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Alberta Environment
Monitoring and Science
Data Management
Floor 11 Oxbridge Place
9820 106 Street
Edmonton Alberta T5K 2J6

March 18, 2015

RE: 2014 Ambient Air Monitoring Annual 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.

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

Respectfully,

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

2014

Prepared By:

March 4, 2015

Lakeland Industry & Community Association
Ambient Air Monitoring

Table of Contents

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 2014 to December 2014

The annual ambient data report:

- Prepared by Wunmi Adekanmbi
- 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

Sulphur Dioxide (PPB)

- Analyzer make / model – Thermo 43i, S/N: 806528242
  - The time spent on the routine calibration was extended in January for Maxxam field technician training purposes.
  - The analyzer did not span on February 19th due to the sample pump failure. The pump was replaced on February 20th. The hourly data was invalidated back to last good daily zero/span check, which was February 18th. A total of 31 hours of data was invalidated due to this event.
  - The permeation tube was replaced following two events of low span drift in March. A post-repair calibration was performed on March 24th and the expected value was adjusted on March 28th. Data quality was not affected.
  - The SO2 channel was put into maintenance mode for an hour on May 22nd for a new sample filter holder installation.
  - The analyzer showed a slow response during the monthly calibration on June 11th. It was determined that the issue was from the calibrator. Another full calibration was performed on June 13th after the tubing inside the calibrator was replaced. The issue was resolved. Data quality was not affected.
  - One hourly data collected on July 26th was missing due to a power outage. Three hourly maximum data were missing in July due to power outages.
  - One hourly maximum data collected on August 17th was missing due to a power outage.
  - The analyzer failed on September 29th due to sample pump failure. The pump was replaced on September 30th. 44 hours of data were invalidated due to this event. The SO2 channel was put into maintenance mode for the manifold cleaning on September 9th.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Total Reduced Sulphur (PPB)

- Analyzer make / model –TEI 450i, S/N: 812728560
- Converter - CD NOVA CDN 101, S/N: 250
  - ❖ The time spent on the routine calibration was extended in January for Maxxam field technician training purposes.
  - ❖ Some span results went below -10% of limited range in February as the expected value was set too high. The expected value was adjusted and the issue was fixed. Data quality was not affected.
  - ❖ The scrubber material was replaced on March 13th following an as found points check.
  - ❖ The TRS channel was put into the Maintenance mode for an hour on May 22nd for a new sample filter holder installation.
  - ❖ The analyzer did not span on June 7th due to a sample pump failure. The pump was replaced on June 8th. A post-repair calibration was performed on June 9th. Data was invalidated back to the last good calibration. A total of 56 hours of data was invalidated due to this event.
  - ❖ One hour of data collected on July 26th was missing due to a power outage. Three hourly maximum data were missing in July due to power outages.
  - ❖ The analyzer showed some zero/span instability in August, this was due to an unstable station temperature. HVAC maintenance was performed on August 24th at the request of Maxxam field technicians. One hourly maximum data collected on August 17th was missing due to a power outage. Due to a Maxxam operator's error, the monthly calibration for August 2014 was not completed. The full calibration was done on September 10th.
  - ❖ The TRS channel was put into maintenance mode for the manifold cleaning on September 9th.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Ozone (PPB)

- Analyzer make / model - Thermo 49i, S/N: 700419951
  - The time spent on the routine calibration was extended in January for Maxxam field technician training purposes.
  - The pump was rebuilt on March 24th following a high span that occurred on March 21st due to the failure of the zero/span system. A post-repair calibration was performed after the maintenance. Data quality was not affected.
  - The O3 channel was put into the Maintenance mode for an hour on May 22nd for a new sample filter holder installation.
  - One hourly data collected on July 26th was missing due to a power outage. Three hourly maximum data were missing in July due to power outages.
  - One hourly maximum data collected on August 17th was missing due to a power outage.
  - The O3 channel was put into maintenance mode for the manifold cleaning on September 9th at hour 13.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Total Hydrocarbon (PPM)

- Analyzer make / model - Thermo 51C-LT, S/N: 51CTL-77021-384 and Thermo 51C, S/N: AMU1634
  - The time spent on the routine calibration was extended in January for Maxxam field technician training purposes.
  - Some span results went outside the +/-10% acceptance limits in April as the expected value was not set right. The expected value was adjusted on April 21st and the issue was fixed. Data quality was not affected.
  - The Thermo 51C-LT, S/N: 51CTL-77021-384 analyzer was replaced with the Thermo 51C, S/N AU1634 on May 23rd for maintenance purposes. However, the new analyzer did not function properly after several attempts at troubleshooting and maintenance. The Thermo 51C was installed back to the trailer on May 29th. An installation calibration was performed on May 30th. 144 hours of data was invalidated due to this event. The operational uptime for May was 78.2%.
  - 30 hours of data were invalidated in June as a result of troubleshooting and maintenance following a service alarm.
  - One hourly data collected on July 26th hour 6 was missing due to a power outage, data at hour 7 was invalidated as the analyzer was recovering from the power outage. Three hourly maximum data were missing in July due to power outages.
  - One hourly maximum data collected on August 17th was missing due to a power outage.
  - 14 hours of data were invalidated in September as the hourly readings were below 1.5 ppm of the background concentration.
  - On October 1st, Maxxam supplied Thermo 51C analyzer, S/N: 77021-384, was replaced with LICA owned Thermo 51C analyzer, S/N: 427408718.
  - Two hours of data on December 23rd were invalidated because the analyzer was recovering from a power outage.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Nitrogen Dioxide (PPB)

- Analyzer make / model - TECO 42C, S/N: 427408716
  - The time spent on the routine calibration was extended in January for Maxxam field technician training purposes.
  - 441 hours of data were invalidated in March due to an error in the sample line connection, which made the analyzer draw samples from the interior of the trailer rather than exterior.
  - 366 hours of data were invalidated in April due to an error in the sample line connection, which made the analyzer draw samples from the interior of the trailer rather than exterior. This event overflowed from March to April. AESRD Reference number: 283348
  - The perm tube was replaced on March 15th following a low span on March 14th that was found to be due to the depletion of the perm tube. The analyzer spanned zero on May 16th due to the loose connection between the sample manifold and the analyzer. The tubing was tightened followed by a post repair calibration on May 17th. Data was invalidated back to the last good calibration. 44 hours of data were invalidated due to this issue. The NOx, NO and NO2 channels were put into the Maintenance mode for two hours on May 22nd for new samples filter holder installation.
  - One hourly data collected on July 26th was missing due to a power outage. Three hourly maximum data were missing in July due to power outages.
  - One hourly maximum data collected on August 17th was missing due to a power outage.
  - Some daily span went above the +10% acceptance limits in September due to high station temperature. Data quality was not affected.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Particulate Matter 2.5 (ug/m^3)

- Analyzer make / model –TEOM1405F, S/N: 1405A201620804
  - The sample pump was rebuilt following a pre-maintenance audit on January 17th. Ninety hours of data were invalidated as the data were below –3 ug/m3. The operational uptime for January was 87.9%.
  - The sample pump was replaced twice in February due to an unstable pump pressure. Data quality was not affected. Fifty hours of data were invalidated as the data were below –3 ug/m3.
  - Forty-eight hours of data were invalidated in March as the data were below –3 ug/m3.
  - Ten hours of data were invalidated in April as the data were below –3 ug/m3.
  - Thirty-five hours of data were invalidated in May as the data were below –3 ug/m3.
  - An incorrect replacement dryer (that caused the unit to record many negative readings) supplied by CD Nova via AESRD was shipped back to the manufacturer. A temporary dryer from St. Lina was installed on July 3rd.100 hours of data were invalidated in June as the data were below –3 ug/m3. The total operational uptime was 83.2%.
  - Three hours of data collected on July 2nd were invalidated due to contamination (moisture) found in the filter. 25 hours of data were invalidated as a result of maintenance following a leak in the Teom unit on July 4th. 23 hours of data were invalidated in July as the data were below –3 ug/m3. Hourly data collected on July 26th hour 6 is missing due to a power outage.
  - There were five 24-hour average exceedances recorded in July: concentration of 35.2 ug/m3 on July 7th, 44.1 ug/m3 on July 8th, 40.6 ug/m3 on July 11th, 55.3 ug/m3 on July 12th, and 31.8 ug/m3 on July 13th. AESRD Ref#: 286422, 286424, 286610, 286645 and 286690 respectively.
  - Hourly data collected on August 26th hour 6 is missing due to a small power outage.17 hours of data were invalidated as the data were below –3 ug/m3. There were two 24-hour average exceedances recorded in August: concentration of 35.3 ug/m3 on August 1st, and 36.3 ug/m3 on August 16th. AESRD Ref#: 287675 and 288381, respectively.
  - 43 hours of data were invalidated in September as the data were below –3 ug/m3.
  - 40 hours of data were invalidated in October as the data were below –3 ug/m3.
  - 14 hours of data were invalidated in November as the data were below –3 ug/m3.
  - 2 hours of data were invalidated as the data were below –3 ug/m3.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH
Vector Wind Speed (KPH) & Vector Wind Direction (DEG)

- System make / model –RM Young, S/N: 46553 replaced to MetOne, S/N: F1644
  - ❖ One hourly maximum data collected on August 17th was missing due to a power outage.
  - ❖ Two hourly maximum data for Wind Speed collected on September 19th were invalidated due to a spike.
  - ❖ 15 hours of data collected between October 22nd and October 23rd were invalidated due to the UPS system failure.
  - ❖ 44 hours of data were invalidated in December due to UPS failure.
  - ❖ One hour of data on December 23rd was invalidated because the wind system was recovering from a small power outage.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3
  - ❖ Hourly data collected on August 26th hour 6 is missing due to a small power outage.
  - ❖ 15 hours of data collected between October 22nd and October 23rd were invalidated due to the UPS system failure.
  - ❖ 44 hours of data were invalidated in December due to UPS failure.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3
  - ❖ Hourly data collected on August 26th hour 6 is missing due to a small power outage.
  - ❖ 15 hours of data collected between October 22nd and October 23rd were invalidated due to the UPS system failure.
  - ❖ 44 hours of data were invalidated in December due to UPS failure. One hour of data on December 23rd was invalidated because the sensor was recovering from a small power outage.

Trailer Temperature (DEGC)

- System make / model - R&R 61
  - ❖ No operational issues observed during the year.

Trailer

- ❖ No operational issues observed during the year.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE SOUTH

Passive Network

The samplers installed at site #2 had been removed; no sample filters were installed throughout the year.

- In January, the duplicate SO2 at site #23 was destroyed by gun shot.
- In February, the samplers installed at sites #8 and #11 were not changed as the access to the samplers was blocked by snow. The H2S, NO2 and SO2 samplers installed at site #36 and the H2S sampler installed at site #25 were missing.
- In April, both the O3 sample and the SO2 sample installed at site #32 were damaged.
- In May, all samples installed at site #11 were missing.
- In November, sample filters were not replaced at site #11 and site #13 because access to the sites was blocked by extreme snow. The NO2 sample filter installed at site #29 and both the NO2 and O3 duplicate sample filters installed at site #23 were broken and therefore could not be analyzed.
- In December, sample filters were not replaced at sites #11 and #13 because access to the site was blocked by extreme snow.

Partisol

- Analyzer make / model – Dwyer 475 Mark III
  - The Partisol unit was installed on November 28th for the sampling program. The sampling program is scheduled to start on December 1st. The Partisol unit was calibrated by Alberta Environment before it was installed in the field.
  - Samples were collected for laboratory analysis on December 19th, 25th, and 31st.

Volatile Organic Compounds

- Samples were collected for laboratory analysis on December 1st, 7th, 13th, 19th, 25th, and 31st. The canister valve for the December 1st sampling was found closed at the lab. Therefore, there are no results for that date.

Poly-Aromatic Hydrocarbons

- Samples were collected for laboratory analysis on December 1st, 7th, 13th, 19th, 25th, and 31st.

Continuous Monitoring

Annual Summaries, Graphs & Wind Roses

Sulphur Dioxide

Current Date : 02/25/15
Current Time : 09:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	704	0	4	0
February	648	603	0	4	0
March	744	694	0	3	0
April	720	676	0	1	0
May	744	709	0	130	0
June	720	670	0	2	0
July	744	701	0	2	0
August	744	709	0	2	0
September	696	640	0	2	0
October	744	703	0	4	0
November	720	684	0	3	0
December	744	709	0	2	0
Yearly Total	8712	8202	0	130	0

SO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB SO2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO2 PPB Monthly Average
			≤ 20 ppb	20 < C ≤ 60 ppb	60 < C ≤ 110 ppb	110 < C ≤ 170 ppb	170 < C ≤ 340 ppb	> 340 ppb			
January	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.38
February	638	94.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.44
March	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.20
April	719	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.02
May	743	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.01
June	714	99.2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.03
July	743	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.08
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.04
September	675	93.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.07
October	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.03
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.26
December	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.19
									Annual Average		**0.15**

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

SO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in PPB
JANUARY	4
FEBRUARY	4
MARCH	3
APRIL	1
MAY	2
JUNE	2
JULY	2
AUGUST	2
SEPTEMBER	2
OCTOBER	4
NOVEMBER	3
DECEMBER	2

ANNUAL PEAK	**4**

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	4.09	3.93	5.06	4.07	6.30	5.52	13.00	4.46	2.90	2.93	5.84	13.34	10.78	5.90	6.16	5.62	99.97
< 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	.01	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
< 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	4.10	3.93	5.06	4.07	6.30	5.52	13.01	4.46	2.90	2.93	5.84	13.34	10.78	5.90	6.16	5.62	

Calm : .00 %

Total # Operational Hours : 8130

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	333	320	412	331	513	449	1057	363	236	239	475	1085	877	480	501	457	8128
< 60																	
< 110																	
< 170	1						1										2
< 340																	
>= 340																	
Totals	334	320	412	331	513	449	1058	363	236	239	475	1085	877	480	501	457	

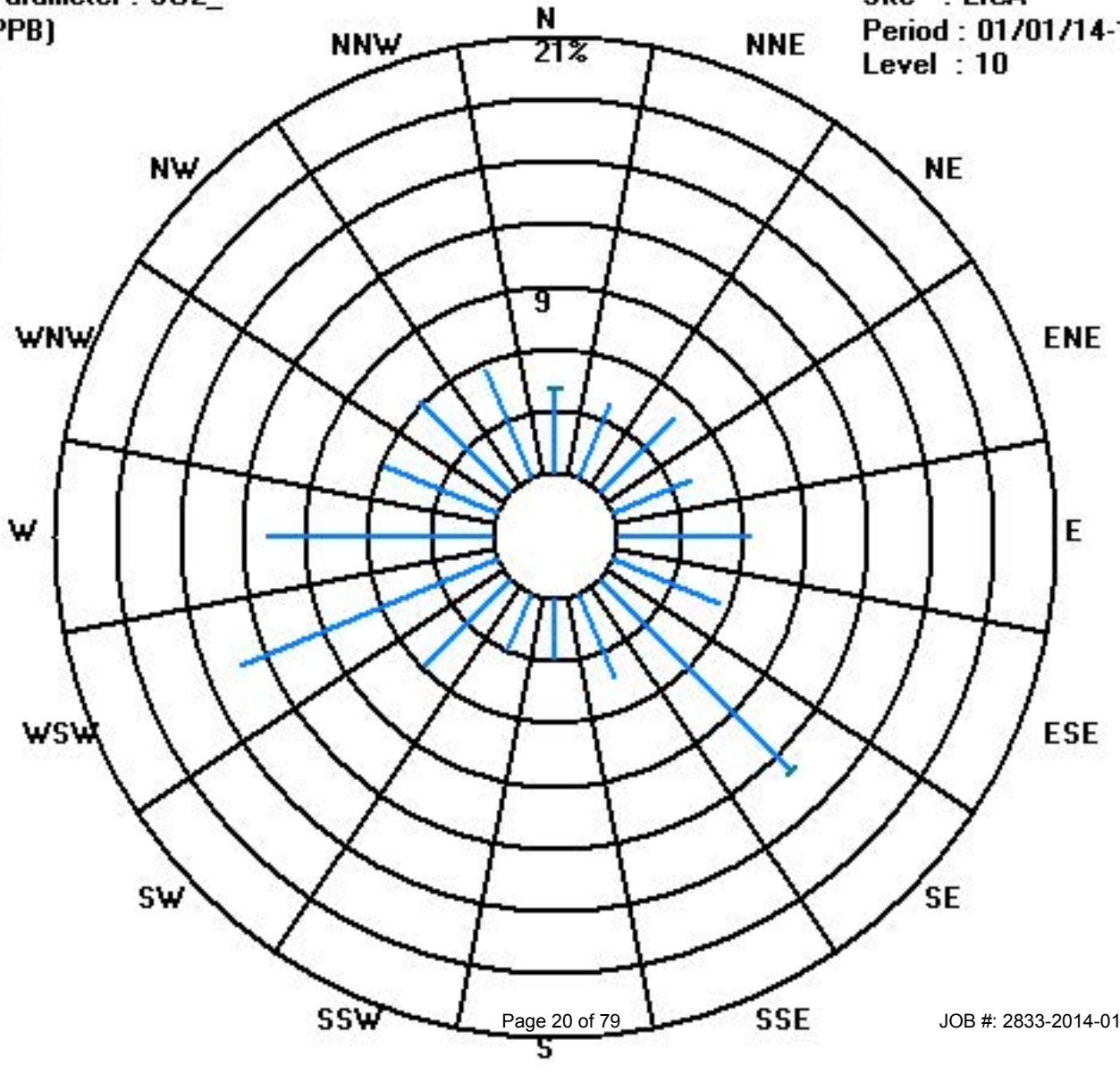
Calm : .00 %

Total # Operational Hours : 8130

Logger : 01 Parameter : SO2_
Class Limits (PPB)

>= 340
< 340
< 170
< 110
< 60
< 20

Site : LICA
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-01-A

Total Reduced Sulphur

Current Date : 02/25/15
Current Time : 09:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	701	0	1	0
February	672	635	0	1	0
March	744	698	0	0	0
April	720	677	0	1	0
May	744	708	0	1	0
June	696	626	0	4	0
July	744	671	0	6	1
August	744	688	0	3	0
September	720	682	0	5	0
October	744	705	0	1	0
November	720	683	0	0	0
December	744	708	0	1	0
Yearly Total	8736	8182	0	6	0

TRS Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB TRS)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	TRS PPB Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb			
January	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	NA	0.02
February	672	100.0	100.0%	0.0%	0.0%	0.0%	NA	NA	0.00
March	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	NA	0.00
April	719	99.9	100.0%	0.0%	0.0%	0.0%	NA	NA	0.00
May	743	99.9	100.0%	0.0%	0.0%	0.0%	NA	NA	0.05
June	663	92.1	99.7%	0.3%	0.0%	0.0%	NA	NA	0.16
July	728	97.8	96.6%	3.4%	0.0%	0.0%	NA	NA	0.59
August	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	NA	0.17
September	719	99.9	99.9%	0.1%	0.0%	0.0%	NA	NA	0.12
October	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	NA	0.00
November	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	NA	0.00
December	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	NA	0.00
							Annual Average		**0.09**

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

TRS Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in PPB
JANUARY	1
FEBRUARY	1
MARCH	0
APRIL	1
MAY	1
JUNE	4
JULY	6
AUGUST	3
SEPTEMBER	5
OCTOBER	1
NOVEMBER	0
DECEMBER	1

ANNUAL PEAK	**6**

LICA
TRS_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	4.00	3.83	5.16	3.94	6.25	5.49	13.37	4.48	2.87	2.79	5.74	13.18	10.67	5.91	5.96	5.49	99.23
< 10	.00	.00	.00	.04	.02	.03	.03	.03	.06	.12	.07	.18	.03	.02	.04	.02	.76
< 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	4.00	3.83	5.16	3.99	6.27	5.53	13.41	4.52	2.93	2.92	5.81	13.36	10.71	5.94	6.01	5.52	

Calm : .00 %

Total # Operational Hours : 8110

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	325	311	419	320	507	446	1085	364	233	227	466	1069	866	480	484	446	8048
< 10				4	2	3	3	3	5	10	6	15	3	2	4	2	62
< 50																	
>= 50																	
Totals	325	311	419	324	509	449	1088	367	238	237	472	1084	869	482	488	448	

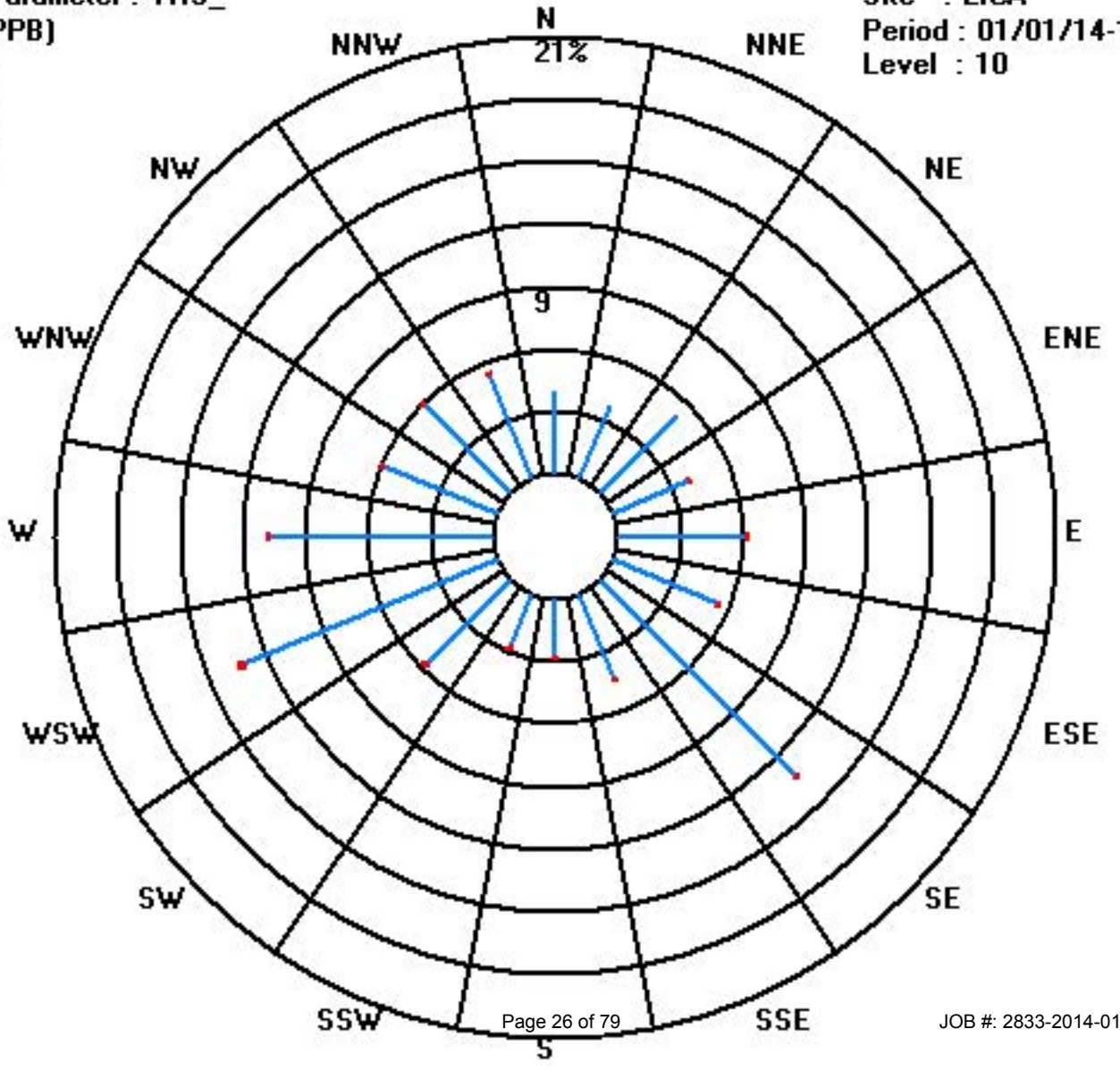
Calm : .00 %

Total # Operational Hours : 8110

Logger : 01 Parameter : TRS_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-01-A

Total Hydrocarbons

Current Date : 02/25/15
Current Time : 09:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	1.5	3	1.9
February	672	638	1.6	3.3	2.1
March	744	707	1.8	3.6	2.2
April	720	679	1.8	3.3	2.1
May	624	530	1.8	2.8	2
June	720	643	1.7	3.1	2
July	744	705	1.5	3.3	2.1
August	744	709	1.5	4.2	2.3
September	720	668	1.5	3.8	2
October	744	705	1.4	3.4	2
November	720	685	1.7	3.5	2.1
December	744	705	1.8	3.7	2.3
Yearly Total	8640	8080	1.4	4.2	2.1

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPM THC)				THC PPM Monthly Average
			0.0 to 3.0 ppm	4.0 to 10.0 ppm	11.0 to 50.0 ppm	>50.0 ppm	
January	744	100.0	100.0%	0.0%	0.0%	0.0%	1.93
February	672	100.0	98.7%	1.3%	0.0%	0.0%	2.08
March	744	100.0	97.6%	2.4%	0.0%	0.0%	2.20
April	719	99.9	99.9%	0.1%	0.0%	0.0%	2.06
May	582	78.2	100.0%	0.0%	0.0%	0.0%	2.03
June	690	95.8	99.7%	0.3%	0.0%	0.0%	1.99
July	742	99.7	98.9%	1.1%	0.0%	0.0%	2.10
August	744	100.0	92.5%	7.5%	0.0%	0.0%	2.26
September	706	98.1	97.8%	2.2%	0.0%	0.0%	1.97
October	744	100.0	98.7%	1.3%	0.0%	0.0%	2.02
November	720	100.0	99.3%	0.7%	0.0%	0.0%	2.15
December	742	99.7	97.0%	3.0%	0.0%	0.0%	2.34
						Annual Average	**2.09**

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

THC Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in PPM
JANUARY	3.0
FEBRUARY	3.3
MARCH	3.6
APRIL	3.3
MAY	2.8
JUNE	3.1
JULY	3.3
AUGUST	4.2
SEPTEMBER	3.8
OCTOBER	3.4
NOVEMBER	3.5
DECEMBER	3.7

ANNUAL PEAK	**4.2**

LICA
THC / WD Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	4.08	3.95	4.75	3.67	5.98	5.33	13.54	4.46	2.78	2.82	5.66	12.76	10.37	5.73	5.94	5.61	97.50
<	10.0	.00	.02	.03	.11	.16	.06	.17	.08	.19	.12	.21	.67	.36	.16	.07	.02	2.49
<	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	4.08	3.98	4.79	3.78	6.14	5.39	13.72	4.55	2.98	2.94	5.88	13.43	10.73	5.89	6.01	5.64	

Calm : .00 %

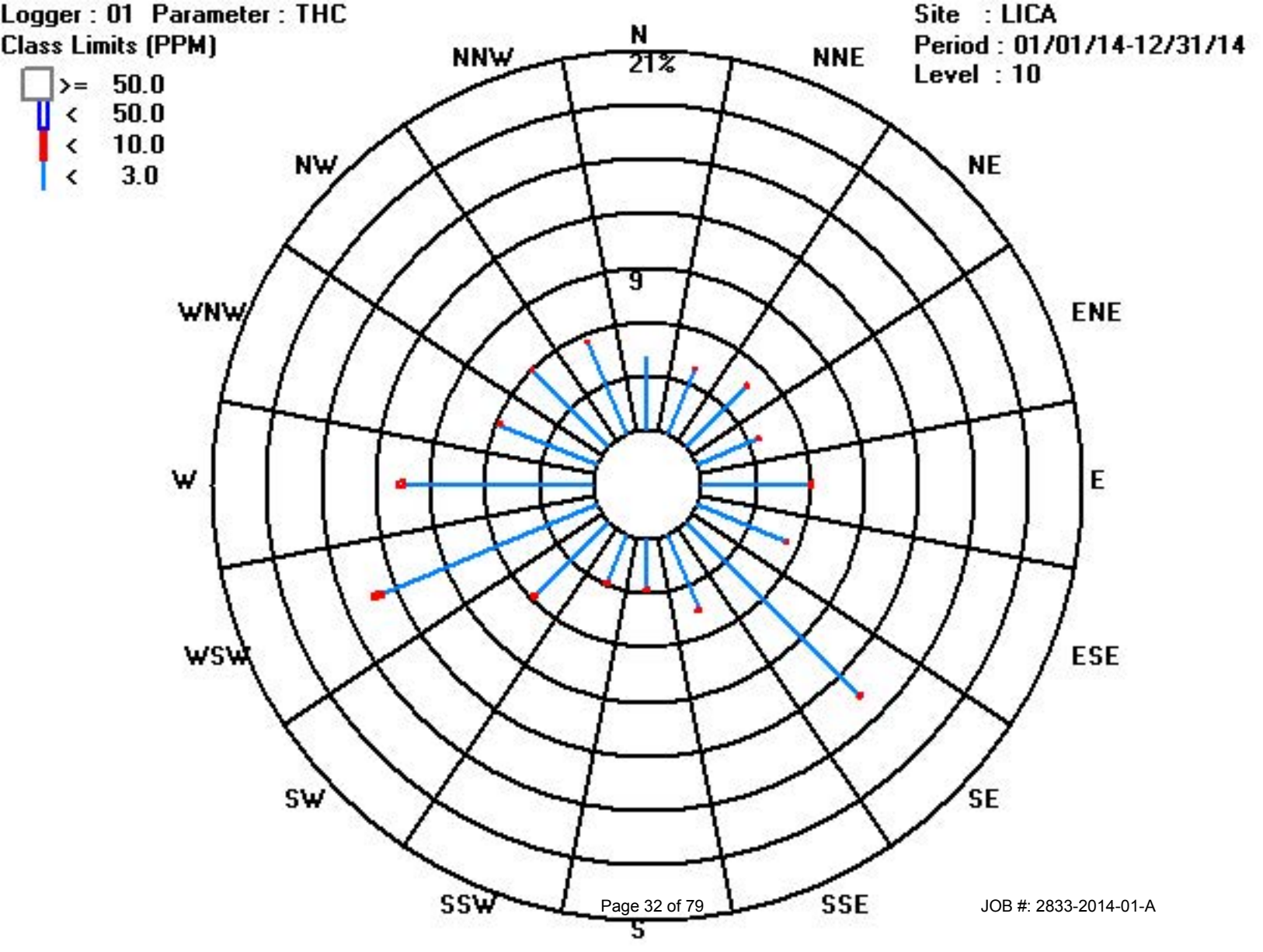
Total # Operational Hours : 8009

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	327	317	381	294	479	427	1085	358	223	226	454	1022	831	459	476	450	7809
<	10.0		2	3	9	13	5	14	7	16	10	17	54	29	13	6	2	200
<	50.0																	
>=	50.0																	
	Totals	327	319	384	303	492	432	1099	365	239	236	471	1076	860	472	482	452	

Calm : .00 %

Total # Operational Hours : 8009



JOB #: 2833-2014-01-A

Particulate Matter 2.5

Current Date : 02/25/15
Current Time : 09:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	650	0	41	5
February	672	612	0	29	6
March	744	689	0	28	6
April	720	709	0	30	4
May	744	707	0	46	5
June	720	595	0	115	11
July	720	678	0	106	18
August	744	725	0	60	12
September	720	673	0	28	5
October	744	699	0	24	5
November	720	699	0	36	8
December	744	737	0	67	7
Yearly Total	8736	8173	0	115	8

PM2.5 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ug/m3 PM2.5)						24-Hour Averages Above Guidelines	PM2.5 ug/m3 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	654	87.9	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0	4.89
February	618	92.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	5.76
March	694	93.3	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	5.95
April	710	98.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	4.28
May	709	95.3	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	4.62
June	599	83.2	95.0%	4.5%	0.2%	0.3%	0.0%	0.0%	1	10.63
July	682	91.7	83.9%	11.7%	2.7%	1.8%	0.0%	0.0%	5	17.55
August	725	97.4	92.7%	7.3%	0.0%	0.0%	0.0%	0.0%	2	12.18
September	677	94.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	5.37
October	704	94.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	4.86
November	706	98.1	98.3%	1.7%	0.0%	0.0%	0.0%	0.0%	0	8.39
December	741	99.6	99.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0	7.02
									Annual Average	**7.63**

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

PM2.5 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in ug/m3
JANUARY	41
FEBRUARY	29
MARCH	28
APRIL	30
MAY	46
JUNE	115
JULY	106
AUGUST	60
SEPTEMBER	28
OCTOBER	24
NOVEMBER	36
DECEMBER	67

ANNUAL PEAK	**115**

Nitrogen Dioxide

Current Date : 02/25/15
Current Time : 09:49

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	705	0.4	30.7	6.5
February	672	634	0.3	44.1	7.4
March	312	282	0.7	37.7	8.1
April	360	319	0.2	11.1	2.1
May	720	650	0.1	13.9	2.1
June	720	683	0	8	1.7
July	744	696	0.2	5.9	1.7
August	744	701	0	6.6	1.4
September	720	675	0	21.9	2.3
October	744	701	0	23.5	3.4
November	720	678	0	22.7	4.5
December	744	707	0.7	30.5	7.6
Yearly Total	7944	7431	0	44.1	3.9

NO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO2)				Hourly Readings Above Guidelines	NO2 PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	744	100.0	100.0%	0.0%	0.0%	0.0%	0	6.51
February	672	100.0	100.0%	0.0%	0.0%	0.0%	0	7.42
March	303	40.7	100.0%	0.0%	0.0%	0.0%	0	8.13
April	353	49.0	100.0%	0.0%	0.0%	0.0%	0	2.11
May	698	93.8	100.0%	0.0%	0.0%	0.0%	0	2.12
June	720	100.0	100.0%	0.0%	0.0%	0.0%	0	1.67
July	743	99.9	100.0%	0.0%	0.0%	0.0%	0	1.69
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0	1.44
September	720	100.0	100.0%	0.0%	0.0%	0.0%	0	2.31
October	744	100.0	100.0%	0.0%	0.0%	0.0%	0	3.39
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	4.52
December	744	100.0	100.0%	0.0%	0.0%	0.0%	0	7.57
						Annual Average		**4.07**

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

NO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in PPB
JANUARY	31
FEBRUARY	44
MARCH	38
APRIL	11
MAY	14
JUNE	8
JULY	6
AUGUST	7
SEPTEMBER	22
OCTOBER	24
NOVEMBER	23
DECEMBER	31

ANNUAL PEAK	44.1

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.04	3.68	4.71	4.19	6.42	5.46	13.37	4.47	2.92	2.92	5.81	13.37	10.93	5.80	6.23	5.61	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	4.04	3.68	4.71	4.19	6.42	5.46	13.37	4.47	2.92	2.92	5.81	13.37	10.93	5.80	6.23	5.61	

Calm : .00 %

Total # Operational Hours : 7359

Distribution By Samples

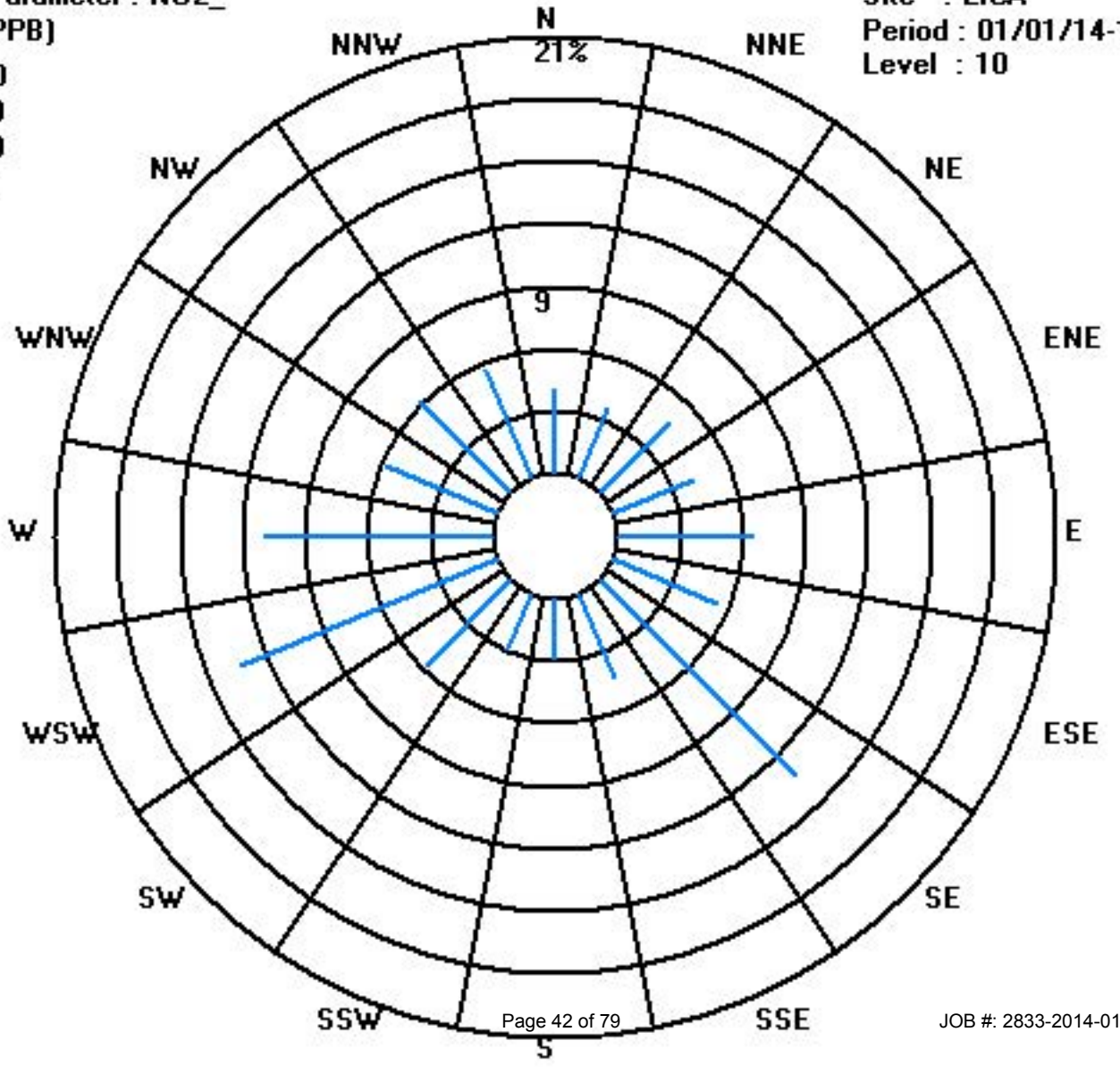
		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	298	271	347	309	473	402	984	329	215	215	428	984	805	427	459	413	7359
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	298	271	347	309	473	402	984	329	215	215	428	984	805	427	459	413	

Calm : .00 %

Total # Operational Hours : 7359

Logger : 01 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-01-A

Nitric Oxide

Current Date : 02/25/15
Current Time : 09:49

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	705	0	27.4	1.1
February	672	635	0	39.1	1.4
March	312	282	0	68	1.8
April	360	319	0	10.5	0.4
May	720	650	0	6.6	0.2
June	720	683	0	9.9	0.2
July	744	696	0	24.8	0.3
August	744	701	0	14.2	0.9
September	720	675	0	15.7	0.8
October	744	701	0	36.4	0.9
November	720	678	0	10.9	0.6
December	744	707	0	104.6	2.1
Yearly Total	7944	7432	0	104.6	0.9

NO Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO)				Hourly Readings Above Guidelines	NO PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	1.11
February	672	100.0	100.0%	0.0%	0.0%	0.0%	NA	1.40
March	303	40.7	99.6%	0.4%	0.0%	0.0%	NA	1.79
April	353	49.0	100.0%	0.0%	0.0%	0.0%	NA	0.36
May	698	93.8	100.0%	0.0%	0.0%	0.0%	NA	0.24
June	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.19
July	743	99.9	100.0%	0.0%	0.0%	0.0%	NA	0.34
August	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.88
September	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.80
October	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.87
November	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.62
December	744	100.0	99.3%	0.7%	0.0%	0.0%	NA	2.15
						Annual Average		**0.90**

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

NO Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in PPB
JANUARY	27
FEBRUARY	39
MARCH	68
APRIL	11
MAY	7
JUNE	10
JULY	25
AUGUST	14
SEPTEMBER	16
OCTOBER	36
NOVEMBER	11
DECEMBER	105

ANNUAL PEAK	104.6

LICA
NO_ / WD Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.04	3.66	4.71	4.17	6.39	5.46	13.36	4.47	2.92	2.92	5.81	13.36	10.93	5.80	6.23	5.61	99.91
<	110.0	.00	.01	.01	.02	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08
<	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	4.04	3.68	4.72	4.19	6.42	5.46	13.36	4.47	2.92	2.92	5.81	13.36	10.93	5.80	6.23	5.61	

Calm : .00 %

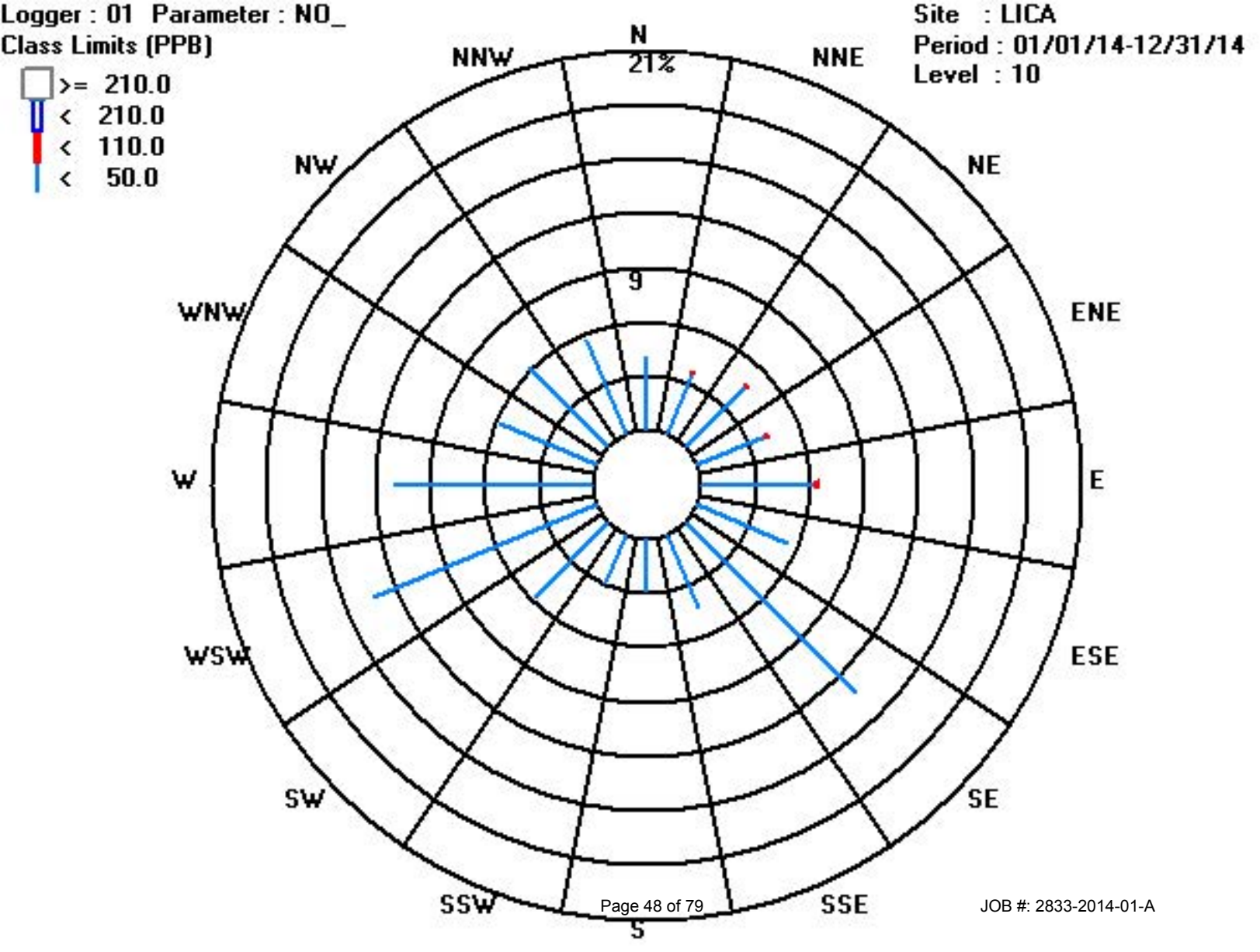
Total # Operational Hours : 7360

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	298	270	347	307	471	402	984	329	215	215	428	984	805	427	459	413	7354
<	110.0		1	1	2	2												6
<	210.0																	
>=	210.0																	
	Totals	298	271	348	309	473	402	984	329	215	215	428	984	805	427	459	413	

Calm : .00 %

Total # Operational Hours : 7360


Logger : 01 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA
Period : 01/01/14-12/31/14
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Oxides of Nitrogen

Current Date : 02/25/15
Current Time : 09:49

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	705	0.5	49.4	7.6
February	672	635	0.6	83.2	8.8
March	312	282	0.8	105.7	9.9
April	360	319	0.2	18.6	2.5
May	720	650	0.1	20.5	2.4
June	720	683	0	16.5	1.9
July	744	696	0.2	28.1	2
August	744	701	0	14.2	2.3
September	720	675	0	25.4	3.1
October	744	701	0	44.9	4.3
November	720	678	0	26.6	5.1
December	744	707	0.7	132.5	9.7
Yearly Total	7944	7432	0	132.5	4.8

NOx Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NOx)				Hourly Readings Above Guidelines	NOx PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	7.62
February	672	100.0	99.5%	0.5%	0.0%	0.0%	NA	8.82
March	303	40.7	98.9%	1.1%	0.0%	0.0%	NA	9.92
April	353	49.0	100.0%	0.0%	0.0%	0.0%	NA	2.47
May	698	93.8	100.0%	0.0%	0.0%	0.0%	NA	2.36
June	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	1.86
July	743	99.9	100.0%	0.0%	0.0%	0.0%	NA	2.03
August	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	2.32
September	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	3.11
October	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	4.26
November	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	5.14
December	744	100.0	98.6%	1.3%	0.1%	0.0%	NA	9.72
						Annual Average		**4.97**

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

NOx Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in PPB
JANUARY	49
FEBRUARY	83
MARCH	106
APRIL	19
MAY	21
JUNE	17
JULY	28
AUGUST	14
SEPTEMBER	25
OCTOBER	45
NOVEMBER	27
DECEMBER	133

ANNUAL PEAK	132.5

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.04	3.66	4.71	4.11	6.34	5.44	13.36	4.47	2.92	2.92	5.81	13.36	10.93	5.80	6.22	5.61	99.78
<	110.0	.00	.00	.01	.08	.08	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.20
<	210.0	.00	.01	.00	.00	.00	.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
	Totals	4.04	3.68	4.72	4.19	6.42	5.46	13.36	4.47	2.92	2.92	5.81	13.36	10.93	5.80	6.23	5.61	

Calm : .00 %

Total # Operational Hours : 7360

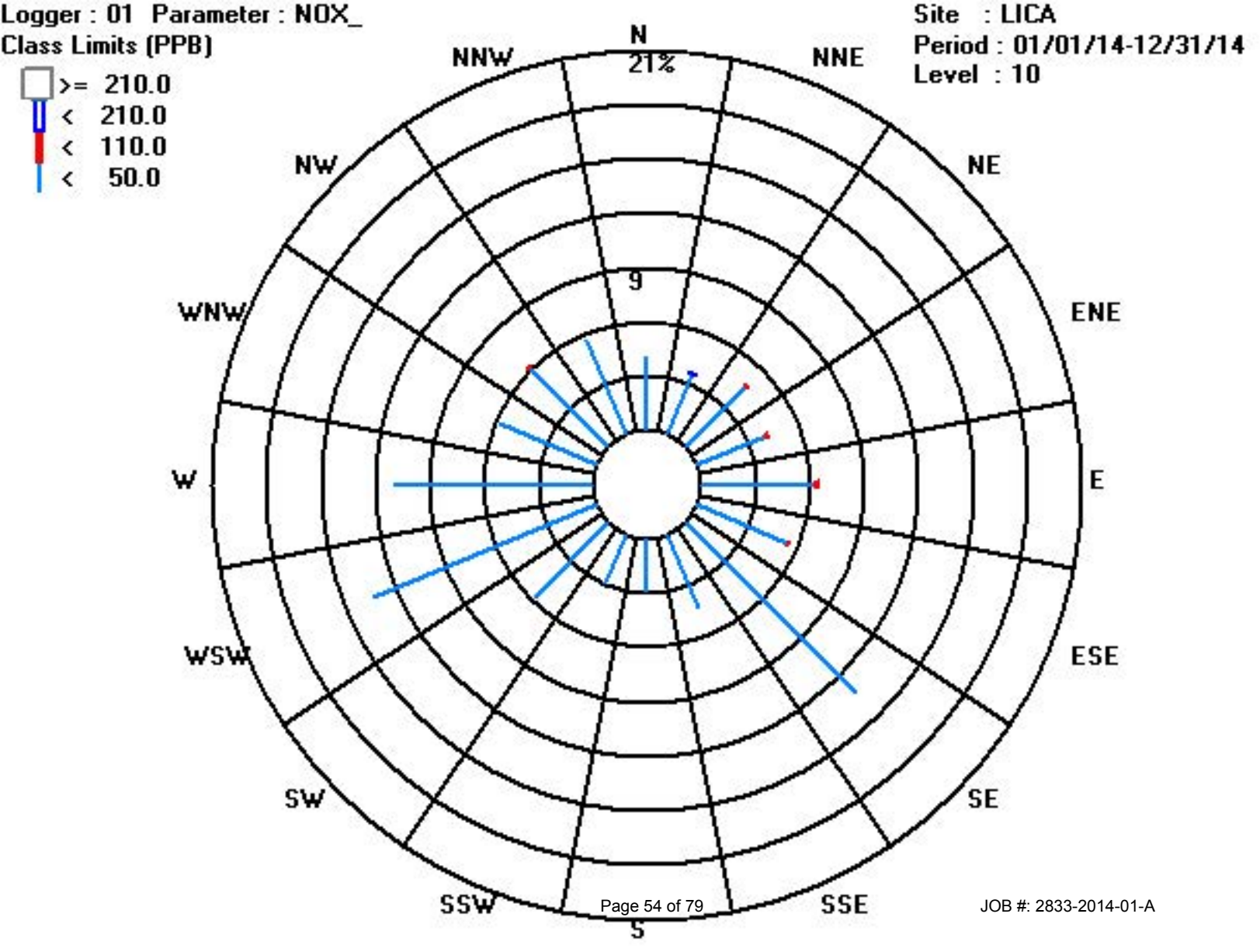
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	298	270	347	303	467	401	984	329	215	215	428	984	805	427	458	413	7344
<	110.0			1	6	6	1									1		15
<	210.0		1															1
>=	210.0																	
	Totals	298	271	348	309	473	402	984	329	215	215	428	984	805	427	459	413	

Calm : .00 %

Total # Operational Hours : 7360


Logger : 01 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA
Period : 01/01/14-12/31/14
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Ozone

Current Date : 02/25/15
Current Time : 09:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	1	46	28
February	672	638	1	44	27
March	744	700	2	55	33
April	720	676	2	56	36
May	744	707	3	59	32
June	720	685	1	58	26
July	744	706	1	56	26
August	744	708	0	50	19
September	720	684	0	49	19
October	744	707	1	44	21
November	720	684	1	41	24
December	744	707	0	40	21
Yearly Total	8760	8308	0	59	26

O3 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB O3)				Hourly Readings Above Guidelines	O3 PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	744	100.0	100.0%	0.0%	0.0%	0.0%	0	27.80
February	672	100.0	100.0%	0.0%	0.0%	0.0%	0	27.28
March	744	100.0	97.7%	2.3%	0.0%	0.0%	0	33.07
April	719	99.9	97.6%	2.4%	0.0%	0.0%	0	36.10
May	743	99.9	94.2%	5.8%	0.0%	0.0%	0	32.38
June	720	100.0	98.5%	1.5%	0.0%	0.0%	0	25.90
July	743	99.9	99.0%	1.0%	0.0%	0.0%	0	25.86
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0	19.46
September	719	99.9	100.0%	0.0%	0.0%	0.0%	0	19.25
October	744	100.0	100.0%	0.0%	0.0%	0.0%	0	20.60
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	24.31
December	744	100.0	100.0%	0.0%	0.0%	0.0%	0	21.39
						Annual Average		**26.12**

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

O3 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

MONTH	Peak Reading in PPB
JANUARY	46
FEBRUARY	44
MARCH	55
APRIL	56
MAY	59
JUNE	58
JULY	56
AUGUST	50
SEPTEMBER	49
OCTOBER	44
NOVEMBER	41
DECEMBER	40

ANNUAL PEAK	59

LICA
O3_ / WD Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4.03	3.93	5.05	4.00	6.19	5.48	13.38	4.32	2.91	2.86	5.65	12.90	10.53	5.81	5.91	5.51	98.53
< 110	.02	.06	.07	.04	.06	.02	.04	.19	.02	.04	.16	.40	.20	.04	.01	.02	1.46
< 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	4.05	3.99	5.12	4.05	6.25	5.51	13.42	4.51	2.93	2.91	5.82	13.30	10.74	5.86	5.92	5.53	

Calm : .00 %

Total # Operational Hours : 8236

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	332	324	416	330	510	452	1102	356	240	236	466	1063	868	479	487	454	8115
< 110	2	5	6	4	5	2	4	16	2	4	14	33	17	4	1	2	121
< 210																	
>= 210																	
Totals	334	329	422	334	515	454	1106	372	242	240	480	1096	885	483	488	456	

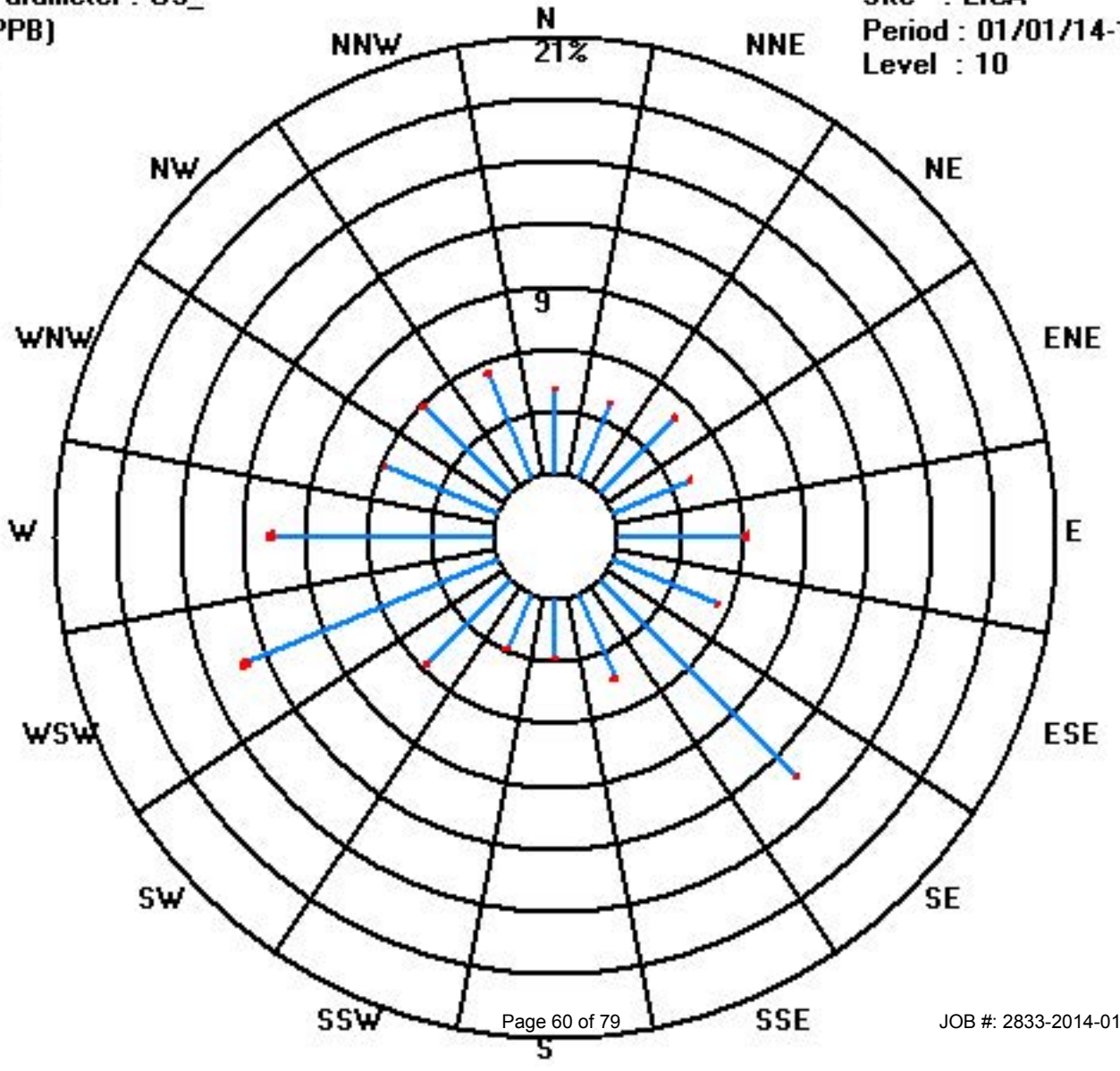
Calm : .00 %

Total # Operational Hours : 8236

Logger : 01 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-01-A

Ambient Temperature

Current Date : 02/25/15
Current Time : 09:54

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	-33.5	8.6	-12.5
February	672	672	-34	2.1	-17.4
March	744	744	-38.6	10	-8.6
April	720	720	-16.8	20.2	2
May	744	744	-5.2	28.3	9.1
June	720	720	1.8	25.7	14.8
July	744	743	6.5	29.3	18.7
August	744	744	2.6	28.5	17.2
September	720	720	-2.9	28.8	10.8
October	744	729	-4.5	20.8	6
November	720	720	-27.9	10.6	-9.2
December	744	697	-32.5	8.5	-10.1
Yearly Total	8760	8697	-38.6	29.3	1.9

AMBIENT TEMPERATURE (TPX) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Operational Uptime (%)	Monthly Average (°C)	Minimum Hourly Average (°C)	Maximum Hourly Average (°C)	Maximum Daily Average (°C)
January	100.0	-12.53	-33.5	8.6	4.0
February	100.0	-17.39	-34	2.1	-5.8
March	100.0	-8.55	-38.6	10	4.2
April	100.0	1.97	-16.8	20.2	11.6
May	100.0	9.14	-5.2	28.3	20.4
June	100.0	14.77	1.8	25.7	20.4
July	99.9	18.72	6.5	29.3	22.8
August	100.0	17.21	2.6	28.5	21.7
September	100.0	10.84	-2.9	28.8	16.8
October	98.0	5.99	-4.5	20.8	11.5
November	100.0	-9.16	-27.9	10.6	4.1
December	93.8	-10.06	-32.5	8.5	3.2
ANNUAL AVERAGE		**1.75**	**-**	**-**	**-**

Relative Humidity

Current Date : 02/25/15
Current Time : 09:55

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	39	93	71
February	672	672	24	88	67
March	744	744	18	92	60
April	720	720	14	99	68
May	744	744	20	100	62
June	720	720	28	100	72
July	744	743	24	100	71
August	744	744	32	100	74
September	720	720	24	98	71
October	744	729	21	100	68
November	720	720	32	99	76
December	744	697	55	97	83
Yearly Total	8760	8697	14	100	70

RELATIVE HUMIDITY (RH) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Cold Lake South Site

Month	Operational Uptime (%)	Monthly Average (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	100.0	70.86	93	87.7
February	100.0	67.16	88	82.0
March	100.0	60.19	92	77.5
April	100.0	68.07	99	93.5
May	100.0	61.80	100	94.2
June	100.0	72.47	100	95.3
July	99.9	71.30	100	83.5
August	100.0	74.28	100	85.5
September	100.0	70.57	98	91.2
October	98.0	68.42	100	91.5
November	100.0	75.85	99	90.0
December	93.8	82.82	97	93.5
ANNUAL AVERAGE		**70.32**	**-**	**-**

Vector Wind Speed

Current Date : 02/25/15
Current Time : 09:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0	32.3	7
February	672	672	0.1	20.5	5.6
March	744	744	0	18.4	5.7
April	720	720	0.1	25.4	7.1
May	744	744	0.1	21	6.5
June	720	720	0.1	16	5.1
July	744	743	0.1	18	4.9
August	744	744	0.1	15	4.4
September	720	720	0.1	20.3	5.1
October	744	729	0.1	21.7	6.6
November	720	720	0.1	17.3	6.5
December	744	684	0.1	14.9	4.2
Yearly Total	8760	8684	0	32.3	5.7

LICA
WSP / WD Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1.50	1.98	2.62	2.48	3.31	3.81	6.79	2.92	2.44	2.49	4.46	9.30	5.66	2.78	1.91	1.39	55.91
<	12.0	1.79	1.58	2.32	1.05	2.39	1.37	5.45	1.28	.24	.14	1.11	3.55	4.05	2.17	2.99	2.84	34.41
<	20.0	.54	.18	.11	.34	.49	.14	.96	.04	.00	.00	.01	.21	.86	.70	.97	1.12	6.74
<	29.0	.11	.01	.00	.00	.04	.00	.00	.00	.00	.00	.00	.01	.03	.06	.12	.09	.50
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.05	.00	.06
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.96	3.76	5.06	3.89	6.25	5.33	13.21	4.26	2.68	2.64	5.59	13.09	10.61	5.74	6.06	5.45	

Calm : 2.33 %

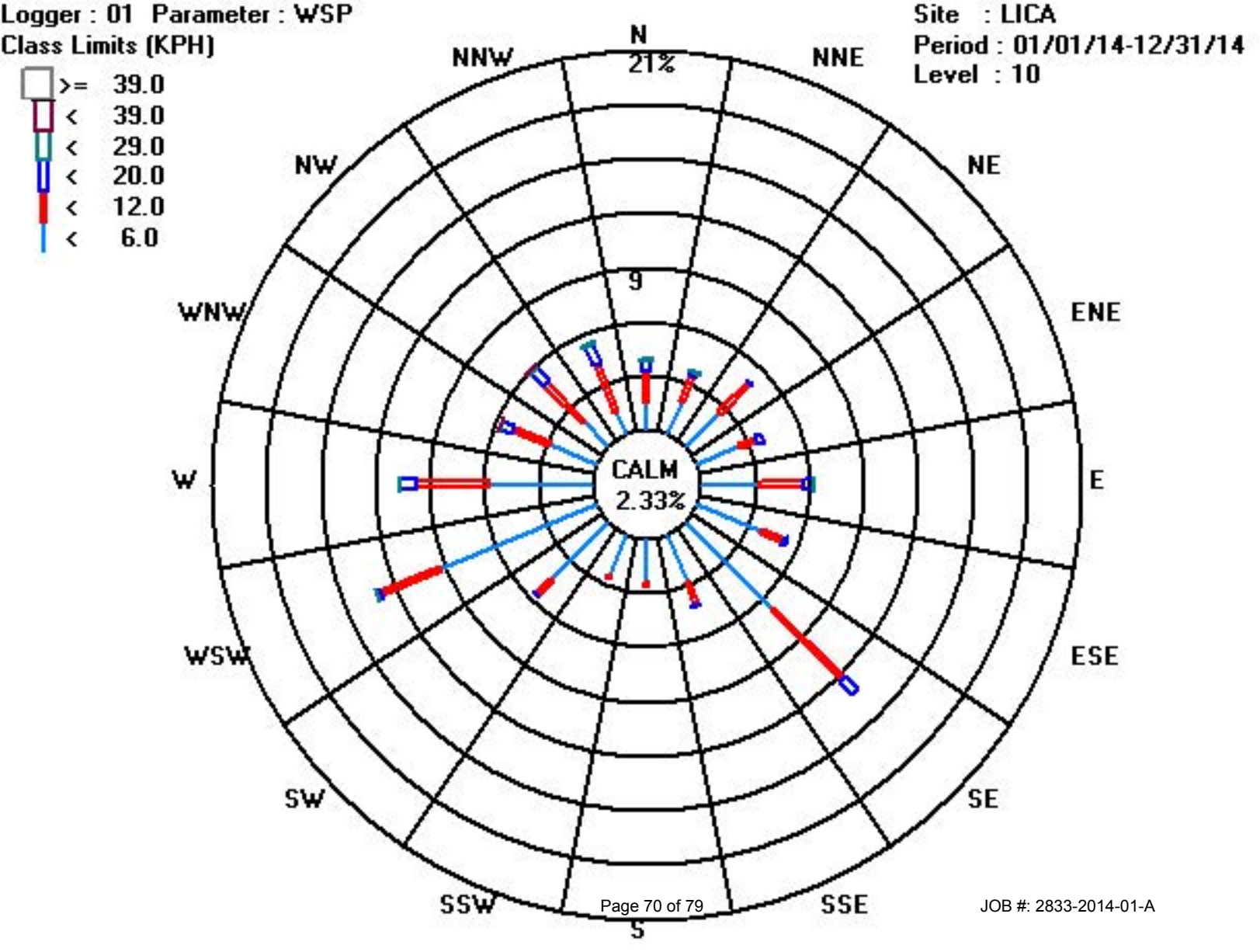
Total # Operational Hours : 8684

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	131	172	228	216	288	331	590	254	212	217	388	808	492	242	166	121	4856
<	12.0	156	138	202	92	208	119	474	112	21	13	97	309	352	189	260	247	2989
<	20.0	47	16	10	30	43	13	84	4			1	19	75	61	85	98	586
<	29.0	10	1			4							1	3	6	11	8	44
<	39.0														1	5		6
>=	39.0																	
	Totals	344	327	440	338	543	463	1148	370	233	230	486	1137	922	499	527	474	

Calm : 2.33 %

Total # Operational Hours : 8684



JOB #: 2833-2014-01-A

Passive Monitoring Annual Summaries

Sulphur Dioxide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		***LICA Airshed***
Company		Project Number
LICA Airshed	2013/12/31	2014/12/29
Location	***Date Samples Start***	***Date Sampled End***

SO2 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
3	0.6	0.8	0.5	0.3	0.2	0.4	0.3	0.2	0.1	0.3	0.3	0.5	**0.4**	**0.8**
03 DUP	NA	NA	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.5**	**0.5**
4	0.9	0.9	0.7	0.6	0.2	0.1	0.7	0.5	0.6	0.4	0.5	0.9	**0.6**	**0.9**
04 DUP	NA	NA	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.7**	**0.7**
5	0.9	1	0.6	0.5	0.2	0.2	0.8	0.7	0.4	0.3	0.3	0.7	**0.6**	**1**
05 DUP	NA	NA	NA	0.5	NA	NA	NA	NA	NA	NA	NA	NA	**0.5**	**0.5**
6	0.8	0.9	0.5	0.4	0.2	0.2	0.7	1.5	0.3	0.3	0.3	0.7	**0.6**	**1.5**
06 DUP	NA	NA	NA	0.5	0.2	NA	NA	NA	NA	NA	NA	NA	**0.35**	**0.5**
8	0.7	NA	0.6	0.4	0.4	1.4	3.1	3.2	0.7	0.3	0.3	0.7	**1.1**	**3.2**
08 DUP	NA	NA	NA	0.4	0.4	1.5	NA	NA	NA	NA	NA	NA	**0.9**	**1.5**
9	0.6	0.7	0.5	0.2	0.2	0.2	0.4	0.2	0.2	0.3	0.4	0.5	**0.4**	**0.7**
9 DUP	NA	NA	NA	NA	0.2	0.3	0.4	NA	NA	NA	NA	NA	**0.3**	**0.4**
10	0.5	0.6	0.4	0.2	0.2	0.5	0.6	0.3	0.1	0.2	0.4	0.3	**0.4**	**0.6**
10 DUP	NA	NA	NA	NA	NA	0.4	0.4	0.3	NA	NA	NA	NA	**0.37**	**0.4**
11	0.8	NA	0.4	0.3	NA	0.3	0.2	<0.1	0.1	0.1	NA	NA	**0.3**	**0.8**
11 DUP	NA	NA	NA	NA	NA	NA	0.2	<0.1	<0.1	NA	NA	NA	**<0.1**	**0.2**
12	0.6	0.6	0.4	0.2	0.2	0.1	0.6	0.2	0.2	0.2	0.5	0.6	**0.4**	**0.6**
12 DUP	NA	NA	NA	NA	NA	NA	NA	0.1	0.2	NA	NA	NA	**0.15**	**0.2**
13	0.6	0.9	0.7	0.6	0.2	0.1	0.3	0.2	0.2	0.4	NA	0.6	**0.4**	**0.9**
13 DUP	NA	NA	NA	NA	NA	NA	NA	NA	0.2	NA	NA	NA	**0.2**	**0.2**
14	2.4	1.5	1	1	0.8	1	0.8	0.4	0.6	1	0.8	1.1	**1**	**2.4**
14 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.9	NA	NA	**0.9**	**0.9**
15	0.8	0.7	0.5	0.2	0.3	0.5	0.4	0.3	0.2	0.2	0.4	0.5	**0.4**	**0.8**
15 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	NA	NA	**0.2**	**0.2**
16	0.8	0.7	0.4	0.4	0.1	0.1	0.3	0.2	0.2	0.2	0.3	0.5	**0.4**	**0.8**
16 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	NA	NA	**0.2**	**0.2**
17	1.1	0.9	0.4	0.3	0.2	0.1	1	0.5	0.3	0.4	0.5	1	**0.6**	**1.1**
17 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4	NA	**0.4**	**0.4**
18	0.7	0.6	0.3	0.6	0.1	0.1	0.3	0.2	0.1	0.1	0.3	0.3	**0.3**	**0.7**
18 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	NA	**0.2**	**0.2**
19	0.8	0.8	0.4	0.3	0.2	0.1	0.3	0.3	0.2	0.1	0.4	0.5	**0.4**	**0.8**
19 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4	NA	**0.4**	**0.4**
22	0.6	0.7	0.5	0.2	0.2	0.3	0.5	0.3	0.2	0.2	0.4	0.2	**0.3**	**0.7**
22 DUP	0.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	**0.4**	**0.6**
23	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.3	**0.2**	**0.4**
23 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3	**0.3**	**0.3**
24	0.8	0.7	0.7	0.3	0.2	0.1	0.4	0.3	0.1	0.3	0.4	0.6	**0.4**	**0.8**
24 DUP	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.6	**0.65**	**0.7**
25	0.5	0.5	0.5	0.4	0.2	0.2	0.3	0.1	0.1	0.4	0.4	0.4	**0.3**	**0.5**
25 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
26	0.8	1.2	0.6	0.6	0.5	0.2	0.4	0.1	0.4	0.5	0.3	0.4	**0.5**	**1.2**
26 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
27	1.1	1.3	0.9	0.8	0.3	0.4	0.9	1.9	1.6	1	0.7	0.9	**1**	**1.9**
27 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
28	0.7	0.5	0.5	0.4	0.2	0.2	0.7	0.8	0.3	0.5	0.4	0.4	**0.5**	**0.8**
28 DUP	NA	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.5**	**0.5**
29	0.6	0.7	0.5	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0.3	0.2	**0.3**	**0.7**
29 DUP	NA	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.7**	**0.7**
32	2	0.65	0.7	NA	0.4	0.5	0.4	0.1	0.2	0.3	0.4	0.7	**0.6**	**2**
32 DUP	NA	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.7**	**0.7**
36	0.9	NA	0.6	0.3	0.1	0.1	0.4	0.4	0.1	0.4	0.3	0.5	**0.4**	**0.9**
36 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Average	**0.9**	**0.8**	**0.5**	**0.4**	**0.2**	**0.3**	**0.6**	**0.5**	**0.3**	**0.3**	**0.4**	**0.56**		
Maximum	**2.4**	**1.5**	**1**	**1**	**0.8**	**1.4**	**3.1**	**3.2**	**1.6**	**1**	**0.8**	**1.1**		

Hydrogen Sulphide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		***LICA Airshed***
Company		Project Number
LICA Airshed	2013/12/31	2014/12/29
Location	***Date Samples Start***	***Date Sampled End***

H2S (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
3	0.13	0.15	0.07	0.12	0.07	0.22	0.27	0.22	0.18	0.08	0.16	0.14	**0.15**	**0.27**
3 DUP	NA	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.12**	**0.12**
5	0.25	0.16	0.09	0.16	0.12	0.25	0.67	1.7	0.16	0.16	0.12	0.18	**0.34**	**1.7**
5 DUP	NA	0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.19**	**0.19**
10	0.18	0.14	0.09	0.06	0.07	0.14	0.27	0.3	0.11	0.09	0.08	0.16	**0.14**	**0.06**
10 DUP	NA	NA	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.08**	**0.08**
11	0.21	NA	0.06	0.04	NA	0.08	0.09	0.09	0.12	0.08	NA	NA	**0.1**	**0.21**
11 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
12	0.13	0.13	0.05	0.09	0.12	0.15	0.16	0.15	0.15	0.08	0.16	0.2	**0.13**	**0.2**
12 DUP	NA	NA	NA	0.08	NA	NA	NA	NA	NA	NA	NA	NA	**0.08**	**0.08**
13	0.12	0.11	0.05	0.05	0.04	0.04	0.12	0.12	0.15	0.08	NA	0.11	**0.09**	**0.15**
13 DUP	NA	NA	NA	0.04	0.03	NA	NA	NA	NA	NA	NA	NA	**0.035**	**0.04**
14	0.2	0.17	0.08	0.08	0.09	0.18	0.25	0.2	0.25	0.19	0.09	0.17	**0.16**	**0.25**
14 DUP	NA	NA	NA	NA	NA	0.18	NA	NA	NA	NA	NA	NA	**0.18**	**0.18**
16	0.18	0.17	0.08	0.09	0.09	0.06	0.25	0.3	0.27	0.11	0.09	0.2	**0.06**	**0.3**
16 DUP	NA	NA	NA	NA	NA	NA	0.24	NA	NA	NA	NA	NA	**0.24**	**0.24**
17	0.22	0.15	0.09	0.15	0.14	0.25	0.56	0.74	0.3	0.11	0.11	0.21	**0.25**	**0.74**
17 DUP	NA	NA	NA	NA	NA	NA	NA	0.68	0.51	NA	NA	NA	**0.63**	**0.68**
18	0.15	0.11	0.05	0.08	0.07	0.09	0.18	0.23	0.13	0.1	0.06	0.16	**0.12**	**0.23**
18 DUP	NA	NA	NA	NA	NA	NA	NA	NA	0.12	NA	NA	NA	**0.12**	**0.12**
22	0.17	0.13	0.06	0.06	0.1	0.17	0.5	0.38	0.24	0.1	0.07	0.15	**0.18**	**0.5**
22 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.08	NA	NA	**0.08**	**0.08**
24	0.17	0.16	0.07	0.1	0.07	0.13	0.33	0.32	0.28	0.11	0.09	0.14	**0.06**	**0.33**
24 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	NA	NA	**0.11**	**0.11**
25	0.13	NA	0.04	0.04	0.03	0.15	0.11	0.1	0.09	0.08	0.07	0.15	**0.09**	**0.15**
25 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.07	NA	**0.07**	**0.07**
26	0.25	0.24	0.14	0.1	0.09	0.11	0.19	0.16	0.21	0.13	0.1	0.18	**0.16**	**0.25**
26 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.09	NA	**0.09**	**0.09**
27	0.21	0.16	0.12	0.08	0.06	0.28	0.35	1.87	0.21	0.27	0.24	0.2	**0.35**	**1.87**
27 DUP	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.19	**0.2**	**0.21**
29	0.19	0.12	0.07	0.07	0.04	0.17	0.53	0.35	0.2	0.12	0.09	0.16	**0.18**	**0.53**
29 DUP	0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	**0.185**	**0.19**
32	0.15	0.16	0.07	0.17	0.09	0.14	0.34	0.25	0.23	0.15	0.1	0.22	**0.17**	**0.34**
32 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
36	0.18	NA	0.09	0.1	0.09	0.13	0.35	0.4	0.14	0.18	0.11	0.2	**0.18**	**1.36**
36 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**0.07**
Average	**0.18**	**0.15**	**0.08**	**0.09**	**0.08**	**0.15**	**0.31**	**0.44**	**0.19**	**0.13**	**0.11**	**0.17**		
Maximum	**0.25**	**0.24**	**0.14**	**0.17**	**0.14**	**0.28**	**0.67**	**1.87**	**0.3**	**0.37**	**0.24**	**0.22**		

Nitrogen Dioxide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		***LICA Airshed***
Company		Project Number
LICA Airshed	2013/12/31	2014/12/29
Location	***Date Samples Start***	***Date Sampled End***

NO2 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
3	2.4	1.9	0.5	0.7	0.6	0.9	0.7	0.8	1.5	1.3	2.9	4.2	**1.5**	**4.2**
3 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
4	2	1.4	0.6	0.7	0.3	0.5	0.7	0.4	0.8	1.8	2	2.3	**1.1**	**2.3**
4 DUP	2.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.1**	**2.1**
5	1.5	1.6	0.1	0.7	0.3	0.5	0.5	0.7	0.5	1.4	2.1	2.4	**1**	**2.4**
5 DUP	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	**1.4**
6	4.5	4.3	6	3.1	3.2	2.2	2.1	2.6	4	6.2	6.1	6.8	**4.3**	**6.8**
6 DUP	NA	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4**	**4**
8	1.5	NA	0.5	0.7	0.5	0.6	0.7	1.1	0.6	1.3	2.8	2.5	**1.2**	**2.8**
8 DUP	NA	NA	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.5**	**0.5**
9	2	2.9	0.5	0.7	0.7	1	0.8	0.8	1.4	1.06	2.9	2.3	**1.4**	**2.9**
9 DUP	NA	NA	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.5**	**0.5**
10	4.6	4.4	2.9	1.6	1.4	1.6	1.6	2	2.8	4.9	5.3	4.9	**3.2**	**5.3**
10 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
11	2.5	NA	0.2	0.4	NA	0.6	0.4	0.3	0.5	1.1	NA	NA	**0.8**	**2.5**
11 DUP	NA	NA	NA	0.4	NA	NA	NA	NA	NA	NA	NA	NA	**0.4**	**0.4**
12	2.8	2.1	1.7	1.3	0.9	1.1	0.5	0.6	1.2	1	2	1.5	**1.4**	**2.8**
12 DUP	NA	NA	NA	1.2	0.8	NA	NA	NA	NA	NA	NA	NA	**1**	**1.2**
13	1.4	1	0.2	0.4	0.1	0.3	0.6	0.4	0.5	1	NA	1.3	**0.7**	**1.4**
13 DUP	NA	NA	NA	NA	<0.1	0.3	NA	NA	NA	NA	NA	NA	**0.15**	**0.3**
14	4	1.5	1.1	0.9	0.5	0.8	0.7	0.7	1	1.6	2.2	3.2	**1.4**	**4**
14 DUP	NA	NA	NA	NA	NA	0.7	0.7	NA	NA	NA	NA	NA	**0.7**	**0.7**
15	2.8	1.7	0.5	0.9	0.4	0.9	0.8	1	1.1	1.3	2.5	3.1	**1.4**	**3.1**
15 DUP	NA	NA	NA	NA	NA	NA	0.7	1.2	NA	NA	NA	NA	**0.95**	**1.2**
16	2.6	2.1	1	1.1	0.5	0.6	0.8	1.2	1.3	1.4	3.1	3.7	**1.6**	**3.7**
16 DUP	NA	NA	NA	NA	NA	NA	NA	1.4	1.4	NA	NA	NA	**1.4**	**1.4**
17	2.6	2.3	1.9	1.5	1.1	1.2	1.6	1.4	1.2	2.3	2.7	3.1	**1.9**	**3.1**
17 DUP	NA	NA	NA	NA	NA	NA	NA	NA	1.2	NA	NA	NA	**1.2**	**1.2**
18	2	1.4	0.7	0.9	0.6	0.6	1.1	1.5	1.1	1.6	2.4	2.7	**1.4**	**2.7**
18 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7	NA	NA	**1.7**	**1.7**
19	1.4	0.9	0.6	0.6	0.2	0.4	0.4	0.4	0.6	0.9	1.9	2.3	**0.9**	**2.3**
19 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.8	NA	NA	**0.8**	**0.8**
22	2.4	2.2	1.3	1.2	0.6	0.7	0.7	0.7	1.2	1.7	2.8	3.2	**1.6**	**3.2**
22 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.2	NA	**3.2**	**3.2**
23	0.7	0.4	0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.7	1.2	**0.4**	**1.2**
23 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
24	4.4	3.1	2.8	1.6	1.7	1.7	1.7	<0.1	2.8	5.6	5.5	5.7	**3.3**	**5.7**
24 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1	**5.1**	**5.1**
28	6.8	8	5.3	3.1	2.2	2.2	1.6	2.2	2.9	4.8	11.3	7.3	**4.8**	**11.3**
28 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8	**6.8**	**6.8**
29	4.2	2.8	1.7	1.1	0.3	1	0.5	0.6	0.9	2.6	NA	4.1	**1.8**	**4.2**
29 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
32	1.4	1.9	0.6	0.3	0.2	0.5	0.3	0.3	0.7	0.7	1.6	2	**0.9**	**2**
32 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
36	7.9	NA	3.5	1.7	1.9	1.6	1.4	2.2	1.7	6	5.3	5.9	**3.6**	**7.9**
36 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Average	**3**	**2.4**	**1.5**	**1.1**	**0.9**	**0.9**	**0.9**	**1**	**1.3**	**2.3**	**3.4**	**3.4**		
Maximum	**7.9**	**8**	**6**	**3.1**	**2.2**	**2.2**	**2.1**	**2.6**	**4**	**6.2**	**11.3**	**7.3**		

Ozone

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		***LICA Airshed***
Company		Project Number
LICA Airshed	2013/12/31	2014/12/29
Location	***Date Samples Start***	***Date Sampled End***

O3 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
3	31.9	33.6	37.4	40.5	31.6	22	18.7	19	22	21.21	21.6	27.5	**27.3**	**40.5**
3 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
4	36.5	36.5	45.6	45.6	34.8	24.7	26.7	20.9	20	23.23	23.4	26.5	**30.4**	**45.6**
4 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
5	33	35.7	38	37.1	32.2	43.5	23.4	20	21.7	23.71	24	26.2	**28.2**	**38**
5 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
6	31.4	29.9	32.8	37.9	31.4	22.5	20.3	17	18.6	17.72	24.6	22.7	**25.6**	**37.9**
6 DUP	30.3	30.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**30.6**	**30.9**
8	34.9	NA	30.4	41.5	36.6	26.2	26.2	21.7	20.1	21.15	25.2	30.2	**28.6**	**41.5**
8 DUP	36.6	NA	30.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	**33.39**	**36.6**
9	36.2	35.4	42.3	35.2	29	22.6	20.5	18.8	17.8	19.05	20.8	27.5	**27.1**	**42.3**
9 DUP	NA	NA	40.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	**40.67**	**40.67**
10	26.3	29.2	37.6	33.5	30.8	21.2	19.6	17.6	14.5	18.4	20.9	22.5	**24.3**	**37.6**
10 DUP	NA	NA	36.39	NA	NA	NA	NA	NA	NA	NA	NA	NA	**36.39**	**36.39**
11	51.2	NA	26.5	32.7	NA	41.3	18.2	14.7	13.9	15.7	NA	NA	**26.8**	**51.2**
11 DUP	NA	NA	NA	33.58	NA	NA	NA	NA	NA	NA	NA	NA	**33.58**	**33.58**
12	31.4	35.2	33.3	33.2	28.1	21	21.1	16.4	17.2	21.1	25.2	23.3	**25.5**	**35.2**
12 DUP	NA	NA	NA	31.91	27.46	NA	NA	NA	NA	NA	NA	NA	**29.69**	**31.91**
13	32.2	36.5	38.3	40.2	31.2	21.9	23.6	19.4	18.6	20.1	NA	23.7	**27.8**	**40.2**
13 DUP	NA	NA	NA	NA	30.36	21.26	NA	NA	NA	NA	NA	NA	**25.81**	**30.36**
14	24.7	33.1	33	34.8	28.7	24.9	28.3	23.8	21	23.1	23.6	21.6	**27**	**34.8**
14 DUP	NA	NA	NA	NA	NA	NA	28.49	NA	NA	NA	NA	NA	**28.49**	**28.49**
15	30.4	31.9	36.8	36.5	28.5	22.7	20.6	16.5	17.7	22.7	22.3	25.9	**26**	**36.8**
15 DUP	NA	NA	NA	NA	NA	NA	19.23	15.64	NA	NA	NA	NA	**17.44**	**19.23**
16	35.2	34.3	39.8	35.4	32.2	20.3	21.6	43.7	18.1	21.1	21.4	21.7	**28.7**	**43.7**
16 DUP	NA	NA	NA	NA	NA	NA	NA	NA	17.08	NA	NA	NA	**17.08**	**17.08**
17	32.6	36.4	36.8	38	33.3	25.4	28.9	21.5	19.9	20.7	26.6	25.2	**28.8**	**38**
17 DUP	NA	NA	NA	NA	NA	NA	NA	NA	19.19	NA	NA	NA	**19.19**	**19.19**
18	29.3	29	33.6	32.7	30.2	19.5	19.5	14.9	18.1	18	21.6	22.2	**24**	**33.6**
18 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.85	NA	NA	**17.85**	**17.85**
19	35.8	31.5	40.7	39.6	34.5	22.7	25	20.3	27.7	23.2	25.7	27.3	**29.1**	**40.7**
19 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.47	NA	NA	**23.47**	**23.47**
22	29.9	29.1	29.7	32.4	30.7	200.6	22.1	19.8	16.4	19	23.8	23.1	**24.7**	**32.4**
22 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.71	NA	**23.71**	**23.71**
23	26.6	30.7	39.2	33.8	27.4	16.8	21.5	16.8	14.9	14.4	23.4	19.9	**23.8**	**39.2**
23 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
24	31.5	30.6	30	39	30	23.1	25.7	19.2	17.8	19.4	22.4	22.6	**25.9**	**39**
24 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.7	**22.7**	**22.7**
28	27.5	30.2	31.3	30.8	28.5	20.9	24.8	20.9	18.9	18.2	22.3	20.4	**24.5**	**31.3**
28 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.29	**20.29**	**20.29**
29	24.9	29.7	32	36.7	15.4	25.9	26.2	24.5	20.1	20.6	21	20.4	**24.8**	**36.7**
29 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
32	35.5	39.4	40.6	NA	35.5	27.8	34.1	26.5	22.8	24.8	29.1	28.6	**31.3**	**40.6**
32 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
36	26.3	31.1	33.3	34.2	31.8	29.2	29.6	23.3	13.1	21.5	23.7	29.9	**27.3**	**34.2**
36 DUP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**
Average	**32.1**	**32.8**	**35.6**	**36.4**	**30.55**	**23.8**	**23.75**	**20.74**	**18.52**	**20.36**	**23.46**	**24.49**		
Maximum	**51.2**	**39.4**	**45.55**	**45.62**	**36.6**	**41.3**	**34.1**	**43.7**	**22.8**	**24.8**	**29.1**	**30.2**		

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Annual Data Report

For
2014

Prepared By:

February 27, 2015

Lakeland Industry & Community Association
Ambient Air Monitoring
Maskwa

Table of Contents

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 2014 to December 2014

The annual ambient data report:

- Prepared by Wunmi Adekanmbi
- 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
Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 508
  - ❖ The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes.
  - ❖ The analyzer showed a slow response during the June monthly calibration. The tubing inside the calibrator was replaced on June 20th to address this issue. No further issues were identified.
  - ❖ Hourly maximum data collected on October 17th hour 4 was invalidated due to a small power outage that affected data quality.

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 511
  - ❖ One 1-hour contravention was recorded on September 24th hour 2. Concentration was 13 ppb.
  - ❖ Hourly maximum data collected on October 17th hour 4 was invalidated due to a small power outage that affected data quality.

Total Hydrocarbon (PPM)

- Analyzer make / model –TECO 51C-LT, S/N: 436609738
  - ❖ The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes.
  - ❖ 64 hours of data were invalidated in February due to a sample pump failure. The pump was rebuilt on February 14th.
  - ❖ The analyzer flamed out on September 16th because the H2 gas ran out. The H2 gas cylinder was replaced on September 17th. 16 hours of data were invalidated due to this event.
  - ❖ Hourly maximum data collected on October 17th hour 4 was invalidated due to a small power outage that affected data quality.
  - ❖ The analyzer spanned low on December 19th because the span gas ran out. The span gas was replaced on December 19th. Data quality was not affected.

General Monthly Summary

AQM STATION – LICA – Maskwa

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 594 API 200E, S/N: 594 and API 200E, S/N: 593
  - ❖ The permeation tube was replaced on June 20th to address the issue of the analyzer spanning low. The expected span value was adjusted on June 22nd. Data quality was not affected.
  - ❖ Some daily span results went above the +/-10% acceptance limits in August because the expected span value was set too low. Data quality was not affected.
  - ❖ Hourly maximum data collected on October 17th hour 4 was invalidated due to a small power outage that affected data quality.
  - ❖ The API 200E, S/N: 594 analyzer was replaced with the API 200E, S/N: 593 on December 22nd for maintenance purposes.

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

- System make / model - MetOne 50.5H Sonic, S/N: H10703 and RM Young 5103VK, S/N: 129612
  - ❖ The MetOne wind system was removed from site and sent to the manufacturer for a 2-Year calibration/maintenance on February 5th. A temporary RM Young wind system was installed following the MetOne wind system removal.
  - ❖ The 2-year calibration was performed on March 4th, 2014 by MetOne manufacturer. The MetOne 50.5H Sonic wind system was re-installed on site on October 30th.
  - ❖ Hourly maximum data collected on November 9th at hour 12 was invalidated due to a spike.
  - ❖ Hourly data collected on December 25th at hour 5 was invalidated due to a spike that affected data quality. 7 hourly maximum data for wind speed were invalidated due to the spike.

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 2014.

Trailer
No issue was recorded this year.

Continuous Monitoring

Sulphur Dioxide

Current Date : 02/25/15
Current Time : 09:58

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	0	19	2
February	672	639	0	27	2
March	744	708	0	23	1
April	720	682	0	11	0
May	744	705	0	8	0
June	720	671	0	17	1
July	744	707	0	11	0
August	744	707	0	4	0
September	720	683	0	5	0
October	744	707	0	8	1
November	720	685	0	11	1
December	744	706	0	13	1
Yearly Total	8760	8306	0	27	1

SO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: Maskwa Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB SO2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO2 PPB Monthly Average
			≤ 20 ppb	20 < C ≤ 60 ppb	60 < C ≤ 110 ppb	110 < C ≤ 170 ppb	170 < C ≤ 340 ppb	> 340 ppb			
January	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	2.20
February	672	100.0	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0	0	2.36
March	744	100.0	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	0	1.09
April	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.33
May	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.45
June	716	99.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.63
July	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.45
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.18
September	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.24
October	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.52
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.60
December	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.89
									Annual Average		**0.83**

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

SO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

MONTH	Peak Reading in PPB
JANUARY	19
FEBRUARY	27
MARCH	23
APRIL	11
MAY	8
JUNE	17
JULY	11
AUGUST	4
SEPTEMBER	5
OCTOBER	8
NOVEMBER	11
DECEMBER	13

ANNUAL PEAK	**27**

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	7.63	6.32	7.61	5.35	4.39	4.85	6.14	5.15	6.30	11.01	7.31	3.77	6.63	6.15	5.68	5.59	99.96
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00	.03
< 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	7.63	6.32	7.61	5.35	4.39	4.85	6.14	5.15	6.30	11.01	7.31	3.77	6.65	6.16	5.69	5.59	

Calm : .00 %

Total # Operational Hours : 8299

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	634	525	632	444	365	403	510	428	523	914	607	313	551	511	472	464	8296
< 60													1	1	1		3
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	634	525	632	444	365	403	510	428	523	914	607	313	552	512	473	464	

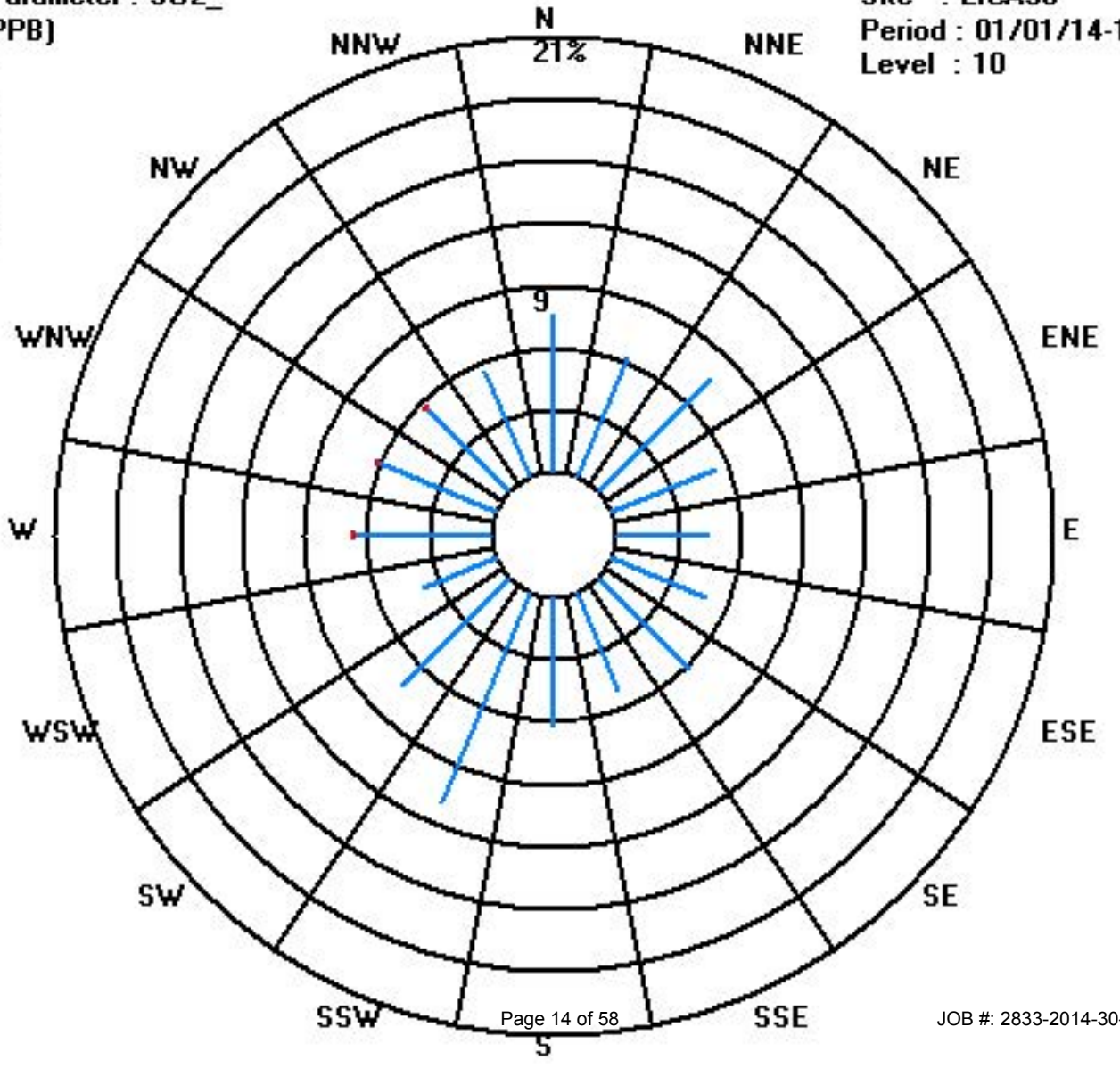
Calm : .00 %

Total # Operational Hours : 8299

Logger : 30 Parameter : SO2_
Class Limits (PPB)

>= 340
< 340
< 170
< 110
< 60
< 20

Site : LICA30
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-30-A

Hydrogen Sulphide

Current Date : 02/25/15
Current Time : 09:59

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	708	0	2	0
February	672	636	0	7	0
March	744	707	0	2	0
April	720	682	0	2	0
May	744	707	0	1	0
June	720	683	0	3	0
July	744	706	0	9	0
August	744	707	0	6	0
September	720	681	0	13	0
October	744	706	0	4	0
November	720	682	0	2	0
December	744	704	0	2	0
Yearly Total	8760	8309	0	13	0

H2S Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: Maskwa Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB H2S)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	H2S PPB Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb			
January	744	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.20
February	672	100.0	99.8%	0.2%	0.0%	0.0%	0	0	0.15
March	744	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.11
April	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.12
May	744	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.16
June	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.19
July	744	100.0	98.3%	1.7%	0.0%	0.0%	0	0	0.35
August	744	100.0	99.6%	0.4%	0.0%	0.0%	0	0	0.24
September	720	100.0	99.0%	0.9%	0.1%	0.0%	0	1	0.21
October	744	100.0	99.7%	0.3%	0.0%	0.0%	0	0	0.18
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.06
December	744	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.16
							Annual Average		**0.18**

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

H2S Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

MONTH	Peak Reading in PPB
JANUARY	2
FEBRUARY	7
MARCH	2
APRIL	2
MAY	1
JUNE	3
JULY	9
AUGUST	6
SEPTEMBER	13
OCTOBER	4
NOVEMBER	2
DECEMBER	2

ANNUAL PEAK	13

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	7.64	6.43	7.60	5.31	4.34	4.38	6.11	5.15	6.27	10.94	7.32	3.78	6.66	6.14	5.66	5.57	99.37
< 10	.01	.00	.02	.02	.04	.43	.02	.00	.02	.02	.00	.00	.00	.00	.00	.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	7.66	6.43	7.62	5.33	4.39	4.83	6.14	5.15	6.29	10.97	7.32	3.78	6.66	6.14	5.66	5.57	

Calm : .00 %

Total # Operational Hours : 8302

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	635	534	631	441	361	364	508	428	521	909	608	314	553	510	470	463	8250
< 10	1		2	2	4	36	2		2	2							51
< 50						1											1
>= 50																	
Totals	636	534	633	443	365	401	510	428	523	911	608	314	553	510	470	463	

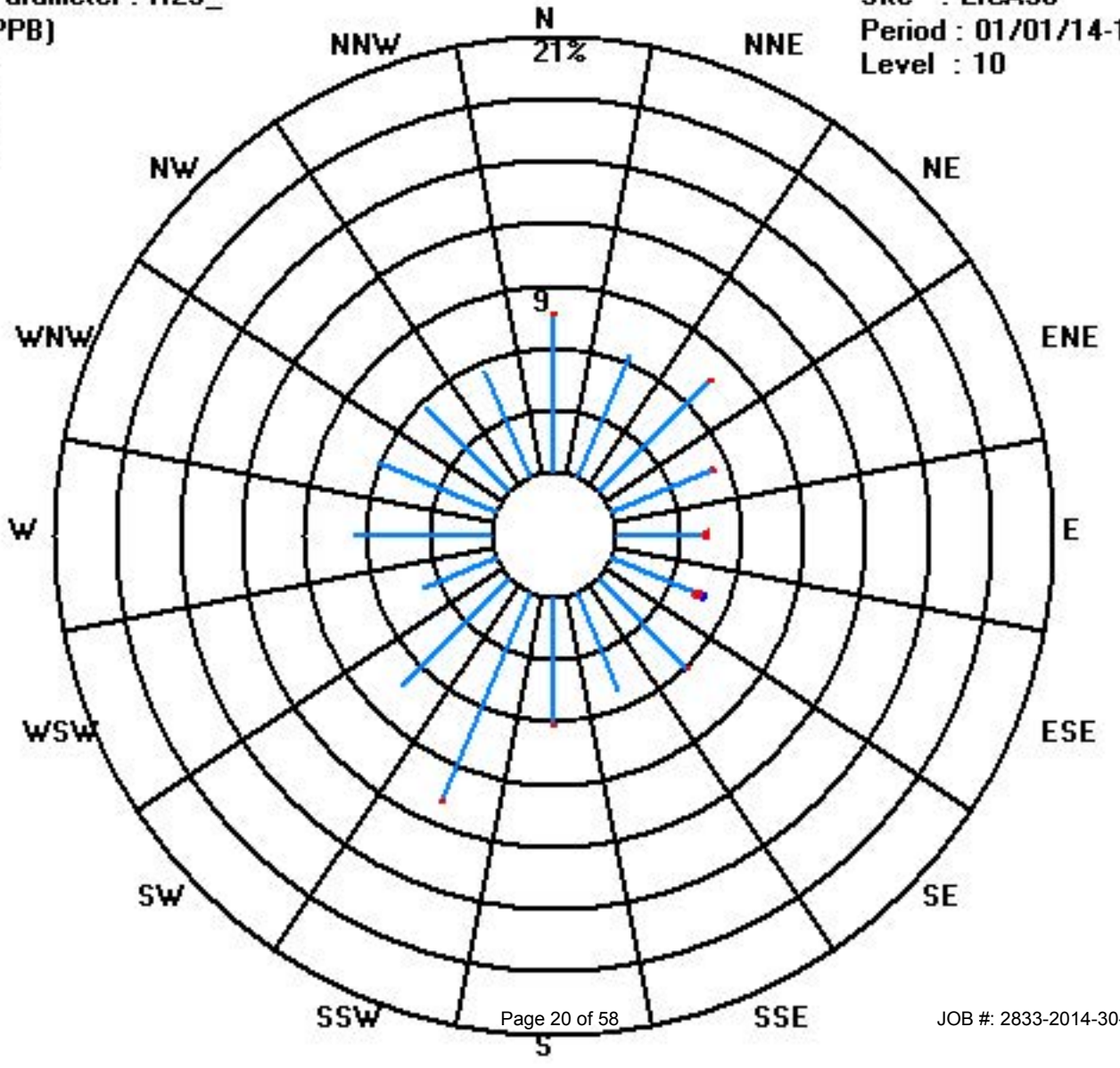
Calm : .00 %

Total # Operational Hours : 8302

Logger : 30 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA30
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-30-A

Total Hydrocarbons

Current Date : 02/25/15
Current Time : 09:59

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	707	1.9	17.2	2.4
February	624	572	1.9	4.7	2.2
March	744	708	1.6	3.6	2.2
April	720	683	1.9	3.5	2.1
May	744	708	1.9	2.6	2.1
June	720	685	1.9	4.9	2.2
July	744	708	1.9	3.1	2.3
August	744	705	1.9	3.6	2.3
September	720	668	1.8	3.3	2.1
October	744	708	1.9	2.8	2.1
November	720	685	1.6	3.5	2.2
December	744	703	1.9	3.4	2.3
Yearly Total	8712	8240	1.6	17.2	2.2

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPM THC)				THC PPM Monthly Average
			0.0 to 3.0 ppm	4.0 to 10.0 ppm	11.0 to 50.0 ppm	>50.0 ppm	
January	744	100.0	94.9%	5.0%	0.1%	0.0%	2.37
February	605	90.0	98.4%	1.6%	0.0%	0.0%	2.24
March	744	100.0	98.7%	1.3%	0.0%	0.0%	2.20
April	720	100.0	99.7%	0.3%	0.0%	0.0%	2.07
May	744	100.0	100.0%	0.0%	0.0%	0.0%	2.06
June	720	100.0	99.4%	0.6%	0.0%	0.0%	2.17
July	744	100.0	99.4%	0.6%	0.0%	0.0%	2.27
August	744	100.0	95.9%	4.1%	0.0%	0.0%	2.31
September	704	97.8	99.7%	0.3%	0.0%	0.0%	2.08
October	744	100.0	100.0%	0.0%	0.0%	0.0%	2.08
November	720	100.0	99.6%	0.4%	0.0%	0.0%	2.17
December	744	100.0	98.0%	2.0%	0.0%	0.0%	2.30
						Annual Average	**2.19**

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

THC Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

MONTH	Peak Reading in PPM
JANUARY	17.2
FEBRUARY	4.7
MARCH	3.6
APRIL	3.5
MAY	2.6
JUNE	4.9
JULY	3.1
AUGUST	3.6
SEPTEMBER	3.3
OCTOBER	2.8
NOVEMBER	3.5
DECEMBER	3.4

ANNUAL PEAK	**17.2**

LICA30
THC / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	7.66	6.41	7.49	5.24	4.19	4.62	5.97	4.87	6.09	10.60	7.04	3.78	6.63	6.02	5.69	5.59	97.97
< 10.0	.03	.06	.10	.03	.04	.12	.14	.18	.15	.48	.35	.01	.02	.20	.02	.01	2.01
< 50.0	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.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	7.70	6.47	7.60	5.28	4.23	4.74	6.12	5.06	6.25	11.08	7.39	3.80	6.65	6.23	5.72	5.61	

Calm : .00 %

Total # Operational Hours : 8233

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	631	528	617	432	345	381	492	401	502	873	580	312	546	496	469	461	8066
< 10.0	3	5	9	3	4	10	12	15	13	40	29	1	2	17	2	1	166
< 50.0								1									1
>= 50.0																	
Totals	634	533	626	435	349	391	504	417	515	913	609	313	548	513	471	462	

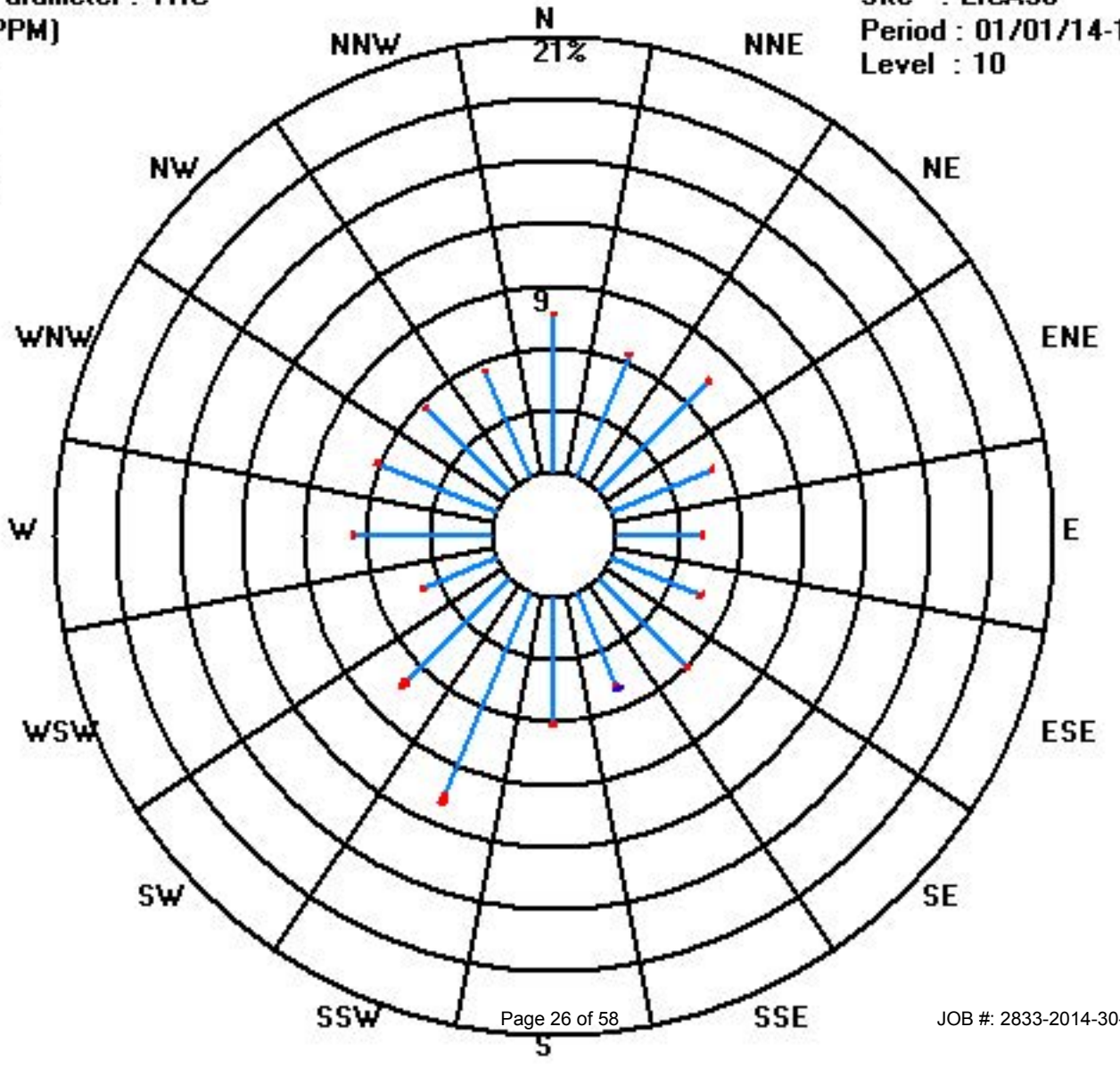
Calm : .00 %

Total # Operational Hours : 8233

Logger : 30 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA30
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-30-A

Nitrogen Dioxide

Current Date : 02/25/15
Current Time : 09:58

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	30.6	5.7
February	672	636	0	33.7	4.5
March	744	705	0	22.9	3.5
April	720	680	0	16.6	1.9
May	744	702	0	14.5	1.8
June	720	671	0	23.3	2
July	744	705	0	16.7	2.2
August	744	704	0	13.1	1.9
September	720	680	0	16.9	2.4
October	744	705	0	22.2	2.8
November	720	680	0	22.3	3.5
December	744	680	0	34.9	5.3
Yearly Total	8760	8251	0	34.9	3.1

NO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO2)				Hourly Readings Above Guidelines	NO2 PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	744	100.0	100.0%	0.0%	0.0%	0.0%	0	5.73
February	672	100.0	100.0%	0.0%	0.0%	0.0%	0	4.47
March	744	100.0	100.0%	0.0%	0.0%	0.0%	0	3.54
April	720	100.0	100.0%	0.0%	0.0%	0.0%	0	1.94
May	744	100.0	100.0%	0.0%	0.0%	0.0%	0	1.81
June	720	100.0	100.0%	0.0%	0.0%	0.0%	0	2.02
July	744	100.0	100.0%	0.0%	0.0%	0.0%	0	2.21
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0	1.89
September	720	100.0	100.0%	0.0%	0.0%	0.0%	0	2.38
October	744	100.0	100.0%	0.0%	0.0%	0.0%	0	2.83
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	3.50
December	731	98.3	100.0%	0.0%	0.0%	0.0%	0	5.33
						Annual Average		**3.14**

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

NO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

MONTH	Peak Reading in PPB
JANUARY	31
FEBRUARY	34
MARCH	23
APRIL	17
MAY	15
JUNE	23
JULY	17
AUGUST	13
SEPTEMBER	17
OCTOBER	22
NOVEMBER	22
DECEMBER	35

ANNUAL PEAK	**34.9**

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	7.61	6.40	7.66	5.33	4.42	4.86	6.17	5.17	6.31	10.94	7.21	3.79	6.62	6.14	5.66	5.61	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	7.61	6.40	7.66	5.33	4.42	4.86	6.17	5.17	6.31	10.94	7.21	3.79	6.62	6.14	5.66	5.61	

Calm : .00 %

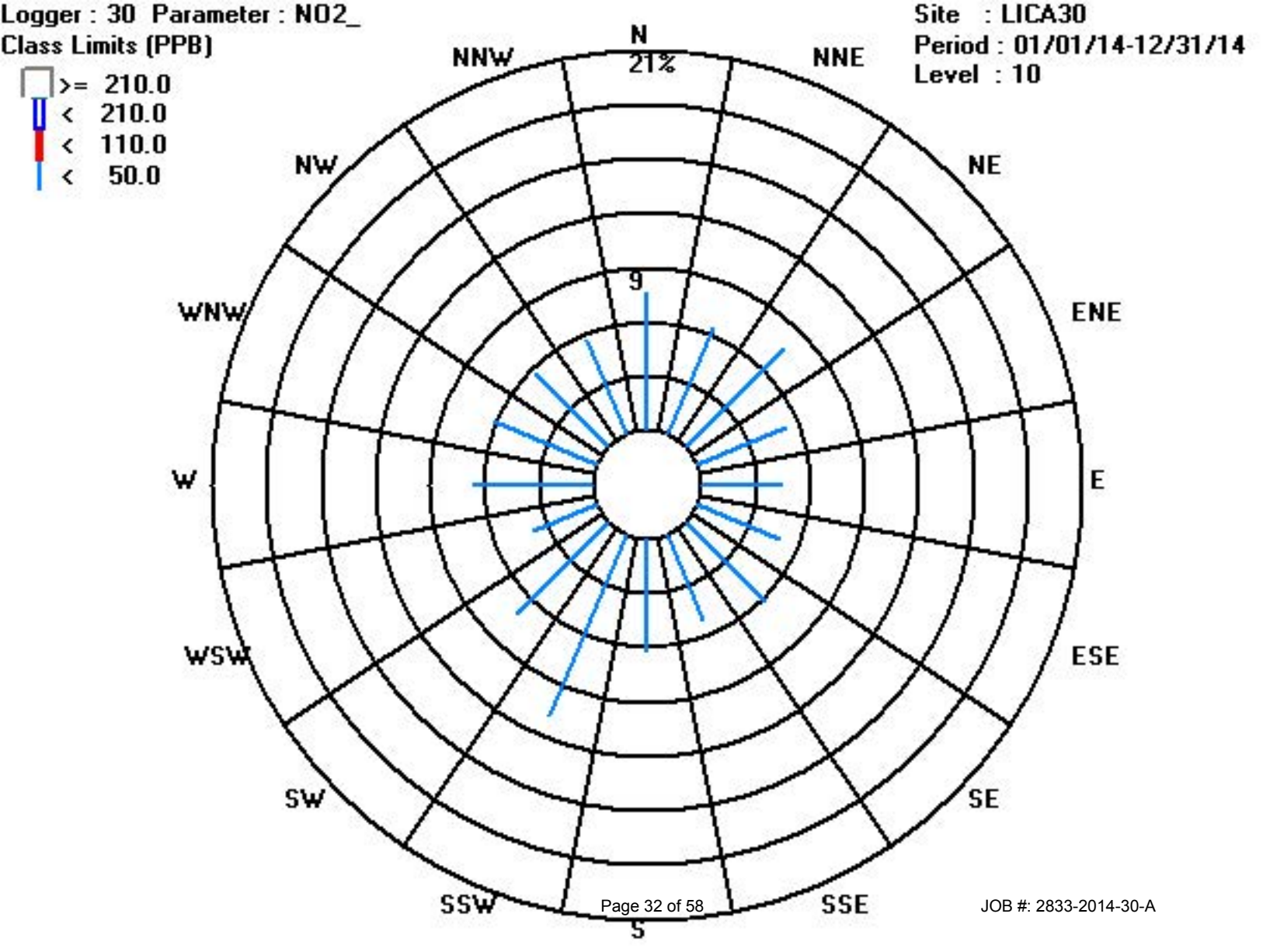
Total # Operational Hours : 8244

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	628	528	632	440	365	401	509	427	521	902	595	313	546	507	467	463	8244
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	628	528	632	440	365	401	509	427	521	902	595	313	546	507	467	463	

Calm : .00 %

Total # Operational Hours : 8244


Logger : 30 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA30
Period : 01/01/14-12/31/14
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitric Oxide

Current Date : 02/25/15
Current Time : 09:58

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	704	0	18.5	1.1
February	672	636	0	27.5	0.8
March	744	706	0	20.4	0.8
April	720	680	0	10.3	0.3
May	744	703	0	10.6	0.7
June	720	671	0	22.3	0.8
July	744	705	0	11.6	0.4
August	744	705	0	7.9	0.3
September	720	680	0	20.3	0.7
October	744	705	0	68.2	1.1
November	720	680	0	19.3	0.8
December	744	680	0	18	1.2
Yearly Total	8760	8255	0	68.2	0.7

NO Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO)				Hourly Readings Above Guidelines	NO PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	1.07
February	672	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.76
March	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.79
April	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.30
May	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.66
June	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.80
July	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.38
August	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.33
September	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.67
October	744	100.0	99.9%	0.1%	0.0%	0.0%	NA	1.08
November	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.79
December	731	98.3	100.0%	0.0%	0.0%	0.0%	NA	1.17
* Valid readings - does not include calibration hours and downtime hours.						Annual Average		**0.73**

NO Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

MONTH	Peak Reading in PPB
JANUARY	19
FEBRUARY	28
MARCH	20
APRIL	10
MAY	11
JUNE	22
JULY	12
AUGUST	8
SEPTEMBER	20
OCTOBER	68
NOVEMBER	19
DECEMBER	18

ANNUAL PEAK	68.2

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	7.62	6.40	7.66	5.35	4.41	4.86	6.17	5.17	6.32	10.93	7.21	3.79	6.61	6.14	5.66	5.61	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	7.62	6.40	7.66	5.35	4.42	4.86	6.17	5.17	6.32	10.93	7.21	3.79	6.61	6.14	5.66	5.61	

Calm : .00 %

Total # Operational Hours : 8248

Distribution By Samples

Direction

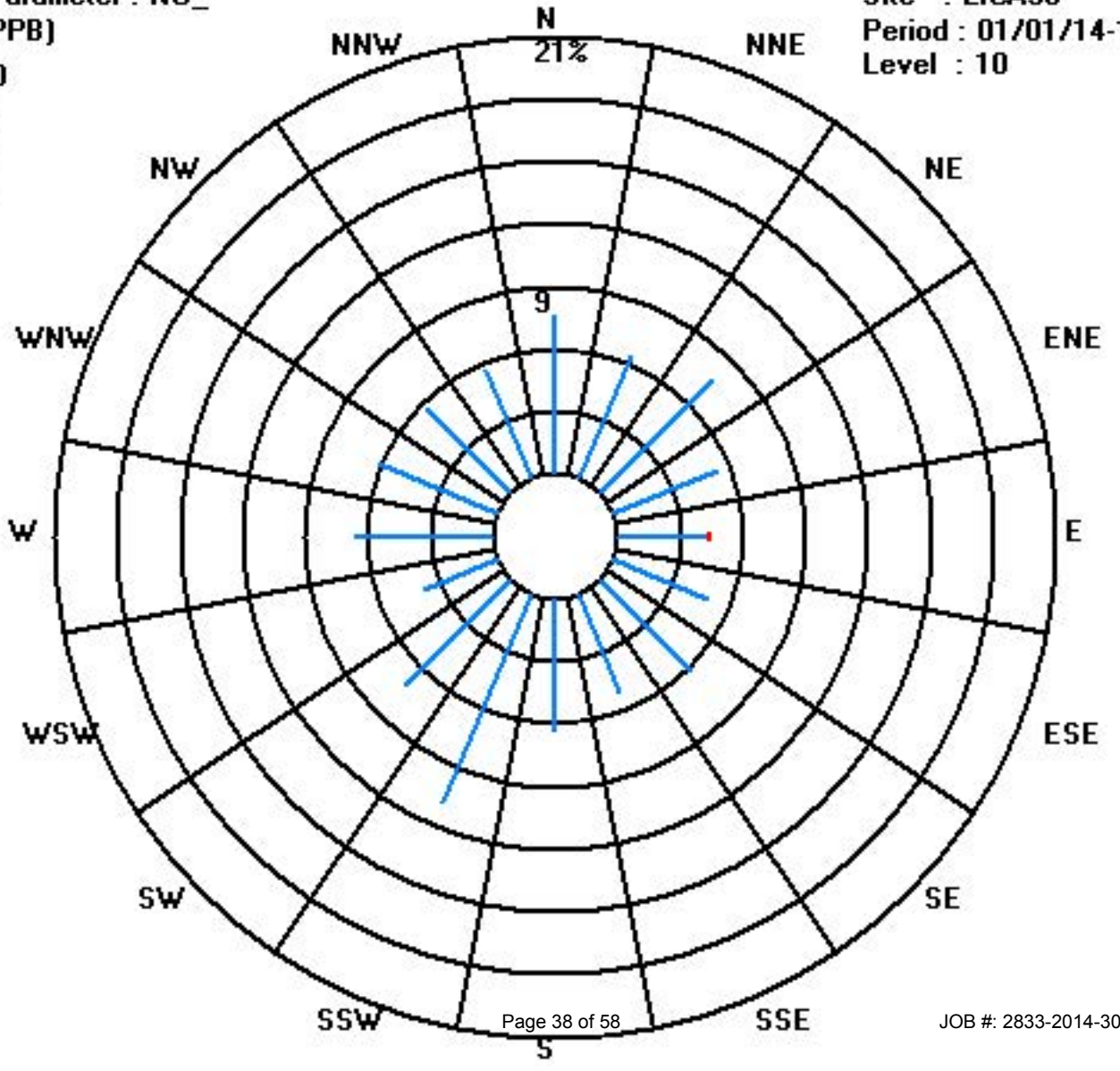
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	629	528	632	442	364	401	509	427	522	902	595	313	546	507	467	463	8247
<	110.0					1												1
<	210.0																	
>=	210.0																	
	Totals	629	528	632	442	365	401	509	427	522	902	595	313	546	507	467	463	

Calm : .00 %

Total # Operational Hours : 8248

Logger : 30 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-30-A

Oxides of Nitrogen

Current Date : 02/25/15
Current Time : 09:57

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	704	0	37.6	6.8
February	672	636	0	50.2	5.2
March	744	706	0	38.2	4.3
April	720	680	0	20.5	2.2
May	744	703	0	20	2.5
June	720	671	0	33.8	2.8
July	744	705	0	22.3	2.6
August	744	705	0	19.8	2.2
September	720	680	0	32.6	3.1
October	744	705	0	85.6	3.9
November	720	680	0	35.8	4.3
December	744	680	0.5	48.8	6.5
Yearly Total	8760	8255	0	85.6	3.9

NOx Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NOx)				Hourly Readings Above Guidelines	NOx PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	6.80
February	672	100.0	99.8%	0.2%	0.0%	0.0%	NA	5.23
March	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	4.33
April	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	2.24
May	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	2.48
June	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	2.82
July	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	2.59
August	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	2.22
September	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	3.06
October	744	100.0	99.9%	0.1%	0.0%	0.0%	NA	3.91
November	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	4.28
December	731	98.3	100.0%	0.0%	0.0%	0.0%	NA	6.50
* Valid readings - does not include calibration hours and downtime hours.						Annual Average		**3.87**

NOx Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

MONTH	Peak Reading in PPB
JANUARY	38
FEBRUARY	50
MARCH	38
APRIL	21
MAY	20
JUNE	34
JULY	22
AUGUST	20
SEPTEMBER	33
OCTOBER	86
NOVEMBER	36
DECEMBER	49

ANNUAL PEAK	**85.6**

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	7.62	6.40	7.66	5.35	4.41	4.86	6.17	5.17	6.32	10.93	7.21	3.79	6.60	6.14	5.66	5.61	99.97
<	110.0	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.02
<	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	7.62	6.40	7.66	5.35	4.42	4.86	6.17	5.17	6.32	10.93	7.21	3.79	6.61	6.14	5.66	5.61	

Calm : .00 %

Total # Operational Hours : 8248

Distribution By Samples

Direction

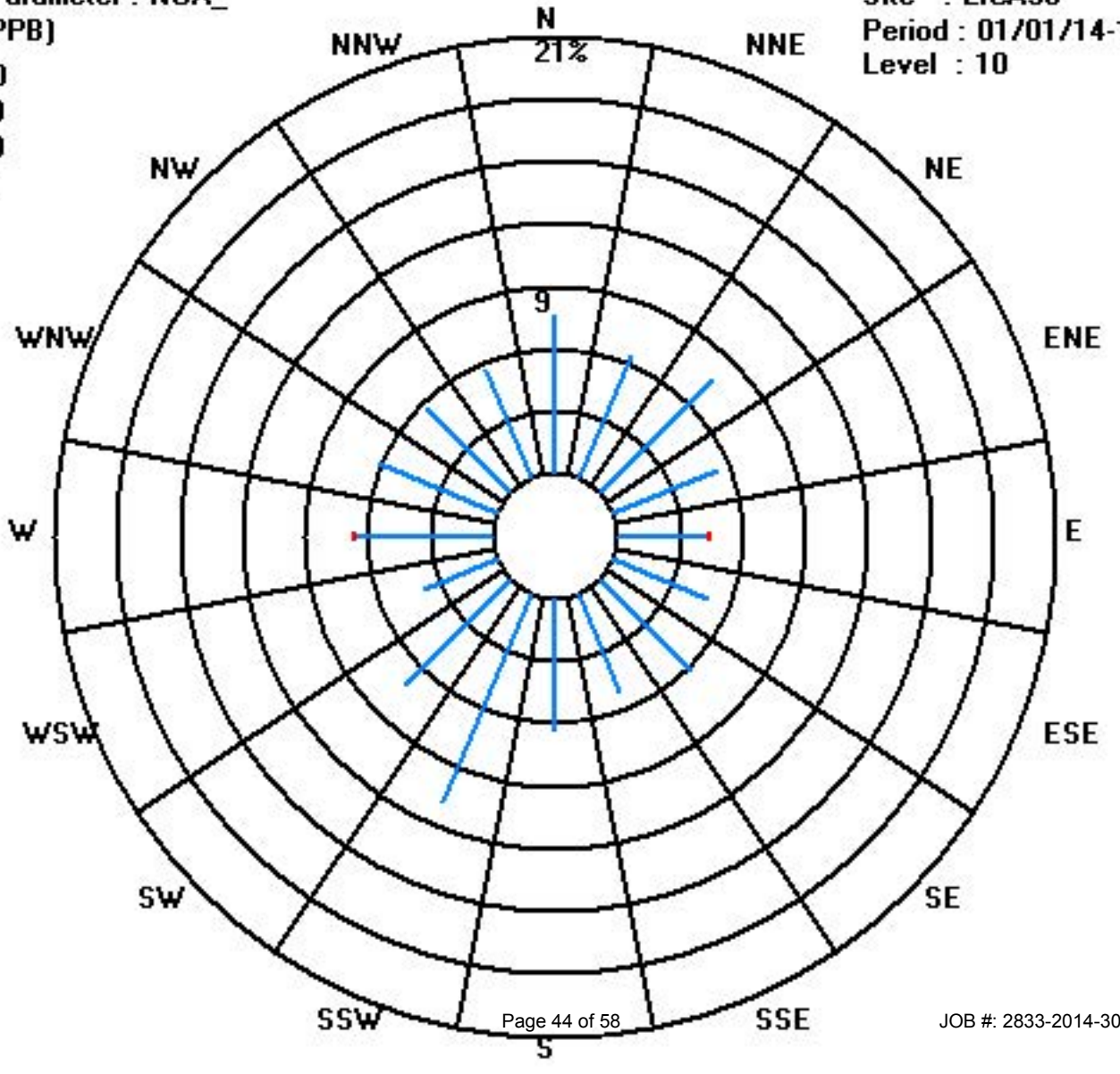
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	629	528	632	442	364	401	509	427	522	902	595	313	545	507	467	463	8246
<	110.0					1								1				2
<	210.0																	
>=	210.0																	
	Totals	629	528	632	442	365	401	509	427	522	902	595	313	546	507	467	463	

Calm : .00 %

Total # Operational Hours : 8248

Logger : 30 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA30
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-30-A

Temperature

Current Date : 02/25/15
Current Time : 09:59

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	-33.1	8.6	-12.6
February	672	672	-34.4	4.4	-17.1
March	744	744	-36.6	12.7	-8.3
April	720	720	-17.7	20.8	1.6
May	744	744	-5.8	28.6	8.7
June	720	720	1	26	14.4
July	744	744	5.8	30.2	18.6
August	744	744	1.2	30.3	16.8
September	720	720	-4.2	28.3	10.1
October	744	744	-5.3	19.2	5.4
November	720	720	-27.9	10.5	-9.8
December	744	744	-32.2	6.5	-10
Yearly Total	8760	8760	-36.6	30.3	1.6

AMBIENT TEMPERATURE (TPX) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Operational Uptime (%)	Monthly Average (°C)	Minimum Hourly Average (°C)	Maximum Hourly Average (°C)	Maximum Daily Average (°C)
January	100.0	-12.57	-33.1	8.6	3.4
February	100.0	-17.07	-34.4	4.4	-4.1
March	100.0	-8.35	-36.6	12.7	5.7
April	100.0	1.63	-17.7	20.8	12.0
May	100.0	8.68	-5.8	28.6	21.0
June	100.0	14.36	1	26	20.2
July	100.0	18.60	5.8	30.2	22.6
August	100.0	16.79	1.2	30.3	21.7
September	100.0	10.05	-4.2	28.3	17.3
October	100.0	5.42	-5.3	19.2	11.4
November	100.0	-9.82	-27.9	10.5	3.8
December	100.0	-9.99	-32.2	6.5	1.7
ANNUAL AVERAGE		**1.48**	**-**	**-**	**-**

Precipitation

Current Date : 02/25/15
Current Time : 10:00

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0	2.0	0
February	672	672	0	2.0	0
March	744	744	0	0.2	0
April	720	720	0	1.9	0.1
May	744	744	0	6.2	0.1
June	720	720	0	7.1	0.2
July	744	744	0	21.9	0.1
August	744	744	0	8.4	0.1
September	720	719	0	6.8	0
October	744	744	0	1.2	0
November	720	720	0	1.5	0
December	744	744	0	2.9	0
Yearly Total	8760	8759	0	21.9	0.1

PRECIPITATION Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Operational Uptime (%)	Monthly Average (MM)	Monthly Total (MM)	Maximum Hourly Average (MM)	Maximum Daily Average (MM)
January	100.0	10.60	0	2	0.2
February	100.0	0.10	2	2	0.0
March	100.0	1.20	0.2	0.2	0.0
April	100.0	55.50	1.9	1.9	0.0
May	100.0	77.80	6.2	6.2	0.0
June	0.0	122.10	7.1	7.1	0.0
July	100.0	76.80	21.9	21.9	0.0
August	100.0	51.00	8.4	8.4	0.0
September	99.9	28.00	6.8	6.8	0.0
October	100.0	7.10	1.2	1.2	0.0
November	100.0	17.00	1.5	1.5	0.0
December	100.0	7.50	2.9	2.9	0.0
ANNUAL AVERAGE		**37.89**	**-**	**-**	**-**

Relative Humidity

Current Date : 02/25/15
Current Time : 10:00

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	38	89	68
February	672	672	18	82	63
March	744	744	20	88	56
April	720	720	14	91	66
May	744	744	20	93	62
June	720	720	27	94	72
July	744	744	30	94	70
August	744	744	31	94	73
September	720	720	25	93	71
October	744	744	22	92	70
November	720	720	35	91	74
December	744	744	59	90	80
Yearly Total	8760	8760	14	94	69

RELATIVE HUMIDITY (RH) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Operational Uptime (%)	Monthly Average (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	100.0	68.11	89	81.8
February	100.0	63.29	82	78.6
March	100.0	55.95	88	75.3
April	100.0	66.26	91	89.1
May	100.0	62.06	93	91.1
June	100.0	71.90	94	91.0
July	100.0	70.06	94	83.5
August	100.0	73.02	94	81.8
September	100.0	71.25	93	90.2
October	100.0	70.29	92	86.7
November	100.0	73.69	91	85.9
December	100.0	79.94	90	87.6
ANNUAL AVERAGE		**68.82**	**-**	**-**

Barometric Pressure

Current Date : 02/25/15
Current Time : 10:00

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	906	965	938
February	672	672	917	967	941
March	744	744	923	963	941
April	720	720	926	960	939
May	744	744	929	959	942
June	720	720	930	949	940
July	744	744	926	956	943
August	744	744	930	956	944
September	720	720	928	962	942
October	744	744	924	953	937
November	720	720	918	965	942
December	744	744	917	969	939
Yearly Total	8760	8760	906	969	941

BAROMETRIC PRESSURE (BP) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Maskwa Site

Month	Operational Uptime (%)	Monthly Average (MB)	Maximum Hourly Average (MB)	Maximum Daily Average (MB)
January	100.0	938.48	965	961.9
February	100.0	941.28	967	963.0
March	100.0	941.30	963	959.7
April	100.0	939.18	960	956.6
May	100.0	942.29	959	956.0
June	100.0	939.51	949	947.4
July	100.0	942.90	956	953.3
August	100.0	943.50	956	954.8
September	100.0	941.94	962	960.3
October	100.0	937.03	953	950.5
November	100.0	942.27	965	964.3
December	100.0	938.96	969	967.9
ANNUAL AVERAGE		**940.72**	**-**	**-**

Vector Wind Speed

Current Date : 02/25/15
Current Time : 09:59

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0.2	23.3	6.8
February	672	667	0.1	15.4	4.5
March	744	744	0	17.6	4.9
April	720	720	0.1	16.9	5.7
May	744	744	0.1	12.4	5.2
June	720	720	0.1	12	4.1
July	744	744	0.1	13.3	4.2
August	744	744	0	10	3.6
September	720	720	0	15.9	4.6
October	744	743	0.1	13.5	4.9
November	720	720	0.2	16.2	5.5
December	744	743	0.1	9.8	4.2
Yearly Total	8760	8753	0	23.3	4.8

Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Annual Data Report

For
2014

Prepared By:

February 27, 2015

Lakeland Industry & Community Association
St. Lina
Ambient Air Monitoring

Table of Contents

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 2014 to December 2014

The annual ambient data report:

- Prepared by Wunmi Adekanmbi
- 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
Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 468
  - ❖ The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes. Two hours of data collected on January 28th were invalidated due to a power failure.
  - ❖ The hourly data collected between February 1st and February 16th were higher than historical data. The issue was corrected after the sample valve was replaced on February 16th. No data was discarded due to this event as the drift was still within acceptance limits. Hourly maximum data collected on February 13th at hour 19 was missing due to a power outage.
  - ❖ The analyzer was put into maintenance mode on March 12th for the Ozone calibration. Nine hours of data were missing due to power failures in March.
  - ❖ The analyzer was put into maintenance mode for 7 hours in April while maintenance was being performed on other analyzers to avoid any interference.
  - ❖ Six hours of data were missing on May 15th due to a power failure. One hour of data collected on May 15th was invalidated as the analyzer was recovering from the power failure. The daily zero/span results for May 2nd and May 3rd were missing. Reason unknown.
  - ❖ One hourly maximum data collected on June 10th was invalidated due to a power failure.
  - ❖ The analyzer was put into maintenance mode on July 28th for O3 analyzer maintenance performance. Three hourly data and five hourly maximum data were missing due to power failures in July. Two hourly data were invalidated as the analyzer was recovering from the power failures.
  - ❖ The analyzer was put into maintenance mode on August 15th for the O3 analyzer calibration. 9 hourly data were missing and 3 hourly maximum data invalidated due to power failures in August. One hourly data collected on August 19th was invalidated as the analyzer was recovering from a power failure.
  - ❖ 3 hourly maximum data were invalidated due to small power outages in September.
  - ❖ Two hours of data were missing due to a power failure in October. One hourly data collected on October 30th was invalidated as the analyzer was recovering from the power failure.
  - ❖ Seven hourly data and four hourly maximum data were missing due to power failures in December.

General Monthly Summary

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 510;and API 101E, S/N: 722
  - The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes. Data between hour 14 and 15 on January 28th were invalidated due to a power failure.
  - The analyzer was put into maintenance mode on February 25th for the Teom unit repair. Hourly maximum data collected on February 13th at hour 19 was missing due to a power outage.
  - The daily zero result was outside the limited range on March 21st due to loose wire. The issue was fixed on March 22nd. Data was invalidated back to the last good daily zero/span check which was March 20th. 54 hours of data were discarded as a result. Nine hours of data were missing due to power failures in March. One hour of data collected on March 10th was invalidated as the analyzer was recovering from a power failure.
  - The daily zero result went below the acceptable range on April 30th. The analyzer was checked and calibrated on May 1st. Data was invalidated back to the last good daily calibration, which was April 30th. Sixteen hours of data were discarded as a result.
  - Six hours of data were missing on May 15th due to a power failure. Hour 12 data on May 15th was invalidated as the analyzer was recovering from the power failure.
  - The LICA-owned API 101, S/N 510 analyzer required annual maintenance. It was removed from site and brought to Maxxam Calgary shop for repair/maintenance on June 17th. A temporary Maxxam-supplied API 101E, S/N 722 analyzer was installed on the same day. An installation calibration was performed on June 18th. One hourly maximum data collected on June 10th was invalidated due to a power failure.
  - Three hourly data and five hourly maximum data were missing due to power failures in July. Two hourly data were invalidated as the analyzer was recovering from the power failures.
  - The repaired LICA-owned API 101, S/N 510 analyzer was re-installed on August 12th following a removal calibration on the temporary Maxxam-supplied API 101 E analyzer. 23 hours of data were invalidated due to the failure of the analyzer as a result of an outage that occurred on August 14th. 9 hourly data are missing and 3 hourly maximum data invalidated due to power failures in August. One hourly data collected on August 19th was invalidated as the analyzer was recovering from a power failure.
  - The IZS system showed instability in September. On September 22nd, the LICA owned analyzer was replaced again with the Maxxam supplied analyzer after many troubleshooting and maintenance attempts. 23 hours of data were invalidated due to this event. 3 hourly maximum data were invalidated due to small power outages in September.
  - Two hours of data were missing due to a power failure in October. One hourly data collected on October 30th was invalidated as the analyzer was recovering from the power failure.
  - Seven hourly data and four hourly maximum data were missing due to power failures in December.

General Monthly Summary

Total HydroCarbon (PPM)

- Analyzer make / model – Thermo 51C-LT, S/N: 04366-09739
  - ❖ The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes. Two hours of data collected on January 28th were invalidated due to a power failure.
  - ❖ The analyzer spanned low on February 11th due to sample pump failure. The pump was rebuilt on February 13th. 57 hours of data were invalidated due to this event. The fittings for the regulator for span gas were changed on February 13th. One hourly maximum data collected on February 13th was missing due to a power outage.
  - ❖ Data generated between hour 6 and 10 on March 4th were invalidated because the analyzer read low for no known cause. A 3- point calibration was completed on March 11th because the analyzer was reading below 1.5 ppm background concentration on March 10th. 23 hours of data were invalidated in March as the data was below 1.5 ppm. The THC channel was put into maintenance mode on March 21st while troubleshooting was being performed on the NO2 analyzer. Nine hours of data were missing in March due to power failures. Data collected on March 7th at hour 12 went above the full scale.
  - ❖ The analyzer was put into maintenance mode on April 23rd hour 8 while maintenance was being performed on O3 analyzer.
  - ❖ Six hours of data were missing on May 15th due to a power failure. Hour 12 data on May 15th was invalidated as the analyzer was recovering from the power failure.
  - ❖ Hourly maximum data on June 1st hour 18 went above the full scale. Hourly maximum data collected on June 10th at hour 8 was invalidated due to a power failure.
  - ❖ Three hourly data and five hourly maximum data were missing due to power failures in July. Two hourly data were invalidated as the analyzer was recovering from the power failures. The hydrogen cylinder was changed on July 28th.
  - ❖ 9 hourly data are missing and 3 hourly maximum data invalidated due to power failures in August. One hourly data collected on August 19th was invalidated as the analyzer was recovering from a power failure.
  - ❖ The sample pump was rebuilt on September 11th followed by a post-repair calibration. The analyzer was put into maintenance mode on September 22rd for case fan repair. 3 hourly maximum data were invalidated due to small power outages in September.
  - ❖ Two hours of data were missing due to a power failure in October. One hourly data collected on October 30th was invalidated as the analyzer was recovering from the power failure.
  - ❖ On November 14th the pump for the zero air generator was replaced and both the hydrogen and span gas bottles were changed.
  - ❖ Seven hourly data and four hourly maximum data were missing due to power failures in December. One hour of data collected on December 22nd was invalidated as the analyzer was recovering from a power failure.

General Monthly Summary

AQM STATION – LICA – St. Lina
Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 592; API 200A S/N: 1746
  - The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes. Data between hour 14 and 15 on January 28th were invalidated due to a power failure.
  - An as found points check was performed on February 16th in order to get a reference point for O3 calibration. Hourly maximum data at hour 19 on February 13th was missing due to a power outage.
  - Maintenance was performed on the analyzer on March 17th to address a daily zero drift. A post-repair calibration was completed on March 18th. The zero value was adjusted on March 27th following an as found points check. Nine hours of data were missing due to power failures in March. One hourly data collected on March 10th was invalidated as the analyzer was recovering from the power failure.
  - The analyzer was replaced in April. The replacement API 200A analyzer was installed on April 15th following the API200E removal calibration. An installation calibration was done on April 16th. Eleven hours of data were invalidated due to a zero/span drift on April 30th.
  - Eight hours of data were discarded in May due to the zero/span drift that occurred on April 30th. On May 3rd, the scrubber material was replaced and the analog output was calibrated followed by an as found points check. The sample valve was changed on May 13th following a shut-down calibration. An installation calibration was performed on May 14th. Six hours of data were missing on May 15th due to a power failure. Hour 12 data on May 15th was invalidated as the analyzer was recovering from the power failure.
  - Hourly maximum data collected on June 10th at hour 8 was invalidated due to a power failure.
  - Hourly data collected on July 28th hour 14 was invalidated as the channel was into maintenance mode for O3 maintenance performance. Three hourly data and five hourly maximum data were missing due to power failures in July. Two hourly data were invalidated as the analyzer was recovering from the power failures.
  - 9 hourly data were missing and 3 hourly maximum data invalidated due to power failures in August. One hourly data collected on August 19th was invalidated as the analyzer was recovering from a power failure.
  - The analyzer was put into maintenance mode on September 3rd for the O3 analyzer calibration. 3 hourly maximum data were invalidated due to small power outages in September.
  - Two hours of data were missing due to a power failure in October. One hourly data collected on October 30th was invalidated as the analyzer was recovering from the power failure.
  - Seven hourly data and four hourly maximum data were missing due to power failures in December.

General Monthly Summary

Ozone (PPB)

- Analyzer make / model - Thermo 49i, S/N: 1002240371
  - The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes. Hour 14 data on January 28th was missing due to a power failure.
  - The pump was replaced on February 16th to correct analyzer malfunction. 15 hours of data were invalidated due to this event. Hourly maximum data collected on February 13th at hour 19 was missing due to a power outage.
  - Nine hours of data were missing due to power failures in March.
  - The channel was put into maintenance mode while retrieving the O3 calibration standard points from the NOx calibration on April 8th. Nineteen hours of data between April 22nd and April 23rd were invalidated due to a connection issue between the analyzer and the data logger.
  - The daily zero/span results for May 2nd and May 3rd were missing. Reason unknown. Six hours of data were missing on May 15th due to a power failure. Hour 12 data on May 15th was invalidated as the analyzer was recovering from the power failure.
  - Hourly maximum data collected on June 10th at hour 8 was invalidated due to a power failure.
  - The analyzer spanned high on July 21st due to the presence of water in the charcoal of the IZS pump. The pump was rebuilt on July 28th. This event did not affect data quality. Three hourly data and five hourly maximum data were missing due to power failures in July. Two hourly data were invalidated as the analyzer was recovering from the power failures.
  - 9 hourly data were missing and 3 hourly maximum data invalidated due to power failures in August. One hourly data collected on August 19th was invalidated as the analyzer was recovering from a power failure.
  - 3 hourly maximum data were invalidated due to small power outages in September.
  - Two hours of data were missing due to a power failure in October. One hourly data collected on October 30th was invalidated as the analyzer was recovering from the power failure.
  - Seven hourly data and four hourly maximum data were missing due to power failures in December.

General Monthly Summary

Particulate Matter 2.5 (UG/M3)

- Analyzer make / model – R&P Teom 1400a, S/N: 20001; Teom 1405F, S/N: 1405A207691003; 1400A S/N: 140AB228720001
  - The time spent on the routine calibration was extended in January for Maxxam field technicians training purposes. Hour 14 data on January 28th was missing due to a power failure. 5 hours of data were invalidated in January as the data were below –3 ug/m3.
  - A post-repair audit was performed on February 20th following the replacement of the sample pump. A new dryer was installed on February 26th. Two hourly data were invalidated as the data were below –3 ug/m3.
  - The filters were replaced on March 17th to address the issue of negative readings generated after the March 12th audit. The channel was put into maintenance mode on March 18th to monitor the unit's functionality. Nine hours of data were missing due to power failures in March.
  - Maintenance was performed on the unit on April 10th following a malfunction after the April 9th audit. 24 hours of data were discarded due to this maintenance event. 7 hours of data were invalidated due a sample pump malfunction. The pump was rebuilt on April 15th and the flow was adjusted on April 23rd. Two hourly data were invalidated as the data were below –3 ug/m3.
  - Six hours of data were missing on May due to a power failure. One hour of data on May 15th was invalidated as the analyzer was recovering from the power failure. Two hours of data were invalidated as the data were below –3 ug/m3.
  - The sample pump was rebuilt on June 18th. Three hours of data were invalidated as the data were below -3 ug/m3.
  - The Maxxam-supplied Teom 1400A was re-installed on July 3rd after a failed attempt to install the LICA-owned Teom 1405F. The unit lost memory due to a power failure on July 10th. The unit was brought back to Maxxam shop for repair. It was installed back to the field on July 11th. 40 hours of data were invalidated due to this event. 34 hours of data were invalidated due to a filter overload that caused high hourly readings on July 27th. Three hourly data and five hourly maximum data were missing due to power failures in July. Ten hours of data were invalidated as the data were below –3 ug/m3. Two 24-Hour exceedences were recorded this month: AESRD Ref# 289009 and 286690,
  - 29 hours of data were invalidated in August due to two maintenance events following a filter overload alarm. 9 hourly data were missing due to power failures in August. One hourly data collected on August 19th was invalidated as the analyzer was recovering from a power failure. Three hours of data were invalidated as the data were below –3 ug/m3. One 24-Hour exceedence was recorded in August: concentration of 36.3 ug/m3 on August 16th. AESRD Ref#:288382.
  - The Teom unit failed on September 11th. As the issue could not be fixed in the field, the unit was removed from site and sent back to the manufacturer for repair. 469 hourly data were missing due to this event.
  - The unit was installed back on November 6th. Therefore, no data was collected in October. The October uptime was 0%. AESRD Ref#: 292438

General Monthly Summary

Particulate Matter 2.5 (continued)

- The Teom unit was removed from the trailer for repair on September 11th. The unit was installed back to the field on November 6th. 132 hours of data were missing due to this event. Fourteen hourly data were invalidated as they were below –3 ug/m3. One 24-Hour exceedance was recorded this month: concentration of 33.5 ug/m3 on November 13th. The operational uptime was 79.7%. AESRD Ref#: 291970.
- The Teom unit failed in December due to a leak in the bypass connection. The unit was fixed and calibrated on December 23rd. Sixteen hours of data were invalidated due to this event. Seven hours of data were missing in December due to a power failure. One hourly data was invalidated as it was below –3 ug/m3.

Temperature (Degree C)

- Analyzer make / model – Met One 060
  - One hourly data collected on January 28th was missing due to a power failure.
  - Nine hours of data were missing due to power failures in March.
  - The TPX sensor was checked on April 1st. No issue was found.
  - Six hours of data were missing on May 15th due to a power failure.
  - The temperature sensor was verified on June 18th.
  - Three hourly data were missing due to power failures in July.
  - 9 hourly data were missing due to power failures in August.
  - Two hours of data were missing due to a power failure in October.
  - Seven hours of data were missing in December due to a power failure.

Barometric Pressure (Millibar)

- Analyzer make / model - Met One 092
  - One hourly data collected on January 28th was missing due to a power failure.
  - Nine hours of data were missing due to power failures in March.
  - The BP sensor was verified on April 1st. No issue was found.
  - Six hours of data were missing on May 15th due to a power failure.
  - The BP sensor was verified on June 18th.
  - Three hourly data were missing due to power failures in July.
  - 9 hourly data were missing due to power failures in August.
  - Two hours of data were missing due to a power failure in October.
  - Seven hours of data were missing in December due to a power failure.

General Monthly Summary

Relative Humidity (%)

- Analyzer make / model - Met One 083
  - One hourly data collected on January 28th was missing due to a power failure.
  - Nine hours of data were missing due to power failures in March.
  - The RH sensor was checked on April 1st. No issue was found.
  - Six hours of data were missing on May 15th due to a power failure.
  - Two hours of data were missing due to a power failure in October.
  - Three hourly data were missing due to power failures in July.
  - 9 hourly data were missing due to power failures in August.
  - Seven hours of data were missing in December due to a power failure.

Precipitation (MM)

- Analyzer make / model - Met One 387
  - Nine hours of data were missing due to power failures in March.
  - Four hours of data were missing on May 15th due to a power failure.
  - Maintenance was performed on the rain gauge on June 18th as the funnel was blocked. Hourly data might be lower than it should be. Data should be used with caution.
  - Three hourly data were missing due to power failures in July.
  - 9 hourly data were missing due to power failures in August.
  - The rain gauge was checked and cleaned on September 15th. All requirements were met.
  - Two hours of data were missing due to a power failure in October.
  - Seven hours of data were missing in December due to a power failure.

General Monthly Summary

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

- System make / model –MetOne 50.5H Sonic, S/N: H12635 and RM Young 5103VK, S/N: 41334
  - One hourly data collected on January 28th was missing due to a power failure.
  - Five hourly maximum data collected this month were discarded as the data was above analyzer full scale. Hourly maximum data collected on February 13th at hour 19 was missing due to a power outage.
  - Nine hours of data were missing due to power failures in March. Four hours of wind speed maximum data were invalidated as the readings were above the full scale.
  - Six hours of data were missing on May 15th due to a power failure
  - Three hourly data were missing due to power failures in July.
  - The MetOne wind system was replaced with the RM Young system followed by a calibration on August 12th, 2014. Magnetic declination was recalculated to: 13° 52.4' East. 9 hourly data were missing due to power failures in August.
  - The 2-year calibration was performed on the MetOne wind system on August 28th, 2014 by the manufacturer. The MetOne 50.5H Sonic was re-installed on site on October 30th. Two hours of data were missing due to a power failure in October.
  - 69 hours of data for wind speed/wind direction/ standard deviation wind directionwere invalidated due to the freezing of the wind system freeze in November.
  - Following a small power outage that occurred on December 21st, there was a malfunction of the wind system. 31 hours of data were invalidated due to this event. Seven hourly data were missing and two hourly maximum data were invalidated in December due to power failures. One hourly maximum data collected on December 9th was invalidated due to a spike.
  -

Trailer

No issues were recorded this year.

Continuous Monitoring

Annual Summaries Graphs & Wind Roses

Sulphur Dioxide

Current Date : 02/25/15
Current Time : 10:01

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	701	0	14	4
February	672	631	0	8	2
March	744	690	0	27	0
April	720	671	0	3	0
May	744	670	0	3	0
June	720	680	0	2	0
July	744	693	0	8	0
August	744	690	0	4	0
September	720	680	0	1	0
October	744	702	0	3	0
November	720	682	0	5	1
December	744	697	0	6	0
Yearly Total	8760	8187	0	27	1

SO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB SO2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO2 PPB Monthly Average
			≤ 20 ppb	20 < C ≤ 60 ppb	60 < C ≤ 110 ppb	110 < C ≤ 170 ppb	170 < C ≤ 340 ppb	> 340 ppb			
January	740	99.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	3.60
February	672	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	2.30
March	731	98.3	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	0	0.40
April	713	99.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.04
May	719	96.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.17
June	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.01
July	735	98.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.04
August	731	98.3	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.02
September	716	99.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.06
October	741	99.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.08
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.82
December	735	98.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.23
									Annual Average		**0.65**

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

SO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPB
JANUARY	14
FEBRUARY	8
MARCH	27
APRIL	1
MAY	3
JUNE	2
JULY	8
AUGUST	4
SEPTEMBER	1
OCTOBER	3
NOVEMBER	5
DECEMBER	6

ANNUAL PEAK	**27**

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	5.00	3.97	4.13	4.66	5.76	4.58	5.35	6.08	6.71	6.63	6.95	7.44	7.92	8.30	9.53	6.90	99.98
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.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	5.00	3.97	4.13	4.66	5.76	4.58	5.35	6.08	6.71	6.63	6.95	7.45	7.92	8.30	9.53	6.90	

Calm : .00 %

Total # Operational Hours : 8084

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	405	321	334	377	466	371	433	492	543	536	562	602	641	671	771	558	8083
< 60												1					1
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	405	321	334	377	466	371	433	492	543	536	562	603	641	671	771	558	

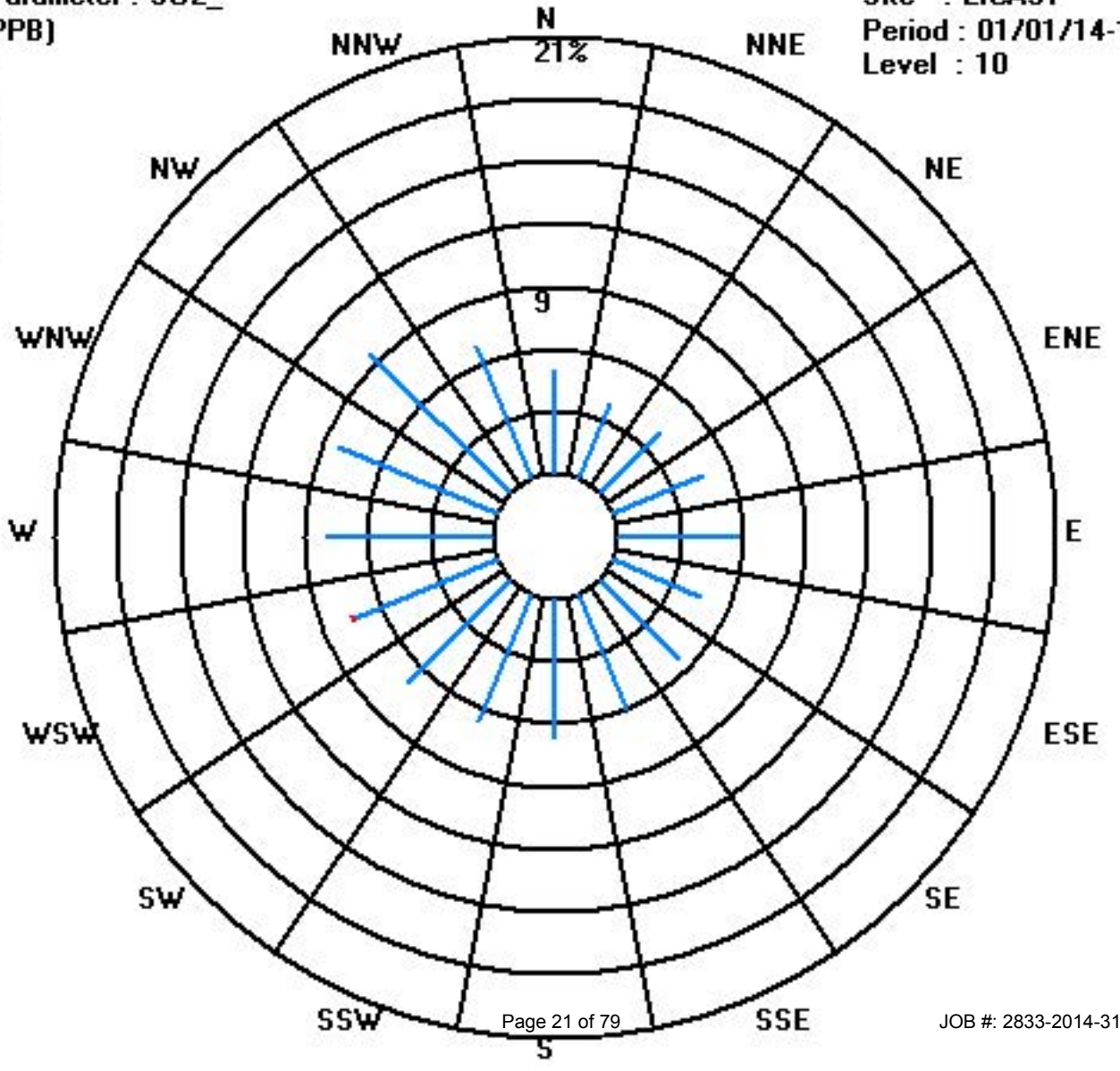
Calm : .00 %

Total # Operational Hours : 8084

Logger : 31 Parameter : SO2_
Class Limits (PPB)

>= 340
< 340
< 170
< 110
< 60
< 20

Site : LICA31
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-31-A

Hydrogen Sulphide

Current Date : 02/25/15
Current Time : 10:01

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	701	0	4	2
February	672	630	1	4	2
March	744	672	0	3	1
April	720	662	0	6	2
May	744	684	0	4	2
June	720	653	0	4	1
July	744	702	0	2	0
August	744	654	0	3	0
September	720	643	0	2	0
October	744	703	0	1	0
November	720	679	0	2	0
December	744	696	0	1	0
Yearly Total	8760	8079	0	6	1

H2S Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB H2S)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	H2S PPB Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb			
January	742	99.7	99.9%	0.1%	0.0%	0.0%	0	0	1.68
February	670	99.7	98.4%	1.6%	0.0%	0.0%	0	0	1.87
March	677	91.0	100.0%	0.0%	0.0%	0.0%	0	0	1.43
April	705	97.9	96.4%	3.6%	0.0%	0.0%	0	0	1.78
May	737	99.1	99.3%	0.7%	0.0%	0.0%	0	0	1.80
June	699	97.1	99.5%	0.5%	0.0%	0.0%	0	0	1.30
July	739	99.3	100.0%	0.0%	0.0%	0.0%	0	0	0.25
August	706	94.9	100.0%	0.0%	0.0%	0.0%	0	0	0.19
September	697	96.8	100.0%	0.0%	0.0%	0.0%	0	0	0.06
October	741	99.6	100.0%	0.0%	0.0%	0.0%	0	0	0.02
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.15
December	736	98.9	100.0%	0.0%	0.0%	0.0%	0	0	0.07
							Annual Average		**0.88**

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

H2S Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPB
JANUARY	4
FEBRUARY	4
MARCH	3
APRIL	6
MAY	4
JUNE	4
JULY	2
AUGUST	3
SEPTEMBER	2
OCTOBER	1
NOVEMBER	2
DECEMBER	1

ANNUAL PEAK	**6**

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	4.84	3.85	3.97	4.20	4.53	4.18	4.96	5.62	6.16	6.22	6.31	7.05	7.59	7.89	9.31	6.70	93.44
<	10	.15	.13	.17	.43	1.27	.41	.40	.43	.42	.38	.63	.47	.32	.38	.26	.21	6.55
<	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	4.99	3.99	4.14	4.64	5.81	4.59	5.36	6.06	6.58	6.61	6.95	7.52	7.91	8.28	9.58	6.91	

Calm : .00 %

Total # Operational Hours : 7983

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	387	308	317	336	362	334	396	449	492	497	504	563	606	630	744	535	7460
<	10	12	11	14	35	102	33	32	35	34	31	51	38	26	31	21	17	523
<	50																	
>=	50																	
	Totals	399	319	331	371	464	367	428	484	526	528	555	601	632	661	765	552	

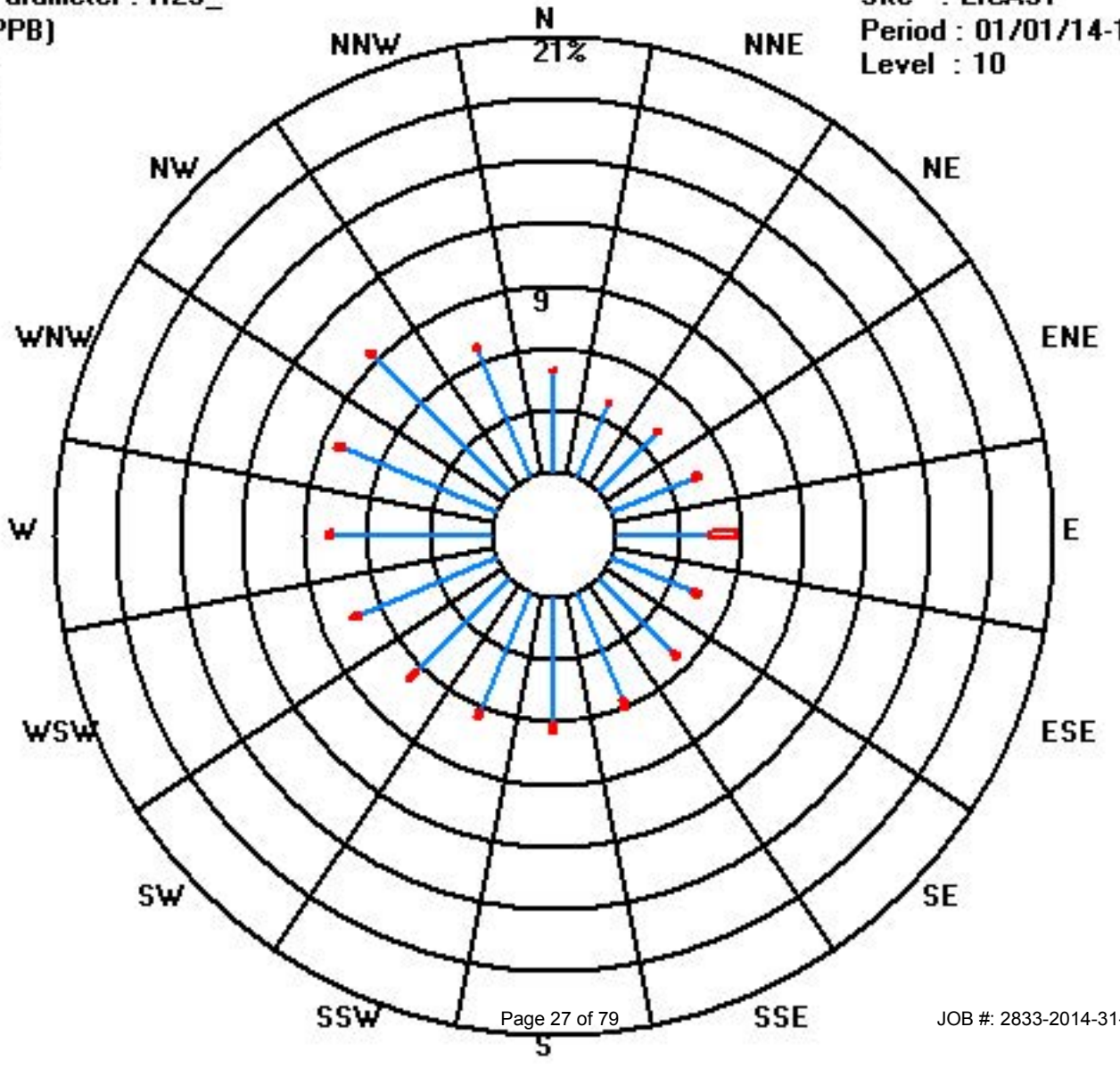
Calm : .00 %

Total # Operational Hours : 7983

Logger : 31 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA31
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-31-A

Total Hydrocarbons

Current Date : 02/25/15
Current Time : 10:01

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	700	1.7	3.4	2.1
February	624	575	1.9	3.2	2.1
March	744	665	1.6	3.9	2.2
April	720	682	1.7	2.7	2
May	744	701	1.7	2.9	2
June	720	681	1.9	3.4	2.1
July	744	703	1.8	2.8	2.1
August	744	697	1.6	3.2	2.1
September	720	676	1.6	2.8	2
October	744	697	1.6	2.8	2
November	720	677	1.5	3.2	2.1
December	744	699	1.7	3.7	2.3
Yearly Total	8712	8153	1.5	3.9	2.1

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPM THC)				THC PPM Monthly Average
			0.0 to 3.0 ppm	4.0 to 10.0 ppm	11.0 to 50.0 ppm	>50.0 ppm	
January	742	99.7	99.7%	0.3%	0.0%	0.0%	2.06
February	615	91.5	99.8%	0.2%	0.0%	0.0%	2.14
March	705	94.8	99.2%	0.8%	0.0%	0.0%	2.16
April	719	99.9	100.0%	0.0%	0.0%	0.0%	2.02
May	737	99.1	100.0%	0.0%	0.0%	0.0%	1.98
June	720	100.0	99.9%	0.1%	0.0%	0.0%	2.12
July	739	99.3	100.0%	0.0%	0.0%	0.0%	2.12
August	733	98.5	99.6%	0.4%	0.0%	0.0%	2.15
September	717	99.6	100.0%	0.0%	0.0%	0.0%	2.01
October	737	99.1	100.0%	0.0%	0.0%	0.0%	2.03
November	715	99.3	99.9%	0.1%	0.0%	0.0%	2.13
December	736	98.9	97.4%	2.6%	0.0%	0.0%	2.30
						Annual Average	**2.10**

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

THC Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPM
JANUARY	3.4
FEBRUARY	3.2
MARCH	3.9
APRIL	2.7
MAY	2.9
JUNE	3.4
JULY	2.8
AUGUST	3.2
SEPTEMBER	2.8
OCTOBER	2.8
NOVEMBER	3.2
DECEMBER	3.7

ANNUAL PEAK	**3.9**

LICA31
THC / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	5.00	3.91	4.12	4.60	5.41	4.44	5.22	6.12	6.59	6.74	7.15	7.56	7.91	8.15	9.47	6.91	99.37
< 10.0	.00	.03	.03	.09	.22	.01	.02	.04	.08	.02	.01	.00	.00	.00	.01	.00	.62
< 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	5.00	3.94	4.16	4.70	5.63	4.45	5.25	6.17	6.68	6.76	7.16	7.56	7.91	8.15	9.48	6.91	

Calm : .00 %

Total # Operational Hours : 8052

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	403	315	332	371	436	358	421	493	531	543	576	609	637	657	763	557	8002
< 10.0		3	3	8	18	1	2	4	7	2	1				1		50
< 50.0																	
>= 50.0																	
Totals	403	318	335	379	454	359	423	497	538	545	577	609	637	657	764	557	

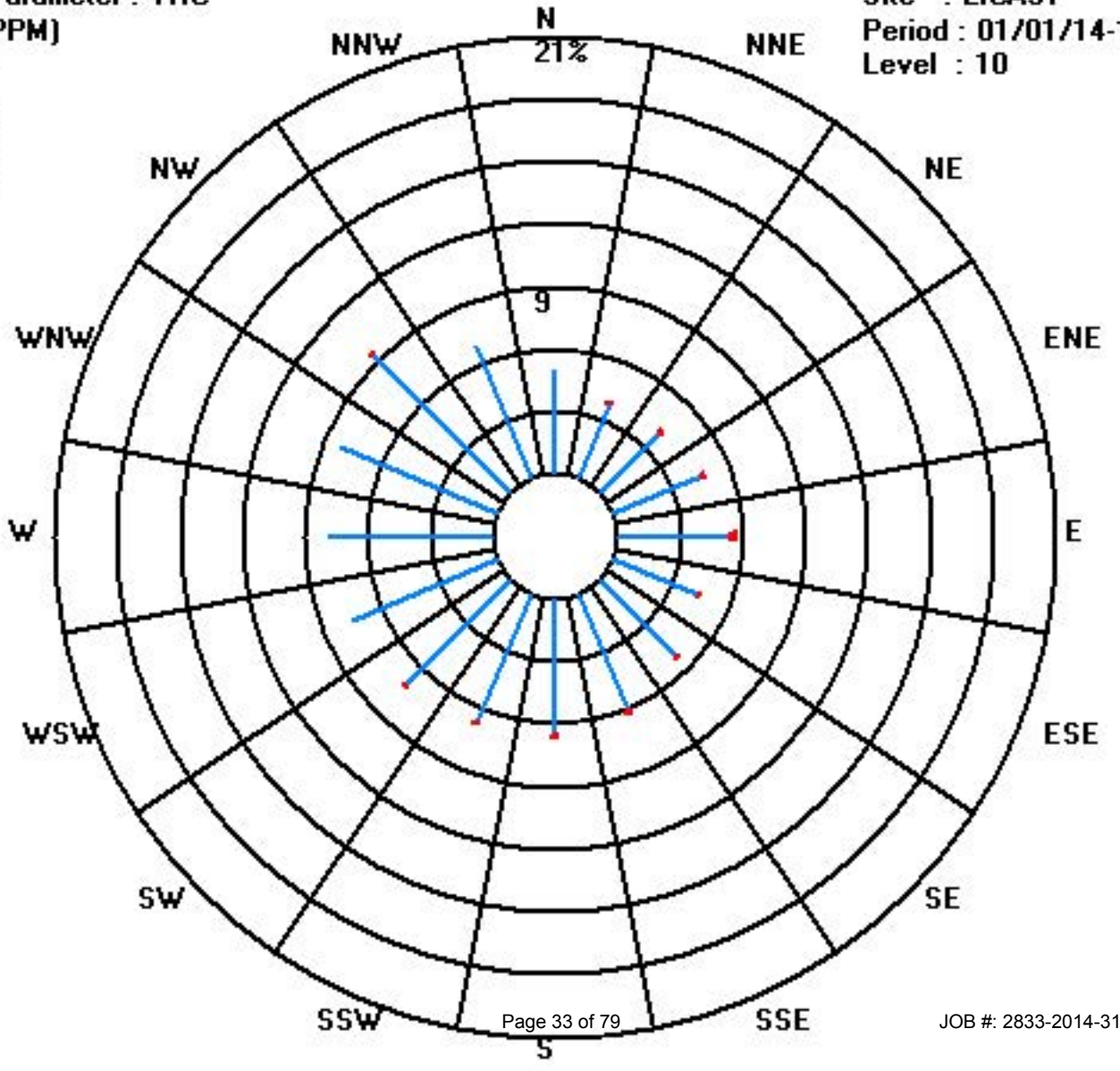
Calm : .00 %

Total # Operational Hours : 8052

Logger : 31 Parameter : THC
Class Limits (PPM)

>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA31
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-31-A

Ozone

Current Date : 02/25/15
Current Time : 10:02

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	702	8	48	33
February	672	625	13	43	31
March	744	688	19	53	38
April	720	655	17	57	36
May	744	696	10	60	36
June	720	682	13	58	31
July	744	696	6	55	27
August	744	685	4	59	29
September	720	683	4	51	26
October	744	702	7	43	27
November	720	683	4	42	28
December	744	697	5	44	26
Yearly Total	8760	8194	4	60	31

O3 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB O3)				Hourly Readings Above Guidelines	O3 PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	740	99.5	100.0%	0.0%	0.0%	0.0%	0	32.96
February	657	97.8	100.0%	0.0%	0.0%	0.0%	0	31.44
March	733	98.5	99.6%	0.4%	0.0%	0.0%	0	38.13
April	697	96.8	98.6%	1.4%	0.0%	0.0%	0	35.66
May	735	98.8	93.4%	6.6%	0.0%	0.0%	0	36.28
June	720	100.0	96.9%	3.1%	0.0%	0.0%	0	31.36
July	740	99.5	99.6%	0.4%	0.0%	0.0%	0	27.34
August	729	98.0	98.2%	1.8%	0.0%	0.0%	0	28.51
September	720	100.0	99.7%	0.3%	0.0%	0.0%	0	25.79
October	741	99.6	100.0%	0.0%	0.0%	0.0%	0	26.99
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	28.45
December	737	99.1	100.0%	0.0%	0.0%	0.0%	0	26.27
* Valid readings - does not include calibration hours and downtime hours.						Annual Average		**30.76**

O3 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPB
JANUARY	48
FEBRUARY	43
MARCH	53
APRIL	57
MAY	60
JUNE	58
JULY	55
AUGUST	59
SEPTEMBER	51
OCTOBER	43
NOVEMBER	42
DECEMBER	44

ANNUAL PEAK	**60**

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	5.00	3.97	4.07	4.64	5.32	4.63	5.27	5.93	6.52	6.61	6.98	7.08	7.81	8.24	9.45	6.87	98.46
<	110	.03	.00	.06	.03	.06	.04	.07	.11	.14	.11	.17	.29	.13	.06	.06	.11	1.53
<	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	5.04	3.97	4.14	4.68	5.38	4.68	5.35	6.04	6.67	6.72	7.15	7.37	7.94	8.30	9.51	6.98	

Calm : .00 %

Total # Operational Hours : 8091

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	405	322	330	376	431	375	427	480	528	535	565	573	632	667	765	556	7967
<	110	3		5	3	5	4	6	9	12	9	14	24	11	5	5	9	124
<	210																	
>=	210																	
	Totals	408	322	335	379	436	379	433	489	540	544	579	597	643	672	770	565	

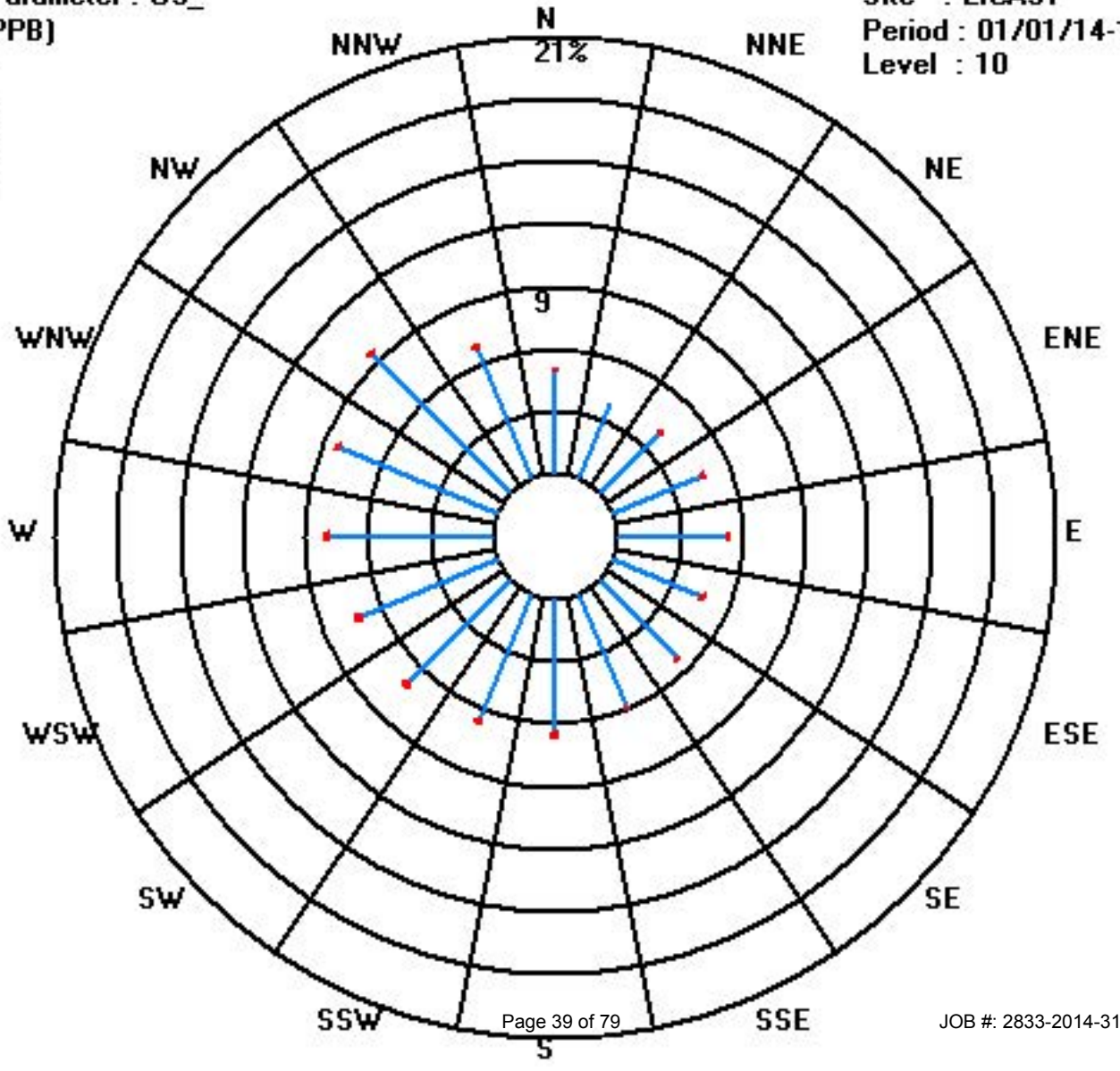
Calm : .00 %

Total # Operational Hours : 8091

Logger : 31 Parameter : 03_
Class Limits (PPB)

>= 210
< 210
< 110
< 50

Site : LICA31
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-31-A

Nitrogen Dioxide

Current Date : 02/25/15
Current Time : 10:01

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	699	0	22.1	2.8
February	672	628	0	16.4	2.9
March	744	652	0	12.7	1.9
April	696	592	0	6.5	1.1
May	744	656	0	10.1	1
June	720	679	0	5	1
July	744	697	0	9.4	1
August	744	686	0	10.6	0.8
September	720	680	0	10.3	1.4
October	744	698	0	8.2	1.5
November	720	682	0	22.5	2.6
December	744	699	0	26.3	4.3
Yearly Total	8736	8048	0	26.3	1.9

NO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO2)				Hourly Readings Above Guidelines	NO2 PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	743	99.9	100.0%	0.0%	0.0%	0.0%	0	2.80
February	672	100.0	100.0%	0.0%	0.0%	0.0%	0	2.89
March	715	96.1	100.0%	0.0%	0.0%	0.0%	0	1.88
April	657	91.3	100.0%	0.0%	0.0%	0.0%	0	1.13
May	716	96.2	100.0%	0.0%	0.0%	0.0%	0	0.97
June	720	100.0	100.0%	0.0%	0.0%	0.0%	0	1.03
July	738	99.2	100.0%	0.0%	0.0%	0.0%	0	0.98
August	731	98.3	100.0%	0.0%	0.0%	0.0%	0	0.83
September	718	99.7	100.0%	0.0%	0.0%	0.0%	0	1.41
October	741	99.6	100.0%	0.0%	0.0%	0.0%	0	1.48
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	2.64
December	736	98.9	100.0%	0.0%	0.0%	0.0%	0	4.33
						Annual Average		**1.86**

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

NO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPB
JANUARY	22
FEBRUARY	16
MARCH	13
APRIL	7
MAY	10
JUNE	5
JULY	9
AUGUST	11
SEPTEMBER	10
OCTOBER	8
NOVEMBER	23
DECEMBER	26

ANNUAL PEAK	**26.3**

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.97	4.00	4.15	4.68	5.77	4.64	5.36	6.20	6.67	6.72	6.92	7.45	7.76	8.20	9.56	6.86	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	4.97	4.00	4.15	4.68	5.77	4.64	5.36	6.20	6.67	6.72	6.92	7.45	7.76	8.20	9.56	6.86	

Calm : .00 %

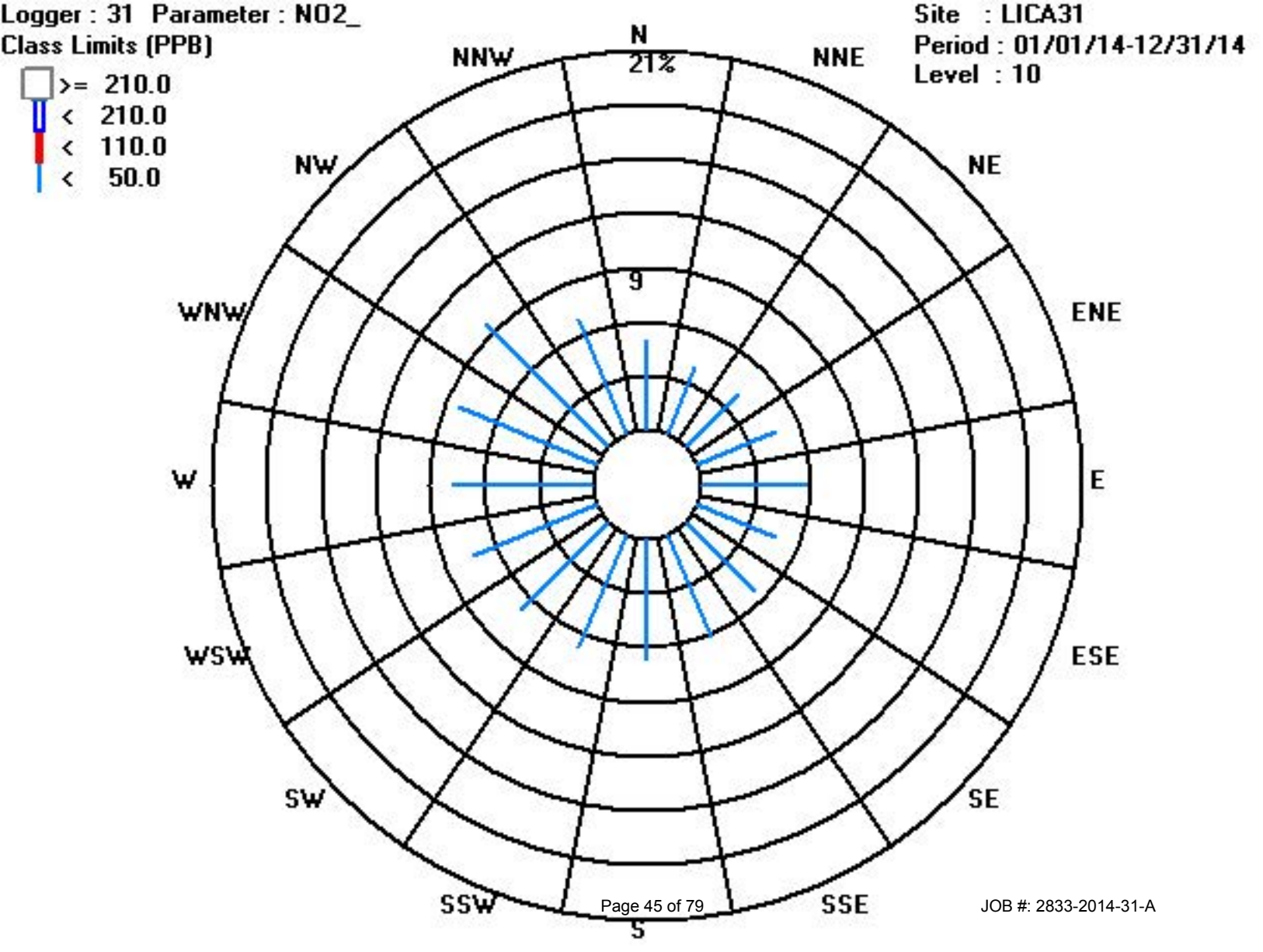
Total # Operational Hours : 7942

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	395	318	330	372	459	369	426	493	530	534	550	592	617	652	760	545	7942
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	395	318	330	372	459	369	426	493	530	534	550	592	617	652	760	545	

Calm : .00 %

Total # Operational Hours : 7942


Logger : 31 Parameter : NO2_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA31
Period : 01/01/14-12/31/14
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitric Oxide

Current Date : 02/25/15
Current Time : 10:01

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	699	0	5.1	0.4
February	672	628	0	13.6	0.6
March	744	652	0	5.5	0.6
April	696	592	0	1.2	0.2
May	744	655	0	1.3	0.1
June	720	679	0	1.5	0.2
July	744	697	0	1.8	0
August	744	688	0	2	0.1
September	720	680	0	4.6	0.2
October	744	698	0	3.9	0.2
November	720	682	0	3.1	0.2
December	744	699	0	11.3	0.4
Yearly Total	8736	8049	0	13.6	0.3

NO Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO)				Hourly Readings Above Guidelines	NO PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	743	99.9	100.0%	0.0%	0.0%	0.0%	NA	0.43
February	672	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.64
March	715	96.1	100.0%	0.0%	0.0%	0.0%	NA	0.58
April	657	91.3	100.0%	0.0%	0.0%	0.0%	NA	0.17
May	716	96.2	100.0%	0.0%	0.0%	0.0%	NA	0.10
June	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.20
July	738	99.2	100.0%	0.0%	0.0%	0.0%	NA	0.05
August	731	98.3	100.0%	0.0%	0.0%	0.0%	NA	0.09
September	718	99.7	100.0%	0.0%	0.0%	0.0%	NA	0.16
October	741	99.6	100.0%	0.0%	0.0%	0.0%	NA	0.17
November	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	0.22
December	736	98.9	100.0%	0.0%	0.0%	0.0%	NA	0.43
						Annual Average		**0.27**

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

NO Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPB
JANUARY	5
FEBRUARY	14
MARCH	6
APRIL	1
MAY	1
JUNE	2
JULY	2
AUGUST	2
SEPTEMBER	5
OCTOBER	4
NOVEMBER	3
DECEMBER	11

ANNUAL PEAK	13.6

LICA31
NO_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	4.97	3.99	4.15	4.68	5.77	4.64	5.36	6.20	6.67	6.72	6.92	7.45	7.78	8.20	9.56	6.87	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	4.97	3.99	4.15	4.68	5.77	4.64	5.36	6.20	6.67	6.72	6.92	7.45	7.78	8.20	9.56	6.87	

Calm : .00 %

Total # Operational Hours : 7943

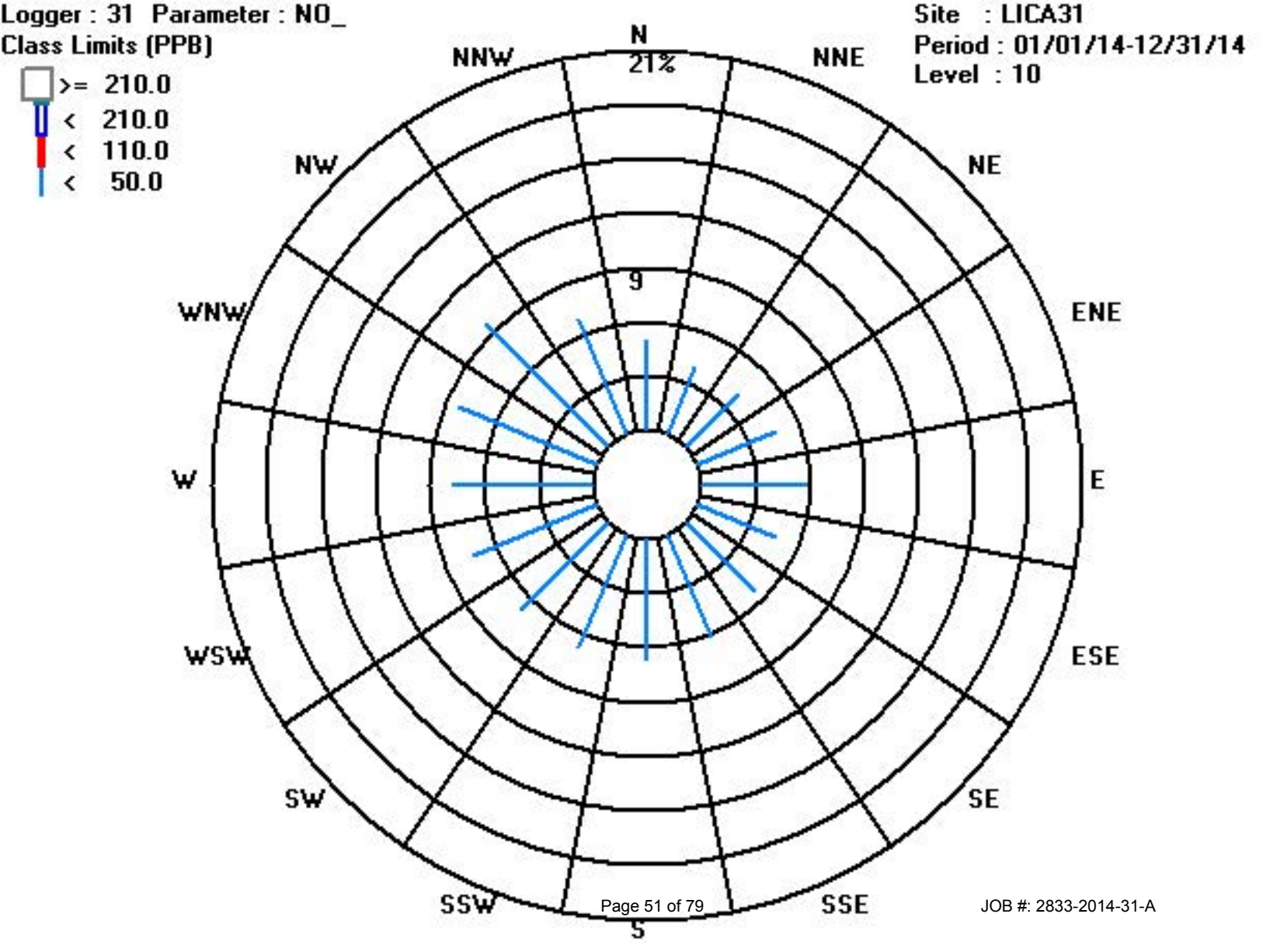
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	395	317	330	372	459	369	426	493	530	534	550	592	618	652	760	546	7943
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	395	317	330	372	459	369	426	493	530	534	550	592	618	652	760	546	

Calm : .00 %

Total # Operational Hours : 7943


Logger : 31 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA31
Period : 01/01/14-12/31/14
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Oxides of Nitrogen

Current Date : 02/25/15
Current Time : 10:01

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	699	0	23.7	3.2
February	672	628	0	23	3.5
March	744	652	0	13.1	2.5
April	696	591	0	6.8	1.3
May	744	656	0	10.2	1.1
June	720	679	0	6.2	1.2
July	744	697	0	10	1
August	744	688	0	11.8	0.9
September	720	680	0	11.2	1.6
October	744	698	0	9.5	1.7
November	720	682	0	23.1	2.9
December	744	699	0	26.9	4.7
Yearly Total	8736	8049	0	26.9	2.1

NOx Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NOx)				Hourly Readings Above Guidelines	NOx PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	743	99.9	100.0%	0.0%	0.0%	0.0%	NA	3.23
February	672	100.0	100.0%	0.0%	0.0%	0.0%	NA	3.53
March	715	96.1	100.0%	0.0%	0.0%	0.0%	NA	2.47
April	657	91.3	100.0%	0.0%	0.0%	0.0%	NA	1.30
May	716	96.2	100.0%	0.0%	0.0%	0.0%	NA	1.07
June	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	1.23
July	738	99.2	100.0%	0.0%	0.0%	0.0%	NA	1.03
August	731	98.3	100.0%	0.0%	0.0%	0.0%	NA	0.92
September	718	99.7	100.0%	0.0%	0.0%	0.0%	NA	1.58
October	741	99.6	100.0%	0.0%	0.0%	0.0%	NA	1.65
November	720	100.0	100.0%	0.0%	0.0%	0.0%	NA	2.86
December	736	98.9	100.0%	0.0%	0.0%	0.0%	NA	4.76
						Annual Average		**2.13**

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

NOx Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPB
JANUARY	24
FEBRUARY	23
MARCH	13
APRIL	7
MAY	10
JUNE	6
JULY	10
AUGUST	12
SEPTEMBER	11
OCTOBER	10
NOVEMBER	23
DECEMBER	27

ANNUAL PEAK	26.9

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	4.97	4.00	4.15	4.68	5.77	4.64	5.36	6.20	6.67	6.72	6.92	7.45	7.78	8.19	9.56	6.87	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	4.97	4.00	4.15	4.68	5.77	4.64	5.36	6.20	6.67	6.72	6.92	7.45	7.78	8.19	9.56	6.87	

Calm : .00 %

Total # Operational Hours : 7943

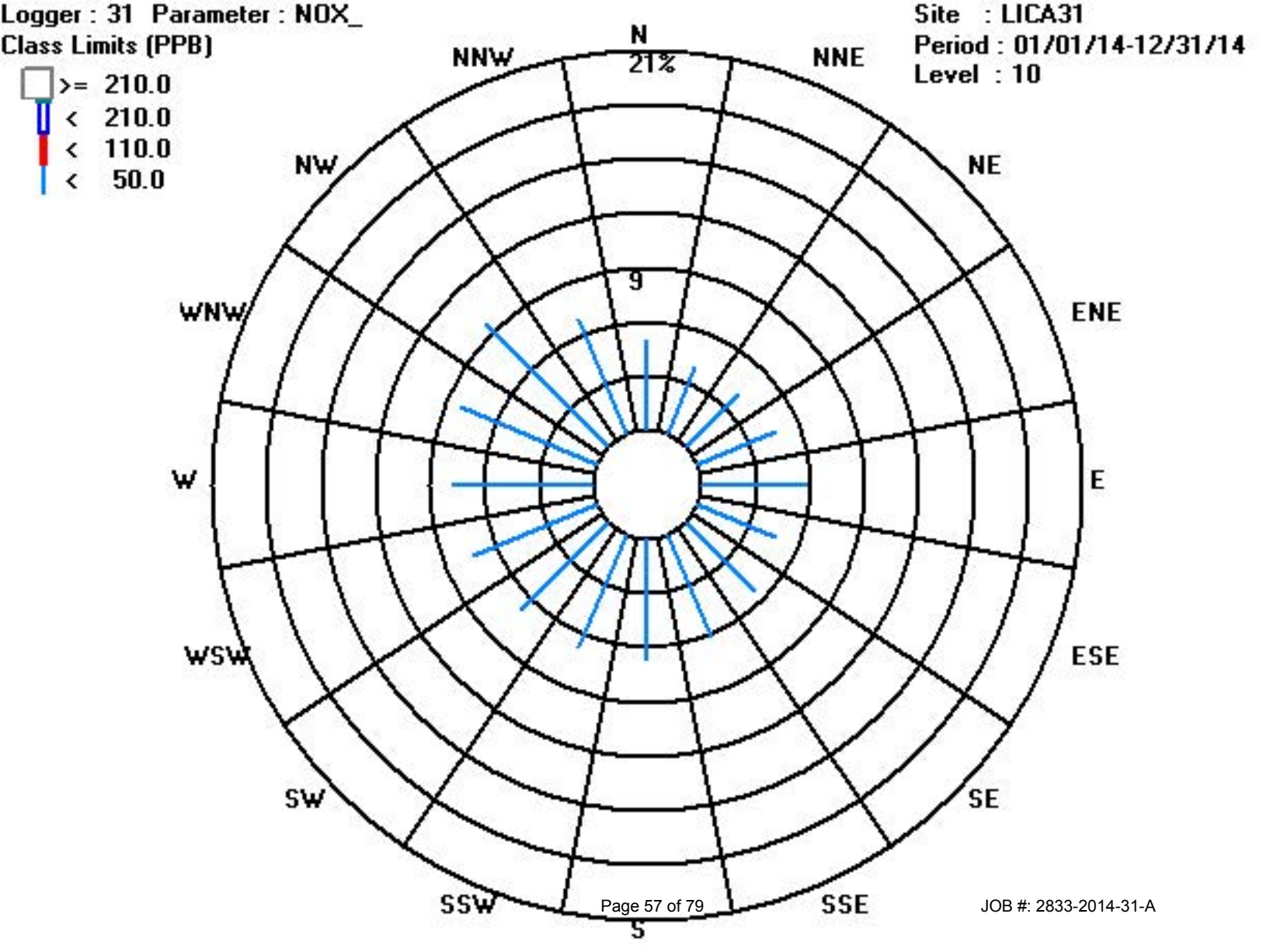
Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	395	318	330	372	459	369	426	493	530	534	550	592	618	651	760	546	7943
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	395	318	330	372	459	369	426	493	530	534	550	592	618	651	760	546	

Calm : .00 %

Total # Operational Hours : 7943


Logger : 31 Parameter : NOX_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0
Site : LICA31
Period : 01/01/14-12/31/14
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Particulate Matter 2.5

Current Date : 02/25/15
Current Time : 10:02

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	734	0	17	2
February	672	660	0	19	3
March	744	626	0	39	4
April	720	678	0	14	2
May	744	733	0	11	3
June	720	711	0	53	4
July	696	650	0	157	13
August	744	700	0	96	10
September	264	250	0	16	2
October	NA	NA	NA	NA	NA
November	600	570	0	105	13
December	744	717	0	52	10
Yearly Total	7392	7029	0	157	6

PM2.5 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ug/m3 PM2.5)						24-Hour Averages Above Guidelines	PM2.5 ug/m3 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	738	99.2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	1.69
February	670	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.26
March	629	84.5	99.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0	3.64
April	683	94.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	1.99
May	735	98.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	2.65
June	714	99.2	98.6%	1.4%	0.0%	0.0%	0.0%	0.0%	0	3.57
July	654	87.9	88.8%	8.6%	1.2%	1.2%	0.2%	0.0%	2	13.28
August	703	94.5	93.3%	6.1%	0.4%	0.1%	0.0%	0.0%	1	9.79
September	251	34.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	2.12
October	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
November	574	79.7	96.5%	3.0%	0.4%	0.2%	0.0%	0.0%	1	12.69
December	720	96.8	98.9%	1.1%	0.0%	0.0%	0.0%	0.0%	0	9.52
									Annual Average	**5.84**

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

PM2.5 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in ug/m3
JANUARY	17
FEBRUARY	19
MARCH	39
APRIL	11
MAY	11
JUNE	53
JULY	157
AUGUST	96
SEPTEMBER	16
OCTOBER	NA
NOVEMBER	105
DECEMBER	52

ANNUAL PEAK	**157**

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	5.58	4.15	4.20	4.66	6.19	4.28	4.60	5.48	6.49	6.48	7.68	7.18	6.36	6.95	9.58	7.72	97.66
<	60	.07	.04	.02	.00	.02	.18	.10	.27	.15	.17	.10	.12	.23	.24	.12	.11	2.02
<	80	.00	.00	.00	.00	.05	.02	.00	.00	.01	.01	.00	.00	.02	.00	.02	.00	.17
<	120	.00	.00	.00	.00	.01	.05	.01	.01	.01	.00	.00	.00	.00	.00	.01	.00	.12
<	240	.00	.00	.00	.00	.00	.00	.01	.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
	Totals	5.65	4.20	4.22	4.66	6.29	4.56	4.73	5.77	6.68	6.66	7.78	7.31	6.62	7.20	9.75	7.83	

Calm : .00 %

Total # Operational Hours : 6927

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30	387	288	291	323	429	297	319	380	450	449	532	498	441	482	664	535	6765
<	60	5	3	2		2	13	7	19	11	12	7	9	16	17	9	8	140
<	80					4	2			1	1			2		2		12
<	120					1	4	1	1	1						1		9
<	240							1										1
>=	240																	
	Totals	392	291	293	323	436	316	328	400	463	462	539	507	459	499	676	543	

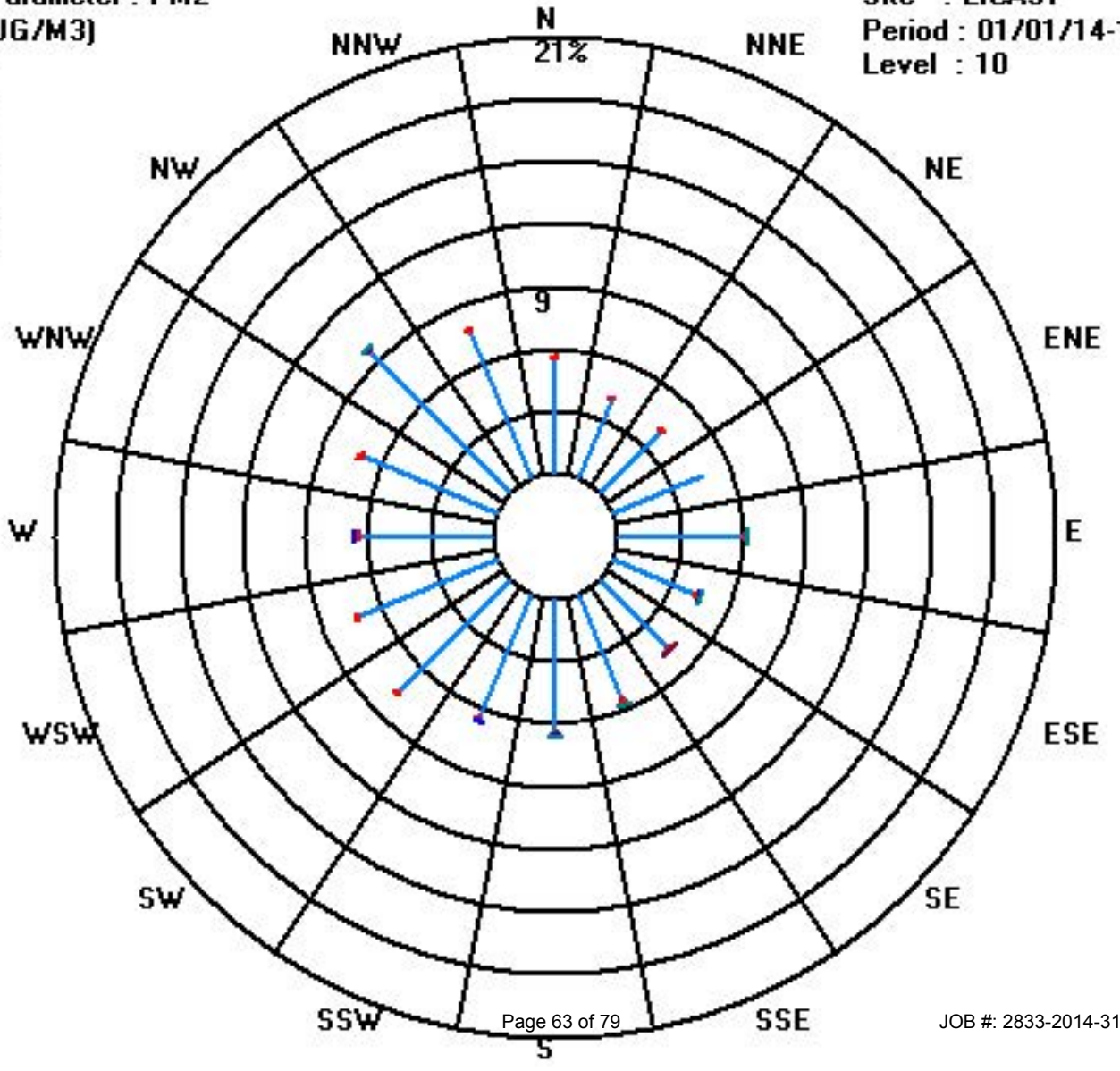
Calm : .00 %

Total # Operational Hours : 6927

Logger : 31 Parameter : PM2
Class Limits (UG/M3)

>= 240
< 240
< 120
< 80
< 60
< 30

Site : LICA31
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-31-A

Temperature

Current Date : 02/25/15
Current Time : 10:02

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	743	-33.2	8.9	-10.4
February	672	672	-30.1	4.2	-16.2
March	744	736	-32.7	10.3	-7
April	720	716	-12.1	20.8	2.6
May	744	738	-4.3	27.5	9.4
June	720	720	2.4	27.1	15
July	744	741	9.8	30.9	19.2
August	744	735	6.4	29.3	17.8
September	720	720	-3.0	30.5	11.2
October	744	742	-4.5	20.5	6.6
November	720	720	-27.7	10	-9.2
December	744	737	-26.9	7.8	-9.4
Yearly Total	8760	8720	-33.2	30.9	2.6

AMBIENT TEMPERATURE (TPX) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Operational Uptime (%)	Monthly Average (°C)	Minimum Hourly Average (°C)	Maximum Hourly Average (°C)	Maximum Daily Average (°C)
January	99.9	-10.44	-33.2	8.9	5.0
February	100.0	-16.22	-30.1	4.2	-2.5
March	98.9	-7.05	-32.7	10.3	5.2
April	99.4	2.62	-12.1	20.8	14.6
May	99.2	9.43	-4.3	27.5	21.5
June	100.0	14.98	2.4	27.1	20.5
July	99.6	19.17	9.8	30.9	23.4
August	98.8	17.83	6.4	29.3	22.8
September	100.0	11.16	-3	30.5	19.7
October	99.7	6.63	-4.5	20.5	12.3
November	100.0	-9.20	-27.7	10	5.0
December	99.1	-9.42	-26.9	7.8	3.3
ANNUAL AVERAGE		**2.46**	**-**	**-**	**-**

Barometric Pressure

Current Date : 02/25/15
Current Time : 10:03

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	743	889	947	922
February	672	672	900	950	924
March	744	736	908	943	925
April	720	716	910	944	923
May	744	738	915	943	927
June	720	720	916	933	925
July	744	741	915	946	933
August	744	735	920	946	934
September	720	720	917	950	931
October	744	742	912	939	925
November	720	720	902	951	928
December	744	737	905	954	925
Yearly Total	8760	8720	889	954	927

BAROMETRIC PRESSURE (BP) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Operational Uptime (%)	Monthly Average (MB)	Maximum Hourly Average (MB)	Maximum Daily Average (MB)
January	99.9	922.46	947	943.7
February	100.0	924.23	950	946.2
March	98.9	925.23	943	941.4
April	99.4	923.48	944	941.5
May	99.2	927.32	943	940.5
June	100.0	924.95	933	932.4
July	99.6	932.77	946	943.5
August	98.8	934.02	946	943.8
September	100.0	931.15	950	948.0
October	99.7	925.44	939	936.3
November	100.0	928.33	951	949.5
December	99.1	924.85	954	952.5
ANNUAL AVERAGE		**927.02**	**-**	**-**

Relative Humidity

Current Date : 02/25/15
Current Time : 10:02

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	743	34	87	67
February	672	672	15	82	63
March	744	736	22	86	54
April	720	716	12	91	64
May	744	738	15	91	58
June	720	720	31	92	68
July	744	741	35	92	67
August	744	735	31	92	67
September	720	720	20	92	66
October	744	742	22	91	63
November	720	720	38	90	75
December	744	737	52	89	79
Yearly Total	8760	8720	12	92	66

RELATIVE HUMIDITY (RH) Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Operational Uptime (%)	Monthly Average (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	99.9	66.78	87	81.5
February	100.0	62.74	82	80.4
March	98.9	54.20	86	69.7
April	99.4	64.09	91	87.7
May	99.2	58.40	91	90.0
June	100.0	68.20	92	89.7
July	99.6	67.23	92	79.5
August	98.8	67.04	92	75.6
September	100.0	66.48	92	87.3
October	99.7	63.31	91	83.1
November	100.0	74.58	90	87.3
December	99.1	78.63	89	87.5
ANNUAL AVERAGE		**65.97**	**-**	**-**

Precipitation

Current Date : 02/25/15
Current Time : 10:03

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0	0.5	0
February	672	672	0	1	0
March	744	738	0	0.3	0
April	720	720	0	4.3	0.1
May	744	740	0	0.4	0
June	720	718	0	5.4	0.1
July	744	742	0	12.4	0.1
August	744	736	0	8.2	0
September	720	719	0	4.9	0
October	744	742	0	0.7	0
November	720	720	0	1.6	0
December	744	740	0	2.7	0
Yearly Total	8760	8731	0	12.4	0

PRECIPITATION Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Operational Uptime (%)	Monthly Average (MM)	Minimum Hourly Average (MM)	Maximum Hourly Average (MM)	Maximum Daily Average (MM)
January	100.0	0.01	0	0.5	0.1
February	100.0	0.01	0	1	0.1
March	99.2	0.00	0	0.3	0.0
April	100.0	0.08	0	4.3	0.8
May	99.5	0.01	0	0.4	0.1
June	99.7	0.10	0	5.4	1.0
July	99.7	0.10	0	12.4	0.7
August	98.8	0.04	0	8.2	0.5
September	99.9	0.04	0	4.9	0.9
October	99.7	0.00	0	0.7	0.0
November	100.0	0.04	0	1.6	0.4
December	99.5	0.01	0	2.7	0.2
ANNUAL AVERAGE		**0.04**	**-**	**-**	**-**

Vector Wind Speed

Current Date : 02/25/15
Current Time : 10:02

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	743	0.8	40.5	14
February	672	672	0.3	30.5	10.9
March	744	736	0.8	36.6	10.9
April	720	719	0.2	32.8	12.5
May	744	738	0.6	32.6	10.7
June	720	720	0.9	21.2	8.5
July	744	741	0.2	39.6	8.7
August	744	732	0.6	22.1	8.2
September	720	720	1.3	29.8	9.5
October	744	740	1.1	29.3	12.7
November	720	649	0.4	29.9	10.6
December	744	705	0.3	30.7	9
Yearly Total	8760	8615	0.2	40.5	10.5

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	1.02	1.06	.99	.87	.91	.62	.60	.60	.85	1.63	1.52	.98	1.12	.98	1.04	1.07	15.94
<	12.0	2.41	2.21	2.22	2.25	3.04	2.82	2.73	3.28	4.01	3.67	3.98	3.78	3.57	3.98	4.26	3.14	51.42
<	20.0	1.26	.56	.58	1.31	1.41	.96	1.64	2.01	1.69	1.31	1.54	2.17	2.73	2.79	3.18	2.30	27.52
<	29.0	.24	.12	.20	.19	.25	.24	.34	.03	.09	.02	.13	.42	.46	.38	.77	.37	4.34
<	39.0	.06	.01	.01	.01	.10	.02	.00	.00	.00	.00	.00	.05	.05	.03	.08	.02	.48
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.05	.00	.06
	Totals	5.01	3.99	4.02	4.64	5.73	4.67	5.33	5.94	6.66	6.65	7.18	7.42	7.97	8.18	9.40	6.92	

Calm : .20 %

Total # Operational Hours : 8615

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	88	92	86	75	79	54	52	52	74	141	131	85	97	85	90	93	1374
<	12.0	208	191	192	194	262	243	236	283	346	317	343	326	308	343	367	271	4430
<	20.0	109	49	50	113	122	83	142	174	146	113	133	187	236	241	274	199	2371
<	29.0	21	11	18	17	22	21	30	3	8	2	12	37	40	33	67	32	374
<	39.0	6	1	1	1	9	2						5	5	3	7	2	42
>=	39.0													1		5		6
	Totals	432	344	347	400	494	403	460	512	574	573	619	640	687	705	810	597	

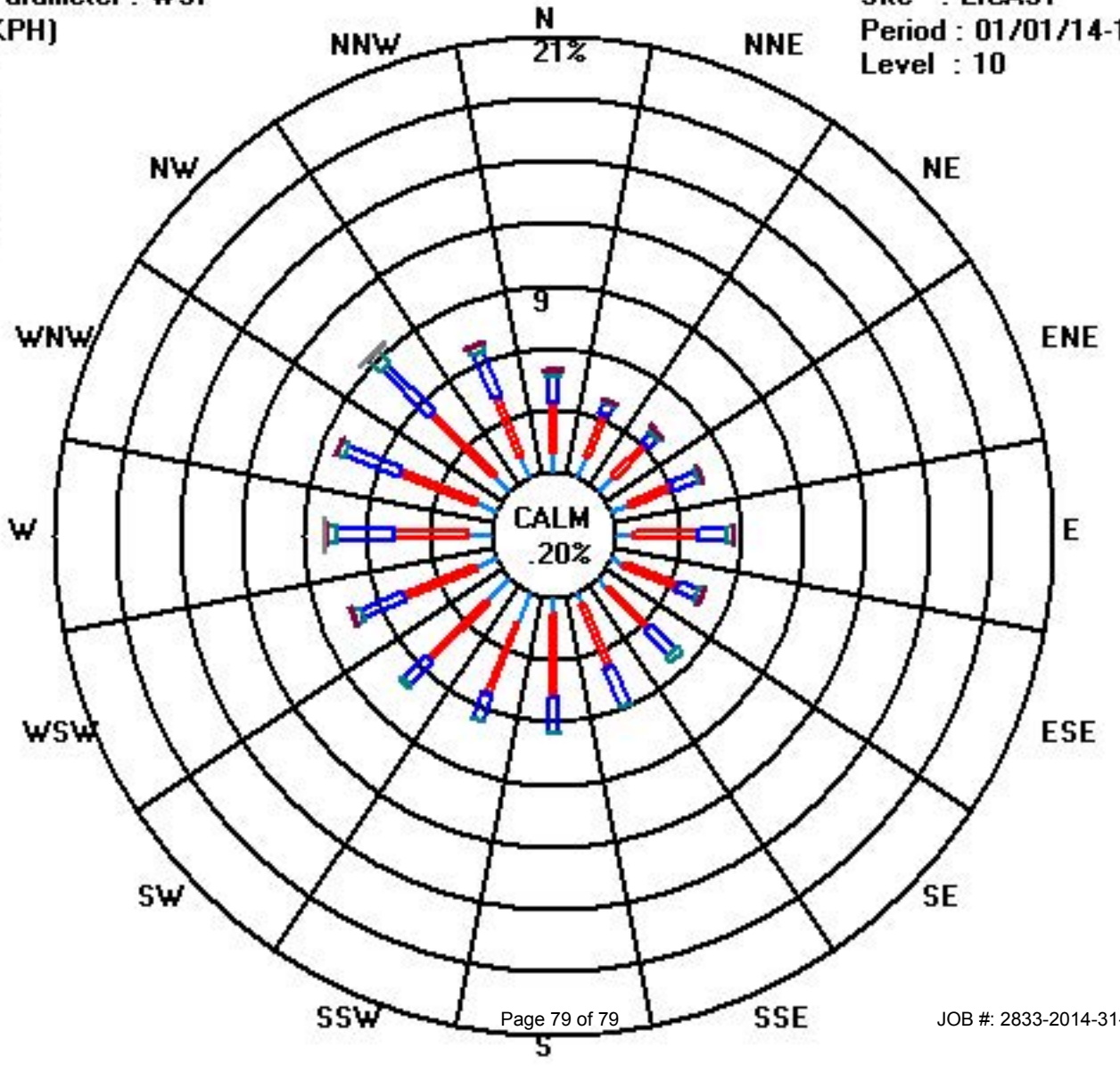
Calm : .20 %

Total # Operational Hours : 8615

Logger : 31 Parameter : WSP
Class Limits (KPH)

>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0

Site : LICA31
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-31-A

Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site
Ambient Annual Data Report

For
2014

Prepared By:

March 2, 2015

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

Table of Contents

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 2014 to December 2014

The annual ambient data report:

- Prepared by Wunmi Adekanmbi
- 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, 2014.

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 467 and API 100A, S/N: 837
  - 21 hours of data were missing in January due to two major power failure events. Two hours of data collected on January 16th were invalidated as the analyzer was recovering from the power failures.
  - Major maintenance was performed on the analyzer in February. Data quality was not affected.
  - LICA-owned, API 100E analyzer, was removed from the trailer on May 6th following a failure and Maxxam-supplied API 100A analyzer, was installed on the same day. The API 100E was brought back to Maxxam shop for repair. Data was invalidated back to the last good daily calibration which was May 2nd. 87 hours of data were discarded due to this event. The operational uptime in May was 88.3%.
  - There was a failed calibration attempt on June 3rd. The calibration was repeated on June 4th using a different calibrator. All points passed. No data was discarded due to this event. Hourly maximum data collected at hour 20 on June 5th was discarded due to a small power outage.
  - 38 hours of data were invalidated in July due to a sample pump failure.
  - The analyzer did not span on September 12th. A zero/span check was manually triggered from the datalogger. The response was good. No issues were identified. Data quality was not affected. One hourly maximum data collected on September 30th was invalidated due to a small power outage.
  - The LICA-owned API 100E analyzer was installed back to the trailer on October 7th. Hourly data collected on October 31st hour 23 was missing due to a power outage. Hourly maximum data collected on October 15th at hour 10 was invalidated due to a small power outage that affected data quality.
  - The analyzer spanned high on December 13th due to a broken the exhaust tube. The tube was replaced on December 19th. Data was invalidated back to the last good calibration, which was December 12th. 170 hours of data were discarded due to this event. One hour of data collected on December 25th hour 6 was missing due to a power failure. The operational uptime for December was 77.0%. Ref #:294885

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 509; API 101E, S/N: 722 and API 101E, S/N: 510
- Converter - Internal
  - 21 hours of data were missing in January due to two major power failure events. Two hours of data collected on January 16th were invalidated as the analyzer was recovering from the power failures.
  - LICA owned analyzer API 101E, S/N: 509 was brought to Maxxam Calgary shop for repair on February 3rd following a failed calibration attempt. A temporary replacement, API 101E, S/N 722, was installed. Data was invalidated back to the last good daily zero/span check, which was February 2nd. 15 hours of data were invalidated as a result. The LICA owned API 101E, S/N 722 was installed back to the station on February 19th.
  - The daily zero drifted outside acceptance limits on March 12th. The analyzer did not pass the as found points check on March 13th. Maintenance was performed and analyzer was allowed to stabilize overnight before the factory calibration procedure and the post repair calibration were performed on March 14th. Data was invalidated back to the last good daily calibration, which was March 12th. 34 hours of data were invalidated due to this issue.
  - Hourly maximum data collected at hour 20 on June 5th was discarded due to a small power outage.
  - The analyzer showed malfunction on July 18th due to high station temperature. An as found points check was performed on July 19th. The analyzer responded well. Data was invalidated back to July 18th hour 15. A total of 20 hours of data was invalidated due to this event. Some span results went outside the +/-10% acceptance limits because the expected value was set too low. The expected value was adjusted on July 31st.
  - The analyzer zeroed high on August 6th due to high station temperature. The AC unit fixed and the issue was resolved. Data quality was not affected.
  - One hourly maximum data collected on September 30th was invalidated due to a small power outage.
  - Hourly data collected on October 31st hour 23 was missing due to a power outage. Hourly maximum data collected on October 15th at hour 10 was invalidated due to a small power outage that affected data quality.
  - The API 101E, S/N: 509 analyzer was replaced with the API 101E, S/N: 510 on November 26th to address the analyzer's drifting. Data quality was not affected.
  - One hour of data collected on December 25th hour 6 was missing due to a power failure.

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General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

THC 55i (PPM)

- Analyzer make / model –Thermo 55i, S/N: (12)36656107
  - ❖ 21 hours of data were missing in January due to two major power failure events. Two hours of data collected on January 16th were invalidated as the analyzer was recovering from the power failures.
  - ❖ The analyzer was put into maintenance mode on April 11th between hours 10 and 13, for fuel gas change out.
  - ❖ The THC/CH4/NMHC channels were put into maintenance mode on May 8th to investigate the third span check failure that occurred during the May 7th monthly calibration. It was found that the failure was likely due to a zero air error. The analyzer passed the 3-point calibration that was performed on May 9th. No data was invalidated due to this event.
  - ❖ Hourly maximum data collected at hour 20 on June 5th was discarded due to a small power outage.
  - ❖ The analyzer failed after a power outage occurred on September 30th. The issue was fixed on October 1st. Three hours of data were invalidated due to this event. One hourly maximum data collected on September 30th was invalidated due to a small power outage.
  - ❖ Hourly data collected on October 1st hour 0 and October 31st hour 23 were missing due to power outages. Hourly maximum data collected on October 15th at hour 10 was invalidated due to a small power outage that affected data quality.
  - ❖ The analyzer did not respond properly after the monthly calibration on November 4th due to the zero/span system getting stuck. The issue was fixed remotely on November 5th. Sixteen hours of data were invalidated due to this event.
  - ❖ One hour of data collected on December 25th hour 6 was missing due to a power failure. The analyzer flamed out after the power failure, and it was relit on December 28th. 83 hours of data were invalidated due to this event. The operational uptime for December was 88.7%. Ref#:294885

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 593 and API 200E, S/N: 2166
  - ❖ 21 hours of data were missing in January due to two major power failure events. Two hours of data collected on January 16th were invalidated as the analyzer was recovering from the power failures.
  - ❖ There was a failed calibration attempt on February 3rd. Maintenance was performed and the analyzer was allowed to stabilize overnight before a post repair calibration was performed on February 4th. Data was invalidated back to the last good daily zero/span check, which was February 2nd. 15 hours of data were invalidated as a result.
  - ❖ The hourly readings were below the historical readings on April 14th. An as found points check was performed on April 15th to verify the analyzer's functionality and the result was good. No data was invalidated.
  - ❖ 33 hours of data were invalidated in June due to a case fan failure. Hourly maximum data collected at hour 20 on June 5th was discarded due to a small power outage.
  - ❖ The expected span value was set incorrectly on July 8th. The issue was corrected on July 9th.
  - ❖ The analyzer spanned high on September 12th. Another zero/span check was run on the same day, and the result was within the acceptance limits. No further corrective action was required. Data quality was not affected. One hourly maximum data collected on September 30th was invalidated due to a small power outage.
  - ❖ Maintenance was performed following an as found points check on October 7th. Some span results went outside the +/- 10% acceptable limits in October because the zero/span system was unstable. Multiple zero/span checks were run to ensure the analyzer was functioning properly, and the results were within acceptance limits. This issue did not affect data quality. Hourly data collected on October 31st hour 23 was missing due to a power outage. Hourly maximum data collected on October 15th at hour 10 was invalidated due to a small power outage that affected data quality.
  - ❖ The API 200E, S/N: 593 analyzer was replaced with the API 200E, S/N: 2166 on November 13th to address the analyzer's instability in daily zero check. Data quality was not affected.
  - ❖ The perm tube was replaced on December 2nd. The expected span value was changed on December 5th after stabilizing. One hour of data collected on December 25th hour 6 was missing due to a power failure.

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

Ozone (PPB)

- Analyzer make / model - Thermo 49i, S/N: 1002240372
  - 21 hours of data were missing in January due to two major power failure events. Two hours of data collected on January 16th were invalidated as the analyzer was recovering from the power failures.
  - The pump was rebuilt on April 30th to address the instability of the zero/span system. Data quality was not affected.
  - The pump for the zero/span system was rebuilt twice in May to address the instability of the zero/span system. 16 hourly data between May 10th and May 11th were invalidated as the span valve got stuck after the daily zero/span check on May 10th. This issue was fixed remotely on May 11th.
  - Hourly maximum data collected at hour 20 on June 5th was discarded due to a small power outage.
  - 16 hours of data collected between August 8th and August 9th were invalidated due to the span valve failure.
  - One hourly maximum data collected on September 30th was invalidated due to a small power outage.
  - The daily zero/span result went low on October 4th because the pump for the zero/span system failed. The pump was rebuilt on October 7th. This issue did not affect data quality. Hourly data collected on October 31st hour 23 was missing due to a power outage. Hourly maximum data collected on October 15th at hour 10 was invalidated due to a small power outage that affected data quality.
  - One hour of data collected on December 25th hour 6 was missing due to a power failure.

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

Particulate Matter 2.5 (ug/m^3)

- Analyzer make / model –TEOM 1405F, S/N: 1405A208301003
  - ❖ 120 hours of data were invalidated in January as the data were below –3 ug/m3. The monthly operational time was 81.0%.
  - ❖ 44 hours of data were invalidated due to a maintenance event in February. 85 hours of data collected in January were invalidated as the readings were below –3 ug/m3. The operational uptime time was 80.8%.
  - ❖ The leak check and flow audit were performed on March 20th and March 28th. 81 hours of data were invalidated as the data were below –3 ug/m3. The operational uptime was 89.1%
  - ❖ 24 hours of data were invalidated in April as the data were below –3 ug/m3.
  - ❖ 32 hours of data were invalidated in May as the data were below –3 ug/m3.
  - ❖ 32 hours of data were invalidated in June as the data were below –3 ug/m3.
  - ❖ 46 hours of data were invalidated in July as the data were below –3 ug/m3. Four 24-Hour average exceedances were recorded in July: concentration of 34.2 ug/m3 on July 7th, concentration of 31.3 ug/m3 on the 8th, concentration of 44.3 ug/m3 on the 11th, and concentration of 37.1 ug/m3 on the July 13th. AESRD Ref#: 289029, 286425, 286611 and 286690 respectively.
  - ❖ 32 hours of data were invalidated as the data were below –3 ug/m3. Three 24-Hour average exceedances were recorded this month: concentration of 38.3 ug/m3 on August 1st, concentration of 39.1 ug/m3 on the 2nd, and concentration of 50.1 ug/m3 on the 16th. AESRD Ref#: 287677, 287703, and 288383, respectively.
  - ❖ The Teom unit failed due to flow issues on September 12th. The unit was sent back to the manufacturer for repair as the issue could not be fixed on site. The Teom unit was re-installed on the site following an installation audit/calibration on September 16th. Due to this event, 69 hours of data were invalidated. 68 hours of data were invalidated as the data were below –3 ug/m3. The operational uptime was 77.1% in September.
  - ❖ 59 hours of data were invalidated in October as the data were below –3 ug/m3. Hourly data collected on October 31st hour 23 was missing due to a power outage.
  - ❖ The Teom system crashed on November 19th and was restored on November 21st. 44 hours of data were invalidated due to this event. 36 hours of data were invalidated as the value was below -3ug/m3. The operational uptime for November was 88.9%. Ref #: 293154
  - ❖ 17 hours of data were invalidated in December as the value was below -3ug/m3.

General Annual Summary

AQM STATION – LICA – PORTABLE – ELK POINT

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

- System make / model – RM Young 5103VK, S/N: 43708 and RM Young 5103VK, S/N 56589
  - The wind system was replaced with the RM Young, S/N 56589 on February 21st as the RM Young, S/N 43708 was due for maintenance. An installation calibration was performed on the wind system on February 21st.
  - Hourly maximum data collected at hour 20 on June 5th was discarded due to a small power outage.
  - One hourly maximum data collected on September 30th was invalidated due to a small power outage.
  - Hourly data collected on October 31st hour 23 was missing due to a power outage. Hourly maximum data collected on October 15th at hour 10 was invalidated due to a small power outage that affected data quality.
  - 16 hours of data were invalidated in December due to the freezing of the wind system. Both the WS and WD channels were put into maintenance mode on December 26th hour 6 to monitor the wind system's functionality. One hour of data collected on December 25th hour 6 was missing due to a power failure.

Trailer

- The AC unit was fixed on August 7th. The cabinet exhaust fan pump was installed on August 8th.

Continuous Monitoring

Annual Summaries Graphs & Wind Roses

Sulphur Dioxide

Current Date : 02/25/15
Current Time : 10:04

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	680	0	6	0
February	672	610	0	4	0
March	744	707	0	6	0
April	720	682	0	2	0
May	672	612	0	2	0
June	720	676	0	2	0
July	720	662	0	5	1
August	744	708	0	2	0
September	720	681	0	4	0
October	744	693	0	3	0
November	720	685	0	5	0
December	600	542	0	3	0
Yearly Total	8520	7938	0	6	0

SO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB SO2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO2 PPB Monthly Average
			≤ 20 ppb	20 < C ≤ 60 ppb	60 < C ≤ 110 ppb	110 < C ≤ 170 ppb	170 < C ≤ 340 ppb	> 340 ppb			
January	720	96.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.34
February	657	97.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.48
March	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.30
April	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.08
May	657	88.3	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.05
June	717	99.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.16
July	706	94.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.55
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.13
September	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.24
October	743	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.27
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.27
December	573	77.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.44
									Annual Average		**0.27**

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

SO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPB
JANUARY	6
FEBRUARY	4
MARCH	6
APRIL	2
MAY	2
JUNE	2
JULY	5
AUGUST	2
SEPTEMBER	4
OCTOBER	3
NOVEMBER	5
DECEMBER	3

ANNUAL PEAK	**6**

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

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	2.48	2.61	2.85	4.54	8.81	12.42	5.96	2.98	1.88	1.51	2.27	7.46	13.63	12.51	13.18	4.84	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	2.48	2.61	2.85	4.54	8.81	12.42	5.96	2.98	1.88	1.51	2.27	7.46	13.63	12.51	13.18	4.84	

Calm : .00 %

Total # Operational Hours : 7919

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	197	207	226	360	698	984	472	236	149	120	180	591	1080	991	1044	384	7919
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	197	207	226	360	698	984	472	236	149	120	180	591	1080	991	1044	384	

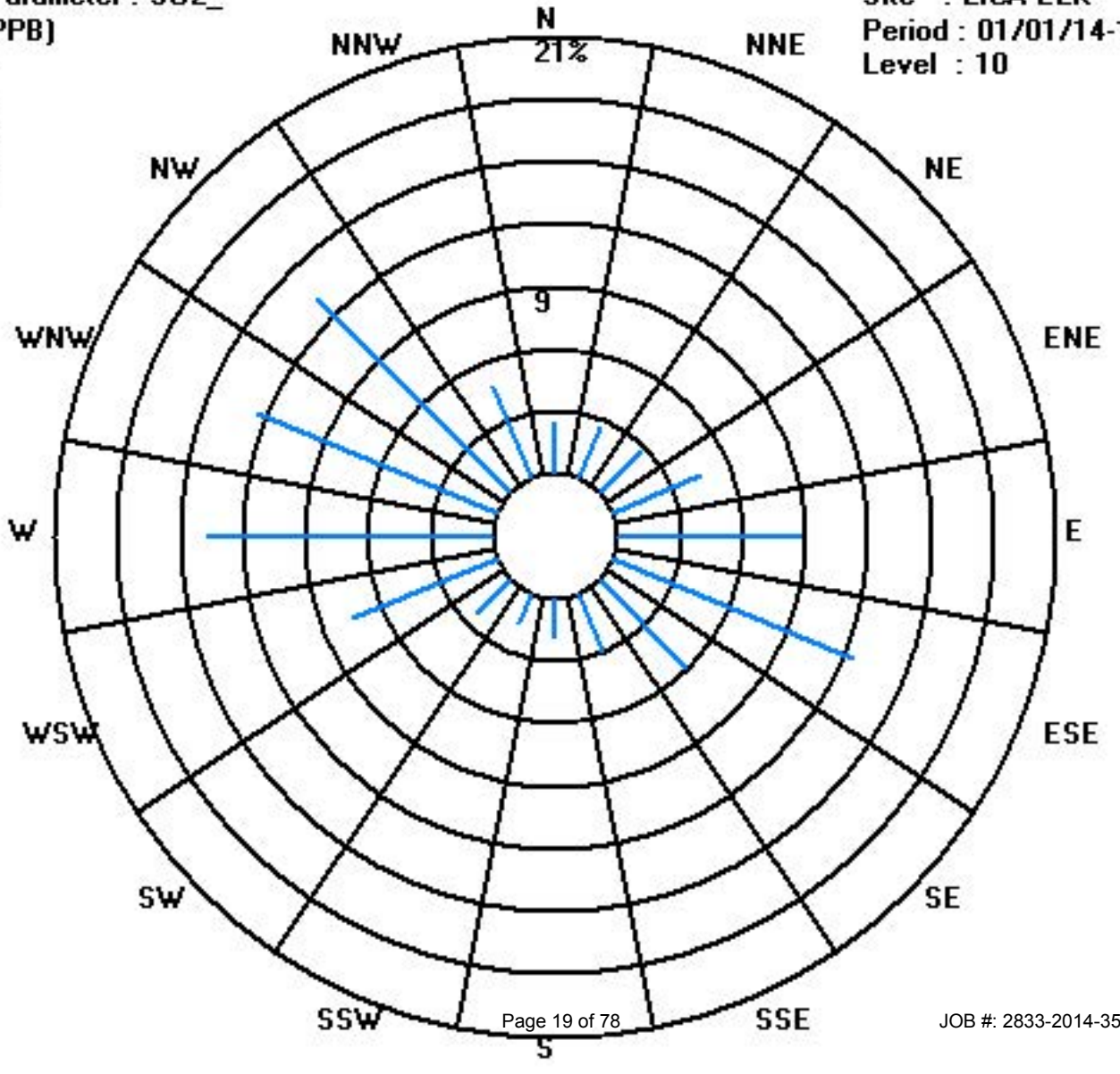
Calm : .00 %

Total # Operational Hours : 7919

Logger : 35 Parameter : SO2_
Class Limits (PPB)

>= 340
< 340
< 170
< 110
< 60
< 20

Site : LICA-ELK
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-35-A

Hydrogen Sulphide

Current Date : 02/25/15
Current Time : 10:04

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	720	632	0	5	0
February	672	606	0	1	0
March	744	652	0	2	0
April	720	682	0	1	0
May	744	708	0	2	0
June	720	683	0	1	0
July	744	669	0	2	0
August	744	699	0	3	0
September	720	684	0	1	0
October	744	702	0	1	0
November	720	654	0	3	0
December	744	705	0	2	0
Yearly Total	8736	8076	0	5	0

H2S Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association

Plant Location: Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB H2S)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	H2S PPB Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb			
January	674	90.6	97.2%	2.8%	0.0%	0.0%	1	0	0.29
February	653	97.2	100.0%	0.0%	0.0%	0.0%	0	0	0.07
March	692	93.0	100.0%	0.0%	0.0%	0.0%	0	0	0.14
April	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.02
May	744	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.06
June	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.02
July	724	97.3	100.0%	0.0%	0.0%	0.0%	0	0	0.16
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.17
September	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.05
October	743	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.06
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.13
December	743	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.33
							Annual Average		**0.12**

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

H2S Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPB
JANUARY	5
FEBRUARY	1
MARCH	2
APRIL	1
MAY	2
JUNE	1
JULY	2
AUGUST	3
SEPTEMBER	1
OCTOBER	1
NOVEMBER	3
DECEMBER	2

ANNUAL PEAK	**5**

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

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	2.60	2.64	2.91	4.60	8.76	12.07	6.36	3.25	1.83	1.47	2.25	7.18	13.31	12.22	13.21	4.90	99.66
< 10	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.07	.12	.04	.33
< 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	2.61	2.64	2.91	4.60	8.76	12.07	6.36	3.25	1.83	1.47	2.25	7.18	13.39	12.30	13.34	4.95	

Calm : .00 %

Total # Operational Hours : 8056

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	210	213	235	371	706	973	513	262	148	119	182	579	1073	985	1065	395	8029
< 10	1												6	6	10	4	27
< 50																	
>= 50																	
Totals	211	213	235	371	706	973	513	262	148	119	182	579	1079	991	1075	399	

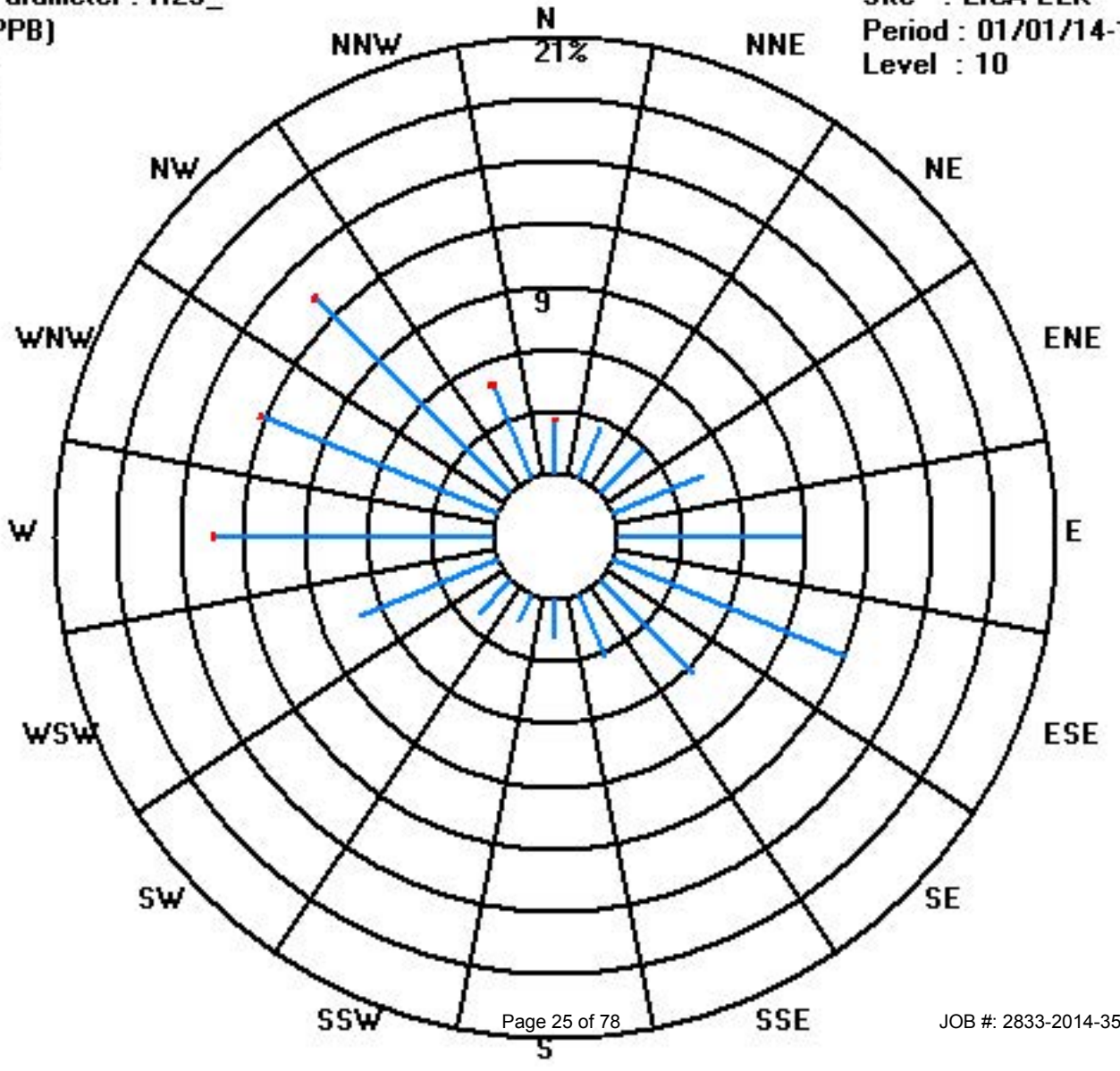
Calm : .00 %

Total # Operational Hours : 8056

Logger : 35 Parameter : H2S_
Class Limits (PPB)

>= 50
< 50
< 10
< 3

Site : LICA-ELK
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-35-A

Particulate Matter 2.5

Current Date : 02/25/15
Current Time : 10:05

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	599	0	80	9
February	648	537	0	152	10
March	744	661	0	60	10
April	720	691	0	42	7
May	744	710	0	61	9
June	720	686	0	60	12
July	744	695	0	88	22
August	744	710	0	81	19
September	648	553	0	57	6
October	744	679	0	21	4
November	696	635	0	147	6
December	744	725	0	29	6
Yearly Total	8640	7881	0	152	10

PM2.5 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ug/m3 PM2.5)						24-Hour Averages Above Guidelines	PM2.5 ug/m3 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	603	81.0	96.7%	2.8%	0.5%	0.0%	0.0%	0.0%	1	8.69
February	543	80.8	96.6%	2.8%	0.4%	0.0%	0.2%	0.0%	0	9.53
March	663	89.1	98.3%	1.7%	0.0%	0.0%	0.0%	0.0%	0	10.13
April	696	96.7	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0	7.30
May	712	95.7	99.0%	0.8%	0.1%	0.0%	0.0%	0.0%	0	9.28
June	688	95.6	95.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0	12.21
July	698	93.8	75.4%	21.0%	3.2%	0.4%	0.0%	0.0%	4	22.38
August	712	95.7	82.0%	17.2%	0.7%	0.1%	0.0%	0.0%	3	19.21
September	555	77.1	98.7%	1.3%	0.0%	0.0%	0.0%	0.0%	0	6.47
October	684	91.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.71
November	640	88.9	99.2%	0.5%	0.2%	0.0%	0.2%	0.0%	0	5.90
December	726	97.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	6.11
									Annual Average	**10.08**

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

PM2.5 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in ug/m3
JANUARY	80
FEBRUARY	152
MARCH	60
APRIL	42
MAY	61
JUNE	60
JULY	88
AUGUST	81
SEPTEMBER	57
OCTOBER	21
NOVEMBER	147
DECEMBER	29

ANNUAL PEAK	**152**

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

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	2.34	2.32	2.73	4.54	8.44	11.51	5.91	3.10	1.70	1.32	2.12	6.77	12.40	11.64	12.76	4.59	94.27
< 60	.11	.15	.07	.13	.41	.78	.55	.25	.12	.05	.13	.39	.63	.44	.53	.29	5.12
< 80	.02	.01	.01	.01	.05	.11	.00	.00	.00	.00	.02	.03	.07	.05	.07	.02	.52
< 120	.00	.00	.00	.01	.00	.01	.00	.00	.00	.00	.00	.00	.00	.02	.01	.00	.06
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.01
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.48	2.49	2.82	4.70	8.92	12.43	6.47	3.35	1.83	1.37	2.29	7.20	13.12	12.17	13.38	4.91	

Calm : .00 %

Total # Operational Hours : 7858

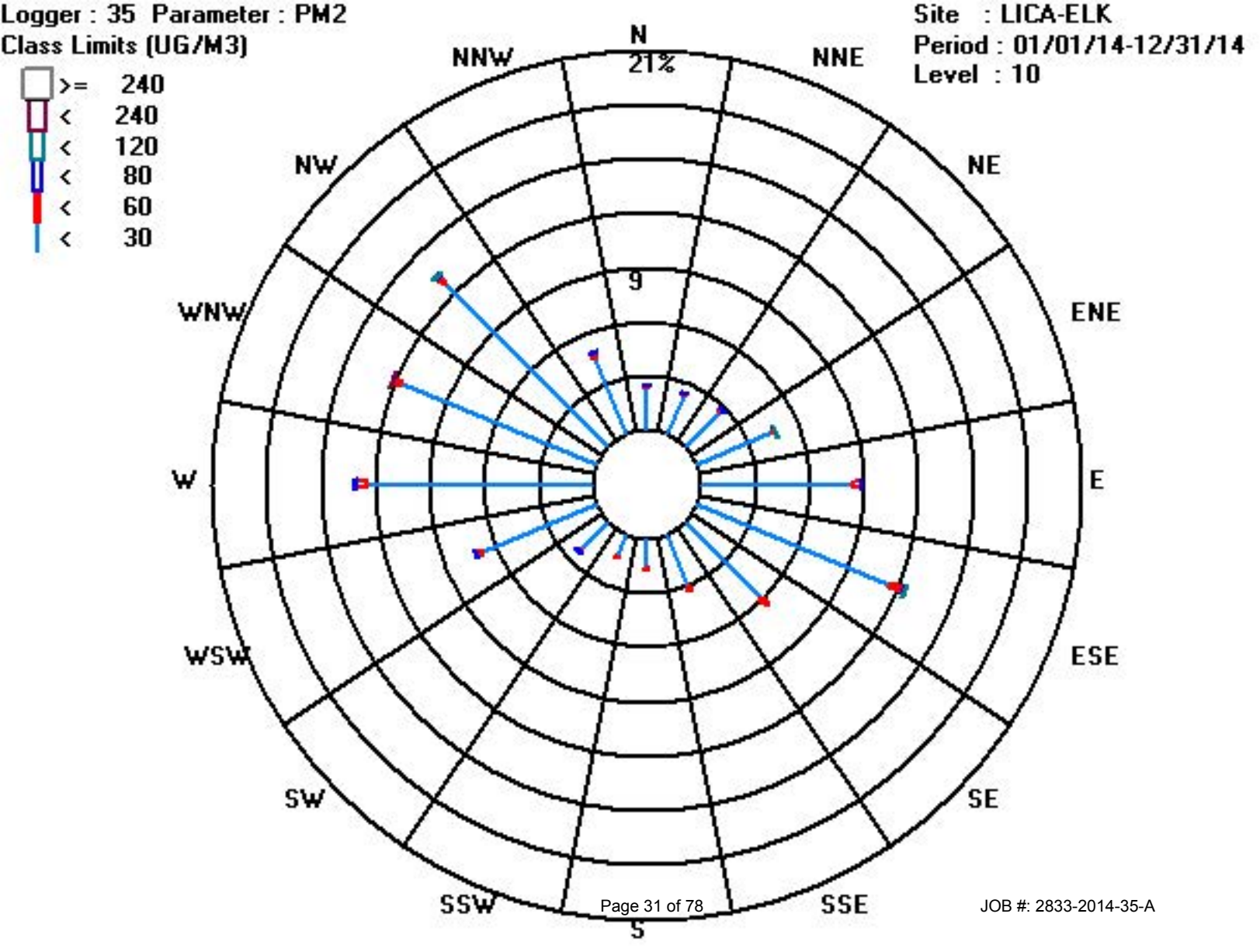
Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	184	183	215	357	664	905	465	244	134	104	167	532	975	915	1003	361	7408
< 60	9	12	6	11	33	62	44	20	10	4	11	31	50	35	42	23	403
< 80	2	1	1	1	4	9					2	3	6	4	6	2	41
< 120				1		1								2	1		5
< 240														1			1
>= 240																	
Totals	195	196	222	370	701	977	509	264	144	108	180	566	1031	957	1052	386	

Calm : .00 %

Total # Operational Hours : 7858



JOB #: 2833-2014-35-A

Nitrogen Dioxide

Current Date : 02/25/15
Current Time : 10:04

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	677	0.1	36.7	9.6
February	648	593	0	38.9	10.6
March	744	701	0	39.6	9
April	720	669	0	32.6	4.6
May	744	701	0	36.7	4.7
June	720	650	0	20.1	3.7
July	744	694	0	22.8	4.5
August	744	696	0	21.5	5
September	720	676	0	40.1	6.3
October	744	693	0.1	33.3	6.9
November	720	665	0	35.4	6.7
December	744	701	0.2	39.7	10
Yearly Total	8736	8116	0	40.1	6.8

NO2 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO2)				Hourly Readings Above Guidelines	NO2 PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	721	96.9	100.0%	0.0%	0.0%	0.0%	0	9.57
February	635	94.5	100.0%	0.0%	0.0%	0.0%	0	10.59
March	744	100.0	100.0%	0.0%	0.0%	0.0%	0	9.01
April	720	100.0	100.0%	0.0%	0.0%	0.0%	0	4.60
May	744	100.0	100.0%	0.0%	0.0%	0.0%	0	4.71
June	686	95.3	100.0%	0.0%	0.0%	0.0%	0	3.67
July	744	100.0	100.0%	0.0%	0.0%	0.0%	0	4.46
August	744	100.0	100.0%	0.0%	0.0%	0.0%	0	5.00
September	720	100.0	100.0%	0.0%	0.0%	0.0%	0	6.26
October	741	99.6	100.0%	0.0%	0.0%	0.0%	0	6.92
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	6.66
December	743	99.9	100.0%	0.0%	0.0%	0.0%	0	10.04
						Annual Average		**6.79**

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

NO2 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPB
JANUARY	37
FEBRUARY	39
MARCH	40
APRIL	33
MAY	37
JUNE	20
JULY	23
AUGUST	22
SEPTEMBER	40
OCTOBER	33
NOVEMBER	35
DECEMBER	40

ANNUAL PEAK	40.1

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

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	2.55	2.64	2.85	4.48	8.68	12.21	6.33	3.19	1.81	1.50	2.29	7.33	13.66	12.40	13.15	4.85	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	2.55	2.64	2.85	4.48	8.68	12.21	6.33	3.19	1.81	1.50	2.29	7.33	13.66	12.40	13.15	4.85	

Calm : .00 %

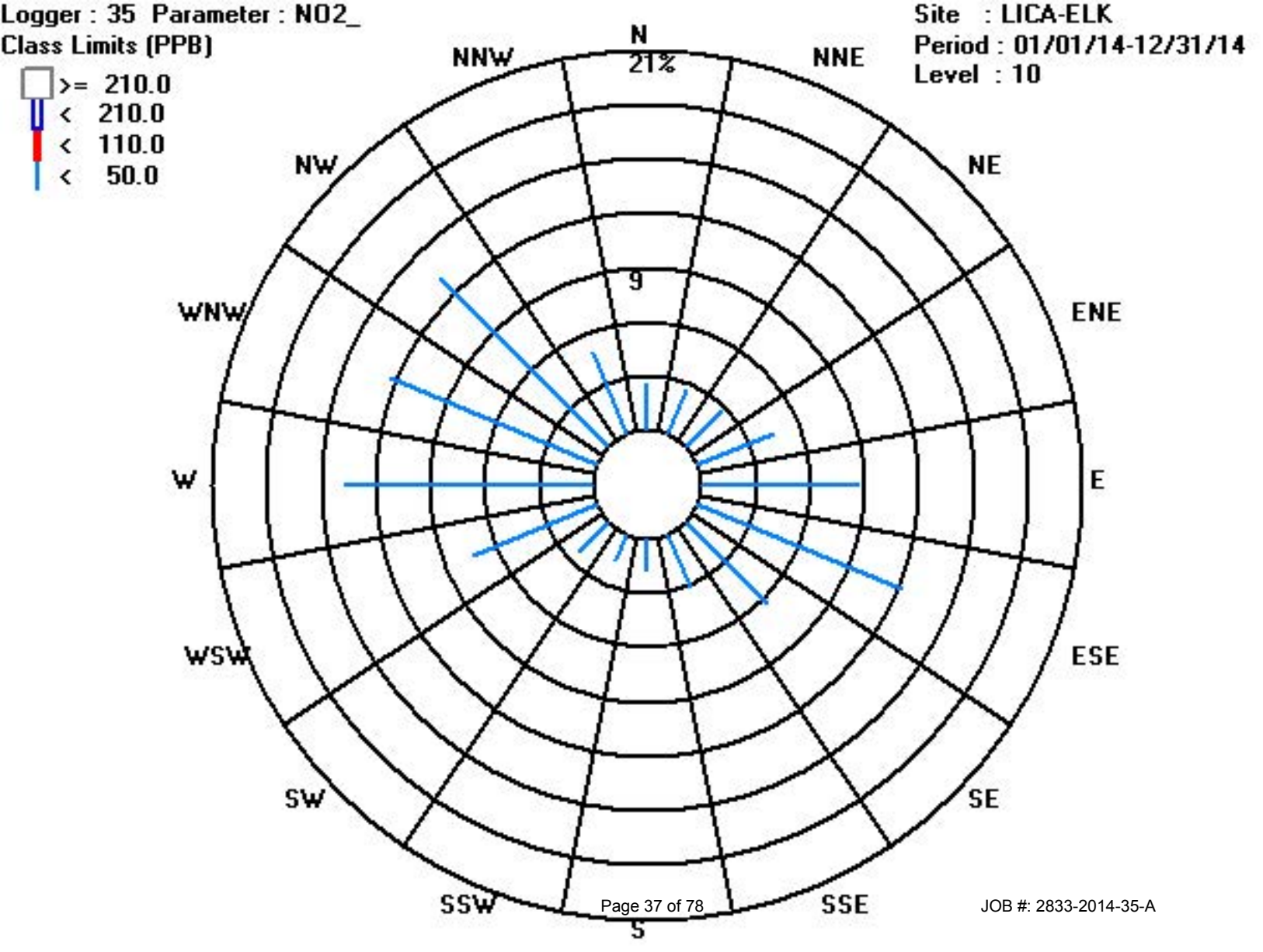
Total # Operational Hours : 8096

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	207	214	231	363	703	989	513	259	147	122	186	594	1106	1004	1065	393	8096
<	110.0																	
<	210.0																	
>=	210.0																	
	Totals	207	214	231	363	703	989	513	259	147	122	186	594	1106	1004	1065	393	

Calm : .00 %

Total # Operational Hours : 8096



JOB #: 2833-2014-35-A

Nitric Oxide

Current Date : 02/25/15
Current Time : 10:04

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	677	0	86.4	3.6
February	648	593	0	59.3	4.3
March	744	702	0	82.8	3.2
April	720	670	0	62.9	1.4
May	744	702	0	94.1	1.5
June	720	650	0	27.2	1.1
July	744	694	0	35.4	1.5
August	744	696	0	75.4	4.1
September	720	676	0	75.1	3.7
October	744	693	0	64.7	2.9
November	720	665	0	85.2	3.1
December	744	701	0	72.1	4.2
Yearly Total	8736	8119	0	94.1	2.9

NO Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NO)				Hourly Readings Above Guidelines	NO PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	721	96.9	99.1%	0.9%	0.0%	0.0%	NA	3.57
February	635	94.5	99.7%	0.3%	0.0%	0.0%	NA	4.29
March	744	100.0	98.9%	1.1%	0.0%	0.0%	NA	3.18
April	720	100.0	99.7%	0.3%	0.0%	0.0%	NA	1.41
May	744	100.0	99.6%	0.4%	0.0%	0.0%	NA	1.52
June	686	95.3	100.0%	0.0%	0.0%	0.0%	NA	1.08
July	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	1.54
August	744	100.0	98.6%	1.4%	0.0%	0.0%	NA	4.13
September	720	100.0	99.1%	0.9%	0.0%	0.0%	NA	3.65
October	741	99.6	99.7%	0.3%	0.0%	0.0%	NA	2.88
November	720	100.0	98.6%	1.4%	0.0%	0.0%	NA	3.07
December	743	99.9	98.9%	1.1%	0.0%	0.0%	NA	4.20
						Annual Average		**2.88**

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

NO Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPB
JANUARY	86
FEBRUARY	59
MARCH	83
APRIL	63
MAY	94
JUNE	27
JULY	35
AUGUST	75
SEPTEMBER	75
OCTOBER	65
NOVEMBER	85
DECEMBER	72

ANNUAL PEAK	94.1

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

01/01/14 thru 12/31/14

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	2.55	2.64	2.83	4.48	8.65	12.14	6.30	3.16	1.77	1.49	2.22	7.28	13.56	12.26	13.05	4.84	99.29
<	110.0	.00	.00	.01	.01	.02	.06	.02	.03	.04	.01	.07	.04	.08	.14	.09	.01	.70
<	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	2.55	2.64	2.85	4.49	8.68	12.21	6.33	3.19	1.82	1.50	2.29	7.33	13.65	12.40	13.14	4.85	

Calm : .00 %

Total # Operational Hours : 8099

Distribution By Samples

Direction

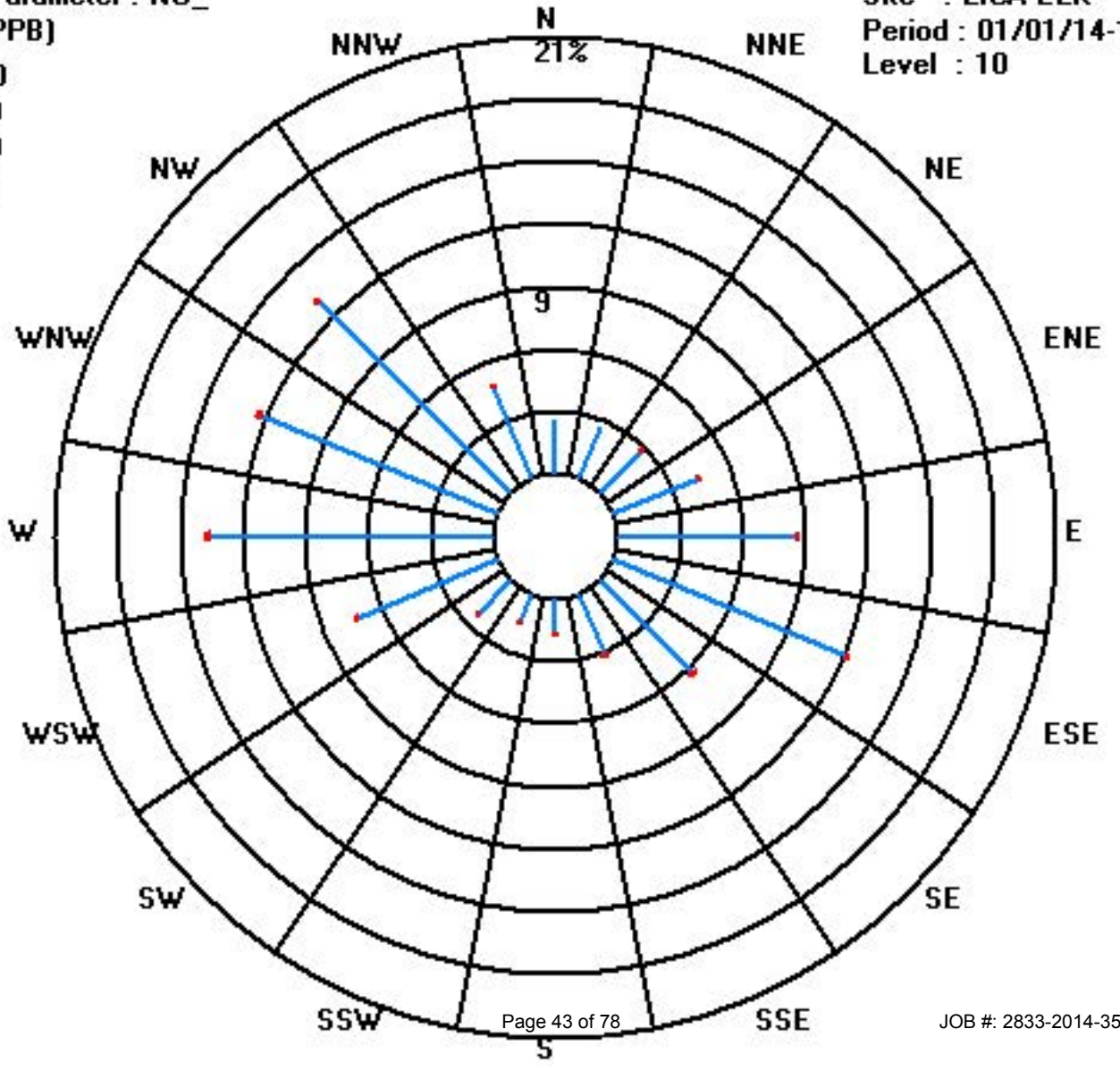
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50.0	207	214	230	363	701	984	511	256	144	121	180	590	1099	993	1057	392	8042
<	110.0			1	1	2	5	2	3	4	1	6	4	7	12	8	1	57
<	210.0																	
>=	210.0																	
	Totals	207	214	231	364	703	989	513	259	148	122	186	594	1106	1005	1065	393	

Calm : .00 %

Total # Operational Hours : 8099

Logger : 35 Parameter : NO_
Class Limits (PPB)
>= 210.0
< 210.0
< 110.0
< 50.0

Site : LICA-ELK
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-35-A

Oxides of Nitrogen

Current Date : 02/25/15
Current Time : 10:04

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	677	0.1	116.1	13.1
February	648	593	0	90.3	14.9
March	744	701	0	120.4	12.2
April	720	670	0	95.3	6
May	744	702	0	118.1	6.2
June	720	650	0	39.5	4.7
July	744	694	0	46.7	6
August	744	696	0.1	82.2	9.1
September	720	676	0	87.1	9.9
October	744	694	0.1	188	10.1
November	720	665	0	117.3	9.7
December	744	701	0.2	110.4	14.2
Yearly Total	8736	8119	0	188	9.7

NOx Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB NOx)				Hourly Readings Above Guidelines	NOx PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	721	96.9	96.9%	2.8%	0.3%	0.0%	NA	13.14
February	635	94.5	96.3%	3.7%	0.0%	0.0%	NA	14.88
March	744	100.0	97.4%	2.0%	0.6%	0.0%	NA	12.19
April	720	100.0	99.3%	0.7%	0.0%	0.0%	NA	6.02
May	744	100.0	98.3%	1.6%	0.1%	0.0%	NA	6.22
June	686	95.3	100.0%	0.0%	0.0%	0.0%	NA	4.75
July	744	100.0	100.0%	0.0%	0.0%	0.0%	NA	6.00
August	744	100.0	97.4%	2.6%	0.0%	0.0%	NA	9.13
September	720	100.0	97.5%	2.5%	0.0%	0.0%	NA	9.91
October	741	99.6	97.4%	2.4%	0.1%	0.0%	NA	10.06
November	720	100.0	96.8%	3.0%	0.2%	0.0%	NA	9.73
December	743	99.9	95.6%	4.3%	0.1%	0.0%	NA	14.24
						Annual Average		**9.69**

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

NOx Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPB
JANUARY	116
FEBRUARY	90
MARCH	120
APRIL	95
MAY	118
JUNE	40
JULY	47
AUGUST	82
SEPTEMBER	87
OCTOBER	188
NOVEMBER	117
DECEMBER	110

ANNUAL PEAK	**188**

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

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	2.54	2.61	2.81	4.40	8.47	12.02	6.26	3.06	1.77	1.48	2.21	7.18	13.32	11.90	12.82	4.80	97.71
< 110.0	.01	.02	.03	.08	.20	.18	.08	.12	.04	.02	.06	.14	.32	.45	.29	.03	2.16
< 210.0	.00	.00	.00	.00	.01	.00	.00	.01	.00	.00	.02	.00	.01	.04	.00	.01	.12
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.55	2.64	2.85	4.49	8.69	12.21	6.34	3.19	1.82	1.50	2.29	7.33	13.65	12.40	13.12	4.85	

Calm : .00 %

Total # Operational Hours : 8099

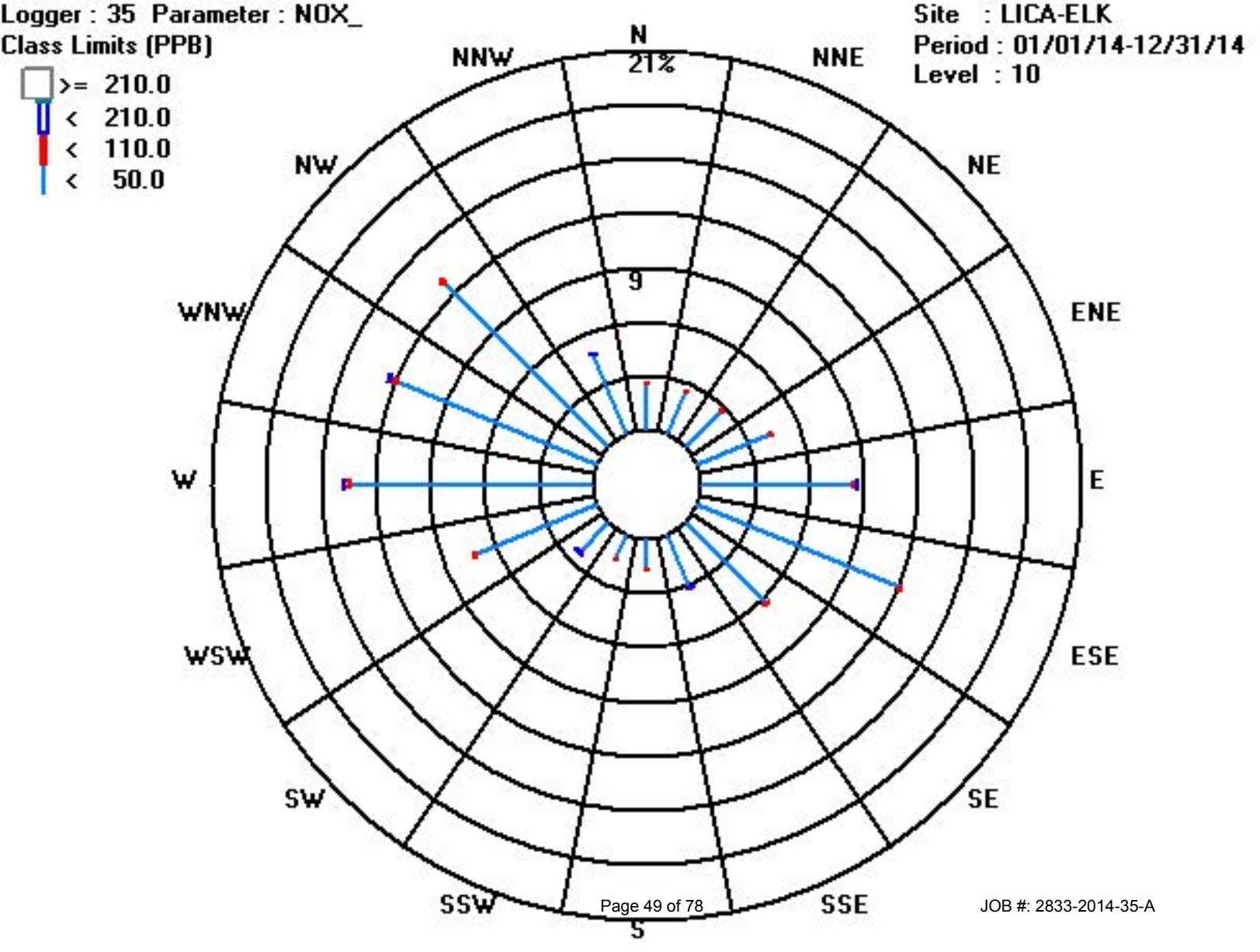
Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	206	212	228	357	686	974	507	248	144	120	179	582	1079	964	1039	389	7914
< 110.0	1	2	3	7	17	15	7	10	4	2	5	12	26	37	24	3	175
< 210.0					1			1			2		1	4		1	10
>= 210.0																	
Totals	207	214	231	364	704	989	514	259	148	122	186	594	1106	1005	1063	393	

Calm : .00 %

Total # Operational Hours : 8099



JOB #: 2833-2014-35-A

Ozone

Current Date : 02/25/15
Current Time : 10:04

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	682	0	46	25
February	672	640	0	41	24
March	744	707	0	56	31
April	720	678	0	53	33
May	744	675	0	63	32
June	720	684	0	62	26
July	744	705	0	66	25
August	744	692	0	53	21
September	720	681	0	50	18
October	744	702	1	43	20
November	720	685	0	42	23
December	744	703	0	41	20
Yearly Total	8760	8234	0	66	25

O3 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPB O3)				Hourly Readings Above Guidelines	O3 PPB Monthly Average
			0 to 50 ppb	51 to 110 ppb	111 to 210 ppb	>210 ppb		
January	721	96.9	100.0%	0.0%	0.0%	0.0%	0	25.14
February	672	100.0	100.0%	0.0%	0.0%	0.0%	0	24.21
March	744	100.0	98.0%	2.0%	0.0%	0.0%	0	30.71
April	720	100.0	97.8%	2.2%	0.0%	0.0%	0	33.06
May	718	96.5	93.2%	6.8%	0.0%	0.0%	0	32.05
June	720	100.0	96.9%	3.1%	0.0%	0.0%	0	26.39
July	744	100.0	98.2%	1.8%	0.0%	0.0%	0	25.39
August	728	97.8	98.3%	1.7%	0.0%	0.0%	0	20.77
September	720	100.0	100.0%	0.0%	0.0%	0.0%	0	18.11
October	743	99.9	100.0%	0.0%	0.0%	0.0%	0	19.56
November	720	100.0	100.0%	0.0%	0.0%	0.0%	0	22.62
December	743	99.9	100.0%	0.0%	0.0%	0.0%	0	19.60
						Annual Average		**24.80**

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

O3 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** St. Lina Site

MONTH	Peak Reading in PPB
JANUARY	46
FEBRUARY	41
MARCH	56
APRIL	53
MAY	63
JUNE	62
JULY	66
AUGUST	53
SEPTEMBER	50
OCTOBER	43
NOVEMBER	42
DECEMBER	41

ANNUAL PEAK	66

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

01/01/14 thru 12/31/14

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	2.58	2.56	2.87	4.50	8.59	12.05	6.17	3.14	1.83	1.31	2.08	7.15	13.11	12.01	13.22	4.90	98.13
<	110	.06	.03	.03	.07	.10	.13	.09	.12	.06	.21	.20	.13	.24	.08	.23	.01	1.86
<	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	2.64	2.60	2.90	4.57	8.70	12.18	6.26	3.26	1.89	1.53	2.28	7.29	13.35	12.10	13.45	4.91	

Calm : .00 %

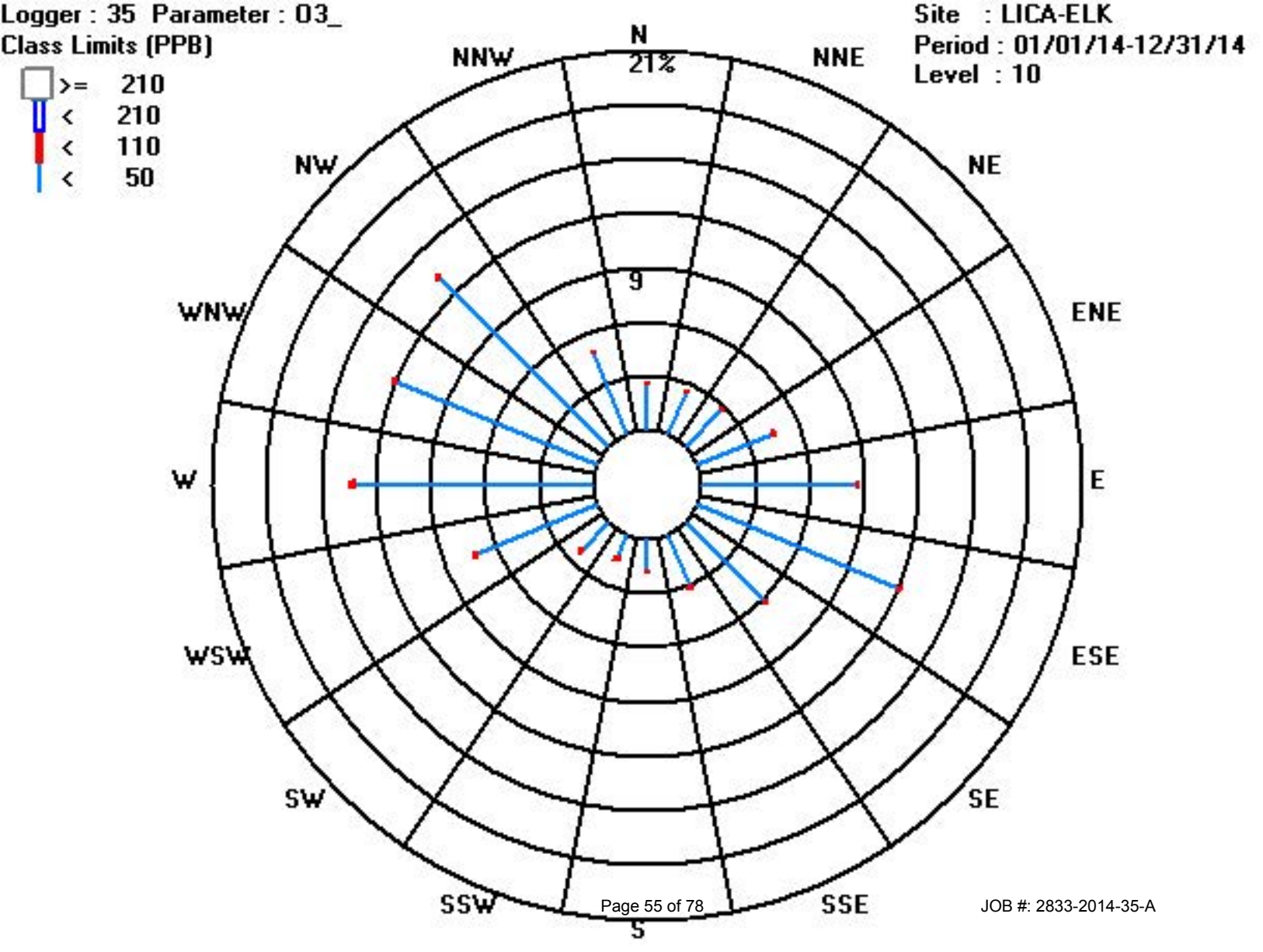
Total # Operational Hours : 8214

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	212	211	236	370	706	990	507	258	151	108	171	588	1077	987	1086	403	8061
<	110	5	3	3	6	9	11	8	10	5	18	17	11	20	7	19	1	153
<	210																	
>=	210																	
	Totals	217	214	239	376	715	1001	515	268	156	126	188	599	1097	994	1105	404	

Calm : .00 %

Total # Operational Hours : 8214



JOB #: 2833-2014-35-A

Total Hydrocarbons

Total Hydrocarbons (55i)

Current Date : 02/25/15
Current Time : 10:05

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	682	1.7	10	2.7
February	672	630	1.7	8.5	2.7
March	744	708	1.8	8.4	2.7
April	720	678	1.2	7.3	2.3
May	744	693	1.7	13.5	2.3
June	720	684	1.8	6.9	2.4
July	744	703	1.8	7.5	2.5
August	744	709	1.8	8.7	2.8
September	720	680	1.8	11.3	2.6
October	744	704	1.8	8.1	2.4
November	720	667	1.8	7.9	2.3
December	696	626	1.8	7.9	2.6
Yearly Total	8712	8164	1.2	13.5	2.5

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPM THC)				THC PPM Monthly Average
			0.0 to 3.0 ppm	4.0 to 10.0 ppm	11.0 to 50.0 ppm	>50.0 ppm	
January	721	96.9	75.7%	24.3%	0.0%	0.0%	2.75
February	669	99.6	73.7%	26.3%	0.0%	0.0%	2.78
March	744	100.0	75.8%	24.2%	0.0%	0.0%	2.73
April	716	99.4	87.8%	12.2%	0.0%	0.0%	2.31
May	735	98.8	87.7%	12.1%	0.1%	0.0%	2.31
June	720	100.0	83.0%	17.0%	0.0%	0.0%	2.40
July	744	100.0	78.4%	21.6%	0.0%	0.0%	2.59
August	744	100.0	70.9%	29.1%	0.0%	0.0%	2.86
September	717	99.6	80.3%	19.6%	0.1%	0.0%	2.63
October	742	99.7	84.7%	15.3%	0.0%	0.0%	2.45
November	704	97.8	88.2%	11.8%	0.0%	0.0%	2.36
December	660	88.7	77.1%	22.9%	0.0%	0.0%	2.63
						Annual Average	**2.57**

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

THC Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPM
JANUARY	10.0
FEBRUARY	8.5
MARCH	8.4
APRIL	7.3
MAY	13.5
JUNE	6.9
JULY	7.5
AUGUST	8.7
SEPTEMBER	11.3
OCTOBER	8.1
NOVEMBER	7.9
DECEMBER	7.9

ANNUAL PEAK	**13.5**

LICA35
THC55 / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	2.41	2.39	2.61	3.41	4.49	8.03	4.93	2.70	1.41	1.24	1.90	5.90	11.12	9.65	11.94	4.56	78.75
< 10.0	.14	.20	.31	1.01	4.16	4.23	1.37	.55	.47	.28	.41	1.31	2.29	2.62	1.35	.40	21.19
< 50.0	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00	.04
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.56	2.60	2.93	4.43	8.66	12.26	6.31	3.25	1.89	1.52	2.32	7.22	13.43	12.29	13.31	4.97	

Calm : .00 %

Total # Operational Hours : 8144

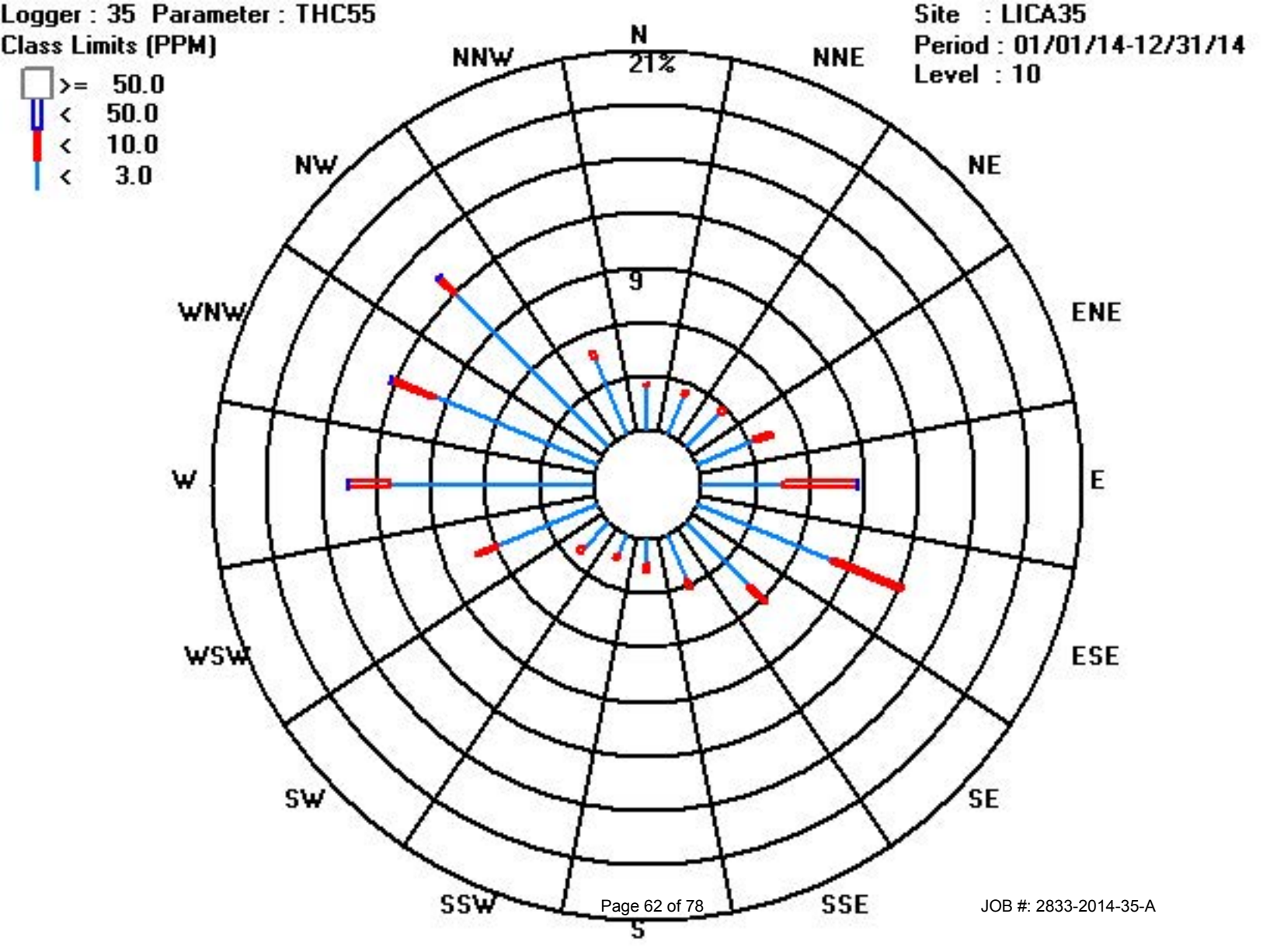
Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	197	195	213	278	366	654	402	220	115	101	155	481	906	786	973	372	6414
< 10.0	12	17	26	83	339	345	112	45	39	23	34	107	187	214	110	33	1726
< 50.0					1								1	1	1		4
>= 50.0																	
Totals	209	212	239	361	706	999	514	265	154	124	189	588	1094	1001	1084	405	

Calm : .00 %

Total # Operational Hours : 8144



JOB #: 2833-2014-35-A

Methane

Current Date : 02/25/15
Current Time : 10:05

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	682	1.7	9.2	2.7
February	672	630	1.7	8.3	2.7
March	744	708	1.8	8.1	2.7
April	720	678	1.2	7.1	2.2
May	744	693	1.7	13.1	2.2
June	720	684	1.8	6.8	2.3
July	744	703	1.8	7.3	2.5
August	744	709	1.8	8.5	2.8
September	720	680	1.8	11	2.6
October	744	704	1.8	7.9	2.4
November	720	667	1.8	7.8	2.3
December	696	626	1.8	7.7	2.6
Yearly Total	8712	8164	1.2	13.1	2.5

CH4 Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPM CH4)				CH4 PPM Monthly Average
			0.0 to 3.0 ppm	4.0 to 10.0 ppm	11.0 to 50.0 ppm	>50.0 ppm	
January	721	96.9	76.0%	24.0%	0.0%	0.0%	2.72
February	669	99.6	74.0%	26.0%	0.0%	0.0%	2.77
March	744	100.0	76.0%	24.0%	0.0%	0.0%	2.71
April	716	99.4	87.9%	12.1%	0.0%	0.0%	2.30
May	735	98.8	88.2%	11.7%	0.1%	0.0%	2.30
June	720	100.0	83.5%	16.5%	0.0%	0.0%	2.38
July	744	100.0	79.4%	20.6%	0.0%	0.0%	2.55
August	744	100.0	71.9%	28.1%	0.0%	0.0%	2.81
September	717	99.6	80.9%	19.0%	0.1%	0.0%	2.62
October	742	99.7	84.8%	15.2%	0.0%	0.0%	2.45
November	704	97.8	88.2%	11.8%	0.0%	0.0%	2.36
December	660	88.7	77.8%	22.2%	0.0%	0.0%	2.62
						Annual Average	**2.55**

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

CH4 Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPM
JANUARY	9.2
FEBRUARY	8.3
MARCH	8.1
APRIL	7.1
MAY	13.1
JUNE	6.8
JULY	7.3
AUGUST	8.5
SEPTEMBER	11.0
OCTOBER	7.9
NOVEMBER	7.8
DECEMBER	7.7

ANNUAL PEAK	**13.1**

LICA35
METHANE / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	2.41	2.40	2.61	3.41	4.55	8.09	4.94	2.71	1.41	1.26	1.91	5.96	11.21	9.70	11.94	4.56	79.15
< 10.0	.14	.19	.31	1.01	4.11	4.17	1.36	.54	.47	.25	.40	1.25	2.22	2.57	1.35	.40	20.82
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.02
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.56	2.60	2.93	4.43	8.66	12.26	6.31	3.25	1.89	1.52	2.32	7.22	13.43	12.29	13.31	4.97	

Calm : .00 %

Total # Operational Hours : 8144

Distribution By Samples

Direction

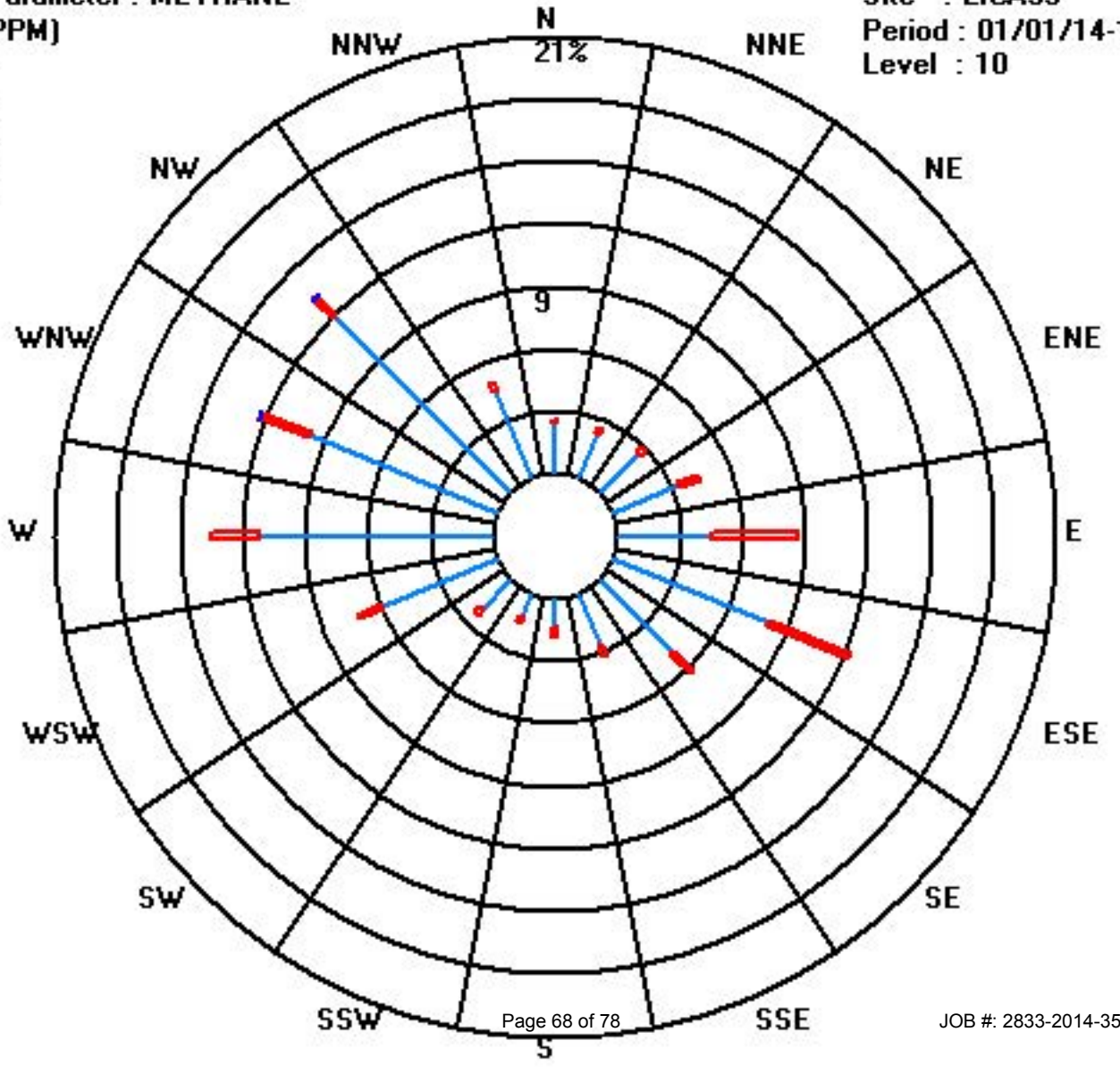
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	197	196	213	278	371	659	403	221	115	103	156	486	913	790	973	372	6446
< 10.0	12	16	26	83	335	340	111	44	39	21	33	102	181	210	110	33	1696
< 50.0														1	1		2
>= 50.0																	
Totals	209	212	239	361	706	999	514	265	154	124	189	588	1094	1001	1084	405	

Calm : .00 %

Total # Operational Hours : 8144

Logger : 35 Parameter : METHANE
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0

Site : LICA35
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-35-A

Non-Methane Hydrocarbons

Current Date : 02/25/15
Current Time : 10:06

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	682	0	5.1	0
February	672	630	0	0.3	0
March	744	708	0	0.3	0
April	720	678	0	0.3	0
May	744	693	0	0.4	0
June	720	684	0	0.3	0
July	744	703	0	0.3	0
August	744	709	0	0.4	0
September	720	680	0	0.3	0
October	744	704	0	0.2	0
November	720	667	0	0.2	0
December	696	625	0	0.2	0
Yearly Total	8712	8163	0	5.1	0

NMHC Monthly Averages and Frequency Distributions of One Hour Readings - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (PPM NMHC)						NMHC PPM Monthly Average
			≤ 0.2 ppm	0.2 < C ≤ 0.50 ppm	0.50 < C ≤ 1.00 ppm	1.00 < C ≤ 2.00 ppm	2.00 < C ≤ 4.00 ppm	> 4.00 ppm	
January	721	96.9	97.8%	1.8%	0.1%	0.0%	0.1%	0.1%	0.03
February	669	99.6	99.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.01
March	744	100.0	99.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.02
April	716	99.4	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.01
May	735	98.8	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.01
June	720	100.0	99.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.02
July	744	100.0	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.04
August	744	100.0	97.5%	2.5%	0.0%	0.0%	0.0%	0.0%	0.05
September	717	99.6	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.02
October	742	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.01
November	704	97.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.00
December	660	88.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.01
								Annual Average	**0.00**

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

NMHC Peak Reading of One Hour Averages - 2014

Plant Operator: Lakeland Industry & Community Association **Plant Location:** Elk Point Site

MONTH	Peak Reading in PPM
JANUARY	5
FEBRUARY	0
MARCH	0
APRIL	0
MAY	0
JUNE	0
JULY	0
AUGUST	0
SEPTEMBER	0
OCTOBER	0
NOVEMBER	0
DECEMBER	0

ANNUAL PEAK	**5.1**

LICA35
NMHC / WDR Joint Frequency Distribution (Percent)

01/01/14 thru 12/31/14

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	2.54	2.59	2.92	4.42	8.58	12.21	6.29	3.21	1.86	1.51	2.25	7.15	13.29	12.10	13.25	4.93	99.18
< .5	.01	.01	.01	.01	.06	.04	.01	.03	.02	.01	.04	.06	.12	.18	.06	.03	.76
< 1.0	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.02
< 2.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 4.0	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
>= 4.0	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
Totals	2.56	2.60	2.93	4.43	8.67	12.26	6.31	3.25	1.89	1.52	2.32	7.22	13.42	12.29	13.31	4.97	

Calm : .00 %

Total # Operational Hours : 8143

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< .2	207	211	238	360	699	995	513	262	152	123	184	583	1083	986	1079	402	8077
< .5	1	1	1	1	5	4	1	3	2	1	4	5	10	15	5	3	62
< 1.0	1										1						2
< 2.0																	
< 4.0					1												1
>= 4.0					1												1
Totals	209	212	239	361	706	999	514	265	154	124	189	588	1093	1001	1084	405	

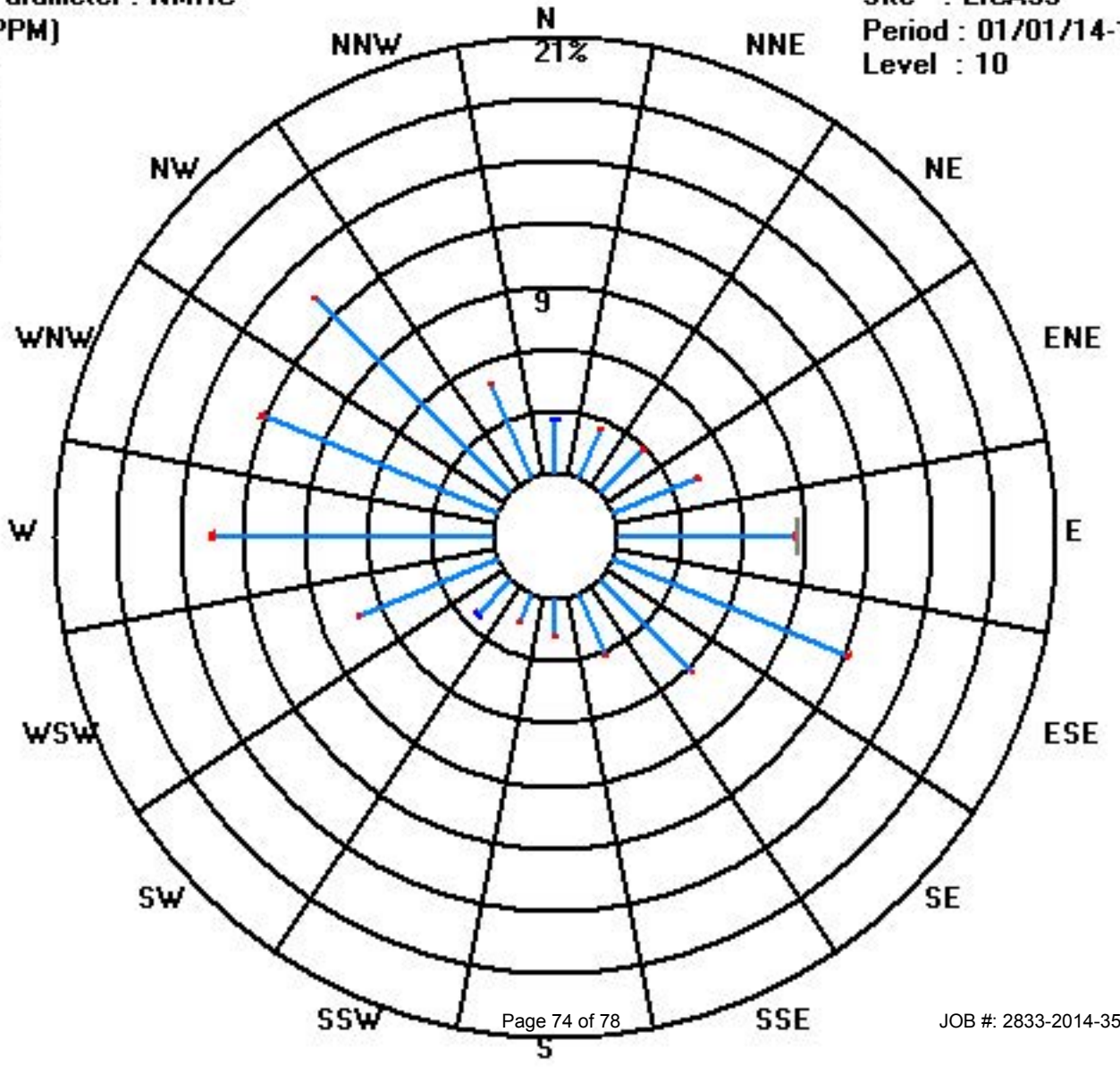
Calm : .00 %

Total # Operational Hours : 8143

Logger : 35 Parameter : NMHC
Class Limits (PPM)

>= 4.0
< 4.0
< 2.0
< 1.0
< .5
< .2

Site : LICA35
Period : 01/01/14-12/31/14
Level : 10



JOB #: 2833-2014-35-A

Vector Wind Speed

Current Date : 02/25/15
Current Time : 10:05

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2014

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

	Readings	Valid Readings	Min	Max	Mean
January	744	723	0.1	60.9	13.2
February	672	669	0	36	10.7
March	744	744	0.1	37.8	10.6
April	720	720	0.2	45.1	13
May	744	744	0.2	38.4	12.2
June	720	720	0.2	35.3	10.7
July	744	744	0	36.1	10.1
August	744	744	0.1	30.6	8.7
September	720	720	0.1	31.1	10.2
October	744	743	0.3	38.7	13
November	720	720	0.1	30.9	11.4
December	744	726	0	25.8	8.7
Yearly Total	8760	8717	0	60.9	11

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

01/01/14 thru 12/31/14

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	.67	.76	1.05	1.78	3.41	2.85	1.25	.83	.76	.68	1.05	1.78	3.43	3.53	2.14	.96	27.02
<	12.0	.84	1.10	1.17	1.47	3.80	4.71	2.03	1.13	.65	.52	.81	3.99	4.58	3.09	3.69	1.25	34.90
<	20.0	.82	.65	.51	1.11	1.06	3.41	2.15	1.03	.35	.25	.43	1.29	3.47	3.23	4.53	1.77	26.14
<	29.0	.18	.04	.11	.14	.35	1.07	.68	.22	.03	.00	.02	.11	1.49	1.72	2.55	.78	9.56
<	39.0	.02	.00	.00	.01	.04	.13	.11	.00	.00	.00	.00	.02	.37	.52	.60	.13	2.00
>=	39.0	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.05	.11	.03	.06	.28
	Totals	2.55	2.56	2.85	4.54	8.69	12.21	6.24	3.23	1.81	1.46	2.32	7.21	13.42	12.22	13.57	4.97	

Calm : .05 %

Total # Operational Hours : 8717

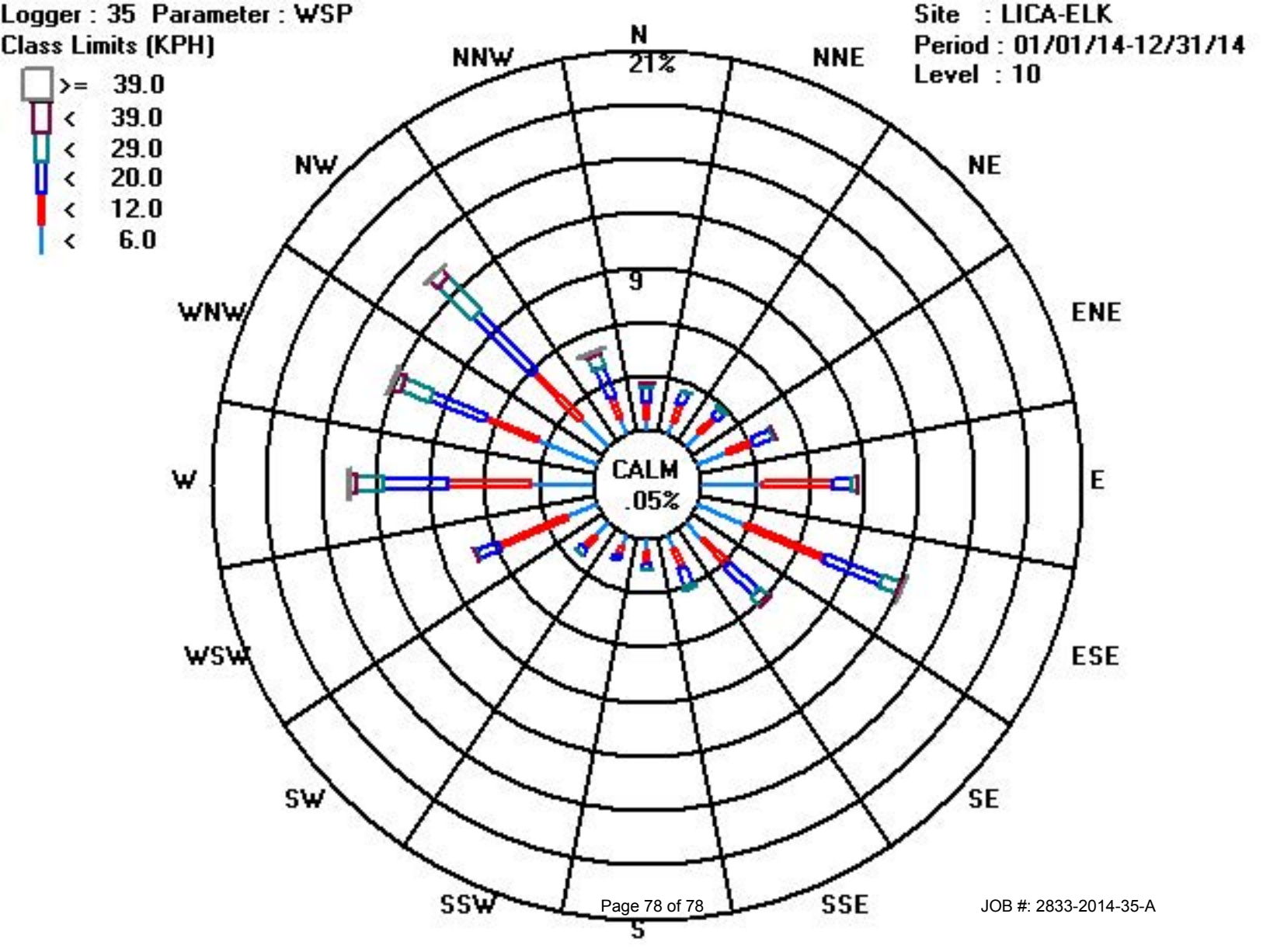
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	59	67	92	156	298	249	109	73	67	60	92	156	299	308	187	84	2356
<	12.0	74	96	102	129	332	411	177	99	57	46	71	348	400	270	322	109	3043
<	20.0	72	57	45	97	93	298	188	90	31	22	38	113	303	282	395	155	2279
<	29.0	16	4	10	13	31	94	60	20	3		2	10	130	150	223	68	834
<	39.0	2			1	4	12	10					2	33	46	53	12	175
>=	39.0						1							5	10	3	6	25
	Totals	223	224	249	396	758	1065	544	282	158	128	203	629	1170	1066	1183	434	

Calm : .05 %

Total # Operational Hours : 8717



JOB #: 2833-2014-35-A