23	21	20	24	23	9	8	10	12	8
18	11	13	43	11	27	13	14	22	24	24	24	37	31	56	38	28	20	16	12	11	11	13	12	10
19	11	11	10	9	10	11	12	14	18	19	21	17	23	21	24	18	15	12	11	9	8	8	9	8
20	8	9	9	8	8	6	18	35	18	29	34	33	35	32	30	29	24	14	9	8	8	8	9	9
21	8	12	9	13	16	16	26	27	34	37	24	33	33	34	26	25	18	15	11	8	8	9	14	14
22	27	38	19	22	20	18	16	27	36	26	18	17	21	20	24	23	20	18	16	11	12	11	10	8
23	8	6	6	8	7	5	6	16	27	31	47	53	39	42	28	21	22	18	19	16	12	19	17	23
24	17	17	13	17	17	15	17	16	16	17	19	19	18	17	16	17	17	18	17	17	16	16	16	17
25	17	16	15	15	17	17	17	17	17	18	18	18	19	18	18	18	18	17	16	15	14	15	16	12
26	13	12	12	15	12	11	12	17	21	20	43	55	60	48	26	49	51	28	8	6	8	13	13	14
27	14	13	16	12	12	15	14	16	17	17	18	19	18	17	18	18	15	12	10	9	8	7	13	8
28	14	5	6	10	11	13	32	34	26	26	39	46	58	40	45	31	21	22	13	18	12	18	22	25
29	25	12	15	15	17	22	23	18	18	17	17	14	14	19	17	20	17	17	13	7	7	11	10	8
30	8	10	10	6	9	11	10	10	14	21	21	18	19	22	22	21	19	20	15	10	14	16	20	16
31	12	11	9	11	13	12	15	19	21	20	21	22	21	19	21	19	21	18	16	14	13	13	14	14

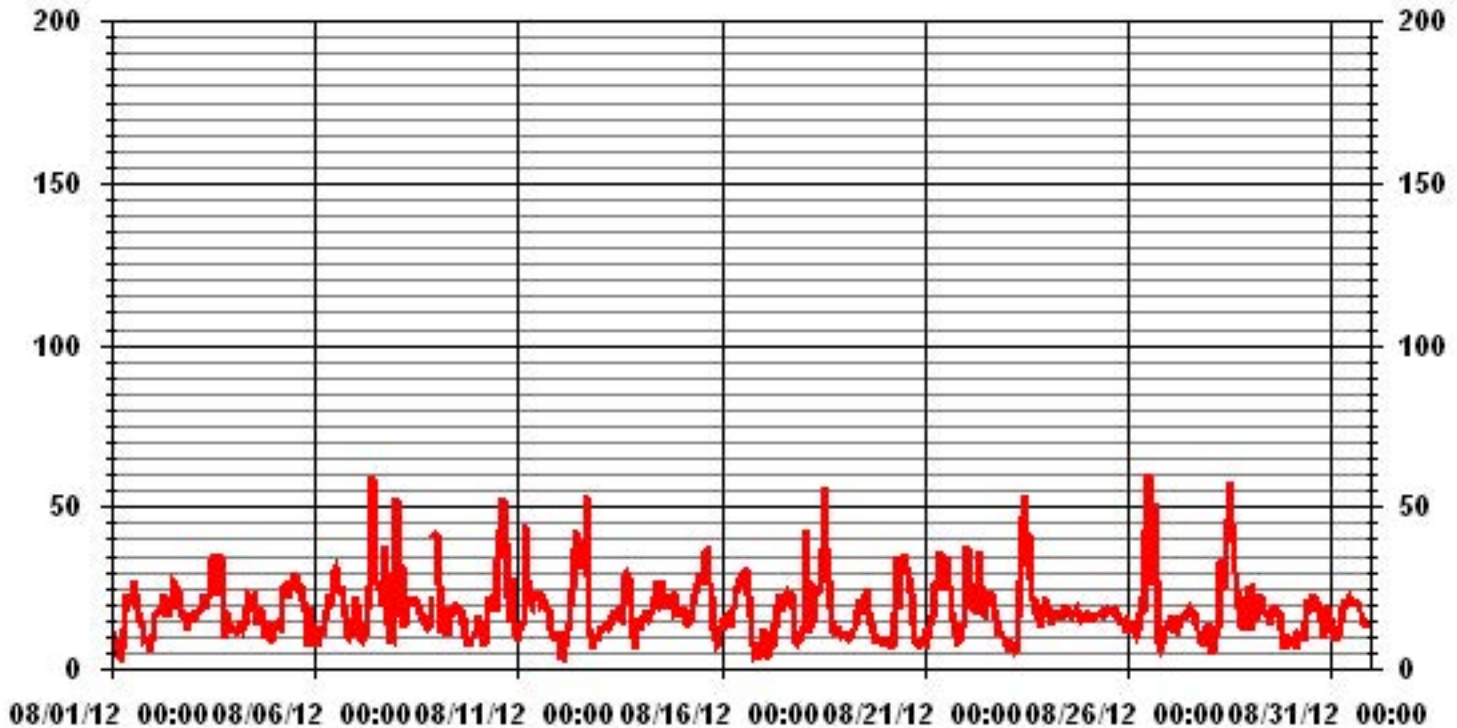
STATUS FLAG CODES

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: July 18, 2012

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 742 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	August 10, 2012	Previous Calibration	July 18, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	7:40	End Time (MST)	11:39
Reason:	Monthly Calibration		
Barometric Pressure	932 mBar	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 :	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	587 ccm	31.5 Deg C	587 ccm	31.8 Deg C	
HVPS / Lamp Setting	540	2246	540	2244	
PMT / RxCell Temp	7.8 Deg C	50 Deg C	7.8 Deg C	50 Deg C	
Converter / IZS Temp	NA Deg C	40 Deg C	NA Deg C	40.0 Deg C	
Offset / Slope	89.5	1.015	91.3	0.996	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	1	N/A
4996	0	0	0	N/A
4925	75.6	750	763	0.9828
4925	75.6	750	750	1.0000
4955	40.3	400	403	0.9929
4980	17.1	170	172	0.9868
4997	0	0	1	N/A
Sum of Least Squares				0.9978
New Correction Factor				1.0000

IZS alibration Data

Before Calibration		After Calibration	
Auto Zero	2.1	Auto Zero	1.0
Auto Span	249.0	Auto Span	243.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

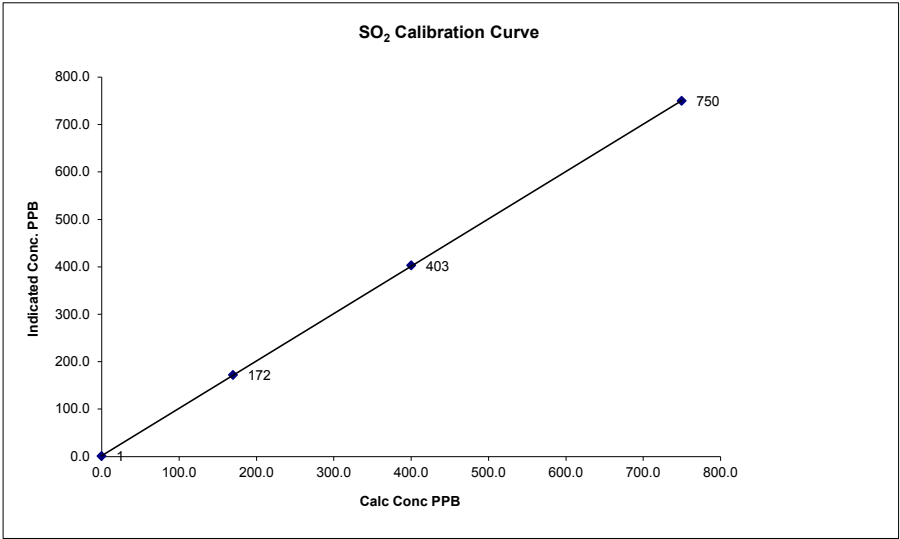
Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9828
Percent Change:	1.8%

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

SO₂ Calibration Curve

Calibration Date	August 10, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	7:40
End Time (MST)	11:39

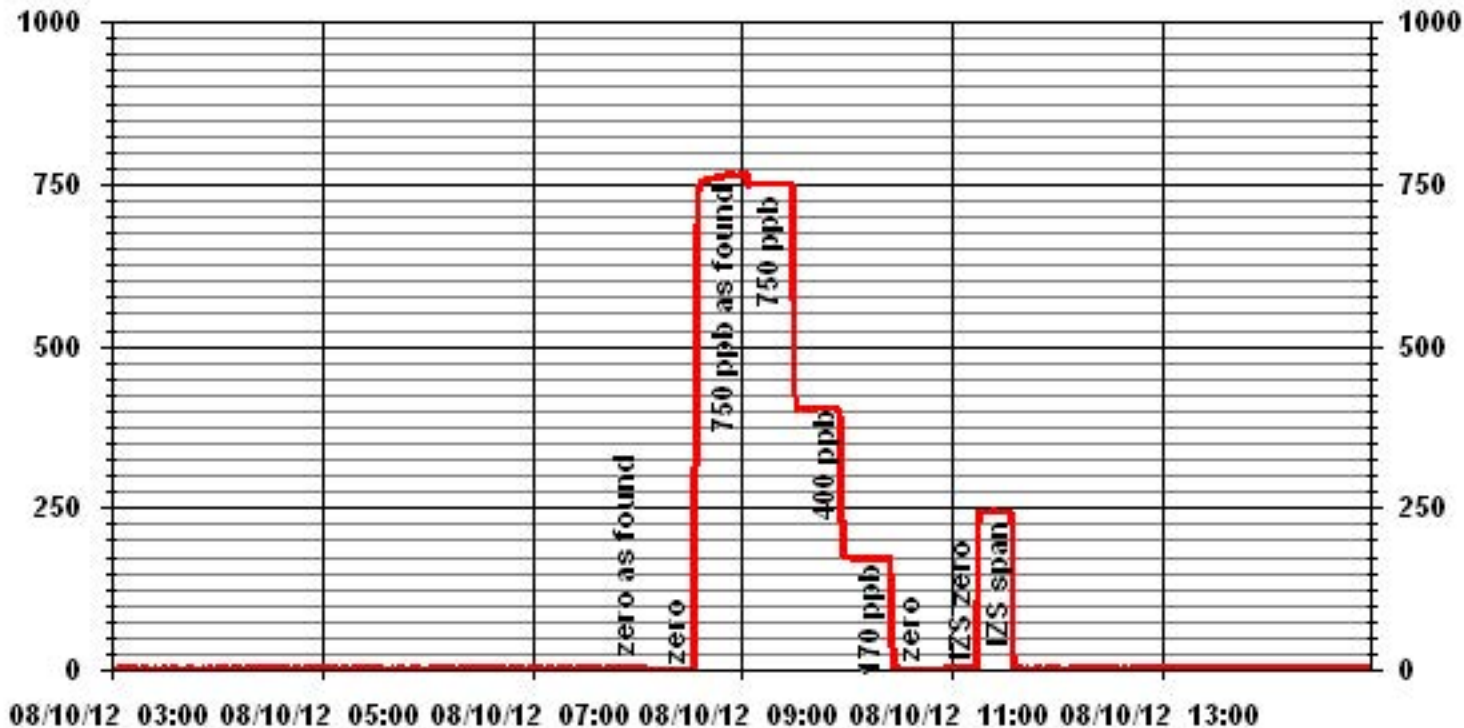
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	1	n/a		0.999988
170	172	0.9868		0.998621
400	403	0.9929		2.018985
750	750	1.0000		



Notes:

Calibration Performed by: Ting Xu

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	August 9, 2012	Previous Calibration	July 17, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	8:59	End Time (MST)	12:59
Reason:	Monthly Calibration		
Barometric Pressure	929 mBar	Station Temperature	24 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		0 - 100		After Calibration	
Concentration Range					
Sample Flow / Box Temp	538 ccm	33.8 Deg C	539 ccm	33.1 Deg C	
HVPS / Lamp Setting	518	2221	518	2224	
PMT / RxCell Temp	8.4 Deg C	50 Deg C	8.4 Deg C	50 Deg C	
Converter / IZS Temp	314 Deg C	45 Deg C	315 Deg C	45.0 Deg C	
Offset / Slope	89.8	1.026	91.6	0.995	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	1	NA
4997	0	0	0	1.0000
4959	40.0	80	83	0.9640
4959	40.0	80	80	1.0000
4979	20.0	40	41	0.9758
4986	11.5	23	24	0.9588
4996	0	0	1	NA
Sum of Least Squares				0.9929
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	1.7	Auto Zero	0.8
Auto Span	43.2	Auto Span	40.3
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9640
Percent Change:	3.7%

Notes:

NA : Not Applicable

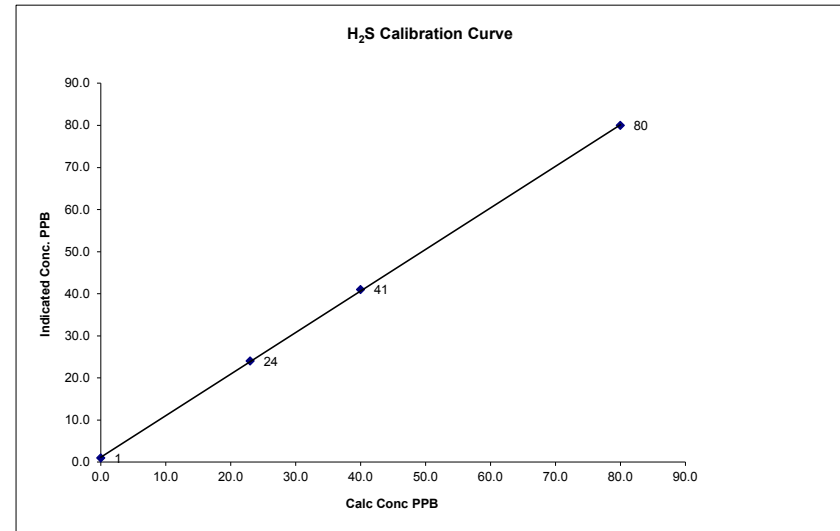
Re-did the A/F zero as the power was off during the point.

Calibration Performed by: Ting Xu

H₂S Calibration Curve

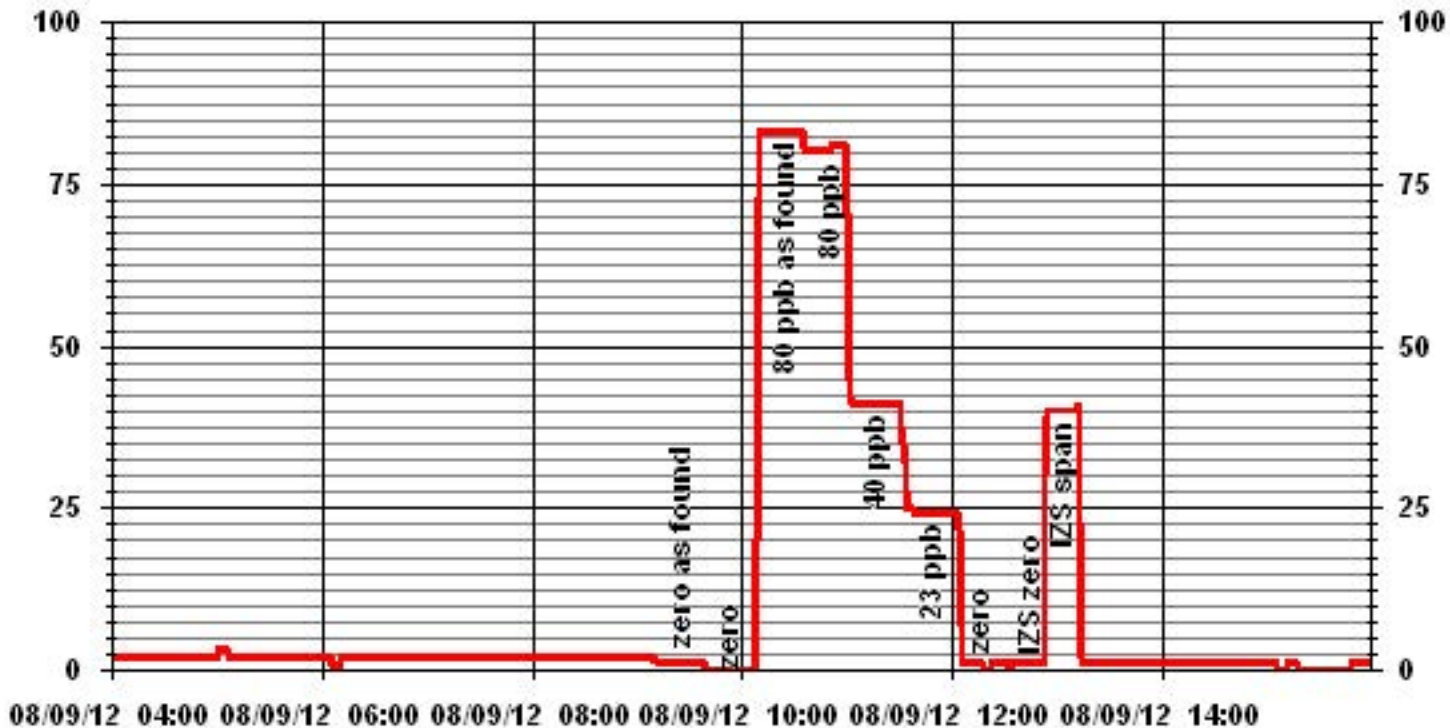
Calibration Date	August 9, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	8:59
End Time (MST)	12:59

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999947
0	1		Intercept	(± 3% F.S.)	1.210376
23	24	0.9588			
40	41	0.9758			
80	80	1.0002			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	August 9, 2012	Previous Calibration	July 17, 2012
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
Start Time (MST)	12:39	End Time (MST)	16:05
Reason:	Monthly Calibration		
Barometric Pressure:	931 mBar	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 717
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information

Make / Model	TECO 51C	S/N :	77021-384	Method	Flame Ionization
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Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.9	psi	6.9	psi
Hydrogen Pressure	10	psi	10	psi
Air Pressure	21	psi	21	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.1	NA
2000	0.0	0.0	0.0	NA
2000	74.0	41.4	41.7	0.9934
	No Span Adj.			
2000	37.0	21.1	21.0	1.0042
2000	20.0	11.5	11.5	1.0000
2000	0.0	0.0	0.0	NA
New Correction Factor:				0.9934

Percent Change

Previous Calibration Correction Factor:	0.9982
Current Correction Factor Before Span Adjust:	0.9934
Percent Change:	0.5%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.2	0.0
Auto Span	36.2	36.4
Sample Lines Connected	YES	

Cylinder Pressures			
Span	850 psi	Hydrogen 1000 psi	Zero Air 34 psi

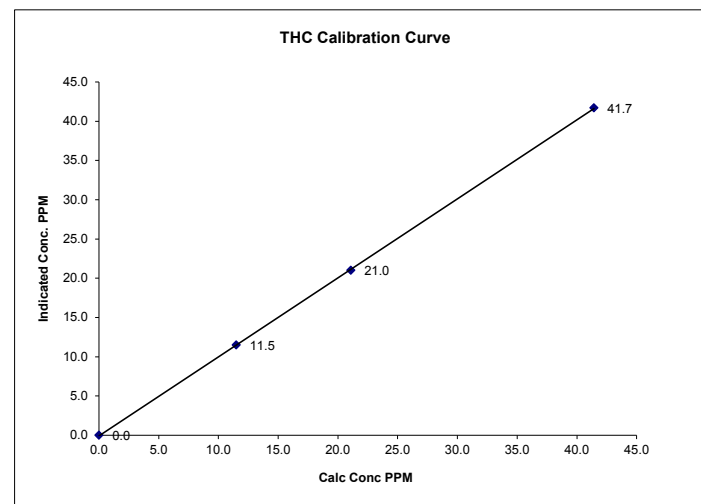
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

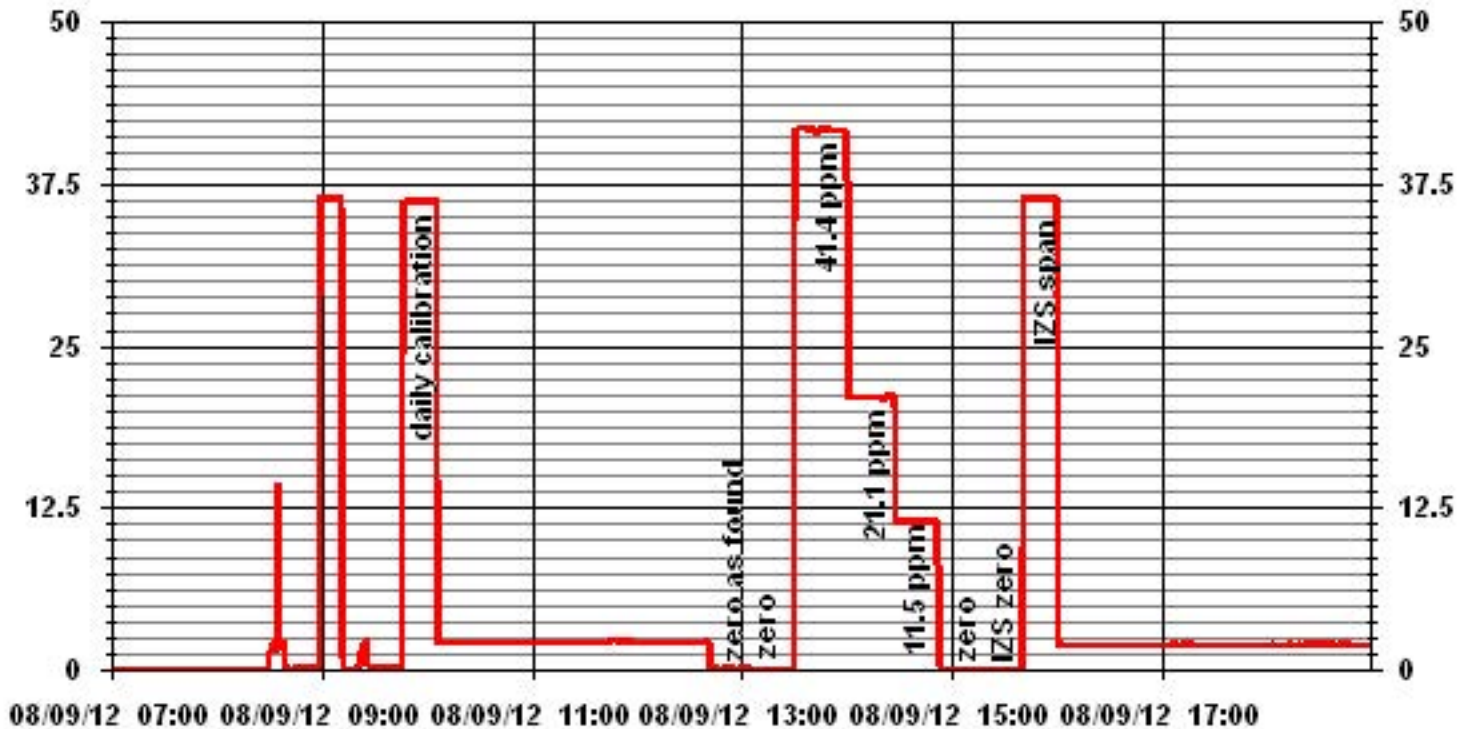
Calibration Date	August 9, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	12:39
End Time (MST)	16:05

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	0.999963	1.006558	-0.07326
11.5	11.5	0.9996			
21.1	21.0	1.0042			
41.4	41.7	0.9934			



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	August 9, 2012	Previous Calibration	July 17, 2012
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	8:59	End Time (MST)	16:15
Reason:	Monthly Calibration		
Barometric Pressure	929 mBar	Station Temperature	24 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 :	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	482 ccm	316	Deg C	483 ccm	316	Deg C	
Ozone Flow / Vacuum	71 ccm	5.2	*Hg-A	71 ccm	5.2	*Hg-A	
HVPS / A ZERO	694 Volts	26.4	MV	694 Volts	26.3	MV	
Rx/ Temp / PMT Temp	50.0 Deg C	6.9	Deg C	50.0 Deg C	6.8	Deg C	
Box Temp / IZS Temp	31.2 Deg C	42.0	Deg C	30.6 Deg C	42.2	Deg C	
Offset	2.4 NOx	1.5	NO	2.4 NOx	1.5	NO	
Slope	1.071 NOx	1.050	NO	1.134 NOx	1.096	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	0	1	NA	NA
No Zero Adj.										
4921	75.5	NA	749	748	NA	698	720	-22	1.0738	1.0389
4921	75.5	NA	749	748	NA	753	748	5	0.9953	1.0000
4962	35.2	NA	349	349	NA	351	349	3	0.9954	1.0000
4978	17.2	NA	171	170	NA	170	169	1	1.0046	1.0085
4994	0.0	NA	0	0	NA	0	0	1	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4921	75.5	NA	749	748	NA	761	749	13	NA	NA
4921	75.5	600	749	NA	520	764	242	523	0.9962	100.59%
No Adj. Needed										
4921	75.5	300	749	NA	268	767	494	273	0.9853	101.96%
4921	75.5	120	749	NA	113	768	649	118	0.9658	105.00%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.996	NO= 1.000	NO2= 0.990
				NOx= 0.9953	NO= 1.0000	NO2= 0.9962
Average Converter Efficiency= 102.52%						

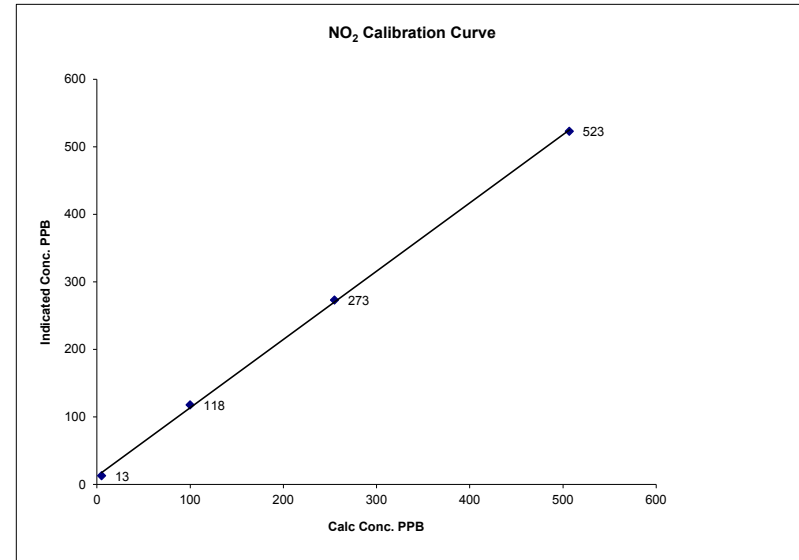
IZS Calibration Data

Before Calibration				After Calibration				
Auto Zero	0.7	NOx	1.6	NO2	0.2	NOx	0.0	
Auto Span	640	NOx	593	NO2	722	NOx	668	
Sample Lines Connected								
YES								
Percent Change from Previous Calibration	NOx		-7.1%		NO		-3.7%	
					NO2		0.4%	
Notes	NA : Not Applicable							
	Additional GPT point done for O3 calibration: O3 set point 450, NOx 767, NO 367, NO2 400							
	Power Failure occurred during the A/F zero point. Re-did the point.							
	During the A/F span point, the NOx reading kept dropping. Stopped the point, Purged the cal gas line, and re-did the point							
Calibration Performed by:	Ting Xu							

NO2 Calibration Curve

Calibration Date	August 9, 2012
Company	LICA
Plant / Location	St. Lina
Start Time (MST)	8:59
End Time (MST)	16:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999650
5	13	N/A	Intercept	(± 3% F.S.)	1.010661
100	118	0.8475			12.68933
255	273	0.9341			
507	523	0.9694			

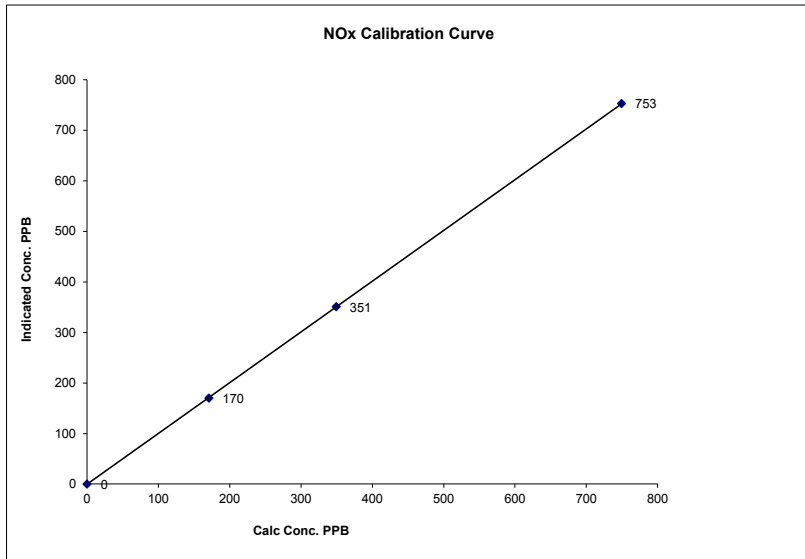


Notes:

NOx Calibration Curve

Calibration Date	August 9, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	8:59	End Time (MST)	16:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999995
0	0	N/A	Slope (0.85 to 1.15)	1.005440
171	170	1.0046	Intercept (± 3% F.S.)	-0.63984
349	351	0.9954		
749	753	0.9953		

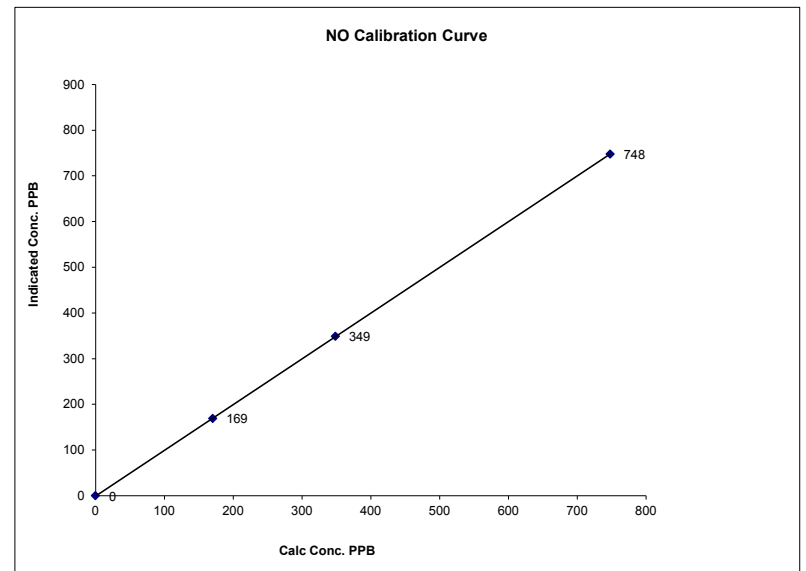


Notes:

NO Calibration Curve

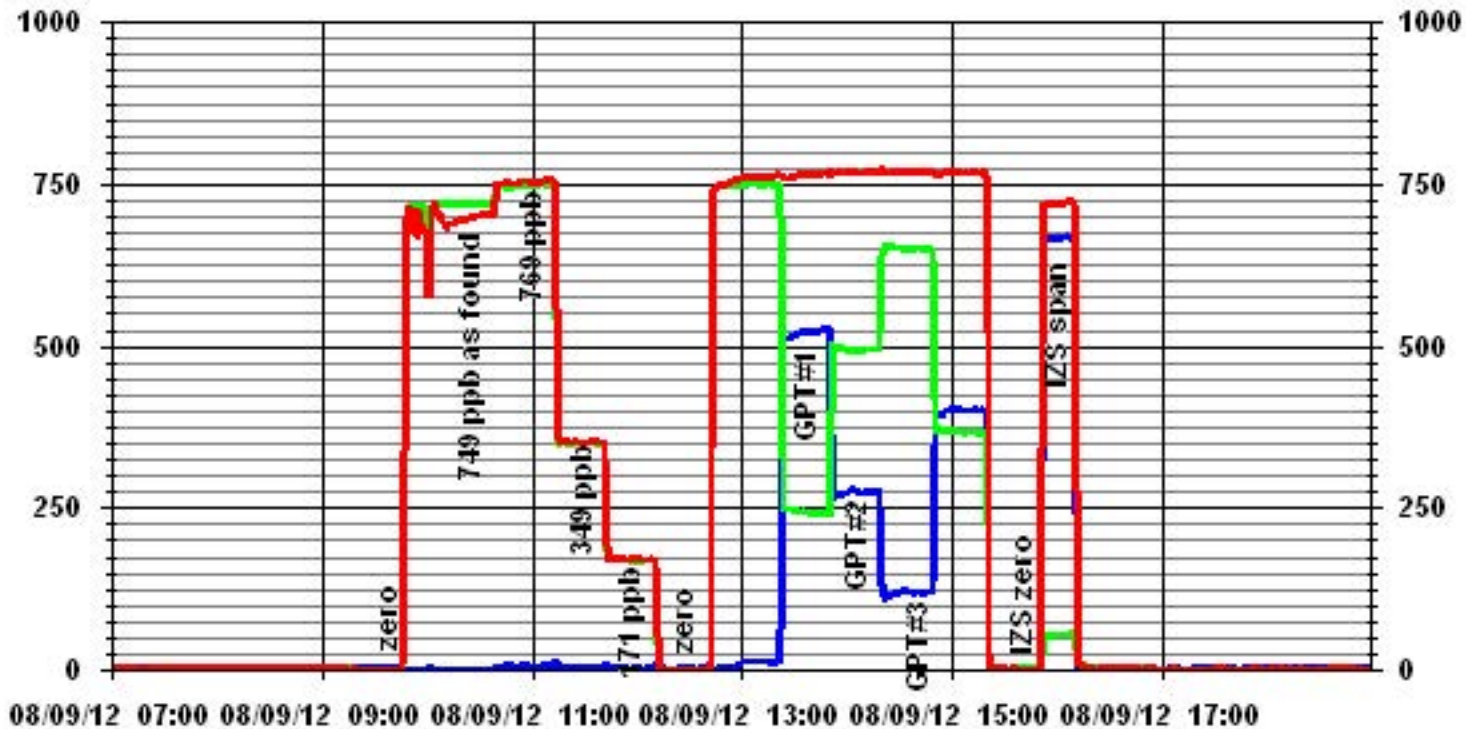
Calibration Date	August 9, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	8:59	End Time (MST)	16:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999994
0	0	N/A	Slope (0.85 to 1.15)	1.001992
170	169	1.0085	Intercept (± 3% F.S.)	0.5852
349	349	0.9991		
748	748	1.0000		



Notes:

01 Minute Averages



Ozone

O₃ Calibration Report
Station Information

Calibration Date	August 10, 2012	Previous Calibration	July 18, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	7:40	End Time (MST)	11:38
Reason:	Monthly Calibration		
Barometric Pressure	932 mBar	Station Temperature	24 Deg C
DAS Output Voltage	0-10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49C	S/N :	49C-54926-302	Method:	Fluorescent
Calibrator Make / Model:	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	840 ccm	857 ccm	840 ccm	858 ccm
Pressure	706 mmHg		707 mmHg	
Bench Temp	56.8 Deg C		56.8 Deg C	
O3 Lamp / Box Temp	80 Deg C	33.6 Deg C	80 Deg C	33.9 Deg C
Offset / Slope	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	382	384	0.9948
	No Span Adj.			
4994	300	255	260	0.9808
4994	120	100	105	0.9524
4994	0	0	0	N/A
			Sum of Least Squares	N/A
			New Correction Factor	0.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.9	0.9
Auto Span	317	318
Sample Lines Connected		YES
Percent Change from Previous Calibration		-0.3%

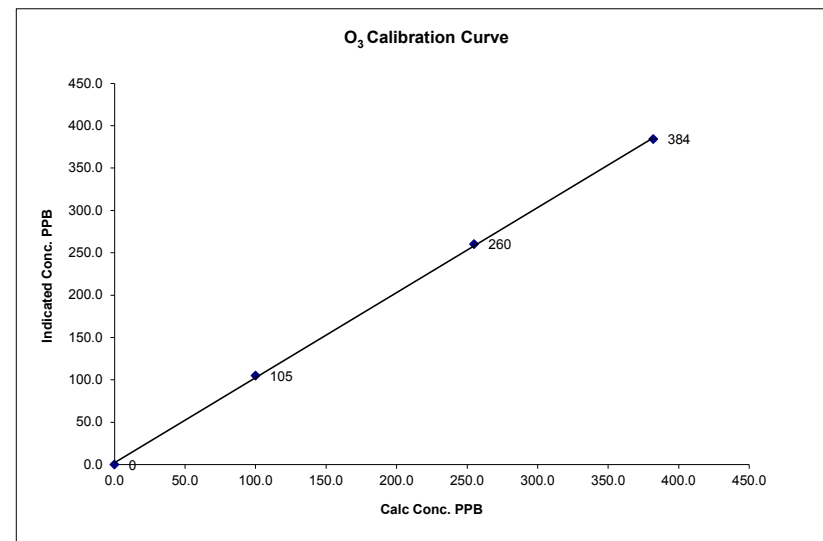
Note: **NA: Not Applicable**

Calibration Performed by: Ting Xu

O₃ Calibration Curve

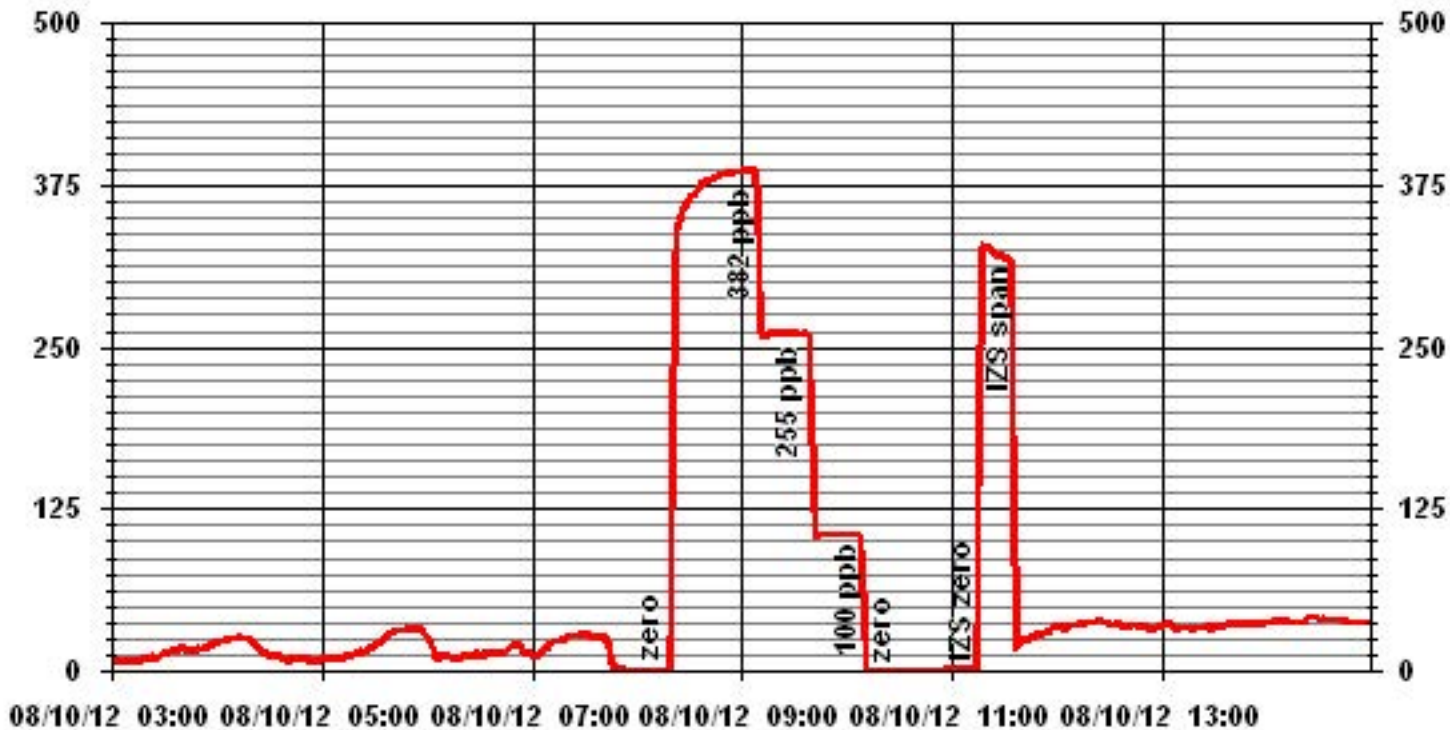
Calibration Date	August 10, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	7:40	End Time (MST)	11:38

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999805
0	0	n/a	Intercept	(± 3% F.S.)	2.290320
100	105	0.9524			1.003852
255	260	0.9808			
382	384	0.9948			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOMÒ 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	August 9, 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 (%)	21.4%
Firmware Ver.	1.55	K _o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	18.65
		Press (ATM)	0.925

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	0.30	Pump Gauge (inHg)	NA
Temperature/Pressure			
Measured Temp (± 2 °C)	17.91	D °C	0.7
Measured Press (± 0.01atm)	0.918	DATM	0.007
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.16%
Measured Main Flow (l/min)	2.99	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	0.02%
Measured Bypass Flow (l/min)	13.68	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: 9:10 **Finish Time:** 11:20

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

Comments: _____

@_YUbx' bXi glf m' '7 ca a i b]mi5 ggc WU]cb'

Cold Lake Monitoring Site
Ambient Air Monitoring
Data Report
For
August 2012

Prepared By:



September 18, 2012

@_Y'UbX'≠Xi glf m' '7 ca a i b]hm5 ggcW]Uh]cb'
 7 c`X'@_Y'Acb]hcf]b['G]hY'
 5 a V]Ybh5]f'Acb]hcf]b[

HUV'Y'cZ7 cbhYb]g'DU] Y'
 .
 ≠hfcXi W]cb'
 7 U]VfUh]cb'DfcWXi fY'
 Acbh `m7 cbh]bi ci g'Gi a a Ufm
 Acbh `mBcb!7 cbh]bi ci g'Gi a a Ufm
 Jc`Uh]Y'cf[Ub]Wg'8 Uh]Gi a a Ufm
 Dc`nW]W]W5 fca Uh]W<nXfcW]Vcbg'8 Uh]Gi a a Ufm
 ; YbYfU'Acbh `mGi a a Ufm
 7 cbh]bi ci g'Acb]hcf]b[..
 • Acbh `mGi a a U]Ygž; fUd\ g/ 'K]bX'FcgYg'
 o Gi `d\ i f'8]cl]XY'
 o HcHJ`FYXi WX'Gi `d\ i f'
 o HcHJ`<nXfcW]Vcbg'
 o DUf]W `Uh'A UhYf '&')
 o B]hcf[Yb'8]cl]XY'
 o B]h]WCl]XY'
 o Cl]XYg'cZB]hcf[Yb'
 o CncbY'
 o 5a V]YbhHYa dYfUi fY'
 o FYUh]j Y<i a]X]mi'
 o JYW'cf'K]bX'GdYYX'
 o JYW'cf'K]bX'8]fYW]cb'
 o GHUbXUfX'8 Yj]Uh]cb'K]bX'8]fYW]cb'
 Bcb!7 cbh]bi ci g'Acb]hcf]b[..
 Jc`Uh]Y'cf[Ub]Wg'
 Dc`nW]W]W5 fca Uh]W<nXfcW]Vcbg'

.....DU] Y'
 7 U]VfUh]cb'FYdcf]g' %\$*
 • Gi `d\ i f'8]cl]XY' %\$+
 • HcHJ`FYXi WX'Gi `d\ i f' %/\$
 • HcHJ`<nXfcW]Vcbg' %/%
 • DUf]W `Uh'A UhYf '&') %/%
 • B]hcf[Yb'8]cl]XY' %/%
 • CncbY' %&
 DUgg]j Y'6 i VV'Y'A Udg' %&*
 DUgg]j Y':]YX'8 Uh] % %
:]YX'BchYg' % &
 DUgg]j Y'Acb]hcf]b['@VcfUrcfm5 bUng]g' % (.
 Jc`Uh]Y'cf[Ub]Wg' @VcfUrcfm5 bUng]g' % &
 Dc`nW]W]W5 fca Uh]W<nXfcW]Vcbg' @VcfUrcfm5 bUng]g' %)

Information

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga

10000 50th Street

Box 8237

5107W – 50 Street

Bonnyville, Alberta

T9N 2J5

Monitoring Location: Cold Lake

Data Period: August 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

The monthly analytical report for passive monitoring:

Authorized by Levi Manchak

The 6-day analytical report for VOCs and PAHs:

Authorized by Petro Oh

7 U]VfU]cb'DfcW]Xi fY

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*.

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE

7 cbh]bi ci g'5a V]YbhA cb]hcf]b['È'5 i [i gh&\$%&

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						OBJECTIVES					EXCEEDENCES			MONTHLY AVERAGE	1-HOUR			24-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	0.09	2	15	4, 5	8.9, 8.6	308(NW), 312(NW)	0.7	15	99.9
TRS (PPB)	-	-	-	-	0.03	9	7	23	0.3	106(ESE)	0.5	7	99.9
NO ₂ (PPB)	159	-	0	-	1.59	8	22	10	3.4	339(NNW)	3.5	26	99.9
NO (PPB)	-	-	-	-	0.40	12	31	7	0.6	162(SSE)	1.3	31	99.9
NO _x (PPB)	-	-	-	-	1.98	15	31	7	0.6	162(SSE)	4.0	22	99.9
O ₃ (PPB)	82	-	0	-	19.87	54	21	16	4.9	206(SSW)	27.5	9	99.9
THC (PPM)	-	-	-	-	2.58	4.6	20	6	1.1	252(WSW)	3.3	20	99.9
PM 2.5 (UG/M ³)	-	30	-	0	6.52	19.0	8	22	6.3	108(ESE)	12.1	6	98.8
TEMPERATURE (DEG C)	-	-	-	-	16.83	29.4	20	14	2.8	193(S)	21.0	8	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	73.91	100	23	5, 6	3.7, 5.4	233(SW), 250(WSW)	93.5	2	100.0
VECTOR WS (KPH)	-	-	-	-	4.92	16.9	11	13	-	270(W)	8.6	25	100.0
VECTOR WD (DEGREES)	-	-	-	-	265(W)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

Acbh`mBcb!7cbh]bi ci g'8UHGi a a Ufm
@?9@B8`B8I GHFM/`7CAAI BHM5GGC75HCB!'7C@`@?9`

DUggjj Y'5a V]YbhAcb]hcf]b['BYtk cf_`E'5i [i gh&\$%&

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#27	1.3	0.39
H ₂ S	#27	0.74	0.19
NO ₂	#28	1.9	0.8
O ₃	#32	27.1	18.1

Jc`Uh`Y`Cf[Ub]Wg'8 Uh'Gi a a Ufm
 @ ? 9 @ B8 `B8 I GHFM/ '7 CAAI BHM5 GGC7 5HCB`E'7 C @ ` @ ? 9 `

LcbhYW `AcXY`- %\$5 `E'5i [i gh\$%ž&\$%&`

AU]a i a `fYUX]b[`fl [# `L`	Jc`Uh`Y`Cf[Ub]W
<32.0	Hexachlorobutadiene

LcbhYW `AcXY`- %\$5 `E'5i [i gh\$* ž&\$%&`

AU]a i a `fYUX]b[`fl [# `L`	Jc`Uh`Y`Cf[Ub]W
<32.0	Hexachlorobutadiene

LcbhYW `AcXY`- %\$5 `E'5i [i gh% ž&\$%&`

AU]a i a `fYUX]b[`fl [# `L`	Jc`Uh`Y`Cf[Ub]W
<32.0	Hexachlorobutadiene

LcbhYW `AcXY`- %\$5 `E'5i [i gh% ž&\$%&`

AU]a i a `fYUX]b[`fl [# `L`	Jc`Uh`Y`Cf[Ub]W
<32.0	Hexachlorobutadiene

LcbhYW `AcXY`- %\$5 `E'5i [i gh&) ž&\$%&`

AU]a i a `fYUX]b[`fl [# `L`	Jc`Uh`Y`Cf[Ub]W
NA	NA

BchY. Sample result for August 25th is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

LcbhYW `AcXY`- %\$5 `E'5i [i gh' %ž&\$%&`

AU]a i a `fYUX]b[`fl [# `L`	Jc`Uh`Y`Cf[Ub]W
NA	NA

BchY. Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

PUF cartridge – August 01, 2012

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.05	3-Methylcholanthrene

PUF cartridge – August 07, 2012

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

PUF cartridge – August 13, 2012

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

PUF cartridge – August 19, 2012

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

PUF cartridge – August 25, 2012

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

PUF cartridge – August 31, 2012

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

Note: Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

; YbYfU`AcBH`mGi a a Ufm!`7c`X`@U_Y`

9ei Jda YbHCdYfUHcb`

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

5EA`GH5H`CB`E`@75`-`7C`@`@?9

Gi`d\ i f`8jcl JXY`fDD6L`

- 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 August 7^h. Data was corrected using daily zero information.

HcHJ`FYXi WX`Gi`d\ i f`fDD6L`

- 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 August 7th. Data was not corrected using daily zero information, as the baseline would shift to 1ppb if data were applied.

CncbY`fDD6L`

- 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 August 7th. 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 August 3rd. 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 August 3rd. Hourly maximum data on August 16th at hour 7 was invalidated due to the analyzer spike. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

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

It was noticed that the hourly data showed larger than normal fluctuation, starting August 2nd. A routine Teom audit was performed on August 7th. The audit passed all requirements. Following the audit, the ambient pressure was calibrated and adjusted, both the Teom filter and the FDMS filter were changed, and the pump was rebuilt. A post-maintenance audit was then performed. Another check was performed on August 10th. Data began more consistent after the maintenance check on August 10th. The data between August 2nd and August 10th are suspected and should be used with caution. 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. Nine hours of data were invalid as the data were below –3 ug/m3.

; YbYfU`AcbH`mGi a a Ufm!`7c`X`@U_Y

5EA`GH5HCB`E`@75`-`7C`@`@?9`

JYWcf`K`JbX`GdYYX`fP`D<L`/`JYWcf`K`JbX`8`JfYWJcb`fB9;`L`

- 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.

FYUJj`Y`<i`a`JXJmifD9F79BHL`

- System make / model - Rotronic Hygroclip-S3
- No operational issues were observed during the month.

5a`VJYbhiHYa`dYfUi`fY`fB9;`7L`

- System make / model - Rotronic Hygroclip-S3
- No operational issues were observed during the month.

HfUJ`Yf`HYa`dYfUi`fY`fB9;`7L`

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

8UUc`[`Yf`

- 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.

HfUJ`Yf`

The manifold was cleaned on August 27th.

; YbYfU`AcbH`mGi a a Ufm!`7c`X`@U_Y

5EA`GH5HCB`E`@75`-`7C`@`@?9`

5Jf`Ei U]m-bXYI`f5E`L`

No AQI report is included in this report, as the AQI value is no longer used by Alberta Environment.

DUggjj`Y`BYfk`cf`_`

The 10% duplicate sampling program was run this month.

No issue was recorded this month.

Jc`UH`Y`Cf[`Ub]Wg`fU`C7`gk`

The volatile organics were sampled from August 1st to August 31st. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs in this report were reported as ug/m3 in 3 significant figures. Sample results for August 25th and August 31st are not included in this monthly report because they are not available when the monthly report was preparing. The results will be included in the following monthly report.

Dc`nWw]W5`fca`Uh]W<`nXfc`WUf`Vcbg`fD5`<`gk`

The PAHs scheduled to be sampled on August 1st to August 31st. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs in this report were reported as ng/m3. Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result will be included in the following monthly report.

7 cb]bi ci g`A cb]hcf]b[`

-
-
-
-
-

**AcbH`mGi a a Uf]Ygž; fUd\ g/ 'K]bX'
FcgYg'**

-
-
-
-
-

Gi`d\ i f`8]cI]XY`

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	IZS	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
5	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
6	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1	24
7	0	0	0	0	0	0	IZS	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0.0	24
8	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
9	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
10	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12	0	IZS	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
13	IZS	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
14	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
15	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0.7	24
16	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0.3	24
17	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.2	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	1	IZS	1	0	0	0	0	0	0	1	0.1	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	1	1	1	0	0	0	IZS	1	1	0	0	0	0	0	0	1	0.2	24
22	0	0	0	0	0	1	0	0	0	0	0	0	0	0	IZS	0	1	1	1	0	0	0	0	0	0	1	0.2	24
23	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	1	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	1	1	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.3	24
27	0	0	0	0	0	0	0	0	M	IZS	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	1	0.2	23
28	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
29	0	0	0	0	1	1	0	IZS	0	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	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	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0				
HOURLY AVG	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0				

STATUS FLAG CODES

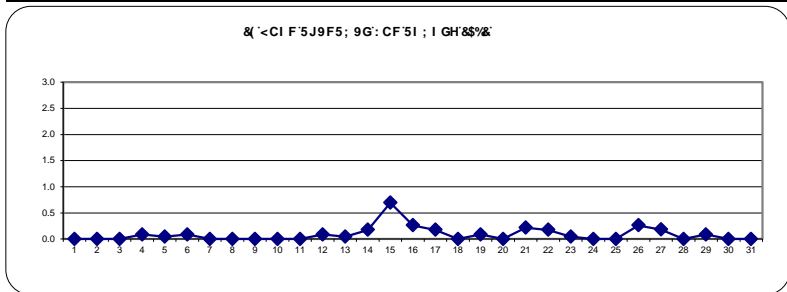
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

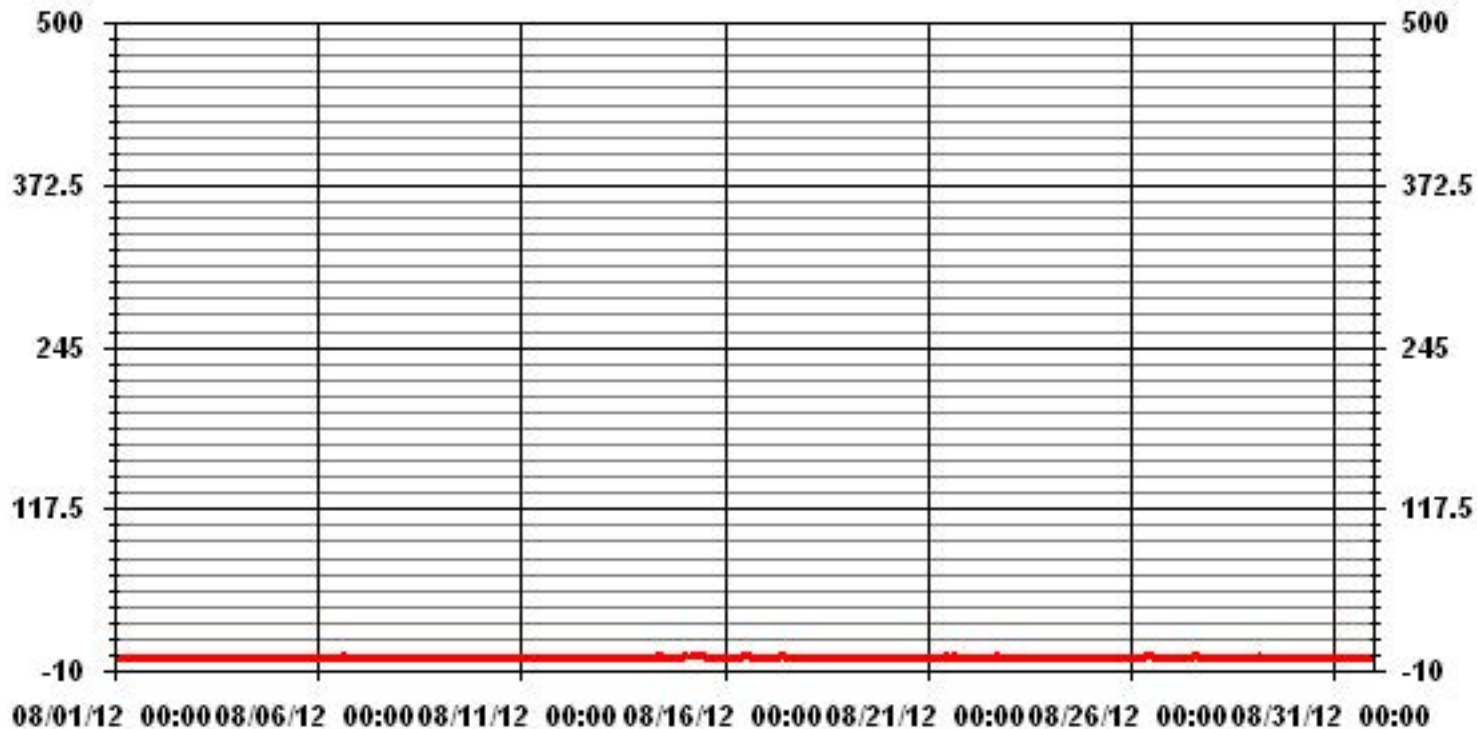
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
----------------------	------	-----	-----	-------	----	-----

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	60
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 4, 5 ON DAY(S) 15
MAXIMUM 24-HR AVERAGE:	0.7 PPB ON DAY(S) 15
IZS CALIBRATION TIME:	32 HRS
OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	4 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.29
MONTHLY AVERAGE:	0.09 PPB



01 Hour Averages



— LICA SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

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

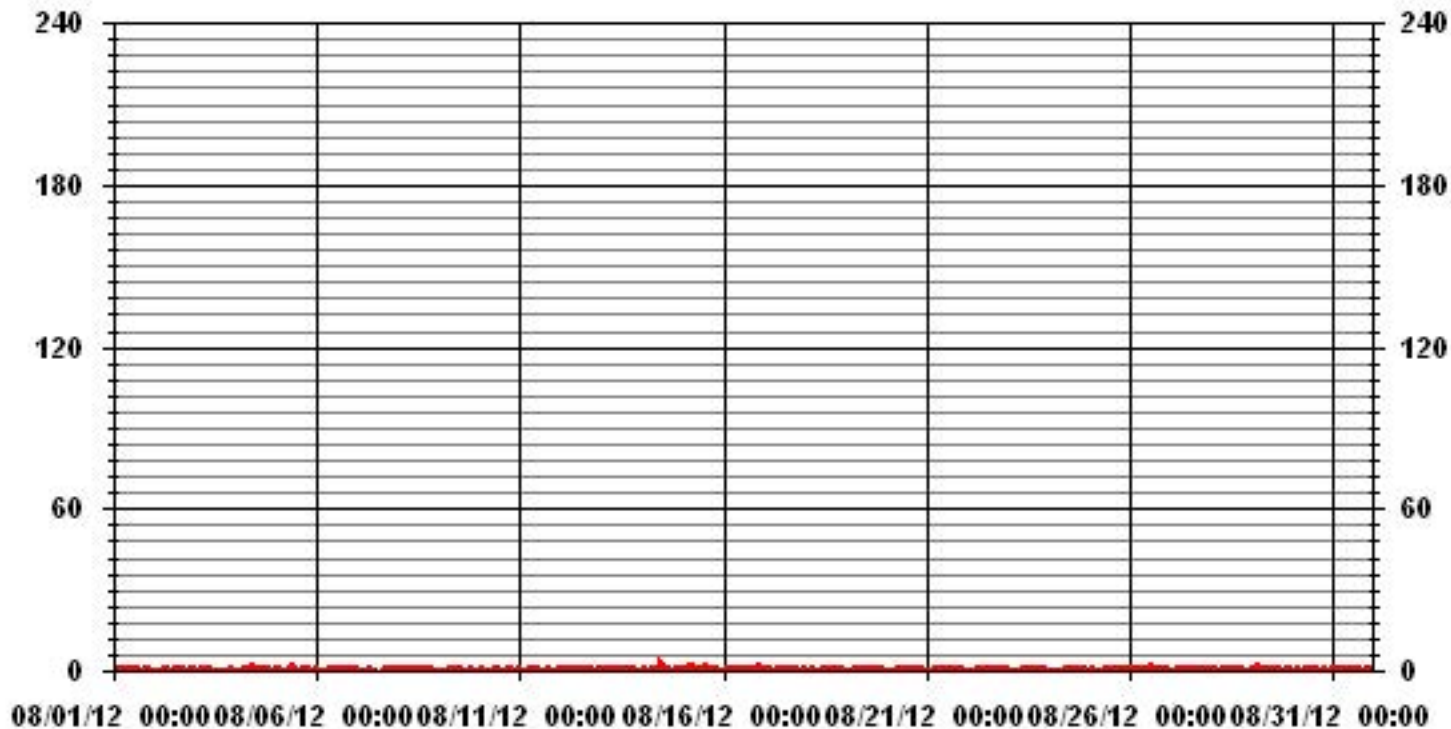
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	405					
MAXIMUM INSTANTANEOUS VALUE:	3	PPB	@ HOUR(S)	10	ON DAY(S)	14
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.53					

01 Hour Averages



LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

August 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	2.12	1.27	2.26	3.67	3.25	5.94	11.73	4.52	4.24	6.50	8.06	12.16	14.71	8.20	6.50	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	2.12	1.27	2.26	3.67	3.25	5.94	11.73	4.52	4.24	6.50	8.06	12.16	14.71	8.20	6.50	4.80	

Calm : .00 %

Total # Operational Hours : 707

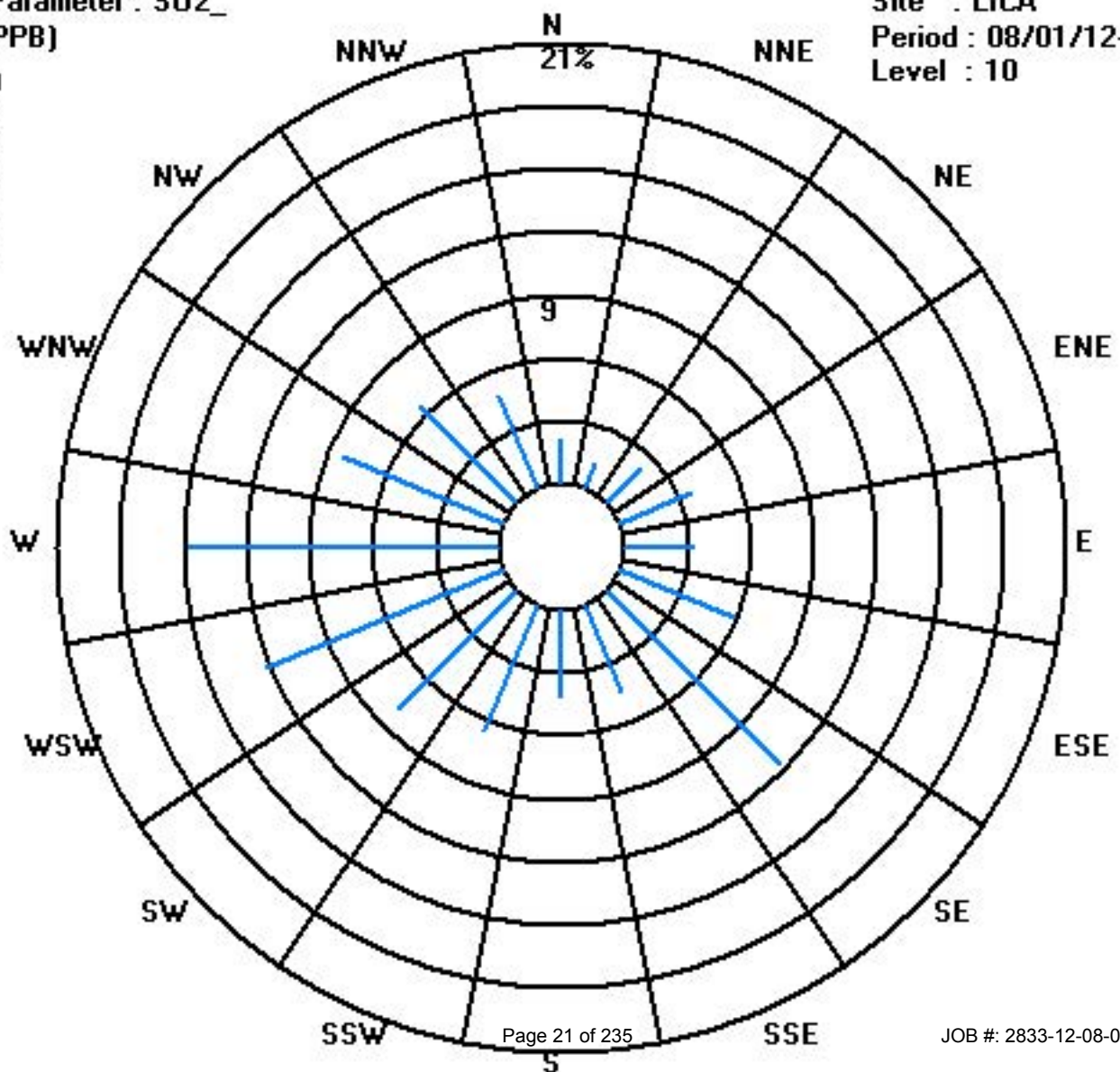
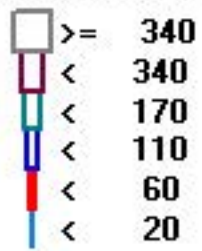
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	15	9	16	26	23	42	83	32	30	46	57	86	104	58	46	34	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	15	9	16	26	23	42	83	32	30	46	57	86	104	58	46	34	

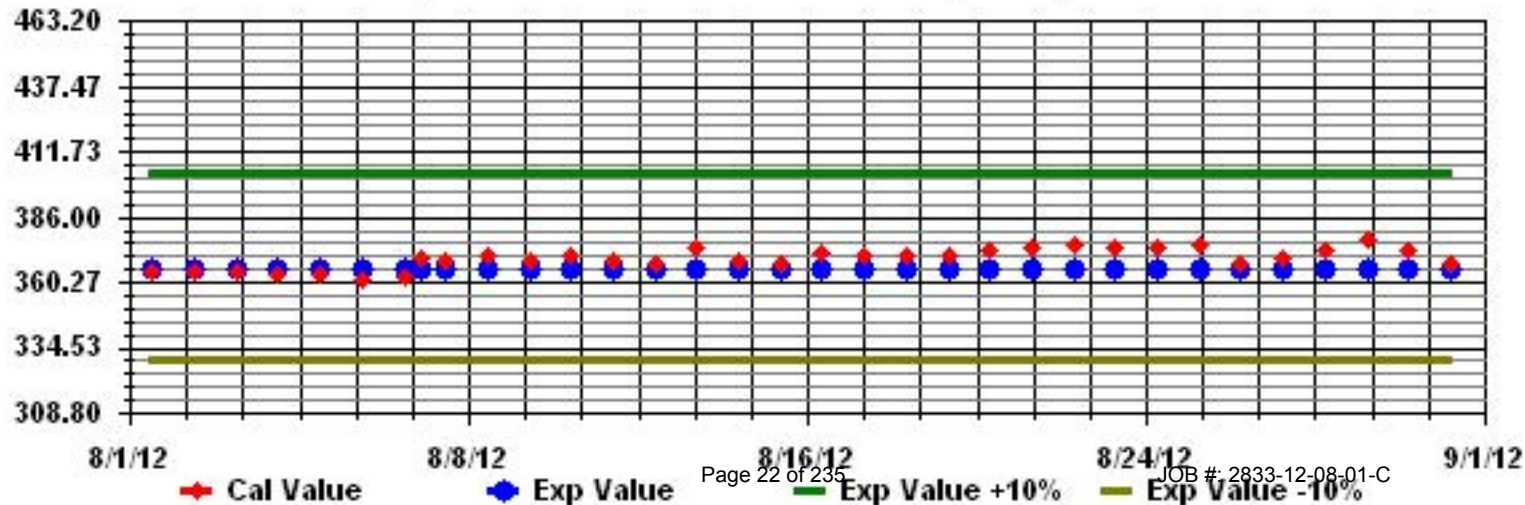
Calm : .00 %

Total # Operational Hours : 707

Class Limits (PPB)



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



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

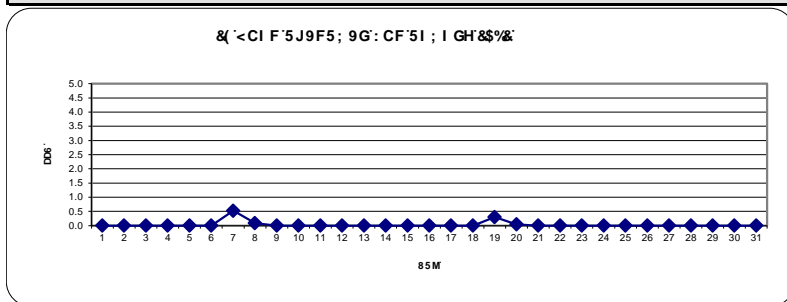
AUGUST 2012

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

STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	9
MAXIMUM 1-HR AVERAGE:	9 PPB @ HOUR(S) 23 ON DAY(S) 7
MAXIMUM 24-HR AVERAGE:	0.5 PPB ON DAY(S) 7
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.38
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	0.03 PPB

15	1	2	1	2	4	4	3	1	0	3	1	0	0	0	0	0	1	2	3			
16	3	2	2	2	1	3	3	P4	4	4	2	2	2	2	2	2	5	5	7	IZS		
17	7	3	2	6	3	7	5	5	5	4	4	5	4	3	6	5	4	4	3	IZS	12	
18	3	3	3	3	2	2	4	5	5	3	3	1	3	1	1	2	1	2	1	IZS	7	6
19	2	2	2	2	2	3	2	2	2	2	1	1	3	20	2	1	2	3	4	9		
20	2	2	1	2	1	4	4	5	5	4	4	7	2	1	1	1	IZS	5	5	10	7	
21	3	2	2	2	4	7	7	4	3	3	3	3	4	3	4	IZS	3	2	2	7	8	
22	3	2	4	1	4	5	6	15	6	5	16	15	19	7	IZS	3	4	8	13	14	5	
23	4	7	7	6	7	5	6	7	5	2	2	2	3	IZS	2	2	3	8	5	3	5	
24	3	1	1	2	1	1	6	4	3	7	6	3	IZS	1	1	2	2	2	2	2	3	
25	3	1	1	1	1	1	1	1	3	1	6	IZS	5	2	2	1	2	1	1	1	2	
26	3	2	3	3	4	5	6	5	3	4	IZS	2	3	4	4	3	2	4	13	8	3	
27	1	1	1	1	4	4	4	11	M	IZS	2	1	1	3	2	2	4	2	5	12	9	
28	2	5	3	2	3	3	3	5	IZS	3	4	2	2	12	5	3	3	2	4	5	5	
29	4	5	5	8	8	8	7	IZS	5	5	2	3	3	4	3	1	1	1	3	6	2	
30	3	3	3	3	2	3	IZS	4	4	2	2	1	2	1	1	1	1	1	3	7	7	
31	1	1	1	1	2	IZS	4	6	8	17	1	1	1	5	2	3	3	4	4	2		
HOURLY MAX	7	7	7	8	9	8	11	27	8	17	16	15	19	20	22	7	6	8	13	14	12	
HOURLY AVG	2.8	2.5	2.4	3.0	3.8	3.8	4.6	5.6	3.8	3.5	3.2	2.6	3.0	3.7	3.1	1.8	2.3	2.7	3.8	5.3	4.6	

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	671	
MAXIMUM INSTANTANEOUS VALUE:	27 PPB @ HO	
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL
MONTHLY CALIBRATION TIME:	8 HRS	
STANDARD DEVIATION:	2.89	

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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2012

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

DAY	MST																								DAILY 24-HOUR				
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2.5	24	
8	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24	
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	1	0.0	24	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	0	0	0	0	0	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	1	1	0	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	
19	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	4	2.2	24	
20	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.2	24	
21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	23	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	1	0.0	24	
HOURLY MAX	3	2	1	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	10	32		
HOURLY AVG	0.2	0.1	0.0	0.1	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	0.0	0.0	1.2	0.5	1.5		

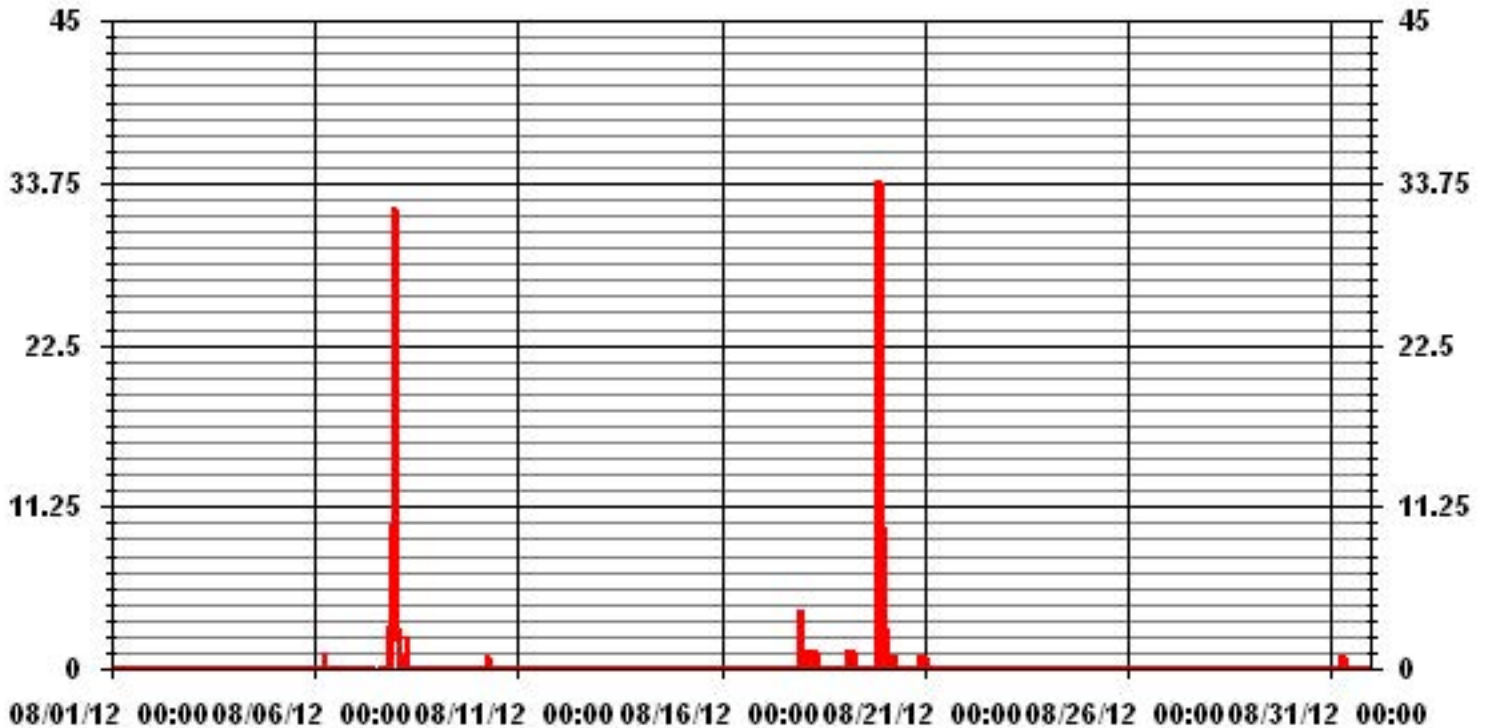
STATUS FLAG CODES

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:	26					
MAXIMUM INSTANTANEOUS VALUE:	34	PPB	@ HOUR(S)	21	ON DAY(S)	19
VAR - VARIOUS						
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743 HRS		
MONTHLY CALIBRATION TIME:	5 HRS					
STANDARD DEVIATION:	1.86					

01 Hour Averages



LICA
 TRS_ / WDR Joint Frequency Distribution (Percent)

August 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	2.12	1.27	2.26	3.67	3.25	5.79	11.73	4.52	4.24	6.36	8.06	12.16	14.71	8.20	6.50	4.80	99.71
< 10	.00	.00	.00	.00	.00	.14	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.28
< 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	2.12	1.27	2.26	3.67	3.25	5.94	11.73	4.52	4.24	6.50	8.06	12.16	14.71	8.20	6.50	4.80	

Calm : .00 %

Total # Operational Hours : 707

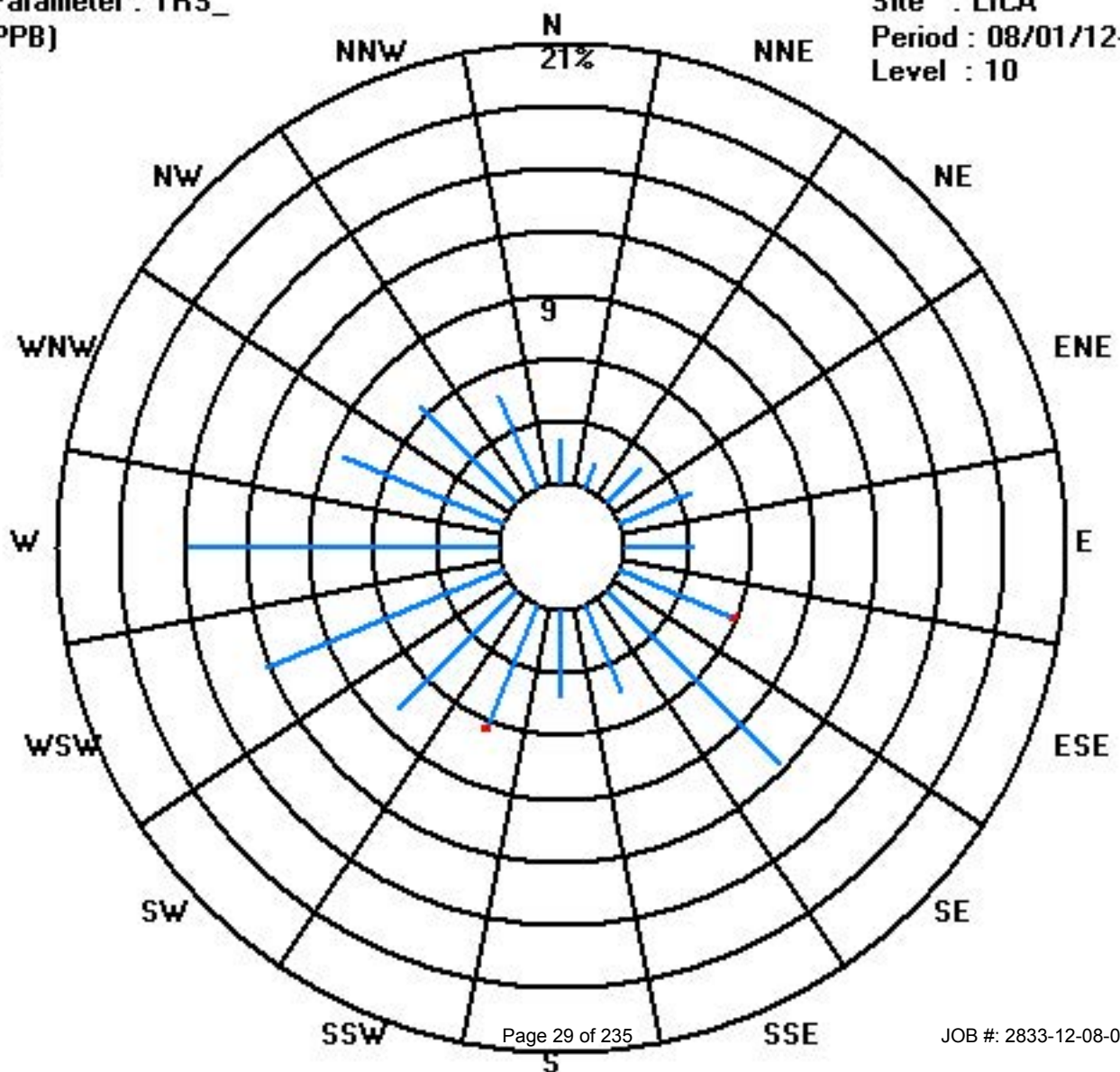
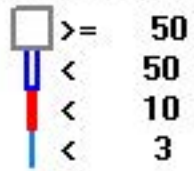
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	15	9	16	26	23	41	83	32	30	45	57	86	104	58	46	34	705
< 10						1				1							2
< 50																	
>= 50																	
Totals	15	9	16	26	23	42	83	32	30	46	57	86	104	58	46	34	

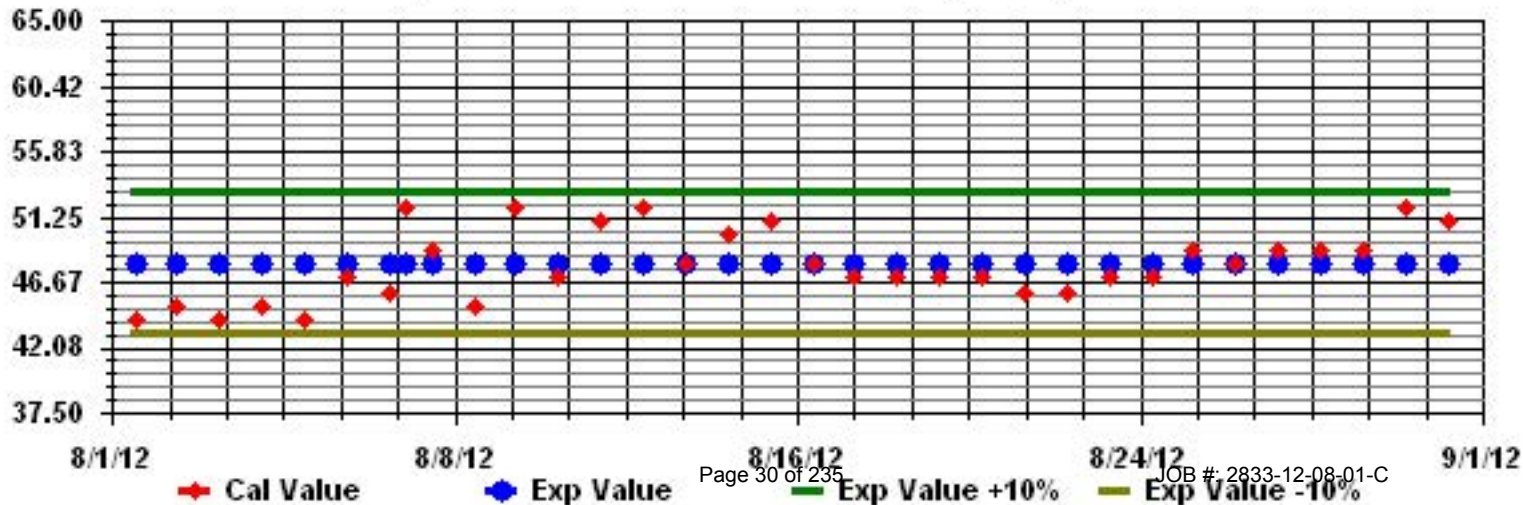
Calm : .00 %

Total # Operational Hours : 707

Class Limits (PPB)



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



-
-
-
-

Hc hU' < mXfc WUf Vc bg'

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

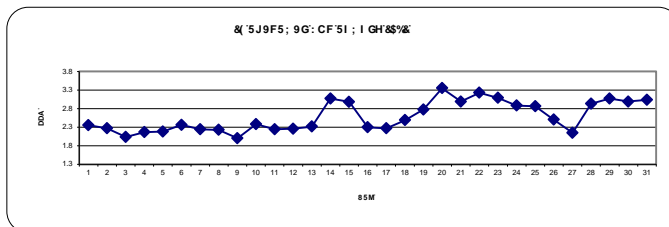
AUGUST 2012

TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST																										DAILY 24-HOUR			
DAY	HOUR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	2.6	2.8	2.8	2.9	2.9	2.7	2.6	2.6	2.4	2.3	2.1	2	IZS	2	2	2	2	2	2	2	2.1	2.4	2.4	2.5	2.9	2.4	24		
2	2.8	3	3.1	3.1	2.9	2.5	2	2	2	2	2	IZS	2	1.9	1.9	2	1.9	2	2	2	2.5	2.5	2	2	3.1	2.3	24		
3	2.4	2	1.9	2.1	2.1	2.2	2.1	2	2	C	C	C	C	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2.1	2.1	2.2	2.4	2.0	24		
4	2.2	2.3	2.4	2.5	2.5	2.6	2.3	2.2	2.2	IZS	IZS	2.1	2.1	2.1	2	2	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.2	2.4	2.6	2.2	24	
5	2.4	2.7	2.6	2.6	2.6	2.5	2.5	2.4	IZS	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2	2.1	2.1	2.3	2.7	2.2	24		
6	2.4	2.6	2.8	2.8	3.3	3.4	3.4	IZS	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2	2.2	2.3	2.3	2.4	3.4	2.4	24		
7	2.3	2.3	2.4	2.5	2.4	2.6	IZS	2.5	2.3	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2.1	2.2	2.3	2.5	2.7	2.2	24		
8	2.8	2.9	2.9	3	2.8	IZS	2.4	2.1	2.1	2.1	2	2	2.1	2	2	2	2	2	2	2	2.1	2	2	2	1.9	3.0	2.2	24	
9	1.9	1.9	1.9	2	IZS	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	2	2.1	2.3	2.3	2.4	2.4	2.0	24		
10	2.6	2.8	3	IZS	2.9	3	2.9	2.6	2.5	2.4	2.4	2.3	2.2	2.1	2	2	2	2	2.1	2.1	2.1	2.2	2.2	2.3	3.0	2.4	24		
11	2.2	2.6	IZS	2.8	2.9	3.2	2.9	2.7	2.4	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	2	1.9	2	2.1	2.3	3.2	2.2	24		
12	2.5	IZS	2.5	2.7	2.7	2.8	2.8	2.6	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.4	2.5	2.8	2.3	24	
13	IZS	2.7	2.8	2.7	2.8	2.7	2.6	2.5	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2	2	2	2	2	2	2	IZS	2.8	2.3	24	
14	3.1	3.1	3.2	3.4	3.4	4	3.3	3.2	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	IZS	3	4.0	3.1	24	
15	3	3	3	3	3.2	3.1	3.1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.1	IZS	2.4	2.6	3.2	3.0	24	
16	2.6	2.5	2.7	2.6	2.6	2.7	2.9	2.6	2.4	2.1	2.1	2	2	2	2	2	2	2	2	2	2	IZS	2.3	2.3	2.4	2.9	2.3	24	
17	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.3	2.2	2.2	2.1	2.1	2	2	2	2	2	2	2	2	IZS	2	2	2.1	2.2	2.7	2.3	24
18	2.2	2.4	2.5	2.8	3.1	3.1	3.3	3.5	3	2.8	2.2	2.1	2	2	2	2.1	2.1	2.2	IZS	2.2	2.3	2.4	2.5	2.4	3.5	2.5	24		
19	2.6	2.7	2.8	3	2.9	3	3	2.7	2.6	2.4	2.1	2.1	2.1	2.2	2.2	2.2	2.1	IZS	3.1	3.3	3.4	3.6	3.8	3.9	3.9	2.8	24		
20	3.9	3.9	4	4.2	4.2	4.4	4.6	4.4	3.9	3.5	3.4	3.2	3.1	3.1	3.1	3.1	IZS	2.2	2.3	2.4	2.3	2.4	2.6	2.8	4.6	3.3	24		
21	2.9	3	2.9	3	3.1	3.3	3.2	2.9	2.8	2.8	2.5	2.5	2.4	2.5	2.4	IZS	3.1	3.1	3.1	3.1	3.2	3.5	3.4	3.5	3.6	3.6	3.0	24	
22	3.7	3.5	3.5	3.3	3.4	3.2	3	3	2.9	2.9	3.1	3.2	4	3.5	IZS	3.1	3.1	3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	24	
23	3.4	3.5	3.6	3.6	3.3	3.2	3.2	3.2	3.1	3.1	2.9	2.9	2.9	IZS	2.8	2.8	2.9	2.9	3.1	3	3	2.9	2.8	2.9	3.6	3.1	24		
24	2.9	2.8	2.9	3	3	2.9	2.9	2.8	3	3	2.9	2.8	IZS	2.8	2.8	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.8	3.0	2.9	24	
25	2.9	2.8	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.9	IZS	2.9	2.8	2.9	2.9	2.9	2.9	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	24	
26	3	3	3	3.1	3.3	3.3	3.3	3.4	3.2	3.1	IZS	2	1.9	1.9	1.9	1.9	1.9	2	2	2	2.1	2.1	2.1	2.1	3.4	2.5	24		
27	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.5	M	IZS	2.1	2	2.1	2.1	2	2	2	2	2.1	2.1	2.1	2.2	2.4	2.2	2.5	2.1	23		
28	2.4	2.4	2.6	2.6	2.5	2.7	2.5	IZS	3	2.9	2.9	2.9	2.9	3	3	3	3.1	3.2	3.2	3.3	3.6	3.5	3.6	3.6	2.9	2.4	24		
29	3.7	3.8	3.8	3.7	3.2	3.3	2.9	IZS	2.8	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.8	2.8	2.9	2.9	2.9	3	3	2.9	3.8	3.1	24		
30	3	3	3.1	3.1	3.1	3	IZS	3	3.1	3	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3	3.2	3.1	3	3.2	3.0	24		
31	3	3	3.1	3.2	3.4	IZS	3.6	3.8	3.1	3	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.0	24		
HOURLY MAX	3.9	3.9	4.0	4.2	4.2	4.4	4.6	4.4	3.9	3.5	3.4	3.2	4.0	3.5	3.1	3.1	3.1	3.1	3.2	3.3	3.5	3.6	3.8	3.9					
HOURLY AVG	2.7	2.8	2.8	2.9	2.9	2.9	2.9	2.8	2.6	2.6	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6					

STATUS FLAG CODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708
MAXIMUM 1-HR AVERAGE:	4.6 PPM @ HOUR(S) 6 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	3.3 PPM ON DAY(S) 20
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.52
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	2.58 PPM

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	2.8	2.9	3.1	3	3	2.9	2.7	2.7	2.6	2.5	2.3	2.2	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.8	2.8	2.8	2.8	3.1	2.5	24
2	3.4	3.5	3.6	3.4	3.1	3	2.2	2.2	2.3	2.2	2.2	IZS	2.2	2	2.2	2.2	2.1	2.1	2.1	2.4	2.8	2.8	2.3	2.1	3.6	2.5	24	
3	2.7	2.2	2.1	2.3	2.2	2.5	2.1	C	C	C	C	C	2.2	2.1	2.2	2	2.1	2	2.1	2.1	2.2	2.2	2.2	2.4	2.7	2.2	24	
4	2.3	2.4	2.6	2.7	2.7	2.8	2.6	2.4	2.3	IZS	2.2	2.2	2.2	2.4	2.1	2	1.9	2	2	2.1	2.3	2.2	2.4	2.6	2.8	2.3	24	
5	2.5	2.9	2.8	2.8	2.7	2.7	2.7	2.6	IZS	2.1	2.1	2	2	2	2.1	2.1	2.1	2	2.1	2.1	2.1	2.2	2.3	2.5	2.9	2.3	24	
6	2.6	2.7	3.1	3.1	3.6	3.8	3.6	IZS	2.5	2.7	2.5	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.8	2.5	3	3.8	2.6	24	
7	2.5	2.5	2.6	2.7	2.6	3	IZS	2.7	2.6	2.4	2.3	2.2	2.1	2.1	2.2	2.1	2.3	2.1	2.7	3.1	2.4	2.6	3.2	3.3	3.3	2.5	24	
8	3.5	3.5	3.3	3.4	3.1	IZS	3.4	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	3	2.2	2.1	2.2	2.2	2.2	3	2.1	2.1	3.5	2.6	24	
9	2	2	2.1	2.4	IZS	2.2	2.3	2.3	2.1	2.2	2.1	2	2	2	2	2	2	2	2.1	2.1	2.4	2.5	2.5	2.7	2.7	2.2	24	
10	2.8	3.2	3.1	IZS	3.1	3.2	3.2	2.8	2.8	2.6	2.6	2.4	2.3	2.2	2.1	2.1	2.2	2.1	2.2	2.2	2.3	2.4	2.3	2.6	3.2	2.6	24	
11	2.6	2.8	IZS	2.9	3.1	3.3	3.4	2.8	2.8	2.2	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2.1	2.3	2.6	3.4	2.4	24	
12	2.8	IZS	2.6	2.9	2.9	2.8	2.9	2.8	2.5	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.6	2.7	2.9	2.4	24	
13	IZS	2.8	2.9	2.9	3.2	3	2.8	2.6	2.7	2.6	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.1	2	2.1	2.1	2.1	2.1	IZS	3.2	2.5	24	
14	3.2	3.2	3.6	3.6	3.6	4.3	3.8	3.4	3.2	3.1	3.1	3	3	3	3	2.9	3	3	3	3	3	3	IZS	3.1	4.3	3.2	24	
15	3.1	3.1	3.1	3.1	3.3	3.2	3.2	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.3	IZS	2.6	2.8	3.3	3.1	24	
16	2.7	2.6	2.8	2.7	2.8	2.9	3.1	2.8	2.6	2.3	2.2	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.5	2.5	2.8	3.1	2.4	24	
17	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.7	2.5	2.4	2.3	2.5	2.3	2.2	2.1	2.2	2.1	2.1	2	IZS	2.2	2.2	2.3	2.4	2.9	2.4	24	
18	2.4	2.5	2.8	3.3	3.2	3.3	3.6	3.8	3.6	3.3	2.4	2.3	2.1	2.1	2.1	2.2	2.2	2.3	IZS	2.3	2.4	2.6	2.6	2.6	3.8	2.7	24	
19	2.9	2.9	3.1	3.3	3.3	3.4	3.5	2.8	2.7	2.6	2.3	2.2	2.4	2.3	2.3	2.3	2.3	IZS	3.2	3.5	3.6	4	4	4	3.0	24		
20	4.1	4.1	4.2	4.4	4.4	4.5	5	5	4.2	3.9	3.5	3.5	3.3	3.4	3.2	3.3	IZS	2.5	2.4	2.8	2.4	2.5	2.9	3	5	3.6	24	
21	3.2	3.2	3.1	3.2	3.4	3.7	3.7	3.2	3	3	2.7	2.6	2.5	2.6	2.6	IZS	3.2	3.2	3.2	3.8	3.9	3.8	3.8	4	4	3.2	24	
22	3.9	3.7	3.8	3.7	3.8	3.7	4.2	3.2	3.1	3.1	5.2	6.6	11.2	6.1	IZS	3.6	3.5	3.3	4	3.6	3.5	3.3	3.2	3.5	11.2	4.2	24	
23	3.5	3.7	3.7	3.8	3.5	3.4	3.3	3.4	3.3	3.4	3.8	3.3	3.2	IZS	2.9	3.1	3.1	3.2	4.2	3.5	3.5	3	3	3	4.2	3.4	24	
24	3	2.9	2.9	3.2	3.4	2.9	2.9	2.9	3.1	3.2	3.1	3	IZS	2.9	2.9	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.0	24
25	3	2.9	2.9	2.9	2.9	2.9	2.9	3	2.9	2.9	2.9	IZS	2.9	2.9	2.9	2.9	3	2.9	2.9	2.9	3	3	2.9	3	3	2.9	24	
26	3.1	3.1	3	3.2	3.3	3.4	3.6	3.5	3.4	3.2	IZS	2.1	2.1	2	2.3	2	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.2	3.6	2.6	24	
27	2.2	2.3	2.2	2.2	2.6	2.6	2.5	2.6	M	IZS	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2	3.3	2.8	2.9	3.3	2.4	23
28	2.6	2.8	3.3	3.5	3.1	2.7	3.4	2.9	IZS	3.3	3.1	3.1	3	3	3	3.1	3.1	3.1	3.4	3.3	3.4	3.8	3.6	3.7	3.8	3.2	24	
29	4.2	4.4	4	4.2	3.9	4	3.1	IZS	2.9	3	3	3	2.9	3	3	3	2.9	2.9	2.9	2.9	3	3	3	3	4.4	3.3	24	
30	3.1	3.1	3.2	3.2	3.1	3.1	IZS	3.1	3.1	3.1	3	3	3	3	3	3	3	2.9	3	3.1	3.1	3.4	3.2	3.1	3.4	3.1	24	
31	3.1	3.1	3.4	3.4	3.6	IZS	4	4.2	3.6	3.1	3.1	3	3.1	3	3	3	3	3	3	3	3	3	2.9	2.9	4.2	3.2	24	
HOURLY MAX	4	4	4	4	4	5	5	5	4	4	5	7	11	6	3	4	4	4	3	4	4	4	4	4	4			
HOURLY AVG	3.0	3.0	3.1	3.1	3.2	3.2	3.2	3.0	2.9	2.8	2.7	2.7	2.8	2.6	2.4	2.5	2.5	2.5	2.6	2.6	2.7	2.8	2.7	2.9				

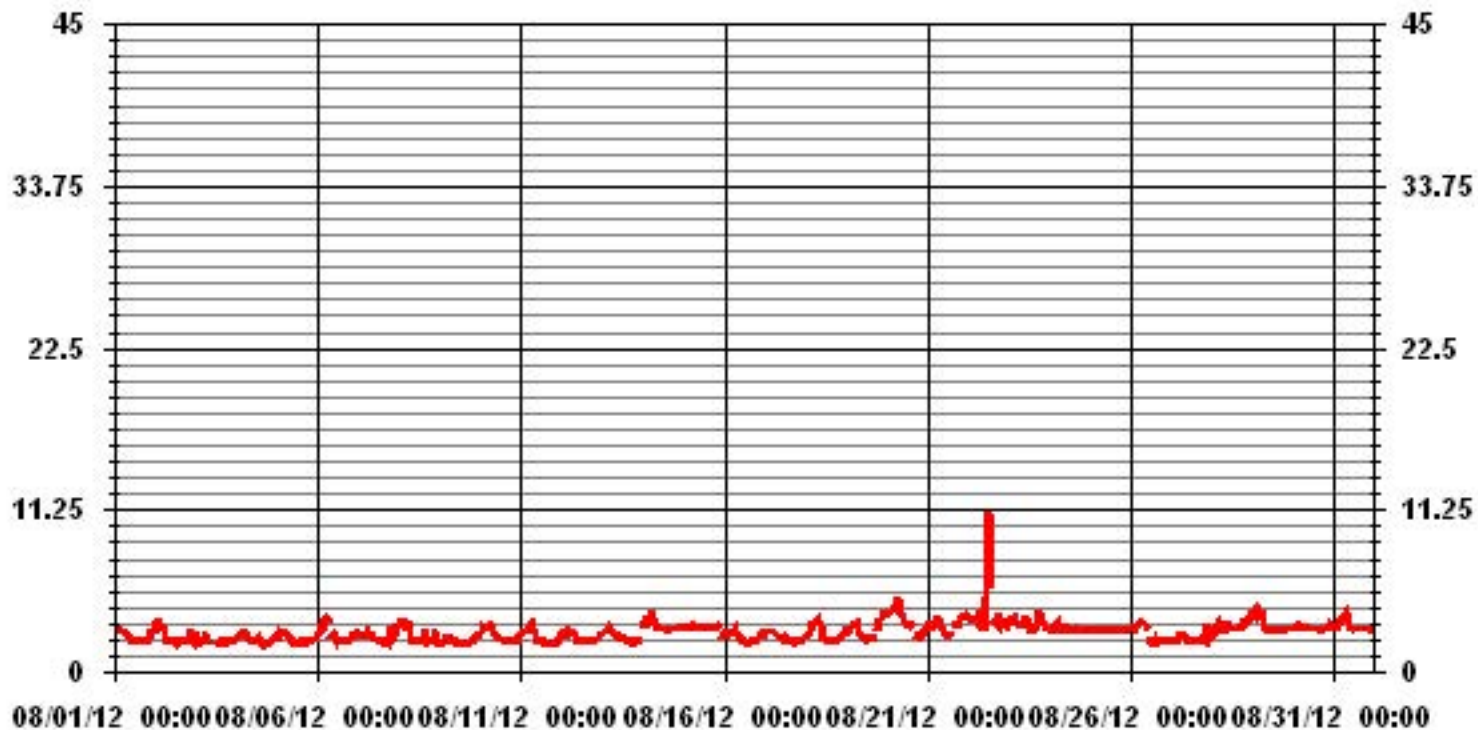
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707					
MAXIMUM INSTANTANEOUS VALUE:	11.2	PPM	@ HOUR(S)	12	ON DAY(S)	22
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.68					

01 Hour Averages



— LICA THCMAX PPM

LICA
 THC / WD Joint Frequency Distribution (Percent)

August 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	1.55	.98	1.83	2.96	2.54	4.94	10.73	3.81	3.10	4.37	5.64	8.05	11.86	6.63	3.38	3.10	75.56
< 10.0	.42	.14	.70	.84	.70	.98	.98	.70	1.12	2.11	2.40	4.09	2.82	1.55	3.10	1.69	24.43
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.97	1.12	2.54	3.81	3.24	5.93	11.72	4.51	4.23	6.49	8.05	12.14	14.68	8.19	6.49	4.80	

Calm : .00 %

Total # Operational Hours : 708

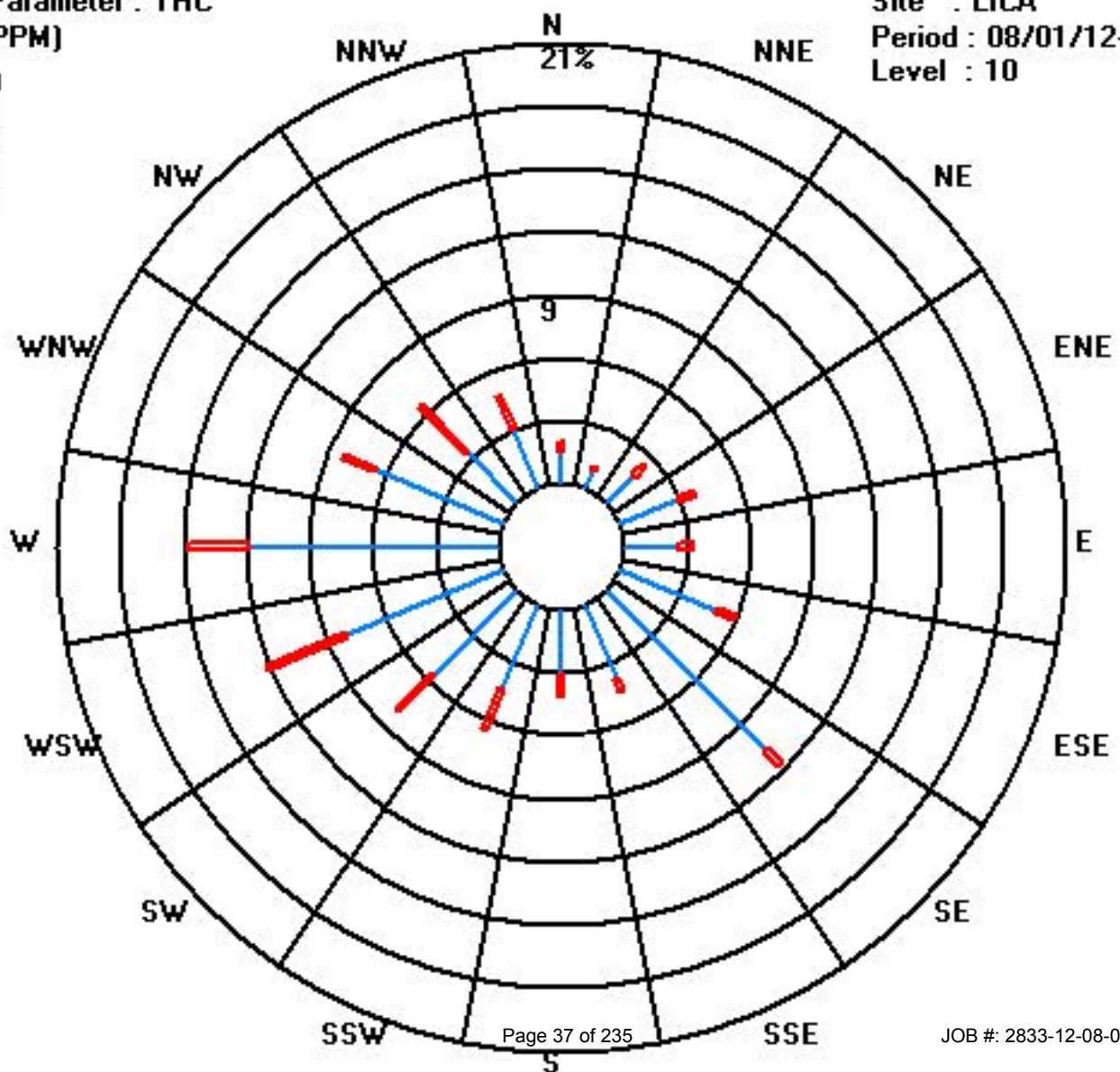
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	11	7	13	21	18	35	76	27	22	31	40	57	84	47	24	22	535
< 10.0	3	1	5	6	5	7	7	5	8	15	17	29	20	11	22	12	173
< 50.0																	
>= 50.0																	
Totals	14	8	18	27	23	42	83	32	30	46	57	86	104	58	46	34	

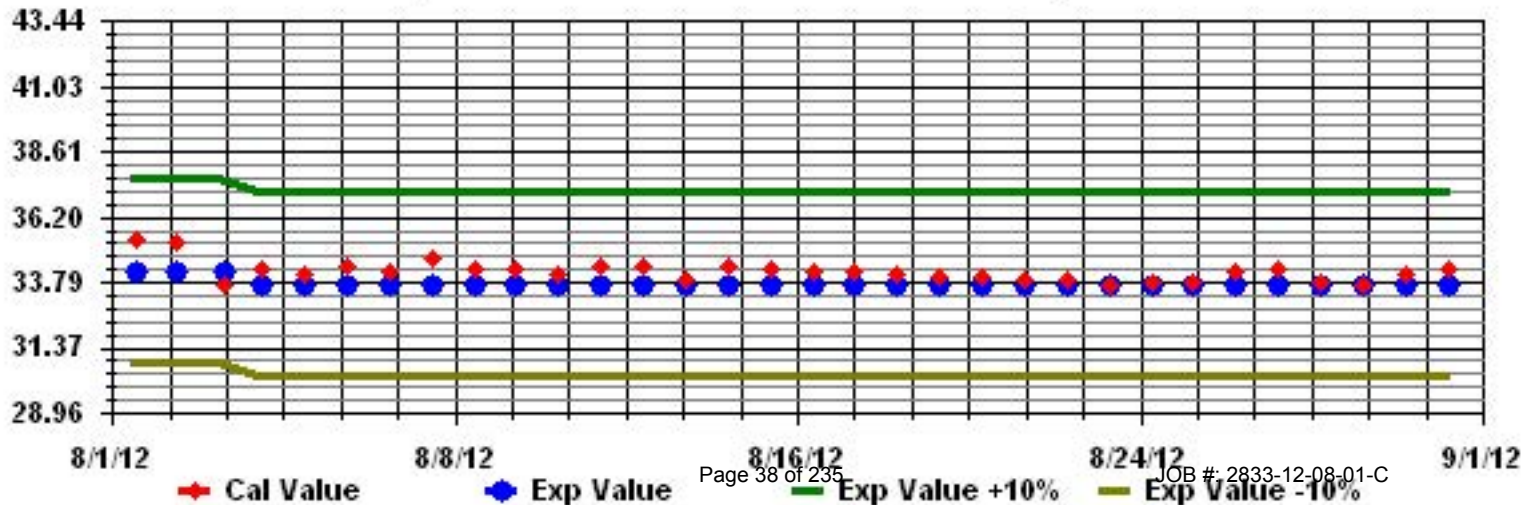
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPM)



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



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	10.5	2.2	7.2	2.9	9	1.9	10.5	4.5	9.2	5.3	7.5	6	9.6	6	7	8.8	7.9	8.8	4.4	9	6.8	6.6	6.9	7.3	10.5	6.9	24		
2	5	4.8	5.1	9	3.1	10.3	5.4	6.6	6.4	7.8	4.4	11.5	5.4	9.1	2.9	9.4	5.6	12.3	4.3	12.1	6.5	12.5	8.9	13.5	13.5	7.6	24		
3	3.4	13.9	3.6	12.6	9	13.6	7	13.5	8.4	7.9	1.9	8.9	0	6	9.9	12	3.4	19	4.4	17.5	0	15.5	0	11.5	19.0	8.5	24		
4	0.5	6.5	4	5.5	4.4	8.4	2.9	8.5	4.4	9.9	2.9	11	6.5	14.5	7	9.9	2.9	10.5	5.5	12.4	4.4	6	8.4	10.5	14.5	7.0	24		
5	9.9	10.5	10.5	10.9	8.4	8.5	9	7	10.5	7.9	9.4	8.4	4.4	10.5	8.4	11	8.4	13.5	8.4	12	4	14.5	10.5	14.5	9.4	24			
6	15.5	10.5	13	12	14.9	9.4	9.4	9.4	17	5.5	16.5	7	12	9	10.5	6.5	15.5	14.4	16	11	14.5	12	18	9.9	18.0	12.1	24		
7	12	6	10.9	8.4	16.5	9	15.5	6	13.9	7	14.5	5	9.4	C	C	C	C	1.4	13	9.9	13.5	12	13.5	6	16.5	10.2	24		
8	7.9	6	7.9	7	11	9	10.5	1.4	9.9	1	14.5	7	16	4	18.5	6.5	13.5	6.5	18.5	4	18.5	6	19	2.5	19.0	9.4	24		
9	13	1	9.4	1	15.5	0	14.5	0	18	2.5	16.5	1.9	15	0	17.5	0	15	1.4	17	0	17	0	15	N	18.0	8.3	23		
10	11.5	N	12.5	N	13.9	0	13.5	0	14.5	2.5	14	3.4	16.5	4	16.5	M	M	M	M	M	M	8.4	8.4	7.9	16.5	9.2	16		
11	7.5	9.9	6.5	5	6	5	7.9	8.4	6.5	5	1.4	3.4	2.5	3.4	1	1.4	4	0.5	2.9	2.5	1.4	4.4	4.4	4.4	9.9	4.4	24		
12	2.9	2.5	2.5	1.4	4	2.5	3.4	2.5	2.9	4.4	7.5	11.5	7	1.9	5.5	6	1.4	3.4	4.4	4	7	4	7.5	6.9	11.5	4.5	24		
13	4.4	8.4	7.9	6.5	7.5	5	6.9	3.4	5.5	4	4.4	4.4	2.9	6	4	5	6	6.5	5	1.9	5	4.4	1.4	8.4	5.0	24			
14	1.9	4.4	4	2.5	5.5	4	6.5	6.5	7.5	7.5	9.9	14	11.5	9	5	0.5	2	4	2.5	1	1	4	1	3.4	14.0	5.0	24		
15	3.4	4.4	1.9	2.5	4.4	3.4	1.4	0.5	0	2.9	2.5	1.4	6.5	4	4.4	1.9	2.9	6	5.5	2.9	3.4	3.4	1.9	4.4	6.5	3.2	24		
16	5.5	2.9	1.9	4.4	4	2.9	4.4	4.4	12.5	6.5	2.9	5	8.4	7	4.4	2.9	4.4	3.4	4.4	4	6.5	9	12.5	11.5	12.5	5.7	24		
17	7.5	6.9	7.9	7	4.4	6.9	4.4	9.9	9	10.5	8.5	3.4	7.9	9.4	7	13	5	8.5	8.5	5.5	13	10.9	8.4	9	13.0	8.0	24		
18	10.5	12.5	11	10.9	7	6.5	5.5	6.5	7.5	8.4	11	7.9	6.5	5.5	5.5	6.5	9	7.9	6.5	9	9	9	9.4	7.5	12.5	8.2	24		
19	9	10.9	7.9	9.4	6.9	8.4	9	7	7.9	10.5	9.9	8.4	9.4	10.9	10.5	7	6	5.5	9.4	11.5	10.5	9.9	8.4	9.4	11.5	8.9	24		
20	8	6.9	9	9	6.9	4	6	9.9	7.5	11.5	9.9	9	7.9	7	9.4	8.4	5.5	9.9	7.5	9.4	9.9	8.5	10.5	7.9	11.5	8.3	24		
21	8.5	7.5	7.5	6	7.5	6.5	9.4	11.5	8.4	9.9	11.5	14	15.5	9.9	10.5	7.9	14	14	10.5	11	14.5	16.5	14.9	13.5	16.5	10.9	24		
22	10.5	10.5	10.5	9.4	12.4	14.5	8.4	7.9	7.5	7.5	8.5	7.9	6.5	8	4.4	7.9	9.9	7.5	10.9	7.5	9.4	7.5	7.9	9.4	14.5	8.8	24		
23	7.5	7.5	7.5	7.5	3.4	6	6	7	9.4	7	10.9	9.9	9	2.5	5	4	5.5	9.4	11.5	6	6	3.4	4	2.5	11.5	6.6	24		
24	2.9	0	4	1.4	4	0	2.5	2	0	2	1.9	4.4	1.9	3.4	1.9	1.4	1	2.9	1.4	1.4	4	2.9	8	7.9	8.0	2.6	24		
25	8.4	4	6	2.9	0	1.4	0	1	1.9	1.4	1.4	0	0	0	1.9	0	0.5	0	0	0.5	5.5	6	4.4	0.5	8.4	2.0	24		
26	4	1.4	2.9	1.4	3.4	3.4	0	1.9	2.9	2.9	0	4	4	4	7.9	4.4	5	5	4.5	6.5	7.5	7.9	5	6.9	7.9	4.0	24		
27	5.5	5	2.5	1	5.5	4	1	2	1	1.9	1.4	2.9	1.4	5.5	1.9	4.4	7	5.5	7.5	7	7.5	7	7.9	7.9	4.3	24			
28	3.4	6	7	6.5	5	4.4	5.5	4	1.4	8.5	6	7	6.5	7	6	9	9	9.5	11.5	10.5	9	12	9.9	8.4	12.0	7.2	24		
29	9.5	9.4	9	11.5	9	11.5	6	0	2.9	2.5	0.5	2	2.9	4.4	0.5	0	0.5	2.9	0	2.9	4	1	1	2.9	11.5	4.0	24		
30	1.4	2.9	1	0	2.5	1	0	1.9	1.9	1	0.5	2.5	0	3.4	1.9	1.9	0	0.5	4	0.4	2.9	3.4	1	1.4	4.0	1.6	24		
31	0.5	1.4	4	0	1.4	0	5	3.4	4	0	0	0	0	2.5	2.5	0.5	1.9	4.4	3.4	6.5	1.9	3.4	4	1.9	6.5	2.2	24		
HOURLY MAX	16	14	13	13	17	15	16	14	18	12	17	14	17	15	19	13	16	19	19	18	19	17	19	14					
HOURLY AVG	6.8	6.2	6.7	5.9	7.0	5.5	6.4	5.1	7.1	5.6	6.9	6.2	7.0	5.6	6.8	5.3	6.0	6.6	7.3	6.6	7.6	7.2	8.0	7.0					

STATUS FLAG CODES

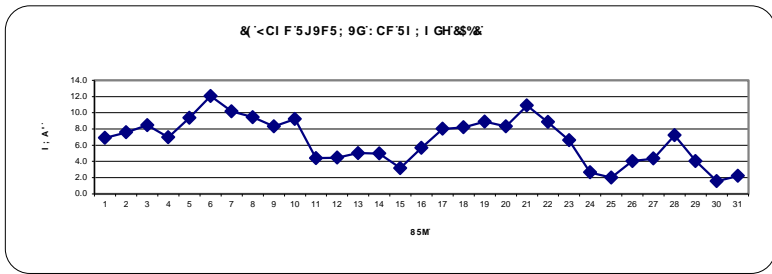
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

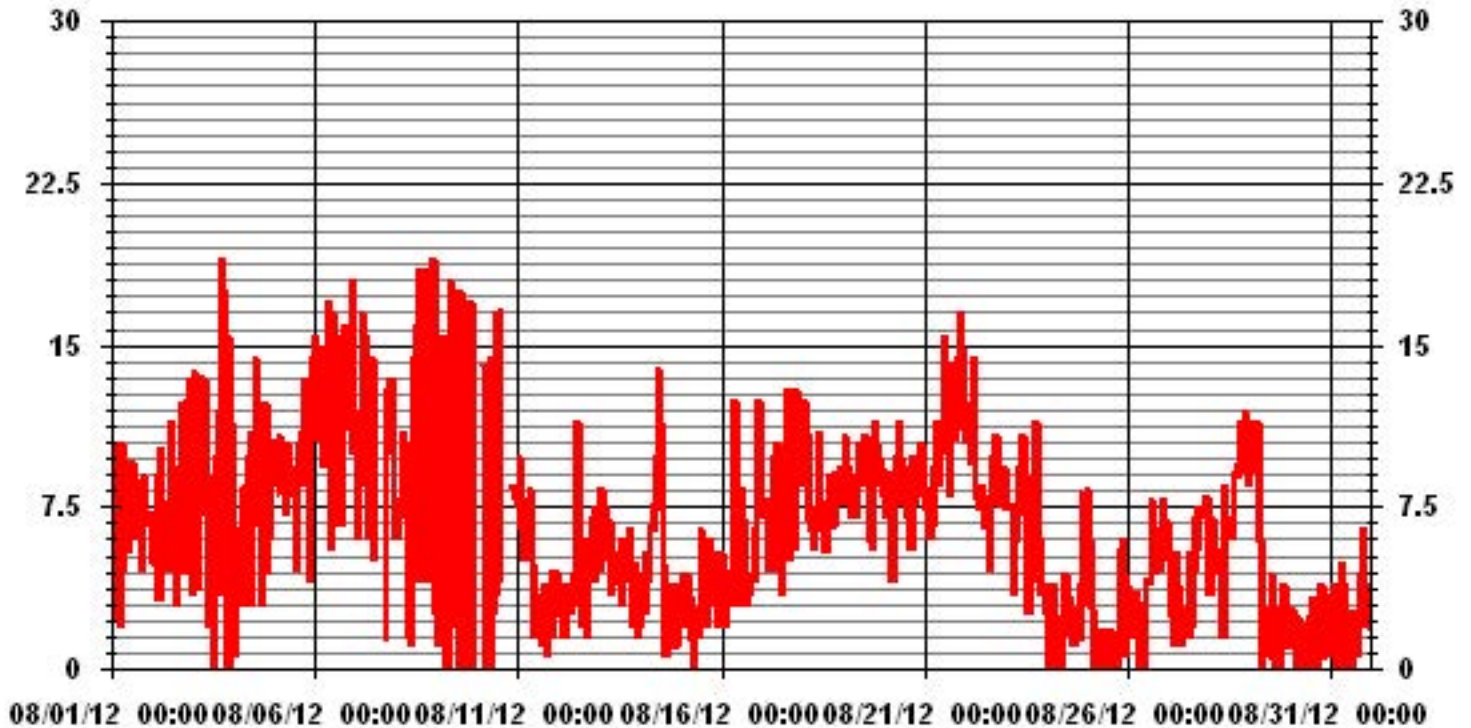
ALBERTA ENVIRONMENT:	1-HR	-	ug/m ³	24-HR	30	ug/m ³
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	693
MAXIMUM 1-HR AVERAGE:	19.0 UG/M ³ @ HOUR(S) 22 ON DAY(S) 8
MAXIMUM 24-HR AVERAGE:	12.1 UG/M ³ ON DAY(S) 6
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	4.22
OPERATIONAL TIME:	735 HRS
AMD OPERATION UPTIME:	98.8 %
MONTHLY AVERAGE:	6.52 UG/M ³



01 Hour Averages



— LICA PM2 UG/M3

LICA
 PM2 / WD Joint Frequency Distribution (Percent)

August 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	2.18	1.36	2.32	3.69	3.14	5.74	11.76	4.51	4.51	6.29	7.93	11.76	14.36	8.75	6.70	4.92	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	2.18	1.36	2.32	3.69	3.14	5.74	11.76	4.51	4.51	6.29	7.93	11.76	14.36	8.75	6.70	4.92	

Calm : .00 %

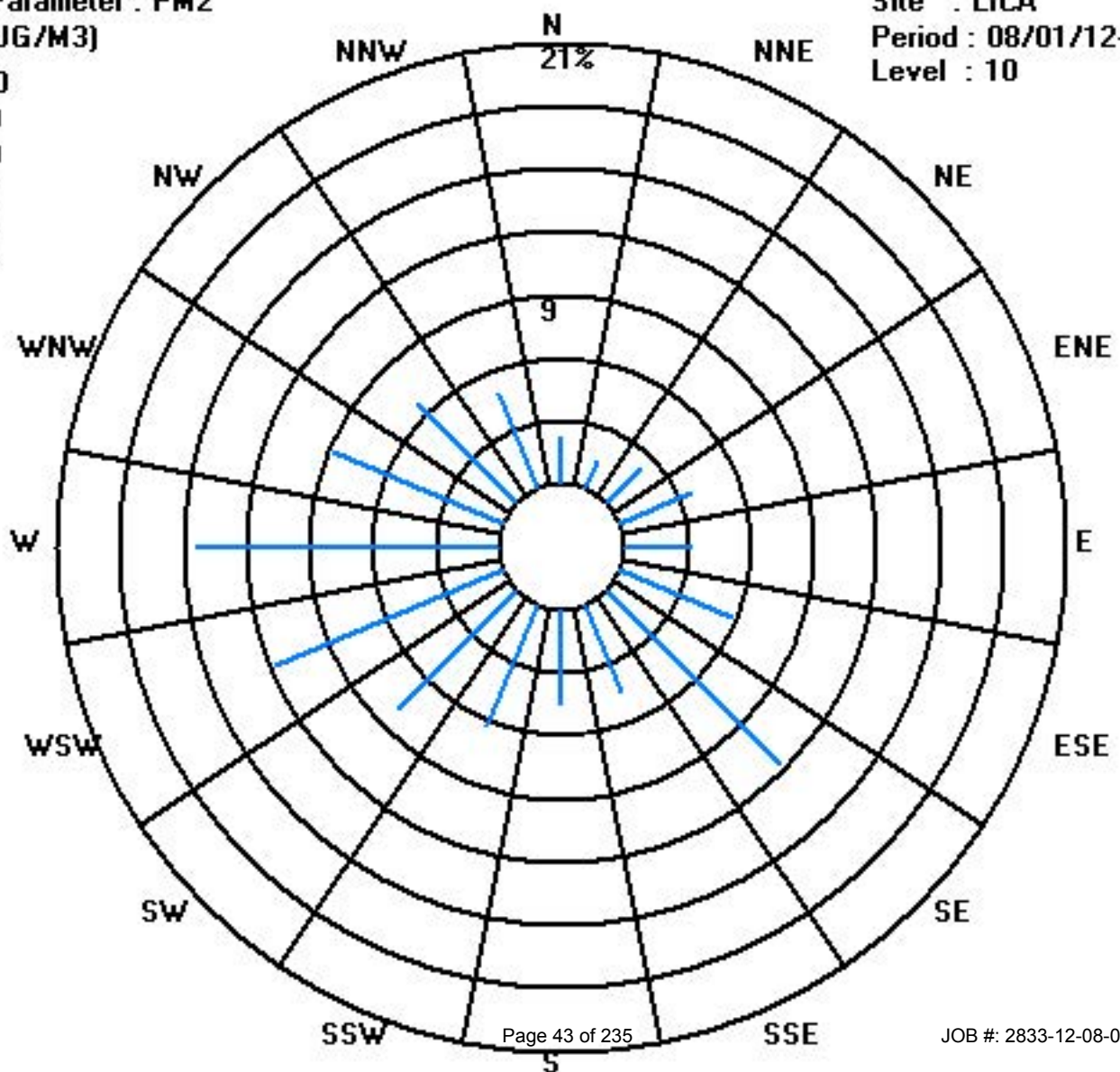
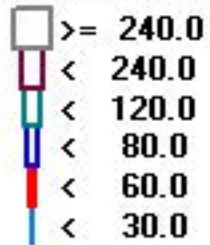
Total # Operational Hours : 731

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	16	10	17	27	23	42	86	33	33	46	58	86	105	64	49	36	731
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	16	10	17	27	23	42	86	33	33	46	58	86	105	64	49	36	

Calm : .00 %

Total # Operational Hours : 731



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2012

NITROGEN DIOXIDE hourly averages in ppb

MST

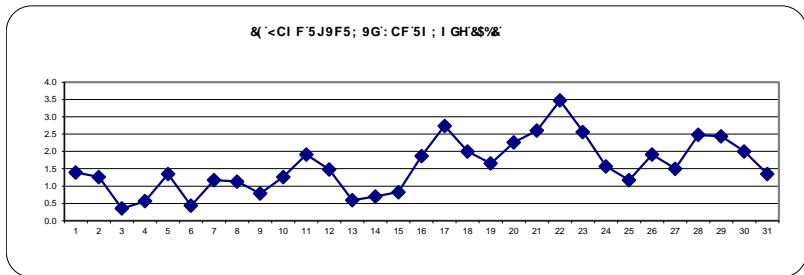
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
DAY																												
1	2	3	3	4	2	2	2	3	2	1	1	0	IZS	0	0	0	0	0	0	1	1	2	2	1	4	1.4	24	
2	1	1	1	3	5	3	1	1	2	1	1	IZS	1	0	0	0	1	2	1	0	0	2	1	1	5	1.3	24	
3	1	0	0	1	1	1	1	0	0	C	C	C	C	C	C	0	0	0	0	1	0	0	0	1	0.4	24		
4	0	0	0	0	1	0	0	0	0	IZS	1	0	1	0	0	0	0	0	0	1	0	2	2	3	2	0.6	24	
5	2	5	4	4	1	1	2	2	IZS	1	0	0	0	0	0	0	0	0	1	1	2	1	2	2	5	1.3	24	
6	2	1	1	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	2	0.4	24	
7	0	0	1	1	0	0	IZS	4	3	1	2	1	0	0	1	1	1	1	1	1	3	3	1	1	4	1.2	24	
8	0	0	0	1	0	IZS	3	1	1	1	1	1	1	1	1	1	1	1	1	3	2	2	1	2	1	3	1.1	24
9	2	1	1	1	IZS	1	1	0	0	1	1	0	1	0	0	0	0	0	1	0	2	1	2	2	2	0.8	24	
10	1	1	0	IZS	1	1	1	5	3	2	2	2	2	1	0	0	1	0	1	1	0	1	2	1	5	1.3	24	
11	2	1	IZS	3	4	4	4	4	3	1	0	0	0	0	1	1	0	0	1	3	6	2	4	6	1.9	24		
12	4	IZS	5	4	5	5	3	2	0	0	1	0	0	0	0	0	0	0	1	1	1	2	0	0	5	1.5	24	
13	IZS	0	0	0	0	1	2	0	0	1	0	0	1	0	0	1	2	2	2	0	1	0	0	IZS	2	0.6	24	
14	0	0	0	0	1	2	5	4	1	1	0	1	0	0	0	0	0	0	0	0	0	0	IZS	1	5	0.7	24	
15	1	1	1	1	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	IZS	3	2	3	0.8	24	
16	2	2	2	1	0	1	2	2	3	2	2	1	1	1	1	1	1	1	2	3	IZS	5	4	3	5	1.9	24	
17	3	2	2	3	3	3	4	4	4	3	3	3	3	2	2	2	2	1	1	IZS	5	4	3	1	5	2.7	24	
18	2	3	2	2	1	1	2	4	5	3	1	1	1	1	1	1	1	1	IZS	3	4	2	2	2	5	2.0	24	
19	2	2	1	1	1	1	1	1	2	1	1	1	1	3	1	1	1	1	IZS	2	3	4	3	2	2	4	1.7	24
20	1	1	1	1	1	2	2	3	3	3	3	3	1	1	1	1	IZS	2	3	4	4	5	3	3	5	2.3	24	
21	2	1	2	1	2	4	4	3	2	2	3	3	3	3	2	IZS	2	1	1	4	6	3	3	3	6	2.6	24	
22	2	1	1	1	2	4	4	7	2	2	8	3	6	3	IZS	2	4	4	7	5	4	2	3	3	8	3.5	24	
23	3	5	4	5	5	4	4	6	2	1	1	1	1	IZS	1	1	1	4	3	2	2	1	1	1	6	2.6	24	
24	2	1	1	1	1	1	2	2	2	4	4	2	IZS	1	1	1	1	1	1	2	2	1	1	1	4	1.6	24	
25	2	1	1	1	1	1	1	1	1	1	2	IZS	1	1	1	1	1	1	1	1	1	2	1	2	2	1.2	24	
26	1	1	2	2	3	4	3	3	2	2	IZS	1	2	2	1	1	1	1	2	4	2	2	1	1	4	1.9	24	
27	1	1	1	1	2	2	2	2	M	IZS	0	1	1	1	1	1	1	1	3	3	2	2	2	2	3	1.5	23	
28	2	2	2	1	2	1	2	3	IZS	1	2	2	2	2	2	2	1	2	3	3	4	7	5	4	7	2.5	24	
29	3	2	4	4	6	6	2	IZS	2	3	1	2	2	2	2	1	1	1	1	2	2	3	2	2	6	2.4	24	
30	2	2	2	2	2	2	IZS	4	3	1	1	1	1	1	1	1	1	1	1	4	6	4	2	1	6	2.0	24	
31	1	1	1	1	1	IZS	2	3	2	1	1	1	1	0	1	1	1	2	3	3	1	1	1	3	1.3	24		
HOURLY MAX	4	5	5	5	6	6	5	7	5	4	8	3	6	3	2	2	4	4	7	5	6	7	5	4				
HOURLY AVG	1.6	1.4	1.5	1.7	1.9	2.1	2.2	2.6	1.8	1.5	1.5	1.1	1.2	0.9	0.8	0.8	0.9	1.0	1.5	1.9	2.4	2.3	1.9	1.7				

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

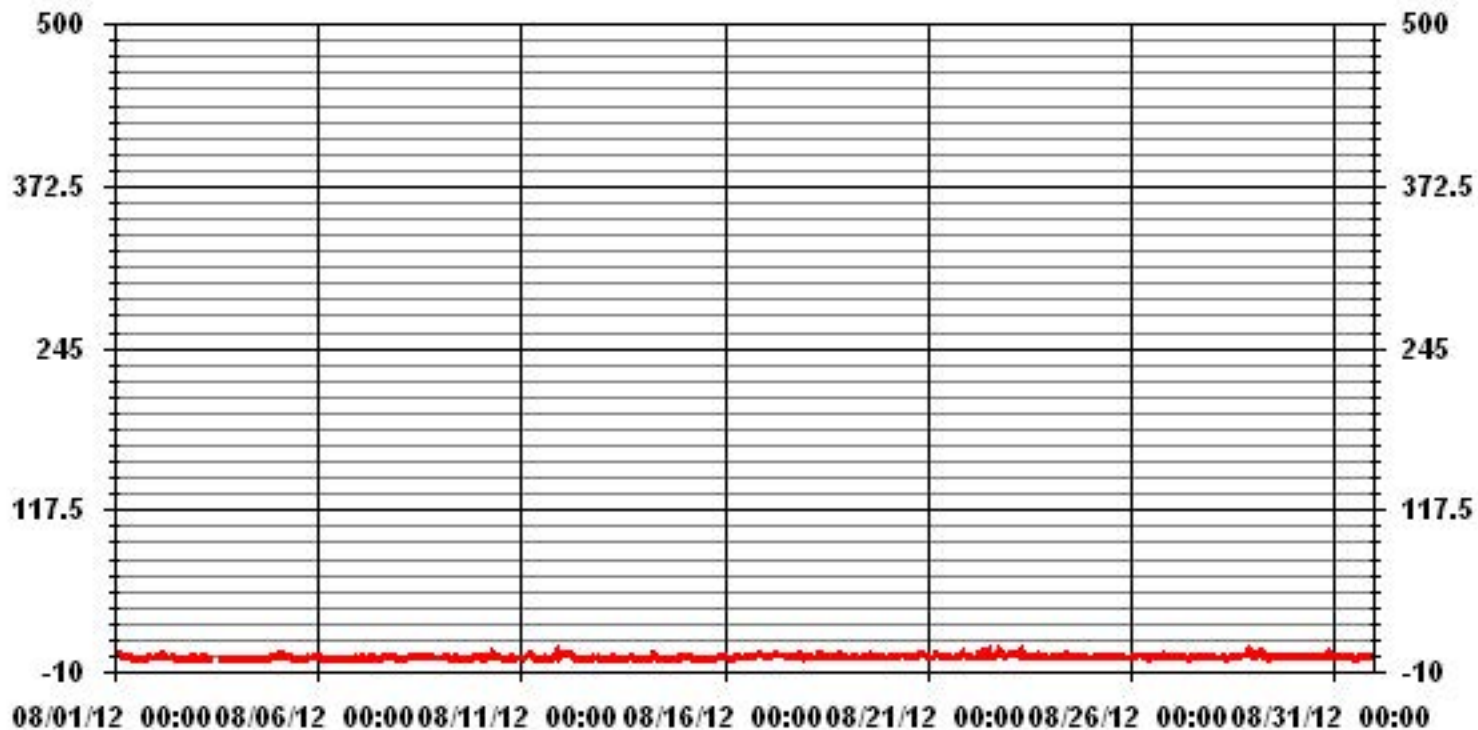
ALBERTA ENVIRONMENT: 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	559					
MAXIMUM 1-HR AVERAGE:	8	PPB	@ HOUR(S)	10	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	3.5	PPB			ON DAY(S)	26
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	1.38		MONTHLY AVERAGE:	1.59	PPB	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	3	3	4	5	4	3	4	4	3	3	2	1	IZS	1	1	0	0	0	0	2	4	3	2	2	5	2.3	24	
2	2	2	2	6	7	4	3	8	4	1	2	IZS	3	2	3	2	2	4	3	1	2	4	3	2	8	3.1	24	
3	3	2	1	4	3	5	5	1	C	C	C	C	C	C	C	6	4	6	3	3	1	1	2	6	3.1	24		
4	2	2	2	2	9	3	1	1	1	IZS	2	2	4	2	4	2	2	1	3	3	4	4	5	4	9	2.8	24	
5	4	7	6	7	4	3	5	5	IZS	3	2	1	1	1	1	1	1	1	3	5	4	3	3	4	7	3.3	24	
6	3	3	2	2	2	1	3	IZS	6	3	5	7	1	18	9	2	6	3	2	3	4	4	3	2	18	4.1	24	
7	2	2	2	2	7	3	IZS	27	5	5	5	4	2	2	22	4	3	4	3	6	9	6	4	3	27	5.7	24	
8	3	2	2	2	1	IZS	5	3	3	1	3	1	2	2	8	1	2	1	9	13	2	2	3	2	13	3.2	24	
9	2	2	2	1	IZS	3	2	2	2	2	1	1	1	2	0	0	0	2	1	1	3	3	3	2	3	1.7	24	
10	2	2	1	IZS	6	3	5	7	6	5	5	3	7	6	2	2	5	2	2	9	2	3	8	4	9	4.2	24	
11	5	3	IZS	4	6	5	6	6	5	2	1	0	1	1	1	1	1	1	1	2	7	9	3	5	9	3.3	24	
12	5	IZS	6	7	7	6	5	4	2	1	1	1	0	0	0	0	0	6	5	8	3	5	2	1	8	3.3	24	
13	IZS	1	1	1	3	3	11	2	2	4	3	2	6	2	2	7	4	4	4	3	4	3	2	IZS	11	3.4	24	
14	1	1	0	0	1	4	7	7	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0	IZS	1	7	1.3	24
15	1	2	1	2	4	4	3	1	0	0	3	1	0	0	0	0	0	0	1	2	3	IZS	3	3	4	1.5	24	
16	3	2	2	2	1	3	3	N	4	4	2	2	2	2	2	2	5	5	7	IZS	9	5	5	9	3.4	23		
17	7	3	2	6	3	7	5	5	5	4	4	5	4	3	6	5	4	4	3	IZS	12	5	4	3	12	4.7	24	
18	3	3	3	3	2	2	4	5	5	3	3	1	3	1	1	1	2	1	IZS	7	6	3	2	2	7	2.9	24	
19	2	2	2	2	2	3	2	2	2	2	1	1	3	20	2	1	2	IZS	3	4	9	6	3	2	20	3.4	24	
20	2	2	1	2	1	4	4	5	5	4	4	7	2	1	1	1	IZS	5	5	10	7	9	7	4	10	4.0	24	
21	3	2	2	2	4	7	7	4	3	3	3	3	4	3	4	IZS	3	2	2	7	8	6	4	4	8	3.9	24	
22	3	2	4	1	4	5	6	15	6	5	16	15	19	7	IZS	3	4	8	13	14	5	4	5	4	19	7.3	24	
23	4	7	7	6	7	5	6	7	5	2	2	2	3	IZS	2	2	3	8	5	3	5	3	1	1	8	4.2	24	
24	3	1	1	2	1	1	6	4	3	7	6	3	IZS	1	1	2	2	2	2	2	3	1	2	2	7	2.5	24	
25	3	1	1	1	1	1	1	1	3	1	6	IZS	5	2	2	1	2	1	1	1	2	2	2	3	6	1.9	24	
26	3	2	3	3	4	5	6	5	3	4	IZS	2	3	4	4	3	2	4	13	8	3	3	2	1	13	3.9	24	
27	1	1	1	1	4	4	4	11	M	IZS	2	1	1	3	2	2	4	2	5	12	9	5	3	2	12	3.6	23	
28	2	5	3	2	3	3	3	5	IZS	3	4	2	2	12	5	3	3	2	4	5	5	10	7	5	12	4.3	24	
29	4	5	5	8	8	8	7	IZS	5	5	2	3	3	4	3	1	1	1	3	6	2	3	3	3	8	4.0	24	
30	3	3	3	3	2	3	IZS	4	4	2	2	1	2	1	1	1	1	1	3	7	7	6	4	1	7	2.8	24	
31	1	1	1	1	2	IZS	4	6	8	17	1	1	1	5	2	3	3	3	4	4	2	2	1	1	17	3.2	24	
HOURLY MAX	7	7	7	8	9	8	11	27	8	17	16	15	19	20	22	7	6	8	13	14	12	10	8	5				
HOURLY AVG	2.8	2.5	2.4	3.0	3.8	3.8	4.6	5.6	3.8	3.5	3.2	2.6	3.0	3.7	3.1	1.8	2.3	2.7	3.8	5.3	4.6	4.2	3.3	2.7				

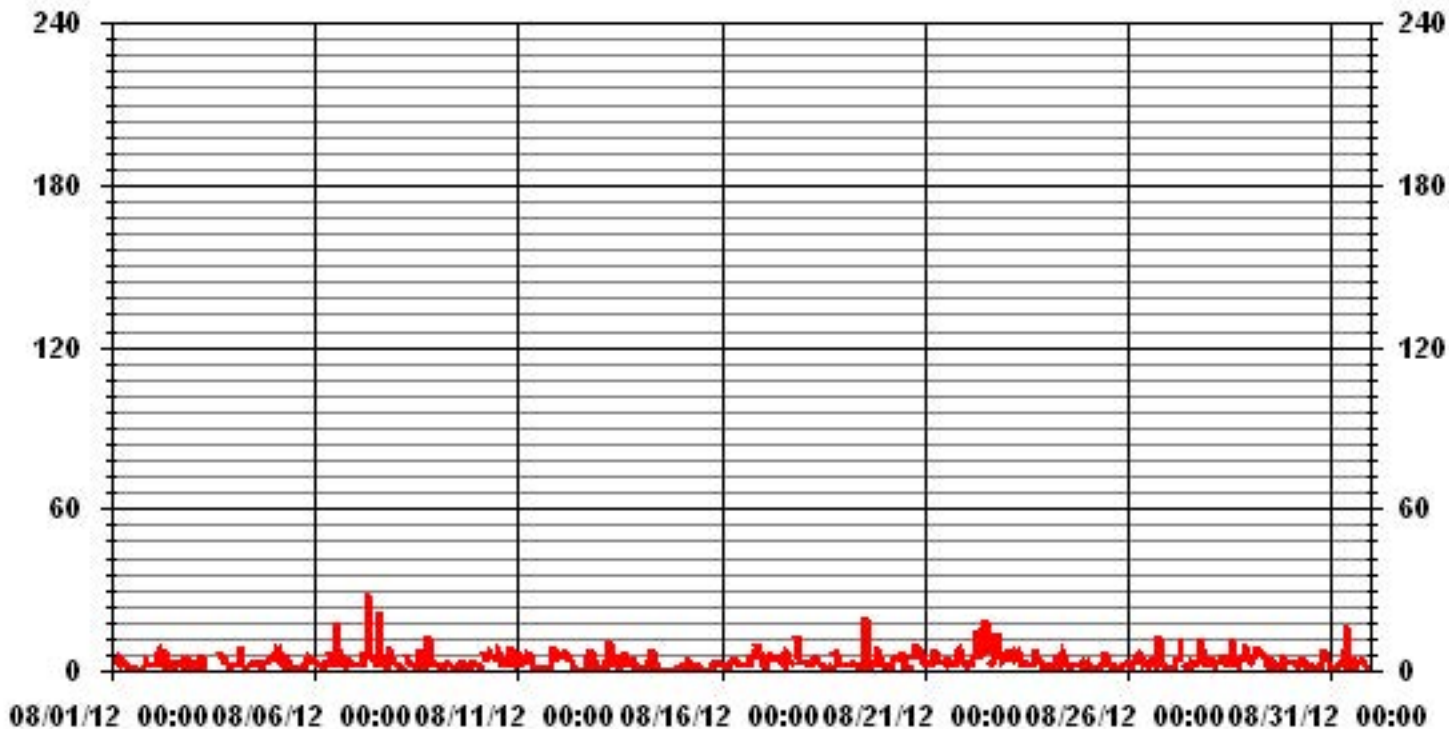
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	670					
MAXIMUM INSTANTANEOUS VALUE:	27	PPB	@ HOUR(S)	7	ON DAY(S)	7
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	2.90					

01 Hour Averages



— LICA NO2MAX PPB

LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

August 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	1.98	.99	2.55	3.54	3.26	5.95	11.77	4.53	4.25	6.52	8.08	12.19	14.75	8.22	6.52	4.82	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	.99	2.55	3.54	3.26	5.95	11.77	4.53	4.25	6.52	8.08	12.19	14.75	8.22	6.52	4.82	

Calm : .00 %

Total # Operational Hours : 705

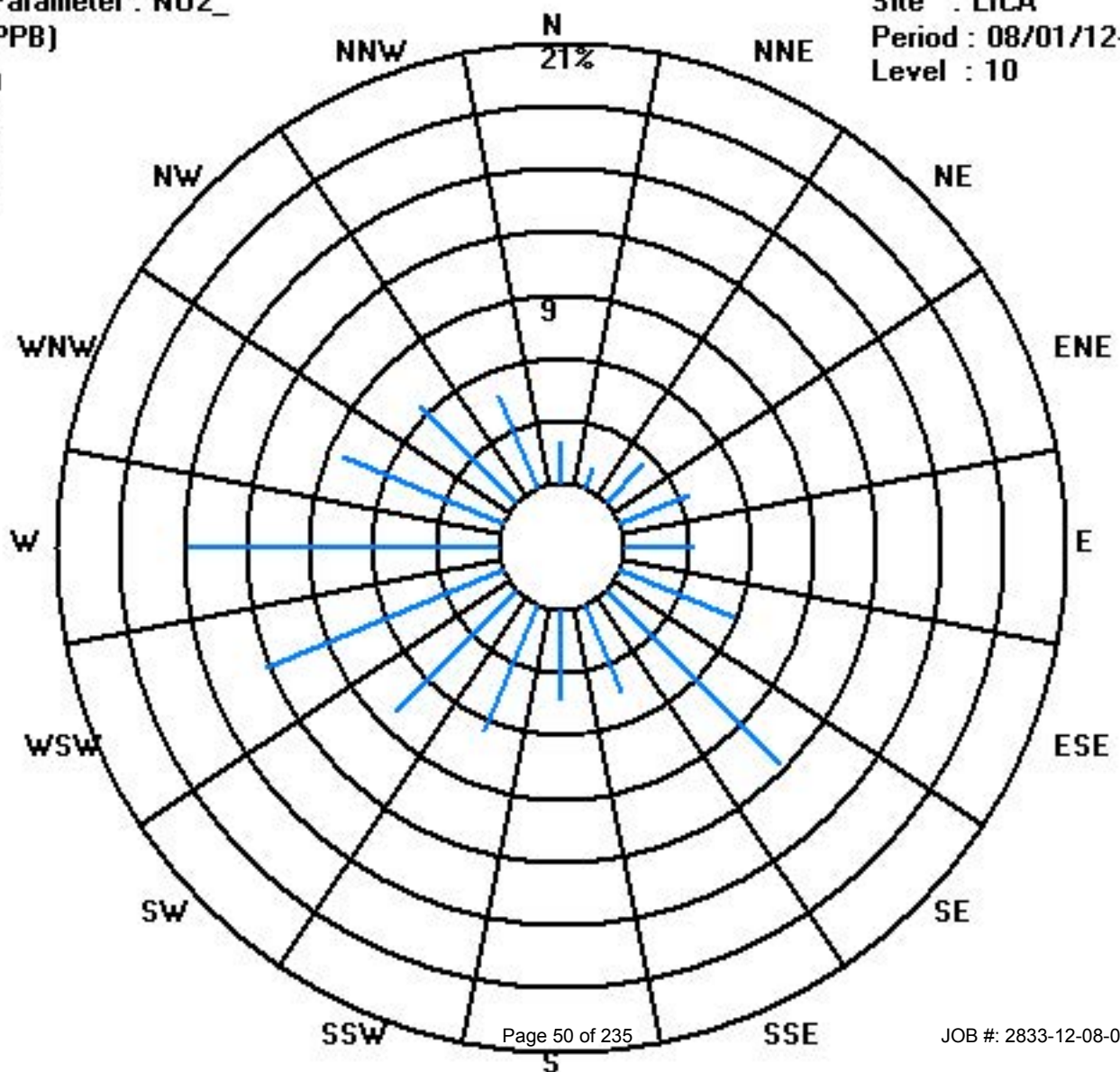
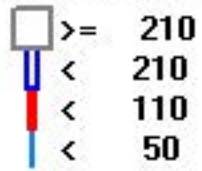
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	7	18	25	23	42	83	32	30	46	57	86	104	58	46	34	705
< 110																	
< 210																	
>= 210																	
Totals	14	7	18	25	23	42	83	32	30	46	57	86	104	58	46	34	

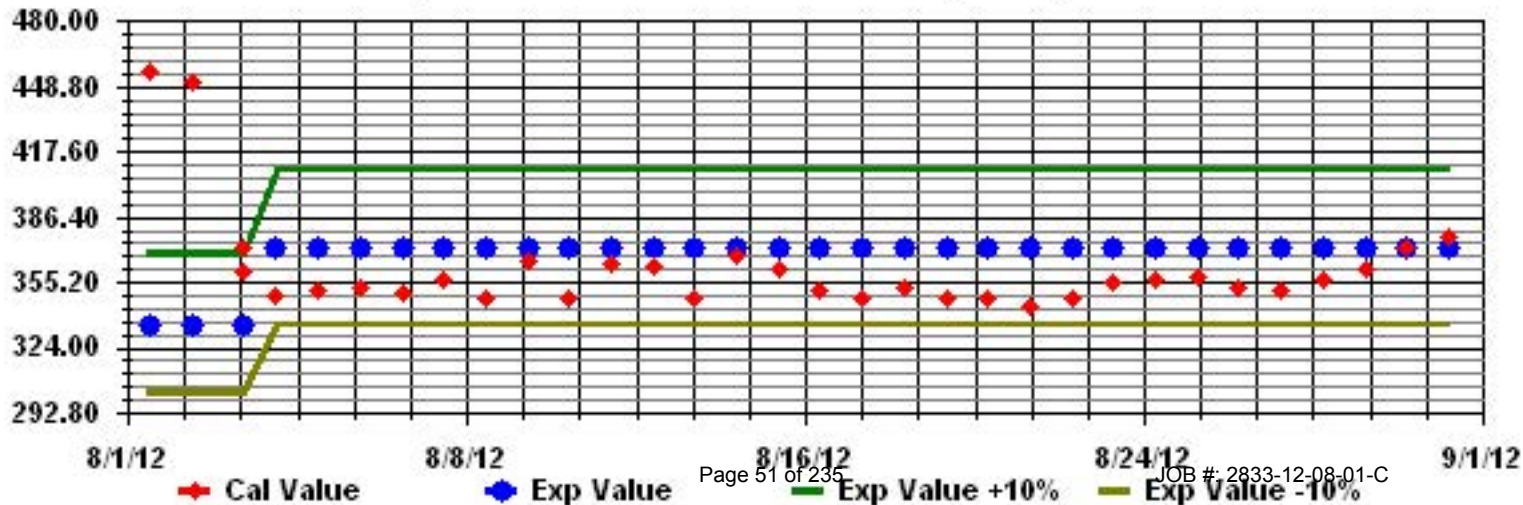
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



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



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2012

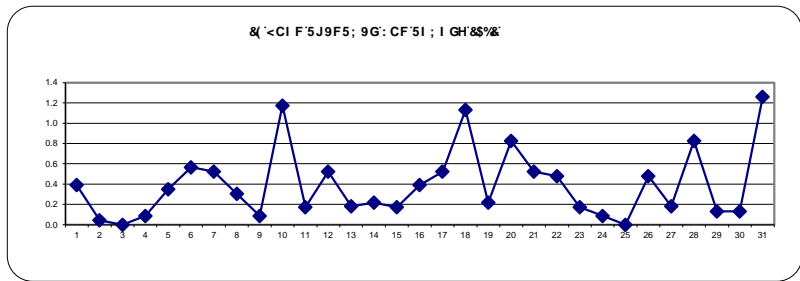
NITRIC OXIDE hourly averages in ppb

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	1	1	2	2	1	1	0	0	IZS	0	0	0	0	0	0	0	1	0	0	0	2	0.4	24
2	0	0	0	0	0	0	0	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
3	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	1	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
5	0	0	0	0	1	1	3	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
6	0	0	0	1	1	2	4	IZS	2	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	4	0.6	24
7	0	0	0	0	2	2	IZS	3	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	3	0.5	24
8	1	1	1	1	1	IZS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
9	0	0	0	0	IZS	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
10	0	0	1	IZS	3	6	6	3	2	1	1	0	1	1	0	0	0	0	0	0	0	0	1	1	6	1.2	24
11	0	0	IZS	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
12	0	IZS	0	1	0	1	4	3	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	4	0.5	24
13	IZS	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0.2	24
14	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0.2	24
15	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0.2	24
16	0	0	0	0	1	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	3	0.4	24
17	0	0	0	0	0	2	3	1	1	1	1	1	0	0	0	0	0	0	0	IZS	1	0	0	1	3	0.5	24
18	1	4	2	1	1	2	7	6	2	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	7	1.1	24
19	0	0	0	0	0	1	1	1	0	0	0	0	0	2	0	0	0	IZS	0	0	0	0	0	0	2	0.2	24
20	0	0	0	1	0	3	8	5	1	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0	0	8	0.8	24
21	0	1	0	0	1	4	6	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	6	0.5	24
22	0	0	0	0	0	0	0	0	0	0	4	1	2	1	IZS	0	0	1	1	1	0	0	0	0	4	0.5	24
23	0	0	0	0	0	0	1	1	1	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.2	24
24	0	0	0	0	0	0	0	0	0	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.1	24
25	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	2	4	2	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.5	24
27	0	0	0	0	0	0	1	1	M	IZS	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.2	23
28	0	1	0	1	2	3	7	4	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0.8	24
29	0	1	0	0	0	0	0	IZS	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
30	0	0	0	0	0	0	IZS	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
31	0	0	0	0	2	IZS	9	12	4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	12	1.3	24	
HOURLY MAX	1	4	2	1	3	6	9	12	4	2	4	1	2	2	0	0	0	1	1	1	1	1	1	1			
HOURLY AVG	0.1	0.3	0.1	0.2	0.6	1.1	2.5	1.9	0.9	0.5	0.4	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1			

STATUS FLAG CODES

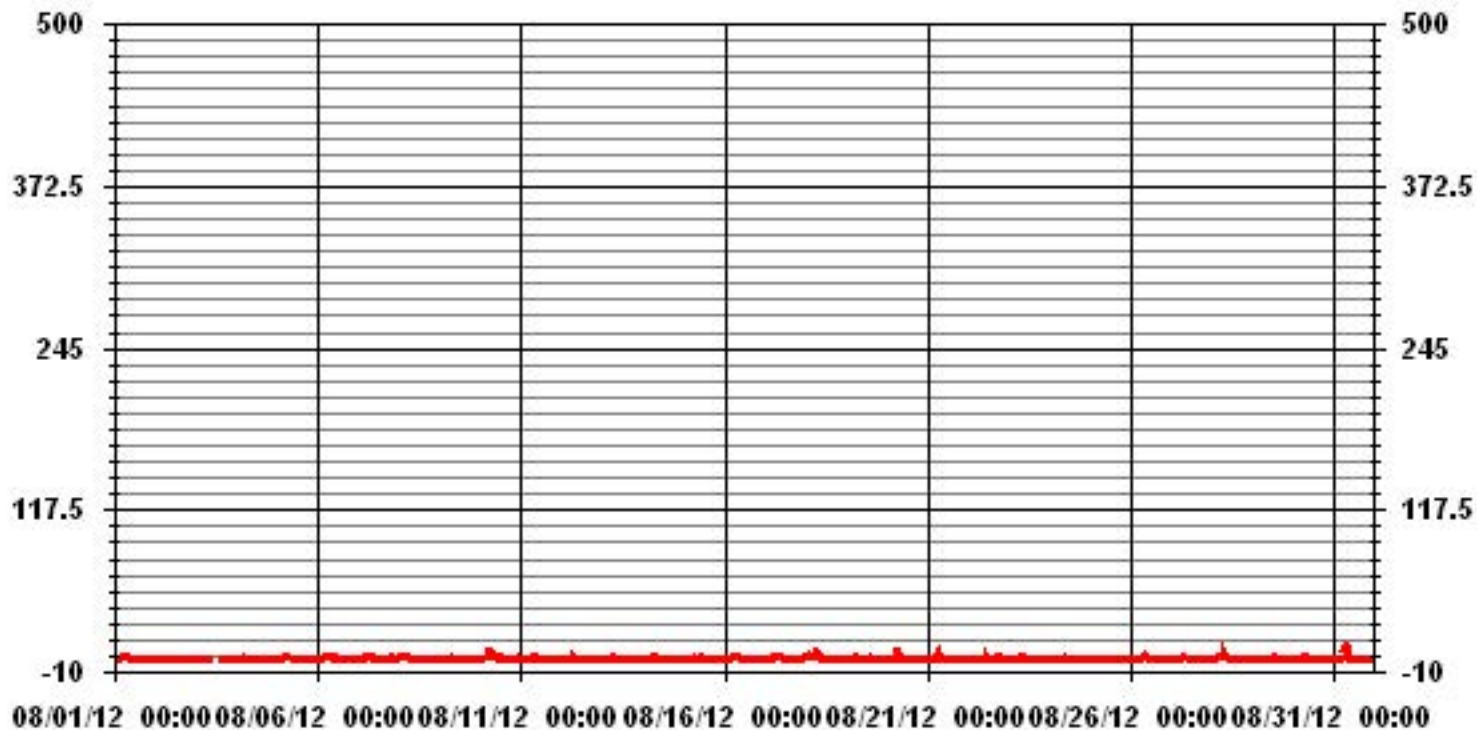
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	153
MAXIMUM 1-HR AVERAGE:	12 PPB @ HOUR(S) 7 ON DAY(S) 31
MAXIMUM 24-HR AVERAGE:	1.3 PPB ON DAY(S) 31
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	1.10
MONTHLY AVERAGE:	0.40 PPB

01 Hour Averages



— LICA NO-PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	1	1	1	1	2	3	3	3	2	1	1	1	IZS	1	1	1	0	0	0	0	8	1	1	1	8	1.5	24																							
2	1	1	1	1	1	1	0	11	1	1	1	IZS	1	1	1	1	1	0	0	0	0	0	0	0	11	1.1	24																							
3	0	0	0	0	0	1	2	0	C	C	C	C	C	C	C	2	20	6	2	1	0	0	2	20	2.3	24																								
4	1	1	1	1	13	11	1	2	1	IZS	1	1	7	1	1	0	1	1	1	0	0	1	1	1	13	2.1	24																							
5	1	1	1	1	3	2	5	4	IZS	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	5	1.1	24																							
6	1	1	1	1	4	4	7	IZS	12	4	6	7	1	19	1	1	5	3	1	1	1	2	1	1	19	3.7	24																							
7	0	0	1	1	20	5	IZS	40	3	1	1	2	0	0	12	1	1	2	1	11	14	2	2	1	40	5.3	24																							
8	1	2	2	2	2	IZS	7	2	2	2	5	2	7	1	2	3	3	1	9	7	1	4	2	0	9	3.0	24																							
9	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0.7	24																							
10	1	1	1	4	IZS	19	10	20	5	4	2	2	1	15	4	1	1	4	0	1	13	1	1	11	3	20	5.4	24																						
11	2	0	IZS	1	1	1	2	3	3	1	0	0	1	0	0	0	0	0	0	0	0	1	1	1	3	0.8	24																							
12	1	IZS	1	1	1	3	6	6	4	1	1	1	0	0	0	0	0	2	4	4	2	6	3	1	6	2.1	24																							
13	IZS	1	1	1	4	1	18	1	1	2	1	1	7	1	1	3	1	3	3	1	6	2	1	IZS	18	2.8	24																							
14	1	1	1	2	1	1	2	3	2	1	1	3	1	1	0	1	0	0	0	0	0	0	0	IZS	0	3	1.0	24																						
15	0	0	0	0	0	1	2	1	1	1	2	1	1	0	1	0	1	1	0	1	1	1	IZS	1	1	2	0.7	24																						
16	1	1	1	1	1	9	5	N	2	2	1	1	1	1	0	1	1	2	1	2	IZS	14	1	0	14	2.2	23																							
17	4	1	1	1	1	11	13	4	2	1	1	2	2	1	3	7	2	9	1	IZS	9	1	1	1	13	3.4	24																							
18	5	6	4	2	1	7	9	10	5	1	3	0	3	3	0	0	0	0	IZS	0	2	2	0	0	10	2.7	24																							
19	0	1	1	1	1	2	2	1	1	1	0	0	3	25	2	1	1	IZS	0	0	2	1	1	1	25	2.1	24																							
20	1	1	1	2	2	11	13	19	2	1	1	2	1	0	1	1	IZS	2	1	1	0	14	1	5	19	3.6	24																							
21	1	2	2	2	6	12	11	1	1	1	1	1	1	1	1	IZS	2	0	0	0	5	1	1	1	12	2.3	24																							
22	1	1	2	0	1	0	1	2	1	2	12	9	12	4	IZS	1	1	3	7	8	0	0	1	0	12	3.0	24																							
23	1	0	1	1	1	1	1	2	2	1	1	1	2	IZS	1	1	1	2	1	0	0	0	0	0	2	1.0	24																							
24	0	0	0	0	0	0	0	2	3	1	2	1	1	IZS	0	0	0	0	0	0	0	0	0	0	3	0.4	24																							
25	0	0	0	0	0	0	0	0	5	0	6	IZS	4	2	2	0	1	1	0	0	0	0	0	0	6	0.9	24																							
26	0	0	0	0	0	1	7	5	3	3	IZS	1	1	3	4	17	17	2	7	1	1	0	1	0	17	3.2	24																							
27	1	2	0	0	6	7	2	8	M	IZS	20	3	1	3	1	8	3	1	1	7	9	1	1	1	20	3.9	23																							
28	1	16	1	2	4	7	11	7	IZS	1	1	1	1	1	5	3	2	1	0	1	2	1	1	1	16	3.1	24																							
29	1	7	1	1	1	1	0	IZS	1	1	1	1	2	1	1	1	1	0	0	0	0	0	0	0	7	1.0	24																							
30	0	0	0	0	0	1	IZS	2	2	1	1	1	1	1	2	1	1	0	1	1	1	3	1	1	3	1.0	24																							
31	1	1	1	1	5	IZS	17	19	22	14	2	2	4	4	5	3	2	1	1	1	1	1	0	0	22	4.7	24																							
HOURLY MAX	5	16	4	2	20	12	20	40	22	14	20	9	15	25	12	17	17	20	9	13	14	14	11	5																										
HOURLY AVG	1.0	1.6	1.0	0.9	3.4	4.0	5.9	5.9	3.2	1.9	2.6	1.7	2.9	2.9	1.7	2.0	1.8	1.9	1.7	2.1	2.3	2.0	1.2	0.8																										

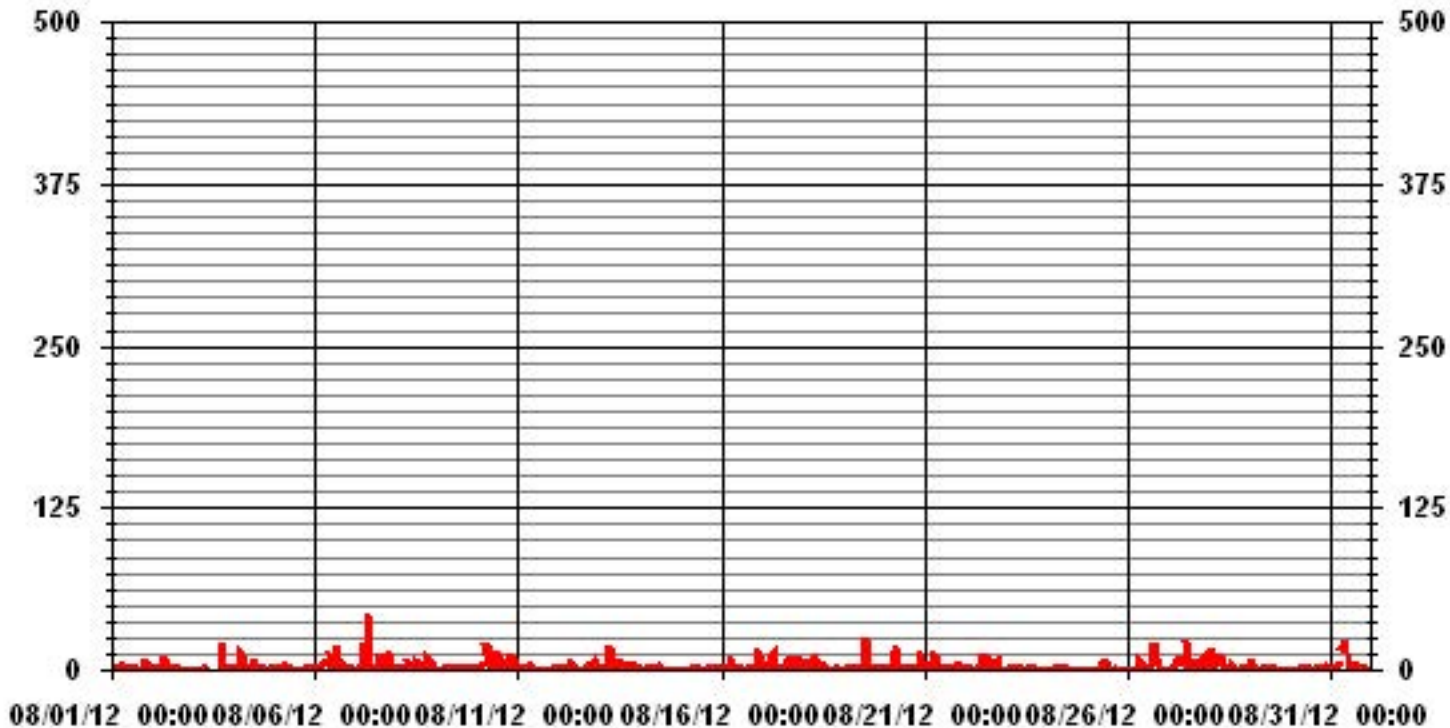
STATUS FLAG CODES

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:	540					
MAXIMUM INSTANTANEOUS VALUE:	40	PPB	@ HOUR(S)	7	ON DAY(S)	7
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	3.90					

01 Hour Averages



LICA
 NO_ / WD Joint Frequency Distribution (Percent)

August 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	1.98	.99	2.55	3.54	3.26	5.95	11.77	4.53	4.25	6.52	8.08	12.19	14.75	8.22	6.52	4.82	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	.99	2.55	3.54	3.26	5.95	11.77	4.53	4.25	6.52	8.08	12.19	14.75	8.22	6.52	4.82	

Calm : .00 %

Total # Operational Hours : 705

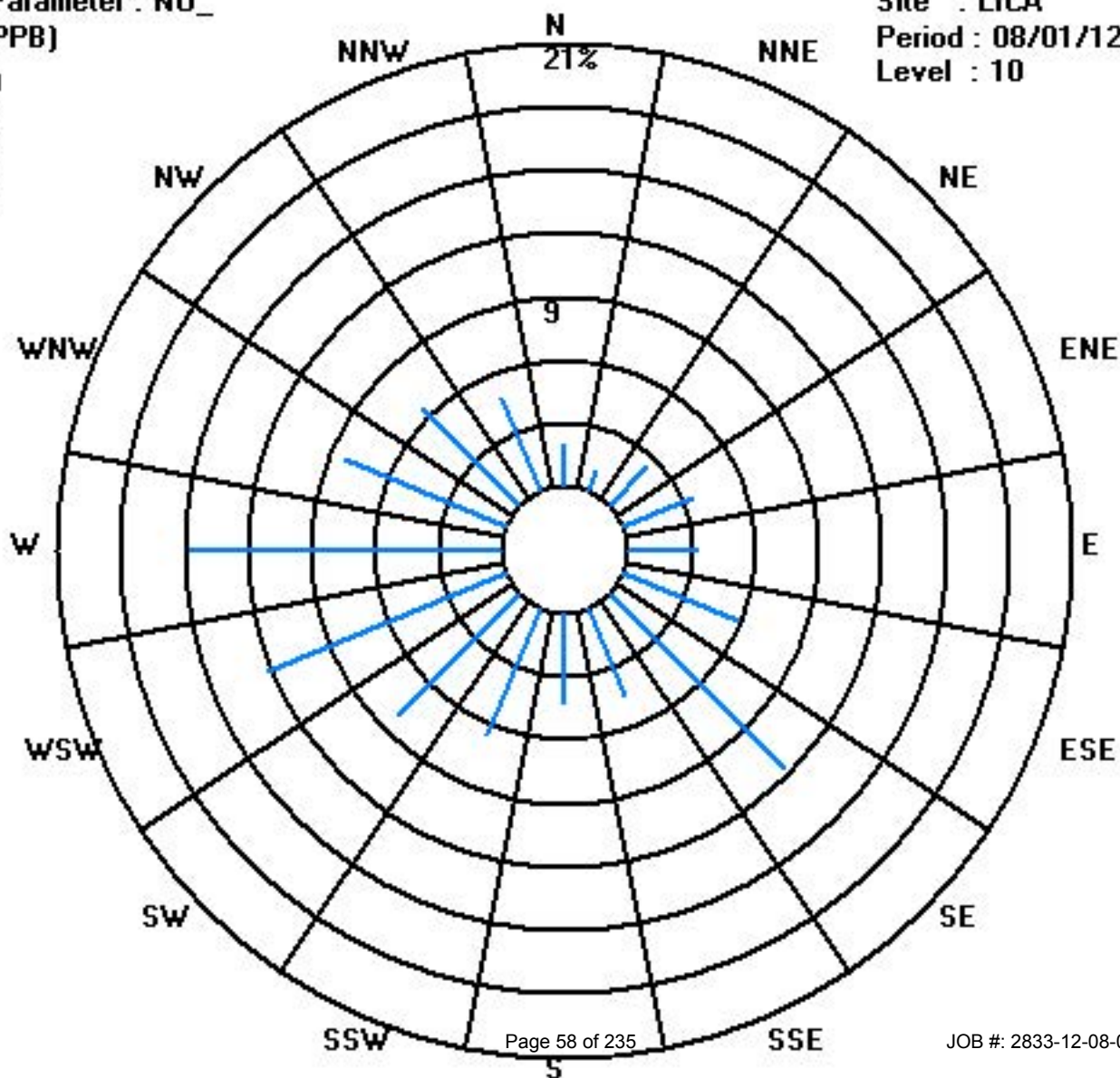
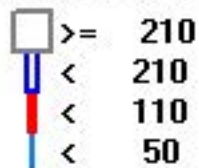
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	7	18	25	23	42	83	32	30	46	57	86	104	58	46	34	705
< 110																	
< 210																	
>= 210																	
Totals	14	7	18	25	23	42	83	32	30	46	57	86	104	58	46	34	

Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



-
-
-
-

CI]XYg'cZB]hfc[Yb'

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2012

OXIDES OF NITROGEN hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	RDGS.
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
1	2	3	3	4	3	3	4	5	3	2	1	0	IZS	0	0	0	0	0	0	1	2	2	2	1	5	1.8	24	
2	1	1	1	3	5	3	1	2	2	1	1	IZS	1	0	0	0	1	2	1	0	0	2	1	1	5	1.3	24	
3	1	0	0	1	1	1	1	0	0	C	C	C	C	C	C	0	0	0	0	1	0	0	0	1	0.4	24		
4	0	0	0	0	2	1	0	0	0	IZS	1	0	1	0	0	0	0	0	1	0	2	2	3	2	3	0.7	24	
5	2	5	4	4	2	2	5	4	IZS	2	0	0	0	0	0	0	0	0	1	1	2	1	2	2	5	1.7	24	
6	2	1	1	1	1	2	4	IZS	3	0	1	1	0	1	0	0	0	0	1	2	1	1	0	4	1.0	24		
7	0	0	1	1	2	2	IZS	7	4	2	2	1	0	0	1	1	1	1	1	2	4	3	2	1	7	1.7	24	
8	1	1	1	2	1	IZS	5	1	1	1	1	1	1	1	1	1	1	1	3	2	2	1	2	1	5	1.4	24	
9	2	1	1	1	IZS	1	1	1	1	1	1	0	1	0	0	0	0	0	1	0	2	1	2	2	2	0.9	24	
10	1	1	1	IZS	4	7	7	8	5	3	3	2	3	2	0	0	1	0	1	1	0	1	3	2	8	2.4	24	
11	2	1	IZS	3	4	4	5	5	5	1	0	0	0	0	1	1	0	0	0	1	3	6	2	4	6	2.1	24	
12	4	IZS	5	5	5	6	7	5	1	0	1	0	0	0	0	0	0	0	1	2	1	2	1	0	7	2.0	24	
13	IZS	0	0	0	1	1	3	1	1	1	0	0	1	0	0	1	2	2	2	0	1	0	0	IZS	3	0.8	24	
14	0	0	0	0	1	3	6	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	1	6	0.9	24	
15	1	1	1	1	3	3	2	1	0	0	1	1	0	0	0	0	0	0	0	1	2	IZS	3	2	3	1.0	24	
16	2	2	2	1	1	4	4	3	4	3	2	1	1	1	1	1	1	1	2	3	IZS	5	4	3	5	2.3	24	
17	3	2	2	3	3	5	7	5	5	4	4	4	3	2	2	2	2	1	1	IZS	6	4	3	2	7	3.3	24	
18	3	7	4	3	2	3	9	10	7	3	1	1	1	1	1	1	1	1	IZS	3	4	2	2	2	10	3.1	24	
19	2	2	1	1	1	2	2	2	2	1	1	1	1	5	1	1	1	IZS	2	3	4	3	2	2	5	1.9	24	
20	1	1	1	2	1	5	10	8	4	3	3	3	1	1	1	1	IZS	2	3	4	4	6	3	3	10	3.1	24	
21	2	2	2	1	3	8	10	3	2	2	3	3	3	3	2	IZS	2	1	1	4	6	3	3	3	10	3.1	24	
22	2	1	1	1	2	4	4	7	2	2	12	4	8	4	IZS	2	4	5	8	6	4	2	3	3	12	4.0	24	
23	3	5	4	5	5	4	5	7	3	2	1	1	1	IZS	1	1	1	4	3	2	2	1	1	1	7	2.7	24	
24	2	1	1	1	1	1	2	2	2	5	5	2	IZS	1	1	1	1	1	1	2	2	1	1	1	5	1.7	24	
25	2	1	1	1	1	1	1	1	1	1	2	IZS	1	1	1	1	1	1	1	1	1	2	1	2	2	1.2	24	
26	1	1	2	2	3	4	5	7	4	4	IZS	2	2	2	1	1	1	1	2	4	2	2	1	1	7	2.4	24	
27	1	1	1	1	2	2	3	3	M	IZS	1	1	1	1	1	1	1	1	3	4	2	2	2	2	4	1.7	23	
28	2	3	2	2	4	4	9	7	IZS	2	2	2	2	2	2	2	1	2	3	3	4	7	5	4	9	3.3	24	
29	3	3	4	4	6	6	2	IZS	2	3	1	2	3	3	2	1	1	1	1	2	2	3	2	2	6	2.6	24	
30	2	2	2	2	2	2	IZS	5	4	2	1	1	1	1	1	1	1	1	1	4	6	4	2	1	6	2.1	24	
31	1	1	1	1	3	IZS	11	15	6	2	1	1	1	1	1	1	1	2	3	3	1	1	1	1	15	2.6	24	
HOURLY MAX	4	7	5	5	6	8	11	15	7	5	12	4	8	5	2	2	4	5	8	6	6	7	5	4				
HOURLY AVG	1.7	1.7	1.7	1.9	2.5	3.2	4.7	4.5	2.7	1.9	1.9	1.3	1.4	1.1	0.8	0.8	0.9	1.0	1.6	2.0	2.5	2.3	2.0	1.7				

STATUS FLAG CODES

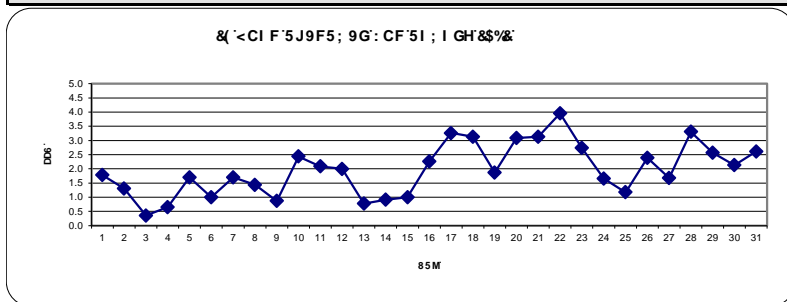
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

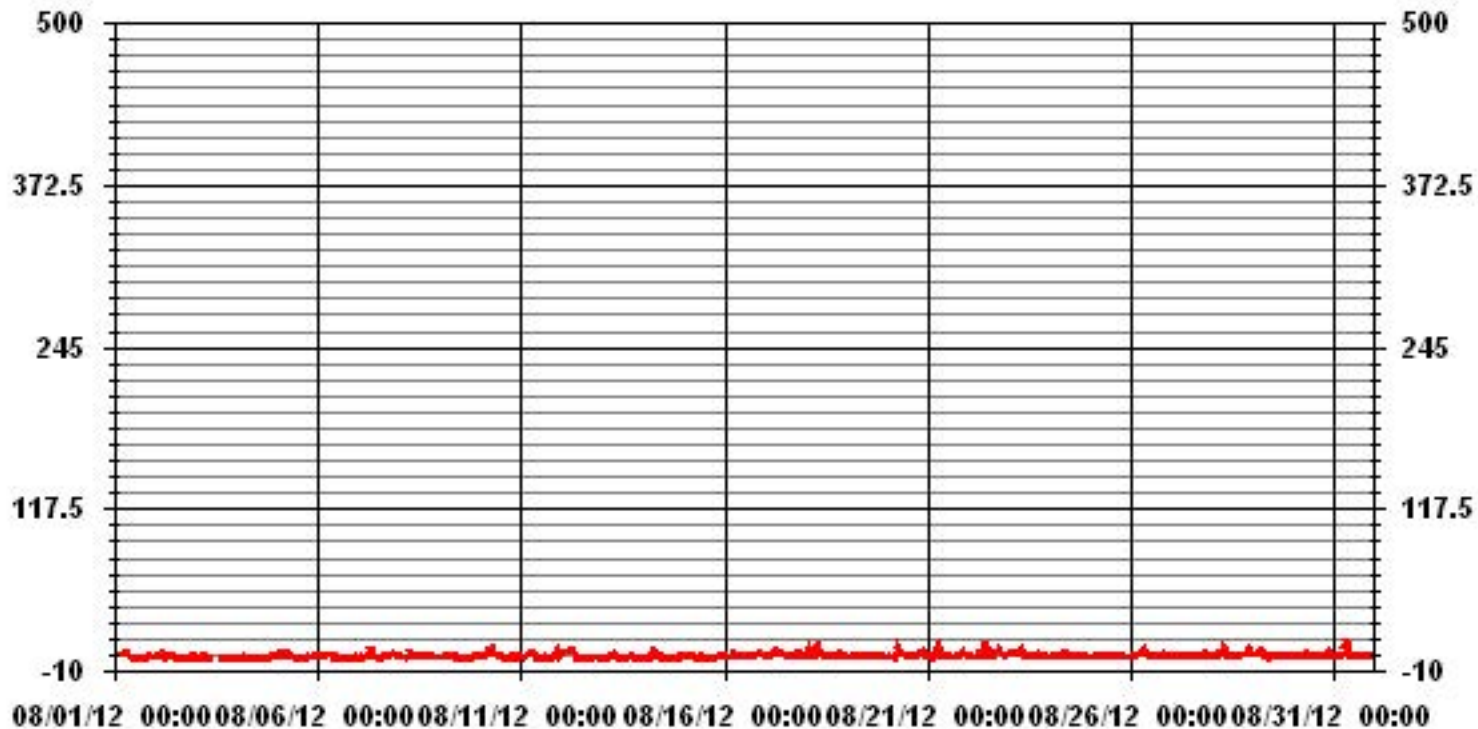
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	57	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	588
MAXIMUM 1-HR AVERAGE:	15 PPB @ HOUR(S) 7 ON DAY(S) 31
MAXIMUM 24-HR AVERAGE:	4.0 PPB ON DAY(S) 22
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	1.91
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	1.98 PPB



01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	3	4	4	5	4	4	6	7	5	4	2	2	IZS	1	2	1	0	0	0	2	10	3	2	2	10	3.2	24	
2	2	2	2	6	7	4	3	11	5	2	2	IZS	3	2	2	1	2	3	3	0	1	3	2	1	11	3.0	24	
3	2	1	0	3	2	5	5	0	C	C	C	C	C	C	C	7	13	11	3	2	0	0	2	13	3.5	24		
4	1	1	1	1	20	12	0	2	0	IZS	1	1	6	1	3	1	1	1	2	2	3	4	5	3	20	3.1	24	
5	3	6	5	6	4	3	9	8	IZS	3	2	0	0	0	1	0	0	0	3	4	3	2	3	9	3.0	24		
6	3	2	2	1	4	3	9	IZS	12	6	9	12	1	35	9	2	9	2	1	3	3	5	3	2	35	6.0	24	
7	1	1	1	2	25	6	IZS	63	7	5	5	5	1	1	31	4	2	6	3	10	21	6	4	2	63	9.2	24	
8	2	2	2	3	2	IZS	10	4	4	3	5	2	7	2	9	4	4	1	18	20	3	4	5	2	20	5.1	24	
9	2	2	2	1	IZS	3	3	3	3	2	2	1	1	3	0	0	1	2	2	1	3	3	3	2	3	2.0	24	
10	2	2	4	IZS	21	12	19	11	9	6	5	2	18	9	1	1	8	1	2	19	1	2	17	5	21	7.7	24	
11	5	2	IZS	5	6	5	7	8	8	3	1	1	1	1	1	1	1	1	1	2	7	9	3	5	9	3.7	24	
12	5	IZS	7	9	8	7	10	9	5	1	1	1	0	0	0	0	0	8	8	12	3	11	5	1	12	4.8	24	
13	IZS	1	1	1	4	3	27	2	2	5	3	1	11	2	1	9	4	5	6	2	8	3	2	IZS	27	4.7	24	
14	1	1	1	1	2	4	8	10	4	3	1	2	0	1	0	0	0	0	0	0	0	0	0	IZS	1	10	1.7	24
15	1	2	1	2	4	4	4	2	1	1	5	3	1	0	0	0	0	1	1	2	3	IZS	3	3	5	1.9	24	
16	3	2	3	2	2	11	7	N	5	6	2	2	3	2	2	2	3	6	6	9	IZS	22	5	5	22	5.0	23	
17	10	3	3	6	4	17	18	9	6	4	4	6	5	3	8	7	6	8	3	IZS	19	6	4	3	19	7.0	24	
18	8	9	6	5	2	8	12	13	9	4	4	1	5	2	1	1	3	1	IZS	7	8	5	2	3	13	5.2	24	
19	2	3	2	2	3	4	4	2	2	2	1	1	6	37	2	2	3	IZS	3	4	10	6	4	3	37	4.7	24	
20	3	2	2	3	2	14	15	24	6	5	4	9	2	1	1	1	IZS	7	5	10	7	20	7	7	24	6.8	24	
21	3	4	3	3	6	17	16	4	3	3	4	4	5	4	4	IZS	4	2	2	7	12	6	5	4	17	5.4	24	
22	3	3	6	1	4	5	6	17	7	7	27	22	30	11	IZS	4	4	11	20	21	5	4	6	4	30	9.9	24	
23	4	7	7	6	7	5	7	9	6	3	2	2	4	IZS	3	3	4	8	5	3	5	3	1	2	9	4.6	24	
24	3	1	1	2	1	1	7	7	3	8	7	4	IZS	1	1	2	2	2	2	2	3	1	2	2	8	2.8	24	
25	3	1	1	1	1	1	1	1	1	7	1	12	IZS	7	3	3	1	2	2	1	1	2	2	3	12	2.6	24	
26	3	2	3	3	4	6	13	9	5	6	IZS	3	4	7	7	9	9	6	20	9	4	3	2	1	20	6.0	24	
27	1	3	1	1	9	10	6	19	M	IZS	8	3	2	5	3	9	6	2	6	19	16	6	3	2	19	6.4	23	
28	3	20	3	3	5	9	14	10	IZS	3	5	3	3	17	6	4	3	2	4	5	5	11	8	5	20	6.6	24	
29	5	11	5	8	8	8	7	IZS	5	5	3	3	5	5	4	2	2	1	4	6	3	3	3	3	11	4.7	24	
30	3	3	3	3	2	3	IZS	6	6	3	3	2	3	2	2	1	2	3	7	8	8	4	1	8	3.5	24		
31	1	1	1	1	5	IZS	17	24	29	28	3	2	4	8	5	5	4	3	5	4	2	2	1	1	29	6.8	24	
HOURLY MAX	10	20	7	9	25	17	27	63	29	28	27	22	30	37	31	9	9	13	20	21	21	22	17	7				
HOURLY AVG	3.0	3.5	2.8	3.2	5.9	6.7	9.3	10.5	6.1	4.7	4.6	3.6	4.9	5.7	3.9	2.7	3.2	3.6	5.0	6.5	6.0	5.4	3.9	2.8				

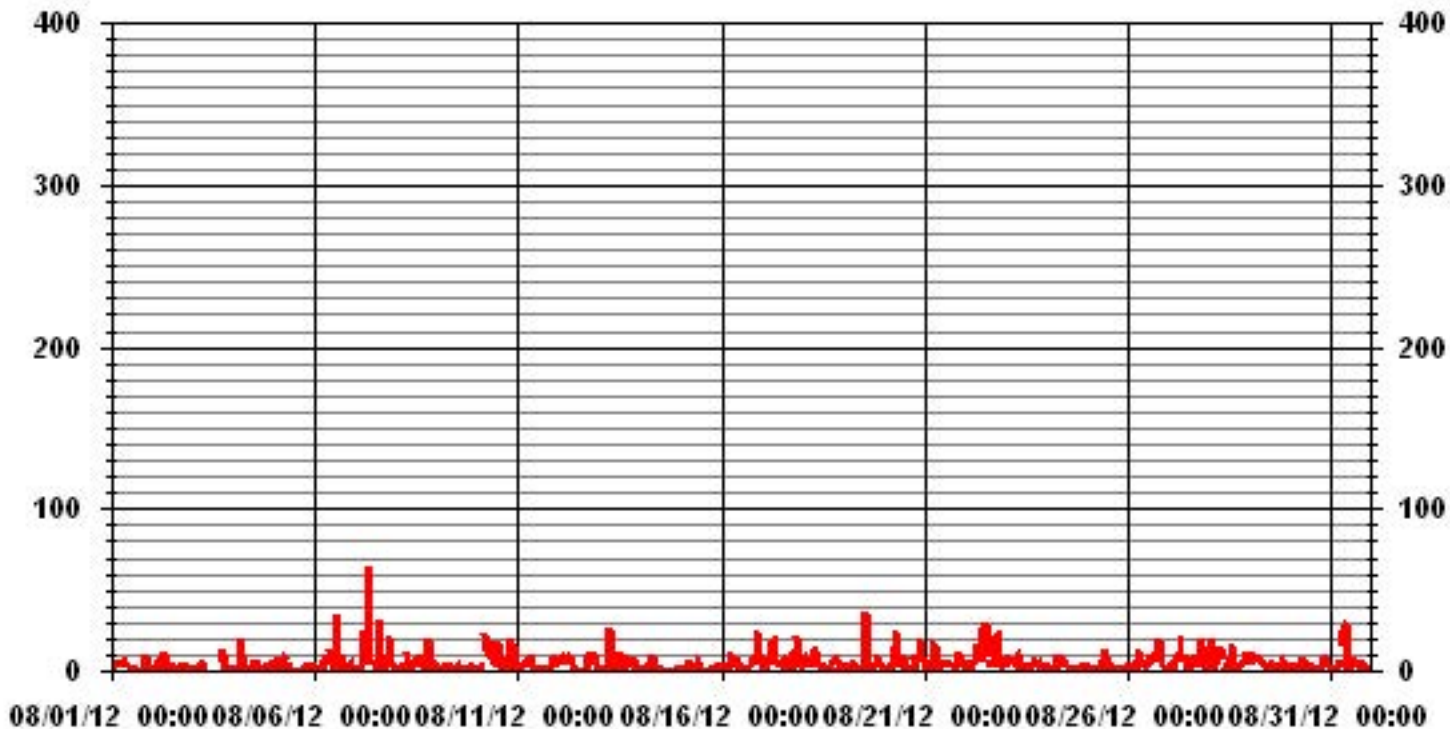
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	667					
MAXIMUM INSTANTANEOUS VALUE:	63	PPB	@ HOUR(S)	7	ON DAY(S)	7
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	5.54					

01 Hour Averages



— LICA NOXMAX PPB

LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

August 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	1.98	.99	2.55	3.54	3.26	5.95	11.77	4.53	4.25	6.52	8.08	12.19	14.75	8.22	6.52	4.82	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	.99	2.55	3.54	3.26	5.95	11.77	4.53	4.25	6.52	8.08	12.19	14.75	8.22	6.52	4.82	

Calm : .00 %

Total # Operational Hours : 705

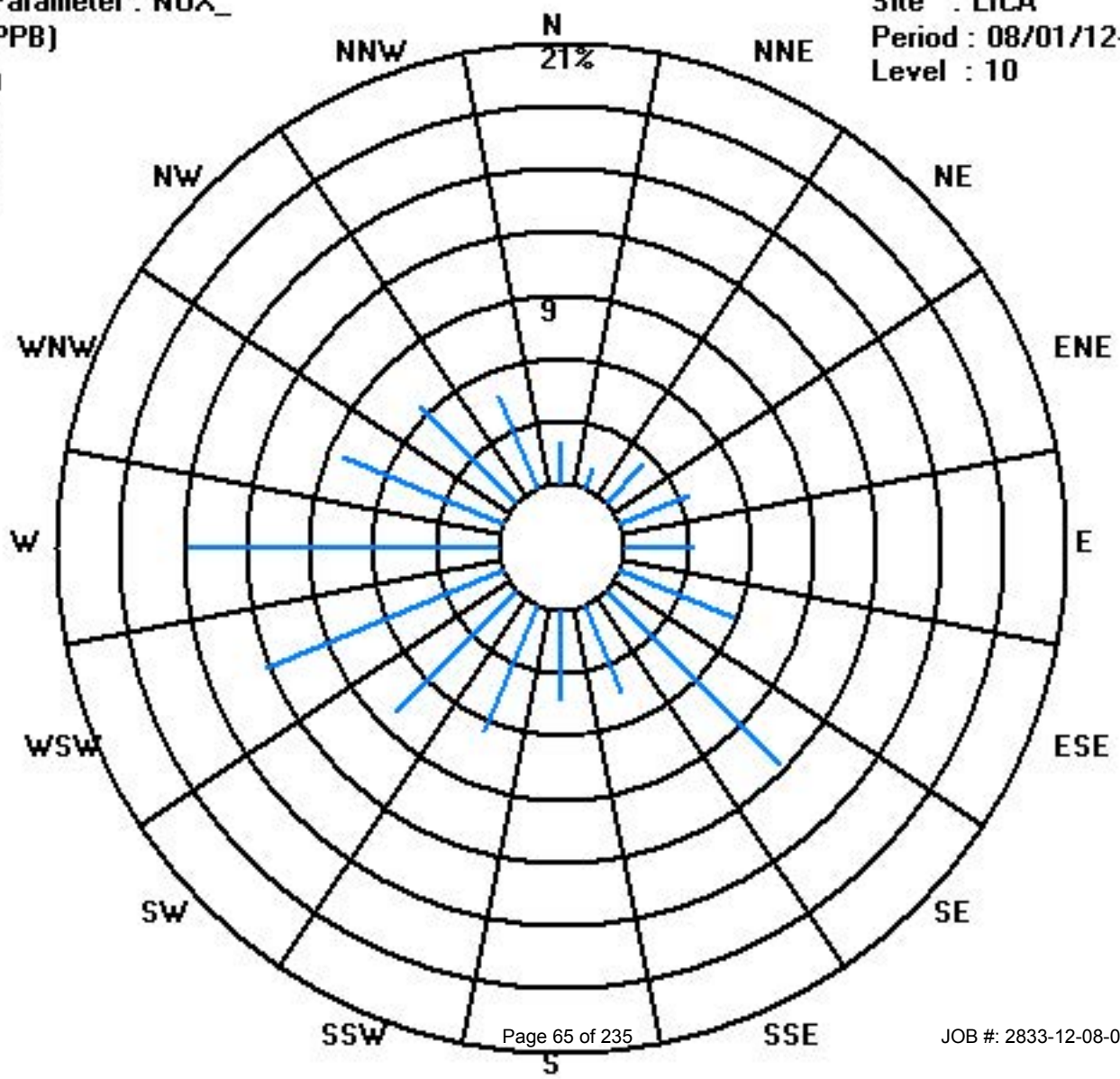
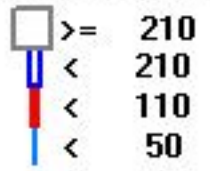
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	7	18	25	23	42	83	32	30	46	57	86	104	58	46	34	705
< 110																	
< 210																	
>= 210																	
Totals	14	7	18	25	23	42	83	32	30	46	57	86	104	58	46	34	

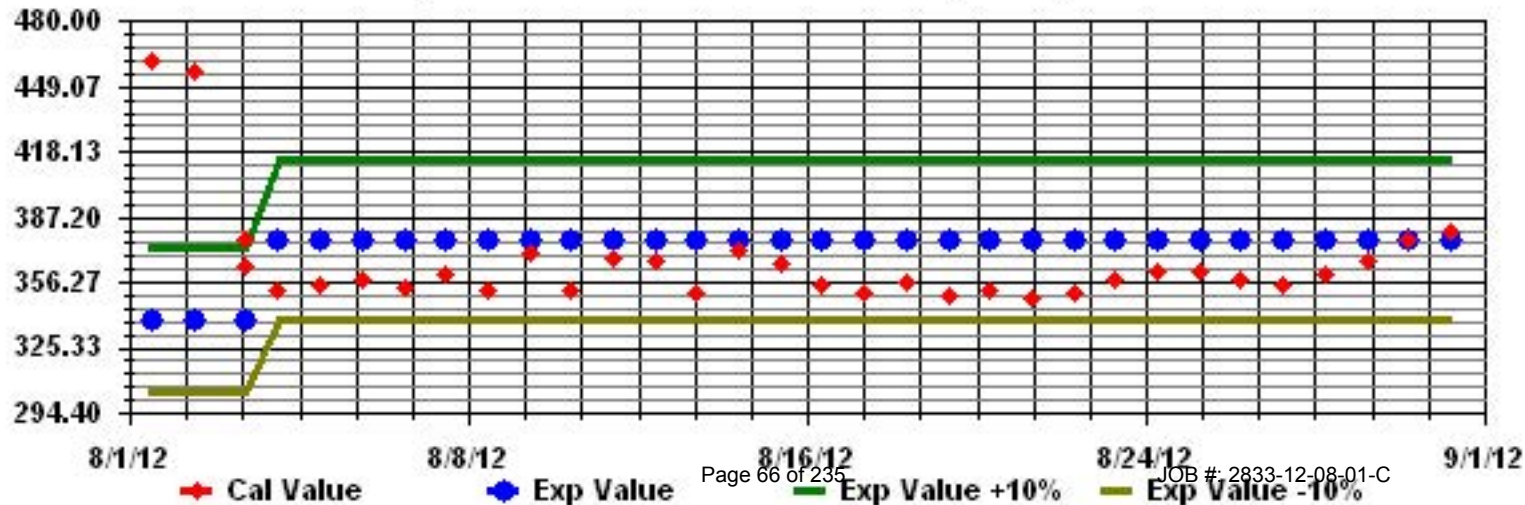
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



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



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CncbY'

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	10	10	5	7	4	6	12	18	24	28	31	31	IZS	35	38	36	36	35	33	24	12	10	8	6	38	20.0	24	
2	5	4	2	5	6	10	19	21	21	23	23	IZS	23	23	22	24	22	19	19	24	24	18	20	21	24	17.3	24	
3	17	19	21	19	16	13	14	18	19	21	IZS	24	25	24	25	24	22	24	23	15	12	16	15	13	25	19.1	24	
4	8	5	8	8	5	8	13	18	20	IZS	27	29	32	35	32	32	27	21	20	19	15	7	5	6	35	17.4	24	
5	8	5	6	6	2	4	7	14	IZS	29	30	28	30	31	30	30	30	30	28	20	10	7	4	2	31	17.0	24	
6	2	1	1	1	1	1	2	IZS	19	22	22	24	28	30	33	38	37	36	33	22	9	6	6	5	38	16.5	24	
7	9	9	6	2	1	1	IZS	15	27	32	34	39	41	39	36	C	C	C	26	20	8	4	2	1	41	17.6	24	
8	1	1	1	1	1	1	IZS	10	17	20	21	21	21	23	25	25	27	30	28	24	21	20	21	19	36	36	18.0	24
9	39	39	35	32	IZS	24	26	27	27	31	34	33	31	31	32	30	32	34	32	27	15	10	8	3	39	27.5	24	
10	3	3	2	IZS	0	1	3	12	20	28	32	34	28	30	36	40	38	31	27	20	13	5	3	3	40	17.9	24	
11	21	10	IZS	4	4	6	7	11	19	27	28	29	30	30	29	31	32	33	32	29	20	8	10	9	33	20.0	24	
12	9	IZS	7	4	6	5	6	9	21	25	29	32	31	30	30	30	30	29	23	8	6	4	4	4	32	16.6	24	
13	IZS	3	1	2	4	6	12	17	20	25	28	31	30	31	30	27	24	21	21	21	25	22	19	IZS	31	19.1	24	
14	7	2	1	2	3	4	7	10	18	21	22	27	29	24	22	24	23	22	24	25	25	23	IZS	22	29	16.8	24	
15	22	21	22	21	17	17	18	21	26	28	29	31	32	33	32	31	32	32	30	21	13	IZS	7	6	33	23.6	24	
16	5	4	2	1	1	1	6	19	27	36	41	44	45	45	46	46	44	42	37	22	IZS	18	13	12	46	24.2	24	
17	11	6	3	8	11	3	7	23	24	29	34	34	40	40	41	39	39	36	31	IZS	11	6	4	2	41	21.0	24	
18	1	0	0	1	0	1	1	5	18	31	37	37	37	38	39	41	42	43	IZS	23	15	13	18	19	43	20.0	24	
19	21	13	11	5	5	3	11	22	25	30	40	44	45	45	48	50	51	IZS	44	30	17	11	9	7	51	25.5	24	
20	3	3	1	1	1	1	1	11	26	39	46	49	51	49	50	51	IZS	48	38	20	14	9	8	4	51	22.8	24	
21	4	2	2	2	2	1	6	20	22	25	34	41	43	38	36	IZS	54	52	43	23	24	26	17	11	54	23.0	24	
22	11	13	20	17	16	23	21	19	24	23	17	16	16	22	IZS	22	19	20	16	14	12	13	12	12	24	17.3	24	
23	4	9	7	10	10	10	13	13	20	26	32	35	35	IZS	38	39	39	33	21	23	23	33	49	46	49	24.7	24	
24	40	42	34	28	22	21	17	20	18	17	19	17	IZS	29	29	29	27	23	23	16	12	17	19	19	42	23.4	24	
25	15	18	18	20	18	17	16	16	16	16	16	IZS	19	20	19	18	14	14	15	15	16	15	14	10	20	16.3	24	
26	11	10	8	7	5	4	4	5	10	12	IZS	24	32	34	34	34	35	34	28	12	11	13	12	11	35	17.0	24	
27	10	11	13	13	13	10	11	12	M	IZS	24	29	32	35	38	38	39	35	28	22	21	12	7	9	39	21.0	23	
28	4	2	2	1	1	1	1	5	IZS	21	29	34	37	39	42	47	44	42	33	13	11	5	6	5	47	18.5	24	
29	2	3	10	14	14	18	28	IZS	43	34	31	28	22	23	26	29	31	30	29	26	24	23	25	24	43	23.3	24	
30	20	15	12	12	16	17	IZS	18	20	21	23	24	26	28	28	29	30	28	25	17	8	8	8	10	30	19.3	24	
31	5	3	2	1	1	IZS	2	3	11	14	15	16	19	20	22	22	23	21	19	20	22	23	23	24	24	14.4	24	
HOURLY MAX	40	42	35	32	22	24	28	27	43	39	46	49	51	49	50	51	54	52	44	30	25	33	49	46				
HOURLY AVG	10.9	9.5	8.8	8.5	6.9	8.2	10.4	15.1	21.6	25.3	28.6	30.5	31.4	31.9	32.9	33.0	32.6	30.9	27.5	20.4	15.6	13.5	12.5	12.1				

STATUS FLAG CODES

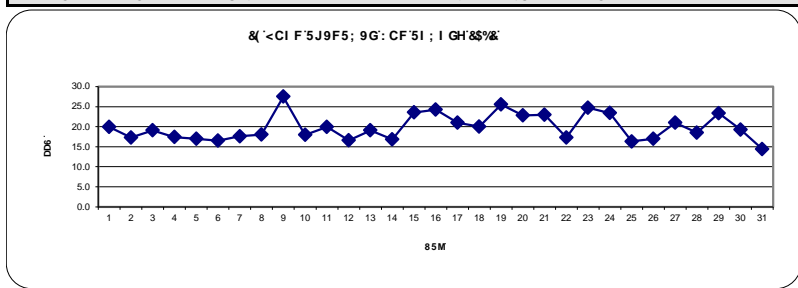
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

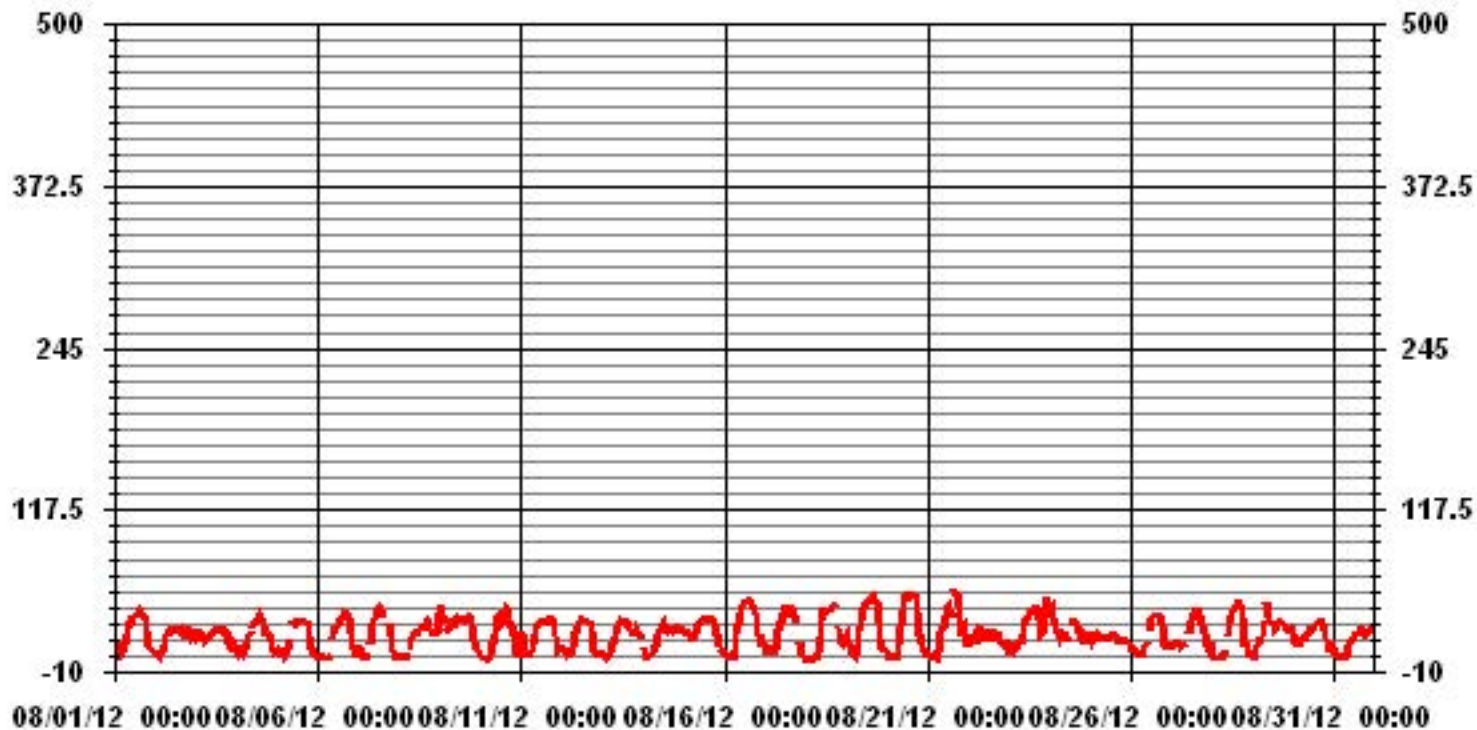
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	704				
MAXIMUM 1-HR AVERAGE:	54	PPB	@ HOUR(S)	16	ON DAY(S) 21
MAXIMUM 24-HR AVERAGE:	27.5	PPB			ON DAY(S) 9
					VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	12.46		MONTHLY AVERAGE:	19.87	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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 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	13	12	7	9	7	10	15	23	26	32	32	33	IZS	39	39	38	37	38	35	31	16	13	11	10	39	22.9	24	
2	8	7	5	8	7	16	23	25	23	25	24	IZS	25	24	25	26	25	25	25	25	21	24	23	26	20.2	24		
3	19	21	24	22	18	15	18	20	20	22	IZS	26	27	26	27	27	24	26	26	20	16	17	18	15	27	21.5	24	
4	13	8	11	11	7	12	18	20	23	IZS	31	30	35	37	34	34	34	22	21	20	18	13	7	11	37	20.4	24	
5	9	7	8	8	4	7	9	20	IZS	32	33	30	32	32	32	32	31	32	30	28	16	10	8	4	33	19.7	24	
6	3	2	2	1	1	1	4	IZS	23	24	24	27	32	32	36	41	39	39	36	30	14	10	12	11	41	19.3	24	
7	12	11	9	5	2	3	IZS	22	33	36	37	44	44	43	39	C	C	C	C	28	13	8	4	3	44	20.8	24	
8	2	2	1	1	1	IZS	18	20	22	22	22	22	22	26	27	27	30	31	31	27	23	22	23	20	50	20.4	24	
9	47	50	40	35	IZS	30	30	29	29	34	36	35	34	33	33	32	36	36	34	30	27	16	12	6	50	31.5	24	
10	5	5	3	IZS	1	1	9	15	25	32	34	36	32	36	40	42	43	35	30	28	17	12	6	9	43	21.6	24	
11	36	15	IZS	6	7	7	11	13	25	28	30	30	31	31	31	33	33	34	34	32	25	13	14	12	36	23.1	24	
12	12	IZS	9	6	7	6	7	13	24	27	32	33	33	31	32	32	32	32	29	14	9	7	6	8	33	19.2	24	
13	IZS	6	3	3	10	9	15	19	23	27	31	32	33	33	32	29	28	23	23	25	29	23	21	IZS	33	21.7	24	
14	12	5	2	5	5	8	10	14	23	23	27	30	31	29	24	25	25	24	25	27	27	24	IZS	23	31	19.5	24	
15	22	22	22	22	19	17	20	23	29	30	32	33	35	35	34	34	34	34	33	29	21	IZS	10	9	35	26.0	24	
16	9	8	4	2	2	2	16	25	33	39	43	46	47	48	48	48	46	45	42	35	IZS	24	16	17	48	28.0	24	
17	18	9	5	16	18	5	18	27	27	33	38	39	42	44	46	42	41	38	37	IZS	19	9	6	3	46	25.2	24	
18	2	1	1	1	1	1	3	9	27	37	39	38	39	39	41	44	45	46	IZS	31	21	19	22	23	46	23.0	24	
19	24	19	16	10	11	6	22	25	28	37	44	46	47	48	50	52	53	IZS	50	40	25	15	11	12	53	30.0	24	
20	4	5	2	2	2	1	3	22	33	46	50	52	54	52	53	53	IZS	51	49	30	17	15	15	7	54	26.9	24	
21	7	3	4	4	3	2	20	23	26	29	40	45	47	40	39	IZS	57	56	49	31	30	32	23	14	57	27.1	24	
22	15	27	27	26	22	27	27	27	28	26	22	19	19	27	IZS	28	21	21	19	19	14	16	15	14	28	22.0	24	
23	10	11	11	12	12	12	16	15	25	30	36	37	36	IZS	41	41	42	38	29	27	27	45	52	51	52	28.5	24	
24	42	45	39	30	25	23	19	23	21	22	22	21	IZS	31	31	31	28	26	25	19	13	19	20	20	45	25.9	24	
25	17	19	21	20	19	17	16	16	17	17	17	IZS	22	22	20	20	16	15	16	16	16	16	16	16	12	22	17.5	24
26	13	11	9	8	6	5	5	7	12	13	IZS	30	35	36	37	35	37	37	34	21	14	18	16	14	37	19.7	24	
27	12	13	14	14	14	13	12	13	M	IZS	27	32	34	38	39	41	41	40	32	25	23	21	13	12	41	23.8	23	
28	11	4	3	2	1	1	2	10	IZS	26	35	36	40	42	47	49	47	47	42	21	20	10	11	8	49	22.4	24	
29	6	12	15	20	20	21	37	IZS	47	39	35	30	26	25	29	31	32	32	30	28	27	24	26	26	47	26.9	24	
30	24	18	17	15	17	18	IZS	20	22	22	25	25	28	29	30	31	31	30	27	23	12	12	13	13	31	21.8	24	
31	8	5	3	2	1	IZS	54	4	14	15	16	17	21	22	23	24	24	22	21	20	23	23	24	25	54	17.9	24	
HOURLY MAX	47	50	40	35	25	30	54	29	47	46	50	52	54	52	53	53	57	56	50	40	30	45	52	51				
HOURLY AVG	14.5	12.8	11.2	10.9	9.0	10.2	16.4	18.7	25.3	28.4	31.5	32.9	34.0	34.4	35.3	35.3	34.9	33.6	31.4	25.9	19.9	17.6	15.7	15.5				

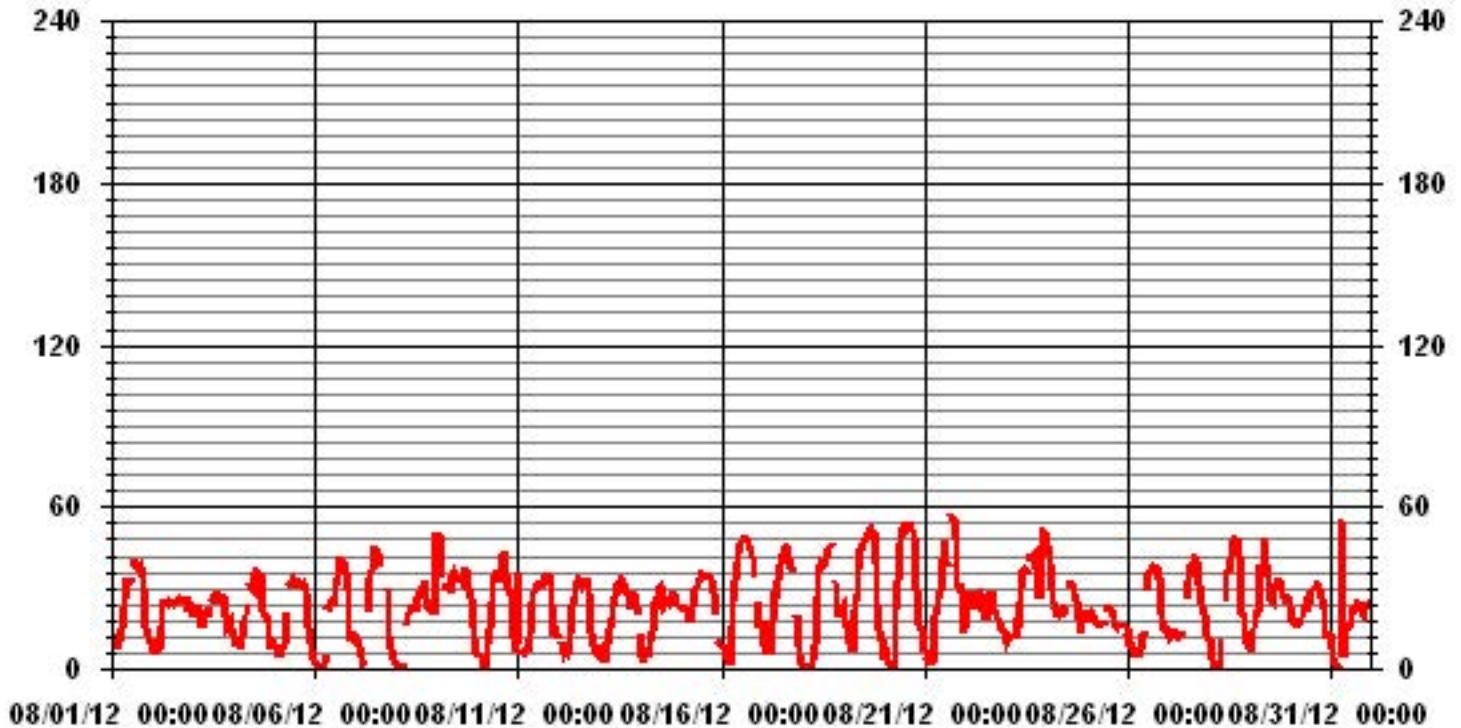
STATUS FLAG CODES

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:	707					
MAXIMUM INSTANTANEOUS VALUE:	57	PPB	@ HOUR(S)	16	ON DAY(S)	21
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	12.79					

01 Hour Averages



LICA
 O3_ / WD Joint Frequency Distribution (Percent)

August 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	2.11	1.12	2.40	3.81	3.24	5.93	11.72	4.51	3.95	5.93	7.90	12.14	14.68	8.19	6.49	4.80	99.01
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.28	.56	.14	.00	.00	.00	.00	.00	.98
< 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	2.11	1.12	2.40	3.81	3.24	5.93	11.72	4.51	4.23	6.49	8.05	12.14	14.68	8.19	6.49	4.80	

Calm : .00 %

Total # Operational Hours : 708

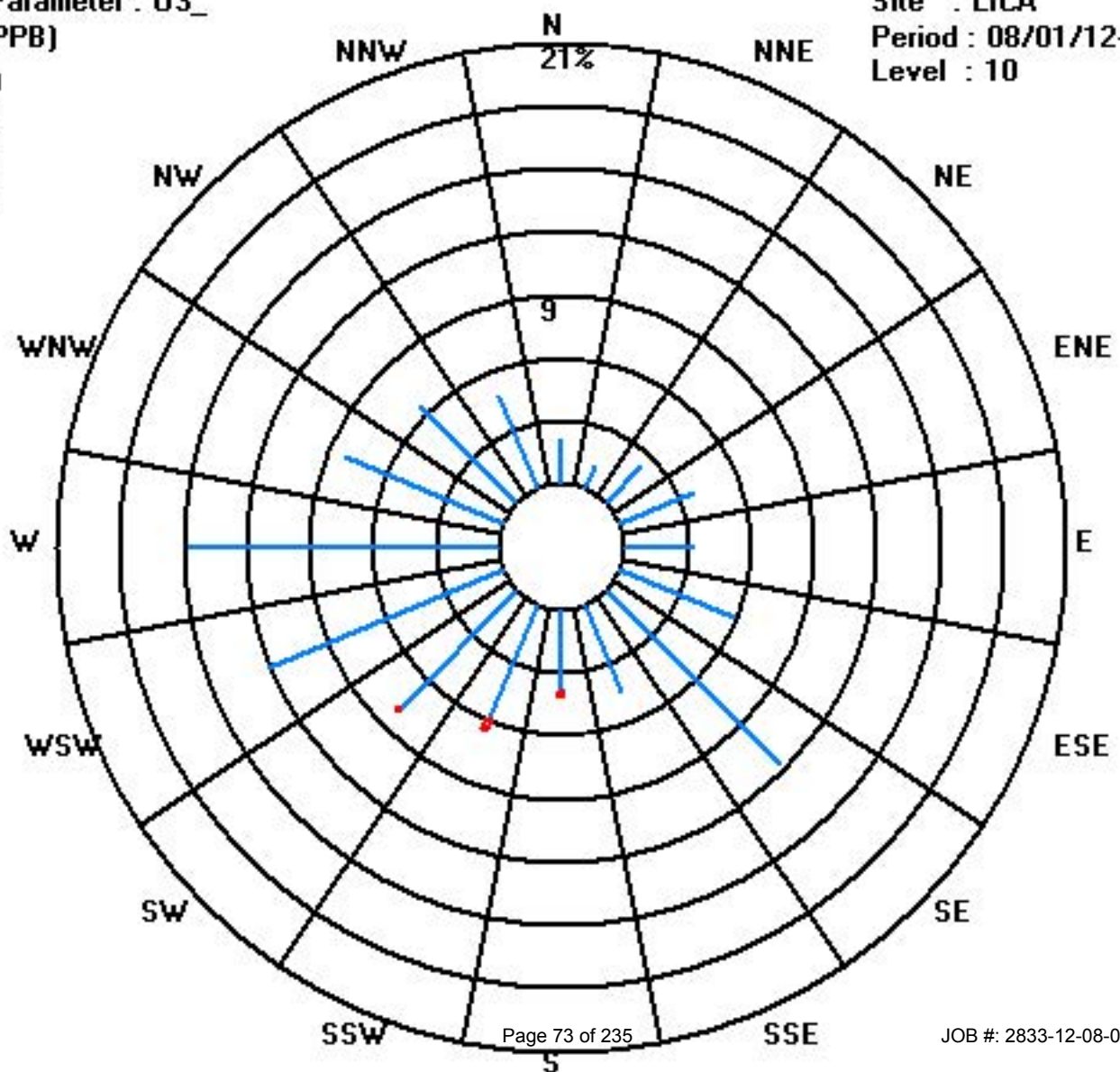
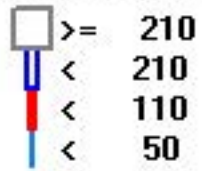
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	15	8	17	27	23	42	83	32	28	42	56	86	104	58	46	34	701
< 110									2	4	1						7
< 210																	
>= 210																	
Totals	15	8	17	27	23	42	83	32	30	46	57	86	104	58	46	34	

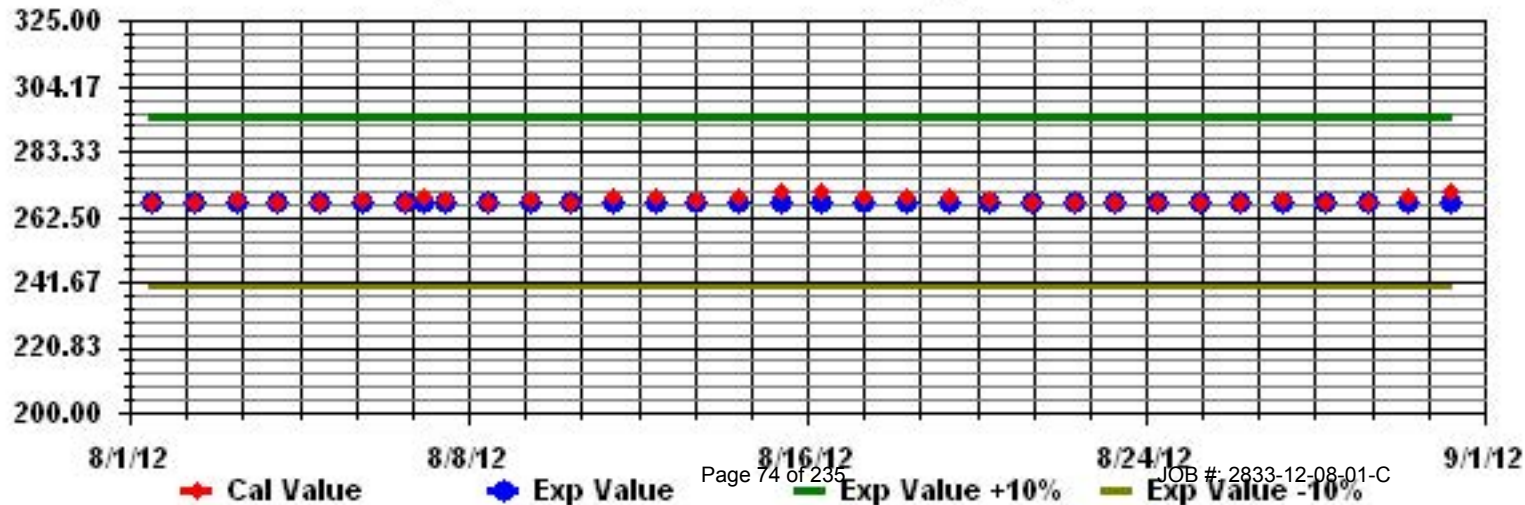
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



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



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

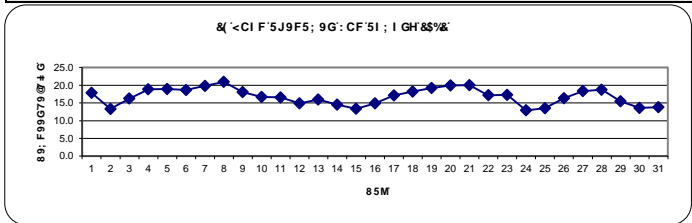
AUGUST 2012

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	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	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	13.1	12.7	11.5	11.5	10.5	11.3	13.9	16.5	19	20.5	22.2	23.1	23.9	24.2	24.5	24.4	24	23.8	22.7	20.3	15.5	13.9	13	12.6	24.5	17.9	24		
2	12.2	11.7	11	11.8	13	13.6	13.8	13.3	13.2	13.3	13.8	13.5	13.3	13.7	14	14.3	15.3	15	14	13.4	13.1	13.3	13.2	12.9	15.3	13.3	24		
3	12.9	12.8	12.7	12.5	12.6	12.8	13.5	14.7	16.1	16.7	18.4	19.1	20	20.1	20.1	19.9	19.3	19.7	19.2	17	15.8	15.5	14.8	14	20.1	16.3	24		
4	12.2	10.9	11	10.8	10.3	11.4	14.3	16.6	17.9	19.5	20.5	21.3	23.3	24.4	25.3	26.3	26.2	26.2	25.7	23.8	21.4	18.7	17.6	16.9	26.3	18.9	24		
5	16.7	16.1	15.3	15.4	13.6	13.3	16.2	18.4	19.9	20.7	21.7	22.6	23	23.9	24.4	24.7	24.5	24.1	23.5	21	16.3	14.1	12.8	11.9	24.7	18.9	24		
6	10.8	10.4	10.9	11.1	10.5	11.1	14.1	18.7	20.4	21.5	22.5	23	24	24.6	25.2	25.8	25.4	25.3	24	21.7	18.2	16.6	16.1	15.4	25.8	18.6	24		
7	16	15.9	15.6	14.2	12.9	12.8	15.8	18.2	21.2	22.9	23.8	25.3	24.7	25.4	26	23.8	22.8	23	23.6	22.5	19.6	18	16.6	15.7	26.0	19.8	24		
8	15.1	14.6	13.7	13.4	12.5	13.1	17.1	19.5	21.2	22.8	24.1	24.7	25.5	25.7	26.1	26.5	26.5	26.1	25.3	24.1	22.8	22.2	21.1	19.2	26.5	21.0	24		
9	16.7	16.6	16.3	15.4	14.7	14.3	15.3	17.1	18.2	19.5	20.1	19.3	19.1	21.2	22.8	23.7	24	23.4	22.2	19.7	16	13.6	12.7	11.7	24.0	18.1	24		
10	11.1	10.8	9.7	8.9	8.4	8.8	12.2	15.8	18.4	20	20.6	20.6	19.8	20.8	22.5	22.9	22.8	21	21.4	19.8	17.7	16.1	15.5	15.2	22.9	16.7	24		
11	15.3	15.2	14.9	14.7	14.6	14.7	15.1	17.1	18.7	19.5	20.2	20.6	20.4	20.2	20.5	20.1	20.1	19.5	17.2	14.1	11.2	9.9	9.9	20.6	16.6	24			
12	10.5	10.3	9.5	8.4	8.3	8.3	10.2	13.4	15.7	17	18.2	19	19.9	20.3	21.3	21.3	21.2	21.9	20.9	16.7	13.4	11.7	10.6	9.7	21.9	14.9	24		
13	9.1	8.5	7.5	7.1	8.1	9.4	11.4	14.2	16.5	19	20.7	22	22	22.2	22.1	21.7	20.8	19.1	18.2	17.5	17.6	16.8	16.2	15.7	22.2	16.0	24		
14	13.9	12.7	11.9	12.4	12.8	13.2	14.1	14.8	16.2	15.9	17	17.6	18.1	17.4	17	15.9	15.4	15.1	14.3	13.9	13.5	13	12.1	11.3	18.1	14.6	24		
15	11.3	11.4	11.1	10.8	10.5	10.3	10.7	12	13.1	13.6	14.5	15.2	16.3	17.3	18.2	18.6	18.6	18.8	18.1	14.7	11.3	9.3	8.2	7.4	18.8	13.4	24		
16	6.9	6.1	5.2	4.5	3.9	3.9	7.8	12.2	14.8	17.8	19.6	20.6	21.7	22.7	22.7	23.4	23.3	23.1	21.8	18.1	15	14.7	13.5	13.7	23.4	14.9	24		
17	13	11.7	11.6	12.2	11.7	10.3	12.3	15.1	16.4	18.6	20.9	21.6	23.1	24.4	24.9	21.1	23	24	22.8	19	16	14	12.8	11.8	24.9	17.2	24		
18	11	10.1	9.3	8.7	8.2	8.2	10.4	15.5	19.5	22.3	23.9	24.7	25.4	26.2	26.5	26.3	26.4	25.8	24.8	20.4	17.5	15.8	15.7	15	26.5	18.2	24		
19	14.7	12.6	11.3	10	9.4	9.3	13.4	16.5	19.3	22.2	24.5	25.7	26.8	27.1	27.7	27.8	27.6	26.8	24.5	20.9	18.3	16.5	14.9	13.9	27.8	19.2	24		
20	13.1	12	11.3	10.8	10.5	10.4	12.1	17.2	20.9	23.1	24.5	26.8	28.1	28.8	29.4	29.2	28.6	28.1	25.8	20.9	19.1	17.8	16.1	14.6	29.4	20.0	24		
21	13.7	13.1	12.6	11.9	11.5	11.4	15.4	17.7	18.9	20	22	24.2	25.6	25.2	26.1	28.6	28.7	28.5	26.8	22	20.6	20.2	18.5	17.1	28.7	20.0	24		
22	16.4	16.4	16.7	16.3	16.3	17.1	16.7	16.8	16.9	17.5	17.6	17.6	18.3	19.5	19.1	18.7	18.1	18.1	17.8	17	16.6	16.4	15.5	15	19.5	17.2	24		
23	13.7	13.5	12.6	12.3	12.2	12.6	12.9	13.4	15.5	17.6	19.8	21.4	22.8	23.7	23.9	24.2	23.6	22.1	19.9	18.5	18	15.6	12.6	12.6	24.2	17.3	24		
24	12.6	13.1	12.9	12.9	12.8	12.6	12.8	13.2	13.4	13.4	13.5	13.3	13.5	12.9	13.2	13	13.2	13.4	12.8	12.5	12.4	12.1	11.9	13.5	12.9	24			
25	12	12.1	11.9	11.4	11.1	10.9	10.8	11.3	12.1	12.7	13.4	14.4	15	15.5	15.6	15.7	14.7	16.1	15.7	14.9	14.7	14.5	14.4	14	16.1	13.5	24		
26	13.9	13.4	13.3	12.9	13.1	13.2	13.7	14.7	16.7	17	18.1	19.3	20.4	20.2	20.7	21.4	21.8	21.4	20	15.8	13.6	13.1	12.5	12.1	21.8	16.3	24		
27	11.9	12.2	12.4	12.2	12.1	11.5	12.7	14.2	16.1	18.7	21.2	23.3	24.1	24.9	25.7	26.1	26.3	25.4	23	20.5	18.9	17	15.5	14.6	26.3	18.4	24		
28	13.9	13.3	12.2	11.2	10.5	9.7	11.2	15.5	19.3	20.5	22	23.3	24.7	26	26.6	27	27.1	26.6	24.4	19.7	17.5	16.2	15.9	15.4	27.1	18.7	24		
29	14.3	13.7	14.3	14.1	13.7	13.2	15	17.2	16.4	15	15.7	15.4	15.9	15.4	17	19.1	19.4	19.3	18.4	15.9	13.8	13	13.2	12.7	19.4	15.5	24		
30	10.8	8.9	8.1	7.3	8	7.8	9	11.6	14	15.6	17.1	18.3	18.9	19.7	20.2	20.2	20.1	19.5	18.1	14.3	10.6	9.7	9.4	9.3	20.2	13.6	24		
31	7.1	5.8	4.7	4	3.7	3.1	5.1	10.8	13.7	15.2	16.4	17.9	18.8	19.7	20.6	21	21.2	20.2	19.1	17.8	16.8	16.6	16.6	16.2	21.2	13.8	24		
HOURLY MAX	16.7	16.6	16.7	16.3	16.3	17.1	17.1	19.5	21.2	23.1	24.5	26.8	28.1	28.8	29.4	29.2	28.7	28.5	26.8	24.1	22.8	22.2	21.1	19.2					
HOURLY AVG	12.8	12.2	11.7	11.3	11.0	11.1	12.9	15.2	17.0	18.3	19.6	20.5	21.2	21.7	22.2	22.4	22.3	22.0	20.9	18.4	16.3	15.1	14.2	13.5					

STATUS FLAG CODES

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

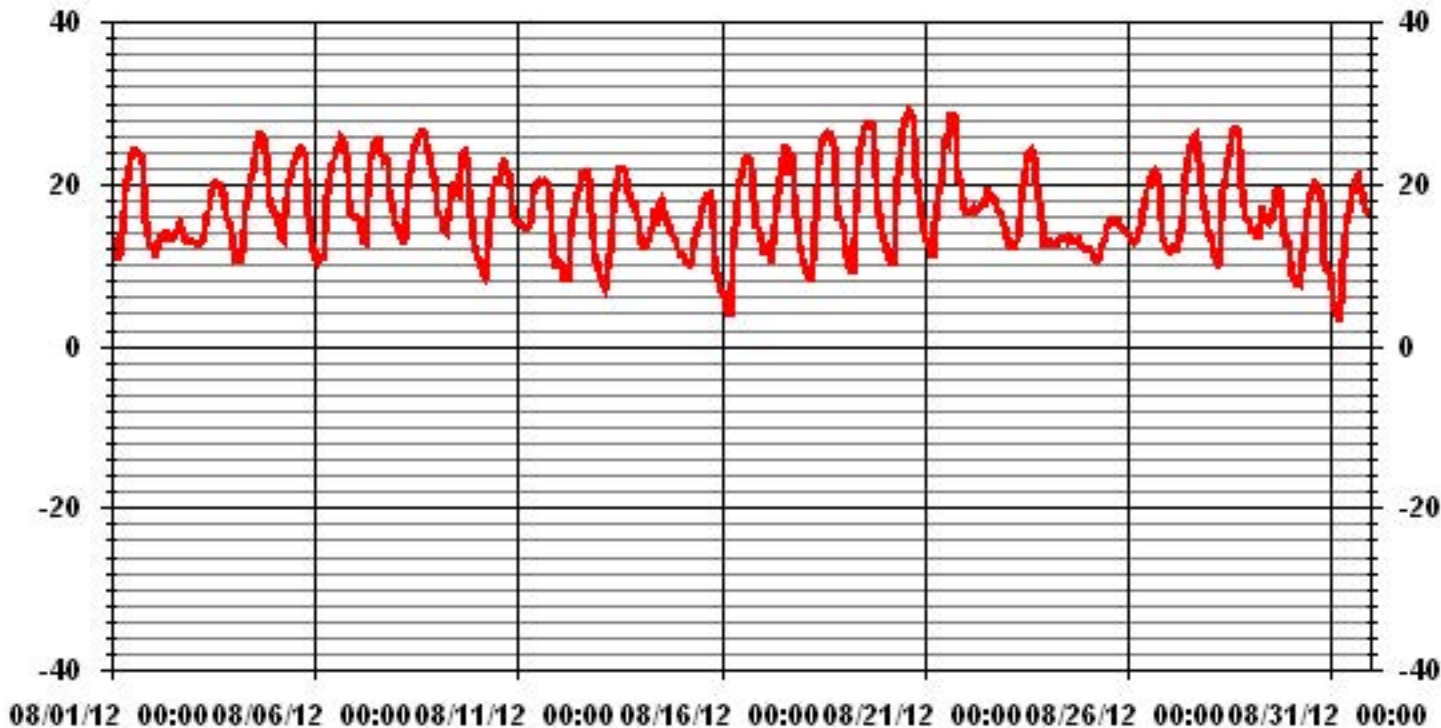


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	3.1 °C	@ HOUR(S)	5	ON DAY(S)	31
MAXIMUM 1-HR AVERAGE:	29.4 °C	@ HOUR(S)	14	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	21.0 °C			ON DAY(S)	8
				VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	5.18		MONTHLY AVERAGE:	16.83	°C

* Outside detection limits of sensor.

01 Hour Averages



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

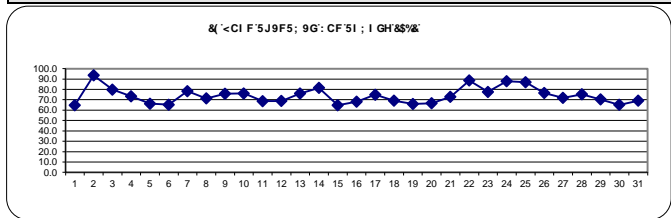
AUGUST 2012

RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	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	88	88	92	93	94	91	80	70	61	56	51	43	38	36	34	34	36	34	40	55	80	84	88	88	94	64.8	24	
2	90	91	93	92	90	89	89	93	95	95	94	94	95	96	93	92	89	92	96	98	98	98	97	95	98	93.5	24	
3	96	95	95	95	97	98	97	91	84	79	71	67	62	64	63	63	66	60	63	77	83	81	82	86	98	79.8	24	
4	92	94	95	95	95	94	86	78	73	66	65	64	59	56	56	56	51	48	52	59	69	83	88	88	95	73.4	24	
5	87	89	91	91	95	95	86	73	60	52	47	44	41	38	37	36	38	40	43	58	79	87	90	91	95	66.2	24	
6	93	94	95	94	95	94	84	69	59	48	45	43	36	33	32	33	37	39	46	61	80	85	85	87	95	65.3	24	
7	90	93	94	97	97	98	91	85	71	66	64	58	54	53	55	61	69	68	67	75	88	92	95	96	98	78.2	24	
8	96	96	96	94	96	95	79	66	58	55	55	54	54	54	52	54	52	54	57	61	67	74	72	82	86	96	71.4	24
9	95	96	96	97	98	98	94	88	80	73	69	71	68	59	51	47	42	41	47	58	77	88	91	93	98	75.7	24	
10	94	95	95	95	95	95	91	79	67	60	59	59	67	62	52	44	48	61	66	76	86	91	93	96	96	76.1	24	
11	94	97	98	98	99	97	96	92	75	54	44	41	39	38	41	38	40	41	44	54	69	84	88	87	99	68.7	24	
12	86	86	88	92	92	92	86	76	63	56	53	48	44	44	42	42	41	41	49	75	85	89	91	92	92	68.9	24	
13	93	93	93	94	94	92	84	73	67	62	54	49	51	53	57	62	70	80	83	84	79	84	87	88	94	76.1	24	
14	95	96	97	97	98	98	97	95	86	83	80	76	69	70	69	71	72	73	72	72	70	73	73	73	98	81.5	24	
15	73	72	73	75	77	78	75	67	58	55	52	51	48	45	44	46	46	46	50	69	82	88	90	93	93	64.7	24	
16	93	93	93	94	93	93	87	75	68	56	49	44	43	39	39	39	41	42	50	69	80	80	87	87	94	68.1	24	
17	89	93	93	94	94	96	91	80	76	69	62	63	54	47	46	54	48	49	58	74	87	92	94	94	96	74.9	24	
18	94	94	94	95	96	97	97	82	70	60	51	45	JULY	37	34	32	34	37	44	67	79	86	84	83	97	69.2	24	
19	80	86	89	91	93	91	80	73	66	59	47	41	40	39	36	36	37	40	49	66	78	85	90	92	93	66.0	24	
20	93	94	94	93	94	94	90	77	65	53	49	42	36	35	33	33	35	36	48	70	77	82	87	90	94	66.7	24	
21	93	92	92	94	93	92	82	78	74	72	63	56	55	59	58	47	43	43	50	73	81	80	86	90	94	72.8	24	
22	91	89	84	87	89	84	85	85	88	87	86	88	88	83	84	86	87	86	88	94	97	96	97	97	97	88.6	24	
23	97	98	98	99	99	100	100	99	92	79	67	59	52	45	44	47	56	73	72	71	83	94	93	100	77.6	24		
24	95	93	95	95	95	95	94	91	93	94	93	94	90	76	71	68	71	74	75	87	93	92	93	94	95	88.0	24	
25	95	92	92	92	93	94	94	93	91	89	86	81	79	77	78	79	88	80	79	84	85	87	88	91	95	87.0	24	
26	91	93	92	94	94	94	92	88	79	77	69	63	55	54	53	48	48	50	58	82	88	89	91	92	94	76.4	24	
27	93	92	90	91	90	92	86	81	76	68	58	49	48	47	44	45	44	49	62	73	77	85	90	94	94	71.8	24	
28	93	93	95	94	95	95	92	84	72	70	60	55	52	48	47	46	47	52	63	84	89	91	94	94	95	75.2	24	
29	96	96	92	86	85	83	74	62	68	80	72	75	75	69	61	53	48	46	49	57	65	67	65	66	96	70.4	24	
30	76	83	86	88	85	83	78	70	64	59	54	50	46	43	41	40	41	40	46	63	80	83	83	81	88	65.1	24	
31	89	91	93	94	93	94	90	76	69	60	58	55	52	51	50	50	50	56	61	65	67	66	65	65	94	69.2	24	
HOURLY MAX	97	98	98	99	99	100	100	99	95	95	94	94	94	95	96	93	92	89	92	96	98	98	98	97	97			
HOURLY AVG	91.0	91.8	92.4	92.9	93.3	92.9	88.0	80.3	73.2	67.5	62.2	58.8	56.3	53.2	51.6	50.9	51.9	53.5	59.1	71.5	80.4	84.8	87.4	88.5				

STATUS FLAG CODES

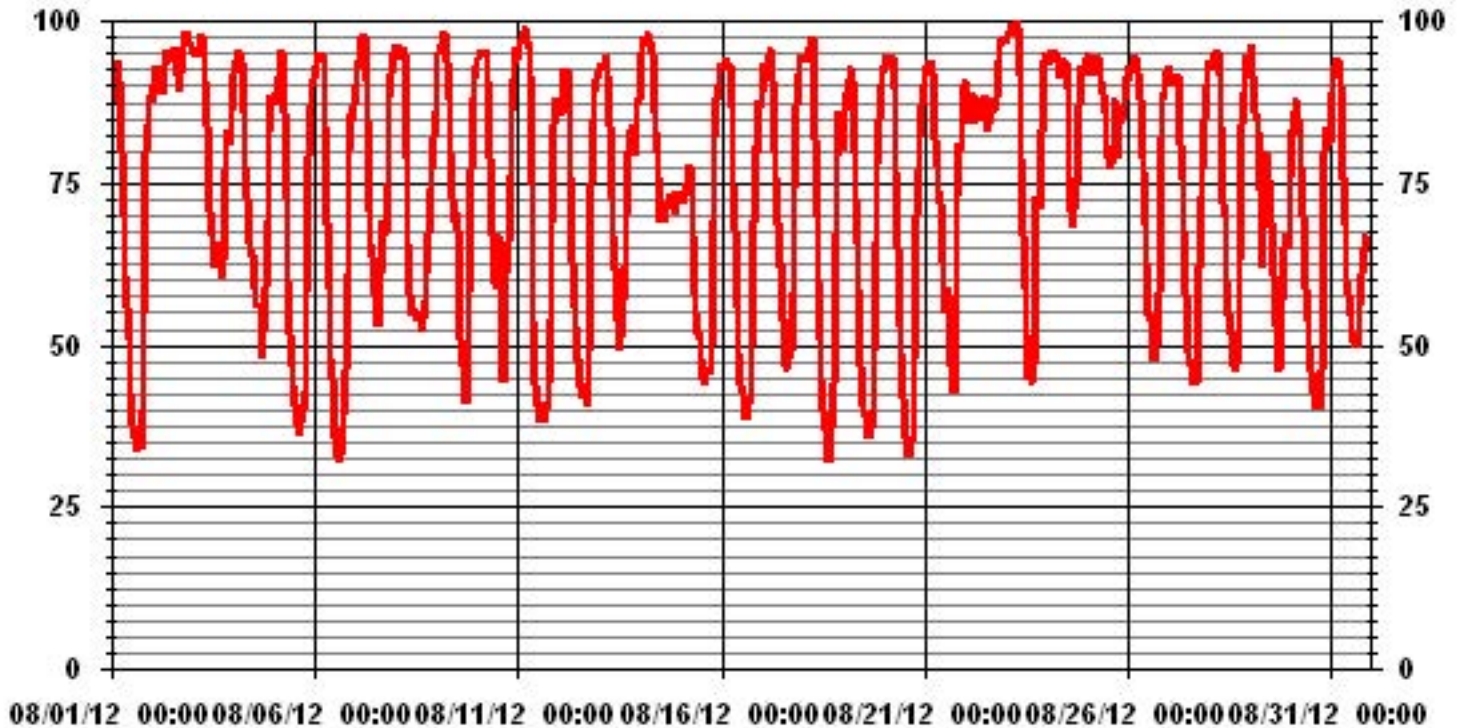
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	100 %	@ HOUR(S)	5, 6	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	93.5 %			ON DAY(S)	2
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:		744 HRS	
		AMD OPERATION UPTIME:		100.0 %	
STANDARD DEVIATION:	19.49	MONTHLY AVERAGE:		73.91 %	

01 Hour Averages



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J YWcf 'K]bX'GdYYX'

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	4	4.2	2.9	4.1	1.8	3.5	5.6	7.4	7.7	7.7	10.4	12.7	11.4	11	11.2	12	11.6	9.6	5.6	2.5	1.8	1.7	2.6	1.1	12.7	6.1	24
2	1.6	0.6	1.2	4.7	3.4	4	5.1	1.8	4.6	5.8	4.9	6.4	6.4	4.9	6.6	6.6	7.5	5.3	7.5	5.8	5.8	6.1	5.3	4.5	7.5	4.4	24
3	3	5	4.1	3.1	3.9	3.4	6.3	8	8.6	8.7	8.9	8.7	8.4	9	7.8	6.7	7.5	6.7	6.1	3.6	3.8	4.4	3	3.3	9	2.6	24
4	1.2	1.1	1.9	1.6	1.6	2.3	3.5	5.4	5.5	6.7	6.3	8.1	8.9	10.4	10	8.8	13.5	12.6	8.4	5.9	4	3	3.2	3.6	13.5	4.5	24
5	4.3	4.4	4.4	4.4	1.1	3	3.4	5	5.6	6.7	7.6	8.3	10.2	9.9	9.8	8.9	7.8	7.3	5.5	2.9	1.1	0.4	0.9	0.6	10.2	5.1	24
6	1.9	0.6	0.2	0.6	0.5	0.5	0.7	1	2.6	3.2	3.5	4.8	3.6	4.6	3.9	1.1	4.7	5.4	6.2	3.2	1	1.4	2.2	1	6.2	2.4	24
7	1.8	1.6	1.2	0.3	1.3	0.4	0.8	0.1	1.3	0.9	2.1	4	9.4	7.8	7.3	5.2	6	3.4	1.9	1.5	0.9	0.8	0.1	0.3	9.4	2.5	24
8	0.4	1	0.3	0.8	2.1	0.1	3.8	7.1	9.1	8.2	8.9	10.5	10.2	10.7	11.3	11.1	12.2	9.9	6.5	5.8	6.5	6.5	6.3	7.2	12.2	6.5	24
9	3.4	1.4	4.1	3.8	4.1	2.3	4.1	8.2	11.3	9.7	12.3	11	10.2	10.5	12.5	12.9	11.5	10.3	6.4	3.7	2.1	1.9	1.5	0.7	12.9	6.7	24
10	2.2	0.8	0.3	0.8	0.2	0.3	2	3.2	3.8	4.4	5.5	6.3	6.3	5	5.3	5.2	3.9	3.2	2.4	2.3	1.4	0.5	0.6	2	6.3	2.8	24
11	2.5	1.5	1.3	0.6	3.5	3.2	3.3	4.3	5.5	9.2	12.3	11.6	12.1	16.9	13.1	13.2	11.3	11.1	7.6	5	4.3	3.4	3	3.3	16.9	6.8	24
12	2.7	4.7	3.1	3.9	4.3	3.8	3.9	2.5	6.8	6.6	7	9.5	9	7	6.8	5.4	4.9	3.7	2.2	1.4	1.7	2.1	0.4	0.8	9.5	4.3	24
13	0.3	0.4	0.4	0.5	1.3	2.3	6.6	9.5	10.1	9.6	10.1	10.9	10.7	10.7	10.4	5.2	2.6	4.9	6.2	2.1	3.7	6.3	6	3.5	10.9	5.6	24
14	0.4	0.5	1.2	1.7	1.5	3	3.6	3.2	7.4	8.2	8.1	11.2	11.9	13.2	16	13.4	11.8	10.9	13.5	13.6	10.7	9.4	8.5	9.1	16.0	8.0	24
15	11.7	11.3	10.3	8.8	8.9	8.6	8.3	10	9.3	9.9	8.5	7.9	8.1	7.2	7.7	6.7	6.1	5.2	4.3	2.5	1.4	1	1	1.2	11.7	6.9	24
16	0.2	0.1	0.7	0.8	0.4	0.4	1	2.8	5.8	6.4	6.6	8.5	6.6	5.8	6.3	5.9	7.4	6.1	4.3	2.4	0.8	0.6	1.3	1.8	8.5	3.5	24
17	1.3	0.9	0.4	3.6	2.2	1	0.9	3.6	3.9	4.7	3.6	1.2	3.2	4.6	3.5	5.4	2.8	2.9	2.6	1.8	0.6	1	0.6	0.3	5.4	2.4	24
18	0.6	0.5	1.2	0.3	0.6	0.3	0.6	0.9	1.4	1.3	2.8	3.8	3.6	3.3	3.4	4.7	3.7	3.8	2.4	3.3	3.7	3.8	5.2	3.1	5.2	2.4	24
19	1.5	2	0.4	0.7	0.4	0.4	3.6	6.5	4.3	4.1	5.1	6.5	6.4	7	5.5	5.2	4.8	3.9	2.6	2.8	1	0.4	0.3	0.7	7.0	3.2	24
20	0.8	0.4	0.9	0.6	0.8	0.6	1.1	1	1.8	2.8	3	2.5	1.9	3.1	2.8	3	4.3	3.4	2.1	1	1.5	0.3	0.5	0.4	4.3	1.7	24
21	0.2	0.6	0.8	0.8	0.7	0.4	0.2	2	0.5	2.5	2.5	1.5	4.9	5.3	5.2	1.2	4.9	3.5	1.9	1.1	2.6	2.9	1.2	0.9	5.3	2.0	24
22	1	2.2	1.9	1.6	4.7	2.4	1.2	3.8	4.8	4.3	3.4	2.4	3.8	4.6	5.3	7.4	5.9	4	2.7	2.5	3.1	3.3	3.6	2.1	7.4	3.4	24
23	2.4	4	2.7	4.3	4.2	3.7	5.4	6.5	4.5	3.9	4.8	4.5	5.6	4.8	3.1	4.1	2.8	3.6	1.7	4.2	5.7	15.6	13.4	3.8	15.6	5.0	24
24	2.9	4.4	5.1	5.7	6.1	4.1	4.1	4.3	5.2	5.5	4	7	8.3	14	12.1	10.8	7.6	9.9	8.4	5.1	4.6	7.4	7.7	5.8	14.0	6.7	24
25	7.3	8.2	8.5	7.8	6.3	6.5	8	8.4	8.9	10	9.4	12.2	11.9	11.7	11.8	11	7.9	8.4	7.9	8.8	8.6	7.3	5	4.5	12.2	8.6	24
26	5.2	4.8	4.8	4.9	3.6	3	3.2	3.7	2.7	3.1	1.5	1.7	4.9	4	4.4	4.1	3.3	3.8	3.7	1.9	3.3	4.4	3.8	3.5	5.2	3.6	24
27	4.4	6.4	6.9	5.5	4.4	4.6	6.7	8.5	8.5	11.2	12.7	12.4	11.8	13.2	12.3	8.9	7	6.1	5.4	4.9	5.4	1.4	1	0.3	13.2	7.1	24
28	0.6	1	0.5	0.5	1.2	1.7	0.3	0.7	1.3	3.5	3.4	2	0.9	2.9	3.1	4.4	3.9	2.7	1.6	1.6	0.6	1	2	1.4	4.4	1.8	24
29	1.1	2.5	1.2	3.1	2.9	4.8	11.4	12	10.2	7.5	8	9.1	11.9	14.1	12.9	13	12.5	12.2	9	7.5	5.1	7.7	9.6	8.3	14.1	8.2	24
30	4.1	3.2	2.8	3.3	4.9	5.8	5.1	8.1	8.7	10.9	10.9	10.2	10.9	11.6	11.3	12.3	10.7	9.8	6.4	3.8	3	1.5	0.8	2.6	12.3	6.8	24
31	0.9	0.6	0.8	0.5	0.7	0.6	1.4	0.6	5.9	7	8.2	7.5	8.9	9.4	9.7	9.1	9.2	6.9	4.8	6.6	7.5	7.8	9.1	9.6	9.7	5.6	24
HOURLY MAX	11.7	11.3	10.3	8.8	8.9	8.6	11.4	12.0	11.3	11.2	12.7	12.7	12.1	16.9	16.0	13.4	13.5	12.6	13.5	13.6	10.7	15.6	13.4	9.6			
HOURLY AVG	2.4	2.6	2.5	2.7	2.7	2.6	3.7	4.8	5.7	6.3	6.7	7.3	7.8	8.3	8.1	7.5	7.1	6.5	5.1	3.9	3.5	3.7	3.5	2.9			

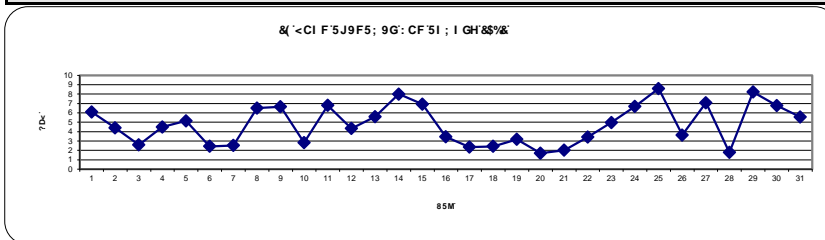
STATUS FLAG CODES

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

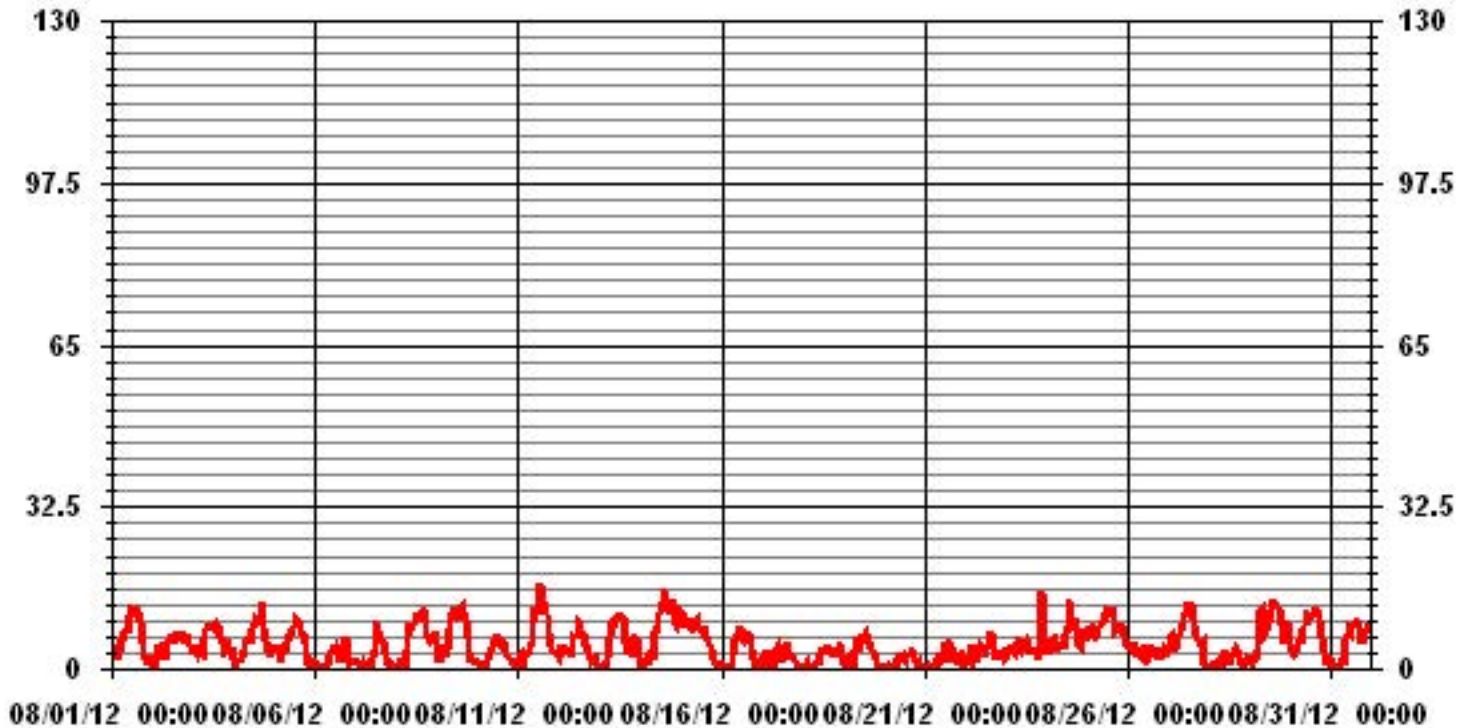
LAST CALIBRATION: December 16, 2010

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	16.9	KPH	@ HOUR(S)	13	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	8.6	KPH			ON DAY(S)	25
CALMS (≤ 0 KPH)	2.96	%	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.59		MONTHLY AVERAGE:	4.92	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	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		6.5	5.8	5	6.6	4.9	6.4	10	12.4	12.9	12	17.1	18	17.9	16.3	17.6	19.4	18	16.5	12.3	5	3	3.1	4.1	3.8	19.4
2		3.9	3.6	5.4	8.7	7	7.1	9.9	5.2	7	9	8.6	10.3	10.3	8.2	10.8	11	10.4	8.5	12	8.6	8.1	8.7	9.3	8.2	12
3		6.6	8.2	7.6	4.6	5.6	5	10	12.4	12.5	13.8	14.2	14.5	14.7	14	13	11.6	12.3	11.6	9.3	5.9	8.9	6.3	6.2	6.6	14.7
4		5.1	3.6	3.3	4.1	3.4	4.7	8.2	8.8	11.6	14.8	13.5	19.1	17.2	16.8	18.9	19.4	20.7	17.9	13	8.7	8.1	4.4	5	5	20.7
5		6.1	6.9	6.9	8.2	3.3	4.4	6.3	9.3	9.6	13.9	12.7	14.7	16.5	16	18.6	15.3	15	12.1	9.9	5.2	4.7	2.1	4	2.3	18.6
6		4.5	3.2	2.1	2.1	3.6	2.4	3.2	3.9	7.7	7.9	7.9	9.5	8.6	9.3	9	8	10.8	8.2	9.1	5.2	2.7	3.9	6.1	6.5	10.8
7		5.2	7.3	5.8	4.5	3.5	3.7	3.8	3	5.5	4.6	6.6	14.4	14.3	12.3	12	10	12.4	5.5	5.4	4.3	3.6	4.2	2.6	4.7	14.4
8		3.4	3.3	2.1	2.1	3.4	2.2	7.6	11.3	16.4	13.5	14.2	18.8	14.2	18.9	17.6	20.6	18.4	17.5	10.2	9.5	10.5	10.7	10.4	21.5	21.5
9		8.5	9.7	9.6	7.8	9.1	4.6	8	15.8	19.7	15.8	19.4	18.6	17	17.9	24.6	20.2	20.1	17.3	10.9	6.4	4.6	3.3	4.6	2.6	24.6
10		3.5	3.6	3.8	3.3	3.5	2.5	4.7	6	7.4	10	9.3	10.5	11	10.3	11.1	8	8	5.1	4.2	4.7	4	2.9	4.1	10	11.1
11		16	4.1	4.1	4.5	5.9	5.9	5.6	6.9	10.5	13	21.8	18	22.2	24.6	20.2	24.3	19.3	18.2	13.7	9.3	5.4	4.5	4.5	4.4	24.6
12		4.4	7.7	5.5	5.5	5.9	5.9	6.4	6.4	13.5	12.8	13.3	16.2	17.3	13.6	13.8	11.3	10.9	8.7	6.4	2.5	4.1	3.2	1.8	2.7	17.3
13		2.1	1.7	2	3.3	3.7	6	9.9	13.1	14.6	15.2	18.9	18	15.2	17.6	15.7	9.5	6.5	8.4	13.1	14.1	8	9.7	8.3	9.6	18.9
14		2.2	2.7	4.2	4.4	4	5.7	6.3	6.5	16.3	11.8	14.3	19.3	21.8	20	23.1	18.9	17.7	18.7	25.8	21	16	14.1	12.8	16.2	25.8
15		18.3	18	15.6	12.2	12.7	12.8	17.1	14.4	15.6	17.1	15.7	13.2	15.3	14.6	15	12.1	10.7	9	7.3	4.9	3.6	2.8	3	3.1	18.3
16		1.8	1.8	1.6	2	2	2	2.8	6.5	11.2	10.8	11.5	15.6	13.8	10.9	13.4	12.1	12.7	11.7	9.9	4.2	2.9	8.7	5.4	5.3	15.6
17		3.5	2.8	2	8.7	6.8	2.7	3	7.9	7.6	9.2	8.1	4.6	9	9.9	9.9	18.4	9.2	5.6	6.9	5.4	3.2	4.4	3.2	2.1	18.4
18		1.5	3.1	3.6	2	2	2.1	2.6	2.6	4.4	5.6	6.9	10.5	11.6	11.5	10.7	9.4	10.6	8.3	5.4	5.7	4.7	5.8	8.1	5.9	11.6
19		3.6	4.2	2.6	1.8	1.6	2.3	7.2	10.1	9	10	14.1	12	13.8	15.1	12.9	10.7	9.6	9.1	7.7	3.9	2.2	2	2.6	2.3	15.1
20		1.9	2	1.9	3.1	2.7	2.4	5.7	3.6	5.1	5	6.5	7.2	13	10.5	8.9	11.1	9.4	6.5	4.8	2.7	2.5	1.7	2	1.9	13
21		2.1	1.3	1.9	2.6	2.1	3.3	3.1	5.1	5.2	5.5	7	6.6	9.4	8.8	8.4	8.3	11.1	7.7	4.5	3.2	5.1	4.8	3.5	3.2	11.1
22		3.6	6.8	5.1	6.7	11.9	11.5	8.6	11.9	17.5	9.3	7.9	4.9	6.5	6.6	8.6	12.6	11.6	7.8	4.8	4.8	5.7	6.7	5.7	5	17.5
23		5.1	7.6	4.2	6.6	7	6.5	8.4	10.7	8.7	9.6	10.5	10	12.2	11.1	10.2	8.4	7.5	8.1	5.2	7.7	12.4	24.1	23.9	12.3	24.1
24		11.4	10.2	7.1	9	9	7.5	6.1	7.1	8.5	9.7	10.4	10.8	21.1	18.5	21.4	16.7	11.2	14.2	14.2	7.6	7.2	13	14.3	10.2	21.4
25		13.1	12.3	14.9	12.5	9.6	9.9	12.4	14.7	15.1	14.3	12.6	19.2	22.3	20.7	17.5	17.1	13.3	14.5	12.3	12.5	15.4	13.8	8.1	7.1	22.3
26		7.5	6.8	7.4	7.1	5.7	5.6	5.9	5.9	5.7	7.6	7.7	7	10.7	9.8	9.1	9.3	9.8	7	5.8	3.2	4.5	5.9	6.2	5	10.7
27		6.6	7.8	8.6	7.3	5.9	8.2	9.5	11.8	13.8	18.2	20.3	20.1	20.1	21.2	19.5	17.6	12.5	11.8	6.6	7.2	7.1	3.2	3.2	2.2	21.2
28		2	3.8	2.9	1.7	2.9	3.8	3.8	4.9	5.6	8.4	8.6	8.4	7	9.9	8.9	8.5	7.3	7.5	4.4	2.6	3.4	3.2	6.2	5	9.9
29		4.2	10.8	7.2	9.2	6.9	11.7	19.3	19.6	20.5	16.2	13.6	20.1	17.3	20.5	22.7	20.5	22.9	20.2	15.9	11.4	7.1	11.6	12.5	10.7	22.9
30		8.5	5.3	5.9	5.1	7.2	9.1	8.6	11.5	14.9	18	16.4	17.3	17.7	17	17.7	19.9	18	14.8	9.8	4.7	4.1	4.5	4.7	4.8	19.9
31		2.3	3.8	3.1	2.7	3.5	3.2	3.9	4.1	11.4	11.3	12.7	13.5	14.6	15.5	14.3	19.7	16	11.4	8.6	11.6	10.6	11.4	12.4	14.1	19.7
PEAK		18.3	18.0	15.6	12.5	12.7	12.8	19.3	19.6	20.5	18.2	21.8	20.1	22.3	24.6	24.6	24.3	22.9	20.2	25.8	21.0	16.0	24.1	23.9	21.5	

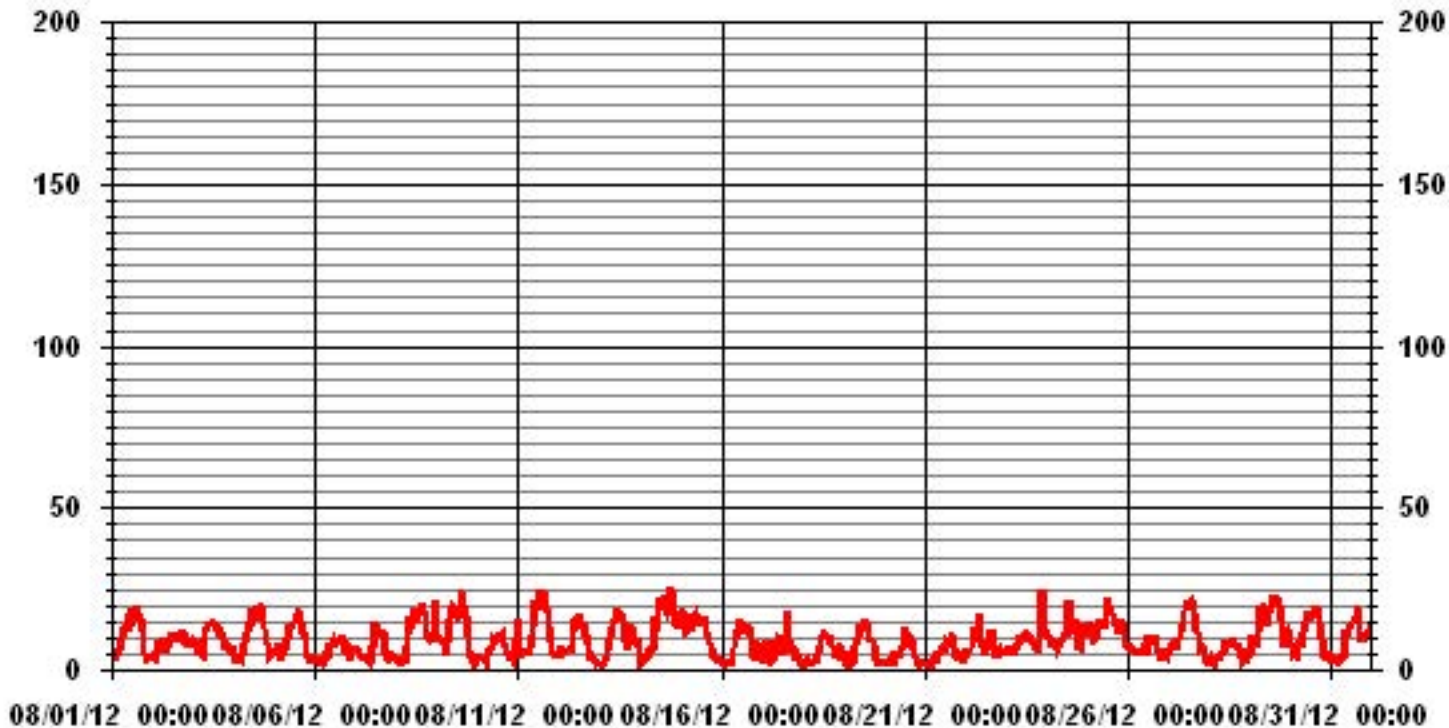
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	25.8	KPH	@ HOUR(S)	18
			ON DAY(S)	14

01 Hour Averages



— LICA WSMAX KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

August 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	1.20	.80	2.15	3.36	1.88	2.82	6.98	3.89	3.89	5.91	6.45	9.40	5.64	3.22	2.68	2.82	63.17
< 12.0	.67	.67	.26	.40	1.20	2.41	3.76	.26	.26	.40	1.47	1.88	6.45	4.56	3.22	1.34	29.30
< 20.0	.13	.00	.00	.00	.00	.00	.67	.00	.00	.00	.00	.40	2.01	.40	.40	.53	4.56
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.01	1.47	2.41	3.76	3.09	5.24	11.42	4.16	4.16	6.31	7.93	11.69	14.11	8.19	6.31	4.70	

Calm : 2.95 %

Total # Operational Hours : 744

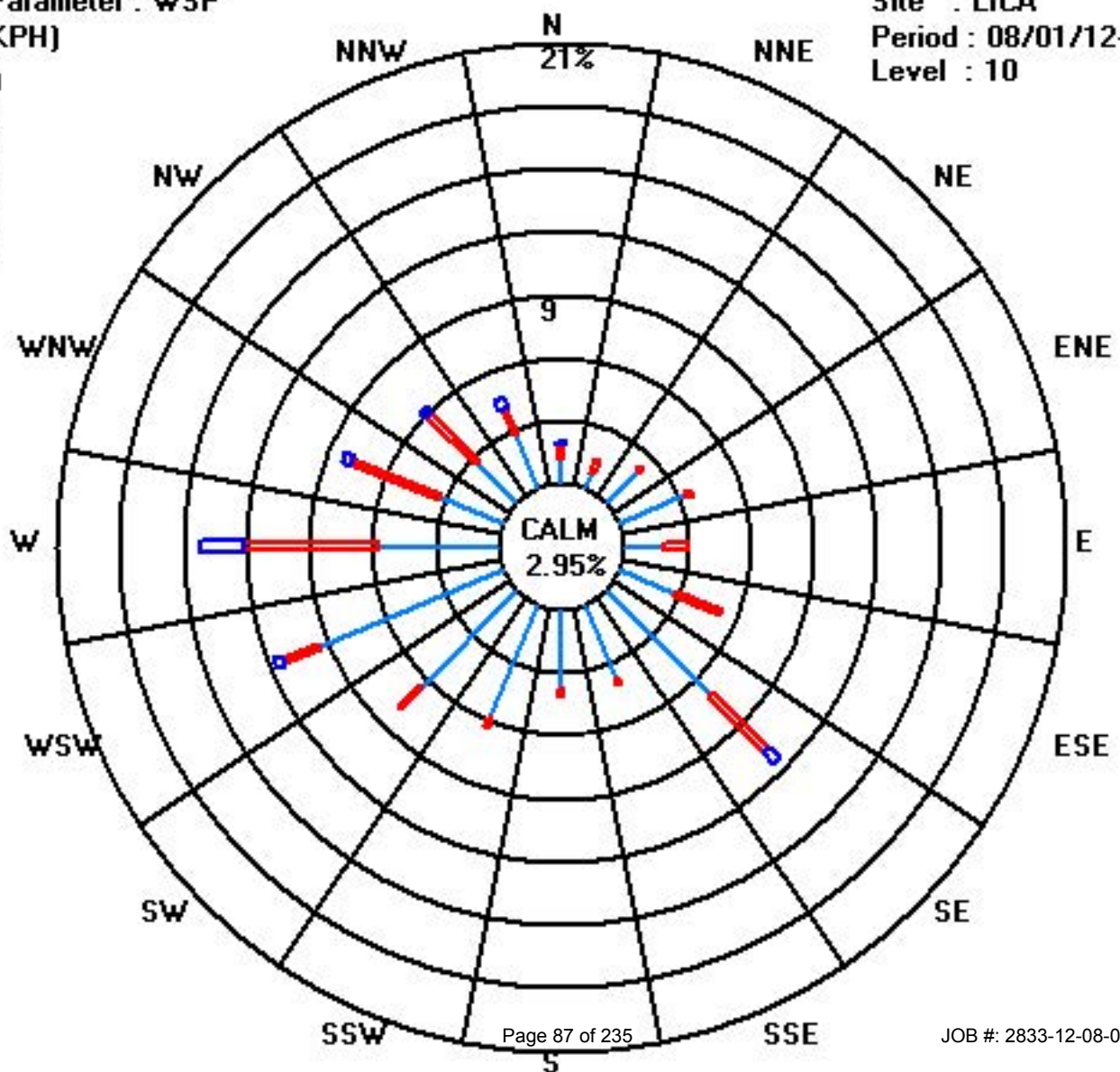
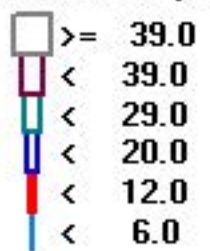
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	9	6	16	25	14	21	52	29	29	44	48	70	42	24	20	21	470
< 12.0	5	5	2	3	9	18	28	2	2	3	11	14	48	34	24	10	218
< 20.0	1						5					3	15	3	3	4	34
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	15	11	18	28	23	39	85	31	31	47	59	87	105	61	47	35	

Calm : 2.95 %

Total # Operational Hours : 744

Class Limits (KPH)



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J YWcf 'K]bX'8]f YW]cb '

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	234	243	238	239	231	238	246	257	262	258	275	276	286	273	278	275	271	281	286	252	204	218	235	211	265	W	24
2	240	138	217	250	239	247	272	305	269	272	273	273	268	281	290	297	315	315	312	309	307	309	319	316	288	WNW	24
3	302	307	304	295	299	277	320	339	359	4	16	18	23	31	59	69	105	121	137	147	135	135	138	132	28	NNE	24
4	166	151	137	143	130	144	169	161	175	189	187	199	207	219	221	228	258	266	267	262	266	234	253	247	222	SW	24
5	243	237	242	242	203	240	262	263	294	307	284	279	271	263	275	280	278	267	263	241	201	139	172	105	268	W	24
6	236	184	300	178	250	195	268	18	101	67	101	49	30	69	78	63	134	131	135	140	130	113	141	211	105	ESE	24
7	203	249	57	184	191	72	171	23	167	99	61	52	47	57	49	23	32	36	65	138	43	156	202	106	53	NE	24
8	194	72	143	71	232	287	102	132	121	120	100	122	117	124	129	117	129	125	111	104	101	107	108	221	121	ESE	24
9	206	205	120	155	234	164	197	237	261	265	273	265	262	261	255	262	263	258	251	243	210	231	242	193	251	WSW	24
10	232	241	168	209	102	167	235	260	270	235	253	221	229	271	273	271	244	201	199	155	231	238	154	221	241	WSW	24
11	203	242	340	164	233	244	265	262	291	303	302	292	273	270	270	276	292	277	279	275	249	234	235	238	275	W	24
12	247	245	244	238	244	246	243	277	335	329	315	313	308	294	286	288	295	284	272	154	137	121	98	169	287	WNW	24
13	314	59	230	159	115	133	135	129	131	131	135	139	137	136	136	134	46	64	106	80	69	124	134	133	127	SE	24
14	99	177	252	261	288	268	244	270	311	338	352	8	7	347	347	345	338	333	351	346	336	327	320	325	338	NNW	24
15	320	316	317	311	308	312	318	329	337	318	309	291	297	290	281	265	264	259	246	207	197	220	248	244	303	WNW	24
16	267	291	110	132	120	158	228	211	228	230	232	236	230	251	242	237	240	232	210	190	201	350	227	201	230	SW	24
17	197	232	215	233	245	185	248	241	227	225	229	275	187	219	198	50	103	287	335	77	172	211	193	189	223	SW	24
18	137	202	220	206	183	206	238	265	106	144	173	170	176	159	192	158	181	164	165	136	130	133	129	137	159	SSE	24
19	148	142	275	356	65	54	123	133	158	156	180	201	163	151	182	202	190	185	180	140	130	59	248	201	166	SSE	24
20	123	203	105	177	245	180	252	222	282	297	275	318	218	205	193	177	164	155	154	154	130	103	98	133	199	SSW	24
21	353	130	103	104	112	107	167	197	356	186	141	76	37	42	32	211	206	201	170	85	50	66	78	41	95	E	24
22	50	131	29	200	305	330	326	70	341	318	339	36	341	336	344	315	304	308	327	317	263	270	253	251	321	NW	24
23	218	241	226	238	247	233	250	257	286	304	310	276	287	293	347	347	9	70	339	333	312	263	284	328	283	W	24
24	345	21	309	314	309	336	334	328	301	268	273	277	289	304	304	308	288	288	300	297	277	302	296	283	301	WNW	24
25	267	287	280	277	278	277	267	281	291	293	296	299	303	297	303	303	304	296	292	296	292	298	287	283	291	WNW	24
26	269	275	271	269	251	251	249	249	253	242	359	59	55	37	137	119	156	159	143	140	127	128	129	133	197	SSW	24
27	129	129	130	130	129	128	128	130	130	135	136	137	140	137	139	142	145	136	132	130	133	116	101	343	134	SE	24
28	81	96	93	61	122	239	320	244	281	349	44	4	353	219	223	210	205	204	155	146	132	79	229	87	203	SSW	24
29	231	284	287	337	286	253	292	311	296	274	287	265	253	256	268	266	269	262	250	247	250	258	253	270	W	24	
30	234	226	227	218	226	233	239	256	261	269	270	265	278	273	268	267	277	271	265	248	245	359	338	346	263	W	24
31	205	236	225	187	241	193	261	162	77	98	87	95	92	92	107	110	102	79	67	86	104	103	109	103	99	E	24
HOURLY AVG	353	316	340	356	309	336	334	339	359	349	359	318	353	347	347	347	338	333	351	346	336	359	338	346			

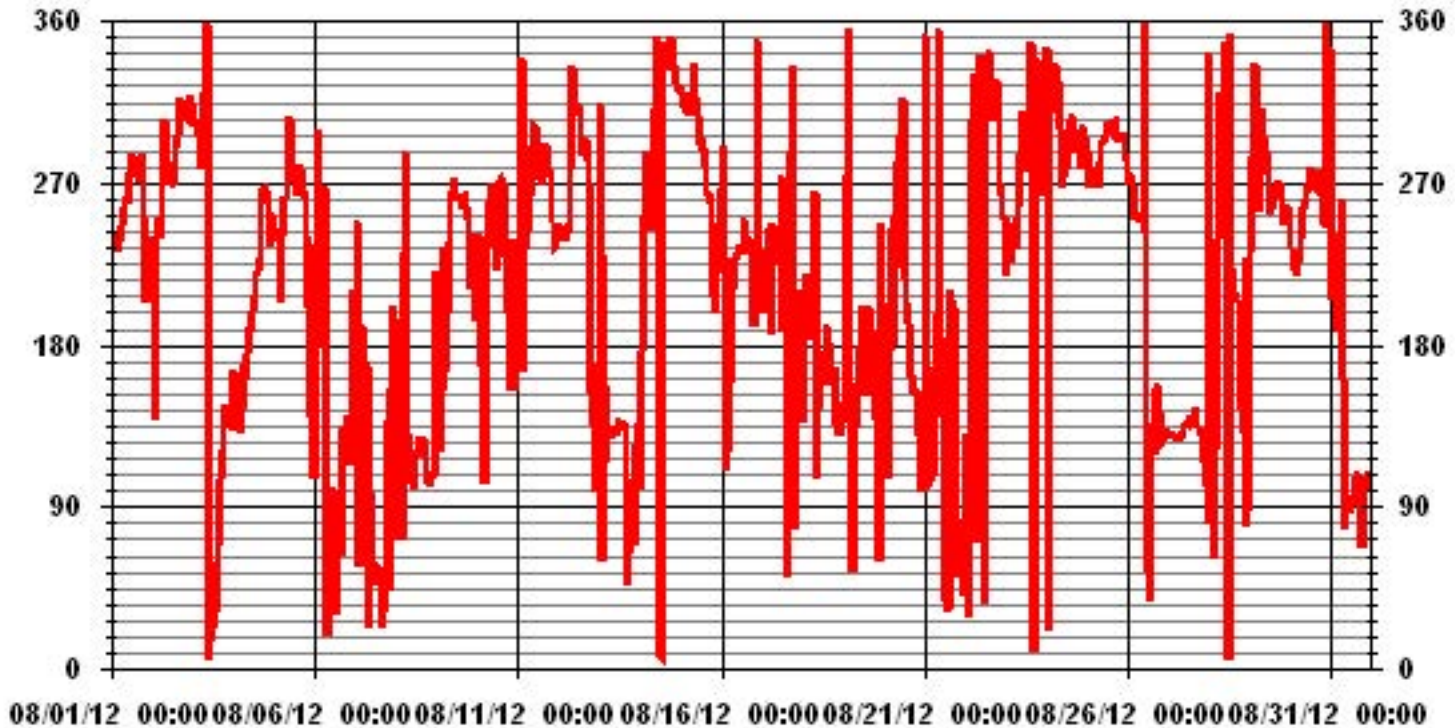
STATUS FLAG CODES

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:	84.66		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	265	DEG

01 Hour Averages



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LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	19	12	15	16	46	20	19	19	25	27	24	23	24	24	25	25	24	22	20	20	15	23	17	50
2	49	47	40	21	21	22	21	38	20	20	24	22	21	24	21	20	16	16	16	14	13	15	17	15
3	17	12	20	17	15	15	16	18	20	20	25	28	27	26	27	29	29	25	15	16	16	13	17	28
4	40	51	37	38	27	26	35	38	41	40	41	38	35	28	28	28	20	20	20	18	17	11	14	13
5	13	17	16	16	31	16	19	23	27	29	28	27	24	25	26	25	25	21	17	14	45	73	39	37
6	40	52	67	63	59	64	77	51	48	47	41	40	51	43	46	60	30	19	10	20	41	46	37	54
7	45	52	61	67	38	59	69	59	45	59	54	55	22	25	26	25	23	24	53	34	59	55	69	75
8	62	39	45	35	15	65	25	19	21	25	26	23	24	22	19	24	18	20	22	25	23	23	24	35
9	31	45	28	24	24	36	34	26	22	23	24	23	22	24	22	22	22	19	17	18	16	20	45	50
10	18	66	39	41	47	70	29	27	30	28	26	27	26	35	28	22	26	24	32	31	50	50	75	44
11	58	44	53	56	20	23	21	24	21	19	18	22	25	22	24	22	22	22	22	16	10	9	15	13
12	25	14	20	14	13	14	23	38	25	31	30	31	26	34	36	39	30	29	18	21	12	13	68	51
13	67	50	32	45	50	51	11	13	17	18	23	23	16	16	15	22	32	23	22	36	24	19	13	27
14	46	47	46	50	45	24	20	25	20	18	23	22	24	20	19	20	19	18	19	18	18	16	16	16
15	17	16	15	14	15	15	15	17	22	25	26	26	34	32	29	34	32	28	23	25	45	50	48	45
16	66	70	28	40	62	32	34	37	28	29	29	26	38	37	32	38	26	28	23	24	39	56	52	37
17	44	55	54	27	32	32	51	23	25	28	38	69	44	40	52	38	33	34	24	35	56	39	44	36
18	39	61	45	48	40	57	32	52	58	71	50	36	48	55	46	40	43	35	25	19	8	10	10	32
19	48	34	77	49	72	52	25	14	36	46	42	41	35	35	43	38	37	33	27	14	38	58	58	19
20	44	59	30	59	43	34	52	41	40	37	37	56	63	55	52	54	36	27	30	33	19	66	47	49
21	46	57	41	45	57	42	61	47	66	42	50	60	41	28	29	57	34	33	28	40	30	24	42	62
22	57	28	39	62	29	37	53	55	53	39	32	27	20	21	19	17	19	18	22	23	18	19	14	29
23	30	16	21	19	17	22	20	19	29	39	39	39	42	48	44	40	32	34	48	21	21	20	20	49
24	45	25	17	18	15	19	20	20	17	20	28	21	22	18	17	14	19	19	16	17	21	18	19	22
25	20	20	21	21	21	20	20	21	21	19	19	19	19	22	20	21	17	17	18	17	19	19	20	18
26	19	20	20	19	20	16	23	22	43	40	60	66	36	41	36	44	48	30	13	18	10	9	15	17
27	12	10	10	12	12	14	13	14	16	16	20	22	23	21	23	27	24	14	9	11	9	37	42	58
28	53	33	49	46	40	40	76	57	57	42	35	58	56	52	47	36	33	32	22	28	62	58	41	38
29	40	39	53	41	36	22	19	20	20	26	23	21	21	20	23	23	23	21	18	15	16	15	16	16
30	19	24	33	23	23	21	21	20	22	24	23	27	26	26	24	23	22	22	18	11	14	51	54	46
31	33	44	65	45	32	48	47	67	28	27	25	31	26	28	26	28	25	20	20	21	24	24	24	24

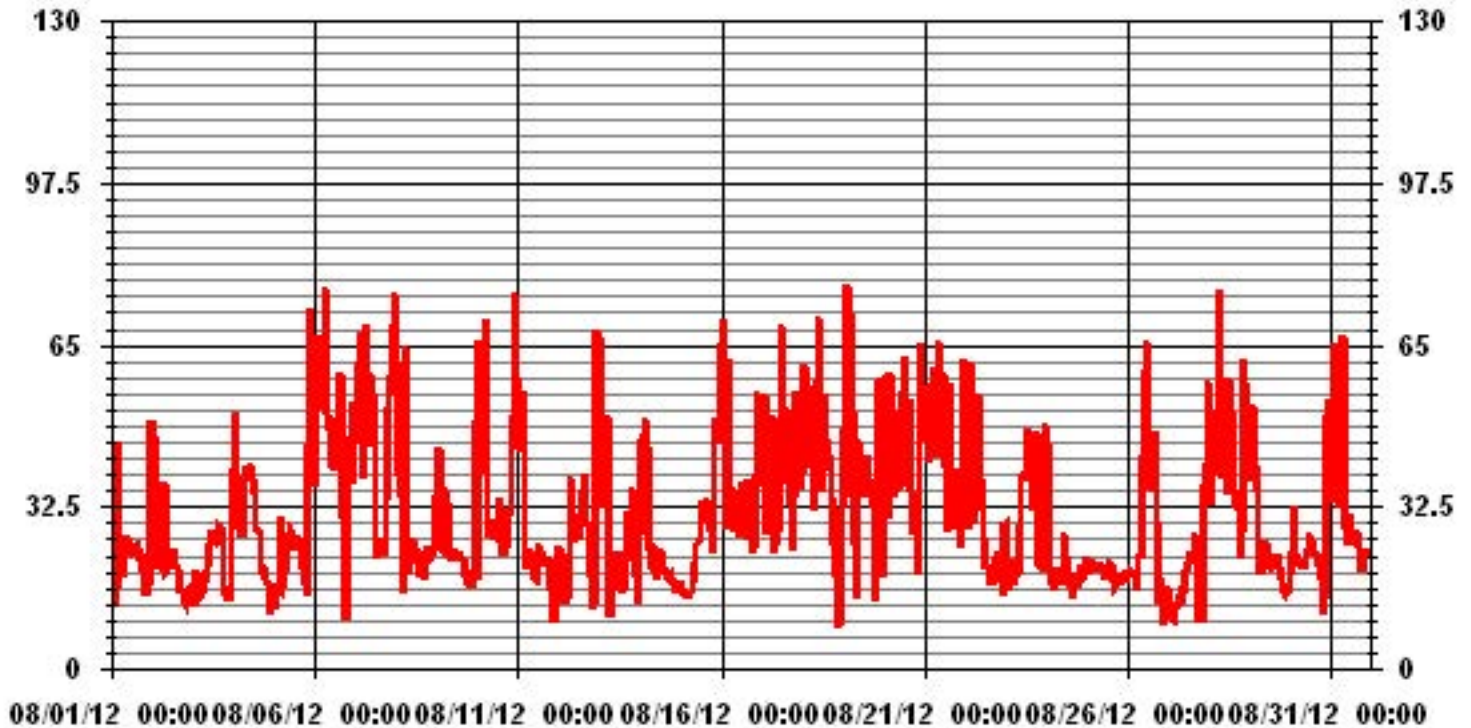
STATUS FLAG CODES

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

LAST CALIBRATION: December 16, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



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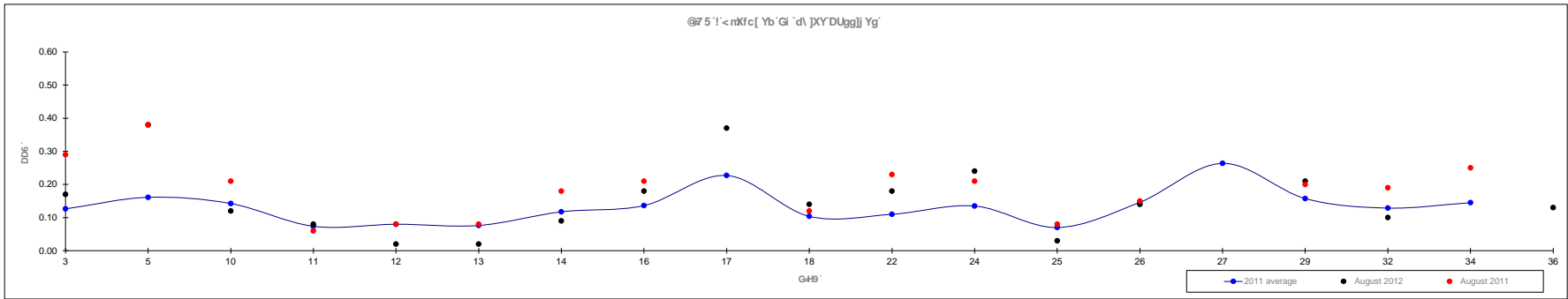
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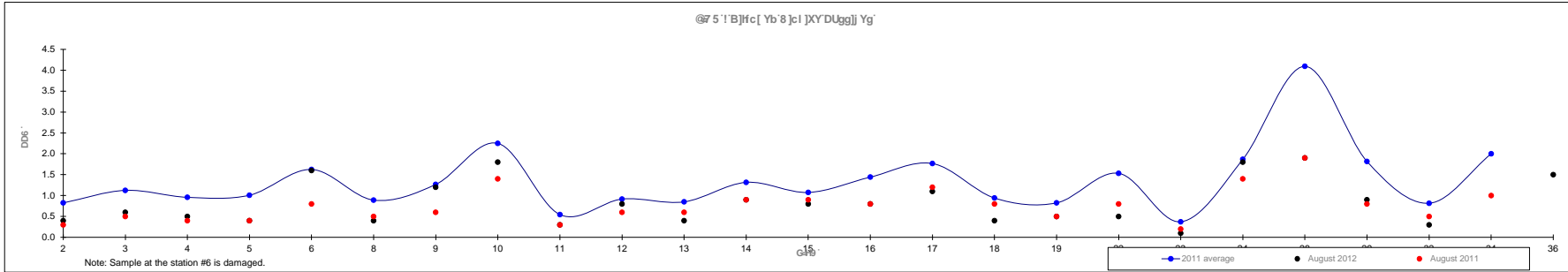
Duggj YGi a a UfmiFYgi `hg`Zf'5i [i gh&\$%&
 @J_YUbX`bXi glfni' 7 ca a i b]mi5 ggcVUjcb

	<nKrcj Yb Gi 'd] jXY ddV																	Si [i gh&\$%&		
AYUb	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	FYUj[b[	0.19
A Yb i a	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	GjW	-
A U i a	0.29	0.38	0.21	0.13	0.17	0.80	0.21	0.21	0.67	0.18	0.23	0.21	0.18	0.25	1.12	0.25	0.22	0.29	<-0.02	#12, #13
																			0.74	#27



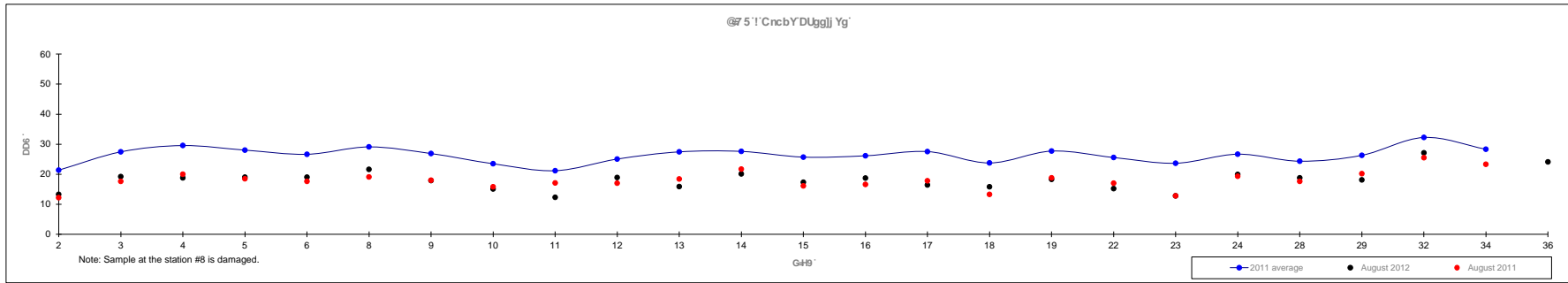
Duggj YGi a a UfmFYgi `rg'Z:f'5i [i gh&\$%&
 @J_YUbX'~bXi gfmv' 7 ca a i b]m5 ggcVUjcb

	B]fc[Yb'8]cl]XY ddV																				5i [i gh&\$%& G]Y				
AYUb	&	'	(	)	*	,	-	%	%	%	%	%	%	%	%	%	%	%	%	%	F YU]b[-			
Albb i a	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	
AU la i a	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	
																					0.6	-	0.1	#23	
																								1.9	#28



DUggj YGi a a UfmFYgi `rgZcf'5i [i gh&\$%&
 @_YUbX'`bXi gffni' `7ca i b]m5ggcV[Ujcb

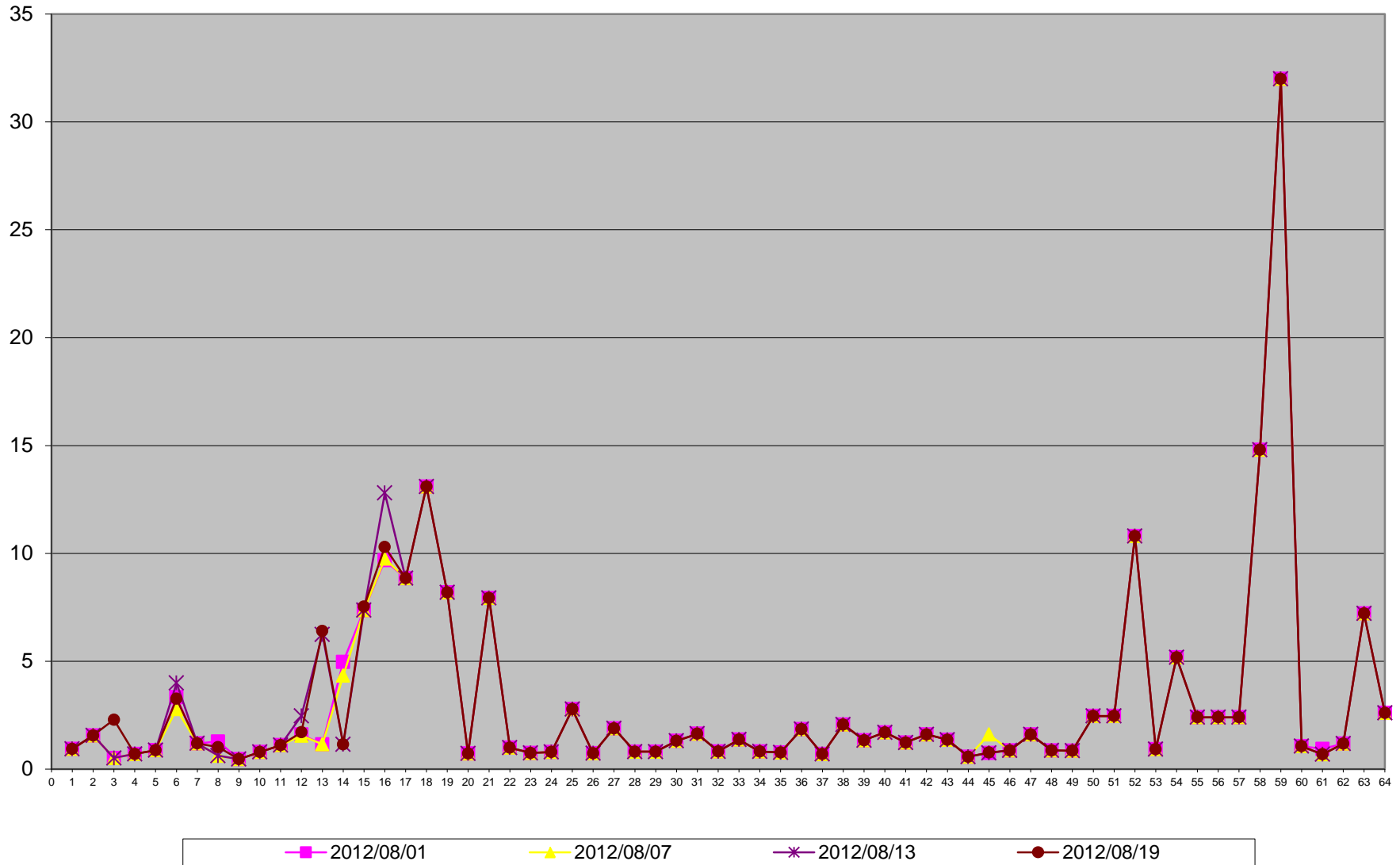
	CncbY ddV																				5i [i gh&\$%& FYUjcb]					
AYUb	21.4	27.5	29.6	28.0	26.6	29.1	26.9	23.5	21.2	25.1	27.5	27.6	25.7	26.1	27.5	23.8	27.7	25.6	23.7	26.7	24.3	26.3	32.2	28.3	18.1	-
Ajbjai a	11.9	17.6	20.0	18.5	16.8	19.1	18.0	13.9	11.5	14.0	18.4	19.1	16.1	16.6	17.8	13.3	18.6	15.1	12.8	17.1	15.8	17.3	25.0	17.6	12.3	#11
AUjja i a	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	27.1	#32



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Jc`Uh`Y`Cf[Ub]Wg`

Jc`Uf`Y Cf[Ub]Wg`"]b i [# 'G]h. @7 5 !'7 c`X`@U_YGci h `



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)

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Dc`mWmWjW5 fca UhjW< mXfc WUf Vc bg`

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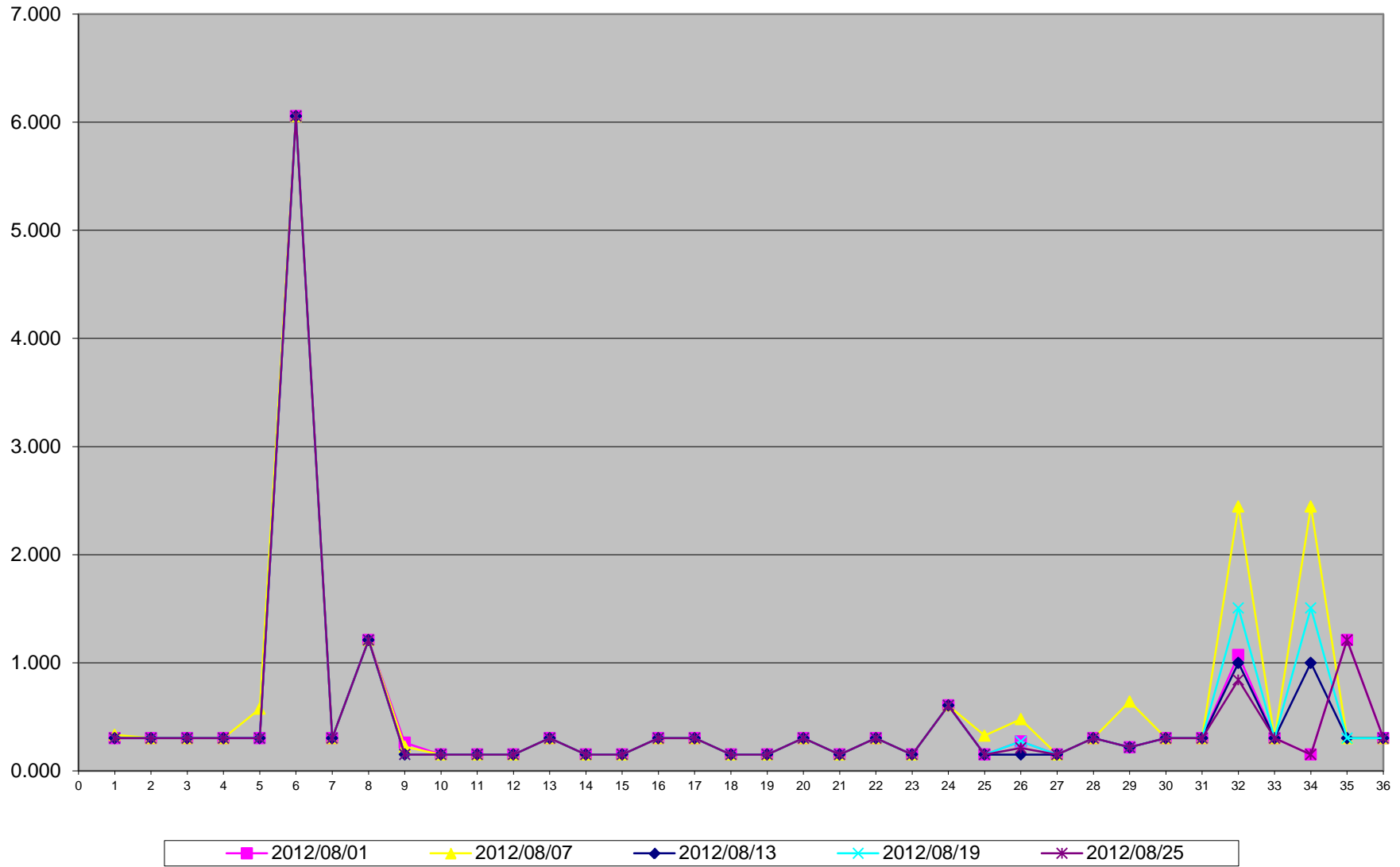
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Dc`nWwW]W5 fca UhjW<nXfcWUfVcbg`fD5<gkLFYgi`hg`Zcf`5i [i gh&\$%&
 @7 5!`7 c`X`@J_Y`Gci H`G]hY
 I b]h`b[#a`

PAHs	2012/08/01	2012/08/07	2012/08/13	2012/08/19	2012/08/25	2012/08/31
Sample Volume (unit: m3)	330.33	330.33	330.34	330.33	330.33	330.32
1 1-Methylnaphthalene	0.303	0.333	0.303	0.303	0.303	NA
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303	NA
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303	NA
4 2-Methylantracene	0.303	0.303	0.303	0.303	0.303	NA
5 2-Methylnaphthalene	0.303	0.575	0.303	0.303	0.303	NA
6 3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054	NA
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303	NA
8 9,10-Dimethylanthracene	1.211	1.211	1.211	1.211	1.211	NA
9 Acenaphthene	0.260	0.224	0.151	0.151	0.151	NA
10 Acenaphthylene	0.151	0.151	0.151	0.151	0.151	NA
11 Anthracene	0.151	0.151	0.151	0.151	0.151	NA
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151	NA
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303	NA
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151	NA
15 Benzo(b)fluoranthene	0.151	0.151	0.151	0.151	0.151	NA
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303	NA
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303	NA
18 Benzo(g,h,l)perylene	0.151	0.151	0.151	0.151	0.151	NA
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151	NA
20 Biphenyl	0.303	0.303	0.303	0.303	0.303	NA
21 Chrysene	0.151	0.151	0.151	0.151	0.151	NA
22 Coronene	0.303	0.303	0.303	0.303	0.303	NA
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151	NA
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605	NA
25 Fluoranthene	0.151	0.327	0.151	0.151	0.151	NA
26 Fluorene	0.272	0.478	0.151	0.272	0.212	NA
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151	NA
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303	NA
29 Naphthalene	0.218	0.642	0.218	0.218	0.218	NA
30 o-Terphenyl	0.303	0.303	0.303	0.303	0.303	NA
31 Perylene	0.303	0.303	0.303	0.303	0.303	NA
32 Phenanthrene	1.072	2.446	0.999	1.508	0.842	NA
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303	NA
34 Pyrene	0.151	2.446	0.999	1.508	0.151	NA
35 Quinoline	1.211	0.303	0.303	0.303	1.211	NA
36 Tetralin	0.303	0.303	0.303	0.303	0.303	NA

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.
 - Sample result for August 31st is not included in this monthly report because it is not available when the monthly report was preparing. The result for August 31st will be included in the following monthly report.

D5 <g''b'b[# 'G]h. @7 5 !'7 c`X`@J_YGci h`



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

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7 U]VfUh]cb`F Ydcfhg`

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Gi`d\ i f'8]cI]XY`

GC&7 UJVfUjcb F Ydcfh
GUjcb-bZfa Ujcb

Calibration Date	August 7, 2012	Previous Calibration	July 5, 2012
Company	@J YUbX7 ca a i b]mUbX-bXi gfm5 ggcVUjcb		
Plant / Location	@7 5 %I 7 c X @J Y Gci h		
Start Time (MST)	11:48	End Time (MST)	15:50
Reason:	Monthly Calibration		
Barometric Pressure	28.14 inHg	Station Temperature	21 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

9ei Jda Ybh-bZfa Ujcb

Analyzer Make / Model:	Thermo 43i	S/N :	806528242	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	EnviroNics 6100	S/N :	4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N :	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

5bUmYf GYHbj g

Before Calibration			After Calibration		
Concentration Range	0 - 500 ppb				
Sample Flow / Box Temp	450 ccm	30.8 Deg C	450 ccm	30.9 Deg C	
HPVS / Lamp Setting	-632	730	-632	730	
PMT / RxCell Temp	OK Deg C	45.2 Deg C	OK Deg C	44.9 Deg C	
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0 Deg C	
Offset / Slope	5.9	1.01	6	1.031	

7 UJVfUjcb 8 UHJ

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	N/A
	No Zero Adj			
4954	40.2	399	389	1.0263
4954	40.2	399	400	0.9981
4972	22.6	224	226	0.9931
4982	12.6	125	127	0.9853
4994	0	0	0	N/A
Sum of Least Squares				0.9961
New Correction Factor				0.9981

NG7 UJVfUjcb 8 UHJ

Before Calibration		After Calibration	
Auto Zero	0.2	Auto Zero	0.2
Auto Span	362.0	Auto Span	370.0
Sample Lines Connected		Sample Lines Connected	YES

DYfWbh7 Ubj Y

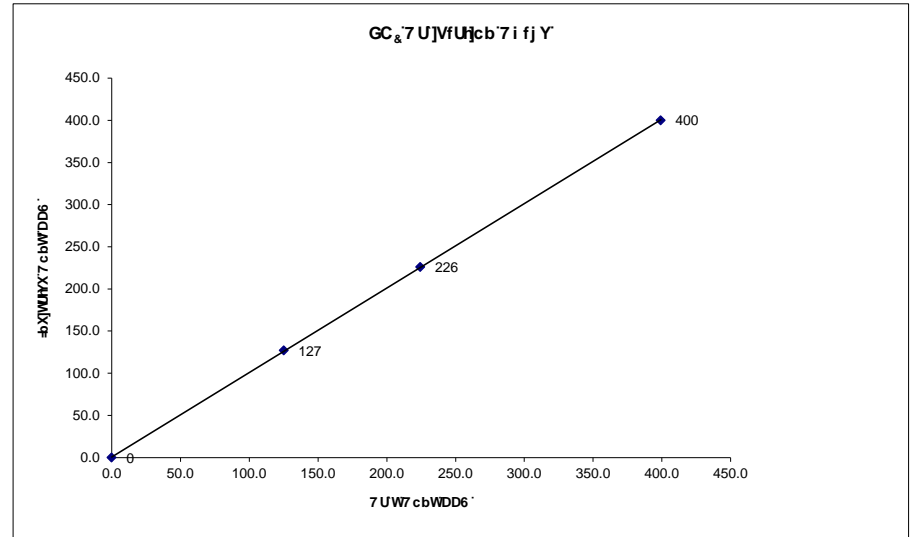
Previous Month's Calibration Correction Factor:	0.9987
Current Correction Factor Before Span Adjust:	1.0263
Percent Change:	-2.7%

Notes: **B5 . BchUdd JWVY**

GC&7 UJVfUjcb 7 i fj Y

Calibration Date	August 7, 2012
Company	@J YUbX7 ca a i b]mUbX-bXi gfm5 ggcVUjcb
Plant / Location	@7 5 %I 7 c X @J Y Gci h
Start Time (MST)	11:48
End Time (MST)	15:50

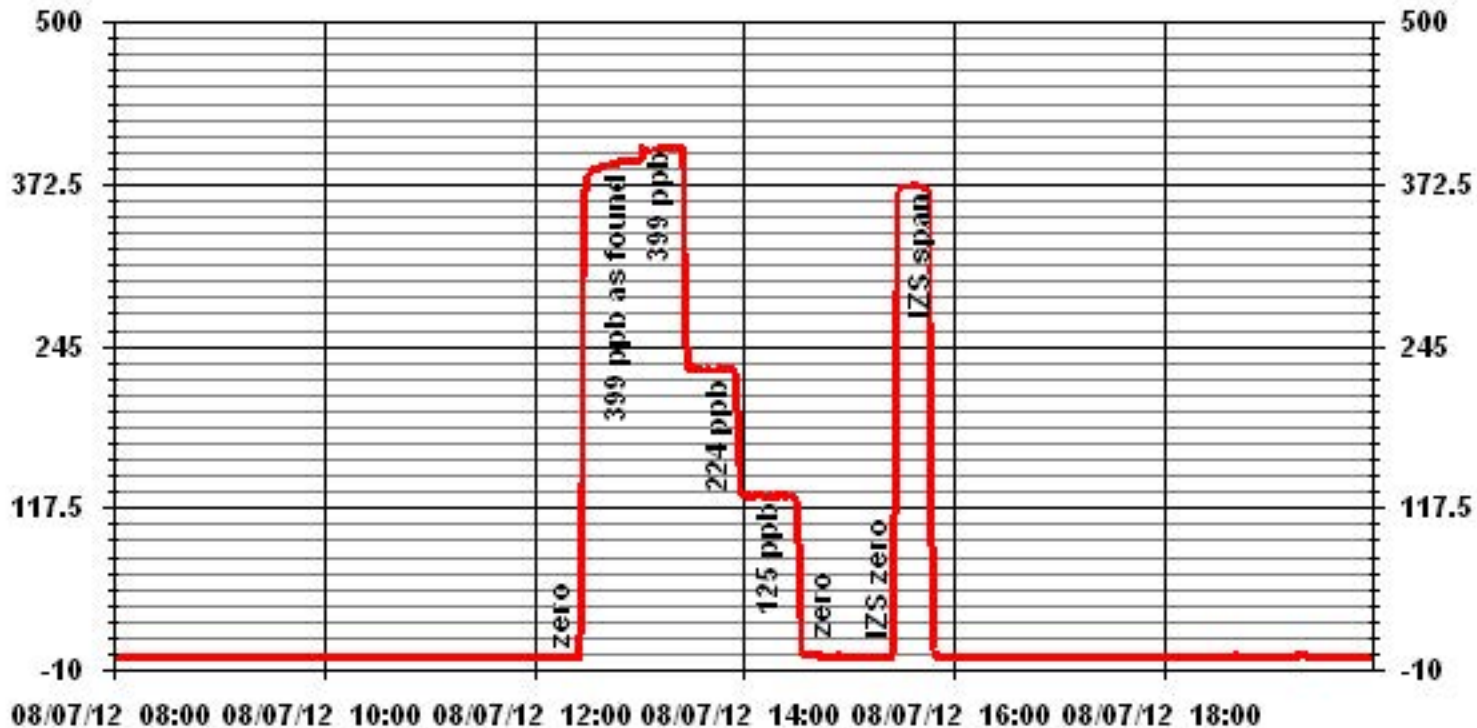
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept (± 3% F.S.)	(≥ 0.995) 0.999976
0	0	n/a		1.001193
125	127	0.9853		0.824557
224	226	0.9931		
399	400	0.9981		



BcHfg.

Calibration Performed by: Ting Xu

01 Minute Averages



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Hc hU`F YXi WYX`Gi `d\ i f`

HFG7UJVFUJcbF Ydcfh
GUJcb-bZfa UJcb

Calibration Date	August 7, 2012	Previous Calibration	July 30, 2012
Company	@J YUbX-bXi gfrnY 7 ca a i b]mi5 ggcVUJcb		
Plant / Location	@7 5 %! 7 c X @J Y Gci H		
Start Time (MST)	11:48	End Time (MST)	15:50
Reason:	Monthly Calibration		
Barometric Pressure	28.14 inHg	Station Temperature	22 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

9ei jda Ybhi-bZfa UJcb

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		

5bUmYf GYfthj g

Before Calibration		After Calibration	
Concentration Range	0 - 100		
Sample Flow / Box Temp	342 ccm 33.3 Deg C	341 ccm 33.4 Deg C	
HVPS / Lamp Setting	-623.5 746	-623.5 744	
PMT / RxCell Temp	OK 45 Deg C	OK 45 Deg C	
Converter / IZS Temp	810 45 Deg C	810 45.0 Deg C	
Offset / Slope	13.3 1.272	13.5 1.291	

7UJVFUJcb8 UH

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	-1	N/A
4960	No Zero Adj. 40.0	80	80	1.0000
4976	No Span Adj. 20.0	40	41	0.9764
4987	11.5	23	23	1.0000
4996	0.0	0	0	N/A
Sum of Least Squares				0.9955
New Correction Factor				1.0000

NG7UJVFUJcb8 UH

Before Calibration		After Calibration	
Auto Zero	-0.4		-0.3
Auto Span	46.1		51.9
Sample Lines Connected			YES

DYfWbh7\ Ubl Y

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

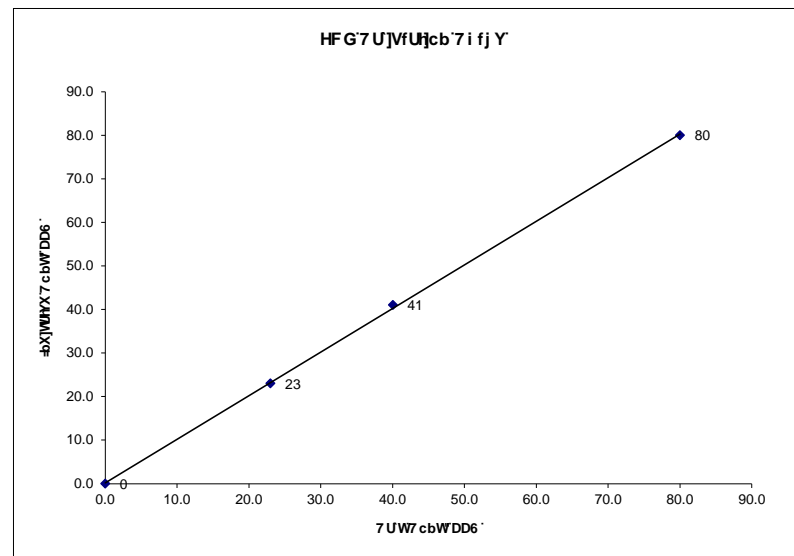
Notes: **B# . BchUdd'jWVY**

Calibration Performed by: Ting Xu

HFG7UJVFUJcb7i fj Y

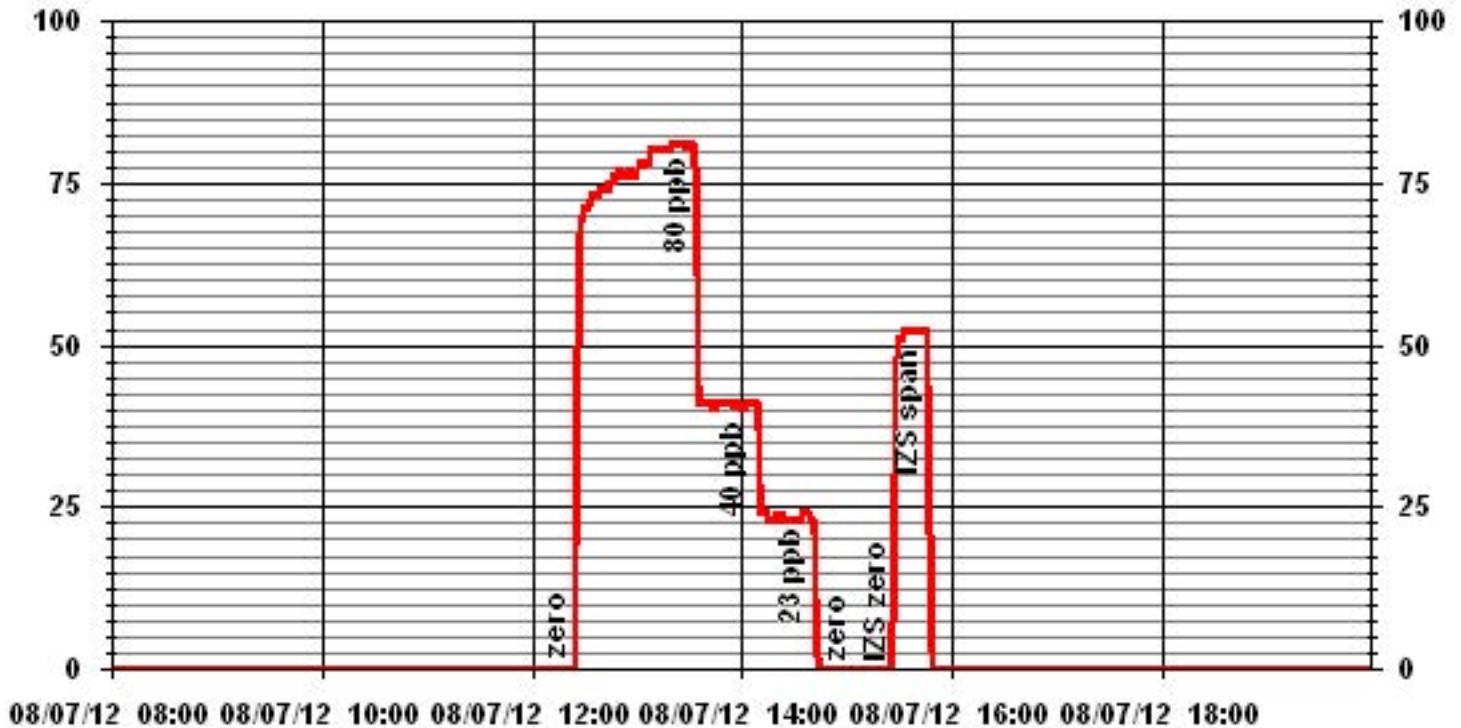
Calibration Date	August 7, 2012
Company	@J YUbX-bXi gfrnY 7 ca a i b]mi5 ggcVUJcb
Plant / Location	@7 5 %! 7 c X @J Y Gci H
Start Time (MST)	11:48
End Time (MST)	15:50

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999795
0	0	n/a	Intercept	(± 3% F.S.)	0.196066
23	23	0.0000			
40	41	0.5611			
80	80	0.5004			



Notes:

01 Minute Averages



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Hc hU' < mXfc WUf Vc bg'

H<7 7 U]VfUjcb F Ydcfh

Station Information			
Calibration Date:	August 3, 2012	Previous Calibration	July 3, 2012
Company:	@_YUbX' bXi gfrmiUbX 7 ca a i b]mi5 ggcVUjcb		
Plant / Location:	@7 5%# c 'X @U_Y		
Start Time (MST)	8:58	End Time (MST)	12:34
Reason:	Monthly Calibration		
Barometric Pressure:	0.973 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

5 bUmYf' bZfa Ujcb

Make / Model	TEI 51C-LT	S/N :	427408718	Method	Flame Ionization
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5 bUmYf' GYhbj g

	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

7 U]VfUjcb 8 UH

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	42.6	0.9724
2000	74.0	41.4	41.3	1.0030
2000	37.0	21.1	20.8	1.0139
2000	20.0	11.5	11.4	1.0083
2000	0.0	0.0	0.0	NA
New Correction Factor:				1.0030

DYfWbh7\ Ub] Y

Previous Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	0.9724
Percent Change:	2.4%

NG7 U]VfUjcb 8 UH

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	35.3	33.7
Sample Lines Connected		MBG

Cylinder Pressures			
Span	1400 psi	Hydrogen 1950 psi	Zero Air 32 psi

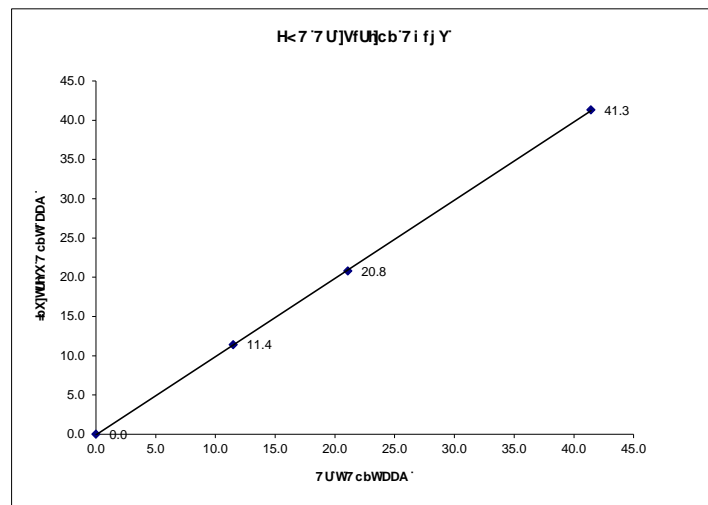
Notes: B5 . Bch5 dd' JWY

Calibration Performed by: Ting Xu

H<7 7 U]VfUjcb 7 i fj Y

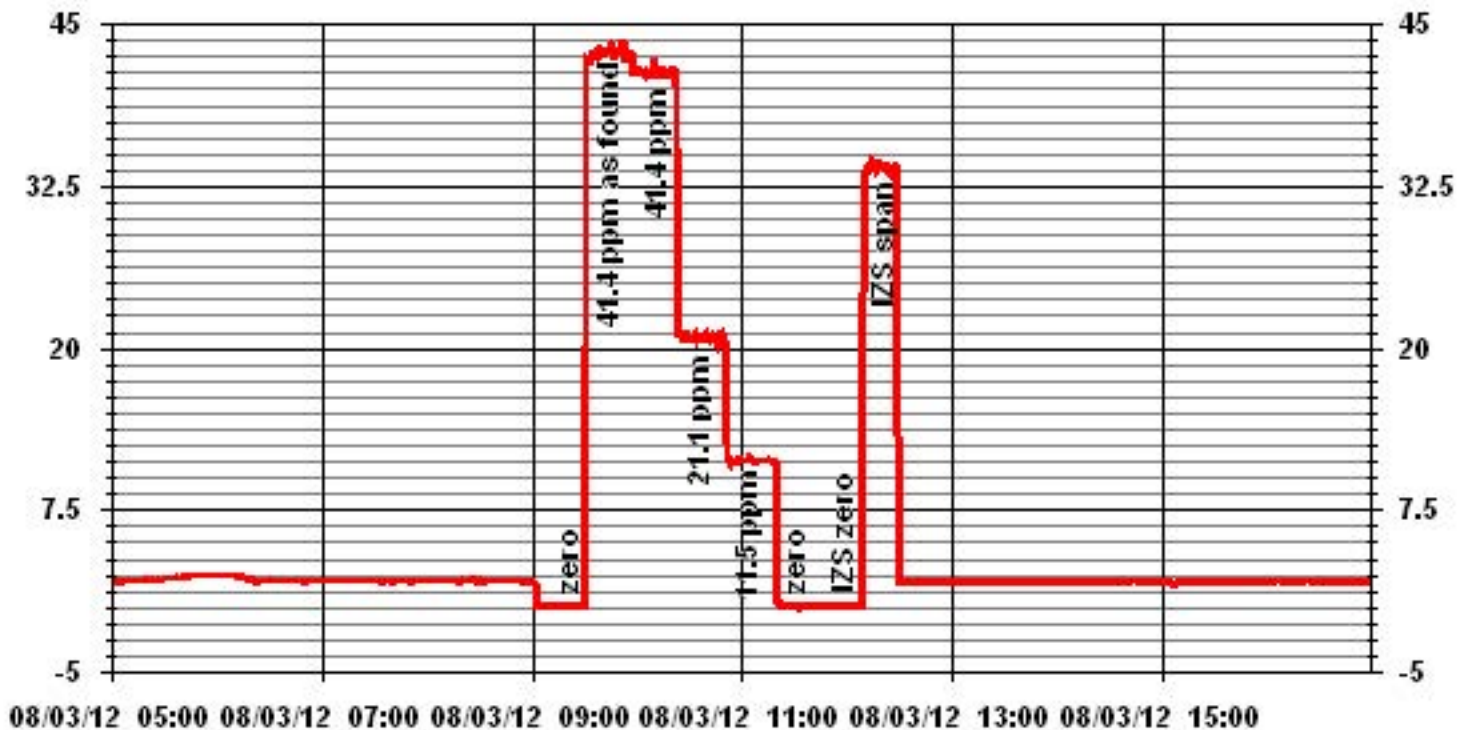
Calibration Date	August 3, 2012
Company	@_YUbX' bXi gfrmiUbX 7 ca a i b]mi5 ggcVUjcb
Plant / Location	@7 5%# c 'X @U_Y
Start Time (MST)	8:58
End Time (MST)	12:34

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999963
ppm	ppm		Slope	(0.85 to 1.15)	0.996828
0.0	0.0	NA	Intercept	(± 3% F.S.)	-0.06825
11.5	11.4	1.0083			
21.1	20.8	1.0139			
41.4	41.3	1.0030			



Notes:

01 Minute Averages



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H9CA`%(\$):`5i Xjh

GLUjcb		5i XjhHfUbgZf`GfUbXUfX	
Date:	August 7, 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

GLa d`Yf		GYHi d`UbX`W ffYbhGLa d`Yf`fYUX[b] g	
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 (%)	37.8%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	26.6
		Press (ATM)	0.892

7cbj Yfglcb`Zca`a a <[`cf`<[`lc`5HA`f5la cgd\ YfYqk

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

BchY. Hc`YfUbWg`UFYbchX`Ug`6 C @ `Jb`6 fUW`Yfg

5i Xjh

GLUj g			
Noise 0`\$`%\$u[	0.007	Warnings	None
Pump Vacuum 0`Y`(\$`Ura	0.39		
Hya dYfUi fY`DfYggi fY			
Measured Temp fl`&`°7 Ł	25.6	Å`°7	1.0
Measured Press fl`\$`%\$Ura Ł	0.938	8 5 HA	-0.046
:`ck`5i Xjh			
Indicated Main Flow (l/min)	3.00	Main Flow Drift`fl`%`\$`i Ł	5.97%
Measured Main Flow (l/min)	2.75	Flow Adjusted to Measured?	NO
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift`fl`%`\$`i Ł	4.48%
Measured Bypass Flow (l/min)	12.76	Flow Adjusted to Measured?	NO
@U`7\ YW			
Main`fd`\$`%`#`jbl	NA	-bgfji a YbhGYi d	
Aux`fd`\$`%`#`jbl	NA	Flow Control = Active	
		Report Conditions = Actual	
?`c` : UWcf			
Measured	NA		
K _o Difference fl`&`i Ł	NA		

GLUfhHja Y. 13:40 : Jb]g\`Hja Y. 15:00

GLa d`Y`b`Yh7`YUbyX.` Y NO BYk`:`J`Hf`g`-bgfU`YX.` NO
BYk`:`J`Hf`@`UX[b]`i` . NA

7 ca a Ybfg. The ambient pressure was adjusted and the pump was rebuilt after the audit.

H9CA (%): 5i Xjh

GLHcb		5i XjhHfUbgZf'GLbXUfX	
Date:	August 7, 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

GLa d'Yf		GYHi d'UbX'W ffYbhGLa d'Yf'fYUX[b] g	
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 (%)	55.3%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	27.2
		Press (ATM)	0.936

7cbj Yfglcb Zca 'a a <['cf'''<['lc'5HA 'f5 la cgd\ YfYqk

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

BchY. Hc'YfUbWg'UFYbchX'Ug'6 C @ 'Jb'6 fUW Yfg

5i Xjh

GLi g			
Noise 0\$%\$u[	NA	Warnings	None
Pump Vacuum 0'Y' \$'Ura	0.33		
Hya dYfUi fY'DfYggi fY			
Measured Temp fl-'&'7 Ł	26.3	Å°7	0.9
Measured Press fl-'\$%'Ura Ł	0.938	85 HA	-0.002
: `ck '5i Xjh			
Indicated Main Flow (l/min)	3.00	Main Flow Drift fl-'%'\$i Ł	5.10%
Measured Main Flow (l/min)	2.84	Flow Adjusted to Measured?	NO
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift fl-'%'\$i Ł	2.67%
Measured Bypass Flow (l/min)	13.32	Flow Adjusted to Measured?	NO
@U_7\ YW		-bgfii a YbhGYi d	
Main fd' '\$' %' `#a]bŁ	NA	Flow Control = Active	
Aux fd' '\$' %' `#a]bŁ	NA	Report Conditions = Actual	
? : UWcf			
Measured	NA		
K _o Difference fl-'&'i Ł	NA		

GLUfhH]a Y. 13:40 :]b]g\ 'H]a Y. 17:30

GLa d'Y' b`Yh7' YUbYX.' Yes BYk :]Hfg' -bgU' YX.' YES
 BYk :]Hf' @:UX]b['i . 19.4%

7ca a Ybtg.

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B]hfc[Yb'8]cI]XY'

**BCI '1'BC'BC&7 UJVfUjcb'FYdcfh
GHUjcb-bZ:fa Ujcb**

Calibration Date	August 3, 2012	Previous Calibration	July 29, 2012
Company	LICA	Plant/Location	Cold Lake South
Start Time (MST)	8:58	End Time (MST)	15:34
Reason: Monthly Calibration			
Barometric Pressure	0.973 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 - 10 Volts	Chart Rec. Output	NA Volts

9ei Jda Ybhi-bZ:fa Ujcb

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

5bUmYf GYHjbl g

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	733 ccm	316	Deg C	732 ccm	317	Deg C	
Ozone Flow / Vacuum	OK	178.0	*Hg-A	OK	179	*Hg-A	
HVPS / A ZERO	-821 Volts	NA	MV	-821 Volts	NA	MV	
Rx/ Temp / PMT Temp	49.7 Deg C	-2.5	Deg C	49.9 Deg C	-2.5	Deg C	
Box Temp / IZS Temp	28.7 Deg C	OK	Deg C	29.5 Deg C	OK	Deg C	
Offset	3.9 NOx	3.6	NO	3.9 NOx	3.6	NO	
Slope	1.005 NOx	0.925	NO	1.004 NOx	0.933	NO	
NO2 COEF / Conv Efficiency	0.998 NO2	NA		0.998 NO2	NA		

8ji hcb7 UJVfUjcb'8 UH

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	397	396	2	1.0081	1.0086
4954	40.3	NA	400	399	NA	400	399	1	1.0000	1.0000
4976	20.2	NA	201	200	NA	201	200	1	1.0000	1.0000
4985	10.1	NA	100	100	NA	102	101	1	0.9832	0.9910
4995	0.0	NA	0	0	NA	0	0	0	NA	NA

: Ug'Di UqY'HjfrUjcb7 UJVfUjcb'8 UH

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4954	40.3	NA	400	399	NA	400	398	1	NA	NA
4954	40.3	350	400	NA	313	400	86	313	1.0000	100.00%
	No Adj. Needed									
4954	40.3	150	400	NA	136	400	263	137	0.9927	100.74%
4954	40.3	75	400	NA	68	400	331	69	0.9855	101.49%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.999	NO= 1.001	NO2= 0.998
				NOx= 1.0000	NO= 1.0000	NO2= 1.0000
				Average Converter Efficiency= 100.74%		

NG7 UJVfUjcb'8 UH

Before Calibration				After Calibration			
Auto Zero	0.6 NOx	0.4 NO2		0.6 NOx	0.6 NO2		
Auto Span	456 NOx	451 NO2		376 NOx	372 NO2		
Sample Lines Connected				YES			
Percent Change from Previous Calibration				NOx -0.5%	NO -0.5%	NO2 0.3%	

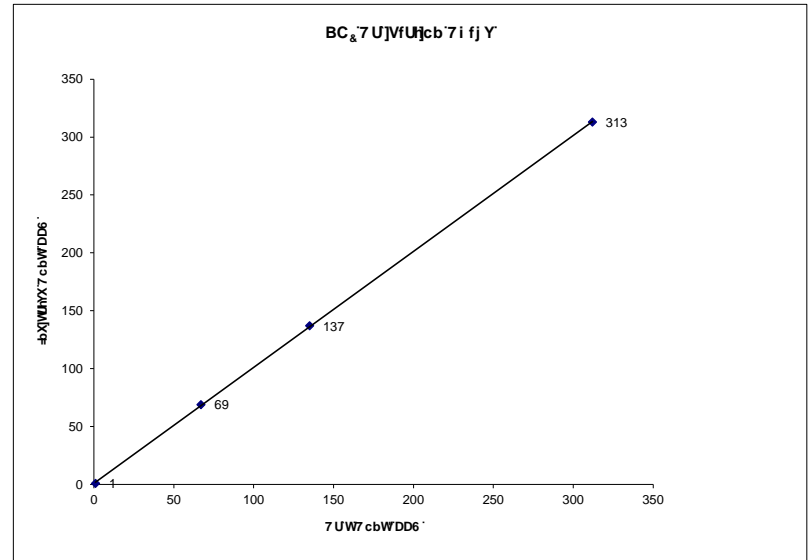
Notes: **B5 . Bch5 dd'JWUY**
Adjusted the flow rate during the daily span phase to reduce the span value. Another daily cal was re-run.

Calibration Performed by: Ting Xu

BC&7 UJVfUjcb'7i fj Y

Calibration Date	August 3, 2012		
Company		@7 5	
Plant / Location		7 c'X'@J YGc: H	
Start Time (MST)	8:58	End Time (MST)	15:34

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999951
1	1	N/A	Intercept	(± 3% F.S.)	1.001344
67	69	0.9710			1.07694
135	137	0.9854			
312	313	0.9968			

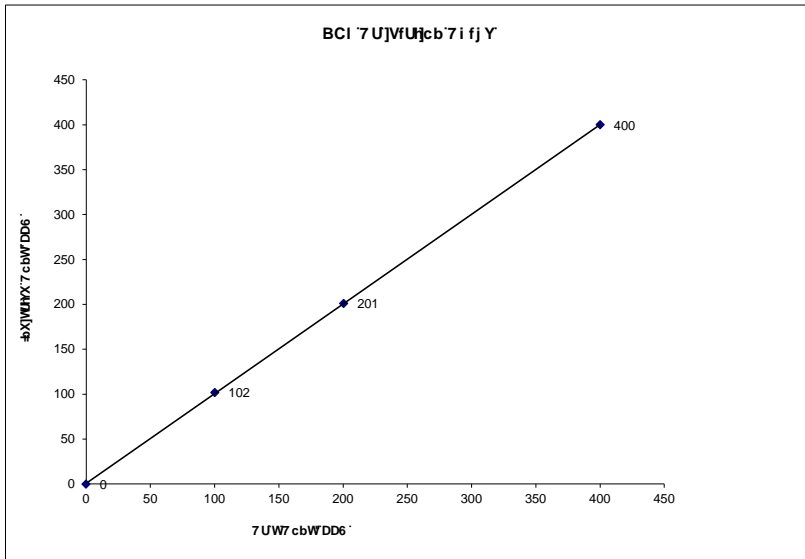


Notes:

BCI 7UJVFUjcb7i fj Y

Calibration Date	August 3, 2012	
Company	@7 5	
Plant / Location	7 c X @ U Y Gci R	
Start Time (MST)	8:58	End Time (MST) 15:34

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999978
0	0	N/A	Slope (0.85 to 1.15)	0.998074
100	102	0.9832	Intercept (± 3% F.S.)	0.82287
201	201	0.9977		
400	400	1.0006		

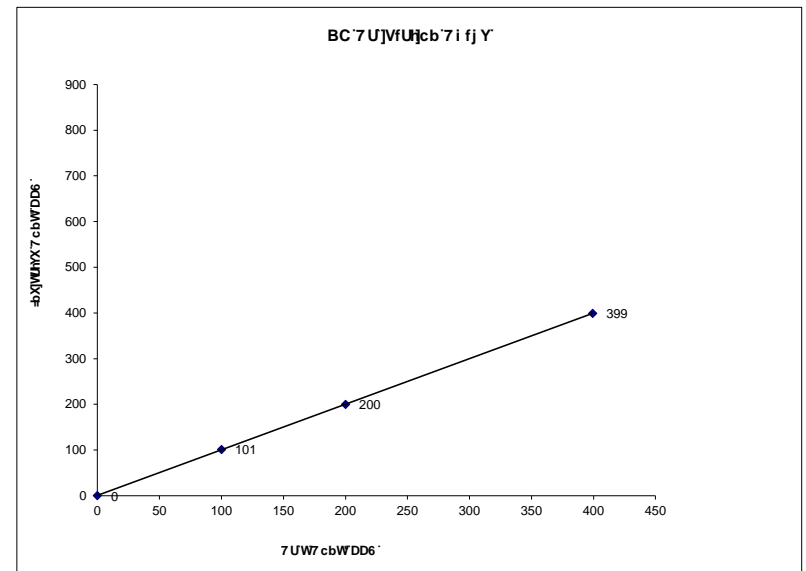


Notes:

BC 7UJVFUjcb7i fj Y

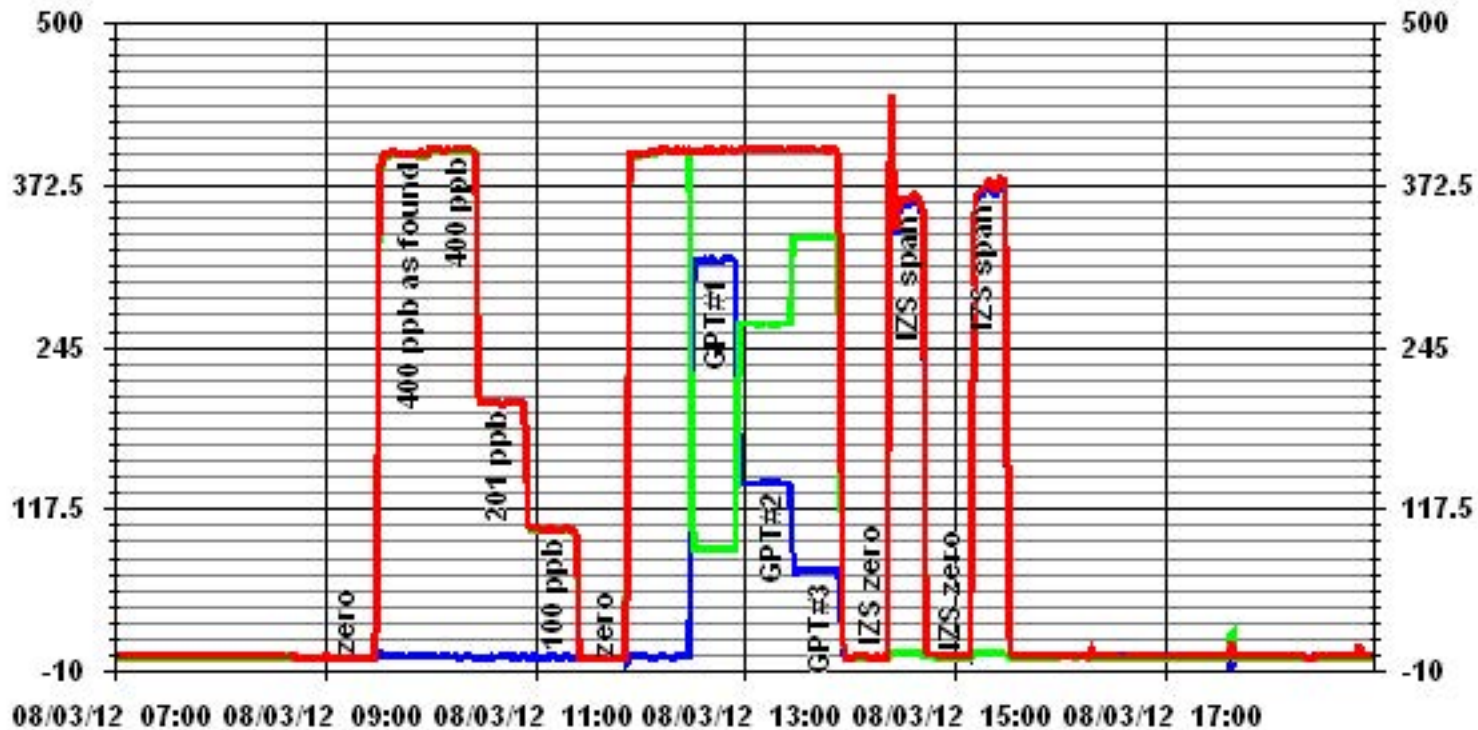
Calibration Date	August 3, 2012	
Company	@7 5	
Plant / Location	7 c X @ U Y Gci R	
Start Time (MST)	8:58	End Time (MST) 15:34

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999992
0	0	N/A	Slope (0.85 to 1.15)	0.995958
100	101	0.9910	Intercept (± 3% F.S.)	0.1624
200	200	1.0007		
399	399	1.0011		



Notes:

01 Minute Averages



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CncbY'

C. 7 U]vfUjcb'F Ydcfh
GUjcb' bZfa Ujcb

Calibration Date	August 7, 2012		Previous Calibration		July 5, 2012	
Company	@U' YUbX' bXi gflm' '7 ca a i b]mi5ggcVUjcb					
Plant / Location	@7 5 %! '7 c' X' @U' YGci H					
Start Time (MST)	15:05		End Time (MST)		18:09	
Reason:	Monthly Calibration					
Barometric Pressure	28.13	atm	Station Temperature		22	Deg C
DAS Output Voltage	0 - 10		Volts			

9ei]da Ybh-bZfa Ujcb

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		

5bUmYf'GYHjb] g

Before Calibration			After Calibration		
Concentration Range	0 - 500		ppb		
Cell A Flow / Cell B Flow	698 LPM	738 LPM	718 LPM	759 LPM	
O ₃ Set Level	701	mmHg	715	mmHg	
Bench Lamp	53.5	Deg C	53.5	Deg C	
O ₃ Lamp / Box Temp	67.5 Deg	29.6 Deg C	67.6 Deg C	28.9 Deg C	
Offset / Slope	-0.1	1.021	0.1	1.021	

7 U]vfUjcb'8 UH

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	NA
	No Zero Adj			
4994	350	312	311	1.0032
	No Span Adj.			
4994	150	135	135	1.0000
4994	75	67	67	1.0000
4994	0	0	0	NA
Sum of Least Squares				1.0026
New Correction Factor				1.0032

NG7 U]vfUjcb'8 UH

Before Calibration		After Calibration	
Auto Zero	0.0	0.0	
Auto Span	267	269	
Sample Lines Connected		YES	
Previous Calibration Correction Factor:		1.0000	
Current Correctio Factor Before Span Adjust:		1.0032	
Percent Change:		-0.3%	

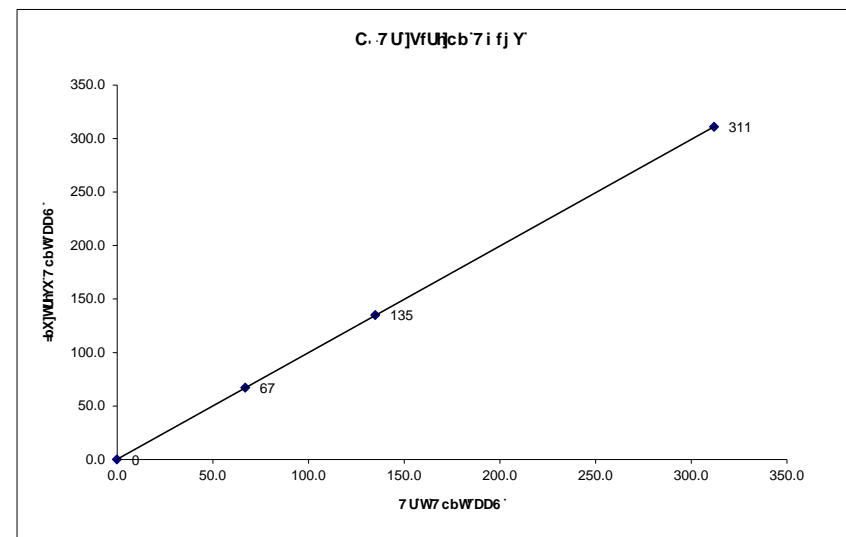
Note: **B5 . 'Bch5dd'WUYY**

Calibration Performed by: Ting Xu

C. 7 U]vfUjcb'7i fj Y

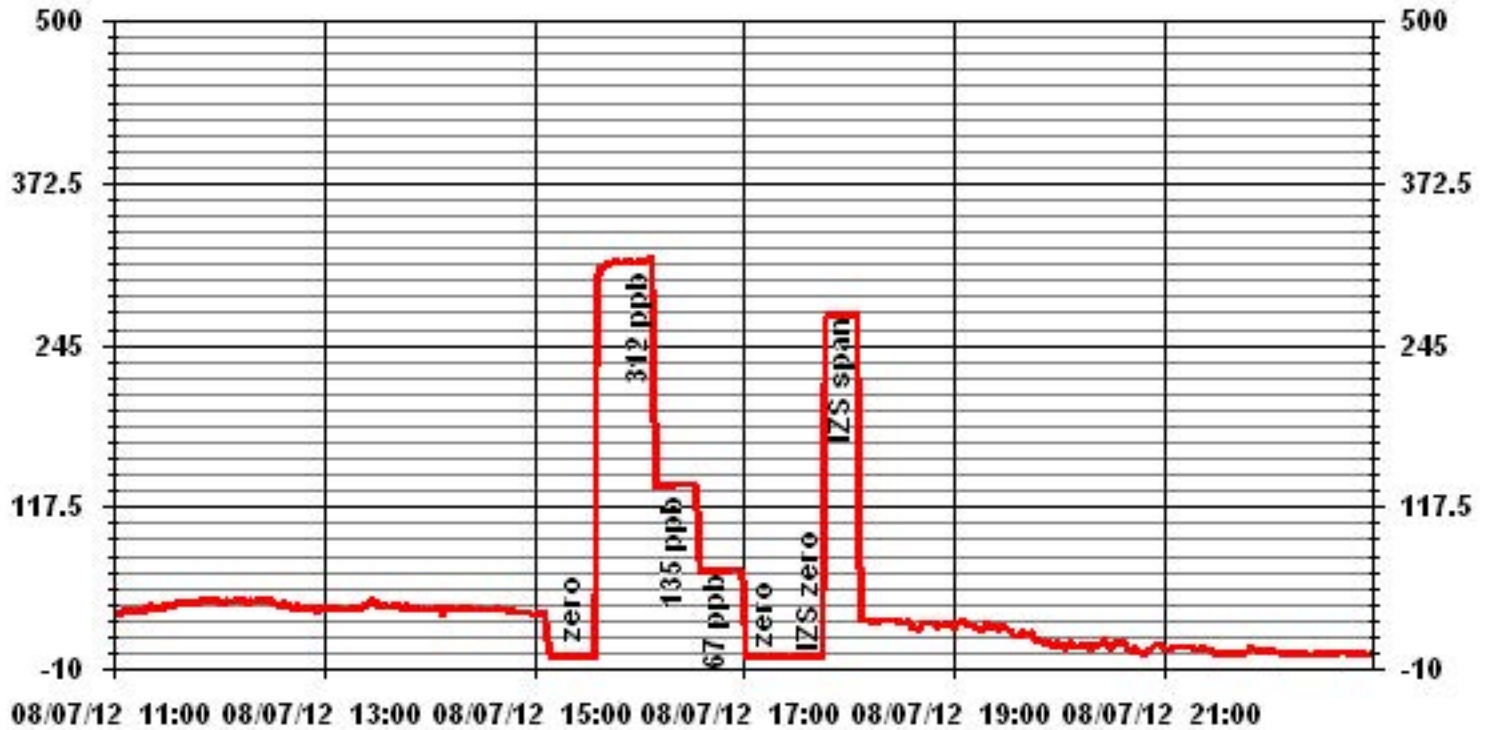
Calibration Date	August 7, 2012	
Company	@U' YUbX' bXi gflm' '7 ca a i b]mi5ggcVUjcb	
Plant / Location	@7 5 %! '7 c' X' @U' YGci H	
Start Time (MST)	15:05	End Time (MST) 18:09

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		0.999998
67	67	1.0000		0.996602
135	135	1.0000		0.186589
312	311	1.0032		



Notes:

01 Minute Averages



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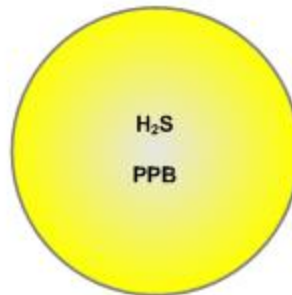
DUgg]j Y`6 i VV`Y`A Udg`

Lakeland Industry & Community Association H₂S Passive Bubble Map

AUGUST 2012

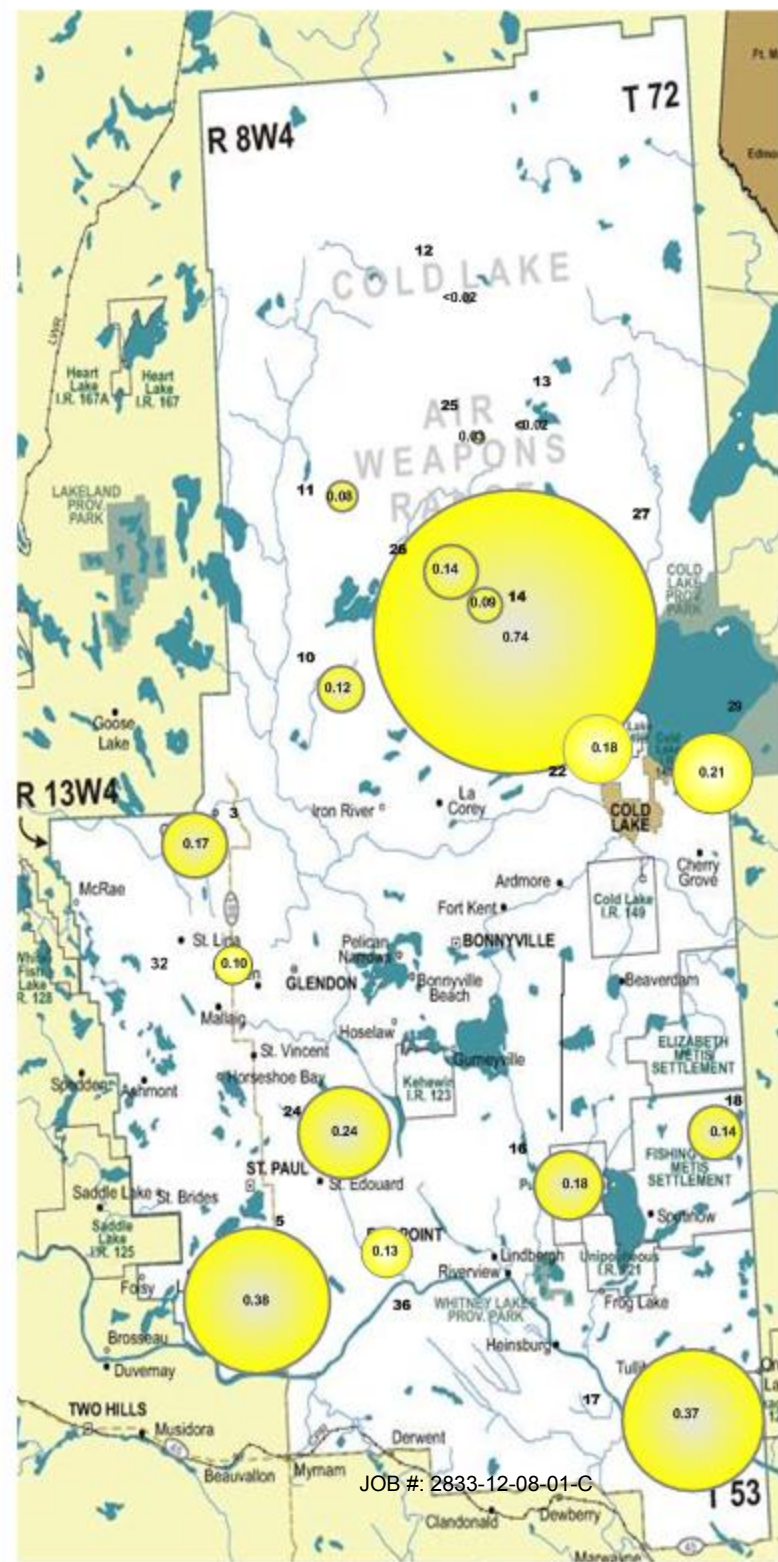
PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.17 PPB	0.22 PPB
5 – Lake Eliza	0.37 PPB	0.39 PPB
10 – La Corey	0.08 PPB	0.15 PPB
11 – Wolf Lake	0.08 PPB	NA
12 – Foster Creek	<0.02 PPB	NA
13 – Primrose	<0.02 PPB	NA
14 – Maskwa	0.09 PPB	NA
16 – Frog Lake	0.18 PPB	NA
17 – Clear Range	0.37 PPB	NA
18 – Fishing Lake	0.14 PPB	NA
22 – Cold Lake South	0.18 PPB	NA
24 – Fort George	0.24 PPB	NA
25 – Burnt Lake	0.03 PPB	NA
26 – Mahihkan	0.14 PPB	NA
27 – Mahkeses	0.74 PPB	NA
29 – Cold Lake South 2	0.21 PPB	NA
32 – St. Lina	0.10 PPB	NA
36 – Portable	0.13 PPB	NA



Summary

Minimum : <0.02 PPB – Foster Creek and Primrose
 Maximum: 0.74 PPB – Mahkeses
 Average: 0.19 PPB *Includes Duplicates



Lakeland Industry & Community Association NO₂ Passive Bubble Map

AUGUST 2012

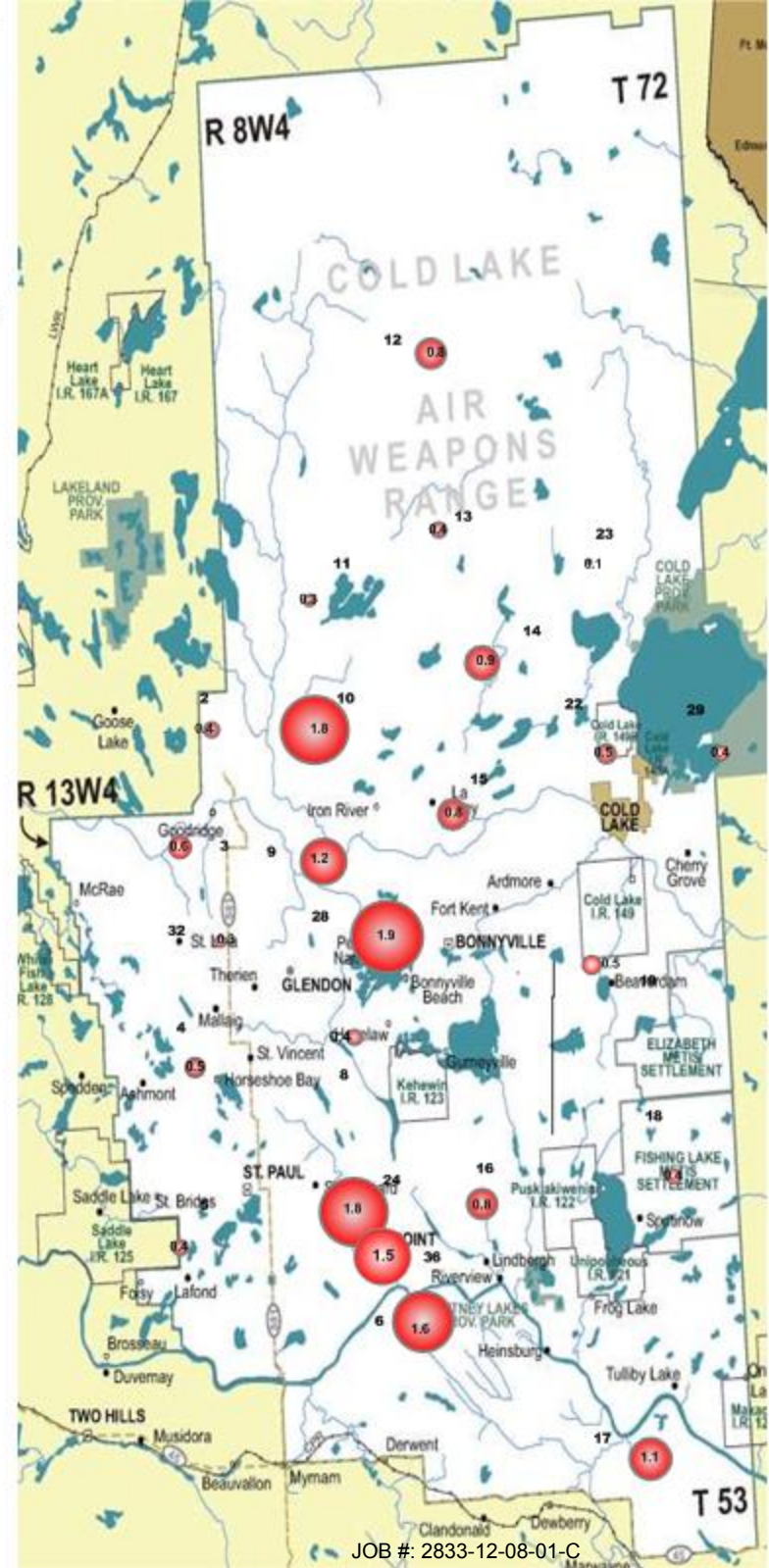
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.4 PPB	NA
3 – Therien	0.6 PPB	NA
4 – Flat Lake	0.5 PPB	NA
5 – Lake Eliza	0.4 PPB	NA
6 – Telegraph Creek	1.6 PPB	NA
8 – Muriel-Kehewin	0.4 PPB	NA
9 – Dupre	1.2 PPB	NA
10 – La Corey	1.8 PPB	NA
11 – Wolf Lake	0.3 PPB	NA
12 – Foster Creek	0.8 PPB	NA
13 – Primrose	0.4 PPB	NA
14 – Maskwa	0.9 PPB	NA
15 – Ardmore	0.8 PPB	NA
16 – Frog Lake	0.8 PPB	NA
17 – Clear Range	1.1 PPB	NA
18 – Fishing Lake	0.4 PPB	NA
19 – Beaverdam	0.5 PPB	NA
22 – Cold Lake South	0.5 PPB	NA
23 – Medley-Martineau	0.1 PPB	0.1 PPB
24 – Fort George	1.4 PPB	2.1 PPB
28 – Town of Bonnyville	1.9 PPB	NA
29 – Cold Lake South 2	0.9 PPB	NA
32 – St. Lina	0.3 PPB	NA
36 – Portable	1.5 PPB	NA



Summary

Minimum : 0.1 PPB – Medley-Martineau
 Maximum: 1.9 PPB – Town of Bonnyville
 Average: 0.8 PPB *Includes Duplicates

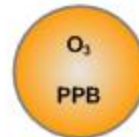


Lakeland Industry & Community Association O₃ Passive Bubble Map

AUGUST 2012

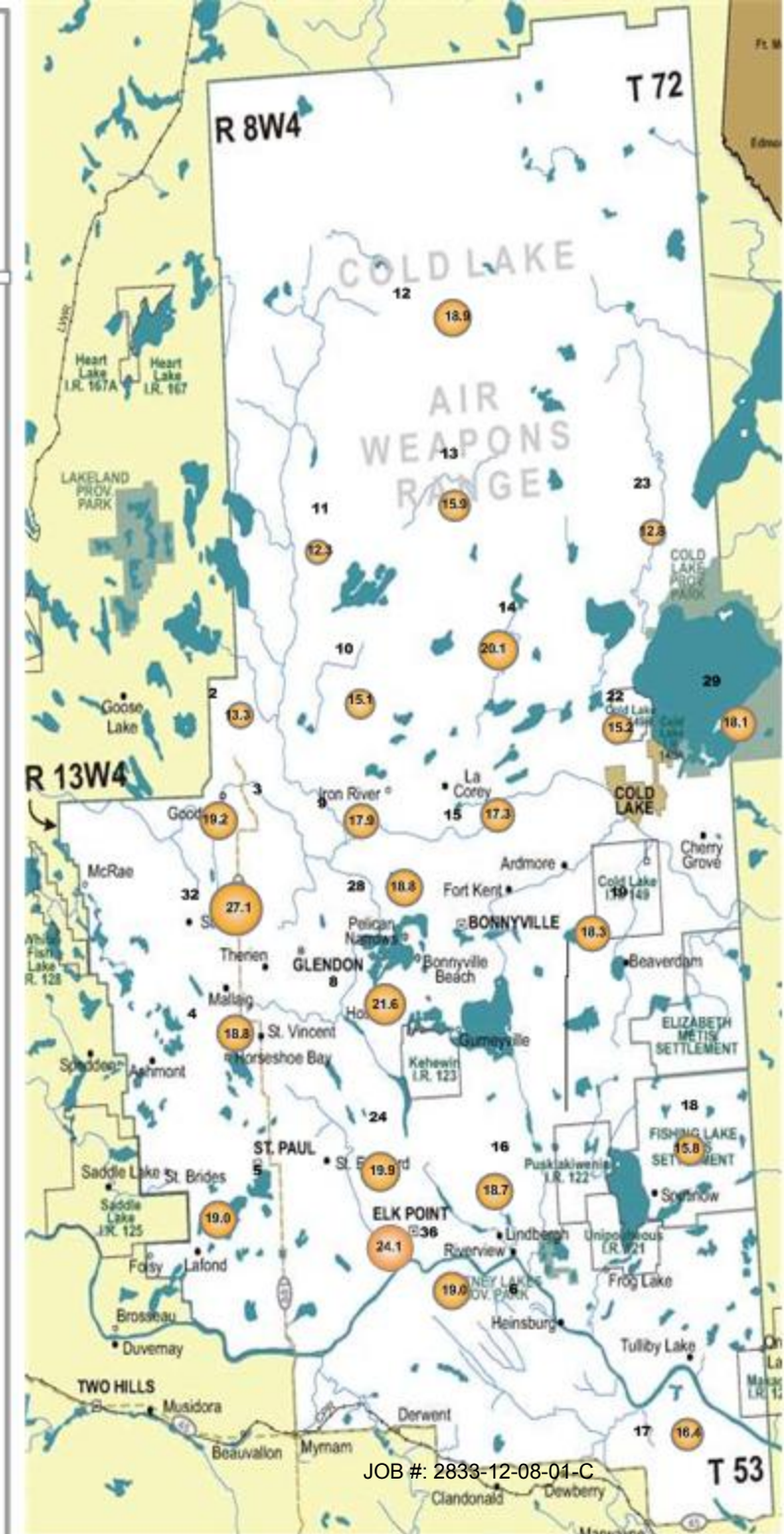
PASSIVE STATIONS

Station Number	Location	Concentration (PPB)	Duplicate
2	Sand River	13.3	NA
3	Therien	19.2	NA
4	Flat Lake	18.8	NA
5	Lake Eliza	19.0	NA
6	Telegraph Creek	19.0	NA
8	Muriel-Kehewin	21.6	NA
9	Dupre	17.9	NA
10	La Corey	15.1	NA
11	Wolf Lake	12.3	NA
12	Foster Creek	18.9	NA
13	Primrose	15.9	NA
14	Maskwa	20.1	NA
15	Ardmore	17.3	NA
16	Frog Lake	18.7	NA
17	Clear Range	16.4	NA
18	Fishing Lake	15.8	NA
19	Beaverdam	18.3	NA
22	Cold Lake South	15.2	NA
23	Medley-Martineau	12.9	12.6
24	Fort George	19.1	20.7
28	Town of Bonnyville	18.8	NA
29	Cold Lake South 2	18.1	NA
32	St. Lina	27.1	NA
36	Portable	24.1	NA



Summary

Minimum : 12.3 PPB – Wolf Lake
 Maximum: 27.1 PPB – St. Lina
 Average: 18.1 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

AUGUST 2012

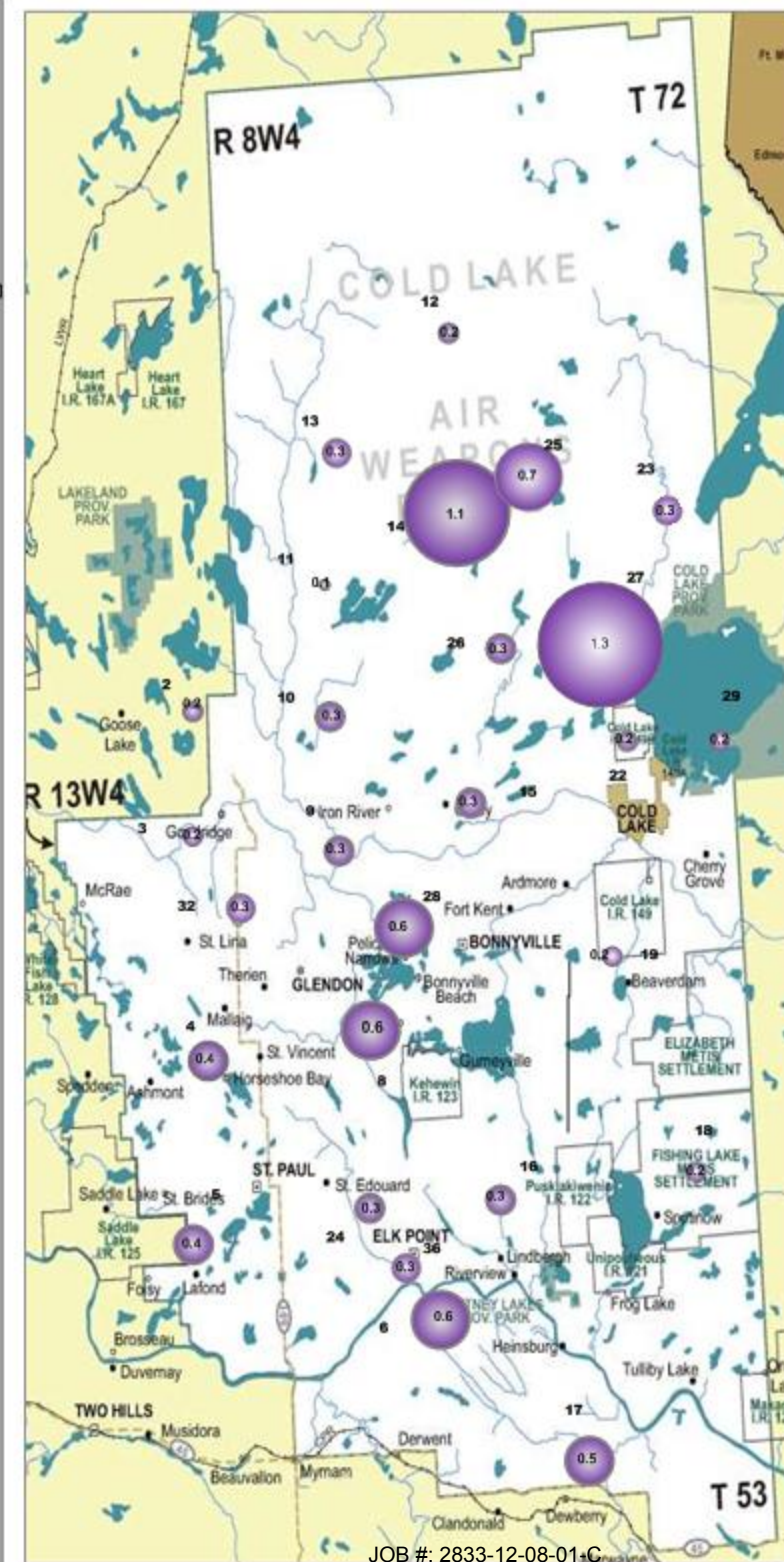
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.1 PPB	0.2 PPB
3 – Therien	0.2 PPB	0.2 PPB
4 – Flat Lake	0.4 PPB	NA
5 – Lake Eliza	0.4 PPB	NA
6 – Telegraph Creek	0.6 PPB	NA
8 – Muriel-Kehewin	0.6 PPB	NA
9 – Dupre	0.3 PPB	NA
10 – La Corey	0.3 PPB	NA
11 – Wolf Lake	0.1 PPB	NA
12 – Foster Creek	0.2 PPB	NA
13 – Primrose	0.3 PPB	NA
14 – Maskwa	1.1 PPB	NA
15 – Ardmore	0.3 PPB	NA
16 – Frog Lake	0.3 PPB	NA
17 – Clear Range	0.5 PPB	NA
18 – Fishing Lake	0.2 PPB	NA
19 – Beaverdam	0.2 PPB	NA
22 – Cold Lake South	0.2 PPB	NA
23 – Medley-Martineau	0.3 PPB	NA
24 – Fort George	0.2 PPB	NA
25 – Burnt Lake	0.7 PPB	NA
26 – Mahikan	0.3 PPB	NA
27 – Mahkeses	1.3 PPB	NA
28 – Town of Bonnyville	1.6 PPB	NA
29 – Cold Lake South 2	0.2 PPB	NA
32 – St. Lina	0.3 PPB	NA
36 – Portable	0.3 PPB	0.3 PPB



Summary

Minimum : 0.1 PPB – Wolf Lake
 Maximum: 1.3 PPB – Mahkeses
 Average: 0.39 PPB *Includes Duplicates



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: JY'X'BchYg'

8	G5AD@F	GH5FH		9B8		BCH9G
		85H9	HA9	85H9	HA9	
&	GC_#BC_#C.	\$+# %&\$%/&	%&.&\$	\$, #&- #&\$%/&	%& ()	.
'	<_G#GC_#BC_#C.	\$+# %&\$%/&	%&.\$&\$	\$, #&- #&\$%/&	%&.&)	.
(GC_#BC_#C.	\$, #&%&\$%/&	%&.%&	\$, #&- #&\$%/&	%&.()	.
)	<_G#GC_#BC_#C.	\$, #&%&\$%/&	%&.&' \$	\$, #&- #&\$%/&	%&.&)	.
*	GC_#BC_#C.	\$, #&%&\$%/&	%&.((\$, # \$&\$%/&	%&.()	.
,	GC_#BC_#C.	\$+# \$&\$%/&	%&.&%&	\$, #&- #&\$%/&	%&.&' \$.
-	GC_#BC_#C.	\$+# %&\$%/&	%&.&)*	\$, #&- #&\$%/&	%&.&' \$.
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&&	<_G#GC_#BC_#C.	\$, #&%&\$%/&	%&.%&\$	\$, #&- #&\$%/&	%&.&')	.
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&(<_G#GC_#BC_#C.	\$, #&%&\$%/&	%&.')	\$, # \$&\$%/&	%&.&.&\$.
&)	<_G#GC_#	\$+# %&\$%/&	%&.' ,	\$, #&- #&\$%/&	%&.&.()	.
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&+	<_G#GC_#	\$+# %&\$%/&	\$*.(*	\$, #&- #&\$%/&	\$-.) \$.
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' *	<_G#GC_#BC_#C.	\$+# \$&\$%/&	%&.&.&\$	\$, # \$&\$%/&	%&.&')	.

8	G5AD@F	GH5FH		9B8		BCH9G
		85H9	HA9	85H9	HA9	
8 i d JWUHY ' ' *	GC	\$+# \$B\$%&	%.&\$	\$, # \$B\$%&	%.')	.
8 i d JWUHY \$&	GC	\$+# %B\$%&	%.&\$	\$, #B- #B\$%&	%& ()	.
8 i d JWUHY \$'	GC	\$+# %B\$%&	%.\$	\$, #B- #B\$%&	%.&)	.
8 i d JWUHY \$)	< &G	\$, #B\$%&	%&' \$	\$, #B- #B\$%&	%.&)	.
8 i d JWUHY %\$	< &G	\$+# %B\$%&	%\$.%	\$, #B- #B\$%&	%.( \$	.
8 i d JWUHY &'	BC	\$+# %B\$%&	%.))	\$, #B- #B\$%&	\$+.( \$	.
8 i d JWUHY &(	BC	\$, #B\$%&	%&')	\$, # \$B\$%&	%&.&\$	.
8 i d JWUHY &'	C.	\$+# %B\$%&	%.))	\$, #B- #B\$%&	\$+.( \$	.
8 i d JWUHY &(	C.	\$, #B\$%&	%&')	\$, # \$B\$%&	%.&\$	.

DUgg]j Y`BYhk cf_`@UvcfUhcfm5 bU`mg]g`



Your Project #: 2012/07/31 - 2012/08/29
Site Location: LICA

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

Report Date: 2012/09/13

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B278514
Received: 2012/09/04, 12:02

Sample Matrix: Air
Samples Received: 34

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	20	2012/09/07	2012/09/13	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	26	2012/09/07	2012/09/13	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	26	2012/09/06	2012/09/13	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	30	2012/09/07	2012/09/13	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 #: B278514
 Report Date: 2012/09/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/07/31 - 2012/08/29
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		EJ2844	EJ2845	EJ2846	EJ2847	EJ2848		
Sampling Date		2012/07/31 15:20	2012/07/31 16:00	2012/08/01 13:15	2012/08/01 12:30	2012/08/01 10:44		
	UNITS	2	3	4	5	6	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.17		0.37		0.02	6147635
Calculated NO2	ppb	0.4	0.6	0.5	0.4	1.6	0.1	6147666
Calculated O3	ppb	13.3	19.2	18.8	19.0	19.0	0.1	6143805
Calculated SO2	ppb	0.1	0.2	0.4	0.4	0.6	0.1	6147682
RDL = Reportable Detection Limit								

Maxxam ID		EJ2849	EJ2850	EJ2851	EJ2852	EJ2853		
Sampling Date		2012/07/30 17:15	2012/07/31 17:56	2012/07/31 10:15	2012/07/31 11:19	2012/07/31 12:15		
	UNITS	8	9	10	11	12	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.08	0.08	<0.02	0.02	6147635
Calculated NO2	ppb	0.4	1.2	1.8	0.3	0.8	0.1	6147666
Calculated O3	ppb	21.6	17.9	15.1	12.3	18.9	0.1	6143805
Calculated SO2	ppb	0.6	0.3	0.3	0.1	0.2	0.1	6147682
RDL = Reportable Detection Limit								

Maxxam ID		EJ2854	EJ2855	EJ2856	EJ2857		
Sampling Date		2012/07/31 08:15	2012/07/31 07:10	2012/07/31 09:35	2012/08/01 09:05		
	UNITS	13	14	15	16	RDL	QC Batch

Passive Monitoring							
Calculated H2S	ppb	<0.02	0.09		0.18	0.02	6147635
Calculated NO2	ppb	0.4	0.9	0.8	0.8	0.1	6147666
Calculated O3	ppb	15.9	20.1	17.3	18.7	0.1	6143805
Calculated SO2	ppb	0.3	1.1	0.3	0.3	0.1	6147682
RDL = Reportable Detection Limit							



Maxxam Job #: B278514
 Report Date: 2012/09/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/07/31 - 2012/08/29
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		EJ2858		EJ2859	EJ2860		EJ2861		
Sampling Date		2012/08/01 09:52		2012/08/01 08:10	2012/08/01 07:05		2012/08/01 15:10		
	UNITS	17	QC Batch	18	19	QC Batch	22	RDL	QC Batch

Passive Monitoring									
Calculated H2S	ppb	0.37	6147635	0.14		6147635	0.18	0.02	6147635
Calculated NO2	ppb	1.1	6147666	0.4	0.5	6147666	0.5	0.1	6147667
Calculated O3	ppb	16.4	6143812	15.8	18.3	6143812	15.2	0.1	6143812
Calculated SO2	ppb	0.5	6147682	0.2	0.2	6147685	0.2	0.1	6147685

RDL = Reportable Detection Limit

Maxxam ID		EJ2862	EJ2863	EJ2864	EJ2865	EJ2866		
Sampling Date		2012/07/31 18:55	2012/08/01 11:35	2012/07/31 13:38	2012/07/31 07:35	2012/07/31 06:46		
	UNITS	23	24	25	26	27	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.24	0.03	0.14	0.74	0.02	6147635
Calculated NO2	ppb	0.1	1.4				0.1	6147667
Calculated O3	ppb	12.9	19.1				0.1	6143812
Calculated SO2	ppb	0.3	0.2	0.7	0.3	1.3	0.1	6147685

RDL = Reportable Detection Limit

Maxxam ID		EJ2867	EJ2868	EJ2874	EJ2875	EJ2878		
Sampling Date		2012/07/31 17:35	2012/08/01 15:25	2012/07/31 16:40	2012/07/30 15:20	2012/07/31 18:55		
	UNITS	28	29	32	36	23 DUP	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.21	0.10	0.13		0.02	6147635
Calculated NO2	ppb	1.9	0.9	0.3	1.5	0.1	0.1	6147667
Calculated O3	ppb	18.8	18.1	27.1	24.1	12.6	0.1	6143812
Calculated SO2	ppb	0.6	0.2	0.3	0.3		0.1	6147685

RDL = Reportable Detection Limit



Maxxam Job #: B278514
 Report Date: 2012/09/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/07/31 - 2012/08/29
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		EJ2879		EJ2880	EJ2881		EJ2882		
Sampling Date		2012/08/01 11:35		2012/07/31 15:20	2012/07/31 16:00		2012/07/30 15:20		
	UNITS	24 DUP	QC Batch	2 DUP	3 DUP	QC Batch	36 DUP	RDL	QC Batch

Passive Monitoring									
Calculated NO2	ppb	2.1	6147667					0.1	
Calculated O3	ppb	20.7	6143812					0.1	
Calculated SO2	ppb		6147685	0.2	0.2	6147682	0.3	0.1	6147685

RDL = Reportable Detection Limit

Maxxam ID		EJ2883	EJ2884		
Sampling Date		2012/08/01 12:30	2012/07/31 10:15		
	UNITS	5 DUP	10 DUP	RDL	QC Batch

Passive Monitoring					
Calculated H2S	ppb	0.39	0.15	0.02	6147635

RDL = Reportable Detection Limit



Maxxam Job #: B278514
Report Date: 2012/09/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/07/31 - 2012/08/29
Site Location: LICA
Sampler Initials: SB

General Comments

Results relate only to the items tested.



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Attention: MICHAEL BISAGA
 Client Project #: 2012/07/31 - 2012/08/29
 P.O. #:
 Site Location: LICA

Quality Assurance Report
 Maxxam Job Number: PB278514

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6143805 OZ	Calibration Check	Calculated O3	2012/09/06		101	%	91 - 107
	Spiked Blank	Calculated O3	2012/09/06		97	%	N/A
	Method Blank	Calculated O3	2012/09/06	<0.1		ppb	
6143812 OZ	Calibration Check	Calculated O3	2012/09/06		101	%	91 - 107
	Spiked Blank	Calculated O3	2012/09/06		98	%	N/A
	Method Blank	Calculated O3	2012/09/06	<0.1		ppb	
6147635 WC6	Calibration Check	Calculated H2S	2012/09/07		99	%	80 - 120
	Spiked Blank	Calculated H2S	2012/09/07		98	%	N/A
6147666 DF4	Calibration Check	Calculated NO2	2012/09/07		99	%	76 - 118
	Spiked Blank	Calculated NO2	2012/09/07		99	%	N/A
	Method Blank	Calculated NO2	2012/09/07	<0.1		ppb	
6147667 DF4	Calibration Check	Calculated NO2	2012/09/07		100	%	76 - 118
	Spiked Blank	Calculated NO2	2012/09/07		99	%	N/A
	Method Blank	Calculated NO2	2012/09/07	<0.1		ppb	
6147682 DF4	Calibration Check	Calculated SO2	2012/09/07		99	%	95 - 105
	Spiked Blank	Calculated SO2	2012/09/07		101	%	N/A
	Method Blank	Calculated SO2	2012/09/07	<0.1		ppb	
6147685 DF4	Calibration Check	Calculated SO2	2012/09/07		101	%	95 - 105
	Spiked Blank	Calculated SO2	2012/09/07		103	%	N/A
	Method Blank	Calculated SO2	2012/09/07	<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 #: B278514

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 read "Carmen Toker". The signature is written in a cursive style with a large initial 'C' and 'T'.

Carmen Toker, CT, Manager Air Laboratory Services

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

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MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
 Location: Cold Lake South Canister ID: 146
 Station ID: Lica 1 Canister Installation Date/Time: Jul 30, 2012 @ 08:17 mst
 Field Sample ID: LICA VOC/ CLS /Aug 01, 2012 Canister Removal Date/Time: Aug 02, 2012 @ 06:56 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Aug-12	08/01/2012 0:00	08/02/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	24

7 Ub]ghYf j Uj Y'cdYb'df]cf'lc'gUa d']b[3.'M9G'#NO
 H]a Yf'gYhlc'\$\$\$'a]bi hYg'df]cf'lc'gUa d']b[3.'M9G'#NO
 7 Ub]ghYf j Uj Y'WcgYX'df]cf'lc'X]gVcbbYW]cb3.'M9G'#NO

Comments: System leak check prior to sampling. COC # 11237

Technician Signature: Ting Xu



Your C.O.C. #: 11237

Attention: Michael Bisaga

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

Report Date: 2012/08/20

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2B8607

Received: 2012/08/07, 08:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2012/08/08	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2012/08/16	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/16	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

RESULTS OF ANALYSES OF AIR

Maxxam ID		OJ9066	OJ9067	
Sampling Date		2012/08/01	2012/08/01	
COC Number		11237	11237	
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	LICA VOC/PORT/AUG 01 - 12 / 309	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2941721

QC Batch = Quality Control Batch

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OJ9066			OJ9067				
Sampling Date		2012/08/01			2012/08/01				
COC Number		11237			11237				
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 01 - 12 / 309	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	2941848
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2941848
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2941848
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2941848
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2941848
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	3.33	0.989	0.66	0.20	3.24	0.989	2941848
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2941848
Chloromethane	ppbv	0.62	1.28	0.620	0.59	0.30	1.21	0.620	2941848
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2941848
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2941848
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2941848
Trichlorofluoromethane (FREON 11)	ppbv	0.29	1.60	1.12	0.27	0.20	1.53	1.12	2941848
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2941848
Ethanol (ethyl alcohol)	ppbv	2.6	4.97	4.33	<2.3	2.3	<4.33	4.33	2941848
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2941848
2-Propanone	ppbv	4.07	9.68	1.90	4.32	0.80	10.3	1.90	2941848
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2941848
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2941848
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2941848
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2941848
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2941848
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2941848
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2941848
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2941848
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2941848
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2941848
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2941848
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2941848
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2941848
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2941848
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2941848

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OJ9066			OJ9067				
Sampling Date		2012/08/01			2012/08/01				
COC Number		11237			11237				
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 01 - 12 / 309	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	2941848
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2941848
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2941848
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2941848
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2941848
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2941848
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2941848
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2941848
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2941848
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2941848
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2941848
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2941848
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2941848
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2941848
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2941848
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2941848
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2941848
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2941848
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2941848
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2941848
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2941848
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2941848
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2941848
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2941848
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2941848
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2941848
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2941848
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2941848
Hexane	ppbv	<0.30	<1.06	1.06	0.41	0.30	1.45	1.06	2941848
Cyclohexane	ppbv	0.27	0.937	0.688	0.24	0.20	0.829	0.688	2941848
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2941848
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2941848
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2941848
QC Batch = Quality Control Batch									

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OJ9066			OJ9067				
Sampling Date		2012/08/01			2012/08/01				
COC Number		11237			11237				
	Units	LICA VOC/CLS/AUG 01 - 12 / 146	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 01 - 12 / 309	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	82	N/A	N/A	81		N/A	N/A	2941848
D5-Chlorobenzene	%	86	N/A	N/A	83		N/A	N/A	2941848
Difluorobenzene	%	85	N/A	N/A	83		N/A	N/A	2941848

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

Maxxam Job #: B2B8607
 Report Date: 2012/08/20

Test Summary

Maxxam ID OJ9066
Sample ID LICA VOC/CLS/AUG 01 - 12 / 146
Matrix AIR

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2941721	N/A	2012/08/08	Yao Liang Sun
Volatile Organics in Air (TO-15)	GC/MS	2941848	N/A	2012/08/16	Yao Liang Sun

Maxxam ID OJ9067
Sample ID LICA VOC/PORT/AUG 01 - 12 / 309
Matrix AIR

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2941721	N/A	2012/08/16	Yao Liang Sun
Volatile Organics in Air (TO-15)	GC/MS	2941848	N/A	2012/08/16	Yao Liang Sun

Maxxam Job #: B2B8607
Report Date: 2012/08/20

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: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	Spiked Blank	Bromochloromethane	2012/08/16		99	%	60 - 140
		D5-Chlorobenzene	2012/08/16		101	%	60 - 140
		Difluorobenzene	2012/08/16		102	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/16		91	%	70 - 130
		Carbon Disulfide	2012/08/16		88	%	70 - 130
		Propene	2012/08/16		83	%	70 - 130
		Vinyl Acetate	2012/08/16		88	%	70 - 130
		Vinyl Bromide	2012/08/16		92	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/08/16		78	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/16		96	%	70 - 130
		Chloromethane	2012/08/16		83	%	70 - 130
		Vinyl Chloride	2012/08/16		84	%	70 - 130
		Chloroethane	2012/08/16		82	%	70 - 130
		1,3-Butadiene	2012/08/16		88	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/16		84	%	70 - 130
		Trichlorotrifluoroethane	2012/08/16		85	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/16		62 (1)	%	70 - 130
		2-propanol	2012/08/16		83	%	70 - 130
		2-Propanone	2012/08/16		85	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/16		81	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/16		83	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/16		82	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/16		87	%	70 - 130
		Ethyl Acetate	2012/08/16		89	%	70 - 130
		1,1-Dichloroethylene	2012/08/16		85	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/16		86	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/16		88	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/16		77	%	70 - 130
		Chloroform	2012/08/16		85	%	70 - 130
		Carbon Tetrachloride	2012/08/16		84	%	70 - 130
		1,1-Dichloroethane	2012/08/16		84	%	70 - 130
		1,2-Dichloroethane	2012/08/16		85	%	70 - 130
		Ethylene Dibromide	2012/08/16		82	%	70 - 130
		1,1,1-Trichloroethane	2012/08/16		85	%	70 - 130
		1,1,2-Trichloroethane	2012/08/16		83	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/16		78	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/16		83	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/16		84	%	70 - 130
		1,2-Dichloropropane	2012/08/16		82	%	70 - 130
		Bromomethane	2012/08/16		84	%	70 - 130
		Bromoform	2012/08/16		90	%	70 - 130
		Bromodichloromethane	2012/08/16		89	%	70 - 130
		Dibromochloromethane	2012/08/16		88	%	70 - 130
		Heptane	2012/08/16		86	%	70 - 130
		Trichloroethylene	2012/08/16		83	%	70 - 130
		Tetrachloroethylene	2012/08/16		84	%	70 - 130
		Benzene	2012/08/16		84	%	70 - 130
		Toluene	2012/08/16		83	%	70 - 130
		Ethylbenzene	2012/08/16		83	%	70 - 130
		p+m-Xylene	2012/08/16		81	%	70 - 130
		o-Xylene	2012/08/16		81	%	70 - 130
		Styrene	2012/08/16		67 (1)	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/16		76	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/16		74	%	70 - 130
		4-ethyltoluene	2012/08/16		83	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	Spiked Blank	Chlorobenzene	2012/08/16		82	%	70 - 130
		Benzyl chloride	2012/08/16		75	%	70 - 130
		1,3-Dichlorobenzene	2012/08/16		73	%	70 - 130
		1,4-Dichlorobenzene	2012/08/16		72	%	70 - 130
		1,2-Dichlorobenzene	2012/08/16		70	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/16		74	%	70 - 130
		Hexachlorobutadiene	2012/08/16		74	%	70 - 130
		Hexane	2012/08/16		88	%	70 - 130
		Cyclohexane	2012/08/16		87	%	70 - 130
		Tetrahydrofuran	2012/08/16		87	%	70 - 130
		1,4-Dioxane	2012/08/16		82	%	70 - 130
		Xylene (Total)	2012/08/16		81	%	70 - 130
	Method Blank	Bromochloromethane	2012/08/16		83	%	60 - 140
		D5-Chlorobenzene	2012/08/16		82	%	60 - 140
		Difluorobenzene	2012/08/16		85	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/16	<0.20		ppbv	
		Carbon Disulfide	2012/08/16	<0.50		ppbv	
		Propene	2012/08/16	<0.30		ppbv	
		Vinyl Acetate	2012/08/16	<0.20		ppbv	
		Vinyl Bromide	2012/08/16	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/08/16	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/16	<0.17		ppbv	
		Chloromethane	2012/08/16	<0.30		ppbv	
		Vinyl Chloride	2012/08/16	<0.18		ppbv	
		Chloroethane	2012/08/16	<0.30		ppbv	
		1,3-Butadiene	2012/08/16	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/16	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/08/16	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/08/16	<2.3		ppbv	
		2-propanol	2012/08/16	<3.0		ppbv	
		2-Propanone	2012/08/16	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/16	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/16	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/16	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/16	<0.20		ppbv	
		Ethyl Acetate	2012/08/16	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/16	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/16	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/16	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/16	<0.80		ppbv	
		Chloroform	2012/08/16	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/16	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/16	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/16	<0.20		ppbv	
		Ethylene Dibromide	2012/08/16	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/16	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/16	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/16	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/16	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/16	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/16	<0.40		ppbv	
		Bromomethane	2012/08/16	<0.18		ppbv	
		Bromoform	2012/08/16	<0.20		ppbv	
		Bromodichloromethane	2012/08/16	<0.20		ppbv	
		Dibromochloromethane	2012/08/16	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	Method Blank	Heptane	2012/08/16	<0.30		ppbv	
		Trichloroethylene	2012/08/16	<0.30		ppbv	
		Tetrachloroethylene	2012/08/16	<0.20		ppbv	
		Benzene	2012/08/16	<0.18		ppbv	
		Toluene	2012/08/16	<0.20		ppbv	
		Ethylbenzene	2012/08/16	<0.20		ppbv	
		p+m-Xylene	2012/08/16	<0.37		ppbv	
		o-Xylene	2012/08/16	<0.20		ppbv	
		Styrene	2012/08/16	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/08/16	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/16	<0.50		ppbv	
		4-ethyltoluene	2012/08/16	<2.2		ppbv	
		Chlorobenzene	2012/08/16	<0.20		ppbv	
		Benzyl chloride	2012/08/16	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/16	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/16	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/16	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/16	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/16	<3.0		ppbv	
		Hexane	2012/08/16	<0.30		ppbv	
		Cyclohexane	2012/08/16	<0.20		ppbv	
		Tetrahydrofuran	2012/08/16	<0.40		ppbv	
		1,4-Dioxane	2012/08/16	<2.0		ppbv	
		Xylene (Total)	2012/08/16	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/08/16	NC		%	25
		Carbon Disulfide	2012/08/16	1.7		%	25
		Propene	2012/08/16	0.3		%	25
		Vinyl Acetate	2012/08/16	NC		%	25
		Vinyl Bromide	2012/08/16	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/08/16	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/08/16	NC		%	25
		Chloromethane	2012/08/16	NC		%	25
		Vinyl Chloride	2012/08/16	NC		%	25
		Chloroethane	2012/08/16	NC		%	25
		1,3-Butadiene	2012/08/16	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/08/16	NC		%	25
		Trichlorotrifluoroethane	2012/08/16	NC		%	25
		Ethanol (ethyl alcohol)	2012/08/16	NC		%	25
		2-propanol	2012/08/16	NC		%	25
		2-Propanone	2012/08/16	0.04		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/08/16	NC		%	25
		Methyl Isobutyl Ketone	2012/08/16	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/08/16	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/08/16	NC		%	25
		Ethyl Acetate	2012/08/16	NC		%	25
		1,1-Dichloroethylene	2012/08/16	NC		%	25
		cis-1,2-Dichloroethylene	2012/08/16	NC		%	25
		trans-1,2-Dichloroethylene	2012/08/16	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/08/16	NC		%	25
		Chloroform	2012/08/16	NC		%	25
		Carbon Tetrachloride	2012/08/16	NC		%	25
		1,1-Dichloroethane	2012/08/16	NC		%	25
		1,2-Dichloroethane	2012/08/16	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8607

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2941848 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/08/16	NC		%	25
		1,1,1-Trichloroethane	2012/08/16	NC		%	25
		1,1,2-Trichloroethane	2012/08/16	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/08/16	NC		%	25
		cis-1,3-Dichloropropene	2012/08/16	NC		%	25
		trans-1,3-Dichloropropene	2012/08/16	NC		%	25
		1,2-Dichloropropane	2012/08/16	NC		%	25
		Bromomethane	2012/08/16	NC		%	25
		Bromoform	2012/08/16	NC		%	25
		Bromodichloromethane	2012/08/16	NC		%	25
		Dibromochloromethane	2012/08/16	NC		%	25
		Heptane	2012/08/16	1.0		%	25
		Trichloroethylene	2012/08/16	NC		%	25
		Tetrachloroethylene	2012/08/16	NC		%	25
		Benzene	2012/08/16	1.5		%	25
		Toluene	2012/08/16	0.7		%	25
		Ethylbenzene	2012/08/16	0.8		%	25
		p+m-Xylene	2012/08/16	0.2		%	25
		o-Xylene	2012/08/16	0.6		%	25
		Styrene	2012/08/16	NC		%	25
		1,3,5-Trimethylbenzene	2012/08/16	0.9		%	25
		1,2,4-Trimethylbenzene	2012/08/16	1.5		%	25
		4-ethyltoluene	2012/08/16	NC		%	25
		Chlorobenzene	2012/08/16	NC		%	25
		Benzyl chloride	2012/08/16	NC		%	25
		1,3-Dichlorobenzene	2012/08/16	NC		%	25
		1,4-Dichlorobenzene	2012/08/16	NC		%	25
		1,2-Dichlorobenzene	2012/08/16	NC		%	25
		1,2,4-Trichlorobenzene	2012/08/16	NC		%	25
		Hexachlorobutadiene	2012/08/16	NC		%	25
		Hexane	2012/08/16	0.4		%	25
		Cyclohexane	2012/08/16	7.4		%	25
		Tetrahydrofuran	2012/08/16	NC		%	25
		1,4-Dioxane	2012/08/16	NC		%	25
		Xylene (Total)	2012/08/16	0.3		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
 Location: Cold Lake South Canister ID: 250
 Station ID: Lica 1 Canister Installation Date/Time: Aug 02, 2012 @ 07:07 mst
 Field Sample ID: LICA VOC/ CLS /Aug 07, 2012 Canister Removal Date/Time: Aug 08, 2012 @ 07:41 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Aug-12	08/07/2012 0:00	08/08/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	23

7 Ub]ghYf j Uj Y'cdYb'df]cf'lc'gUa d']b[3.'M9G'#NO
 H]a Yf'gYhlc'\$\$\$'a]bi hYg'df]cf'lc'gUa d']b[3.'M9G'#NO
 7 Ub]ghYf j Uj Y'WcgYX'df]cf'lc'X]gVcbbYW]cb3.'M9G'#NO

Comments: System leak check prior to sampling. COC # 11338

Technician Signature: Ting Xu



Your C.O.C. #: 11338

Attention: Michael Bisaga

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

Report Date: 2012/08/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2C1204

Received: 2012/08/10, 11:15

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/08/20	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/20	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

RESULTS OF ANALYSES OF AIR

Maxxam ID		OL3522	OL3523	
Sampling Date		2012/08/07	2012/08/07	
COC Number		11338	11338	
	Units	LICA VOC/CLS/AUG 07,2012 - 250	LICA VOC/PORT/AUG 07,2012 - 136	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2945804

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OL3522			OL3523				
Sampling Date		2012/08/07			2012/08/07				
COC Number		11338			11338				
	Units	LICA VOC/CLS/AUG 07,2012 - 250	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 07,2012 - 136	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	2945792
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2945792
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2945792
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2945792
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2945792
Dichlorodifluoromethane (FREON 12)	ppbv	0.56	2.78	0.989	0.58	0.20	2.86	0.989	2945792
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2945792
Chloromethane	ppbv	<0.30	<0.620	0.620	<0.30	0.30	<0.620	0.620	2945792
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2945792
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2945792
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2945792
Trichlorofluoromethane (FREON 11)	ppbv	0.28	1.55	1.12	0.28	0.20	1.55	1.12	2945792
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2945792
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2945792
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2945792
2-Propanone	ppbv	4.10	9.75	1.90	3.19	0.80	7.59	1.90	2945792
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2945792
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2945792
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2945792
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2945792
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2945792
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2945792
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2945792
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2945792
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2945792
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2945792
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2945792
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2945792
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2945792
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2945792
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2945792
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2945792

RDL = Reportable Detection Limit

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OL3522			OL3523				
Sampling Date		2012/08/07			2012/08/07				
COC Number		11338			11338				
	Units	LICA VOC/CLS/AUG 07,2012 - 250	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 07,2012 - 136	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2945792
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2945792
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2945792
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2945792
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2945792
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2945792
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2945792
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2945792
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2945792
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2945792
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2945792
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2945792
Toluene	ppbv	0.43	1.60	0.753	<0.20	0.20	<0.753	0.753	2945792
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2945792
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2945792
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2945792
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2945792
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2945792
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2945792
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2945792
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2945792
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2945792
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2945792
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2945792
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2945792
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2945792
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2945792
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2945792
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2945792
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2945792
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2945792
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2945792
Surrogate Recovery (%)									
Bromochloromethane	%	70	N/A	N/A	70		N/A	N/A	2945792

N/A = Not Applicable

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OL3522			OL3523				
Sampling Date		2012/08/07			2012/08/07				
COC Number		11338			11338				
	Units	LICA VOC/CLS/AUG 07,2012 - 250	ug/m3	DL (ug/m3)	LICA VOC/PORT/AUG 07,2012 - 136	RDL	ug/m3	DL (ug/m3)	QC Batch

D5-Chlorobenzene	%	66	N/A	N/A	67		N/A	N/A	2945792
Difluorobenzene	%	70	N/A	N/A	71		N/A	N/A	2945792

N/A = Not Applicable

Maxxam Job #: B2C1204
 Report Date: 2012/08/22

Test Summary

Maxxam ID OL3522
Sample ID LICA VOC/CLS/AUG 07,2012 - 250
Matrix AIR

Collected 2012/08/07
Shipped
Received 2012/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2945804	N/A	2012/08/20	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	2945792	N/A	2012/08/20	Spomenka Smiljanic

Maxxam ID OL3523
Sample ID LICA VOC/PORT/AUG 07,2012 - 136
Matrix AIR

Collected 2012/08/07
Shipped
Received 2012/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2945804	N/A	2012/08/20	Spomenka Smiljanic
Volatile Organics in Air (TO-15)	GC/MS	2945792	N/A	2012/08/20	Spomenka Smiljanic

Maxxam Job #: B2C1204
Report Date: 2012/08/22

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2C1204

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2945792 S_S	Spiked Blank	Bromochloromethane	2012/08/20		92	%	60 - 140
		D5-Chlorobenzene	2012/08/20		91	%	60 - 140
		Difluorobenzene	2012/08/20		94	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/20		106	%	70 - 130
		Carbon Disulfide	2012/08/20		104	%	70 - 130
		Propene	2012/08/20		86	%	70 - 130
		Vinyl Acetate	2012/08/20		107	%	70 - 130
		Vinyl Bromide	2012/08/20		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/08/20		95	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/20		106	%	70 - 130
		Chloromethane	2012/08/20		98	%	70 - 130
		Vinyl Chloride	2012/08/20		90	%	70 - 130
		Chloroethane	2012/08/20		91	%	70 - 130
		1,3-Butadiene	2012/08/20		92	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/20		94	%	70 - 130
		Trichlorotrifluoroethane	2012/08/20		94	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/20		81	%	70 - 130
		2-propanol	2012/08/20		96	%	70 - 130
		2-Propanone	2012/08/20		111	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/20		92	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/20		100	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/20		102	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/20		106	%	70 - 130
		Ethyl Acetate	2012/08/20		105	%	70 - 130
		1,1-Dichloroethylene	2012/08/20		97	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/20		99	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/20		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/20		90	%	70 - 130
		Chloroform	2012/08/20		94	%	70 - 130
		Carbon Tetrachloride	2012/08/20		97	%	70 - 130
		1,1-Dichloroethane	2012/08/20		96	%	70 - 130
		1,2-Dichloroethane	2012/08/20		97	%	70 - 130
		Ethylene Dibromide	2012/08/20		95	%	70 - 130
		1,1,1-Trichloroethane	2012/08/20		95	%	70 - 130
		1,1,2-Trichloroethane	2012/08/20		92	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/20		91	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/20		100	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/20		107	%	70 - 130
		1,2-Dichloropropane	2012/08/20		92	%	70 - 130
		Bromomethane	2012/08/20		92	%	70 - 130
		Bromoform	2012/08/20		105	%	70 - 130
		Bromodichloromethane	2012/08/20		104	%	70 - 130
		Dibromochloromethane	2012/08/20		104	%	70 - 130
		Heptane	2012/08/20		104	%	70 - 130
		Trichloroethylene	2012/08/20		95	%	70 - 130
		Tetrachloroethylene	2012/08/20		94	%	70 - 130
		Benzene	2012/08/20		95	%	70 - 130
		Toluene	2012/08/20		97	%	70 - 130
		Ethylbenzene	2012/08/20		99	%	70 - 130
		p+m-Xylene	2012/08/20		96	%	70 - 130
		o-Xylene	2012/08/20		94	%	70 - 130
		Styrene	2012/08/20		86	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/20		91	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/20		93	%	70 - 130
		4-ethyltoluene	2012/08/20		112	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C1204

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2945792 S_S	Spiked Blank	Chlorobenzene	2012/08/20		92	%	70 - 130
		Benzyl chloride	2012/08/20		113	%	70 - 130
		1,3-Dichlorobenzene	2012/08/20		89	%	70 - 130
		1,4-Dichlorobenzene	2012/08/20		88	%	70 - 130
		1,2-Dichlorobenzene	2012/08/20		85	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/20		99	%	70 - 130
		Hexachlorobutadiene	2012/08/20		88	%	70 - 130
		Hexane	2012/08/20		108	%	70 - 130
		Cyclohexane	2012/08/20		102	%	70 - 130
		Tetrahydrofuran	2012/08/20		110	%	70 - 130
		1,4-Dioxane	2012/08/20		109	%	70 - 130
		Xylene (Total)	2012/08/20		95	%	70 - 130
	Method Blank	Bromochloromethane	2012/08/20		83	%	60 - 140
		D5-Chlorobenzene	2012/08/20		78	%	60 - 140
		Difluorobenzene	2012/08/20		85	%	60 - 140
		2,2,4-Trimethylpentane	2012/08/20	<0.20		ppbv	
		Carbon Disulfide	2012/08/20	<0.50		ppbv	
		Propene	2012/08/20	<0.30		ppbv	
		Vinyl Acetate	2012/08/20	<0.20		ppbv	
		Vinyl Bromide	2012/08/20	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/08/20	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/20	<0.17		ppbv	
		Chloromethane	2012/08/20	<0.30		ppbv	
		Vinyl Chloride	2012/08/20	<0.18		ppbv	
		Chloroethane	2012/08/20	<0.30		ppbv	
		1,3-Butadiene	2012/08/20	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/20	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/08/20	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/08/20	<2.3		ppbv	
		2-propanol	2012/08/20	<3.0		ppbv	
		2-Propanone	2012/08/20	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/20	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/20	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/20	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/20	<0.20		ppbv	
		Ethyl Acetate	2012/08/20	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/20	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/20	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/20	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/20	<0.80		ppbv	
		Chloroform	2012/08/20	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/20	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/20	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/20	<0.20		ppbv	
		Ethylene Dibromide	2012/08/20	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/20	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/20	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/20	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/20	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/20	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/20	<0.40		ppbv	
		Bromomethane	2012/08/20	<0.18		ppbv	
		Bromoform	2012/08/20	<0.20		ppbv	
		Bromodichloromethane	2012/08/20	<0.20		ppbv	
		Dibromochloromethane	2012/08/20	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C1204

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2945792 S_S	Method Blank	Heptane	2012/08/20	<0.30		ppbv	
		Trichloroethylene	2012/08/20	<0.30		ppbv	
		Tetrachloroethylene	2012/08/20	<0.20		ppbv	
		Benzene	2012/08/20	<0.18		ppbv	
		Toluene	2012/08/20	<0.20		ppbv	
		Ethylbenzene	2012/08/20	<0.20		ppbv	
		p+m-Xylene	2012/08/20	<0.37		ppbv	
		o-Xylene	2012/08/20	<0.20		ppbv	
		Styrene	2012/08/20	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/08/20	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/20	<0.50		ppbv	
		4-ethyltoluene	2012/08/20	<2.2		ppbv	
		Chlorobenzene	2012/08/20	<0.20		ppbv	
		Benzyl chloride	2012/08/20	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/20	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/20	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/20	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/20	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/20	<3.0		ppbv	
		Hexane	2012/08/20	<0.30		ppbv	
		Cyclohexane	2012/08/20	<0.20		ppbv	
		Tetrahydrofuran	2012/08/20	<0.40		ppbv	
		1,4-Dioxane	2012/08/20	<2.0		ppbv	
		Xylene (Total)	2012/08/20	<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: 305
 Station ID: Lica 1 Canister Installation Date/Time: Aug 10, 2012 @ 17:00 mst
 Field Sample ID: LICA VOC/ CLS /Aug 13, 2012 Canister Removal Date/Time: Aug 15, 2012 @ 07:32 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
13-Aug-12	08/13/2012 0:00	08/14/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	23

7 Ub]ghYf j Uj Y'cdYb'df]cf'lc'gUa d']b[3.'M9G'#NO
 H]a Yf'gYhlc'\$\$\$'a]bi hYg'df]cf'lc'gUa d']b[3.'M9G'#NO
 7 Ub]ghYf j Uj Y'WcgYX'df]cf'lc'X]gVcbbYW]cb3.'M9G'#NO

Comments: System leak check prior to sampling. COC # 11475

Technician Signature: Ting Xu

Your C.O.C. #: 11475

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

Report Date: 2012/08/30

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C7255****Received: 2012/08/21, 09:40**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/08/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/28	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 14

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

RESULTS OF ANALYSES OF AIR

Maxxam ID		OO1320	OO1321	
Sampling Date		2012/08/13 00:00	2012/08/13 00:00	
COC Number		11475	11475	
	Units	LICA VOC/CLS/AUG 13,2012 - 305	LICA VOC/PORT/AUG 13,2012 - 7840	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	21	2953156
QC Batch = Quality Control Batch				

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1320				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/CLS/AUG 13,2012 - 305	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	0.20	3.99	0.989	2954529
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2954529
Chloromethane	ppbv	<0.30	0.30	<0.620	0.620	2954529
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2954529
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2954529
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2954529
Trichlorofluoromethane (FREON 11)	ppbv	0.44	0.20	2.47	1.12	2954529
Ethanol (ethyl alcohol)	ppbv	3.3	2.3	6.24	4.33	2954529
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2954529
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2954529
2-Propanone	ppbv	5.41	0.80	12.8	1.90	2954529
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2954529
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2954529
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2954529
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2954529
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2954529
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2954529
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2954529
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2954529
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2954529
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2954529
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2954529
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2954529
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2954529
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2954529
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2954529
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2954529
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2954529
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1320				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/CLS/AUG 13,2012 - 305	RDL	ug/m3	DL (ug/m3)	QC Batch

1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2954529
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2954529
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2954529
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2954529
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2954529
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2954529
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2954529
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2954529
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2954529
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2954529
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2954529
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2954529
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2954529
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2954529
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2954529
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2954529
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2954529
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2954529
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2954529
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2954529
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2954529
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2954529
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2954529
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2954529
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2954529
Propene	ppbv	<0.30	0.30	<0.516	0.516	2954529
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2954529
QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1320				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/CLS/AUG 13,2012 - 305	RDL	ug/m3	DL (ug/m3)	QC Batch
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2954529
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2954529
Surrogate Recovery (%)						
Bromochloromethane	%	68		N/A	N/A	2954529
D5-Chlorobenzene	%	64		N/A	N/A	2954529
Difluorobenzene	%	69		N/A	N/A	2954529
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1321				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/PORT/AUG 13,2012 - 7840	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	0.20	3.99	0.989	2954529
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2954529
Chloromethane	ppbv	<0.30	0.30	<0.620	0.620	2954529
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2954529
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2954529
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2954529
Trichlorofluoromethane (FREON 11)	ppbv	0.44	0.20	2.50	1.12	2954529
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2954529
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2954529
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2954529
2-Propanone	ppbv	5.15	0.80	12.2	1.90	2954529
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2954529
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2954529
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2954529
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2954529
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2954529
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2954529
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2954529
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2954529
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2954529
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2954529
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2954529
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2954529
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2954529
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2954529
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2954529
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2954529
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2954529
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2954529
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1321				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/PORT/AUG 13,2012 - 7840	RDL	ug/m3	DL (ug/m3)	QC Batch
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2954529
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2954529
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2954529
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2954529
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2954529
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2954529
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2954529
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2954529
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2954529
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2954529
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2954529
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2954529
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2954529
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2954529
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2954529
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2954529
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2954529
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2954529
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2954529
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2954529
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2954529
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2954529
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2954529
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2954529
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2954529
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2954529
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2954529
Propene	ppbv	<0.30	0.30	<0.516	0.516	2954529
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2954529
QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO1321				
Sampling Date		2012/08/13 00:00				
COC Number		11475				
	Units	LICA VOC/PORT/AUG 13,2012 - 7840	RDL	ug/m3	DL (ug/m3)	QC Batch
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2954529
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2954529
Surrogate Recovery (%)						
Bromochloromethane	%	66		N/A	N/A	2954529
D5-Chlorobenzene	%	66		N/A	N/A	2954529
Difluorobenzene	%	69		N/A	N/A	2954529
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B2C7255
 Report Date: 2012/08/30

Test Summary

Maxxam ID OO1320
Sample ID LICA VOC/CLS/AUG 13,2012 - 305
Matrix AIR

Collected 2012/08/13
Shipped
Received 2012/08/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2953156	N/A	2012/08/28	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	2954529	N/A	2012/08/28	Branko Vrzic

Maxxam ID OO1321
Sample ID LICA VOC/PORT/AUG 13,2012 - 7840
Matrix AIR

Collected 2012/08/13
Shipped
Received 2012/08/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2953156	N/A	2012/08/28	Branko Vrzic
Volatile Organics in Air (TO-15)	GC/MS	2954529	N/A	2012/08/28	Branko Vrzic

Maxxam Job #: B2C7255
Report Date: 2012/08/30

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: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	Spiked Blank	Bromochloromethane	2012/08/28		99	%	60 - 140
		D5-Chlorobenzene	2012/08/28		99	%	60 - 140
		Difluorobenzene	2012/08/28		101	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/28		116	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/28		133 (1)	%	70 - 130
		Chloromethane	2012/08/28		107	%	70 - 130
		Vinyl Chloride	2012/08/28		102	%	70 - 130
		Chloroethane	2012/08/28		106	%	70 - 130
		1,3-Butadiene	2012/08/28		94	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/28		132 (1)	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/28		82	%	70 - 130
		Trichlorotrifluoroethane	2012/08/28		102	%	70 - 130
		2-propanol	2012/08/28		94	%	70 - 130
		2-Propanone	2012/08/28		123	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/28		89	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/28		89	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/28		87	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/28		112	%	70 - 130
		Ethyl Acetate	2012/08/28		97	%	70 - 130
		1,1-Dichloroethylene	2012/08/28		112	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/28		103	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/28		107	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/28		97	%	70 - 130
		Chloroform	2012/08/28		110	%	70 - 130
		Carbon Tetrachloride	2012/08/28		112	%	70 - 130
		1,1-Dichloroethane	2012/08/28		104	%	70 - 130
		1,2-Dichloroethane	2012/08/28		123	%	70 - 130
		Ethylene Dibromide	2012/08/28		92	%	70 - 130
		1,1,1-Trichloroethane	2012/08/28		112	%	70 - 130
		1,1,2-Trichloroethane	2012/08/28		90	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/28		94	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/28		102	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/28		112	%	70 - 130
		1,2-Dichloropropane	2012/08/28		90	%	70 - 130
		Bromomethane	2012/08/28		106	%	70 - 130
		Bromoform	2012/08/28		103	%	70 - 130
		Bromodichloromethane	2012/08/28		123	%	70 - 130
		Dibromochloromethane	2012/08/28		111	%	70 - 130
		Trichloroethylene	2012/08/28		81	%	70 - 130
		Tetrachloroethylene	2012/08/28		83	%	70 - 130
		Benzene	2012/08/28		94	%	70 - 130
		Toluene	2012/08/28		90	%	70 - 130
		Ethylbenzene	2012/08/28		93	%	70 - 130
		p+m-Xylene	2012/08/28		92	%	70 - 130
		o-Xylene	2012/08/28		94	%	70 - 130
		Styrene	2012/08/28		71	%	70 - 130
		4-ethyltoluene	2012/08/28		104	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/28		90	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/28		91	%	70 - 130
		Chlorobenzene	2012/08/28		82	%	70 - 130
		Benzyl chloride	2012/08/28		105	%	70 - 130
		1,3-Dichlorobenzene	2012/08/28		82	%	70 - 130
		1,4-Dichlorobenzene	2012/08/28		80	%	70 - 130
		1,2-Dichlorobenzene	2012/08/28		80	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/28		103	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	Spiked Blank	Hexachlorobutadiene	2012/08/28		108	%	70 - 130
		Hexane	2012/08/28		95	%	70 - 130
		Heptane	2012/08/28		89	%	70 - 130
		Cyclohexane	2012/08/28		88	%	70 - 130
		Tetrahydrofuran	2012/08/28		91	%	70 - 130
		1,4-Dioxane	2012/08/28		84	%	70 - 130
		Xylene (Total)	2012/08/28		93	%	70 - 130
		Vinyl Bromide	2012/08/28		107	%	70 - 130
		Propene	2012/08/28		81	%	70 - 130
		2,2,4-Trimethylpentane	2012/08/28		90	%	70 - 130
		Carbon Disulfide	2012/08/28		106	%	70 - 130
	Method Blank	Vinyl Acetate	2012/08/28		95	%	70 - 130
		Bromochloromethane	2012/08/28		85	%	60 - 140
		D5-Chlorobenzene	2012/08/28		81	%	60 - 140
		Difluorobenzene	2012/08/28		89	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/28	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/28	<0.17		ppbv	
		Chloromethane	2012/08/28	<0.30		ppbv	
		Vinyl Chloride	2012/08/28	<0.18		ppbv	
		Chloroethane	2012/08/28	<0.30		ppbv	
		1,3-Butadiene	2012/08/28	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/28	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/08/28	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/08/28	<0.15		ppbv	
		2-propanol	2012/08/28	<3.0		ppbv	
		2-Propanone	2012/08/28	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/28	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/28	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/28	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/28	<0.20		ppbv	
		Ethyl Acetate	2012/08/28	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/28	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/28	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/28	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/28	<0.80		ppbv	
		Chloroform	2012/08/28	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/28	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/28	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/28	<0.20		ppbv	
		Ethylene Dibromide	2012/08/28	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/28	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/28	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/28	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/28	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/28	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/28	<0.40		ppbv	
		Bromomethane	2012/08/28	<0.18		ppbv	
		Bromoform	2012/08/28	<0.20		ppbv	
		Bromodichloromethane	2012/08/28	<0.20		ppbv	
		Dibromochloromethane	2012/08/28	<0.20		ppbv	
		Trichloroethylene	2012/08/28	<0.30		ppbv	
		Tetrachloroethylene	2012/08/28	<0.20		ppbv	
		Benzene	2012/08/28	<0.18		ppbv	
		Toluene	2012/08/28	<0.20		ppbv	
		Ethylbenzene	2012/08/28	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	Method Blank	p+m-Xylene	2012/08/28	<0.37		ppbv	
		o-Xylene	2012/08/28	<0.20		ppbv	
		Styrene	2012/08/28	<0.20		ppbv	
		4-ethyltoluene	2012/08/28	<2.2		ppbv	
		1,3,5-Trimethylbenzene	2012/08/28	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/28	<0.50		ppbv	
		Chlorobenzene	2012/08/28	<0.20		ppbv	
		Benzyl chloride	2012/08/28	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/28	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/28	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/28	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/28	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/28	<3.0		ppbv	
		Hexane	2012/08/28	<0.30		ppbv	
		Heptane	2012/08/28	<0.30		ppbv	
		Cyclohexane	2012/08/28	<0.20		ppbv	
		Tetrahydrofuran	2012/08/28	<0.40		ppbv	
		1,4-Dioxane	2012/08/28	<2.0		ppbv	
		Xylene (Total)	2012/08/28	<0.60		ppbv	
		Vinyl Bromide	2012/08/28	<0.20		ppbv	
		Propene	2012/08/28	<0.30		ppbv	
		2,2,4-Trimethylpentane	2012/08/28	<0.20		ppbv	
		Carbon Disulfide	2012/08/28	<0.50		ppbv	
		Vinyl Acetate	2012/08/28	<0.20		ppbv	
	RPD - Sample/Sample Dup	Dichlorodifluoromethane (FREON 12)	2012/08/28	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/08/28	NC		%	25
		Chloromethane	2012/08/28	NC		%	25
		Vinyl Chloride	2012/08/28	NC		%	25
		Chloroethane	2012/08/28	NC		%	25
		1,3-Butadiene	2012/08/28	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/08/28	NC		%	25
		Ethanol (ethyl alcohol)	2012/08/28	NC		%	25
		Trichlorotrifluoroethane	2012/08/28	NC		%	25
		2-propanol	2012/08/28	NC		%	25
		2-Propanone	2012/08/28	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/08/28	NC		%	25
		Methyl Isobutyl Ketone	2012/08/28	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/08/28	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/08/28	NC		%	25
		Ethyl Acetate	2012/08/28	NC		%	25
		1,1-Dichloroethylene	2012/08/28	NC		%	25
		cis-1,2-Dichloroethylene	2012/08/28	NC		%	25
		trans-1,2-Dichloroethylene	2012/08/28	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/08/28	NC		%	25
		Chloroform	2012/08/28	NC		%	25
		Carbon Tetrachloride	2012/08/28	NC		%	25
		1,1-Dichloroethane	2012/08/28	NC		%	25
		1,2-Dichloroethane	2012/08/28	NC		%	25
		Ethylene Dibromide	2012/08/28	NC		%	25
		1,1,1-Trichloroethane	2012/08/28	NC		%	25
		1,1,2-Trichloroethane	2012/08/28	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/08/28	NC		%	25
		cis-1,3-Dichloropropene	2012/08/28	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C7255

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2954529 BY	RPD - Sample/Sample Dup	trans-1,3-Dichloropropene	2012/08/28	NC		%	25
		1,2-Dichloropropane	2012/08/28	NC		%	25
		Bromomethane	2012/08/28	NC		%	25
		Bromoform	2012/08/28	NC		%	25
		Bromodichloromethane	2012/08/28	NC		%	25
		Dibromochloromethane	2012/08/28	NC		%	25
		Trichloroethylene	2012/08/28	NC		%	25
		Tetrachloroethylene	2012/08/28	NC		%	25
		Benzene	2012/08/28	NC		%	25
		Toluene	2012/08/28	NC		%	25
		Ethylbenzene	2012/08/28	NC		%	25
		p+m-Xylene	2012/08/28	NC		%	25
		o-Xylene	2012/08/28	NC		%	25
		Styrene	2012/08/28	NC		%	25
		4-ethyltoluene	2012/08/28	NC		%	25
		1,3,5-Trimethylbenzene	2012/08/28	NC		%	25
		1,2,4-Trimethylbenzene	2012/08/28	NC		%	25
		Chlorobenzene	2012/08/28	NC		%	25
		Benzyl chloride	2012/08/28	NC		%	25
		1,3-Dichlorobenzene	2012/08/28	NC		%	25
		1,4-Dichlorobenzene	2012/08/28	NC		%	25
		1,2-Dichlorobenzene	2012/08/28	NC		%	25
		1,2,4-Trichlorobenzene	2012/08/28	NC		%	25
		Hexachlorobutadiene	2012/08/28	NC		%	25
		Hexane	2012/08/28	NC		%	25
		Heptane	2012/08/28	NC		%	25
		Cyclohexane	2012/08/28	NC		%	25
		Tetrahydrofuran	2012/08/28	NC		%	25
		1,4-Dioxane	2012/08/28	NC		%	25
		Xylene (Total)	2012/08/28	NC		%	25
		Vinyl Bromide	2012/08/28	NC		%	25
		Propene	2012/08/28	NC		%	25
		2,2,4-Trimethylpentane	2012/08/28	NC		%	25
		Carbon Disulfide	2012/08/28	NC		%	25
		Vinyl Acetate	2012/08/28	NC		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
 Location: Cold Lake South Canister ID: 253
 Station ID: Lica 1 Canister Installation Date/Time: Aug 17, 2012 @ 07:25 mst
 Field Sample ID: LICA VOC/ CLS /Aug 19, 2012 Canister Removal Date/Time: Aug 20, 2012 @ 07:23 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-Aug-12	08/19/2012 0:00	08/20/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	23

7 Ub]ghYf j Uj Y'cdYb'df]cf'lc'gUa d']b[3.'M9G'#NO
 H]a Yf'gYhlc'\$\$\$'a]bi hYg'df]cf'lc'gUa d']b[3.'M9G'#NO
 7 Ub]ghYf j Uj Y'WcgYX'df]cf'lc'X]gVcbbYW]cb3.'M9G'#NO

Comments: System leak check prior to sampling. COC # 10992

Technician Signature: Ting Xu

Your C.O.C. #: 10992

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2012/09/05****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B2C8002****Received: 2012/08/22, 09:39**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/08/31	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/08/31	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 13

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

RESULTS OF ANALYSES OF AIR

Maxxam ID		OO4300	OO4301	
Sampling Date		2012/08/19 00:00	2012/08/19 00:00	
COC Number		10992	10992	
	Units	LICA VOC\CLSL\ AUG 19,12	LICA VOC\PORT\ AUG 19,12	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2958396
QC Batch = Quality Control Batch				

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4300				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC\CLS\	RDL	ug/m3	DL (ug/m3)	QC Batch
		AUG 19,12				
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.66	0.20	3.26	0.989	2958404
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2958404
Chloromethane	ppbv	0.49	0.30	1.02	0.620	2958404
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2958404
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2958404
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2958404
Trichlorofluoromethane (FREON 11)	ppbv	0.30	0.20	1.71	1.12	2958404
Ethanol (ethyl alcohol)	ppbv	3.4	2.3	6.40	4.33	2958404
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2958404
2-propanol	ppbv	3.1	3.0	7.53	7.37	2958404
2-Propanone	ppbv	4.32	0.80	10.3	1.90	2958404
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2958404
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2958404
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2958404
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2958404
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2958404
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2958404
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2958404
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2958404
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2958404
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2958404
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2958404
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2958404
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2958404
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2958404
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2958404
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2958404
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2958404
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2958404
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4300				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC\CLS\	RDL	ug/m3	DL (ug/m3)	QC Batch
		AUG 19,12				
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2958404
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2958404
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2958404
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2958404
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2958404
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2958404
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2958404
Toluene	ppbv	0.20	0.20	0.769	0.753	2958404
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2958404
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2958404
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2958404
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2958404
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2958404
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2958404
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2958404
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2958404
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2958404
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2958404
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2958404
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2958404
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2958404
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2958404
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2958404
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2958404
Propene	ppbv	<1.3	1.3	<2.29	2.29	2958404
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2958404
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2958404
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2958404
QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4300				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC\CLS\ AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	90		N/A	N/A	2958404
D5-Chlorobenzene	%	88		N/A	N/A	2958404
Difluorobenzene	%	95		N/A	N/A	2958404

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

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4301				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC/PORT AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.72	0.20	3.54	0.989	2958404
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2958404
Chloromethane	ppbv	0.44	0.30	0.902	0.620	2958404
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2958404
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2958404
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2958404
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.73	1.12	2958404
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2958404
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2958404
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2958404
2-Propanone	ppbv	3.69	0.80	8.76	1.90	2958404
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2958404
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2958404
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2958404
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2958404
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2958404
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2958404
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2958404
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2958404
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2958404
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2958404
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2958404
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2958404
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2958404
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2958404
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2958404
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2958404
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2958404
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2958404
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4301				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC/PORT AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch

1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2958404
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2958404
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2958404
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2958404
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2958404
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2958404
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2958404
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2958404
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2958404
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2958404
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2958404
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2958404
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2958404
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2958404
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2958404
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2958404
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2958404
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2958404
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2958404
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2958404
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2958404
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2958404
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2958404
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2958404
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2958404
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2958404
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2958404
Propene	ppbv	<0.30	0.30	<0.516	0.516	2958404
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2958404
QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		OO4301				
Sampling Date		2012/08/19 00:00				
COC Number		10992				
	Units	LICA VOC/PORT AUG 19,12	RDL	ug/m3	DL (ug/m3)	QC Batch
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2958404
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2958404
Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2958404
D5-Chlorobenzene	%	79		N/A	N/A	2958404
Difluorobenzene	%	87		N/A	N/A	2958404
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B2C8002
 Report Date: 2012/09/05

Test Summary

Maxxam ID OO4300
Sample ID LICA VOC\CLSI\ AUG 19,12
Matrix AIR

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2958396	N/A	2012/08/31	Melanie Mabini
Volatile Organics in Air (TO-15)	GC/MS	2958404	N/A	2012/08/31	Melanie Mabini

Maxxam ID OO4301
Sample ID LICA VOC\PORT\ AUG 19,12
Matrix AIR

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2958396	N/A	2012/08/31	Melanie Mabini
Volatile Organics in Air (TO-15)	GC/MS	2958404	N/A	2012/08/31	Melanie Mabini

Maxxam Job #: B2C8002
Report Date: 2012/09/05

GENERAL COMMENTS

In the initial 6-pt calibration 3 compounds (Dibromochloromethane, bromoform and Benzyl chloride) had $\text{rsd}'\text{s} > 30\%$. The continuing calibration and reference std were acceptable for these compounds. The data should not be affected, since there were no positives found for these compounds.

Sample OO4300-01: Increase MDL for propene due to matrix interference on a possible positive.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2C8002

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2958404 MM2	Spiked Blank	Bromochloromethane	2012/08/31		98	%	60 - 140
		D5-Chlorobenzene	2012/08/31		96	%	60 - 140
		Difluorobenzene	2012/08/31		100	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/31		115	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/08/31		129	%	70 - 130
		Chloromethane	2012/08/31		116	%	70 - 130
		Vinyl Chloride	2012/08/31		110	%	70 - 130
		Chloroethane	2012/08/31		106	%	70 - 130
		1,3-Butadiene	2012/08/31		108	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/08/31		104	%	70 - 130
		Ethanol (ethyl alcohol)	2012/08/31		77	%	70 - 130
		Trichlorotrifluoroethane	2012/08/31		107	%	70 - 130
		2-propanol	2012/08/31		117	%	70 - 130
		2-Propanone	2012/08/31		113	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/08/31		118	%	70 - 130
		Methyl Isobutyl Ketone	2012/08/31		112	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/08/31		112	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/08/31		114	%	70 - 130
		Ethyl Acetate	2012/08/31		118	%	70 - 130
		1,1-Dichloroethylene	2012/08/31		108	%	70 - 130
		cis-1,2-Dichloroethylene	2012/08/31		107	%	70 - 130
		trans-1,2-Dichloroethylene	2012/08/31		110	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/08/31		102	%	70 - 130
		Chloroform	2012/08/31		108	%	70 - 130
		Carbon Tetrachloride	2012/08/31		122	%	70 - 130
		1,1-Dichloroethane	2012/08/31		114	%	70 - 130
		1,2-Dichloroethane	2012/08/31		108	%	70 - 130
		Ethylene Dibromide	2012/08/31		113	%	70 - 130
		1,1,1-Trichloroethane	2012/08/31		113	%	70 - 130
		1,1,2-Trichloroethane	2012/08/31		111	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/08/31		111	%	70 - 130
		cis-1,3-Dichloropropene	2012/08/31		117	%	70 - 130
		trans-1,3-Dichloropropene	2012/08/31		121	%	70 - 130
		1,2-Dichloropropane	2012/08/31		112	%	70 - 130
		Bromomethane	2012/08/31		107	%	70 - 130
		Bromoform	2012/08/31		129	%	70 - 130
		Bromodichloromethane	2012/08/31		116	%	70 - 130
		Dibromochloromethane	2012/08/31		121	%	70 - 130
		Trichloroethylene	2012/08/31		109	%	70 - 130
		Tetrachloroethylene	2012/08/31		114	%	70 - 130
		Benzene	2012/08/31		113	%	70 - 130
		Toluene	2012/08/31		115	%	70 - 130
		Ethylbenzene	2012/08/31		110	%	70 - 130
		p+m-Xylene	2012/08/31		109	%	70 - 130
		o-Xylene	2012/08/31		111	%	70 - 130
		Styrene	2012/08/31		82	%	70 - 130
		4-ethyltoluene	2012/08/31		124	%	70 - 130
		1,3,5-Trimethylbenzene	2012/08/31		105	%	70 - 130
		1,2,4-Trimethylbenzene	2012/08/31		100	%	70 - 130
		Chlorobenzene	2012/08/31		108	%	70 - 130
		Benzyl chloride	2012/08/31		127	%	70 - 130
		1,3-Dichlorobenzene	2012/08/31		94	%	70 - 130
		1,4-Dichlorobenzene	2012/08/31		93	%	70 - 130
		1,2-Dichlorobenzene	2012/08/31		95	%	70 - 130
		1,2,4-Trichlorobenzene	2012/08/31		71	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C8002

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2958404 MM2	Spiked Blank	Hexachlorobutadiene	2012/08/31		89	%	70 - 130
		Hexane	2012/08/31		117	%	70 - 130
		Heptane	2012/08/31		115	%	70 - 130
		Cyclohexane	2012/08/31		114	%	70 - 130
		Tetrahydrofuran	2012/08/31		115	%	70 - 130
		1,4-Dioxane	2012/08/31		116	%	70 - 130
		Vinyl Bromide	2012/08/31		104	%	70 - 130
		Propene	2012/08/31		108	%	70 - 130
		2,2,4-Trimethylpentane	2012/08/31		115	%	70 - 130
		Carbon Disulfide	2012/08/31		108	%	70 - 130
		Vinyl Acetate	2012/08/31		122	%	70 - 130
	Method Blank	Bromochloromethane	2012/08/31		87	%	60 - 140
		D5-Chlorobenzene	2012/08/31		84	%	60 - 140
		Difluorobenzene	2012/08/31		92	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2012/08/31	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/08/31	<0.17		ppbv	
		Chloromethane	2012/08/31	<0.30		ppbv	
		Vinyl Chloride	2012/08/31	<0.18		ppbv	
		Chloroethane	2012/08/31	<0.30		ppbv	
		1,3-Butadiene	2012/08/31	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/08/31	<0.20		ppbv	
		Ethanol (ethyl alcohol)	2012/08/31	<2.3		ppbv	
		Trichlorotrifluoroethane	2012/08/31	<0.15		ppbv	
		2-propanol	2012/08/31	<3.0		ppbv	
		2-Propanone	2012/08/31	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/08/31	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/08/31	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/08/31	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/08/31	<0.20		ppbv	
		Ethyl Acetate	2012/08/31	<2.2		ppbv	
		1,1-Dichloroethylene	2012/08/31	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/08/31	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/08/31	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/08/31	<0.80		ppbv	
		Chloroform	2012/08/31	<0.15		ppbv	
		Carbon Tetrachloride	2012/08/31	<0.30		ppbv	
		1,1-Dichloroethane	2012/08/31	<0.20		ppbv	
		1,2-Dichloroethane	2012/08/31	<0.20		ppbv	
		Ethylene Dibromide	2012/08/31	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/08/31	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/08/31	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/08/31	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/08/31	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/08/31	<0.17		ppbv	
		1,2-Dichloropropane	2012/08/31	<0.40		ppbv	
		Bromomethane	2012/08/31	<0.18		ppbv	
		Bromoform	2012/08/31	<0.20		ppbv	
		Bromodichloromethane	2012/08/31	<0.20		ppbv	
		Dibromochloromethane	2012/08/31	<0.20		ppbv	
		Trichloroethylene	2012/08/31	<0.30		ppbv	
		Tetrachloroethylene	2012/08/31	<0.20		ppbv	
		Benzene	2012/08/31	<0.18		ppbv	
		Toluene	2012/08/31	<0.20		ppbv	
		Ethylbenzene	2012/08/31	<0.20		ppbv	
		p+m-Xylene	2012/08/31	<0.37		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C8002

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2958404 MM2	Method Blank	o-Xylene	2012/08/31	<0.20		ppbv	
		Styrene	2012/08/31	<0.20		ppbv	
		4-ethyltoluene	2012/08/31	<2.2		ppbv	
		1,3,5-Trimethylbenzene	2012/08/31	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/08/31	<0.50		ppbv	
		Chlorobenzene	2012/08/31	<0.20		ppbv	
		Benzyl chloride	2012/08/31	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/08/31	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/08/31	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/08/31	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/08/31	<2.0		ppbv	
		Hexachlorobutadiene	2012/08/31	<3.0		ppbv	
		Hexane	2012/08/31	<0.30		ppbv	
		Heptane	2012/08/31	<0.30		ppbv	
		Cyclohexane	2012/08/31	<0.20		ppbv	
		Tetrahydrofuran	2012/08/31	<0.40		ppbv	
		1,4-Dioxane	2012/08/31	<2.0		ppbv	
		Xylene (Total)	2012/08/31	<0.60		ppbv	
		Vinyl Bromide	2012/08/31	<0.20		ppbv	
		Propene	2012/08/31	<0.30		ppbv	
		2,2,4-Trimethylpentane	2012/08/31	<0.20		ppbv	
		Carbon Disulfide	2012/08/31	<0.50		ppbv	
		Vinyl Acetate	2012/08/31	<0.20		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.

-
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-
-

Dc`mWmWjW5 fca UhjW< mXfc WUf Vc bg`
@UvcfUhcfm5 bUng]g`

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Aug 01, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Jul 30, 2012 @ 08:32 mst
 Removal Date/Time: Aug 02, 2012 @ 7:24 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
01-Aug-12	08/01/2012 0:00	08/02/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
26-Jul-12	03-Aug-12	08-Aug-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)
711	229	20.1	330.33

Hja Y'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 Hja Yf'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 GUa d`]b[`XUHJgUj YX'hc'a Ya cfmWUX'UZyf'gUa d`]b[3`M9G

Comments: COC#11999

GB2B0051 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 01, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 11999

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

Report Date: 2012/08/21

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2B8599****Received: 2012/08/07, 08:25**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/08	2012/08/17	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2B8599
 Report Date: 2012/08/21

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

Maxxam ID		OJ9023	OJ9024		
Sampling Date		2012/08/01	2012/08/01		
COC Number		11999	11999		
	Units	LICA PUFF+QFF/CLS/AUG 01,12	LICAPUFF+QFF/PORT/AUG 01,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2931595
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2931595
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2931595
2-Methylantracene	ug	<0.10	<0.10	0.10	2931595
2-Methylnaphthalene	ug	<0.10	0.10	0.10	2931595
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2931595
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2931595
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2931595
Acenaphthene	ug	0.086	<0.050	0.050	2931595
Acenaphthylene	ug	<0.050	<0.050	0.050	2931595
Anthracene	ug	<0.050	<0.050	0.050	2931595
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2931595
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2931595
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2931595
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2931595
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2931595
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2931595
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2931595
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2931595
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2931595
Biphenyl	ug	<0.10	<0.10	0.10	2931595
Chrysene	ug	<0.050	<0.050	0.050	2931595
Coronene	ug	<0.10	<0.10	0.10	2931595
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2931595
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2931595
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2931595
Fluoranthene	ug	<0.050	<0.050	0.050	2931595
Fluorene	ug	0.090	<0.050	0.050	2931595
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2931595
m-Terphenyl	ug	<0.10	<0.10	0.10	2931595
Naphthalene	ug	<0.072	0.076	0.072	2931595
o-Terphenyl	ug	<0.10	<0.10	0.10	2931595

RDL = Reportable Detection Limit

Maxxam Job #: B2B8599
 Report Date: 2012/08/21

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

Maxxam ID		OJ9023	OJ9024		
Sampling Date		2012/08/01	2012/08/01		
COC Number		11999	11999		
	Units	LICA PUFF+QFF/CLS/AUG 01,12	LICAPUFF+QFF/PORT/AUG 01,12	RDL	QC Batch

Perylene	ug	<0.10	<0.10	0.10	2931595
Phenanthrene	ug	0.354	0.182	0.050	2931595
p-Terphenyl	ug	<0.10	<0.10	0.10	2931595
Pyrene	ug	<0.050	<0.050	0.050	2931595
Quinoline	ug	<0.40	<0.40	0.40	2931595
Tetralin	ug	<0.10	<0.10	0.10	2931595
Triphenylene	ug	0.10	<0.10	0.10	2931595
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	50	52		2931595
D10-Fluoranthene	%	90	90		2931595
D10-Fluorene (FS)	%	5.8 (1)	5.4 (1)		2931595
D10-Phenanthrene	%	76	74		2931595
D12-Benzo(a)anthracene	%	78	82		2931595
D12-Benzo(a)pyrene	%	80	82		2931595
D12-Benzo(b)fluoranthene	%	84	80		2931595
D12-Benzo(ghi)perylene	%	78	80		2931595
D12-Benzo(k)fluoranthene	%	84	94		2931595
D12-Chrysene	%	90	88		2931595
D12-Indeno(1,2,3-cd)pyrene	%	74	76		2931595
D12-Perylene	%	84	84		2931595
D14-Dibenzo(a,h)anthracene	%	76	78		2931595
D14-Terphenyl (FS)	%	88	88		2931595
D8-Acenaphthylene	%	52	54		2931595
D8-Naphthalene	%	50	52		2931595

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

Maxxam Job #: B2B8599
 Report Date: 2012/08/21

Test Summary

Maxxam ID OJ9023
Sample ID LICA PUFF+QFF/CLS/AUG 01,12
Matrix PUF AND FILTER

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2931595	2012/08/08	2012/08/17	Lidija Tomic

Maxxam ID OJ9024
Sample ID LICAPUFF+QFF/PORT/AUG 01,12
Matrix PUF AND FILTER

Collected 2012/08/01
Shipped
Received 2012/08/07

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2931595	2012/08/08	2012/08/17	Lidija Tomic

Maxxam Job #: B2B8599
Report Date: 2012/08/21

GENERAL COMMENTS

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.05ug x split.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl. Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

Low recovery for Naphthalene, Acenaphthylene, Acenaphthene, Fluorene and Phenanthrene in Spike and Spike Dup. Reported values are based on theoretical amount added to spike and spike dup. A method spike was prepared using the spiking solution and these results were low for these 5 compounds.

% Recovery in Spike vs. MSPIKE: Naphthalene-86%;
Acenaphthylene-72%;
Acenaphthene-75%;
Fluorene-74%;
Phenanthrene -84%

% Recovery in Spike Dup vs. MSPIKE: Naphthalene-88%;
Acenaphthylene-71%;
Acenaphthene-75%;
Fluorene-75%;
Phenanthrene -85%

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2B8599

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2931595 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/17		58	%	50 - 150
		D10-Fluoranthene	2012/08/17		84	%	50 - 150
		D10-Phenanthrene	2012/08/17		74	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/17		76	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/17		84	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/17		76	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/17		80	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/17		92	%	50 - 150
		D12-Chrysene	2012/08/17		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/17		76	%	50 - 150
		D12-Perylene	2012/08/17		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/17		76	%	50 - 150
		RPD	D8-Acenaphthylene	2012/08/17		60	%	50 - 150
	D8-Naphthalene		2012/08/17		56	%	50 - 150
	Spiked Blank	Acenaphthene	2012/08/17		57 (1)	%	60 - 130
		Acenaphthene	2012/08/17	0.9		%	50
	RPD	Acenaphthylene	2012/08/17		54 (1)	%	60 - 130
		Acenaphthylene	2012/08/17	1.4		%	50
	Spiked Blank	Anthracene	2012/08/17		61	%	60 - 130
		Anthracene	2012/08/17	0.4		%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/17		68	%	60 - 130
		Benzo(a)anthracene	2012/08/17	1.1		%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/17		64	%	60 - 130
		Benzo(a)pyrene	2012/08/17	1.9		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/17		67	%	60 - 130
		Benzo(b)fluoranthene	2012/08/17	1.1		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/17		71	%	60 - 130
		Benzo(g,h,i)perylene	2012/08/17	0.4		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/17		89	%	60 - 130
		Benzo(k)fluoranthene	2012/08/17	0.6		%	50
	Spiked Blank	Chrysene	2012/08/17		76	%	60 - 130
		Chrysene	2012/08/17	1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/17		74	%	60 - 130
		Dibenz(a,h)anthracene	2012/08/17	1.4		%	50
	Spiked Blank	Fluoranthene	2012/08/17		75	%	60 - 130
		Fluoranthene	2012/08/17	1		%	50
	Spiked Blank	Fluorene	2012/08/17		59 (1)	%	60 - 130
		Fluorene	2012/08/17	0.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/17		71	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2012/08/17	0.7		%	50
Spiked Blank	Naphthalene	2012/08/17		53 (1)	%	60 - 130	
	Naphthalene	2012/08/17	1.9		%	50	
Spiked Blank	Phenanthrene	2012/08/17		53 (1)	%	60 - 130	
	Phenanthrene	2012/08/17	0.9		%	50	
Spiked Blank	Pyrene	2012/08/17		69	%	60 - 130	
	Pyrene	2012/08/17	0.7		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/17		62	%	50 - 150	
	D10-Fluoranthene	2012/08/17		82	%	50 - 150	
	D10-Phenanthrene	2012/08/17		70	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/17		70	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/17		82	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/17		80	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/17		78	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/17		86	%	50 - 150	
	D12-Chrysene	2012/08/17		86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2B8599

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2931595 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/17		74	%	50 - 150
		D12-Perylene	2012/08/17		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/17		74	%	50 - 150
		D8-Acenaphthylene	2012/08/17		62	%	50 - 150
		D8-Naphthalene	2012/08/17		60	%	50 - 150
		1-Methylnaphthalene	2012/08/17	<0.10		ug	
		1-Methylphenanthrene	2012/08/17	<0.10		ug	
		2-Chloronaphthalene	2012/08/17	<0.10		ug	
		2-Methylanthracene	2012/08/17	<0.10		ug	
		2-Methylnaphthalene	2012/08/17	<0.10		ug	
		3-Methylcholanthrene	2012/08/17	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/17	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/17	<0.40		ug	
		Acenaphthene	2012/08/17	<0.050		ug	
		Acenaphthylene	2012/08/17	<0.050		ug	
		Anthracene	2012/08/17	<0.050		ug	
		Benzo(a)anthracene	2012/08/17	<0.050		ug	
		Benzo(a)fluorene	2012/08/17	<0.10		ug	
		Benzo(a)pyrene	2012/08/17	<0.050		ug	
		Benzo(b)Anthracene	2012/08/17	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/17	<0.050		ug	
		Benzo(b)fluorene	2012/08/17	<0.10		ug	
		Benzo(e)pyrene	2012/08/17	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/17	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/17	<0.050		ug	
		Biphenyl	2012/08/17	<0.10		ug	
		Chrysene	2012/08/17	<0.050		ug	
		Coronene	2012/08/17	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/17	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/17	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/17	<0.20		ug	
		Fluoranthene	2012/08/17	<0.050		ug	
		Fluorene	2012/08/17	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/17	<0.050		ug	
		m-Terphenyl	2012/08/17	<0.10		ug	
		Naphthalene	2012/08/17	<0.072		ug	
		o-Terphenyl	2012/08/17	<0.10		ug	
		Perylene	2012/08/17	<0.10		ug	
		Phenanthrene	2012/08/17	<0.050		ug	
		p-Terphenyl	2012/08/17	<0.10		ug	
		Pyrene	2012/08/17	<0.050		ug	
		Quinoline	2012/08/17	<0.40		ug	
		Tetralin	2012/08/17	<0.10		ug	
		Triphenylene	2012/08/17	<0.10		ug	

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

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Aug 07, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Aug 02, 2012@ 7:46 mst
 Removal Date/Time: Aug 08, 2012@ 7:50 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
07-Aug-12	08/07/2012 0:00	08/08/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Jul-12	08-Aug-12	13-Aug-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	22.1	330.33

Hja Y'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 Hja Yf'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 GUa d`]b[`XUHJgUj YX'hc'a Ya cfmWUX'UZyf'gUa d`]b[3`M9G

Comments: COC# 11339

GB2B0052 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 07, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 11339

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

Report Date: 2012/08/29

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C2901**

Received: 2012/08/14, 09:27

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/18	2012/08/28	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

Theresa Stephenson, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763=====
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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2C2901
 Report Date: 2012/08/29

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

Maxxam ID		OM1335	OM1336		
Sampling Date		2012/08/07	2012/08/07		
COC Number		11339	11339		
	Units	LICA PUFF+QFF/CLS/AUG 07,12	LICA PUFF+QFF/PORT/AUG 07,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.11	<0.10	0.10	2943046
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2943046
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2943046
2-Methylantracene	ug	<0.10	<0.10	0.10	2943046
2-Methylnaphthalene	ug	0.19	<0.10	0.10	2943046
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2943046
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2943046
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2943046
Acenaphthene	ug	0.074	<0.050	0.050	2943046
Acenaphthylene	ug	<0.050	<0.050	0.050	2943046
Anthracene	ug	<0.050	0.220	0.050	2943046
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2943046
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2943046
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2943046
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2943046
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Biphenyl	ug	<0.10	<0.10	0.10	2943046
Chrysene	ug	<0.050	<0.050	0.050	2943046
Coronene	ug	<0.10	<0.10	0.10	2943046
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2943046
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2943046
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2943046
Fluoranthene	ug	0.108	0.050	0.050	2943046
Fluorene	ug	0.158	<0.050	0.050	2943046
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2943046
m-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Naphthalene	ug	0.212	<0.072	0.072	2943046

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		OM1335	OM1336		
Sampling Date		2012/08/07	2012/08/07		
COC Number		11339	11339		
	Units	LICA PUFF+QFF/CLS/AUG 07,12	LICA PUFF+QFF/PORT/AUG 07,12	RDL	QC Batch

o-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Perylene	ug	<0.10	<0.10	0.10	2943046
Phenanthrene	ug	0.808	0.212	0.050	2943046
p-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Pyrene	ug	0.080	<0.050	0.050	2943046
Quinoline	ug	<0.40	<0.40	0.40	2943046
Tetralin	ug	<0.10	<0.10	0.10	2943046
Triphenylene	ug	0.10	<0.10	0.10	2943046
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	64		2943046
D10-Fluoranthene	%	96	96		2943046
D10-Fluorene (FS)	%	6.6 (1)	5.6 (1)		2943046
D10-Phenanthrene	%	86	86		2943046
D12-Benzo(a)anthracene	%	92	78		2943046
D12-Benzo(a)pyrene	%	84	84		2943046
D12-Benzo(b)fluoranthene	%	88	88		2943046
D12-Benzo(ghi)perylene	%	88	88		2943046
D12-Benzo(k)fluoranthene	%	86	86		2943046
D12-Chrysene	%	88	84		2943046
D12-Indeno(1,2,3-cd)pyrene	%	88	86		2943046
D12-Perylene	%	86	84		2943046
D14-Dibenzo(a,h)anthracene	%	90	90		2943046
D14-Terphenyl (FS)	%	95	97		2943046
D8-Acenaphthylene	%	66	64		2943046
D8-Naphthalene	%	68	62		2943046

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 #: B2C2901
Report Date: 2012/08/29

Test Summary

Maxxam ID OM1335
Sample ID LICA PUFF+QFF/CLS/AUG 07,12
Matrix PUF AND FILTER

Collected 2012/08/07
Shipped
Received 2012/08/14

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam ID OM1336
Sample ID LICA PUFF+QFF/PORT/AUG 07,12
Matrix PUF AND FILTER

Collected 2012/08/07
Shipped
Received 2012/08/14

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam Job #: B2C2901
Report Date: 2012/08/29

GENERAL COMMENTS

PAHMS-F:

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.05ug x split.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl. Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

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

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB2C2901

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/28		70	%	50 - 150
		D10-Fluoranthene	2012/08/28		90	%	50 - 150
		D10-Phenanthrene	2012/08/28		82	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/28		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/28		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Chrysene	2012/08/28		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/28		86	%	50 - 150
		D12-Perylene	2012/08/28		86	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		D8-Acenaphthylene	2012/08/28		70	%	50 - 150
		D8-Naphthalene	2012/08/28		72	%	50 - 150
		Acenaphthene	2012/08/28		68	%	60 - 130
	RPD	Acenaphthene	2012/08/28	5.8		%	50
	Spiked Blank	Acenaphthylene	2012/08/28		67	%	60 - 130
	RPD	Acenaphthylene	2012/08/28	6.2		%	50
	Spiked Blank	Anthracene	2012/08/28		74	%	60 - 130
	RPD	Anthracene	2012/08/28	3.0		%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/28		77	%	60 - 130
	RPD	Benzo(a)anthracene	2012/08/28	17.6		%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/28		67	%	60 - 130
	RPD	Benzo(a)pyrene	2012/08/28	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/28		75	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/08/28	1.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/28		76	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/08/28	0.7		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/28		84	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/08/28	0.6		%	50
	Spiked Blank	Chrysene	2012/08/28		74	%	60 - 130
	RPD	Chrysene	2012/08/28	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/28		83	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/08/28	0		%	50
	Spiked Blank	Fluoranthene	2012/08/28		84	%	60 - 130
	RPD	Fluoranthene	2012/08/28	2.1		%	50
	Spiked Blank	Fluorene	2012/08/28		71	%	60 - 130
	RPD	Fluorene	2012/08/28	4.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/28		78	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/08/28	0.3		%	50
Spiked Blank	Naphthalene	2012/08/28		72	%	60 - 130	
RPD	Naphthalene	2012/08/28	5.1		%	50	
Spiked Blank	Phenanthrene	2012/08/28		75	%	60 - 130	
RPD	Phenanthrene	2012/08/28	2.3		%	50	
Spiked Blank	Pyrene	2012/08/28		76	%	60 - 130	
RPD	Pyrene	2012/08/28	2.0		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/28		76	%	50 - 150	
	D10-Fluoranthene	2012/08/28		92	%	50 - 150	
	D10-Phenanthrene	2012/08/28		86	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/28		88	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/28		88	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Chrysene	2012/08/28		84	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C2901

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/28		88	%	50 - 150
		D12-Perylene	2012/08/28		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		D8-Acenaphthylene	2012/08/28		76	%	50 - 150
		D8-Naphthalene	2012/08/28		74	%	50 - 150
		1-Methylnaphthalene	2012/08/28	<0.10		ug	
		1-Methylphenanthrene	2012/08/28	<0.10		ug	
		2-Chloronaphthalene	2012/08/28	<0.10		ug	
		2-Methylanthracene	2012/08/28	<0.10		ug	
		2-Methylnaphthalene	2012/08/28	<0.10		ug	
		3-Methylcholanthrene	2012/08/28	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/28	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/28	<0.40		ug	
		Acenaphthene	2012/08/28	<0.050		ug	
		Acenaphthylene	2012/08/28	<0.050		ug	
		Anthracene	2012/08/28	<0.050		ug	
		Benzo(a)anthracene	2012/08/28	<0.050		ug	
		Benzo(a)fluorene	2012/08/28	<0.10		ug	
		Benzo(a)pyrene	2012/08/28	<0.050		ug	
		Benzo(b)Anthracene	2012/08/28	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/28	<0.050		ug	
		Benzo(b)fluorene	2012/08/28	<0.10		ug	
		Benzo(e)pyrene	2012/08/28	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/28	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/28	<0.050		ug	
		Biphenyl	2012/08/28	<0.10		ug	
		Chrysene	2012/08/28	<0.050		ug	
		Coronene	2012/08/28	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/28	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/28	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/28	<0.20		ug	
		Fluoranthene	2012/08/28	<0.050		ug	
		Fluorene	2012/08/28	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/28	<0.050		ug	
		m-Terphenyl	2012/08/28	<0.10		ug	
		Naphthalene	2012/08/28	<0.072		ug	
		o-Terphenyl	2012/08/28	<0.10		ug	
		Perylene	2012/08/28	<0.10		ug	
		Phenanthrene	2012/08/28	<0.050		ug	
		p-Terphenyl	2012/08/28	<0.10		ug	
		Pyrene	2012/08/28	<0.050		ug	
		Quinoline	2012/08/28	<0.40		ug	
		Tetralin	2012/08/28	<0.10		ug	
		Triphenylene	2012/08/28	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Aug 13, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Aug 10, 2012@ 17:13 mst
 Removal Date/Time: Aug 15, 2012@ 17:13 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
13-Aug-12	08/13/2012 0:00	08/14/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
09-Aug-12	15-Aug-12	22-Aug-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	17.4	330.34

Hja Y'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 Hja Yf'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 GUa d`]b[`XUHJgUj YX'hc'a Ya cfmWUX'UZyf'gUa d`]b[3`M9G

Comments: COC# 11476

GB2B4261 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 13, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 11476

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

Report Date: 2012/08/29

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C5494****Received: 2012/08/17, 08:40**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/18	2012/08/28	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2C5494
 Report Date: 2012/08/29

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

Maxxam ID		ON3084	ON3085		
Sampling Date		2012/08/13	2012/08/13		
COC Number		11476	11476		
	Units	LICA FUFF+QFF/CLS/AUG 13,12	LICA FUFF+QFF/PORT/AUG 13,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2943046
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2943046
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2943046
2-Methylantracene	ug	<0.10	<0.10	0.10	2943046
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2943046
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2943046
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2943046
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2943046
Acenaphthene	ug	<0.050	<0.050	0.050	2943046
Acenaphthylene	ug	<0.050	<0.050	0.050	2943046
Anthracene	ug	<0.050	<0.050	0.050	2943046
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2943046
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2943046
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2943046
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2943046
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2943046
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2943046
Biphenyl	ug	<0.10	<0.10	0.10	2943046
Chrysene	ug	<0.050	<0.050	0.050	2943046
Coronene	ug	<0.10	<0.10	0.10	2943046
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2943046
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2943046
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2943046
Fluoranthene	ug	<0.050	<0.050	0.050	2943046
Fluorene	ug	<0.050	<0.050	0.050	2943046
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2943046
m-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Naphthalene	ug	<0.072	<0.072	0.072	2943046

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B2C5494
 Report Date: 2012/08/29

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

Maxxam ID		ON3084	ON3085		
Sampling Date		2012/08/13	2012/08/13		
COC Number		11476	11476		
	Units	LICA FUFF+QFF/CLS/AUG 13,12	LICA FUFF+QFF/PORT/AUG 13,12	RDL	QC Batch

o-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Perylene	ug	<0.10	<0.10	0.10	2943046
Phenanthrene	ug	0.330	0.184	0.050	2943046
p-Terphenyl	ug	<0.10	<0.10	0.10	2943046
Pyrene	ug	<0.050	<0.050	0.050	2943046
Quinoline	ug	<0.40	<0.40	0.40	2943046
Tetralin	ug	<0.10	<0.10	0.10	2943046
Triphenylene	ug	<0.10	<0.10	0.10	2943046
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	64	68		2943046
D10-Fluoranthene	%	96	94		2943046
D10-Fluorene (FS)	%	6.0 (1)	5.8 (1)		2943046
D10-Phenanthrene	%	86	84		2943046
D12-Benzo(a)anthracene	%	78	88		2943046
D12-Benzo(a)pyrene	%	82	82		2943046
D12-Benzo(b)fluoranthene	%	86	84		2943046
D12-Benzo(ghi)perylene	%	88	84		2943046
D12-Benzo(k)fluoranthene	%	84	84		2943046
D12-Chrysene	%	84	84		2943046
D12-Indeno(1,2,3-cd)pyrene	%	86	82		2943046
D12-Perylene	%	84	82		2943046
D14-Dibenzo(a,h)anthracene	%	88	84		2943046
D14-Terphenyl (FS)	%	97	94		2943046
D8-Acenaphthylene	%	66	68		2943046
D8-Naphthalene	%	60	64		2943046

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 #: B2C5494
Report Date: 2012/08/29

Test Summary

Maxxam ID ON3084
Sample ID LICA FUFF+QFF/CLS/AUG 13,12
Matrix PUF AND FILTER

Collected 2012/08/13
Shipped
Received 2012/08/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam ID ON3085
Sample ID LICA FUFF+QFF/PORT/AUG 13,12
Matrix PUF AND FILTER

Collected 2012/08/13
Shipped
Received 2012/08/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2943046	2012/08/18	2012/08/28	Lidija Tomic

Maxxam Job #: B2C5494
Report Date: 2012/08/29

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: GB2C5494

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/28		70	%	50 - 150
		D10-Fluoranthene	2012/08/28		90	%	50 - 150
		D10-Phenanthrene	2012/08/28		82	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/28		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/28		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150
		D12-Chrysene	2012/08/28		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/28		86	%	50 - 150
		D12-Perylene	2012/08/28		86	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		D8-Acenaphthylene	2012/08/28		70	%	50 - 150
		D8-Naphthalene	2012/08/28		72	%	50 - 150
		RPD	Acenaphthene	2012/08/28		68	%	60 - 130
	Spiked Blank	Acenaphthene	2012/08/28	5.8		%	50
	RPD	Acenaphthylene	2012/08/28		67	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/08/28	6.2		%	50
	RPD	Anthracene	2012/08/28		74	%	60 - 130
	Spiked Blank	Anthracene	2012/08/28	3.0		%	50
	RPD	Anthracene	2012/08/28		3.0	%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/28		77	%	60 - 130
	RPD	Benzo(a)anthracene	2012/08/28	17.6		%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/28		67	%	60 - 130
	RPD	Benzo(a)pyrene	2012/08/28	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/28		75	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/08/28	1.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/28		76	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/08/28	0.7		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/28		84	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/08/28	0.6		%	50
	Spiked Blank	Chrysene	2012/08/28		74	%	60 - 130
	RPD	Chrysene	2012/08/28	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/28		83	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/08/28	0		%	50
	Spiked Blank	Fluoranthene	2012/08/28		84	%	60 - 130
	RPD	Fluoranthene	2012/08/28	2.1		%	50
	Spiked Blank	Fluorene	2012/08/28		71	%	60 - 130
	RPD	Fluorene	2012/08/28	4.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/28		78	%	60 - 130
RPD	Indeno(1,2,3-cd)pyrene	2012/08/28	0.3		%	50	
Spiked Blank	Naphthalene	2012/08/28		72	%	60 - 130	
RPD	Naphthalene	2012/08/28	5.1		%	50	
Spiked Blank	Phenanthrene	2012/08/28		75	%	60 - 130	
RPD	Phenanthrene	2012/08/28	2.3		%	50	
Spiked Blank	Pyrene	2012/08/28		76	%	60 - 130	
RPD	Pyrene	2012/08/28	2.0		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/28		76	%	50 - 150	
	D10-Fluoranthene	2012/08/28		92	%	50 - 150	
	D10-Phenanthrene	2012/08/28		86	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/28		78	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/28		88	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/28		88	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/28		86	%	50 - 150	
	D12-Chrysene	2012/08/28		84	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C5494

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2943046 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/28		88	%	50 - 150
		D12-Perylene	2012/08/28		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/28		88	%	50 - 150
		D8-Acenaphthylene	2012/08/28		76	%	50 - 150
		D8-Naphthalene	2012/08/28		74	%	50 - 150
		1-Methylnaphthalene	2012/08/28	<0.10		ug	
		1-Methylphenanthrene	2012/08/28	<0.10		ug	
		2-Chloronaphthalene	2012/08/28	<0.10		ug	
		2-Methylanthracene	2012/08/28	<0.10		ug	
		2-Methylnaphthalene	2012/08/28	<0.10		ug	
		3-Methylcholanthrene	2012/08/28	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/28	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/28	<0.40		ug	
		Acenaphthene	2012/08/28	<0.050		ug	
		Acenaphthylene	2012/08/28	<0.050		ug	
		Anthracene	2012/08/28	<0.050		ug	
		Benzo(a)anthracene	2012/08/28	<0.050		ug	
		Benzo(a)fluorene	2012/08/28	<0.10		ug	
		Benzo(a)pyrene	2012/08/28	<0.050		ug	
		Benzo(b)Anthracene	2012/08/28	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/28	<0.050		ug	
		Benzo(b)fluorene	2012/08/28	<0.10		ug	
		Benzo(e)pyrene	2012/08/28	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/28	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/28	<0.050		ug	
		Biphenyl	2012/08/28	<0.10		ug	
		Chrysene	2012/08/28	<0.050		ug	
		Coronene	2012/08/28	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/28	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/28	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/28	<0.20		ug	
		Fluoranthene	2012/08/28	<0.050		ug	
		Fluorene	2012/08/28	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/28	<0.050		ug	
		m-Terphenyl	2012/08/28	<0.10		ug	
		Naphthalene	2012/08/28	<0.072		ug	
		o-Terphenyl	2012/08/28	<0.10		ug	
		Perylene	2012/08/28	<0.10		ug	
		Phenanthrene	2012/08/28	<0.050		ug	
		p-Terphenyl	2012/08/28	<0.10		ug	
		Pyrene	2012/08/28	<0.050		ug	
		Quinoline	2012/08/28	<0.40		ug	
		Tetralin	2012/08/28	<0.10		ug	
		Triphenylene	2012/08/28	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Aug 19, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Aug 17, 2012@ 07:35 mst
 Removal Date/Time: Aug 20, 2012@ 07:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
19-Aug-12	08/19/2012 0:00	08/20/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
14-Aug-12	20-Aug-12	27-Aug-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	21.5	330.33

Hja Y'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 Hja Yf'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 GUa d`]b[`XUHJgUj YX'hc'a Ya cfmWUX'UZyf'gUa d`]b[3`M9G

Comments: COC# 10993

GB2B4292 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 19, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 10993

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

Report Date: 2012/08/31

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2C8130****Received: 2012/08/22, 08:55**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/24	2012/08/31	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.

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2C8130
 Report Date: 2012/08/31

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

Maxxam ID		OO4887	OO4888		
Sampling Date		2012/08/19	2012/08/19		
COC Number		10993	10993		
	Units	LICA PUFF+QFF/CLS/AUG 19, 12	LICA PUFF+QFF/PORT/AUG 19, 12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2949029
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2949029
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2949029
2-Methylantracene	ug	<0.10	<0.10	0.10	2949029
2-Methylnaphthalene	ug	<0.10	0.14	0.10	2949029
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2949029
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2949029
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2949029
Acenaphthene	ug	<0.050	<0.050	0.050	2949029
Acenaphthylene	ug	<0.050	<0.050	0.050	2949029
Anthracene	ug	<0.050	<0.050	0.050	2949029
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2949029
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2949029
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2949029
Benzo(b)Anthracene	ug	<0.10	<0.10	0.10	2949029
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2949029
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2949029
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2949029
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2949029
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2949029
Biphenyl	ug	<0.10	<0.10	0.10	2949029
Chrysene	ug	<0.050	<0.050	0.050	2949029
Coronene	ug	<0.10	<0.10	0.10	2949029
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2949029
Dibenzo(a,c) anthracene + Picene	ug	<0.10	<0.10	0.10	2949029
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2949029
Fluoranthene	ug	<0.050	0.064	0.050	2949029
Fluorene	ug	0.090	0.064	0.050	2949029
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2949029
m-Terphenyl	ug	<0.10	<0.10	0.10	2949029
Naphthalene	ug	<0.072	<0.072	0.072	2949029

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		OO4887	OO4888		
Sampling Date		2012/08/19	2012/08/19		
COC Number		10993	10993		
	Units	LICA PUFF+QFF/CLS/AUG 19, 12	LICA PUFF+QFF/PORT/AUG 19, 12	RDL	QC Batch

o-Terphenyl	ug	<0.10	<0.10	0.10	2949029
Perylene	ug	<0.10	<0.10	0.10	2949029
Phenanthrene	ug	0.498	0.456	0.050	2949029
p-Terphenyl	ug	<0.10	<0.10	0.10	2949029
Pyrene	ug	<0.050	<0.050	0.050	2949029
Quinoline	ug	<0.40	<0.40	0.40	2949029
Tetralin	ug	<0.10	<0.10	0.10	2949029
Triphenylene	ug	<0.10	<0.10	0.10	2949029
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	58	66		2949029
D10-Fluoranthene	%	82	82		2949029
D10-Fluorene (FS)	%	4.4 (1)	5.6 (1)		2949029
D10-Phenanthrene	%	66	68		2949029
D12-Benzo(a)anthracene	%	70	72		2949029
D12-Benzo(a)pyrene	%	76	78		2949029
D12-Benzo(b)fluoranthene	%	76	76		2949029
D12-Benzo(ghi)perylene	%	74	76		2949029
D12-Benzo(k)fluoranthene	%	86	88		2949029
D12-Chrysene	%	82	84		2949029
D12-Indeno(1,2,3-cd)pyrene	%	50	52		2949029
D12-Perylene	%	78	80		2949029
D14-Dibenzo(a,h)anthracene	%	52	54		2949029
D14-Terphenyl (FS)	%	81	83		2949029
D8-Acenaphthylene	%	56	64		2949029
D8-Naphthalene	%	52	60		2949029

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 #: B2C8130
 Report Date: 2012/08/31

Test Summary

Maxxam ID OO4887
Sample ID LICA PUFF+QFF/CLS/AUG 19, 12
Matrix PUF AND FILTER

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2949029	2012/08/24	2012/08/31	Lidija Tomic

Maxxam ID OO4888
Sample ID LICA PUFF+QFF/PORT/AUG 19, 12
Matrix PUF AND FILTER

Collected 2012/08/19
Shipped
Received 2012/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2949029	2012/08/24	2012/08/31	Lidija Tomic

Maxxam Job #: B2C8130
Report Date: 2012/08/31

GENERAL COMMENTS

Not calibrated for benzo(b)anthracene, picene, dibenzo(a,c)anthracene and triphenylene. An estimated mdl for each of these compounds is 0.05ug x split.

Since dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene and triphenylene with chrysene each would have a value below estimated mdl. Benzo(b)anthracene elutes after benzo(a)anthracene and chrysene. Picene elutes after dibenz(a,h)anthracene. Searched for ions specific to these 2 compounds in the appropriate retention time range with no possible positives detected.

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: GB2C8130

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2949029 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/08/31		76	%	50 - 150
		D10-Fluoranthene	2012/08/31		78	%	50 - 150
		D10-Phenanthrene	2012/08/31		64	%	50 - 150
		D12-Benzo(a)anthracene	2012/08/31		82	%	50 - 150
		D12-Benzo(a)pyrene	2012/08/31		80	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/08/31		78	%	50 - 150
		D12-Benzo(ghi)perylene	2012/08/31		72	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/08/31		86	%	50 - 150
		D12-Chrysene	2012/08/31		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/08/31		50	%	50 - 150
		D12-Perylene	2012/08/31		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/31		52	%	50 - 150
		D8-Acenaphthylene	2012/08/31		74	%	50 - 150
		D8-Naphthalene	2012/08/31		72	%	50 - 150
		Acenaphthene	2012/08/31		77	%	60 - 130
	RPD	Acenaphthene	2012/08/31	0.6		%	50
	Spiked Blank	Acenaphthylene	2012/08/31		78	%	60 - 130
	RPD	Acenaphthylene	2012/08/31	1		%	50
	Spiked Blank	Anthracene	2012/08/31		78	%	60 - 130
	RPD	Anthracene	2012/08/31	1.3		%	50
	Spiked Blank	Benzo(a)anthracene	2012/08/31		81	%	60 - 130
	RPD	Benzo(a)anthracene	2012/08/31	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2012/08/31		69	%	60 - 130
	RPD	Benzo(a)pyrene	2012/08/31	4.1		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/08/31		78	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/08/31	4.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/08/31		75	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/08/31	2.0		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/08/31		83	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/08/31	3.1		%	50
	Spiked Blank	Chrysene	2012/08/31		76	%	60 - 130
	RPD	Chrysene	2012/08/31	2.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/08/31		77	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/08/31	3.0		%	50
	Spiked Blank	Fluoranthene	2012/08/31		85	%	60 - 130
	RPD	Fluoranthene	2012/08/31	2.7		%	50
	Spiked Blank	Fluorene	2012/08/31		79	%	60 - 130
	RPD	Fluorene	2012/08/31	2.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/08/31		79	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/08/31	2.6		%	50
Spiked Blank	Naphthalene	2012/08/31		82	%	60 - 130	
RPD	Naphthalene	2012/08/31	0.9		%	50	
Spiked Blank	Phenanthrene	2012/08/31		75	%	60 - 130	
RPD	Phenanthrene	2012/08/31	1.3		%	50	
Spiked Blank	Pyrene	2012/08/31		76	%	60 - 130	
RPD	Pyrene	2012/08/31	2.7		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/08/31		76	%	50 - 150	
	D10-Fluoranthene	2012/08/31		80	%	50 - 150	
	D10-Phenanthrene	2012/08/31		72	%	50 - 150	
	D12-Benzo(a)anthracene	2012/08/31		64	%	50 - 150	
	D12-Benzo(a)pyrene	2012/08/31		78	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/08/31		74	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/08/31		74	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/08/31		88	%	50 - 150	
	D12-Chrysene	2012/08/31		86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2C8130

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2949029 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/08/31		50	%	50 - 150
		D12-Perylene	2012/08/31		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/08/31		52	%	50 - 150
		D8-Acenaphthylene	2012/08/31		74	%	50 - 150
		D8-Naphthalene	2012/08/31		72	%	50 - 150
		1-Methylnaphthalene	2012/08/31	<0.10		ug	
		1-Methylphenanthrene	2012/08/31	<0.10		ug	
		2-Chloronaphthalene	2012/08/31	<0.10		ug	
		2-Methylanthracene	2012/08/31	<0.10		ug	
		2-Methylnaphthalene	2012/08/31	<0.10		ug	
		3-Methylcholanthrene	2012/08/31	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/08/31	<0.10		ug	
		9,10-Dimethylanthracene	2012/08/31	<0.40		ug	
		Acenaphthene	2012/08/31	<0.050		ug	
		Acenaphthylene	2012/08/31	<0.050		ug	
		Anthracene	2012/08/31	<0.050		ug	
		Benzo(a)anthracene	2012/08/31	<0.050		ug	
		Benzo(a)fluorene	2012/08/31	<0.10		ug	
		Benzo(a)pyrene	2012/08/31	<0.050		ug	
		Benzo(b)Anthracene	2012/08/31	<0.10		ug	
		Benzo(b)fluoranthene	2012/08/31	<0.050		ug	
		Benzo(b)fluorene	2012/08/31	<0.10		ug	
		Benzo(e)pyrene	2012/08/31	<0.10		ug	
		Benzo(g,h,i)perylene	2012/08/31	<0.050		ug	
		Benzo(k)fluoranthene	2012/08/31	<0.050		ug	
		Biphenyl	2012/08/31	<0.10		ug	
		Chrysene	2012/08/31	<0.050		ug	
		Coronene	2012/08/31	<0.10		ug	
		Dibenz(a,h)anthracene	2012/08/31	<0.050		ug	
		Dibenzo(a,c) anthracene + Picene	2012/08/31	<0.10		ug	
		Dibenzo(a,e)pyrene	2012/08/31	<0.20		ug	
		Fluoranthene	2012/08/31	<0.050		ug	
		Fluorene	2012/08/31	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/08/31	<0.050		ug	
		m-Terphenyl	2012/08/31	<0.10		ug	
		Naphthalene	2012/08/31	<0.072		ug	
		o-Terphenyl	2012/08/31	<0.10		ug	
		Perylene	2012/08/31	<0.10		ug	
		Phenanthrene	2012/08/31	<0.050		ug	
		p-Terphenyl	2012/08/31	<0.10		ug	
		Pyrene	2012/08/31	<0.050		ug	
		Quinoline	2012/08/31	<0.40		ug	
		Tetralin	2012/08/31	<0.10		ug	
		Triphenylene	2012/08/31	<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/Aug 25, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Aug 24, 2012@ 08:20 mst
 Removal Date/Time: Aug 27, 2012@ 08:00 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
25-Aug-12	08/25/2012 0:00	08/26/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
21-Aug-12	27-Aug-12	03-Sep-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)
705	229	15.2	330.33

Hja Y'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 Hja Yf'gYhWffYWimdf]cf'hc'gUa d`]b[3`M9G
 GUa d`]b[`XUHJgUj YX'hc'a Ya cfmWUX'UZyf'gUa d`]b[3`M9G

Comments: COC#10923

GB2B4294 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 25, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 10923

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

Report Date: 2012/09/12

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B2D3171****Received: 2012/08/30, 09:18**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/08/31	2012/09/07	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B2D3171
 Report Date: 2012/09/12

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

Maxxam ID		OR2290	OR2291		
Sampling Date		2012/08/25	2012/08/25		
COC Number		10923	10923		
	Units	LICA PUFF+QFF/CLS/AUG 25,12	LICA PUFF+QFF/PORT/AUG 25,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2956570
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2956570
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2956570
2-Methylantracene	ug	<0.10	<0.10	0.10	2956570
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2956570
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2956570
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2956570
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2956570
Acenaphthene	ug	<0.050	<0.050	0.050	2956570
Acenaphthylene	ug	<0.050	<0.050	0.050	2956570
Anthracene	ug	<0.050	<0.050	0.050	2956570
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2956570
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2956570
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2956570
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2956570
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2956570
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2956570
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2956570
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2956570
Biphenyl	ug	<0.10	<0.10	0.10	2956570
Chrysene	ug	<0.050	<0.050	0.050	2956570
Coronene	ug	<0.10	<0.10	0.10	2956570
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2956570
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2956570
Fluoranthene	ug	<0.050	<0.050	0.050	2956570
Fluorene	ug	0.070	<0.050	0.050	2956570
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2956570
m-Terphenyl	ug	<0.10	<0.10	0.10	2956570
Naphthalene	ug	<0.072	<0.072	0.072	2956570
o-Terphenyl	ug	<0.10	<0.10	0.10	2956570
Perylene	ug	<0.10	<0.10	0.10	2956570

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B2D3171
 Report Date: 2012/09/12

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

Maxxam ID		OR2290	OR2291		
Sampling Date		2012/08/25	2012/08/25		
COC Number		10923	10923		
	Units	LICA PUFF+QFF/CLS/AUG 25,12	LICA PUFF+QFF/PORT/AUG 25,12	RDL	QC Batch

Phenanthrene	ug	0.278	0.178	0.050	2956570
p-Terphenyl	ug	<0.10	<0.10	0.10	2956570
Pyrene	ug	<0.050	<0.050	0.050	2956570
Quinoline	ug	<0.40	<0.40	0.40	2956570
Tetralin	ug	<0.10	<0.10	0.10	2956570
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	74	68		2956570
D10-Fluoranthene	%	98	90		2956570
D10-Fluorene (FS)	%	5.6 (1)	4.8 (1)		2956570
D10-Phenanthrene	%	90	80		2956570
D12-Benzo(a)anthracene	%	106	92		2956570
D12-Benzo(a)pyrene	%	88	86		2956570
D12-Benzo(b)fluoranthene	%	96	90		2956570
D12-Benzo(ghi)perylene	%	88	90		2956570
D12-Benzo(k)fluoranthene	%	82	76		2956570
D12-Chrysene	%	80	70		2956570
D12-Indeno(1,2,3-cd)pyrene	%	90	92		2956570
D12-Perylene	%	84	80		2956570
D14-Dibenzo(a,h)anthracene	%	88	94		2956570
D14-Terphenyl (FS)	%	86	76		2956570
D8-Acenaphthylene	%	76	72		2956570
D8-Naphthalene	%	64	64		2956570

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 #: B2D3171
Report Date: 2012/09/12

Test Summary

Maxxam ID OR2290
Sample ID LICA PUFF+QFF/CLS/AUG 25,12
Matrix PUF AND FILTER

Collected 2012/08/25
Shipped
Received 2012/08/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2956570	2012/08/31	2012/09/07	Lidija Tomic

Maxxam ID OR2291
Sample ID LICA PUFF+QFF/PORT/AUG 25,12
Matrix PUF AND FILTER

Collected 2012/08/25
Shipped
Received 2012/08/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2956570	2012/08/31	2012/09/07	Lidija Tomic

Maxxam Job #: B2D3171
Report Date: 2012/09/12

GENERAL COMMENTS

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: GB2D3171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2956570 LTO	Spiked Blank	D10-2-Methylnaphthalene	2012/09/07		74	%	50 - 150
		D10-Fluoranthene	2012/09/07		80	%	50 - 150
		D10-Phenanthrene	2012/09/07		74	%	50 - 150
		D12-Benzo(a)anthracene	2012/09/07		82	%	50 - 150
		D12-Benzo(a)pyrene	2012/09/07		84	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/09/07		90	%	50 - 150
		D12-Benzo(ghi)perylene	2012/09/07		82	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/09/07		78	%	50 - 150
		D12-Chrysene	2012/09/07		70	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/09/07		80	%	50 - 150
		D12-Perylene	2012/09/07		78	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/09/07		82	%	50 - 150
		D8-Acenaphthylene	2012/09/07		72	%	50 - 150
		D8-Naphthalene	2012/09/07		70	%	50 - 150
		RPD	Acenaphthene	2012/09/07		74	%	60 - 130
	RPD	Acenaphthene	2012/09/07	10.9		%	50
	Spiked Blank	Acenaphthylene	2012/09/07		71	%	60 - 130
	RPD	Acenaphthylene	2012/09/07	14.2		%	50
	Spiked Blank	Anthracene	2012/09/07		68	%	60 - 130
	RPD	Anthracene	2012/09/07	9.8		%	50
	Spiked Blank	Benzo(a)anthracene	2012/09/07		84	%	60 - 130
	RPD	Benzo(a)anthracene	2012/09/07	7.4		%	50
	Spiked Blank	Benzo(a)pyrene	2012/09/07		69	%	60 - 130
	RPD	Benzo(a)pyrene	2012/09/07	4.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/09/07		83	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/09/07	1.2		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/09/07		69	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/09/07	2.9		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/09/07		81	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/09/07	10		%	50
	Spiked Blank	Chrysene	2012/09/07		72	%	60 - 130
	RPD	Chrysene	2012/09/07	6.4		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/09/07		65	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/09/07	4.2		%	50
	Spiked Blank	Fluoranthene	2012/09/07		81	%	60 - 130
	RPD	Fluoranthene	2012/09/07	0.3		%	50
	Spiked Blank	Fluorene	2012/09/07		73	%	60 - 130
	RPD	Fluorene	2012/09/07	12.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/09/07		68	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/09/07	5.4		%	50
Spiked Blank	Naphthalene	2012/09/07		78	%	60 - 130	
RPD	Naphthalene	2012/09/07	11.0		%	50	
Spiked Blank	Phenanthrene	2012/09/07		75	%	60 - 130	
RPD	Phenanthrene	2012/09/07	9.2		%	50	
Spiked Blank	Pyrene	2012/09/07		70	%	60 - 130	
RPD	Pyrene	2012/09/07	0.4		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/09/07		86	%	50 - 150	
	D10-Fluoranthene	2012/09/07		78	%	50 - 150	
	D10-Phenanthrene	2012/09/07		78	%	50 - 150	
	D12-Benzo(a)anthracene	2012/09/07		82	%	50 - 150	
	D12-Benzo(a)pyrene	2012/09/07		86	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/09/07		96	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/09/07		86	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/09/07		80	%	50 - 150	
	D12-Chrysene	2012/09/07		76	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB2D3171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2956570 LTO	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/09/07		86	%	50 - 150
		D12-Perylene	2012/09/07		80	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/09/07		84	%	50 - 150
		D8-Acenaphthylene	2012/09/07		82	%	50 - 150
		D8-Naphthalene	2012/09/07		82	%	50 - 150
		1-Methylnaphthalene	2012/09/07	<0.10		ug	
		1-Methylphenanthrene	2012/09/07	<0.10		ug	
		2-Chloronaphthalene	2012/09/07	<0.10		ug	
		2-Methylanthracene	2012/09/07	<0.10		ug	
		2-Methylnaphthalene	2012/09/07	<0.10		ug	
		3-Methylcholanthrene	2012/09/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/09/07	<0.10		ug	
		9,10-Dimethylanthracene	2012/09/07	<0.40		ug	
		Acenaphthene	2012/09/07	<0.050		ug	
		Acenaphthylene	2012/09/07	<0.050		ug	
		Anthracene	2012/09/07	<0.050		ug	
		Benzo(a)anthracene	2012/09/07	<0.050		ug	
		Benzo(a)fluorene	2012/09/07	<0.10		ug	
		Benzo(a)pyrene	2012/09/07	<0.050		ug	
		Benzo(b)fluoranthene	2012/09/07	<0.050		ug	
		Benzo(b)fluorene	2012/09/07	<0.10		ug	
		Benzo(e)pyrene	2012/09/07	<0.10		ug	
		Benzo(g,h,i)perylene	2012/09/07	<0.050		ug	
		Benzo(k)fluoranthene	2012/09/07	<0.050		ug	
		Biphenyl	2012/09/07	<0.10		ug	
		Chrysene	2012/09/07	<0.050		ug	
		Coronene	2012/09/07	<0.10		ug	
		Dibenz(a,h)anthracene	2012/09/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/09/07	<0.20		ug	
		Fluoranthene	2012/09/07	<0.050		ug	
		Fluorene	2012/09/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/09/07	<0.050		ug	
		m-Terphenyl	2012/09/07	<0.10		ug	
		Naphthalene	2012/09/07	<0.072		ug	
		o-Terphenyl	2012/09/07	<0.10		ug	
		Perylene	2012/09/07	<0.10		ug	
		Phenanthrene	2012/09/07	<0.050		ug	
		p-Terphenyl	2012/09/07	<0.10		ug	
		Pyrene	2012/09/07	<0.050		ug	
		Quinoline	2012/09/07	<0.40		ug	
		Tetralin	2012/09/07	<0.10		ug	

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