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March 15, 2014

RE: 2013 Annual Ambient Air Monitoring Reports

Attached are the annual ambient air monitoring reports for the LICA Airshed Zone's Cold Lake South, Maskwa, St. Lina, and Elk Point continuous stations. In addition, there are also summaries for the passive monitoring network and speciated VOC and PAH sampling programs.

Should you have any questions, please don't hesitate to contact me directly at (780) 266-7068.

Respectfully,

A handwritten signature in blue ink that reads "Michael Bisaga".

Michael Bisaga

Airshed Program Manager
Lakeland Industry and Community Association

cc (email): LICA Office

Lakeland Industry & Community Association

Cold Lake Monitoring Site
Ambient Air Monitoring Annual Data Report

For
2013

Prepared By:



April 15, 2014

Lakeland Industry & Community Association Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Cold Lake South
Data Period: January 2013 to December 2013

The annual ambient data report:

- Prepared by Ernestine Tangang
- Reviewed by Lily Lin

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

Calibration Procedure

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

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

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

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

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

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

A trailer audit was performed by Alberta Environment on August 20th, 2013.

Sulphur Dioxide (PPB)

- Analyzer make / model – Thermo 43i, S/N: 806528242
 - ❖ The hourly data between March 1st at hour 14 and hour 23 is missing: reason unknown.
 - ❖ Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality.

Total Reduced Sulphur (PPB)

- Analyzer make / model –TEI 450i, S/N: 812728560
- Converter - CD NOVA CDN 101, S/N: 250
 - ❖ On February 14th, the as found points check result showed -31.3% differences from the last calibration check on January 31st. Troubleshooting was performed on February 14th. 327 hours of data were discarded due to this event.
 - ❖ An additional scrubber material was installed on the thermal oxidizer on May 29th to prevent data lose caused by a scrubber material failure in the future.
 - ❖ Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality.

Ozone (PPB)

- Analyzer make / model - Thermo 49i, S/N: 700419951
 - ❖ The one-minute data showed an up-down trend (within 5 ppb range) on April 10th around hour 15. No issue can be identified and the analyzer passed the 3-points calibration requirement on April 11th.
 - ❖ The sample pump was rebuilt on May 15th.
 - ❖ The hourly maximum data collected on September 9th at hour 10 was invalidated as less than 100% of the data for the hour was collected, reason unknown.
 - ❖ Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Total Hydrocarbon (PPM)

- Analyzer make / model -TECO 51C-LT, S/N: 427408718, TECO 51C-LT, S/N: 51CLT-77021-384
 - ❖ During the site visit on February 11th, it was noticed that the sample tube was not connected to the manifold system properly. The tube was reconnected to the manifold system on February 12th. All tubing was thoroughly inspected on January 31st, and since the pattern for the hourly data graphs for THC and NOx matched for most of the month, Maxxam Analytics is confident that the data between January 31st and February 11th at hour 11 was valid. Data between February 11th at hour 12 (the time our tech was working on the VOC sampler at the station) and February 12th at hour 7 were considered invalid and was discarded. Twenty hours of data were invalidated.
 - ❖ The analyzer flamed out on March 30th at hour 7 due to running out the Hydrogen gas. The gas cylinder was replaced and the analyzer was re-lit on March 30th at hour 16. 10 hours of data were invalidated due to this event.
 - ❖ The analyzer spanned outside -10% of the limited range on April 5th. The analyzer failed the as found points check on April 9th due to the sample pump failure. Performed troubleshooting on April 9th. A post repair calibration was performed on April 11th. Due to this issue, data was invalidated back to the last good calibration, which was April 4th. A total of 113 hours of data was invalidated.
 - ❖ The analyzer spanned high on August 30th due to sample pump failure. The pump failed during the hour 8 on August 29. The pump was rebuilt on August 30th. 26 hours of data were invalidated between August 29th at hour 8 and August 30th at hour 9.
 - ❖ The analyzer failed on November 28th during hour 22nd. During the site visit on December 4th, it was found that the analyzer was unresponsive. The analyzer was replaced to another TECO51C analyzer. A total of 131 hours of data was invalidated due to this event. Another 3-point calibration was performed on December 13th to ensure the analyzer's functionality. The analyzer responded. However, the analyzer kept spanning low after the replacement was installed due to issues from the valve for the zero/span system. An orifice was installed ahead of the zero port to improve the issue on December 19th. Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Nitrogen Dioxide (PPB)

- Analyzer make / model - TECO 42C, S/N: 427408716
 - ❖ Maintenance on the pump cabinet for better exhausting was performed on December 4th. This maintenance did not affect hourly data, but hourly maximum data between hour 14 and hour 20 were invalidated to ensure data quality. Some daily span results went above the +10% of the limited range. The cell battery was changed and the pump in the ML calibrator for the span oven was rebuilt on December 19th.

Particulate Matter 2.5 (ug/m³)

- Analyzer make / model –TEOM1405F, S/N: 1405A201620804
 - ❖ Fifteen hours of data were invalidated in January as the data were below –3 ug/m³.
 - ❖ Forty-two hours of data were invalidated in February as the data were below –3 ug/m³.
 - ❖ Twenty hours of data were invalidated in March as the data were below –3 ug/m³.
 - ❖ Twenty-seven hours of data were invalidated in April as the data were below –3 ug/m³.
 - ❖ Twenty-nine hours of data were invalidated in May as the data were below –3 ug/m³.
 - ❖ Two hours of data were invalidated in June as the data were below –3 ug/m³.
 - ❖ Sixteen hours of data were invalidated in July as the data were below –3 ug/m³.
 - ❖ Thirteen hours of data were invalidated in August as the data were below –3 ug/m³.
 - ❖ The sample pump for the Teom unit was rebuilt on September 18th. Thirty hours of data were invalidated as the data were below –3 ug/m³.
 - ❖ It was noticed that the unit started recording many negative hourly readings. The switch valve was cleaned on October 10th. Ninety-five hours of data were invalidated as the data were below –3 ug/m³. AESRD Ref # 277547.
 - ❖ Sixty hours of data were invalidated in November as the data were below –3 ug/m³.
 - ❖ Seventy-two hours of data were invalidated in December as the data were below –3 ug/m³.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE

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

- System make / model –RM Young, S/N: 46553 replaced to MetOne, S/N: F1644
 - ❖ On May 29th, the RM Young wind system, Maxxam supplied, was removed following a removal calibration, and the MetOne wind system, LICA supplied, was installed. The MetOne wind system was removed from the trailer for the 2-Year manufacturer calibration/maintenance.
 - ❖ Hourly data between hour 17 on November 5th and hour 11 on November 11th, hour 12 on November 22nd and hour 10 on November 23rd, and hour 23 on November 25th and hour 0 on November 27th were invalidated as the wind system was frozen. A totally of 69 hours of data was invalidated due to these three events.
 - ❖ Hourly data between hour 18 on December 3rd and hour 11 on December 4th were invalidated as the wind system was frozen. A totally of 18 hours of data was invalidated.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3
No operational issue was observed during the year.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3
 - ❖ No operational issues observed during the year.

Trailer Temperature (DEGC)

- System make / model - R&R 61
 - ❖ The filter for the Brad AC unit was changed on June 5th.
 - ❖ No operational issues observed during the year.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Trailer

- ❖ A field camera was installed and mounted on the wind tower on May 15th.

Passive Network

- ❖ In January, all samples installed at site #11 were not changed, as the access to the samplers was blocked by snow.
- ❖ In February, the samplers installed at site #2 had been removed and all samples were missing. All samples installed at site #11 were not changed, as the access to the samplers was blocked by snow.
- ❖ In March, the samplers installed at site #2 had been removed and all samples were missing. All samples installed at site #11 were not changed, as the access to the samplers was blocked by snow.
- ❖ In July, the samplers installed at site #2 had been removed and all samples were missing. The SO₂ sample at site #23 was damaged.
- ❖ In December, no sample change out was done at site #11 as the access to the site was blocked by snow. SO₂ Duplicate for site #19 and site #23 and O₃ duplicate for site #19 are missing.
- ❖ No Sample had been collected from site #2 since February 2013 as the samplers installed at site #2 had been removed.

Continuous Monitoring

Annual Summaries, Graphs & Wind Roses

Sulphur Dioxide

Current Date : 02/12/14
Current Time : 16:46

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	708	0	4	1
February	672	638	0	4	1
March	744	696	0	4	1
April	720	684	0	4	0
May	744	709	0	2	0
June	720	683	0	2	0
July	744	706	0	2	0
August	744	705	0	2	0
September	720	682	0	2	0
October	744	706	0	2	0
November	720	685	0	2	0
December	744	704	0	4	0
Yearly Total	8760	8306	0	4	0

SO₂ Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO ₂)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO ₂ ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	708	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	638	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	696	98.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	684	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	709	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	683	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	706	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	705	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	682	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
October	706	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	704	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
									Annual Average	0.00	

C - Concentration

* Valid readings - does not include calibration hours and downtime hours

SO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	SO2 ppb Peak Reading
January	4
February	4
March	4
April	4
May	2
June	2
July	2
August	2
September	2
October	2
November	2
December	4
ANNUAL PEAK	4

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	2.56	4.57	6.15	4.54	6.48	5.90	12.79	4.21	2.61	2.92	5.96	13.18	11.00	7.03	5.87	4.15	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.56	4.57	6.15	4.54	6.48	5.90	12.79	4.21	2.61	2.92	5.96	13.18	11.00	7.03	5.87	4.15	

Calm : .00 %

Total # Operational Hours : 8215

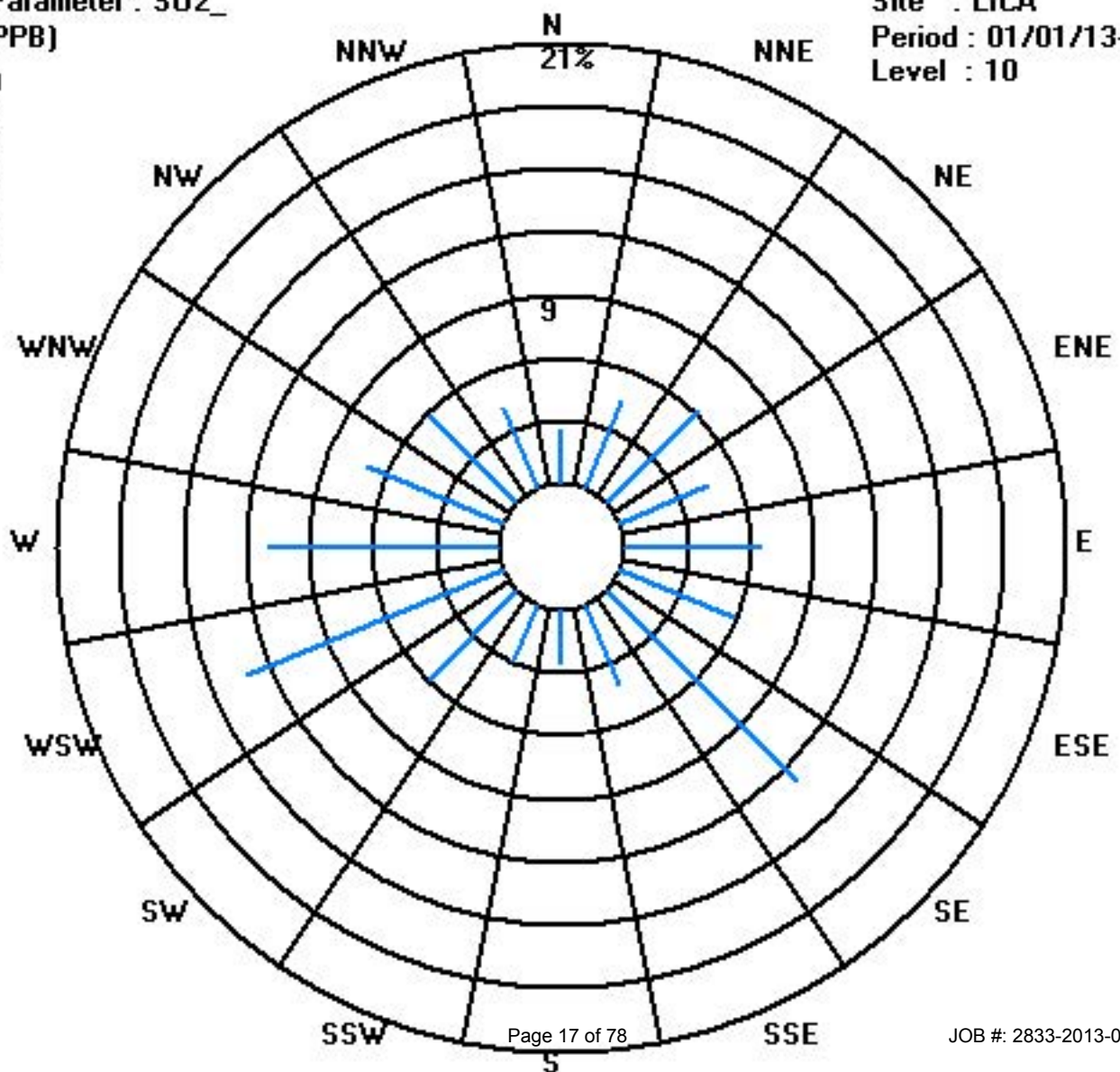
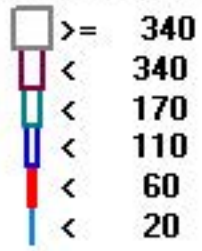
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	211	376	506	373	533	485	1051	346	215	240	490	1083	904	578	483	341	8215
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	211	376	506	373	533	485	1051	346	215	240	490	1083	904	578	483	341	

Calm : .00 %

Total # Operational Hours : 8215

Class Limits (PPB)



Total Reduced Sulphur

Current Date : 02/12/14
Current Time : 16:46

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : TRS_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	698	0	0	0
February	360	313	0	1	0
March	744	702	0	0	0
April	720	681	0	0	0
May	744	700	0	1	0
June	720	683	0	1	0
July	744	704	0	6	0
August	744	704	0	4	0
September	720	680	0	3	0
October	744	706	0	1	0
November	720	684	0	0	0
December	744	706	0	0	0
Yearly Total	8448	7961	0	6	0

TRS Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: Cold Lake South

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppb TRS)				TRS ppb Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb	
January	698	99.5	100.0%	0.0%	0.0%	0.0%	0.00
February	313	51.2	100.0%	0.0%	0.0%	0.0%	0.00
March	702	99.9	100.0%	0.0%	0.0%	0.0%	0.00
April	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	700	99.9	100.0%	0.0%	0.0%	0.0%	0.02
June	683	99.7	100.0%	0.0%	0.0%	0.0%	0.15
July	704	100.0	100.0%	0.0%	0.0%	0.0%	0.12
August	704	100.0	100.0%	0.0%	0.0%	0.0%	0.35
September	680	99.9	100.0%	0.0%	0.0%	0.0%	0.38
October	706	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	684	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	706	99.9	100.0%	0.0%	0.0%	0.0%	0.00
						Annual Average	0.09

* Valid readings do not include daily and monthly calibration hours and downtime hours

TRS Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: Cold Lake South

Month	TRS ppb Peak Reading
January	0
February	1
March	0
April	0
May	1
June	1
July	6
August	4
September	3
October	1
November	0
December	0
ANNUAL PEAK	6

LICA
 TRS_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : TRS_
 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	2.53	4.64	6.33	4.63	6.24	5.96	13.02	4.26	2.57	2.94	6.02	13.08	10.84	7.01	5.82	3.94	99.92
< 10	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.02	.01	.02	.00	.00	.07
< 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	2.53	4.64	6.33	4.63	6.24	5.96	13.03	4.26	2.57	2.94	6.02	13.11	10.85	7.04	5.82	3.94	

Calm : .00 %

Total # Operational Hours : 7878

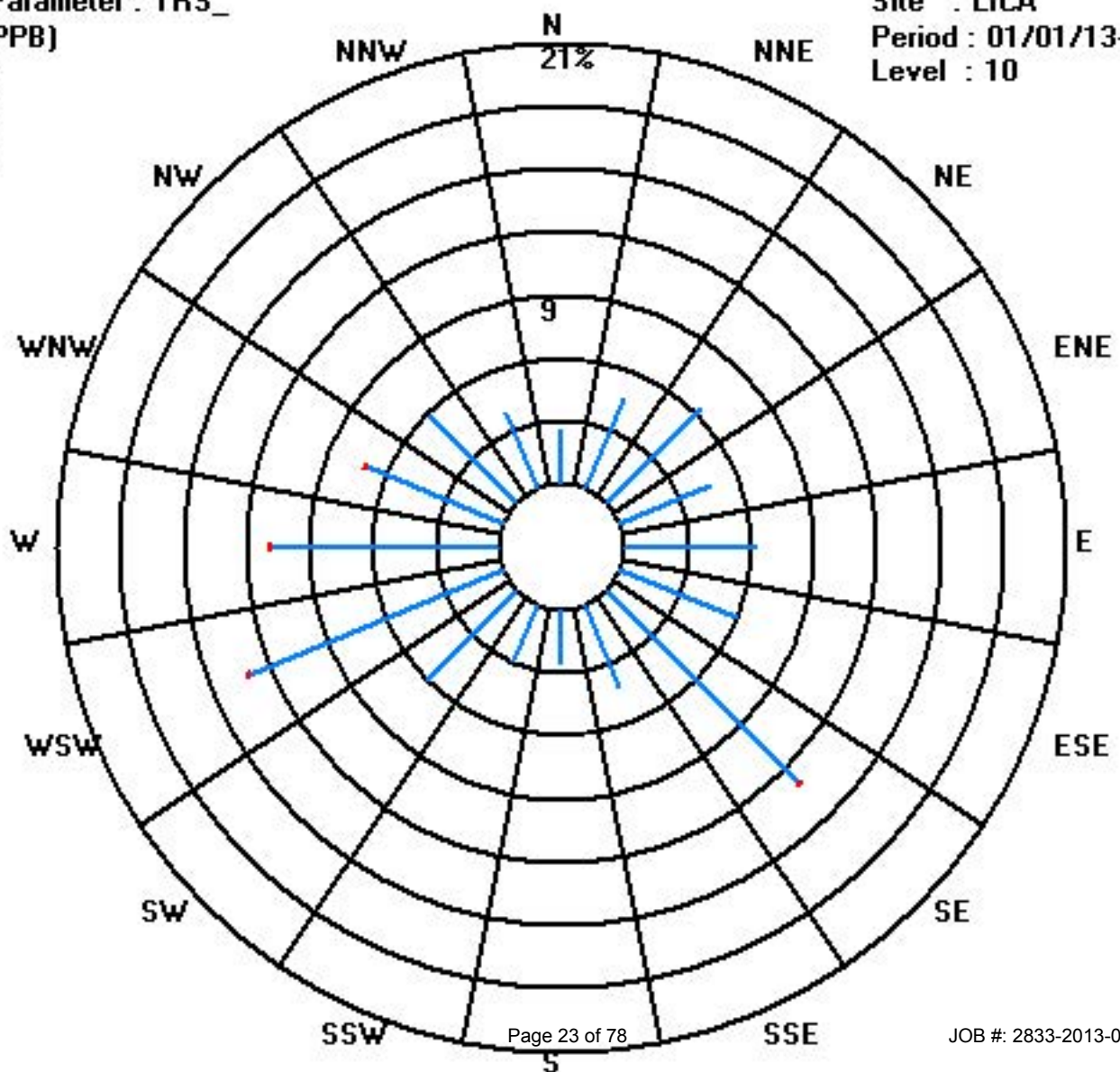
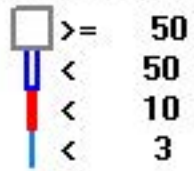
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	200	366	499	365	492	470	1026	336	203	232	475	1031	854	553	459	311	7872
< 10							1					2	1	2			6
< 50																	
>= 50																	
Totals	200	366	499	365	492	470	1027	336	203	232	475	1033	855	555	459	311	

Calm : .00 %

Total # Operational Hours : 7878

Class Limits (PPB)



Total Hydrocarbons

Current Date : 02/12/14
Current Time : 16:47

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : THC Units : PPM

	Readings	Valid Readings	Min	Max	Mean
January	744	702	1.9	4.3	2.5
February	672	617	1.6	3.7	2.3
March	744	694	1.5	4.2	2.2
April	624	566	1.5	3	2
May	744	708	1.8	12.9	2.1
June	720	686	1.9	3.4	2.1
July	744	707	1.7	3.9	2.2
August	744	676	1.8	3.6	2.3
September	720	683	1.5	4.6	2.3
October	744	707	1.7	5.2	2.3
November	672	636	1.9	4.9	2.6
December	672	613	1.7	4.3	2.3
Yearly Total	8544	7995	1.5	12.9	2.3

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	702	99.9	82.5%	17.5%	0.0%	0.0%	2.52
February	617	96.9	93.8%	6.2%	0.0%	0.0%	2.25
March	694	98.5	95.0%	5.0%	0.0%	0.0%	2.24
April	566	84.2	99.5%	0.5%	0.0%	0.0%	2.04
May	708	99.9	98.7%	1.1%	0.1%	0.0%	2.13
June	686	100.0	98.5%	1.5%	0.0%	0.0%	2.12
July	707	100.0	95.0%	5.0%	0.0%	0.0%	2.21
August	676	96.4	93.5%	6.5%	0.0%	0.0%	2.29
September	683	99.7	92.7%	7.3%	0.0%	0.0%	2.28
October	707	99.9	93.4%	6.6%	0.0%	0.0%	2.29
November	636	93.1	72.8%	27.2%	0.0%	0.0%	2.64
December	613	88.2	94.9%	5.1%	0.0%	0.0%	2.26
						Annual Average	2.27

* Valid readings do not include daily and monthly calibration hours and downtime hours

THC Peak Reading of One Hour Averages for 2013

Plant Operator: _____ LICA _____

Plant Location: _____ COLD LAKE SOUTH _____

Month	THC ppm Peak Reading
January	4.3
February	3.7
March	4.2
April	3.0
May	12.9
June	3.4
July	3.9
August	3.6
September	4.6
October	5.2
November	4.9
December	4.3
ANNUAL PEAK	12.9

LICA
 THC / WD Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : THC
 Units : PPM

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.34	4.36	5.42	4.11	5.87	5.68	12.67	4.04	2.41	2.73	5.31	11.62	10.26	6.69	5.44	3.73	92.76
< 10.0	.23	.12	.26	.22	.45	.29	.36	.21	.27	.25	.74	1.51	.82	.58	.41	.42	7.22
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.01
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.58	4.49	5.69	4.34	6.32	5.97	13.04	4.25	2.68	2.99	6.06	13.15	11.08	7.27	5.85	4.16	

Calm : .00 %

Total # Operational Hours : 7920

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	186	346	430	326	465	450	1004	320	191	217	421	921	813	530	431	296	7347
< 10.0	19	10	21	18	36	23	29	17	22	20	59	120	65	46	33	34	572
< 50.0												1					1
>= 50.0																	
Totals	205	356	451	344	501	473	1033	337	213	237	480	1042	878	576	464	330	

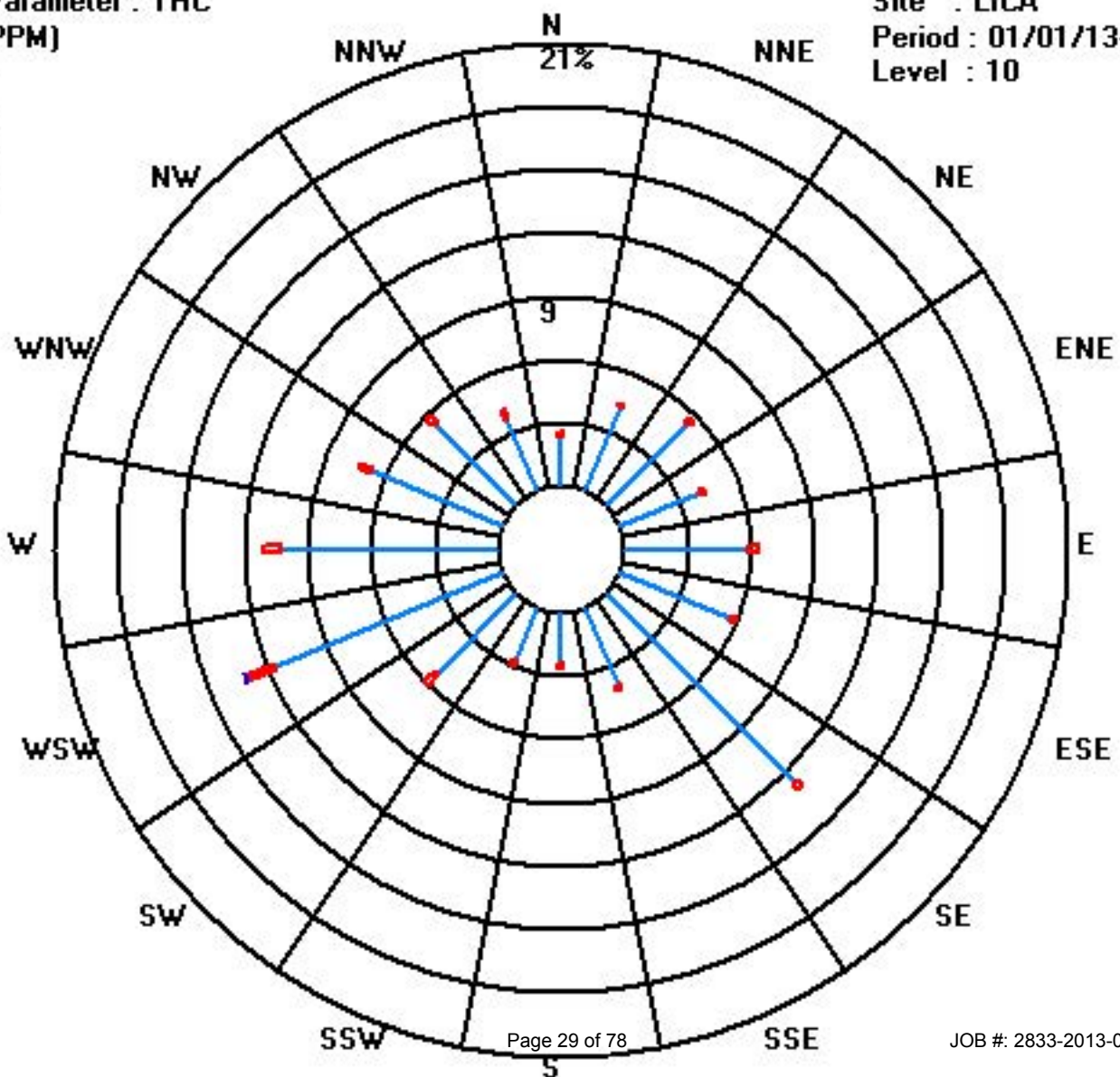
Calm : .00 %

Total # Operational Hours : 7920

Class Limits (PPM)

Period : 01/01/13-12/31/13

Level : 10



Particulate Matter 2.5

Current Date : 02/12/14
Current Time : 16:47

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	724	0	33	6
February	672	624	0	43	8
March	744	721	0	32	7
April	720	688	0	23	6
May	744	712	0	39	8
June	720	716	0	49	10
July	744	725	0	33	9
August	744	727	0	39	8
September	720	686	0	61	8
October	744	645	0	57	5
November	720	658	0	47	8
December	744	667	0	26	6
Yearly Total	8760	8293	0	61	7

PM 2.5 Monthly Averages and Frequency Distributions of Daily Average Readings - 2013

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ug/m ³)						Total Daily Readings > 30 ug/m ³	PM2.5 ug/m ³ Monthly Average
			≤ 30 ug/m ³	30 < C ≤ 60 ug/m ³	60 < C ≤ 80 ug/m ³	80 < C ≤ 120 ug/m ³	120 < C ≤ 240 ug/m ³	> 240 ug/m ³		
January	724	98.0	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	6.08
February	624	93.8	99.2%	0.8%	0.0%	0.0%	0.0%	0.0%	0	7.98
March	721	97.3	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0	7.18
April	688	96.3	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	5.65
May	712	96.1	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0	8.20
June	716	99.7	98.2%	1.8%	0.0%	0.0%	0.0%	0.0%	0	10.42
July	725	97.8	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	8.80
August	727	98.3	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0	8.01
September	686	95.8	98.8%	1.0%	0.1%	0.0%	0.0%	0.0%	0	7.81
October	645	87.0	99.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0	5.35
November	658	91.7	99.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0	7.77
December	667	90.3	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	5.76
									Annual Average	7.42

* Valid readings - does not include calibration hours and downtime hours

PM 2.5 Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	PM 2.5 (ug/m3) Peak Reading
January	33
February	43
March	32
April	23
May	39
June	49
July	33
August	39
September	61
October	57
November	47
December	26
ANNUAL PEAK	61

LICA
 PM2 / WD Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	2.53	4.49	6.18	4.50	6.53	5.94	12.97	4.31	2.69	2.77	5.92	13.04	10.79	6.86	5.77	3.93	99.29
< 60	.01	.03	.03	.02	.02	.01	.13	.02	.01	.02	.06	.18	.04	.02	.01	.02	.69
< 80	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
< 120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.54	4.52	6.22	4.52	6.56	5.96	13.11	4.33	2.70	2.80	5.99	13.22	10.84	6.89	5.78	3.95	

Calm : .00 %

Total # Operational Hours : 8213

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	208	369	508	370	537	488	1066	354	221	228	487	1071	887	564	474	323	8155
< 60	1	3	3	2	2	1	11	2	1	2	5	15	4	2	1	2	57
< 80						1											1
< 120																	
< 240																	
>= 240																	
Totals	209	372	511	372	539	490	1077	356	222	230	492	1086	891	566	475	325	

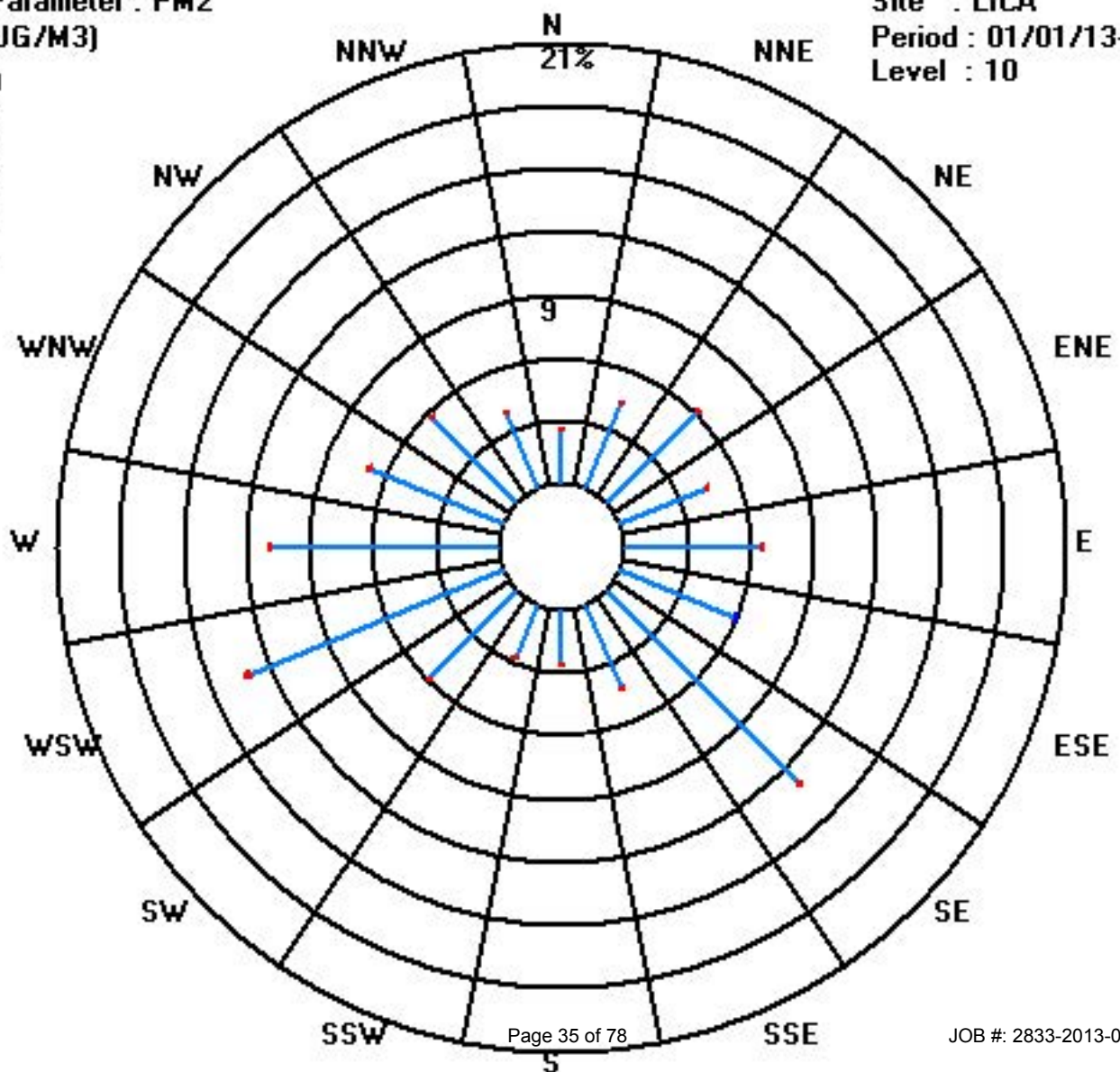
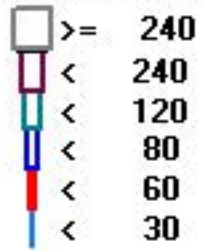
Calm : .00 %

Total # Operational Hours : 8213

Class Limits (UG/M3)

Period : 01/01/13-12/31/13

Level : 10



Nitrogen Dioxide

Current Date : 02/12/14
Current Time : 16:47

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : NO2_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	705	0.6	32.1	9.4
February	672	636	0.8	32.8	7.3
March	744	703	1	30.9	6.7
April	720	683	0.7	21.6	3.4
May	744	707	0.5	14.9	3
June	720	681	0.1	7.4	1.9
July	744	704	0	8.6	1.6
August	744	701	0	10.9	1.7
September	720	681	0	10	2.3
October	744	701	0	14.3	3.5
November	720	678	0	38.5	6.9
December	744	699	0	32.1	8.2
Yearly Total	8760	8279	0	38.5	4.6

NO₂ Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO ₂)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	NO ₂ ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm			
January	705	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.01
February	636	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
March	703	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.01
April	683	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
May	707	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
June	681	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.00
July	704	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
August	701	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
September	681	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
October	701	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
November	678	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.01
December	699	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
							Annual Average		0.00

* Valid readings do not include daily and monthly calibration hours and downtime hours

NO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	NO2 ppb Peak Reading
January	32
February	33
March	31
April	22
May	15
June	7
July	9
August	11
September	10
October	14
November	39
December	32
ANNUAL PEAK	39

LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : NO2_
 Units : PPB

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.51	4.55	6.16	4.54	6.46	5.91	12.81	4.20	2.62	2.93	5.99	13.22	11.01	7.07	5.82	4.12	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.51	4.55	6.16	4.54	6.46	5.91	12.81	4.20	2.62	2.93	5.99	13.22	11.01	7.07	5.82	4.12	

Calm : .00 %

Total # Operational Hours : 8187

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	206	373	505	372	529	484	1049	344	215	240	491	1083	902	579	477	338	8187
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	206	373	505	372	529	484	1049	344	215	240	491	1083	902	579	477	338	

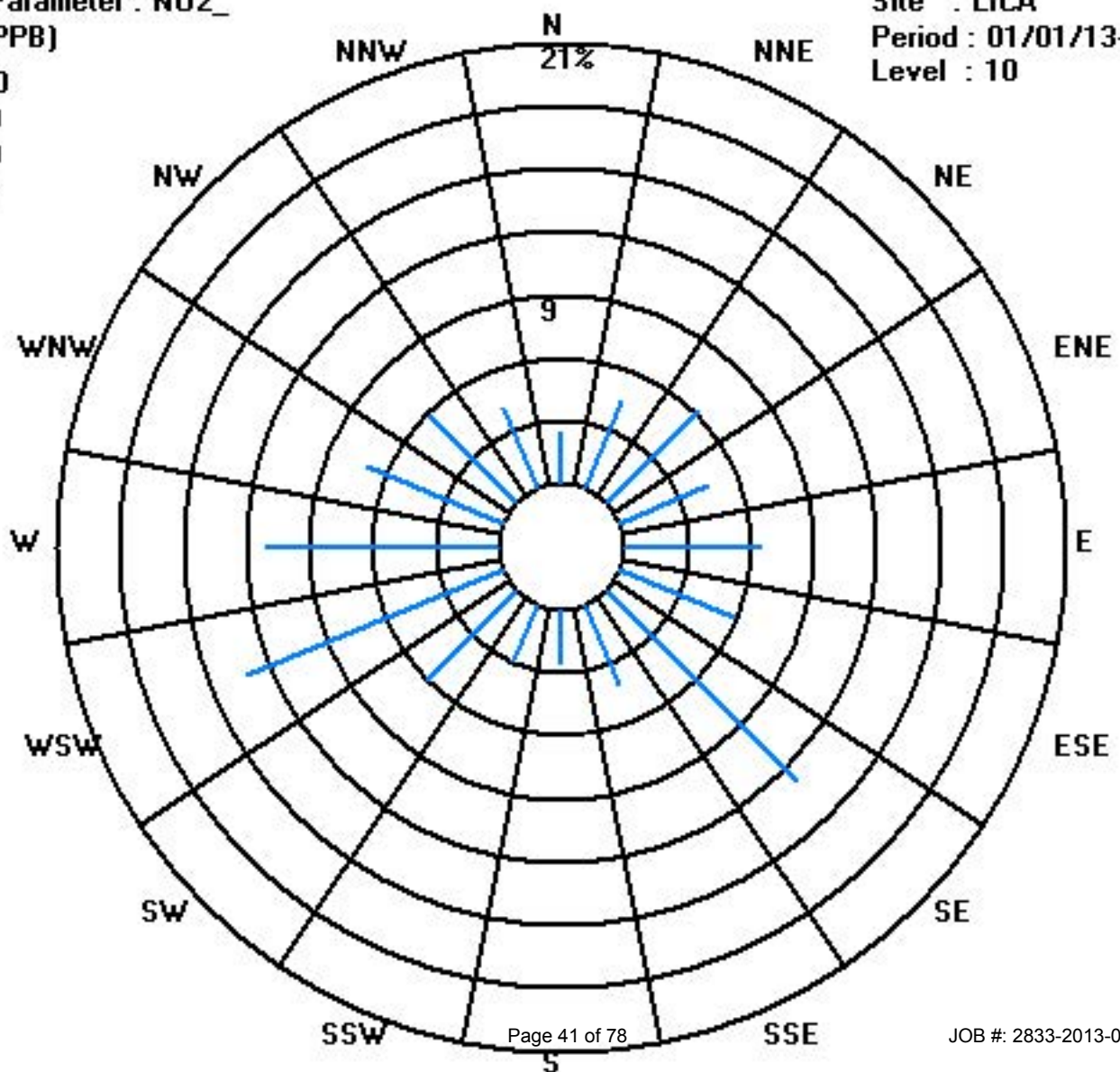
Calm : .00 %

Total # Operational Hours : 8187

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Nitric Oxide

Current Date : 02/12/14
Current Time : 16:46

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : NO_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	705	0	38.1	2.2
February	672	636	0	26.9	1.2
March	744	703	0	46.3	0.8
April	720	683	0	16.1	0.3
May	744	707	0	9.2	0.5
June	720	681	0	4.5	0.3
July	744	704	0	26.6	0.4
August	744	701	0	21.9	0.5
September	720	681	0	14.9	0.6
October	744	701	0	28.5	0.7
November	720	679	0	37.5	1.1
December	744	699	0	66.4	1.6
Yearly Total	8760	8280	0	66.4	0.9

NO Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: _____ LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO)				NO ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	705	99.9	100.0%	0.0%	0.0%	0.0%	0.00
February	636	100.0	100.0%	0.0%	0.0%	0.0%	0.00
March	703	99.9	100.0%	0.0%	0.0%	0.0%	0.00
April	683	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	707	99.9	100.0%	0.0%	0.0%	0.0%	0.00
June	681	99.7	100.0%	0.0%	0.0%	0.0%	0.00
July	704	100.0	100.0%	0.0%	0.0%	0.0%	0.00
August	701	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	681	99.9	100.0%	0.0%	0.0%	0.0%	0.00
October	701	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	679	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	699	100.0	99.9%	0.1%	0.0%	0.0%	0.00
						Annual Average	0.00

* Valid readings do not include daily and monthly calibration hours and downtime hours

LICA
NO_ / WD Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.51	4.55	6.16	4.54	6.44	5.91	12.80	4.20	2.62	2.93	5.99	13.24	11.01	7.07	5.82	4.12	99.98
< 110.0	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.51	4.55	6.16	4.54	6.45	5.91	12.80	4.20	2.62	2.93	5.99	13.24	11.01	7.07	5.82	4.12	

Calm : .00 %

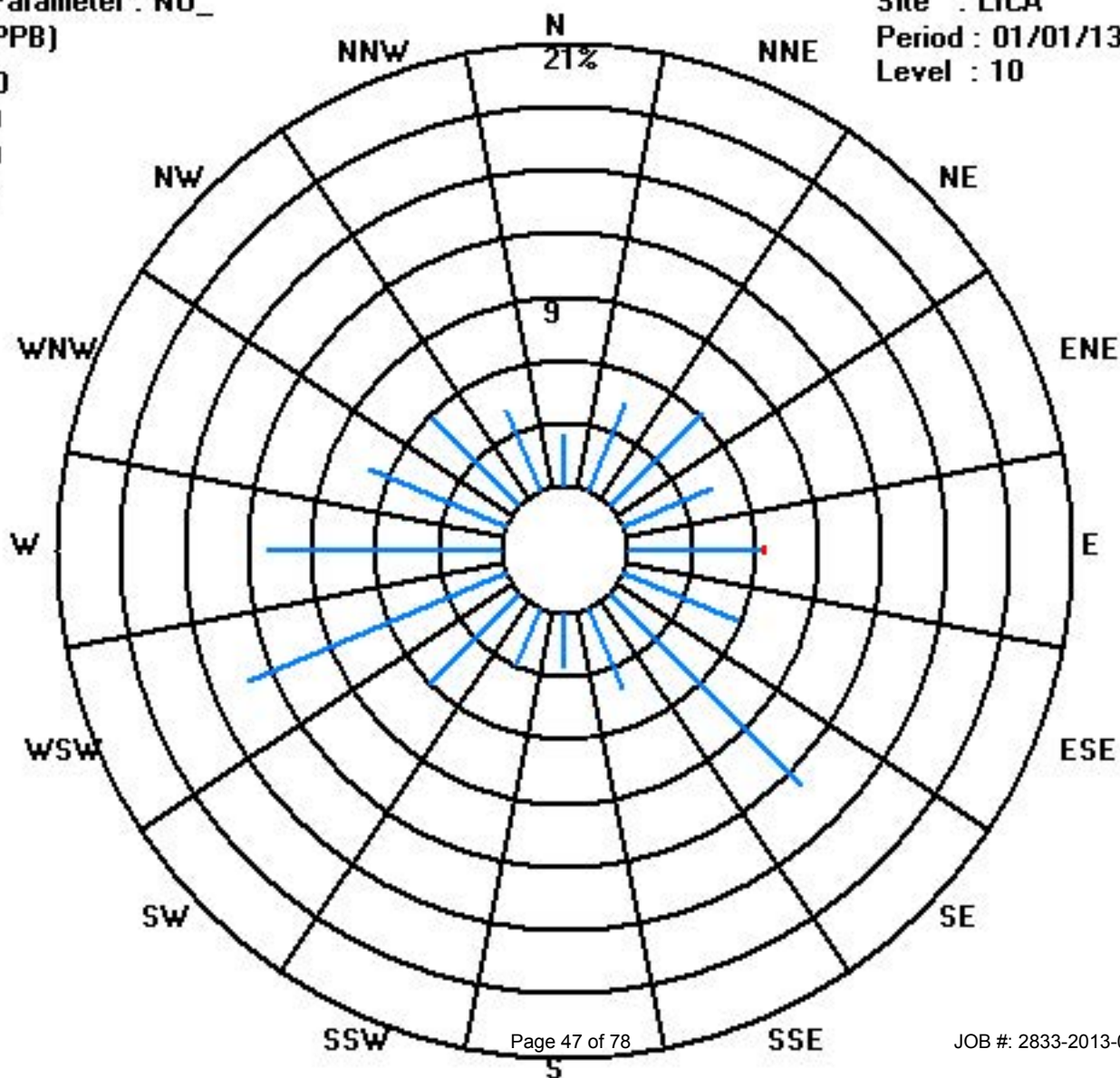
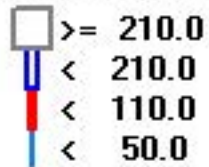
Total # Operational Hours : 8189

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	206	373	505	372	528	484	1049	344	215	240	491	1085	902	579	477	338	8188
< 110.0					1												1
< 210.0																	
>= 210.0																	
Totals	206	373	505	372	529	484	1049	344	215	240	491	1085	902	579	477	338	

Calm : .00 %

Total # Operational Hours : 8189



Oxides of Nitrogen

Current Date : 02/12/14
Current Time : 16:46

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : NOX_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	705	0.9	69.1	11.6
February	672	636	0.8	58.4	8.5
March	744	703	1	76.4	7.5
April	720	683	0.7	25.1	3.8
May	744	707	0.5	20.7	3.5
June	720	681	0.1	11.5	2.2
July	744	704	0	34.5	1.9
August	744	701	0	32.8	2.2
September	720	681	0	24.8	2.8
October	744	701	0	34	4.3
November	720	679	0	52.9	7.9
December	744	699	0.3	95.8	9.8
Yearly Total	8760	8280	0	95.8	5.5

NO_x Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NOx)				NOx ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	705	99.9	98.6%	1.4%	0.0%	0.0%	0.01
February	636	100.0	99.7%	0.3%	0.0%	0.0%	0.01
March	703	99.9	99.6%	0.4%	0.0%	0.0%	0.01
April	683	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	707	99.9	100.0%	0.0%	0.0%	0.0%	0.00
June	681	99.7	100.0%	0.0%	0.0%	0.0%	0.00
July	704	100.0	100.0%	0.0%	0.0%	0.0%	0.00
August	701	100.0	99.9%	0.1%	0.0%	0.0%	0.00
September	681	99.9	100.0%	0.0%	0.0%	0.0%	0.00
October	701	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	679	100.0	99.9%	0.1%	0.0%	0.0%	0.01
December	699	100.0	99.1%	0.9%	0.0%	0.0%	0.01
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	0.01

NO_x Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	NOx ppb Peak Reading
January	69
February	58
March	76
April	25
May	21
June	12
July	35
August	33
September	25
October	34
November	53
December	96
ANNUAL PEAK	96

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.50	4.54	6.08	4.46	6.42	5.89	12.79	4.20	2.62	2.93	5.98	13.24	11.01	7.07	5.82	4.11	99.73
< 110.0	.01	.01	.08	.07	.03	.01	.01	.00	.00	.00	.01	.00	.00	.00	.00	.01	.26
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.51	4.55	6.16	4.54	6.45	5.91	12.80	4.20	2.62	2.93	5.99	13.24	11.01	7.07	5.82	4.12	

Calm : .00 %

Total # Operational Hours : 8189

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	205	372	498	366	526	483	1048	344	215	240	490	1085	902	579	477	337	8167
< 110.0	1	1	7	6	3	1	1				1					1	22
< 210.0																	
>= 210.0																	
Totals	206	373	505	372	529	484	1049	344	215	240	491	1085	902	579	477	338	

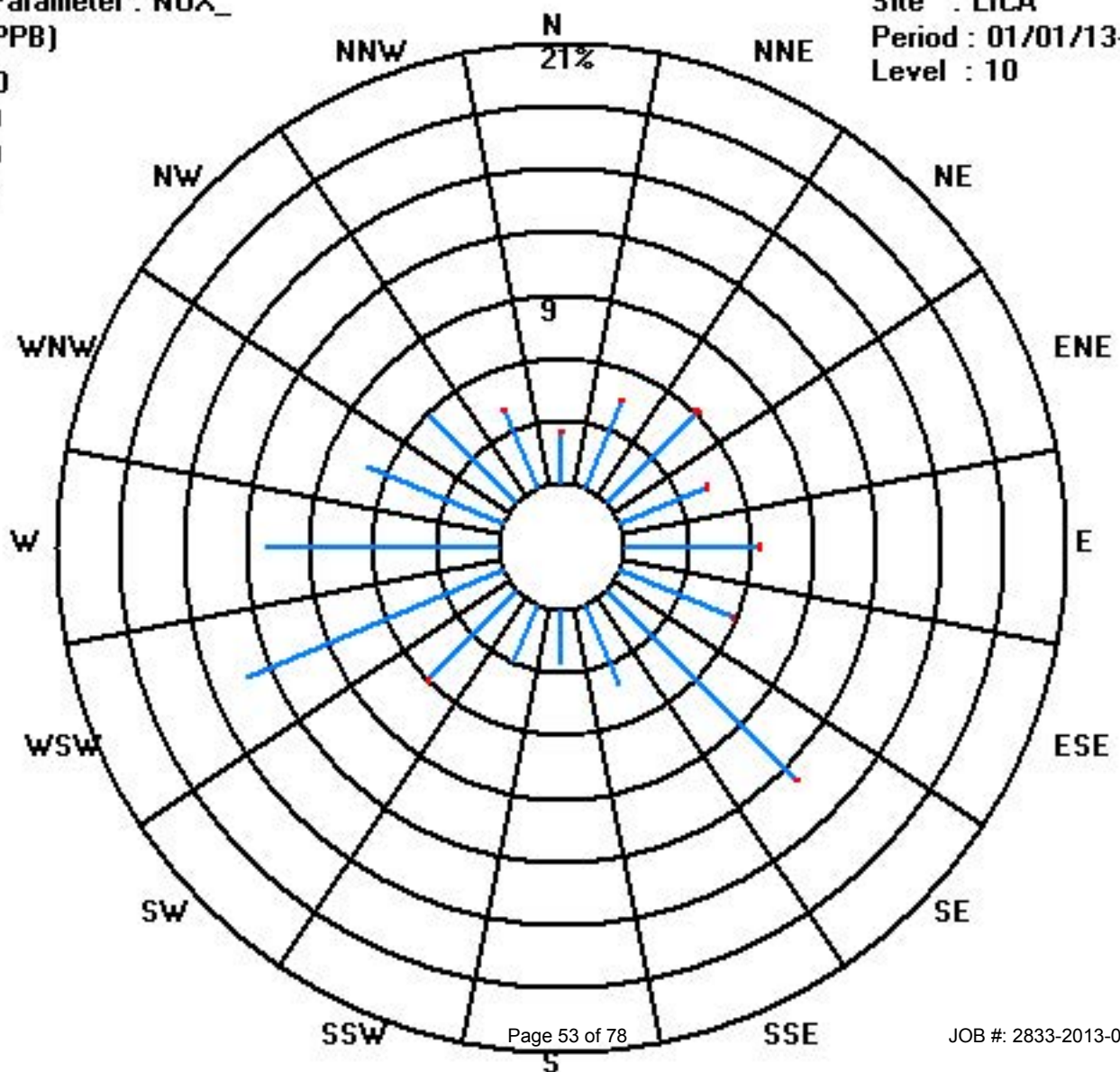
Calm : .00 %

Total # Operational Hours : 8189

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Ozone

Current Date : 02/12/14
Current Time : 16:47

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : O3_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	707	1	42	23
February	672	638	1	45	32
March	744	705	4	69	40
April	720	678	5	66	42
May	744	706	1	69	36
June	720	686	1	68	26
July	744	706	0	58	22
August	744	706	0	56	22
September	720	684	1	69	22
October	744	706	1	39	19
November	720	684	1	39	21
December	744	705	1	40	22
Yearly Total	8760	8311	0	69	27

O3 Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm O3)				O3 ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	707	100.0	100.0%	0.0%	0.0%	0.0%	0.02
February	638	99.9	100.0%	0.0%	0.0%	0.0%	0.03
March	706	99.9	85.3%	14.7%	0.0%	0.0%	0.04
April	678	99.6	78.5%	21.5%	0.0%	0.0%	0.04
May	705	99.9	89.5%	10.5%	0.0%	0.0%	0.04
June	686	100.0	95.8%	4.2%	0.0%	0.0%	0.03
July	706	100.0	99.2%	0.8%	0.0%	0.0%	0.02
August	706	100.0	99.2%	0.8%	0.0%	0.0%	0.02
September	684	99.7	98.2%	1.8%	0.0%	0.0%	0.02
October	706	100.0	100.0%	0.0%	0.0%	0.0%	0.02
November	684	100.0	100.0%	0.0%	0.0%	0.0%	0.02
December	705	99.9	100.0%	0.0%	0.0%	0.0%	0.02
						Annual Average	0.03

* Valid readings do not include daily and monthly calibration hours and downtime hours

O3 Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	O3 ppb Peak Reading
January	42
February	45
March	69
April	66
May	69
June	68
July	58
August	56
September	69
October	39
November	39
December	40
ANNUAL PEAK	69

LICA
O3_ / WD Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : O3_
Units : PPB

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	2.54	4.41	5.88	4.39	6.08	5.58	11.64	3.80	2.34	2.64	5.49	12.61	10.65	6.86	5.58	3.89	94.46
< 110	.03	.20	.24	.17	.37	.31	1.28	.38	.29	.29	.46	.54	.24	.20	.23	.23	5.53
< 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	2.57	4.62	6.13	4.56	6.46	5.90	12.93	4.19	2.64	2.93	5.96	13.16	10.90	7.06	5.81	4.12	

Calm : .00 %

Total # Operational Hours : 8219

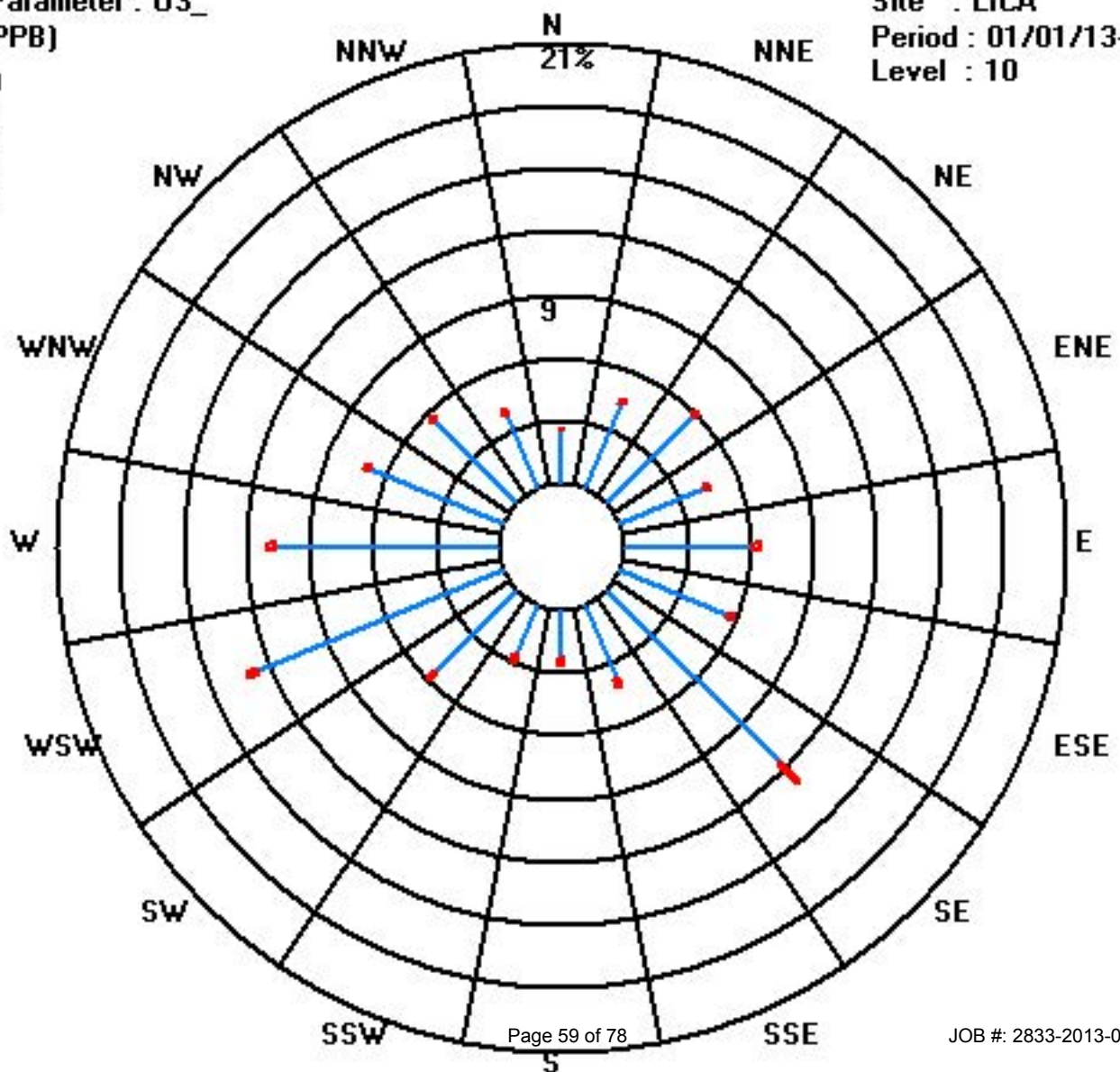
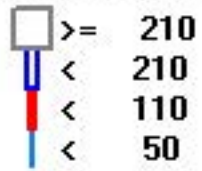
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	209	363	484	361	500	459	957	313	193	217	452	1037	876	564	459	320	7764
< 110	3	17	20	14	31	26	106	32	24	24	38	45	20	17	19	19	455
< 210																	
>= 210																	
Totals	212	380	504	375	531	485	1063	345	217	241	490	1082	896	581	478	339	

Calm : .00 %

Total # Operational Hours : 8219

Class Limits (PPB)



Ambient Temperature

Current Date : 02/12/14
Current Time : 17:01

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : TPX Units : DGC

	Readings	Valid Readings	Min	Max	Mean
January	744	744	-37.4	6	-14.8
February	672	672	-21.1	5.8	-8.3
March	744	744	-26.9	11.2	-8.1
April	720	720	-16.9	17.4	0.1
May	744	744	-8.5	29.6	13.5
June	720	720	4.1	27.4	15.5
July	744	744	5.1	31.8	16.4
August	744	744	3.9	29.6	17.3
September	720	720	-2.3	30	13.5
October	744	744	-13.3	16.7	3.6
November	720	720	-27.8	8.7	-8.8
December	744	744	-37.3	4.4	-18.9
Yearly Total	8760	8760	-37.4	31.8	1.8

Temperature - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	Operational Time (%)	Monthly Averages (Deg.C)	Maximum Hourly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	100.0	-14.84	6.0	-37.4	-0.3
February	100.0	-8.29	5.8	-21.1	0.3
March	100.0	-8.11	11.2	-26.9	0.4
April	100.0	0.07	17.4	-16.9	10.0
May	100.0	13.49	29.6	-8.5	19.0
June	100.0	15.46	27.4	4.1	20.8
July	100.0	16.40	31.8	5.1	25.2
August	100.0	17.31	29.6	3.9	21.7
September	100.0	13.53	30.0	-2.3	19.5
October	100.0	3.55	16.7	-13.3	9.0
November	100.0	-8.77	8.7	-27.8	2.3
December	100.0	-18.92	4.4	-37.3	-3.3
ANNUAL AVERAGE		1.74	-	-	-

Relative Humidity

Current Date : 04/16/14
Current Time : 13:12

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : RH Units : %FS

	Readings	Valid Readings	Min	Max	Mean
January	744	744	48	96	76
February	672	672	41	97	76
March	744	744	28	91	67
April	720	720	25	97	62
May	744	744	10	99	50
June	720	720	21	100	72
July	744	744	30	99	72
August	744	744	27	100	72
September	720	720	24	97	66
October	744	744	28	96	72
November	720	720	51	98	77
December	744	744	47	93	73
Yearly Total	8760	8760	10	100	69

Relative Humidity - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	Monthly Averages (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	75.52	96	87.0
February	76.24	97	88.9
March	66.72	91	81.5
April	61.69	97	84.7
May	49.95	99	78.5
June	72.21	100	92.0
July	72.44	99	91.6
August	72.05	100	89.5
September	65.62	97	86.6
October	71.50	96	91.9
November	77.15	98	90.8
December	73.29	93	88.6
ANNUAL AVERAGE	69.53	-	-

Vector Wind Speed

Current Date : 02/12/14
Current Time : 16:47

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA Logger Id : 01 Parameter : WSP Units : KPH

	Readings	Valid Readings	Min	Max	Mean
January	744	740	0.1	20	4.5
February	672	672	0.2	18.1	5.5
March	744	744	0.2	19.1	5.3
April	720	720	0.1	23.5	7.2
May	744	739	0.1	20	6.1
June	720	720	0	16.5	5.6
July	744	744	0.1	17.6	5.4
August	744	744	0	17.4	4.2
September	720	720	0.1	18.9	5.2
October	744	744	0.1	18.9	5.6
November	696	651	0.2	43.2	5.9
December	744	726	0.1	26.3	5.2
Yearly Total	8736	8664	0	43.2	5.5

LICA
WSP / WD Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : WSP
Units : KPH

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	1.46	2.26	3.50	2.98	3.32	3.60	6.68	3.13	2.18	2.45	4.65	9.62	5.95	3.34	2.28	1.33	58.81
< 12.0	.72	1.98	2.28	1.29	2.51	1.76	5.17	.79	.28	.27	1.05	3.19	4.14	2.60	2.43	1.46	32.00
< 20.0	.25	.13	.36	.21	.47	.39	.92	.10	.00	.00	.05	.18	.88	.92	1.03	1.08	7.05
< 29.0	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.04	.03	.04	.13
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
Totals	2.44	4.38	6.16	4.50	6.31	5.78	12.77	4.03	2.46	2.73	5.75	13.00	10.98	6.92	5.79	3.93	

Calm : 1.97 %

Total # Operational Hours : 8664

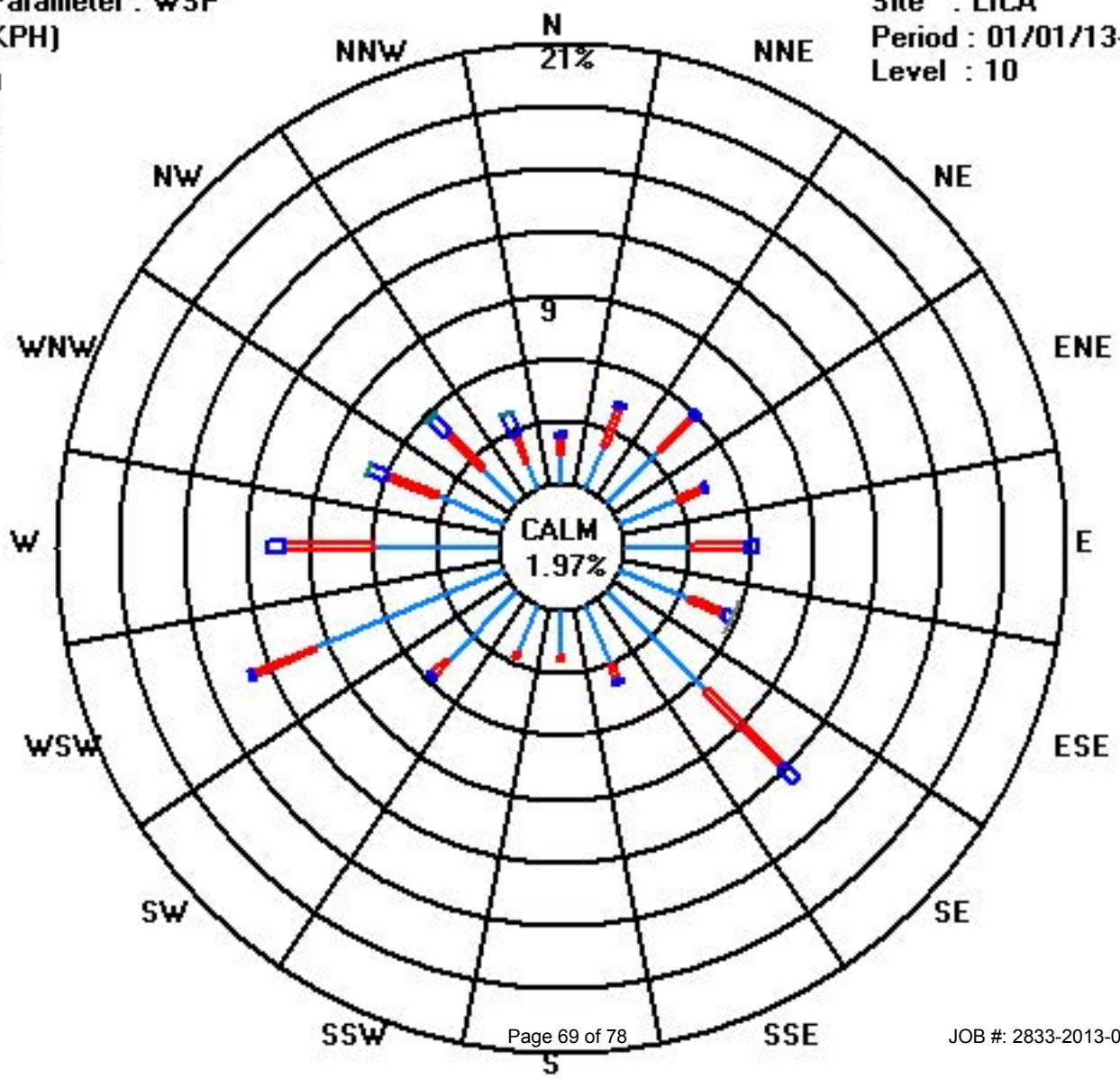
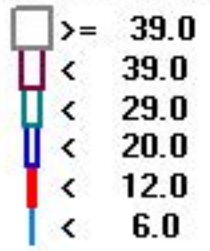
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	127	196	304	259	288	312	579	272	189	213	403	834	516	290	198	116	5096
< 12.0	63	172	198	112	218	153	448	69	25	24	91	277	359	226	211	127	2773
< 20.0	22	12	32	19	41	34	80	9			5	16	77	80	90	94	611
< 29.0						1								4	3	4	12
< 39.0																	
>= 39.0						1											1
Totals	212	380	534	390	547	501	1107	350	214	237	499	1127	952	600	502	341	

Calm : 1.97 %

Total # Operational Hours : 8664

Class Limits (KPH)



Passive Monitoring Annual Summaries

Sulphur Dioxide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Company

LICA Airshed
Project Number

LICA Airshed
Location

12/31/2012
Date Samples Start

12/31/2013
Date Sampled End

SO2 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
2	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0.2
3	0.5	0.6	0.7	0.3	0.2	0.3	0.2	0.3	0.5	0.2	0.5	0.8	0.4	0.8
03 DUP	NA	NA	NA	NA	NA	0.3	NA	NA	NA	NA	NA	NA	0.3	0.3
4	0.9	1	0.7	0.3	0.3	0.7	0.4	0.6	0.6	0.5	0.7	1	0.6	1
04 DUP	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	NA	0.4	0.4
5	0.8	0.9	0.8	0.3	0.3	0.6	0.6	0.8	0.7	0.3	0.5	0.8	0.6	0.9
05 DUP	NA	NA	NA	NA	NA	NA	0.6	NA	NA	NA	NA	NA	0.6	0.6
6	0.8	0.8	0.5	0.3	0.3	0.4	0.5	1	1	0.2	0.4	0.9	0.6	1
06 DUP	NA	NA	NA	NA	NA	NA	0.8	NA	NA	NA	NA	NA	0.8	0.8
8	0.6	0.7	0.6	0.2	0.5	0.5	0.3	0.4	0.5	<0.1	0.5	0.8	<0.5	0.8
08 DUP	NA	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	0.4	0.4
09 DUP	NA	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	0.4	0.4
9	0.6	0.8	0.6	0.2	0.2	0.2	0.2	0.6	0.7	0.2	0.4	0.7	0.5	0.8
10	0.5	0.6	0.4	0.3	0.3	0.4	0.1	0.3	0.6	0.2	0.4	0.5	0.4	0.6
10 DUP	NA	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	0.4	0.4
11	NA	NA	NA	0.4	0.2	0.3	<0.1	0.2	0.3	0.4	0.3	NA	<0.3	0.4
11 DUP	NA	NA	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	0.4	0.4
12	0.8	1	0.7	0.2	0.3	0.2	0.1	0.2	1.2	0.2	0.5	0.7	0.5	1.2
12 DUP	NA	NA	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	0.4	0.4
13	0.9	0.5	0.7	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.6	0.9	0.5	0.9
13 DUP	NA	NA	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	0.4	0.4
14	1.5	1	1.2	0.6	1	1	0.7	0.5	0.8	1.1	0.9	1.7	1	1.7
14 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2	NA	NA	1.2	1.2
15	0.6	0.6	0.6	0.3	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.6	0.4	0.6
15 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	NA	NA	0.2	0.2
16	0.7	0.8	0.7	0.3	0.3	0.4	0.2	0.3	0.4	0.3	0.4	0.6	0.4	0.8
16 DUP	0.6	0.8	NA	NA	NA	NA	NA	NA	NA	0.2	NA	NA	0.5	0.8
17	1.1	1	0.7	0.2	0.4	0.4	0.3	0.6	0.7	0.3	0.4	1	0.6	1.1
17 DUP	0.8	0.8	NA	NA	NA	NA	NA	NA	NA	NA	0.4	NA	0.7	0.8
18	0.6	0.6	0.5	0.3	0.3	0.2	<0.1	0.2	0.4	0.1	0.3	0.6	<0.4	0.6
18 DUP	0.6	0.6	NA	NA	NA	NA	NA	NA	NA	NA	0.3	NA	0.5	0.6
19	0.7	0.7	0.6	0.2	0.3	0.2	0.2	0.2	0.4	0.4	0.4	1.3	0.5	1.3
19 DUP	NA	NA	0.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.8	0.8
22	0.5	0.5	0.4	0.2	0.4	0.2	0.2	0.3	0.4	0.3	0.3	0.7	0.4	0.7
22 DUP	NA	NA	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	0.5
23	0.5	0.5	0.3	0.1	0.2	0.3	NA	0.2	0.3	0.2	0.3	0.4	0.3	0.5
23 DUP	NA	NA	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4	0.4
24	0.7	0.7	0.8	0.3	0.3	0.2	0.3	0.4	0.5	0.3	0.5	0.7	0.5	0.8
24 DUP	NA	NA	NA	0.2	NA	NA	NA	NA	NA	NA	NA	0.6	0.4	0.6
25	0.9	1	0.8	0.3	0.4	0.3	<0.1	0.2	0.3	0.3	0.6	0.7	<0.5	1
25 DUP	NA	NA	NA	0.4	NA	NA	NA	NA	NA	NA	NA	NA	0.4	0.4
26	0.9	0.8	0.8	0.4	0.7	0.5	0.5	0.5	0.6	0.5	0.4	1.3	0.7	1.3
26 DUP	NA	NA	NA	0.3	NA	NA	NA	NA	NA	NA	NA	NA	0.3	0.3
27	1.2	1.3	0.9	0.3	0.7	0.8	0.9	0.8	1.2	1.4	1.4	1.8	1.1	1.8
27 DUP	NA	NA	NA	NA	0.6	NA	NA	NA	NA	NA	NA	NA	0.6	0.6
28	0.5	0.6	0.8	0.4	0.6	0.7	0.7	0.9	0.7	0.4	0.4	0.5	0.6	0.9
28 DUP	NA	NA	NA	NA	0.5	NA	NA	NA	NA	NA	NA	NA	0.5	0.5
29	0.4	0.6	0.5	0.2	0.3	0.2	0.2	0.3	0.5	0.3	0.4	0.7	0.4	0.7
29 DUP	NA	NA	NA	NA	0.3	NA	NA	NA	NA	NA	NA	NA	0.3	0.3
32	0.9	0.6	0.8	0.3	0.3	0.5	0.2	0.3	0.4	0.3	0.4	0.8	0.5	0.9
32 DUP	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	NA	NA	0.4	0.4
36	0.8	0.8	0.8	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.7	0.5	0.8
36 DUP	NA	NA	NA	NA	NA	0.3	NA	NA	NA	NA	NA	NA	0.3	0.3
Average	0.7	0.8	0.7	0.3	0.4	0.4	<0.3	0.4	0.6	<0.4	0.5	0.8		
Maximum	1.5	1.3	1.2	0.6	1	1	0.9	1	1.2	1.4	1.4	1.8		

Hydrogen Sulphide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Company

LICA Airshed

Project Number

LICA Airshed

Location

12/31/2012

Date Samples Start

12/31/2013

Date Sampled End

H2S (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
3	0.18	0.13	0.1	0.06	0.15	0.12	0.22	0.24	0.19	0.05	0.05	0.17	0.14	0.24
3 DUP	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA	NA	NA	0.13	0.13
5	0.4	0.14	0.14	0.07	0.16	0.25	0.87	0.97	0.58	0.14	0.07	0.27	0.34	0.97
5 DUP	NA	NA	NA	NA	0.17	NA	NA	NA	NA	NA	NA	NA	0.17	0.17
10	0.21	0.12	0.08	0.06	0.08	0.14	0.16	0.31	0.19	0.08	0.08	0.16	0.14	0.31
10 DUP	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA	NA	0.13	0.13
11	NA	NA	NA	0.04	0.05	0.05	0.09	0.11	0.05	0.06	0.08	NA	0.07	0.11
11 DUP	NA	NA	NA	NA	NA	0.05	NA	NA	NA	NA	NA	NA	0.05	0.05
12	0.2	0.11	0.07	0.02	0.07	0.03	0.09	0.13	0.11	0.07	0.08	0.12	0.09	0.2
12 DUP	NA	NA	NA	NA	NA	NA	0.08	NA	NA	NA	NA	NA	0.08	0.08
13	0.16	0.11	0.08	<0.02	0.07	0.06	0.08	0.12	0.1	0.07	0.1	0.12	<0.09	0.16
13 DUP	NA	NA	NA	NA	NA	NA	0.07	NA	NA	NA	NA	NA	0.07	0.07
14	0.21	0.13	0.11	0.05	0.16	0.16	0.16	0.3	0.26	0.19	0.16	0.19	0.17	0.3
14 DUP	NA	NA	NA	NA	NA	NA	NA	0.29	NA	NA	NA	NA	0.29	0.29
16	0.21	0.14	0.13	0.07	0.09	0.11	0.1	0.25	0.29	0.11	0.11	0.18	0.15	0.29
16 DUP	NA	NA	NA	NA	NA	NA	NA	0.25	NA	NA	NA	NA	0.25	0.25
17	0.14	0.19	0.17	0.11	0.23	0.26	0.44	0.4	0.29	0.16	0.12	0.25	0.23	0.44
17 DUP	NA	NA	NA	NA	NA	NA	NA	NA	0.28	NA	NA	NA	0.28	0.28
18	0.17	0.13	0.09	0.04	0.1	0.09	0.15	0.17	0.18	0.07	0.1	0.13	0.12	0.18
18 DUP	NA	NA	NA	NA	NA	NA	NA	NA	0.16	NA	NA	NA	0.16	0.16
22	0.18	0.15	0.07	0.04	0.07	0.12	0.24	0.32	0.22	0.13	0.13	0.14	0.15	0.32
22 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.08	NA	NA	0.08	0.08
24	0.26	0.27	0.1	0.06	0.09	0.1	0.3	0.32	0.26	0.1	0.13	0.19	0.18	0.32
24 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	NA	NA	0.1	0.1
25	0.15	0.21	0.13	0.03	0.06	0.07	0.1	0.13	0.09	0.05	0.14	0.16	0.11	0.21
25 DUP	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	0.12	0.13
26	0.18	0.16	0.11	0.06	0.13	0.06	0.12	0.21	0.17	0.18	0.17	0.18	0.14	0.21
26 DUP	0.21	0.14	NA	NA	NA	NA	NA	NA	NA	NA	0.16	NA	0.17	0.21
27	0.15	0.15	0.11	0.04	0.13	0.23	0.44	1.23	0.58	0.88	0.27	0.2	0.37	1.23
27 DUP	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0.15	0.2
29	0.21	0.15	0.09	0.05	0.07	0.1	0.23	0.29	0.33	0.09	0.13	0.13	0.16	0.33
29 DUP	NA	NA	0.08	NA	NA	NA	NA	NA	NA	NA	NA	0.13	0.1	0.13
32	0.2	0.12	0.09	0.05	0.1	0.1	0.24	0.26	0.23	0.1	0.09	0.22	0.15	0.26
32 DUP	NA	NA	NA	0.04	NA	NA	NA	NA	NA	NA	NA	NA	0.04	0.04
36	0.21	0.16	0.1	0.06	0.11	0.12	0.33	1.36	0.33	0.09	0.13	0.17	0.26	1.36
36 DUP	NA	NA	NA	0.07	NA	NA	NA	NA	NA	NA	NA	NA	0.07	0.07
Average	0.2	0.15	0.1	<0.05	0.11	0.12	0.23	0.38	0.24	0.14	0.12	0.17		
Maximum	0.4	0.27	0.17	0.11	0.23	0.26	0.87	1.36	0.58	0.88	0.27	0.27		

Nitrogen Dioxide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Company

LICA Airshed

Project Number

LICA Airshed

Location

12/31/2012

Date Samples Start

12/31/2013

Date Sampled End

NO2 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
2	3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.3	3.3
3	2.6	1.1	0.2	0.3	0.9	0.6	0.4	1.2	0.8	1	2.3	3.7	1.3	3.7
3 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	NA	2.8	2.8
4	2.8	0.9	0.2	0.2	0.9	1	1	1.1	1	1.4	2.8	2.5	1.3	2.8
4 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2	NA	2.2	2.2
5	2.8	1.1	0.2	0.1	0.6	0.4	0.4	0.3	1.1	0.9	3.4	2.2	1.1	3.4
5 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6	NA	2.6	2.6
6	5.1	2.4	1.7	1.8	2.8	1.5	1.7	1.7	2.3	5.7	5.1	7.1	3.2	7.1
6 DUP	4.6	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	4.6
8	2.1	0.9	0.2	0.1	0.3	0.7	0.3	0.2	0.8	1.2	1.9	2	0.9	2.1
8 DUP	1.8	0.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4	1.8
9	3.6	1.2	0.2	0.3	1.3	0.8	0.8	1.2	1.1	1.3	4	3.4	1.6	4
9 DUP	NA	NA	0.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.8	0.8
10	6.7	2.6	0.9	0.8	1.9	1.3	1.8	1.6	2.3	4.3	5.4	5.8	3	6.7
10 DUP	NA	NA	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8	1.8
11	NA	NA	NA	0.1	0.3	0.2	0.6	0.6	1.1	0.6	1.5	NA	0.6	1.5
12	4.7	2.6	1.7	2.1	1.6	1.4	1.6	0.6	1.8	4.2	3.9	2.7	2.4	4.7
12 DUP	NA	NA	NA	2.6	NA	NA	NA	NA	NA	NA	NA	NA	2.6	2.6
13	1.9	0.8	<0.1	0.2	0.4	0.3	0.4	0.5	1.2	0.9	1.7	1.8	<0.9	1.9
13 DUP	NA	NA	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	0.1	0.1
14	2.9	1.2	0.5	0.7	0.5	0.5	0.6	0.3	1.4	1.7	3	3.4	1.4	3.4
14 DUP	NA	NA	NA	NA	0.5	NA	NA	NA	NA	NA	NA	NA	0.5	0.5
15	2.8	1.2	0.2	0.3	0.6	0.4	1.2	0.6	1.2	1.7	3	4.9	1.5	4.9
15 DUP	NA	NA	NA	NA	0.7	NA	NA	NA	NA	NA	NA	NA	0.7	0.7
16	3.7	1.6	0.7	1.3	0.7	0.7	1	0.4	0.8	1.6	3.1	3.9	1.6	3.9
16 DUP	NA	NA	NA	NA	NA	0.5	NA	NA	NA	NA	NA	NA	0.5	0.5
17	3.4	2.1	1.4	0.8	1.2	1.8	0.8	1.5	2.1	2	4.9	3.7	2.1	4.9
17 DUP	NA	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	1.2	1.2
18	2.7	1.2	0.2	0.5	0.6	0.3	0.7	0.4	1.1	2.1	2.8	2.1	1.2	2.8
18 DUP	NA	NA	NA	NA	NA	NA	1.1	NA	NA	NA	NA	NA	1.1	1.1
19	3.1	0.6	<0.1	<0.1	0.4	0.4	0.7	0.6	1.7	0.8	1.7	2.1	<1.0	3.1
19 DUP	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	NA	0.4	0.4
22	4.3	1.5	0.4	1	0.7	0.4	0.5	1	1.1	2.3	3	3.3	1.6	4.3
22 DUP	NA	NA	NA	NA	NA	NA	NA	0.4	NA	NA	NA	NA	0.4	0.4
23	1	0.4	<0.1	<0.1	<0.1	0.5	0.4	<0.1	0.5	0.3	0.9	0.9	<0.4	1
23 DUP	NA	NA	NA	NA	NA	NA	NA	0.2	NA	NA	NA	NA	0.2	0.2
24	5.3	2	0.9	1.3	1.4	1.5	2.2	1.8	2	5.7	4.8	5	2.8	5.7
24 DUP	NA	NA	NA	NA	NA	NA	NA	NA	3.3	NA	NA	NA	3.3	3.3
28	10.8	5.8	3.9	3.5	1.8	1.2	2.2	2.4	2.4	6.3	11.6	8.9	5.1	11.6
28 DUP	NA	NA	NA	NA	NA	NA	NA	NA	3.1	NA	NA	NA	3.1	3.1
29	4.6	1.9	0.8	0.8	0.6	0.8	0.5	0.8	1.4	1.7	4.7	4.4	1.9	4.7
29 DUP	NA	NA	NA	NA	NA	NA	NA	NA	2.7	NA	NA	NA	2.7	2.7
32	2	1.3	0.2	0.6	0.2	0.3	1.1	1	1.1	0.6	2.6	2.2	1.1	2.6
32 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2	NA	NA	1.2	1.2
36	7.7	4.2	3.2	1.8	1.5	1.4	1.5	1.7	3.1	5.1	7.7	8.1	3.9	8.1
36 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.3	NA	6.3	6.3
Average	3.9	1.8	<0.9	<0.9	<0.9	0.8	1	<0.9	1.6	2.3	3.8	3.7		
Maximum	10.8	5.8	3.9	3.5	2.8	1.8	2.2	2.4	3.3	6.3	11.6	8.9		

Ozone

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Company

LICA Airshed

Project Number

LICA Airshed

Location

12/31/2012

Date Samples Start

12/31/2013

Date Sampled End

O3 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
2	21.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.6	21.64
3	31.1	37	36.6	36.8	32.9	23.6	20.8	17.1	17.1	15.9	20.9	26.9	26.4	36.97
3 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.8	NA	22.8	22.83
4	34	47.4	45	48.1	32.8	25.9	22.2	19.9	19.5	16.7	27.9	32.5	31	48.09
4 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.7	31.7	31.67
5	30.4	38.4	47.1	37.1	33.7	24.2	18.6	20	19.4	16.3	19.6	24.6	27.4	47.06
5 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	27	26.96
6	29.3	41.6	41	41	30.3	21.7	20.5	17.1	16.9	13.2	22.2	23.5	26.5	41.62
6 DUP	28.5	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	36.8	45.04
8	32.9	45.4	45.1	42.9	37.4	25.3	22	21.7	21.3	18.9	26.4	26.4	30.5	45.38
8 DUP	30.9	43.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37.1	43.33
9	30.4	39.6	41.4	41.1	33.3	23.5	19.8	18.4	17.6	19.3	26.3	26.1	28.1	41.42
9 DUP	NA	NA	45.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.2	45.24
10	23.9	35.9	33.6	36.3	31.4	18.3	14.8	16.1	15.1	12.1	21	22.1	23.4	36.33
10 DUP	NA	NA	36.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	36.5	36.45
11	NA	NA	NA	24.8	31.5	20.4	14.8	11.1	12.7	13	19.4	NA	18.5	31.46
12	25	33	34	34.3	26.4	21.3	17.6	17.9	16.3	14.8	22.1	22.9	23.8	34.29
12 DUP	NA	NA	NA	33.5	NA	NA	NA	NA	NA	NA	NA	NA	33.5	33.54
13	29.1	38.3	38.6	36	34.3	22.1	18.1	18.5	18.5	20.9	24.9	26.6	27.2	38.62
13 DUP	NA	NA	NA	38.9	NA	NA	NA	NA	NA	NA	NA	NA	38.9	38.86
14	27.8	37.5	36.2	36.1	34.8	27.2	24.7	21.6	20.2	16.8	23	23.9	27.5	37.47
14 DUP	NA	NA	NA	NA	31.7	NA	NA	NA	NA	NA	NA	NA	31.7	31.67
15	27.8	38.2	34	39.3	32.7	23.8	18.4	14.8	14.7	19.6	22.1	25.7	25.9	39.28
15 DUP	NA	NA	NA	NA	32.2	NA	NA	NA	NA	NA	NA	NA	32.2	32.18
16	27.2	40.2	36.5	32.2	31.7	23.3	18.1	21.3	19.6	14.1	21.4	23.4	25.7	40.23
16 DUP	NA	NA	NA	NA	NA	23	NA	NA	NA	NA	NA	NA	23	23.04
17	32.2	39.5	41.4	44.1	31.6	25.8	19.6	20.9	17.3	14.3	29	26.9	28.5	44.11
17 DUP	NA	NA	NA	NA	NA	22.8	NA	NA	NA	NA	NA	NA	22.8	22.82
18	28.5	36.2	35.9	33.9	31.5	19.6	16.4	15.4	12	13.1	22.3	22.9	24	36.24
18 DUP	NA	NA	NA	NA	NA	NA	14.9	NA	NA	NA	NA	NA	14.9	14.9
19	29.2	39.6	41.8	37.9	32.7	23.3	19.2	21	19.7	17.6	27.7	27.2	28.1	41.83
19 DUP	NA	NA	NA	NA	NA	NA	18.7	NA	NA	NA	NA	NA	18.7	18.68
22	23.6	36.1	34.7	35.1	30.6	22.6	18.1	18.4	19	13.4	23.7	24.2	25	36.13
22 DUP	NA	NA	NA	NA	NA	NA	NA	18.9	NA	NA	NA	NA	18.9	18.85
23	23.6	29	32.9	35.1	28.2	19.1	15.2	15.4	13.4	12.5	23	23.3	22.6	35.14
23 DUP	NA	NA	NA	NA	NA	NA	NA	14.4	NA	NA	NA	NA	14.4	14.43
24	27	36.4	37.5	38.6	32.3	21.4	23.1	20.9	18.8	15.5	23	23.4	26.5	38.65
24 DUP	NA	NA	NA	NA	NA	NA	NA	NA	17.3	NA	NA	NA	17.3	17.3
28	22.8	32.1	33.1	36.3	30.5	26.8	23.5	19.5	19.4	14.8	18.5	23.5	25.1	36.25
28 DUP	NA	NA	NA	NA	NA	NA	NA	NA	18.7	NA	NA	NA	18.7	18.71
29	21.5	30.4	35.5	38.9	32.5	22.7	22.6	20.4	19	15.1	22.6	23.5	25.4	38.86
29 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.7	NA	NA	15.7	15.66
32	33.1	36.1	40.5	37	37.4	31	26.9	26	25.7	20.2	21.4	28.3	30.3	40.48
32 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.1	NA	NA	21.1	21.12
36	25.2	33.5	37	39.4	31.6	29.1	26.2	24.1	20.6	15.5	22.3	24.1	27.4	39.35
36 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.8	NA	18.8	18.79
Average	27.9	37.9	38.4	37.4	32.2	23.5	19.8	18.8	18	16	22.9	25.4		
Maximum	33.97	47.36	47.06	48.09	37.36	31	26.92	26	25.73	21.12	28.96	32.53		

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Annual Data Report

For
2013

Prepared By:



April 15, 2014

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: January 2013 to December 2013

The monthly ambient data report:

- Prepared by Ernestine Tangang
- Reviewed by Lily Lin

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 Analytics 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*.

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – Maskwa

A trailer audit was performed by Alberta Environment on August 22, 2013.

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 508
 - ❖ Some daily span results went above +10% of the limited range from January 8th to January 24th and then went back to within +/-10% of the limited range. Reason unknown.
 - ❖ The analyzer spanned high on February 25th. Following the as found points check on February 27th, the exhaust pump was rebuilt. As the analyzer passed the as found points check, all data were kept.
 - ❖ The analyzer responded slowly at first span point on March 12th. It was suspected that the tubing connected between the calibrator and the calibration gas cylinder was damaged. Replaced the tubing and restarted the calibration.
 - ❖ Following the as found points check on April 9th, the UV lamp was replaced. The last zero point of the calibration was off (-12ppb). Both the relay board and power supplies (+5v and +/- 15V) were replaced on April 10th. The analyzer spanned low on April 24th due to the permeation tube depleting. The perm tube was changed on May 16th.
 - ❖ The monthly calibration attempted to be performed on July 15th. However, the display on the analyzer was not working. On July 17th, temporarily installed the screen that was taken from the H2S analyzer on the analyzer, and then performed an as found points check to verify the analyzer's functionality. The screen for the analyzer was replaced and both the UV lamp and analog output were calibrated on July 18th.
 - ❖ The analyzer spanned high on October 9th. An as found points check was performed on October 9th to verify the analyzer's functionality. The result was good. No data was discarded.
 - ❖ Following the as found points check on December 18th, the sample pump was rebuilt.

General Monthly Summary

AQM STATION – LICA – Maskwa

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101A, S/N: 324 changed to API 101E, S/N: 511 changed to API 101A, S/N: 722 changed to API 101E, S/N: 511
 - ❖ There was one 1-Hour average contravention recorded at hour 7 on January 27th, concentration of 14ppb. The AESRD reference # is 266784.
 - ❖ A removal calibration was performed on API 101A H2S analyzer, on April 9th after which the API 101E H2S analyzer, LICA owned, was installed. Issues were noticed on the zero/span system after the installation calibration and were fixed on April 10th.
 - ❖ Following an as found points check on July 17th, the sample pump was rebuilt. After the pump rebuilt, the flow showed its instability and the screen displayed a Dark Cal warning. The channel was left the Maintenance mode overnight. On July 18th, maintenance were performed: both the scrubber material and the sinter filter were changed, the orifice sinter filter and the switch valve were checked, the relay board was changed and the UV lamp and the analog output were calibrated. A post repair calibration was then performed. The calibration result showed a poor linearity. The analyzer was replaced to an API 101E, S/N 722 on July 19th. An installation calibration was performed following the analyzer replacement.
 - ❖ A removal calibration was performed on the API 101A, Maxxam supplied, on August 23rd. The API 101E analyzer, LICA owned, was installed on the same day.

Total Hydrocarbon (PPM)

- Analyzer make / model –TECO 51C-LT, S/N: 436609738
 - ❖ The analyzer spanned low on March 18th due to the span gas cylinder emptying. The span gas was replaced on March 20th. This issue did not affect data quality.
 - ❖ The span pressure was increased on August 26th.
 - ❖ The analyzer flamed out on November 5th during the hour 2 caused by a low shelter temperature. The heater was replaced to improve the shelter temperature on November 5th. The analyzer was relit after the shelter temperature reached above 20 degree Celsius. 8 hours of data were invalidated due to this event.

General Monthly Summary

AQM STATION – LICA – Maskwa

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 594
 - ❖ Following the as found points check on February 21st, the analog output was calibrated and adjusted.
 - ❖ A 3-points calibration was performed on March 19th following tubing replacement.

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

- System make / model - MetOne 50.5H Sonic, S/N: H10703
 - ❖ The wind speed maximum reading recorded on January 11th at hour 1 and hour 8 were invalidated as the readings went above the full scale.
 - ❖ Hourly maximum readings recorded on March 19th at hour 3 and March 25th at hour 4 were invalidated as the readings went above the full scale.
 - ❖ The hourly maximum reading for wind speed collected on August 23rd at hour 22 was invalidated as the reading went above the full scale.
 - ❖ The hourly maximum reading for wind speed collected on November 21th at hour 7 went above the full scale.
 - ❖ The hourly maximum reading for wind speed collected on December 12th at hour 4, on December 20th at hour 8 and on December 21st at hour 1 went above the full scale.

Relative Humidity (PERCENT)

- System make / model - Met One 083
- No operational issues were observed during the year.

Precipitation (MM)

- System make / model - Met One 387
- No operational issues were observed during the year.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operational issues were observed during the year.

Ambient Temperature (DEGC)

- System make / model - Met One 060

No operational issues were observed during the year.

Trailer Temperature (DEG C)

- System make / model – R&R 61

No operational issues were observed during the year.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H

No operational issues were observed during the year.

Datalogger

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

No operational issues were observed during 2013.

Trailer

No issue was recorded this year.

Continuous Monitoring

Sulphur Dioxide

Current Date : 02/12/14
Current Time : 17:08

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	704	0	17	1
February	672	628	0	9	1
March	744	700	0	23	1
April	720	641	0	12	1
May	744	705	0	15	1
June	720	682	0	13	1
July	744	676	0	9	0
August	744	704	0	5	0
September	720	683	0	5	0
October	744	703	0	17	1
November	720	681	0	16	1
December	744	704	0	16	1
Yearly Total	8760	8211	0	23	1

SO₂ Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA Plant Location: MASKWA

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO ₂)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO ₂ ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	704	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	628	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	700	100.0	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	641	96.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	705	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	682	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	676	96.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	704	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	683	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
October	703	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	681	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	704	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
Annual Average										0.00	

C - Concentration

* Valid readings - does not include calibration hours and downtime hours

SO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: LICA Plant Location: MASKWA

Month	SO2 ppb Peak Reading
January	17
February	9
March	23
April	12
May	15
June	13
July	9
August	5
September	5
October	17
November	16
December	16
ANNUAL PEAK	23

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	5.22	6.07	8.76	5.60	4.46	4.80	5.96	5.77	5.87	13.16	7.88	3.96	6.30	7.02	4.91	4.19	99.98
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
< 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	5.22	6.07	8.76	5.60	4.46	4.80	5.96	5.77	5.87	13.16	7.88	3.96	6.30	7.02	4.92	4.19	

Calm : .00 %

Total # Operational Hours : 8228

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	430	500	721	461	367	395	491	475	483	1083	649	326	519	578	404	345	8227
< 60															1		1
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	430	500	721	461	367	395	491	475	483	1083	649	326	519	578	405	345	

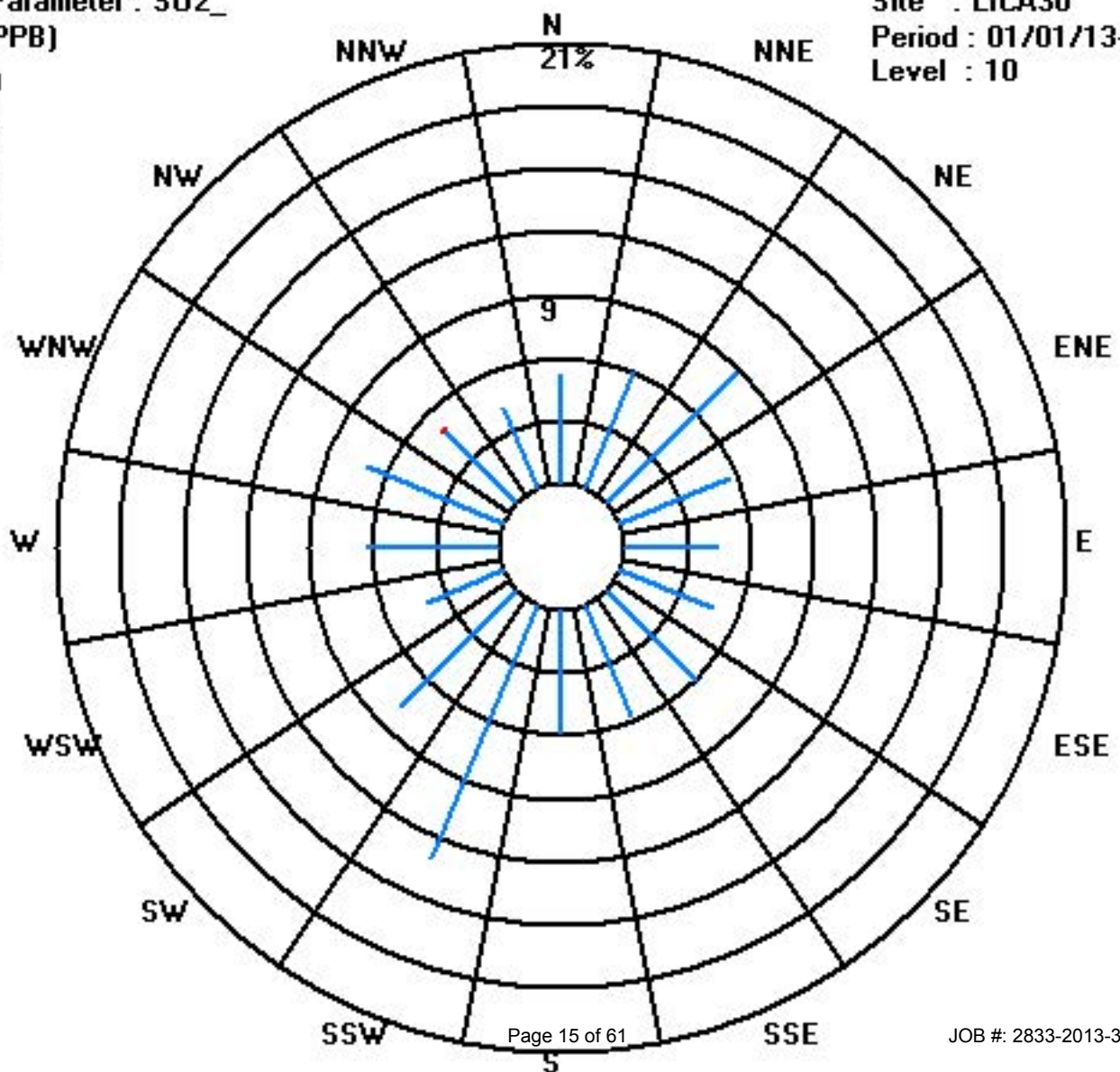
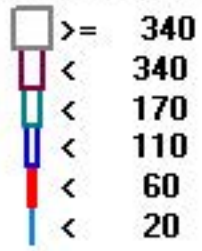
Calm : .00 %

Total # Operational Hours : 8228

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Hydrogen Sulphide

Current Date : 02/12/14
Current Time : 17:08

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	704	0	14	0
February	672	636	0	1	0
March	744	706	0	4	0
April	720	675	0	1	0
May	744	706	0	4	0
June	720	685	0	9	0
July	720	662	0	5	0
August	744	701	0	5	0
September	720	681	0	6	0
October	744	706	0	3	0
November	720	684	0	5	0
December	744	706	0	1	0
Yearly Total	8736	8252	0	14	0

H₂S Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: MASKWA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppb H ₂ S)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	H ₂ S ppb Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb			
January	704	99.9	99.0%	0.9%	0.1%	0.0%	0	1	0.24
February	636	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.21
March	706	100.0	99.9%	0.1%	0.0%	0.0%	0	0	0.05
April	675	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.07
May	706	100.0	99.6%	0.4%	0.0%	0.0%	0	0	0.14
June	685	100.0	99.6%	0.4%	0.0%	0.0%	0	0	0.17
July	662	94.8	99.5%	0.5%	0.0%	0.0%	0	0	0.14
August	701	100.0	99.6%	0.4%	0.0%	0.0%	0	0	0.20
September	681	100.0	99.4%	0.6%	0.0%	0.0%	0	0	0.40
October	706	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.12
November	684	100.0	99.9%	0.1%	0.0%	0.0%	0	0	0.14
December	706	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.12
							Annual Average		0.17

* Valid readings - does not include calibration hours and downtime hours.

H2S Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: MASKWA

Month	H2S ppb Peak Reading
January	14
February	1
March	4
April	1
May	4
June	9
July	5
August	5
September	6
October	3
November	5
December	1
ANNUAL PEAK	14

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
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	5.18	6.05	8.65	5.54	4.42	4.67	5.87	5.71	5.82	13.14	7.88	3.94	6.25	7.03	4.95	4.17	99.37
< 10	.00	.02	.03	.02	.04	.13	.10	.07	.06	.06	.01	.02	.00	.00	.01	.00	.61
< 50	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.18	6.08	8.68	5.57	4.47	4.82	5.98	5.79	5.88	13.20	7.89	3.97	6.25	7.03	4.96	4.17	

Calm : .00 %

Total # Operational Hours : 8254

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	428	500	714	458	365	386	485	472	481	1085	651	326	516	581	409	345	8202
< 10		2	3	2	4	11	9	6	5	5	1	2			1		51
< 50						1											1
>= 50																	
Totals	428	502	717	460	369	398	494	478	486	1090	652	328	516	581	410	345	

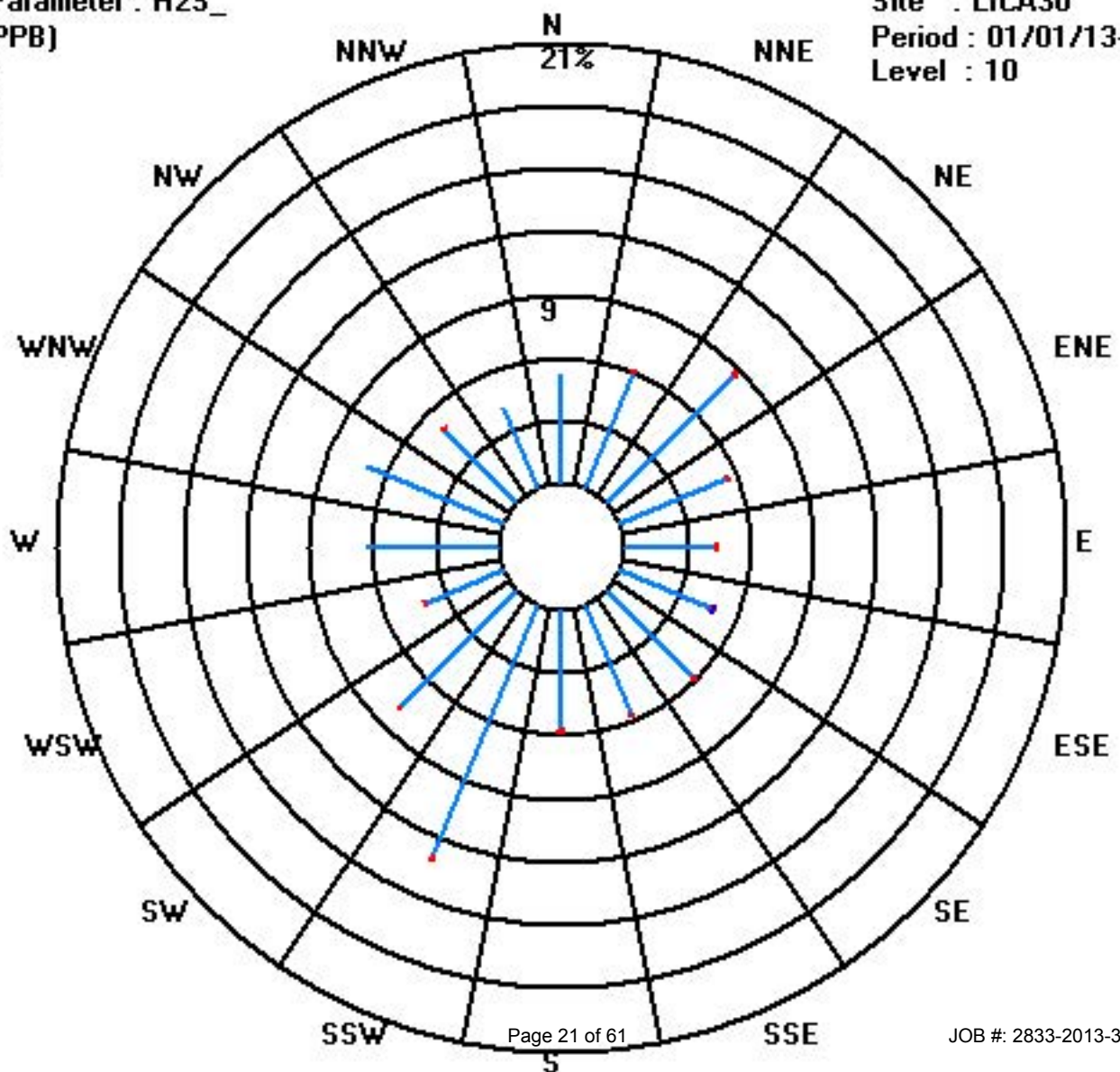
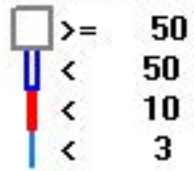
Calm : .00 %

Total # Operational Hours : 8254

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Total Hydrocarbons

Current Date : 02/12/14
Current Time : 17:08

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	2	6.7	2.4
February	672	636	1.6	4.4	2.3
March	744	705	2	4.6	2.3
April	720	684	2	5.1	2.1
May	744	708	1.9	6.1	2.1
June	720	684	1.9	3.9	2.2
July	744	709	1.9	3.6	2.2
August	744	704	1.9	3.8	2.2
September	720	682	1.6	3.6	2.2
October	744	709	1.7	5.4	2.2
November	720	676	1.9	3.7	2.3
December	744	704	2	3.9	2.3
Yearly Total	8760	8307	1.6	6.7	2.2

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: MASKWA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	706	100.0	90.5%	9.5%	0.0%	0.0%	2.42
February	636	100.0	96.2%	3.8%	0.0%	0.0%	2.31
March	705	100.0	97.7%	2.3%	0.0%	0.0%	2.28
April	684	100.0	99.7%	0.3%	0.0%	0.0%	2.13
May	708	99.9	99.0%	1.0%	0.0%	0.0%	2.15
June	684	100.0	99.4%	0.6%	0.0%	0.0%	2.15
July	709	100.0	99.6%	0.4%	0.0%	0.0%	2.16
August	704	100.0	97.9%	2.1%	0.0%	0.0%	2.21
September	682	100.0	98.5%	1.5%	0.0%	0.0%	2.22
October	709	100.0	99.7%	0.3%	0.0%	0.0%	2.18
November	676	98.9	95.9%	4.1%	0.0%	0.0%	2.33
December	704	100.0	97.4%	2.6%	0.0%	0.0%	2.31
						Annual Average	2.24

* Valid readings do not include daily and monthly calibration hours and downtime hours

THC Peak Reading of One Hour Averages for 2013

Plant Operator: _____ LICA _____

Plant Location: _____ MASKWA _____

Month	THC ppm Peak Reading
January	6.7
February	4.4
March	4.6
April	5.1
May	6.1
June	3.9
July	3.6
August	3.8
September	3.6
October	5.4
November	3.7
December	3.9
ANNUAL PEAK	6.7

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

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	
< 3.0	5.16	5.97	8.55	5.48	4.32	4.70	5.82	5.71	5.69	12.68	7.48	3.83	6.11	6.98	4.94	4.14	97.64
< 10.0	.02	.09	.13	.04	.09	.06	.13	.12	.20	.63	.40	.14	.12	.06	.04	.02	2.35
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.18	6.06	8.69	5.53	4.41	4.76	5.95	5.83	5.89	13.32	7.89	3.98	6.23	7.04	4.99	4.16	

Calm : .00 %

Total # Operational Hours : 8308

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	429	496	711	456	359	391	484	475	473	1054	622	319	508	580	411	344	8112
< 10.0	2	8	11	4	8	5	11	10	17	53	34	12	10	5	4	2	196
< 50.0																	
>= 50.0																	
Totals	431	504	722	460	367	396	495	485	490	1107	656	331	518	585	415	346	

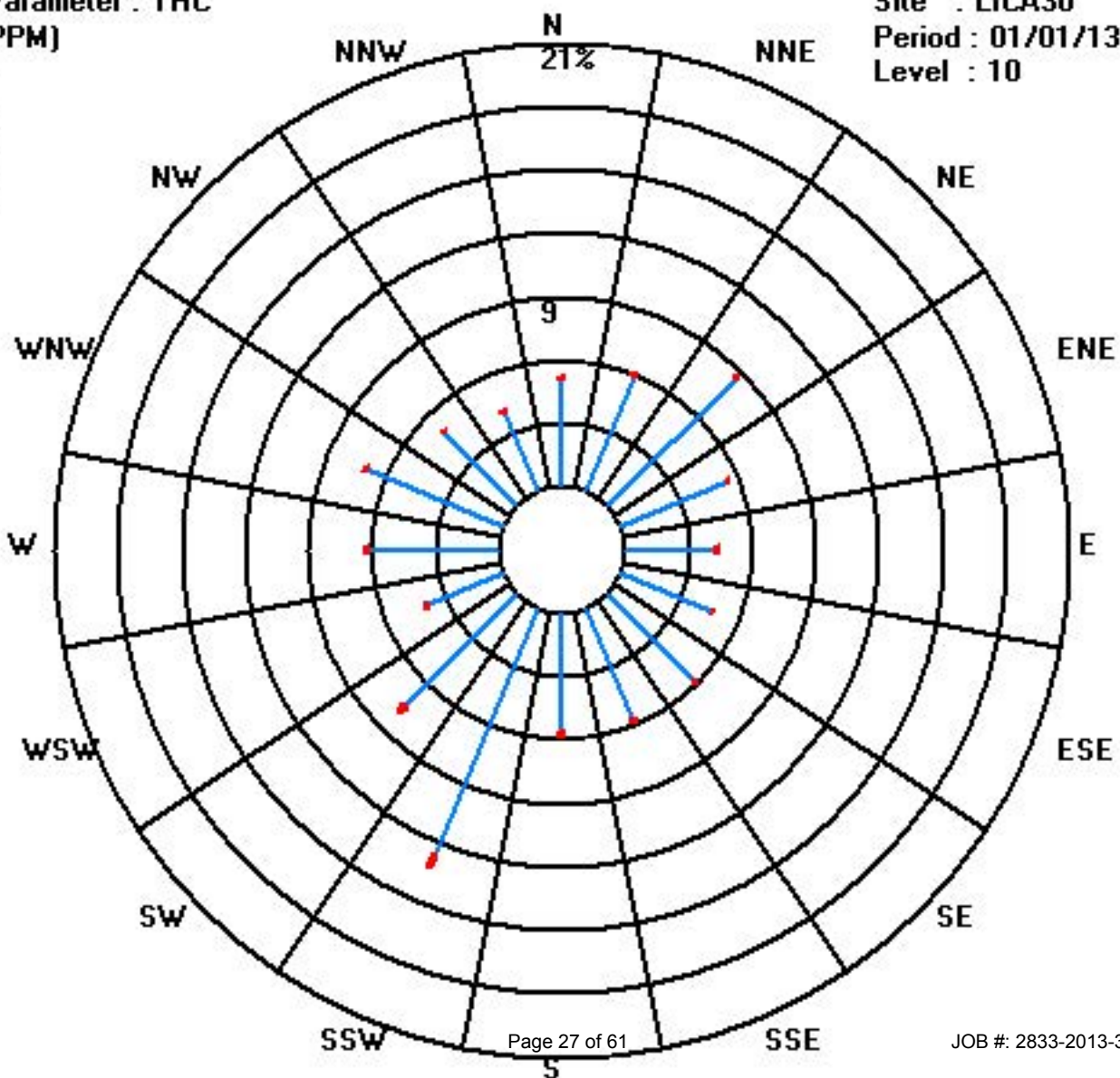
Calm : .00 %

Total # Operational Hours : 8308

Class Limits (PPM)

Period : 01/01/13-12/31/13

Level : 10



Nitrogen Dioxide

Current Date : 02/12/14
Current Time : 17:08

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	29.5	6
February	672	633	0	27.5	4
March	744	697	0	28.9	3.2
April	720	682	0	14.8	1.9
May	744	704	0	20.7	1.9
June	720	682	0	20.1	2.2
July	744	702	0	10.1	1.4
August	744	701	0	10.7	1.2
September	720	682	0	14.6	2.3
October	744	707	0	24.7	3.7
November	720	680	0	20.3	4.5
December	744	676	0	21.2	5
Yearly Total	8760	8249	0	29.5	3.1

NO₂ Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: _____ LICA _____

Station: _____ MASKWA _____

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO ₂)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	NO ₂ ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm			
January	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
February	633	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
March	697	98.8	100.0%	0.0%	0.0%	0.0%	0	0	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
May	704	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
June	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
July	702	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
August	701	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
September	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
November	680	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
December	676	97.4	100.0%	0.0%	0.0%	0.0%	0	0	0.01
						Annual Average		0.00	

* Valid readings do not include daily and monthly calibration hours and downtime hours

NO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: MASKWA

Month	NO ₂ ppb Peak Reading
January	30
February	28
March	29
April	15
May	21
June	20
July	10
August	11
September	15
October	25
November	20
December	21
ANNUAL PEAK	30

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NO2_
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	
< 50.0	5.21	6.06	8.75	5.54	4.45	4.80	5.97	5.83	5.91	13.20	7.82	3.97	6.23	7.05	4.97	4.18	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.21	6.06	8.75	5.54	4.45	4.80	5.97	5.83	5.91	13.20	7.82	3.97	6.23	7.05	4.97	4.18	

Calm : .00 %

Total # Operational Hours : 8247

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	430	500	722	457	367	396	493	481	488	1089	645	328	514	582	410	345	8247
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	430	500	722	457	367	396	493	481	488	1089	645	328	514	582	410	345	

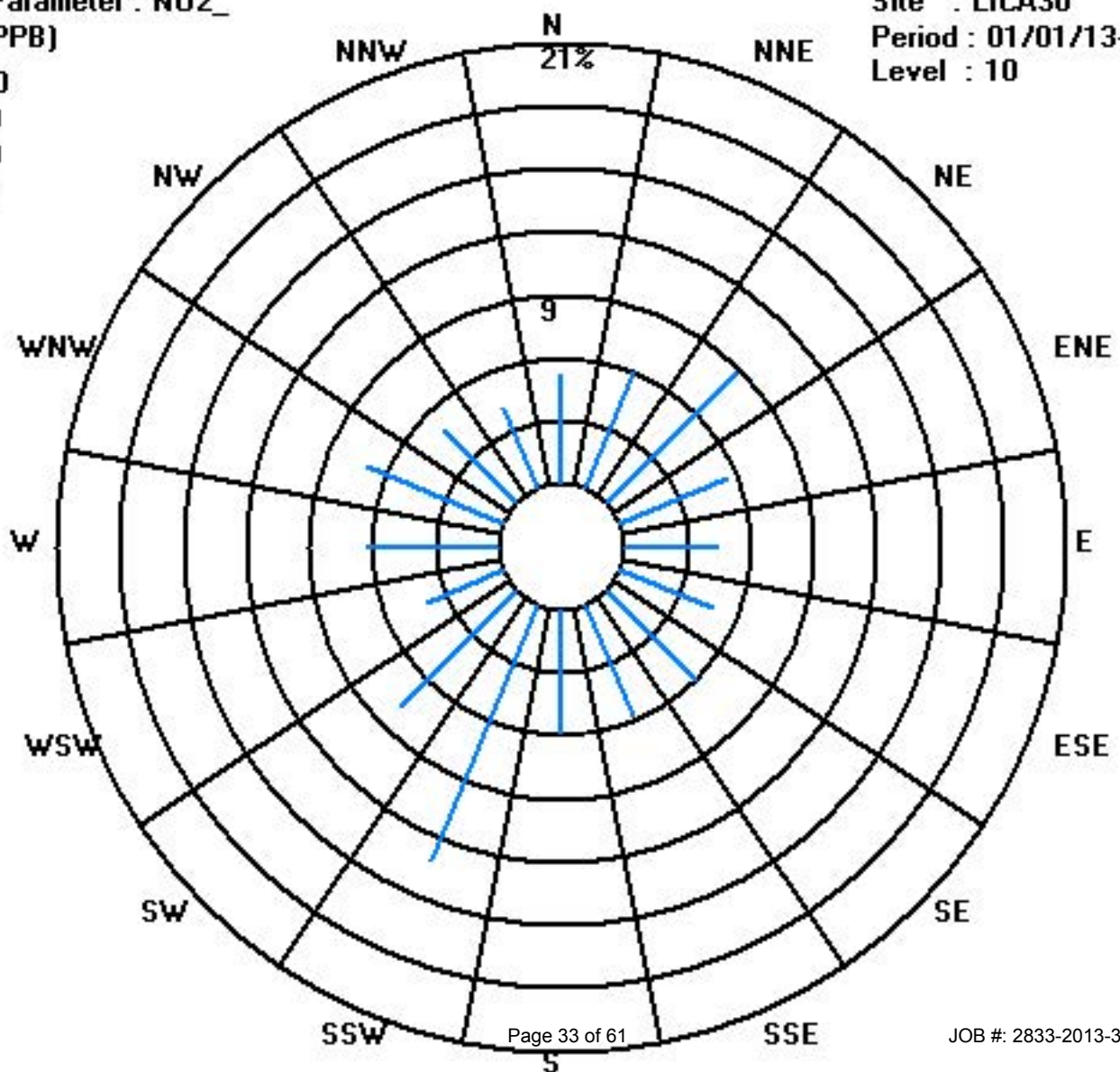
Calm : .00 %

Total # Operational Hours : 8247

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Nitric Oxide

Current Date : 02/12/14
Current Time : 17:08

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	37.4	0.9
February	672	633	0	13.6	0.6
March	744	697	0	23.5	0.7
April	720	682	0	12.8	0.4
May	744	704	0	12.3	0.6
June	720	682	0	17	0.6
July	744	702	0	12.4	0.4
August	744	701	0	9.8	0.3
September	720	682	0	16.4	0.7
October	744	707	0	15.8	1
November	720	680	0	16.7	0.9
December	744	676	0	12.7	0.6
Yearly Total	8760	8249	0	37.4	0.6

NO Peak reading of One Hour Averages for 2013

Plant Operator: LICA

Station: MASKWA

Month	NO ppb Peak Reading
January	37
February	14
March	24
April	13
May	12
June	17
July	12
August	10
September	16
October	16
November	17
December	13
ANNUAL PEAK	37

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NO_
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	
< 50.0	5.21	6.06	8.75	5.54	4.44	4.80	5.97	5.83	5.91	13.21	7.81	3.97	6.23	7.05	4.97	4.19	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.21	6.06	8.75	5.54	4.44	4.80	5.97	5.83	5.91	13.21	7.81	3.97	6.23	7.05	4.97	4.19	

Calm : .00 %

Total # Operational Hours : 8249

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	430	500	722	457	367	396	493	481	488	1090	645	328	514	582	410	346	8249
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	430	500	722	457	367	396	493	481	488	1090	645	328	514	582	410	346	

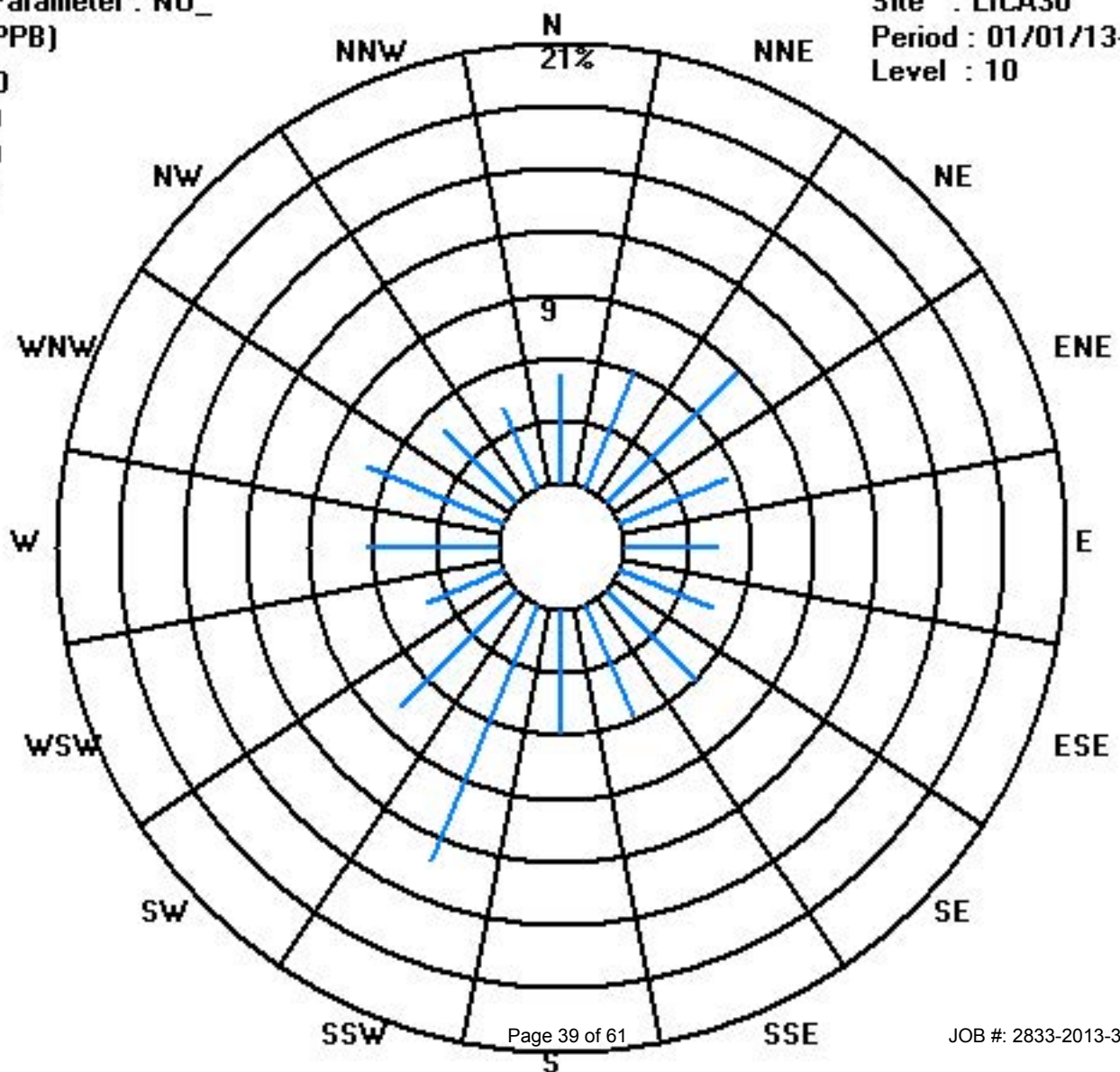
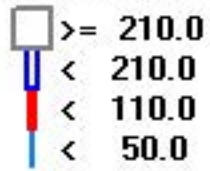
Calm : .00 %

Total # Operational Hours : 8249

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Oxides of Nitrogen

Current Date : 02/12/14
Current Time : 17:07

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	57.3	7
February	672	633	0	33.1	4.6
March	744	697	0	52	4
April	720	682	0	27.6	2.3
May	744	704	0	30.1	2.5
June	720	682	0	30.9	2.8
July	744	702	0	22.2	1.7
August	744	701	0	11.9	1.5
September	720	682	0	28.3	3
October	744	707	0	36.7	4.6
November	720	680	0	30.6	5.5
December	744	676	0	31.5	5.6
Yearly Total	8760	8249	0	57.3	3.7

NO_x Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: LICA

Station: MASKWA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NOx)				NOx ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	703	100.0	98.9%	1.1%	0.0%	0.0%	0.01
February	633	100.0	100.0%	0.0%	0.0%	0.0%	0.00
March	697	98.8	99.7%	0.3%	0.0%	0.0%	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	704	100.0	100.0%	0.0%	0.0%	0.0%	0.00
June	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	702	100.0	100.0%	0.0%	0.0%	0.0%	0.00
August	701	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	680	100.0	100.0%	0.0%	0.0%	0.0%	0.01
December	676	97.4	100.0%	0.0%	0.0%	0.0%	0.01
						Annual Average	0.00

* Valid readings do not include daily and monthly calibration hours and downtime hours

NO_x Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: MASKWA

Month	NOx ppb Peak Reading
January	96
February	33
March	52
April	28
May	30
June	31
July	22
August	12
September	28
October	37
November	31
December	32
ANNUAL PEAK	96

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NOX_
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	
< 50.0	5.21	6.06	8.75	5.54	4.44	4.80	5.97	5.83	5.91	13.20	7.80	3.96	6.23	7.05	4.97	4.19	99.96
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00	.00	.00	.00	.03
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.21	6.06	8.75	5.54	4.44	4.80	5.97	5.83	5.91	13.21	7.81	3.97	6.23	7.05	4.97	4.19	

Calm : .00 %

Total # Operational Hours : 8249

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	430	500	722	457	367	396	493	481	488	1089	644	327	514	582	410	346	8246
< 110.0										1	1	1					3
< 210.0																	
>= 210.0																	
Totals	430	500	722	457	367	396	493	481	488	1090	645	328	514	582	410	346	

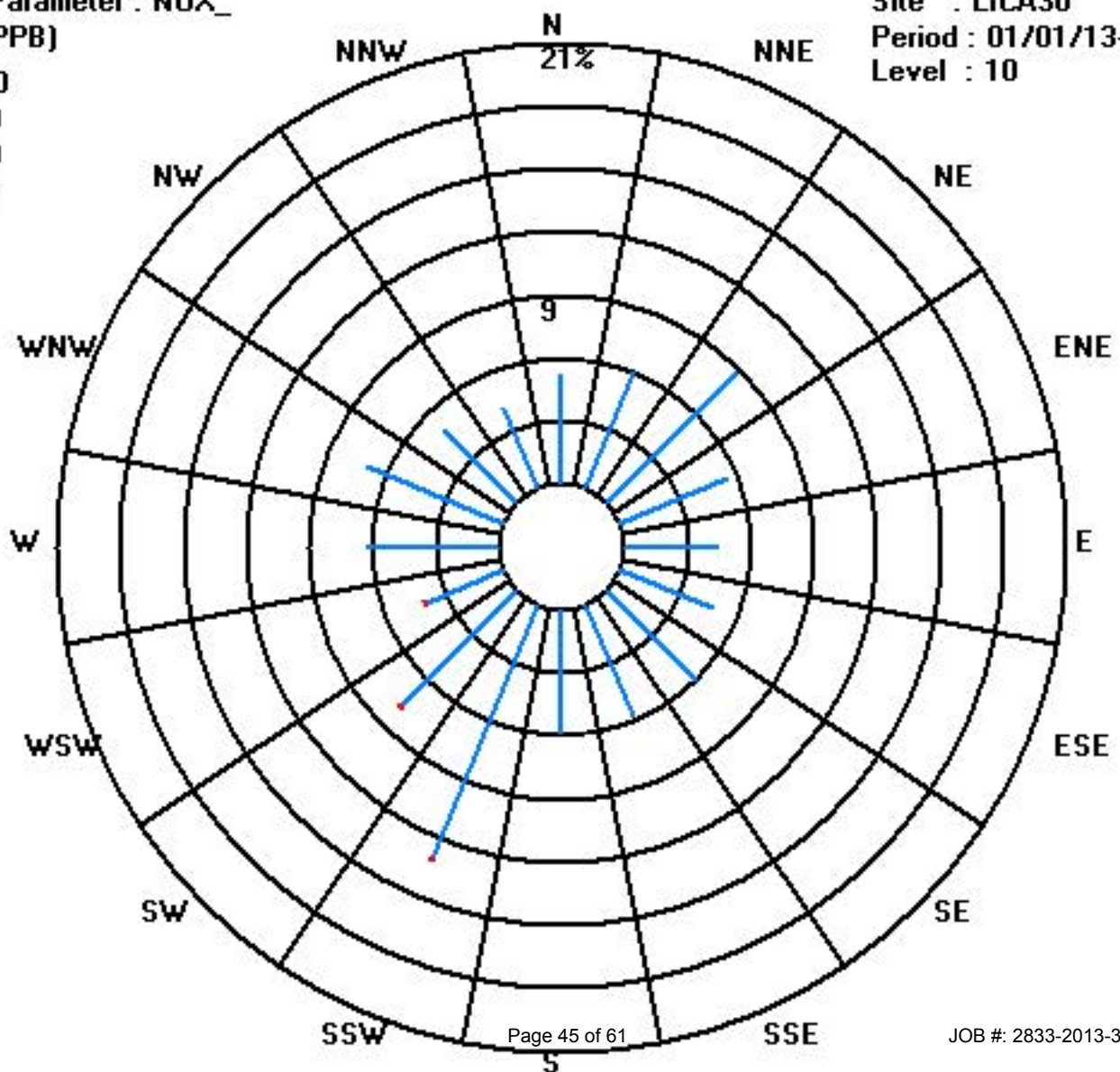
Calm : .00 %

Total # Operational Hours : 8249

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Temperature

Current Date : 02/12/14
Current Time : 17:09

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA30 Logger Id : 30 Parameter : TPX Units : DGC

	Readings	Valid Readings	Min	Max	Mean
January	744	744	-37.2	5.5	-14.5
February	672	672	-21.8	7.6	-7.9
March	744	744	-27.9	10.5	-7.5
April	720	720	-18.8	16.6	0.2
May	744	744	-10.5	29.4	13.2
June	720	720	2.6	28.5	15.3
July	744	744	4.2	32.6	16.1
August	744	744	3.2	29.2	16.8
September	720	720	-2	29.3	13
October	744	744	-17.3	15.8	3.4
November	720	720	-29.6	8.8	-9.2
December	744	744	-35.9	2.8	-18.9
Yearly Total	8760	8760	-37.2	32.6	1.7

Temperature - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: MASKWA

Month	Operational Time (%)	Monthly Average (Deg.C)	Maximum Hourly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	100.0	-14.55	5.5	-37.2	-0.9
February	100.0	-7.89	7.6	-21.8	1.3
March	100.0	-7.48	10.5	-27.9	2.3
April	100.0	0.21	16.6	-18.8	10.9
May	100.0	13.13	29.4	-10.5	19.0
June	100.0	15.27	28.5	2.6	21.1
July	100.0	16.14	32.6	4.2	25.5
August	100.0	16.81	29.2	3.2	20.6
September	100.0	13.05	29.3	-2.0	19.6
October	100.0	3.36	15.8	-17.3	8.8
November	100.0	-9.17	8.8	-29.6	2.6
December	100.0	-18.91	2.8	-35.9	-2.7
ANNUAL AVERAGE		1.66	-	-	-

Precipitation

Current Date : 02/12/14
Current Time : 17:10

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA30 Logger Id : 30 Parameter : PRECIP Units : MM

	Readings	Valid Readings	Min	Max	Mean
January	744	740	0	3.2	0
February	672	672	0	5.9	0.1
March	744	744	0	1.2	0
April	720	720	0	1.1	0
May	744	744	0	6.7	0
June	720	720	0	8.6	0.1
July	744	744	0	6.4	0.1
August	744	744	0	4.2	0.1
September	720	720	0	2	0
October	744	744	0	1.3	0
November	720	720	0	3.3	0
December	744	744	0	0.7	0
Yearly Total	8760	8756	0	8.6	0

PRECIPITATION - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: MASKWA

Month	Operational Time (%)	Monthly Averages (MM)	Maximum Hourly Average (MM)	Maximum Daily Average (MM)	Monthly Total (MM)
January	99.5	0.04	3.2	16.7	29.6
February	100.0	0.05	5.9	14.1	33.7
March	100.0	0.02	1.2	3.7	11.4
April	100.0	0.03	1.1	5.4	18.5
May	100.0	0.02	6.7	9.9	14.6
June	100.0	0.13	8.6	22.9	94.4
July	100.0	0.09	6.4	20.9	69.4
August	100.0	0.05	4.2	18.8	40.9
September	100.0	0.01	2.0	3.3	4.1
October	100.0	0.03	1.3	13.2	22.0
November	100.0	0.03	3.3	13.6	22.6
December	100.0	0.02	0.7	1.7	11.5
ANNUAL AVERAGE		0.04	-	-	-

Relative Humidity

Current Date : 02/12/14
Current Time : 17:09

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA30 Logger Id : 30 Parameter : RH Units : %

	Readings	Valid Readings	Min	Max	Mean
January	744	744	47	89	72
February	672	672	39	89	72
March	744	744	21	87	62
April	720	720	21	89	59
May	744	744	8	92	50
June	720	720	20	93	71
July	744	744	29	93	71
August	744	744	30	94	72
September	720	720	28	94	67
October	744	744	32	92	70
November	720	720	41	90	75
December	744	744	52	89	70
Yearly Total	8760	8760	8	94	68

Relative Humidity - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: MASKWA

Month	Operational Time (%)	Monthly Average (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	100.0	71.92	89	84.2
February	100.0	71.93	89	82.6
March	100.0	61.71	87	76.5
April	100.0	58.58	89	79.0
May	100.0	49.99	92	79.7
June	100.0	70.61	93	88.3
July	100.0	71.37	93	87.9
August	100.0	72.18	94	88.4
September	100.0	67.01	94	82.3
October	100.0	70.44	92	89.1
November	100.0	74.80	90	85.0
December	100.0	70.08	89	85.5
ANNUAL AVERAGE		67.55	-	-

Barometric Pressure

Current Date : 04/15/14
Current Time : 11:23

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA30 Logger Id : 30 Parameter : BP Units : MB

	Readings	Valid Readings	Min	Max	Mean
January	744	744	920	961	940
February	672	672	921	949	938
March	744	744	929	954	944
April	720	720	925	958	942
May	744	744	927	959	944
June	720	720	926	951	942
July	744	744	930	954	944
August	744	744	933	953	943
September	720	720	914	955	938
October	744	744	922	961	942
November	720	720	916	964	941
December	744	744	923	961	943
Yearly Total	8760	8760	914	964	942

BAROMETRIC PRESSURE - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: MASKWA

Month	Operational Time (%)	Monthly Average (millibar)	Maximum Hourly Average (millibar)	Maximum Daily Average (millibar)
January	100.0	940	961	958.9
February	100.0	938	949	948.3
March	100.0	944	954	952.2
April	100.0	942	958	956.1
May	100.0	944	959	956.1
June	100.0	942	951	949.7
July	100.0	944	954	952.3
August	100.0	943	953	951.1
September	100.0	938	955	951.8
October	100.0	942	961	955.5
November	100.0	941	964	961.7
December	100.0	943	961	959.4
ANNUAL AVERAGE		942	-	-

Vector Wind Speed

Current Date : 02/12/14
Current Time : 17:08

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0	17.3	5
February	672	672	0.2	15.1	5.9
March	744	744	0.2	19.2	6.2
April	720	720	0.1	17.4	6.7
May	744	744	0.1	17.7	5.8
June	720	720	0.1	13.7	4.8
July	744	744	0.2	12.8	4.7
August	744	744	0.2	10.5	3.7
September	720	720	0.2	12.1	4.7
October	744	744	0.3	17.1	5.8
November	720	720	0.1	16.8	6.5
December	744	744	0.1	20.7	5.9
Yearly Total	8760	8760	0	20.7	5.5

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	2.55	2.92	5.01	4.21	2.77	2.95	3.53	3.12	3.42	7.06	6.33	3.72	4.34	2.50	2.69	2.45	59.64
< 12.0	2.51	2.30	3.27	1.35	1.46	1.60	2.31	2.53	2.23	5.91	1.57	.26	1.92	3.88	2.19	1.73	37.10
< 20.0	.14	.87	.46	.02	.20	.15	.02	.17	.20	.27	.00	.00	.02	.50	.12	.02	3.23
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.01
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.21	6.10	8.75	5.59	4.44	4.72	5.87	5.83	5.86	13.25	7.91	3.98	6.30	6.89	5.01	4.21	

Calm : .01 %

Total # Operational Hours : 8760

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	224	256	439	369	243	259	310	274	300	619	555	326	381	219	236	215	5225
< 12.0	220	202	287	119	128	141	203	222	196	518	138	23	169	340	192	152	3250
< 20.0	13	77	41	2	18	14	2	15	18	24			2	44	11	2	283
< 29.0														1			1
< 39.0																	
>= 39.0																	
Totals	457	535	767	490	389	414	515	511	514	1161	693	349	552	604	439	369	

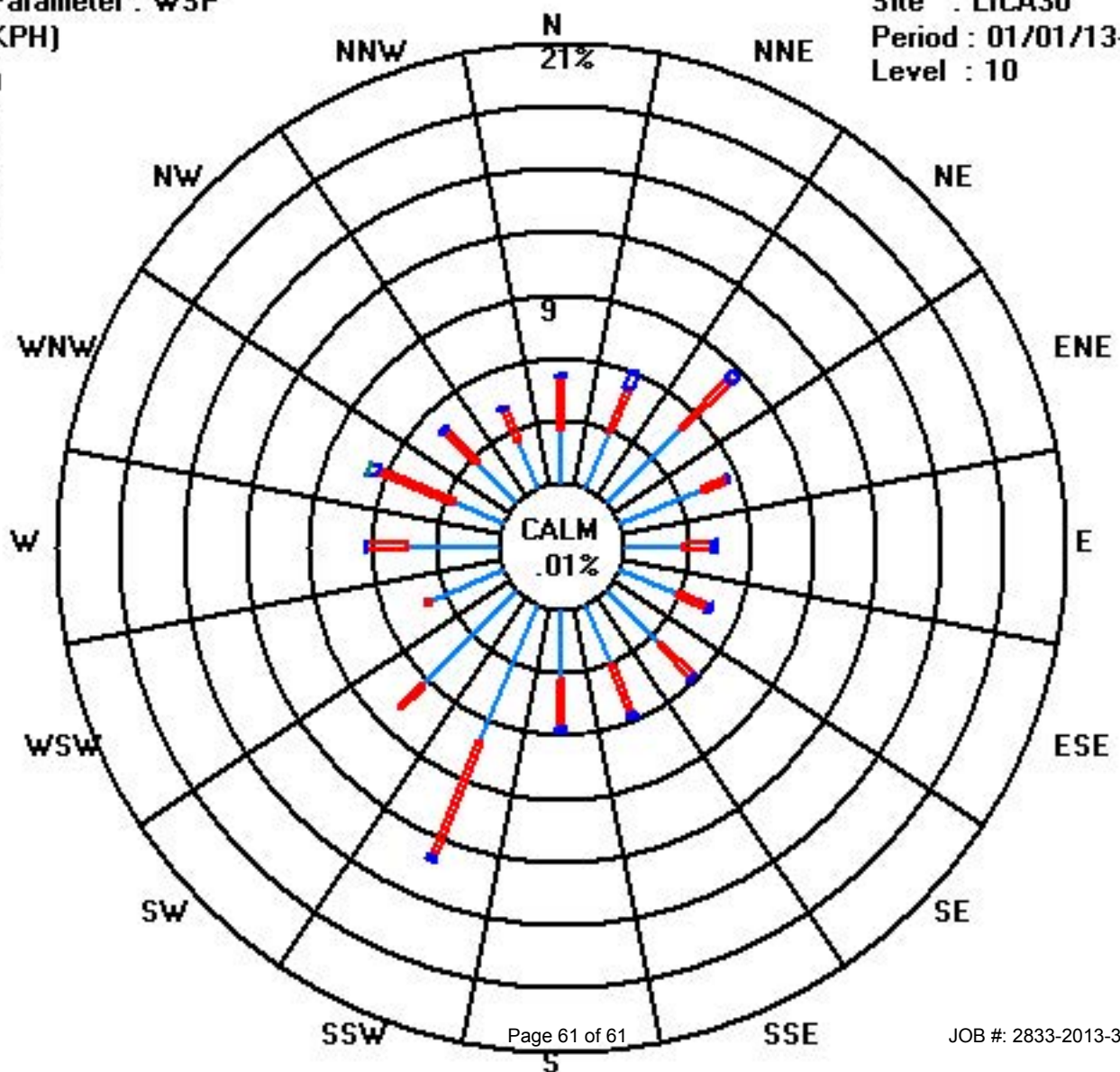
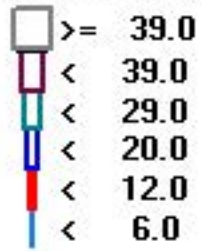
Calm : .01 %

Total # Operational Hours : 8760

Class Limits (KPH)

Period : 01/01/13-12/31/13

Level : 10



Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Annual Data Report

For
2013

Prepared By:



April 15, 2014

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: St. Lina
Data Period: January 2013 to December 2013

The monthly ambient data report:

- Prepared by Ernestine Tangang
- Reviewed by Lily Lin

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*.

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

A trailer audit was performed by AESRD on August 19th, 2013.

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 468
 - ❖ Following the as found points check on February 19th, the slop and offset was adjusted. A total of 21 hours of data was invalidated due to this maintenance.
 - ❖ The analyzer spanned high on May 25th. An as found points check was performed on May 27th. The result was within the acceptable range. Following the as found points check, the sample pump was rebuilt. No data was discarded due to this event.
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ Data between July 9th during hour 14 and July 11th during hour 8 were invalidated as the analyzer was stabilizing after the PMT and slope adjustments. 43 hours of data were invalidated. Data between hour 7 and hour 11 on July 31st are missing due to a power failure. Hourly data collected on July 31st at hour 12 was also invalidated as the analyzer was recovering from the power failure.
 - ❖ Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ The analyzer spanned high on September 4th due to the UV lamp failure. The UV lamp setting was adjusted on September 4th. A total of 26 hours of data was invalidated. The analyzer did not span on September 17th. Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure. The hourly data for September 23rd at hour 11 was invalidated as the analyzer was recovering from the power failure.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure.
 - ❖ Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

General Monthly Summary

AQM STATION – LICA – St. Lina Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 510
 - ❖ The analyzer spanned low on June 4th. An as found points check was performed on June 4th. The result was within the acceptable range. As no obvious issue could be identified, no further corrective action was performed. Four hours of data was missing on June 13th between hour 9 and hour 12 due to power failure.
 - ❖ Data between July 9th during hour 14 and July 13th during hour 10 were invalidated as the analyzer was stabilizing after the PMT and slope adjustments. 94 hours of data were invalidated. The analyzer spanned high on July 16th due to the sample pump failure. Data between hour 7 and hour 11 on July 31st are missing due to a power failure. 9 hours of data were invalidated. Hourly data collected on July 31st at hour 12 was also invalidated as the analyzer was recovering from the power failure.
 - ❖ Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure. The hourly data for September 23rd at hour 11 was invalidated as the analyzer was recovering from the power failure.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure.
 - ❖ 45 hours of data were invalidated as an insect entered shutter mechanism which affected the analyzer's functionality. Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

Total HydroCarbon (PPM)

- Analyzer make / model – Thermo 51C-LT, S/N: 04366-09739
 - ❖ The analyzer did not span on April 1st due to emptying the span gas. The gas was replaced on April 5th.
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ The analyzer did not span on July 17th as the span gas pressure was set incorrectly after the gas cylinder replacement. Data between hour 7 and hour 11 on July 31st are missing due to a power failure. Hourly data collected on July 31st at hour 12 was also invalidated as the analyzer was recovering from the power failure.
 - ❖ Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure event. The hourly data for September 23rd at hour 11 was invalidated as the analyzer was recovering from the power failure.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to power failure.
 - ❖ Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

General Monthly Summary

AQM STATION – LICA – St. Lina

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 592
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ Data between July 9th during hour 14 and July 12th during hour 7 were invalidated as the analyzer was stabilizing after the PMT and slope adjustments. 67 hours of data were invalidated. The analyzer did not span on July 30th. Data between hour 7 and hour 11 on July 31st are missing due to a power failure. Hourly data collected on July 31st at hour 12 was also invalidated as the analyzer was recovering from the power failure.
 - ❖ The analyzer spanned low on August 23rd due to the permeation tube depleting. The perm tube was replaced on August 26th. This issue did not affect data quality. Data collected at hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure event. The hourly data for September 23rd at hour 11 was invalidated as the analyzer was recovering from the power failure.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure.
 - ❖ Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

Ozone (PPB)

- Analyzer make / model - Thermo 49C, S/N: 49C-54926-302 and Thermo 49i, S/N: 1002240371
 - ❖ The Thermo 49C analyzer was removed following a removal calibration, and then the Thermo 49i, LICA supplied, was installed following an installation calibration on May 14th.
 - ❖ During the trailer audit on August 19th, it was found that the analyzer could not get a good result for the zero point check. After the investigation performed on August 19th, it was concluded that the problem was not with the analyzer, but a leak in the sample line between the analyzer and the manifold. The calibration zero performed on August 2nd was stable, indicating there was no leak in the sample line at that time. Therefore, data was invalidated from the period of August 2nd through August 19th when the leak was rectified. A total of 409 hours of data was invalidated due to this event. Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure event. The hourly data for September 23rd at hour 11 was invalidated as the analyzer was recovering from the power failure.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure event.
 - ❖ Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

General Monthly Summary

AQM STATION – LICA – St. Lina

Particulate Matter 2.5 (UG/M3)

- Analyzer make / model – Thermo Scientific Series 1405F, S/N: 1405A207691003 and R&P Teom 1400a, S/N: 20001
 - ❖ January: One hourly data was invalidated as the data was below -3 ug/m^3 .
 - ❖ February: 47 hours of data were invalidated and a total of 10 hours of data was invalidated as the data were below -3 ug/m^3 .
 - ❖ March: 10 hours of PM 2.5 data was invalidated as the data were below -3 ug/m^3 .
 - ❖ April: 15 hours of PM 2.5 data was invalidated as the data were below -3 ug/m^3 .
 - ❖ May: The switch valve was replaced on May 14th. 42 hours of data was invalidated as the data were below -3 ug/m^3 .
 - ❖ June: Two hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure. 16 hours of data was invalidated as the data were below -3 ug/m^3 .
 - ❖ July: A total of 24 hours of data was invalidated as the data were below -3 ug/m^3 .
 - ❖ The 1405F Teom unit was removed from the trailer and sent back to the manufacturer for repair after failing flow audits on July 15th. A temporary Teom 1400a unit was installed on August 19th following an installation audit. 819 hours of data between July and August are missing due to this issue.
 - ❖ August: Data between hour 9 and hour 10 on August 30th are missing due to a power failure. The channel configuration on the datalogger system went missing after the power failure. The channel was re-configured on August 31st. 24 hours of data is missing due to this issue. A total of 3 hours of data was invalidated as the data were below -3 ug/m^3 .
 - ❖ September: Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure event. One hour of data was invalidated as the data was below -3 ug/m^3 .
 - ❖ October: Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure event. Four hour of data were invalidated as the data were below -3 ug/m^3 .
 - ❖ November: Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event. No data was invalidated as the data was all above -3 ug/m^3 .
 - ❖ December: One hourly data was invalidated as the data was below -3 ug/m^3 .

General Monthly Summary

AQM STATION – LICA – St. Lina

Temperature (Degree C)

- Analyzer make / model – Met One 060
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ Data between hour 7 and hour 11 on July 31st are missing due to a power failure.
 - ❖ Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure event.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure event.
 - ❖ Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

Barometric Pressure (Millibar)

- Analyzer make / model - Met One 092
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ Data between hour 7 and hour 11 on July 31st are missing due to a power failure.
 - ❖ Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure event.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure event.
 - ❖ Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

Relative Humidity (%)

- Analyzer make / model - Met One 083
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ Data between hour 7 and hour 11 on July 31st are missing due to a power failure.
 - ❖ Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 7 and hour 10 are missing due to a power failure event.
 - ❖ Hourly data collected on October 17th between hour 14 and hour 17 are missing due to a power failure event.,
 - ❖ Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.

General Monthly Summary

AQM STATION – LICA – St. Lina

Precipitation (MM)

- Analyzer make / model - Met One 387
 - ❖ The screens for the rain gauge were installed on May 3rd.
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ Data between hour 8 and hour 10 on July 31st are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 8 and hour 9 are missing due to a power failure event.
 - ❖ The screen on the rain gauge was removed on October 22nd. Hourly data collected on October 17th between hour 15 and hour 16 are missing due to a power failure event.
 - ❖ Hourly data collected on November 8th at hour 10 is missing due to a power failure event.

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

- System make / model –MetOne 50.5H Sonic, S/N: H12635
 - ❖ The last wind system calibration was performed on June 12th, 2012 by the manufacturer.
 - ❖ The maximum hourly data for wind speed collected on May 13th at hour 4 was invalidated due to a small power outage.
 - ❖ Four hours of data are missing on June 13th between hour 9 and hour 12 due to a power failure.
 - ❖ Data between hour 8 and hour 10 on July 31st are missing due to a power failure.
 - ❖ Data between hour 9 and hour 10 on August 30th are missing due to a power failure.
 - ❖ Hourly data for September 23rd between hour 8 and hour 9 are missing due to a power failure event.
 - ❖ A total of 27 hours of data collected in November was invalidated due to the wind system to be frozen. Hourly data collected on November 8th between hour 09 and hour 12 are missing due to a power failure event.
 - ❖ A total of 97 hours of data collected in December was invalidated due to the wind system to be frozen.

Trailer

The sample lines and fan filters for all analyzers were cleaned on September 4th.

Continuous Monitoring

Annual Summaries Graphs & Wind Roses

Sulphur Dioxide

Current Date : 02/12/14
Current Time : 17:11

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	0	7	1
February	672	613	0	4	1
March	744	707	0	11	1
April	720	682	0	9	1
May	744	697	0	3	1
June	720	680	0	5	1
July	720	644	0	14	1
August	744	694	0	3	1
September	720	645	0	83	1
October	744	701	0	5	1
November	720	677	0	8	2
December	744	700	0	10	4
Yearly Total	8736	8146	0	83	1

SO₂ Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: _____ LICA _____

Plant Location: _____ ST. LINA _____

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO ₂)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO ₂ ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	706	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	613	96.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	697	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	680	99.3	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	644	93.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	694	98.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	645	95.4	99.8%	0.0%	0.2%	0.0%	0.0%	0.0%	0	0	0.00
October	701	99.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	677	99.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	700	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
									Annual Average	0.00	

C - Concentration

* Valid readings - does not include calibration hours and downtime hours

SO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: LICA Plant Location ST. LINA

Month	SO2 ppb Peak Reading
January	7
February	4
March	11
April	9
May	3
June	5
July	14
August	3
September	83
October	5
November	8
December	10
ANNUAL PEAK	83

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	4.42	2.91	3.68	5.25	5.42	5.44	4.43	4.99	7.65	8.49	7.70	6.30	8.07	8.51	9.93	6.72	99.98
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
< 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	4.42	2.92	3.68	5.25	5.42	5.44	4.43	4.99	7.65	8.49	7.70	6.30	8.07	8.51	9.93	6.72	

Calm : .00 %

Total # Operational Hours : 8025

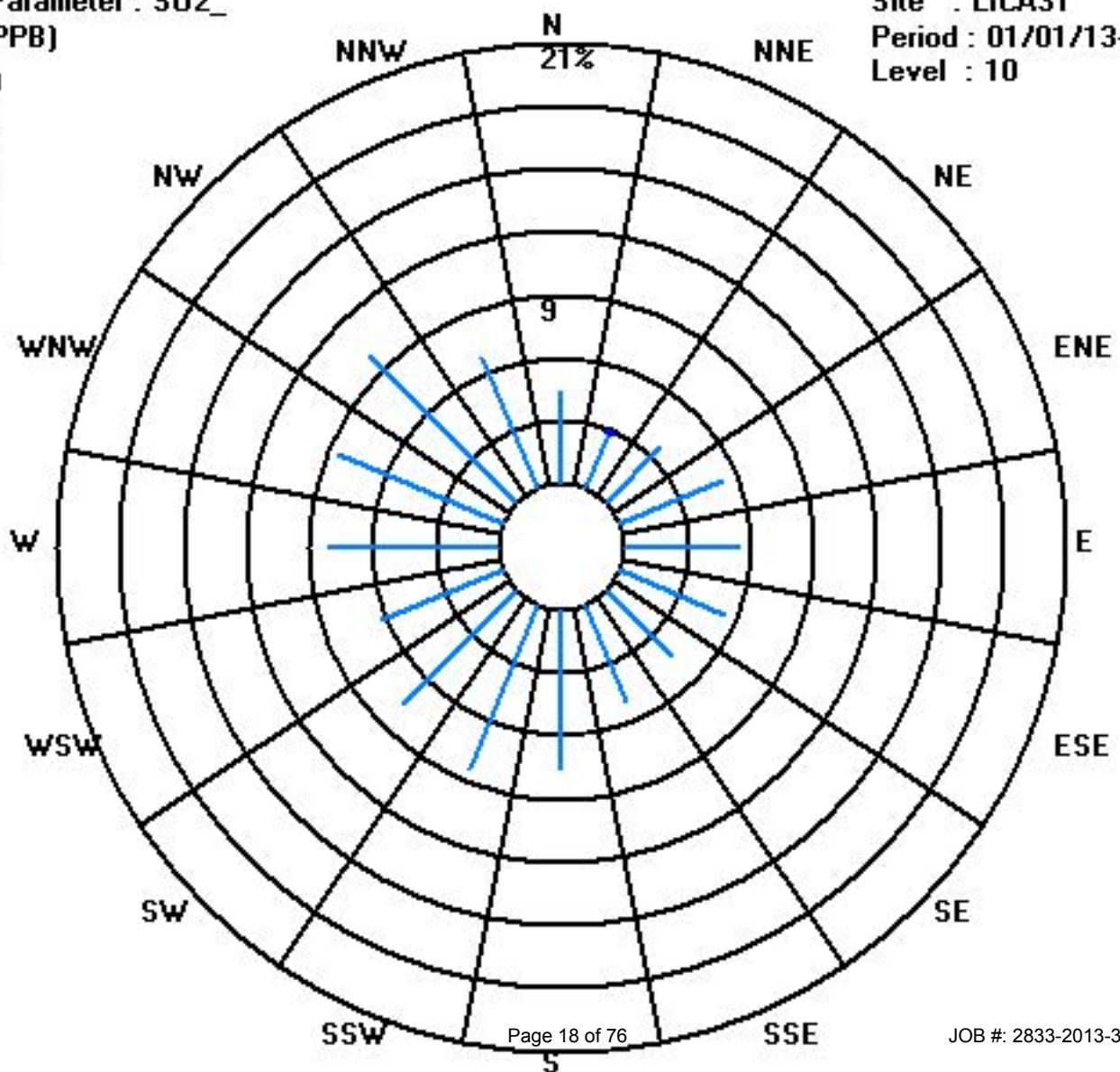
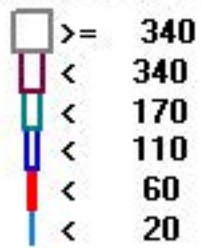
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	355	234	296	422	435	437	356	401	614	682	618	506	648	683	797	540	8024
< 60																	
< 110		1															1
< 170																	
< 340																	
>= 340																	
Totals	355	235	296	422	435	437	356	401	614	682	618	506	648	683	797	540	

Calm : .00 %

Total # Operational Hours : 8025

Class Limits (PPB)



Hydrogen Sulphide

Current Date : 02/12/14
Current Time : 17:11

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : H2S_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	5	1
February	672	636	0	3	1
March	744	703	0	3	1
April	720	678	0	3	1
May	744	694	0	4	1
June	720	676	0	4	1
July	672	592	0	5	1
August	744	700	0	3	1
September	720	672	0	3	1
October	744	696	0	3	1
November	720	622	0	3	2
December	744	701	0	4	1
Yearly Total	8688	8072	0	5	1

H₂S Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppb H ₂ S)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb		
January	703	100.0	99.9%	0.1%	0.0%	0.0%	0	0
February	636	100.0	100.0%	0.0%	0.0%	0.0%	0	0
March	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0
April	678	100.0	100.0%	0.0%	0.0%	0.0%	0	0
May	694	99.5	99.6%	0.4%	0.0%	0.0%	0	0
June	676	99.3	98.2%	1.8%	0.0%	0.0%	0	0
July	592	85.1	100.0%	0.0%	0.0%	0.0%	0	0
August	700	99.6	100.0%	0.0%	0.0%	0.0%	0	0
September	672	99.0	100.0%	0.0%	0.0%	0.0%	0	0
October	696	99.5	100.0%	0.0%	0.0%	0.0%	0	0
November	622	92.5	100.0%	0.0%	0.0%	0.0%	0	0
December	701	100.0	99.3%	0.7%	0.0%	0.0%	0	0

* Valid readings do not include daily and monthly calibration hours and downtime hours

Annual Average

H2S Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: ST. LINA

Month	H2S ppb Peak Reading
January	5
February	3
March	3
April	3
May	4
June	4
July	3
August	3
September	3
October	3
November	3
December	4
ANNUAL PEAK	5

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
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	4.46	2.96	3.64	5.00	5.32	5.18	4.54	4.95	7.53	8.34	7.36	6.00	7.74	8.08	9.65	6.50	97.33
< 10	.00	.00	.02	.30	.20	.27	.07	.12	.27	.23	.37	.23	.18	.17	.11	.05	2.66
< 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	4.46	2.96	3.66	5.31	5.52	5.46	4.62	5.08	7.80	8.58	7.74	6.23	7.93	8.26	9.76	6.55	

Calm : .00 %

Total # Operational Hours : 7965

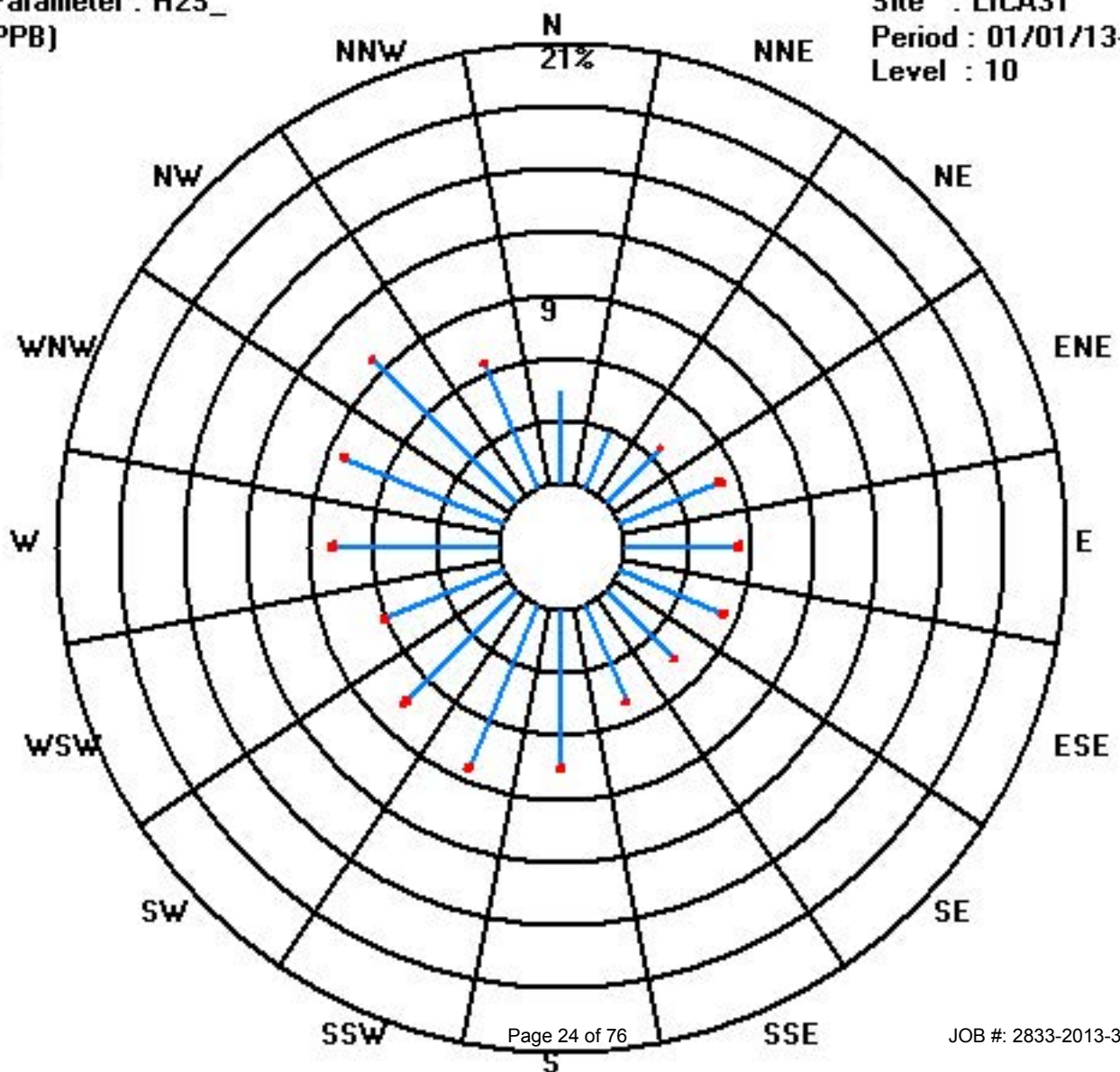
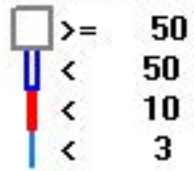
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	356	236	290	399	424	413	362	395	600	665	587	478	617	644	769	518	7753
< 10			2	24	16	22	6	10	22	19	30	19	15	14	9	4	212
< 50																	
>= 50																	
Totals	356	236	292	423	440	435	368	405	622	684	617	497	632	658	778	522	

Calm : .00 %

Total # Operational Hours : 7965

Class Limits (PPB)



Total Hydrocarbons

Current Date : 02/12/14
Current Time : 17:12

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : THC Units : PPM

	Readings	Valid Readings	Min	Max	Mean
January	744	704	1.8	3.6	2.3
February	672	638	1.9	3.1	2.2
March	744	708	1.9	3.6	2.2
April	720	684	1.6	2.6	2
May	744	696	1.6	3.1	2
June	720	681	1.6	3.2	2
July	744	695	1.6	3.6	2
August	744	704	1.6	3.2	2.1
September	720	668	1.6	2.8	2.1
October	744	704	1.6	3.4	2.1
November	720	674	1.8	3.6	2.2
December	744	702	1.7	4.4	2.2
Yearly Total	8760	8258	1.6	4.4	2.1

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	704	100.0	97.2%	2.8%	0.0%	0.0%	2.26
February	638	100.0	99.5%	0.5%	0.0%	0.0%	2.21
March	708	100.0	97.9%	2.1%	0.0%	0.0%	2.25
April	684	100.0	100.0%	0.0%	0.0%	0.0%	2.02
May	696	99.6	99.9%	0.1%	0.0%	0.0%	2.02
June	681	99.3	99.7%	0.3%	0.0%	0.0%	2.03
July	695	98.4	99.4%	0.6%	0.0%	0.0%	2.02
August	704	99.7	99.3%	0.7%	0.0%	0.0%	2.13
September	668	98.8	100.0%	0.0%	0.0%	0.0%	2.06
October	704	99.5	99.9%	0.1%	0.0%	0.0%	2.07
November	674	99.4	99.0%	1.0%	0.0%	0.0%	2.20
December	702	100.0	97.9%	2.1%	0.0%	0.0%	2.19
						Annual Average	2.12

* Valid readings do not include daily and monthly calibration hours and downtime hours

THC Peak Reading of One Hour Averages for 2013

Plant Operator: _____ LICA _____

Plant Location: _____ ST. LINA _____

Month	THC ppm Peak Reading
January	3.6
February	3.1
March	3.6
April	2.6
May	3.1
June	3.2
July	3.6
August	3.2
September	2.8
October	3.4
November	3.6
December	4.4
ANNUAL PEAK	4.4

LICA31
 THC / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : THC
 Units : PPM

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	
< 3.0	4.44	2.92	3.63	5.14	5.24	5.26	4.44	4.96	7.61	8.30	7.66	6.36	7.99	8.37	9.76	6.64	98.80
< 10.0	.01	.00	.04	.07	.12	.12	.18	.13	.18	.14	.04	.01	.02	.00	.04	.02	1.19
< 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	4.45	2.92	3.68	5.22	5.36	5.39	4.63	5.09	7.80	8.45	7.71	6.37	8.02	8.37	9.81	6.66	

Calm : .00 %

Total # Operational Hours : 8141

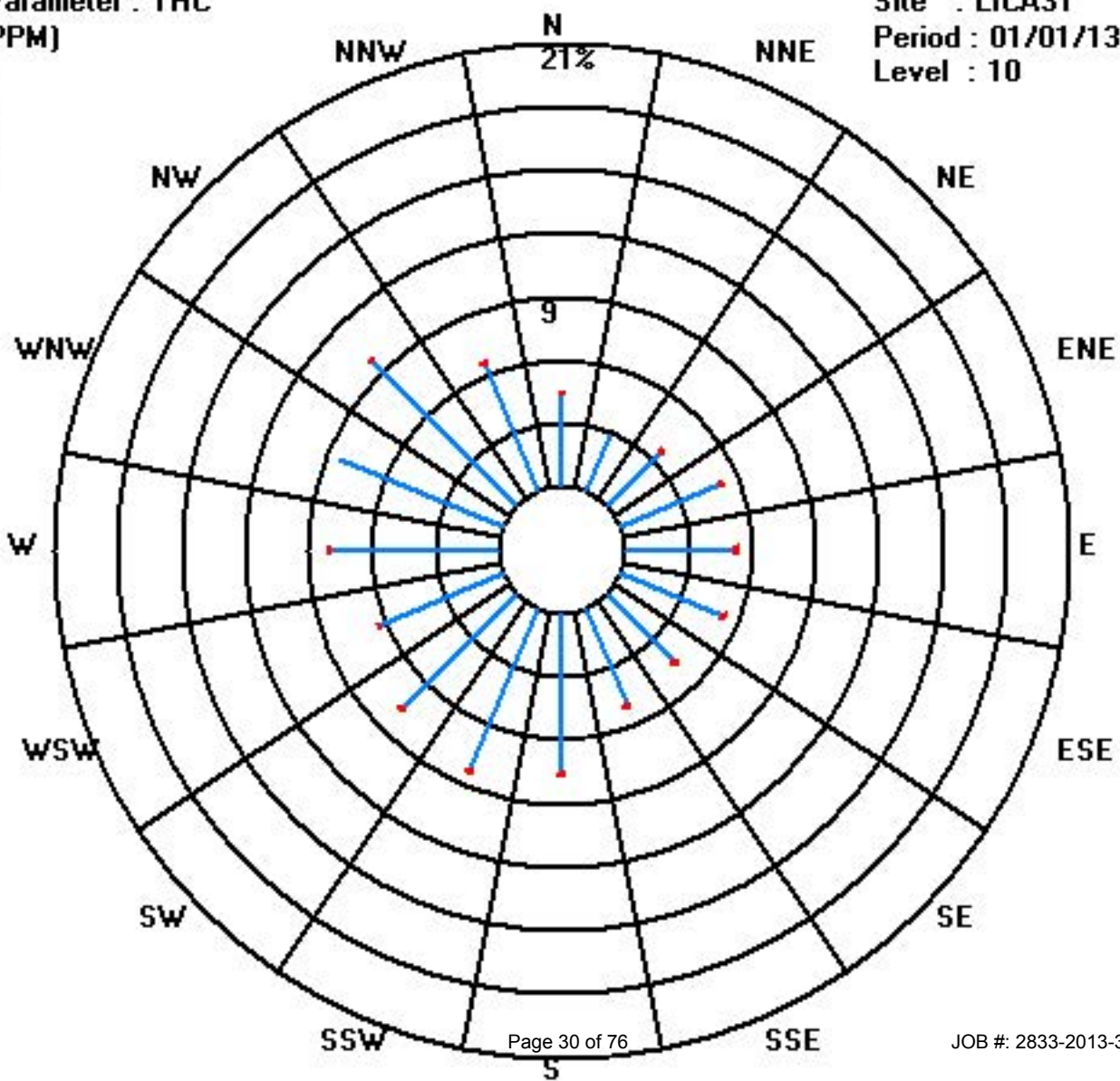
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	362	238	296	419	427	429	362	404	620	676	624	518	651	682	795	541	8044
< 10.0	1		4	6	10	10	15	11	15	12	4	1	2		4	2	97
< 50.0																	
>= 50.0																	
Totals	363	238	300	425	437	439	377	415	635	688	628	519	653	682	799	543	

Calm : .00 %

Total # Operational Hours : 8141

Class Limits (PPM)



Ozone

Current Date : 04/16/14
Current Time : 09:14

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : O3_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	707	9	43	29
February	672	633	14	45	34
March	744	706	25	69	43
April	720	683	22	60	45
May	744	694	20	67	42
June	720	680	4	65	31
July	744	691	10	52	26
August	744	310	11	48	28
September	720	675	6	59	28
October	744	702	9	39	26
November	720	679	2	40	25
December	744	707	9	44	27
Yearly Total	8760	7867	2	69	32

O3 Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: ST LINA

Month	O3 ppb Peak Reading
January	43
February	45
March	69
April	60
May	67
June	65
July	52
August	48
September	59
October	39
November	40
December	44
ANNUAL PEAK	69

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

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	4.37	2.80	3.61	5.17	5.10	4.72	3.92	3.73	6.81	7.57	7.37	6.09	7.91	8.40	9.92	6.58	94.15	
< 110	.15	.09	.11	.09	.15	.37	.46	.80	.61	.95	.50	.33	.28	.29	.20	.40	5.84	
< 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	4.53	2.89	3.73	5.26	5.25	5.10	4.38	4.53	7.43	8.53	7.87	6.42	8.19	8.70	10.13	6.98		

Calm : .00 %

Total # Operational Hours : 7745

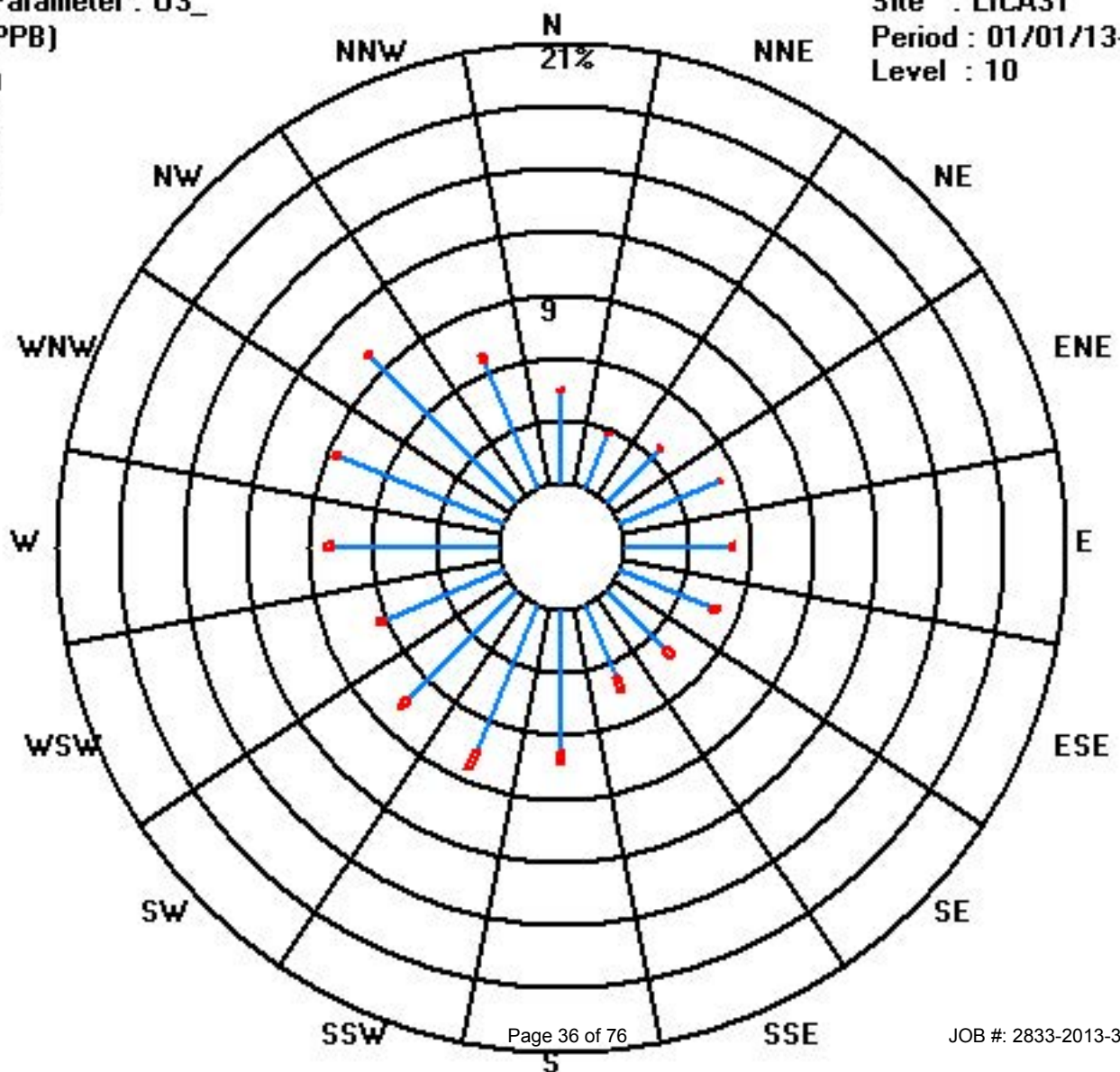
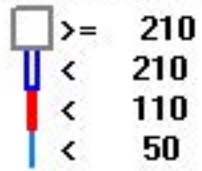
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	339	217	280	401	395	366	304	289	528	587	571	472	613	651	769	510	7292	
< 110	12	7	9	7	12	29	36	62	48	74	39	26	22	23	16	31	453	
< 210																		
>= 210																		
Totals	351	224	289	408	407	395	340	351	576	661	610	498	635	674	785	541		

Calm : .00 %

Total # Operational Hours : 7745

Class Limits (PPB)



Nitrogen Dioxide

Current Date : 02/12/14
Current Time : 17:11

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : NO2_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	20.8	3.7
February	672	629	0	15.4	3
March	744	701	0	15.9	2.5
April	720	682	0	5.6	1.1
May	744	701	0	7.1	1
June	720	678	0	7.9	1.1
July	696	632	0	6.7	0.7
August	744	694	0	7.9	1
September	720	675	0	7	1.3
October	744	700	0	10.3	1.3
November	720	673	0	39.6	3.9
December	744	699	0	22.8	3.6
Yearly Total	8712	8167	0	39.6	2

NO₂ Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: LICA

Station: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO ₂)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	NO ₂ ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm			
January	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
February	629	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
March	701	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
May	701	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
June	678	99.3	100.0%	0.0%	0.0%	0.0%	0	0	0.00
July	632	90.2	100.0%	0.0%	0.0%	0.0%	0	0	0.00
August	694	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.00
September	675	99.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
October	700	99.5	100.0%	0.0%	0.0%	0.0%	0	0	0.00
November	673	99.4	100.0%	0.0%	0.0%	0.0%	0	0	0.00
December	699	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
							Annual Average		0.00

* Valid readings do not include daily and monthly calibration hours and downtime hours

NO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: ST. LINA

Month	NO2 ppb Peak Reading
January	21
February	15
March	16
April	6
May	7
June	8
July	7
August	8
September	7
October	10
November	40
December	23
ANNUAL PEAK	40

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NO2_
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	
< 50.0	4.41	2.93	3.68	5.22	5.42	5.38	4.51	5.06	7.82	8.51	7.72	6.25	7.95	8.50	9.89	6.70	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.41	2.93	3.68	5.22	5.42	5.38	4.51	5.06	7.82	8.51	7.72	6.25	7.95	8.50	9.89	6.70	

Calm : .00 %

Total # Operational Hours : 8043

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	355	236	296	420	436	433	363	407	629	685	621	503	640	684	796	539	8043
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	355	236	296	420	436	433	363	407	629	685	621	503	640	684	796	539	

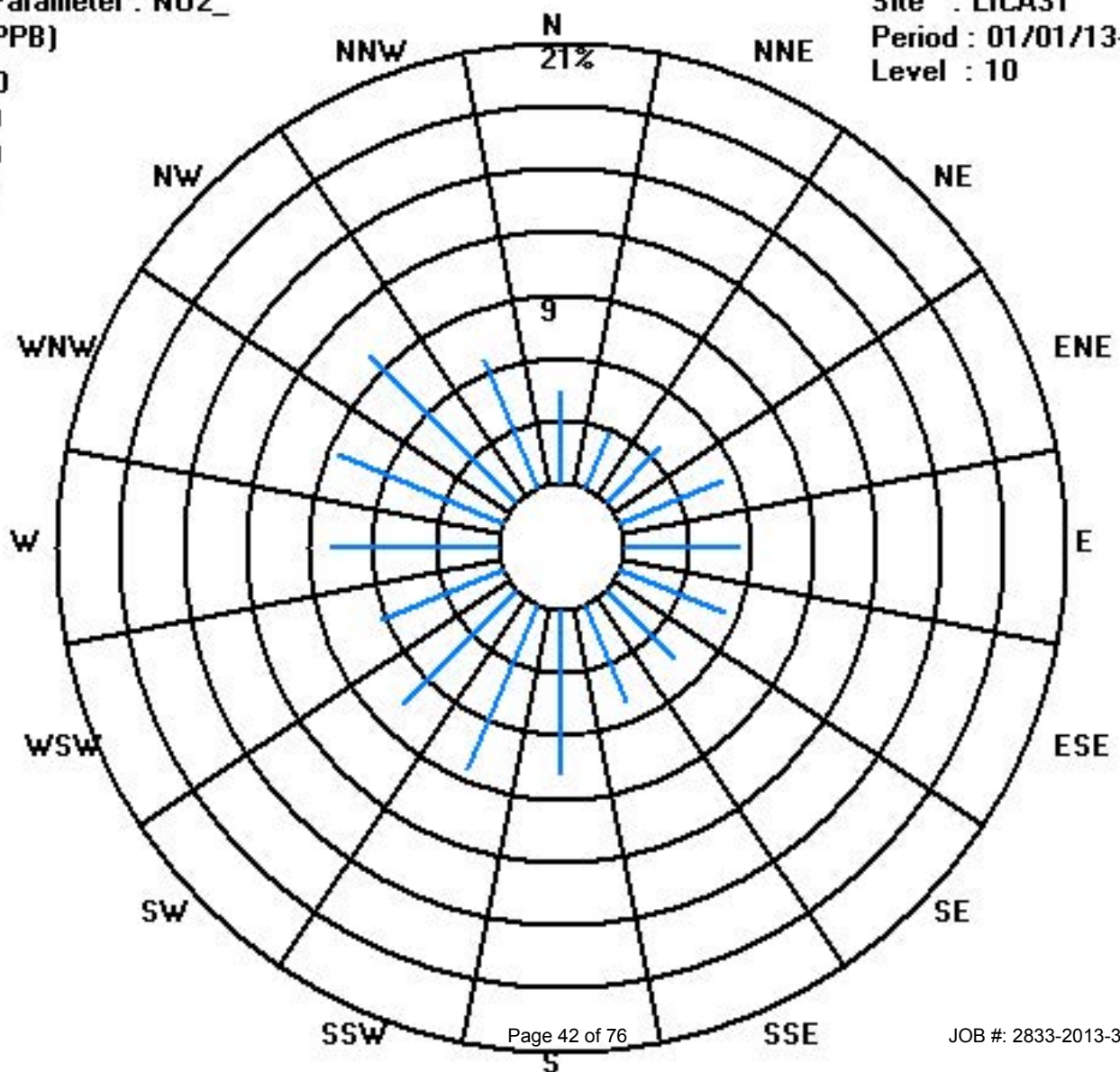
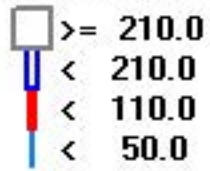
Calm : .00 %

Total # Operational Hours : 8043

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Nitric Oxide

Current Date : 02/12/14
Current Time : 17:11

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : NO_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	8.8	0.5
February	672	629	0	15.4	0.5
March	744	701	0	3.6	0.4
April	720	682	0	3	0.3
May	744	701	0	1.6	0.2
June	720	678	0	1.6	0.2
July	696	632	0	2.4	0.2
August	744	694	0	2.2	0.3
September	720	675	0	3.4	0.2
October	744	700	0	4.2	0.3
November	720	673	0	14.3	0.6
December	744	699	0	5.6	0.6
Yearly Total	8712	8167	0	15.4	0.4

NO Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: _____ LICA

Station: _____ ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO)				NO ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
February	629	100.0	100.0%	0.0%	0.0%	0.0%	0.00
March	701	100.0	100.0%	0.0%	0.0%	0.0%	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	701	99.9	100.0%	0.0%	0.0%	0.0%	0.00
June	678	99.3	100.0%	0.0%	0.0%	0.0%	0.00
July	632	90.2	100.0%	0.0%	0.0%	0.0%	0.00
August	694	99.7	100.0%	0.0%	0.0%	0.0%	0.00
September	675	99.0	100.0%	0.0%	0.0%	0.0%	0.00
October	700	99.5	100.0%	0.0%	0.0%	0.0%	0.00
November	673	99.4	100.0%	0.0%	0.0%	0.0%	0.00
December	699	100.0	100.0%	0.0%	0.0%	0.0%	0.00
						Annual Average	0.00

* Valid readings do not include daily and monthly calibration hours and downtime hours

NO Peak reading of One Hour Averages for 2013

Plant Operator: LICA

Station: ST. LINA

Month	NO ppb Peak Reading
January	9
February	15
March	4
April	3
May	2
June	2
July	2
August	2
September	3
October	4
November	14
December	6
ANNUAL PEAK	15

LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : NO_
 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	
< 50.0	4.41	2.94	3.67	5.21	5.41	5.38	4.51	5.05	7.82	8.52	7.71	6.25	7.95	8.50	9.89	6.69	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.41	2.94	3.67	5.21	5.41	5.38	4.51	5.05	7.82	8.52	7.71	6.25	7.95	8.50	9.89	6.69	

Calm : .00 %

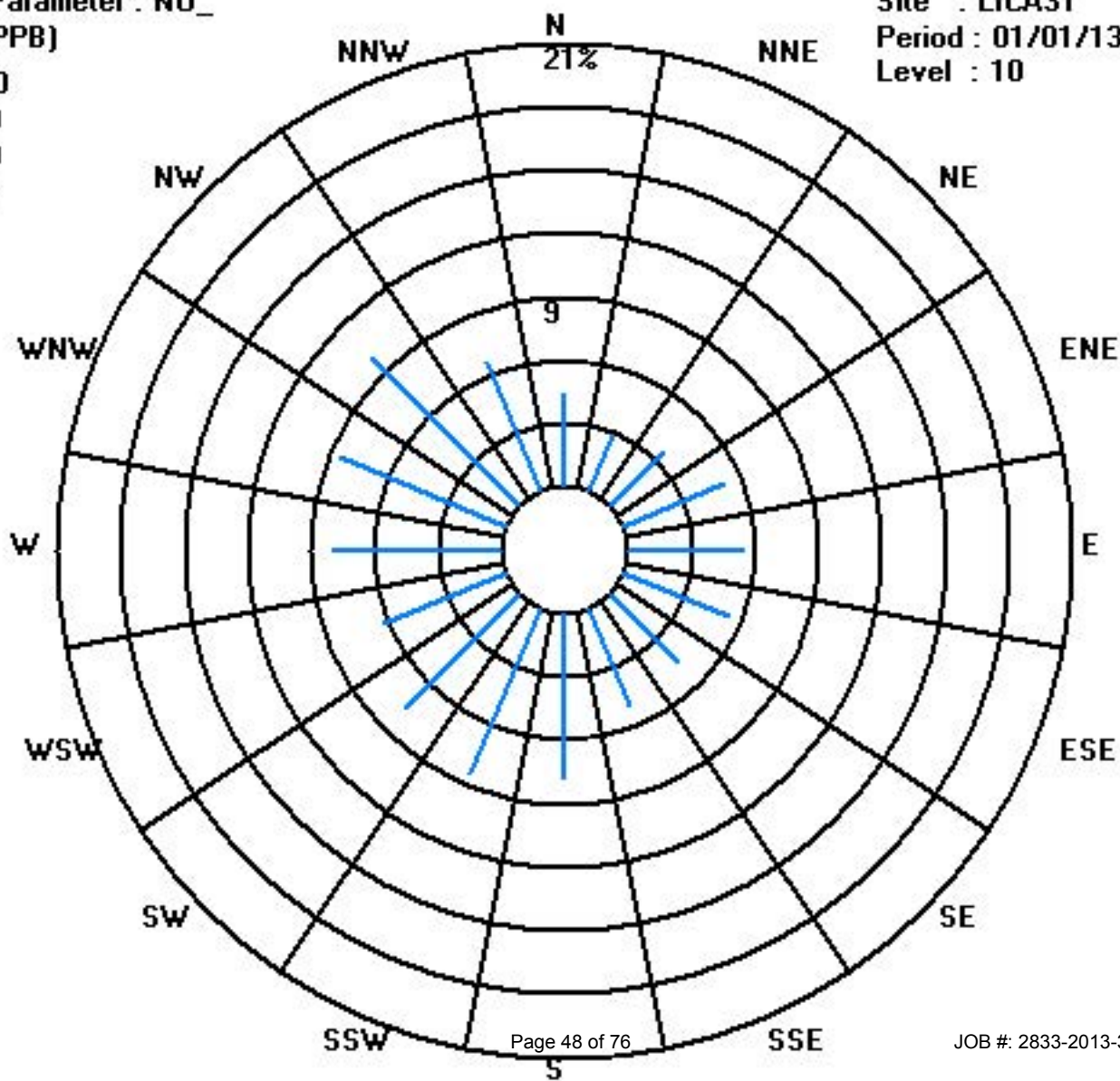
Total # Operational Hours : 8046

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	355	237	296	420	436	433	363	407	630	686	621	503	640	684	796	539	8046
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	355	237	296	420	436	433	363	407	630	686	621	503	640	684	796	539	

Calm : .00 %

Total # Operational Hours : 8046



Oxides of Nitrogen

Current Date : 02/12/14
Current Time : 17:11

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : NOX_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	22.8	4.2
February	672	629	0	30.8	3.5
March	744	701	0	16	2.9
April	720	682	0	7.8	1.4
May	744	701	0	7.8	1.3
June	720	678	0	8.2	1.3
July	696	632	0	8	0.9
August	744	694	0	8	1.3
September	720	675	0	8.5	1.5
October	744	700	0	10.3	1.6
November	720	673	0	46.5	4.6
December	744	699	0	23.5	4.1
Yearly Total	8712	8167	0	46.5	2.4

NO_x Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: LICA

Station: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO _x)				NO _x ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
February	629	100.0	100.0%	0.0%	0.0%	0.0%	0.00
March	701	100.0	100.0%	0.0%	0.0%	0.0%	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	701	99.9	100.0%	0.0%	0.0%	0.0%	0.00
June	678	99.3	100.0%	0.0%	0.0%	0.0%	0.00
July	632	90.2	100.0%	0.0%	0.0%	0.0%	0.00
August	694	99.7	100.0%	0.0%	0.0%	0.0%	0.00
September	675	99.0	100.0%	0.0%	0.0%	0.0%	0.00
October	700	99.5	100.0%	0.0%	0.0%	0.0%	0.00
November	673	99.4	100.0%	0.0%	0.0%	0.0%	0.00
December	699	100.0	100.0%	0.0%	0.0%	0.0%	0.00
						Annual Average	0.00

* Valid readings do not include daily and monthly calibration hours and downtime hours

NO_x Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: ST. LINA

Month	NOx ppb Peak Reading
January	23
February	31
March	16
April	8
May	8
June	8
July	8
August	8
September	9
October	10
November	47
December	24
ANNUAL PEAK	47

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NOX_
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	
< 50.0	4.41	2.94	3.67	5.21	5.41	5.38	4.51	5.05	7.82	8.52	7.71	6.25	7.95	8.50	9.89	6.69	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.41	2.94	3.67	5.21	5.41	5.38	4.51	5.05	7.82	8.52	7.71	6.25	7.95	8.50	9.89	6.69	

Calm : .00 %

Total # Operational Hours : 8046

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	355	237	296	420	436	433	363	407	630	686	621	503	640	684	796	539	8046
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	355	237	296	420	436	433	363	407	630	686	621	503	640	684	796	539	

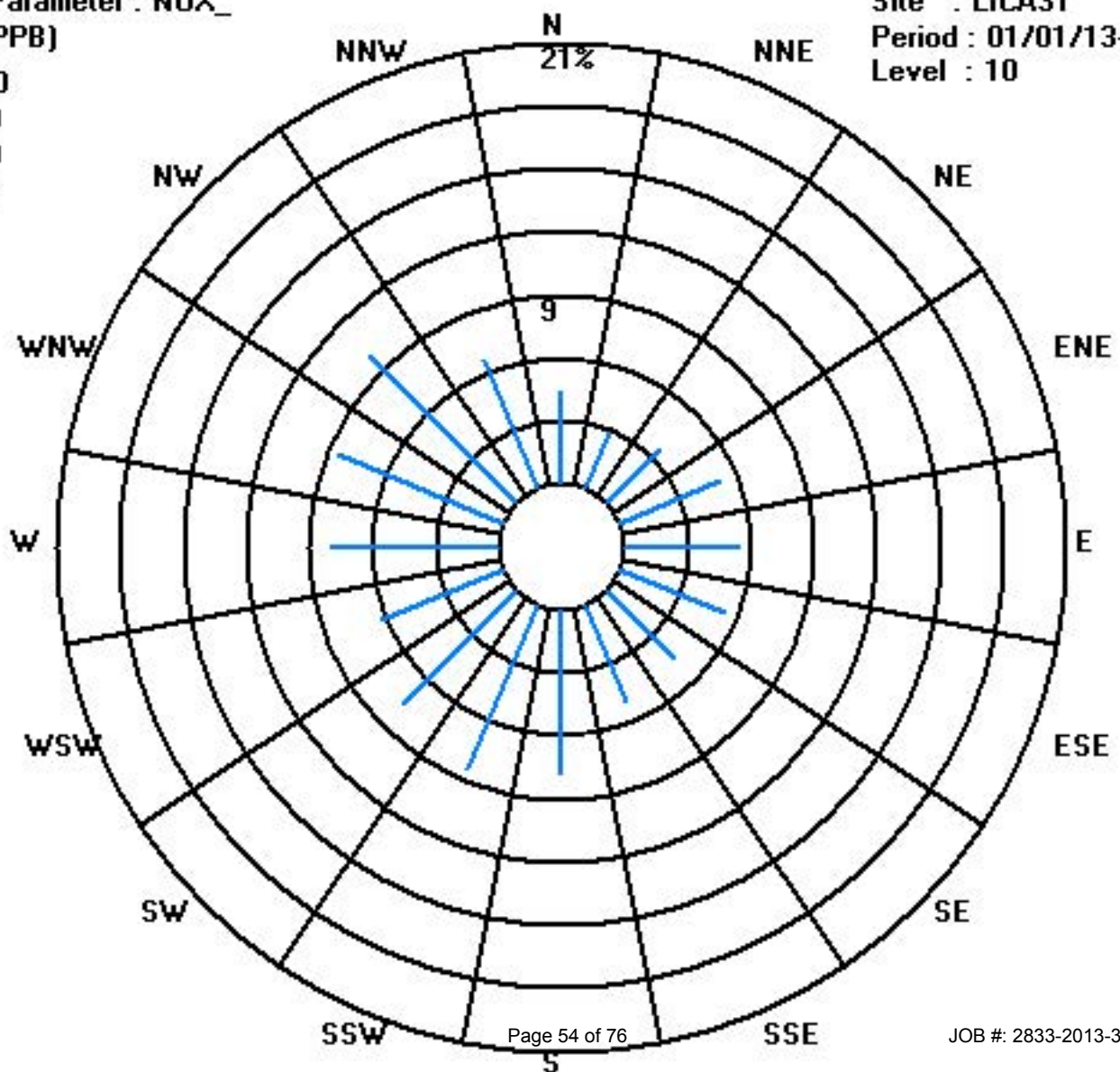
Calm : .00 %

Total # Operational Hours : 8046

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Particulate Matter 2.5

Current Date : 02/12/14
Current Time : 17:12

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	731	0	32	5
February	672	662	0	32	6
March	720	685	0	38	8
April	720	700	0	18	4
May	744	697	0	22	4
June	720	700	0	53	7
July	384	339	0	16	2
August	312	264	0	10	4
September	720	710	0	33	3
October	744	731	0	11	2
November	720	711	0	22	4
December	744	740	0	13	2
Yearly Total	7944	7669	0	53	4

PM 2.5 Monthly Averages and Frequency Distributions of Daily Average Readings - 2013

Plant Operator: LICA

Plant Location: ST. LINA

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ug/m ³)						Total Daily Readings > 30 ug/m ³	PM2.5 ug/m ³ Monthly Average
			≤ 30 ug/m ³	30 < C ≤ 60 ug/m ³	60 < C ≤ 80 ug/m ³	80 < C ≤ 120 ug/m ³	120 < C ≤ 240 ug/m ³	> 240 ug/m ³		
January	731	98.8	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	5.45
February	662	98.8	99.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0	6.10
March	685	92.3	98.1%	1.9%	0.0%	0.0%	0.0%	0.0%	0	8.28
April	700	97.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.59
May	697	94.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.92
June	700	97.5	97.6%	2.4%	0.0%	0.0%	0.0%	0.0%	0	7.06
July	339	46.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	1.62
August	264	35.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.52
September	710	99.2	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	3.22
October	731	98.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	1.85
November	711	99.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.79
December	740	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	2.34
									Annual Average	4.23

* Valid readings - does not include calibration hours and downtime hours

PM 2.5 Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: ST. LINA

Month	PM 2.5 (ug/m3) Peak Reading
January	NA
February	NA
March	NA
April	NA
May	NA
June	NA
July	NA
August	16
September	33
October	11
November	22
December	13
ANNUAL PEAK	33

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	4.16	2.83	3.73	5.14	5.35	5.23	4.50	4.48	7.47	8.60	8.11	6.29	8.10	8.84	9.75	6.80	99.48
< 60	.00	.01	.01	.02	.00	.00	.02	.00	.01	.07	.09	.15	.02	.06	.00	.00	.51
< 80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.16	2.85	3.75	5.17	5.35	5.23	4.53	4.48	7.49	8.68	8.20	6.45	8.12	8.91	9.75	6.80	

Calm : .00 %

Total # Operational Hours : 7541

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	314	214	282	388	404	395	340	338	564	649	612	475	611	667	736	513	7502
< 60		1	1	2			2		1	6	7	12	2	5			39
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	314	215	283	390	404	395	342	338	565	655	619	487	613	672	736	513	

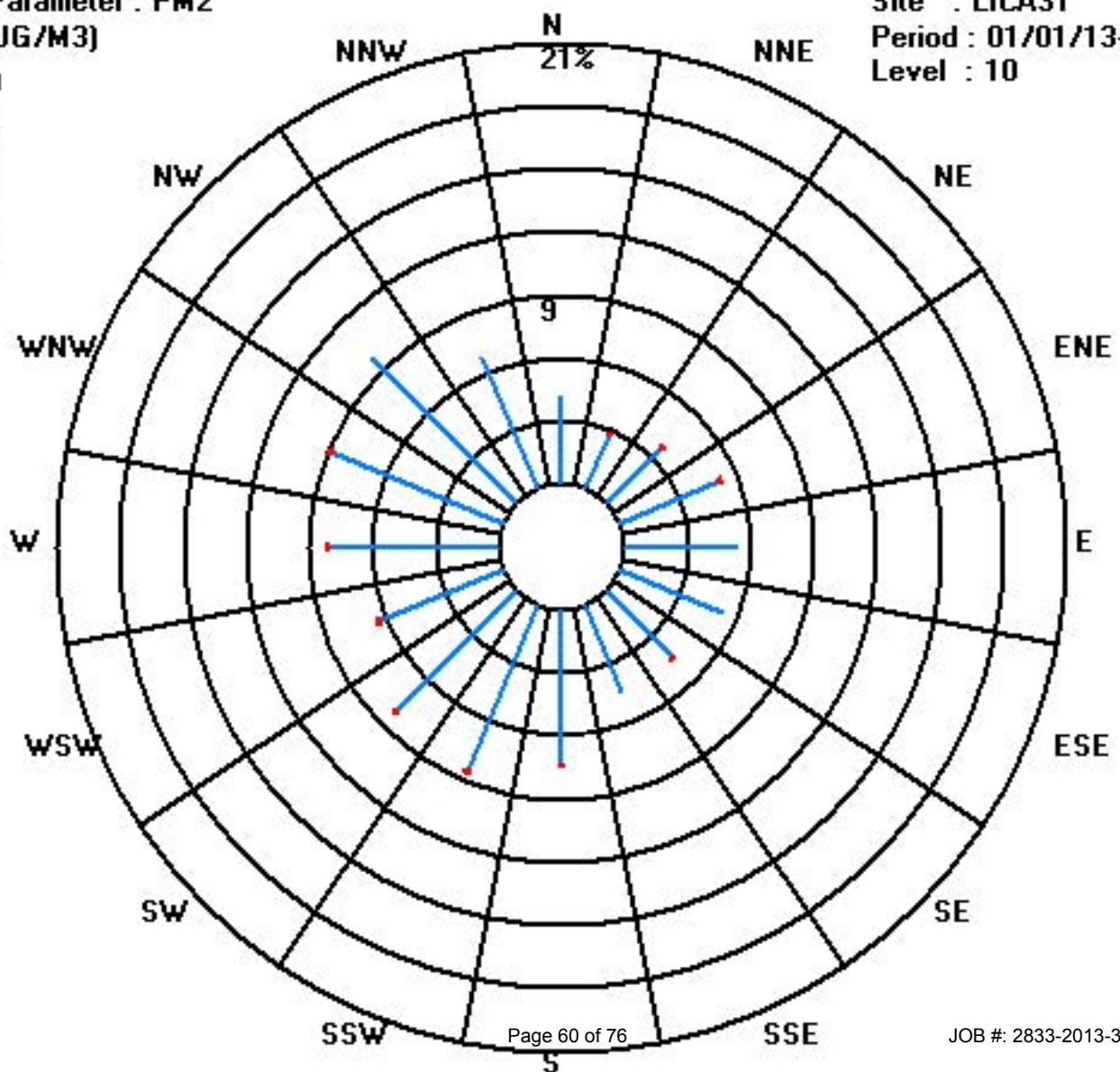
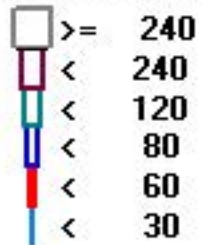
Calm : .00 %

Total # Operational Hours : 7541

Class Limits (UG/M3)

Period : 01/01/13-12/31/13

Level : 10



Temperature

Current Date : 02/12/14
Current Time : 17:13

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : TPX Units : DGC

	Readings	Valid Readings	Min	Max	Mean
January	744	744	-31.2	7.4	-12.4
February	672	672	-20.7	9.9	-7.1
March	744	744	-21.2	10.4	-7
April	720	720	-13.6	17.7	0.2
May	744	744	-8.9	29.4	14.3
June	720	716	4.9	27.7	15.3
July	744	739	5.7	31.3	16.7
August	744	742	7.6	27.3	17.7
September	720	716	-0.4	30.8	14.3
October	744	740	-11.9	16	4.4
November	720	717	-23.5	10.1	-7.9
December	744	744	-34.3	6.1	-16.8
Yearly Total	8760	8738	-34.3	31.3	2.7

Temperature - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: ST. LINA

Month	Operational Time (%)	Monthly Average (Deg.C)	Maximum Hourly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	100.0	-12.38	7.4	-31.2	2.8
February	100.0	-7.09	9.9	-20.7	2.9
March	100.0	-7.00	10.4	-21.2	2.7
April	100.0	0.21	17.7	-13.6	11.8
May	100.0	14.31	29.4	-8.9	21.6
June	99.4	15.33	27.7	4.9	21.9
July	99.3	16.69	31.3	5.7	24.8
August	99.7	17.72	27.3	7.6	21.2
September	99.4	14.35	30.8	-0.4	21.7
October	99.5	4.41	16.0	-11.9	8.9
November	99.4	-7.92	10.1	-23.5	4.0
December	100.0	-16.76	6.1	-34.3	-0.2
ANNUAL AVERAGE		2.66	-	-	-

Barometric Pressure

Current Date : 02/12/14
Current Time : 17:13

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : BP Units : MB

	Readings	Valid Readings	Min	Max	Mean
January	744	744	904	944	923
February	672	672	904	933	921
March	744	744	910	937	927
April	720	720	911	942	926
May	744	744	914	943	929
June	720	716	915	936	927
July	744	739	916	938	929
August	744	742	918	937	928
September	720	716	898	939	923
October	744	740	909	944	926
November	720	717	903	946	925
December	744	744	908	943	925
Yearly Total	8760	8738	898	946	926

BAROMETRIC PRESSURE - Monthly Averages for 2013

Plant Operator: LICA

Plant Location: ST. LINA

Month	Operational Time (%)	Monthly Average (millibar)	Maximum Hourly Average (millibar)	Maximum Daily Average (millibar)
January	100.0	923	944	941.5
February	100.0	921	933	932.3
March	100.0	927	933	935.8
April	100.0	926	942	940.0
May	100.0	929	943	940.9
June	99.4	927	936	934.7
July	99.3	929	938	936.9
August	99.7	928	937	935.9
September	99.4	923	939	936.9
October	99.5	926	944	938.5
November	99.4	925	946	943.0
December	100.0	925	943	941.5
ANNUAL AVERAGE		926	-	-

Relative Humidity

Current Date : 02/12/14
Current Time : 17:13

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : RH Units : %FS

	Readings	Valid Readings	Min	Max	Mean
January	744	744	42	89	71
February	672	672	39	89	72
March	744	744	23	86	63
April	720	720	21	89	60
May	744	744	6	90	45
June	720	716	22	91	69
July	744	739	33	91	68
August	744	742	32	92	68
September	720	716	24	91	60
October	744	740	27	89	66
November	720	717	38	89	73
December	744	744	42	87	70
Yearly Total	8760	8738	6	92	65

Precipitation

Current Date : 02/12/14
Current Time : 17:13

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA31 Logger Id : 31 Parameter : PRECIP Units : MM

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0	0.9	0
February	672	672	0	2.8	0
March	744	744	0	0.5	0
April	720	720	0	2.8	0
May	744	744	0	5.4	0
June	720	718	0	7.3	0.1
July	744	741	0	8.4	0.1
August	744	744	0	11.7	0.1
September	720	718	0	0.7	0
October	744	742	0	1.6	0
November	720	719	0	1.1	0
December	744	744	0	1.2	0
Yearly Total	8760	8750	0	11.7	0

Vector Wind Speed

Current Date : 02/12/14
Current Time : 17:12

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0.9	27.6	11.4
February	672	672	1.2	30	11.8
March	744	744	0	33	11.5
April	720	720	1	28.7	12.7
May	744	744	0.5	30.2	11.5
June	720	716	1.5	22.7	9.4
July	744	739	0.9	28.3	8.9
August	744	742	0.6	25.8	8.1
September	720	716	1.2	31.2	9.7
October	744	735	1.4	25.8	10.7
November	720	691	2.2	179.3	12.1
December	744	647	0.7	37.2	11.8
Yearly Total	8760	8610	0	179.3	10.8

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

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	.94	.83	.87	.76	.62	.95	.62	.65	.72	1.05	1.19	.89	.87	1.06	.95	1.01	14.04	
< 12.0	2.04	1.52	1.95	2.81	2.90	2.85	2.28	2.79	4.33	4.86	4.04	3.41	4.22	4.35	4.70	2.90	52.02	
< 20.0	1.25	.53	.75	1.46	1.56	1.24	1.42	1.40	2.54	2.05	2.25	1.68	2.36	2.64	3.65	2.25	29.11	
< 29.0	.18	.02	.11	.13	.26	.25	.30	.16	.16	.32	.13	.31	.48	.39	.61	.58	4.47	
< 39.0	.00	.00	.00	.00	.01	.10	.03	.00	.00	.00	.00	.00	.04	.05	.01	.00	.26	
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01	
Totals	4.42	2.91	3.69	5.18	5.37	5.41	4.68	5.02	7.75	8.30	7.63	6.30	8.00	8.52	9.94	6.74		

Calm : .06 %

Total # Operational Hours : 8610

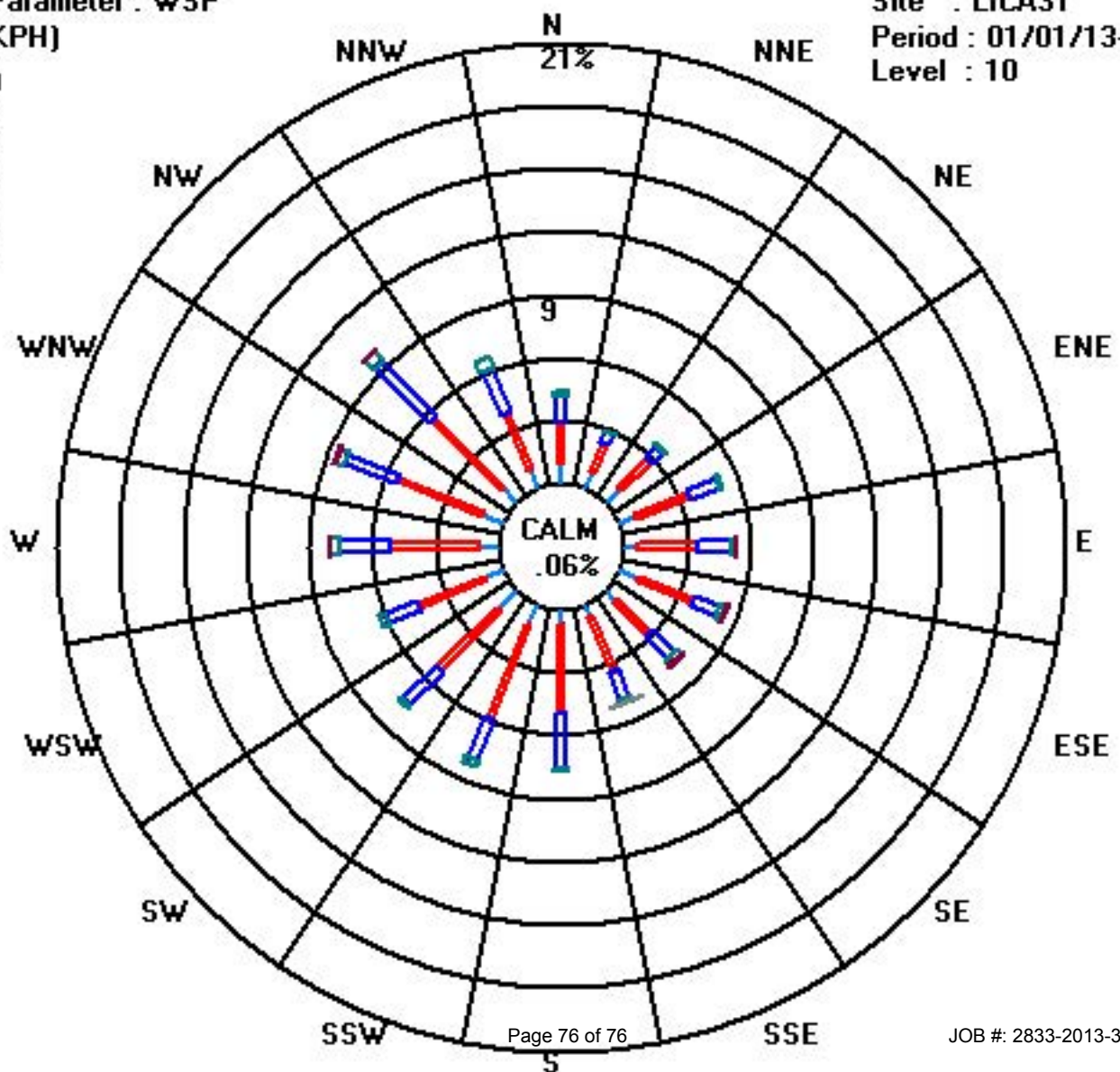
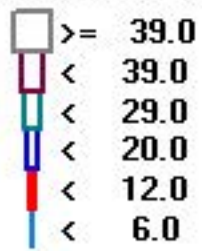
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 6.0	81	72	75	66	54	82	54	56	62	91	103	77	75	92	82	87	1209	
< 12.0	176	131	168	242	250	246	197	241	373	419	348	294	364	375	405	250	4479	
< 20.0	108	46	65	126	135	107	123	121	219	177	194	145	204	228	315	194	2507	
< 29.0	16	2	10	12	23	22	26	14	14	28	12	27	42	34	53	50	385	
< 39.0					1	9	3						4	5	1		23	
>= 39.0								1									1	
Totals	381	251	318	446	463	466	403	433	668	715	657	543	689	734	856	581		

Calm : .06 %

Total # Operational Hours : 8610

Class Limits (KPH)



Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site
Ambient Annual Data Report

For
2013

Prepared By:



April 15, 2014

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: January 2013 to December 2013

The monthly ambient data report:

- Prepared by Ernestine Tangang/Lili Zhou
- Reviewed by Lily Lin

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*.

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

A trailer audit was performed by AESRD on August 21st, 2013.

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 467
 - ❖ The analyzer failed after the daily cal check on January 30th at hour 19 and could not be fixed in the field. As a result, it was brought back to the Calgary shop for repair. 29 hours of data were lost.
 - ❖ The analyzer was reinstalled following an installation calibration on February 12th. 274 hours of data were invalidated due to this issue. The hourly data on February 13th at hour 9 and 10 were invalidated due to a power failure.
 - ❖ The maximum hourly data collected on April 15th at hour 14 is missing due to a small power outage.
 - ❖ The maximum hourly data collected on May 2nd at hour 13 was invalidated due to a small power outage.
 - ❖ The AC unit failed causing the shelter temperature to go high on June 26th. It led the analyzer to malfunction on June 26th at hour 17. The AC unit was reset and time on June 27th, and then an as found points check was performed. The result was within the acceptable range. The sample pump was rebuilt following the as found points check. A daily zero/span check was run following the pump rebuilt. Twenty one hours of data were invalidated due to this event.
 - ❖ Two hours of data are missing due to a power failure on July 3rd.
 - ❖ The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage.

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 509
- Converter - Internal
 - ❖ Seven hours of data were invalidated due to power failures in February. The hourly data collected on February 8th at hour 17 was invalidated, as the analyzer was recovering from a power failure.
 - ❖ The maximum hourly data collected on April 15th at hour 14 is missing due to a small power outage.
 - ❖ The maximum hourly data collected on May 2nd at hour 13 was invalidated due to a small power outage.
 - ❖ The AC unit failed causing the shelter temperature to go high on June 26th. It led the analyzer to malfunction on June 26th at hour 17. Nineteen hours of data were invalidated due to this event.
 - ❖ Two hours of data are missing due to a power failure on July 3rd. (To Be Continued).

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

Hydrogen Sulphide (PPB)

- ❖ (Continued) Following the as found points check on August 13th, the scrubber material for the zero air system was changed and a UV lamp calibration was performed. The analyzer did not span on August 14th due to a leak in sample tubing. The issue was fixed on August 14th. 19 hours of data were invalidated.
- ❖ The analyzer failed on December 31st hour 4 due to sample pump failure. This issue was fixed on January 2nd, 2014. The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage.

THC (PPM)

- Analyzer make / model –Thermo 51C, S/N: 77021-384
 - ❖ In January four hours of data were invalidated as the hourly reading was below the background concentration.
 - ❖ Five hours of data were invalidated due to power failures in February. The power failures caused the analyzer to flame out, which led a total of 37 hours to be invalidated. A removal calibration was performed on February 12th, and a TECO 55i HC analyzer attempted to be installed. However, the 55i analyzer did not show that it was stabilizing. As a result, the Thermo 51C was re-installed back to service on February 13th. 22 hours of data were invalidated due to this event.
 - ❖ The analyzer was put into the Maintenance mode for two hours on March 15th for the HC analyzer installation.
 - ❖ The analyzer flamed out on April 4th at hour 11 due to emptying the H2 gas. The gas cylinder was replaced on April 5th at hour 13. Two hours of data were invalidated and the hourly readings were lower than the expected after the gas replacement. A total of 20 hours of data was discarded due to this issue. A total of six hours of hourly data was invalidated as the data was lower than the background concentration. The maximum hourly data collected on April 15th at hour 14 is missing due to a small power outage.
 - ❖ A total of four hours of hourly data was invalidated as the data was lower than the background concentration. The maximum hourly data collected on May 2nd at hour 13 was invalidated due to a small power outage causing few minute data to lose. The maximum data collected on May 6th at hour 4 was above the full scale.
 - ❖ The maximum data collected on June 29th at hour 1 went above the full scale. The real reading for the hour was likely higher than indicated.
 - ❖ Two hours of data are missing due to a power failure on July 3rd.
 - ❖ No data was available for the month of August as the analyzer was removed as per client request.

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

THC 55i (PPM)

- Analyzer make / model –Thermo 55i, S/N: (12)36656107
 - ❖ The analyzer was installed March 15th. A reset switch for the canister system was installed, and the solenoid valve was connected and leak tested for volatile capture during concentration events on March 16th. The hourly maximum channels for THC (55i), Methane, and NMHC were set on the datalogger on March 18th. A total of ten canisters were collected in March.
 - ❖ The maximum hourly data collected on April 15th at hour 14 is missing due to a small power outage. A total of thirteen canisters were collected in April.
 - ❖ The hourly data collected on May 15th at hour 15 was invalidated as the data was affected by the dust cleaner that was used for the sample inlet clean for the Teom unit. A chromatogram check was performed on the analyzer on May 17th. The maximum hourly data collected on May 2nd at hour 13 was invalidated. A total of twelve canisters were collected in May.
 - ❖ The maximum hourly data collected on June 24th at hour 10 was invalidated as not 100% of the data for the hour was collected: reason unknown. Data was corrected using daily zero information. A total of nine canisters were collected in June.
 - ❖ The span gas was changed on July 8th. Two hours of data are missing due to a power failure on July 3rd. A total of fifteen canisters were collected in July.
 - ❖ A total of nine canisters were collected in August.
 - ❖ The analyzer flamed out on September 3rd during hour 12. The H2 gas cylinder was replaced to fix the issue on September 3rd. Four hours of data were invalidated due to this event.
 - ❖ No canister had been collected since October as per client request.
 - ❖ The analyzer spanned low on October 10th due to emptying the span gas. The span gas was replaced on October 11th.
 - ❖ The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage.

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 593
 - ❖ One hour of data was invalidated on January 15th at hour 11 due to analyzer malfunction.
 - ❖ Seven hours of data were invalidated due to power failure. Eleven hours of maximum reading collected on February 13th for NOx/NO/NO₂ were invalidated, as the datalogger did not record the value correctly after the power failure.
 - ❖ The maximum hourly data collected on April 15th at hour 14 is missing due to a small power outage.
 - ❖ The maximum hourly data collected on May 2nd at hour 13 was invalidated due to a small power outage.
 - ❖ Following the as found points check on June 7th, the scrubber inline exhaust was replaced.
 - ❖ Two hours of data were missing due to a power failure on July 3rd.
 - ❖ The analyzer spanned high on August 13th. A leak check was performed, and the critical orifice and sinter filter were changed on August 27th.
 - ❖ The analyzer did not span on September 24th. On September 25th, it was found that the exhaust sample line had broken. The sample line was replaced on September 25th. As we are not sure when the issue occurred, we invalidated the data back to the last good calibration, which was September 23rd. A total of 23 hours of data was invalidated.
 - ❖ The analyzer spanned high on October 24th. Following the as found points check, troubleshooting was performed on October 24th. As the analyzer passed the as found points check, all data were kept. The expected span value was not changed on October 28th.
 - ❖ The hourly maximum reading for NOx collected on November 25th at hour 14 went above the full scale. The real concentration might have been higher than indicated.
 - ❖ The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage.

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

Ozone (PPB)

- Analyzer make / model - Thermo 49i, S/N: 1002240372
 - ❖ In February, Seven hours of data were invalidated due to power failures v. Eleven hours of maximum reading collected on February 13th for ozone were invalidated, as the datalogger did not record the value correctly after the power failure.
 - ❖ The maximum hourly data collected on April 15th at hour 14 is missing due to a small power outage.
 - ❖ The maximum hourly data collected on May 2nd at hour 13 was invalidated due to a small power outage.
 - ❖ The AC unit failed causing the shelter temperature to go high on June 26th. It led the analyzer to malfunction on June 26th at hour 17. Twenty hours of data were invalidated due to this event.
 - ❖ Two hours of data were missing due to a power failure on July 3rd.
 - ❖ Hourly maximum data for August 23rd hour 22 was invalidated as less than 100% of hourly data was collected during the hour. Reason unknown.
 - ❖ The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage.

Particulate Matter 2.5 (ug/m³)

- Analyzer make / model –TEOM 1405F, S/N: 1405A208301003
 - ❖ Seventy-eight hours of data were invalidated in January as the data were below -3 ug/m3.
 - ❖ Seventy-seven hours of data were invalidated in February as the data were below -3 ug/m3.
 - ❖ The PM2.5 channel was left in the “Maintenance” mode after the audit on February 28th in order to check the Teom unit stability. The channel was put back to the sampling mode on March 1st at hour 8. Nine hours of data were invalidated in March. Twenty-three hours of data were invalidated in March as the data were below -3 ug/m3.
 - ❖ Ninety-four hours of data were invalidated in April as the data were below -3 ug/m3.
 - ❖ Twenty-six hours of data were invalidated in May as the data were below -3 ug/m3.
 - ❖ After the maintenance performed on June 27th, the Teom unit appeared a warning of “Temp/RH sensor not detected”. However, as the spare Temp/RH sensor was not available, the PM2.5 channel was put into the Maintenance mode. A new Temp/RH sensor was installed on July 18th.507 hours of data were invalidated due to this event (To Be Continued.).

General Annual Summary

AQM STATION – LICA □ PORTABLE – ELK POINT

Particulate Matter 2.5 (ug/m³)

- ❖ (Continued) Twenty-three hours of data were invalidated in June as the data were below -3 ug/m³. Twenty-four hours of data were invalidated in July as the data were below -3 ug/m³.
- ❖ Twenty-two hours of data were invalidated in August as the data were below -3 ug/m³.
- ❖ Two hours of data were invalidated in September as the data were below -3 ug/m³.
- ❖ The PM2.5 channel was put into the Maintenance mode for two hours on October 15th while the maintenance was performed on the manifold system. Ten hours of data were invalidated as the data were below -3 ug/m³.
- ❖ The front screen on the Teom unit was found not to be operable during the site visit on November 15th. The unit attempted to be replaced on November 20th between hour 11 and hour 15. However, a major leak was noticed on the replacement. The replacement was removed and the existing unit was installed back to the shelf on November 20th. The screen was replaced using the one on the replacement. Twenty-four hours of data were invalidated as the data were below -3 ug/m³.
- ❖ The switch valve was cleaned on December 19th. 199 hours of data were invalidated as the data were below -3 ug/m³.

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

- System make / model – RM Young 5103VK, S/N: 41334 and S/N: 43708
 - ❖ Seven hours of data were invalidated in February due to power failure
 - ❖ The maximum hourly data for wind speed collected on May 2nd at hour 13 was invalidated due to a small power outage causing few minute data to lose.
 - ❖ The hourly maximum value collected on December 25th hour 23 and December 26th hour 14 were invalidated due to a small power outage.

Trailer

A new manifold with 8 ports was installed on February 12th.

Continuous Monitoring

Annual Summaries Graphs & Wind Roses

Sulphur Dioxide

Current Date : 02/12/14
Current Time : 17:52

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : SO2_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	720	678	0	6	0
February	408	371	0	2	0
March	744	708	0	7	0
April	720	681	0	4	0
May	744	708	0	3	0
June	720	660	0	2	0
July	744	704	0	2	0
August	744	681	0	1	0
September	720	682	0	1	0
October	744	707	0	3	0
November	720	685	0	4	0
December	744	706	0	3	0
Yearly Total	8472	7973	0	7	0

SO₂ Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: PORTABLE

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO ₂)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO ₂ ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	678	96.1	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	371	58.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	708	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	681	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	708	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	660	97.1	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	704	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	681	96.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	682	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	706	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
									Annual Average		0.00

C - Concentration

* Valid readings - does not include calibration hours and downtime hours

SO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: _____

LICA _____

Plant Location: _____ PORTABLE _____

Month	SO ₂ ppb Peak Reading
January	6
February	2
March	7
April	4
May	3
June	2
July	2
August	1
September	1
October	3
November	4
December	3
ANNUAL PEAK	7

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

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	2.64	2.37	3.37	4.18	8.27	14.57	6.69	2.98	2.91	2.34	1.98	6.56	12.21	13.12	11.23	4.50	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	2.64	2.37	3.37	4.18	8.27	14.57	6.69	2.98	2.91	2.34	1.98	6.56	12.21	13.12	11.23	4.50	

Calm : .00 %

Total # Operational Hours : 7972

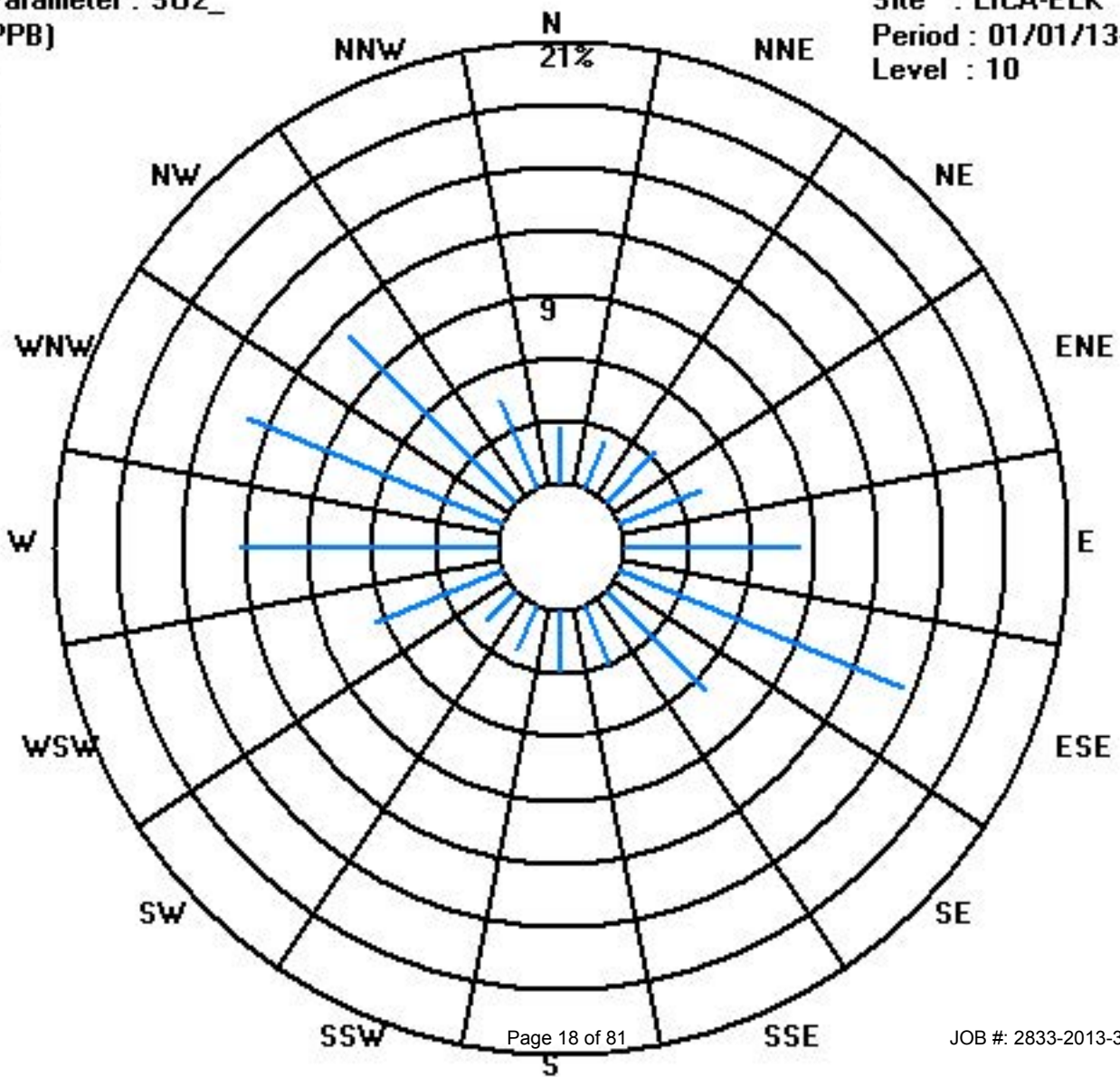
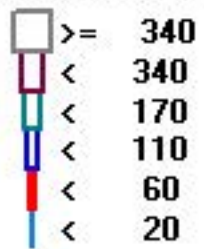
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	211	189	269	334	660	1162	534	238	232	187	158	523	974	1046	896	359	7972
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	211	189	269	334	660	1162	534	238	232	187	158	523	974	1046	896	359	

Calm : .00 %

Total # Operational Hours : 7972

Class Limits (PPB)



Hydrogen Sulphide

Current Date : 02/12/14
Current Time : 17:52

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : H2S_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	704	0	1	0
February	672	628	0	2	0
March	744	708	0	2	0
April	720	681	0	1	0
May	744	708	0	1	0
June	720	663	0	2	0
July	744	704	0	5	0
August	744	683	0	3	0
September	720	679	0	5	0
October	744	707	0	1	0
November	720	680	0	2	0
December	744	679	0	3	0
Yearly Total	8760	8224	0	5	0

H₂S Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppb H ₂ S)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	H ₂ S ppb Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb			
January	704	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.09
February	628	98.8	100.0%	0.0%	0.0%	0.0%	0	0	0.07
March	708	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.08
April	681	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.05
May	708	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.07
June	663	97.4	100.0%	0.0%	0.0%	0.0%	0	0	0.09
July	704	99.7	99.7%	0.3%	0.0%	0.0%	0	0	0.13
August	683	97.3	100.0%	0.0%	0.0%	0.0%	0	0	0.08
September	679	99.7	99.9%	0.1%	0.0%	0.0%	0	0	0.25
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.06
November	680	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.09
December	679	97.3	100.0%	0.0%	0.0%	0.0%	0	0	0.13
							Annual Average		0.10

* Valid readings - does not include calibration hours and downtime hours.

H2S Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: PORTABLE

Month	H2S ppb Peak Reading
January	1
February	2
March	2
April	1
May	1
June	2
July	5
August	3
September	5
October	1
November	2
December	3
ANNUAL PEAK	5

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

01/01/13 thru 12/31/13

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	2.58	2.29	3.27	4.16	8.43	14.81	6.73	2.91	2.83	2.31	1.98	6.51	12.25	13.01	11.25	4.50	99.89
< 10	.00	.00	.01	.00	.00	.03	.00	.00	.00	.00	.00	.04	.00	.00	.01	.00	.10
< 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	2.58	2.29	3.28	4.16	8.43	14.84	6.73	2.91	2.83	2.31	1.98	6.56	12.25	13.01	11.27	4.50	

Calm : .00 %

Total # Operational Hours : 8243

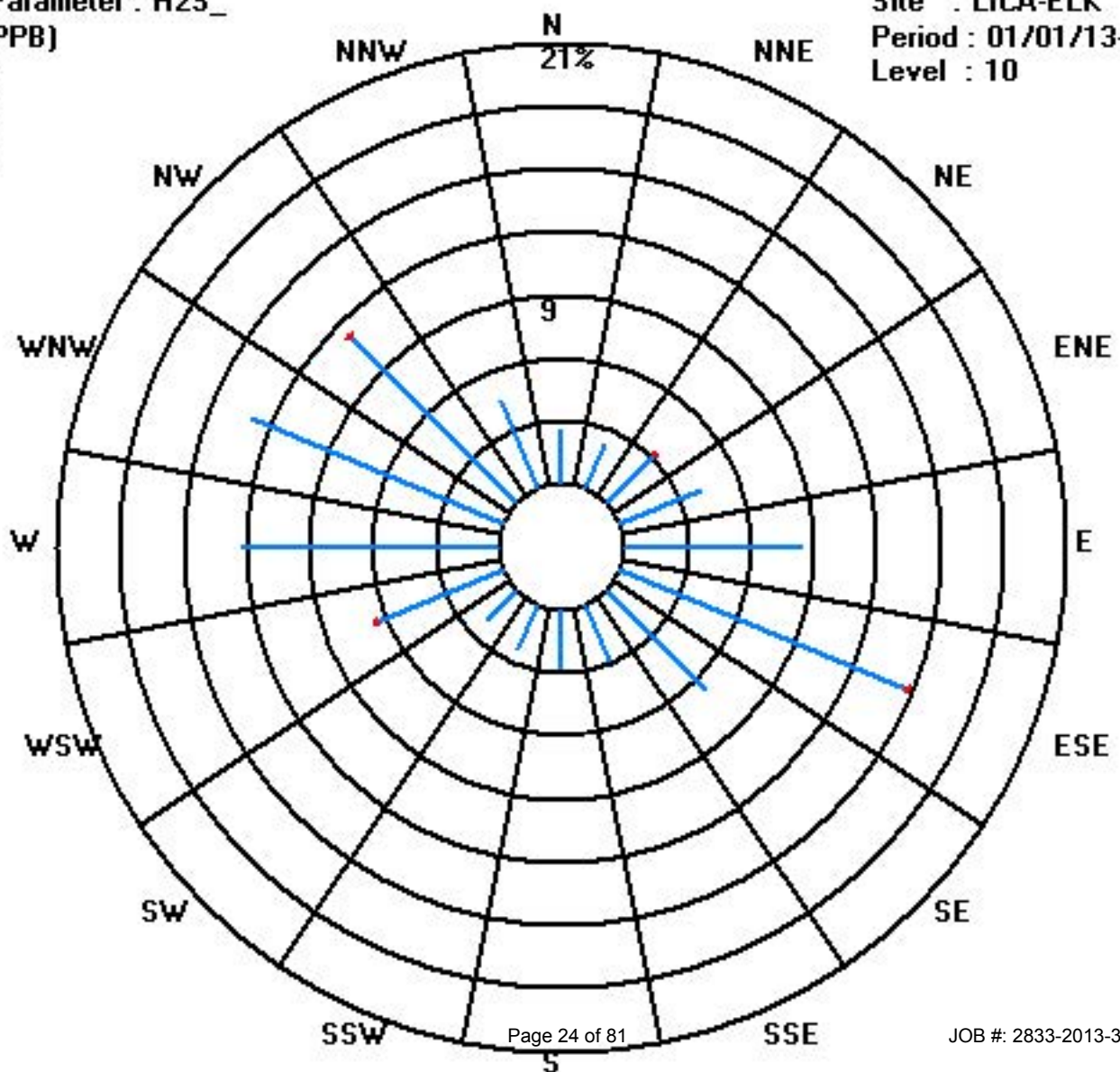
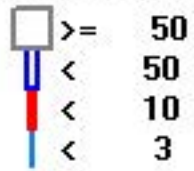
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	213	189	270	343	695	1221	555	240	234	191	164	537	1010	1073	928	371	8234
< 10			1			3						4			1		9
< 50																	
>= 50																	
Totals	213	189	271	343	695	1224	555	240	234	191	164	541	1010	1073	929	371	

Calm : .00 %

Total # Operational Hours : 8243

Class Limits (PPB)



Particulate Matter 2.5

Current Date : 02/12/14
Current Time : 17:53

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : PM2 Units : UG/M3

	Readings	Valid Readings	Min	Max	Mean
January	744	658	0	50	15
February	672	577	0	66	10
March	744	708	0	83	11
April	720	620	0	35	4
May	744	714	0	26	7
June	648	613	0	50	9
July	336	293	0	42	6
August	744	717	0	34	8
September	720	714	0	22	6
October	744	705	0	39	7
November	720	649	0	54	11
December	744	519	0	65	12
Yearly Total	8280	7487	0	83	9

PM 2.5 Monthly Averages and Frequency Distributions of Daily Average Readings - 2013

Plant Operator: LICA

Plant Location: PORTABLE

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ug/m ³)						Total Daily Readings > 30 ug/m ³	PM2.5 ug/m ³ Monthly Average
			≤ 30 ug/m ³	30 < C ≤ 60 ug/m ³	60 < C ≤ 80 ug/m ³	80 < C ≤ 120 ug/m ³	120 < C ≤ 240 ug/m ³	> 240 ug/m ³		
January	658	89.4	91.2%	8.8%	0.0%	0.0%	0.0%	0.0%	0	15.40
February	577	86.5	98.1%	1.6%	0.3%	0.0%	0.0%	0.0%	0	9.60
March	708	95.7	95.3%	4.4%	0.1%	0.1%	0.0%	0.0%	0	10.86
April	620	87.2	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0	3.59
May	714	96.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	7.48
June	613	85.4	98.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0	9.13
July	293	39.7	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0	6.33
August	717	97.0	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0	8.50
September	714	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	5.56
October	705	98.4	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0	7.44
November	649	93.6	98.6%	1.4%	0.0%	0.0%	0.0%	0.0%	0	11.41
December	519	73.3	92.7%	7.1%	0.2%	0.0%	0.0%	0.0%	0	11.64
									Annual Average	8.91

C - Concentration

* Valid readings - does not include calibration hours and downtime hours

PM 2.5 Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: PORTABLE

Month	PM 2.5 (ug/m3) Peak Reading
January	50
February	66
March	83
April	35
May	26
June	50
July	42
August	34
September	22
October	39
November	54
December	65
ANNUAL PEAK	83

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

01/01/13 thru 12/31/13

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	2.54	2.31	3.46	4.15	8.59	14.72	6.91	2.56	2.63	2.13	1.89	6.22	12.12	12.35	10.43	4.26	97.32
< 60	.06	.02	.03	.06	.35	.66	.14	.06	.06	.07	.02	.18	.34	.22	.21	.03	2.60
< 80	.00	.00	.00	.00	.00	.03	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.05
< 120	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.60	2.34	3.50	4.22	8.96	15.42	7.05	2.63	2.71	2.21	1.91	6.40	12.47	12.57	10.64	4.30	

Calm : .00 %

Total # Operational Hours : 7554

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	192	175	262	314	649	1112	522	194	199	161	143	470	916	933	788	322	7352
< 60	5	2	3	5	27	50	11	5	5	6	2	14	26	17	16	3	197
< 80						3			1								4
< 120					1												1
< 240																	
>= 240																	
Totals	197	177	265	319	677	1165	533	199	205	167	145	484	942	950	804	325	

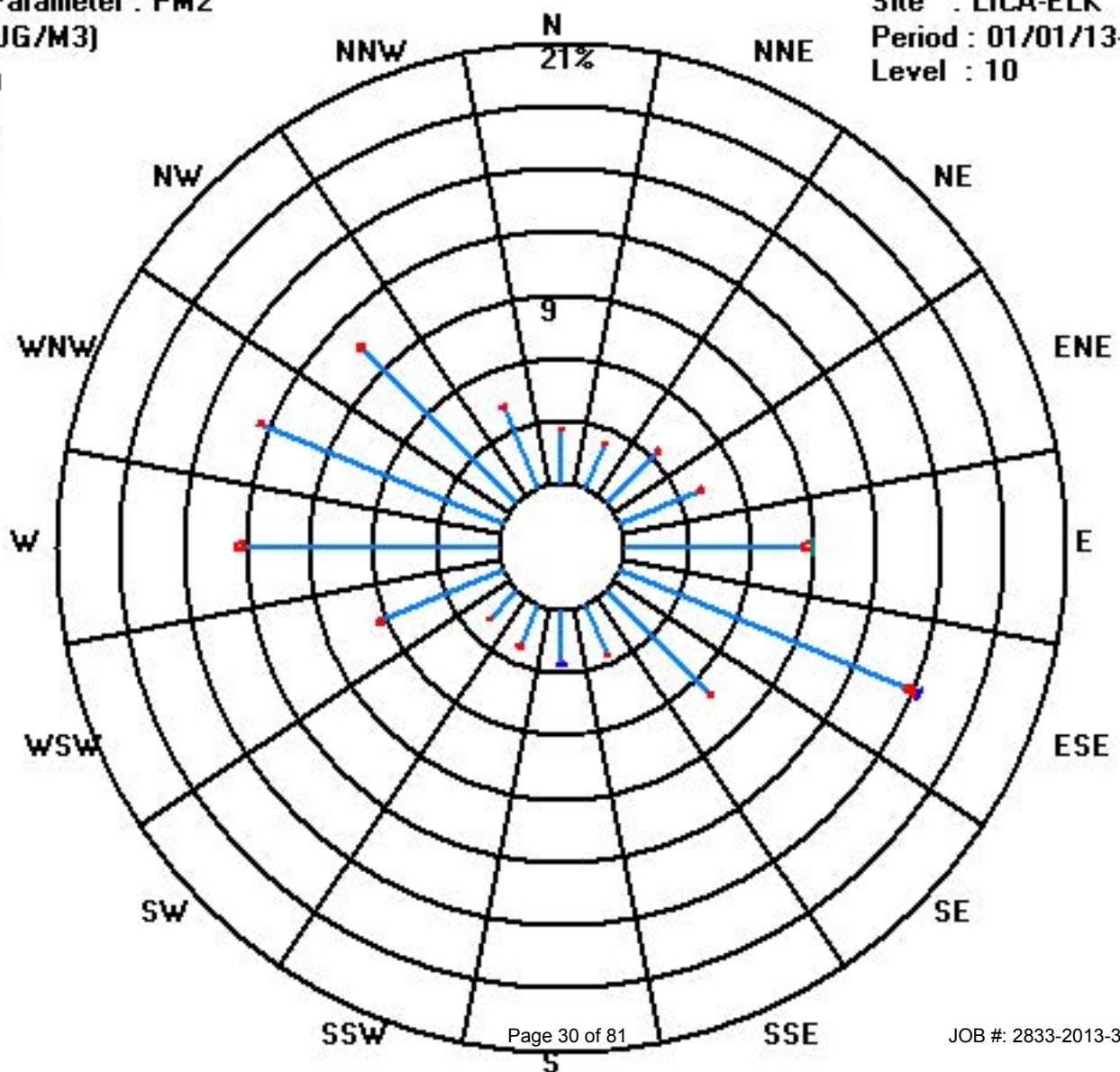
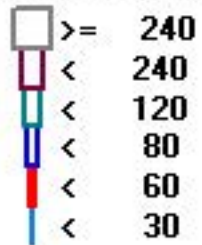
Calm : .00 %

Total # Operational Hours : 7554

Class Limits (UG/M3)

Period : 01/01/13-12/31/13

Level : 10



Nitrogen Dioxide

Current Date : 02/12/14
Current Time : 17:53

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : NO2_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0.3	37	11.9
February	672	625	0	44.6	8.6
March	744	704	0.1	42.9	9.4
April	720	680	0	40.9	5
May	744	706	0	30.7	4.9
June	720	677	0	22.3	4.2
July	744	693	0	30.8	4.2
August	744	685	0	24.8	4.7
September	696	631	0	28.7	5.7
October	744	698	0	29.5	7
November	720	683	0	33	8.8
December	744	698	0	31.2	9.6
Yearly Total	8736	8183	0	44.6	7

NO₂ Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: PORTABLE

Month	NO2 ppb Peak Reading
January	37
February	45
March	43
April	41
May	31
June	22
July	31
August	25
September	29
October	30
November	33
December	31
ANNUAL PEAK	45

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

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : NO2_
 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	
< 50.0	2.57	2.29	3.28	4.17	8.49	15.05	6.69	2.87	2.81	2.30	1.99	6.57	12.26	12.81	11.26	4.49	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.57	2.29	3.28	4.17	8.49	15.05	6.69	2.87	2.81	2.30	1.99	6.57	12.26	12.81	11.26	4.49	

Calm : .00 %

Total # Operational Hours : 8183

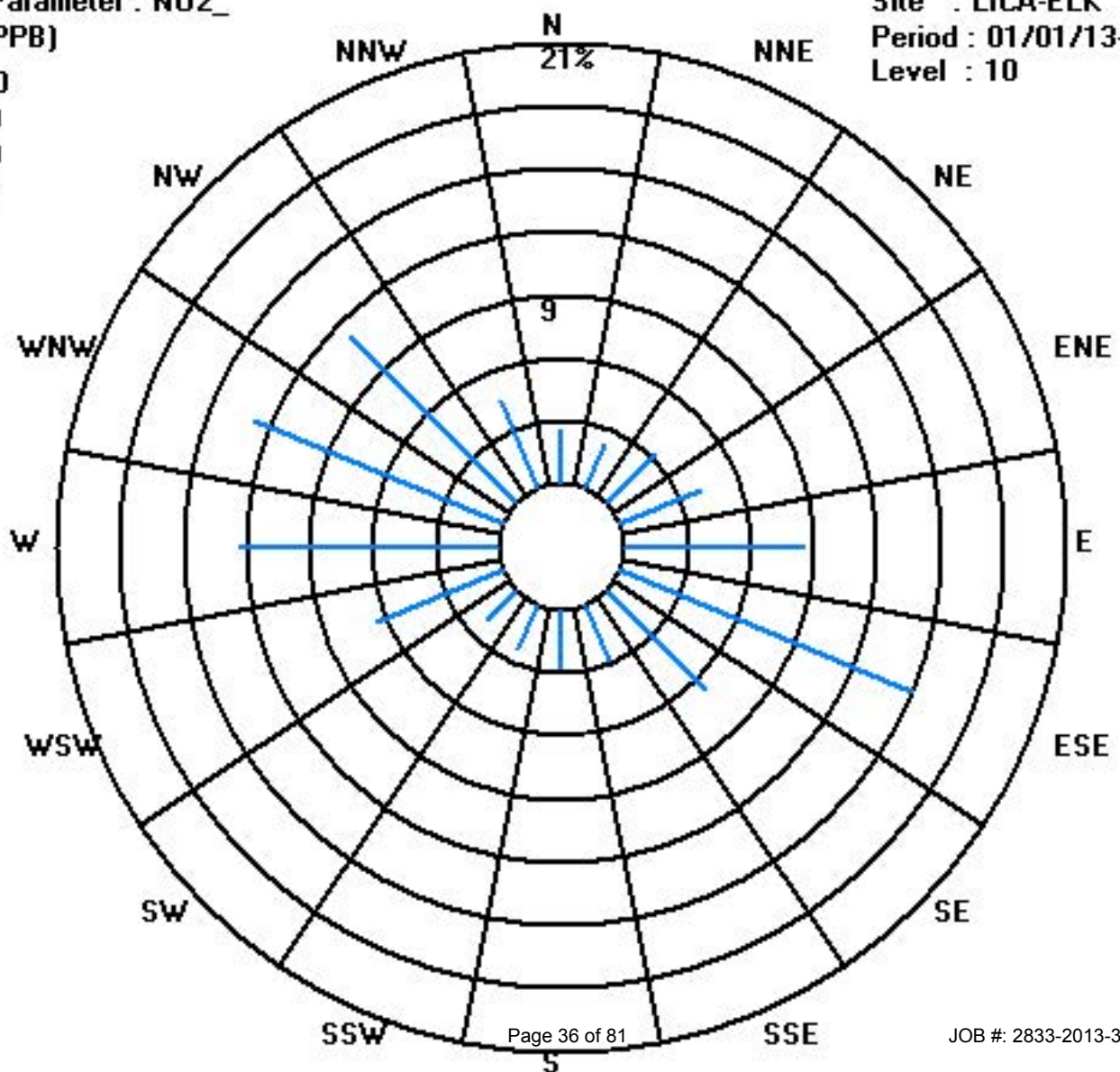
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	211	188	269	342	695	1232	548	235	230	189	163	538	1004	1049	922	368	8183
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	211	188	269	342	695	1232	548	235	230	189	163	538	1004	1049	922	368	

Calm : .00 %

Total # Operational Hours : 8183

Class Limits (PPB)



Nitric Oxide

Current Date : 02/12/14
Current Time : 17:53

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : NO_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	47.6	3.6
February	672	625	0	33.1	1.9
March	744	704	0	41.7	2.1
April	720	680	0	30.4	1
May	744	706	0	41.9	1.2
June	720	677	0	18.4	1.1
July	744	693	0	59	2.2
August	744	685	0	81.4	1.8
September	696	631	0	77.3	2.9
October	744	697	0	82.1	3.6
November	720	683	0	73.7	5.2
December	744	698	0	81.3	5.6
Yearly Total	8736	8182	0	82.1	2.7

NO Monthly Averages and Frequency Distributions of One Hour Readings -2013

Plant Operator: LICA

Station: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO)				NO ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	703	99.7	100.0%	0.0%	0.0%	0.0%	0.00
February	625	98.8	100.0%	0.0%	0.0%	0.0%	0.00
March	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
April	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	706	100.0	100.0%	0.0%	0.0%	0.0%	0.00
June	677	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	693	99.5	99.9%	0.1%	0.0%	0.0%	0.00
August	685	99.3	99.7%	0.3%	0.0%	0.0%	0.00
September	631	93.3	99.7%	0.3%	0.0%	0.0%	0.00
October	697	99.7	99.4%	0.6%	0.0%	0.0%	0.00
November	683	100.0	99.4%	0.6%	0.0%	0.0%	0.01
December	698	100.0	98.1%	1.9%	0.0%	0.0%	0.01
						Annual Average	0.00

* Valid readings do not include daily and monthly calibration hours and downtime hours

NO Peak reading of One Hour Averages for 2013

Plant Operator: LICA

Station: PORTABLE

Month	NO ppb Peak Reading
January	48
February	33
March	42
April	30
May	42
June	18
July	59
August	81
September	77
October	82
November	74
December	81
ANNUAL PEAK	82.1

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

01/01/13 thru 12/31/13

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	
< 50.0	2.56	2.29	3.28	4.14	8.46	14.97	6.68	2.82	2.81	2.28	1.99	6.57	12.24	12.78	11.25	4.48	99.68	
< 110.0	.01	.00	.00	.03	.02	.08	.01	.04	.00	.02	.00	.00	.02	.03	.00	.01	.31	
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	2.57	2.29	3.28	4.17	8.49	15.05	6.69	2.87	2.81	2.30	1.99	6.57	12.27	12.82	11.25	4.49		

Calm : .00 %

Total # Operational Hours : 8182

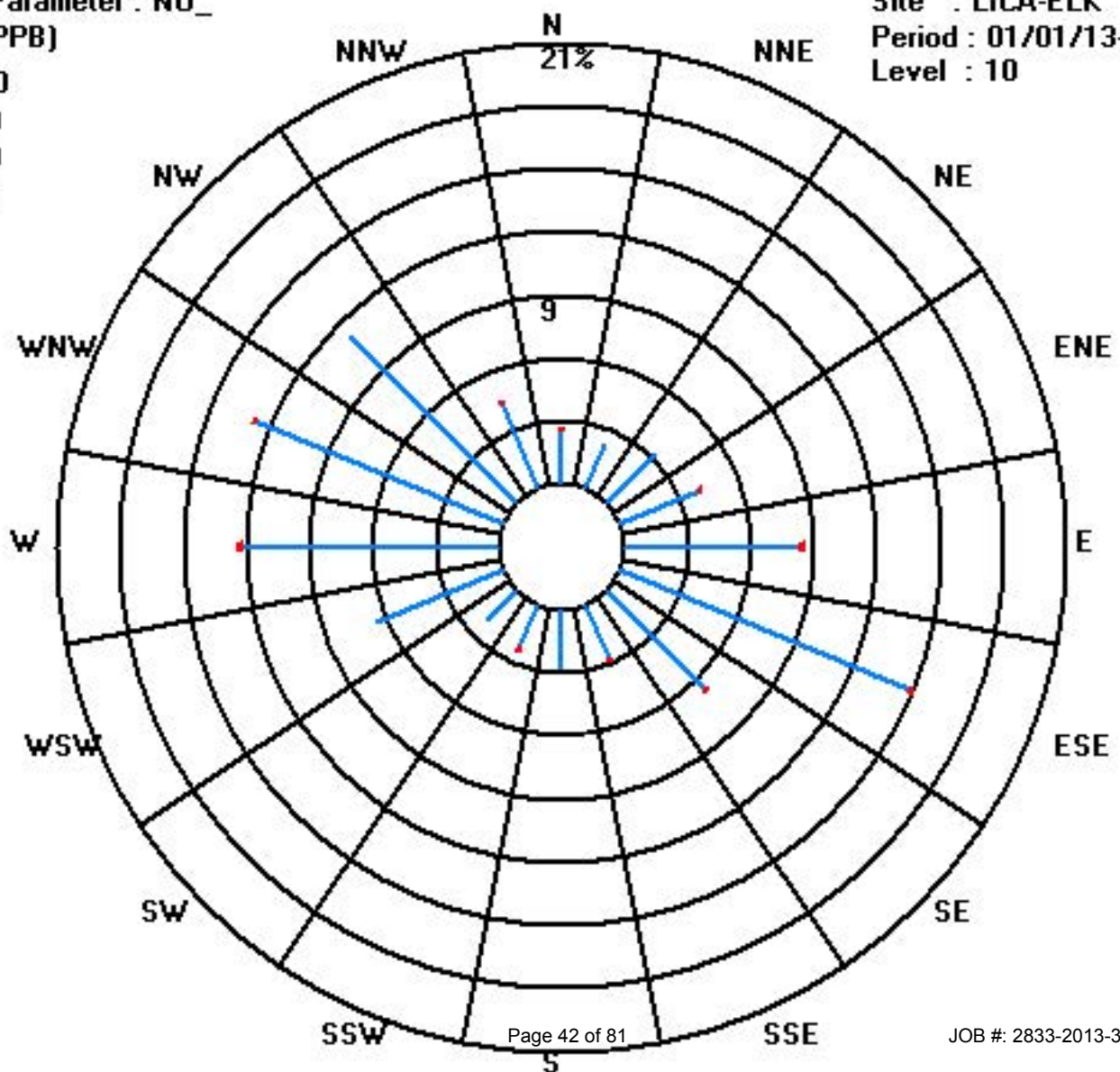
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50.0	210	188	269	339	693	1225	547	231	230	187	163	538	1002	1046	921	367	8156	
< 110.0	1			3	2	7	1	4		2			2	3		1	26	
< 210.0																		
>= 210.0																		
Totals	211	188	269	342	695	1232	548	235	230	189	163	538	1004	1049	921	368		

Calm : .00 %

Total # Operational Hours : 8182

Class Limits (PPB)



Oxides of Nitrogen

Current Date : 02/12/14
Current Time : 17:52

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : NOX_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0.3	78.7	15.5
February	672	625	0	72.6	10.5
March	744	705	0.1	72.4	11.5
April	720	680	0	54.9	6
May	744	706	0	66.5	6.1
June	720	677	0	34.2	5.3
July	744	693	0.1	66.7	6.4
August	744	685	0.1	97	6.4
September	696	631	0	82.5	8.7
October	744	698	0	102.2	10.6
November	720	683	0	101.3	14
December	744	698	0	112.5	15.2
Yearly Total	8736	8182	0	112.5	9.7

NO_x Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Station: PORTABLE

Month	NO _x ppb Peak Reading
January	79
February	73
March	72
April	55
May	67
June	34
July	67
August	97
September	83
October	102
November	101
December	113
ANNUAL PEAK	113

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

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : NOX_
 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	
< 50.0	2.54	2.28	3.27	4.09	8.29	14.60	6.62	2.72	2.77	2.22	1.99	6.45	12.02	12.58	11.19	4.47	98.16
< 110.0	.03	.01	.01	.08	.19	.43	.07	.14	.03	.08	.00	.12	.24	.23	.07	.02	1.82
< 210.0	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.57	2.29	3.28	4.17	8.49	15.05	6.69	2.87	2.81	2.30	1.99	6.57	12.26	12.81	11.26	4.49	

Calm : .00 %

Total # Operational Hours : 8183

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	208	187	268	335	679	1195	542	223	227	182	163	528	984	1030	916	366	8033
< 110.0	3	1	1	7	16	36	6	12	3	7		10	20	19	6	2	149
< 210.0						1											1
>= 210.0																	
Totals	211	188	269	342	695	1232	548	235	230	189	163	538	1004	1049	922	368	

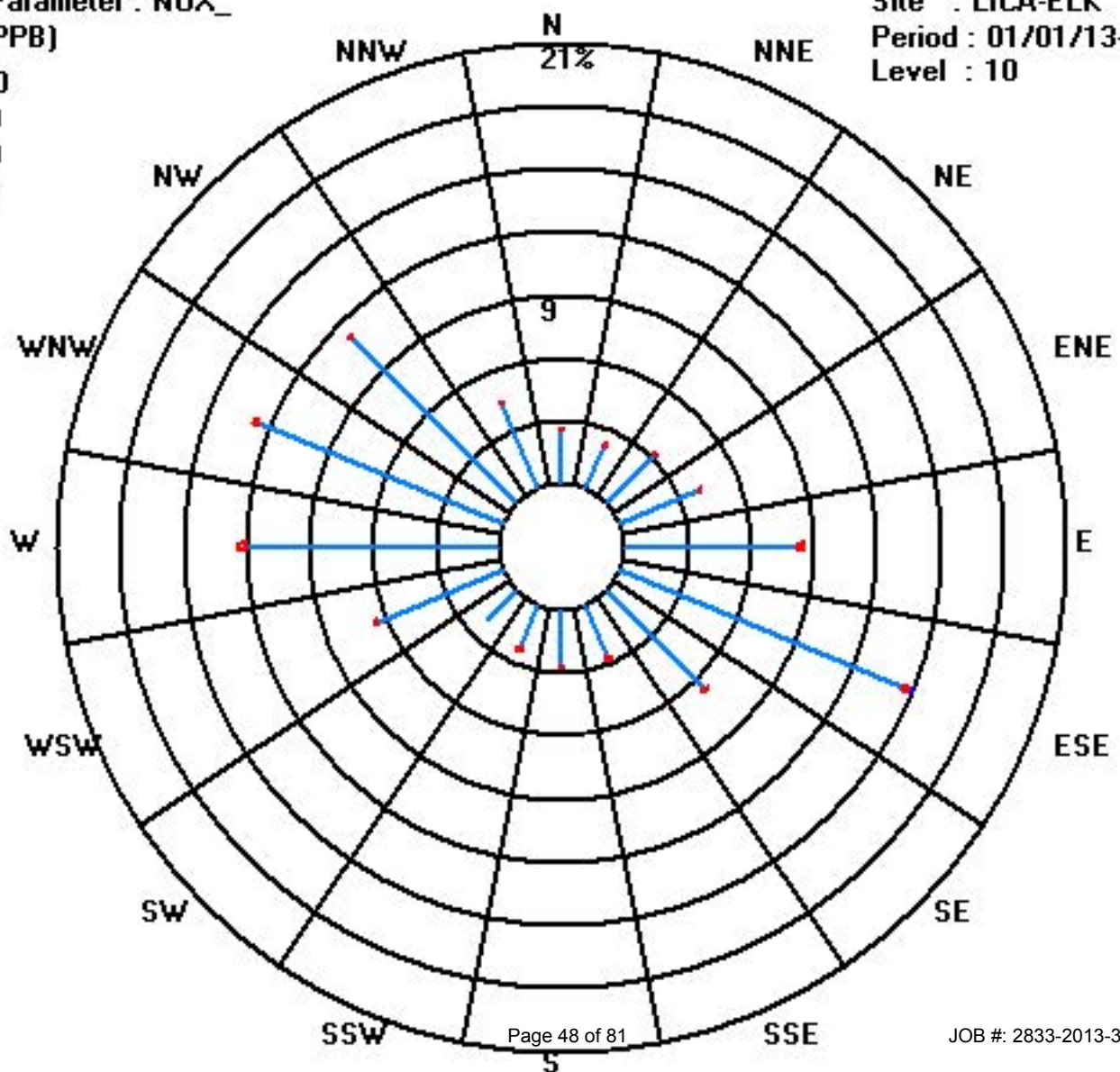
Calm : .00 %

Total # Operational Hours : 8183

Class Limits (PPB)

Period : 01/01/13-12/31/13

Level : 10



Ozone

Current Date : 02/12/14
Current Time : 17:53

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : O3_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	706	1	42	23
February	672	630	1	44	31
March	744	710	1	69	38
April	720	684	5	65	41
May	744	705	1	67	34
June	720	662	1	65	26
July	744	704	0	55	23
August	744	703	0	54	22
September	720	683	0	65	21
October	744	706	0	40	18
November	720	685	1	38	18
December	744	707	0	44	20
Yearly Total	8760	8285	0	69	26

O3 Peak Reading of One Hour Averages for 2013

Plant Operator: _____ LICA _____

Station: _____ PORTABLE _____

Month	O3 ppb Peak Reading
January	42
February	44
March	69
April	65
May	67
June	65
July	55
August	54
September	65
October	40
November	38
December	44
ANNUAL PEAK	69

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

01/01/13 thru 12/31/13

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	2.46	2.16	3.17	3.98	8.13	14.29	5.96	2.70	2.24	2.03	1.85	6.40	11.86	12.73	10.73	4.29	95.05	
< 110	.12	.13	.10	.14	.31	.76	.91	.22	.60	.27	.09	.13	.37	.24	.37	.12	4.94	
< 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	2.58	2.29	3.28	4.12	8.44	15.05	6.87	2.93	2.84	2.31	1.95	6.54	12.23	12.97	11.10	4.41		

Calm : .00 %

Total # Operational Hours : 8285

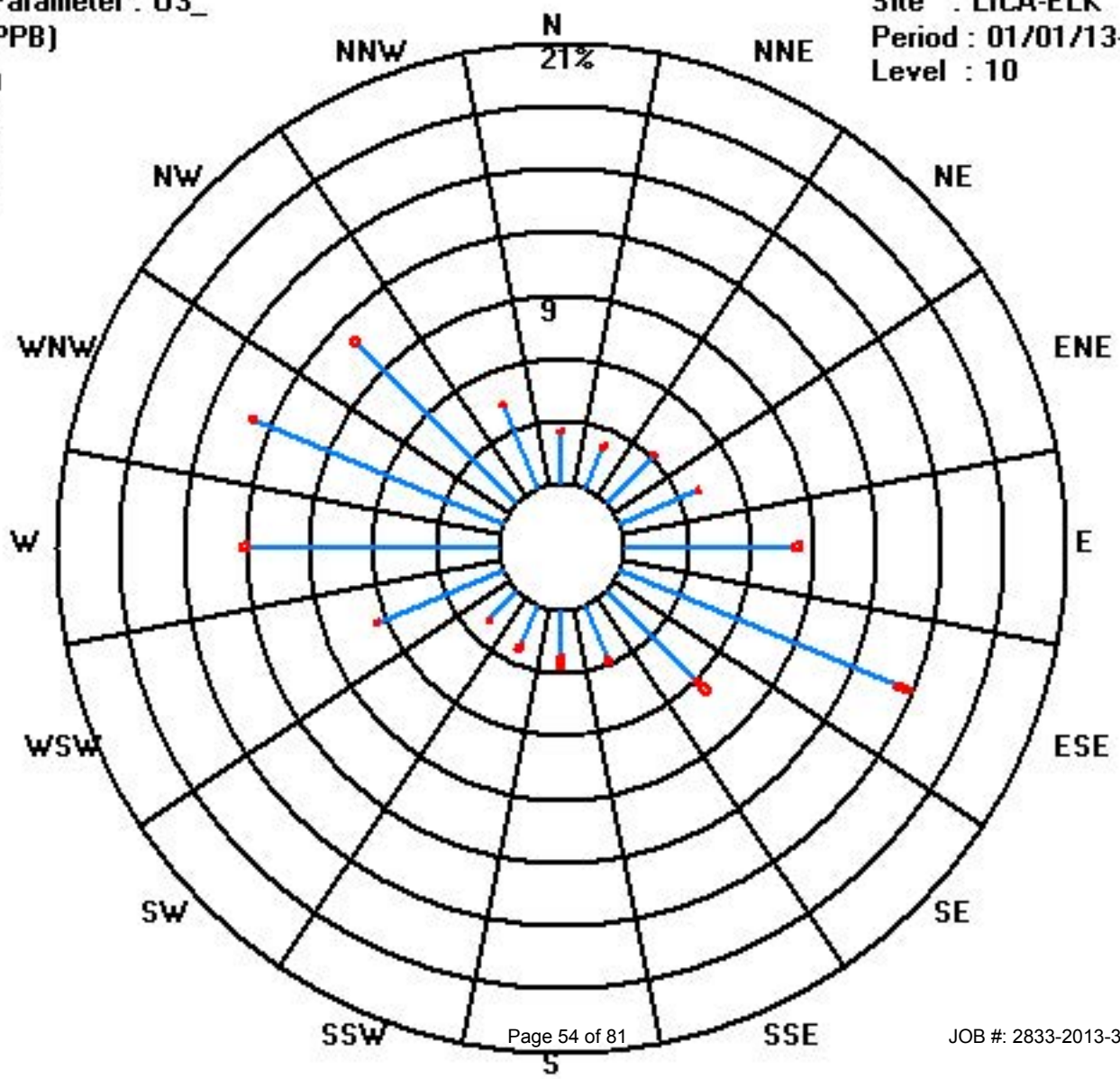
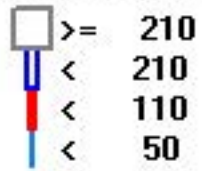
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	204	179	263	330	674	1184	494	224	186	169	154	531	983	1055	889	356	7875	
< 110	10	11	9	12	26	63	76	19	50	23	8	11	31	20	31	10	410	
< 210																		
>= 210																		
Totals	214	190	272	342	700	1247	570	243	236	192	162	542	1014	1075	920	366		

Calm : .00 %

Total # Operational Hours : 8285

Class Limits (PPB)



Total Hydrocarbons

THC Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: PORTABLE

Month	THC ppm Peak Reading
January	17.5
February	15.0
March	19.8
April	15.9
May	21.7
June	12.4
July	11.7
August	NA
September	NA
October	NA
November	NA
December	NA
ANNUAL PEAK	21.7

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

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : THC
 Units : PPM

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	
< 3.00	2.34	2.06	2.45	3.51	3.91	7.04	3.78	2.26	1.93	1.51	1.24	3.12	7.33	8.49	8.47	3.89	63.42
< 10.00	.27	.20	.53	1.17	4.95	7.81	3.60	.82	1.33	.89	.73	2.65	3.76	3.16	1.53	.43	33.90
< 50.00	.00	.03	.03	.07	.47	.78	.25	.10	.07	.05	.03	.09	.21	.23	.14	.03	2.67
>= 50.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.61	2.30	3.01	4.75	9.35	15.64	7.64	3.20	3.34	2.47	2.01	5.87	11.32	11.89	10.15	4.37	

Calm : .00 %

Total # Operational Hours : 5465

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.00	128	113	134	192	214	385	207	124	106	83	68	171	401	464	463	213	3466
< 10.00	15	11	29	64	271	427	197	45	73	49	40	145	206	173	84	24	1853
< 50.00		2	2	4	26	43	14	6	4	3	2	5	12	13	8	2	146
>= 50.00																	
Totals	143	126	165	260	511	855	418	175	183	135	110	321	619	650	555	239	

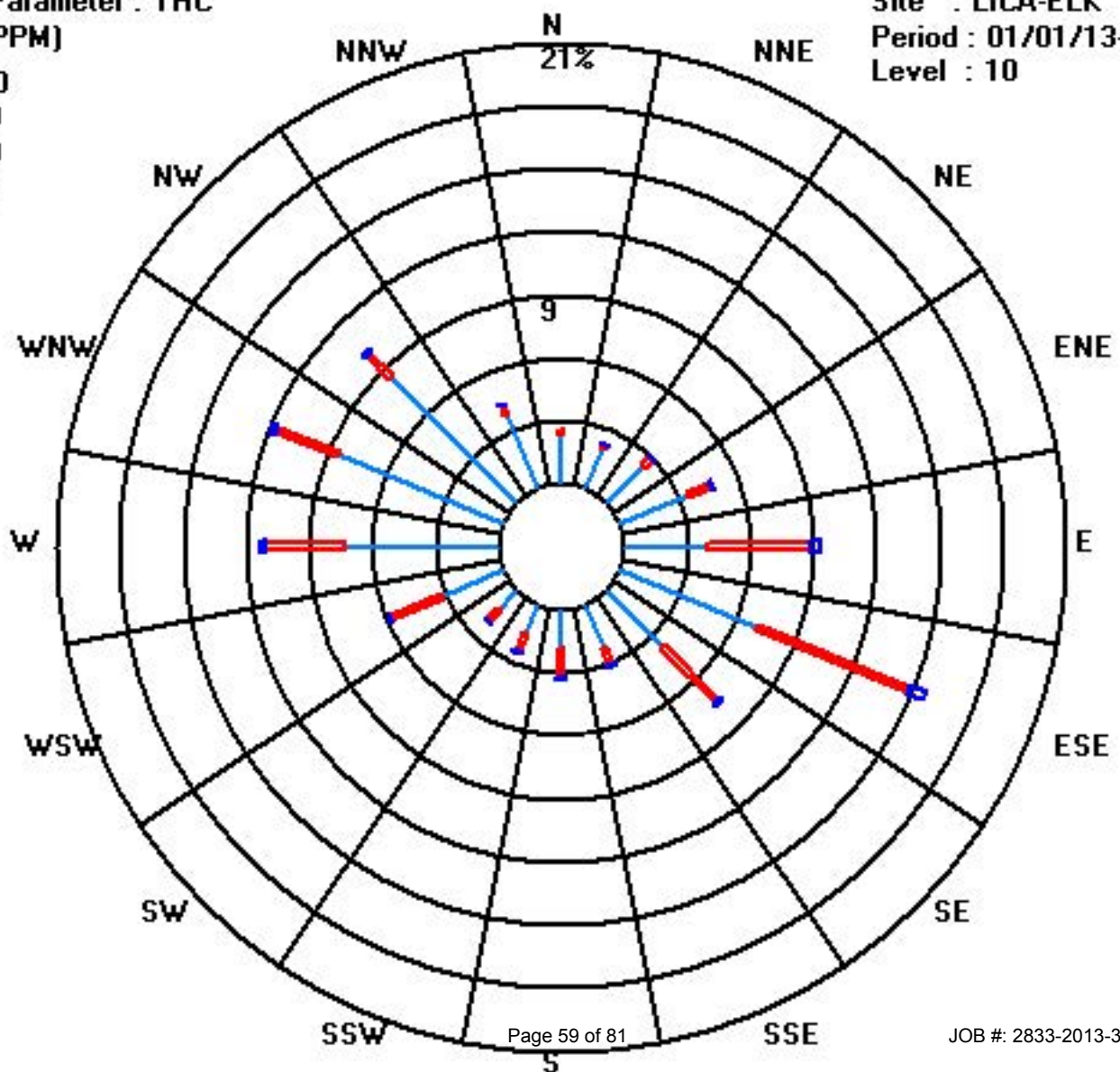
Calm : .00 %

Total # Operational Hours : 5465

Class Limits (PPM)

Period : 01/01/13-12/31/13

Level : 10



Total Hydrocarbons (55i)

Current Date : 04/15/14
Current Time : 11:30

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : THC55 Units : PPM

	Readings	Valid Readings	in	Max	Mean
January	0	0			
February	0	0			
March	408	365	1.9	12.3	3.5
April	720	680	1.6	10.3	2.4
May	744	701	1.7	14.1	2.7
June	720	681	1.7	10.8	2.6
July	744	703	1.7	10.4	2.6
August	744	707	1.8	12	2.8
September	720	682	1.6	16.9	2.8
October	744	707	1.7	8.3	2.7
November	720	686	1.8	9.2	2.8
December	744	708	1.8	9.3	2.7
Yearly Total	7008	6620	1.6	16.9	2.7

THC(55I) Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA

Plant Location: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	NA	NA	NA	NA	NA	NA	NA
February	NA	NA	NA	NA	NA	NA	NA
March	365	52.4	58.1%	39.7%	2.2%	0.0%	3.56
April	680	99.9	84.0%	15.9%	0.1%	0.0%	2.54
May	701	99.6	74.2%	24.8%	1.0%	0.0%	2.83
June	681	100.0	76.4%	22.9%	0.7%	0.0%	2.69
July	703	99.6	78.4%	21.5%	0.1%	0.0%	2.61
August	707	100.0	72.1%	27.7%	0.1%	0.0%	2.81
September	682	99.4	71.7%	28.2%	0.1%	0.0%	2.81
October	707	100.0	75.4%	24.6%	0.0%	0.0%	2.71
November	686	100.0	70.6%	29.4%	0.0%	0.0%	2.84
December	708	100.0	72.7%	27.3%	0.0%	0.0%	2.72
						Annual Average	2.81

* Valid readings do not include daily and monthly calibration hours and downtime hours.

THC (55I) Peak Reading of One Hour Averages for 2013

Plant Operator: _____ LICA _____

Plant Location: _____ PORTABLE _____

Month	THC ppm Peak Reading
January	NA
February	NA
March	12.39
April	10.35
May	14.18
June	10.83
July	10.40
August	12.00
September	16.90
October	8.30
November	9.20
December	9.30
ANNUAL PEAK	16.90

LICA35
 THC55 / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA35
 Parameter : THC55
 Units : PPM

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	
< 3.0	2.19	2.11	2.94	3.62	3.86	6.45	4.47	2.44	2.34	1.97	1.52	4.89	9.11	10.72	10.18	3.95	72.83
< 10.0	.31	.22	.40	.72	4.20	7.16	2.03	.61	.72	.52	.52	1.81	2.93	3.09	1.14	.33	26.80
< 50.0	.00	.00	.01	.01	.01	.12	.04	.03	.00	.01	.00	.03	.01	.03	.01	.01	.36
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.50	2.34	3.36	4.36	8.08	13.73	6.55	3.09	3.06	2.52	2.05	6.73	12.05	13.85	11.34	4.30	

Calm : .00 %

Total # Operational Hours : 6619

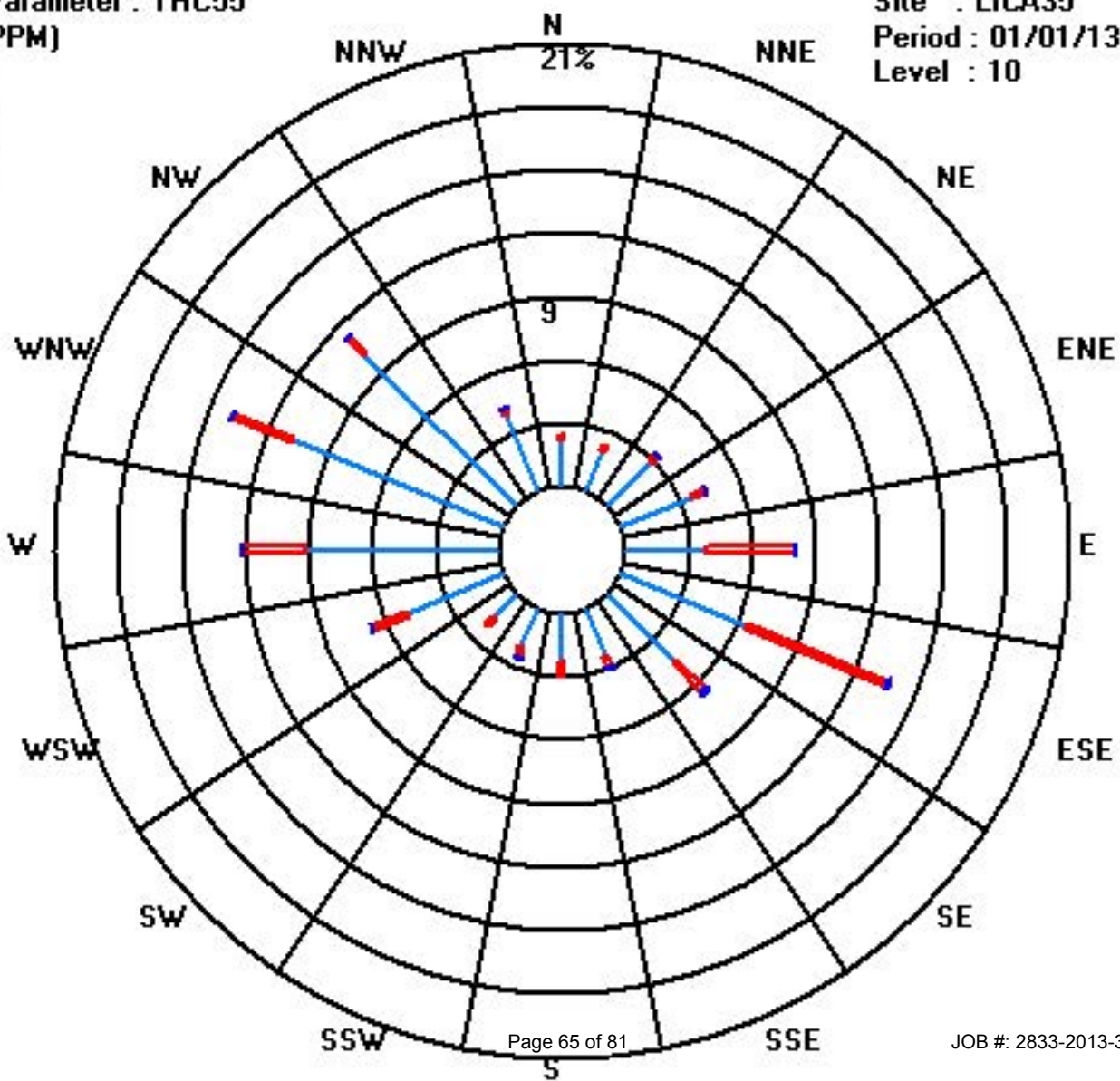
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	145	140	195	240	256	427	296	162	155	131	101	324	603	710	674	262	4821
< 10.0	21	15	27	48	278	474	135	41	48	35	35	120	194	205	76	22	1774
< 50.0			1	1	1	8	3	2		1		2	1	2	1	1	24
>= 50.0																	
Totals	166	155	223	289	535	909	434	205	203	167	136	446	798	917	751	285	

Calm : .00 %

Total # Operational Hours : 6619

Class Limits (PPM)



Methane

Current Date : 04/15/14
Current Time : 11:30

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : METHANE Units : PPM

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	408	365	1.9	11.3	3.4
April	720	680	1.6	10	2.4
May	744	701	1.7	13.6	2.7
June	720	681	1.7	10.3	2.5
July	744	703	1.7	10.1	2.5
August	744	707	1.8	11.6	2.7
September	720	682	1.6	8.8	2.7
October	744	707	1.7	8.1	2.6
November	720	686	1.8	8.8	2.8
December	744	708	1.8	9.1	2.7
Yearly Total	7008	6620	1.6	13.6	2.7

CH4 Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: LICA Plant Location: Portable

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm CH4)				CH4 ppm Monthly Average	
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm		
January	NA	NA	NA	NA	NA	NA	NA	
February	NA	NA	NA	NA	NA	NA	NA	
March	365	100.0	58.4%	40.0%	1.6%	0.0%	3.51	
April	680	52.4	84.3%	15.7%	0.0%	0.0%	2.52	
May	701	99.9	75.2%	24.0%	0.9%	0.0%	2.76	
June	681	99.6	76.7%	22.9%	0.4%	0.0%	2.64	
July	703	100.0	79.4%	20.5%	0.1%	0.0%	2.56	
August	707	99.6	73.7%	26.2%	0.1%	0.0%	2.75	
September	682	100.0	73.0%	27.0%	0.0%	0.0%	2.74	
October	707	99.4	76.1%	23.9%	0.0%	0.0%	2.68	
November	686	100.0	71.1%	28.9%	0.0%	0.0%	2.81	
December	708	100.0	73.3%	26.7%	0.0%	0.0%	2.70	
			Annual Average					2.77

* Valid readings do not include data for days when the plant was not operating (100 days).

CH4 Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: Portable

Month	CH4 ppm Peak Reading
January	NA
February	NA
March	11.38
April	10.00
May	13.61
June	10.38
July	10.10
August	11.60
September	8.80
October	8.10
November	8.80
December	9.10
ANNUAL PEAK	13.61

LICA35
 METHANE / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA35
 Parameter : METHANE
 Units : PPM

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	
< 3.0	2.19	2.11	2.97	3.62	3.86	6.60	4.53	2.47	2.37	1.99	1.58	5.01	9.26	10.83	10.21	3.97	73.63
< 10.0	.31	.22	.37	.72	4.21	7.02	1.99	.61	.69	.51	.46	1.70	2.77	2.99	1.11	.31	26.09
< 50.0	.00	.00	.01	.01	.00	.10	.03	.00	.00	.01	.00	.01	.01	.03	.01	.01	.27
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.50	2.34	3.36	4.36	8.08	13.73	6.55	3.09	3.06	2.52	2.05	6.73	12.05	13.85	11.34	4.30	

Calm : .00 %

Total # Operational Hours : 6619

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	145	140	197	240	256	437	300	164	157	132	105	332	613	717	676	263	4874
< 10.0	21	15	25	48	279	465	132	41	46	34	31	113	184	198	74	21	1727
< 50.0			1	1		7	2			1		1	1	2	1	1	18
>= 50.0																	
Totals	166	155	223	289	535	909	434	205	203	167	136	446	798	917	751	285	

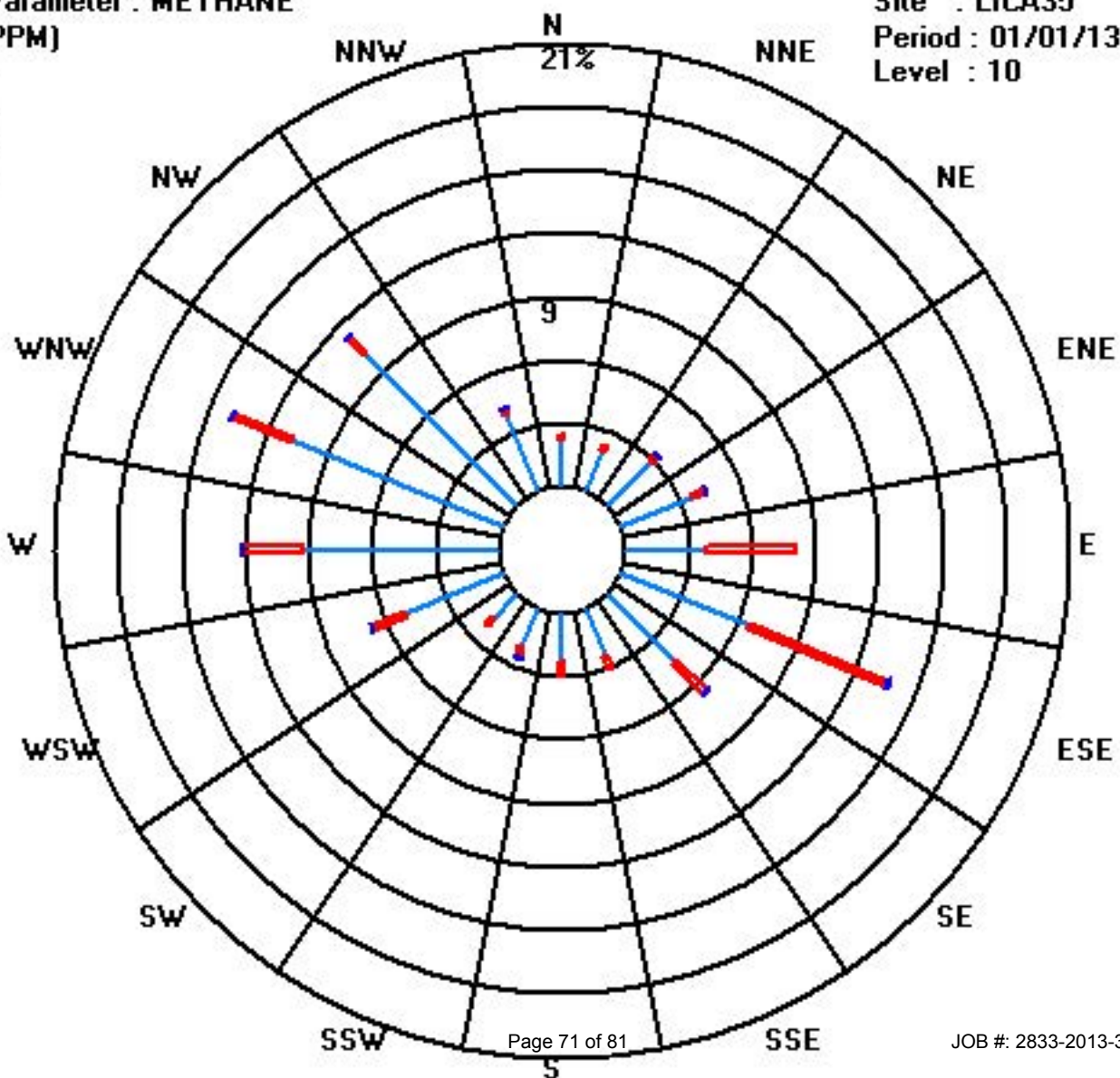
Calm : .00 %

Total # Operational Hours : 6619

Class Limits (PPM)

Period : 01/01/13-12/31/13

Level : 10



Non-Methane Hydrocarbons

Current Date : 04/15/14
Current Time : 11:31

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : NMHC Units : PPM

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	408	365	0	1	0
April	720	680	0	0.4	0
May	744	701	0	0.6	0
June	720	681	0	0.5	0
July	744	703	0	0.4	0
August	744	707	0	1.3	0
September	720	682	0	1.5	0
October	744	707	0	0.4	0
November	720	686	0	0.5	0
December	744	708	0	0.9	0
Yearly Total	7008	6620	0	1.5	0

NMHC Monthly Averages and Frequency Distributions of One Hour Readings - 2013

Plant Operator: _____ LICA _____

Plant Location: _____ Portable _____

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NMHC)						NMHC ppm Monthly Average
			0 to 0.25 ppm	0.26 to 0.50 ppm	0.51 to 1 ppm	1.1 to 2.0 ppm	2.1 ppm to 4 ppm	>4 ppm	
January	NA	NA	NA	NA	NA	NA	NA	NA	NA
February	NA	NA	NA	NA	NA	NA	NA	NA	NA
March	365	52.4	98.4%	1.6%	0.0%	0.0%	0.0%	0.0%	0.04
April	680	99.9	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.02
May	701	99.6	93.9%	5.8%	0.3%	0.0%	0.0%	0.0%	0.07
June	681	100.0	97.1%	2.6%	0.3%	0.0%	0.0%	0.0%	0.05
July	703	99.6	96.2%	3.8%	0.0%	0.0%	0.0%	0.0%	0.05
August	707	100.0	97.3%	2.1%	0.3%	0.3%	0.0%	0.0%	0.06
September	682	99.4	97.8%	1.9%	0.0%	0.0%	0.1%	0.1%	0.07
October	707	100.0	98.9%	1.1%	0.0%	0.0%	0.0%	0.0%	0.03
November	686	100.0	98.1%	1.9%	0.0%	0.0%	0.0%	0.0%	0.03
December	708	100.0	99.2%	0.6%	0.3%	0.0%	0.0%	0.0%	0.02
								Annual Average	0.04

* Valid readings do not include daily and monthly calibration hours and downtime hours.

NMHC Peak Reading of One Hour Averages for 2013

Plant Operator: LICA

Plant Location: Portable

Month	NMHC ppm Peak Reading
January	NA
February	NA
March	0.36
April	0.34
May	0.60
June	0.55
July	0.40
August	1.30
September	15.00
October	0.40
November	0.50
December	0.90
ANNUAL PEAK	15.00

LICA35
 NMHC / WDR Joint Frequency Distribution (Percent)

01/01/13 thru 12/31/13

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA35
 Parameter : NMHC
 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
< .2	2.49	2.31	3.33	4.30	7.88	13.49	6.43	2.97	2.94	2.40	1.99	6.55	11.63	13.24	11.19	4.27	97.49
< .5	.01	.03	.01	.06	.12	.19	.07	.09	.12	.09	.06	.13	.40	.57	.13	.01	2.14
< 1.0	.00	.00	.01	.00	.06	.03	.03	.01	.00	.01	.00	.04	.01	.03	.01	.01	.28
< 2.0	.00	.00	.00	.00	.01	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
< 4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.01
>= 4.0	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01
Totals	2.50	2.34	3.36	4.36	8.08	13.73	6.55	3.09	3.06	2.52	2.05	6.73	12.05	13.85	11.34	4.30	

Calm : .00 %

Total # Operational Hours : 6619

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< .2	165	153	221	285	522	893	426	197	195	159	132	434	770	877	741	283	6453
< .5	1	2	1	4	8	13	5	6	8	6	4	9	27	38	9	1	142
< 1.0			1		4	2	2	1		1		3	1	2	1	1	19
< 2.0					1	1	1										3
< 4.0										1							1
>= 4.0								1									1
Totals	166	155	223	289	535	909	434	205	203	167	136	446	798	917	751	285	

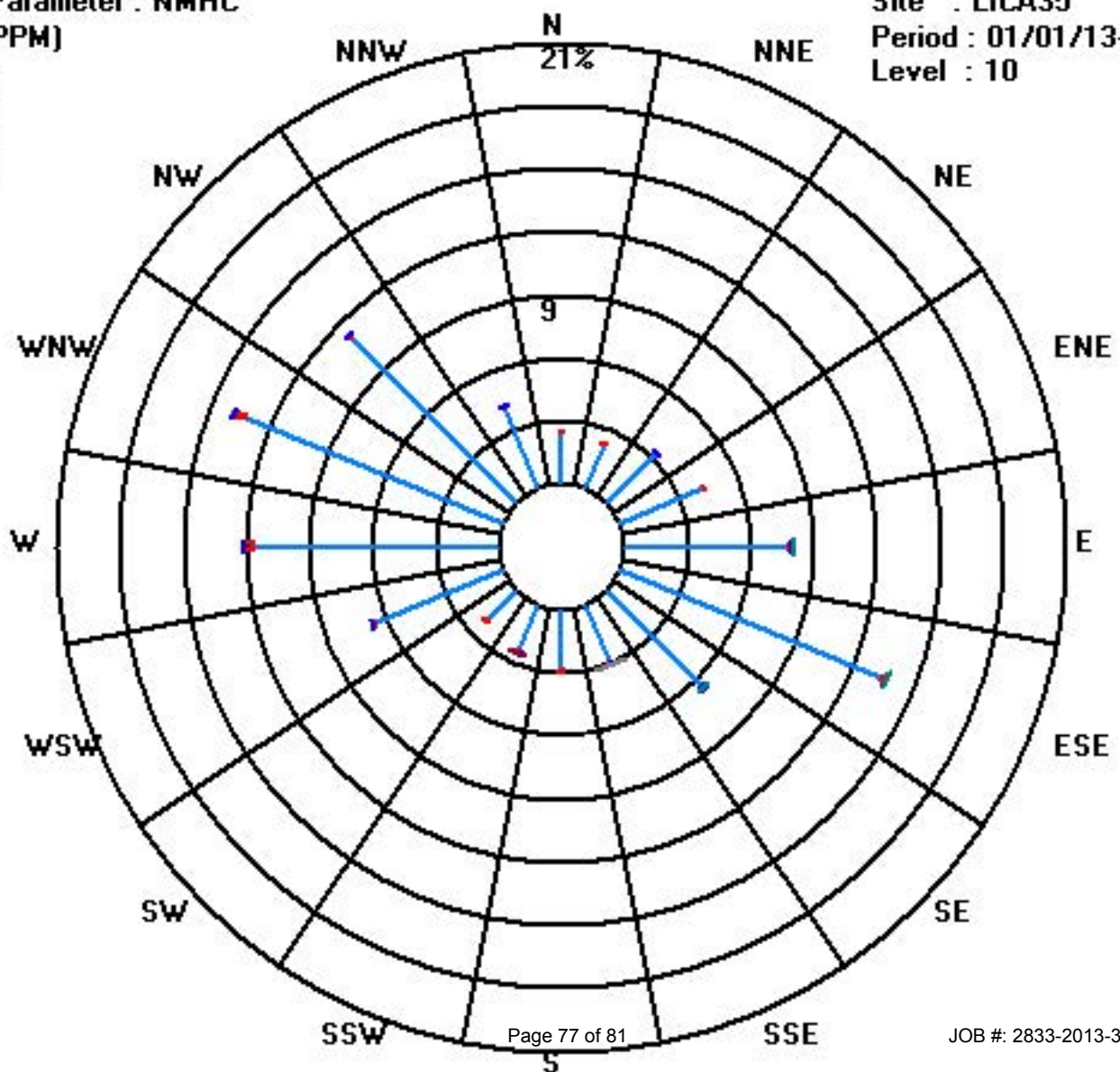
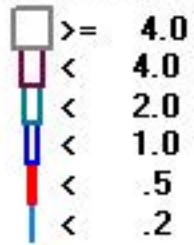
Calm : .00 %

Total # Operational Hours : 6619

Class Limits (PPM)

Period : 01/01/13-12/31/13

Level : 10



Vector Wind Speed

Current Date : 02/12/14
Current Time : 17:53

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2013

Logger Name : LICA35 Logger Id : 35 Parameter : WSP Units : KPH

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0.1	41.2	10.8
February	672	665	0.1	40.1	11.5
March	744	744	0	49.5	11.2
April	720	720	0.1	38.6	13.5
May	744	744	0	40.1	12.1
June	720	720	0.1	37	12.1
July	744	742	0.1	37.6	11.4
August	744	744	0.1	38	8.8
September	720	720	0.1	39.7	10.9
October	744	744	0	32.7	11.3
November	720	720	0.1	35	10.9
December	744	744	0.1	48.4	11.4
Yearly Total	8760	8751	0	49.5	11.3

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

01/01/13 thru 12/31/13

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	.75	.66	1.00	1.38	3.65	3.21	1.59	.83	.68	.70	.98	1.65	2.93	3.02	1.86	.78	25.75	
< 12.0	.82	.91	1.25	1.62	3.35	6.18	2.21	1.24	1.05	.77	.68	3.31	5.41	2.97	2.79	1.00	35.64	
< 20.0	.77	.58	.86	.83	1.14	3.66	2.11	.59	.71	.67	.31	1.50	2.41	3.58	4.10	1.50	25.41	
< 29.0	.21	.09	.11	.27	.27	1.39	.77	.23	.34	.12	.00	.04	1.21	2.25	2.04	.91	10.31	
< 39.0	.00	.00	.00	.00	.03	.35	.13	.00	.00	.02	.00	.00	.30	1.09	.30	.17	2.43	
>= 39.0	.00	.00	.00	.00	.00	.21	.01	.00	.00	.00	.00	.00	.00	.06	.03	.00	.33	
Totals	2.57	2.25	3.24	4.11	8.46	15.02	6.85	2.91	2.79	2.30	1.98	6.52	12.28	13.00	11.15	4.38		

Calm : .10 %

Total # Operational Hours : 8751

Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 6.0	66	58	88	121	320	281	140	73	60	62	86	145	257	265	163	69	2254	
< 12.0	72	80	110	142	294	541	194	109	92	68	60	290	474	260	245	88	3119	
< 20.0	68	51	76	73	100	321	185	52	63	59	28	132	211	314	359	132	2224	
< 29.0	19	8	10	24	24	122	68	21	30	11		4	106	197	179	80	903	
< 39.0					3	31	12			2			27	96	27	15	213	
>= 39.0						19	1							6	3		29	
Totals	225	197	284	360	741	1315	600	255	245	202	174	571	1075	1138	976	384		

Calm : .10 %

Total # Operational Hours : 8751

Class Limits (KPH)

Period : 01/01/13-12/31/13

Level : 10

