Lakeland Industry & Community Association

Cold Lake Monitoring Site
Ambient Air Monitoring Annual Data Report

For
2010

Prepared By:

March 15, 2011

Lakeland Industry & Community Association
Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

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Monitoring Location: Cold Lake
Data Period: January 2010

The annual ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

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

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

AQM STATION – LICA – COLD LAKE

A trailer audit was performed by Alberta Environment on August 24th, 2010.

Sulphur Dioxide (PPB)
- Analyzer make / model – Thermo 43i, S/N: 806528242
  - Two hours of data are missing in January.
  - The datalogger was changed on February 4th causing two hours of data to be invalidated.
  - The instrument firmware was upgraded to ver 0.1.06.01.245 following the as found pints on March 10th; the firmware was loaded successfully.
  - The sample pump was rebuilt following the as found points on May 4th.
  - One hour of data is missing on May 31st at 5:00.
  - The permeation tube was replaced following the as found points on June 2nd.
  - One hour of data was invalidated due to a power failure in July.

Total Reduced Sulphur (PPB)
- Analyzer make / model –TEI 450i, S/N: 812728560
- Converter - CD NOVA CDN 101, S/N: 250
  - Two hours of data are missing in January.
  - The Maxxam-Supplied Thomas pump that was being used as the sample pump for the analyzer was removed, and a newly LICA-Owned Thomas pump was installed following the as found points on January 6th.
  - The datalogger was changed on February 4th causing two hours of data to be invalidated.
  - One hour of data is missing on May 31st at 5:00.
  - The permeation tube was replaced following the as found points on June 2nd.
  - One hour of data was invalidated due to a power failure in July.

General Continuous Monitoring Annual 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 – COLD LAKE

Total Hydrocarbon (PPM)

- Analyzer make / model -TECO 51C-LT, S/N: 427408718
  - Two hours of data are missing in January.
  - The internal burner air regulator was replaced following the as found points on January 6th.
  - The datalogger was changed on February 4th causing two hours of data to be invalidated.
  - The pump in the zero air supply was rebuilt following the as found points on March 9th.
  - One hour of data is missing on May 31st at 5:00.
  - The analyzer flamed out on May 14th due to a power failure, and it was re-lit on May 16th. 50 hours of data during this period of time were invalidated.
  - The analyzer flamed out on June 20th, hour of 15, and was re-lit on June 21st, hour of 13. 23 hours of data was invalidated due to this issue.
  - A power failure occurred on July 12th causing the analyzer to flame out. The analyzer was re-lit on July 13th. A total of 12 hours of data were invalidated.
  - The analyzer flamed out on July 22nd, and it was re-lit on the same day. 2 hours of data were invalidated.
  - One hour of data was invalidated due to a power failure in July.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE

Nitrogen Dioxide (PPB)

- Analyzer make / model - TECO 42C, S/N: 427408716
- ❖ Two hours of data are missing in January.
- ❖ The NO readings did not coincide with NO2 and NOx readings on January 13th; the analyzer and logger values did not agree. The issue was fixed by tightening the wires at both the logger and the analyzer.
- ❖ The datalogger was changed on February 4th causing two hours of data to be invalidated.
- ❖ The box fan was replaced following the as found points on April 12th.
- ❖ The sample pump was rebuilt following the as found points on May 4th. The scrubbing material and DFU filter in the external NO2 zero/span system were also replaced on May 4th.
- ❖ One hour of data is missing on May 31st at 5:00.
- ❖ One hour of data was invalidated due to a power failure in July.

Ozone (PPB)

- Analyzer make / model - TECO 49i, S/N: 700419951
- ❖ Two hours of data are missing in January.
- ❖ The datalogger was changed on February 4th causing two hours of data to be invalidated.
- ❖ One hour of data is missing on May 31st at 5:00.
- ❖ One hour of data was invalidated due to a power failure in July.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE

Particulate Matter 2.5 (ug/m^3)

- Analyzer make / model –TEOM1405F, S/N: 1405A201620804
- ❖ Two hours of data are missing in January.
- ❖ The flash card was replaced on January 13th.
- ❖ One hour of data was invalidated as it was below –3.0 ug/m^3 in January.
- ❖ The datalogger was changed on February 4th causing two hours of data to be invalidated.
- ❖ 10 hours of data were invalidated as the data were below –3.0 ug/m^3 in March.
- ❖ A firmware update was completed on April 13th; now running firmware ver 1.52; this version should allow the touch screen to operate better.
- ❖ One hour of data is missing on May 31st at 5:00.
- ❖ 5 hours of data were invalidated as the data were below –3.0 ug/m^3 in May.
- ❖ 18 hours of data were invalidated as the data were below –3.0 ug/m^3 in June.
- ❖ One hour of data was invalidated due to a power failure in July.
- ❖ 11 hours of data were invalidated as the data were below –3.0 ug/m^3 in July.
- ❖ 8 hours of data were invalidated as the data were below –3.0 ug/m^3 in August.
- ❖ There were two 24-hour average readings above guidelines in August. The contraventions were reported to AENV on August 20th. The AENV Ref# is 239386.
- ❖ The ambient temp/RH sensor for the Teom had malfunctioned and was reading around minus 41 degree Celsius on September 17th. Determined that the Temp/RH sensor was a fault. Set the flow control to passive; adjusted the average temperature to 5 degree Celsius and average pressure to 0.940atm. After an investigation of the data stored internally in the Teom, the sensor failed at 19:50(MST) on September 6th. Due to this issue, 253 hours of PM2.5 data between September 6th and September 17th were invalidated. A temporary temp/RH sensor without the cover sealed was installed on September 22nd. As data between September 17th and September 22nd were calculated using average temperature and average pressure, which was setup on September 17th. Data sent to the CASA Data Warehouse was flagged as “Questionable”. A new temp/RH sensor was installed on the Teom on September 27th.
- ❖ 13 hours of data were invalidated as the data were below –3.0 ug/m^3 in September. (To be continued)

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE

Particulate Matter 2.5 (ug/m^3)

- (Continued) 10 hours of data were invalidated as the data were below –3.0 ug/m^3 in October.
- 8 hours of data were invalidated as the data were below –3.0 ug/m^3 in November.
- 4 hours of data were invalidated as the data were below –3.0 ug/m^3 in December.

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

- System make / model – Met One 50.5, S/N: F1644 replaced to RM Young, S/N: 46553
  - Two hours of data are missing in January.
  - The datalogger was changed on February 4th causing two hours of data to be invalidated.
  - One hour of data is missing on May 31st at 5:00.
  - One hour of data was invalidated due to a power failure in July.
  - The Met One 50.5 wind system was removed for shipment to the factory for wind tunnel calibration, and a Maxxam-Supplied RM Young 5103VK wind system was installed on November 8th.
  - The recently calibrated AENV Met One 50.5 wind system was installed on December 16th.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3
  - Two hours of data are missing in January.
  - The datalogger was changed on February 4th causing two hours of data to be invalidated.
  - One hour of data is missing on May 31st at 5:00.
  - One hour of data was invalidated due to a power failure in July.
  - The RH sensor was removed for a factory calibration on September 3rd as the result of AE audit indicated the RH sensor was out by 10%. The sensor was put back to service on September 17th. 335 hours of data were invalidated due to this issue.
  - The RH sensor was disconnected for two hours while the wind system was installed on November 8th.

General Continuous Monitoring Annual Summary

AQM STATION – LICA – COLD LAKE

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3
  - ❖ Two hours of data are missing in January.
  - ❖ The datalogger was changed on February 4th causing two hours of data to be invalidated.
  - ❖ One hour of data is missing on May 31st at 5:00.
  - ❖ One hour of data was invalidated due to a power failure in July.
  - ❖ The Temperature sensor was removed for a factory calibration on September 3rd as the result of AE audit indicated the RH sensor was out by 10%. The sensor was put back to service on September 17th. 335 hours of data were invalidated due to this issue.
  - ❖ The RH sensor was disconnected for two hours while the wind system was installed on November 8th.

Trailer Temperature (DEGC)

- System make / model - R&R 61
  - ❖ Two hours of data are missing in January.
  - ❖ The datalogger was changed on February 4th causing two hours of data to be invalidated.
  - ❖ One hour of data is missing on May 31st at 5:00.
  - ❖ One hour of data was invalidated due to a power failure in July.

Datalogger

- System make / model - ESC 8832, S/N: 263
- Software make / version - ESC v 5.51a

The ESC 8832 is connected to a modem with DSL for continuous connection with the base computer.
The datalogger was changed on February 4th.

Trailer

No issue was observed this year.

Continuous Monitoring

Annual Summaries, Graphs & Wind Roses

Sulphur Dioxide

Current Date : 03/14/11
Current Time : 09:16

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	0	13	1
February	672	637	0	5	0
March	744	708	0	5	0
April	720	685	0	2	0
May	744	700	0	2	0
June	720	684	0	2	0
July	744	703	0	2	0
August	744	704	0	3	0
September	720	685	0	2	0
October	744	707	0	2	0
November	720	685	0	3	0
December	744	707	0	7	1
Yearly Total	8760	8311	0	13	0

SO_2 Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: COLD LAKE SOUTH

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO_2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO_2 ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	706	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	637	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	708	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	700	99.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	684	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	703	99.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	704	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
C - Concentration									Annual Average		**0.00**

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

SO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: COLD LAKE SOUTH

Month	SO2 ppb Peak Reading
January	13
February	5
March	4
April	1
May	2
June	2
July	1
August	2
September	1
October	2
November	3
December	7
ANNUAL PEAK	**13**

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	3.45	4.56	4.80	4.37	9.21	7.81	12.78	3.21	3.15	4.08	9.89	10.91	8.06	5.28	4.20	4.17	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.45	4.56	4.80	4.37	9.21	7.81	12.78	3.21	3.15	4.08	9.89	10.91	8.06	5.28	4.20	4.17	

Calm : .00 %

Total # Operational Hours : 8306

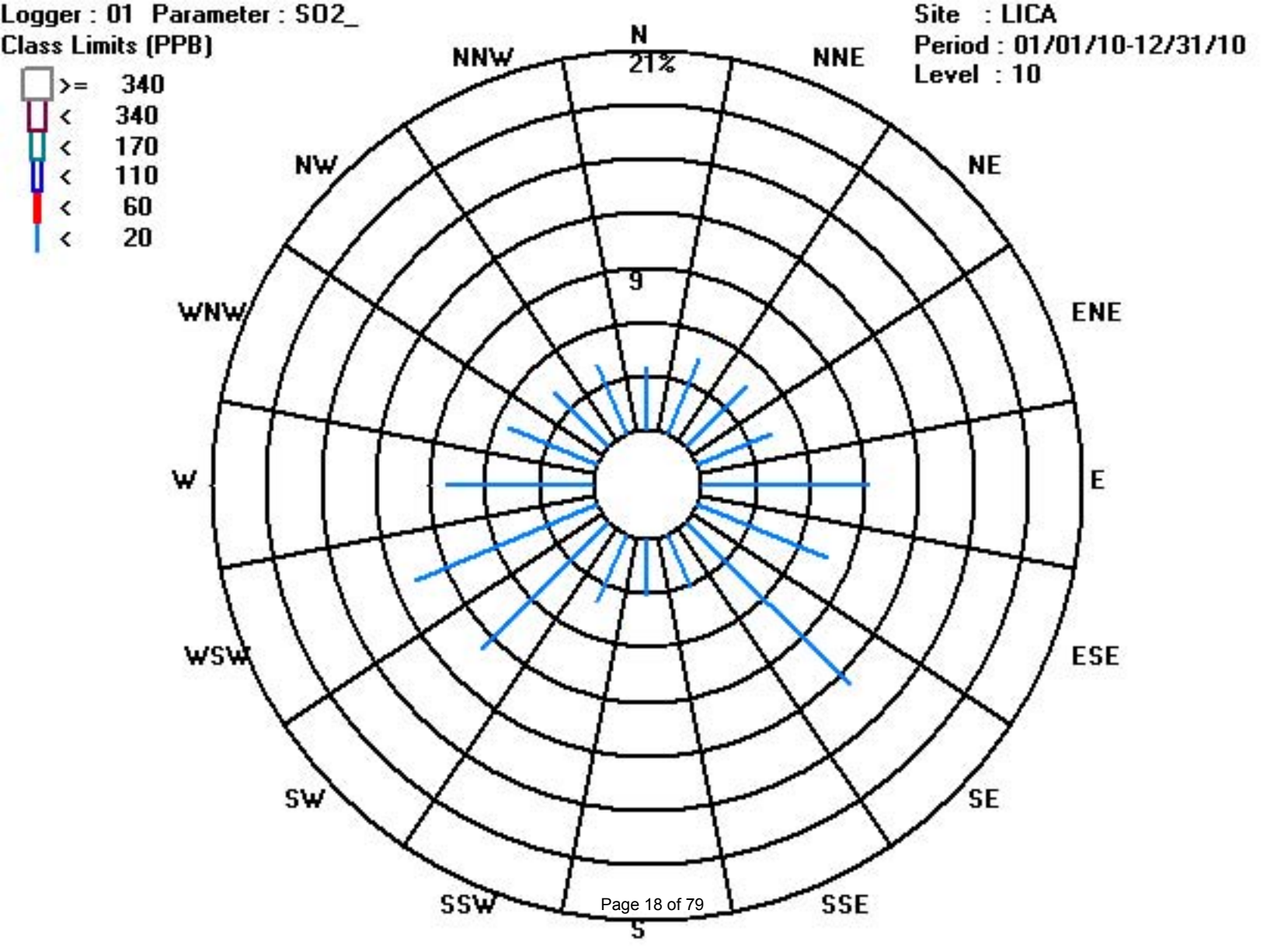
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	287	379	399	363	765	649	1062	267	262	339	822	907	670	439	349	347	8306
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	287	379	399	363	765	649	1062	267	262	339	822	907	670	439	349	347	

Calm : .00 %

Total # Operational Hours : 8306


Logger : 01 Parameter : SO2_
Class Limits (PPB)
>= 340
< 340
< 170
< 110
< 60
< 20
Site : LICA
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Total Reduced Sulphur

Current Date : 03/14/11
Current Time : 09:16

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	704	0	1	0
February	672	637	0	0	0
March	744	705	0	0	0
April	720	680	0	0	0
May	744	706	0	0	0
June	720	684	0	1	0
July	744	699	0	1	0
August	744	702	0	3	0
September	720	684	0	0	0
October	744	707	0	1	0
November	720	684	0	0	0
December	744	705	0	1	0
Yearly Total	8760	8297	0	3	0

TRS Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: Cold Lake South

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppb TRS)				TRS ppb Monthly Average
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb	
January	704	99.7	100.0%	0.0%	0.0%	0.0%	0.00
February	637	99.7	100.0%	0.0%	0.0%	0.0%	0.00
March	705	99.9	100.0%	0.0%	0.0%	0.0%	0.00
April	680	99.9	100.0%	0.0%	0.0%	0.0%	0.00
May	706	99.9	100.0%	0.0%	0.0%	0.0%	0.00
June	684	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	699	99.6	100.0%	0.0%	0.0%	0.0%	0.00
August	702	100.0	100.0%	0.0%	0.0%	0.0%	0.02
September	684	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	684	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

TRS Peak Reading of One Hour Averages for 2010

Plant Operator: LICA

Plant Location: Cold Lake South

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

LICA
TRS_ / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : TRS_
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
<	3	3.44	4.52	4.79	4.37	9.26	7.76	12.73	3.19	3.17	4.08	9.91	10.85	8.01	5.33	4.24	4.25	99.98
<	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.44	4.52	4.79	4.37	9.26	7.76	12.73	3.19	3.17	4.08	9.91	10.85	8.01	5.33	4.24	4.26	

Calm : .00 %

Total # Operational Hours : 8292

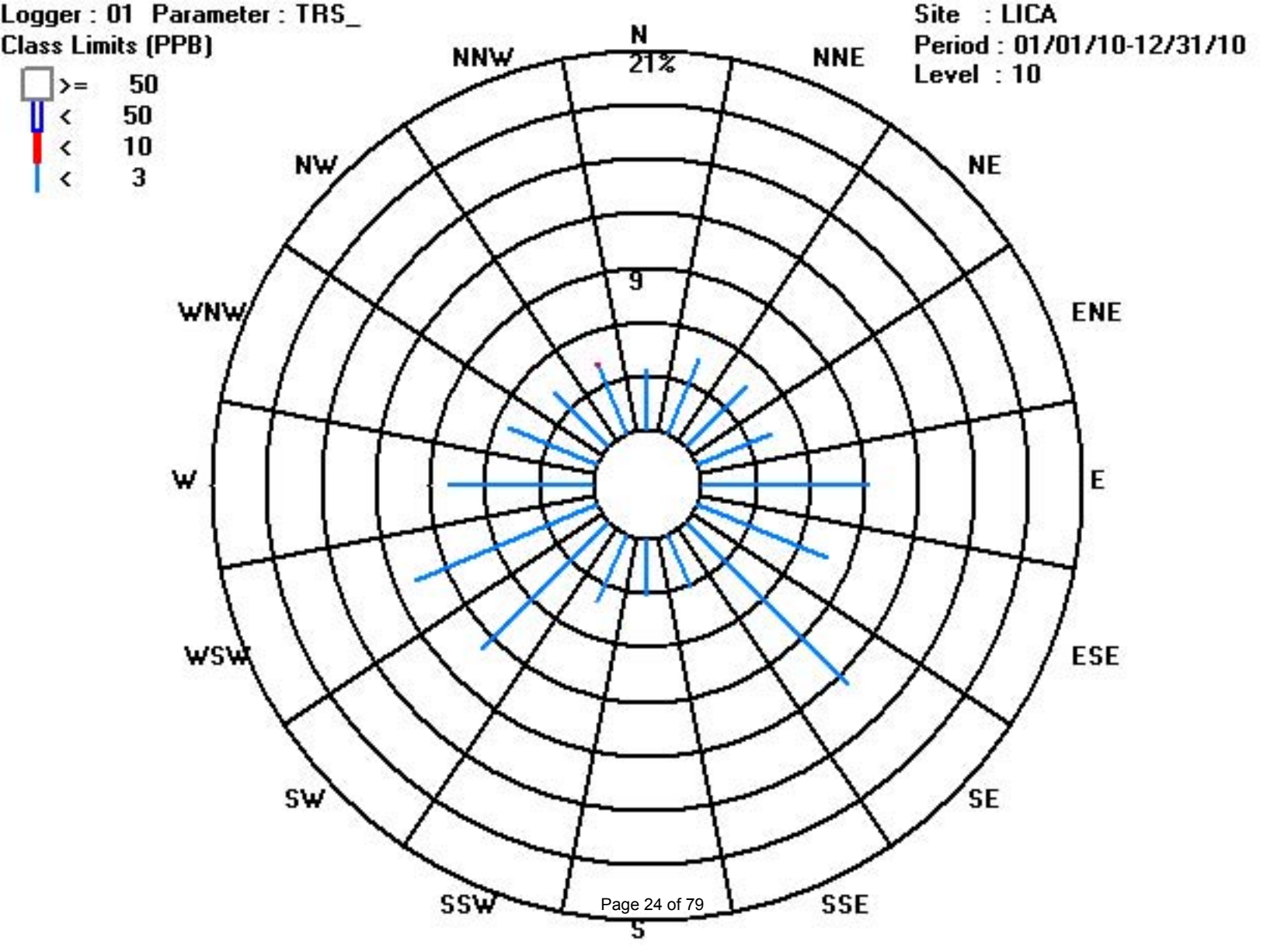
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	286	375	398	363	768	644	1056	265	263	339	822	900	665	442	352	353	8291
<	10																1	1
<	50																	
>=	50																	
	Totals	286	375	398	363	768	644	1056	265	263	339	822	900	665	442	352	354	

Calm : .00 %

Total # Operational Hours : 8292


Logger : 01 Parameter : TRS_
Class Limits (PPB)
>= 50
< 50
< 10
< 3
Site : LICA
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Total Hydrocarbons

Current Date : 03/14/11
Current Time : 09:17

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	701	1.8	5.3	2.4
February	672	636	1.9	4.1	2.3
March	744	705	1.7	3.6	2.1
April	720	685	1.8	2.8	2
May	720	656	1.8	2.9	2
June	720	663	1.7	2.7	1.9
July	744	692	1.6	3.4	2
August	744	705	1.7	4.6	2.1
September	720	684	1.8	3.6	2.1
October	744	708	1.8	4.2	2.1
November	720	684	1.7	3.6	2.2
December	744	706	1.7	4.9	2.2
Yearly Total	8736	8225	1.6	5.3	2.1

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	701	99.7	88.4%	6.4%	0.0%	0.0%	2.32
February	636	99.7	93.6%	6.4%	0.0%	0.0%	2.27
March	705	99.9	97.2%	2.8%	0.0%	0.0%	2.09
April	685	100.0	100.0%	0.0%	0.0%	0.0%	1.91
May	656	93.0	100.0%	0.0%	0.0%	0.0%	1.91
June	663	96.8	100.0%	0.0%	0.0%	0.0%	1.88
July	692	98.1	99.0%	1.0%	0.0%	0.0%	1.93
August	705	100.0	94.9%	5.1%	0.0%	0.0%	2.09
September	684	100.0	98.2%	1.8%	0.0%	0.0%	2.05
October	708	100.0	97.5%	2.5%	0.0%	0.0%	2.08
November	684	100.0	96.8%	3.2%	0.0%	0.0%	2.13
December	706	100.0	93.8%	6.2%	0.0%	0.0%	2.16
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**2.07**

THC Peak Reading of One Hour Averages for 2010

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	THC ppm Peak Reading
January	5.2
February	4.1
March	3.6
April	2.7
May	2.8
June	2.7
July	3.3
August	4.5
September	3.5
October	4.1
November	3.5
December	4.9

ANNUAL PEAK	**5.2**

LICA
THC / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	3.38	4.42	4.51	4.01	8.85	7.34	12.38	3.05	2.94	3.95	9.52	10.31	7.78	5.23	4.18	4.14	96.07
<	10.0	.09	.07	.13	.34	.35	.45	.31	.17	.24	.13	.40	.70	.26	.07	.07	.09	3.92
<	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.47	4.50	4.64	4.35	9.20	7.79	12.70	3.22	3.18	4.08	9.92	11.02	8.05	5.30	4.25	4.24	

Calm : .00 %

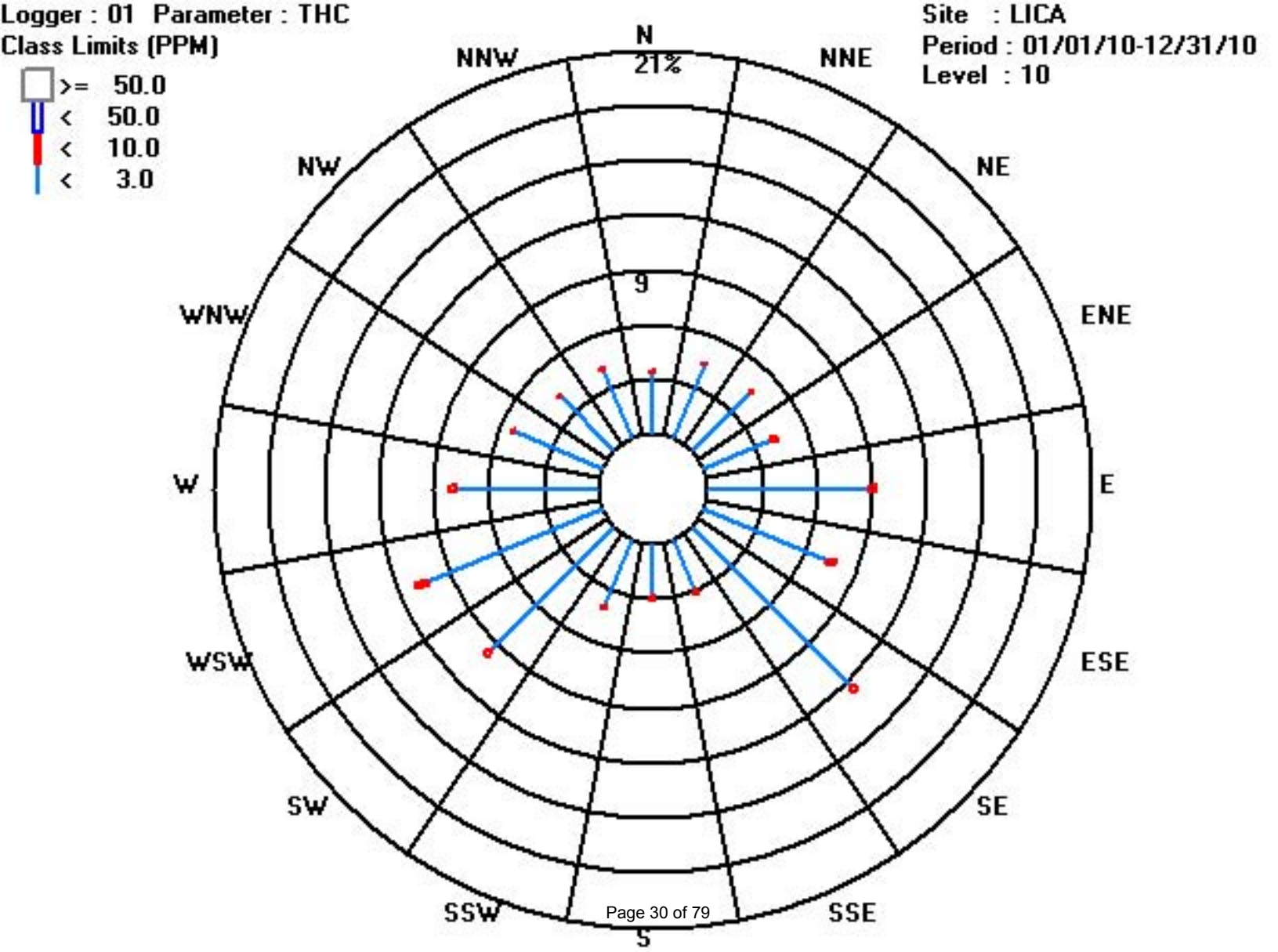
Total # Operational Hours : 8220

Distribution By Samples

		Direction																
	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	278	364	371	330	728	604	1018	251	242	325	783	848	640	430	344	341	7897
<	10.0	8	6	11	28	29	37	26	14	20	11	33	58	22	6	6	8	323
<	50.0																	
>=	50.0																	
	Totals	286	370	382	358	757	641	1044	265	262	336	816	906	662	436	350	349	

Calm : .00 %

Total # Operational Hours : 8220


Logger : 01 Parameter : THC
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA
Period : 01/01/10-12/31/10
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 : 03/14/11
Current Time : 09:17

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	724	0	33.4	7.1
February	672	666	0	40	8.3
March	744	731	0	44.5	6.9
April	720	711	0	25.9	4.9
May	744	733	0	39	6.4
June	720	701	0	25.9	6.9
July	744	726	0	42	6.4
August	744	731	0	355.2	11
September	480	449	0	16	3.6
October	744	729	0	28.9	4.7
November	720	711	0	35	6.7
December	744	738	0	32.9	7.4
Yearly Total	8520	8350	0	355.2	6.8

PM 2.5 Monthly Averages and Frequency Distributions of Daily Average Readings - 2010

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ug/m^3)						Total Daily Readings > 30 ug/m3	$PM2.5$ ug/m^3 Monthly Average
			≤ 30 ug/m^3	30 < C ≤ 60 ug/m^3	60 < C ≤ 80 ug/m^3	80 < C ≤ 120 ug/m^3	120 < C ≤ 240 ug/m^3	> 240 ug/m^3		
January	724	98.3	99.2%	0.8%	0.0%	0.0%	0.0%	0.0%	0	7.05
February	666	99.7	99.2%	0.8%	0.0%	0.0%	0.0%	0.0%	0	8.23
March	731	98.7	98.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0	6.84
April	711	99.3	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	4.88
May	733	99.2	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0	6.39
June	701	97.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	6.85
July	726	98.1	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0	6.20
August	729	98.9	97.1%	1.2%	0.0%	0.0%	0.0%	0.0%	2	10.97
September	449	62.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.60
October	729	98.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	4.63
November	711	98.9	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0	6.66
December	738	99.5	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0	7.41
									Annual Average	**6.64**

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

PM 2.5 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	PM 2.5 (ug/m3) Peak Reading
January	33
February	40
March	44
April	26
May	39
June	26
July	42
August	355
September	16
October	29
November	35
December	33
ANNUAL PEAK	**355**

LICA
PM2 / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	3.35	4.67	4.82	4.27	8.90	7.86	13.07	3.22	3.33	4.03	9.92	10.86	7.77	4.93	4.09	4.09	99.26
<	60.0	.00	.00	.01	.05	.04	.04	.02	.02	.00	.02	.04	.11	.10	.02	.01	.00	.55
<	80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.01	.00	.00	.00	.04
<	120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	.00	.02
<	240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.03	.03	.00	.00	.00	.08
>=	240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.02
	Totals	3.35	4.67	4.84	4.33	8.95	7.90	13.09	3.24	3.33	4.06	10.00	11.08	7.93	4.96	4.11	4.09	

Calm : .00 %

Total # Operational Hours : 8345

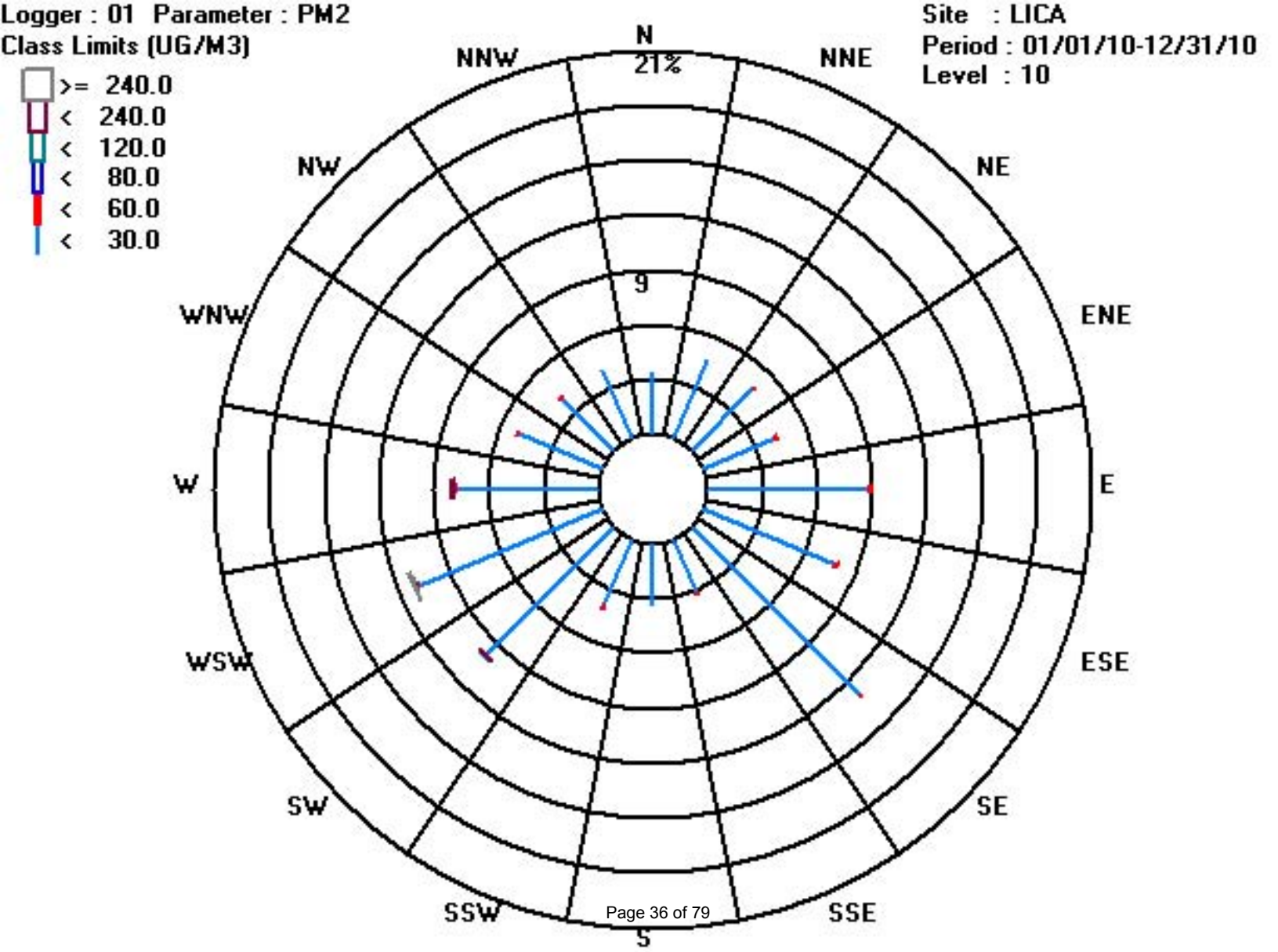
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	280	390	403	357	743	656	1091	269	278	337	828	907	649	412	342	342	8284
<	60.0			1	5	4	4	2	2		2	4	10	9	2	1		46
<	80.0											1	2	1				4
<	120.0											1	1					2
<	240.0											1	3	3				7
>=	240.0												2					2
	Totals	280	390	404	362	747	660	1093	271	278	339	835	925	662	414	343	342	

Calm : .00 %

Total # Operational Hours : 8345


Logger : 01 Parameter : PM2
Class Limits (UG/M3)
>= 240.0
< 240.0
< 120.0
< 80.0
< 60.0
< 30.0
Site : LICA
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitrogen Dioxide

Current Date : 03/14/11
Current Time : 09:17

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	700	1	32	9
February	672	633	1	34	7
March	744	705	0	27	5
April	720	677	0	22	2
May	744	698	0	13	2
June	720	683	0	7	2
July	744	704	0	10	2
August	744	697	0	8	2
September	720	681	0	16	2
October	744	705	0	23	4
November	720	682	0	29	6
December	744	703	1	29	7
Yearly Total	8760	8268	0	34	4

NO_2 Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO_2)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	NO_2 ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm			
January	700	99.5	100.0%	0.0%	0.0%	0.0%	0	0	0.01
February	633	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.01
March	705	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
April	677	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
May	698	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
June	683	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
July	704	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
August	697	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
September	681	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
October	705	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
November	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
December	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
* Valid readings do not include daily and monthly calibration hours and downtime hours							Annual Average		**0.00**

NO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: COLD LAKE SOUTH

Month	NO2 ppb Peak Reading
January	31
February	34
March	27
April	21
May	12
June	7
July	9
August	8
September	15
October	22
November	28
December	29
ANNUAL PEAK	**34**

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	3.44	4.50	4.79	4.35	9.14	7.80	12.82	3.19	3.17	4.09	9.91	10.92	8.02	5.32	4.23	4.23	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.44	4.50	4.79	4.35	9.14	7.80	12.82	3.19	3.17	4.09	9.91	10.92	8.02	5.32	4.23	4.23	

Calm : .00 %

Total # Operational Hours : 8263

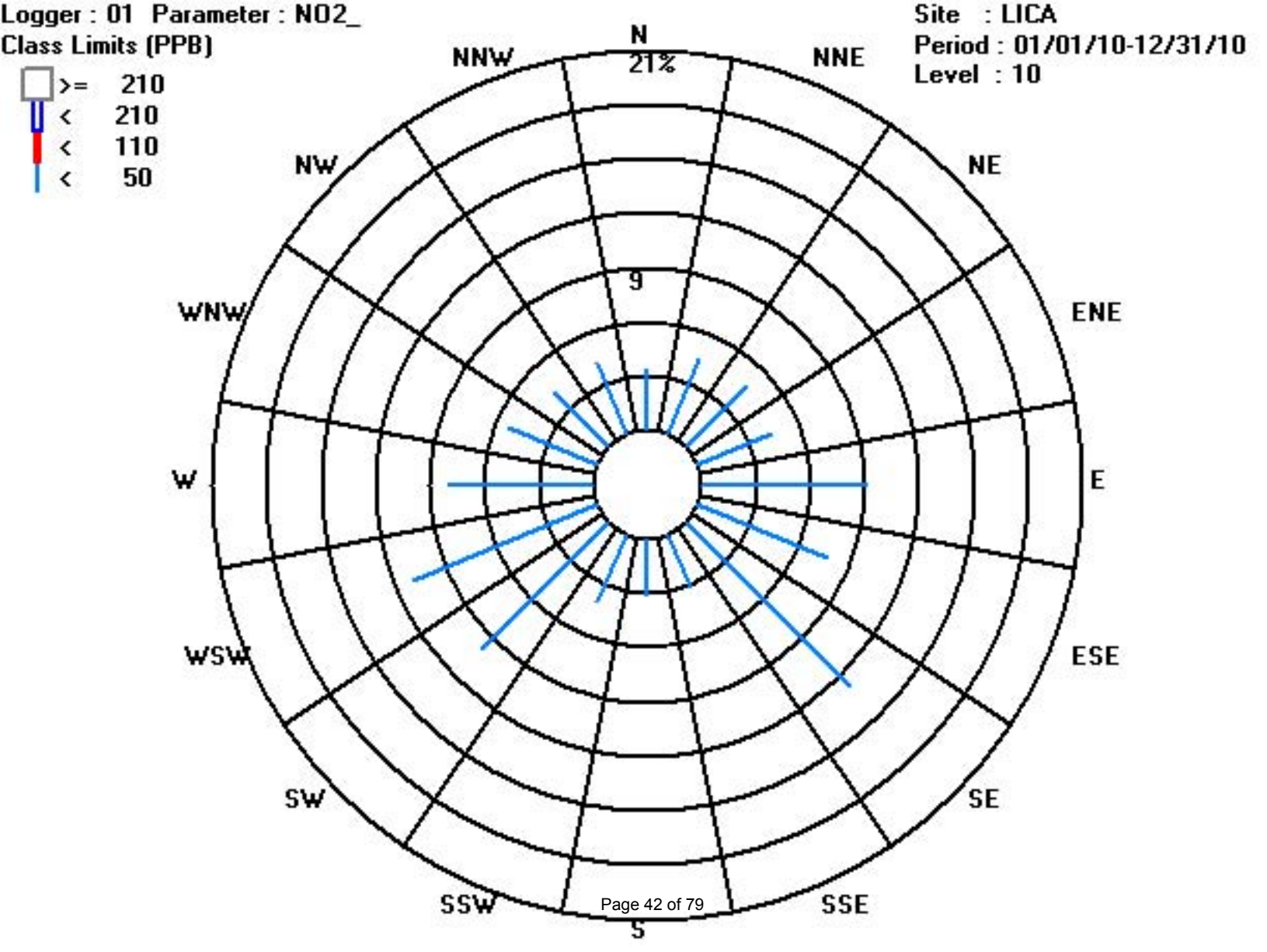
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	285	372	396	360	756	645	1060	264	262	338	819	903	663	440	350	350	8263
<	110																	
<	210																	
>=	210																	
	Totals	285	372	396	360	756	645	1060	264	262	338	819	903	663	440	350	350	

Calm : .00 %

Total # Operational Hours : 8263


Logger : 01 Parameter : NO2_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitric Oxide

Current Date : 03/14/11
Current Time : 09:17

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	700	0	91	3
February	672	633	0	38	2
March	744	705	0	43	1
April	720	677	0	30	0
May	744	698	0	13	0
June	720	683	0	10	0
July	744	704	0	9	0
August	744	697	0	13	0
September	720	681	0	21	1
October	744	705	0	35	1
November	720	682	0	29	1
December	744	703	0	74	3
Yearly Total	8760	8268	0	91	1

NO Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO)				NO ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	700	99.5	99.1%	0.9%	0.0%	0.0%	0.00
February	633	99.7	100.0%	0.0%	0.0%	0.0%	0.00
March	705	99.9	100.0%	0.0%	0.0%	0.0%	0.00
April	677	99.9	100.0%	0.0%	0.0%	0.0%	0.00
May	698	99.9	100.0%	0.0%	0.0%	0.0%	0.00
June	683	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	704	99.9	100.0%	0.0%	0.0%	0.0%	0.00
August	697	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	703	100.0	99.4%	0.6%	0.0%	0.0%	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO Peak reading of One Hour Averages for 2010

Plant Operator: LICA Station: COLD LAKE SOUTH

Month	NO ppb Peak Reading
January	90
February	37
March	43
April	30
May	12
June	10
July	8
August	13
September	20
October	35
November	29
December	73
TOTAL EXCEED	
ANNUAL PEAK	**90**

LICA
NO_ / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	3.44	4.48	4.76	4.35	9.12	7.79	12.82	3.19	3.17	4.07	9.91	10.91	7.99	5.32	4.23	4.23	99.87
<	110	.00	.01	.02	.00	.02	.01	.00	.00	.00	.01	.00	.01	.02	.00	.00	.00	.12
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.44	4.50	4.79	4.35	9.14	7.80	12.82	3.19	3.17	4.09	9.91	10.92	8.02	5.32	4.23	4.23	

Calm : .00 %

Total # Operational Hours : 8263

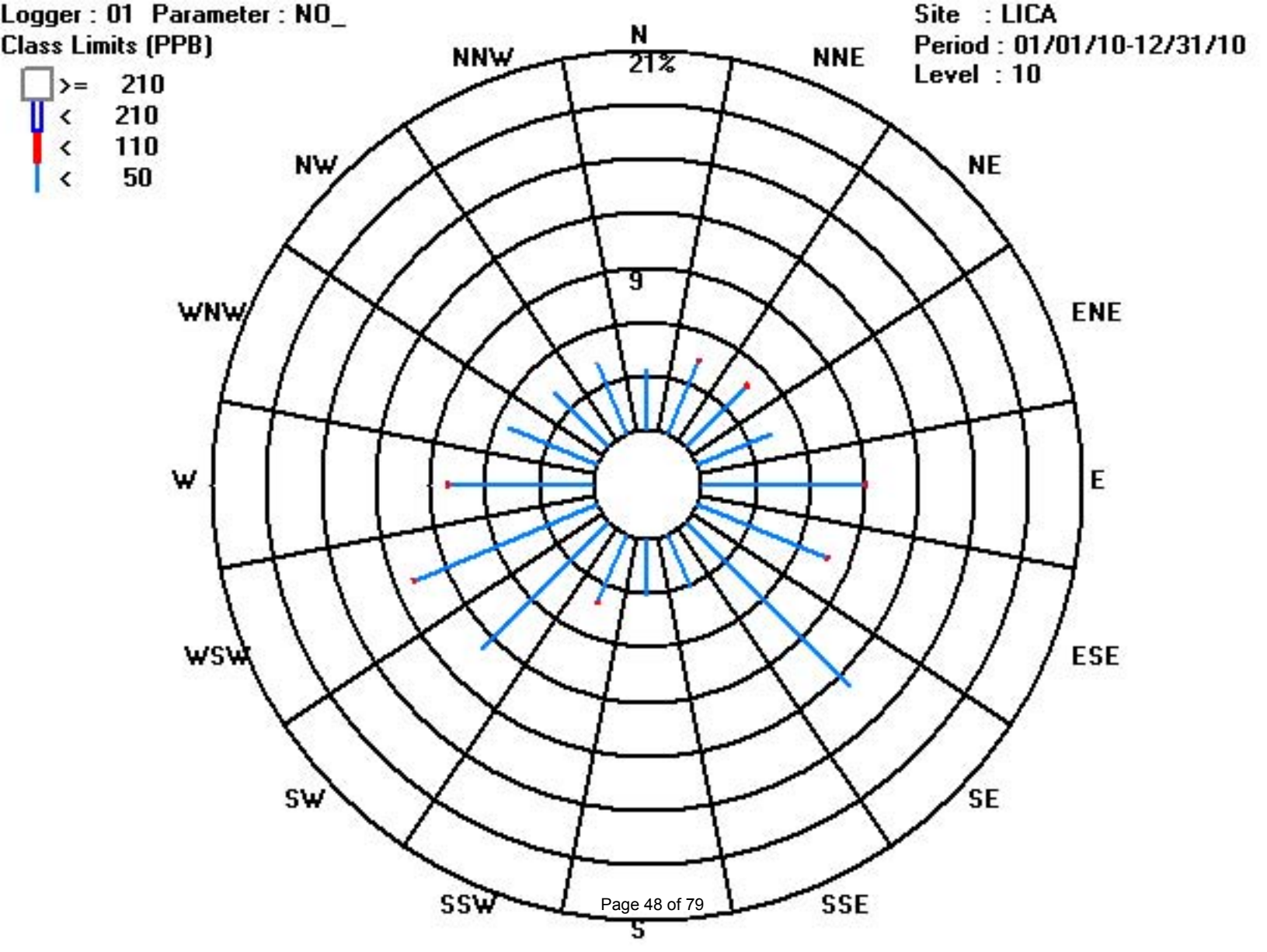
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	285	371	394	360	754	644	1060	264	262	337	819	902	661	440	350	350	8253
<	110		1	2		2	1				1		1	2				10
<	210																	
>=	210																	
	Totals	285	372	396	360	756	645	1060	264	262	338	819	903	663	440	350	350	

Calm : .00 %

Total # Operational Hours : 8263


Logger : 01 Parameter : NO_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA
Period : 01/01/10-12/31/10
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 : 03/14/11
Current Time : 09:16

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	700	1	114	12
February	672	633	1	65	9
March	744	705	0	70	6
April	720	677	0	46	3
May	744	698	0	22	3
June	720	683	0	17	2
July	744	704	0	17	2
August	744	697	0	15	2
September	720	681	0	29	3
October	744	705	0	45	5
November	720	682	0	48	8
December	744	703	1	101	10
Yearly Total	8760	8268	0	114	5

NO_x Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NOx)				NOx ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	700	99.5	97.7%	2.1%	0.1%	0.0%	0.01
February	633	99.7	98.9%	1.1%	0.0%	0.0%	0.01
March	705	99.9	99.6%	0.4%	0.0%	0.0%	0.01
April	677	99.9	100.0%	0.0%	0.0%	0.0%	0.00
May	698	99.9	100.0%	0.0%	0.0%	0.0%	0.00
June	683	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	704	99.9	100.0%	0.0%	0.0%	0.0%	0.00
August	697	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	682	100.0	100.0%	0.0%	0.0%	0.0%	0.01
December	703	100.0	97.7%	2.3%	0.0%	0.0%	0.01
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO_x Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: COLD LAKE SOUTH

Month	NOx ppb Peak Reading
January	114
February	65
March	69
April	45
May	22
June	16
July	16
August	15
September	29
October	44
November	47
December	100
ANNUAL PEAK	**114**

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	3.44	4.48	4.75	4.25	9.05	7.74	12.79	3.18	3.14	4.07	9.88	10.86	7.98	5.31	4.23	4.23	99.47
<	110	.00	.01	.02	.09	.09	.06	.03	.01	.02	.01	.02	.06	.03	.01	.00	.00	.50
<	210	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.44	4.50	4.79	4.35	9.14	7.80	12.82	3.19	3.17	4.09	9.91	10.92	8.02	5.32	4.23	4.23	

Calm : .00 %

Total # Operational Hours : 8263

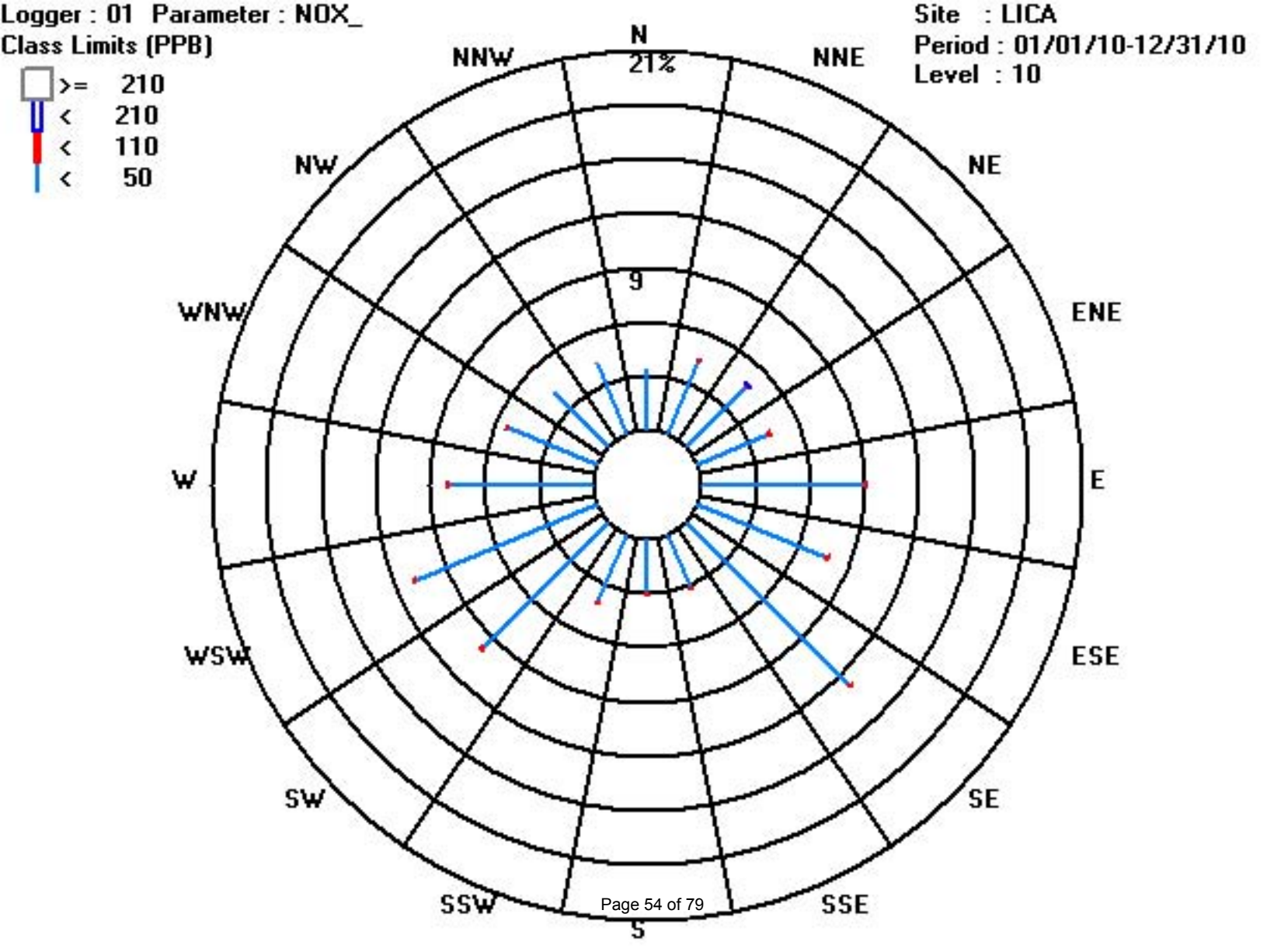
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	285	371	393	352	748	640	1057	263	260	337	817	898	660	439	350	350	8220
<	110		1	2	8	8	5	3	1	2	1	2	5	3	1			42
<	210			1														1
>=	210																	
	Totals	285	372	396	360	756	645	1060	264	262	338	819	903	663	440	350	350	

Calm : .00 %

Total # Operational Hours : 8263


Logger : 01 Parameter : NOX_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Ozone

Current Date : 03/14/11
Current Time : 09:17

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	705	0	39	18
February	672	636	1	48	27
March	744	708	1	51	29
April	720	685	1	65	36
May	744	706	1	62	33
June	720	685	1	62	27
July	744	707	0	49	21
August	744	705	0	52	18
September	720	684	0	41	20
October	744	707	0	44	22
November	720	685	0	37	20
December	744	707	0	36	20
Yearly Total	8760	8320	0	65	24

O3 Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA

Station: COLD LAKE SOUTH

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm O3)				O3 ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	705	99.7	100.0%	0.0%	0.0%	0.0%	0.02
February	636	99.7	100.0%	0.0%	0.0%	0.0%	0.03
March	708	99.9	99.9%	0.1%	0.0%	0.0%	0.03
April	685	100.0	88.5%	11.5%	0.0%	0.0%	0.04
May	706	99.9	93.2%	6.8%	0.0%	0.0%	0.03
June	685	100.0	98.4%	1.6%	0.0%	0.0%	0.03
July	707	99.9	100.0%	0.0%	0.0%	0.0%	0.02
August	705	100.0	99.9%	0.1%	0.0%	0.0%	0.02
September	684	100.0	100.0%	0.0%	0.0%	0.0%	0.02
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0.02
November	685	100.0	100.0%	0.0%	0.0%	0.0%	0.02
December	707	100.0	100.0%	0.0%	0.0%	0.0%	0.02
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.02**

O3 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: COLD LAKE SOUTH

Month	O3 ppb Peak Reading
January	38
February	47
March	51
April	65
May	62
June	61
July	48
August	52
September	41
October	44
November	37
December	36
ANNUAL PEAK	**65**

LICA
O3_ / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	3.40	4.43	4.64	4.34	9.14	7.56	12.11	3.13	3.11	3.96	9.54	10.82	7.91	5.24	4.19	4.20	97.79
<	110	.06	.06	.12	.00	.12	.26	.69	.08	.03	.09	.34	.14	.10	.02	.01	.02	2.20
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.46	4.49	4.76	4.34	9.26	7.82	12.80	3.22	3.15	4.06	9.89	10.96	8.02	5.26	4.20	4.23	

Calm : .00 %

Total # Operational Hours : 8315

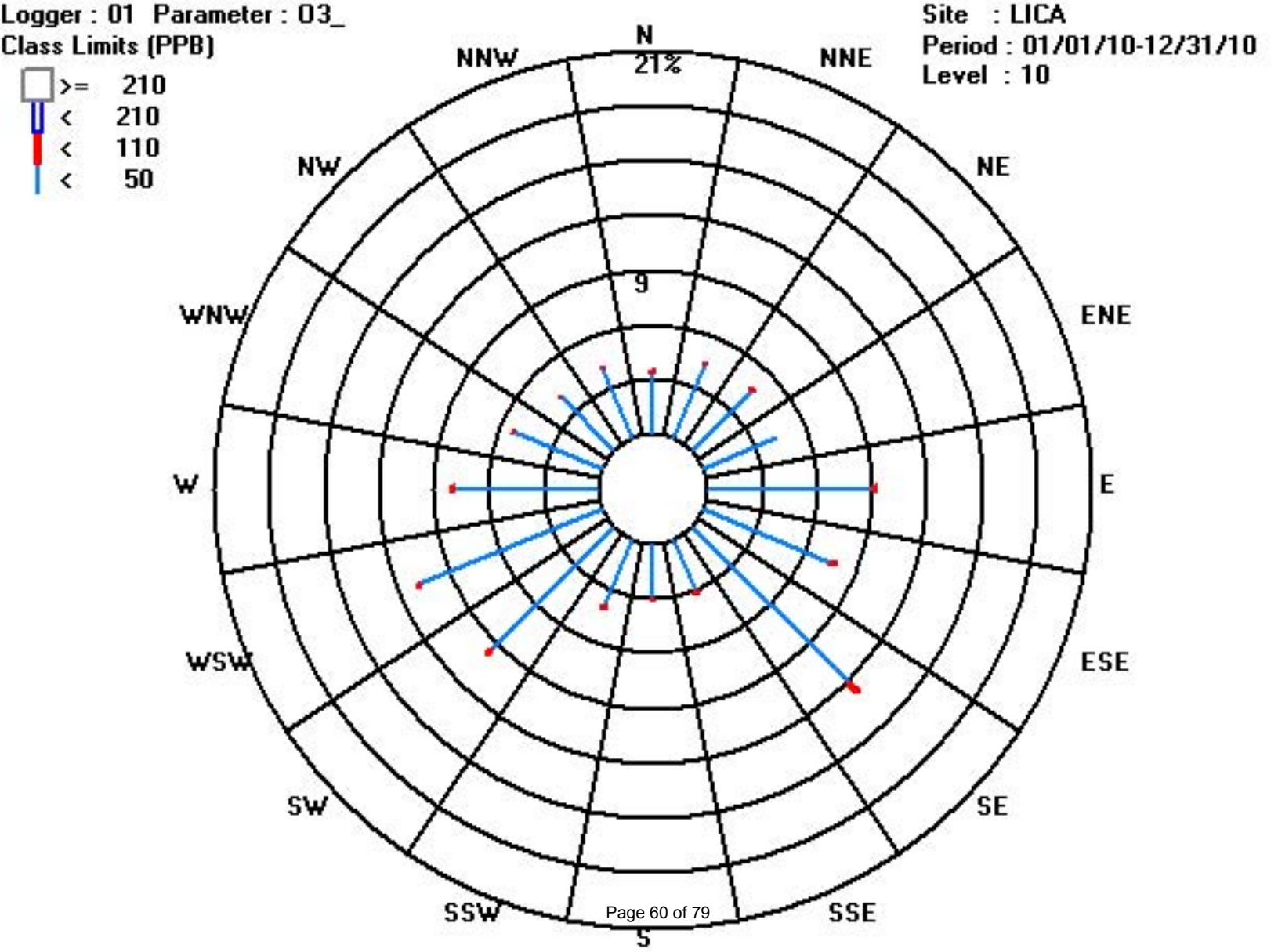
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	283	369	386	361	760	629	1007	261	259	330	794	900	658	436	349	350	8132
<	110	5	5	10		10	22	58	7	3	8	29	12	9	2	1	2	183
<	210																	
>=	210																	
	Totals	288	374	396	361	770	651	1065	268	262	338	823	912	667	438	350	352	

Calm : .00 %

Total # Operational Hours : 8315


Logger : 01 Parameter : 03_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Ambient Temperature

Current Date : 03/14/11
Current Time : 09:17

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	742	-34.1	2.6	-13.1
February	672	670	-23.5	3.1	-10.3
March	744	744	-16.9	15.1	-0.1
April	720	720	-5.8	23.6	5.7
May	744	743	-4.6	27.2	9.6
June	720	720	1.2	27.5	15.4
July	744	743	5.8	28.2	16.7
August	744	744	4.9	26.4	15.2
September	408	384	-4.5	23	8.8
October	744	744	-10.3	23.1	5.5
November	720	718	-30.7	12.9	-6.7
December	744	744	-26.3	0	-14.7
Yearly Total	8448	8416	-34.1	28.2	2.5

Temperature - Monthly Averages for 2010

Plant Operator: LICA Plant Location: COLD LAKE SOUTH

Month	Operational Time (%)	Monthly Averages (Deg.C)	Maximum Hourly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	99.7	-13.05	2.5	-34.0	-2.0
February	99.7	-10.28	3.1	-23.5	-1.1
March	100.0	-0.11	15.1	-16.8	7.4
April	100.0	5.62	23.5	-5.7	16.1
May	99.9	9.51	27.2	-4.5	19.8
June	100.0	15.36	27.4	1.1	20.9
July	99.9	16.68	28.2	5.7	21.6
August	100.0	15.18	26.4	4.8	20.4
September	53.3	8.74	23.0	-4.4	13.6
October	100.0	5.51	23.1	-10.3	14.7
November	99.7	-6.69	12.8	-30.6	5.6
December	100.0	-14.68	-4.3	-26.3	-7.1
ANNUAL AVERAGE		**2.65**	**-**	**-**	-

Relative Humidity

Current Date : 03/14/11
Current Time : 09:18

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	742	51	96	80
February	672	670	40	93	77
March	744	744	20	97	69
April	720	720	13	99	62
May	744	743	15	100	60
June	720	720	20	100	66
July	744	743	32	100	75
August	744	744	34	99	78
September	408	384	28	99	71
October	744	744	24	97	67
November	720	718	26	98	75
December	744	744	53	93	79
Yearly Total	8448	8416	13	100	72

Relative Humidity - Monthly Averages for 2010

Plant Operator: LICA

Plant Location: COLD LAKE SOUTH

Month	Monthly Averages (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	79.15	96	91.8
February	76.75	93	90.2
March	68.92	97	89.8
April	61.72	99	95.8
May	59.23	99	89.9
June	65.95	99	94.5
July	74.35	99	91.4
August	77.57	99	89.7
September	70.50	99	86.8
October	66.29	96	93.9
November	74.04	98	92.1
December	78.53	92	87.6
ANNUAL AVERAGE	**71.08**	**-**	**-**

Vector Wind Speed

Current Date : 03/14/11
Current Time : 09:17

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	742	0	15.4	4.6
February	672	670	0	14.8	4.5
March	744	744	0	23.1	6.2
April	720	720	0.1	21.9	7.5
May	744	743	0.1	21.2	6.4
June	720	720	0.1	15.9	5.2
July	744	743	0	15.2	4.9
August	744	744	0.1	21	5.2
September	720	720	0.1	17.3	5.6
October	744	744	0.1	19.5	6.1
November	720	717	0.1	19.1	4.9
December	744	742	0	14.1	5
Yearly Total	8760	8749	0	23.1	5.5

LICA
WSP / WD Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	1.56	2.10	2.78	3.28	4.80	4.75	6.04	2.46	2.67	3.41	6.85	6.84	3.77	2.12	1.34	1.31	56.16
<	12.0	1.31	2.13	1.70	.93	4.05	2.67	5.44	.46	.32	.46	2.53	3.36	2.85	2.26	2.18	2.20	34.92
<	20.0	.43	.34	.14	.00	.20	.13	.86	.01	.00	.00	.30	.53	1.18	.74	.49	.66	6.08
<	29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.04	.05	.05	.00	.21
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.31	4.58	4.64	4.21	9.06	7.56	12.35	2.94	2.99	3.88	9.70	10.80	7.86	5.18	4.08	4.18	

Calm : 2.60 %

Total # Operational Hours : 8749

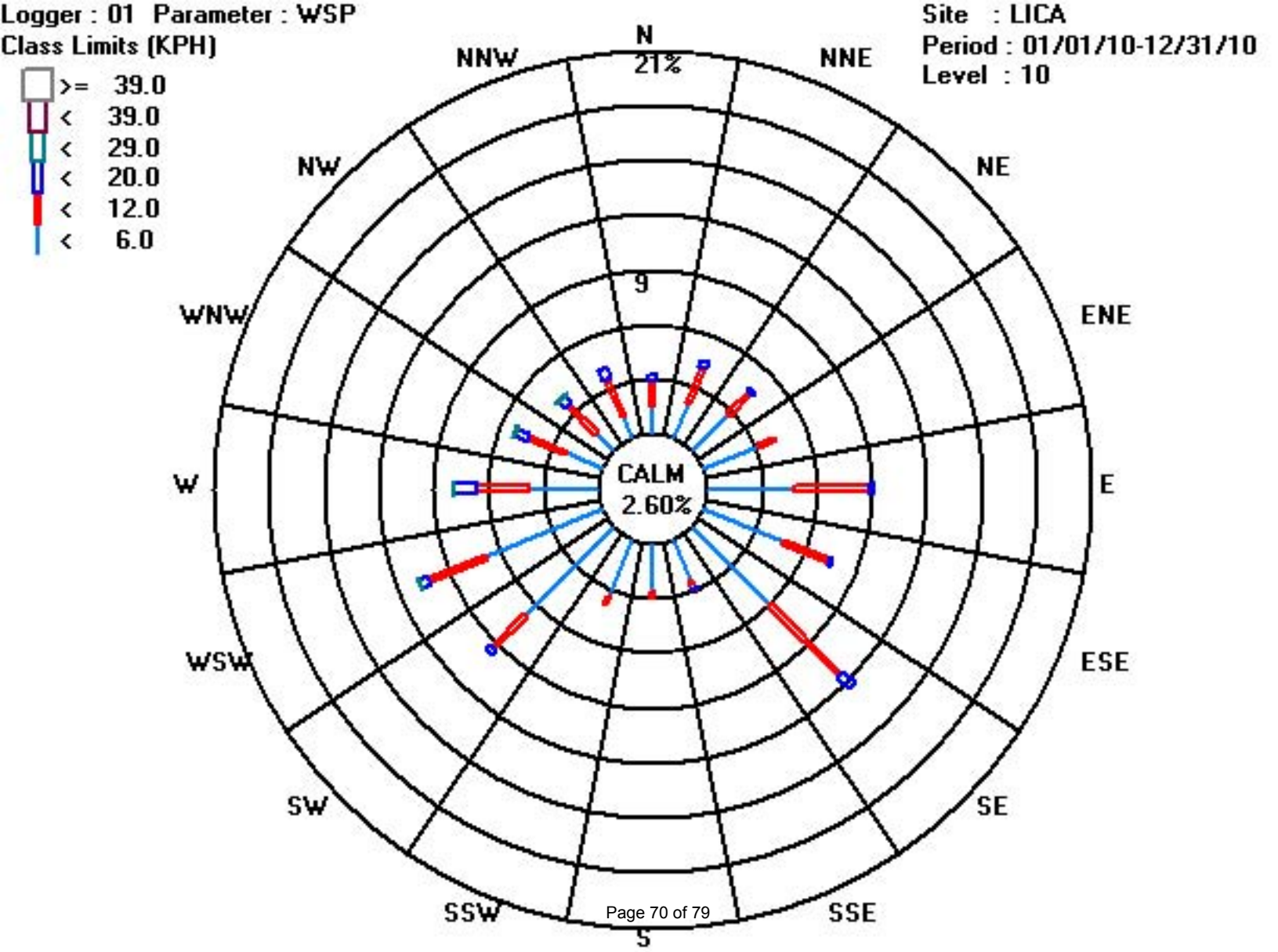
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	137	184	244	287	420	416	529	216	234	299	600	599	330	186	118	115	4914
<	12.0	115	187	149	82	355	234	476	41	28	41	222	294	250	198	191	193	3056
<	20.0	38	30	13		18	12	76	1			27	47	104	65	43	58	532
<	29.0												5	4	5	5		19
<	39.0																	
>=	39.0																	
	Totals	290	401	406	369	793	662	1081	258	262	340	849	945	688	454	357	366	

Calm : 2.60 %

Total # Operational Hours : 8749


Logger : 01 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9
CALM
2.60%

Passive Monitoring Annual Summaries

Sulphur Dioxide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		***BONNYVILLE***
Company		Project Number
BONNYVILLE	01/01/2010	12/30/2010
Location	***Date Samples Start***	***Date Sampled End***

SO2 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
2	0.4	0.4	0.3	0.2	0.1	0.3	0.3	0.3	0.4	0.1	0.2	0.8	**0.3**	**0.8**
2A (DUP)	NA	0.4	NA	0.2	NA	0.2	NA	0.2	NA	0.1	NA	0.5	**0.3**	**0.5**
3	0.7	0.8	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.5	0.8	**0.4**	**0.8**
3A (DUP)	0.6	NA	0.4	NA	0.2	NA	0.2	NA	0.2	NA	0.4	NA	**0.3**	**0.6**
4	1.0	1.1	0.5	0.3	0.2	0.3	0.2	0.4	0.2	0.3	0.5	1.1	**0.5**	**1.1**
4A (DUP)	NA	1.1	NA	0.2	NA	0.3	NA	0.3	NA	0.3	NA	1.2	**0.6**	**1.2**
5	0.8	1.1	0.5	0.4	0.2	0.3	0.3	0.5	0.2	0.3	0.4	1.0	**0.5**	**1.1**
5A (DUP)	1.0	NA	0.5	NA	0.2	NA	0.4	NA	0.2	NA	0.6	NA	**0.5**	**1.0**
6	0.8	1.0	0.3	0.2	0.1	0.3	0.2	0.3	0.2	0.3	0.5	1.0	**0.4**	**1.0**
6A (DUP)	NA	1.0	NA	0.2	NA	0.3	NA	0.2	NA	0.3	NA	1.1	**0.5**	**1.1**
8	0.8	0.8	0.5	0.4	0.1	0.3	0.2	0.3	0.4	0.4	0.6	0.9	**0.5**	**0.9**
8A (DUP)	0.9	NA	0.5	NA	0.1	NA	0.1	NA	0.2	NA	0.5	NA	**0.4**	**0.9**
9	0.7	0.7	0.5	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.5	0.7	**0.4**	**0.7**
9A (DUP)	NA	0.7	NA	0.3	NA	0.3	NA	0.4	NA	0.3	NA	0.8	**0.5**	**0.8**
10	0.7	0.7	0.4	0.3	0.2	0.4	0.2	0.4	<0.1	0.2	0.3	0.8	**<0.4**	**0.8**
10A (DUP)	0.7	NA	0.4	NA	0.2	NA	0.2	NA	0.2	NA	0.5	NA	**0.4**	**0.7**
11	0.6	0.7	0.4	0.2	0.1	0.2	<0.1	0.1	0.1	0.2	0.3	0.7	**<0.3**	**0.7**
11A (DUP)	NA	0.8	NA	0.3	NA	0.2	NA	0.1	NA	0.2	NA	0.8	**0.4**	**0.8**
12	0.9	0.8	0.4	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.5	1.0	**0.4**	**1.0**
12A (DUP)	1.0	NA	0.4	NA	<0.1	NA	0.1	NA	0.2	NA	0.6	NA	**<0.4**	**1.0**
13	1.0	0.8	0.6	0.3	0.1	0.3	0.2	0.3	0.6	0.4	0.7	0.9	**0.5**	**1.0**
13A (DUP)	NA	1.0	NA	0.3	NA	0.2	NA	0.3	NA	0.3	NA	1.0	**0.5**	**1.0**
14	1.6	1.5	0.8	1.0	0.5	1.0	1.0	0.8	0.9	0.5	1.4	2.3	**1.1**	**2.3**
14A (DUP)	1.6	NA	0.8	NA	0.6	NA	1.0	NA	0.9	NA	1.7	NA	**1.1**	**1.7**
15	0.8	0.6	0.4	0.2	0.2	0.3	0.3	0.4	0.1	0.3	0.3	0.8	**0.4**	**0.8**
15A (DUP)	NA	0.6	NA	0.3	NA	0.3	NA	0.4	NA	0.4	NA	0.9	**0.5**	**0.9**
16	0.9	1.0	0.4	0.3	0.1	0.2	0.2	0.5	0.4	0.3	0.6	1.0	**0.5**	**1.0**
16A (DUP)	1.0	NA	0.4	NA	0.1	NA	0.2	NA	0.1	NA	0.4	NA	**0.4**	**1.0**
17	0.8	1.0	0.4	0.3	0.1	0.3	0.3	0.3	0.2	0.3	0.6	1.3	**0.5**	**1.3**
17A (DUP)	NA	1.0	NA	0.3	NA	0.2	NA	0.3	NA	0.3	NA	NA	**0.4**	**1.0**
18	0.7	0.8	0.4	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.9	**0.4**	**0.9**
18A (DUP)	0.8	NA	0.4	NA	0.1	NA	0.2	NA	<0.1	NA	0.3	NA	**<0.3**	**0.8**
19	0.9	1.0	0.4	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.5	0.8	**0.4**	**1.0**
19A (DUP)	NA	0.9	NA	0.3	NA	0.2	NA	0.3	NA	0.3	NA	1.2	**0.5**	**1.2**
22	0.7	0.6	0.3	NA	0.1	0.2	0.2	0.4	<0.1	0.3	0.2	0.7	**<0.3**	**0.7**
23	0.7	0.5	0.3	0.1	<0.1	0.2	0.2	0.2	<0.1	0.2	0.3	0.7	**<0.3**	**0.7**
23A (DUP)	0.6	NA	0.3	NA	<0.1	NA	0.1	NA	0.1	NA	0.4	NA	**<0.3**	**0.6**
24	0.9	0.9	0.5	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.5	1.0	**0.4**	**1.0**
24A (DUP)	NA	0.8	NA	0.3	NA	0.3	NA	0.4	NA	0.4	NA	1.1	**0.6**	**1.1**
25	1.1	0.8	0.5	0.6	0.8	0.2	0.4	0.4	0.2	0.3	0.5	0.9	**0.6**	**1.1**
25A (DUP)	1.1	NA	0.6	NA	0.7	NA	0.3	NA	0.2	NA	0.5	NA	**0.6**	**1.1**
26	1.3	1.0	0.6	0.6	0.2	0.5	0.4	0.4	0.4	0.5	0.5	1.0	**0.6**	**1.3**
26A (DUP)	NA	0.9	NA	0.4	NA	0.5	NA	0.5	NA	0.4	NA	1.1	**0.6**	**1.1**
27	1.6	1.2	0.9	0.4	0.4	0.6	0.9	0.5	0.8	1.1	1.2	1.2	**0.9**	**1.6**
27A (DUP)	1.4	NA	0.9	NA	0.4	NA	0.8	NA	0.8	NA	1.1	NA	**0.9**	**1.4**
28	0.8	0.6	0.5	0.3	0.2	0.4	0.4	0.5	0.2	0.3	0.6	0.7	**0.5**	**0.8**
28A (DUP)	NA	0.7	NA	0.4	NA	0.4	NA	0.6	NA	0.3	NA	0.8	**0.5**	**0.8**
29	0.7	0.7	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.4	0.7	**0.4**	**0.7**
29A (DUP)	0.6	NA	0.3	NA	0.1	NA	0.2	NA	0.2	NA	0.3	NA	**0.3**	**0.6**
32	1.2	1.1	0.6	0.3	0.3	0.3	0.5	0.3	0.1	0.2	0.7	1.0	**0.5**	**1.2**
34	0.7	0.8	0.5	0.3	0.2	0.4	0.3	0.4	0.1	0.4	0.5	1.0	**0.5**	**1.0**
Average	**0.9**	**0.8**	**0.5**	**0.3**	**<0.2**	**0.3**	**<0.3**	**0.3**	**<0.3**	**0.3**	**0.5**	**1.0**		
Maximum	**1.6**	**1.5**	**0.9**	**1.0**	**0.8**	**1.0**	**1.0**	**0.8**	**0.9**	**1.1**	**1.7**	**2.3**		

Hydrogen Sulphide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		***BONNYVILLE***
Company		Project Number
BONNYVILLE	01/01/2010	12/30/2010
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	0.16	0.21	0.09	0.11	0.05	0.12	0.16	0.14	0.10	0.09	0.11	0.20	**0.13**	**0.21**
3A (DUP)	NA	0.19	NA	0.11	NA	0.11	NA	0.15	NA	0.07	NA	0.22	**0.14**	**0.22**
5	0.16	0.38	0.18	0.30	0.23	0.41	0.42	0.47	0.18	0.13	0.12	0.20	**0.27**	**0.47**
5A (DUP)	0.16	NA	0.14	NA	0.23	NA	0.44	NA	0.16	NA	0.07	NA	**0.20**	**0.44**
10	0.16	0.22	0.14	0.21	0.09	0.20	0.16	0.19	0.10	0.09	0.07	0.18	**0.15**	**0.22**
10A (DUP)	0.16	NA	0.13	NA	0.08	NA	0.18	NA	0.10	NA	0.08	NA	**0.12**	**0.18**
11	0.11	0.16	0.07	0.07	0.03	0.06	0.03	0.06	0.07	0.05	0.07	0.16	**0.08**	**0.16**
11A (DUP)	NA	0.15	NA	0.06	NA	0.05	NA	0.05	NA	0.03	NA	0.19	**0.09**	**0.19**
12	0.12	0.15	0.07	0.10	0.05	0.06	0.06	0.08	0.07	0.05	0.07	0.24	**0.09**	**0.24**
12A (DUP)	0.10	NA	0.08	NA	0.06	NA	0.05	NA	0.06	NA	0.08	NA	**0.07**	**0.10**
13	0.11	0.15	0.07	0.07	0.03	0.06	0.07	0.08	0.06	0.06	0.09	0.16	**0.08**	**0.16**
13A (DUP)	NA	0.14	NA	0.06	NA	0.07	NA	0.08	NA	0.06	NA	0.16	**0.10**	**0.16**
14	0.17	0.20	0.10	0.11	0.08	0.12	0.11	0.18	0.16	0.10	0.11	0.19	**0.14**	**0.20**
14A (DUP)	NA	NA	0.11	NA	0.08	NA	0.13	NA	0.15	NA	0.11	NA	**0.12**	**0.15**
16	0.16	0.24	0.12	0.12	0.04	0.13	0.12	0.11	0.09	0.09	0.05	0.24	**0.13**	**0.24**
16A	NA	0.23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.23**	**0.23**
16A (DUP)	NA	NA	NA	0.12	NA	0.12	NA	0.12	NA	0.09	NA	0.23	**0.14**	**0.23**
17	0.21	0.27	0.13	0.13	0.10	0.21	0.20	0.22	0.12	0.12	0.06	0.24	**0.17**	**0.27**
17A (DUP)	0.20	NA	0.16	NA	0.09	NA	0.23	NA	0.14	NA	0.12	NA	**0.16**	**0.23**
18	0.16	0.21	0.09	0.08	0.04	0.09	0.07	0.09	0.08	0.07	0.08	0.21	**0.11**	**0.21**
18A (DUP)	NA	0.18	NA	0.09	NA	0.08	NA	0.09	NA	0.08	NA	0.19	**0.12**	**0.19**
22	<0.02	0.18	0.09	0.09	0.06	0.13	0.16	0.19	0.09	0.08	0.09	0.19	**<0.11**	**0.19**
24	0.15	0.22	0.13	0.09	0.06	0.12	0.15	0.15	0.10	0.09	0.11	0.23	**0.13**	**0.23**
24A (DUP)	0.17	NA	0.13	NA	0.07	NA	0.15	NA	0.09	NA	0.11	NA	**0.12**	**0.17**
25	0.11	0.13	0.08	0.08	0.05	0.05	0.06	0.09	0.05	0.05	0.08	0.16	**0.08**	**0.16**
25A (DUP)	NA	0.15	NA	0.08	NA	0.05	NA	0.09	NA	0.05	NA	0.15	**0.09**	**0.15**
26	0.17	0.20	0.10	0.08	0.07	0.08	0.12	0.13	0.07	0.11	0.06	0.19	**0.11**	**0.20**
26A (DUP)	0.16	NA	0.09	NA	0.06	NA	0.16	NA	0.10	NA	0.15	NA	**0.12**	**0.16**
27	0.13	0.18	0.14	0.09	0.07	0.15	0.17	0.19	0.36	0.55	0.20	0.20	**0.20**	**0.55**
27A (DUP)	NA	0.17	NA	0.09	NA	0.17	NA	0.22	NA	0.54	NA	0.20	**0.23**	**0.54**
29	0.15	0.14	0.11	0.15	0.06	0.13	0.16	0.20	0.08	0.08	0.10	0.20	**0.13**	**0.20**
29A (DUP)	0.14	NA	0.16	NA	0.06	NA	0.16	NA	0.09	NA	0.08	NA	**0.11**	**0.16**
32	0.17	0.19	0.15	0.14	0.08	0.13	0.19	0.18	0.09	0.08	0.10	0.17	**0.14**	**0.19**
34	0.14	0.21	0.13	0.10	0.10	0.20	0.19	0.18	0.12	0.10	0.10	0.18	**0.15**	**0.21**
Average	**<0.15**	**0.19**	**0.11**	**0.11**	**0.08**	**0.12**	**0.16**	**0.15**	**0.11**	**0.12**	**0.10**	**0.20**		
Maximum	**0.21**	**0.38**	**0.18**	**0.30**	**0.23**	**0.41**	**0.44**	**0.47**	**0.36**	**0.55**	**0.20**	**0.24**		

Nitrogen Dioxide

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		*BONNYVILLE*
Company		Project Number
BONNYVILLE	01/01/2010	12/30/2010
Location	***Date Samples Start***	***Date Sampled End***

NO2 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
2	2.8	1.6	1.0	0.5	0.4	0.4	0.3	0.3	0.6	0.6	1.5	2.6	**1.1**	**2.8**
2A (DUP)	NA	1.9	NA	0.4	NA	0.4	NA	0.3	NA	0.7	NA	2.2	**1.0**	**2.2**
3	3.3	2.0	1.1	0.7	0.6	0.6	0.4	0.7	0.6	1.0	2.3	3.5	**1.4**	**3.5**
3A (DUP)	2.8	NA	1.4	NA	0.7	NA	0.5	NA	0.6	NA	2.1	NA	**1.3**	**2.8**
4	2.7	1.7	1.0	0.3	0.5	0.8	0.4	0.4	0.6	1.2	2.2	2.9	**1.2**	**2.9**
4A (DUP)	NA	1.8	NA	0.4	NA	0.8	NA	0.4	NA	0.9	NA	3.3	**1.3**	**3.3**
5	2.8	1.7	1.3	0.3	0.4	0.8	0.4	0.4	0.5	0.9	2.4	2.8	**1.2**	**2.8**
5A (DUP)	2.3	NA	1.0	NA	0.4	NA	0.3	NA	0.6	NA	2.5	NA	**1.2**	**2.5**
6	3.4	2.6	1.5	0.7	0.9	0.8	0.7	0.8	0.8	1.6	2.8	3.1	**1.6**	**3.4**
6A (DUP)	NA	3.2	NA	0.9	NA	0.9	NA	0.7	NA	1.9	NA	2.9	**1.8**	**3.2**
8	2.5	1.1	0.8	0.4	0.3	0.6	0.3	0.4	0.5	1.2	2.3	2.8	**1.1**	**2.8**
8A (DUP)	2.1	NA	0.7	NA	0.3	NA	0.3	NA	0.7	NA	1.6	NA	**0.9**	**2.1**
9	3.7	2.2	1.3	0.7	0.6	0.7	0.7	0.7	1.3	2.0	2.4	2.5	**1.6**	**3.7**
9A (DUP)	NA	1.9	NA	0.7	NA	0.8	NA	0.9	NA	1.3	NA	2.9	**1.4**	**2.9**
10	3.9	3.8	1.7	0.7	0.6	0.9	0.9	1.1	1.7	2.2	3.9	3.3	**2.1**	**3.9**
10A (DUP)	3.9	NA	1.8	NA	1.0	NA	0.9	NA	1.4	NA	3.4	NA	**2.1**	**3.9**
11	1.5	0.9	0.5	0.2	0.2	0.3	0.2	0.3	0.5	0.6	1.3	1.4	**0.7**	**1.5**
11A (DUP)	NA	1.1	NA	0.2	NA	0.3	NA	0.4	NA	0.5	NA	1.4	**0.7**	**1.4**
12	2.3	2.8	1.1	0.4	0.4	0.4	0.4	0.7	0.6	0.7	1.9	1.7	**1.1**	**2.8**
12A (DUP)	2.3	NA	1.1	NA	0.4	NA	0.4	NA	0.8	NA	2.8	NA	**1.3**	**2.8**
13	1.6	1.1	0.5	0.2	0.2	0.3	0.4	0.4	0.4	1.1	1.7	1.5	**0.8**	**1.7**
13A (DUP)	NA	1.2	NA	0.2	NA	0.3	NA	0.4	NA	1.1	NA	1.7	**0.8**	**1.7**
14	3.3	2.4	1.0	0.6	0.4	0.5	0.7	0.7	1.0	1.1	3.3	2.8	**1.5**	**3.3**
14A (DUP)	3.5	NA	1.0	NA	0.4	NA	0.8	NA	1.0	NA	2.2	NA	**1.5**	**3.5**
15	2.6	2.2	1.5	0.5	0.4	0.7	0.5	0.8	0.6	1.7	2.6	2.6	**1.4**	**2.6**
15A (DUP)	NA	2.1	NA	0.5	NA	0.6	NA	0.6	NA	1.0	NA	2.4	**1.2**	**2.4**
16	2.9	2.5	1.4	0.4	0.5	0.7	0.6	0.7	0.8	1.4	3.2	3.2	**1.5**	**3.2**
16A (DUP)	2.9	NA	1.4	NA	0.5	NA	0.7	NA	0.8	NA	2.7	NA	**1.5**	**2.9**
17	4.5	2.9	1.9	1.3	0.9	1.2	0.9	1.1	1.9	1.7	3.2	4.2	**2.1**	**4.5**
17A (DUP)	NA	2.9	NA	1.0	NA	1.1	NA	1.0	NA	1.8	NA	4.4	**2.0**	**4.4**
18	2.0	1.9	0.8	0.4	0.3	0.5	0.4	0.6	0.7	1.0	1.7	2.2	**1.0**	**2.2**
18A (DUP)	2.5	NA	0.7	NA	0.3	NA	0.3	NA	0.4	NA	1.8	NA	**1.0**	**2.5**
19	2.3	1.3	0.8	0.4	0.3	0.4	0.4	0.4	0.7	0.7	1.7	2.4	**1.0**	**2.4**
19A (DUP)	NA	1.5	NA	0.3	NA	0.4	NA	0.4	NA	0.8	NA	2.0	**0.9**	**2.0**
22	4.1	2.7	1.7	0.8	0.9	0.6	0.5	0.8	0.9	1.6	2.8	4.4	**1.8**	**4.4**
23	1.1	0.7	0.3	0.1	<0.1	<0.1	<0.1	0.2	0.2	0.3	1.1	0.9	**<0.4**	**1.1**
23A (DUP)	0.9	NA	0.2	NA	<0.1	NA	<0.1	NA	0.3	NA	1.0	NA	**<0.4**	**1.0**
24	3.8	2.7	2.1	1.3	0.9	1.0	0.9	1.1	1.7	1.9	4.5	3.8	**2.1**	**4.5**
24A (DUP)	NA	2.6	NA	1.1	NA	1.1	NA	1.1	NA	2.7	NA	3.6	**2.0**	**3.6**
28	8.6	9.6	5.0	2.7	1.9	1.6	1.6	1.8	2.6	3.9	6.5	8.1	**4.5**	**9.6**
28A (DUP)	8.9	NA	4.6	NA	2.0	NA	1.6	NA	3.2	NA	6.6	NA	**4.5**	**8.9**
29	6.0	3.3	1.8	0.7	0.6	0.6	0.5	0.6	0.9	1.5	3.2	4.3	**2.0**	**6.0**
29A (DUP)	NA	3.8	NA	0.7	NA	0.5	NA	0.7	NA	1.7	NA	4.2	**1.9**	**4.2**
32	3.0	1.4	0.9	0.3	0.3	0.3	0.3	0.4	0.7	1.0	2.4	2.8	**1.2**	**3.0**
34	3.5	2.9	1.5	0.6	0.6	0.9	0.6	0.8	1.0	1.4	3.4	4.6	**1.8**	**4.6**
Average	**3.2**	**2.3**	**1.4**	**0.6**	**<0.6**	**<0.7**	**<0.6**	**0.7**	**0.9**	**1.3**	**2.7**	**3.0**		
Maximum	**8.9**	**9.6**	**5.0**	**2.7**	**2.0**	**1.6**	**1.6**	**1.8**	**3.2**	**3.9**	**6.6**	**8.1**		

Ozone

PASSIVE AMBIENT AIR MONITORING ANNUAL

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION		*BONNYVILLE*
Company		Project Number
BONNYVILLE	01/01/2010	12/30/2010
Location	***Date Samples Start***	***Date Sampled End***

O3 (ppb)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Average	Maximum
2	17.7	29.9	23.8	32.7	26.2	21.4	12.8	11.1	12.9	16.7	14.3	17.3	**19.7**	**32.7**
2A (DUP)	NA	28.3	NA	29.8	NA	20.6	NA	13.0	NA	17.1	NA	18.3	**21.2**	**29.8**
3	19.8	35.2	32.5	35.5	28.4	25.8	18.9	15.3	15.0	21.3	17.0	19.8	**23.7**	**35.5**
3A (DUP)	20.5	NA	29.7	NA	29.8	NA	20.7	NA	16.5	NA	17.0	NA	**22.4**	**29.8**
4	25.4	41.4	33.7	37.1	30.0	26.3	18.4	17.2	20.1	23.0	17.8	22.7	**26.1**	**41.4**
4A (DUP)	NA	40.6	NA	38.3	NA	28.1	NA	17.0	NA	22.6	NA	22.5	**28.2**	**40.6**
5	20.0	34.0	32.6	36.8	32.7	26.0	17.5	15.6	15.4	20.5	19.2	21.0	**24.3**	**36.8**
5A (DUP)	21.0	NA	30.6	NA	31.2	NA	17.6	NA	17.6	NA	18.5	NA	**22.8**	**31.2**
6	23.3	39.4	31.2	33.9	27.6	27.5	18.0	16.5	15.2	19.4	20.5	21.4	**24.5**	**39.4**
6A (DUP)	NA	37.0	NA	33.5	NA	25.0	NA	15.2	NA	20.4	NA	22.0	**25.5**	**37.0**
8	25.5	38.7	35.4	40.4	33.1	28.7	19.0	16.5	18.6	22.2	20.7	22.3	**26.8**	**40.4**
8A (DUP)	23.9	NA	34.3	NA	34.9	NA	18.9	NA	18.7	NA	21.7	NA	**25.4**	**34.9**
9	25.1	38.2	37.3	36.5	30.8	25.6	17.8	15.1	17.3	21.8	18.4	20.1	**25.3**	**38.2**
9A (DUP)	NA	40.3	NA	35.8	NA	25.6	NA	16.0	NA	22.4	NA	24.4	**27.4**	**40.3**
10	19.3	30.4	30.6	34.7	28.3	25.6	18.1	14.0	13.5	18.2	15.6	20.6	**22.4**	**34.7**
10A (DUP)	18.7	NA	30.1	NA	29.0	NA	18.3	NA	13.6	NA	16.2	NA	**21.0**	**30.1**
11	17.7	32.3	31.6	33.2	27.7	19.0	13.0	11.8	12.6	18.0	14.8	18.6	**20.9**	**33.2**
11A (DUP)	NA	30.6	NA	33.4	NA	20.1	NA	14.1	NA	18.1	NA	18.1	**22.4**	**33.4**
12	22.5	31.1	34.0	33.3	25.5	23.1	15.1	13.7	15.1	20.3	17.7	20.6	**22.7**	**34.0**
12A (DUP)	20.4	NA	35.1	NA	25.2	NA	14.5	NA	16.9	NA	17.2	NA	**21.6**	**35.1**
13	22.3	39.0	38.1	38.9	27.7	25.8	16.4	16.2	17.8	23.4	20.1	21.6	**25.6**	**39.0**
13A (DUP)	NA	35.8	NA	39.8	NA	24.5	NA	16.6	NA	23.8	NA	22.4	**27.2**	**39.8**
14	20.6	32.9	33.7	35.6	29.7	29.3	24.7	19.7	18.6	23.4	18.1	22.6	**25.7**	**35.6**
14A (DUP)	20.5	NA	34.2	NA	33.7	NA	24.8	NA	21.0	NA	18.1	NA	**25.4**	**34.2**
15	18.5	31.9	31.0	33.9	32.9	25.3	16.8	13.2	16.7	19.6	18.2	23.9	**23.5**	**33.9**
15A (DUP)	NA	33.8	NA	36.4	NA	22.5	NA	16.2	NA	20.3	NA	23.0	**25.4**	**36.4**
16	20.7	36.9	30.6	37.3	28.5	24.5	17.2	17.6	19.0	20.4	18.9	19.9	**24.3**	**37.3**
16A (DUP)	22.5	NA	29.5	NA	30.2	NA	17.5	NA	18.4	NA	16.7	NA	**22.5**	**30.2**
17	25.4	39.9	32.4	32.4	27.6	25.9	19.7	15.2	20.4	21.0	22.0	22.7	**25.4**	**39.9**
17A (DUP)	NA	39.4	NA	34.7	NA	25.8	NA	17.8	NA	20.6	NA	23.1	**26.9**	**39.4**
18	21.1	32.7	34.3	33.8	27.6	19.7	14.9	14.5	18.7	20.4	19.9	22.0	**23.3**	**34.3**
18A (DUP)	20.5	NA	35.3	NA	27.7	NA	14.3	NA	15.5	NA	20.4	NA	**22.3**	**35.3**
19	24.4	36.6	35.7	37.8	31.1	28.9	20.5	18.1	19.9	24.9	23.3	22.6	**27.0**	**37.8**
19A (DUP)	NA	38.4	NA	36.5	NA	25.8	NA	18.1	NA	25.1	NA	21.7	**27.6**	**38.4**
22	20.6	30.4	29.1	33.7	25.6	21.7	15.9	15.3	15.6	22.2	18.8	19.2	**22.3**	**33.7**
23	19.4	31.9	33.7	35.1	26.9	21.4	14.9	13.3	13.2	17.0	15.3	17.6	**21.6**	**35.1**
23A (DUP)	19.1	NA	33.6	NA	24.4	NA	13.8	NA	12.4	NA	16.1	NA	**19.9**	**33.6**
24	19.0	39.3	30.0	35.3	29.2	26.8	20.8	17.9	16.2	19.9	19.3	20.6	**24.5**	**39.3**
24A (DUP)	NA	37.6	NA	34.1	NA	26.3	NA	15.6	NA	19.1	NA	21.4	**25.7**	**37.6**
28	15.6	27.1	29.3	31.1	28.3	26.1	20.8	18.1	15.2	19.0	15.6	15.8	**21.8**	**31.1**
28A (DUP)	14.7	NA	27.8	NA	27.4	NA	18.1	NA	14.6	NA	14.1	NA	**19.5**	**27.8**
29	18.2	27.9	28.9	36.6	32.5	25.0	22.5	18.0	16.9	20.7	17.9	19.8	**23.7**	**36.6**
29A (DUP)	NA	27.8	NA	36.6	NA	26.1	NA	17.6	NA	22.9	NA	20.3	**25.2**	**36.6**
32	23.8	39.0	38.3	39.2	34.1	31.3	22.7	21.9	20.5	27.2	20.7	21.8	**28.4**	**39.2**
34	18.9	32.4	30.2	34.7	29.0	28.6	23.2	17.3	18.6	20.6	17.3	22.3	**24.4**	**34.7**
Average	**20.8**	**34.8**	**32.3**	**35.4**	**29.3**	**25.1**	**18.2**	**16.0**	**16.7**	**21.0**	**18.2**	**21.0**		
Maximum	**25.5**	**41.4**	**38.3**	**40.4**	**34.9**	**31.3**	**24.8**	**21.9**	**21.0**	**27.2**	**23.3**	**24.4**		

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Annual Data Report

For
2010

Prepared By:

March 15, 2011

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 2010 to December 2010

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

The calibrations conducted at the LICA - Maskwa Air Monitoring Stations conform to the following Maxxam 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 Summary

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

AQM STATION – LICA - Maskwa

A trailer audit was performed by Alberta Environment on August 25th.

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 508
  - The analyzer was put into the "Maintenance" mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - The sample pump was rebuilt following the as found points on February 17th.
  - One hour of data is missing on March 30th.
  - One hour of data is missing in May.

Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 511
  - The analyzer was put into the "Maintenance" mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - One hour of data is missing on March 30th.
  - One hour of data is missing in May.

General Summary

AQM STATION – LICA - Maskwa

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 594
  - The analyzer was put into the "Maintenance" mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - One hour of data is missing on March 30th.
  - The analyzer did not span on March 24th. Went to check the analyzer on March 25th and found that the analyzer had no O3 flow. Replaced the O3 orifice, sintered filter, spring, and o-rings – used OP-86 O3 resistant o-rings. Data was invalidated back to the last validated calibration, which was March 23rd. 47 hours of data were invalidated.
  - One hour of data is missing in May.
  - The sample pump was rebuilt following the as found points on May 17th.

Total HydroCarbon (PPM)

- Analyzer make / model - TECO 51C-LT, S/N: 436609738
  - The analyzer was put into the "Maintenance" mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - One hour of data is missing on March 30th.
  - After as found point cal was performed on March 11th, the pump in the zero air supply was rebuilt, the piston screws with new aircraft aluminum screws were replaces; remainder of rebuild as per manufacturers specs.
  - The analyzer did not span on April 25th due to running out H2 span gas. The gas cylinder was replaced and the analyzer was re-lit on April 25th. 28 hours of data were invalidated due to this issue.
  - The offsets on the temperature controls were adjusted to reduce the daily fluctuation in station temperature on April 25th.
  - One hour of data is missing in May.

General Summary

AQM STATION – LICA - Maskwa

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

- System make / model - Met One 50.5H, S/N: H10703
  - The analyzer was put into the “Maintenance” mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - It was noticed that the both wind speed and wind direction had not read correctly since February 6th, hour of 23:00. Upon arrival the site on February 7th, it was noticed that the wind system sensor head was covered in frost. Found that there was no power going to the heater control PCB. Reconnected wire, the heater works correctly, and wind system works. 11 hours of data were invalidated due to this issue.
  - One hour of data is missing on March 30th.
  - One hour of data is missing in May.

Relative Humidity (PERCENT)

- System make / model - Met One 083
  - The analyzer was put into the “Maintenance” mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - One hour of data is missing on March 30th.
  - One hour of data is missing in May.

Barometric Pressure (inHG)

- System make / model - Met One 092
  - The analyzer was put into the “Maintenance” mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - One hour of data is missing on March 30th.
  - One hour of data is missing in May.

General Summary

AQM STATION – LICA - Maskwa

Precipitation (MM)

- System make / model - Met One 387
  - ❖ No data for precipitation was collected this month; waiting for the electricians to complete the trench/wiring to the new station.
  - ❖ The tipping bucket was connected to the logger on February 17th. The sensor was cleaned and leveled. There were 274 hours of data recorded since the tipping bucket was connected in February.
  - ❖ One hour of data is missing on March 30th.
  - ❖ A junction box was added to tipping wiring inside the station in March.
  - ❖ One hour of data is missing in May.
  - ❖ The tipping bucket was cleaned, leveled, and checked, and screens were installed on May 18th. During the trip on June 4th, it was noticed that the tipping bucket was not recording any rainfall even though it was raining. Performed troubleshooting by removing the funnel, the tipping mechanism began to operate. It indicates that the tipping mechanism was impeded by the heater cord. As a result, data from the last tipping bucket check, which was May 18th, to June 4th is questionable. Due to this issue, 409 hours of data were invalidated.

Ambient Temperature (DEGC)

- System make / model - Met One 060
  - ❖ The analyzer was put into the “Maintenance” mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - ❖ One hour of data is missing on March 30th.
  - ❖ One hour of data is missing in May.

General Summary

AQM STATION – LICA - Maskwa

Trailer Temperature (DEG C)

- System make / model – R&R 61
  - ❖ The analyzer was put into the “Maintenance” mode for two hours on January 8th because ATCO and Pyramid electricians connected permanent power to the station.
  - ❖ One hour of data is missing on March 30th.
  - ❖ One hour of data is missing in May.

Datalogger

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

No issue was recorded this year.

Trailer

No issue was recorded this year.

Continuous Monitoring

Sulphur Dioxide

Current Date : 03/14/11
Current Time : 08:42

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	0	18	1
February	672	634	0	17	1
March	744	705	0	14	1
April	720	684	0	12	1
May	744	705	0	12	0
June	720	683	0	21	1
July	744	705	0	22	1
August	744	705	0	12	1
September	720	685	0	15	1
October	744	706	0	29	1
November	720	684	0	45	1
December	744	708	0	17	2
Yearly Total	8760	8310	0	45	1

SO_2 Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: MASKWA

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO_2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO_2 ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	706	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	705	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	684	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	705	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	683	100.0	99.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	705	100.0	99.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	705	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
October	706	100.0	99.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	684	100.0	99.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	708	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
									Annual Average		**0.00**

C - Concentration

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

SO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: MASKWA

Month	SO2 ppb Peak Reading
January	18
February	17
March	14
April	11
May	11
June	21
July	22
August	12
September	14
October	28
November	44
December	16

ANNUAL PEAK	**44**

LICA30
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	6.09	6.02	8.01	6.78	5.47	6.06	5.79	5.33	6.03	12.29	7.86	4.28	5.98	5.54	4.25	4.03	99.89
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.03	.00	.10
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.09	6.02	8.01	6.78	5.47	6.06	5.79	5.33	6.03	12.29	7.86	4.28	5.98	5.61	4.28	4.03	

Calm : .00 %

Total # Operational Hours : 8299

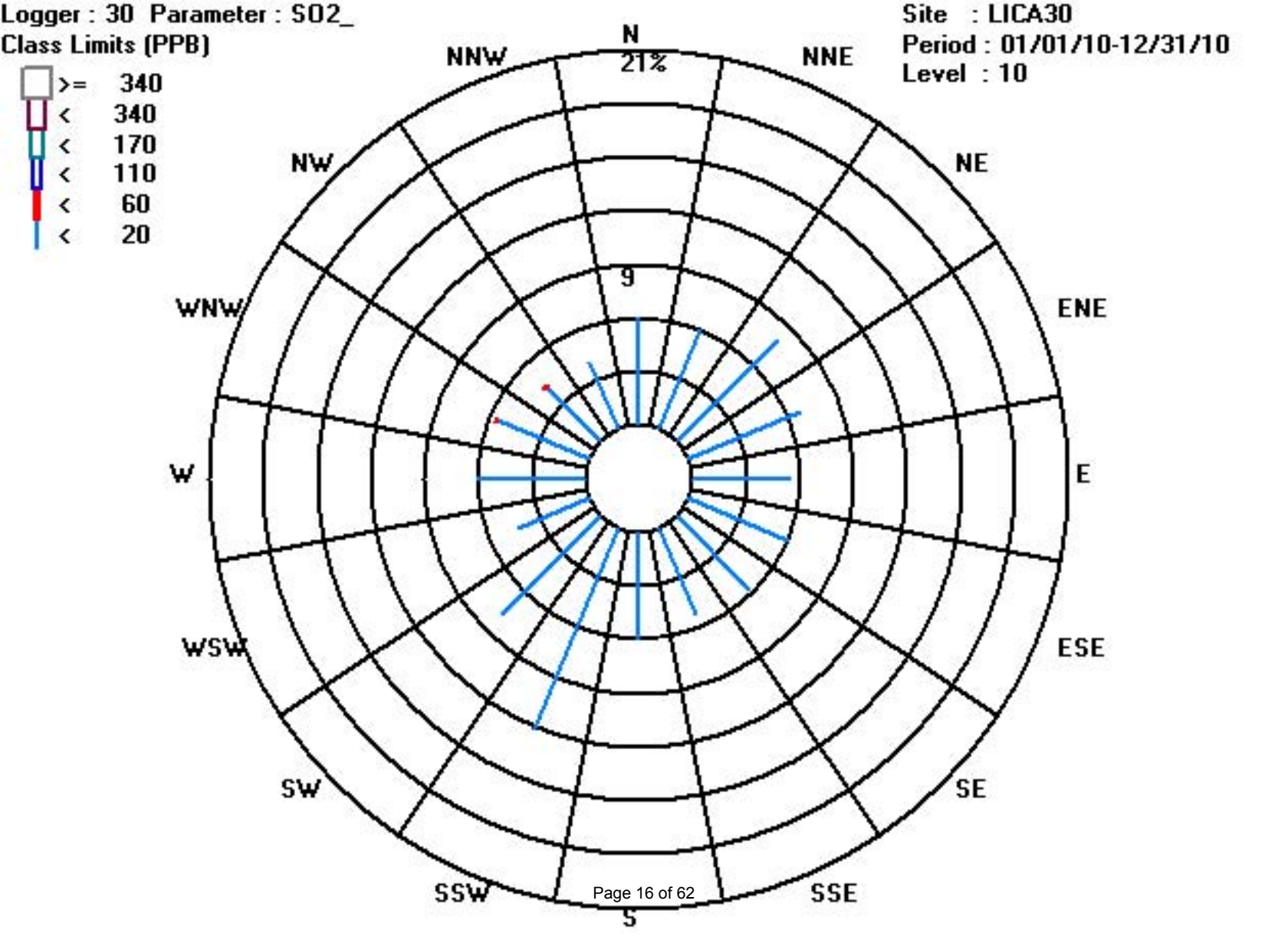
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	506	500	665	563	454	503	481	443	501	1020	653	356	497	460	353	335	8290
<	60														6	3		9
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	506	500	665	563	454	503	481	443	501	1020	653	356	497	466	356	335	

Calm : .00 %

Total # Operational Hours : 8299


Logger : 30 Parameter : SO2_
Class Limits (PPB)
>= 340
< 340
< 170
< 110
< 60
< 20
Site : LICA30
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Hydrogen Sulphide

Current Date : 03/14/11
Current Time : 08:42

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	706	0	3	0
February	672	637	0	2	0
March	744	698	0	2	0
April	720	684	0	4	0
May	744	707	0	3	0
June	720	683	0	3	0
July	744	706	0	3	0
August	744	705	0	2	0
September	720	684	0	3	0
October	744	707	0	2	0
November	720	684	0	2	0
December	744	706	0	2	0
Yearly Total	8760	8307	0	4	0

H_2S Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: MASKWA

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	706	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.11
February	637	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.09
March	698	99.3	100.0%	0.0%	0.0%	0.0%	0	0	0.06
April	684	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.18
May	707	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.07
June	683	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.06
July	706	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.05
August	705	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.02
September	684	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.03
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
November	684	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
December	706	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
* Valid readings - does not include calibration hours and downtime hours.							Annual Average		**0.06**

H2S Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: MASKWA

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

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	6.05	6.00	8.02	6.79	5.44	6.01	5.74	5.25	6.02	12.29	7.87	4.29	6.03	5.68	4.29	4.03	99.89
< 10	.00	.01	.00	.01	.01	.02	.02	.01	.00	.00	.00	.00	.00	.01	.00	.00	.10
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.05	6.01	8.02	6.81	5.46	6.03	5.77	5.26	6.02	12.29	7.87	4.29	6.03	5.70	4.29	4.03	

Calm : .00 %

Total # Operational Hours : 8296

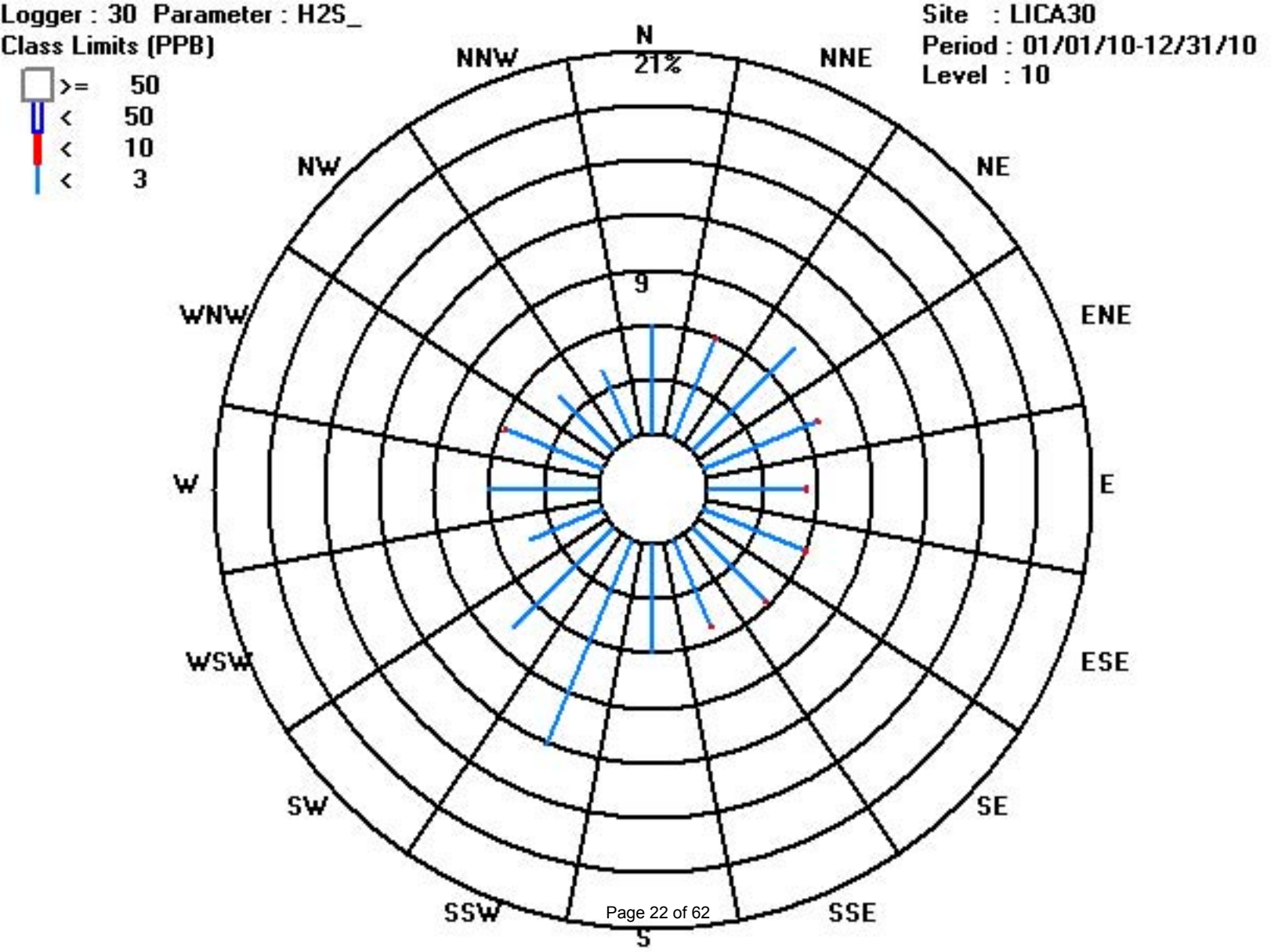
Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	502	498	666	564	452	499	477	436	500	1020	653	356	501	472	356	335	8287
< 10		1		1	1	2	2	1						1			9
< 50																	
>= 50																	
Totals	502	499	666	565	453	501	479	437	500	1020	653	356	501	473	356	335	

Calm : .00 %

Total # Operational Hours : 8296


Logger : 30 Parameter : H2S_
Class Limits (PPB)
>= 50
< 50
< 10
< 3
Site : LICA30
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Total Hydrocarbons

Current Date : 03/14/11
Current Time : 08:42

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	704	1.9	4.1	2.4
February	672	637	2	3.7	2.4
March	744	701	1.9	3.6	2.2
April	720	655	1.9	2.5	2.1
May	744	705	1.9	3.1	2
June	720	683	1.9	2.9	2.1
July	744	706	1.8	3.1	2.1
August	744	703	1.8	3.3	2.1
September	720	684	1.9	3.3	2.1
October	744	707	1.9	3.1	2.1
November	720	683	1.9	3.1	2.2
December	744	706	1.9	3.2	2.3
Yearly Total	8760	8274	1.8	4.1	2.2

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: MASKWA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	704	99.6	90.5%	9.5%	0.0%	0.0%	2.33
February	637	99.7	94.3%	5.7%	0.0%	0.0%	2.32
March	701	99.5	99.0%	1.0%	0.0%	0.0%	2.15
April	655	96.0	100.0%	0.0%	0.0%	0.0%	2.02
May	705	99.9	99.9%	0.1%	0.0%	0.0%	1.98
June	683	100.0	100.0%	0.0%	0.0%	0.0%	2.01
July	706	100.0	99.9%	0.1%	0.0%	0.0%	2.02
August	703	99.9	99.6%	0.4%	0.0%	0.0%	2.07
September	684	100.0	99.6%	0.4%	0.0%	0.0%	2.03
October	707	100.0	99.7%	0.3%	0.0%	0.0%	2.07
November	683	100.0	99.1%	0.9%	0.0%	0.0%	2.15
December	706	99.9	99.2%	0.8%	0.0%	0.0%	2.22
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**2.11**

THC Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: MASKWA

Month	THC ppm Peak Reading
January	4.1
February	3.7
March	3.6
April	2.4
May	3.1
June	2.8
July	3.1
August	3.3
September	3.3
October	3
November	3
December	3.1

ANNUAL PEAK	**4.1**

LICA30
THC / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	6.03	5.91	7.66	6.63	5.31	6.00	5.65	5.19	5.95	11.95	7.45	4.27	6.06	5.68	4.25	3.95	98.01
<	10.0	.02	.12	.21	.15	.13	.08	.08	.12	.13	.38	.33	.07	.03	.06	.00	.01	1.98
<	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	6.06	6.03	7.87	6.78	5.44	6.08	5.73	5.31	6.08	12.34	7.79	4.34	6.09	5.74	4.25	3.96	

Calm : .00 %

Total # Operational Hours : 8263

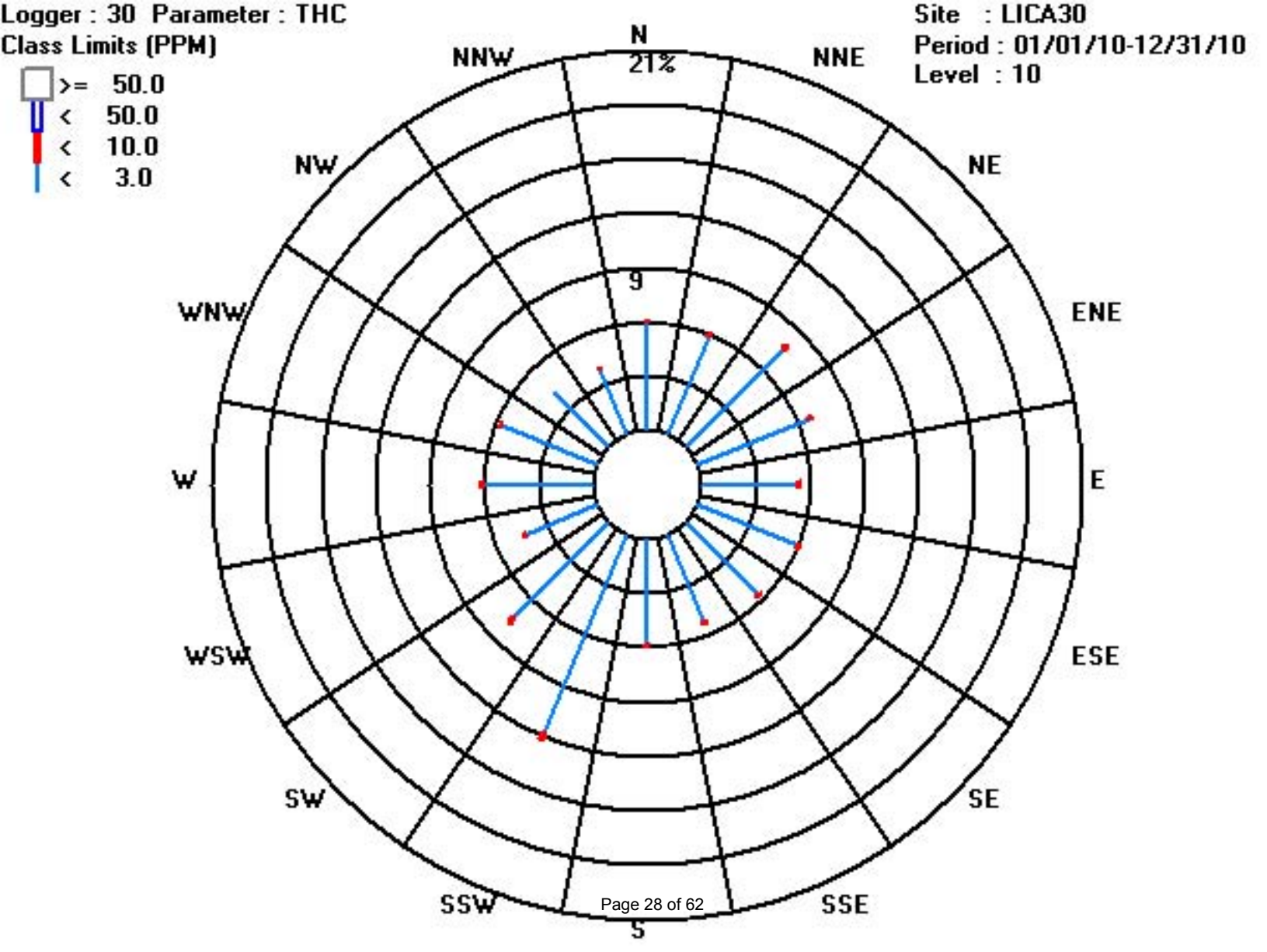
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	499	489	633	548	439	496	467	429	492	988	616	353	501	470	352	327	8099
<	10.0	2	10	18	13	11	7	7	10	11	32	28	6	3	5		1	164
<	50.0																	
>=	50.0																	
	Totals	501	499	651	561	450	503	474	439	503	1020	644	359	504	475	352	328	

Calm : .00 %

Total # Operational Hours : 8263


Logger : 30 Parameter : THC
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA30
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitrogen Dioxide

Current Date : 03/14/11
Current Time : 08:42

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	22	5
February	672	634	0	22	4
March	720	650	0	23	3
April	720	681	0	16	2
May	744	700	0	12	1
June	720	681	0	22	1
July	744	705	0	11	1
August	744	700	0	13	1
September	720	680	0	18	2
October	744	705	0	26	3
November	720	682	0	25	5
December	744	705	1	22	5
Yearly Total	8736	8226	0	26	3

NO_2 Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: MASKWA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO2)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	NO2 ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm			
January	703	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.00
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.00
March	650	93.5	100.0%	0.0%	0.0%	0.0%	0	0	0.00
April	681	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
May	700	99.6	100.0%	0.0%	0.0%	0.0%	0	0	0.00
June	681	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
July	705	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
August	700	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
September	680	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
October	705	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
November	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
December	705	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours							Annual Average		**0.00**

NO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: MASKWA

Month	NO2 ppb Peak Reading
January	22
February	22
March	22
April	15
May	11
June	21
July	11
August	12
September	18
October	26
November	24
December	22
ANNUAL PEAK	**26**

LICA30
NO2_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	6.03	5.94	8.05	6.82	5.47	6.00	5.68	5.27	6.08	12.36	7.86	4.33	6.06	5.69	4.29	3.99	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.03	5.94	8.05	6.82	5.47	6.00	5.68	5.27	6.08	12.36	7.86	4.33	6.06	5.69	4.29	3.99	

Calm : .00 %

Total # Operational Hours : 8215

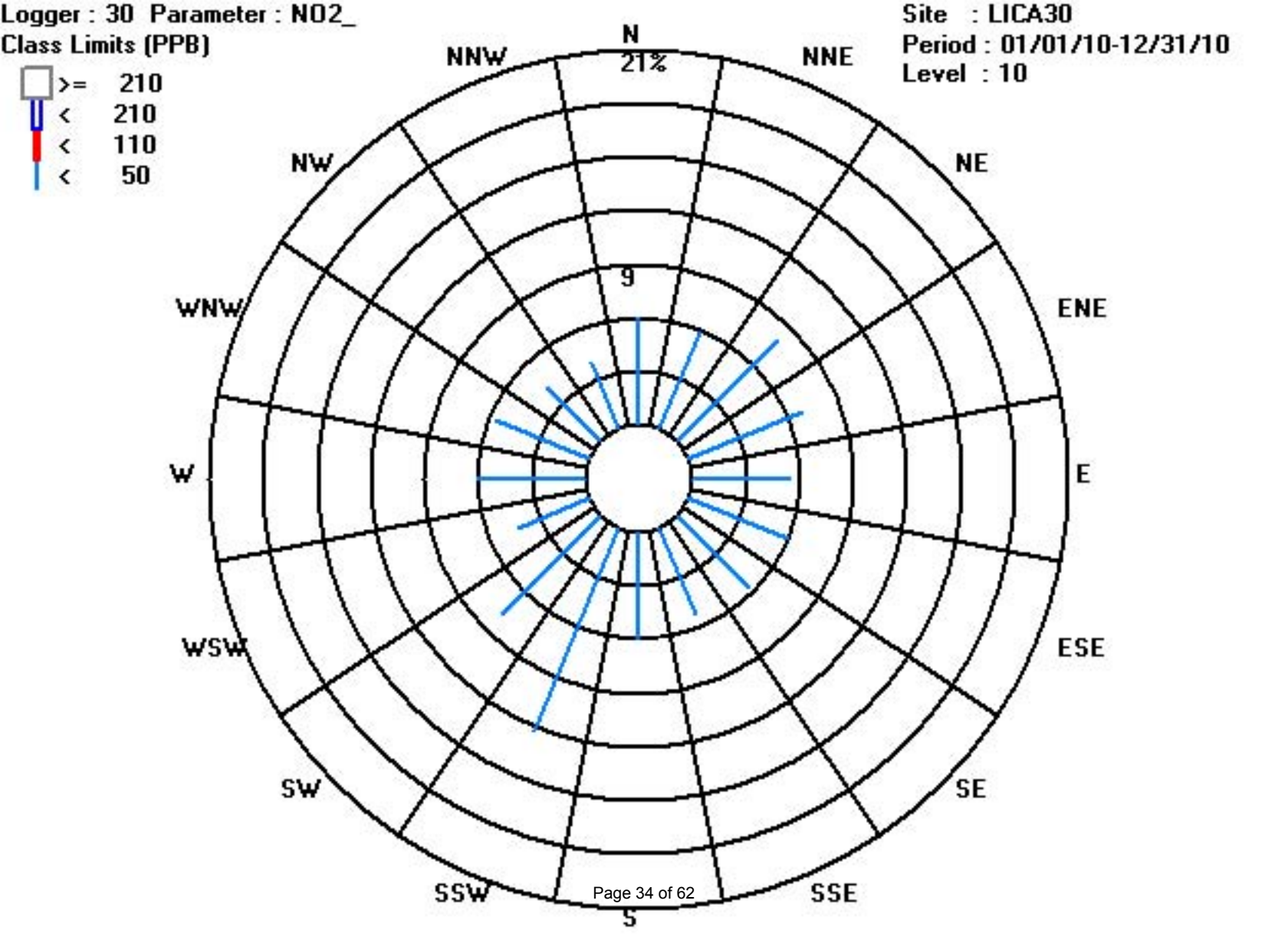
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	496	488	662	561	450	493	467	433	500	1016	646	356	498	468	353	328	8215
<	110																	
<	210																	
>=	210																	
	Totals	496	488	662	561	450	493	467	433	500	1016	646	356	498	468	353	328	

Calm : .00 %

Total # Operational Hours : 8215


Logger : 30 Parameter : NO2_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA30
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitric Oxide

Current Date : 03/14/11
Current Time : 08:42

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	28	1
February	672	634	0	18	1
March	720	650	0	22	0
April	720	681	0	10	0
May	744	700	0	8	0
June	720	681	0	9	0
July	744	705	0	14	1
August	744	700	0	11	1
September	720	680	0	15	1
October	744	705	0	47	1
November	720	682	0	22	1
December	744	705	0	20	1
Yearly Total	8736	8226	0	47	1

NO Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: MASKWA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO)				NO ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	703	99.7	100.0%	0.0%	0.0%	0.0%	0.00
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0.00
March	650	93.5	100.0%	0.0%	0.0%	0.0%	0.00
April	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	700	99.6	100.0%	0.0%	0.0%	0.0%	0.00
June	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
August	700	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO Peak reading of One Hour Averages for 2010

Plant Operator: LICA Station: MASKWA

Month	NO ppb Peak Reading
January	27
February	18
March	22
April	10
May	7
June	9
July	13
August	11
September	14
October	47
November	22
December	19

ANNUAL PEAK	**47**

LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	6.03	5.94	8.05	6.82	5.47	6.00	5.68	5.27	6.08	12.36	7.86	4.33	6.06	5.69	4.29	3.99	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.03	5.94	8.05	6.82	5.47	6.00	5.68	5.27	6.08	12.36	7.86	4.33	6.06	5.69	4.29	3.99	

Calm : .00 %

Total # Operational Hours : 8215

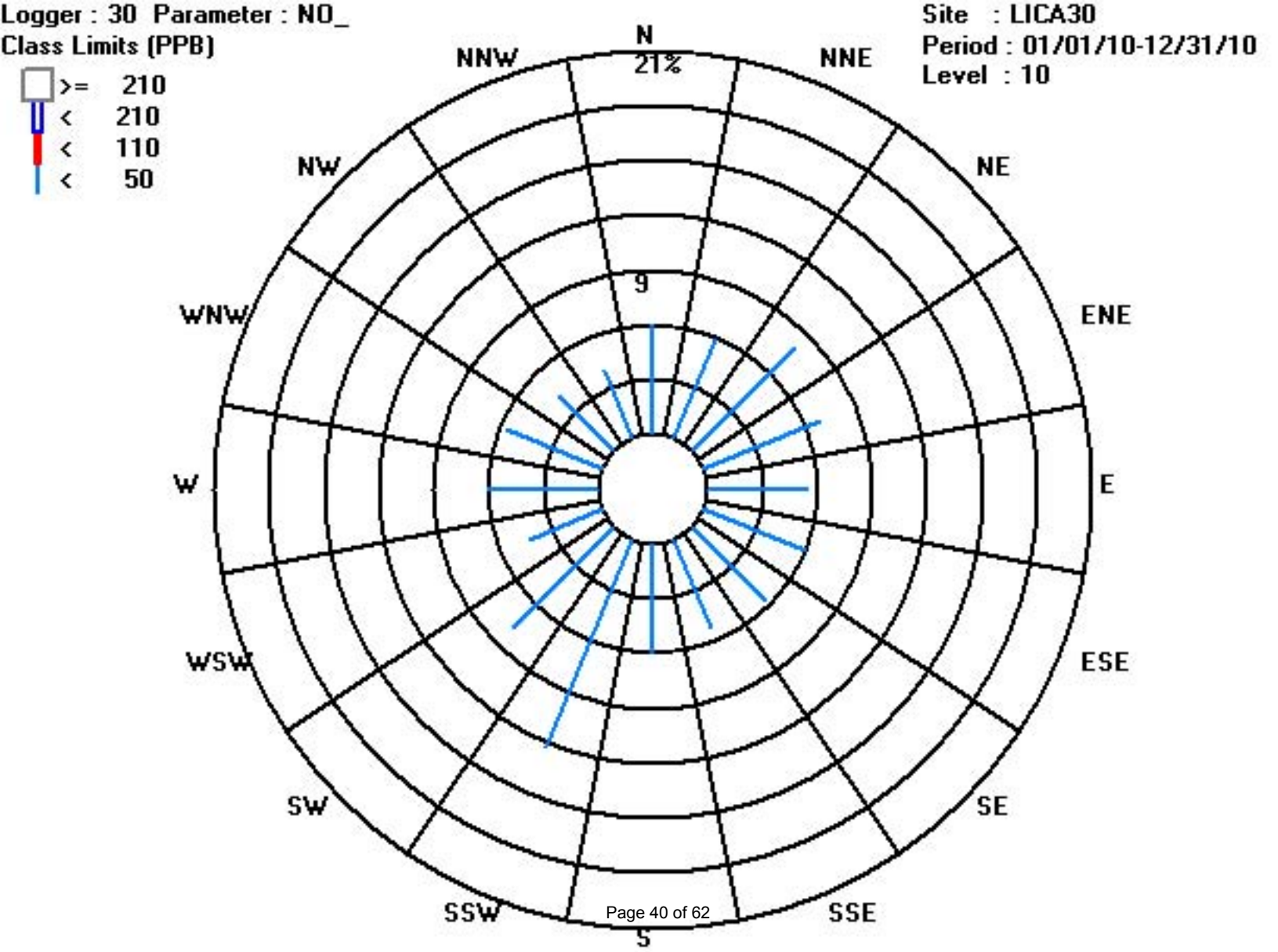
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	496	488	662	561	450	493	467	433	500	1016	646	356	498	468	353	328	8215
<	110																	
<	210																	
>=	210																	
	Totals	496	488	662	561	450	493	467	433	500	1016	646	356	498	468	353	328	

Calm : .00 %

Total # Operational Hours : 8215


Logger : 30 Parameter : NO_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA30
Period : 01/01/10-12/31/10
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 : 03/14/11
Current Time : 08:42

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	703	0	50	7
February	672	634	0	33	5
March	720	650	0	41	4
April	720	681	0	25	2
May	744	700	0	15	1
June	720	681	0	27	1
July	744	705	0	23	2
August	744	700	0	19	2
September	720	680	0	27	3
October	744	705	0	68	4
November	720	682	0	47	6
December	744	705	0	38	6
Yearly Total	8736	8226	0	68	4

NO_x Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: MASKWA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NOx)				NOx ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	703	99.7	100.0%	0.0%	0.0%	0.0%	0.01
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0.00
March	650	93.5	100.0%	0.0%	0.0%	0.0%	0.00
April	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	700	99.6	100.0%	0.0%	0.0%	0.0%	0.00
June	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	705	100.0	100.0%	0.0%	0.0%	0.0%	0.00
August	700	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	705	100.0	99.9%	0.1%	0.0%	0.0%	0.00
November	682	100.0	100.0%	0.0%	0.0%	0.0%	0.01
December	705	100.0	100.0%	0.0%	0.0%	0.0%	0.01
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO_x Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: MASKWA

Month	NOx ppb Peak Reading
January	49
February	33
March	40
April	24
May	14
June	26
July	22
August	18
September	27
October	67
November	46
December	38
ANNUAL PEAK	**67**

LICA30
NOX_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	6.03	5.94	8.05	6.82	5.47	6.00	5.67	5.27	6.08	12.36	7.86	4.33	6.06	5.68	4.29	3.99	99.97
<	110	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.01	.00	.00	.02
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.03	5.94	8.05	6.82	5.47	6.00	5.68	5.27	6.08	12.36	7.86	4.33	6.06	5.69	4.29	3.99	

Calm : .00 %

Total # Operational Hours : 8215

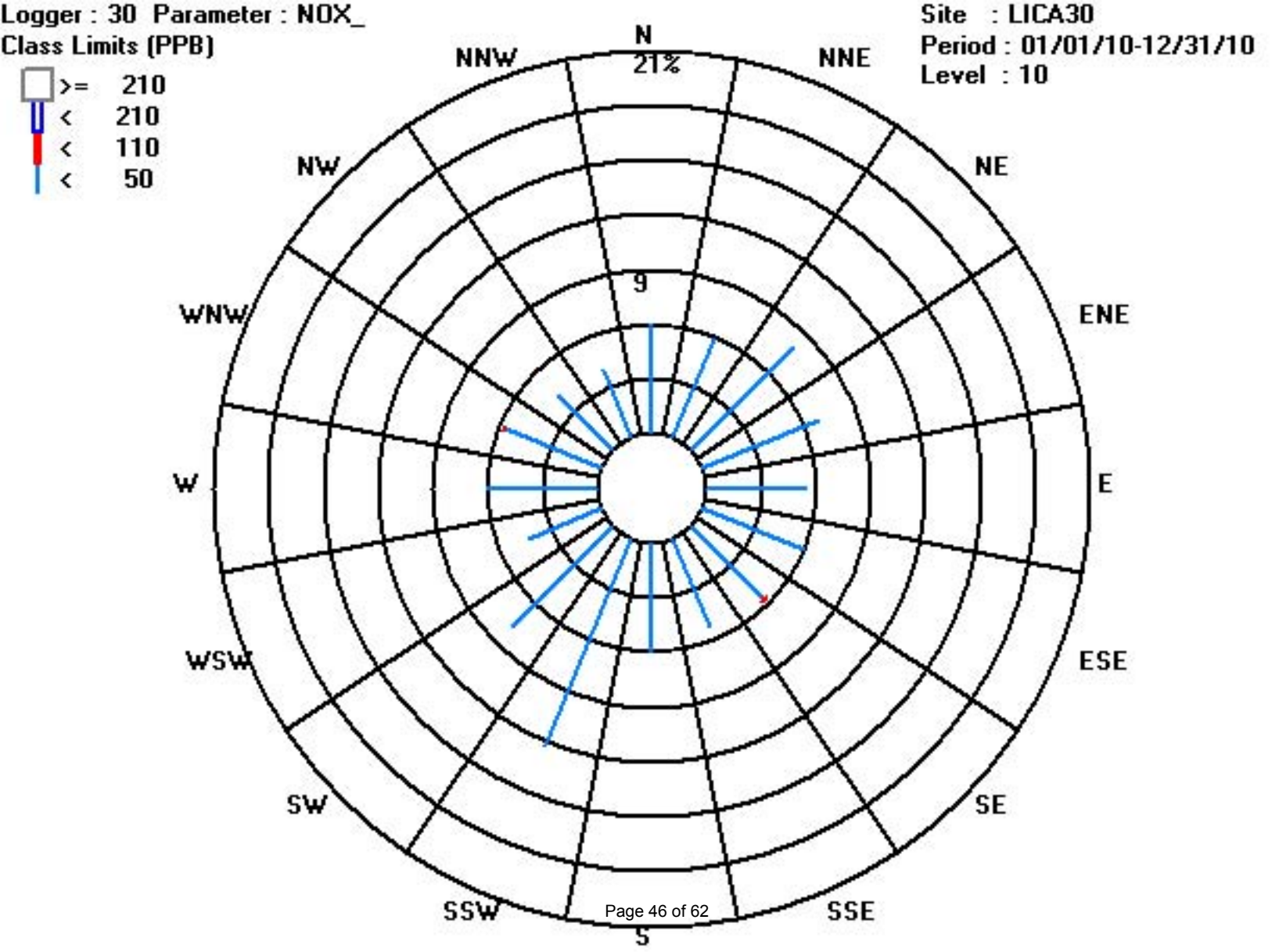
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	496	488	662	561	450	493	466	433	500	1016	646	356	498	467	353	328	8213
<	110							1							1			2
<	210																	
>=	210																	
	Totals	496	488	662	561	450	493	467	433	500	1016	646	356	498	468	353	328	

Calm : .00 %

Total # Operational Hours : 8215


Logger : 30 Parameter : NOX_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA30
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Temperature

Current Date : 03/14/11
Current Time : 08:43

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	742	-35.7	2.8	-13
February	672	671	-24.3	8.1	-9.4
March	744	743	-17.2	13.9	-0.2
April	720	720	-6.3	23.9	5.3
May	744	743	-4.2	28.5	9.4
June	720	720	1.7	27.7	15.4
July	744	744	6	29.7	16.8
August	744	744	3.2	27.2	14.9
September	720	720	-4	22.8	8.8
October	744	744	-8.6	23.4	5.3
November	720	720	-28.8	13.2	-6.7
December	744	744	-25.6	0	-14.8
Yearly Total	8760	8755	-35.7	29.7	2.7

Temperature - Monthly Averages for 2010

Plant Operator: LICA Plant Location: MASKWA

Month	Operational Time (%)	Monthly Average (Deg.C)	Maximum Hourly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	99.7	-12.91	2.8	-35.7	-1.3
February	99.9	-9.34	8.0	-24.2	-1.1
March	99.9	-0.15	13.9	-17.2	7.0
April	100.0	5.25	23.8	-6.2	15.6
May	99.9	9.39	28.4	-4.1	19.9
June	100.0	15.40	27.7	1.7	20.7
July	100.0	16.70	29.6	6.0	20.9
August	100.0	14.83	27.2	3.1	20.5
September	100.0	8.73	22.7	-4.0	15.2
October	100.0	5.29	23.4	-8.5	14.5
November	100.0	-6.69	13.1	-28.7	6.5
December	100.0	-14.75	-3.8	-25.5	-7.1
ANNUAL AVERAGE		**2.65**	**-**	**-**	-

Precipitation

Current Date : 03/15/11
Current Time : 12:06

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	288	274	0	0	0
March	744	743	0	3.7	0
April	720	720	0	3.5	0.1
May	432	417	0	0.6	0
June	648	638	0	8.1	0.1
July	744	744	0	23.2	0.2
August	744	743	0	6.1	0.1
September	720	720	0	4	0.1
October	744	743	0	1.1	0
November	720	720	0	0.6	0
December	744	744	0	0.9	0
Yearly Total	7248	7206	0	23.2	0.1

PRECIPITATION - Monthly Averages for 2010

Plant Operator: LICA Plant Location: MASKWA

Month	Operational Time (%)	Monthly Averages (MM)	Maximum Hourly Average (MM)	Maximum Daily Average (MM)	Monthly Total (MM)
January	NA	NA	NA	NA	NA
February	100.0	0.00	0.0	0.0	0.0
March	99.9	0.05	3.7	16.3	35.3
April	100.0	0.10	3.5	26.3	71.2
May	56.0	0.00	0.6	0.8	1.3
June	88.6	0.10	8.1	16.5	65.8
July	100.0	0.21	23.2	42.9	156.6
August	99.9	0.07	6.1	6.2	49.9
September	100.0	0.07	4.0	17.3	53.8
October	99.9	0.01	1.1	4.3	10.1
November	100.0	0.01	0.6	2.8	7.5
December	100.0	0.02	0.9	3.4	12.9
ANNUAL AVERAGE		**0.06**	**-**	**-**	-

Relative Humidity

Current Date : 03/14/11
Current Time : 08:43

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	742	42	89	74
February	672	671	29	87	72
March	744	743	19	89	65
April	720	720	15	91	60
May	744	743	13	93	58
June	720	720	18	93	63
July	744	744	31	94	71
August	744	744	33	94	76
September	720	720	28	92	73
October	744	744	24	92	65
November	720	720	24	90	71
December	744	744	56	86	75
Yearly Total	8760	8755	13	94	69

Relative Humidity - Monthly Averages for 2010

Plant Operator: LICA Plant Location: MASKWA

Month	Operational Time (%)	Monthly Average (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	99.7	73.44	89	85.8
February	99.9	71.01	86	81.6
March	99.9	64.49	89	82.3
April	100.0	59.75	90	87.4
May	99.9	57.77	93	87.1
June	100.0	62.76	93	89.3
July	100.0	70.64	93	85.0
August	100.0	75.26	93	84.8
September	100.0	72.80	92	89.5
October	100.0	64.48	91	88.7
November	100.0	70.01	90	85.4
December	100.0	74.24	85	83.4
ANNUAL AVERAGE		**68.06**	**-**	**-**

Barometric Pressure

Current Date : 03/14/11
Current Time : 08:43

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	742	918	967	941
February	672	671	929	956	943
March	744	743	905	956	938
April	720	720	917	956	937
May	744	743	923	955	941
June	720	720	925	953	941
July	744	744	920	949	940
August	744	744	922	951	940
September	720	720	929	953	942
October	744	744	920	957	940
November	720	720	923	959	941
December	744	744	916	955	940
Yearly Total	8760	8755	905	967	940

BAROMETRIC PRESSURE - Monthly Averages for 2010

Plant Operator: LICA Plant Location: MASKWA

Month	Operational Time (%)	Monthly Average (millibar)	Maximum Hourly Average (millibar)	Maximum Daily Average (millibar)
January	99.7	941	967	964.2
February	99.9	942	956	951.7
March	99.9	937	956	952.2
April	100.0	937	955	952.4
May	99.9	941	955	952.9
June	100.0	940	953	950.0
July	100.0	940	948	946.5
August	100.0	939	950	948.5
September	100.0	941	952	950.9
October	100.0	940	956	952.8
November	100.0	940	958	955.3
December	100.0	939	955	952.7
ANNUAL AVERAGE		**940**	**-**	-

Vector Wind Speed

Current Date : 03/14/11
Current Time : 08:42

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	742	0.1	21.9	4.4
February	672	659	0.1	11.5	4.6
March	744	743	0.2	15	5.7
April	720	720	0.1	20.8	7.1
May	744	743	0.1	17.6	6.1
June	720	720	0.1	14.9	5
July	744	744	0	17.1	4.7
August	744	744	0.2	14.9	4.3
September	720	720	0.1	13.9	5
October	744	744	0.2	17.6	5.8
November	720	720	0.2	18.5	5
December	744	744	0.1	11.1	4.8
Yearly Total	8760	8743	0	21.9	5.2

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	3.05	3.01	5.58	5.32	3.44	3.23	3.19	2.84	3.70	8.29	6.62	3.61	3.48	2.71	2.65	2.64	63.43
<	12.0	2.80	2.47	2.15	1.41	1.85	2.68	2.61	2.15	2.10	3.96	1.23	.67	2.36	2.26	1.54	1.25	33.56
<	20.0	.18	.56	.29	.02	.17	.11	.06	.18	.19	.08	.00	.00	.18	.69	.11	.04	2.91
<	29.0	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.04	.00	.00	.06
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	6.03	6.05	8.04	6.77	5.46	6.03	5.87	5.18	6.00	12.34	7.85	4.28	6.05	5.71	4.31	3.94	

Calm : .01 %

Total # Operational Hours : 8743

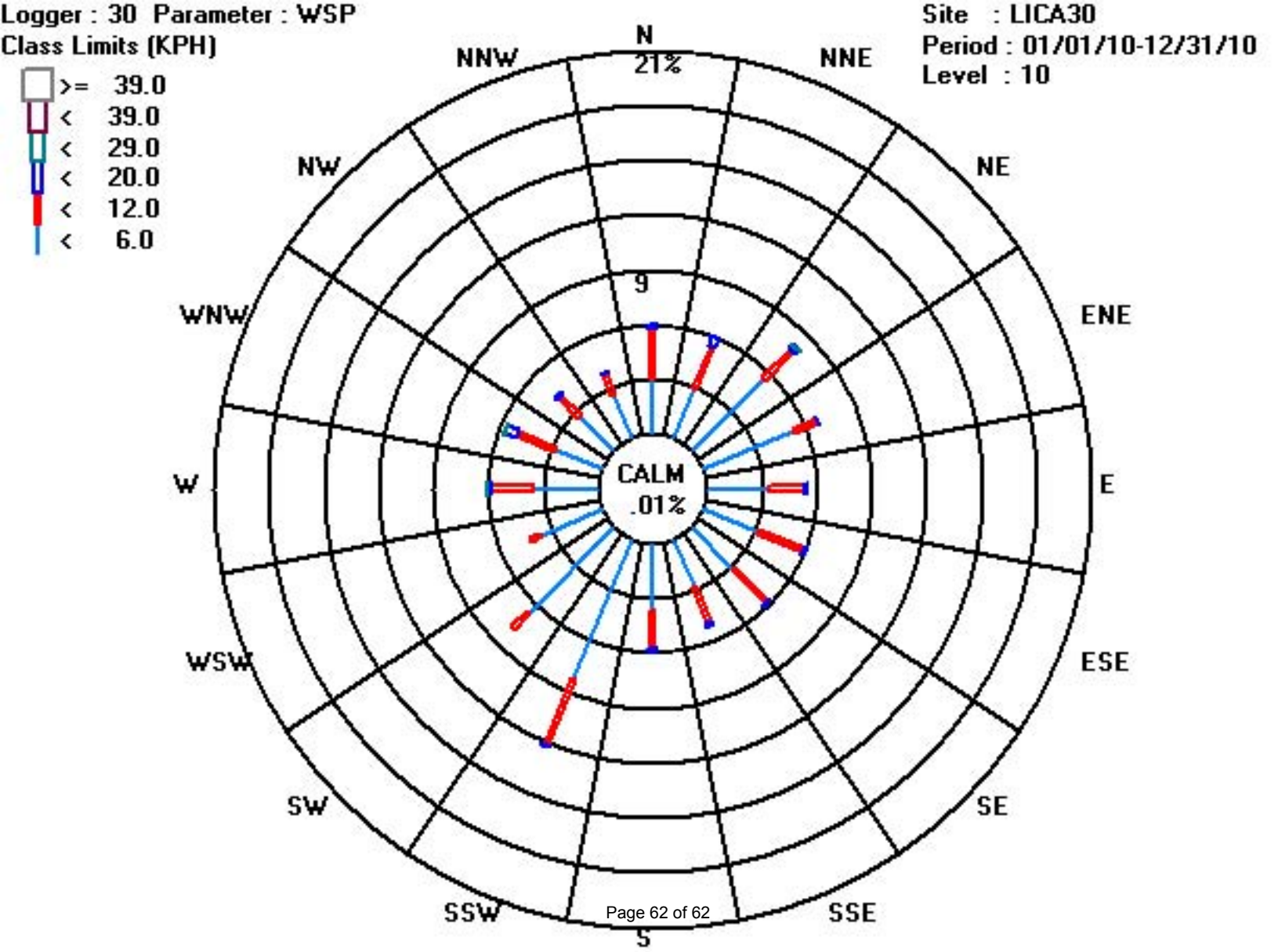
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	267	264	488	466	301	283	279	249	324	725	579	316	305	237	232	231	5546
<	12.0	245	216	188	124	162	235	229	188	184	347	108	59	207	198	135	110	2935
<	20.0	16	49	26	2	15	10	6	16	17	7			16	61	10	4	255
<	29.0			1										1	4			6
<	39.0																	
>=	39.0																	
	Totals	528	529	703	592	478	528	514	453	525	1079	687	375	529	500	377	345	

Calm : .01 %

Total # Operational Hours : 8743


Logger : 30 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA30
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9
CALM
.01%

Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Annual Data Report

For
2010

Prepared By:

March 15, 2011

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 2010 to December 2010

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

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 Summary

Equipment Operation

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

AQM STATION – LICA – St. Lina

A trailer audit was performed by Alberta Environment on August 27th.

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 468
  - 2 hours of data are missing this month in February.
  - The pump was rebuilt following the as found points on May 26th.
  - A total of 21 hours of data was invalidated due to power failures in May.
  - 4 hours of hourly data were invalidated due to small power failures in August.

Hydrogen Sulphuide (PPB)

- Analyzer make / model - API 101E, S/N: 510
  - 2 hours of data are missing this month in February.
  - Upon arrival on February 25th, it was noticed that the analyzer had a fault displayed of “UV Lamp Warning”. Cleared the warning and it did not return.
  - The box fan was replaced on February 25th.
  - The pump was rebuilt following the as found points on April 28th.
  - A total of 21 hours of data was invalidated due to power failures in May.
  - 4 hours of hourly data were invalidated due to small power failures in August.
  - The analyzer’s reading stuck at 43 ppb after the daily calibration on November 17th. It was found that the 12V DC power supply was dead. The 12V power supply was replaced on November 18th. 29 hours of data between November 17th and November 18th were invalidated.

General Summary

AQM STATION – LICA – St. Lina

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 592
  - The reaction cell and window were cleaned, the reaction cell o-rings were replaced, the ozone flow orifice assembly was changed, the sample flow orifice, o-rings, spring, and sintered filter were replaced on January 20th.
  - 2 hours of data are missing this month in February.
  - A total of 21 hours of data was invalidated due to power failures in May.
  - 4 hours of hourly data were invalidated due to small power failures in August.

Ozone (PPB)

- Analyzer make / model – Thermo 49i, S/N: 1002240371 and Thermo 49C, S/N: 49C-54926-302
  - The O3 analyzer was installed on April 28th, and an installation calibration was performed on April 29th.
  - Because the internal pump caused vibration that potentially affected the analyzer stability, it was removed from the analyzer on May 27th. An external pump, Maxxam-supplied Thomas 607CA22 pump, was re-plumbed following the as found points.
  - A total of 21 hours of data was invalidated due to power failures in May.
  - 4 hours of hourly data were invalidated due to small power failures in August.
  - The analyzer span dropped on October 14th. The field tech performed troubleshooting by checking no loose wire and cleaning Cell A, Cell B and capaillary. Another daily calibration was run; the result was within the -10% of limited range. On October 19th, it was noticed the motherboard and interface showed status of alarm. Checked the inside cable connection, they were all OK. Then, the power was re-started. The alarms still could not be erased. It was determined that the interface board failed. The analyzer was replaced to Thermo 49C on October 20th. An installation calibration was performed on October 21st. Due to the failed interface board issue, the data was invalidated back to the last valid daily calibration date, which was October 13th. 183 hours of data were invalidated.

General Summary

AQM STATION – LICA – St. Lina

Total HydroCarbon (PPM)

- Analyzer make / model - TECO 51C, S/N: 77021-384
  - The analyzer flamed out on January 1st after the daily calibration due to a power shortage, and it was re-lit on January 2nd. 35 hours of data were invalidated due to this issue.
  - 2 hours of data are missing this month in February.
  - The analyzer did not span on February 1st. It was found that the valve on the cylinder for the THC span gas was not fully opened; opened valve, ran a daily cal- works well.
  - A power failure occurred on May 21st, which caused the analyzer to flame out. The analyzer was relit on May 22nd. 15 hours of data were invalidated due to this issue. After the analyzer was relit, the data seems to shift a little bit. The span drifts were still within +/- 10% limited range. As a result, the data were kept. Data between May 22nd and May 26th (before the monthly calibration) should be used with caution.
  - A power failure occurred on May 29th, which caused the analyzer to flame out. The analyzer was relit on May 30th. One hour of data was invalidated.
  - A total of 21 hours of data was invalidated due to power failures in May.
  - A power failure occurred on June 19th, which caused the analyzer to flame out. The analyzer was relit on June 21st. 41 hours of data were invalidated.
  - A power failure occurred on July 9th, which caused the analyzer to flame out. The analyzer was relit on July 12th. 62 hours of data were invalidated.
  - The analyzer flamed out again on July 30th due to a power failure, and it was re-lit on the same day. 11 hours of data were invalidated.
  - 4 hours of hourly data were invalidated due to small power failures in August.
  - A power failure occurred on August 11th, which caused the analyzer to flame out. The analyzer was relit on August 12th. 19 hours of data were invalidated due to this issue.

General Summary

AQM STATION – LICA – St. Lina

Particulate Matter 2.5 (UG/M3)

- Analyzer make / model – Thermo Scientific Series 1405F, S/N: 1405A208301003
  - The unit was installed on August 18th following an installation calibration/audit. The total operational time was 321 hours.
  - 2 hours of data were invalidated because the readings were below –3 in August.
  - There were three 24-hour average readings above guidelines. The contraventions were reported to AENV on August 20th. The AENV Ref# is 239387.
  - 4 hours of data were invalidated because the readings were below –3 in September.
  - Eighteen hours of data were invalidated as the data were below –3 ug/m3 in November.

Temperature (Degree C)

- Analyzer make / model – Met One 060
  - The temperature sensor was installed on August 18th, and it was started collecting data on August 19th. The total operational time was 298 hours.

Barometric Pressure (Millibar)

- Analyzer make / model - Met One 092
  - The BP sensor was installed on August 18th. The total operational time was 320 hours.

Relative Humidity (%)

- Analyzer make / model - Met One 083
  - The RH sensor was installed on August 18th, and it was started collecting data on August 19th. The total operational time was 298 hours.

General Summary

AQM STATION – LICA – St. Lina

Precipitation (MM)

- Analyzer make / model - Met One 387
  - The BP sensor was installed on August 18th. The total operational time was 320 hours.
  - A power chord for the tipping bucket heater was installed and the inner screen was removed on September 16th.

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

- System make / model – Met 50.5, S/N: H12635
  - 2 hours of data are missing this month in February.
  - 1 hour of data is missing on March 30th, hour of 5.
  - The wind system failed on May 20th at 19:00. The sensor was removed from the station and sent to factory for repair on May 21st.The wind system was put back to the tower on May 28th. 188 hours of data during this period of time were invalidated.
  - A total of 21 hours of data was invalidated due to power failures in May.
  - The Maxxam-supplied RM Young wind system was removed on July 9th, and a Met One 50.5 wind system was installed.
  - One hour of data on July 29th was invalidated due to the system malfunction.
  - 4 hours of hourly data were invalidated due to small power failures in August.
  - Two hours of data on October 23rd were invalidated due to the system malfunction.
  - Wind system failed on October 24th due to snow accumulation on the wind system. Performed troubleshooting by plugging the heater in on October 25th. 32 hours of data were invalidated.

Datalogger

- System make / model - ESC 8832, S/N: AO717
- Software make / version - ESC v 5.51a

The ESC 8832 is connected to a modem with DSL for continuous connection with the base computer.
No issue was recorded this month.

General Summary

AQM STATION – LICA – St. Lina

Trailer

- It was noticed that manifold inlet had excessive frost build up on the trip of January 21st. The frost was cleared from the inlet opening and the area around the opening. Airflow was observed through the manifold prior to frost removal.

Continuous Monitoring

Annual Summaries Graphs & Wind Roses

Sulphur Dioxide

Current Date : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	707	0	5	0
February	672	636	0	5	0
March	744	707	0	5	0
April	720	682	0	2	0
May	744	681	0	5	0
June	720	681	0	4	0
July	744	702	0	2	0
August	744	694	0	3	0
September	720	685	0	3	0
October	744	697	0	6	1
November	720	685	0	5	0
December	744	707	0	4	1
Yearly Total	8760	8264	0	6	0

SO_2 Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO_2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO_2 ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	636	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	681	97.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	681	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	704	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	694	99.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
October	697	98.8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
									Annual Average		**0.00**

C - Concentration

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

SO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	SO2 ppb Peak Reading
January	5
February	5
March	5
April	1
May	4
June	3
July	2
August	2
September	3
October	6
November	4
December	4

ANNUAL PEAK	**6**

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	5.32	3.81	4.17	5.84	6.32	5.69	5.61	6.66	7.15	7.16	7.56	5.13	6.39	7.40	8.50	7.20	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	5.32	3.81	4.17	5.84	6.32	5.69	5.61	6.66	7.15	7.16	7.56	5.13	6.39	7.40	8.50	7.20	

Calm : .00 %

Total # Operational Hours : 8063

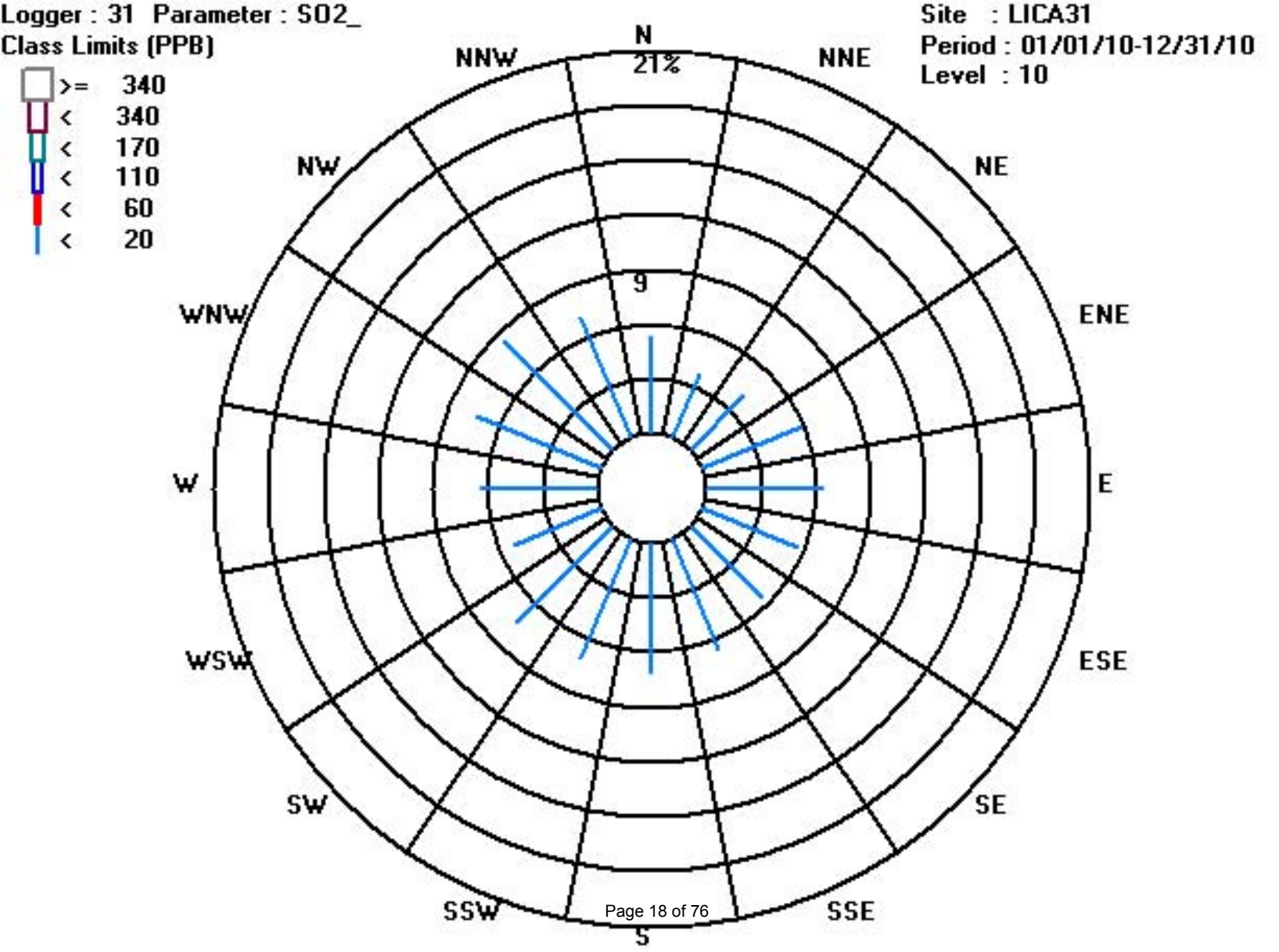
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	429	308	337	471	510	459	453	537	577	578	610	414	516	597	686	581	8063
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	429	308	337	471	510	459	453	537	577	578	610	414	516	597	686	581	

Calm : .00 %

Total # Operational Hours : 8063


Logger : 31 Parameter : SO2_
Class Limits (PPB)
>= 340
< 340
< 170
< 110
< 60
< 20
Site : LICA31
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Hydrogen Sulphide

Current Date : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	707	0	1	0
February	672	634	0	1	0
March	744	707	0	2	0
April	720	679	0	1	0
May	744	685	0	1	0
June	720	685	0	2	0
July	744	705	0	2	0
August	744	693	0	3	0
September	720	685	0	1	0
October	744	703	0	1	0
November	720	646	0	2	0
December	744	702	0	2	0
Yearly Total	8760	8231	0	3	0

H_2S Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppb H2S)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines
			0 to 3 ppb	4 to 10 ppb	11 to 50 ppb	>50 ppb		
January	707	100.0	100.0%	0.0%	0.0%	0.0%	0	0
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0	0
March	707	100.0	100.0%	0.0%	0.0%	0.0%	0	0
April	679	99.7	100.0%	0.0%	0.0%	0.0%	0	0
May	685	97.2	100.0%	0.0%	0.0%	0.0%	0	0
June	685	100.0	100.0%	0.0%	0.0%	0.0%	0	0
July	705	100.0	100.0%	0.0%	0.0%	0.0%	0	0
August	693	99.5	100.0%	0.0%	0.0%	0.0%	0	0
September	685	100.0	100.0%	0.0%	0.0%	0.0%	0	0
October	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0
November	646	94.0	100.0%	0.0%	0.0%	0.0%	0	0
December	702	99.7	100.0%	0.0%	0.0%	0.0%	0	0
							Annual Average	

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

H2S Peak Reading of One Hour Averages for 2010

Plant Operator: LICA

Plant Location: ST. LINA

Month	H2S ppb Peak Reading
January	1
February	0
March	1
April	0
May	0
June	2
July	2
August	2
September	1
October	1
November	1
December	1

ANNUAL PEAK	**2**

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	5.28	3.77	4.13	5.73	6.34	5.69	5.64	6.76	7.14	7.20	7.61	5.17	6.41	7.46	8.46	7.14	99.98
<	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.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
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	5.28	3.77	4.13	5.73	6.34	5.69	5.64	6.76	7.14	7.21	7.61	5.17	6.41	7.46	8.46	7.14	

Calm : .00 %

Total # Operational Hours : 8025

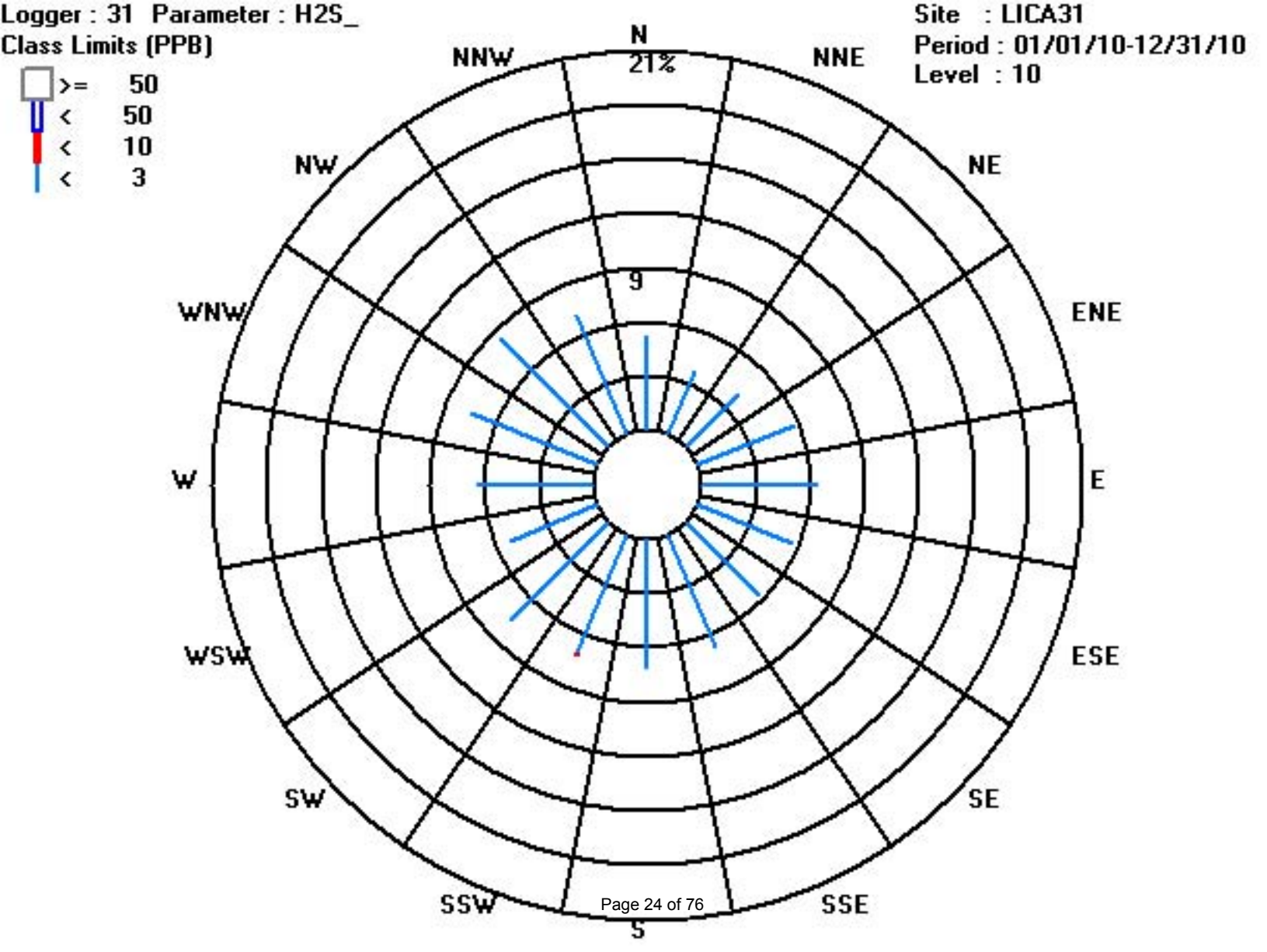
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	424	303	332	460	509	457	453	543	573	578	611	415	515	599	679	573	8024
<	10										1							1
<	50																	
>=	50																	
	Totals	424	303	332	460	509	457	453	543	573	579	611	415	515	599	679	573	

Calm : .00 %

Total # Operational Hours : 8025


Logger : 31 Parameter : H2S_
Class Limits (PPB)
>= 50
< 50
< 10
< 3
Site : LICA31
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Total Hydrocarbons

Current Date : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	670	2	9.5	2.4
February	672	635	2.1	4.3	2.4
March	744	707	1.8	3.2	2.2
April	720	684	2	3	2.2
May	744	670	1.9	2.8	2.1
June	696	645	1.8	3	2
July	696	630	1.7	2.9	2
August	744	672	1.8	2.9	2.1
September	720	685	1.9	2.9	2.1
October	744	706	1.9	2.9	2.1
November	720	681	1.8	3.4	2.2
December	744	704	2	6	2.5
Yearly Total	8688	8089	1.7	9.5	2.2

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	670	95.3	93.6%	6.4%	0.0%	0.0%	2.37
February	635	99.7	96.5%	3.5%	0.0%	0.0%	2.34
March	707	100.0	99.9%	0.1%	0.0%	0.0%	2.11
April	684	100.0	100.0%	0.0%	0.0%	0.0%	2.16
May	670	94.9	100.0%	0.0%	0.0%	0.0%	2.05
June	645	94.3	100.0%	0.0%	0.0%	0.0%	1.98
July	630	90.2	100.0%	0.0%	0.0%	0.0%	1.98
August	672	96.8	100.0%	0.0%	0.0%	0.0%	2.00
September	685	100.0	100.0%	0.0%	0.0%	0.0%	2.03
October	706	100.0	100.0%	0.0%	0.0%	0.0%	2.06
November	681	99.9	99.0%	1.0%	0.0%	0.0%	2.12
December	704	99.7	93.6%	6.4%	0.0%	0.0%	2.40
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**2.13**

THC Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	THC ppm Peak Reading
January	9.4
February	4.3
March	3.2
April	2.9
May	2.8
June	3.0
July	2.8
August	2.8
September	2.8
October	2.9
November	3.3
December	6
ANNUAL PEAK	**9.4**

LICA31
THC / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	5.19	3.62	4.00	5.59	5.91	5.43	5.36	6.63	7.04	6.98	7.40	5.16	6.38	7.61	8.44	7.15	97.96
<	10.0	.06	.03	.12	.31	.50	.29	.20	.10	.10	.06	.08	.02	.02	.00	.06	.02	2.03
<	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	5.25	3.65	4.12	5.91	6.42	5.72	5.57	6.73	7.14	7.05	7.49	5.19	6.40	7.61	8.50	7.17	

Calm : .00 %

Total # Operational Hours : 7897

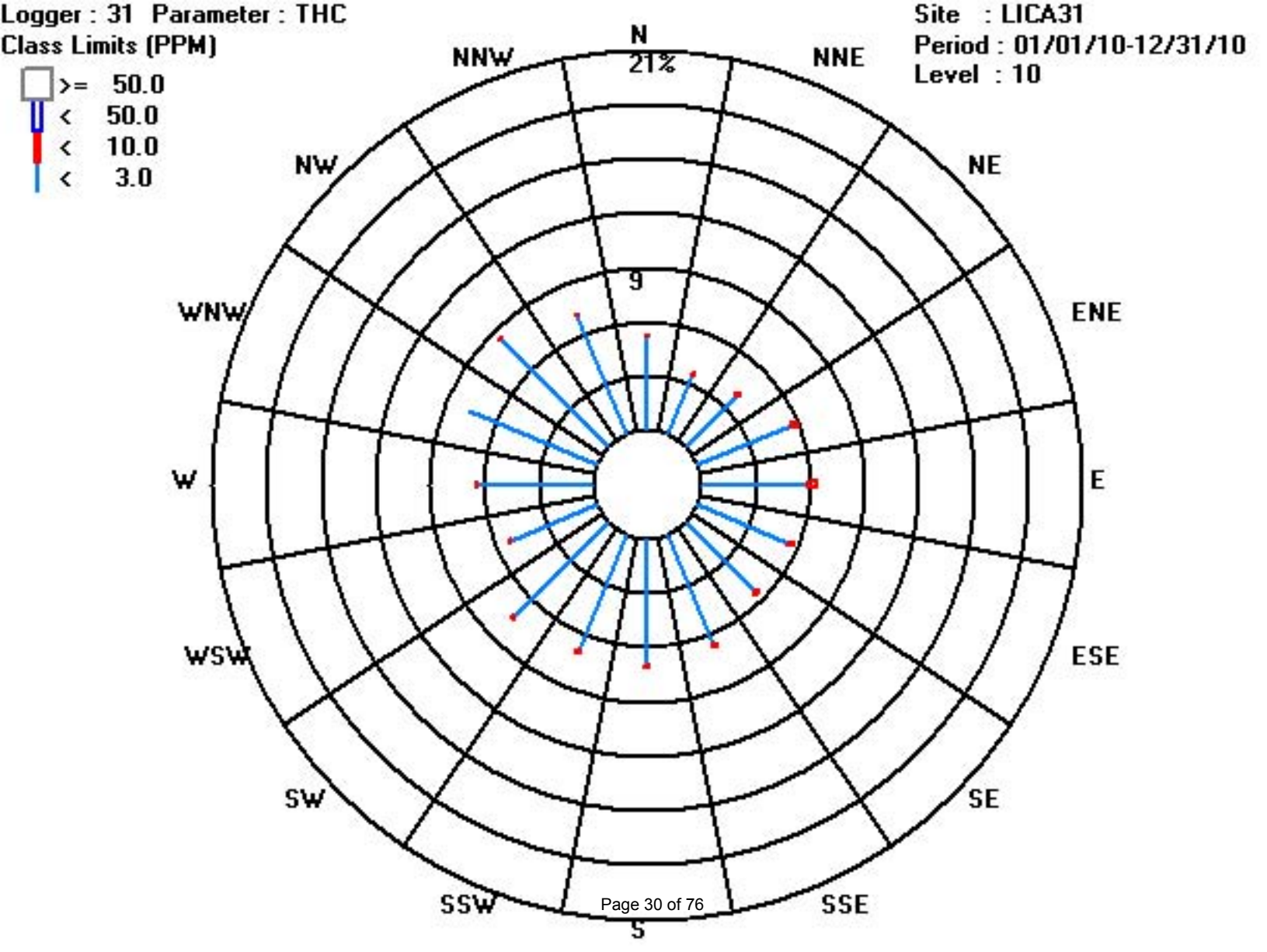
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	410	286	316	442	467	429	424	524	556	552	585	408	504	601	667	565	7736
<	10.0	5	3	10	25	40	23	16	8	8	5	7	2	2		5	2	161
<	50.0																	
>=	50.0																	
	Totals	415	289	326	467	507	452	440	532	564	557	592	410	506	601	672	567	

Calm : .00 %

Total # Operational Hours : 7897


Logger : 31 Parameter : THC
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA31
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Ozone

Current Date : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	0	0			
April	48	27	23	38	31
May	744	686	7	61	37
June	720	683	10	65	33
July	744	706	8	51	26
August	744	696	4	53	24
September	720	685	8	43	24
October	576	532	2	44	25
November	720	685	1	40	25
December	744	708	1	37	23
Yearly Total	5760	5408	1	65	27

O3 Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm O3)				O3 ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	NA	NA	NA	NA	NA	NA	NA
February	NA	NA	NA	NA	NA	NA	NA
March	NA	NA	NA	NA	NA	NA	NA
April	NA	NA	NA	NA	NA	NA	NA
May	686	97.3	88.2%	11.8%	0.0%	0.0%	0.04
June	683	100.0	96.8%	3.2%	0.0%	0.0%	0.03
July	706	100.0	100.0%	0.0%	0.0%	0.0%	0.03
August	696	99.5	99.4%	0.6%	0.0%	0.0%	0.02
September	685	100.0	100.0%	0.0%	0.0%	0.0%	0.02
October	532	75.4	100.0%	0.0%	0.0%	0.0%	0.02
November	685	100.0	100.0%	0.0%	0.0%	0.0%	0.02
December	708	100.0	100.0%	0.0%	0.0%	0.0%	0.02
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.03**

O3 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: ST. LINA

Month	O3 ppb Peak Reading
January	NA
February	NA
March	NA
April	NA
May	61
June	64
July	50
August	53
September	43
October	43
November	40
December	37
ANNUAL PEAK	**64**

LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	5.70	4.34	4.74	6.11	5.55	4.67	4.03	4.44	5.67	5.99	7.93	5.67	7.80	8.03	8.82	7.84	97.40
<	110	.21	.07	.05	.05	.17	.09	.23	.17	.05	.32	.21	.46	.07	.15	.17	.05	2.59
<	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	5.92	4.42	4.80	6.17	5.72	4.76	4.26	4.61	5.72	6.32	8.15	6.13	7.88	8.18	8.99	7.90	

Calm : .00 %

Total # Operational Hours : 5202

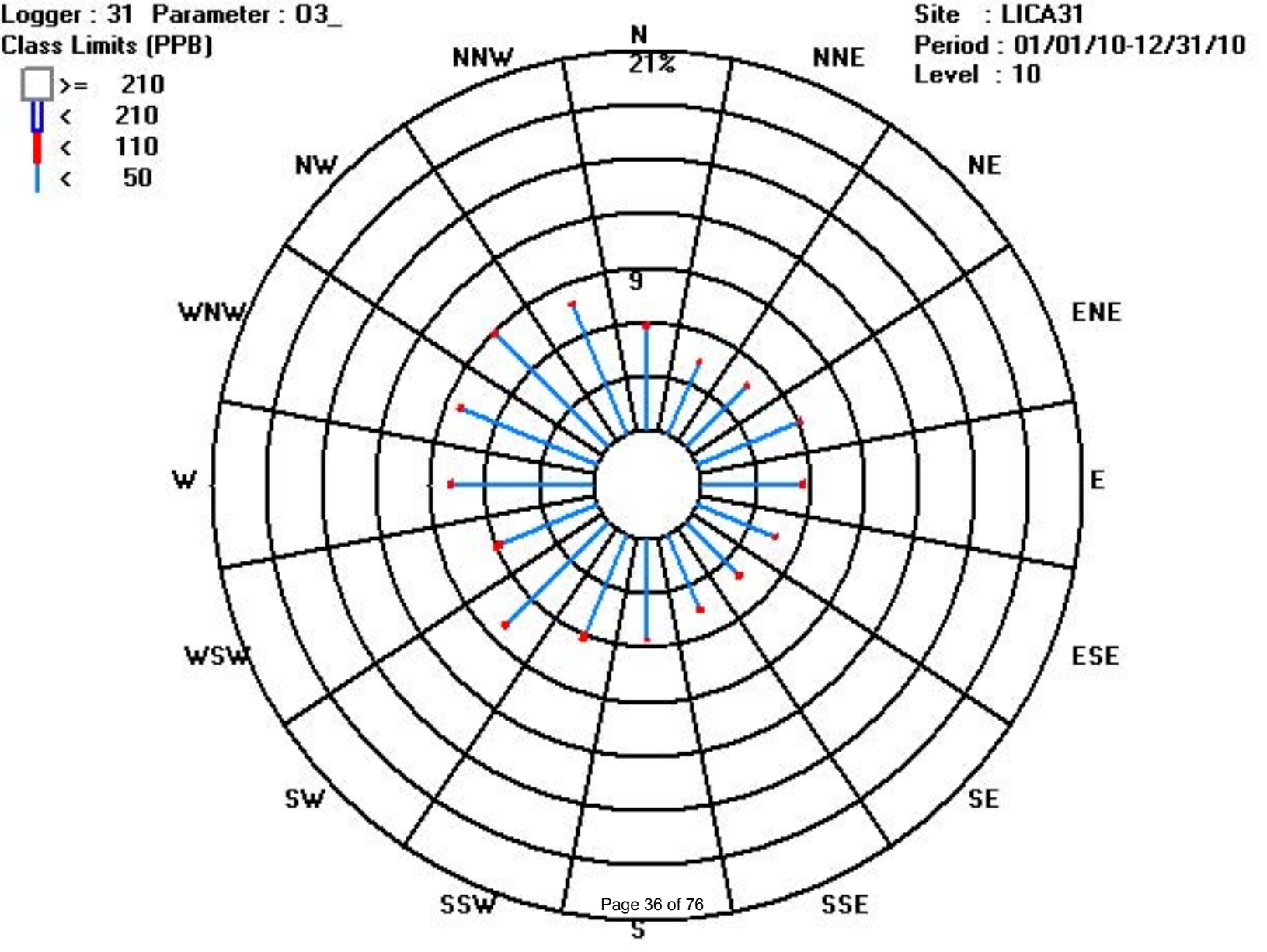
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	297	226	247	318	289	243	210	231	295	312	413	295	406	418	459	408	5067
<	110	11	4	3	3	9	5	12	9	3	17	11	24	4	8	9	3	135
<	210																	
>=	210																	
	Totals	308	230	250	321	298	248	222	240	298	329	424	319	410	426	468	411	

Calm : .00 %

Total # Operational Hours : 5202


Logger : 31 Parameter : 03_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA31
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitrogen Dioxide

Current Date : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	695	0	25	4
February	672	634	0	15	4
March	744	704	0	27	3
April	720	682	0	7	1
May	744	683	0	5	1
June	720	680	0	7	1
July	744	703	0	4	0
August	744	691	0	8	1
September	720	682	0	7	2
October	744	702	0	17	3
November	720	681	0	27	4
December	744	699	0	29	5
Yearly Total	8760	8236	0	29	2

NO_2 Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO_2)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	NO_2 ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm			
January	695	99.1	100.0%	0.0%	0.0%	0.0%	0	0	0.00
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.00
March	704	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
May	683	97.3	100.0%	0.0%	0.0%	0.0%	0	0	0.00
June	680	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
July	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
August	691	99.5	100.0%	0.0%	0.0%	0.0%	0	0	0.00
September	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
October	702	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
November	681	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
December	699	99.7	100.0%	0.0%	0.0%	0.0%	0	0	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours							Annual Average		**0.00**

NO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: ST. LINA

Month	NO2 ppb Peak Reading
January	25
February	14
March	26
April	7
May	5
June	6
July	3
August	8
September	7
October	17
November	26
December	28
ANNUAL PEAK	**28**

LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	5.29	3.80	4.23	5.70	6.34	5.72	5.63	6.70	7.12	7.22	7.50	5.19	6.33	7.50	8.51	7.14	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	5.29	3.80	4.23	5.70	6.34	5.72	5.63	6.70	7.12	7.22	7.50	5.19	6.33	7.50	8.51	7.14	

Calm : .00 %

Total # Operational Hours : 8033

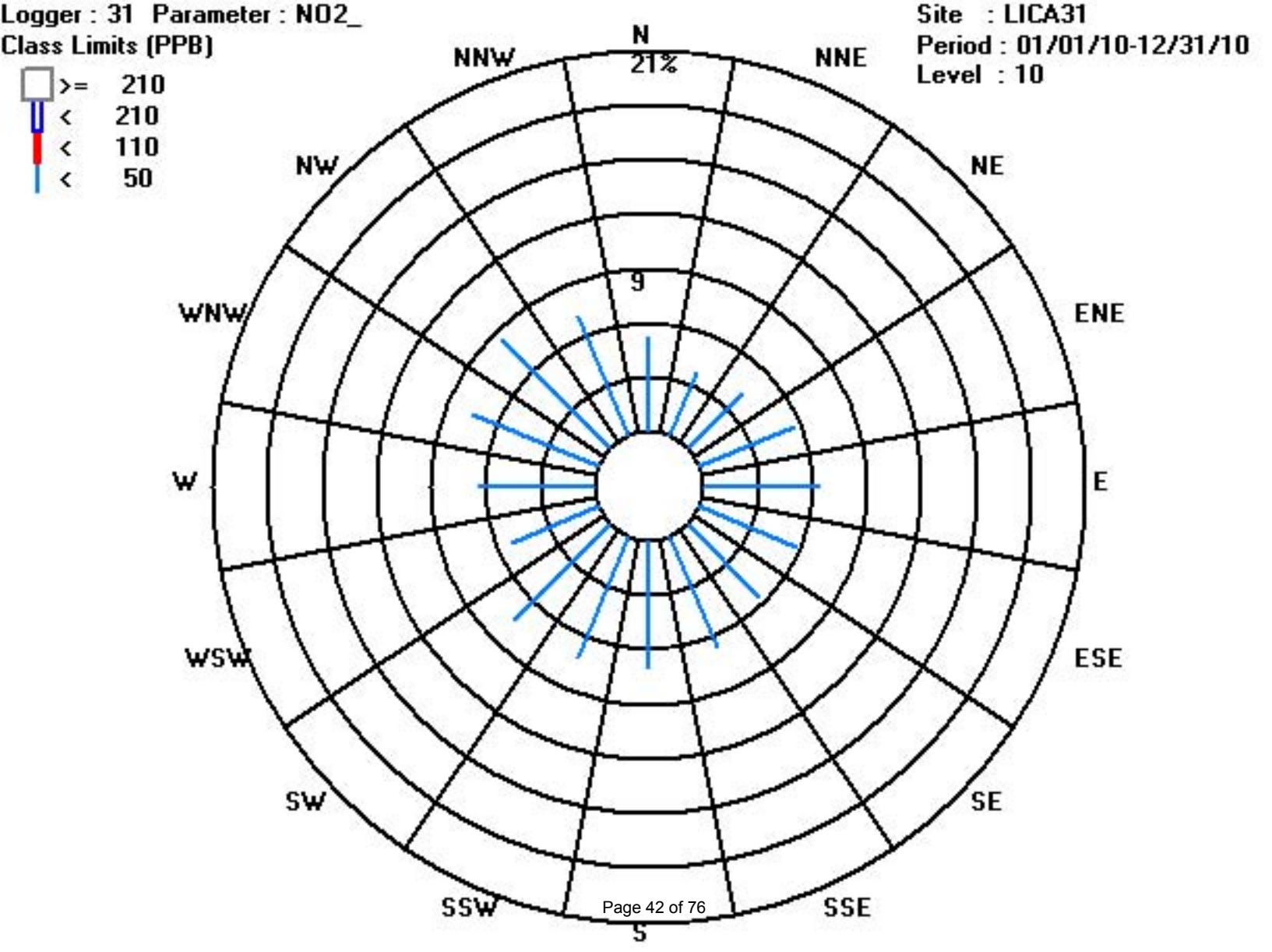
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	425	306	340	458	510	460	453	539	572	580	603	417	509	603	684	574	8033
<	110																	
<	210																	
>=	210																	
	Totals	425	306	340	458	510	460	453	539	572	580	603	417	509	603	684	574	

Calm : .00 %

Total # Operational Hours : 8033


Logger : 31 Parameter : NO2_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA31
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitric Oxide

Current Date : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	695	0	6	1
February	672	634	0	8	1
March	744	704	0	6	1
April	720	682	0	2	0
May	744	683	0	2	0
June	720	680	0	2	0
July	744	703	0	3	1
August	744	691	0	6	0
September	720	682	0	3	0
October	744	702	0	6	0
November	720	681	0	10	1
December	744	699	0	14	1
Yearly Total	8760	8236	0	14	0

NO Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: ST. LINA

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO)				NO ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	695	99.1	100.0%	0.0%	0.0%	0.0%	0.00
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0.00
March	704	100.0	100.0%	0.0%	0.0%	0.0%	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	683	97.3	100.0%	0.0%	0.0%	0.0%	0.00
June	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
August	691	99.5	100.0%	0.0%	0.0%	0.0%	0.00
September	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	702	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	699	99.7	100.0%	0.0%	0.0%	0.0%	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO Peak reading of One Hour Averages for 2010

Plant Operator: LICA Station: ST. LINA

Month	NO ppb Peak Reading
January	5
February	7
March	5
April	2
May	1
June	1
July	3
August	6
September	2
October	5
November	9
December	13
ANNUAL PEAK	**13**

LICA31
NO_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	5.29	3.80	4.23	5.70	6.34	5.72	5.63	6.70	7.12	7.22	7.50	5.19	6.33	7.50	8.51	7.14	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	5.29	3.80	4.23	5.70	6.34	5.72	5.63	6.70	7.12	7.22	7.50	5.19	6.33	7.50	8.51	7.14	

Calm : .00 %

Total # Operational Hours : 8033

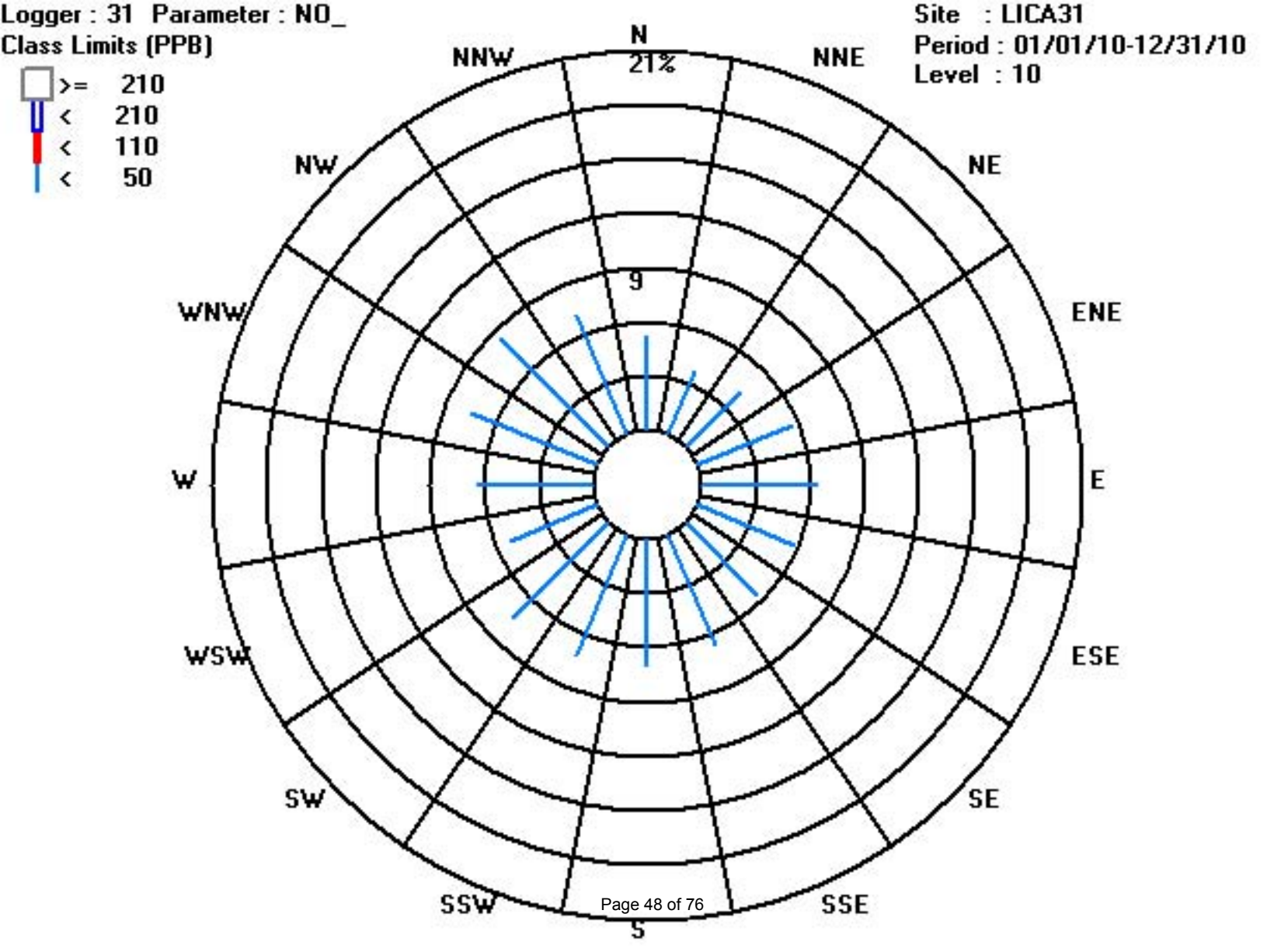
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	425	306	340	458	510	460	453	539	572	580	603	417	509	603	684	574	8033
<	110																	
<	210																	
>=	210																	
	Totals	425	306	340	458	510	460	453	539	572	580	603	417	509	603	684	574	

Calm : .00 %

Total # Operational Hours : 8033


Logger : 31 Parameter : NO_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA31
Period : 01/01/10-12/31/10
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 : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	695	0	27	5
February	672	634	0	16	4
March	744	704	0	31	4
April	720	682	0	8	1
May	744	683	0	7	1
June	720	680	0	8	1
July	744	703	0	5	1
August	744	691	0	9	1
September	720	682	0	8	2
October	744	702	0	17	3
November	720	681	0	31	4
December	744	699	0	36	5
Yearly Total	8760	8236	0	36	3

NO_x Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: ST. LINA

Month	Number of Readings	Opeartional Time (%)	% Readings in Concentration Range (ppm NOx)				NOx ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	695	99.1	100.0%	0.0%	0.0%	0.0%	0.00
February	634	99.7	100.0%	0.0%	0.0%	0.0%	0.00
March	704	100.0	100.0%	0.0%	0.0%	0.0%	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	683	97.3	100.0%	0.0%	0.0%	0.0%	0.00
June	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
August	691	99.5	100.0%	0.0%	0.0%	0.0%	0.00
September	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	702	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	699	99.7	100.0%	0.0%	0.0%	0.0%	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO_x Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: ST. LINA

Month	NOx ppb Peak Reading
January	27
February	16
March	30
April	7
May	6
June	7
July	5
August	8
September	7
October	17
November	31
December	36
ANNUAL PEAK	**36**

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	5.29	3.80	4.23	5.70	6.34	5.72	5.63	6.70	7.12	7.22	7.50	5.19	6.33	7.50	8.51	7.14	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	5.29	3.80	4.23	5.70	6.34	5.72	5.63	6.70	7.12	7.22	7.50	5.19	6.33	7.50	8.51	7.14	

Calm : .00 %

Total # Operational Hours : 8033

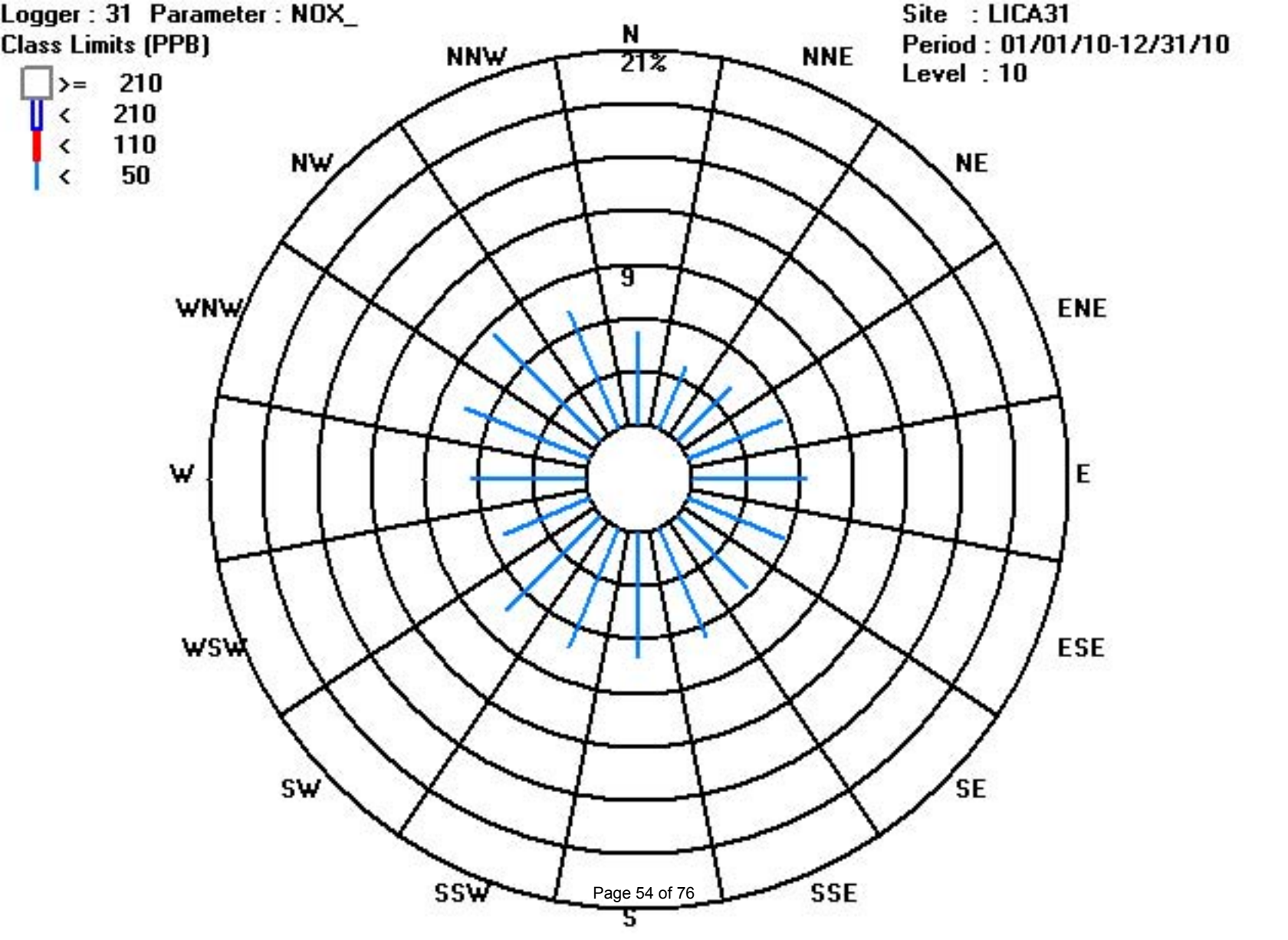
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	425	306	340	458	510	460	453	539	572	580	603	417	509	603	684	574	8033
<	110																	
<	210																	
>=	210																	
	Totals	425	306	340	458	510	460	453	539	572	580	603	417	509	603	684	574	

Calm : .00 %

Total # Operational Hours : 8033


Logger : 31 Parameter : NOX_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA31
Period : 01/01/10-12/31/10
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 : 03/14/11
Current Time : 08:49

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	0	0			
April	0	0			
May	0	0			
June	0	0			
July	0	0			
August	336	312	0	446.6	23.2
September	720	711	0	13.2	3.3
October	744	740	0	19.4	4.8
November	720	695	0	74.5	8.3
December	744	740	0	43	8.5
Yearly Total	3264	3198	0	446.6	7.9

PM 2.5 Monthly Averages and Frequency Distributions of Daily Average Readings - 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ug/m^3)						Total Daily Readings > 30 ug/m3	$PM2.5$ ug/m^3 Monthly Average
			≤ 30 ug/m^3	30 < C ≤ 60 ug/m^3	60 < C ≤ 80 ug/m^3	80 < C ≤ 120 ug/m^3	120 < C ≤ 240 ug/m^3	> 240 ug/m^3		
January	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
February	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
March	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
April	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
June	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
July	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
August	312	99.4	89.4%	3.5%	2.2%	0.0%	1.9%	2.9%	3	23.13
September	711	99.2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	3.28
October	740	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	4.76
November	695	96.7	98.1%	1.7%	0.0%	0.0%	0.0%	0.0%	0	8.30
December	740	99.7	99.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0	8.47
									Annual Average	**9.59**

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

PM 2.5 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA

Plant Location: ST. LINA

Month	PM 2.5 (ug/m3) Peak Reading
January	NA
February	NA
March	NA
April	NA
May	NA
June	NA
July	NA
August	447
September	13
October	19
November	75
December	43
ANNUAL PEAK	**447**

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	4.45	3.12	4.89	7.07	5.94	6.00	4.61	5.49	6.06	5.49	7.07	5.62	7.04	8.15	9.22	8.05	98.38
<	60.0	.06	.06	.00	.03	.00	.00	.00	.00	.03	.03	.03	.03	.18	.06	.12	.22	.88
<	80.0	.00	.03	.03	.00	.03	.03	.00	.00	.00	.03	.00	.00	.03	.06	.00	.00	.25
<	120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.06	.03	.03	.00	.00	.18
>=	240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.06	.00	.09	.06	.03	.00	.28
	Totals	4.51	3.22	4.93	7.11	5.97	6.03	4.61	5.49	6.09	5.59	7.23	5.72	7.39	8.37	9.38	8.28	

Calm : .00 %

Total # Operational Hours : 3164

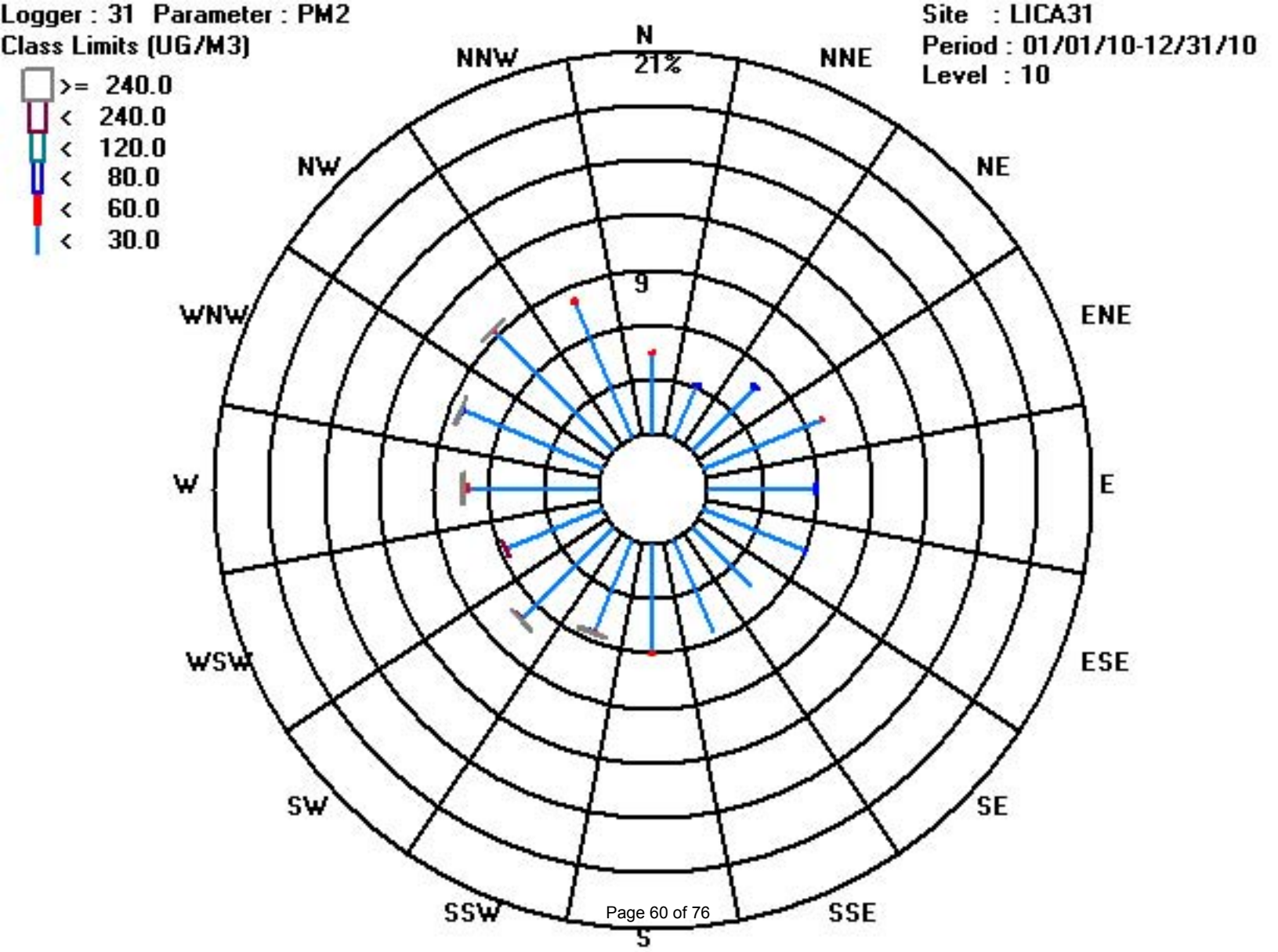
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	141	99	155	224	188	190	146	174	192	174	224	178	223	258	292	255	3113
<	60.0	2	2		1					1	1	1	1	6	2	4	7	28
<	80.0		1	1		1	1				1			1	2			8
<	120.0																	
<	240.0											2	2	1	1			6
>=	240.0										1	2		3	2	1		9
	Totals	143	102	156	225	189	191	146	174	193	177	229	181	234	265	297	262	

Calm : .00 %

Total # Operational Hours : 3164


Logger : 31 Parameter : PM2
Class Limits (UG/M3)
>= 240.0
< 240.0
< 120.0
< 80.0
< 60.0
< 30.0
Site : LICA31
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Temperature

Current Date : 03/14/11
Current Time : 08:49

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	0	0			
April	0	0			
May	0	0			
June	0	0			
July	0	0			
August	312	298	5.6	24.9	12.8
September	720	720	-4.5	25.5	9.3
October	744	744	-8.6	23.3	6.2
November	720	720	-30.6	12.2	-6.3
December	744	744	-25.1	0	-14.5
Yearly Total	3240	3226	-30.6	25.5	0

Temperature - Monthly Averages for 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Operational Time (%)	Monthly Average (Deg.C)	Maximum Hourly Average (Deg C)	Minimum Hourly Average (Deg C)	Maximum Daily Average (Deg C)
January	NA	NA	NA	NA	NA
February	NA	NA	NA	NA	NA
March	NA	NA	NA	NA	NA
April	NA	NA	NA	NA	NA
May	NA	NA	NA	NA	NA
June	NA	NA	NA	NA	NA
July	NA	NA	NA	NA	NA
August	100.0	12.79	24.8	5.6	18.2
September	100.0	9.28	25.5	-4.4	15.4
October	100.0	6.14	23.2	-8.5	15.3
November	100.0	-6.28	12.2	-30.6	7.1
December	100.0	-14.43	-4.2	-25.0	-7.6
ANNUAL AVERAGE		**1.50**	**-**	**-**	-

Barometric Pressure

Current Date : 03/14/11
Current Time : 08:49

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	0	0			
April	0	0			
May	0	0			
June	0	0			
July	0	0			
August	336	319	912	942	928
September	720	720	919	943	931
October	744	744	908	945	929
November	720	720	910	948	927
December	744	744	901	940	925
Yearly Total	3264	3247	901	948	928

BAROMETRIC PRESSURE - Monthly Averages for 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Operational Time (%)	Monthly Average (millibar)	Maximum Hourly Average (millibar)	Maximum Daily Average (millibar)
January	NA	NA	NA	NA
February	NA	NA	NA	NA
March	NA	NA	NA	NA
April	NA	NA	NA	NA
May	NA	NA	NA	NA
June	NA	NA	NA	NA
July	NA	NA	NA	NA
August	99.7	927	942	939.0
September	100.0	930	942	939.8
October	100.0	928	944	941.1
November	100.0	927	948	944.5
December	100.0	924	939	937.2
ANNUAL AVERAGE		**927**	**-**	-

Relative Humidity

Current Date : 03/14/11
Current Time : 08:49

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	0	0			
April	0	0			
May	0	0			
June	0	0			
July	0	0			
August	312	298	40	92	73
September	720	720	28	92	70
October	744	744	26	91	61
November	720	720	26	90	69
December	744	744	45	85	74
Yearly Total	3240	3226	26	92	69

Relative Humidity - Monthly Averages for 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Operational Time (%)	Monthly Average (%)	Maximum Hourly Average (%)	Maximum Daily Average (%)
January	NA	NA	NA	NA
February	NA	NA	NA	NA
March	NA	NA	NA	NA
April	NA	NA	NA	NA
May	NA	NA	NA	NA
June	NA	NA	NA	NA
July	NA	NA	NA	NA
August	100.0	72.60	91	84.7
September	100.0	69.75	91	87.5
October	100.0	60.76	90	89.8
November	100.0	68.03	90	85.0
December	100.0	73.96	84	82.3
ANNUAL AVERAGE		**69.02**	**-**	**-**

Precipitation

Current Date : 03/15/11
Current Time : 12:27

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	0	0			
February	0	0			
March	0	0			
April	0	0			
May	0	0			
June	0	0			
July	0	0			
August	336	320	0	2.8	0.1
September	720	719	0	2.1	0
October	744	743	0	1.5	0
November	720	720	0	0.4	0
December	744	744	0	1.1	0
Yearly Total	3264	3246	0	2.8	0

PRECIPITATION - Monthly Averages for 2010

Plant Operator: LICA Plant Location: ST. LINA

Month	Operational Time (%)	Monthly Averages (MM)	Maximum Hourly Average (MM)	Maximum Daily Average (MM)	Monthly Total (MM)
January	NA	NA	NA	NA	NA
February	NA	NA	NA	NA	NA
March	NA	NA	NA	NA	NA
April	NA	NA	NA	NA	NA
May	NA	NA	NA	NA	NA
June	NA	NA	NA	NA	NA
July	NA	NA	NA	NA	NA
August	100.0	0.07	2.8	12.3	21.3
September	100.0	0.04	2.1	10.0	29.5
October	99.9	0.01	1.5	3.7	8.9
November	100.0	0.00	0.4	1.0	2.5
December	100.0	0.01	1.1	3.5	8.3
ANNUAL AVERAGE		**0.03**	**-**	**-**	-

Vector Wind Speed

Current Date : 03/14/11
Current Time : 08:48

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

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

	Readings	Valid Readings	Min	Max	Mean
January	744	744	0.4	26.4	10.6
February	672	670	1.5	20.5	10
March	744	743	0.5	29.5	12.3
April	720	720	1.5	39	14.6
May	576	539	0.6	27.3	10.4
June	720	720	0.2	29.2	9.4
July	744	741	0.7	28.7	9.2
August	744	739	0.8	30.5	9.7
September	720	720	0.6	30.5	9.8
October	744	710	1	24.2	10.3
November	720	720	0.6	20.8	9.5
December	744	744	0.5	20.8	10.6
Yearly Total	8592	8510	0.2	39	10.5

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

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	.88	.83	.90	.76	.72	.65	.72	.55	.68	.99	1.26	.88	1.02	.89	1.09	1.04	13.93
<	12.0	2.85	2.19	2.57	2.87	3.05	2.51	2.18	2.58	4.15	4.59	4.31	2.58	3.49	3.56	4.48	3.76	51.79
<	20.0	1.46	.69	.65	2.15	2.29	2.44	2.53	3.32	2.27	1.41	1.77	1.33	1.52	2.27	2.26	2.02	30.47
<	29.0	.02	.04	.17	.05	.15	.09	.10	.24	.09	.03	.18	.41	.31	.59	.45	.30	3.31
<	39.0	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.01	.04	.17	.08	.00	.32
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
	Totals	5.22	3.77	4.31	5.85	6.22	5.71	5.55	6.72	7.21	7.03	7.54	5.22	6.40	7.50	8.40	7.13	

Calm : .14 %

Total # Operational Hours : 8510

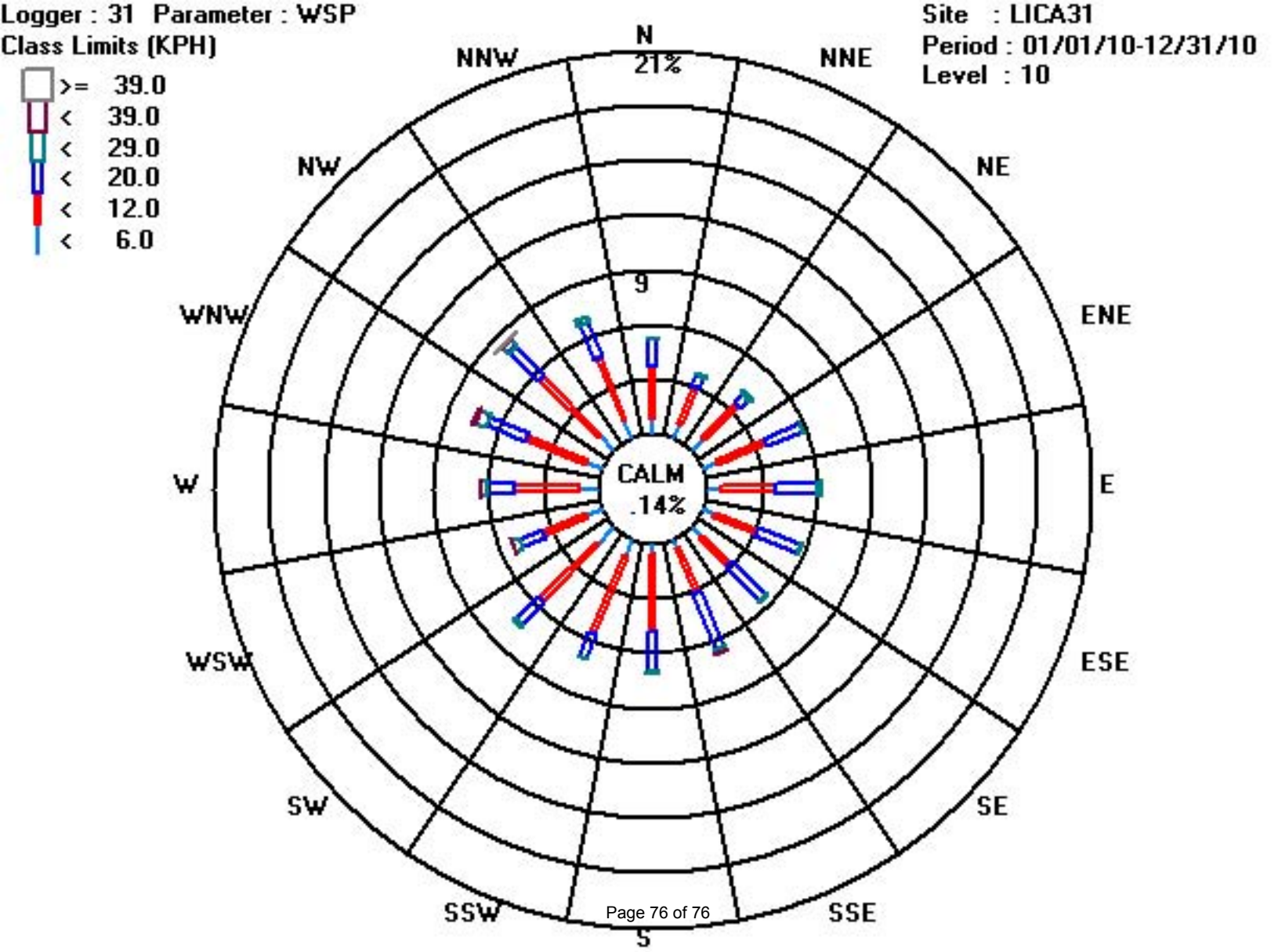
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	75	71	77	65	62	56	62	47	58	85	108	75	87	76	93	89	1186
<	12.0	243	187	219	245	260	214	186	220	354	391	367	220	297	303	382	320	4408
<	20.0	125	59	56	183	195	208	216	283	194	120	151	114	130	194	193	172	2593
<	29.0	2	4	15	5	13	8	9	21	8	3	16	35	27	51	39	26	282
<	39.0								1				1	4	15	7		28
>=	39.0															1		1
	Totals	445	321	367	498	530	486	473	572	614	599	642	445	545	639	715	607	

Calm : .14 %

Total # Operational Hours : 8510


Logger : 31 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA31
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9
CALM
.14%

Lakeland Industry & Community Association

Portable / Devon Wellsite 13-16-62-5 W4M Monitoring Site
Ambient Annual Data Report

For
2010

Prepared By:

March 15, 2011

Lakeland Industry & Community Association
Portable / Devon Wellsite 13-16-62-5 W4M
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 / Devon Wellsite 13-16-62-5 W4M
Data Period: January 2010 to December 2010

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

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 Summary

Equipment Operation

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

AQM STATION – LICA – PORTABLE

A trailer audit was performed by Alberta Environment on August 26th.

Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 467
  - One hour of data is missing on January 14th.
  - One hour of data is missing on February 15th.
  - One hour of data is missing on March 30th.
  - The analyzer did not span on July 9th. During the trip on July 12th, it was noticed that the analyzer had a failure alarm. The alarm could not be clear and all the function buttons were frozen. The issue is likely due to an electronic storm causing analyzer CPU to hang up. Restarted the analyzer to clear the alarm and allowed the analyzer to stabilize. Data was invalidated back to the point when the analyzer failed on July 8th. 84 hours of data were invalidated.
  - Four hours of data were invalidated due to a power failure on July 30th.

Hydrogen Sulphuide (PPB)

- Analyzer make / model - API 101E, S/N: 509
  - One hour of data is missing on January 14th.
  - One hour of data is missing on February 15th.
  - One hour of data is missing on March 30th.
  - Four hours of data were invalidated due to a power failure on July 30th.

General Summary

AQM STATION – LICA – PORTABLE

Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 593
  - ❖ Two faults appeared on the NOx analyzer on January 7th; the faults were “OZONE FLOW WARNING” and “OZONE GENERATOR OFF”. The ozone orifice, sintered filter, and o-rings in the orifice holder were replaced on January 7th. After the troubleshooting, the daily calibration program for NO2 channel was started. The results for the daily cal were OK. The data was invalidated back to the last valid daily calibration time, which was January 6th. A total of 23 hours of data was invalidated.
  - ❖ One hour of data is missing on February 15th.
  - ❖ One hour of data is missing on March 30th.
  - ❖ During the initial as found points performed on March 4th, the NO2 values were going excessively negative. Suspect a cal gear issue. Performed a single GPT point to verify converter efficiency. Following the as found points, the reaction cell and window were cleaned, the sample orifice and sintered filter, the ozone sintered filter, and the reaction cell o-rings were replaced. A post maintenance calibration was performed on March 5th.
  - ❖ The analyzer did not span on July 9th. During the trip on July 12th, it was noticed that the analyzer had a failure alarm. The alarm could not be clear and all the function buttons were frozen. The issue is likely due to an electronic storm causing analyzer CPU to hang up. Restarted the analyzer to clear the alarm and allowed the analyzer to stabilize. Data was invalidated back to the point when the analyzer failed on July 8th. 84 hours of data were invalidated.
  - ❖ Starting at 22:00 on July 24th the analyzer was reading incorrectly due to another electronic storm. The analyzer was restarted, and it was allowed time to stabilize. A daily calibration was then run. 10 hours of data were invalidated.
  - ❖ Four hours of data were invalidated due to a power failure on July 30th.

General Summary

AQM STATION – LICA – PORTABLE

Ozone (PPB)

- Analyzer make / model - API 700, S/N: 446 and Thermo 49i, S/N: 1002240372
  - One hour of data is missing on January 14th.
  - One hour of data is missing on February 15th.
  - A fault was noticed on the analyzer for "ORIFICE FLOW WARNING" upon arrival on February 16th. Cleared the fault, all test function appeared normal; analyzer is functioning normally.
  - One hour of data is missing on March 30th.
  - It was found that the screen on the analyzer was blank and the fault LED was lit up on March 2nd. Performed troubleshooting and determined that it is likely the analyzer has experienced a temporary issue that rendered the screen inoperative; the measurement capabilities of the analyzer do not seem to have been effected.
  - The analyzer had a "SYSTEM RESET" fault on March 8th; this usually indicates a power failure has occurred, cleared the fault.
  - A removal calibration of the Maxxam-supplied API 700 O3 analyzer was performed on April 15th. During the removal calibration, it was noticed that linearity if the three-points calibration was not good. It was due to the O3 flow issue on the calibrator; the analyzer was OK. A new Thermo 49i O3 analyzer was installed on April 15th. An installation calibration was performed on April 16th. It was noticed that the internal sample pump causes more vibration than normal for an ambient analyzer; had to cut tie-wrap on the tubing closes to the pump as the vibration was causing the tubing to rub together-eventually a hole would have been worn in the tubing.
  - A warranty replacement sample pump was installed following the as found points on May 12th. The Original pump caused excessive vibration in the analyzer – at the point where the internal tubing is showing friction wear. The replacement pump was still causing vibration in the analyzer. Removed pump, re-plumbed to work with an external pump, connected a Thomas 6107-LICA supplied pump.
  - It was found that part of the pressure relief valve on the pump had broken off and was on the floor on May 12th. It was noticed cracks in the bottom of the zero air scrubber. Relief valve may have malfunctioned and caused a pressure build up in the scrubber. The analyzer's measurement ability does not seem to be affected. On May 13th, the pump power cord was moved following the as found points.
  - Four hours of data were invalidated due to a power failure on July 30th.

General Summary

AQM STATION – LICA – PORTABLE

Particulate Matter 2.5 (ug/m^3)

- Analyzer make / model – TEOM1400A, S/N: 140AB2207400101 replaced to TEOM 1405F , S/N: 1405A207691003
  - ❖ One hour of data is missing on January 14th.
  - ❖ Two hourly PM2.5 data were invalidated as the values were below –3.0 ug/m^3 in January.
  - ❖ One hour of data is missing on February 15th.
  - ❖ One hourly PM2.5 data was invalidated as the value was below –3.0 ug/m^3 in February.
  - ❖ One hour of data is missing on March 30th.
  - ❖ The Teom inlet was cleaned on March 4th. A Teom audit attempted to be performed on March 25th. Prior to the leak check, the Teom filter was removed and the top of the tapered element broken off inside the bottom of the filter causing the unit is non-functional anymore. 154 hours of data were invalidated. Audit of operating factors was satisfactory prior to incident.
  - ❖ The Teom unit was broken on March 25th. The unit was removed from station for repair on April 5. A new 1405F Teom unit was installed on April 7th. 179 hours of data were invalidated due to the issue.
  - ❖ 30 hours of data were invalidated as they were below –3.0 ug/m^3.
  - ❖ 11 hours of data were invalidated as they were below –3.0 ug/m^3 in May.
  - ❖ 11 hours of data were invalidated as they were below –3.0 ug/m^3 in June.
  - ❖ Four hours of data were invalidated due to a power failure on July 30th.
  - ❖ 26 hours of data were invalidated as they were below –3.0 ug/m^3 In July.
  - ❖ 8 hours of data were invalidated as they were below –3.0 ug/m^3 in August.
  - ❖ There were two 24-hour average readings above guidelines. The contraventions were reported to AENV on August 20th. The AENV Ref# is 239388.
  - ❖ 26 hours of data were invalidated as they were below –3.0 ug/m^3 in September.
  - ❖ 7 hours of data were invalidated as they were below –3.0 ug/m^3 in October.
  - ❖ During the audit on November 8th, a leak check was performed, and leak was found. The V-ring seal was replaced and the end of the plastic tubing connecting to the bottom of the transducer was re-cut to solve the leak issue on November 9th. After the troubleshooting, the Teom was re-installed completely, and an audit including a final leak check was performed. The Teom was put into the “Maintenance” mode between November 8th and 9th for 21 hours.
  - ❖ 60 hours of data were invalidated as they were below –3.0 ug/m^3 in November. (Continuing…)

General Summary

AQM STATION – LICA – PORTABLE

Particulate Matter 2.5 (ug/m^3)

- (To be continued) It was noticed that there was an intermittent warning for pump pressure on December 16th. Following the audit, the pump was rebuilt, the inlet was cleaned and the filters were replaced.
- 37 hours of data were invalidated as they were below –3.0 ug/m^3 in December.

THC (PPM)

- Analyzer make / model – TECO 51C, S/N: 04366-09739
  - One hour of data is missing on January 14th.
  - One hour of data is missing on February 15th.
  - One hour of data is missing on March 30th.
  - Thirteen hours of THC max data were overrange in March, reading of 54.1 ppm. The concentration average during these hours is likely higher than 54.1 ppm, and the monthly average is also likely higher than the value we report in the report.
  - Four hours of data were invalidated due to a power failure on July 30th.
  - The analyzer failed on July 31st at 15:00 due to the H2 gas to be run out. The H2 gas cylinder was replaced on August 1st, and the analyzer was re-lit. 16 hours of data were invalidated.

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

- System make / model – RM Young 5103VK, S/N: 41334
  - One hour of data is missing on January 14th.
  - One hour of data is missing on February 15th.
  - One hour of data is missing on March 30th.
  - Four hours of data were invalidated due to a power failure on July 30th.

General Summary

AQM STATION – LICA – PORTABLE

Datalogger

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

The ESC 8832 is connected to a modem with DSL for continuous connection with the base computer.
No issue was recorded this year.

Trailer (N54°22'04.4", W110°42'14.6", Elevation 560m asl)

- Excessive frost was noticed on the inlet of the manifold intake pipe on January 15th. Airflow was still auditable through the pipe and air movement was observed at the manifold blower exhaust. Frost was removed on January 15th.
- A calibration on the H2 sensor was performed on February 2nd. The sensor reading at zero was –11, adjusted to zero. At span the expected reading was 732 ppm, the observed reading was 685 ppm, adjusted the span to 732ppm.
- The fan control thermostat in the pump closet was replaced with a different model on April 16th
- It was noticed that the AC compressor in the BARD HVAC unit was not running when there was a call for AV from the thermostat. Performed troubleshooting on April 16th, and now the compressor is working properly.
- On April 23rd, it was found there was leaking at the supply vent of the Bard. Removed vent cover; noticed water seeping in from above. Inspected the top of the Bard outside the station and noticed a small gap between the station wall and the Bard. Temporarily sealed the gap on April 27th.

Continuous Monitoring

Annual Summaries Graphs & Wind Roses

Sulphur Dioxide

Current Date : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : SO2_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	708	0	5	1
February	672	638	0	8	1
March	744	700	0	4	1
April	720	685	0	2	0
May	744	707	0	2	0
June	720	683	0	3	0
July	672	612	0	1	0
August	744	702	0	3	0
September	720	683	0	2	0
October	744	707	0	2	0
November	720	684	0	4	0
December	744	706	0	5	1
Yearly Total	8688	8215	0	8	0

SO_2 Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: PORTABLE

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ppm SO_2)						24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	SO_2 ppm Monthly Average
			≤ 0.02 ppm	0.02 < C ≤ 0.06 ppm	0.06 < C ≤ 0.11 ppm	0.11 < C ≤ 0.17 ppm	0.17 < C ≤ 0.34 ppm	> 0.34 ppm			
January	708	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
February	638	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
March	700	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
April	685	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
May	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
June	683	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
July	612	87.5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
August	702	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
September	683	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
November	684	100.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
December	706	99.9	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0	0.00
									Annual Average		**0.00**

C - Concentration

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

SO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: PORTABLE

Month	SO2 ppb Peak Reading
January	5
February	8
March	3
April	1
May	1
June	3
July	1
August	3
September	1
October	2
November	4
December	5
ANNUAL PEAK	**8**

LICA33
SO2_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : SO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	3.82	3.46	4.32	5.94	12.30	6.06	5.57	6.40	4.21	3.33	8.74	6.45	8.27	10.60	5.44	5.03	100.00
<	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.82	3.46	4.32	5.94	12.30	6.06	5.57	6.40	4.21	3.33	8.74	6.45	8.27	10.60	5.44	5.03	

Calm : .00 %

Total # Operational Hours : 8215

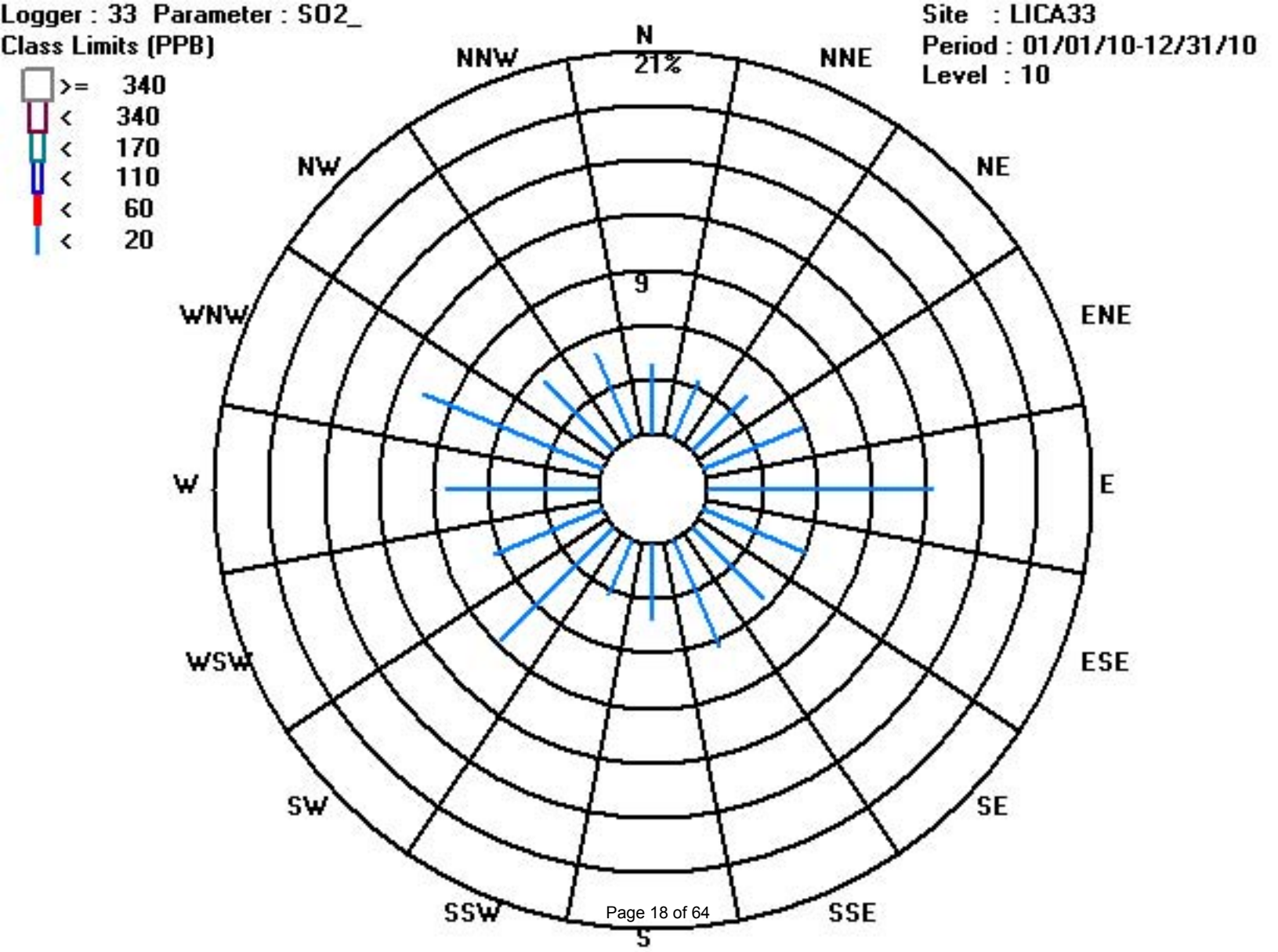
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	314	285	355	488	1011	498	458	526	346	274	718	530	680	871	447	414	8215
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	314	285	355	488	1011	498	458	526	346	274	718	530	680	871	447	414	

Calm : .00 %

Total # Operational Hours : 8215


Logger : 33 Parameter : SO2_
Class Limits (PPB)
>= 340
< 340
< 170
< 110
< 60
< 20
Site : LICA33
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Hydrogen Sulphide

Current Date : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : H2S_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	708	0	2	0
February	672	638	0	1	0
March	744	697	0	1	0
April	720	685	0	2	0
May	744	708	0	4	0
June	720	683	0	4	0
July	744	703	0	6	0
August	744	703	0	4	1
September	720	683	0	2	0
October	744	706	0	1	0
November	720	684	0	1	0
December	744	706	0	1	0
Yearly Total	8760	8304	0	6	0

H_2S Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: PORTABLE

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	708	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.07
February	638	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.02
March	697	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.02
April	685	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
May	708	100.0	99.9%	0.1%	0.0%	0.0%	0	0	0.03
June	683	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.09
July	703	99.3	99.3%	0.7%	0.0%	0.0%	0	0	0.16
August	703	100.0	99.9%	0.1%	0.0%	0.0%	0	0	0.15
September	683	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.05
October	706	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.01
November	684	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.02
December	706	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.03
* Valid readings - does not include calibration hours and downtime hours.							Annual Average		**0.05**

H2S Peak Reading of One Hour Averages for 2010

Plant Operator: LICA

Plant Location: PORTABLE

Month	H2S ppb Peak Reading
January	1
February	1
March	1
April	1
May	4
June	3
July	5
August	4
September	2
October	1
November	1
December	1
ANNUAL PEAK	**5**

LICA33
H2S_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	3.82	3.46	4.27	5.88	12.19	5.92	5.55	6.26	4.23	3.33	8.97	6.44	8.23	10.48	5.47	5.11	99.71
<	10	.00	.00	.00	.00	.03	.07	.04	.01	.07	.02	.01	.00	.00	.01	.00	.00	.28
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.82	3.46	4.27	5.88	12.23	5.99	5.59	6.27	4.31	3.35	8.98	6.44	8.23	10.50	5.47	5.11	

Calm : .00 %

Total # Operational Hours : 8304

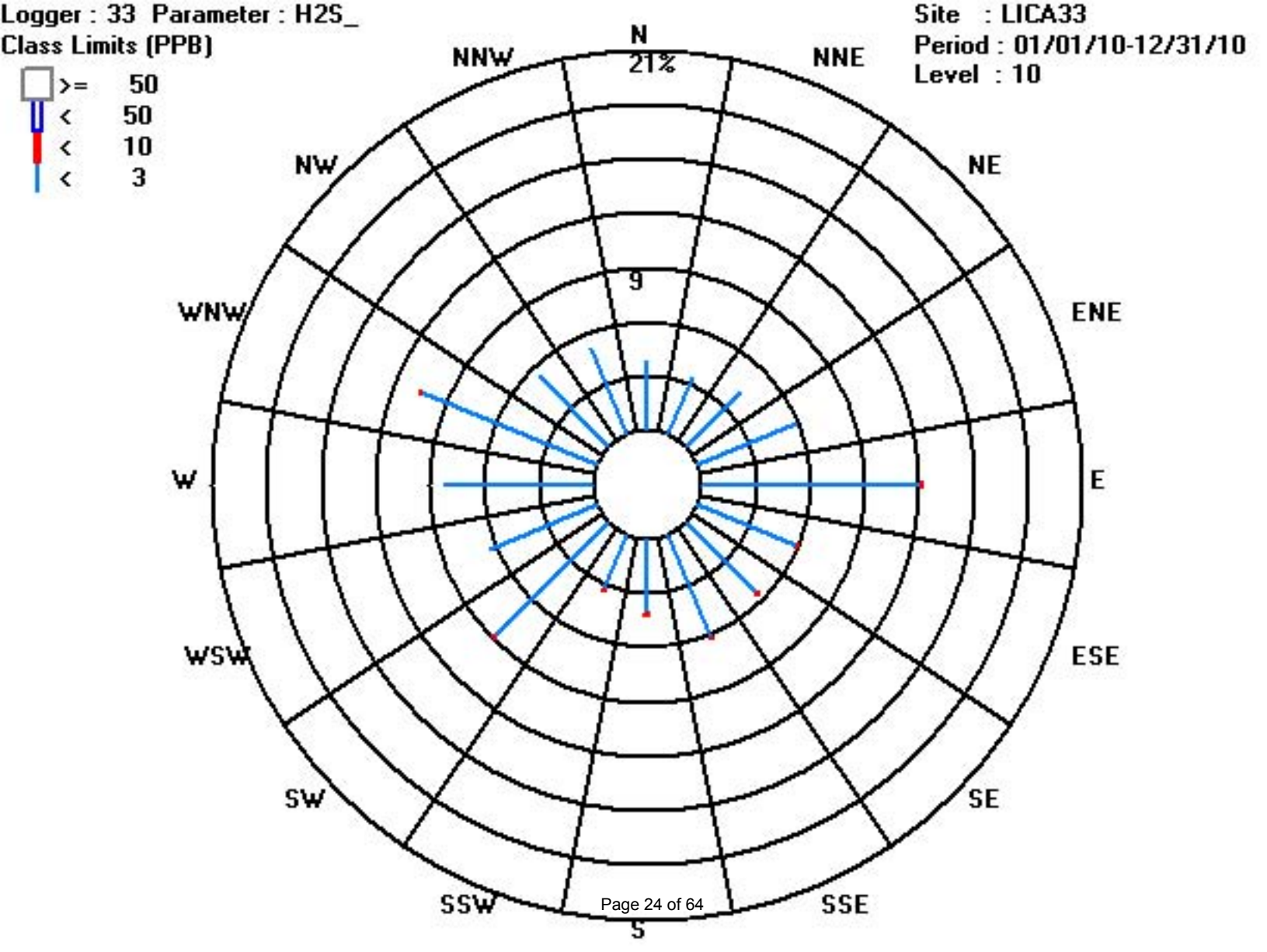
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	318	288	355	489	1013	492	461	520	352	277	745	535	684	871	455	425	8280
<	10					3	6	4	1	6	2	1			1			24
<	50																	
>=	50																	
	Totals	318	288	355	489	1016	498	465	521	358	279	746	535	684	872	455	425	

Calm : .00 %

Total # Operational Hours : 8304


Logger : 33 Parameter : H2S_
Class Limits (PPB)
>= 50
< 50
< 10
< 3
Site : LICA33
Period : 01/01/10-12/31/10
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 : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : PM2 Units : UG/M3

	Readings	Valid Readings	Min	Max	Mean
January	744	736	-0.1	14.4	3.3
February	672	664	0	24.4	5
March	600	588	-0.1	18.3	3
April	576	528	0	20.2	4.3
May	744	730	0	41.1	5.5
June	720	706	-0.1	48.1	5.7
July	744	712	-0.1	42.6	5.2
August	744	732	0	353.1	10.7
September	720	692	0	30	2.5
October	744	733	0	27.1	4.7
November	720	636	0	38.8	6.4
December	744	698	0	34.3	7.3
Yearly Total	8472	8155	-0.1	353.1	5.4

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

Plant Operator: LICA Plant Location: PORTABLE

Month	Valid Readings* Hours	Operational Time (%)	% Readings in Concentration Range (ug/m^3)						Total Daily Readings > 30 ug/m3
			≤ 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	736	99.6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
February	664	99.7	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
March	588	79.2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
April	506	71.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
May	730	98.5	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0
June	706	98.5	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0
July	712	95.8	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0
August	732	98.9	97.1%	1.2%	0.3%	0.1%	0.7%	0.5%	2
September	692	96.4	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
October	710	99.1	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
November	615	88.6	99.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0
December	674	94.1	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0
									Annual Average

C - Concentration

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

PM 2.5 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA

Plant Location: PORTABLE

Month	PM 2.5 (ug/m3) Peak Reading
January	14
February	24
March	18
April	20
May	41
June	48
July	43
August	353
September	30
October	27
November	39
December	34

ANNUAL PEAK	**353**

LICA33
PM2 / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : PM2
Units : UG/M3

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	3.83	3.44	4.37	5.99	12.20	6.10	5.70	6.47	4.32	3.42	8.85	6.06	7.93	10.09	5.49	5.17	99.50
<	60.0	.00	.00	.03	.01	.07	.01	.02	.00	.00	.01	.04	.00	.08	.03	.00	.00	.34
<	80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01	.00	.00	.02
<	120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.01
<	240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.01	.00	.01	.00	.00	.06
>=	240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.03	.00	.00	.00	.04
	Totals	3.83	3.44	4.41	6.00	12.27	6.11	5.72	6.47	4.32	3.43	8.96	6.09	8.05	10.15	5.49	5.17	

Calm : .00 %

Total # Operational Hours : 8155

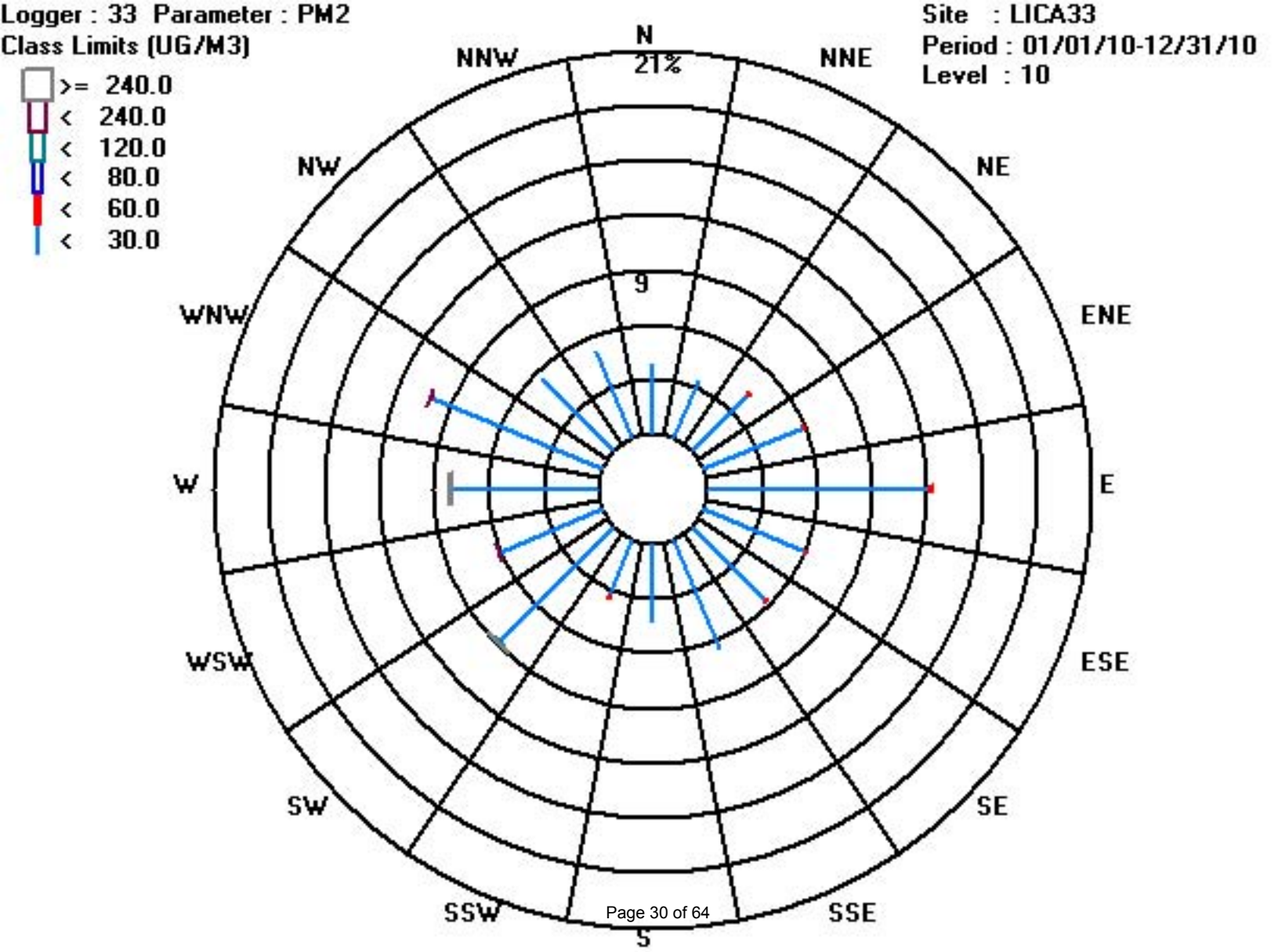
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	313	281	357	489	995	498	465	528	353	279	722	495	647	823	448	422	8115
<	60.0			3	1	6	1	2			1	4		7	3			28
<	80.0												1		1			2
<	120.0											1						1
<	240.0											3	1		1			5
>=	240.0											1		3				4
	Totals	313	281	360	490	1001	499	467	528	353	280	731	497	657	828	448	422	

Calm : .00 %

Total # Operational Hours : 8155


Logger : 33 Parameter : PM2
Class Limits (UG/M3)
>= 240.0
< 240.0
< 120.0
< 80.0
< 60.0
< 30.0
Site : LICA33
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitrogen Dioxide

Current Date : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : NO2_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	671	0	28	7
February	672	635	0	29	6
March	744	694	0	19	3
April	720	682	0	10	1
May	744	703	0	10	1
June	720	680	0	9	2
July	672	599	0	8	1
August	744	698	0	7	2
September	720	680	0	10	2
October	744	703	0	17	4
November	720	681	0	25	5
December	744	703	0	22	5
Yearly Total	8688	8129	0	29	3

NO_2 Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA Station: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO2)				24-Hour Averages Above Guidelines	Hourly Readings Above Guidelines	NO2 ppb Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm			
January	671	96.1	100.0%	0.0%	0.0%	0.0%	0	0	0.01
February	635	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.01
March	694	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
May	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
June	680	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
July	599	85.3	100.0%	0.0%	0.0%	0.0%	0	0	0.00
August	698	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
September	680	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
October	703	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
November	681	100.0	100.0%	0.0%	0.0%	0.0%	0	0	0.00
December	703	99.9	100.0%	0.0%	0.0%	0.0%	0	0	0.00
* Valid readings - does not include calibration hours and downtime hours.							Annual Average		**0.00**

NO_2 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: PORTABLE

Month	NO2 ppb Peak Reading
January	27
February	29
March	19
April	10
May	10
June	9
July	8
August	7
September	10
October	17
November	24
December	22
ANNUAL PEAK	**29**

LICA33
NO2_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	3.85	3.48	4.33	5.99	12.28	5.92	5.41	6.18	4.24	3.38	8.86	6.44	8.38	10.65	5.46	5.08	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.85	3.48	4.33	5.99	12.28	5.92	5.41	6.18	4.24	3.38	8.86	6.44	8.38	10.65	5.46	5.08	

Calm : .00 %

Total # Operational Hours : 8129

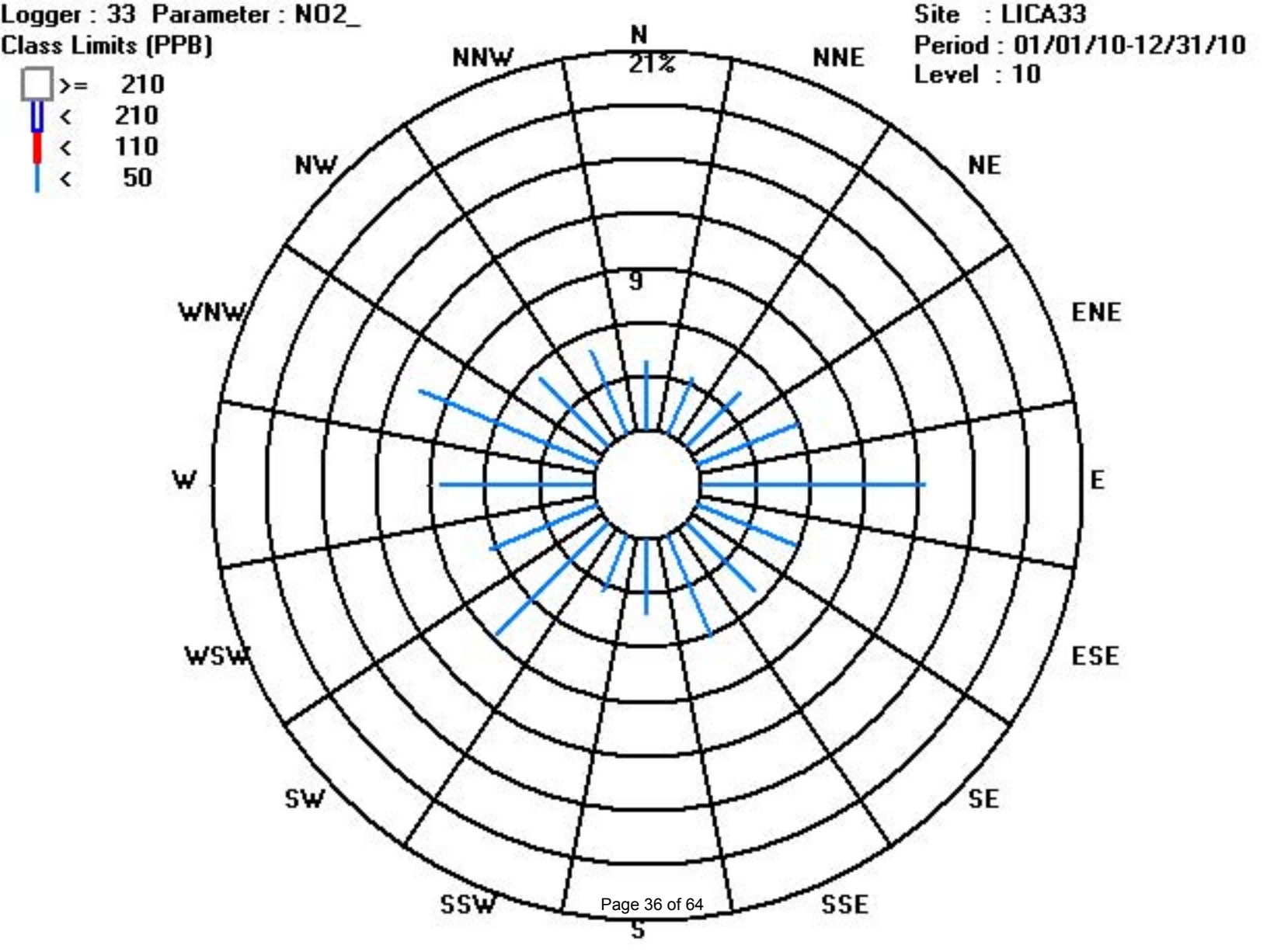
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	313	283	352	487	999	482	440	503	345	275	721	524	682	866	444	413	8129
<	110																	
<	210																	
>=	210																	
	Totals	313	283	352	487	999	482	440	503	345	275	721	524	682	866	444	413	

Calm : .00 %

Total # Operational Hours : 8129


Logger : 33 Parameter : NO2_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA33
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Nitric Oxide

Current Date : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : NO_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	671	0	35	1
February	672	635	0	19	1
March	744	694	0	19	1
April	720	682	0	3	0
May	744	703	0	10	0
June	720	680	0	8	0
July	672	599	0	10	0
August	744	698	0	12	0
September	720	680	0	8	0
October	744	703	0	16	1
November	720	681	0	10	1
December	744	703	0	31	1
Yearly Total	8688	8129	0	35	1

NO Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA

Station: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NO)				NO ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	671	96.1	100.0%	0.0%	0.0%	0.0%	0.00
February	635	99.9	100.0%	0.0%	0.0%	0.0%	0.00
March	694	99.9	100.0%	0.0%	0.0%	0.0%	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
June	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	599	85.3	100.0%	0.0%	0.0%	0.0%	0.00
August	698	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	681	100.0	100.0%	0.0%	0.0%	0.0%	0.00
December	703	99.9	100.0%	0.0%	0.0%	0.0%	0.00
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO Peak reading of One Hour Averages for 2010

Plant Operator: LICA Station: PORTABLE

Month	NO ppb Peak Reading
January	35
February	18
March	18
April	3
May	10
June	8
July	10
August	12
September	7
October	16
November	10
December	30
ANNUAL PEAK	**35**

LICA33
NO_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : NO_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	3.85	3.48	4.33	5.99	12.28	5.92	5.41	6.18	4.24	3.38	8.86	6.44	8.38	10.65	5.46	5.08	100.00
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.85	3.48	4.33	5.99	12.28	5.92	5.41	6.18	4.24	3.38	8.86	6.44	8.38	10.65	5.46	5.08	

Calm : .00 %

Total # Operational Hours : 8129

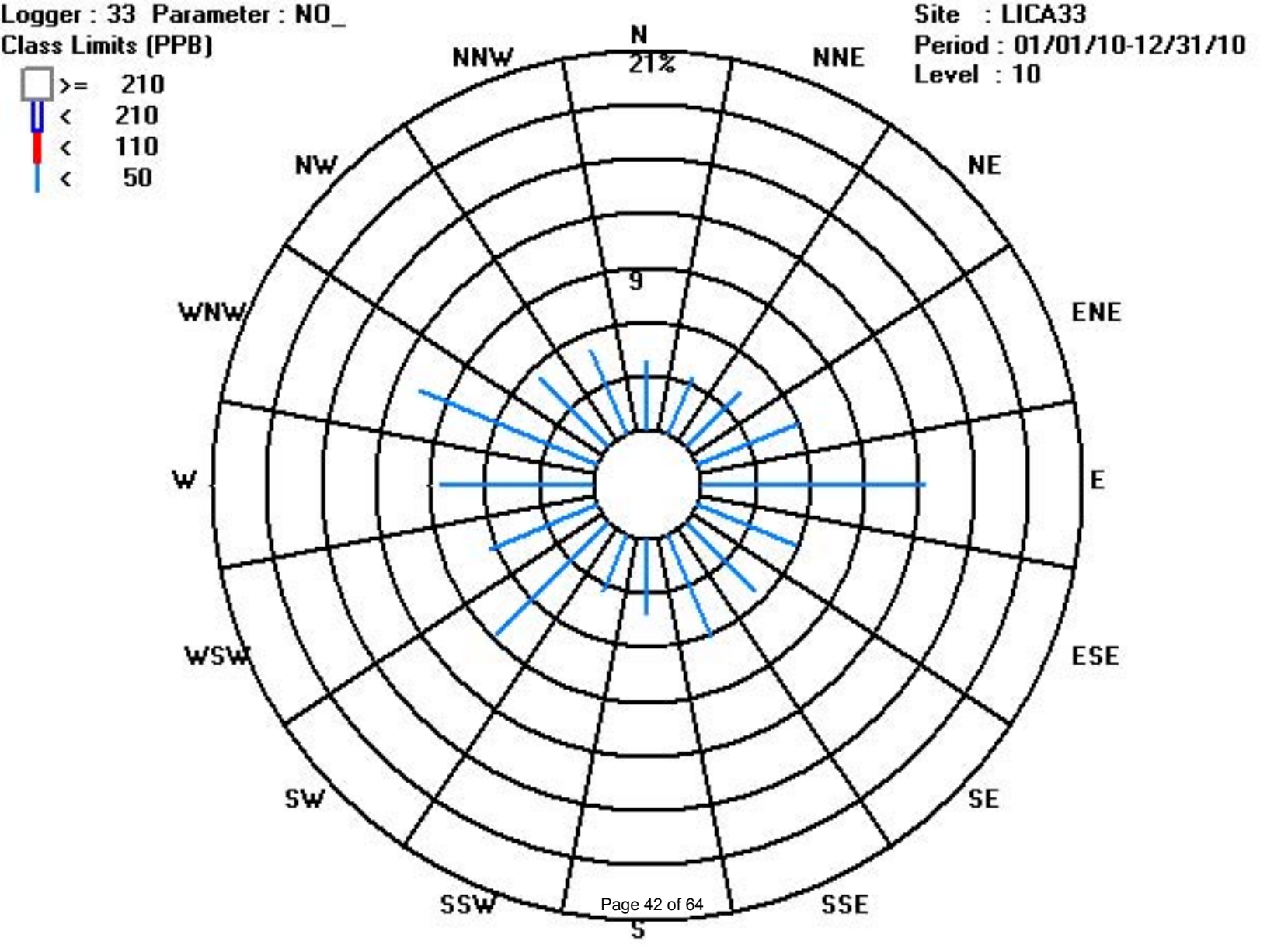
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	313	283	352	487	999	482	440	503	345	275	721	524	682	866	444	413	8129
<	110																	
<	210																	
>=	210																	
	Totals	313	283	352	487	999	482	440	503	345	275	721	524	682	866	444	413	

Calm : .00 %

Total # Operational Hours : 8129


Logger : 33 Parameter : NO_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA33
Period : 01/01/10-12/31/10
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 : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : NOX_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	671	0	57	8
February	672	635	0	45	6
March	744	694	0	38	4
April	720	682	0	10	1
May	744	703	0	20	2
June	720	680	0	12	2
July	672	599	0	18	2
August	744	698	0	19	2
September	720	680	0	13	2
October	744	703	0	33	4
November	720	681	0	28	6
December	744	703	0	43	6
Yearly Total	8688	8129	0	57	4

NO_x Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA

Station: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm NOx)				NOx ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	671	96.1	99.9%	0.1%	0.0%	0.0%	0.01
February	635	99.9	100.0%	0.0%	0.0%	0.0%	0.01
March	693	99.9	100.0%	0.0%	0.0%	0.0%	0.00
April	682	100.0	100.0%	0.0%	0.0%	0.0%	0.00
May	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
June	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
July	599	85.3	100.0%	0.0%	0.0%	0.0%	0.00
August	698	100.0	100.0%	0.0%	0.0%	0.0%	0.00
September	680	100.0	100.0%	0.0%	0.0%	0.0%	0.00
October	703	100.0	100.0%	0.0%	0.0%	0.0%	0.00
November	681	100.0	100.0%	0.0%	0.0%	0.0%	0.01
December	703	99.9	100.0%	0.0%	0.0%	0.0%	0.01
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.00**

NO_x Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: PORTABLE

Month	NOx ppb Peak Reading
January	56
February	44
March	37
April	10
May	20
June	12
July	18
August	19
September	13
October	33
November	27
December	43
ANNUAL PEAK	**56**

LICA33
NOX_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : NOX_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	3.85	3.48	4.33	5.99	12.28	5.92	5.41	6.18	4.24	3.38	8.86	6.44	8.38	10.65	5.44	5.08	99.98
<	110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.85	3.48	4.33	5.99	12.28	5.92	5.41	6.18	4.24	3.38	8.86	6.44	8.38	10.65	5.46	5.08	

Calm : .00 %

Total # Operational Hours : 8129

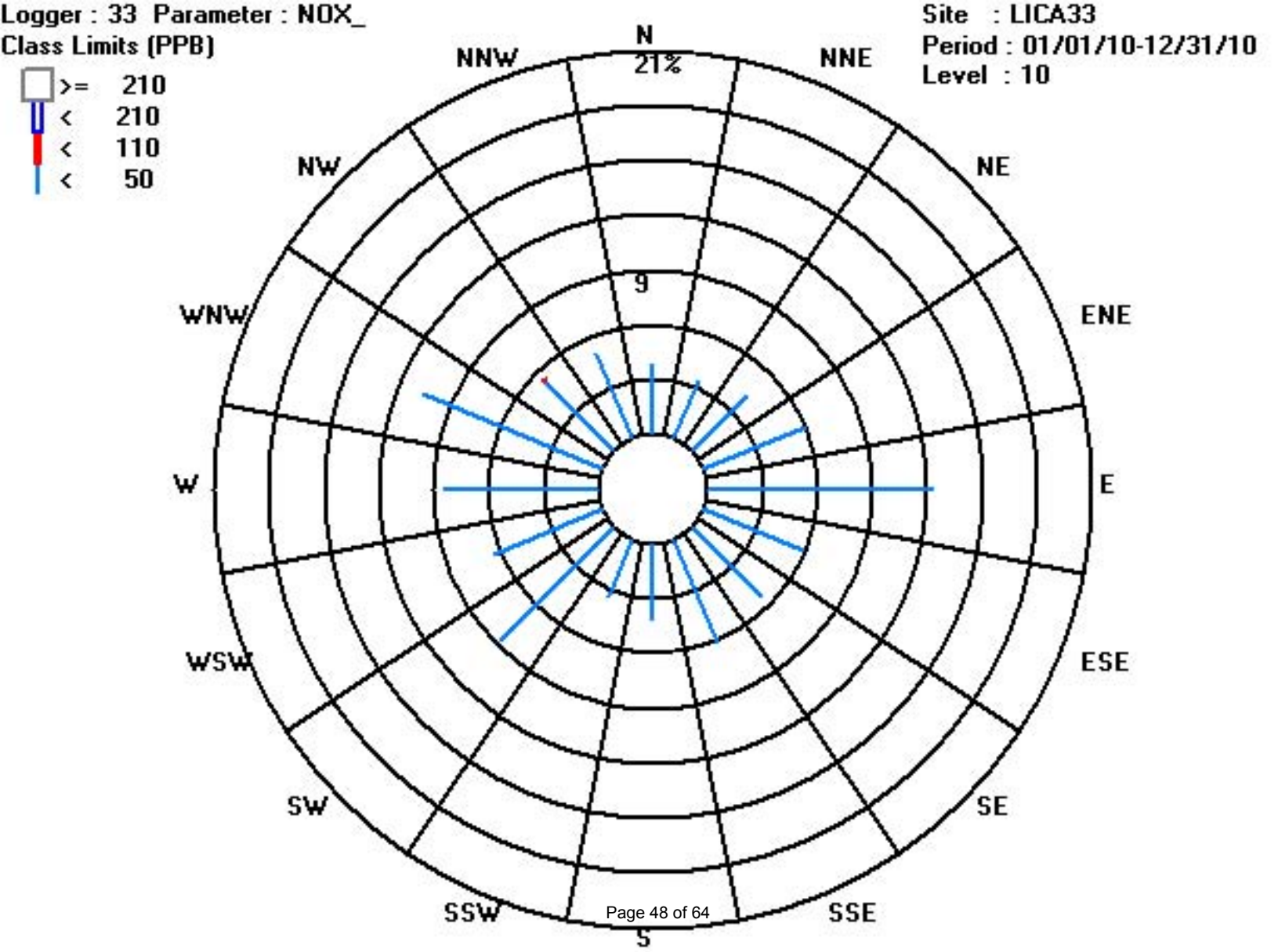
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	313	283	352	487	999	482	440	503	345	275	721	524	682	866	443	413	8128
<	110															1		1
<	210																	
>=	210																	
	Totals	313	283	352	487	999	482	440	503	345	275	721	524	682	866	444	413	

Calm : .00 %

Total # Operational Hours : 8129


Logger : 33 Parameter : NOX_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA33
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Ozone

Current Date : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : O3_ Units : PPB

	Readings	Valid Readings	Min	Max	Mean
January	744	707	0	41	20
February	672	637	1	48	29
March	744	704	6	51	31
April	720	677	10	61	36
May	744	704	6	62	33
June	720	683	1	60	28
July	744	703	1	49	22
August	744	704	0	55	19
September	720	683	1	39	20
October	744	707	1	43	22
November	720	684	0	37	21
December	744	699	0	36	21
Yearly Total	8760	8292	0	62	25

O3 Monthly Averages and Frequency Distributions of One Hour Readings -2010

Plant Operator: LICA

Station: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm O3)				O3 ppm Monthly Average
			0 to 0.05 ppm	0.051 to 0.11 ppm	0.111 to 0.210 ppm	> 0.21 ppm	
January	707	99.9	100.0%	0.0%	0.0%	0.0%	0.02
February	637	99.9	100.0%	0.0%	0.0%	0.0%	0.03
March	704	99.9	100.0%	0.0%	0.0%	0.0%	0.03
April	677	99.7	91.6%	8.4%	0.0%	0.0%	0.04
May	704	100.0	95.3%	4.7%	0.0%	0.0%	0.03
June	683	100.0	98.8%	1.2%	0.0%	0.0%	0.03
July	703	99.3	100.0%	0.0%	0.0%	0.0%	0.02
August	704	100.0	99.6%	0.4%	0.0%	0.0%	0.02
September	683	100.0	100.0%	0.0%	0.0%	0.0%	0.02
October	707	100.0	100.0%	0.0%	0.0%	0.0%	0.02
November	684	100.0	100.0%	0.0%	0.0%	0.0%	0.02
December	699	99.7	100.0%	0.0%	0.0%	0.0%	0.02
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**0.02**

O3 Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Station: PORTABLE

Month	O3 ppb Peak Reading
January	41
February	47
March	50
April	60
May	62
June	59
July	49
August	54
September	39
October	43
November	37
December	36
ANNUAL PEAK	**62**

LICA33
O3_ / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : O3_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	3.82	3.40	4.24	5.87	12.07	5.89	5.41	5.82	4.17	3.31	8.69	6.28	8.12	10.39	5.35	5.11	98.01
<	110	.01	.01	.02	.02	.19	.12	.20	.56	.15	.03	.21	.13	.03	.12	.12	.01	1.98
<	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.83	3.41	4.26	5.89	12.26	6.01	5.61	6.39	4.32	3.35	8.91	6.41	8.16	10.51	5.47	5.12	

Calm : .00 %

Total # Operational Hours : 8292

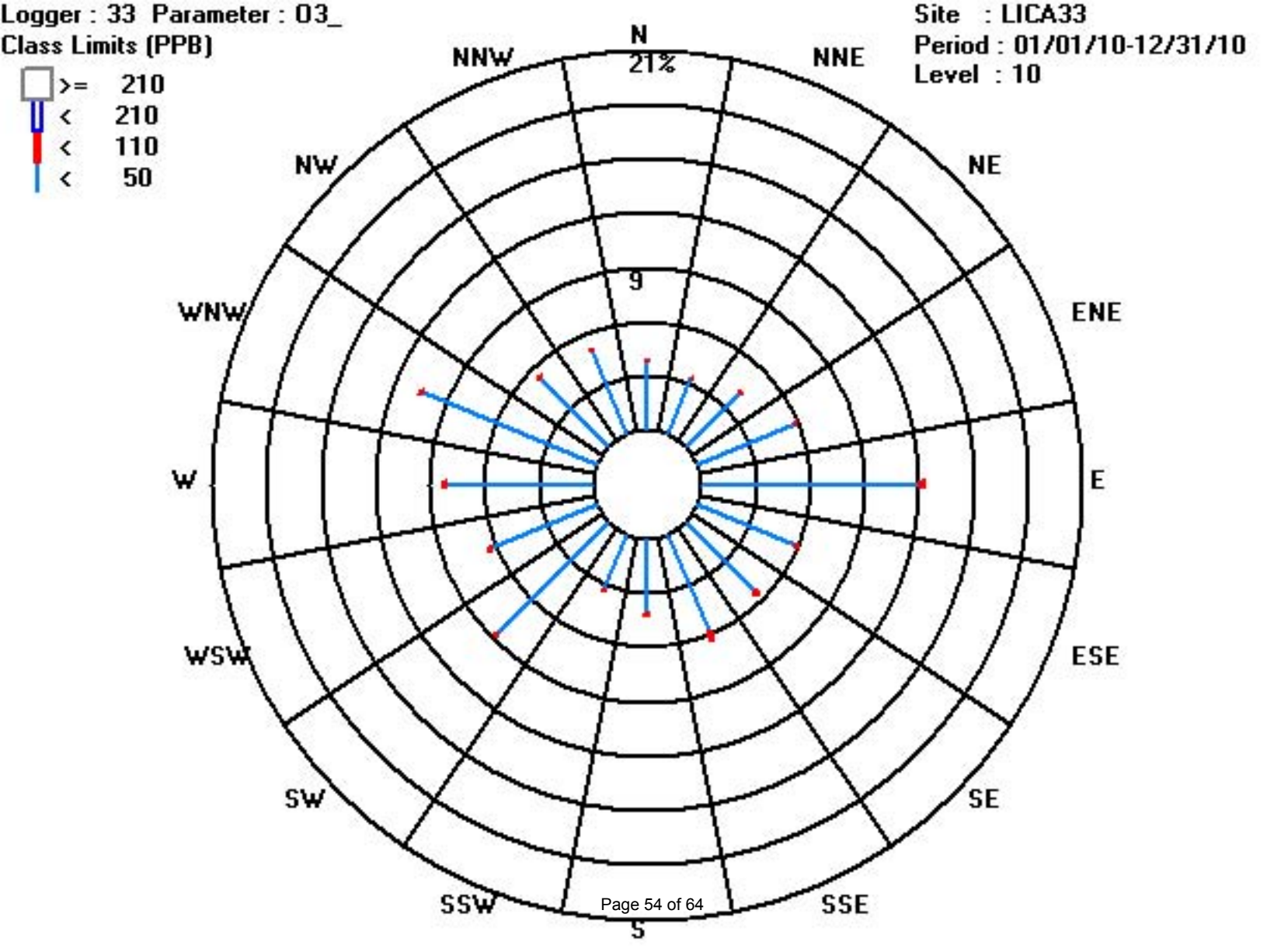
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	317	282	352	487	1001	489	449	483	346	275	721	521	674	862	444	424	8127
<	110	1	1	2	2	16	10	17	47	13	3	18	11	3	10	10	1	165
<	210																	
>=	210																	
	Totals	318	283	354	489	1017	499	466	530	359	278	739	532	677	872	454	425	

Calm : .00 %

Total # Operational Hours : 8292


Logger : 33 Parameter : 03_
Class Limits (PPB)
>= 210
< 210
< 110
< 50
Site : LICA33
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Total Hydrocarbons

Current Date : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : THC Units : PPM

	Readings	Valid Readings	Min	Max	Mean
January	744	707	1.8	7.2	2.8
February	672	639	1.9	10.4	2.6
March	744	706	1.7	15	2.6
April	720	685	1.8	7.1	2.5
May	744	696	1.8	6.2	2.3
June	720	683	1.8	5.5	2.2
July	744	694	1.7	5.2	2.1
August	744	695	1.7	17.1	2.3
September	720	682	1.8	5.9	2.3
October	744	706	1.8	7.5	2.4
November	720	684	1.8	9.4	2.5
December	744	700	1.8	8.1	2.7
Yearly Total	8760	8277	1.7	17.1	2.4

THC Monthly Averages and Frequency Distributions of One Hour Readings - 2010

Plant Operator: LICA Plant Location: PORTABLE

Month	Number of Readings	Operational Time (%)	% Readings in Concentration Range (ppm THC)				THC ppm Monthly Average
			0 to 3 ppm	4 to 10 ppm	11 to 50 ppm	>50 ppm	
January	707	99.9	71.4%	28.6%	0.0%	0.0%	2.70
February	639	99.9	83.6%	16.3%	0.0%	0.0%	2.54
March	706	99.9	82.7%	17.0%	0.0%	0.0%	2.52
April	685	100.0	83.5%	16.5%	0.0%	0.0%	2.42
May	696	99.7	91.5%	8.5%	0.0%	0.0%	2.24
June	683	100.0	95.0%	5.0%	0.0%	0.0%	2.15
July	694	98.1	92.4%	7.6%	0.0%	0.0%	2.10
August	695	98.7	88.2%	11.7%	0.0%	0.0%	2.30
September	682	100.0	91.2%	8.8%	0.0%	0.0%	2.24
October	706	100.0	88.1%	11.9%	0.0%	0.0%	2.30
November	684	100.0	86.8%	13.2%	0.0%	0.0%	2.47
December	700	99.9	82.9%	17.1%	0.0%	0.0%	2.64
* Valid readings do not include daily and monthly calibration hours and downtime hours						Annual Average	**2.38**

THC Peak Reading of One Hour Averages for 2010

Plant Operator: LICA Plant Location: PORTABLE

Month	THC ppm Peak Reading
January	7.2
February	10.4
March	15.0
April	7.1
May	6.1
June	5.5
July	5.2
August	17.0
September	5.8
October	7.4
November	9.3
December	8.1

ANNUAL PEAK	**17**

LICA33
THC / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : THC
Units : PPM

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	3.28	2.73	3.44	3.92	9.06	4.13	4.37	5.69	3.82	3.09	8.21	6.06	7.68	9.87	5.08	4.72	85.21
<	10.0	.51	.67	.88	1.96	3.18	1.87	1.23	.64	.53	.30	.74	.32	.48	.61	.41	.33	14.73
<	50.0	.01	.00	.00	.02	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.04
>=	50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	3.81	3.40	4.32	5.92	12.25	6.00	5.60	6.33	4.36	3.39	8.97	6.39	8.16	10.48	5.49	5.06	

Calm : .00 %

Total # Operational Hours : 8277

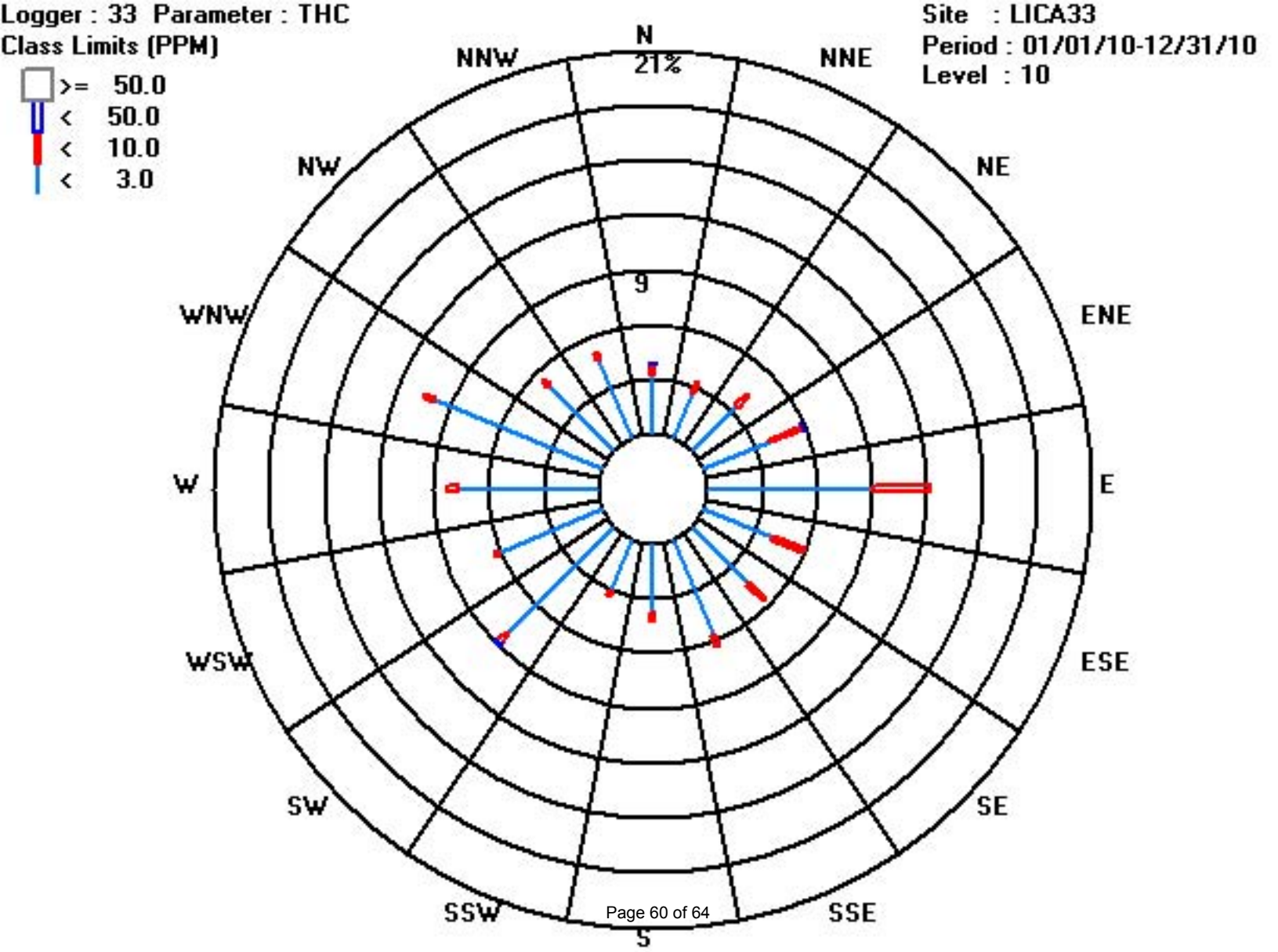
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3.0	272	226	285	325	750	342	362	471	317	256	680	502	636	817	421	391	7053
<	10.0	43	56	73	163	264	155	102	53	44	25	62	27	40	51	34	28	1220
<	50.0	1			2							1						4
>=	50.0																	
	Totals	316	282	358	490	1014	497	464	524	361	281	743	529	676	868	455	419	

Calm : .00 %

Total # Operational Hours : 8277


Logger : 33 Parameter : THC
Class Limits (PPM)
>= 50.0
< 50.0
< 10.0
< 3.0
Site : LICA33
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9

Vector Wind Speed

Current Date : 03/14/11
Current Time : 08:50

Annual Parameter Summary Report - Hourly
Maxxam Analytics

Year : 2010

Logger Name : LICA33 Logger Id : 33 Parameter : WSP Units : KPH

	Readings	Valid Readings	Min	Max	Mean
January	744	743	0.1	29.2	7.6
February	672	671	0.2	24.8	7
March	744	743	0.2	31.2	9.4
April	720	720	0.3	39.9	12.2
May	744	744	0.4	31.4	10.5
June	720	720	0.2	24.5	8.8
July	744	739	0.1	25.9	8.1
August	744	744	0.2	29.6	8.1
September	720	720	0.1	23.4	9.2
October	744	744	0.1	30.6	10.1
November	720	720	0.2	30.6	8.2
December	744	744	0.2	21	8.9
Yearly Total	8760	8752	0.1	39.9	9

LICA33
WSP / WDR Joint Frequency Distribution (Percent)

01/01/10 thru 12/31/10

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
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	1.25	1.24	1.70	1.94	2.69	2.22	2.31	2.23	2.41	2.51	4.09	2.47	2.31	2.17	1.78	1.27	34.67
<	12.0	1.65	1.21	1.69	2.50	4.70	2.43	2.11	2.43	1.37	.75	3.89	2.54	3.09	3.40	2.15	2.05	38.03
<	20.0	.69	.86	.76	1.31	4.27	1.10	1.18	1.50	.42	.07	.84	1.26	2.28	3.43	1.31	1.62	23.00
<	29.0	.20	.07	.20	.14	.43	.20	.07	.19	.11	.00	.09	.13	.51	1.13	.21	.11	3.87
<	39.0	.00	.00	.01	.00	.02	.01	.00	.00	.00	.00	.00	.00	.06	.28	.00	.00	.39
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.01
	Totals	3.81	3.40	4.37	5.90	12.13	5.98	5.70	6.37	4.31	3.34	8.92	6.43	8.28	10.44	5.47	5.07	

Calm : .00 %

Total # Operational Hours : 8752

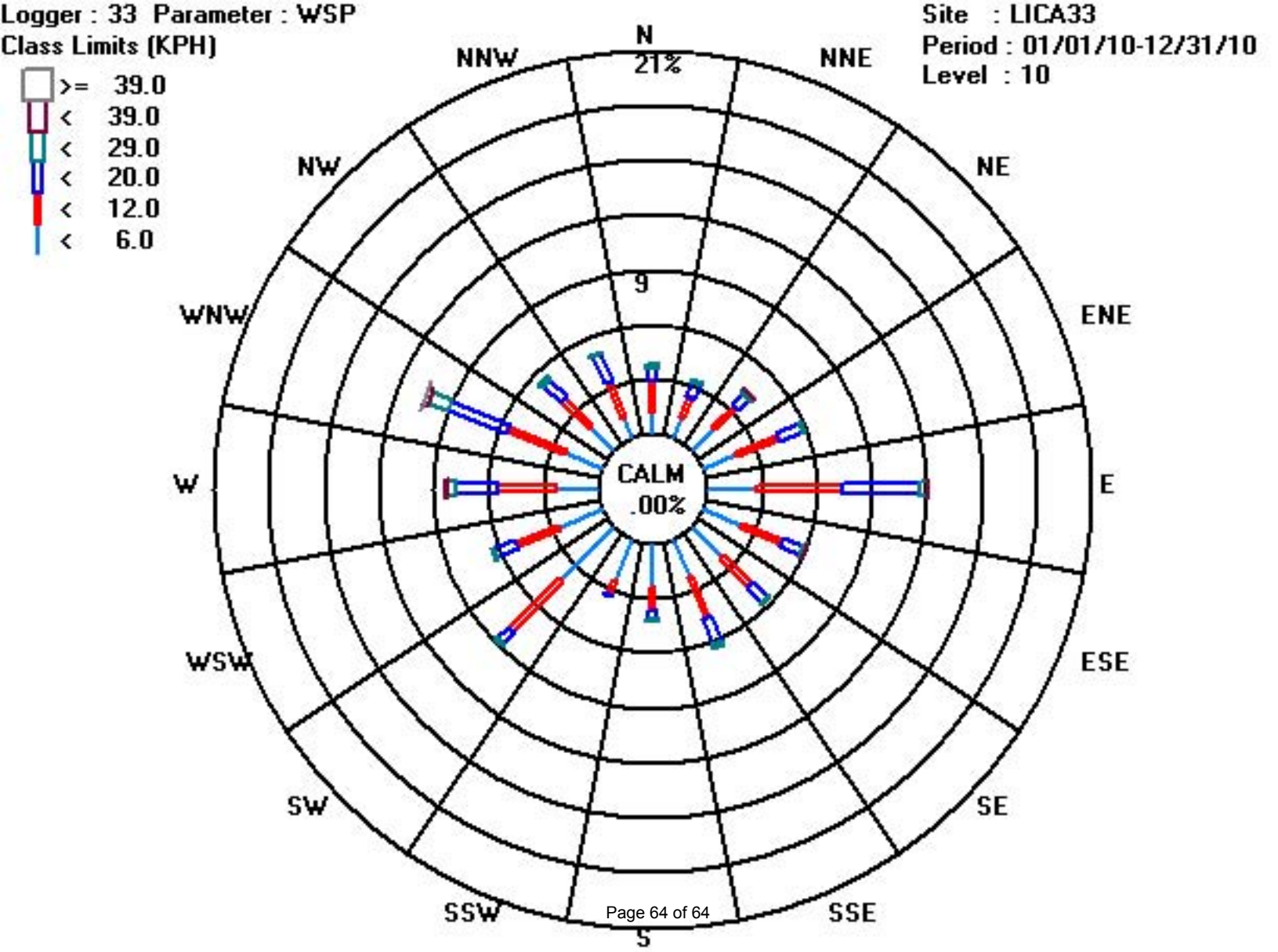
Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	110	109	149	170	236	195	203	196	211	220	358	217	203	190	156	112	3035
<	12.0	145	106	148	219	412	213	185	213	120	66	341	223	271	298	189	180	3329
<	20.0	61	76	67	115	374	97	104	132	37	7	74	111	200	301	115	142	2013
<	29.0	18	7	18	13	38	18	7	17	10		8	12	45	99	19	10	339
<	39.0			1		2	1							6	25			35
>=	39.0														1			1
	Totals	334	298	383	517	1062	524	499	558	378	293	781	563	725	914	479	444	

Calm : .00 %

Total # Operational Hours : 8752


Logger : 33 Parameter : WSP
Class Limits (KPH)
>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0
Site : LICA33
Period : 01/01/10-12/31/10
Level : 10
N
21%
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
9
CALM
.00%