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Monitoring and Science
Data Management
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9820 106 Street
Edmonton Alberta T5K 2J6

July 12, 2015

RE: May 2015 Ambient Air Monitoring Monthly Reports

Attached are the monthly ambient air monitoring reports for the LICA Airshed Zone's Cold Lake South, Maskwa, St. Lina, and Elk Point continuous stations.

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

Respectfully,

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

Michael Bisaga

Airshed Program Manager
Lakeland Industry and Community Association

cc (email): LICA Office

**AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
COLD LAKE SOUTH SITE**

JOB #:2833-2015-05-01- C

MAY 2015

Prepared for:

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
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Attention: MIKE BISAGA

DATE: **June 24, 2015**

Prepared by:



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Reviewed by:



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Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In MAY 2015, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the Cold Lake South Site at Lakeland Industry & Community Association, near Bonnyville, Alberta. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the project coordinator.

All data collected this month were within the objectives outlined in the AMD1989 and AMD2006, except PM 2.5.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

PM 2.5: Two 24-hr contraventions were recorded this month: concentration of 79 ug/m³ on May 25 and concentration of 67 ug/m³ on May 26. AE Reference numbers 298739 and 298789 respectively.

THC: 12 hours of data were invalidated this month as the data were below the background concentration of 1.5 ppm.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, Cold Lake South Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association						MAXIMUM VALUES							OPERATIONAL TIME (%)
Cold Lake South Site						1-HOUR				24-HOUR			
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0	5	25	17	3.3	NNE	1.2	25	99.9
TRS (PPB)	-	-	-	-	0	3	12, 13	2, 4	1.1 1	S NE	0.8	25	100.0
THC (PPM)	-	-	-	-	2.1	3.0	26	6	2.2	W	2.3	25, 28	98.4
NO2 (PPB)	159	-	0	-	2.3	15.4	15	5	1.5	ENE	4.7	25	100.0
NO (PPB)	-	-	-	-	0.4	10.9	4	5	1.3	NNE	1.8	23	100.0
NOX (PPB)	-	-	-	-	2.7	22.5	15	5	1.5	ENE	5.0	25	100.0
O3 (PPB)	82	-	0	-	33	65	25	14	4.4	SE	41.4	13	100.0
PM2.5 (UG/M3)	-	30	-	2	12.3	266.0	25	17	3.3	NNE	78.8	25	98.5
RELATIVE HUMIDITY (%)	-	-	-	-	52.0	99	31	23	3.6	WSW	88.2	6	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	10.0	27.2	22	17	0.5	NW	18.1	24	100.0
VECTOR WS (KPH)	-	-	-	-	6.0	20.7	5	12	-	E	15.6	5	100.0
VECTOR WD (DEG)	-	-	-	-	ENE	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM_{2.5} 24- Hour Exceedences

DATE	READING (ug/m3)	WS (kph)	WD (deg)
MAY 25	79	3.5	NNW
MAY 26	67	5.5	NE

Passive Sampler Summary

	Sulphur Dioxide (in ppb)
Mean	0.3
Minimum	0.1
Maximum	0.5

Note: Access to stations #12 and #25 was blocked by the air weapons range fire suppression ops.

	Hydrogen Sulphide (in ppb)
Mean	0.12
Minimum	0.08
Maximum	0.19

Note: Access to stations #12 and #25 was blocked by the air weapons range fire suppression ops.

	Nitrogen Dioxide (in ppb)
Mean	1.0
Minimum	0.2
Maximum	3.2

Note: Access to station #12 was blocked by the air weapons range fire suppression ops.

	Ozone (in ppb)
Mean	35.88
Minimum	22.91
Maximum	42.35

Note: Access to station #12 was blocked by the air weapons range fire suppression ops.

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
MAY 6, 2015	3.10	ACETONE
MAY 12, 2015	15.40	ISOPROPYL ALCOHOL
MAY 18, 2015	4.70	ACETONE
MAY 24, 2015	9.60	ACETONE
MAY 30, 2015	5.80	ACETONE

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
MAY 6, 2015	0.08	PHENANTHRENE
MAY 12, 2015	0.13	PHENANTHRENE
MAY 18, 2015	0.08	PHENANTHRENE & RETENE
MAY 24, 2015	0.50	PHENANTHRENE
MAY 30, 2015	0.11	PHENANTHRENE

Note: NA

Partisol Sampler Summary

Sample Collected Date	Concentration (mg)
MAY 6, 2015	0.020
MAY 12, 2015	0.136
MAY 18, 2015	0.091
MAY 24, 2015	0.336
MAY 30, 2015	0.061

Note: NA

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	Total Hydrocarbon
	Nitrogen Dioxide
	Ozone
	Particulate Matter
	Wind System
	Calibrators
	Calibration Gases

Appendix IV

Analytical Results

Passive Samples

VOCs Samples

PAHs Samples

Partisol Samples

Appendix V

Chain of Custody

1.0 Discussion

This monthly report consists of data for parameters SO₂, TRS, THC, NO_x, NO, NO₂, O₃, PM_{2.5}, WS, WD, RH and Temperature. It also includes results for non-continuous parameters Passives, VOC, PAH and Partisol.

Sample filters for all continuous air monitors are changed before the calibration is started. The sample manifold is cleaned during the site visit on a monthly basis.

Control checks, consisting of zero and span of the analyzer are conducted on a daily basis on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinder) is used for zero checks and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibration is done a minimum of once a month for each continuous air monitor. In addition calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

SULPHUR DIOXIDE (SO₂)

The routine monthly calibration was performed on May 5. The channel was put into Maintenance mode on May 6 at hour 12 while a flow check was being performed.

TOTAL REDUCED SULPHUR (TRS)

The analyzer was working well throughout the month.

The routine monthly calibration was performed on May 6.

TOTAL HYDROCARBONS (THC)

The routine monthly calibration was performed on May 5. 12 hours of data collected on May 23 from hour 13 to hour 19 and on May 31 from hour 15 to hour 18 were invalidated as the data were below the background concentration of 1.5 ppm.

NITROGEN DIOXIDE (NO2)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on May 5.

OZONE (O3)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on May 6.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM2.5)

Two Teom audits were performed this month: one was completed on May 6, and the other audit was performed on May 21. Both the inlet filter and the FDMS filter were replaced on May 21. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m³, the data was corrected to 0 ug/m³. If the data was below -3ug/m³, the data was invalidated. 11 hours of data were invalidated as the data were below -3 ug/m³ this month.

Two 24-hr contraventions were recorded this month: concentration of 79 ug/m³ on May 25 and concentration of 67 ug/m³ on May 26. AE Reference numbers 298739 and 298789 respectively.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.
The wind system was working well throughout the month.

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month.

AMBIENT TEMPERATURE (TPX)

The temperature sensor was working well throughout the month.

PASSIVE SAMPLES

The two-month sampling program commenced in April 2015. Samples were collected over the months of April and May. Samples were collected at all designated stations, except stations 12 and 25. Access to stations 12 and 25 was denied due to Fire Suppression Ops at the Cold Lake air weapons range. Results are included in this report.

VOC SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs were reported as ppb in 2 decimal places.

Samples were collected on May 6, 12, 18, 24 and 30. Results are included in this report.

PAH SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs were reported as μg in 2 decimal places.

Samples were collected on May 6, 12, 18, 24 and 30. Results are included in this report.

PARTISOL SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the Partisol were reported as mg in 2 decimal places.

Samples were collected on May 6, 12, 18, 24 and 30. Results are included in this report.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling personnel was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

All data collected this month were within the objectives outlined in the AMD1989 and AMD2006, except PM 2.5.

Two 24-hr contraventions were recorded for PM 2.5 this month: concentration of 79 ug/m³ on May 25 and concentration of 67 ug/m³ on May 26. AE Reference numbers 298739 and 298789 respectively.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, and 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006).

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00210: Ambient TRS Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canister and Xontech

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - Thermo 43i UV Fluorescent Analyzer
- Total Reduced Sulphur - Thermo 450i UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - Thermo 42C Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - Met One Unit
- Relative Humidity - Met One Unit
- Ambient Temperature - Met One Unit
- Datalogger - ESC 8832
- Partisol - R&P 2000H Unit

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE



SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

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

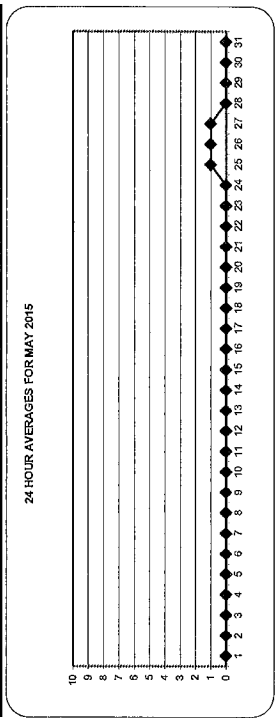
STATUS FLAG CODES

C	QUALITY ASSURANCE
V	RECOVERY
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	OUT FOR REPAIR
Q	MAINTENANCE
R	MACHINE/MALFUNCTION
X	OPERATOR ERROR
O	COLLECTION ERROR

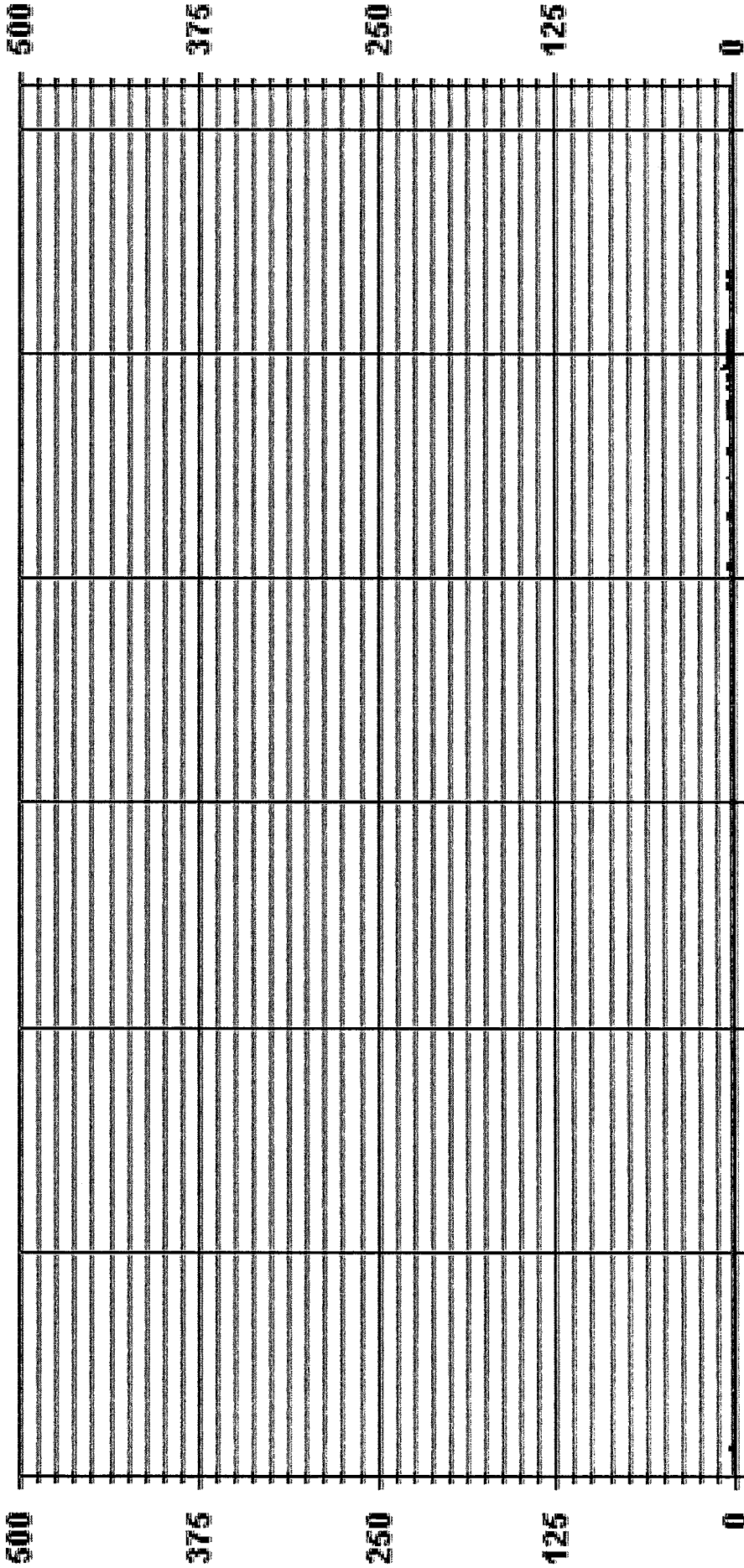
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR: 172 PPB, 24-HR: 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF 24-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	71
MAXIMUM 1-HR AVERAGE	5 PPB
MAXIMUM 24-HR AVERAGE	1.2 PPB
12S CALIBRATION TIME	33 HRS
MONTHLY CALIBRATION TIME	4 HRS
STANDARD DEVIATION	0.43
OPERATIONAL TIME	743 HRS
AMID OPERATION UPTIME	99.9 %
MONTHLY AVERAGE	0 PPB
ON DAY(S)	25
ON DAY(S) VAR-IOUS	25



01 Hour Averages



— LICA SO2_ PPB



SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX	24-HOUR AVG	RDS.	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
5	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
6	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	22
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
9	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	24
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
HOURLY MAX	2	1	2	2	2	2	4	3	2	2	4	1	2	2	2	2	3	7	6	5	3	2	2	2	2	2	1.0	1.0
HOURLY AVG	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	

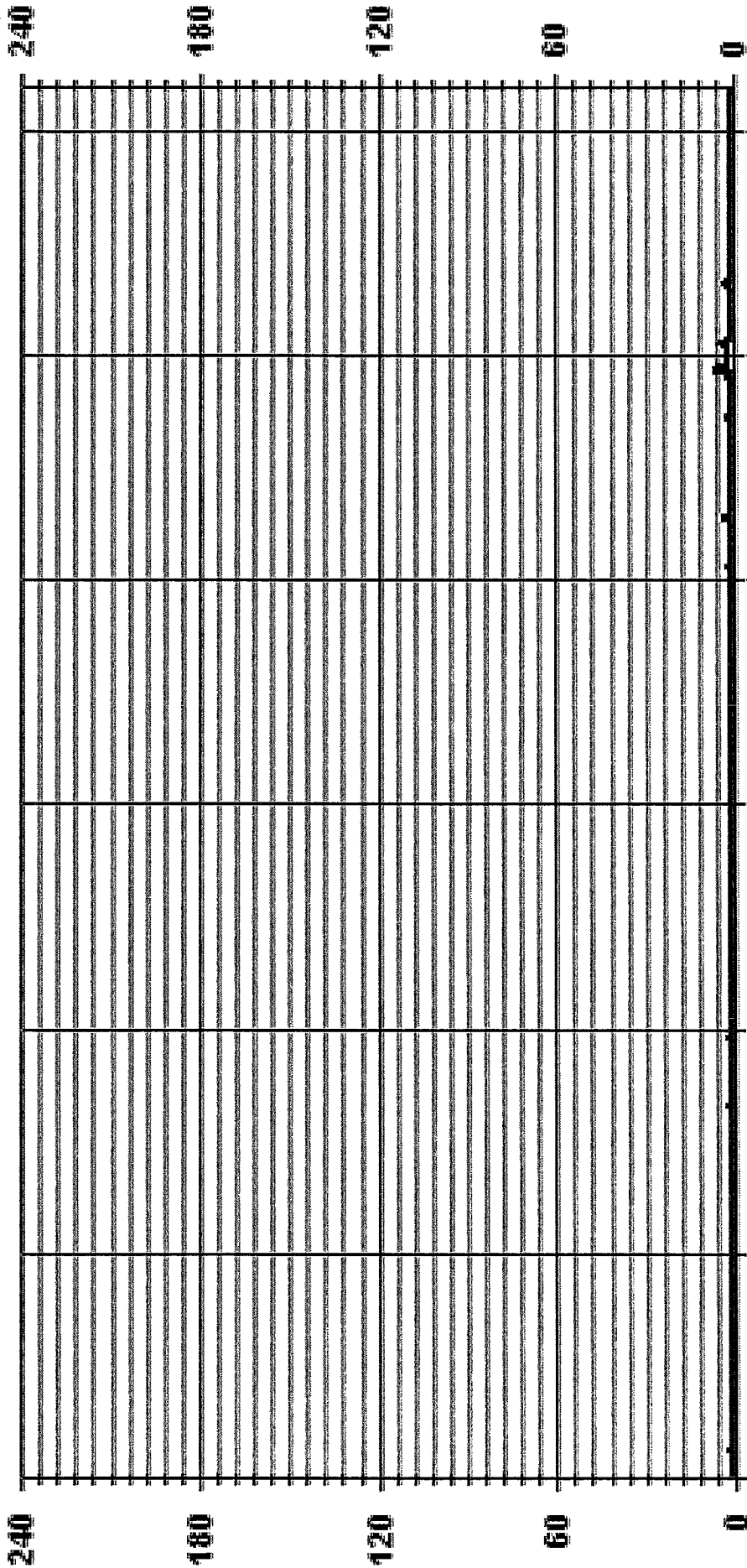
STATUS FLAG CODES

G	SCALIBRATION
Q	QUALITY ASSURANCE
R	RECOVERY
S	MAINTENANCE
T	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
O	OPERATOR ERROR
X	MACHINE/MALFUNCTION
K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699
MAXIMUM INSTANTANEOUS VALUE:	7 PPB @ HOUR(S) 16 ON DAY(S) 25
OPERATIONAL TIME:	33 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.44
VAR-VARIABLES:	VAR-VARIABLES
OPERATIONAL TIME:	742 HRS

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA SO2MAX PPB

SO2_ / WDR Joint Frequency Distribution (Percent)

LICA

May 2015

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : SO2
 Units : PFB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	2.97	7.08	14.02	8.64	7.64	6.65	15.15	7.64	3.82	4.81	3.25	4.67	3.82	4.24	3.54	1.98	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	7.08	14.02	8.64	7.64	6.65	15.15	7.64	3.82	4.81	3.25	4.67	3.82	4.24	3.54	1.98	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	21	50	99	61	54	47	107	54	27	34	23	33	27	30	25	14	706
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	21	50	99	61	54	47	107	54	27	34	23	33	27	30	25	14	706

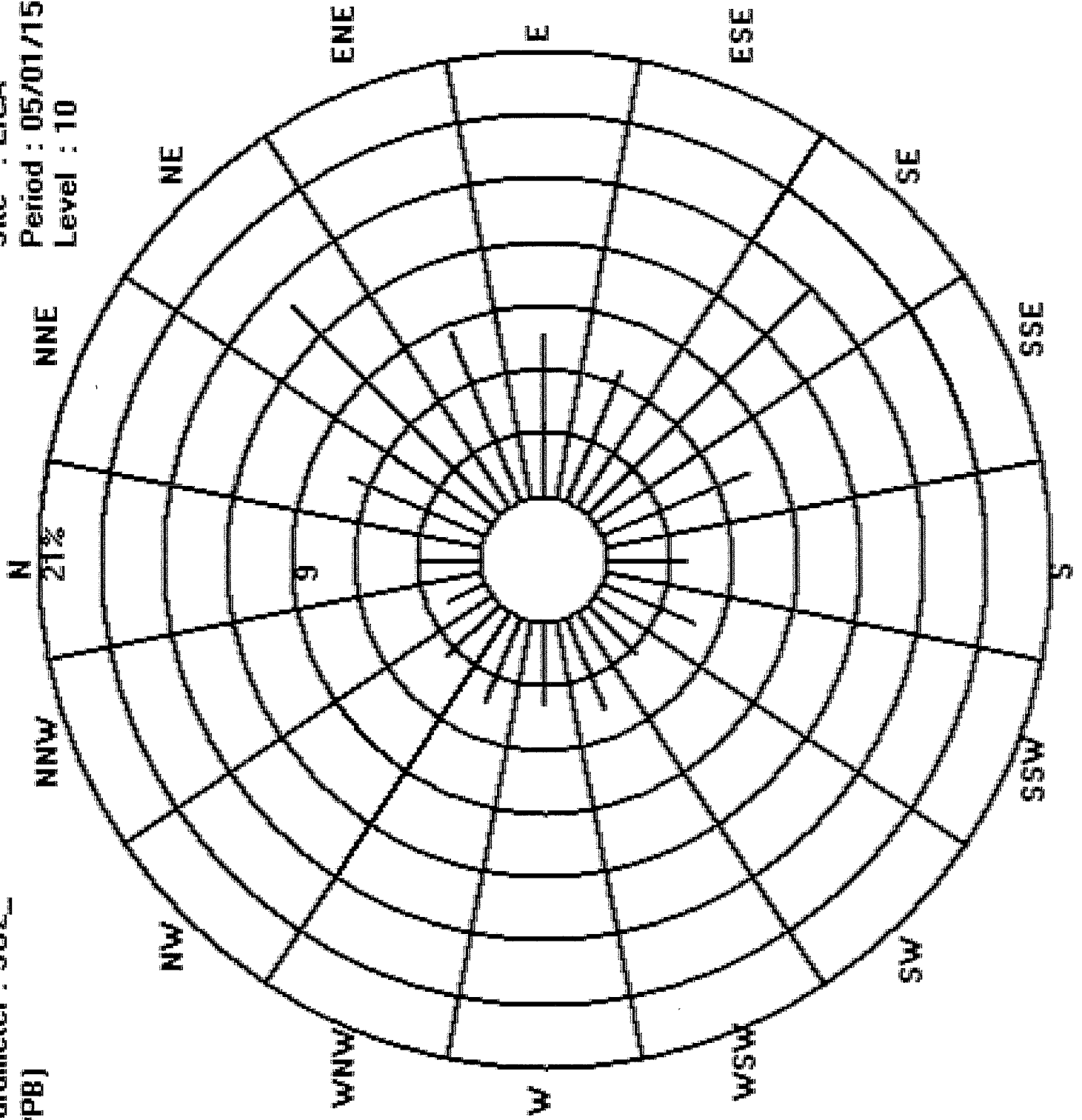
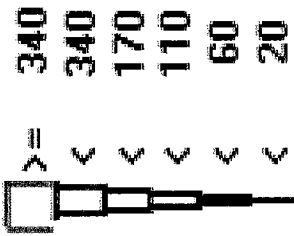
Calm : .00 %

Total # Operational Hours : 706

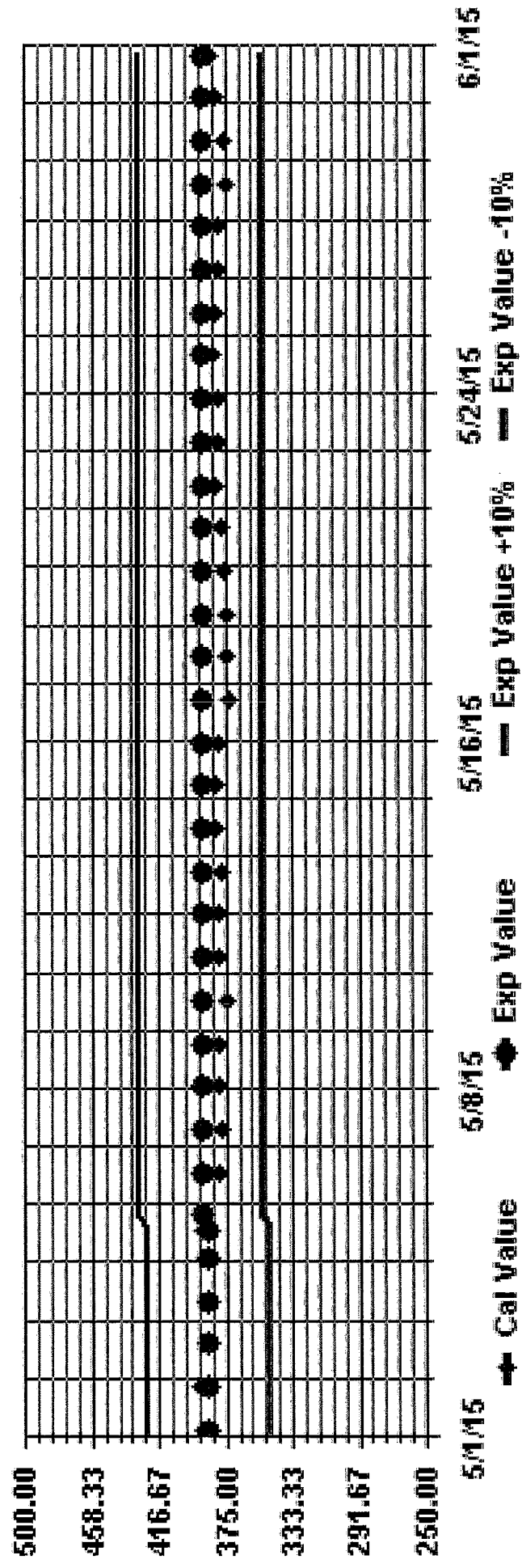
Site : LICA
Period : 05/01/15-05/31/15
Level : 10

Logger : 01 Parameter : SO2_

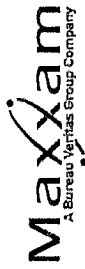
Class Limits (PPB)



Calibration Graph for Site: LICA Parameter: SO2_ Sequence: SO2 Phase: SPAN



TOTAL REDUCED SULPHUR



TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

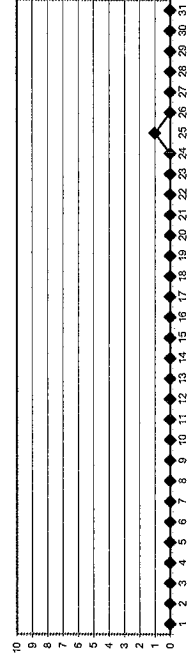
MST

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

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MAGHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

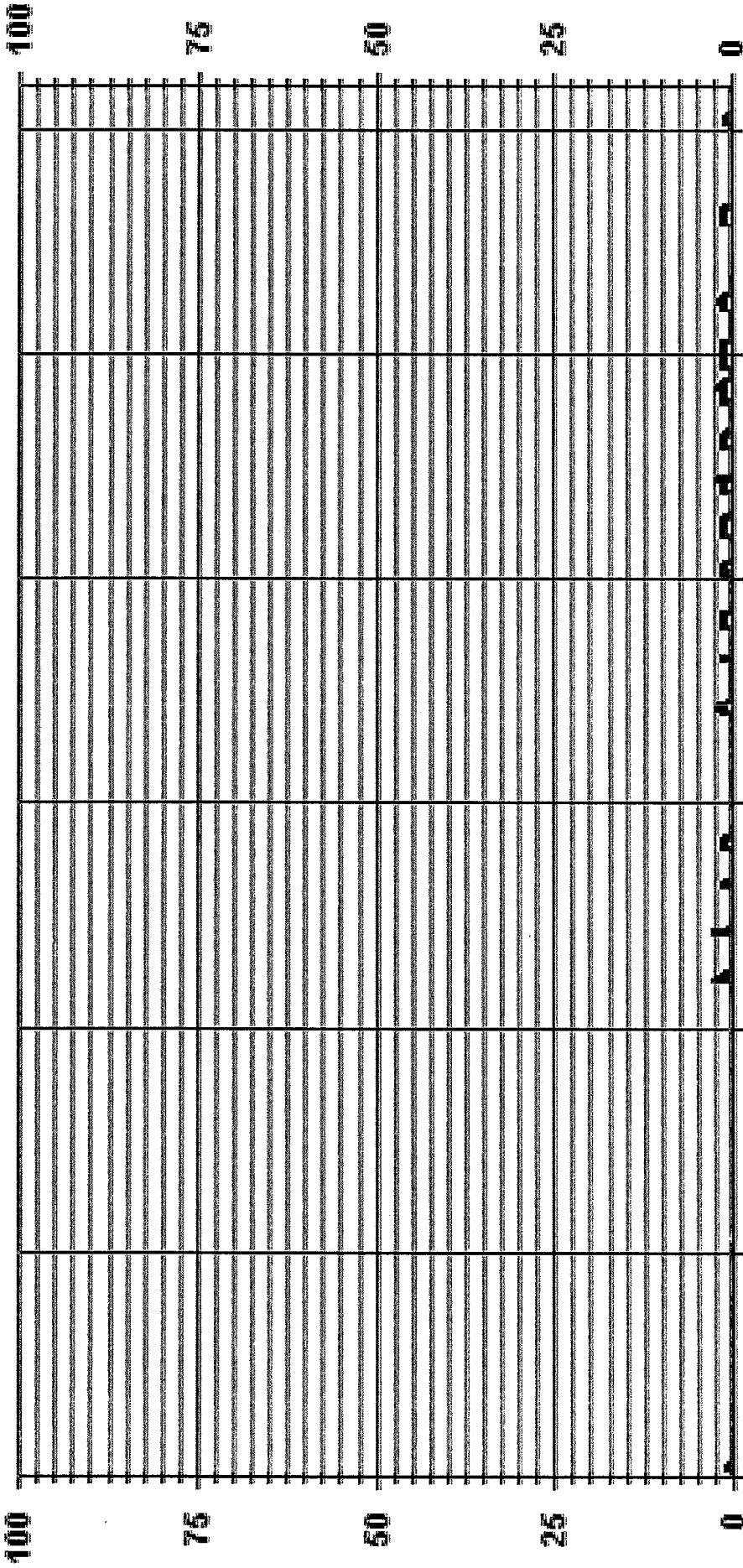
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

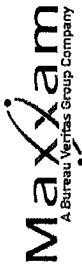
NUMBER OF NON-ZERO READINGS:	99	ON DAY(S)	12, 13
MAXIMUM 1-HR AVERAGE:	3 PPB	@ HOUR(S)	2, 4
MAXIMUM 24-HR AVERAGE:	0.8 PPB	ON DAY(S)	25
IS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.41	MONTHLY AVERAGE:	0 PPB

01 Hour Averages



05:01/15 00:00:05:06/15 00:00:05:11/15 00:00:05:16/15 00:00:05:21/15 00:00:05:26/15 00:00:05:31/15 00:00

— LICA TRS_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MAY 2015
JOB # 2833-2015-05-01- C

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

DAY	HOURS																								DAILY MAX	24-HOUR AVG	RDGS			
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				0:00		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24		
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
15	1	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	24	
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
18	1	2	3	4	4	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.3	24	
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	24	
22	2	1	1	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.3	24	
23	1	1	4	5	5	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.5	24	
24	3	2	1	5	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.5	24	
25	2	4	5	2	3	2	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.3	24	
26	2	5	3	4	4	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.6	24	
27	5	1	3	3	1	4	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.4	24	
28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
HOURLY MAX	3	5	14	5	8	5	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
HOURLY AVG	1.2	1.3	1.8	1.6	1.6	1.8	1.4	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	24

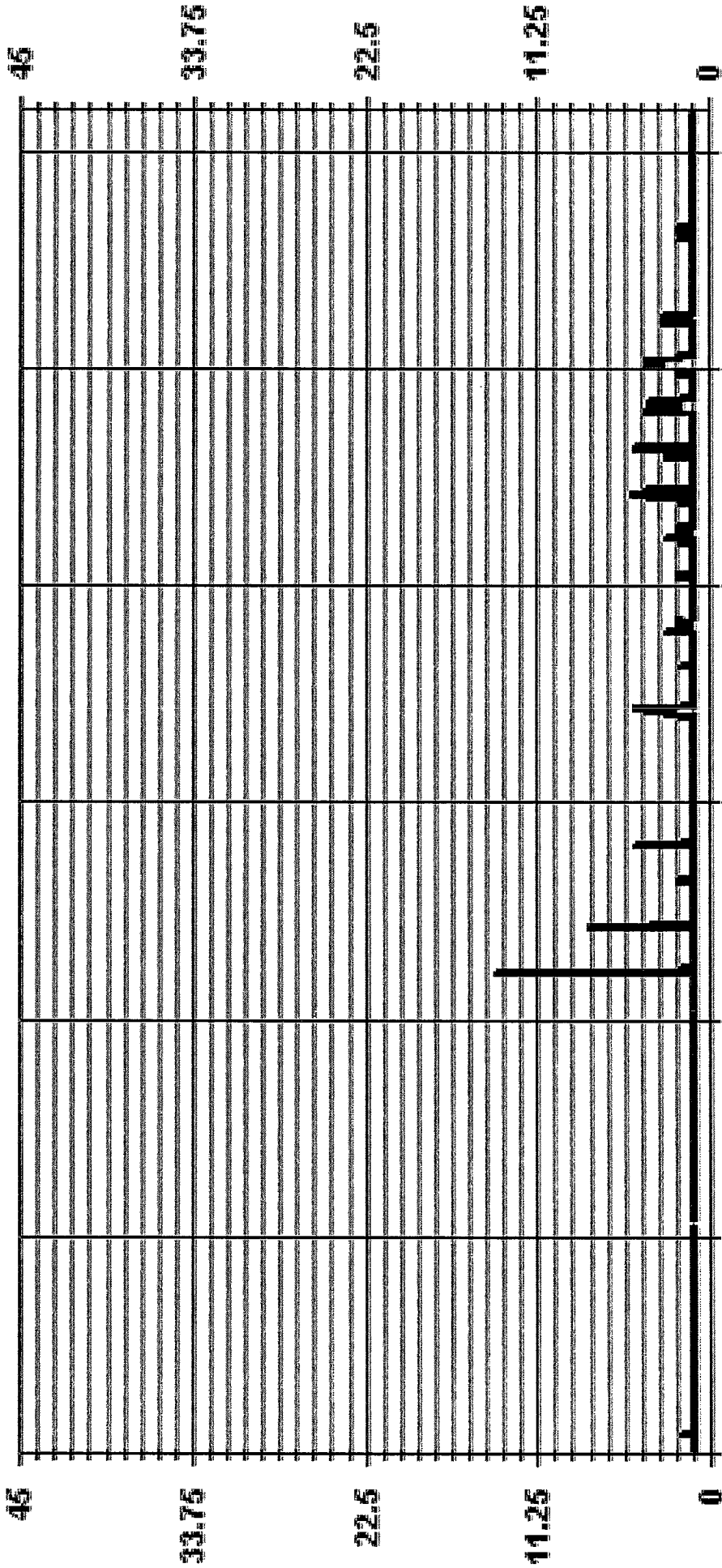
STATUS FLAG CODES

C	-CALIBRATION	Q	-QUALITY ASSURANCE
Y	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SPAN CHECK	X	-MACHINE MALFUNCTION
P	-POWER FAILURE	O	-OPERATOR ERROR
G	-OUT-OF-REPAIR	K	-COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706
MAXIMUM INSTANTANEOUS VALUE:	14 PPB @ HOUR(S) 2 ON DAY(S) 12
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.78
OPERATIONAL TIME:	744 HRS
VAR-VARIOUS	

01 Hour Averages



— LICA TRSMAX PPB

LICA
 TFS_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	2.97	6.51	13.88	8.64	8.21	6.65	15.15	7.64	3.68	4.81	3.25	4.67	3.82	4.24	3.54	1.98	99.71
< 10	.00	.00	.14	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.28
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	6.51	14.02	8.64	8.21	6.65	15.15	7.64	3.82	4.81	3.25	4.67	3.82	4.24	3.54	1.98	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

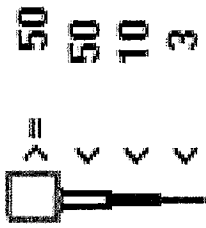
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	21	46	98	61	58	47	107	54	26	34	33	27	27	30	25	14	704
< 10			1						1								2
< 50																	
>= 50																	
Totals	21	46	99	61	58	47	107	54	27	34	33	27	27	30	25	14	

Calm : .00 %

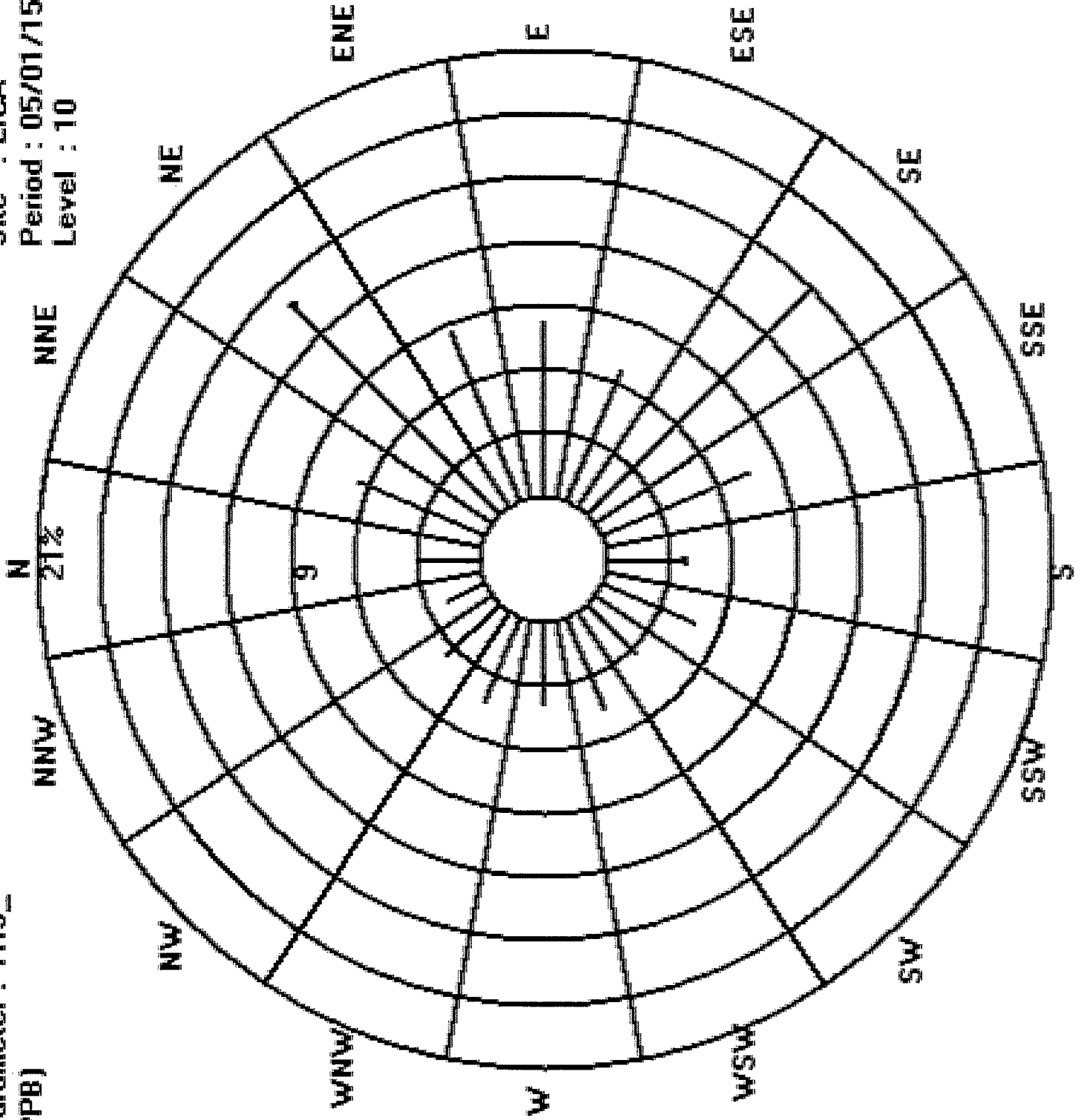
Total # Operational Hours : 706

Logger : 01 Parameter : TRS_

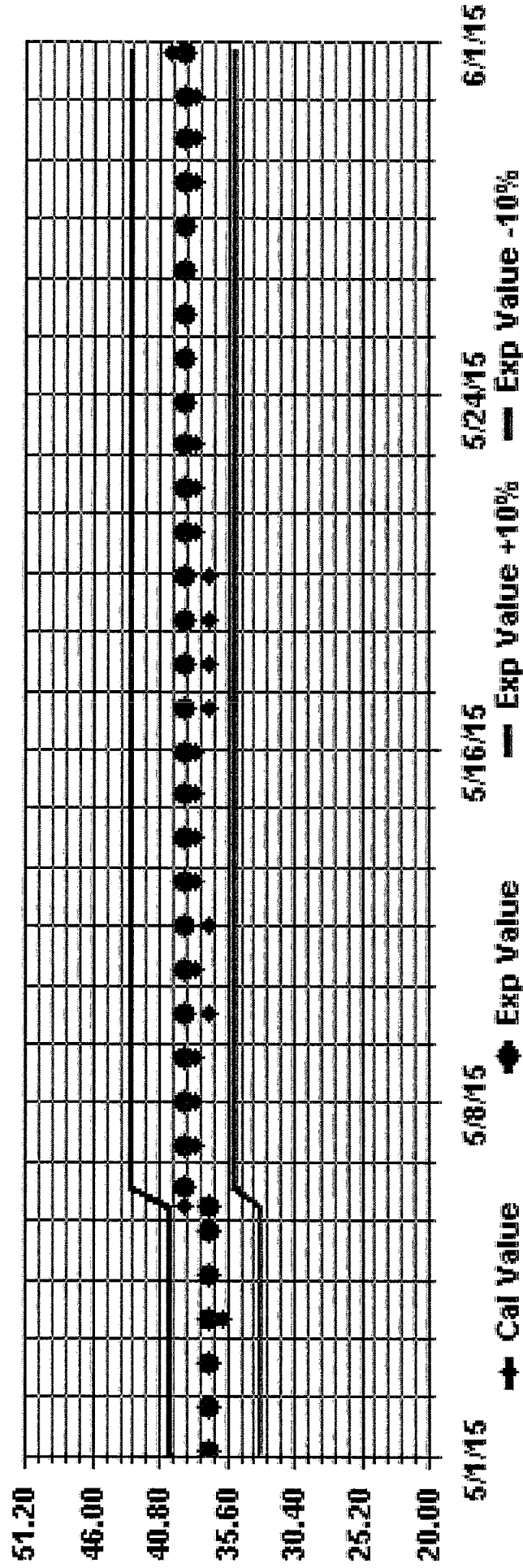
Class Limits (PPB)



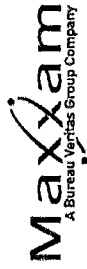
Site : LICA
Period : 05/01/15-05/31/15
Level : 10



Calibration Graph for Site: LICA Parameter: TRS_ Sequence: TRS Phase: SPAN



TOTAL HYDROCARBON



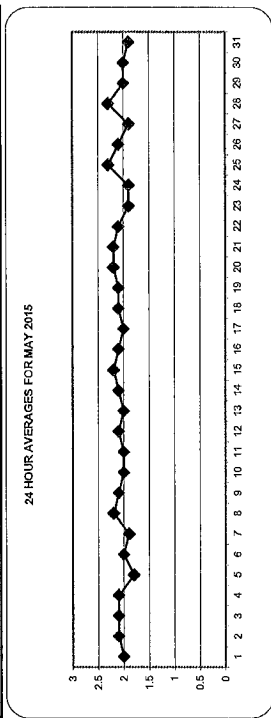
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	ROGS.
1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.1	2.1	2.1	2.1	2.0
2	2.0	2.3	2.4	2.5	2.6	2.6	2.3	2.1	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.1	2.4
3	2.2	2.2	2.3	2.3	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.4
4	2.2	2.2	2.3	2.3	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4
5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	2.4
6	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.4
7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.4
8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
9	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
10	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
11	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.4	
12	2.3	2.3	2.3	2.3	2.4	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
13	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
14	2.2	2.2	2.3	2.3	2.3	2.4	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
15	2.4	2.5	2.4	2.5	2.5	2.6	2.2	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
16	2.3	2.3	2.4	2.1	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
17	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
18	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
19	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.7	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
20	2.2	2.3	2.3	2.4	2.5	2.5	2.7	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
21	2.6	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.4	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
22	2.4	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	
23	2.0	2.1	2.3	2.4	2.4	2.4	2.1	2.0	1.9	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	
24	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.4	
25	2.1	2.3	2.7	2.9	2.8	2.7	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
26	2.6	2.6	2.7	2.7	2.8	2.9	3.0	2.2	2.1	2.0	2.0	1.9	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.4	
27	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	
28	2.0	2.1	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
29	2.2	2.1	2.1	2.2	2.3	2.2	2.1	2.0	2.0	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	
30	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
31	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.8	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.4	
HOURLY MAX	2.6	2.7	2.7	2.9	2.9	3.0	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
HOURLY AVG	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	

STATUS FLAG CODES

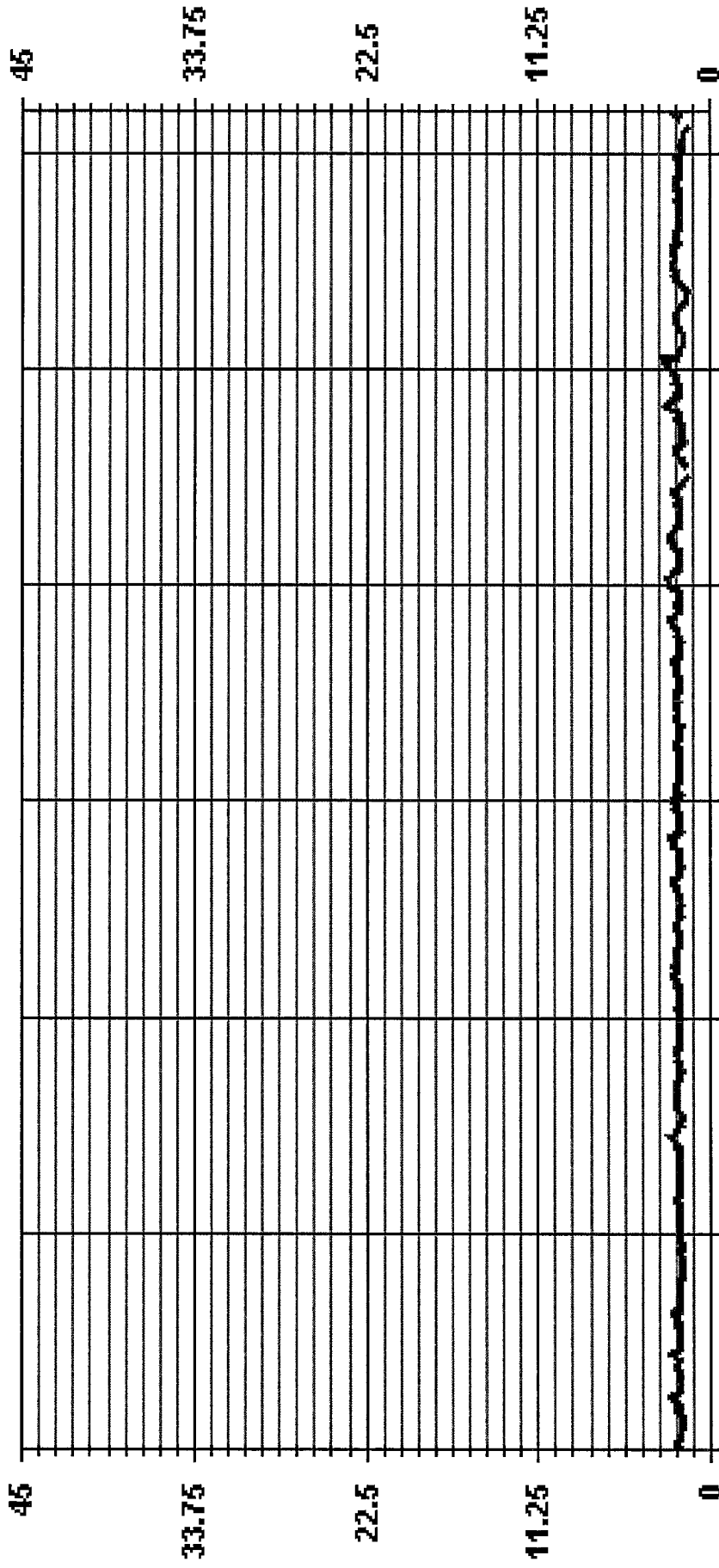
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR
G	OUT OF RANGE	K	COLLECTION ERROR



MONTHLY SUMMARY

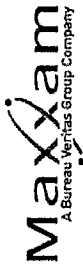
NUMBER OF NON-ZERO READINGS:	695
MAXIMUM 1-HR AVERAGE:	3.0 PPM
MAXIMUM 24-HR AVERAGE:	2.3 PPM
OPERATIONAL TIME:	33 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.21
ON DAY(S)	6
ON DAY(S) VAR-VARIOUS	26
OPERATIONAL TIME: AMID OPERATION UPTIME:	732 HRS
MONTHLY AVERAGE:	58.4 %
MONTHLY AVERAGE:	2.1 PPM

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA - - - THC . . . PPM



TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX	24-HOUR AVG	RDGS	
1	2.1	2.1	2.2	S	2.2	2.3	2.3	2.2	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	1.9	1.8	1.9	2.2	2.1	3.0	2.2	2.2	3.0	2.1	24		
2	2.1	2.5	S	2.5	2.7	2.8	2.7	2.5	2.2	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.2	2.2	2.1	2.2	2.2	2.4	2.4	2.8	2.3	
3	2.3	S	2.2	2.3	2.5	2.7	2.7	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.3	2.2	2.7	2.2	2.4		
4	S	2.3	2.3	2.4	3.0	2.8	2.2	2.5	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	S	3.0	2.2	2.4		
5	1.9	1.9	1.9	2.0	1.9	2.1	2.1	1.9	2.1	1.9	1.9	C	C	C	C	2.0	2.9	1.9	1.9	2.0	2.0	2.0	S	1.9	2.9	2.0	2.4		
6	1.9	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	S	2.0	2.0	2.2	2.1	2.4		
7	2.0	2.0	2.0	2.0	2.3	2.2	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	S	2.1	2.1	2.1	2.3	2.1	2.4		
8	2.3	2.3	2.3	2.6	2.5	3.0	2.7	2.6	2.5	2.5	2.4	2.2	2.1	2.1	2.1	2.1	2.0	1.9	2.0	S	2.2	2.2	2.2	2.2	3.0	2.3	2.4		
9	2.3	2.3	2.4	2.4	2.7	2.3	2.3	2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.0	S	2.0	2.1	2.2	2.1	2.3	2.7	2.2	2.4	2.4		
10	2.2	2.2	2.3	2.4	2.5	2.5	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.4	2.4	2.1	2.2	S	2.0	2.1	2.2	2.1	2.2	2.0	2.5	2.2	2.4		
11	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.1	S	2.2	2.2	2.4	2.3	2.4	2.4	2.5	2.5	2.2	2.4	
12	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.7	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	S	2.0	2.0	3.0	2.0	2.1	2.0	2.0	3.0	3.0	2.3	2.4	
13	2.2	2.3	2.2	2.2	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	S	2.0	2.1	2.0	2.1	2.0	2.1	2.2	2.2	2.4	2.2	2.4	2.4	
14	2.4	2.4	2.5	2.7	2.5	2.5	2.5	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	S	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.5	2.6	2.7	2.3	2.4
15	2.6	2.8	2.6	2.9	2.7	3.3	2.6	2.1	2.0	2.1	2.0	2.1	S	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.6	2.5	2.6	2.4	3.3	2.4	2.4	
16	2.4	2.5	2.7	2.5	2.0	2.1	2.2	2.2	2.2	2.2	2.3	S	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7	2.2	2.4
17	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.2	2.2	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.1	2.1	2.4	
18	2.3	2.3	2.2	2.4	2.3	2.3	2.3	2.3	2.2	S	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.2	2.3	2.4	2.2	2.4	
19	2.3	2.3	2.4	2.4	2.4	2.5	2.6	2.6	2.7	2.3	2.2	2.2	2.2	2.3	2.2	S	2.0	2.0	3.0	2.0	2.1	2.0	2.0	2.0	3.0	3.0	2.3	2.4	
20	2.3	2.4	2.4	2.6	2.6	2.6	2.6	2.8	S	2.5	2.3	2.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.4	2.6	2.9	2.4	
21	2.7	2.8	2.7	2.7	2.9	2.9	S	2.5	2.5	2.4	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.4	2.3	2.5	2.9	2.4	2.4		
22	2.7	2.6	2.6	2.6	2.6	2.6	S	2.6	2.5	2.5	2.3	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.1	2.2	2.4	2.5	2.4	2.3	2.7	2.3	2.4	
23	2.2	2.3	2.5	2.6	2.6	2.6	S	2.6	2.2	2.1	2.0	1.9	1.8	1.7	1.6	X	X	X	X	X	2.0	2.1	2.0	2.3	2.6	2.1	1.7		
24	2.3	2.3	2.2	S	3.2	2.9	2.9	2.7	2.5	2.2	2.5	2.2	2.1	2.1	2.1	2.2	2.5	2.5	2.6	2.8	2.8	2.7	2.5	2.3	2.8	2.2	2.4		
25	2.5	2.7	S	2.9	3.2	2.9	2.9	2.9	2.7	2.5	2.2	2.5	2.2	2.1	2.1	2.2	2.5	2.5	2.6	2.5	2.4	2.7	2.6	2.7	3.2	2.6	2.4		
26	2.7	S	2.8	2.9	2.9	3.0	3.1	3.0	2.2	2.2	2.2	2.1	2.1	2.1	2.1	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.4	2.3	3.1	2.3	2.4		
27	S	2.3	2.5	2.3	2.3	2.4	2.4	2.2	2.2	2.2	2.2	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.9	S	1.6	1.7	1.8	S	2.5	2.0	2.4		
28	2.1	2.1	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.5	2.6	S	2.3	2.6	2.4	2.4	
29	2.3	2.2	2.2	2.3	2.4	2.7	2.3	2.1	2.1	2.1	2.2	2.2	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.0	S	2.4	2.4	2.7	2.2	2.4	
30	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.2	S	2.3	2.1	2.0	2.3	2.1	2.4	
31	2.0	1.9	1.9	1.9	2.0	2.1	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.6	X	X	X	X	X	2.4	2.6	2.6	2.6	2.6	2.0	1.9	
HOURLY MAX	2.7	2.8	2.8	2.9	3.2	3.3	3.1	3.0	2.5	2.5	2.9	2.4	2.4	2.4	2.4	2.5	2.9	2.5	3.0	2.8	2.8	3.0	2.6	2.7	3.0	2.6	2.0		
HOURLY AVG	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.2	2.2	2.3	2.3	2.3	2.3		

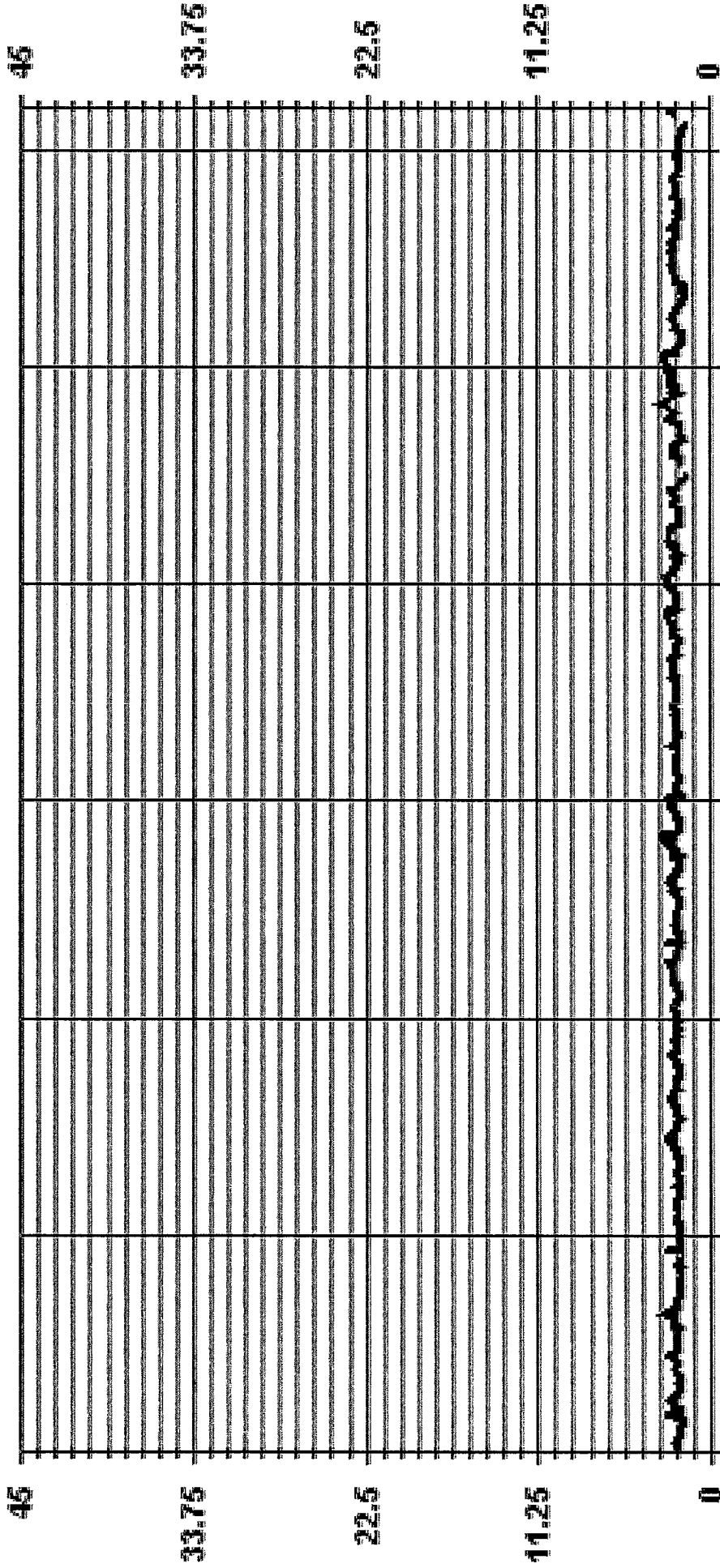
STATUS FLAG CODES

C	QUALITY ASSURANCE
G	RECOVERY
M	MAINTENANCE
R	RECOVERY
S	DAILY ZERO/SAN CHECK
P	POWER FAILURE
G	OUT FOR REPAIR
X	MACHINE MALFUNCTION
O	OPERATOR ERROR
K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	695	ON DAY(S)	15
MAXIMUM INSTANTANEOUS VALUE:	3.3 PPM @ HOUR(S)	5	VARIOUS
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	792 HRS
MONTHLY CALIBRATION TIME:	4 HRS		
STANDARD DEVIATION:	0.26		

01 Hour Averages



— LICA THCMAX PPM

LICA
 THC / WD Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

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

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	3.02	6.76	13.81	8.77	7.76	6.76	14.96	7.62	3.88	4.89	3.30	4.74	3.74	4.31	3.45	2.01	99.85
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.14
< 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	3.02	6.76	13.81	8.77	7.76	6.76	14.96	7.62	3.88	4.89	3.30	4.74	3.88	4.31	3.45	2.01	

Calm : .00 %

Total # Operational Hours : 695

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	21	47	96	61	54	47	104	53	27	34	23	33	26	30	24	14	694
< 10.0													1				1
< 50.0																	
>= 50.0																	
Totals	21	47	96	61	54	47	104	53	27	34	23	33	27	30	24	14	

Calm : .00 %

Total # Operational Hours : 695

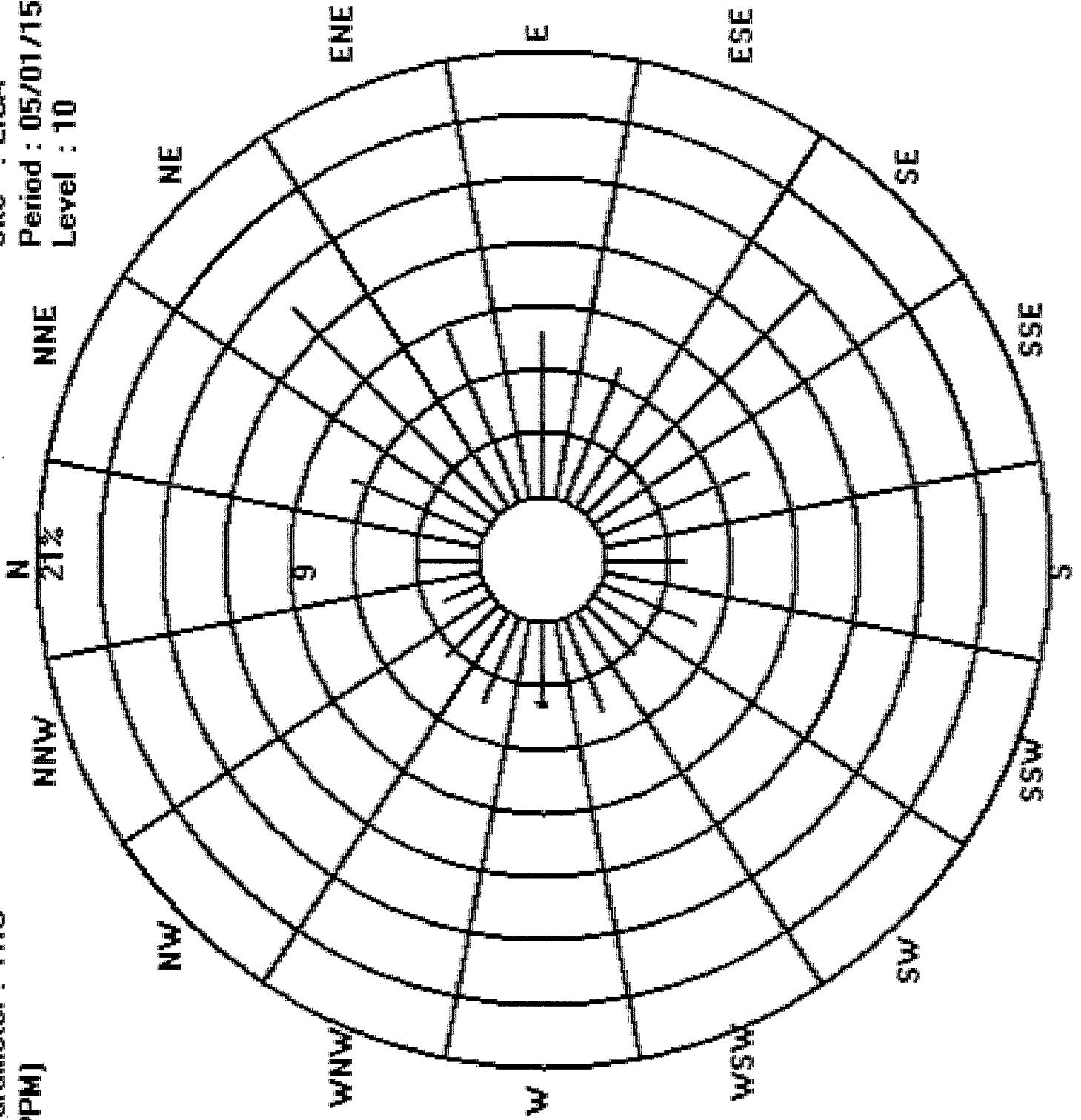
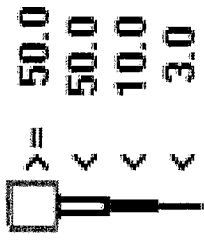
Logger : 01 Parameter : THC

Site : LICA

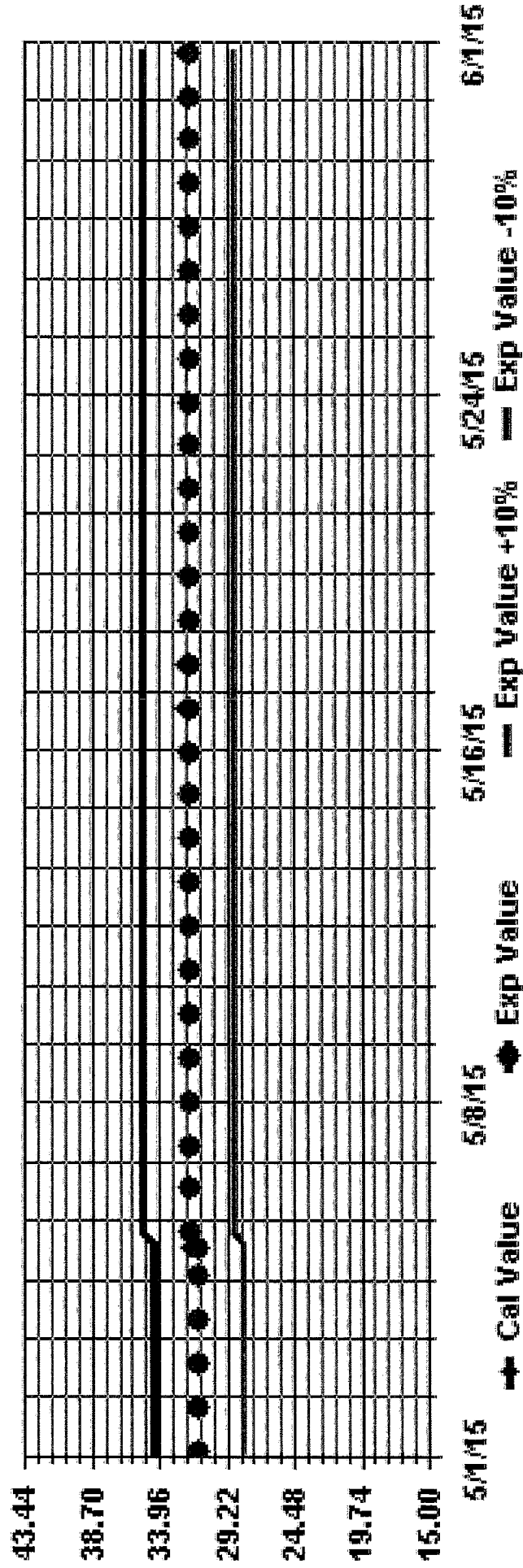
Class Limits (PPM)

Period : 05/01/15-05/31/15

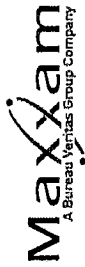
Level : 10



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



OXIDES OF NITROGEN



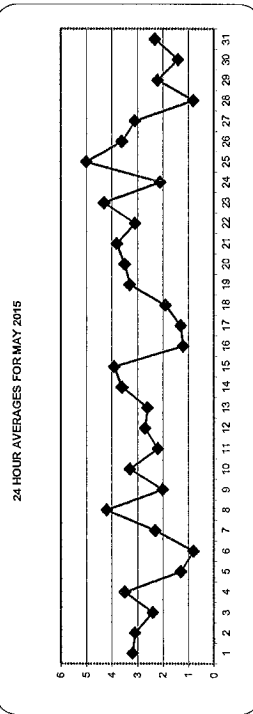
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST

DAY	HOURS																								DAILY MAX.	24-HOUR AVG.	RDGS.	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				
1	2.9	2.4	3.0	6.4	6.1	6.0	4.2	2.6	2.6	1.6	1.7	1.9	2.0	2.3	2.8	2.9	2.0	2.8	3.7	4.7	4.0	3.4	3.2	6.4	3.2	24		
2	2.8	2.6	5	5.2	5.0	8.7	8.2	5.3	1.9	0.8	0.8	0.7	1.0	1.7	1.1	4.0	0.9	0.8	1.2	1.8	3.8	3.6	3.7	4.9	8.7	3.1	24	
3	3.9	5	2.5	2.4	3.6	5.8	4.2	2.2	1.9	1.9	1.2	1.0	0.6	0.6	0.6	0.6	0.6	0.6	1.3	1.8	3.2	2.6	2.7	1.6	8.6	2.4	24	
4	5	5.6	4.3	5.0	11.4	19.1	3.7	3.2	2.4	2.5	2.4	1.9	1.0	2.0	1.9	1.0	1.3	1.7	1.7	2.3	1.5	1.0	0.8	5	19.1	3.5	24	
5	1.1	1.0	1.0	1.2	1.5	2.1	1.9	2.2	1.2	1.6	C	C	C	C	C	C	1.3	1.3	1.3	1.1	0.7	0.7	5	0.5	2.2	1.3	24	
6	0.5	0.5	0.6	0.8	1.1	1.0	1.3	1.5	0.8	1.0	0.7	1.3	0.8	0.6	0.7	0.8	0.8	1.0	1.0	2.7	5	2.5	1.2	2.4	10.6	2.3	24	
7	1.0	0.7	0.6	0.6	2.5	4.4	1.6	0.6	0.8	1.8	10.6	8.6	5.6	0.7	0.7	0.8	1.0	1.0	0.6	5	2.5	1.6	1.4	1.7	19.0	4.2	24	
8	4.2	4.6	3.6	5.3	8.8	19.0	12.8	4.6	4.6	6.6	5.8	2.5	1.0	2.0	1.5	0.9	1.2	0.9	0.6	5	2.5	2.0	1.6	1.7	4.0	2.0	24	
9	2.1	2.2	2.4	3.4	3.9	3.4	2.4	2.9	4.0	1.5	0.8	1.0	0.8	0.7	0.8	0.7	0.8	1.0	1.0	5	2.9	2.3	2.0	1.6	1.7	4.0	2.0	24
10	2.9	5.5	4.5	9.3	11.5	13.9	4.7	1.2	1.3	0.9	0.7	0.6	0.8	0.6	0.5	0.5	0.8	5	1.2	1.6	1.9	4.2	5.5	1.0	13.9	3.3	24	
11	1.1	1.9	2.0	1.7	2.7	6.9	2.7	2.4	1.7	3.8	2.1	1.2	0.7	0.6	1.0	0.8	5	1.0	1.1	1.3	3.6	3.2	3.7	4.2	6.9	2.2	24	
12	2.8	1.7	1.9	2.3	2.3	9.7	6.0	5.0	3.3	2.5	1.2	0.8	2.0	0.6	0.8	5	1.8	1.8	1.9	3.7	5.4	1.8	0.7	1.1	9.7	2.7	24	
13	1.2	1.5	2.0	3.3	6.4	9.5	2.6	2.3	1.2	1.4	0.9	1.4	0.9	1.4	5	2.6	1.4	1.4	1.0	1.4	6.5	4.9	2.8	2.4	9.5	2.6	24	
14	2.9	4.0	5.6	8.8	7.7	14.9	6.8	2.6	2.1	1.6	1.5	1.2	0.9	5	1.1	1.2	1.0	0.8	1.5	2.0	3.3	3.7	3.9	4.4	14.9	3.6	24	
15	4.0	3.9	5.0	7.0	9.6	22.5	5.3	3.3	1.5	1.3	1.3	1.5	5	1.4	1.6	1.3	1.4	1.6	1.8	2.1	2.4	3.6	3.0	3.0	22.5	3.9	24	
16	3.5	4.0	3.6	3.3	0.8	0.5	0.4	0.6	0.5	0.8	1.1	5	0.6	0.5	0.6	0.9	0.7	0.6	0.7	1.0	0.7	0.7	0.8	0.8	4.0	1.2	24	
17	1.4	1.9	3.2	2.6	1.9	1.4	0.7	0.6	0.5	0.6	5	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.7	1.8	3.3	2.9	4.2	4.2	1.3	24	
18	2.9	1.9	1.8	2.6	2.4	3.3	6.0	2.3	1.6	5	1.1	1.2	0.8	0.7	0.6	0.7	0.6	0.7	0.9	1.1	1.9	3.4	3.2	2.5	6.0	1.9	24	
19	3.1	2.8	2.7	3.3	4.9	5.8	10.0	6.8	5	2.6	1.5	1.2	1.1	0.9	1.0	1.2	1.5	2.7	4.2	5.9	5.3	3.1	3.3	10.0	3.3	24		
20	3.4	4.0	3.8	5.4	6.7	8.3	10.5	5	4.5	3.3	1.2	1.2	0.9	1.8	1.2	1.2	1.0	1.1	1.0	1.2	2.7	6.0	4.4	6.2	10.5	3.5	24	
21	6.8	7.0	6.3	7.3	8.1	15.9	5	3.8	5.7	2.9	0.9	1.0	0.9	1.0	1.3	1.0	1.1	1.2	1.1	1.7	5.2	4.8	5.0	5.6	8.2	3.1	24	
22	4.4	3.7	3.5	4.0	3.4	5	8.2	4.0	4.1	2.9	2.0	1.0	0.9	1.0	1.3	1.0	1.1	1.2	1.1	1.7	8.4	8.9	9.4	7.9	5.1	9.4	4.3	24
23	4.2	4.0	4.2	3.5	5	3.3	1.5	1.2	0.9	1.1	1.1	1.3	2.1	3.0	4.0	4.8	5.9	6.4	7.6	8.4	8.9	9.4	7.9	5.1	9.4	4.3	24	
24	3.5	3.2	3.2	5	2.8	2.7	1.3	1.8	1.4	1.4	1.0	0.6	0.6	1.0	1.0	1.7	1.7	1.8	2.0	2.7	2.7	3.4	3.9	3.5	3.9	2.1	24	
25	4.0	4.2	5	3.4	3.5	4.8	5.7	5.1	4.8	3.4	4.4	2.0	2.2	2.3	2.5	5.9	12.0	8.3	7.5	7.9	8.0	6.0	6.0	5.6	12.0	5.0	24	
26	6.7	5	5.9	6.4	5.9	6.9	8.8	3.6	2.2	1.7	1.2	1.0	1.3	1.3	2.0	3.0	3.1	2.9	4.5	4.4	4.7	2.5	1.7	8.8	3.6	24		
27	5	3.5	3.0	1.8	2.8	5.8	9.2	2.1	1.9	1.5	1.2	1.1	1.4	1.4	1.7	2.6	3.5	4.6	5.9	4.9	3.4	2.2	1.6	5	9.2	3.1	24	
28	0.9	0.5	0.4	0.4	0.4	0.5	0.7	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.6	0.4	0.4	0.7	1.3	2.4	1.9	5	3.6	3.6	0.8	24	
29	3.2	2.1	3.6	3.0	6.5	7.1	4.9	3.3	1.6	1.2	0.8	0.5	0.5	0.6	0.6	0.4	0.5	0.6	1.8	2.2	5	2.8	2.9	7.1	2.2	24		
30	1.7	1.7	1.6	1.1	1.9	2.1	2.5	2.2	1.9	1.2	1.0	0.9	1.0	0.9	0.9	0.6	0.6	0.5	0.5	0.6	1.8	2.2	5	2.8	2.9	7.1	2.2	24
31	1.1	1.3	1.5	1.5	1.7	1.7	2.0	2.0	2.0	2.5	2.3	2.9	2.3	1.9	2.2	3.1	4.0	4.1	5	2.5	2.6	2.1	1.5	4.1	2.3	24		
HOURLY MAX	6.8	7.0	6.3	9.3	11.5	22.5	12.8	6.8	5.7	6.6	10.6	8.6	5.6	3.0	4.0	4.8	5.9	12.0	8.3	8.4	8.9	9.4	7.9	5.1	9.4	4.3	24	
HOURLY AVG	2.9	2.9	3.0	3.7	4.6	7.2	4.9	2.9	2.2	1.9	1.8	1.5	1.3	1.2	1.2	1.5	1.6	1.9	2.0	2.5	3.3	3.5	3.0	3.0	2.9	2.9	24	

STATUS FLAG CODES

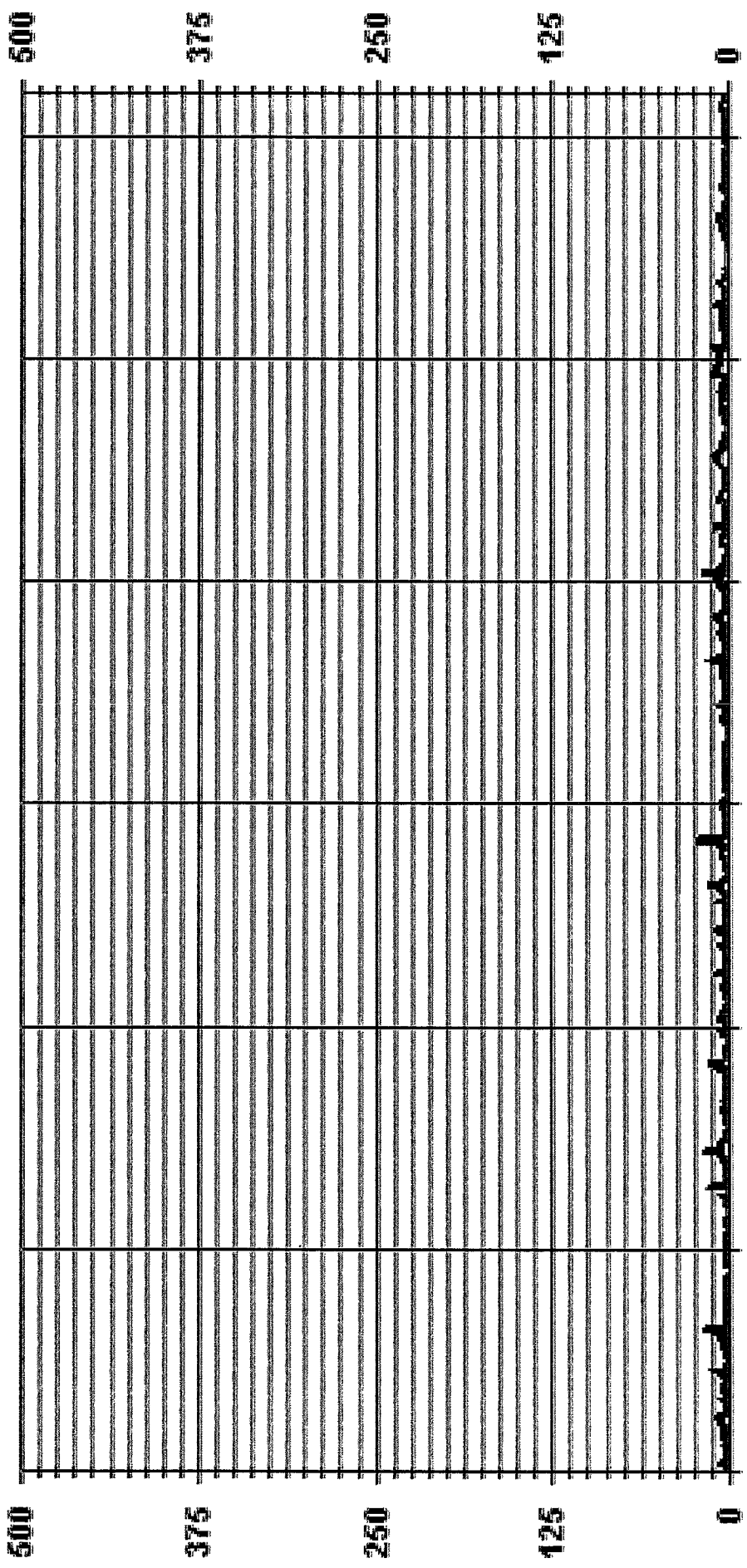
C	CALIBRATION	O	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO SPAN CHECK	X	IMAGINE M ALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705	PPB @ HOUR(S)	5	ON DAY(S)	15
MAXIMUM 1-HR AVERAGE:	22.5	PPB	5.0	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	5.0	PPB		VAR-VARIOUS	
1/25 CALIBRATION TIME:	33	HRS		OPERATIONAL TIME:	744
MONTHLY CALIBRATION TIME:	6	HRS		AMD OPERATIONAL UPTIME:	100.0
STANDARD DEVIATION:	2.57			MONTHLY AVERAGE:	2.7
					2.7

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00:00

— LICA NOX_ PPB



OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

DAY	HOURLY MAX																								DAILY MAX	24-HOUR AVG	ROGS	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				
1	8.5	4.5	6.5	S	16.7	11.2	17.2	5.7	3.2	4.7	5.7	11.7	8.7	7.7	4.7	5.2	5.2	16.1	8.2	8.7	4.2	17.2	7.5	24				
2	7.7	5.2	S	11.2	8.2	11.2	11.2	7.7	3.2	1.7	2.6	3.1	6.6	2.6	3.1	3.6	4.2	6.7	4.7	5.7	8.2	11.2	5.7	24				
3	6.7	S	3.2	4.2	7.6	12.1	11.1	7.2	5.1	1.6	1.1	1.1	6.6	3.7	5.7	6.2	6.6	3.1	6.6	5.7	5.7	12.1	5.2	24				
4	S	8.7	7.2	17.1	22.6	36.1	20.7	17.7	13.1	15.7	13.7	13.2	6.6	6.7	7.2	9.2	6.7	3.2	2.7	3.1	S	36.1	12.4	24				
5	3.7	2.7	2.2	2.2	2.2	3.7	7.1	5.2	3.1	2.6	9.1	S	S	S	S	4.7	1.7	2.1	1.6	S	1.0	9.1	3.4	24				
6	1.0	1.5	2.1	2.5	4.6	1.6	2.1	3.6	3.5	9.0	3.0	2.0	20.0	4.5	1.5	1.5	6.6	1.5	S	0.9	1.4	20.0	3.5	24				
7	1.9	0.9	0.9	8.9	8.9	8.4	3.4	0.9	1.9	9.9	112.9	65.4	44.9	4.4	3.4	4.0	2.9	1.9	37.4	S	7.9	2.4	4.9	14.8	24			
8	7.4	12.9	6.9	15.9	23.4	31.4	65.4	19.4	5.4	11.4	8.4	4.9	1.4	14.9	1.4	1.4	S	3.5	2.9	1.4	1.9	65.4	11.0	24				
9	3.4	2.9	4.4	8.9	6.9	5.5	2.9	3.4	7.4	4.4	2.9	8.4	5.4	4.4	1.9	S	5.0	4.0	4.4	13.9	10.4	13.9	5.5	24				
10	10.9	14.9	11.4	16.4	17.9	19.9	15.4	2.4	6.0	4.9	2.9	7.9	1.4	0.9	5.5	S	6.0	5.0	6.9	56.4	9.9	56.4	10.2	24				
11	3.4	8.4	4.0	3.4	8.4	23.4	4.0	2.9	2.4	39.4	6.5	2.9	1.4	1.9	2.9	1.9	S	4.0	2.4	4.9	6.5	7.4	39.4	6.7	24			
12	6.0	4.9	6.9	5.5	4.0	17.9	11.9	24.9	24.9	62.9	13.4	5.5	70.9	5.5	7.4	S	11.9	16.4	21.9	24.4	62.4	38.9	1.9	1.4	70.9	19.6	24	
13	2.4	2.9	3.4	5.4	39.9	20.9	6.9	20.4	4.4	12.4	4.4	19.9	7.9	21.4	S	21.0	6.5	3.5	1.5	3.0	27.5	8.0	6.0	3.0	33.9	10.7	24	
14	6.0	11.5	15.0	15.5	18.0	21.5	16.5	4.0	3.0	4.0	7.5	2.5	1.5	S	6.0	14.0	8.5	6.1	13.0	3.0	6.6	6.6	10.5	6.1	21.5	9.0	24	
15	10.0	5.0	11.5	15.5	16.5	29.0	24.5	16.0	2.0	4.0	8.0	4.0	S	2.5	5.0	3.0	2.0	2.0	2.5	3.0	4.4	6.9	5.5	4.5	29.0	8.1	24	
16	4.5	5.5	6.0	5.0	1.5	1.0	0.9	0.9	2.9	5.4	19.4	S	1.5	1.0	1.5	1.5	3.0	1.5	2.0	1.5	2.0	1.5	2.5	3.5	19.4	3.6	24	
17	6.1	4.0	10.0	8.0	5.1	4.0	1.5	3.0	1.5	3.0	S	0.9	1.4	0.9	0.4	0.4	1.4	1.4	1.5	4.4	9.9	6.0	10.9	3.8	24			
18	7.9	4.4	4.9	12.9	6.9	5.5	7.9	3.9	2.0	S	4.0	13.5	2.0	3.5	7.5	1.0	1.0	1.0	2.0	6.0	6.0	8.0	6.6	4.5	13.5	5.3	24	
19	7.5	4.5	4.1	6.6	7.5	7.5	14.0	10.5	S	5.5	1.9	17.9	4.4	3.4	1.4	6.9	2.4	3.4	10.4	24.4	10.9	8.0	7.0	6.9	24.4	7.7	24	
20	4.9	6.0	4.5	7.4	10.4	14.9	13.9	S	5.6	7.5	4.0	8.0	27.5	15.5	3.1	3.0	5.6	2.1	1.1	4.1	40.5	9.0	6.5	6.0	40.5	10.8	24	
21	7.9	7.9	10.4	10.4	33.4	28.4	S	12.9	5.5	6.9	6.9	3.0	11.0	2.5	2.0	1.5	2.0	2.5	3.0	4.5	11.5	8.0	7.0	9.5	12.9	5.8	24	
22	7.0	6.5	5.1	6.5	6.5	S	12.9	5.5	6.9	6.9	3.0	11.0	2.5	2.0	1.5	2.0	1.5	2.0	2.5	3.0	4.5	11.5	8.0	7.0	9.5	12.9	5.8	24
23	6.0	4.5	7.0	5.0	S	7.9	2.9	4.5	7.0	3.0	3.5	3.0	4.5	4.5	6.5	7.0	9.5	9.0	16.5	10.0	14.0	10.0	7.0	16.5	6.8	24		
24	4.5	5.5	5.0	S	4.0	4.0	2.5	6.0	3.0	3.5	11.0	1.5	1.0	8.5	2.5	4.5	2.5	3.0	4.0	6.0	5.5	6.5	8.0	4.5	11.0	4.7	24	
25	5.5	5.0	S	5.0	5.5	10.5	8.0	6.0	7.5	8.0	7.0	3.5	4.5	5.0	6.0	17.5	17.5	10.5	10.0	11.5	10.5	8.5	7.0	17.5	8.1	24		
26	S	6.0	4.4	3.0	7.5	18.5	20.9	4.5	2.5	2.0	2.0	4.0	2.0	4.0	2.0	4.0	5.5	8.0	8.5	5.0	3.5	2.0	S	20.9	5.9	24		
27	S	6.0	4.4	3.0	7.5	18.5	20.9	4.5	2.5	2.0	2.0	4.0	2.0	4.0	2.0	4.0	5.5	8.0	8.5	5.0	3.5	2.0	S	20.9	5.9	24		
28	1.5	1.0	0.5	0.5	0.9	1.0	1.0	6.5	1.9	0.9	2.4	0.9	1.4	2.4	3.9	1.4	5.0	3.5	2.4	5.5	6.0	3.4	S	5.5	2.6	24		
29	6.0	3.5	6.0	4.5	16.9	25.9	10.9	5.4	4.9	10.4	4.9	2.4	1.5	2.9	1.9	10.4	0.9	0.9	2.9	11.4	4.4	S	5.0	6.5	25.9	6.5	24	
30	4.0	4.4	6.4	2.9	3.9	3.0	3.5	11.9	7.9	12.9	6.0	3.4	6.0	5.0	2.4	5.0	1.4	1.4	0.9	5.4	S	6.0	3.5	2.9	12.9	4.8	24	
31	2.0	1.5	1.5	2.0	2.5	2.0	2.5	3.0	2.5	11.5	4.0	4.5	3.5	4.0	2.5	4.0	16.0	4.5	6.5	S	3.5	4.5	5.0	2.5	16.0	4.2	24	
HOURLY MAX	10.9	14.9	15.0	17.1	35.9	36.1	65.4	24.9	24.9	62.9	112.9	65.4	70.9	26.9	13.2	21.0	17.5	21.9	37.4	62.4	56.4	13.9	10.9					
HOURLY AVG	5.6	5.4	5.9	7.6	10.6	13.2	11.2	7.5	5.4	9.1	9.8	8.4	8.1	5.7	4.3	5.2	5.2	4.4	5.1	8.0	9.9	10.0	5.9	5.2				

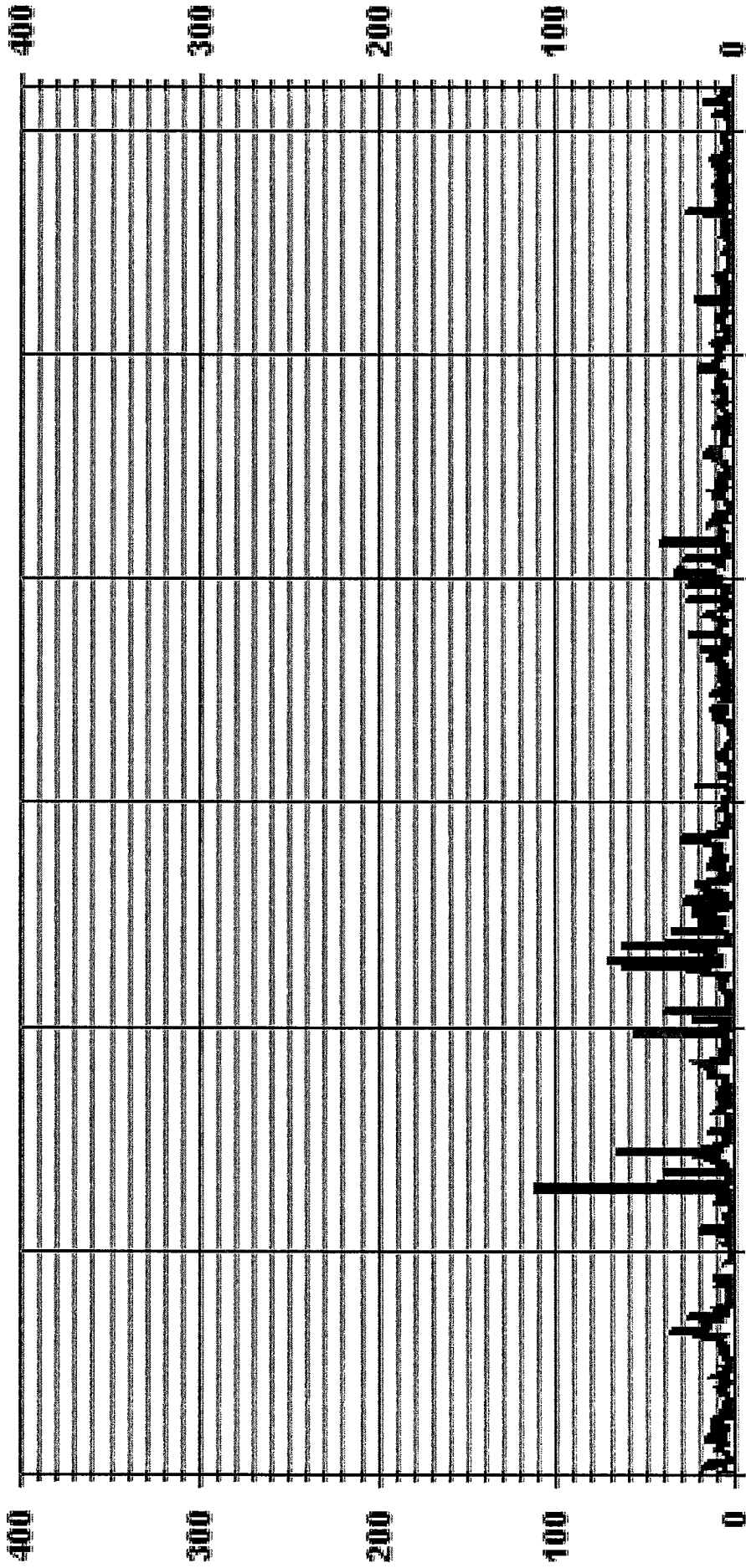
STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/FAULT FUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	112.9 PPB @ HOUR(S) 10 ON DAY(S) 7
IS CALIBRATION TIME:	40 HRS
MONTHLY CALIBRATION TIME:	0 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	9.08
VARIOUS	

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA NOXMAX PPB

LIICA
NOX_ / WD Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

Logger Id : 01
 Site Name : LIICA
 Parameter : NOX_
 Units : PPS

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	2.97	7.23	14.04	8.36	7.65	6.66	15.17	7.65	3.82	4.82	3.26	4.68	3.82	4.25	3.54	1.98	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	7.23	14.04	8.36	7.65	6.66	15.17	7.65	3.82	4.82	3.26	4.68	3.82	4.25	3.54	1.98	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	21	51	99	59	54	47	107	54	27	34	23	33	27	30	25	14	705
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	21	51	99	59	54	47	107	54	27	34	23	33	27	30	25	14	

Calm : .00 %

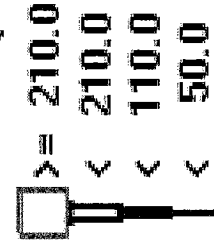
Total # Operational Hours : 705

Logger : 01 Parameter : NOX_

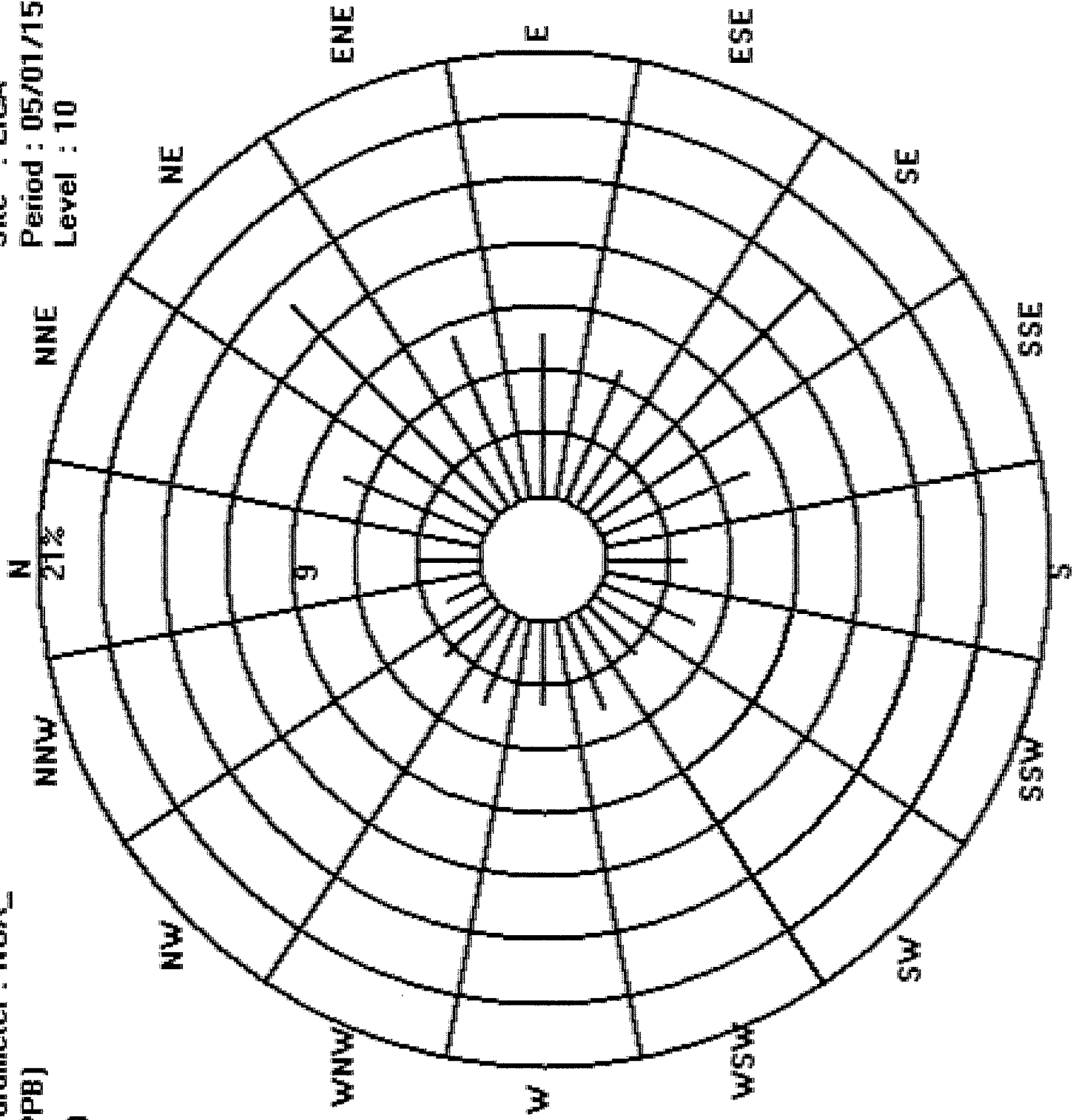
Site : LICA

Class Limits (PPB)

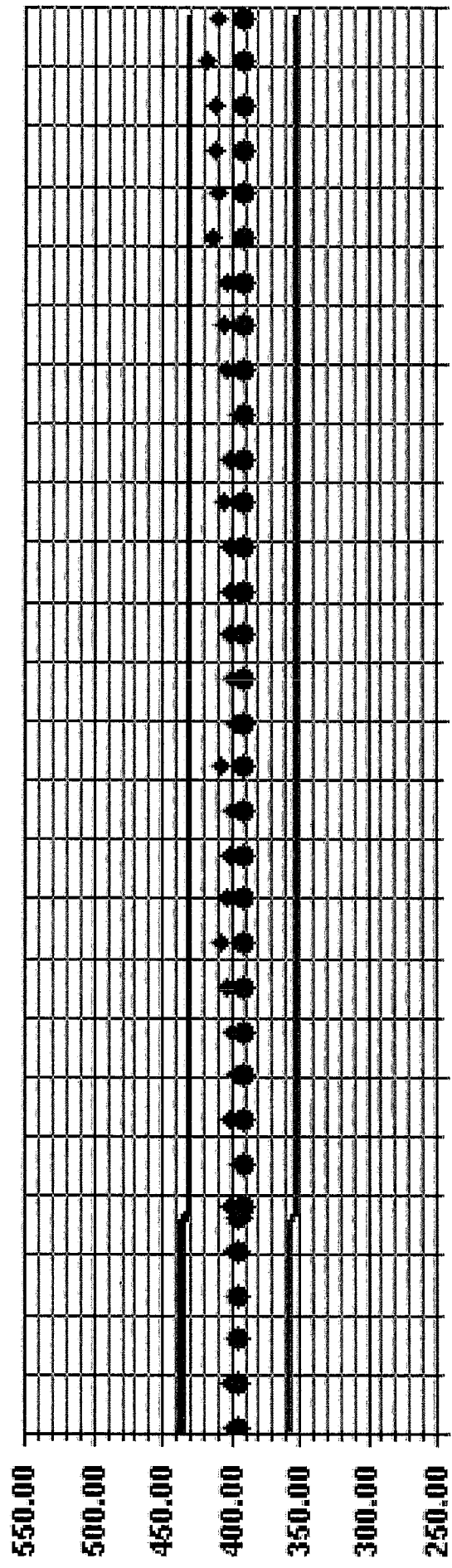
Period : 05/01/15-05/31/15



Level : 10

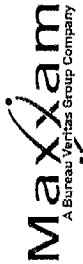


Calibration Graph for Site: LICA Parameter: NOX_ Sequence: NO2 Phase: SPAN



5/1/15 5/8/15 5/16/15 5/24/15 6/1/15
Cal Value Exp Value Exp Value +10% Exp Value -10%

NITRIC OXIDES



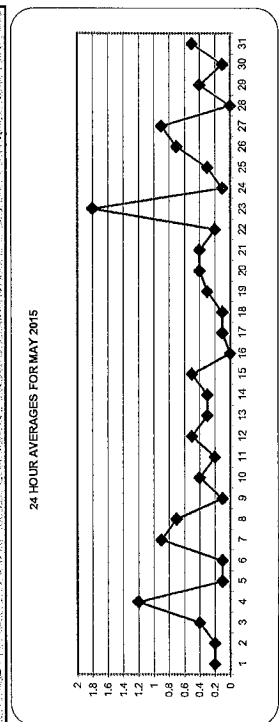
NITRIC OXIDE (NO) hourly averages in ppb

MST

DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	ROGS.			
1	1.0	0.0	0.0	0.0	0.0	0.6	1.1	0.8	0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.2	24	
2	0.1	0.1	S	0.3	0.7	1.3	1.1	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	1.3	0.2	24	
3	0.0	S	0.1	0.1	0.3	1.4	2.9	1.4	0.7	0.5	0.4	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.3	0.0	0.0	0.0	0.1	0.1	2.9	0.4	24	
4	S	0.4	0.2	0.8	4.3	10.9	1.0	1.8	1.1	1.5	1.2	1.0	0.5	0.5	0.7	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	S	10.9	1.2	24	
5	0.1	0.2	0.1	0.0	0.1	0.2	0.3	0.5	0.2	0.0	0.3	C	C	C	C	C	C	0.1	0.2	0.0	0.0	0.0	S	0.0	0.5	0.1	24	
6	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	S	0.0	0.0	0.8	0.1	24	
7	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.4	8.3	6.0	3.4	0.1	0.1	0.0	0.1	0.1	0.0	0.7	S	0.0	0.0	0.0	8.3	0.9	24	
8	0.0	0.1	0.0	0.6	1.3	5.9	3.3	0.7	0.8	0.8	1.1	0.5	0.0	0.0	0.2	0.0	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	5.9	0.7	24	
9	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.6	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	1.0	0.1	24	
10	0.0	0.2	0.1	0.6	1.2	3.8	1.0	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.1	S	0.0	0.0	0.0	0.9	0.1	0.0	0.0	3.8	0.4	24	
11	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.4	0.4	0.4	1.3	0.4	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.2	24	
12	0.0	0.0	0.0	0.0	0.0	1.3	0.9	1.1	0.9	0.3	0.4	0.2	1.3	0.1	0.1	S	0.4	0.6	0.4	1.5	1.4	0.8	0.0	1.5	0.5	24		
13	0.0	0.0	0.0	0.0	0.8	1.1	0.3	1.6	0.1	0.5	0.1	0.7	0.2	0.3	S	0.5	0.1	0.0	0.0	0.0	0.2	0.0	0.0	1.6	0.3	24		
14	0.0	0.0	0.2	0.4	4.0	1.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.0	4.0	0.3	24		
15	0.1	0.1	0.1	0.3	0.7	7.1	1.1	0.7	0.1	0.1	0.2	0.1	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.5	24		
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	S	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	24	
17	0.3	0.2	0.7	0.3	0.4	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.1	24	
18	0.0	0.0	0.0	0.1	0.0	0.5	1.4	0.4	0.4	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.1	24	
19	0.0	0.0	0.0	0.0	0.2	1.0	2.7	1.4	S	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	2.7	0.3	24		
20	0.0	0.0	0.0	0.1	0.5	2.3	3.3	S	0.6	0.6	0.0	0.0	0.0	0.0	0.5	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.4	24		
21	0.0	0.0	0.0	0.2	1.3	5.1	S	0.7	1.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	5.1	0.4	24		
22	0.0	0.0	0.0	0.0	0.2	S	1.9	0.6	0.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.9	0.2	24		
23	0.0	0.0	0.0	0.0	S	0.2	0.0	0.1	0.0	0.1	0.0	0.5	1.3	2.2	3.3	3.8	4.4	4.9	5.4	5.3	4.3	3.0	1.7	0.7	5.4	1.8	24	
24	0.1	0.1	0.1	S	0.2	0.4	0.0	0.3	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.1	0.1	24	
25	0.3	0.1	S	0.0	0.2	0.5	0.7	0.5	0.4	0.2	0.5	0.1	0.0	0.1	0.0	0.1	0.5	0.5	0.4	0.8	0.6	0.2	0.2	0.8	0.3	0.3	24	
26	S	0.2	0.8	1.3	2.9	2.1	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.6	1.1	1.5	1.4	1.1	1.0	0.3	0.0	0.0	0.7	0.7	24	
27	S	0.0	0.0	0.4	1.7	2.9	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.5	2.6	3.7	2.9	1.8	0.7	0.2	S	3.7	0.9	24	
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	S	0.0	0.1	0.0	24	
29	0.1	0.0	0.2	0.1	2.1	2.6	1.6	0.9	0.5	0.6	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	S	0.0	0.4	0.4	24	
30	0.0	0.0	0.0	0.0	0.5	0.4	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.5	0.1	0.1	24	
31	1	0.4	0.7	0.8	4.3	10.9	3.3	1.8	1.1	1.5	8.3	6	3.4	2.2	3.3	3.8	4.4	4.9	5.4	5.3	4.3	3	1.7	0.7	2.5	0.5	24	
HOURLY MAX	1	0.4	0.7	0.8	4.3	10.9	3.3	1.8	1.1	1.5	8.3	6	3.4	2.2	3.3	3.8	4.4	4.9	5.4	5.3	4.3	3	1.7	0.7	2.5	0.5	24	
HOURLY AVG	0.1	0.1	0.1	0.2	0.6	1.9	1.1	0.6	0.4	0.3	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.2	0.1	0.0	0.1	0.0	0.1	24

STATUS FLAG CODES

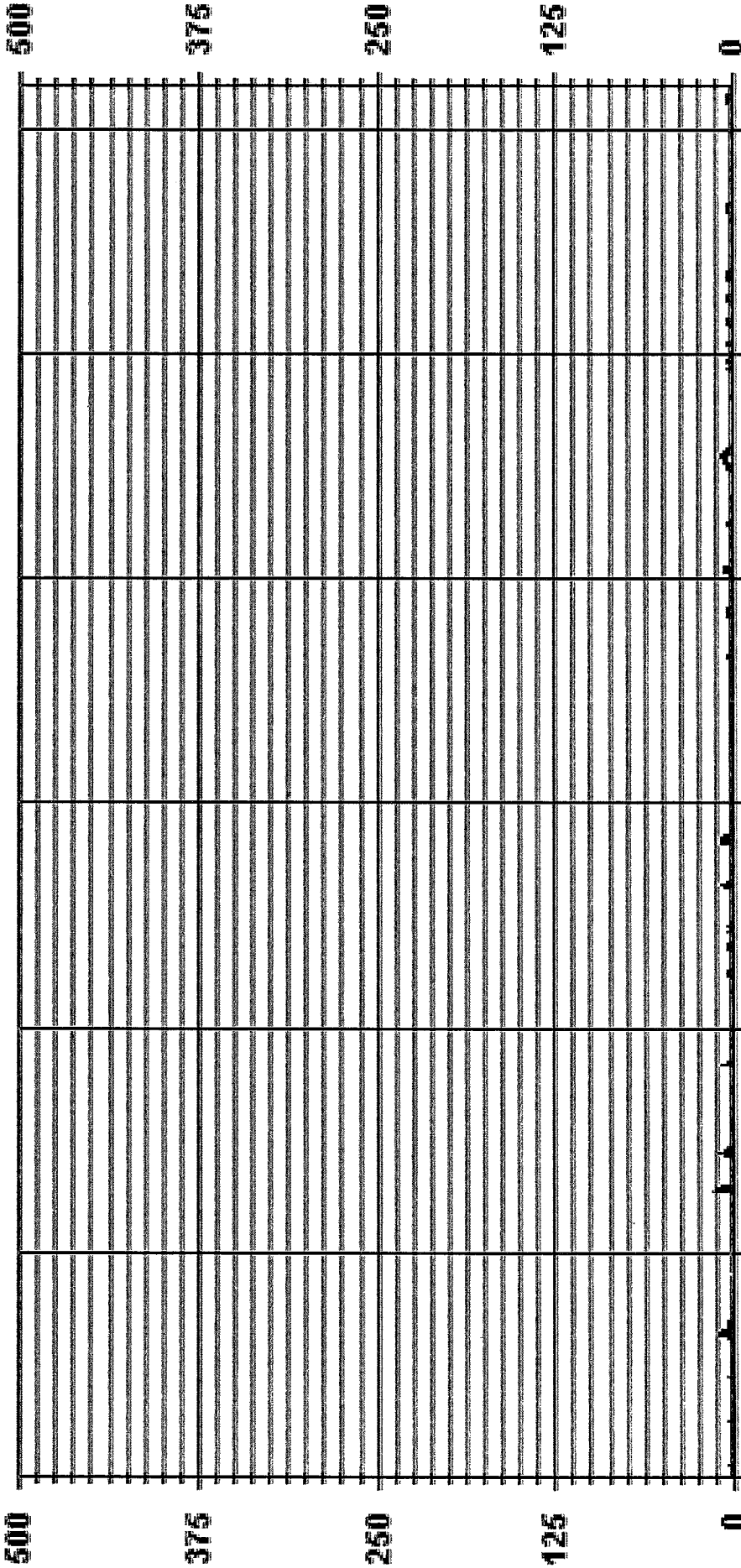
C	-CALIBRATION	Q	-QUALITY ASSURANCE
M	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SPAN CHECK	X	-MACHINE/VALVE/FUNCTION
P	-POWER FAILURE	O	-OPERATOR ERROR
G	-OUT-OF-REPAIR	K	-COLLECTION ERROR



MONTHLY SUMMARY

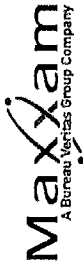
NUMBER OF NON-ZERO READINGS:	352
MAXIMUM 1-HR AVERAGE:	10.9 PPB
MAXIMUM 24-HR AVERAGE:	1.8 PPB
175 CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.98
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0.4 PPB
ON DAY(S)	4
VAR-VARIOUS	23

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00:00

— LICA NO_ PPB



NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOURS START	HOURS END	DAILY																								24-HOUR AVG.	RDGS.	
		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00			
1	3:0	1.0	1.5	3.0	3.0	3.5	9.0	2.0	0.9	0.5	0.5	2.5	1.5	8.0	1.0	1.5	1.5	1.5	0.5	0.5	0.5	2.4	1.5	2.0	0.5	9.0	2.2	24
2	1.5	1.0	5	3.0	0.5	1.5	2.0	1.5	1.0	0.5	0.5	0.5	0.4	0.4	0.4	1.9	0.4	0.9	0.9	0.5	3.0	0.5	1.0	2.5	9.0	1.5	24	
3	3	1.5	5	2.0	0.5	2.9	4.4	3.0	2.4	1.4	1.4	0.4	0.4	0.4	7.4	1.5	1.5	4.5	1.4	0.4	0.5	1.0	1.0	1.5	7.4	2.0	24	
4	5	1.0	2.0	6.4	13.4	27.4	12.5	38.5	17.0	19.5	18.5	6.9	11.9	12.0	4.0	6.5	2.5	1.5	1.0	1.0	1.0	1.0	3.4	5	38.5	10.3	24	
5	1.0	6.0	0.5	0.5	0.5	1.0	4.5	6.5	0.9	8.4	C	C	C	C	C	C	C	4.0	0.5	0.0	0.4	5	0.4	8.4	2.3	24		
6	0.4	0.4	0.5	0.5	0.5	0.5	1.4	1.9	3.4	1.4	0.9	42.4	1.9	0.9	0.4	0.9	1.4	0.4	0.4	8.9	0.4	5	0.0	42.4	3.1	24		
7	0.0	0.0	0.0	1.9	2.4	2.4	0.4	0.4	0.4	0.4	5.9	96.0	61.9	42.9	5.9	1.4	1.9	0.5	0.5	14.9	5	0.9	0.4	96.0	10.6	24		
8	0.9	1.9	1.9	6.9	8.9	13.9	14.4	0.9	2.4	1.9	1.4	0.5	1.9	0.5	7.4	0.4	0.4	0.4	5	0.4	0.0	0.0	0.5	14.4	3.6	24		
9	0.4	0.4	0.4	0.9	0.4	0.4	0.5	0.9	1.4	1.9	1.4	1.4	0.9	0.9	1.9	0.4	0.9	0.9	5	0.4	0.4	0.4	0.5	14.4	3.6	24		
10	0.9	3.9	0.9	3.9	5.9	6.9	3.9	0.5	1.4	1.9	2.9	0.4	2.4	0.9	0.4	2.4	5	1.4	0.4	0.4	0.4	30.9	0.5	30.9	3.2	24		
11	0.4	0.9	0.0	0.4	2.4	6.0	0.9	0.9	0.9	15.4	2.4	0.4	0.4	2.9	0.9	0.4	5	0.4	0.4	0.4	0.4	0.4	0.5	15.4	1.7	24		
12	0.9	0.4	1.4	0.9	0.4	2.9	4.4	10.9	14.9	4.9	11.4	7.9	60.4	3.9	3.9	5	7.4	18.4	16.4	26.4	19.4	33.9	0.4	60.4	10.9	24		
13	0.4	0.5	0.5	0.5	15.4	3.4	1.4	66.9	3.4	13.9	1.4	26.4	12.4	7.9	5	11.4	2.4	0.4	0.4	0.0	3.4	0.4	0.4	0.5	66.9	7.6	24	
14	0.4	1.4	3.4	2.9	4.4	6.9	4.9	0.9	0.4	0.4	4.4	0.5	0.5	0.9	5	1.0	5.5	2.0	3.0	3.5	0.5	0.5	1.5	6.9	2.2	24		
15	0.6	0.5	1.0	2.0	2.5	11.0	8.5	5.0	0.5	1.0	5.0	1.0	5	0.5	1.5	1.5	0.5	0.5	0.0	0.4	0.4	0.4	0.4	11.0	1.9	24		
16	0.5	0.5	1.0	0.5	0.5	0.4	0.4	0.9	0.9	3.4	1.9	5	0.9	0.4	0.4	0.9	0.9	1.9	0.4	2.9	0.9	0.4	0.9	1.4	3.4	1.0	24	
17	3.4	1.4	6.0	2.4	2.4	1.4	0.4	0.9	0.9	0.9	5	1.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.0	0.4	1.9	0.4	6.0	1.2	24		
18	1.4	0.4	1.4	6.5	1.4	0.9	2.4	0.9	0.5	5	0.9	4.9	0.4	1.4	4.9	0.4	1.4	1.9	2.4	8.4	0.4	0.4	0.4	6.5	1.4	24		
19	0.4	0.0	0.4	0.9	0.9	1.9	3.9	2.4	5	1.4	0.4	2.9	0.4	1.4	0.4	1.4	0.4	1.9	2.4	8.4	0.4	0.4	0.5	8.4	1.5	24		
20	0.4	0.4	0.4	0.9	1.9	6.0	5.5	5	1.4	12.4	0.4	2.4	0.5	18.4	5.4	16.4	0.5	2.4	0.0	0.0	0.4	12.4	0.5	18.4	3.9	24		
21	0.4	0.4	0.4	1.4	21.9	13.9	5	3.4	1.9	0.9	2.4	2.9	1.9	0.9	0.9	1.0	1.0	0.5	0.5	27.0	0.4	0.4	0.0	27.0	3.7	24		
22	0.4	0.4	0.4	0.9	0.9	5	3.9	1.4	1.9	1.4	3.5	12.5	0.5	0.5	0.5	0.5	0.5	4.5	0.5	0.5	0.5	0.5	0.5	12.5	1.6	24		
23	0.5	0.5	1.0	0.5	5	1.9	0.5	3.0	0.5	1.0	1.0	1.0	1.5	3.5	3.5	4.5	5.0	6.5	5.5	8.0	5.0	2.5	1.5	8.0	2.8	24		
24	0.5	1.0	0.5	5	0.5	1.0	0.5	2.0	0.5	3.0	3.0	1.0	0.5	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.5	0.5	3.0	1.0	24		
25	0.5	0.5	5	0.5	1.0	3.0	1.5	1.0	1.0	1.5	1.5	1.0	0.5	1.5	2.5	0.5	0.5	3.5	1.0	0.5	2.0	1.5	0.5	1.2	2.4	24		
26	0.5	5	2.0	2.5	4.5	3.0	2.0	0.5	1.0	0.9	1.5	0.9	1.5	3.5	0.5	1.0	2.0	2.5	2.5	1.5	1.5	1.0	0.0	4.5	1.6	24		
27	5	1.0	0.4	0.4	2.5	6.9	9.0	1.5	0.5	11.5	1.0	0.5	2.5	5.0	2.0	3.5	4.0	4.0	4.0	2.5	1.5	0.5	5	11.5	2.8	24		
28	0.0	0.0	0.0	0.5	1.9	0.0	0.5	0.9	0.4	0.9	0.4	1.9	1.9	0.9	1.9	0.9	1.9	0.4	0.4	1.4	1.4	0.4	5	1.9	0.8	24		
29	0.9	0.4	0.9	0.4	11.9	11.4	3.9	1.9	2.9	19.9	1.4	1.4	0.9	1.4	1.9	6.9	0.4	0.4	2.9	3.4	2.9	5	0.0	19.9	3.4	24		
30	0.9	1.4	1.4	0.4	0.4	14.4	0.9	5.5	6.9	0.9	0.4	1.9	0.9	3.9	0.4	0.9	0.9	0.9	0.4	1.4	5	0.4	0.0	14.4	2.0	24		
31	0.5	0.5	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.5	1.0	1.5	2.0	6.5	3.0	3.5	5	0.0	0.0	0.0	0.0	6.5	1.2	24		
HOURLY MAX	3.4	6.0	6.0	6.9	21.9	27.4	13.9	66.9	17.0	19.9	96.0	61.9	60.4	18.4	12.0	16.4	7.4	18.4	16.4	26.4	27.0	33.9	3.4	2.5				
HOURLY AVG	0.8	1.0	1.1	1.7	3.9	5.3	3.6	6.0	2.3	4.2	6.2	5.9	6.4	2.8	2.2	2.7	2.1	2.1	2.1	3.1	2.7	3.4	0.7	0.6				

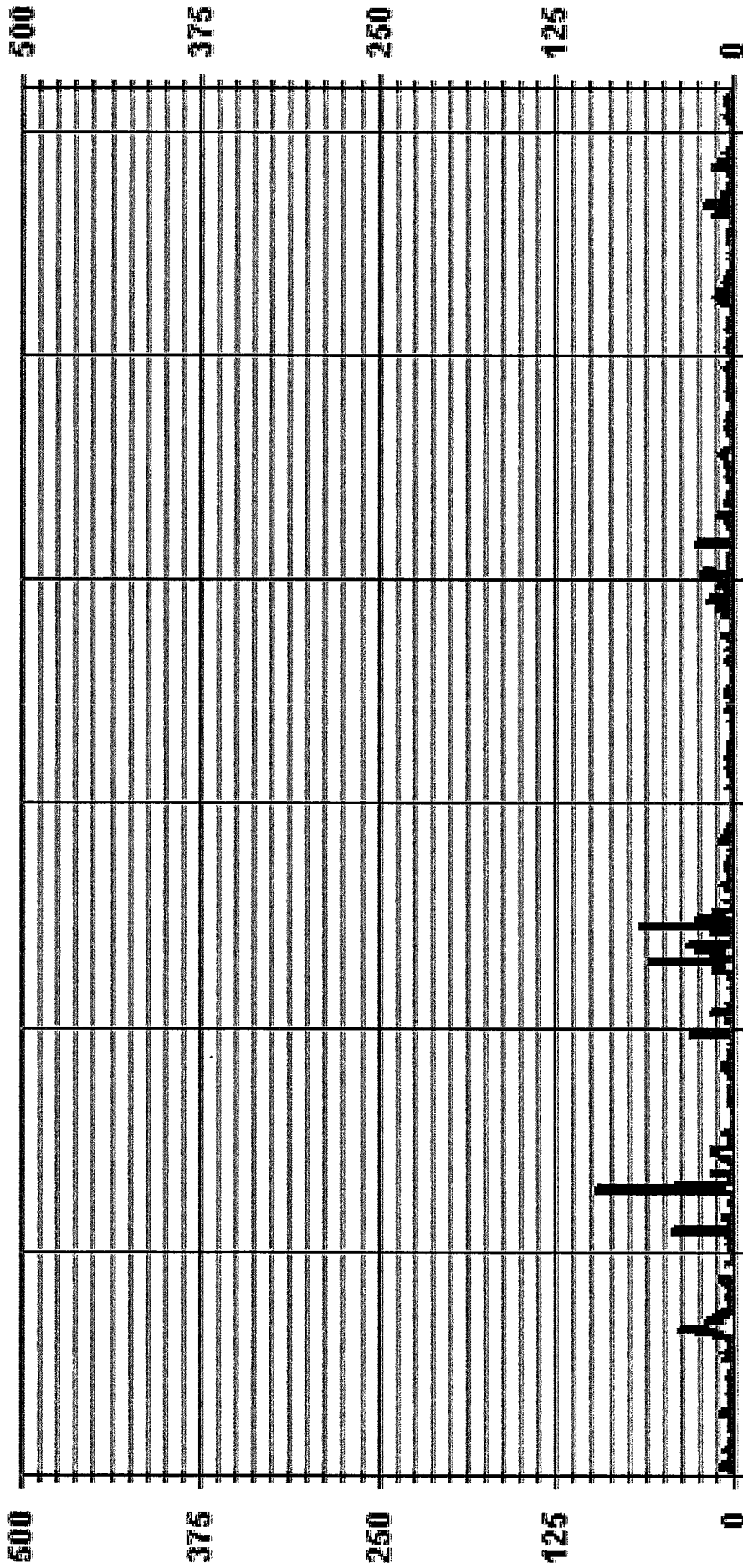
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	-OUT FOR REPAIR	K	-COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	667	PPB	@ HOUR(S)	10	ON DAY(S)	7
MAXIMUM INSTANTANEOUS VALUE:	96.0	PPB	OPERATIONAL TIME:	744	HRS	
1/25 CALIBRATION TIME:	33	HRS	MONTHLY CALIBRATION TIME:	7	HRS	
STANDARD DEVIATION:	7.20					

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA - - - - NOMAX PPB

LICA
 NO_ / WD Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger id : 01
 Site Name : LICA
 Parameter : NO
 Units : PPS

Wind Parameter : WD
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	2.97	7.23	14.04	8.36	7.65	6.66	15.17	7.65	3.82	4.82	3.26	4.68	3.82	4.25	3.54	1.98	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	7.23	14.04	8.36	7.65	6.66	15.17	7.65	3.82	4.82	3.26	4.68	3.82	4.25	3.54	1.98	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	21	51	99	59	54	47	107	54	27	34	23	33	27	30	25	14	705
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	21	51	99	59	54	47	107	54	27	34	23	33	27	30	25	14	

Calm : .00 %

Total # Operational Hours : 705

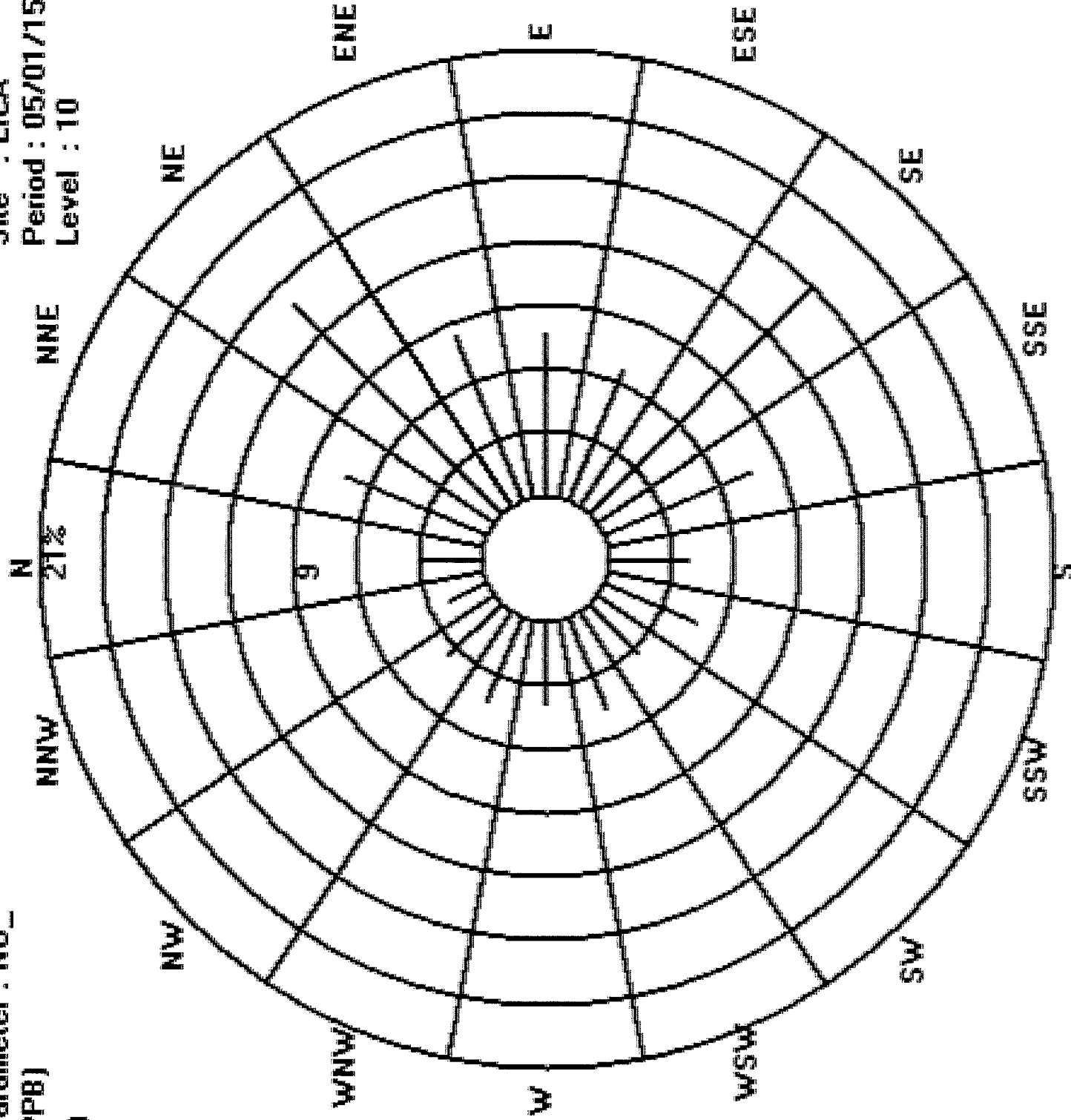
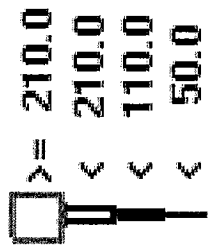
Logger : 01 Parameter : NO_

Site : LICA

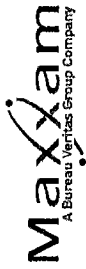
Class Limits (PPB)

Period : 05/01/15-05/31/15

Level : 10



NITROGEN DIOXIDE



NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	DAILY AVG.	RDS.
1	1.9	2.4	3.0	5	6.1	5.5	4.9	3.4	2.3	1.8	1.4	1.5	1.8	1.9	2.0	2.7	2.7	1.9	2.8	3.7	4.7	4.0	3.4	3.2	6.1	3.0	24	
2	2.7	2.5	4.9	5.0	8.0	4.0	6.9	4.2	1.6	0.8	0.7	0.7	1.0	1.7	1.1	3.4	0.9	0.8	1.2	1.8	3.7	3.6	3.5	4.8	8.0	2.8	24	
3	3.9	5	2.4	2.3	3.3	4.4	5.7	2.8	1.5	1.4	1.5	1.0	1.0	0.6	0.6	0.7	0.7	1.1	1.5	3.2	1.2	2.6	2.6	1.5	5.7	2.1	24	
4	5	5.2	4.1	4.2	7.1	8.2	2.7	1.4	1.3	1.0	1.2	0.9	0.5	1.5	1.2	0.9	1.1	1.5	1.6	2.2	1.5	1.0	0.8	5	8.2	2.3	24	
5	1.0	0.8	0.9	1.2	1.4	1.9	1.6	1.7	1.0	1.2	1.3	C	C	C	C	C	C	1.2	1.1	1.1	0.7	0.7	0.5	1.9	1.1	24		
6	0.5	0.5	0.6	0.7	0.9	0.9	1.2	1.4	0.6	0.8	1.4	2.3	2.6	2.2	0.6	0.6	0.8	0.7	0.9	1.0	2.0	2.5	1.2	2.4	4.0	1.5	24	
7	1.0	0.7	0.6	0.6	2.4	4.0	1.6	0.6	0.8	1.4	2.3	2.6	2.2	0.6	0.6	0.8	0.7	0.9	1.0	2.0	2.5	1.2	2.4	4.0	1.5	24		
8	4.2	4.5	3.6	4.7	7.5	13.1	9.5	3.9	3.8	5.8	4.7	2.0	1.0	2.0	1.3	0.9	1.1	0.9	0.6	5	2.5	1.6	1.4	1.7	13.1	3.6	24	
9	2.1	2.2	2.4	3.3	3.9	3.3	2.2	2.3	3.0	1.1	0.8	0.9	0.8	0.7	0.8	0.7	0.8	1.0	5	2.9	2.3	2.0	1.6	1.7	3.9	1.9	24	
10	2.9	5.3	4.4	8.7	10.3	10.1	3.7	1.0	1.0	0.8	0.6	0.6	0.6	0.6	0.5	0.5	0.7	5	1.2	1.6	1.9	3.3	5.4	1.0	10.3	2.9	24	
11	1.1	1.9	2.0	1.7	2.5	5.9	2.3	2.0	1.3	2.5	1.7	1.2	0.7	0.6	1.0	0.8	5	1.0	1.1	1.3	3.6	3.2	3.7	4.2	5.9	2.1	24	
12	2.8	1.7	1.9	2.3	2.3	8.4	5.1	3.9	2.4	2.2	0.8	0.6	0.7	0.5	0.7	5	1.4	1.2	1.5	2.2	4.0	1.0	0.7	1.1	8.4	2.1	24	
13	1.2	1.5	2.0	3.3	5.6	8.4	2.3	0.7	1.1	0.9	0.8	0.7	0.7	1.1	5	2.1	1.3	1.4	1.0	1.4	6.3	4.9	2.8	2.4	8.4	2.3	24	
14	2.9	4.0	5.4	8.6	7.3	10.9	5.3	2.2	1.9	1.6	1.5	1.2	0.9	5	1.0	1.0	0.9	0.7	1.4	2.0	3.3	3.6	3.8	4.4	10.9	3.3	24	
15	3.9	3.8	4.9	6.7	8.9	15.4	4.2	2.6	1.4	1.2	1.1	1.4	5	1.4	1.6	1.3	1.4	1.6	1.8	2.1	2.4	3.6	3.0	3.0	15.4	3.4	24	
16	3.5	4.0	3.6	3.3	0.8	0.5	0.4	0.6	0.5	0.7	1.0	5	0.6	0.5	0.5	0.8	0.6	0.6	0.7	0.8	0.7	0.7	0.8	0.8	4.0	1.2	24	
17	1.1	1.7	2.5	2.3	1.5	1.0	0.5	0.5	0.5	0.6	5	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.7	1.8	3.3	2.9	4.2	4.2	1.2	24	
18	2.9	1.9	1.8	2.5	2.4	2.8	4.6	1.9	1.2	5	1.1	1.2	0.8	0.8	0.7	0.6	0.7	0.7	0.9	1.1	1.9	3.4	3.2	2.5	4.6	1.8	24	
19	3.1	2.8	2.7	3.3	4.7	4.8	7.3	5.4	5	2.2	1.4	1.5	1.2	1.1	0.9	1.0	1.2	1.5	2.6	3.9	5.9	5.3	3.1	3.3	7.3	3.1	24	
20	3.4	4.0	3.8	5.3	6.2	6.0	7.2	5	3.9	2.7	1.2	1.2	0.9	1.3	1.1	0.9	1.0	1.1	1.0	1.2	2.7	5.7	4.4	6.2	7.2	3.1	24	
21	6.8	7.0	6.3	7.1	6.8	10.8	5	3.1	4.6	2.5	0.8	1.0	0.9	0.8	0.6	0.6	0.6	0.4	0.4	1.0	3.6	3.6	4.3	4.4	10.8	3.4	24	
22	4.4	3.7	3.5	4.0	3.2	5	6.3	3.4	3.5	2.5	1.8	0.8	0.9	1.0	1.3	1.0	1.1	1.2	1.0	1.7	5.2	4.8	5.0	5.6	6.3	2.9	24	
23	4.2	4.0	4.2	3.5	5	3.1	1.5	1.1	0.9	1.0	1.1	0.9	0.6	0.6	1.0	1.0	1.5	2.2	3.1	4.6	6.4	6.2	4.4	6.4	6.4	2.5	24	
24	3.4	3.1	3.1	5	2.6	2.3	1.3	1.5	1.3	1.1	0.9	0.6	0.6	1.0	1.0	1.7	1.7	1.8	1.9	2.7	2.7	3.4	3.9	3.5	3.9	2.0	24	
25	3.7	4.1	5	3.4	3.3	4.3	5.0	4.6	4.4	3.2	3.9	2.3	2.1	2.3	2.4	5.8	11.5	7.8	7.1	7.1	7.4	5.8	5.4	11.5	4.7	24		
26	6.5	5	5.7	5.6	4.6	4.0	6.7	3.0	2.1	1.7	1.2	1.0	1.3	1.2	1.4	1.9	1.6	1.5	3.4	3.4	4.4	2.5	1.7	6.7	2.9	24		
27	5	3.5	3.0	1.8	2.4	4.1	6.3	1.7	1.6	1.5	1.2	1.0	1.4	1.4	1.7	1.9	2.0	2.0	2.2	2.0	1.6	1.5	1.4	5	6.3	2.1	24	
28	0.9	0.5	0.4	0.4	0.4	0.5	0.7	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.6	0.6	1.2	2.4	1.9	5	3.6	0.8	24		
29	3.1	2.1	3.4	2.9	4.4	4.5	3.3	2.4	1.1	0.6	0.7	0.5	0.5	0.6	0.5	0.5	0.4	0.5	0.6	1.7	2.2	5	2.8	2.9	4.5	1.8	24	
30	1.7	1.7	1.6	1.1	1.9	1.6	2.1	1.7	1.4	1.2	1.0	0.9	1.0	0.7	0.9	0.7	0.6	0.5	0.5	0.7	5	2.6	1.9	1.0	2.6	1.3	24	
31	1.1	1.3	1.5	1.5	1.7	1.7	1.8	1.9	1.9	2.1	1.9	2.6	2.0	1.7	1.5	1.6	1.8	1.5	1.7	5	2.5	2.6	2.1	1.5	2.6	1.8	24	
HOURLY MAX	6.8	7.0	6.3	8.7	10.3	15.4	9.5	5.4	4.6	5.8	4.7	2.6	2.2	2.1	2.3	3.4	5.8	11.5	7.8	7.1	7.1	7.4	6.2	6.2	6.2	6.2	6.2	6.2
HOURLY AVG	3	3	3	3	4	5	4	2	2	2	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	3

STATUS FLAG CODES

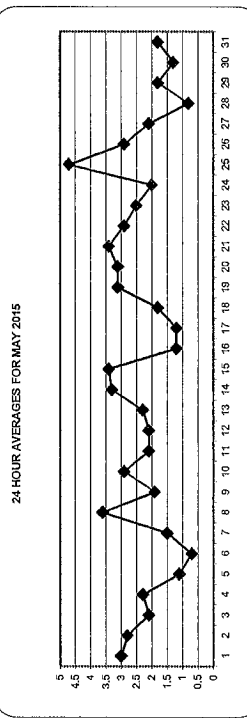
C	CALIBRATION	QUALITY ASSURANCE
M	MAINTENANCE	R - RECOVERY
S	DAILY ZERO/SPAN CHECK	X - MACHINE MALFUNCTION
P	POWER FAILURE	O - OPERATOR ERROR
G	OUT FOR REPAIR	K - COLLECTION ERROR

OBJECTIVE LIMIT:

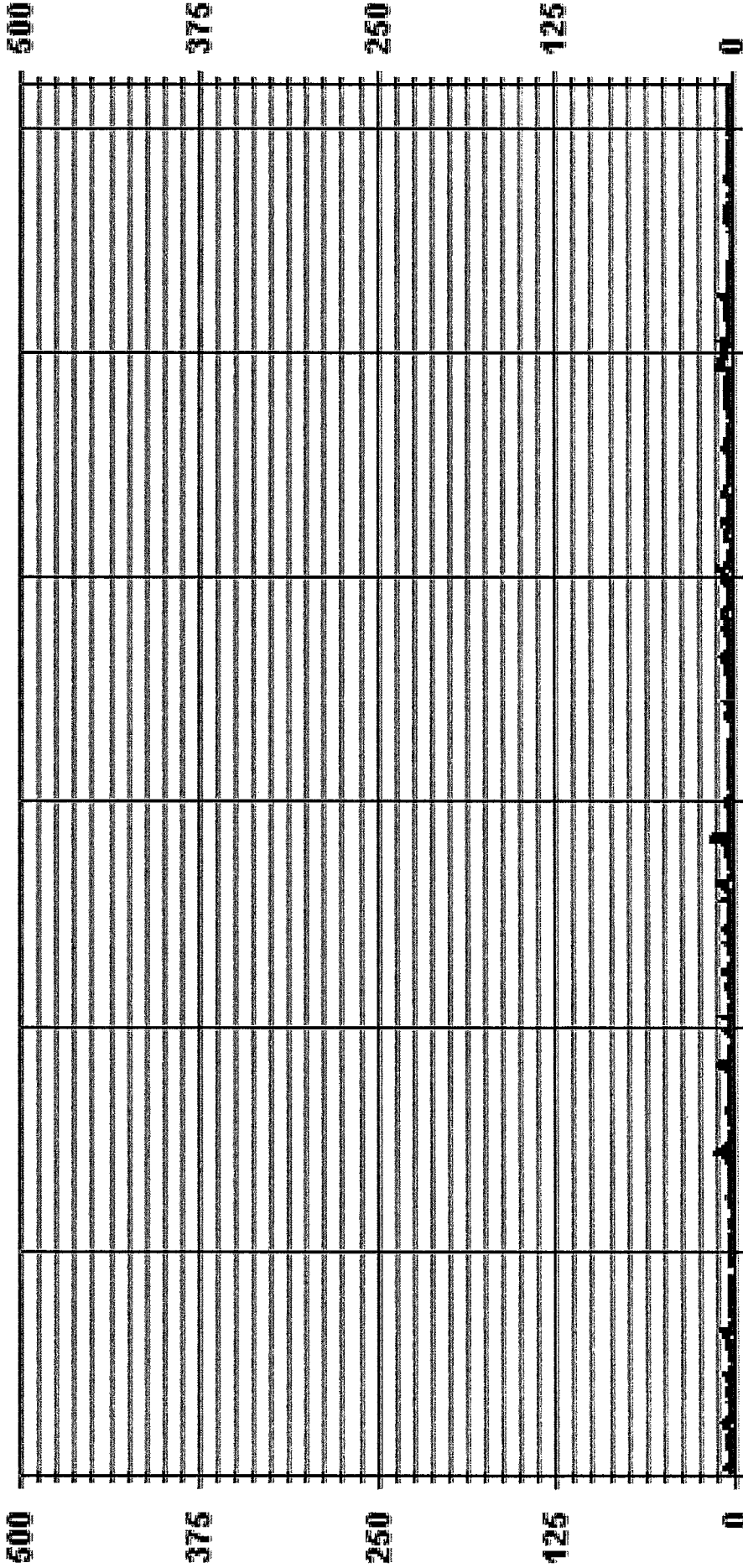
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	705
MAXIMUM 1-HR AVERAGE:	15.4 PPB
MAXIMUM 24-HR AVERAGE:	4.7 PPB
12S CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	1.99
OPERATIONAL TIME:	744 HRS
AMID OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	2.3 PPB
ON DAY(S)	15
VAP-VARIOUS	25

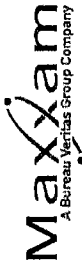


01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA NO2_ PPB



NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	HOURS																								DAILY MAX	24-HOUR AVE	ROGS	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				
1	6.0	4.0	6.0	5.0	14.4	9.5	11.0	4.5	2.5	2.4	2.4	1.5	3.5	4.0	6.9	7.4	6.0	4.0	4.5	4.5	13.4	7.4	6.9	4.0	14.4	5.9	24	
2	6.0	4.0	5.0	3.0	9.6	8.1	10.1	9.6	6.5	2.6	2.1	3.1	1.1	1.6	2.0	3.0	5.0	2.0	2.5	2.5	3.6	5.6	4.1	4.6	6.5	10.1	4.6	24
3	5.1	3.0	3.5	5.4	8.1	6.9	6.9	4.5	2.9	1.4	2.9	1.4	0.9	0.4	0.4	1.9	2.4	4.0	4.0	5.4	2.4	6.4	5.5	4.5	6.9	5.6	24	
4	8.1	6.5	11.5	10.5	11.5	11.6	11.6	8.6	10.6	6.5	12.6	4.6	2.5	25.5	8.6	1.6	3.6	5.6	8.1	5.6	2.6	1.6	2.0	5	25.5	7.7	24	
5	3.1	1.6	1.6	2.1	3.1	3.6	2.6	2.0	1.5	4.0	C	C	C	C	C	C	C	2.6	1.5	1.5	1.0	1.0	1.0	4.0	2.2	24		
6	0.5	1.0	1.6	2.0	2.1	1.1	1.6	3.1	2.0	6.5	2.0	1.5	3.0	1.5	3.5	1.5	1.5	1.0	1.0	2.0	1.0	1.0	1.0	6.5	1.9	24		
7	2.0	1.0	1.0	7.0	7.0	6.5	3.0	1.0	1.5	5.5	48.5	34.0	28.0	3.0	3.0	2.0	2.0	1.5	22.5	5	7.0	2.0	4.5	48.5	8.5	24		
8	7.0	11.0	7.0	13.0	14.5	18.0	51.5	8.5	4.5	9.5	6.5	3.5	1.5	3.5	4.0	1.5	7.5	1.0	1.5	5	3.4	2.9	1.4	1.9	51.5	8.0	24	
9	3.4	2.9	4.4	7.9	6.4	5.4	2.9	2.9	6.4	3.4	2.4	7.4	7.4	4.4	3.4	0.9	3.4	1.4	5	4.5	4.0	4.0	12.0	9.0	12.0	4.8	24	
10	10.5	11.0	10.5	12.5	13.5	13.5	11.0	2.0	4.0	4.0	3.0	3.0	5.5	1.5	1.0	1.0	4.5	5	5.0	5.0	7.0	26.0	9.5	3.0	26.0	7.3	24	
11	3.0	7.5	4.0	3.5	6.0	17.5	3.5	2.5	2.0	26.0	4.5	2.5	1.0	2.5	1.5	5	3.5	2.0	4.5	5.0	6.5	6.0	7.0	26.0	5.3	24		
12	6.0	4.5	5.5	5.0	4.0	15.5	10.0	16.5	28.5	62.0	10.5	3.0	29.0	2.0	4.5	10.5	13.5	16.0	13.0	43.0	8.0	1.5	1.5	62.0	13.4	24		
13	2.0	3.0	3.5	5.0	19.0	17.0	5.5	9.0	4.0	6.0	4.0	7.5	3.0	1.6	5	19.5	5.0	3.5	1.5	3.0	24.5	8.0	6.0	3.0	24.5	7.8	24	
14	5.5	10.0	11.5	13.0	13.5	15.5	11.5	3.5	2.5	3.5	3.0	2.0	1.5	5	5.0	8.5	7.0	3.5	10.0	2.5	6.0	6.5	9.5	5.5	15.5	7.0	24	
15	9.5	5.0	11.0	14.0	14.5	18.0	16.5	13.5	2.0	3.0	6.0	3.5	5	2.0	3.6	2.6	2.1	2.1	2.6	3.1	4.5	7.0	5.5	4.6	18.0	6.8	24	
16	4.6	5.6	5.1	1.6	1.1	1.0	1.0	1.0	2.0	4.0	18.5	5	1.0	1.0	1.0	0.5	0.5	1.0	1.0	1.6	4.5	1.0	1.0	1.5	18.5	3.1	24	
17	3.5	2.5	6.5	5.5	3.0	3.0	1.0	2.0	1.0	2.0	5	0.5	1.5	2.0	3.5	1.0	1.0	1.0	1.5	1.6	4.5	9.0	6.0	10.5	10.5	3.0	24	
18	7.0	4.0	3.5	7.5	5.5	4.5	6.0	3.0	2.0	5	3.0	9.5	1.5	2.0	3.5	1.0	1.0	1.0	2.0	6.0	6.0	8.0	6.5	4.5	9.5	4.3	24	
19	7.5	4.5	5.5	7.0	5.5	7.0	5.5	10.0	8.0	5	4.6	2.1	15.1	3.1	3.1	1.6	5.6	2.1	3.6	8.6	16.6	11.1	7.1	6.6	16.6	6.5	24	
20	4.6	5.6	4.6	6.6	9.6	9.1	8.6	5	5.4	4.4	1.9	2.4	1.4	11.4	5.9	4.4	2.4	4.9	1.9	1.9	5.4	16.4	7.4	8.4	16.4	5.9	24	
21	7.9	7.4	9.9	8.9	11.9	17.4	5	4.0	6.0	3.0	5.5	24.5	13.5	2.5	2.0	4.6	1.6	1.1	0.6	4.1	14.5	8.5	6.0	5.6	24.5	7.4	24	
22	6.5	6.0	5.0	5.5	5.5	5.5	9.0	4.5	5.0	5.5	2.6	5.1	2.6	2.1	1.6	2.1	1.6	2.1	2.6	2.1	4.6	11.1	8.1	6.5	9.6	11.1	5.0	24
23	6.1	4.6	6.1	4.6	5	6.5	2.5	3.1	6.0	2.6	2.6	2.6	2.1	1.6	1.1	2.6	2.1	3.1	3.6	10.1	6.1	9.1	8.6	6.1	10.1	4.5	24	
24	4.6	5.1	4.6	5	4.0	3.5	2.0	4.0	2.5	2.0	8.0	1.5	1.0	6.0	2.0	4.0	2.5	2.5	3.5	6.0	5.0	6.4	8.0	4.5	8.0	4.1	24	
25	5.0	5.0	5.0	4.5	7.0	7.0	5.6	5.1	8.6	8.1	2.6	2.1	1.6	2.1	3.6	2.1	3.1	2.6	6.6	7.1	7.6	3.6	3.1	9.5	4.7	24		
26	9.5	5.5	3.9	2.9	5.0	11.5	12.0	3.5	2.0	1.5	1.9	1.9	3.0	2.0	2.0	3.5	2.5	2.5	4.0	2.5	2.5	2.5	2.0	5	12.0	3.7	24	
27	1.7	1.2	0.7	0.6	0.6	1.2	1.2	6.2	1.2	1.1	1.6	0.6	1.1	2.1	2.1	1.1	4.6	3.1	2.1	4.1	4.6	3.1	5	6.2	2.2	24		
28	5.0	3.5	5.5	4.5	6.0	15.5	7.0	4.0	3.0	5.0	4.5	1.5	1.1	2.5	1.5	4.5	1.0	1.0	2.5	8.5	4.1	5	5.0	6.0	15.5	4.5	24	
29	2.5	3.5	5.0	2.5	3.5	2.5	2.5	7.0	4.0	12.5	5.5	3.0	5.0	2.0	1.5	4.5	1.5	1.5	1.0	4.0	5	5.4	3.4	1.9	12.5	3.7	24	
30	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.5	2.0	8.0	3.5	4.0	3.0	3.0	1.5	2.0	9.5	2.0	3.0	5	4.0	5.5	5.5	4.0	9.5	3.3	24	
31	10.5	11.0	11.5	14.0	19.0	18.0	51.5	16.5	23.5	62.0	48.5	34.0	29.0	25.5	8.6	19.5	17.0	16.0	16.0	22.5	43.0	26.0	12.0	10.5	4.9	10.5	4.9	
HOURLY MAX	5.1	4.8	5.2	6.3	7.2	8.8	8.0	5.2	4.1	6.9	6.2	5.4	4.6	4.0	2.9	3.8	3.9	3.4	3.7	5.8	7.6	7.0	5.4	4.9				
HOURLY AVG																												

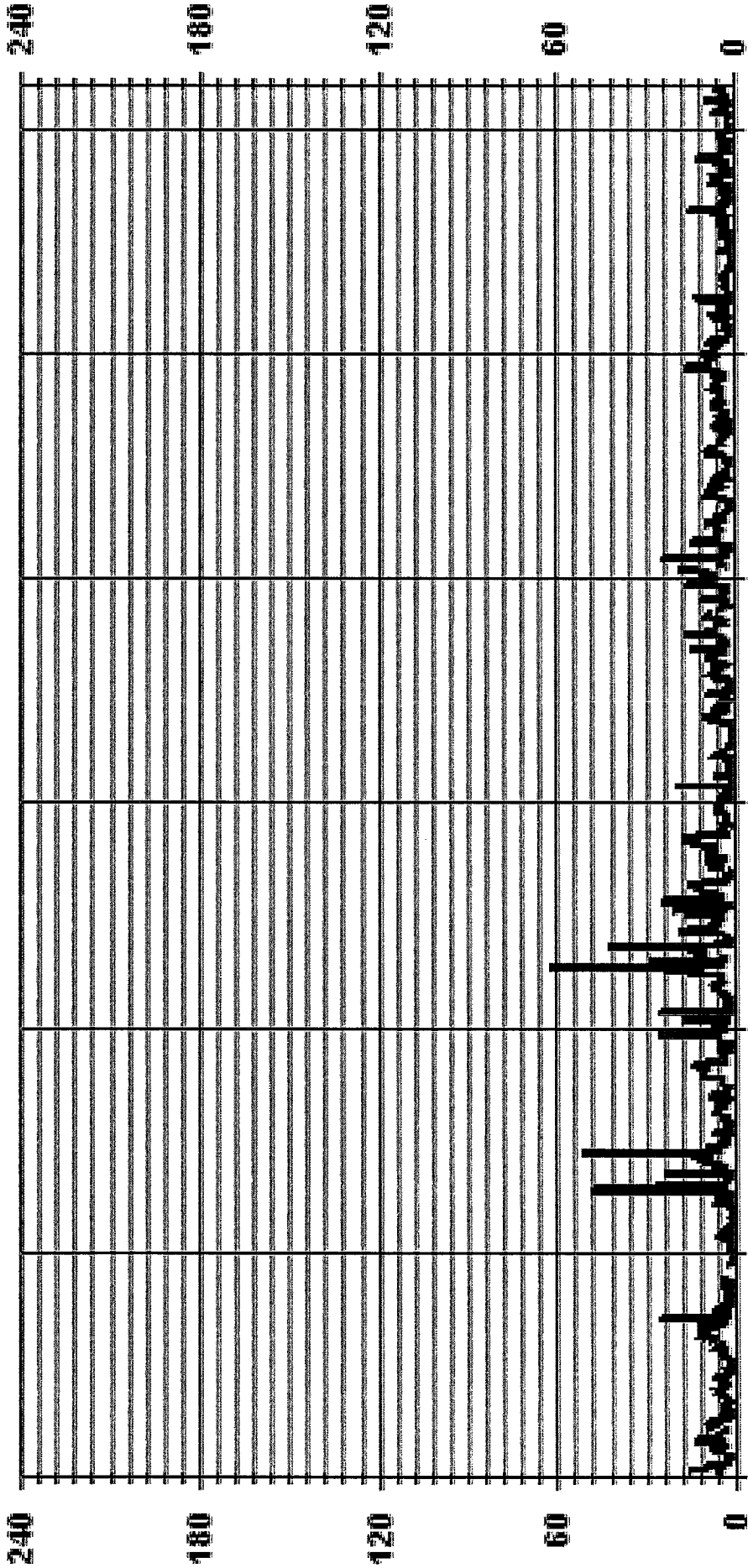
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	62 PPS @ HOUR(S) 9 ON DAY(S) 12
1/25 CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	5.65
OPERATIONAL TIME:	VAR-VARIOUS
HRS	744

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA NO2MAX PPB

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	2.97	7.23	14.04	8.36	7.65	6.66	15.17	7.65	3.82	4.82	3.26	4.68	3.82	4.25	3.54	1.98	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	7.23	14.04	8.36	7.65	6.66	15.17	7.65	3.82	4.82	3.26	4.68	3.82	4.25	3.54	1.98	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

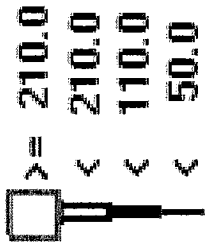
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	21	51	99	59	54	47	107	54	27	34	23	33	27	30	25	14	705
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	21	51	99	59	54	47	107	54	27	34	23	33	27	30	25	14	

Calm : .00 %

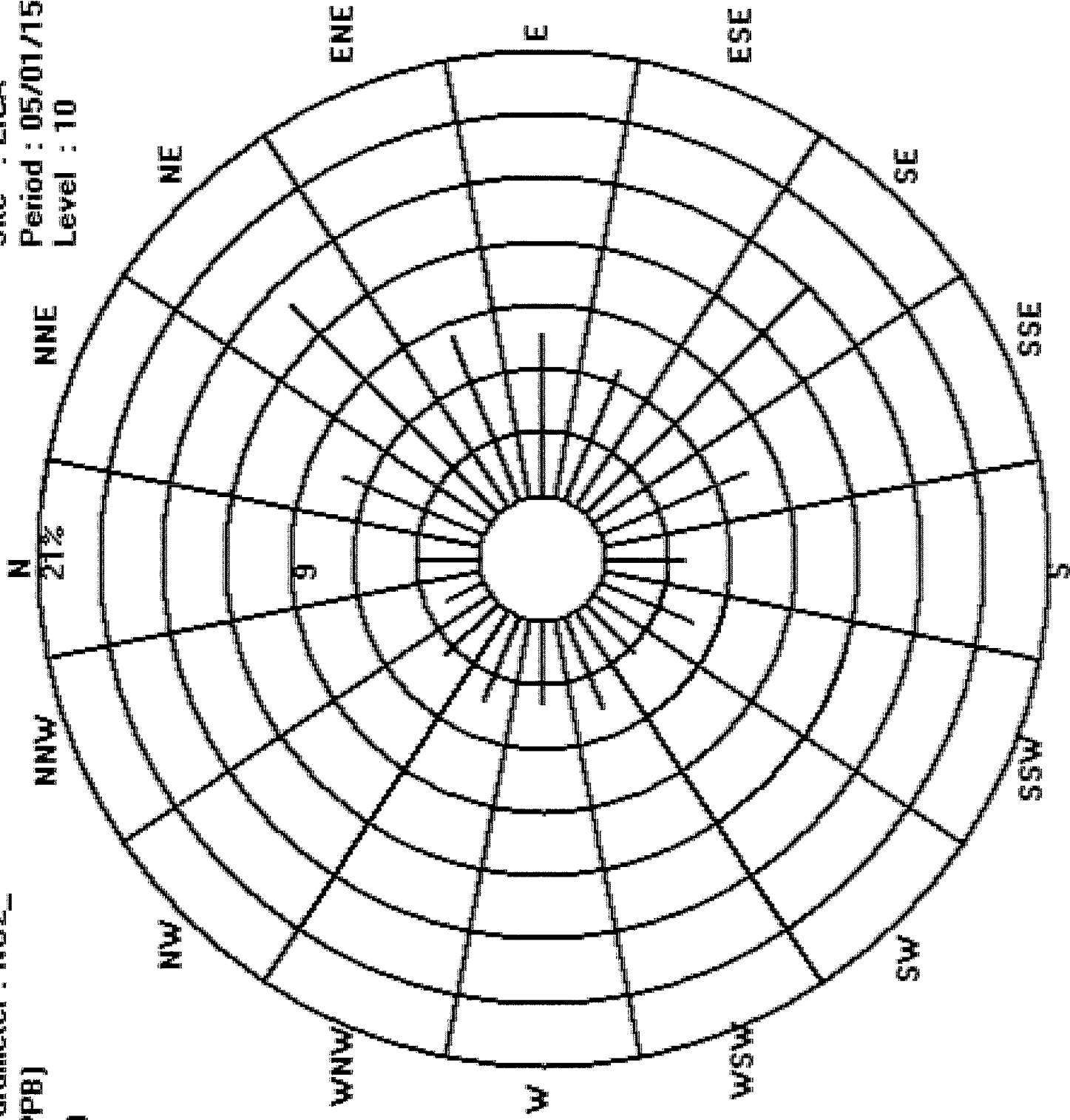
Total # Operational Hours : 705

Logger : 01 Parameter : NO2_

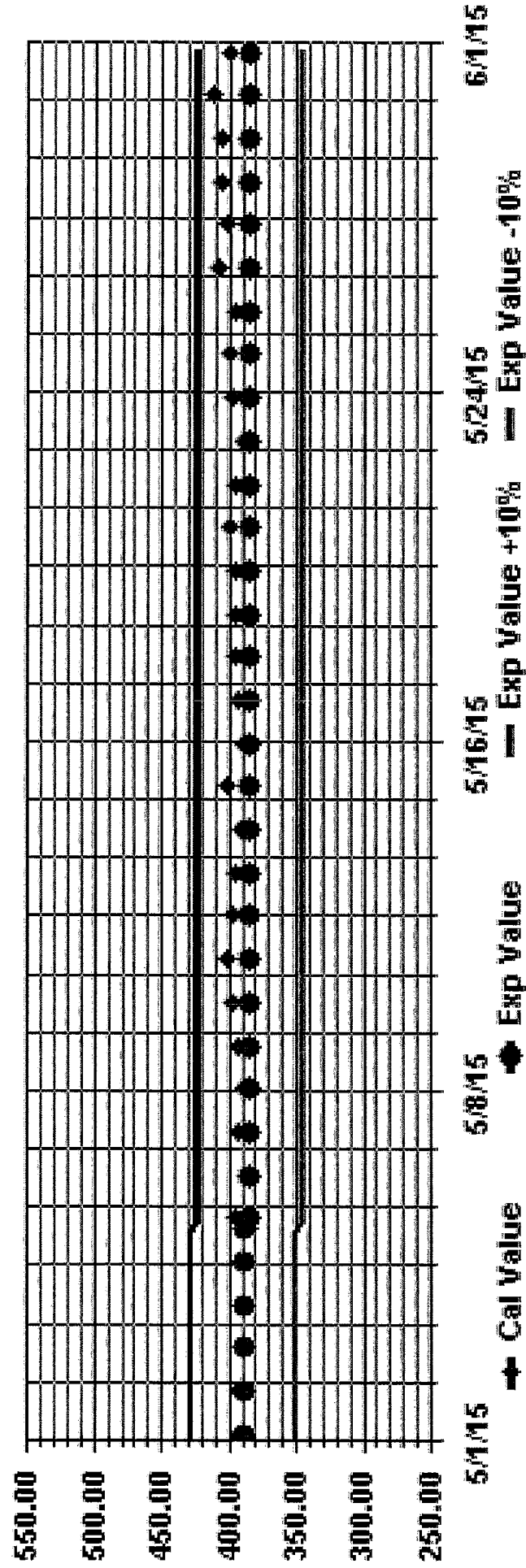
Class Limits (PPB)



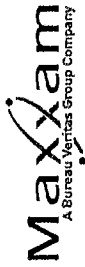
Site : LICA
Period : 05/01/15-05/31/15
Level : 10



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



OZONE



OZONE (O3) hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00		
1	40	37	33	S	16	18	20	29	35	43	48	50	51	50	49	49	48	48	48	47	41	28	23	18	14	51	
2	10	8	S	22	18	20	14	21	40	31	40	45	44	45	44	39	40	35	39	37	34	31	25	16	9	45	
3	16	S	12	7	7	7	14	21	24	24	25	27	23	28	28	29	31	30	29	30	29	23	22	16	12	31	
4	S	7	5	3	2	2	18	19	21	21	21	22	23	26	40	40	38	39	39	36	35	35	33	31	S	40	
5	29	31	31	31	32	31	33	33	33	33	37	38	37	37	37	38	39	37	37	36	34	32	32	S	31	39	
6	30	29	29	28	29	30	30	C	C	C	C	C	C	C	31	30	30	29	29	28	26	29	S	27	28	31	
7	26	28	27	28	24	21	28	36	38	38	38	40	42	44	45	46	46	44	43	42	38	S	25	27	35	46	
8	33	26	22	15	8	4	20	32	33	29	31	38	44	41	45	45	45	46	46	46	S	40	41	40	40	46	
9	29	18	14	11	8	8	32	42	43	43	43	44	44	44	45	45	46	46	S	45	43	31	28	22	38	46	
10	37	31	20	19	16	22	32	34	36	39	39	42	45	46	47	46	47	S	50	51	47	37	31	30	30	51	
11	32	34	26	26	26	28	34	39	43	46	46	47	47	48	49	S	49	49	48	45	43	43	43	42	49	40.2	
12	41	40	38	30	21	22	39	41	43	46	49	50	50	S	52	52	52	51	52	52	48	32	33	33	40	52	
13	38	26	21	14	15	8	28	37	42	46	49	50	51	S	50	50	51	52	55	55	46	40	36	36	36	55	
14	26	22	20	18	15	8	34	38	46	49	51	51	S	57	60	59	57	54	53	50	48	38	35	31	60	40.1	
15	26	24	22	35	39	34	37	34	34	34	32	33	S	38	35	31	30	33	32	31	30	26	24	22	22	39	
16	21	20	19	19	21	22	25	26	27	27	S	32	35	37	39	41	44	46	46	46	44	34	32	31	26	46	
17	25	22	21	17	16	18	25	35	39	S	46	48	50	53	53	53	53	52	52	48	48	36	32	28	24	53	
18	21	18	18	16	15	15	20	35	S	45	49	51	53	54	54	55	56	56	54	49	38	32	30	25	56	36.8	
19	18	16	15	12	9	9	17	S	47	49	53	54	55	56	58	57	58	57	56	51	40	31	30	23	58	37.9	
20	19	18	13	9	8	9	S	37	40	46	54	56	57	58	58	59	59	60	60	60	60	51	36	31	26	60	
21	17	15	14	12	10	5	24	37	40	45	52	55	56	57	57	57	59	60	60	60	60	51	36	31	26	60	
22	26	21	17	17	S	17	32	32	31	33	35	37	39	40	37	36	36	37	37	37	32	22	14	15	17	40	
23	16	12	11	S	13	15	24	27	30	34	40	44	45	48	50	53	52	50	45	39	36	31	27	29	53	33.5	
24	27	22	S	18	13	12	17	29	43	52	46	61	63	63	65	61	57	43	35	31	24	16	13	12	65	35.8	
25	4	2	2	2	2	2	13	26	29	28	29	32	40	42	42	42	42	42	42	41	37	27	23	27	24	62	
26	S	15	13	14	10	7	18	27	31	37	40	43	44	45	48	48	47	46	46	49	39	36	33	S	49	32.7	
27	32	31	30	29	26	23	26	30	31	32	31	31	31	31	31	31	31	31	31	31	30	23	15	S	7	32	
28	6	8	6	4	3	8	19	25	27	29	31	31	35	36	36	37	38	39	41	39	30	S	21	22	41	24.8	
29	27	26	22	18	18	26	26	28	28	28	38	40	41	42	43	44	45	45	45	47	46	S	36	38	40	47	35.3
30	38	36	35	33	31	30	29	29	29	28	24	35	39	39	40	40	40	40	40	37	S	17	12	8	12	40	
31	41	40	38	35	39	34	39	42	47	52	54	61	63	63	65	61	60	60	60	60	55	48	43	43	42	40	
HOURLY MAX	26.1	23.2	20.1	18.5	16.6	16.6	25.9	31.7	35.3	37.7	40.4	42.3	42.9	44.2	44.8	45.0	45.4	44.8	43.9	40.9	35.0	28.9	26.8	26.0			
HOURLY AVG																											
DAILY MAX																											
DAILY AVG																											
RDGS.																											

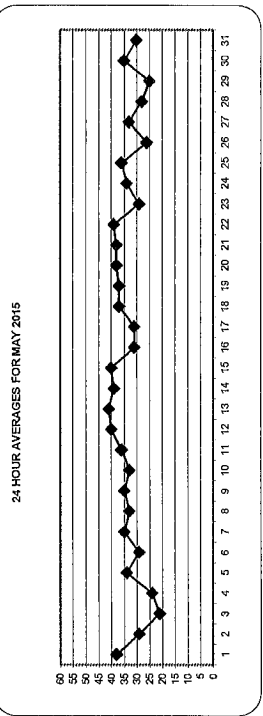
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

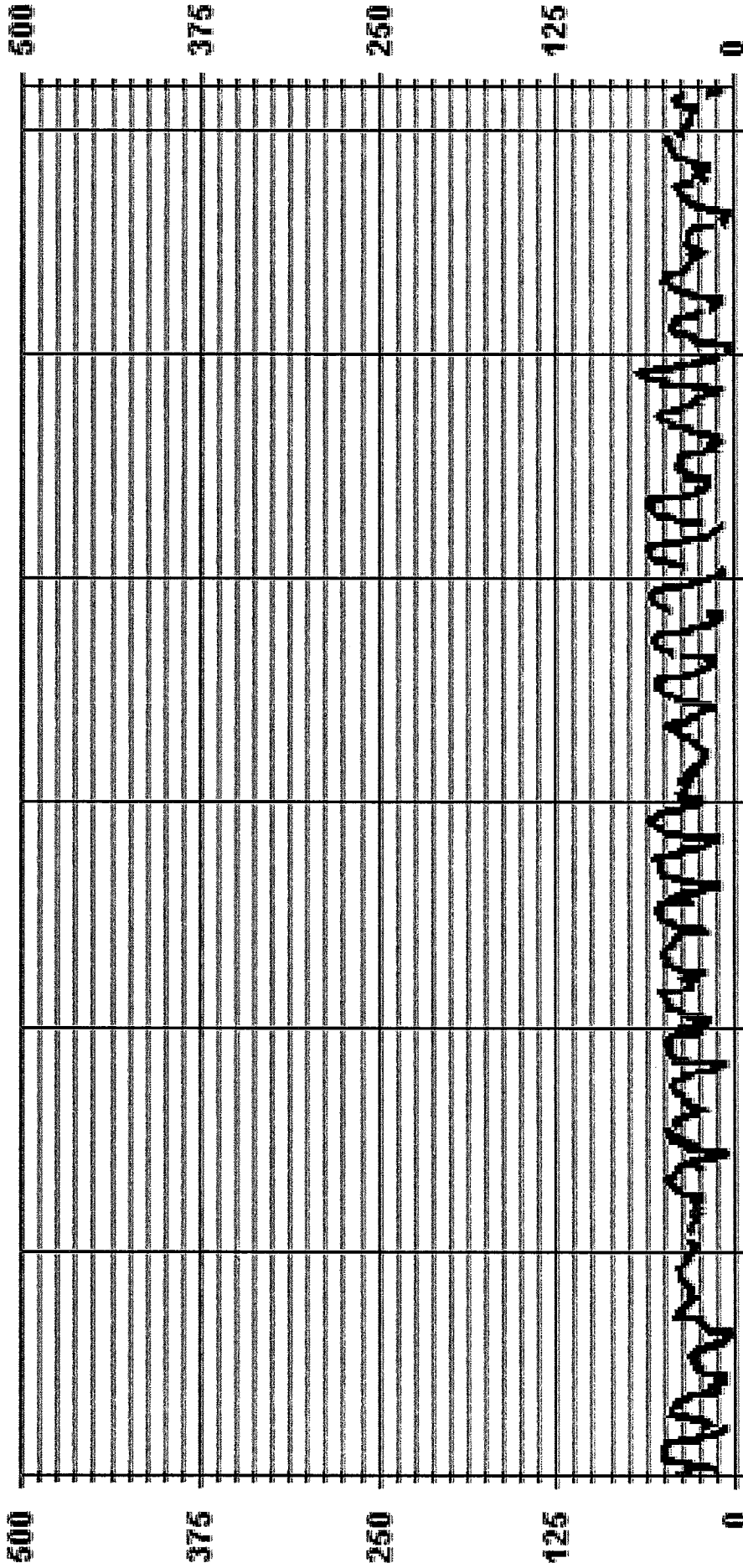
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR: 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	706
MAXIMUM 1-HR AVERAGE	65 PPB
MAXIMUM 24-HR AVERAGE	41.4 PPB
12S CALIBRATION TIME	33 HRS
MONTHLY CALIBRATION TIME	5 HRS
STANDARD DEVIATION	13.19
OPERATIONAL TIME	744 HRS
AMT OPERATION UPTIME	100.0 %
MONTHLY AVERAGE	33 PPB

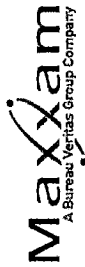


01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA 03_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MAY 2015
JOB # 2833-2015-05-01- C

OZONE MAX instantaneous maximum in ppb

MST

DATE	OZONE MAX instantaneous maximum in ppb																								DAILY MAX	DAILY AVG	24-HOUR AVG	RDGS.	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00					0:00
1	43	42	39	5	24	30	32	39	48	51	52	52	51	50	50	50	50	50	50	50	47	38	32	24	21	52	42.0	24	
2	13	11	5	25	23	29	29	37	46	47	45	45	46	42	40	41	39	35	34	28	23	15	19	47	47	32.6	24		
3	19	5	17	14	12	14	18	25	25	26	26	29	29	29	30	31	33	31	31	30	28	22	18	38	38	24.5	24		
4	5	9	7	4	4	9	21	21	22	22	23	24	35	44	44	44	44	44	44	39	37	38	34	33	5	54	27.5	24	
5	32	32	32	32	33	32	34	35	36	38	39	38	38	40	41	38	38	37	36	33	33	33	33	33	33	32	41	35.5	24
6	31	30	29	29	31	31	31	C	C	C	C	C	C	31	32	31	30	30	29	28	31	S	28	29	38	30.2	24		
7	28	30	29	30	28	25	32	38	42	42	45	47	47	47	47	47	46	45	44	42	S	30	37	39	47	38.6	24		
8	36	36	29	22	17	6	31	35	35	32	38	43	46	47	47	47	47	47	47	47	47	42	41	41	47	37.1	24		
9	40	38	31	33	31	33	32	32	37	35	36	38	39	41	43	43	44	44	S	42	40	39	38	38	44	37.6	24		
10	35	29	20	16	12	15	40	45	44	45	45	47	46	47	48	49	S	47	46	41	35	36	41	49	38.0	24			
11	40	39	26	27	23	33	35	36	39	42	45	46	48	49	48	49	S	52	53	45	42	41	39	53	41.3	24			
12	99	39	37	33	38	28	39	43	47	48	48	49	50	50	50	S	51	51	50	49	46	45	44	43	51	44.2	24		
13	43	42	40	38	33	36	42	42	47	50	51	52	52	52	52	S	53	54	53	42	41	42	44	54	45.9	24			
14	43	35	31	21	20	12	37	41	46	48	51	51	52	52	52	S	52	52	52	55	58	55	47	44	42	58	43.6	24	
15	37	30	25	25	20	19	38	42	49	51	53	54	54	60	61	62	60	57	54	53	52	44	44	37	62	44.7	24		
16	30	28	29	45	44	35	39	36	36	34	38	S	42	38	33	31	35	35	32	29	25	24	23	45	33.6	24			
17	23	21	21	21	22	25	28	27	28	28	S	34	37	39	41	44	47	48	47	48	43	37	37	33	48	33.9	24		
18	31	28	27	21	20	24	33	38	41	S	48	51	52	56	55	54	54	54	53	52	44	36	35	30	56	40.7	24		
19	25	23	23	23	18	17	31	39	41	49	51	52	55	56	55	57	57	57	56	54	47	38	36	31	57	41.3	24		
20	21	20	18	17	13	12	31	S	52	52	70	56	58	59	60	59	60	58	59	56	49	39	35	31	70	42.8	24		
21	23	21	18	12	11	13	S	39	44	51	57	59	60	60	61	62	62	61	59	56	50	39	32	26	62	42.4	24		
22	23	19	20	15	13	S	36	40	42	50	55	57	58	59	59	62	61	63	62	59	42	38	36	30	63	43.4	24		
23	30	26	22	22	S	27	33	33	35	37	38	40	42	40	38	37	38	38	36	29	18	21	22	42	32.0	24			
24	20	15	13	S	19	24	26	29	34	36	46	47	49	50	53	57	58	53	50	47	47	39	36	37	58	38.5	24		
25	34	27	S	26	20	22	27	35	54	59	57	71	72	73	73	69	68	52	46	40	34	29	22	23	73	44.9	24		
26	26	23	S	7	4	3	5	25	28	30	31	32	37	45	45	44	44	44	44	43	41	33	33	31	45	30.6	24		
27	S	19	18	17	17	11	28	31	31	34	40	43	46	47	48	49	50	49	50	55	41	39	35	S	55	36.3	24		
28	35	33	32	32	29	31	29	27	30	32	33	34	33	33	33	33	33	33	33	32	29	18	S	10	35	30.3	24		
29	12	11	7	6	7	12	26	27	30	31	33	33	37	38	37	39	39	40	42	42	37	S	24	30	42	27.8	24		
30	29	27	26	22	26	27	27	30	36	40	43	42	44	44	44	46	46	47	48	48	S	39	42	42	48	57.6	24		
31	40	38	36	35	32	32	31	30	31	32	31	31	30	38	41	41	41	41	41	S	28	19	14	15	41	32.5	24		
HOURLY MAX	43	42	40	45	44	36	42	45	54	59	70	71	72	73	73	69	68	63	62	59	55	47	44	44					
HOURLY AVG	30.3	27.5	24.4	23.0	21.4	22.1	31.4	34.5	38.5	40.3	43.7	44.8	45.7	46.8	47.0	47.3	47.6	47.3	46.2	44.9	39.4	34.5	32.8	30.9					

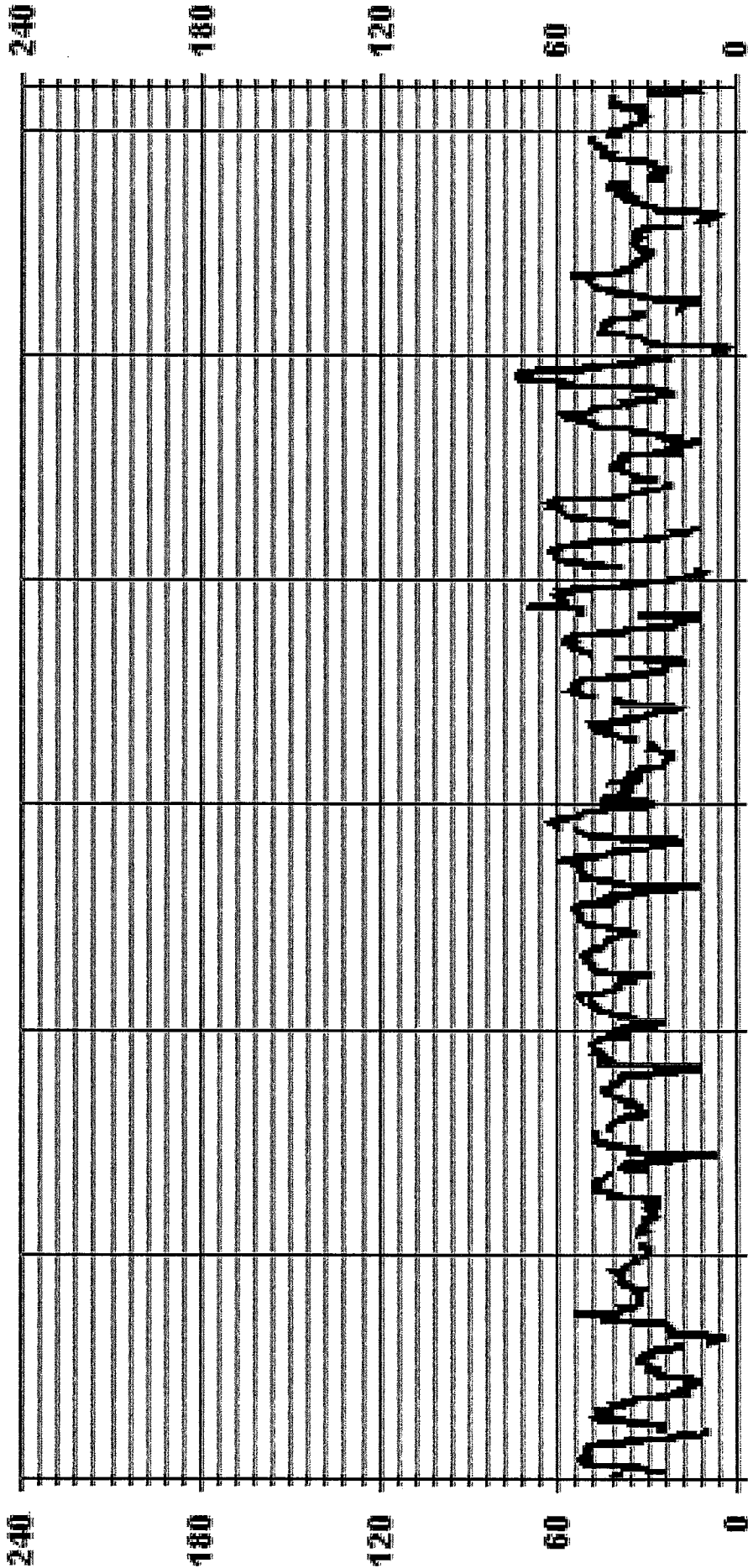
STATUS FLAG CODES

C	QUALITY ASSURANCE
Y	MAINTENANCE
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	OUT FOR REPAIR
R	RECOVERY
X	MACHINE/MALFUNCTION
O	OPERATOR ERROR
K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706
MAXIMUM INSTANTANEOUS VALUE:	73 PPB @ HOUR(S) 13, 14 ON DAY(S) 25, 25
OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	12.67
VAR- VARIOUS	

01 Hour Averages



05/01/15 00:00:05.06/15 00:00:05.11/15 00:00:05.16/15 00:00:05.21/15 00:00:05.26/15 00:00:05.31/15 00:00

— LICA O3MAX PPB

LICA
O3_ / WD Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : O3
Units : PPB

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	2.40	6.37	13.03	7.93	8.21	6.37	13.45	6.09	3.25	2.97	1.98	4.10	3.54	3.54	2.69	1.98	87.96
< 110	.56	.14	.99	.70	.00	.28	1.69	1.55	.56	1.84	1.27	.56	.28	.70	.84	.00	12.03
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	6.51	14.02	8.64	8.21	6.65	15.15	7.64	3.82	4.81	3.25	4.67	3.82	4.24	3.54	1.98	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

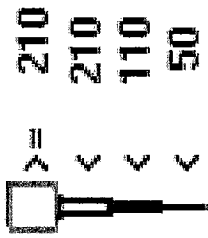
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	17	45	92	56	58	45	95	43	23	21	14	29	25	25	19	14	621
< 110	4	1	7	5		2	12	11	4	13	9	4	2	5	6		85
< 210																	
>= 210																	
Totals	21	46	99	61	58	47	107	54	27	34	23	33	27	30	25	14	

Calm : .00 %

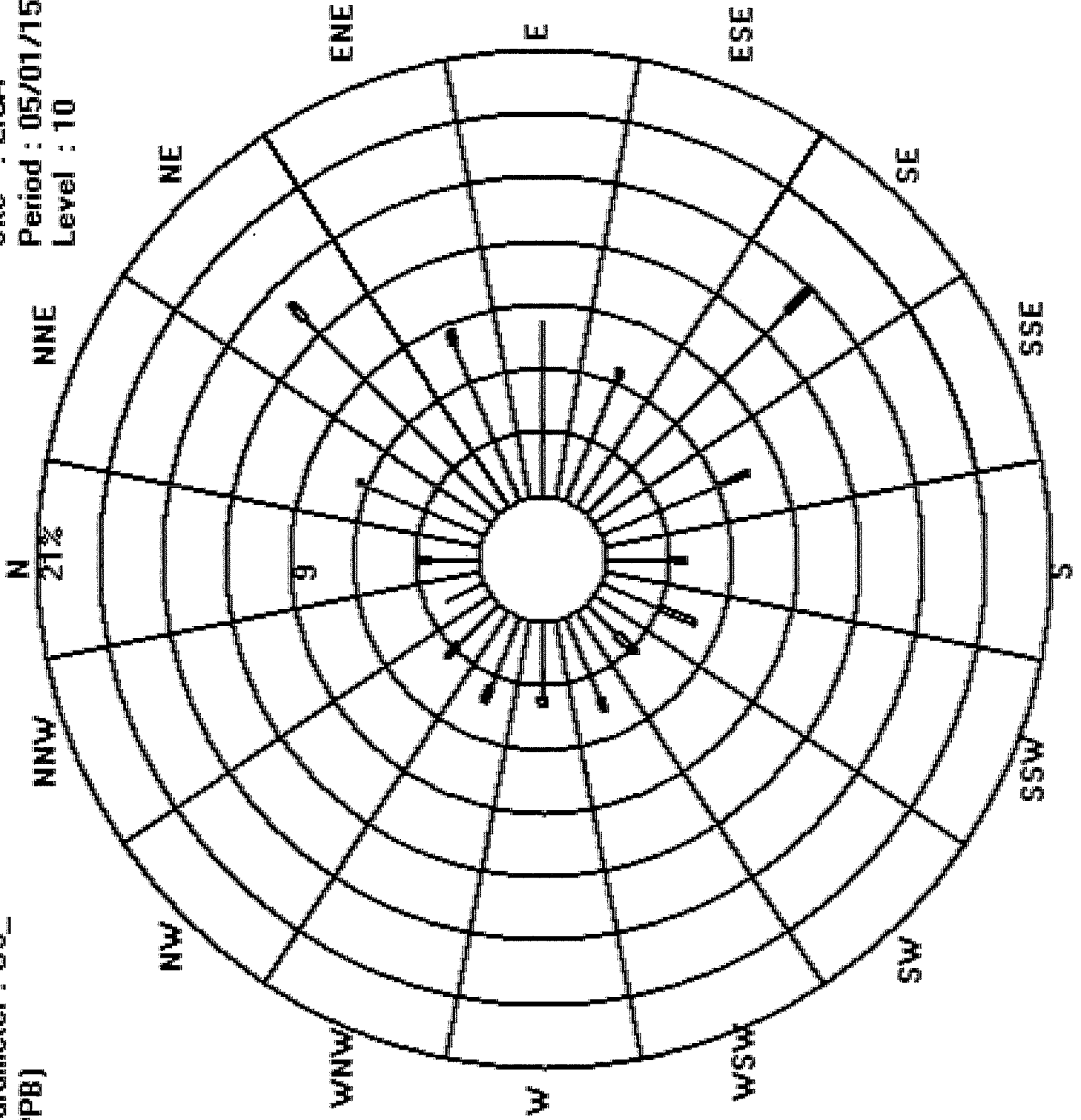
Total # Operational Hours : 706

Logger : 01 Parameter : O3_

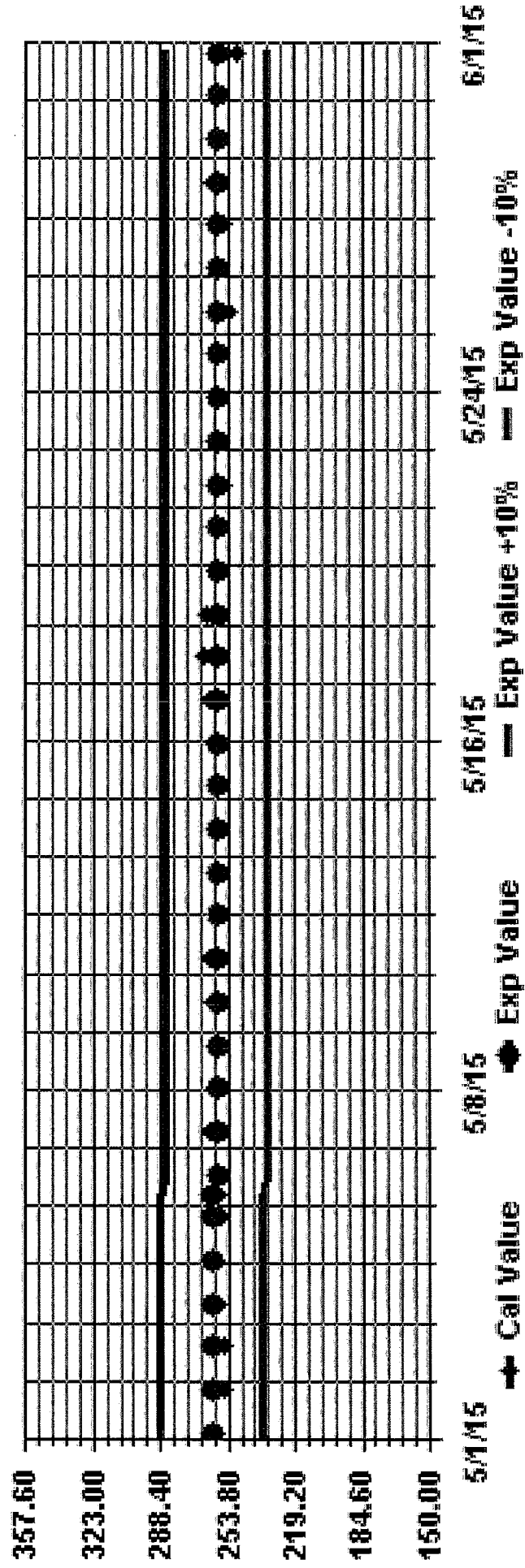
Class Limits (PPB)



Site : LICA
Period : 05/01/15-05/31/15
Level : 10



Calibration Graph for Site: LICA Parameter: O3_ Sequence: O3 Phase: SPAN



PARTICULATE MATTER 2.5

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

MST

HOURLY START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	RDGS.					
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
HOURLY MAX	199	192	176	165	156	157	153	90	36	35	69	41	26	26	38	32	55	266	197	183	188	183	205	205	266	78.8	24	266	78.8	24	
HOURLY AVG	14.8	13.4	13.4	15.5	14.4	14.6	13.9	12.1	11.1	9.3	12.1	7.6	7.6	7.4	8.1	8.8	8.2	15.3	13.0	14.2	15.5	15.2	15.4	14.1	14.1	14.1	14.1	14.1	14.1	14.1	

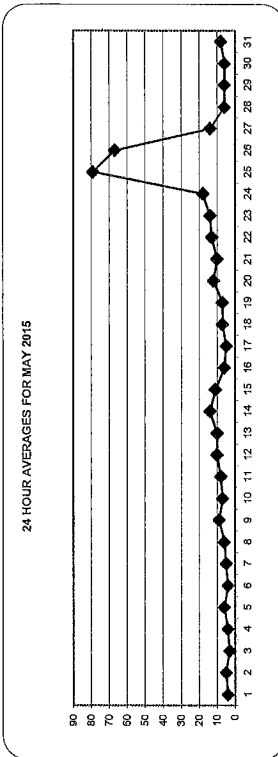
STATUS FLAG CODES

- G - CALIBRATION
- M - MAINTENANCE
- S - DAILY ZERO/SPAN CHECK
- P - POWER FAILURE
- Q - OUT FOR REPAIR
- U - QUALITY ASSURANCE
- R - RECOVERY
- X - MAGNETIC MALFUNCTION
- O - OPERATOR ERROR
- K - COLLECTION ERROR

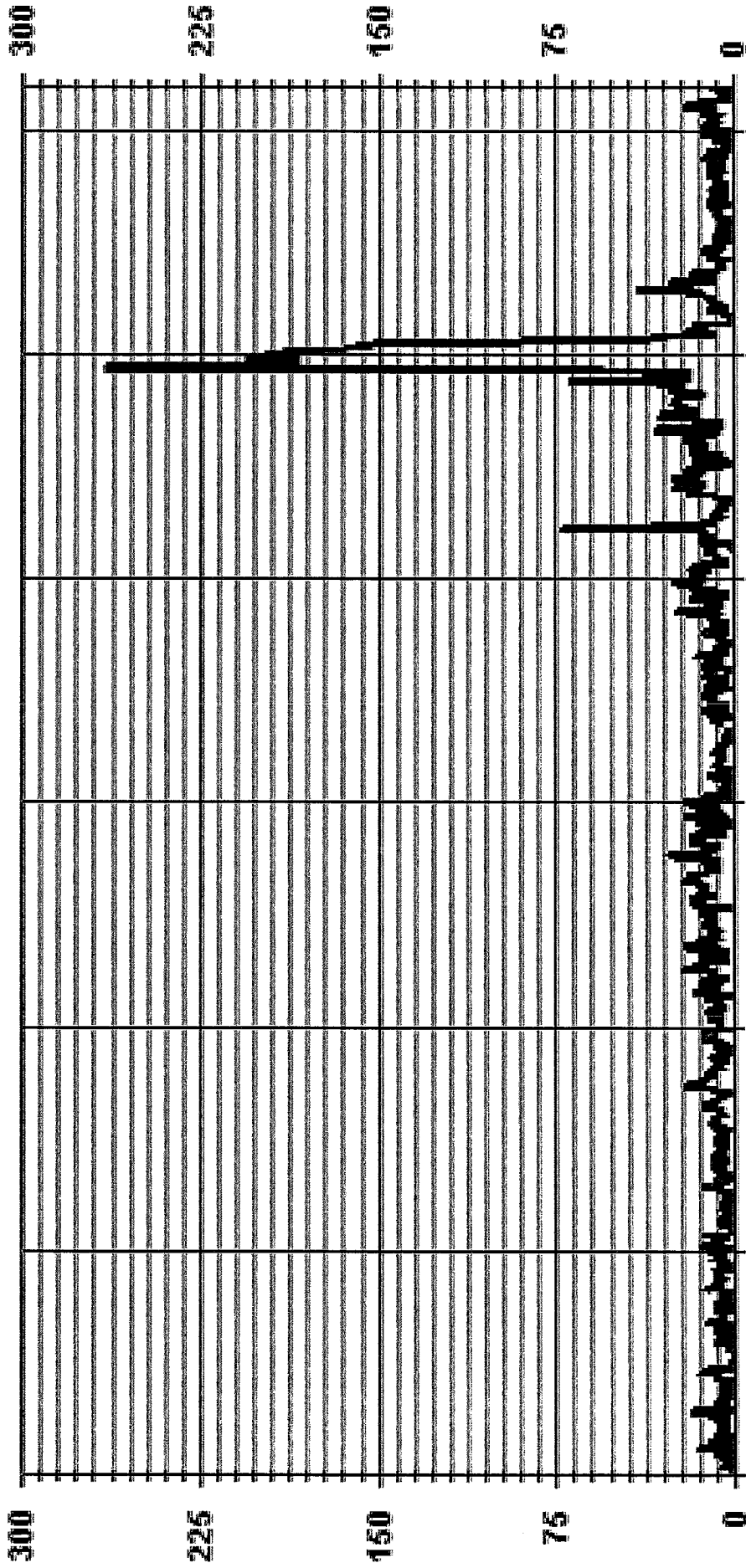
OBJECTIVE LIMIT: 24-HR: 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDANCES:	2
NUMBER OF NON-ZERO READINGS:	669
MAXIMUM 1-HR AVERAGE:	266 ug/m3 @ HOUR(5)
MAXIMUM 24-HR AVERAGE:	78.8 ug/m3
MONTHLY CALIBRATION TIME:	2 HRS
STANDARD DEVIATION:	26.10
OPERATIONAL TIME:	739 HRS
AMD OPERATION UPTIME:	98.5 %
MONTHLY AVERAGE:	12.3 ug/m3



01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA - - - - PM2 UGM3

LICA
PM2 / WD Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	2.73	6.70	13.40	8.07	8.07	6.56	14.50	7.52	3.83	4.24	3.00	5.06	3.28	3.96	3.28	2.05	96.30
< 60	.13	.13	.27	.27	.13	.00	.13	.13	.00	.00	.00	.13	.00	.00	.00	.00	1.36
< 80	.13	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.27
< 120	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13
< 240	.00	.00	.13	.00	.00	.13	.13	.00	.13	.41	.13	.00	.54	.13	.00	.00	1.77
>= 240	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13
Totals	3.00	7.11	13.81	8.34	8.20	6.70	14.77	7.79	3.96	4.65	3.14	5.19	3.83	4.10	3.28	2.05	

Calm : .00 %

Total # Operational Hours : 731

Distribution By Samples

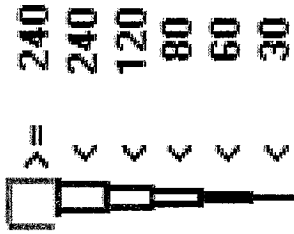
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	20	49	98	59	59	48	106	55	28	31	22	37	24	29	24	15	704
< 60	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	10
< 80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
< 120	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
< 240	1	1	1	1	1	1	1	1	1	3	1	4	4	1	1	1	13
>= 240	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Totals	22	52	101	61	60	49	108	57	29	34	23	38	28	30	24	15	

Calm : .00 %

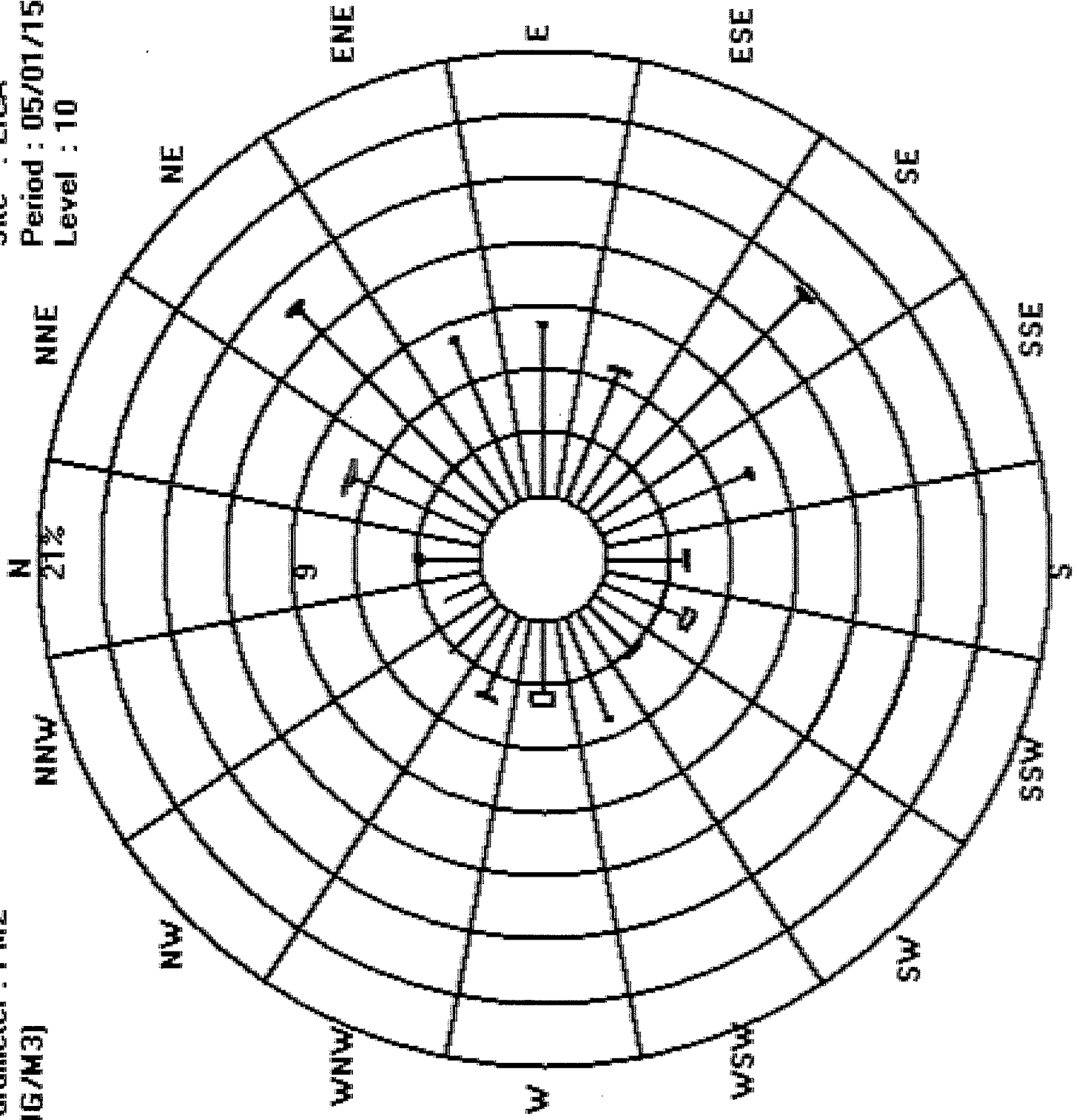
Total # Operational Hours : 731

Logger : 01 Parameter : PM2

Class Limits (UG/M3)



Site : LICA
Period : 05/01/15-05/31/15
Level : 10



WIND SPEED



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MAY 2015
JOB # 2833-2015-05-01-C

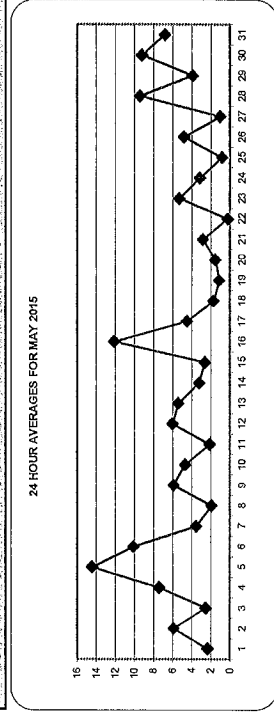
WIND SPEED (WS) hourly averages in km/hr

DAY	MST																								DAILY MAX	24-HOUR AVG	RDGS
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			
1	5.4	4.7	3.7	2.0	0.5	1.0	4.2	6.2	7.6	8.6	10.5	8.3	7.0	9.6	10.0	6.5	9.9	6.5	2.6	1.3	1.1	1.0	1.3	2.1	10.5	5.1	24
2	0.7	4.9	2.6	4.8	3.3	2.4	3.6	6.4	8.2	10.9	11.8	12.3	13.2	7.4	6.6	9.0	17.6	13.6	5.0	7.1	6.1	2.6	2.4	4.5	17.6	6.4	24
3	4.7	3.6	3.0	2.5	3.0	2.2	3.1	8.3	5.4	4.1	1.5	8.5	10.4	8.0	10.4	7.4	5.6	8.2	5.0	7.0	6.9	0.5	1.2	1.6	10.4	4.8	24
4	4.2	1.3	0.7	0.6	0.7	1.3	6.5	9.9	8.5	7.9	8.0	11.0	12.8	12.4	12.7	11.0	11.9	10.9	13.2	10.9	12.1	12.6	10.2	6.8	13.2	8.1	24
5	5.3	12.9	11.0	13.8	15.8	12.8	16.9	18.1	20.1	20.0	20.2	20.4	20.7	18.3	16.7	16.4	14.2	14.7	15.6	13.4	14.9	14.0	14.7	14.5	20.7	15.6	24
6	13.6	13.3	12.6	11.8	11.3	11.4	10.3	12.1	13.3	12.4	11.9	11.8	11.2	12.8	9.4	9.4	9.5	7.6	6.4	8.9	6.7	7.6	7.5	13.6	10.7	24	
7	6.7	7.1	6.0	5.3	5.0	5.4	5.7	6.9	6.2	6.6	8.0	7.4	6.8	5.8	5.1	5.4	7.9	6.5	6.7	3.7	0.8	1.4	4.1	4.4	8.0	5.6	24
8	1.9	0.6	0.7	0.3	0.3	0.3	1.3	2.2	3.9	2.9	6.6	5.6	6.0	12.8	6.3	7.7	4.0	6.8	5.1	4.9	4.0	4.6	4.1	5.2	12.8	4.1	24
9	3.7	2.8	1.8	2.8	1.0	2.4	4.0	6.3	8.8	9.3	9.1	10.2	10.4	8.6	6.6	6.7	6.5	5.8	5.3	3.1	1.0	1.3	2.7	6.6	10.4	5.1	24
10	2.8	1.5	0.4	2.0	0.9	1.1	5.2	6.3	8.8	9.3	9.1	10.2	10.4	8.6	6.6	6.7	6.5	5.8	5.3	3.1	1.0	1.3	2.7	6.6	10.4	5.1	24
11	4.9	2.4	1.1	0.2	0.8	3.8	4.0	4.5	2.5	5.1	2.3	2.5	4.6	8.9	12.1	9.6	8.3	7.1	5.0	3.3	1.5	1.7	2.1	2.0	12.1	4.2	24
12	4.0	4.2	1.1	1.6	1.3	0.6	1.8	1.6	4.5	11.2	12.0	11.5	9.8	4.7	5.3	8.3	8.2	8.1	7.8	7.3	8.2	8.9	9.1	12.0	6.2	24	
13	7.7	5.8	4.3	1.3	1.0	2.8	8.0	8.5	10.7	9.1	9.9	9.9	8.5	7.8	9.7	6.9	6.8	4.9	7.2	1.9	0.7	1.8	1.0	1.5	10.7	5.7	24
14	1.3	0.7	1.1	1.3	1.1	0.3	1.9	3.2	4.5	2.9	3.7	7.9	6.4	8.4	7.8	4.9	8.0	7.6	6.3	5.7	1.7	3.3	3.5	3.5	8.4	4.0	24
15	0.9	0.3	0.5	0.6	1.2	1.5	4.2	4.7	6.5	6.3	12.5	9.8	8.2	6.7	9.6	6.9	5.4	5.7	7.4	4.6	2.9	0.8	0.9	0.1	12.5	4.5	24
16	1.0	0.6	1.2	5.7	10.5	15.0	16.3	11.9	12.5	14.1	14.1	18.8	19.1	19.2	19.8	19.3	18.7	15.6	14.4	15.8	12.3	9.4	8.6	8.4	19.8	12.6	24
17	5.6	4.0	5.3	5.2	6.7	8.0	11.3	7.6	6.3	8.4	7.5	8.0	5.9	4.0	3.8	4.2	4.0	5.9	7.0	4.9	0.9	1.2	1.2	1.2	11.3	5.9	24
18	1.6	1.1	0.9	1.4	0.5	1.1	1.4	0.9	4.6	1.9	3.0	2.8	6.1	4.0	6.3	6.8	4.4	3.5	2.9	0.9	0.9	0.1	0.1	6.8	2.6	24	
19	0.4	0.1	0.1	0.7	0.5	0.6	0.4	2.5	4.2	4.4	2.6	3.9	5.8	8.2	5.2	1.7	2.4	6.9	5.4	2.8	1.1	0.6	0.8	0.9	8.2	2.6	24
20	0.7	0.5	0.8	1.0	0.3	0.2	1.0	0.8	3.9	3.3	3.2	3.2	4.1	6.6	5.5	5.4	4.5	5.3	3.5	1.7	1.2	0.4	0.8	0.7	6.6	2.4	24
21	0.4	0.8	0.4	0.9	0.6	1.2	0.5	4.2	4.2	5.5	7.3	9.2	7.7	7.6	7.6	9.0	5.8	7.5	6.2	2.3	1.8	0.7	0.2	0.7	9.2	3.8	24
22	0.4	0.3	0.2	0.5	0.4	0.4	0.8	2.3	5.0	1.6	4.3	2.6	2.7	2.9	9.8	7.5	5.2	0.5	3.7	1.8	0.7	0.8	1.0	0.3	9.8	2.3	24
23	1.7	1.5	0.2	0.6	0.4	1.4	7.0	9.4	10.1	8.7	8.8	9.4	10.4	11.8	13.8	12.8	8.9	8.7	5.8	1.8	0.8	0.9	1.5	0.6	13.8	5.7	24
24	0.4	0.4	1.0	1.0	1.8	1.2	2.2	3.6	3.7	3.9	6.6	8.3	7.6	4.8	5.3	6.0	7.2	7.6	5.7	1.8	0.8	0.3	1.6	0.2	8.3	3.5	24
25	1.1	1.1	0.9	1.3	1.5	0.5	1.3	3.3	5.5	4.9	5.5	6.8	8.4	8.6	4.4	13.0	6.0	3.3	2.2	0.8	0.3	0.6	0.7	1.7	13.0	3.5	24
26	2.2	0.4	0.2	0.2	0.4	0.9	2.2	8.6	11.4	10.1	10.1	11.2	12.3	12.1	8.7	8.7	9.1	3.8	1.1	1.5	1.5	1.8	0.2	12.3	5.5	24	
27	0.6	1.9	1.3	0.9	0.6	0.3	4.1	5.6	7.9	8.0	7.2	5.9	5.2	5.8	4.0	7.2	5.9	2.7	4.1	5.7	16.5	9.5	8.5	9.3	16.5	5.4	24
28	10.7	15.1	13.6	13.2	12.7	15.0	16.4	14.7	12.7	13.8	12.4	13.3	10.9	9.2	9.1	9.0	7.8	6.3	0.4	0.6	1.4	0.6	1.4	3.7	10.6	10.2	24
29	0.4	0.3	0.9	0.3	0.6	0.5	2.0	3.2	5.7	3.4	5.6	10.6	10.5	9.0	7.2	6.3	8.5	7.5	4.9	1.5	0.6	1.4	4.1	3.7	10.6	4.2	24
30	6.4	5.6	2.9	1.9	3.5	9.1	10.4	10.9	11.5	11.9	13.7	12.4	13.3	13.1	12.1	13.2	11.8	13.5	11.6	9.0	3.6	3.2	4.7	14.2	14.2	9.3	24
31	12.2	9.2	10.8	9.7	8.1	10.6	15.7	9.5	4.7	5.0	7.0	6.6	0.7	13.2	14.6	13.8	12.9	13.7	4.5	1.3	1.2	2.9	2.4	3.6	15.7	8.1	24
HOURLY MAX	13.6	15.1	13.6	13.8	15.8	15.0	16.9	18.1	20.1	20.0	20.2	20.4	20.7	19.2	19.8	19.3	18.7	15.6	15.6	15.8	16.5	14.0	14.7	14.5	14.5	14.5	3.9
HOURLY AVG	3.6	3.4	2.9	3.1	3.1	3.7	5.6	6.5	7.6	7.8	8.4	9.2	9.0	9.5	9.4	8.6	8.5	8.1	6.8	4.8	3.9	3.2	3.4	3.4	3.4	3.4	3.9

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

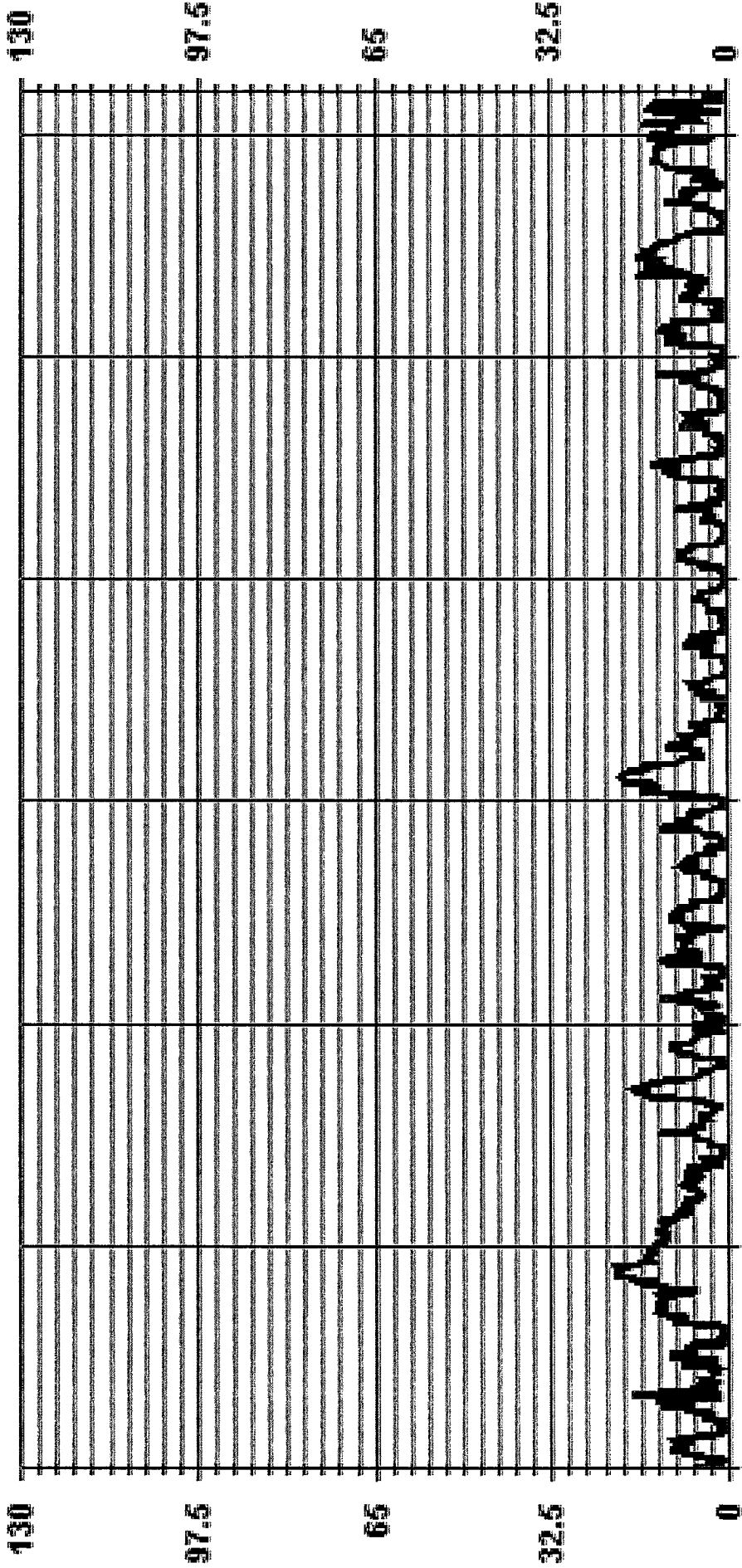
LAST CALIBRATION: April 1, 2015
DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST



MONTHLY SUMMARY

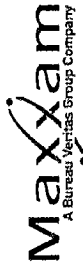
NUMBER OF NON-ZERO READINGS:	744
MAXIMUM 1-HR AVERAGE:	20.7 KPH
MAXIMUM 24-HR AVERAGE:	15.6 KPH
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION:	4.71
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	6.0 KPH
ON DAY(S)	5
VAR-VARIOUS	5

01 Hour Averages



05/01/15 00:00:05:06/15 00:00:05:11/15 00:00:05:16/15 00:00:05:21/15 00:00:05:26/15 00:00:05:31/15 00:00

— LICA WSP KPH



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MAY 2015
JOB # 2833-2015-05-01-C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

HOURLY MAX	0000	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000	20000	21000	22000	23000	24000	25000	DAILY MAX	24-HOUR AVG.	RDDS.
1	9.3	7.8	5.5	4.4	3.0	2.6	9.9	11.8	15.7	16.6	23.5	15.3	19.5	14.6	15.5	12.6	21.1	10.8	7.3	4.8	3.3	2.9	3.6	4.1	23.5	10.2	24		
2	2.0	2.0	5.5	7.5	9.6	7.3	7.2	13.2	14.2	16.5	23.6	21.9	27.1	16.1	24.8	6.6	29.5	28.4	9.9	11.1	9.6	5.0	5.7	6.3	29.5	13.1	24		
3	7.3	6.8	5.5	4.7	6.1	7.6	14.2	12.6	10.1	15.5	16.1	17.9	16.5	18.0	14.0	12.0	13.8	10.2	10.0	15.4	3.4	3.8	4.3	3.8	18.0	10.4	24		
4	3.9	3.3	3.5	2.9	2.9	5.7	11.1	14.7	14.9	12.5	12.2	20.6	19.1	18.4	18.1	16.9	16.0	21.1	22.7	16.3	19.8	19.6	18.9	10.6	22.7	13.6	24		
5	12.1	19.7	20.3	21.6	21.9	21.8	28.0	29.9	29.0	34.7	30.6	31.3	34.9	28.6	26.0	25.7	23.8	19.9	20.6	16.7	22.0	18.7	24.5	24.5	34.9	24.5	24		
6	24.4	17.1	19.3	20.7	18.6	19.8	16.0	18.7	18.1	19.6	18.2	19.0	17.3	18.4	21.2	17.4	15.1	13.2	11.8	12.1	13.3	11.2	10.4	11.6	24.4	16.8	24		
7	12.3	13.9	9.8	8.5	7.6	9.1	8.6	10.3	12.0	10.1	18.2	15.7	16.2	14.1	12.7	12.9	15.8	14.0	12.4	7.7	3.4	3.6	6.3	7.8	18.2	11.0	24		
8	4.3	2.3	2.4	3.3	1.9	4.0	10.5	10.1	11.1	10.7	12.6	14.4	28.5	13.1	15.3	13.9	10.9	12.3	7.4	6.4	7.9	8.0	9.3	28.5	9.3	24			
9	6.7	6.9	7.2	20.6	8.3	10.3	8.1	12.5	17.8	22.7	22.3	27.7	25.6	27.4	25.6	21.6	23.4	17.6	14.3	11.1	7.3	6.2	7.7	6.5	27.7	15.2	24		
10	4.9	3.6	3.2	3.4	1.8	3.3	11.2	12.6	14.9	17.1	17.2	19.1	18.1	18.4	18.7	18.1	18.7	12.6	11.0	7.2	2.6	3.4	6.2	10.0	19.1	10.7	24		
11	7.1	5.9	2.8	2.2	3.2	6.9	8.8	13.3	9.2	11.9	12.0	16.4	13.1	15.4	18.5	18.1	15.0	13.9	9.2	6.1	5.8	5.8	6.6	6.6	18.5	9.5	24		
12	7.9	7.2	4.4	4.3	5.7	4.4	4.7	6.6	16.2	18.9	21.4	21.1	22.0	19.8	15.8	14.8	15.7	17.7	12.8	12.0	13.8	13.7	13.1	13.6	22.0	13.0	24		
13	10.9	8.2	7.0	4.2	3.1	6.8	15.5	14.5	18.0	16.7	20.9	21.1	19.9	19.1	20.6	15.4	14.9	13.8	12.0	7.3	2.2	4.7	3.1	5.4	21.1	11.9	24		
14	3.3	2.1	2.2	2.7	3.2	2.5	6.5	8.4	9.8	10.5	12.0	23.7	17.0	17.5	19.9	14.6	16.3	14.2	14.2	11.3	8.4	5.8	5.2	5.8	23.7	9.7	24		
15	3.4	1.6	1.8	2.5	2.4	4.1	8.9	10.8	17.8	19.6	19.9	20.6	19.1	15.8	19.0	16.7	13.2	11.8	11.4	9.0	8.0	3.9	4.2	4.3	20.6	10.4	24		
16	7.2	4.1	7.1	11.4	17.2	21.4	25.8	20.8	22.6	24.8	23.6	26.2	27.3	29.1	28.6	26.5	29.3	23.9	19.9	24.2	19.8	14.2	13.6	12.0	29.3	20.0	24		
17	10.3	6.2	8.8	8.2	10.4	16.0	17.6	14.1	12.6	15.0	13.9	14.2	13.5	16.1	12.9	13.7	11.1	17.0	13.3	9.8	2.3	1.7	2.0	2.2	17.6	11.0	24		
18	3.2	2.5	3.9	2.6	3.7	4.6	4.6	9.3	11.4	9.8	18.5	15.5	13.1	13.8	16.6	14.9	13.5	7.9	6.4	3.3	2.7	2.0	1.8	18.5	7.9	24			
19	1.7	1.6	1.5	2.6	2.1	1.6	1.6	6.9	9.1	11.0	12.4	11.5	15.3	15.4	13.0	10.2	9.4	11.5	8.9	6.0	3.6	2.9	3.9	2.7	15.4	6.8	24		
20	1.9	2.0	1.6	2.2	1.9	2.3	3.3	4.7	8.5	10.4	11.9	14.8	13.2	18.5	15.8	14.5	18.7	13.1	8.9	5.8	3.7	3.8	2.5	2.4	18.7	7.8	24		
21	1.4	1.8	1.5	2.1	2.7	2.5	5.0	9.0	9.7	13.5	15.0	21.5	19.4	19.7	22.3	22.2	14.9	14.0	15.0	6.2	3.3	2.3	5.3	3.5	22.3	9.7	24		
22	4.7	4.6	4.1	4.1	2.3	2.4	4.1	7.4	8.4	9.7	12.4	14.9	14.0	16.6	15.1	14.2	15.1	10.0	8.6	3.3	4.3	3.5	3.2	7.8	16.6	8.1	24		
23	5.2	3.2	7.1	3.0	5.0	3.9	12.3	15.0	14.0	14.5	14.0	15.2	16.6	19.3	20.9	21.0	15.0	12.7	10.0	5.7	3.1	2.8	2.9	3.2	21.0	10.2	24		
24	2.6	2.5	1.8	2.2	3.7	3.2	4.6	7.0	8.0	8.4	13.6	14.4	17.4	12.5	11.4	14.4	13.0	12.0	11.5	5.9	4.4	4.4	8.2	3.4	17.4	7.9	24		
25	5.9	5.2	5.3	5.2	3.9	3.7	3.8	6.2	9.2	10.5	10.8	13.3	15.2	19.4	12.2	26.8	27.6	15.8	5.2	3.3	2.9	3.3	2.5	7.5	27.6	9.4	24		
26	5.9	5.4	3.2	2.0	3.1	3.6	15.1	19.8	17.6	15.0	14.9	16.6	20.1	18.6	18.3	13.1	14.0	16.1	8.5	3.3	4.4	4.6	4.6	2.8	20.1	10.4	24		
27	3.1	3.9	3.4	3.3	2.4	2.2	8.2	12.2	15.7	16.1	16.1	16.4	14.9	15.0	11.6	14.3	13.3	8.2	15.0	24.2	26.2	17.8	12.4	14.6	26.2	12.1	24		
28	20.6	22.9	22.0	22.1	20.5	28.0	24.6	22.1	26.9	22.2	19.9	21.5	21.5	18.5	19.0	16.3	18.2	18.5	14.8	10.9	6.3	2.4	4.3	2.2	28.0	17.8	24		
29	1.6	2.1	1.8	1.8	2.0	3.2	7.5	7.6	13.2	16.2	12.6	16.1	17.8	17.6	15.2	14.5	13.6	14.9	13.1	8.5	5.4	4.6	2.3	8.0	17.8	9.2	24		
30	9.4	10.0	5.4	3.2	8.3	11.9	16.4	17.7	19.1	20.6	23.2	27.1	24.5	22.8	21.5	22.5	20.9	20.6	18.6	15.2	6.2	4.8	13.4	19.0	27.1	15.9	24		
31	17.0	14.6	14.5	12.7	12.4	16.8	24.8	20.5	14.8	11.4	12.9	17.6	9.1	22.5	21.5	26.6	18.1	21.7	14.6	13.9	4.4	10.1	4.7	5.7	26.6	15.1	24		
HOURLY MAX	24.4	22.9	22.0	22.1	21.9	28.0	28.0	29.9	29.0	34.7	30.6	31.3	34.9	29.1	28.6	26.8	29.5	28.4	22.7	24.2	26.2	19.6	24.5	24.6					
HOURLY AVG	7.1	6.5	6.2	6.6	6.4	7.7	10.4	12.7	14.7	15.5	16.6	18.7	18.5	18.9	18.2	17.2	17.1	15.3	12.7	9.9	7.7	6.5	6.9	7.3					

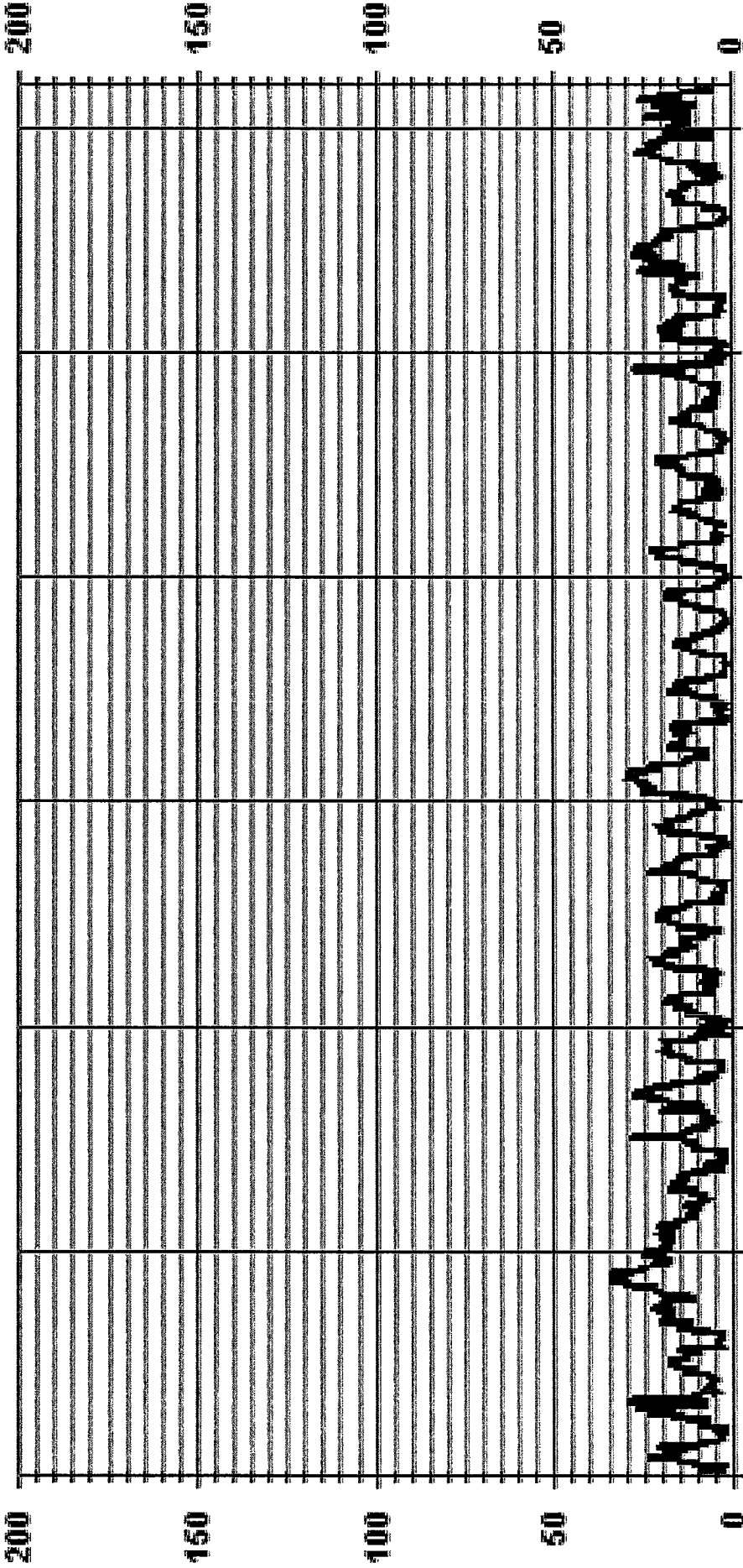
STATUS FLAG CODES

C	-CALIBRATION	Q	-QUALITY ASSURANCE
Y	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SPAN CHECK	X	-MACHINE MALFUNCTION
P	-POWER FAILURE	O	-OPERATOR ERROR
G	-OUT FOR REPAIR	K	-COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	34.9	KPH	@ HOUR(S)	12	ON DAY(S)	5
OPERATIONAL TIME:	744	HRS	VARIOUS			

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA WSMAX KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	.94	1.20	3.09	3.49	4.43	4.43	6.58	5.91	2.82	3.76	2.28	4.56	2.82	2.28	2.28	.67	51.61
< 12.0	1.47	2.41	6.85	3.62	1.61	1.74	5.37	1.34	.80	.67	.80	.67	.67	1.34	.94	.94	31.31
< 20.0	.40	3.49	3.89	.80	1.34	.00	2.15	.13	.00	.00	.13	.13	.13	.26	.13	.00	12.90
< 29.0	.00	.00	.00	.00	.67	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.82	7.12	13.84	7.93	8.06	6.18	14.11	7.39	3.62	4.43	3.09	5.37	3.62	3.89	3.36	1.61	

Calm : 3.49 %

Total # Operational Hours : 744

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	7	9	23	26	33	33	49	44	21	28	17	34	21	17	17	5	384
< 12.0	11	18	51	27	12	13	40	10	6	5	6	5	5	10	7	7	233
< 20.0	3	26	29	6	10	16	1				1	1	1	2	1		96
< 29.0																	5
< 39.0																	
>= 39.0																	
Totals	21	53	103	59	60	46	105	55	27	33	23	40	27	29	25	12	

Calm : 3.49 %

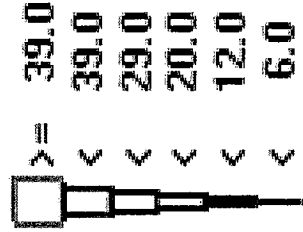
Total # Operational Hours : 744

Logger : 01 Parameter : WSP

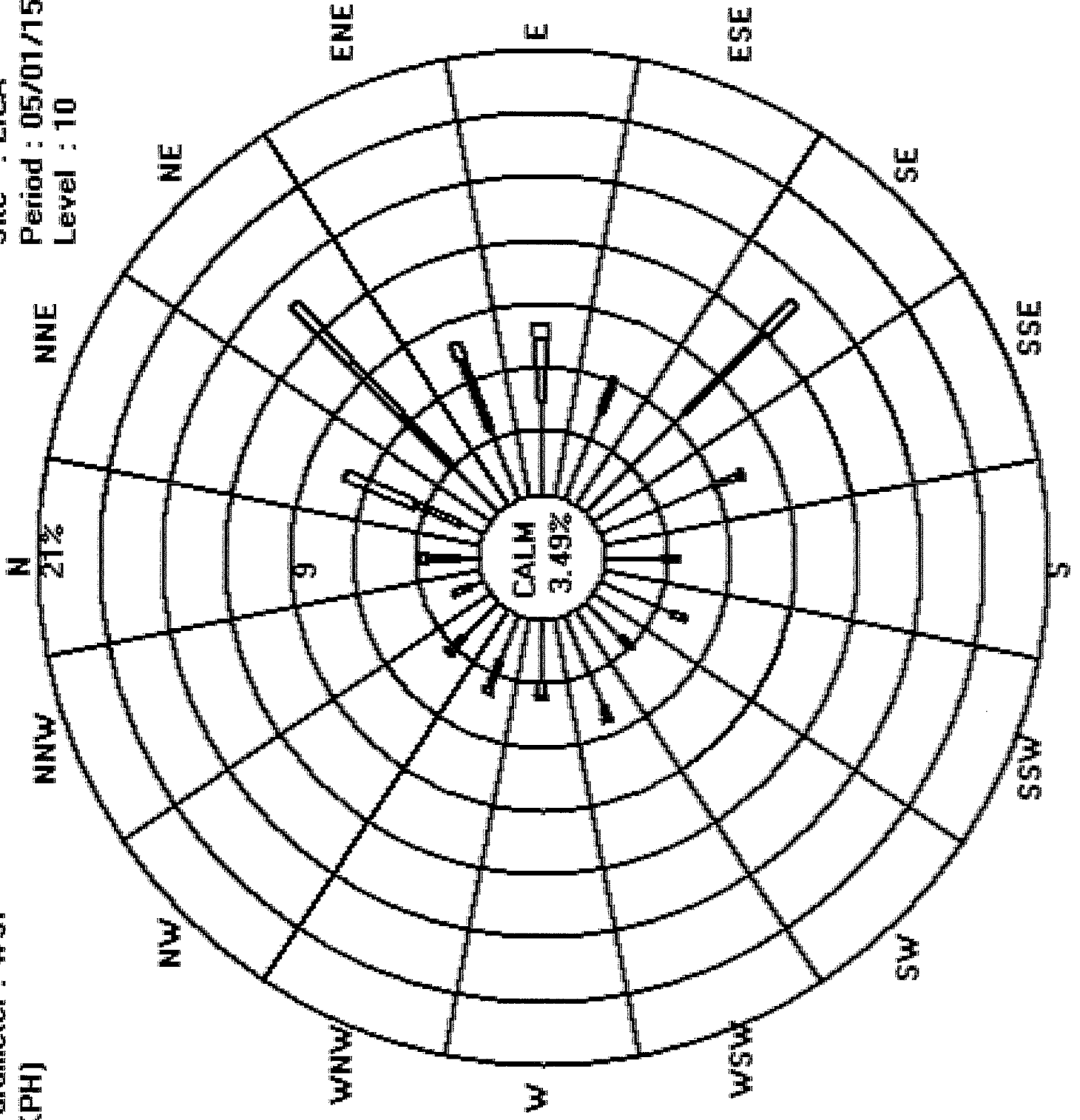
Site : LICA

Class Limits (KPH)

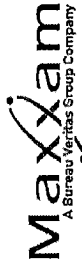
Period : 05/01/15-05/31/15



Level : 10



WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MAY 2015
JOB # 2833-2015-05-01- C

WIND DIRECTION (WD) hourly averages

DAY	24-HOUR AVG QUADRANT																								ROGS		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00		0:00	
1	WSW	WSW	WSW	WSW	SE	S	WSW	W	WSW	WNW	W	N	NE	NE	NE	NE	NE	NE	NE	NE	SSE	SSE	S	W	WSW	NW	24
2	SSE	S	WSW	W	SW	WSW	WSW	W	WSW	WNW	W	NW	NE	NE	NE	NE	NE	NE	NE	NE	W	WSW	WSW	WSW	WSW	NW	24
3	W	WSW	WSW	WSW	SE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	SSE	SSE	W	S	WSW	NW	24
4	WSW	ENE	SSW	SE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	E	E	ENE	NE	NE	NE	24
5	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	ENE	ENE	24
6	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	N	N	N	N	N	N	24
7	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	E	SSE	SSE	SE	SE	SE	24
8	SE	ESE	SW	S	ENE	NE	SSE	WSW	NW	N	SE	S	WSW	NNE	SSE	SSW	S	SE	SSE	SE	SE	SE	SE	SE	SE	SE	24
9	SSW	WSW	W	NNE	SSE	S	WSW	W	NNE	N	SE	S	WSW	NNE	SSE	SSW	S	SE	SSE	SE	SE	SE	SE	SE	SE	SE	24
10	ESE	ENE	NNW	ENE	ENE	ENE	E	E	ESE	ESE	E	E	ENE	ENE	ENE	ENE	E	E	ENE	ENE	E	E	E	E	E	E	24
11	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	24
12	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	24
13	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	24
14	SSE	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	24	
15	SSE	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	24	
16	WSW	WSW	WSW	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	N	N	N	N	N	N	24
17	NE	ENE	ENE	ENE	ENE	ENE	E	E	E	E	E	E	ENE	ENE	ENE	ENE	E	E	ENE	ENE	E	E	E	E	E	E	24
18	ESE	SE	SSW	W	NNW	NW	E	S	NNW	WSW	NNW	SSE	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SSE	SE	ESE	NNW	24	
19	ESE	NNW	W	ESE	SE	WSW	ESE	NW	WSW	NNW	NW	SSW	NW	W	SE	NNW	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	24
20	E	E	ENE	E	E	ENE	W	N	NNW	WNW	W	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SSE	SSE	SSE	SSE	NW	24
21	E	E	ENE	E	E	ENE	W	N	NNW	WNW	W	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SSE	SSE	SSE	SSE	NW	24
22	SW	ESE	SE	SSE	E	ENE	W	SSW	SW	WSW	W	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SSE	SSE	SSE	SSE	NW	24
23	SW	ESE	SE	SSE	E	ENE	W	SSW	SW	WSW	W	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SSE	SSE	SSE	SSE	NW	24
24	SW	ESE	SE	SSE	E	ENE	W	SSW	SW	WSW	W	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SSE	SSE	SSE	SSE	NW	24
25	SSW	E	S	W	WSW	NNW	WSW	W	WSW	NNW	N	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	S	S	SSE	S	SSE	ENE	24
26	NNW	W	SE	ESE	S	W	WSW	W	WSW	NNW	N	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	S	S	SSE	S	SSE	ENE	24
27	E	ENE	SW	S	ENE	SE	SE	SE	SSE	SSW	SW	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSE	SSE	SSE	SSE	SSE	ENE	24
28	NNE	NNE	NNE	NNE	N	N	N	N	NNE	NNE	N	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	S	S	SSE	S	SSE	ENE	24
29	NE	NNW	ESE	SE	E	NNW	ENE	NE	E	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	24
30	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	24
31	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	24

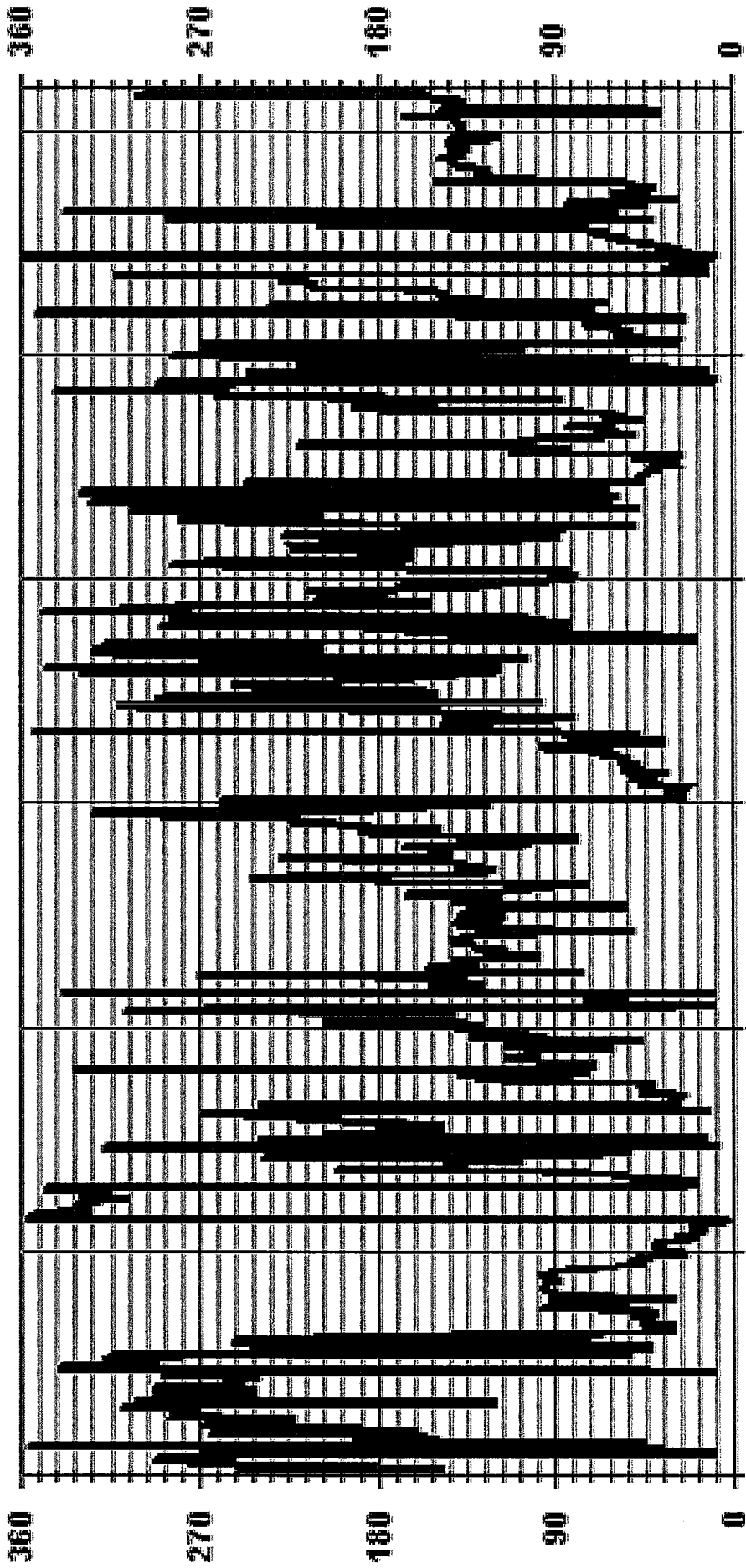
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

LAST CALIBRATION: April 7, 2015
DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	90.98		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	ENE	

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA - - - - WDR DEG

STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - MAY 2015
JOB # 2833-2015-05-01-C

STANDARD DEVIATION WIND DIRECTION (STDWVD) hourly averages in degrees

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1	19	18	13	20	26	28	25	25	29	32	26	35	31	21	19	27	21	23	39	46	47	44	44	44	44	44	44	44	44	44	25	
2	43	40	48	14	31	57	22	23	30	23	28	25	26	21	36	65	21	19	33	17	15	17	15	17	15	17	15	17	15	17	25	
3	17	18	31	24	21	58	22	22	43	51	62	34	24	37	26	29	35	19	20	35	18	45	40	27	40	27	40	27	40	27	25	
4	57	58	67	43	52	68	20	19	22	22	22	21	21	21	19	19	19	20	20	18	18	18	18	19	18	19	18	19	18	19	19	
5	23	19	19	19	18	19	20	22	21	20	22	21	20	20	20	19	19	20	18	19	18	17	17	17	17	17	17	17	17	17	19	
6	21	19	20	20	20	21	19	17	17	18	17	16	22	17	16	18	17	17	17	17	17	17	17	17	17	17	17	17	17	17	19	
7	16	13	13	12	12	16	15	16	22	19	23	34	42	42	43	37	25	26	21	19	48	29	15	27	47	47	47	47	47	47	12	
8	56	49	66	37	67	65	46	50	35	31	17	39	48	24	32	37	46	33	36	18	24	34	40	26	40	26	40	26	40	26	26	
9	33	34	27	67	68	41	24	26	34	19	20	20	21	21	20	20	20	20	19	18	21	14	11	11	11	11	11	11	11	11	11	
10	15	25	44	16	28	25	21	26	26	28	27	29	26	36	43	51	37	37	31	20	32	23	19	12	12	12	12	12	12	12	12	
11	12	35	45	63	58	25	29	42	57	47	63	56	60	28	24	32	28	29	25	16	33	44	39	33	33	33	33	33	33	33	33	
12	26	17	57	58	44	73	48	66	52	27	26	29	41	28	63	63	31	33	23	19	16	14	12	14	12	14	12	14	12	14	14	
13	13	13	13	15	22	33	30	19	21	22	29	33	32	40	38	35	37	35	44	20	53	56	35	66	65	65	65	65	65	65	65	
14	59	61	35	29	37	64	53	45	39	63	65	46	48	39	48	55	47	33	29	24	30	17	19	20	20	20	20	20	20	20	20	
15	42	76	58	60	24	24	25	41	44	46	32	38	40	47	37	42	40	25	18	19	47	56	60	41	41	41	41	41	41	41	41	
16	52	63	50	26	20	19	22	19	22	19	19	22	21	21	19	20	20	21	20	18	18	18	18	18	18	18	18	18	18	18	18	18
17	18	17	15	15	17	20	19	30	32	26	37	36	47	67	67	61	58	42	29	17	30	16	16	16	16	16	16	16	16	16	16	
18	24	37	23	27	60	55	45	65	36	71	68	66	53	60	49	44	45	35	22	39	36	82	44	44	44	44	44	44	44	44	44	
19	48	66	82	58	38	52	77	59	41	52	66	61	52	36	51	66	66	25	20	30	41	66	44	51	51	51	51	51	51	51	51	
20	49	72	31	28	68	59	37	60	49	59	65	55	66	50	62	50	51	40	40	33	25	63	47	59	59	59	59	59	59	59	59	
21	62	30	55	41	53	42	59	29	41	40	43	41	42	45	50	45	47	36	33	27	17	52	80	43	43	43	43	43	43	43	43	
22	76	72	79	75	78	63	67	59	31	50	57	63	65	51	27	37	30	55	35	26	61	45	63	55	55	55	55	55	55	55	55	
23	48	17	61	75	60	54	21	22	22	24	26	26	25	24	22	21	23	20	19	52	44	37	27	53	53	53	53	53	53	53	53	
24	67	60	41	39	25	57	26	33	38	41	36	29	36	57	40	43	28	22	21	38	35	63	26	50	50	50	50	50	50	50	50	
25	49	42	61	45	50	56	47	25	24	31	22	40	38	29	33	28	54	32	43	65	54	55	59	56	56	56	56	56	56	56	56	
26	37	78	60	72	46	60	25	25	22	24	24	26	23	21	23	22	17	21	48	57	45	60	45	60	60	60	60	60	60	60	60	
27	47	22	31	44	65	76	22	30	28	34	50	57	56	48	42	37	45	26	42	22	27	23	25	25	25	25	25	25	25	25	25	
28	20	18	20	19	18	19	19	21	22	23	25	27	25	26	29	31	28	27	22	39	35	48	48	48	48	48	48	48	48	48	48	
29	56	63	37	56	41	44	48	44	42	63	47	23	29	32	37	43	45	24	23	20	38	36	19	21	21	21	21	21	21	21	21	
30	22	19	17	18	23	12	15	17	22	28	22	29	23	27	24	24	24	20	17	13	18	16	21	13	13	13	13	13	13	13	13	
31	13	16	15	17	17	16	17	21	40	39	24	30	58	18	18	21	19	17	34	65	53	58	21	21	21	21	21	21	21	21	21	

STATUS FLAG CODES

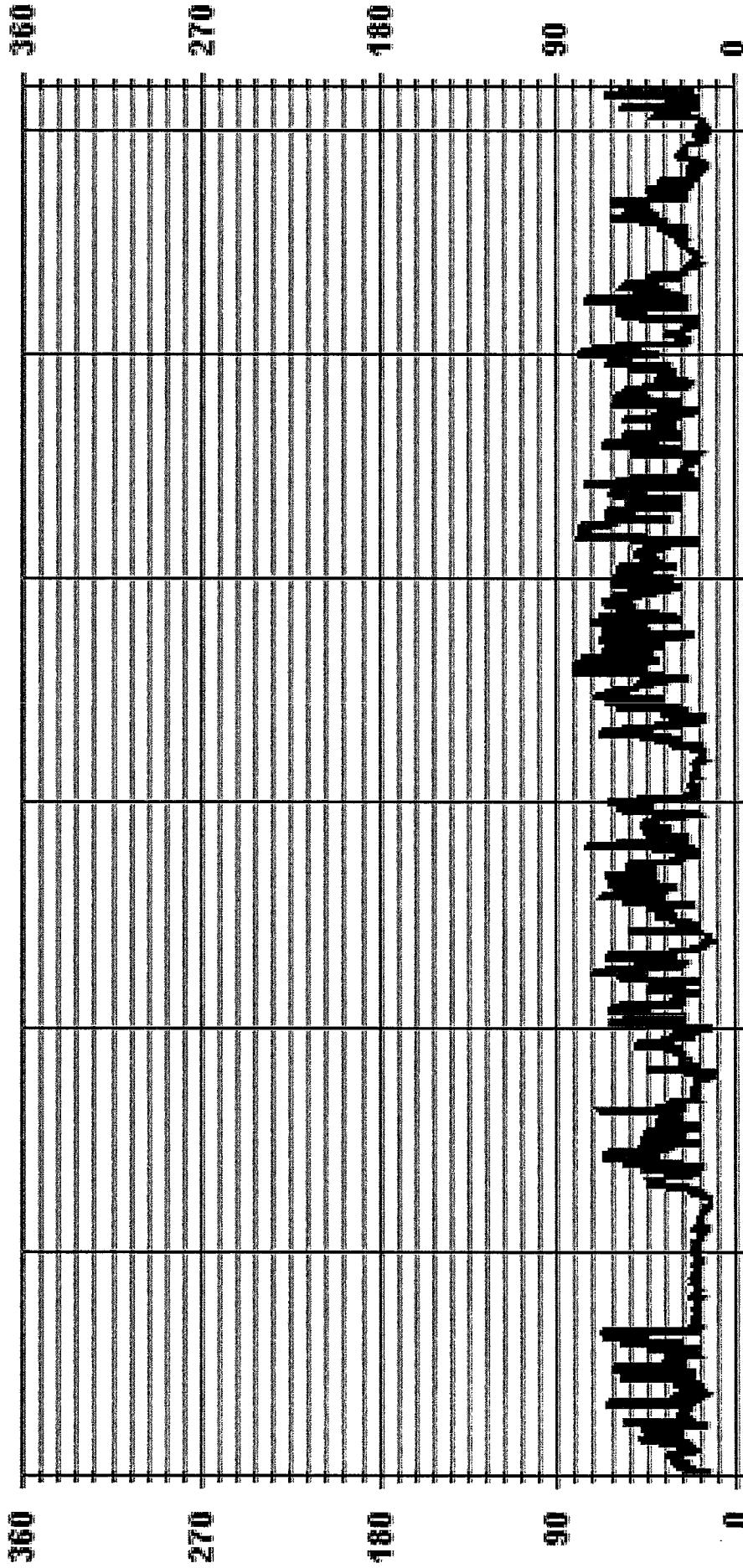
C	-	CALIBRATION	Q	-	QUALITY ASSURANCE
Y	-	MAINTENANCE	R	-	RECOVERY
S	-	DAILY ZERO/SPAN CHECK	X	-	MACHINE MALFUNCTION
P	-	POWER FAILURE	O	-	OPERATOR ERROR
G	-	OUT FOR REPAIR	K	-	COLLECTION ERROR

LAST CALIBRATION:

April 1, 2015

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

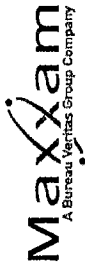
01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA STOWDIR DEG

RELATIVE HUMIDITY



RELATIVE HUMIDITY (RH) hourly averages in %

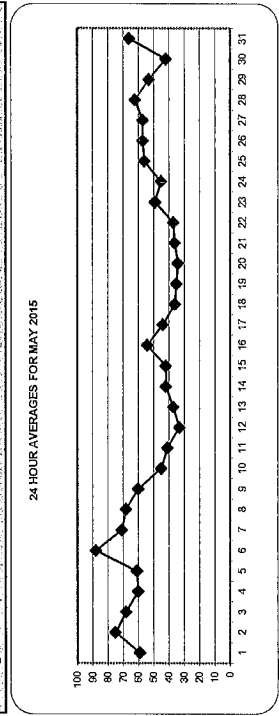
MST

DAY	HOURS																								DAILY MAX.	24-HOUR AVG.	RDGS.
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			
1	53	59	70	81	79	78	68	56	42	35	32	31	36	40	43	43	54	58	61	64	76	84	89	93	93	59.4	24
2	89	92	88	90	88	84	79	65	50	40	41	37	40	69	64	77	72	85	82	87	93	94	95	97	97	74.9	24
3	95	95	96	96	96	96	91	79	70	62	58	51	46	45	44	40	35	37	38	48	63	74	83	96	96	67.5	24
4	90	91	92	92	91	87	75	67	60	55	53	50	46	45	43	41	40	39	40	42	43	45	50	61	92	59.9	24
5	63	57	58	62	65	66	62	59	56	54	58	59	61	59	60	57	54	54	57	61	60	66	69	76	76	60.5	24
6	80	80	83	89	89	89	92	90	87	86	85	89	85	89	90	90	90	90	90	91	91	95	94	93	95	88.2	24
7	94	95	95	95	94	94	89	83	80	77	70	65	58	52	48	45	46	46	44	50	65	73	74	69	95	70.9	24
8	74	80	85	88	88	85	79	70	63	76	87	71	47	77	67	62	55	47	43	46	53	57	60	62	88	67.6	24
9	66	72	76	73	78	77	66	57	54	67	68	66	61	58	53	48	44	40	40	40	40	50	57	64	69	60.2	24
10	78	80	86	86	87	75	63	45	35	31	27	25	23	22	21	19	20	20	22	26	42	49	54	44	87	45.0	24
11	47	55	68	75	76	65	53	48	41	35	31	27	25	23	23	22	21	21	21	21	25	40	49	52	50	41.4	24
12	51	49	65	63	61	62	40	32	28	23	23	22	20	20	19	19	19	19	22	26	30	33	36	65	33.4	24	
13	41	46	49	59	66	57	45	40	35	28	24	23	24	25	23	22	22	24	22	26	41	46	53	48	66	37.0	24
14	53	62	69	74	78	70	60	55	44	37	32	28	24	22	21	21	21	19	21	26	35	43	46	51	78	42.2	24
15	58	72	70	74	76	64	56	49	40	35	30	29	24	23	19	20	21	24	26	30	33	41	48	53	76	42.3	24
16	59	62	64	58	65	65	79	88	87	78	57	36	32	32	33	34	33	34	37	40	47	53	57	57	88	53.6	24
17	62	68	69	71	71	67	64	59	54	52	43	35	29	25	23	21	19	17	17	20	37	41	48	53	71	44.4	24
18	58	65	68	83	79	67	46	34	28	23	18	16	14	12	11	11	11	12	12	15	35	39	48	62	83	36.1	24
19	59	67	75	75	74	68	45	29	24	18	14	13	13	12	11	10	11	12	13	16	30	46	52	59	75	35.3	24
20	59	65	68	72	76	66	51	31	22	18	13	13	10	10	10	11	10	10	11	15	30	44	53	58	76	34.4	24
21	60	64	70	72	75	64	45	33	28	22	15	14	15	14	13	13	13	12	12	16	31	42	57	59	75	35.8	24
22	65	71	75	78	79	61	46	35	31	25	19	13	12	12	13	12	11	12	11	12	35	43	53	60	79	37.2	24
23	65	72	80	81	81	74	59	52	49	43	36	31	26	24	26	26	28	27	28	35	52	62	64	69	81	48.9	24
24	80	81	83	84	81	69	59	52	43	36	26	20	19	17	17	17	18	18	21	30	43	55	60	60	84	45.4	24
25	68	71	76	83	89	83	70	54	39	31	36	24	22	21	22	29	32	46	51	60	73	82	86	88	89	55.7	24
26	90	90	92	92	93	86	77	66	61	55	48	40	33	30	28	30	30	29	28	31	48	62	56	66	93	56.7	24
27	74	74	82	88	87	77	64	57	50	46	39	34	32	32	33	33	33	37	37	48	62	77	84	88	88	56.6	24
28	84	79	74	75	76	74	74	76	79	59	55	48	47	46	41	39	38	37	37	41	56	77	79	85	85	61.5	24
29	87	87	88	90	87	73	61	51	48	42	39	38	32	30	30	29	29	28	28	30	45	63	65	63	90	52.6	24
30	56	58	66	77	73	62	55	49	40	32	29	29	27	27	27	25	24	24	24	24	27	34	44	45	77	41.6	24
31	50	53	54	55	58	57	54	57	58	59	61	73	84	62	54	51	52	54	54	65	84	91	97	99	99	65.8	24
HOURLY MAX	95	95	96	96	96	96	92	90	87	86	87	84	85	89	85	90	90	90	90	91	93	97	97	99	99	66.2	
HOURLY AVG	68.0	71.0	75.2	78.3	79.3	73.0	63.5	55.4	49.2	44.5	40.9	36.9	34.4	34.7	33.1	32.3	32.5	33.1	34.2	39.1	50.3	59.0	63.5	66.2			

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE/ALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

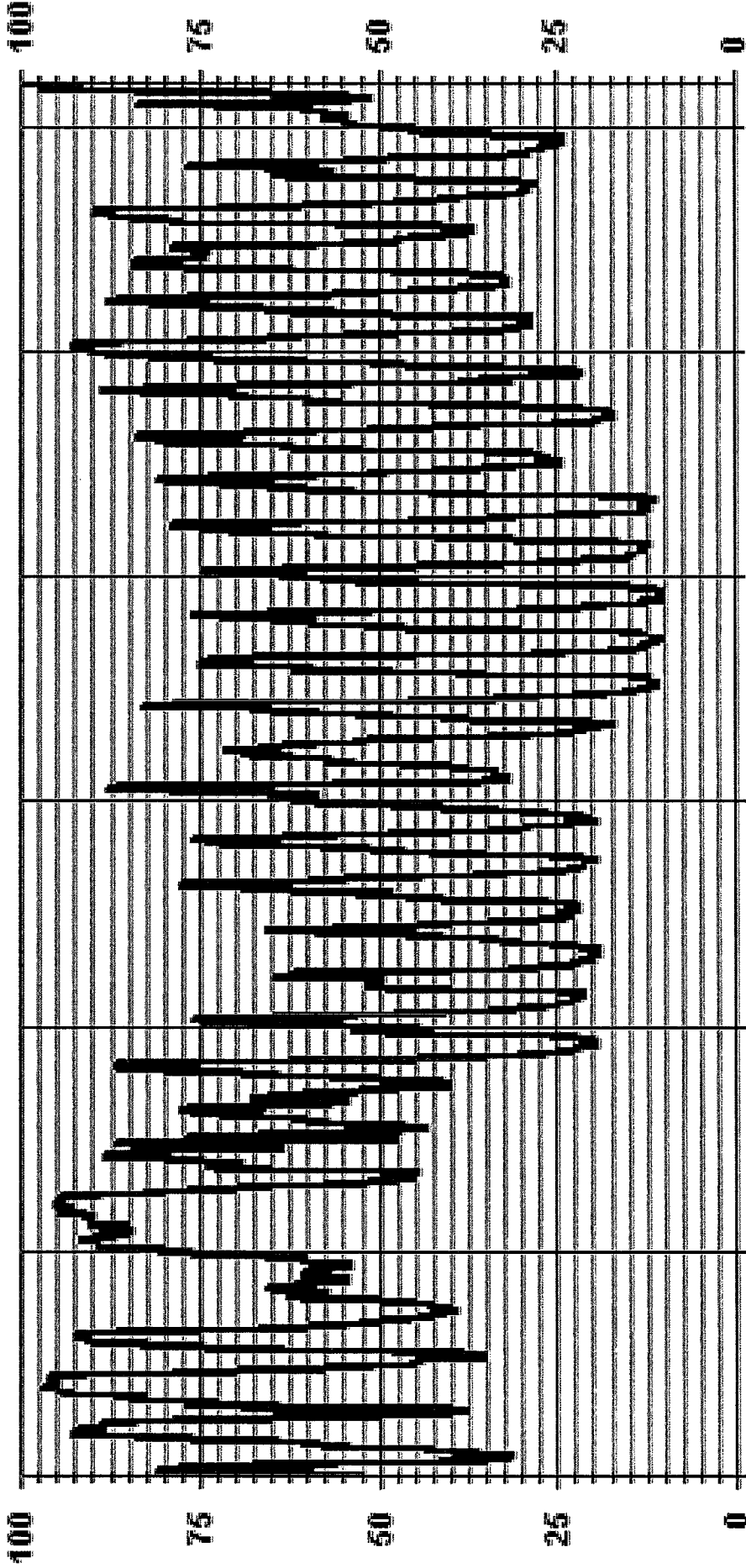
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	99	%	@ HOUR(S)	23	ON DAY(S)	31	
MAXIMUM 24-HR AVERAGE:	88.2	%			ON DAY(S)	6	
					VAR- VARIOUS		
STANDARD DEVIATION:	23.76				OPERATIONAL TIME:	744	HRS
					AMD OPERATION UPTIME:	100.0	%
					MONTHLY AVERAGE:	52	%

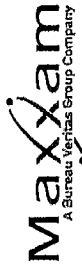
01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA RH %FS

AMBIENT TEMPERATURE



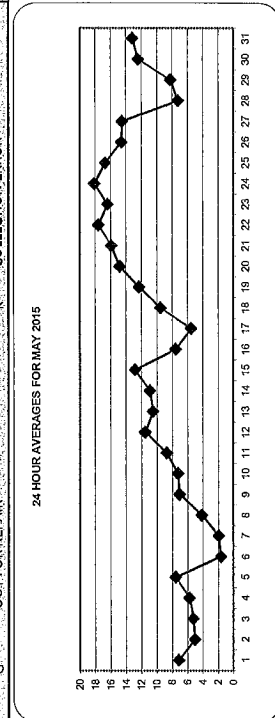
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00		
1	5.3	3.9	2.3	0.1	-0.9	-0.1	4.2	7.4	10.3	11.6	13.0	13.7	12.9	12.3	11.6	12.0	11.0	10.1	9.3	8.9	5.7	3.4	1.8	1.1	13.7	7.1	24
2	1.3	0.0	0.2	1.9	1.2	2.1	3.1	6.1	9.3	10.9	11.3	12.1	11.7	7.7	8.4	6.5	6.3	4.4	5.4	4.3	3.4	2.2	0.5	1.4	12.1	5.0	24
3	0.3	0.3	-0.7	-1.4	-1.8	-2.0	4.2	2.0	4.2	7.2	7.4	9.0	8.8	9.3	9.5	10.4	11.2	10.1	9.3	8.0	6.6	4.4	2.3	1.9	11.2	5.2	24
4	0.1	-0.8	-1.5	-2.0	-2.0	-0.6	1.5	2.4	3.9	5.2	5.8	6.9	9.0	10.2	10.7	11.8	11.9	12.1	11.4	10.3	9.7	9.1	7.5	5.2	12.1	5.7	24
5	5.0	5.8	5.0	4.4	4.3	4.6	6.0	6.8	8.1	9.2	8.7	8.8	9.0	9.7	10.0	10.6	11.2	10.9	9.6	8.0	7.2	6.2	5.9	5.1	11.2	7.5	24
6	4.3	4.1	3.6	2.9	2.4	2.0	1.6	1.4	1.4	1.5	1.6	1.7	1.6	1.5	1.6	1.3	1.3	1.2	1.2	0.9	0.4	0.1	-0.1	-0.3	4.3	1.6	24
7	-0.3	-0.6	-1.0	-1.6	-2.2	-1.7	-0.7	0.0	0.5	1.3	2.2	3.3	4.4	5.5	5.6	6.4	6.1	5.9	6.2	4.9	2.4	0.1	-0.4	0.3	6.4	1.9	24
8	-0.8	-2.0	-3.0	-3.8	-4.1	-2.8	-0.1	1.9	3.9	3.2	3.5	7.0	10.1	5.1	7.5	8.1	10.1	10.2	8.8	7.4	7.0	6.2	5.8	10.2	4.1	24	
9	5.1	3.6	2.9	3.9	3.9	4.2	6.0	8.1	9.1	7.2	6.9	7.3	8.2	8.8	9.4	10.2	10.6	10.8	10.7	9.9	7.9	6.1	4.2	3.0	10.8	7.0	24
10	0.8	-0.5	-2.0	-2.4	-2.7	0.1	3.6	6.0	7.8	9.4	11.0	12.1	13.0	13.3	13.9	14.3	13.8	14.1	13.7	12.2	8.0	4.9	3.8	5.7	14.3	7.2	24
11	4.9	2.8	-0.1	-1.2	-1.8	0.7	4.6	6.1	8.7	10.4	11.7	12.7	13.9	14.2	14.9	15.4	15.8	16.0	16.1	15.0	10.1	7.2	6.1	5.5	16.1	8.7	24
12	4.7	5.0	3.0	2.1	2.4	3.2	7.8	11.6	13.5	14.8	15.5	16.0	16.7	16.8	16.7	17.5	17.4	17.1	16.4	15.0	13.0	11.4	9.9	8.9	17.5	11.5	24
13	7.9	6.5	5.5	3.2	1.1	3.7	7.3	9.1	11.2	12.8	13.8	14.7	15.4	15.6	16.5	16.3	15.8	16.0	14.2	10.0	7.1	5.8	6.7	16.5	10.5	24	
14	5.9	3.5	2.0	0.8	0.1	2.3	7.5	9.4	11.9	13.7	14.9	15.9	16.4	17.0	17.5	18.0	18.1	18.0	17.4	15.8	12.1	9.0	8.1	7.0	18.1	10.9	24
15	4.9	3.0	2.0	1.2	0.8	4.3	8.7	11.1	13.8	15.0	16.0	17.4	18.6	19.3	20.3	20.3	19.4	18.4	17.2	16.1	14.5	13.2	12.1	20.3	12.8	24	
16	11.6	11.3	10.9	11.7	10.7	8.8	6.4	5.2	4.7	4.6	6.3	8.2	9.0	9.4	9.2	8.9	8.4	8.1	7.4	5.9	4.4	3.5	2.8	2.1	11.7	7.5	24
17	1.2	0.2	-0.1	-0.7	-0.6	0.4	0.9	2.1	3.6	4.5	6.0	7.5	9.0	10.4	11.4	12.2	12.7	12.8	12.5	11.3	7.4	3.9	1.8	0.6	12.8	5.5	24
18	-0.4	-1.1	-1.5	-2.3	-2.7	0.4	5.2	8.6	10.5	12.7	14.3	15.1	16.1	17.6	18.1	18.2	18.4	18.4	18.2	16.5	11.4	7.5	5.2	3.4	18.4	9.5	24
19	2.0	0.6	-0.4	-1.1	-1.2	2.0	9.0	12.0	14.3	16.8	18.4	19.3	20.1	21.4	22.2	23.2	23.5	24.0	24.1	24.1	23.6	19.1	16.1	11.8	9.2	7.5	24
20	4.3	3.0	2.0	1.0	0.7	4.0	10.0	15.4	17.8	20.1	21.4	22.9	23.8	24.2	24.6	25.1	25.0	24.5	22.6	16.8	12.8	10.1	8.4	25.1	15.9	24	
21	6.1	5.0	3.7	2.8	2.3	5.8	12.6	15.9	19.0	21.4	22.9	23.7	23.8	24.2	24.6	25.1	25.0	24.5	22.6	16.8	12.8	10.1	8.4	25.1	15.9	24	
22	6.7	5.5	4.5	3.6	3.3	7.9	13.7	17.1	19.0	22.0	24.3	25.3	26.1	26.6	26.2	26.4	27.2	26.1	23.5	19.5	16.1	13.3	11.5	27.2	17.6	24	
23	10.3	9.0	7.6	6.7	6.2	8.5	12.9	13.9	15.2	17.5	20.0	22.4	24.1	24.9	24.6	24.5	24.0	23.9	23.2	21.0	16.7	13.6	12.1	10.8	24.9	16.4	24
24	9.0	8.1	7.3	6.8	7.5	10.5	13.6	16.1	18.9	21.2	23.9	24.8	25.4	26.1	26.3	26.3	26.2	26.0	25.3	23.0	19.3	15.8	13.7	13.7	26.3	18.1	24
25	12.1	11.1	10.2	8.8	7.9	9.1	13.0	16.9	20.5	23.2	25.9	25.0	25.5	25.6	25.7	23.1	21.9	18.2	18.6	16.8	13.9	11.5	10.1	9.4	25.7	16.7	24
26	9.0	8.2	7.3	6.7	6.4	8.5	12.4	15.6	16.9	18.0	18.9	20.2	21.2	21.1	20.8	20.1	20.0	19.9	19.1	17.6	13.6	10.6	10.4	7.7	21.2	14.6	24
27	6.0	5.2	3.9	2.8	2.4	5.3	9.8	13.0	15.4	17.3	19.3	20.7	22.0	22.7	23.2	23.9	23.7	23.7	22.6	19.1	13.7	11.3	10.4	9.6	23.9	14.5	24
28	9.0	8.1	7.2	6.8	6.5	5.7	5.8	5.5	5.3	6.6	7.7	8.1	8.4	9.3	9.9	10.4	10.7	10.5	9.9	7.6	3.7	2.1	1.0	10.7	7.2	24	
29	-0.1	-0.9	-1.3	-1.7	-1.1	3.0	6.5	8.2	9.5	10.9	11.6	11.6	12.4	13.2	13.9	14.3	14.5	14.4	13.8	13.0	10.2	7.2	6.0	6.6	14.5	8.2	24
30	7.2	6.7	5.0	2.6	3.3	6.5	8.1	10.3	12.7	14.6	15.4	16.4	17.0	17.5	17.4	17.9	17.9	17.8	17.2	16.1	14.1	11.8	11.7	12.7	17.9	12.4	24
31	11.7	11.1	10.9	10.4	9.5	10.0	11.4	11.8	12.5	12.8	12.7	11.6	12.4	16.9	18.1	19.0	18.3	16.5	14.6	13.4	10.9	9.4	9.3	19.0	13.1	24	
HOURLY MAX	12.1	11.3	10.9	11.7	10.7	10.5	13.7	17.1	20.5	23.2	24.3	25.3	26.1	26.6	26.3	26.3	26.4	27.2	26.1	23.5	19.5	16.1	13.7	13.7	26.3	18.1	24
HOURLY AVG	5.0	4.1	3.1	2.4	2.0	3.8	6.9	9.0	10.8	12.2	13.2	14.2	15.0	15.3	15.8	15.9	16.0	15.7	15.2	13.7	10.7	8.2	6.8	6.1	12.8	5.5	24

STATUS FLAG CODES

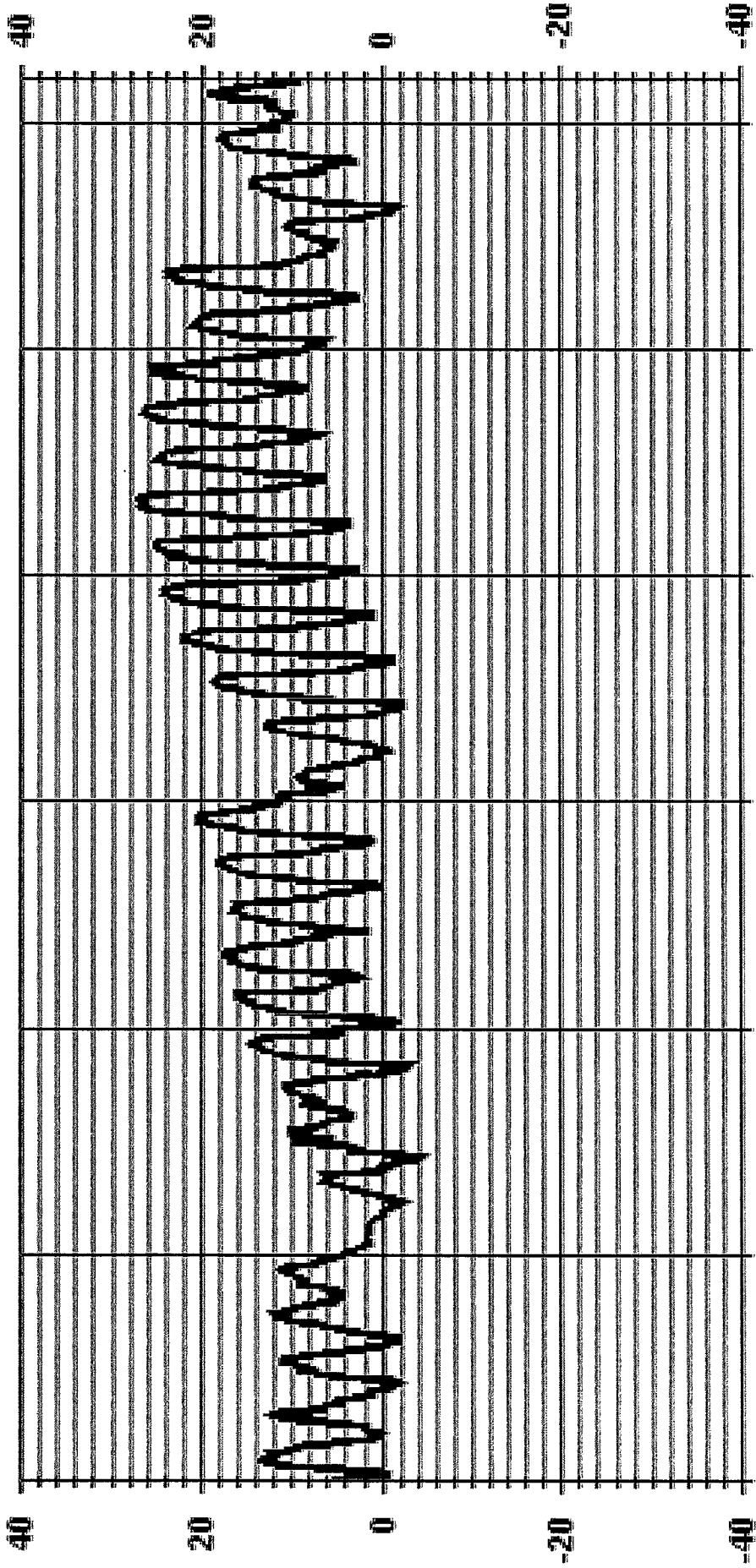
C	CALIBRATION	O	QUANTITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-4.1	°C	@ HOUR(S)	4	ON DAY(S)	8
MAXIMUM 1-HR AVERAGE:	27.2	°C	@ HOUR(S)	17	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	18.1	°C			ON DAY(S)	24
STANDARD DEVIATION:	7.25				VAR-VARIOUS	
OPERATIONAL TIME:						
AMID OPERATION UPTIME:						744 HRS
MONTHLY AVERAGE:						100.0 %
						10.0 °C

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA TPX DGC

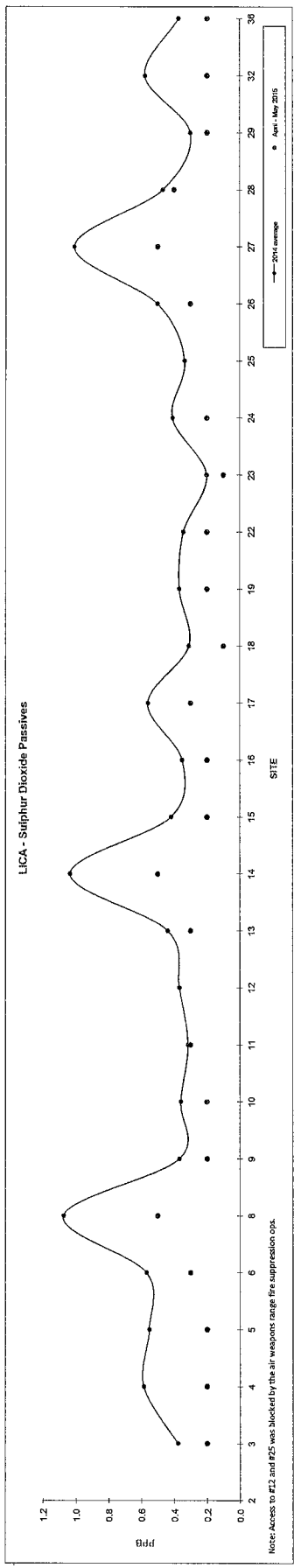
APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

PASSIVE RESULTS

Passive Summary Results for April-May 2015

Lakeland Industry & Community Association

Mean	2014																				April - May 2015		Site					
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26		27	28	29	32	36
NA	0.4	0.4	0.5	0.6	0.6	1.1	0.4	0.4	0.3	0.4	0.4	1.3	0.4	0.4	0.6	0.3	0.4	0.3	0.2	0.4	0.3	0.5	1.0	0.5	0.3	0.6	0.4	0.3
Minimum	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1
Maximum	NA	0.8	0.9	1.0	1.5	3.2	0.7	0.6	0.8	0.8	2.4	0.8	0.8	0.8	1.1	0.7	0.8	0.7	0.4	0.8	0.5	1.2	1.9	0.8	0.7	2.0	0.9	0.5

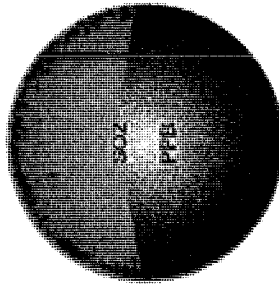


Lakeland Industry & Community Association SO₂ Passive Bubble Map

APRIL - MAY 2015

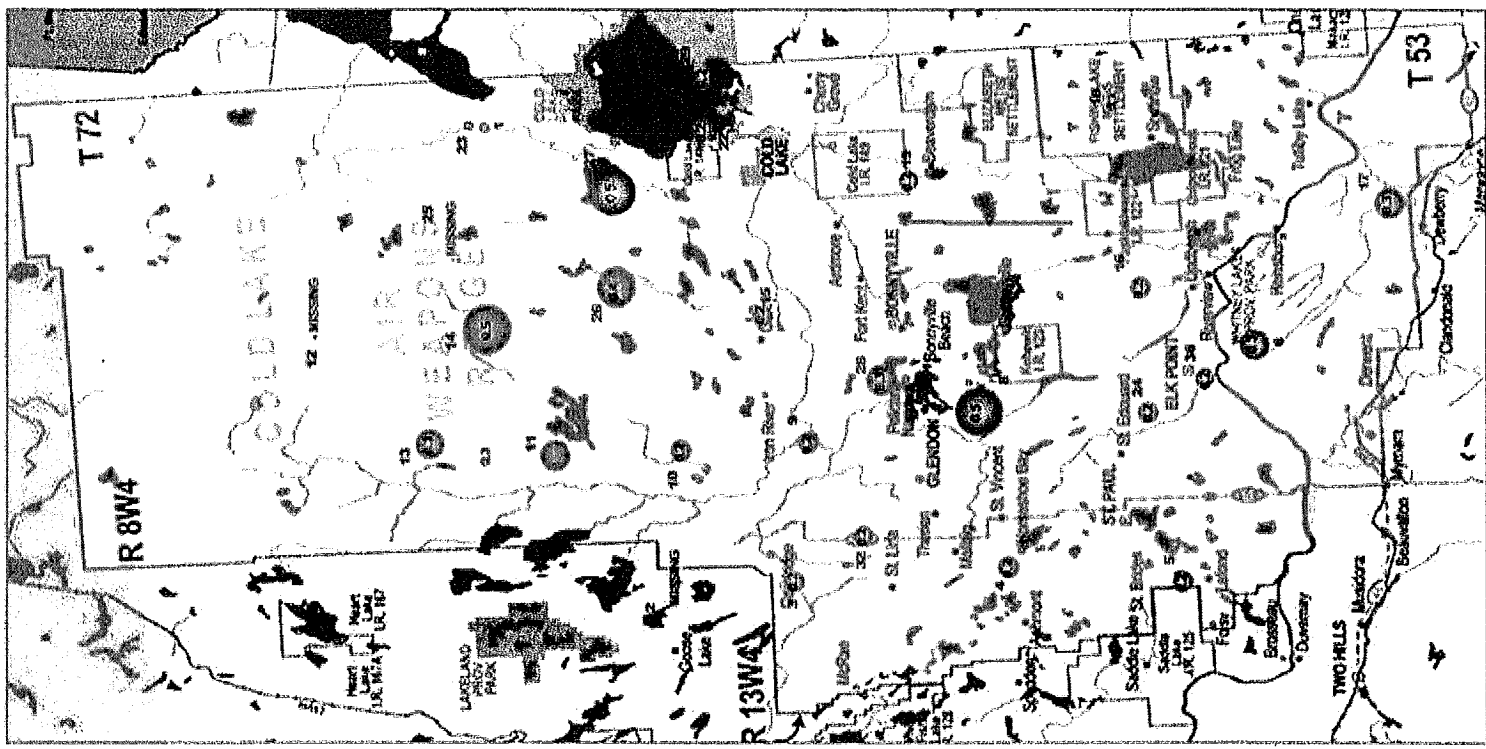
PASSIVE STATIONS

Station Number	Station Name	SO ₂ Concentration (PPB)	Status
2	Sand River	MISSING	DUPLICATE
3	Therifen	0.2 PPB	NA
4	Flat Lake	0.2 PPB	NA
5	Lake Eliza	0.2 PPB	0.2 PPB
6	Telegraph Creek	0.4 PPB	0.2 PPB
8	Murfel-Kehewin	0.5 PPB	0.5 PPB
9	Dupre	0.2 PPB	NA
10	La Corey	0.2 PPB	NA
11	Wolf Lake	0.3 PPB	NA
12	Foster Creek	MISSING	NA
13	Primrose	0.3 PPB	NA
14	Maskwa	0.5 PPB	NA
15	Ardmore	0.2 PPB	NA
16	Frog Lake	0.2 PPB	NA
17	Clear Range	0.3 PPB	NA
18	Fishing Lake	0.1 PPB	NA
19	Beaverdam	0.2 PPB	NA
22	Cold Lake South	0.2 PPB	NA
23	Medley-Martineau	0.1 PPB	NA
24	Fort George	0.2 PPB	NA
25	Burnt Lake	MISSING	NA
26	Mahtikan	0.3 PPB	NA
27	Mahteses	0.5 PPB	NA
28	Town of Bonnyville	0.4 PPB	NA
29	Cold Lake South 2	0.2 PPB	NA
32	St. Lina	0.2 PPB	NA
36	Elk Point	0.2 PPB	NA



Summary

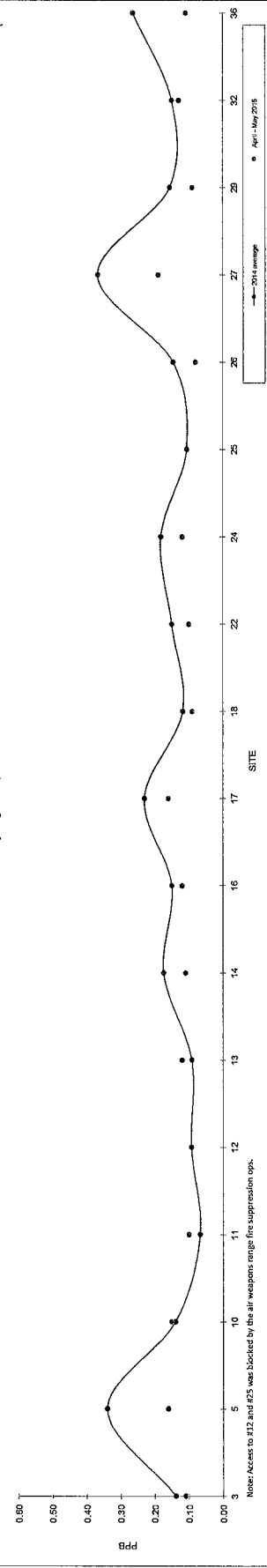
Minimum : 0.1 PPB - Fishing Lake and Medley-Martineau
 Maximum: 0.5 PPB - Murfel-Kehewin, Maskwa and Mahteses
 Average: 0.3 PPB *includes Duplicates



Passive Summary Results for April-May 2015 Lakeland Industry & Community Association

		Hydrogen Sulphide ppb																April - May 2015				
		2014																Reading		Site		
		3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	36			
Mean		0.14	0.34	0.14	0.07	0.09	0.09	0.17	0.15	0.23	0.12	0.15	0.18	0.11	0.15	0.37	0.16	0.15	0.27	0.12		-
Minimum		0.05	0.07	0.08	0.04	0.02	0.02	0.05	0.07	0.11	0.04	0.04	0.06	0.03	0.08	0.04	0.05	0.05	0.07	0.08		#26
Maximum		0.24	0.97	0.81	0.11	0.20	0.16	0.30	0.29	0.44	0.17	0.32	0.32	0.16	0.21	1.23	0.33	0.26	1.38	0.19		#27

LUCA - Hydrogen Sulphide Passives

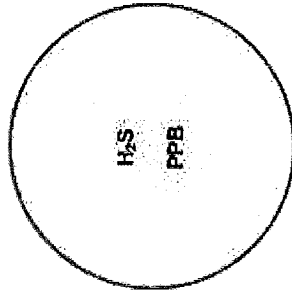


Lakeland Industry & Community Association H₂S Passive Bubble Map

APRIL - MAY 2015

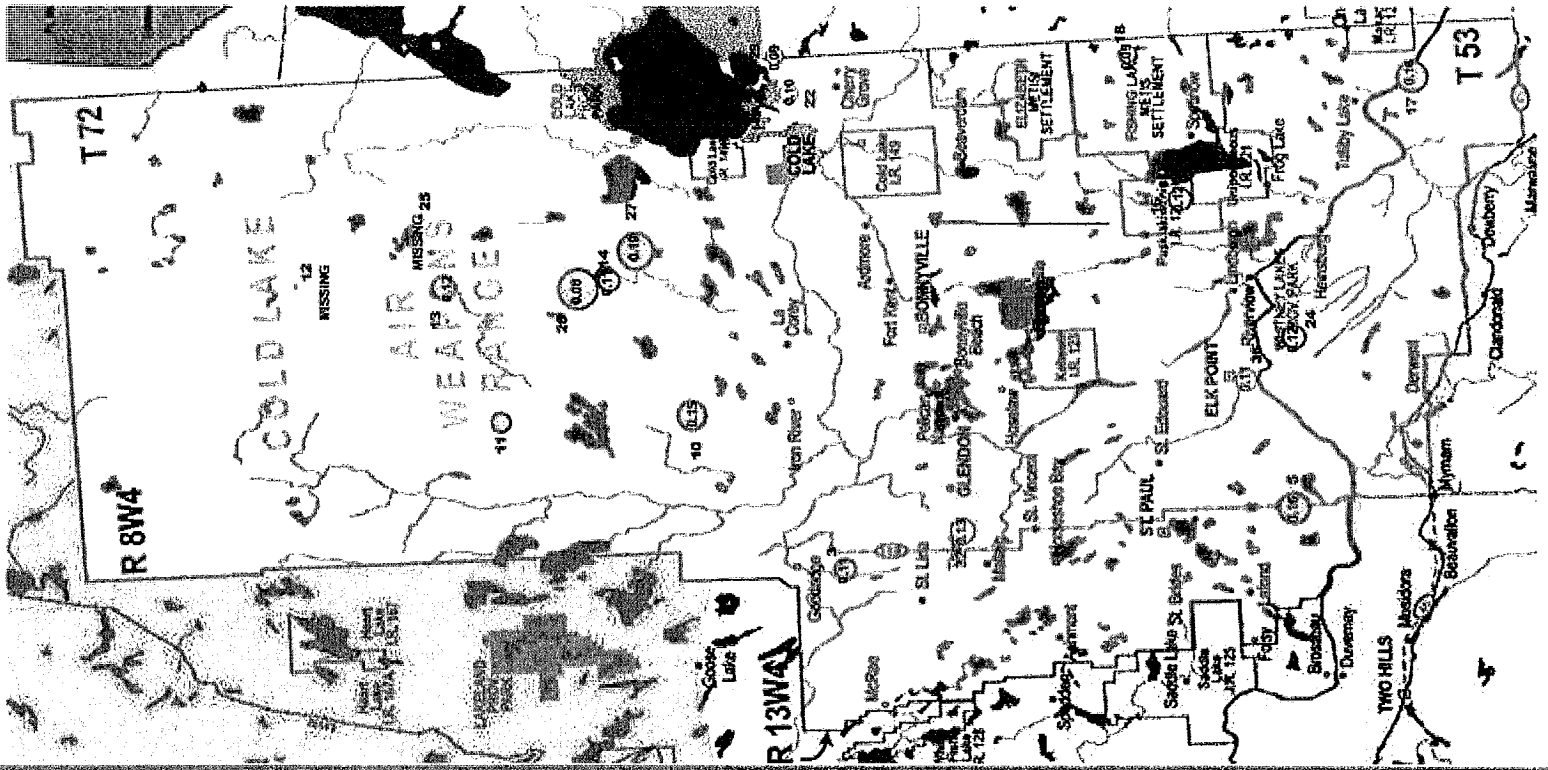
PASSIVE STATIONS

STATION	DUPLICATE
3 - Therian	0.11 PPB
5 - Lake Eliza	0.16 PPB
10 - La Corey	0.15 PPB
11 - Wolf Lake	0.10
12 - Foster Creek	MISSING
13 - Primrose	0.12 PPB
14 - Maskwa	0.11 PPB
16 - Frog Lake	0.12 PPB
17 - Clear Range	0.16 PPB
18 - Fishing Lake	0.09 PPB
22 - Cold Lake South	0.10 PPB
24 - Fort George	0.12 PPB
25 - Burnt Lake	MISSING
26 - Mahihkan	0.08 PPB
27 - Mahkeses	0.19 PPB
29 - Cold Lake South 2	0.09 PPB
32 - St. Lina	0.13 PPB
36 - Elk Point	0.11 PPB



Summary

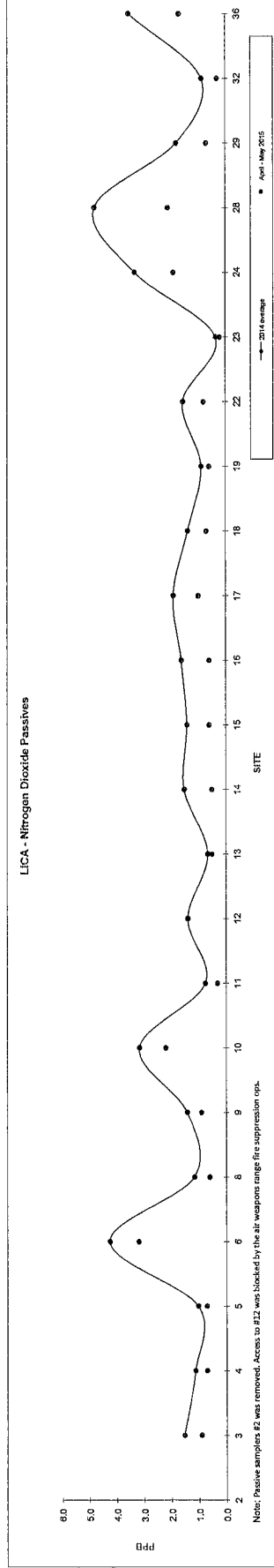
Minimum : 0.08 PPB - Mahihkan
 Maximum: 0.19 PPB - Mahkeses
 Average: 0.12 PPB (includes Duplicates)



Passive Summary Results for April-May 2015

Lakeland Industry & Community Association

Mean	Nitrogen Dioxide ppb																				April - May 2015 Rounding 1.0	Site #23 #5		
	2	3	4	5	6	8	9	10	11	12	14	15	16	17	18	19	22	23	24	26			28	32
NA	1.5	1.1	1.1	1.0	4.3	1.2	1.4	3.2	0.8	1.4	0.7	1.5	1.4	1.6	1.9	1.4	0.9	1.5	0.4	3.3	4.8	1.8	0.9	3.6
Minimum	NA	0.5	0.3	0.1	2.1	0.5	0.5	1.4	0.2	0.5	0.1	0.5	0.4	0.5	1.1	0.6	0.2	0.6	0.1	1.6	1.6	0.3	0.2	1.4
Maximum	NA	4.2	2.3	2.4	6.8	2.8	2.9	5.3	2.5	2.8	1.4	4.0	3.1	3.7	3.1	2.7	2.3	3.2	1.2	5.7	11.3	4.2	2.0	7.9

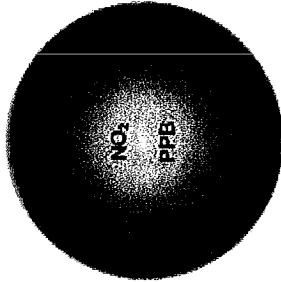


Lakeland Industry & Community Association NO₂ Passive Bubble Map

APRIL - MAY 2015

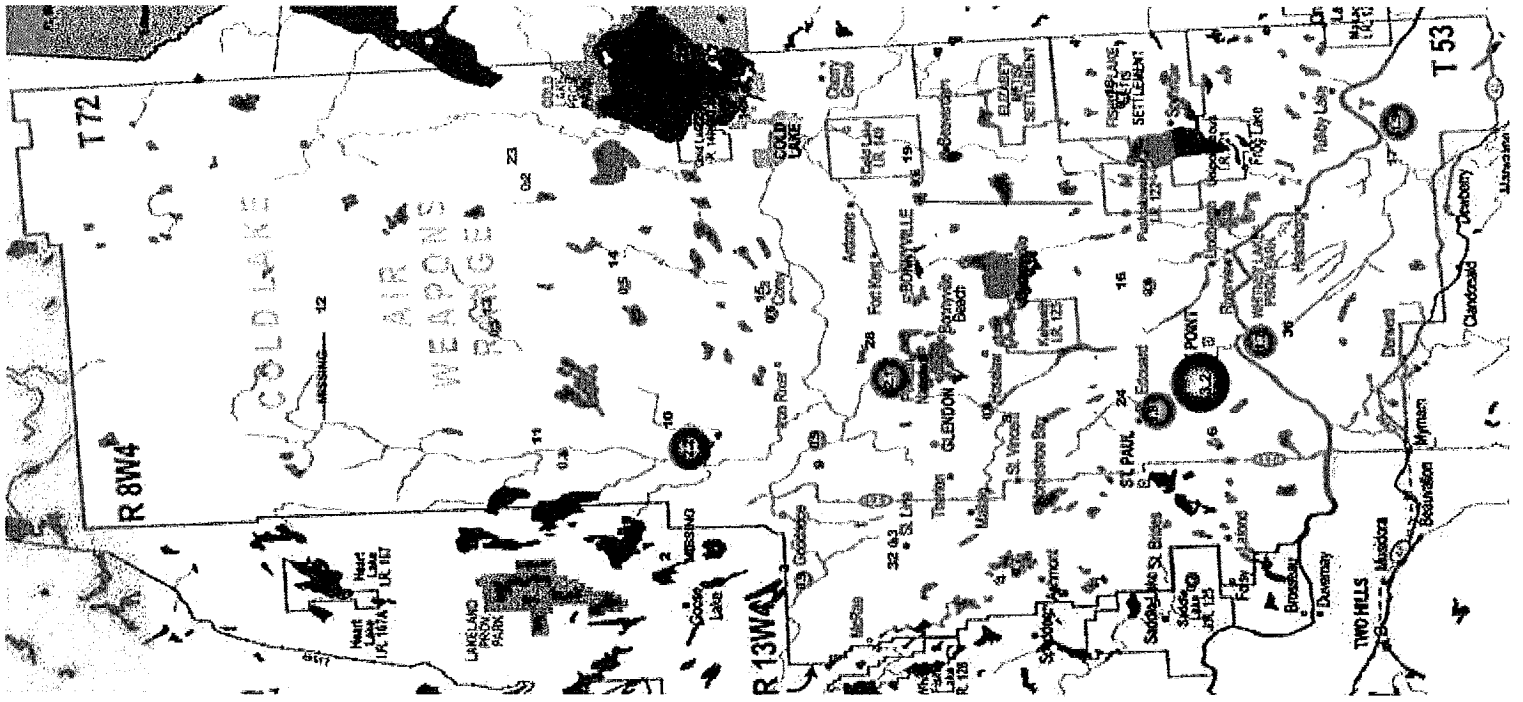
PASSIVE STATIONS

PASSIVE STATIONS	DUPLICATE
2 - Sand River	NA
3 - Therien	NA
4 - Flat Lake	NA
5 - Lake Eliza	NA
6 - Telegraph Creek	3.1 PPB
8 - Murtel-Kehewit	0.6 PPB
9 - Dupre	NA
10 - La Corey	2.2 PPB
11 - Wolf Lake	0.3 PPB
12 - Foster Creek	MISSING
13 - Primrose	0.5 PPB
14 - Maskwa	0.5 PPB
15 - Ardmore	0.6 PPB
16 - Frog Lake	0.6 PPB
17 - Clear Range	1.0 PPB
18 - Fishing Lake	0.7 PPB
19 - Beavertam	0.6 PPB
22 - Cold Lake South	0.8 PPB
23 - Medley-Martineau	0.2 PPB
24 - Fort George	1.9 PPB
28 - Town of Bonnyville	2.1 PPB
29 - Cold Lake South 2	0.7 PPB
32 - St. Lina	0.3 PPB
36 - Elk Point	1.7 PPB



Summary

Minimum : 0.2 PPB - Medley-Martineau
 Maximum: 3.2 PPB - Telegraph Creek
 Average: 1.5 PPB *Includes Duplicates

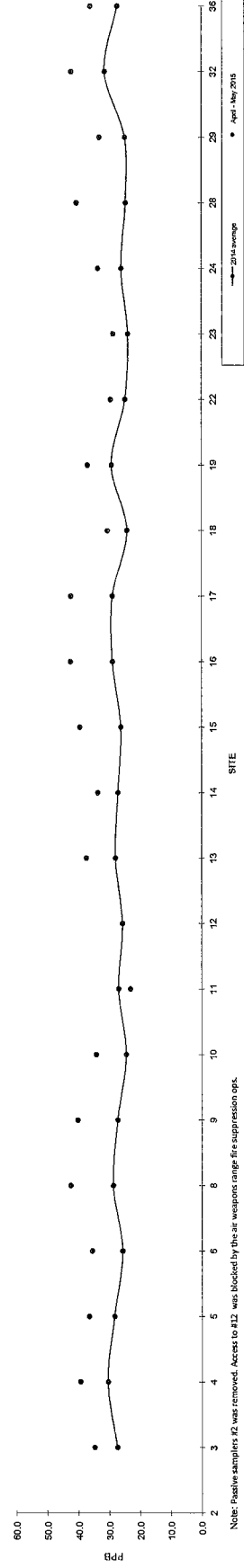


Passive Summary Results for April-May 2015

Lakeland Industry & Community Association

		Ozone														April - May 2015										
		PPB														Reading		Site								
Mean	NA	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	36	38
Minimum	NA	18.7	20.0	19.9	17.0	20.1	17.8	14.5	13.9	16.4	18.8	16.8	21.0	16.5	18.1	19.9	14.9	20.3	16.4	14.4	17.8	19.2	15.4	22.8	13.1	22.91
Maximum	NA	40.5	45.6	45.6	37.9	41.5	42.3	37.6	51.2	35.2	40.2	34.8	34.8	36.8	43.7	38.0	33.6	40.7	32.4	39.2	39.0	31.3	36.7	40.6	34.2	42.35

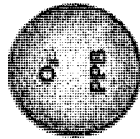
LICA - Ozone Passives



Note: Passive samplers #2 was removed. Access to #12 was blocked by the air weapons range fire suppression ops.

Lakeland Industry & Community Association O₃ Passive Bubble Map

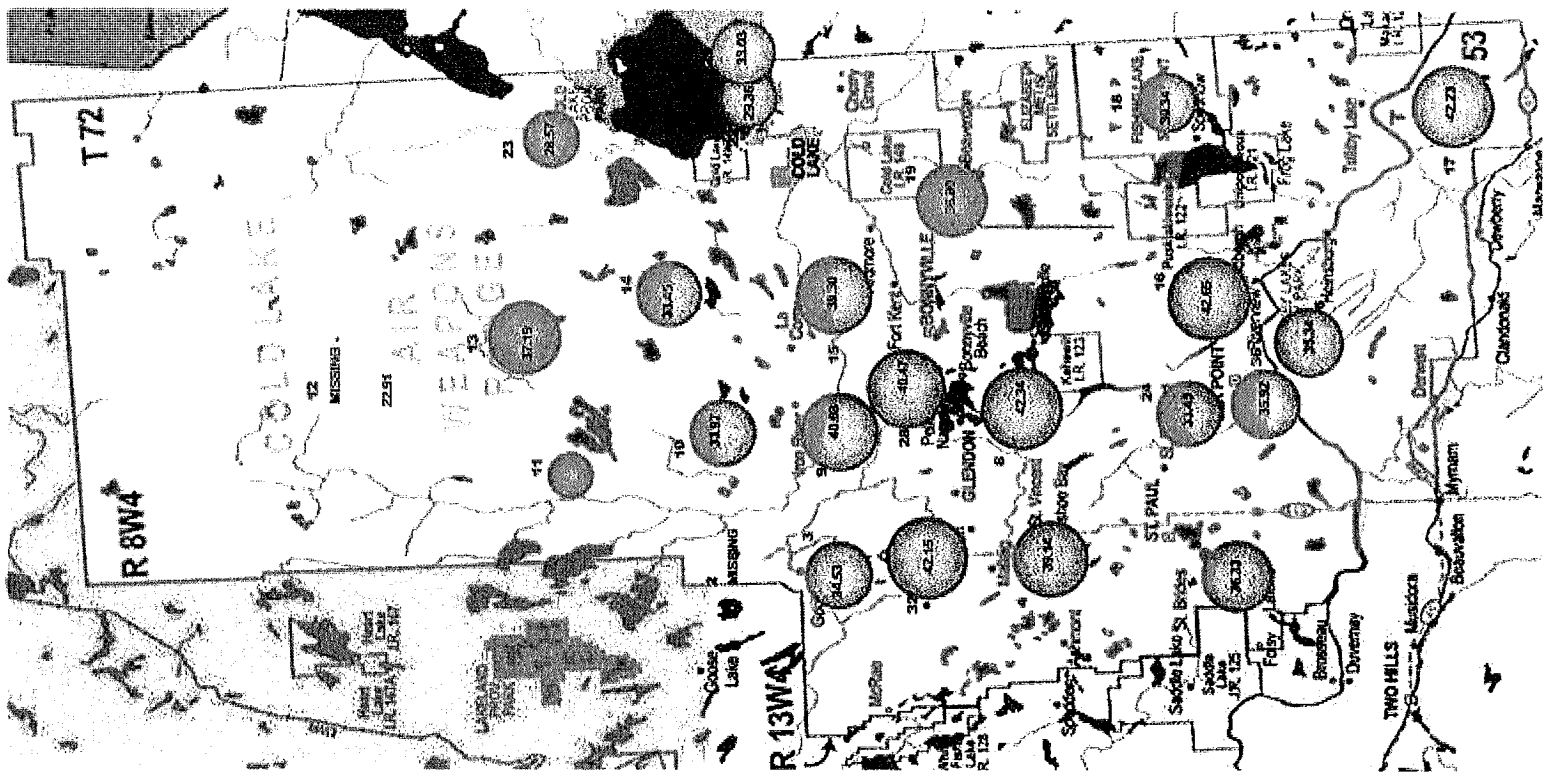
APRIL - MAY 2015



PASSIVE STATIONS	DUPLICATE
3 - Therien	NA
4 - Flat Lake	NA
5 - Lake Eliza	NA
6 - Telegraph Creek	36.79 PPB
8 - Muriel-Kehewin	41.76 PPB
9 - Dupre	NA
10 - La Corey	33.97 PPB
11 - Wolf Lake	22.91 PPB
12 - Foster Creek	MISSING
13 - Primrose	37.19 PPB
14 - Maskwa	33.45 PPB
15 - Ardmore	39.30 PPB
16 - Frog Lake	42.65 PPB
17 - Clear Range	42.23 PPB
18 - Fishing Lake	30.34 PPB
19 - Beaverdam	36.80 PPB
22 - Cold Lake South	29.36 PPB
23 - Medley-Martineau	28.57 PPB
24 - Fort George	33.45 PPB
28 - Town of Bonnyville	40.47 PPB
29 - Cold Lake South 2	33.03 PPB
32 - St. Lina	42.15 PPB
36 - Elk Point	35.92 PPB

Summary

Minimum: 22.91 PPB - Wolf Lake
 Maximum: 42.35 PPB - Frog Lake
 Average: 35.88 PPB *Includes Duplicates



Passive Sampler Data Sheet for LICA APRIL - MAY 2015

ID	SAMPLER			START		END		NOTES
	SO ₂	NO ₂	O ₃	DATE	TIME	DATE	TIME	
2	H ₂ S	SO ₂	NO ₂	O ₃	NA	NA	NA	Samplers were removed
3	H ₂ S	SO ₂	NO ₂	O ₃	March 30, 2015	14:26	May 27, 2015	17:30
4	---	SO ₂	NO ₂	O ₃	April 01, 2015	11:33	May 28, 2015	12:06
5	H ₂ S	SO ₂	NO ₂	O ₃	April 01, 2015	12:43	May 28, 2015	12:49
6	---	SO ₂	NO ₂	O ₃	March 31, 2015	17:52	May 28, 2015	14:37
8	---	SO ₂	NO ₂	O ₃	April 01, 2015	10:19	May 28, 2015	10:51
9	---	SO ₂	NO ₂	O ₃	March 30, 2015	12:06	May 27, 2015	19:53
10	H ₂ S	SO ₂	NO ₂	O ₃	March 30, 2015	15:45	May 27, 2015	14:50
11	H ₂ S	SO ₂	NO ₂	O ₃	Nov 2015	?	May 27, 2015	15:45
12	H ₂ S	SO ₂	NO ₂	O ₃	Feb 27, 2015	17:36	No Access	NA
13	H ₂ S	SO ₂	NO ₂	O ₃	March 31, 2015	12:01	May 27, 2015	12:28
14	H ₂ S	SO ₂	NO ₂	O ₃	March 30, 2015	18:07	May 27, 2015	11:18
15	---	SO ₂	NO ₂	O ₃	March 31, 2015	10:34	May 27, 2015	20:46
16	H ₂ S	SO ₂	NO ₂	O ₃	March 31, 2015	14:36	May 28, 2015	18:03
17	H ₂ S	SO ₂	NO ₂	O ₃	March 31, 2015	16:55	May 28, 2015	15:37
18	H ₂ S	SO ₂	NO ₂	O ₃	March 31, 2015	15:28	May 28, 2015	17:06
19	---	SO ₂	NO ₂	O ₃	March 31, 2015	13:43	May 28, 2015	18:44
22	H ₂ S	SO ₂	NO ₂	O ₃	March 30, 2015	08:42	May 28, 2015	08:37
23	---	SO ₂	NO ₂	O ₃	March 31, 2015	09:13	May 27, 2015	08:53
24	H ₂ S	SO ₂	NO ₂	O ₃	March 31, 2015	18:35	May 28, 2015	13:51
25	H ₂ S	SO ₂	---	---	Feb 27, 2015	18:58	No Access	NA
26	H ₂ S	SO ₂	---	---	March 31, 2015	11:12	May 27, 2015	11:45
27	H ₂ S	SO ₂	---	---	March 31, 2015	10:45	May 27, 2015	10:50
28	---	SO ₂	NO ₂	O ₃	March 30, 2015	11:41	May 27, 2015	19:39
29	H ₂ S	SO ₂	NO ₂	O ₃	March 30, 2015	08:44	May 28, 2015	08:37
32	H ₂ S	SO ₂	NO ₂	O ₃	March 31, 2015	18:47	May 27, 2015	18:20
36	H ₂ S	SO ₂	NO ₂	O ₃	March 30, 2015	13:25	May 28, 2015	13:31
DUPLICATES								
5	---	SO ₂	---	---	April 01, 2015	12:43	May 28, 2015	12:49
6	---	SO ₂	NO ₂	O ₃	March 31, 2015	17:52	May 28, 2015	14:37
8	---	SO ₂	NO ₂	O ₃	April 01, 2015	10:19	May 28, 2015	10:51
12	H ₂ S	---	---	---	Feb 27, 2015	17:36	Access Denied	NA
13	H ₂ S	---	---	---	March 31, 2015	12:01	May 27, 2015	12:28

VOC RESULTS

Sample ID: 15050100-001

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/May 6, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA

Location: CLS

Station ID: LICA 01

Field Sample ID: LICA/VOC/CLS/May 6, 2015

Sampler S/N: 6167

Canister ID: 1984

Canister Installation Date/Time: May 01, 2015 @ 13:56

Canister Removal Date/Time: May 11, 2015 @ 09:35

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 6, 2015	00:00	00:00	24.0
	May 6, 2015	May 7, 2015	

Canister Information	
Initial Canister Vacuum (inHg)	28.8
Final Canister Pressure (psig)	23.8

24 hrs
SNR

Flow Settings		
Meter Reading (scfm)	Pot Set Pt	Pump Pressure Setting (psig)
10.0	6.52	24

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

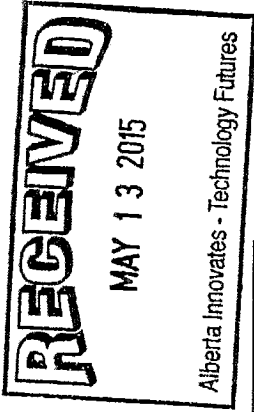
Comments:

Technician Signature:

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: May 11, 2015

AIR FCD-01320/2



Volatile Organics Data Results

Date: MAY 6, 2015
Canister ID: 1964

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.05
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.03
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.03
Acetone	3.1
Acrolein	< 0.3
Benzene	0.07
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.58
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	0.74
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	1.3
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.33

Volatile Organics Data Results

Date: MAY 6, 2015
Canister ID: 1964

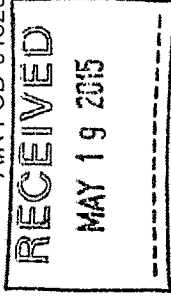
PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	0.03
Freon-12	0.70
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.06
Isopentane	0.04
Isoprene	0.02
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.01
Methylcyclopentane	< 0.02
Methylene chloride	< 0.3
n-Butane	0.09
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.03
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.03
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15050198-001

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/May 12, 2015

AIR FCD-01320/2



Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: CL9
Station ID: LICA 01
Field Sample ID: 224/VOC/CL9/May 12, 2015

Sampler S/N: 6167
Canister ID: 1149
Canister Installation Date/Time: May 11, 2015 @ 09:37
Canister Removal Date/Time: May 15, 2015 @ 09:09

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 11, 2015	00:00 May 12, 2015	00:00 May 13, 2015	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	6.52	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
22.8	22.1

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

Comments:

Technician Signature: _____

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date May 15, 2015

Volatile Organics Data Results

Date: MAY 12, 2015
Canister ID: 1149

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.18
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	0.05
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	1.99
2,3,4-Trimethylpentane	0.10
2,3-Dimethylbutane	5.02
2,3-Dimethylpentane	2.68
2,4-Dimethylpentane	< 0.01
2-Methylheptane	1.10
2-Methylhexane	3.37
2-Methylpentane	1.76
3-Methylheptane	0.32
3-Methylhexane	5.82
3-Methylpentane	7.54
Acetone	15.3
Acrolein	< 0.3
Benzene	2.70
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	1.09
Carbon tetrachloride	0.10
Chlorobenzene	0.04
Chloroethane	0.12
Chloroform	< 0.02
Chloromethane	0.79
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.04
cis-2-Pentene	< 0.02
Cyclohexane	5.58
Cyclopentane	1.54
Dibromochloromethane	< 0.01
Ethanol	1.6
Ethyl acetate	< 0.4
Ethylbenzene	0.07
Freon-11	0.29

Volatile Organics Data Results

Date: MAY 12, 2015
Canister ID: 1149

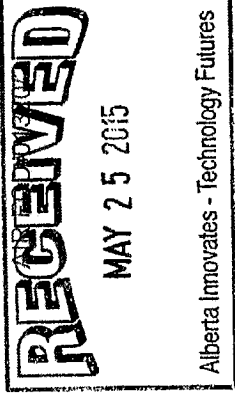
PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.03
Freon-12	0.61
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.55
Isopentane	10.5
Isoprene	0.03
Isopropyl alcohol	15.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.16
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	7.0
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	3.93
Methylcyclopentane	4.41
Methylene chloride	< 0.3
n-Butane	0.59
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	8.80
n-Hexane	5.25
n-Nonane	0.05
n-Octane	0.65
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.01
o-Xylene	0.11
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	1.22
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	0.08
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15050298-001

Customer ID: LICA
Cust Samp ID: LICAVOC/CLS/ May 18, 2015

Maxxam

VOC Sample Collection Data Sheet



Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/ May 18, 2015

Sampler S/N: 6167
Canister ID: 17119
Canister Installation Date/Time: May 15, 2015 @ 09:09
Canister Removal Date/Time: May 21, 2015 @ 17:12

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 18, 2015	00:00	00:00
	May 18, 2015	May 19, 2015
		Elapsed Time (Hours)
		24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	6.52	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
22.8	+22.9

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

Comments:

Technician Signature: _____
Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date: May 21, 2015

Volatile Organics Data Results

Date: MAY 18, 2015
Canister ID: 17119

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.05
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.09
3-Methylheptane	< 0.02
3-Methylhexane	0.02
3-Methylpentane	0.05
Acetone	4.7
Acrolein	< 0.3
Benzene	0.16
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.74
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	1.5
Ethyl acetate	< 0.4
Ethylbenzene	0.01
Freon-11	0.32

Volatile Organics Data Results

Date: MAY 18, 2015
Canister ID: 17119

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	0.03
Freon-12	0.69
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.27
Isopentane	0.48
Isoprene	0.04
Isopropyl alcohol	0.9
Isopropylbenzene	< 0.01
m,p-Xylene	0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.02
Methylcyclopentane	0.04
Methylene chloride	< 0.3
n-Butane	0.87
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.07
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.07
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15050316-001

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/May 24, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: CLS
 Station ID: LICA 01
 Field Sample ID: LICAVOC/CLS/May 24, 2015
 Sampler S/N: 6167
 Canister ID: 2658
 Canister Installation Date/Time: May 21, 2015 @ 17:14
 Canister Removal Date/Time: May 25, 2015 @ 08:42

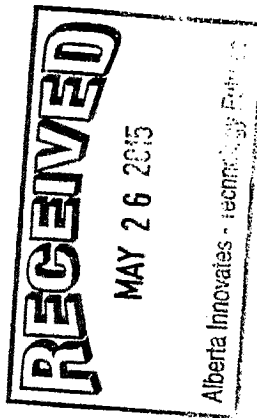
Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 24, 2015	0800	08:00	24.0
	May 24, 2015	May 25, 2015	

Canister Information	
Initial Canister Vacuum (inHg)	28.8
Final Canister Pressure (psig)	15.8

2505i
 5/25

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

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	6.52	24



Comments:

Technician Signature:

Sample in - by Alex Yakupov
 Sample out - by Alex Yakupov
 Date: May 25, 2015

Volatile Organics Data Results

Date: MAY 24, 2015
Canister ID: 2658

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.05
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.13
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.10
Acetone	9.6
Acrolein	< 0.3
Benzene	0.15
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.43
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.79
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.04
cis-2-Pentene	< 0.02
Cyclohexane	0.03
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	3.8
Ethyl acetate	< 0.4
Ethylbenzene	0.03
Freon-11	0.30

Volatile Organics Data Results

Date: MAY 24, 2015
Canister ID: 2658

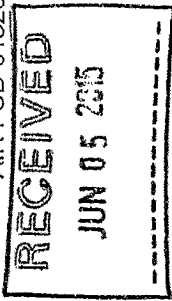
PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.03
Freon-12	0.65
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.49
Isopentane	0.84
Isoprene	0.68
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.10
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	0.7
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.05
Methylcyclopentane	0.07
Methylene chloride	0.7
n-Butane	1.92
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	4.46
n-Nonane	0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.02
o-Xylene	0.05
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.16
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	0.06
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15060054-001

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/May 30, 2015

AIR FCD-01320/2



Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: CLS
 Station ID: LICA 01
 Field Sample ID: LICA/VOC/CLS/ May 30, 2015

Sampler S/N: 6167
 Canister ID: 1517
 Canister Installation Date/Time: May 25, 2015 @ 00:47
 Canister Removal Date/Time: June 1, 2015 @ 19:24

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>May 30, 2015</u>	<u>00:00</u>	<u>00:00</u>	<u>24.0</u>
	<u>May 30, 2015</u>	<u>May 31, 2015</u>	

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
<u>10.0</u>	<u>6.52</u>	<u>24</u>

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
<u>28.8</u>	<u>25.0</u>

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

Comments:

Technician Signature: _____
 Sample in - by Alex Yakupov
 Sample out by Alex Yakupov
 Date: June 1, 2015 @ 19:31

Volatile Organics Data Results

Date: MAY 30, 2015
Canister ID: 1517

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.18
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.01
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.01
2-Methylhexane	< 0.01
2-Methylpentane	< 0.01
3-Methylheptane	< 0.02
3-Methylhexane	0.02
3-Methylpentane	0.02
Acetone	5.8
Acrolein	1.9
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.32
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	0.04
Chloroform	0.02
Chloromethane	0.75
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.02
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	2.2
Ethyl acetate	< 0.4
Ethylbenzene	0.03
Freon-11	0.27

Volatile Organics Data Results

Date: MAY 30, 2015
Canister ID: 1517

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.03
Freon-12	0.61
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.36
Isopentane	0.13
Isoprene	0.18
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.07
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	1.2
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.03
Methylcyclopentane	0.02
Methylene chloride	< 0.3
n-Butane	0.22
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.06
n-Hexane	0.06
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.03
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.16
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

PAH RESULTS

Sample ID: 15050100-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/May 6, 2015

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Location: CLS

Station ID: LICA 01

Field Sample ID: LICA/PUF/CLS/May 6, 2015

Puf+ SIN:

Motor SIN:

Installation Date/Time:

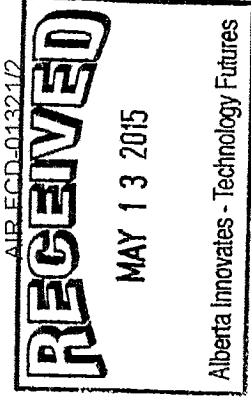
Removal Date/Time:

TE-09

1138

May 01, 2015 @ 14:13

May 11, 2015 @ 09:22



Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 6, 2015	00:00 May 6, 2015	00:00 May 7, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 01-Sep-11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	2.3 °C	23.497

Time set correctly prior to sampling? YES / NO

Timer set correctly prior to sampling? YES / NO

Sampling data saved to memory card after sampling? YES / NO

Comments:

Technician Signature:

Sample in - by Alex Yakupov
Sample out by Alex Yakupov

Date: May 11, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 6, 2015
PUF S/N: TE09

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.02
2-Methylnaphthalene	0.03
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.02
Retene	0.02

Sample ID: 15050198-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/May 12, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE-11
Location: CCS Motor S/N: 1138
Station ID: LICA 01 Installation Date/Time: May 11, 2015 @ 09:26
Field Sample ID: LICA/PUF/CLS/May 12, 2015 Removal Date/Time: May 15, 2015 @ 09:49

AIR FCD-01321/2
RECEIVED
MAY 19 2015

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 12, 2015	00:00 May 12, 2015	24:00 May 13, 2015

PUF and QFF Information		
Date Received	Date Shipped	Puf Expiration Date
N/A	N/A	N/A

Set Flow Rate (slpm): 230
Date of Last Calibration: 01-SEP-11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
715	229	12.3 °C

Time set correctly prior to sampling? YES/NO
Timer set correctly prior to sampling? YES/NO
Sampling data saved to memory card after sampling? YES (NO)

Comments:

Technician Signature: _____
Sample in - by Alex Yakerpor
Sample out - by Alex Yakerpor
Date: May 15, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 12, 2015
PUF S/N: TE11

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.02
2-Methylnaphthalene	0.03
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.04
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 0.01
Phenanthrene	0.13
Pyrene	0.03
Retene	0.02

Sample ID: 15050298-002

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/ May 18, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/ May 18, 2015
Puf+ S/N: TE-04
Motor S/N: 1138
Installation Date/Time: May 15, 2015 @ 09:57
Removal Date/Time: May 21, 2015 @ 16:55

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 18, 2015	00:00 May 18, 2015	00:00 May 19, 2015	24.0

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 01- sept - 11

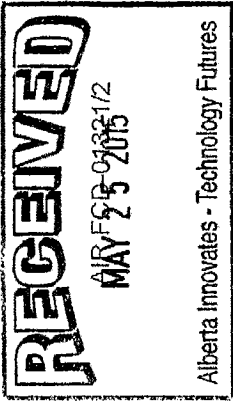
Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
722	229	11.0 °C	330.19

Time set correctly prior to sampling? YES NO
Timer set correctly prior to sampling? YES / NO
Sampling data saved to memory card after sampling? YES (NO)

Comments:

Technician Signature: _____
Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: May 21, 2015 @ 16:55



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 18, 2015
PUF S/N: TE04

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.01
2-Methylnaphthalene	0.02
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	< 0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	< 0.01
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.01
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.02
Retene	0.08

Sample ID: 15050316-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/May 24, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
 Location: CLS
 Station ID: LICA 01
 Field Sample ID: LICA/PUF/CLS/May 24, 2015

Puff+ S/N: 9702
 Motor S/N: 1138
 Installation Date/Time: May 21, 2015 @ 16:57
 Removal Date/Time: May 25, 2015 @ 09:33

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 24, 2015	00:00 May 24, 2015	00:00 May 25, 2015	24.0

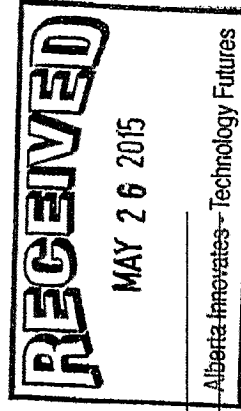
PUF and QFF Information			
Date Received	Date Shipped	Puff Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 01-Sept-11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
712	229	19.6
		Volume (Vstd m ³)
		330.21

Time set correctly prior to sampling? YES/NO
 Timer set correctly prior to sampling? YES/NO
 Sampling data saved to memory card after sampling? YES/NO



Comments:

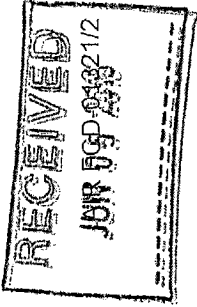
Technician Signature:

Sample in - by Alex Vakoupor
 Sample out - by Alex Vakoupor
 Date: May 25, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 24, 2015
PUF S/N: 9702

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.09
2-Methylnaphthalene	0.15
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.10
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.04
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.09
Fluorene	0.15
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.12
Perylene	< 0.01
Phenanthrene	0.50
Pyrene	0.07
Retene	0.16



Sample ID: 15060054-002
 Customer ID: LICA
 Cust Samp ID: LICA/PUF/CLS/May 30, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: 9801
 Location: CLS Motor S/N: 1138 1801
 Station ID: LICA 01 Installation Date/Time: May 25, 2015 @ 09:26
 Field Sample ID: LICA/PUF/CLS / May 30, 2015 Removal Date/Time: June 1, 2015 @ 19:14

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 30, 2015	00:00 May 30, 2015	00:00 May 31, 2015
		Elapsed Time (Hours)
		24.0

PUF and QFF Information		
Date Received	Date Shipped	Puf Expiration Date
N/A	N/A	N/A
		QFF Prep Date
		N/A

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
715	229	12.9 °
		Volume (Vstd m³)
		330.20

Set Flow Rate (slpm): 230
 Date of Last Calibration: 01 - Sept - 11

Time set correctly prior to sampling? YES/NO
 Timer set correctly prior to sampling? YES/NO
 Sampling data saved to memory card after sampling? YES/NO

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
 Date: June 1, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 30, 2015
PUF S/N: 9801

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.01
2-Methylnaphthalene	0.03
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	0.09
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.02
Perylene	< 0.01
Phenanthrene	0.11
Pyrene	0.03
Retene	0.04

PARTISOL RESULTS



Partisol Sampler Results

Date	Filter NO.	Concentration (mg)
MAY 6	P4131547	0.020
MAY 12	P4131703	0.136
MAY 18	P4143634	0.091
MAY 24	P4143633	0.336
MAY 30	P4143632	0.061

Sample ID: 15050099-001

Customer ID: LICA

AIR FCD-01318/2

Cust Samp ID: LICA Filter #P4131547

Partisol Sample Data Sheet

Priority: Normal

Date Sampled: May 6, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P413 1547

Start Time 00:00 May 6, 2015

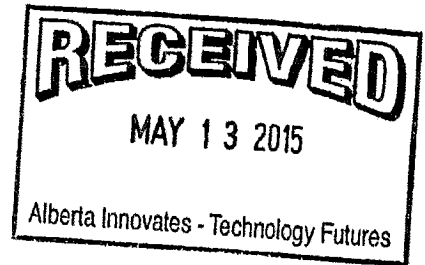
End Time 00:00 May 7, 2015

Status OK

Std Vol 23.497

Valid Time 23:20

Total Time 24



Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Yakupov

Date: May 11, 2015

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Sample ID: 15050200-001

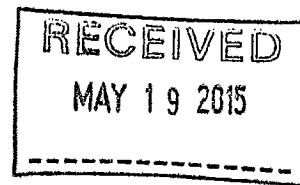
Customer ID: LICA

AIR FCD-01318/2

Cust Samp ID: LICA P4131703

Partisol Sample Data Sheet

Priority: Normal



Date Sampled: May 12, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P413 17 03

Start Time 00:00 May 12, 2015

End Time 00:00 May 13, 2015

Status OK

Std Vol 23,600

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

Technician Signature: Alex Yakupov

Date: May 15, 2015

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Sample ID: 15050300-001

Customer ID: LICA

Cust Samp ID: LICA P4143634

Artisol Sample Data Sheet

Priority: Normal

Date Sampled: May 18, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P4143634

Start Time 00:00 May 18, 2015

End Time 00:00 May 19, 2015

Status OK

Std Vol 23.980

Valid Time 23:59

Total Time 24

Comments: Weather Conditions, etc.

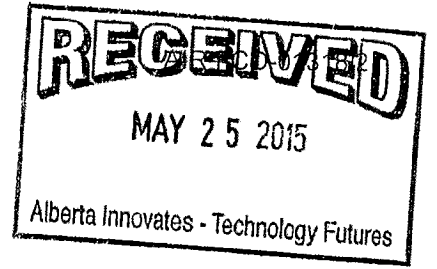
Technician Signature: Alex Yakupov

Date: May 21, 2015

Programming

- 1) Make sure system is in "Stop Mode"
2) "ESC" to Time Screen then "Program"
3) Enter Beg 1 0:00
4) Enter Dur 24:00:00
5) Enter Beg D dd-Aug
6) Enter End D dd-Aug
7) "Stop/Run"

Note: Beginning & End Date should be same date



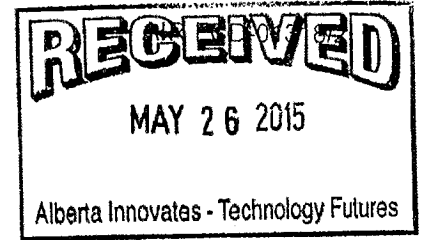
Sample ID: 15050315-001

Customer ID: LICA

Cust Samp ID: LICA P4143633

Partisol Sample Data Sheet

Priority: Normal



Date Sampled: May 24, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P414 36 33

Start Time 00:00 May 24, 2015

End Time 00:00 May 25, 2015

Status OK

Std Vol 22.97P

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Yakupov

Date: May 25, 2015

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date

Sample ID: 15060053-001

AIR FCD-01318/2

Customer ID: LICA

Cust Samp ID: LICA P4143632

artisol Sample Data Sheet

Priority: Normal

Date Sampled: May 30, 2015

Location: CLS

Parameter: TSP PM10

PM2.5 Notes ~~7.5~~

Filter #: LICA P4143632

Start Time 00:00 May 30, 2015

End Time 00:00 May 31, 2015

Status OK

Std Vol 23.590

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

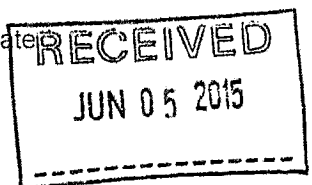
Technician Signature: Alex Yakupov

Date: June 1, 2015

Programming

- 1) Make sure system is in "Stop Mode"
- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1 0:00
- 4) Enter Dur 24:00:00
- 5) Enter Beg D dd-Aug
- 6) Enter End D dd-Aug
- 7) "Stop/Run"

Note: Beginning & End Date should be same date



APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

Maxxam Thermo 43i SO2 Analyzer Calibration

Date: <u>5-May-15</u>	Start/End Time (mst): <u>11:01 / 14:46</u>
Company: <u>LICA</u>	Calibration Purpose: <u>Monthly</u>
Station Name/Location: <u>Cold Lake South</u>	Converter Make & Model: <u>NA</u>
Performed by: <u>Alex Yakupov</u>	Converter Serial #: <u>NA</u>
Application H ₂ S/TRS/SO ₂ : <u>SO2</u>	Cal Gas Expiry Date: <u>26-Mar-17</u>

Analyzer: Serial Number: <u>806528242</u>	Range ppb: <u>500</u>
Last Calibration Date: <u>6-Apr-15</u>	As Found C.F.: <u>1.003</u>
Previous Cal High Point C.F.: <u>1.001</u>	New C.F.: <u>1.004</u>

	As found:	As left:
MOTHERBOARD:	BKG: <u>7.0</u>	BKG: <u>7.0</u>
	COEF: <u>1.113</u>	COEF: <u>1.115</u>
	3.3 <u>3.3</u>	3.3 <u>3.3</u>
	5.0 <u>5.0</u>	5.0 <u>5.0</u>
	15.0 <u>15.0</u>	15.0 <u>15.0</u>
INTERFACE BOARD:	24.0 <u>23.9</u>	24.0 <u>23.9</u>
	-3.3 <u>-3.2</u>	-3.3 <u>-3.2</u>
	PMT: <u>-632.0</u>	PMT: <u>-632.0</u>
	FLASH: <u>710</u>	FLASH: <u>711</u>
	3.3 <u>3.3</u>	3.3 <u>3.3</u>
	5.0 <u>5.0</u>	5.0 <u>5.0</u>
	15.0 <u>14.8</u>	15.0 <u>14.8</u>
	-15.0 <u>-15.1</u>	-15.0 <u>-15.1</u>
	24.0 <u>23.7</u>	24.0 <u>23.7</u>
	INTERNAL: <u>30.1</u>	INTERNAL: <u>30.2</u>
	CHAMBER: <u>45.1</u>	CHAMBER: <u>45.0</u>
	PERM OVEN GAS: <u>45.0</u>	PERM OVEN GAS: <u>45.0</u>
	PERM OVEN HEATER: <u>44.20</u>	PERM OVEN HEATER: <u>44.20</u>
	PRESSURE: <u>675.6</u>	PRESSURE: <u>675.6</u>
	SAMPLE FLOW: <u>0.352</u>	SAMPLE FLOW: <u>0.352</u>
	LAMP INTENSITY: <u>76 %</u>	LAMP INTENSITY: <u>76 %</u>
	CONVERTER: <u>NA</u>	CONVERTER: <u>NA</u>
	CONVERTER SET: <u>NA</u>	CONVERTER SET: <u>NA</u>
	Internal Span: <u>385.5</u>	Internal Span: <u>390.3</u>

Calibrator: Flow Meter ID's: <u>NA</u> Make & Model: <u>Environoncs</u> Serial #: <u>4760</u> Cal Gas Cylinder I.D. #: <u>LL42475</u> Cal Gas Conc. (ppm): <u>50.3</u>	Calibrator Flow Targets: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>diluent (cc/min)</th> <th>cal gas (cc/min)</th> <th>total (cc/min)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>5000</td> <td>0</td> <td>5000</td> </tr> <tr> <td>high</td> <td>5000</td> <td>40</td> <td>5040</td> </tr> <tr> <td>mid</td> <td>5000</td> <td>20</td> <td>5020</td> </tr> <tr> <td>low</td> <td>5000</td> <td>10</td> <td>5010</td> </tr> </tbody> </table>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	5000	0	5000	high	5000	40	5040	mid	5000	20	5020	low	5000	10	5010
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)																		
zero	5000	0	5000																		
high	5000	40	5040																		
mid	5000	20	5020																		
low	5000	10	5010																		

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4994	D.O	4994	0	0.0	NA
adjusted zero		NA				
as found high	4955	39.05	4994	393.3	392.0	1.003
adjusted high	4955	39.05	4994	393.3	393.0	1.001
mid	4978	17.48	4995	176.0	176.0	1.000
low	4985	8.73	4994	87.9	87.0	1.011
calibrator zero	4994	0.00	4994	0	0.0	NA
Average C.F.=						1.004

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>1.000</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>0.06%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-0.23%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

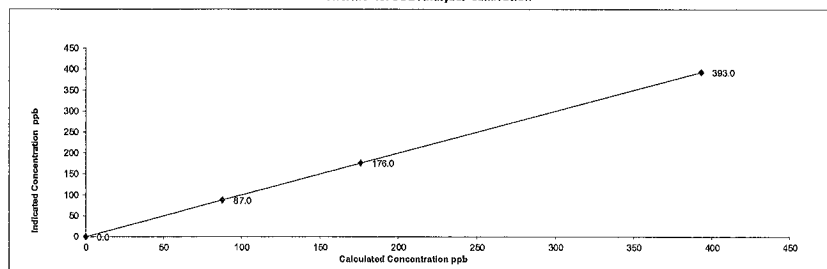
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

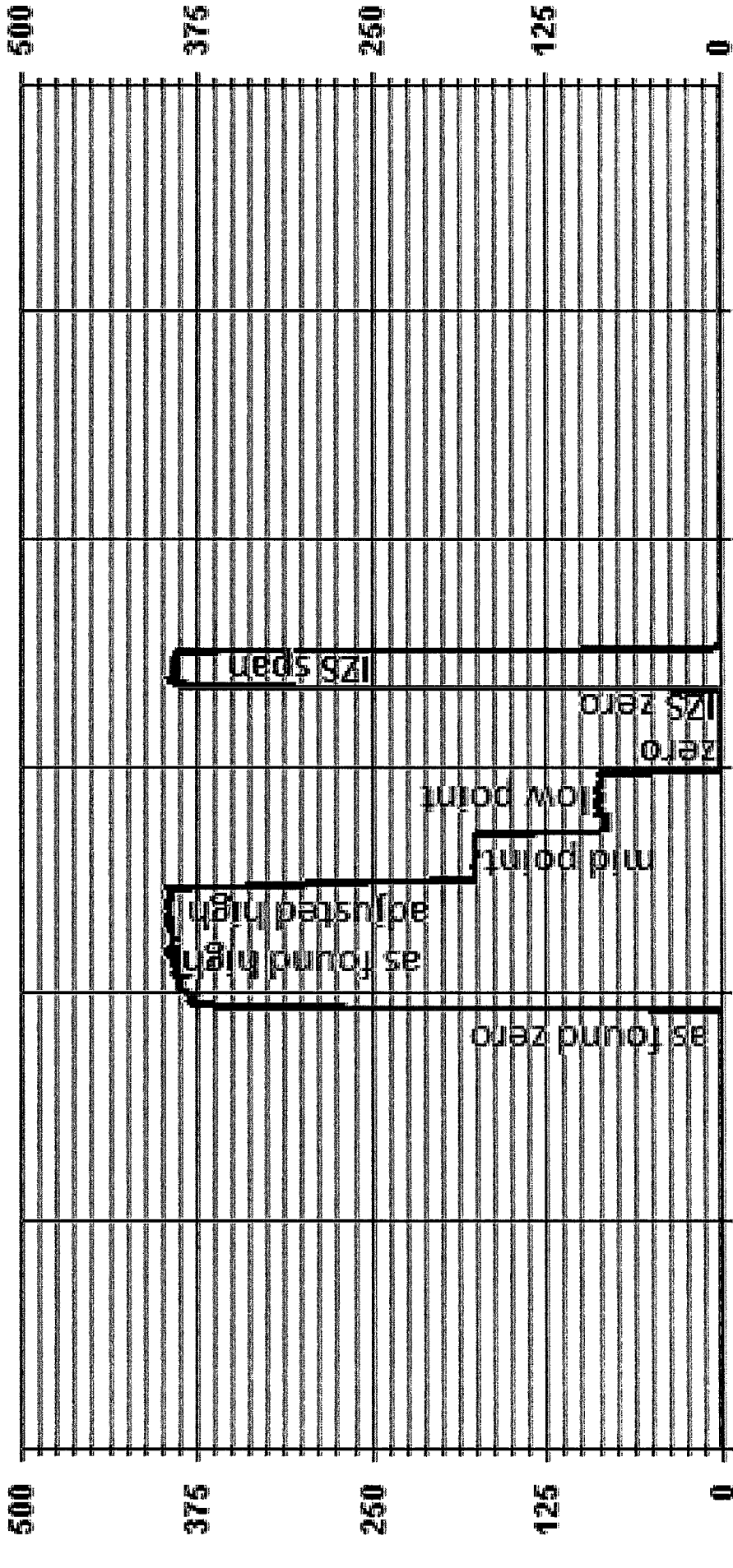
Comments:

Sample filter changed. No ZARO adjustment made. Low point starts from 13:15.

Thermo 43i SO2 Analyzer Calibration



01 Minute Averages



— LICA 502_ PPB

TOTAL REDUCED SULPHUR

Maxxam Thermo 450i TRS Analyzer Calibration

Date: <u>6-May-15</u>	Start/End Time (mst): <u>7:31 / 11:35</u>
Company: <u>LICA</u>	Calibration Purpose: <u>Monthly</u>
Station Name/Location: <u>Cold Lake South</u>	Converter Make & Model: <u>Thermo CDN -101</u>
Performed by: <u>Alex Yakupov</u>	Converter Serial #: <u>501</u>
Application H ₂ S/TRS/SO ₂ : <u>TRS</u>	Cal Gas Expiry Date: <u>15-Jul-17</u>

Analyzer: Serial Number: <u>812728560</u>	Range ppb: <u>100</u>
Last Calibration Date: <u>6-Apr-15</u>	As Found C.F.: <u>1.041</u>
Previous Cal High Point C.F.: <u>1.000</u>	New C.F.: <u>1.000</u>

<p style="text-align: center;">As found:</p> MOTHERBOARD: BKG: <u>12.8</u> COEF: <u>0.992</u> 3.3 <u>3.3</u> 5.0 <u>5.0</u> 15.0 <u>15.0</u> 24.0 <u>23.9</u> -3.3 <u>-3.2</u> INTERFACE BOARD: PMT: <u>-650.8</u> FLASH: <u>743</u> 3.3 <u>3.2</u> 5.0 <u>5.0</u> 15.0 <u>14.7</u> -15.0 <u>-15.0</u> 24.0 <u>23.4</u> INTERNAL: CHAMBER: <u>31.8</u> CONVERTER TEMP: <u>45.2</u> CONVERTER SET: <u>325</u> PERM OVEN GAS: <u>44.39</u> PERM OVEN HTR: <u>44.38</u> PRESSURE: <u>652.6</u> SAMPLE FLOW: <u>0.506</u> LAMP INTENSITY: <u>92%</u> Internal Span: <u>36.68</u>	<p style="text-align: center;">As left:</p> BKG: <u>13.5</u> COEF: <u>0.973</u> 3.3 <u>3.3</u> 5.0 <u>5.0</u> 15.0 <u>15.0</u> 24.0 <u>23.9</u> -3.3 <u>-3.2</u> PMT: <u>-650.5</u> FLASH: <u>743</u> 3.3 <u>3.2</u> 5.0 <u>5.0</u> 15.0 <u>14.7</u> -15.0 <u>-15.0</u> 24.0 <u>23.4</u> INTERNAL: CHAMBER: <u>31.2</u> CONVERTER TEMP: <u>325.7</u> CONVERTER SET: <u>325</u> PERM OVEN GAS: <u>45.0</u> PERM OVEN HTR: <u>44.38</u> PRESSURE: <u>651.4</u> SAMPLE FLOW: <u>0.508</u> LAMP INTENSITY: <u>91%</u> Internal Span: <u>39.02</u>
---	--

Calibrator: Flow Meter ID's: <u>NA</u> Make & Model: <u>API 700</u> Serial #: <u>830</u> Cal Gas Cylinder I.D. #: <u>LI36837</u> Cal Gas Conc. (ppm): <u>10.0</u>	Calibrator Flow Targets: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>diluent (cc/min)</th> <th>cal gas (cc/min)</th> <th>total (cc/min)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>5000</td> <td>0</td> <td>5000</td> </tr> <tr> <td>high</td> <td>5000</td> <td>39</td> <td>5039</td> </tr> <tr> <td>mid</td> <td>5000</td> <td>19</td> <td>5019</td> </tr> <tr> <td>low</td> <td>5000</td> <td>11</td> <td>5011</td> </tr> </tbody> </table>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	5000	0	5000	high	5000	39	5039	mid	5000	19	5019	low	5000	11	5011
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)																		
zero	5000	0	5000																		
high	5000	39	5039																		
mid	5000	19	5019																		
low	5000	11	5011																		

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4999	0.0	4999	0	0.0	NA
adjusted zero		NA				
as found high	4958	39.00	4997	78.0	75.0	1.041
adjusted high	4958	39.00	4997	78.0	78.0	1.001
mid	4979	19.00	4998	38.0	38.0	1.000
low	4990	11.00	5001	22.0	22.0	1.000
calibrator zero	4999	0.00	4999	0	0.0	NA
Average C.F.=						1.000

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>1.000</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>0.00%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-4.06%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

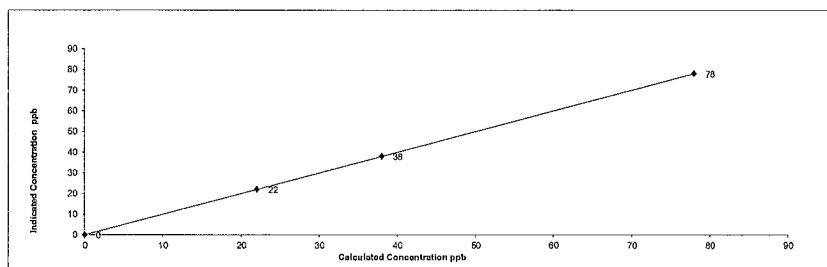
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

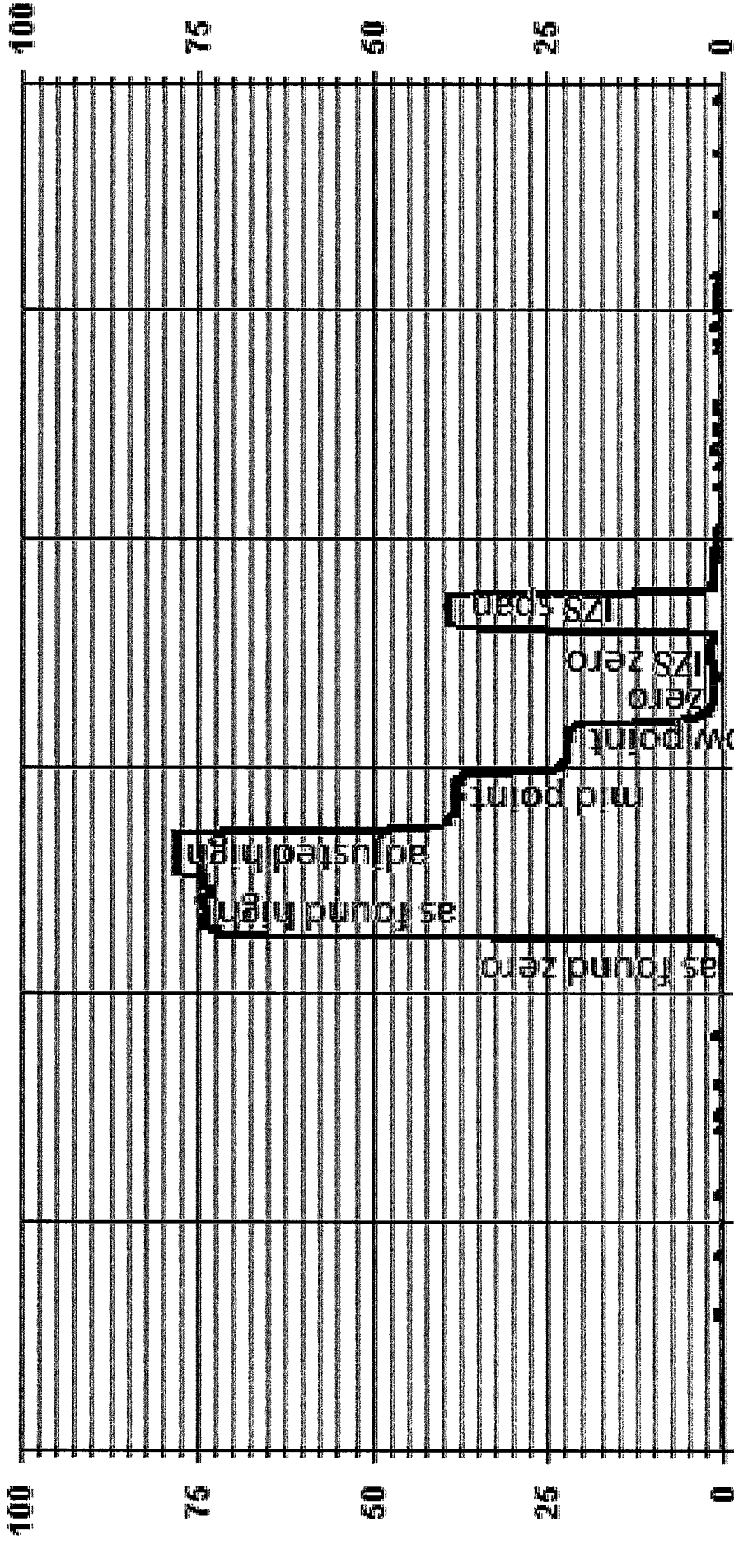
Comments:

Filter changed. No ZERO adjustment made.

Thermo 450i TRS Analyzer Calibration



01 Minute Averages



— LICA TRS_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 5-May-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Performed by: Alex Yakupov

Start Time (mst): 11:01
 End Time (mst): 14:51
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Aug-17

Analyzer:			
Serial Number:	<u>427408718</u>	Range ppm:	<u>50</u>
Last Calibration Date:	<u>6-Apr-15</u>	As Found C.F.:	<u>1.018</u>
Previous Cal High Point C.F.:	<u>1.004</u>	New C.F.:	<u>1.002</u>

	As found:		As left:
H ₂ cylinder (psi):	<u>1700</u>	H ₂ cylinder (psi):	<u>1700</u>
H ₂ cylinder reg set (psi):	<u>23</u>	H ₂ cylinder reg set (psi):	<u>23</u>
Span Cylinder (psi):	<u>700</u>	Span Cylinder (psi):	<u>700</u>
Span Cylinder Reg Set (psi):	<u>30</u>	Span Cylinder Reg Set (psi):	<u>30</u>
Zero Air Gen Pressure:	<u>33</u>	Zero Air Gen Pressure:	<u>33</u>
measurement alarms:	<u>None</u>	measurement alarms:	<u>None</u>
service alarms:	<u>None</u>	service alarms:	<u>None</u>

FID status:	cnt: <u>1345</u>	cnt: <u>1432</u>
	rng: <u>1</u>	rng: <u>1</u>
	try: <u>1</u>	try: <u>1</u>
	flm: <u>182.8</u>	flm: <u>183.3</u>
	det: <u>125.3</u>	det: <u>125.2</u>

Oven Readings:	Flame: <u>182</u>	Flame: <u>183</u>
	Filter: <u>125</u>	Filter: <u>125</u>
	Base: <u>125</u>	Base: <u>125</u>
	Pump: <u>06.51</u>	Pump: <u>06.51</u>

Voltages:	+5 <u>5</u>	+5 <u>5</u>
	+15 <u>14.8</u>	+15 <u>14.8</u>
	-15 <u>-15.1</u>	-15 <u>-15.1</u>
	Internal Span: <u>31.16</u>	Internal Span: <u>31.81</u>

Calibrator:

Flow Meter ID's:	<u>NA</u>
Make & Model:	<u>API 700</u>
Serial #:	<u>830</u>
Cal Gas Cylinder I.D. #:	<u>LL33674</u>
CH ₄ /C ₃ H ₈ Cylinder Conc. (ppm):	<u>601.4</u> <u>202.0</u>
CH ₄ as propane/total CH ₄ equivalents (ppm):	<u>555.5</u> <u>1156.9</u>

Calibrator Flow Targets:			
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	2000	0	2000
high	1935	65	2000
mid	1969	31	2000
low	1984	16	2000

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:		Indicated Concentration:		Correction Factors:	
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)				
as found zero	2000	0.00	2000	0	-0.10			NA	
adjusted zero	2000	0.00	2000	0	0.00			NA	
as found high	1932	65.00	1997	37.66	37.00			1.018	
adjusted high	1932	65.00	1997	37.66	37.70			0.999	
mid	1969	31.00	2000	17.93	17.90			1.002	
low	1984	16.00	2000	9.26	9.20			1.006	
calibrator zero	2000	0.00	2000	0	0.00			NA	
Average C.F.=									1.002

Linear Regression/Calibration Results:

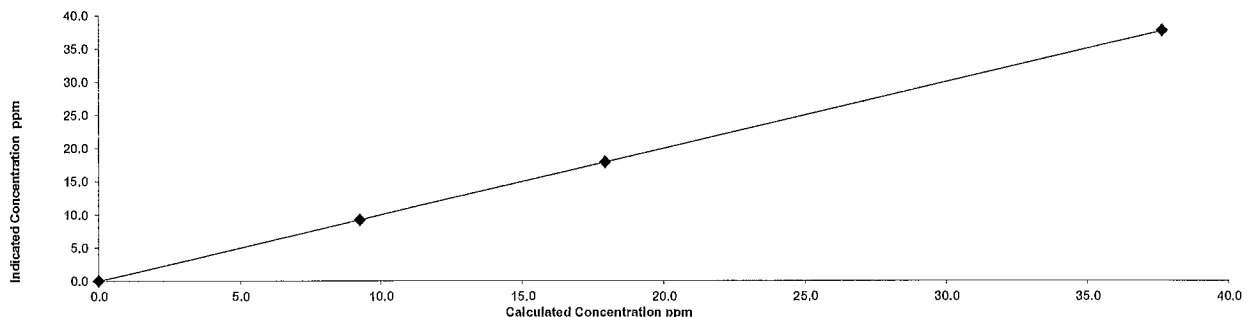
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.002</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>-0.076%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>-1.36%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

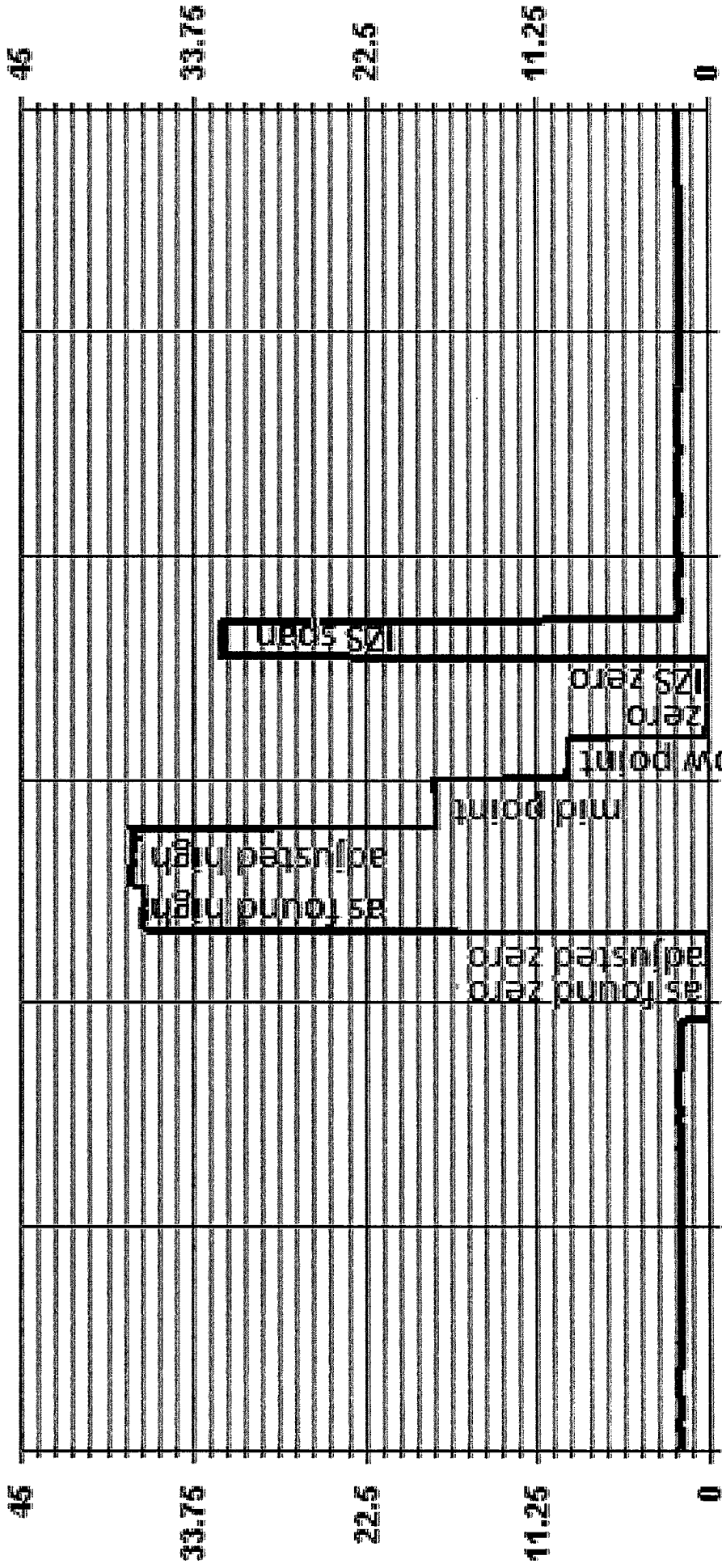
Sample filter changed.

Thermo 51C THC Analyzer Calibration

THC Calibration Curve

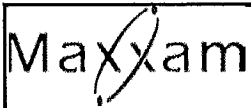


01 Minute Averages



— LICA THC PPM

NITROGEN DIOXIDE



Thermo 42C NOx Analyzer Calibration

Date: 5-May-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Performed by: Alex Yakupov

Start Time (mst): 11:01
 End Time (mst): 17:13
 Calibration Purpose: Monthly
 Cal Gas Expiry Date: 26-Mar-17

Correction Factors:

Analyzer Serial Number: 427408716
 Last Calibration Date: 6-Apr-15
 Range ppb: 500

As found C.F. Previous Cal High Point C.F.:
 NO= 1.014 NO= 1.001
 NOx= 1.014 NOx= 1.001
 NO₂= 1.004 NO₂= 1.003

As found:
 NO Bkg ppb: 4.7
 NOx Bkg ppb: 4.9
 NO Coef: 0.940
 NOx Coef: 1.015
 NO₂ Coef: 1.003
 PMT: -850
 +15: 15.1
 +5: 5.0
 +15: 15.1
 -15: -15.1
 Battery: 3.2
 Internal: 29.2
 Chamber: 49.9
 Cooler: -2.4
 Converter: 317
 Converter Set: 319
 Pressure: 186.0
 Sample Flow: 0.543
 Ozonator Flow: OK
 Internal Span: 395.5/6.4/389

As left:
 NO Bkg ppb: 4.7
 NOx Bkg ppb: 4.9
 NO Coef: 0.951
 NOx Coef: 1.016
 NO₂ Coef: 1.003
 PMT: -850
 +15: 15.1
 +5: 5.0
 +15: 15.1
 -15: -15.1
 Battery: 3.2
 Internal: 29.0
 Chamber: 49.6
 Cooler: -2.5
 Converter: 317
 Converter Set: 319
 Pressure: 186.4
 Sample Flow: 0.542
 Ozonator Flow: OK
 Internal Span: 390.7/6.7/384

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: LL42475
 NO Cylinder Conc. (ppm): 48.5
 NOx Cylinder Conc. (ppm): 48.5

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	4995	0	0	4995
high	4916	40	205.00	4956
mid	4957	20	125.00	4977
low	4975	10	40.00	4985

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	4994	0.0	4994	0	0	0.0	0.0	NA	NA
adjusted zero		NA							
as found high	4955	39.05	4994	379.2	379.2	374	374	1.014	1.014
adjusted high	4955	39.05	4994	379.2	379.2	379	379	1.001	1.001
mid	4978	17.48	4995	169.7	169.7	169	169	1.004	1.004
low	4985	8.73	4994	84.8	84.8	84	84	1.009	1.009
calibrator zero	4994	0.00	4994	0	0	0.0	0.0	NA	NA
Average C.F.=								1.005	1.005

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4955	39.05	4994	0.0	378.0	378.0	0.0	0.0	0.0	
as found NO ₂	4955	39.1	4994	205.0	124.0	378.0	253.0	254.0	253.0	1.004
adjusted NO ₂	4955	39.1	4994	205.0	124.0	378.0	253.0	254.0	253.0	1.004
gpt mid	4955	39.1	4994	125.0	228.0	378.0	150.0	150.0	150.0	1.000
gpt low	4955	39.05	4994	40.0	324.0	378.0	54.0	54.0	54.0	1.000
Average NO ₂ C.F.=										1.001

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.000	1.000	0.996	0.85-1.15
b (Intercept as % of full scale) =	-0.09%	-0.09%	0.04%	± 3% F.S.
% change in C.F. from last cal =	-1.30%	-1.30%	-0.09%	+/-15%
NO ₂ converter efficiency			99.9%	>85%

Comments:

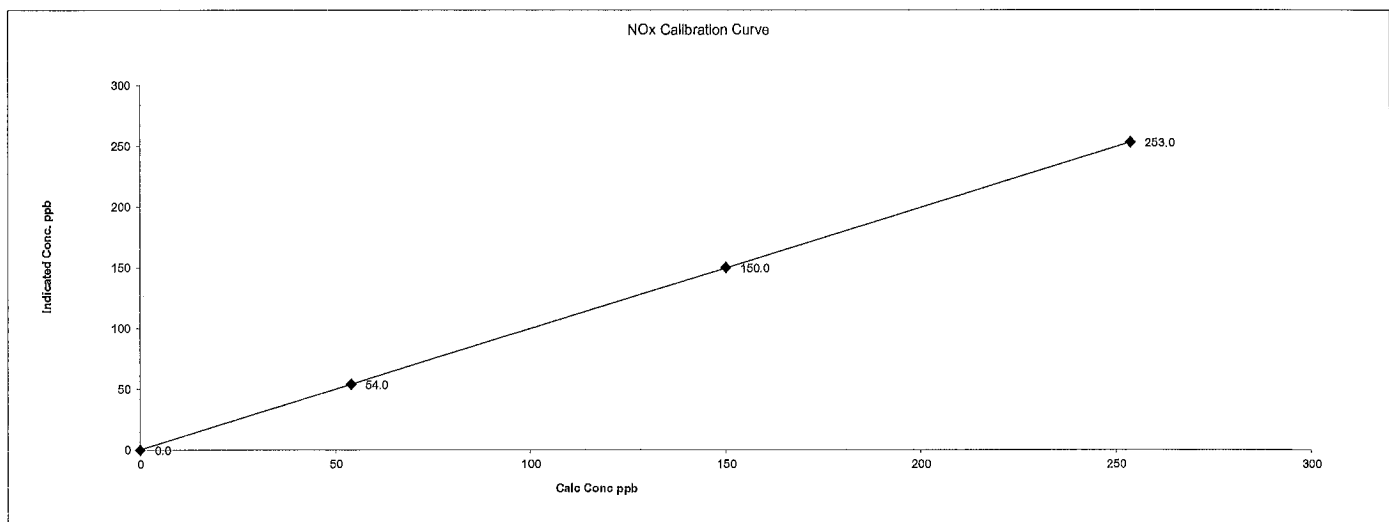
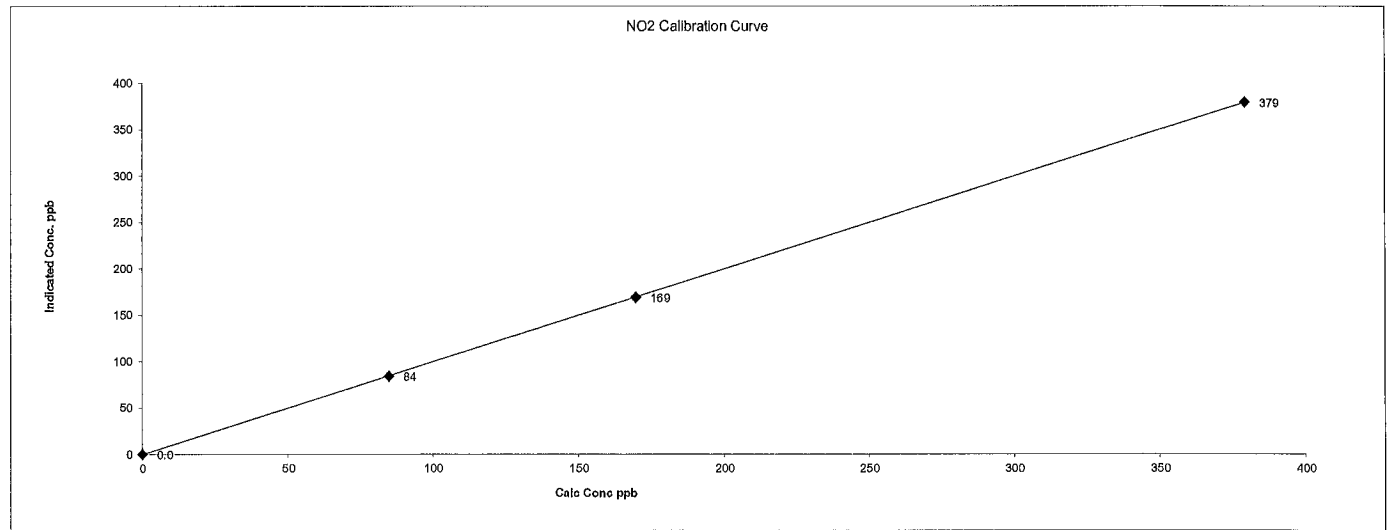
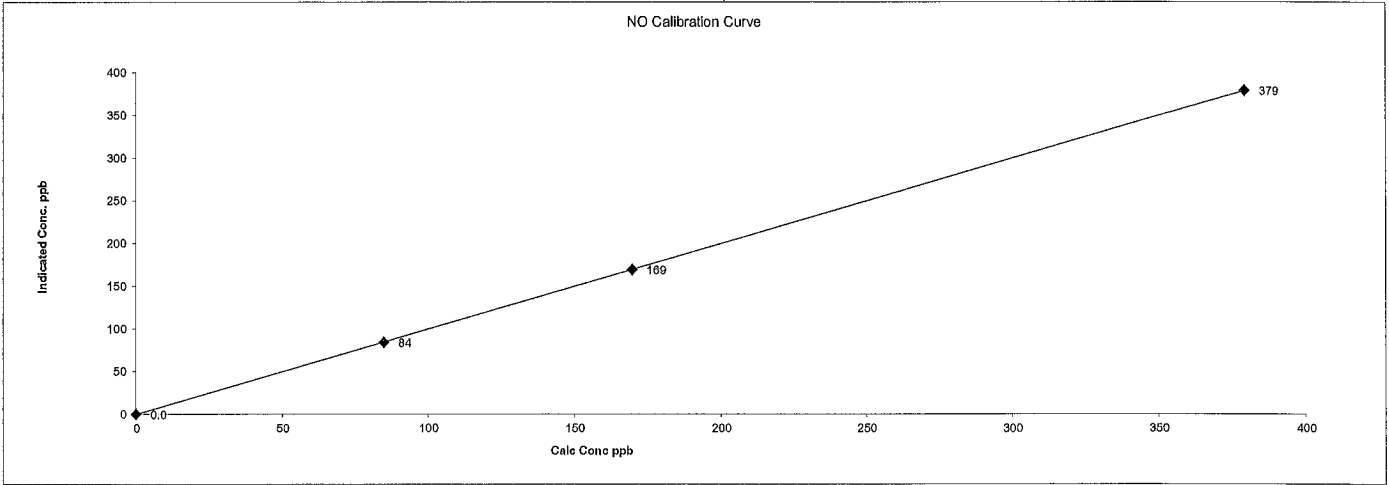
No ZERO adjustment made. Filter changed. Low point starts from 13:15. Additional point taken (14:38 - 14:57) to provide for High O3 cal target (Ind. NO=24, Ind. NOx=377, Ind. NO₂=352, NO drop=353, NO₂ increase= 352, NO₂ C.F = 1.003) => O3 concentration = 310 ppb; As Found NO₂ starts from 15:10

NO₂ adjustment not made. Values copied from GPT as-found for calculation only.

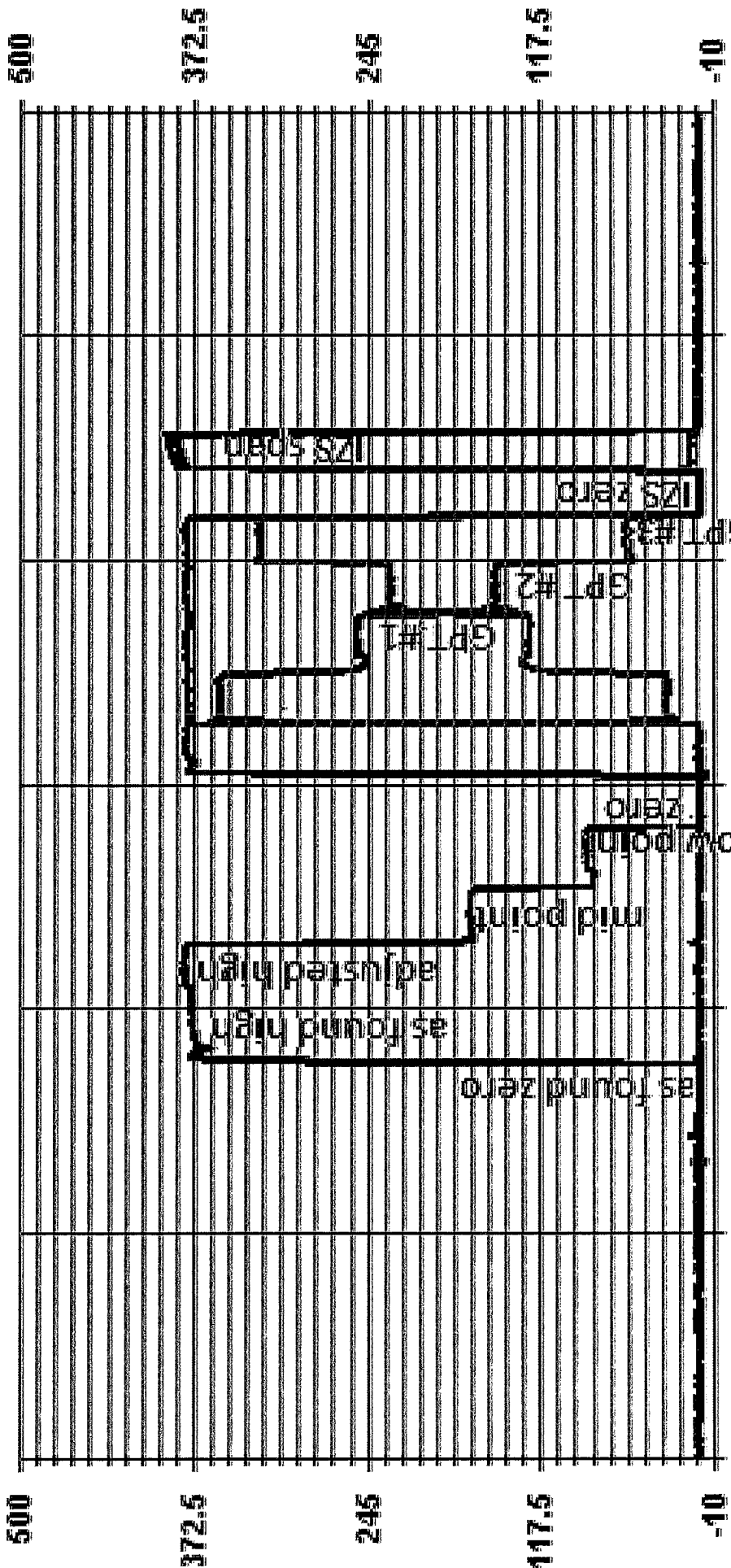
Date: 5-May-15
Company: LICA
Station Name/Location: Cold Lake South
Performed by: Alex Yakupov

Start Time (mst): 11:01
End Time (mst): 17:13
Calibration Purpose: Monthly
Cal Gas Expiry Date: 26-Mar-17

Thermo 42C NOx Analyzer Calibration



01 Minute Averages



05:05/15 08:00 05/05/15 10:00 05/05/15 12:00 05/05/15 14:00 05/05/15 16:00 05/05/15 18:00

— LICA NOX_ PPB — LICA NO_ PPB — LICA NO2_ PPB

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: 6-May-15	Start Time (mst): 7:31
Company: LICA	End Time (mst): 11:35
Station Name/Location: Cold Lake South	Calibration Purpose: Monthly Calibration
Performed by: Alex Yakupov	G.P.T. Date: 5-May-15

Analyzer: 700419951	Range ppm: 500
Serial Number: 700419951	As Found C.F.: 1.003
Last Calibration Date: 7-Apr-15	New C.F.: 1.011
Previous Cal High Point C.F.: 1.000	

	As found:	As left:
Motherboard:	O ₃ Bkg: 0.2	O ₃ Bkg: 0.2
	O ₃ Coef: 0.949	O ₃ Coef: 0.952
	3.3 3.3	3.3 3.3
	15.0 15.1	15.0 15.1
	24.0 23.9	24.0 23.9
Interface Board:	-3.3 -3.2	-3.3 -3.2
	3.3 3.2	3.3 3.2
	5.0 4.9	5.0 4.9
	15.0 14.8	15.0 14.8
	-15.0 -14.8	-15.0 -14.8
Photo Lamp:	8.7 8.7	8.7 8.7
	24.0 23.7	24.0 23.7
O ₃ Lamp:	9.0 9.0	9.0 9.0
	Bench: 27.9	Bench: 27.2
Bench Lamp:	53.4 53.4	53.4 53.4
	O ₃ Lamp: 67.3	O ₃ Lamp: 67.3
Pressure:	699.8 699.8	700.5 700.5
	Cell A lpm: 0.709	Cell A lpm: 0.710
Cell B lpm:	0.748 0.748	0.749 0.749
	O ₃ ppb: 15	O ₃ ppb: -0.2
Cell A ppb:	-12.0 -12.0	-12.0 -12.0
	Cell B ppb: 15.0	Cell B ppb: 11.6
Cell A Int:	59314 59314	59308 59308
	Cell B Int: 57540	Cell B Int: 57510
Internal Span:	262.2 262.2	259 259

Calibrator: Make & Model: EnviroNics G100 Serial #: 4760 NOX Gas Cylinder I.D. #: 1L42475 NOX Cylinder Conc. (ppm): 48.5	Calibrator Flow Targets: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>point</th> <th>total flow (cc/min)</th> <th>O₃ setting (v or ppb)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>4995</td> <td>0</td> </tr> <tr> <td>high</td> <td>4995</td> <td>310</td> </tr> <tr> <td>mid</td> <td>4995</td> <td>125</td> </tr> <tr> <td>low</td> <td>4995</td> <td>40</td> </tr> </tbody> </table>	point	total flow (cc/min)	O ₃ setting (v or ppb)	zero	4995	0	high	4995	310	mid	4995	125	low	4995	40
point	total flow (cc/min)	O ₃ setting (v or ppb)														
zero	4995	0														
high	4995	310														
mid	4995	125														
low	4995	40														

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factor:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4994	0.0	4994	0.0	0.0	NA
adjusted zero		NA				
as found high	4994	310.00	5304	353.0	352.0	1.003
adjusted high	4994	310.00	5304	353.0	353.0	1.000
mid	4994	125.00	5119	150.0	148.0	1.014
low	4994	40.00	5034	54.0	53.0	1.019
calibrator zero	4994	0.00	4994	0.0	0.0	NA
						Average C.F.= 1.011

copy and paste flows and NO decrease from NOX cal in to calculated concentration

Linear Regression/Calibration Results:			
Correlation Coefficient =	1.000	LIMITS	Pass/Fail ?
Slope =	1.001	> or = 0.995	PASS
b (Intercept as % of full scale) =	-0.175%	0.85-1.15	PASS
% change in C.F. from last cal	0%	± 3% F.S.	PASS
		± 15%	PASS

Comments:

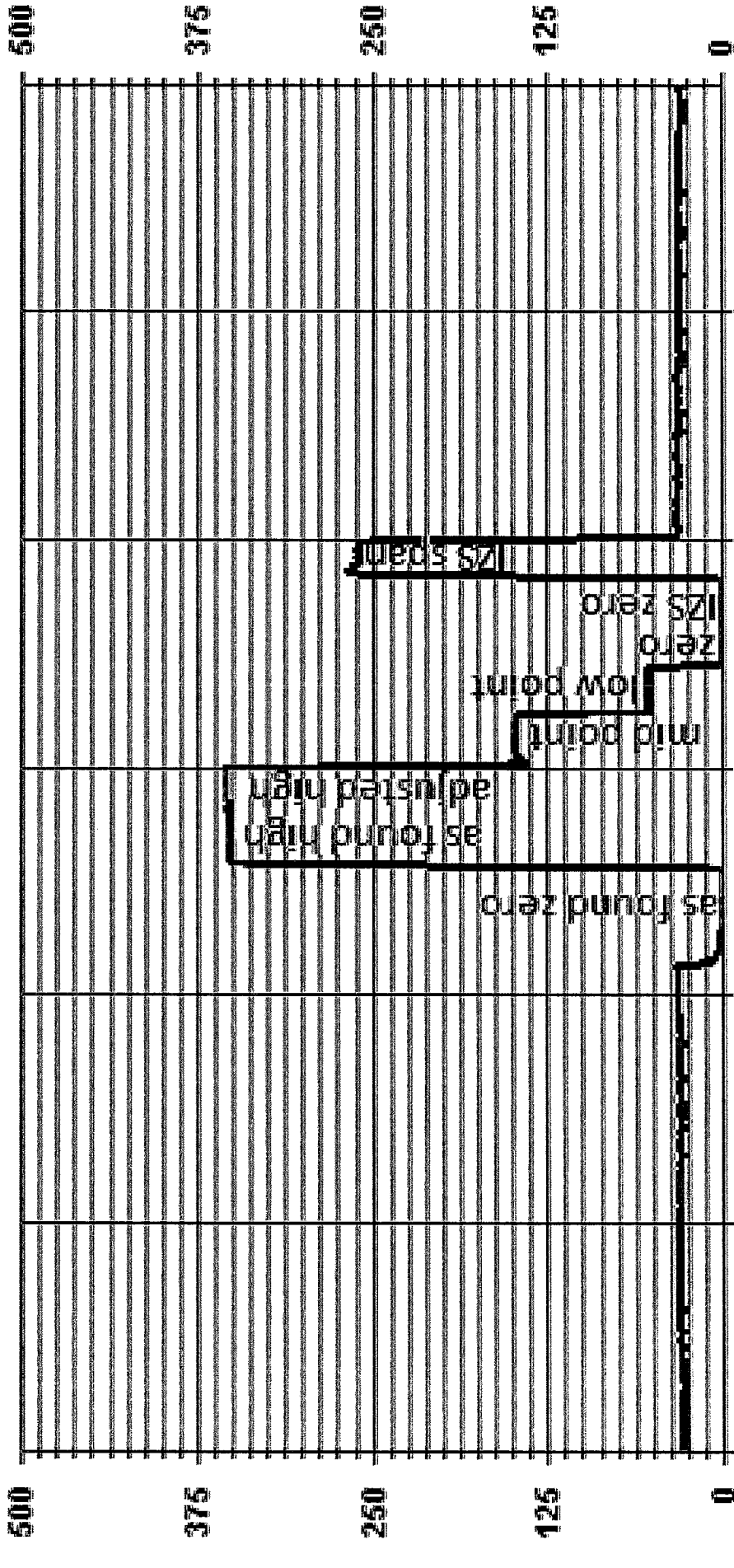
Filter changed. No Zero adjustments made

Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

Calc Conc (ppb)	Indicated Conc (ppb)
0.0	0.0
63.0	63.0
148.0	148.0
353.0	353.0

01 Minute Averages



— LICA 03_ PPB

PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 6-May-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: 27-Apr-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 10:56 / 11:51
 Calibration Purpose: 1st Audit

1400A Information and Status:

Serial Number:	<u>1405A201620804</u>	As Found Filter Loading %:	<u>22.05</u>
Ko Factor:	<u>14578</u>	As Left Filter Loading %:	<u>22.67</u>
Ambient Temperature °C:	<u>2.69</u>	As Found Noise:	<u>0.014</u>
Ambient Pressure atm:	<u>0.937</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.39</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.21	0.03	0.21
	limit	0.15	0.27	0.15	0.27
Bypass Flow	actual	0.27	0.27	0.21	0.27
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.21	0.03	0.21
	limit	0.15	0.27	0.15	0.27
Bypass Flow	actual	0.27	0.27	0.21	0.27
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C	1405F temperature °C: <u>2.7</u>	tolerance +/- 0.01 atm	1405F pressure atm: <u>0.937</u>
reference temperature °C: <u>1.8</u>	reference pressure: <u>0.937</u>	reference temperature °C: <u>1.8</u>	reference pressure: <u>0.937</u>
difference °C: <u>-0.9</u>	difference: <u>0.000</u>	difference °C: <u>-0.9</u>	difference: <u>0.000</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C	1405F temperature °C: <u>1.8</u>	tolerance +/- 0.01 atm	1405F pressure atm: <u>0.937</u>
reference temperature °C: <u>1.8</u>	reference pressure: <u>0.937</u>	reference temperature °C: <u>1.8</u>	reference pressure: <u>0.937</u>
difference °C: <u>0.0</u>	difference: <u>0.000</u>	difference °C: <u>0.0</u>	difference: <u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.04</u>	reference total/aux flow lpm: <u>16.83</u>
difference lpm: <u>0.04</u>	difference lpm: <u>0.16</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.04</u>	reference total/aux flow lpm: <u>16.83</u>
difference lpm: <u>0.04</u>	difference lpm: <u>0.16</u>

K_o Audit:

Last K_o audit date: 18-Mar-15
 1405F K_o factor: 14578
 Measured K_o factor: 14753.2000
 % difference: 1.20

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 21-May-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: 6-May-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 16:21 - 17:15
 Calibration Purpose: 2nd Audit

1400A Information and Status:

Serial Number:	<u>1405A201620804</u>	As Found Filter Loading %:	<u>27.88</u>
Ko Factor:	<u>14578</u>	As Left Filter Loading %:	<u>17.56</u>
Ambient Temperature °C:	<u>25.66</u>	As Found Noise:	<u>0.009</u>
Ambient Pressure atm:	<u>0.941</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.39</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.23	0.03	0.23
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.27	0.29	0.21	0.29
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.01	0.23	0.03	0.23
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.27	0.29	0.21	0.29
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>25.3</u>	1405F pressure atm:	<u>0.941</u>
reference temperature °C:	<u>23.4</u>	reference pressure:	<u>0.941</u>
difference °C:	<u>-1.9</u>	difference :	<u>0.000</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>23.4</u>	1405F pressure atm:	<u>0.941</u>
reference temperature °C:	<u>23.4</u>	reference pressure:	<u>0.941</u>
difference °C:	<u>0.0</u>	difference :	<u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>16.67</u>
reference main flow lpm:	<u>2.99</u>	reference total/aux flow lpm:	<u>16.65</u>
difference lpm:	<u>-0.01</u>	difference lpm:	<u>-0.02</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>16.67</u>
reference main flow lpm:	<u>2.99</u>	reference total/aux flow lpm:	<u>16.65</u>
difference lpm:	<u>-0.01</u>	difference lpm:	<u>-0.02</u>

K_o Audit:

Last K_o audit date: 18-Mar-15
 1405F K_o factor: 14578
 Measured K_o factor: 14753.2000
 % difference: 1.20

Comments:

WIND SYSTEM



Met One Instruments
1600 NW Washington Blvd.
Grants Pass, Oregon 97526
Telephone 541-471-7111
Facsimile 541-471-7116

Regional Service
3206 Main St. Suite 106
Rowlett, Texas 75088
Telephone 972-412-4715
Facsimile 972-412-4716

Sonic Wind Sensor Certificate of Calibration

Sensor Model No: 50.5H Sonic Sensor Serial No: F1644
 Customer: _____ P.O. No: _____ Sales Order: _____
 Final Calibration By: Kevin Ricks Calibration Date: 04-01-15
 Quality Control Inspected By: AJZ Inspection Date: APR 03 2015

New Unit Repair/Adjust Re-Calibration As Found
 Unit Within Tolerance as Found Unit Within Tolerance as Left

Calibration Equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal. Due
Digital Multimeter 1	Agilent/HP	34401A	MY41039534	4/11/2015
Digital Multimeter 2	Agilent/HP	34401A	US36094551	8/26/2015
Frequency Counter	Agilent/HP	53131A	MY40009285	5/22/2015
Standard Sensor	MOI	010C-1	P22383	7/11/2017
Temperature Probe	MOI	920005/PC8340	E3402	9/03/2015

Test 1: Average Wind Tunnel Speed: 3.08 Meters per Second Firmware Version: 3194-01 R2.62

WD Setting (Deg)	WD Output (Volts)	WD Indication (Deg)	WD Error (+/- 3 Deg)	WS Standard (m/s)	WS Output (Volts)	WS Indication (m/s)	WS Error (+/- .20 m/s)	Output Type:
30	.084	30.3	.3	3.06	.059	2.96	-.1	0 to 1 volt <input checked="" type="checkbox"/>
60	.165	59.3	-.7	3.07	.059	2.94	-.13	0 to 2.5 volt <input type="checkbox"/>
120	.334	120.2	.2	3.08	.059	2.94	-.14	0 to 5 volt <input type="checkbox"/>
150	.415	149.5	-.5	3.07	.059	2.94	-.13	RS-232 <input checked="" type="checkbox"/>
210	.583	210	0	3.08	.059	2.95	-.12	SDI-12 <input type="checkbox"/>
240	.668	240.3	.3	3.08	.06	2.98	-.1	RS-422 <input type="checkbox"/>
300	.834	300.4	.4	3.07	.06	3.02	-.04	RS-485 <input type="checkbox"/>
330	.916	329.8	-.2	3.09	.059	2.97	-.12	<input type="checkbox"/>

Test 2: Average Wind Tunnel Speed: 11.85 Meters per Second Output Range: 0-50 m/s

WD Setting (Deg)	WD Output (Volts)	WD Indication (Deg)	WD Error (+/- 3 Deg)	WS Standard (m/s)	WS Output (Volts)	WS Indication (m/s)	WS Error (+/- .24 m/s)	Test Items:
30	.081	29.3	-.7	11.79	.235	11.76	-.04	Array Alignment <input checked="" type="checkbox"/>
60	.165	59.5	-.5	11.85	.237	11.87	.01	Jumper Config <input checked="" type="checkbox"/>
120	.331	119.1	-.9	11.85	.236	11.81	-.03	Firmware Config <input checked="" type="checkbox"/>
150	.415	149.3	-.7	11.88	.236	11.8	-.08	Zero Calibration <input checked="" type="checkbox"/>
210	.582	209.5	-.5	11.81	.236	11.79	-.02	Low Speed Test OK <input checked="" type="checkbox"/>
240	.666	239.9	-.1	11.88	.235	11.73	-.16	High Speed Test OK <input checked="" type="checkbox"/>
300	.833	299.7	-.3	11.87	.235	11.73	-.13	Sensor Function <input checked="" type="checkbox"/>
330	.915	329.6	-.4	11.84	.238	11.9	.06	Physical Inspection <input checked="" type="checkbox"/>

The standards used for this calibration have accuracies equal to or greater than the instruments tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated hereon, all instruments are calibrated to meet the manufacturer's published specifications. The calibration system complies with MIL-STD-45662A. Calibration performed by direct comparison to the above standard following test procedure: 50.5-6100 Rev E

CALIBRATORS

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Environics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4760</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Callibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	5%

LINEAR REGRESSION ANALYSIS

$y=mx+b$ (where x=calculated concentration, y=indicated concentration)

NO		LIMITS		NOx	
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000
m (Slope)=	1.0511	0.90-1.10		m (Slope)=	1.0496
b (Intercept % of FS)=	0.0400	± 3% F.S.		b (Intercept % of FS)=	0.0400

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff. Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%

LINEAR REGRESSION ANALYSIS

$y=mx+b$ (where x=calculated concentration, y=indicated concentration)

NO ₂		LIMITS	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	1.0006	0.90-1.10	
b (Intercept % of FS)=	-0.0132	± 3% F.S.	

AENV Standards		NO _x Analyzer	
Audit Calibrator		NO_x Analyzer	
Make/Model	<u>Teco 146I</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS:

Auditor: Al Clark
Operator Signature: [Signature]

Date: December 17, 2014
Location: McIntyre Center Edmonton

Company: Maxxam

Operator: Limin Li

Calibrator:
 Make/Model API 700
 Serial Number 830
 Last Verification Date Oct 2013
 SO₂ Cylinder Conc. 50.3
 SO₂ Cylinder S/N LL42475

Flow Measurement Device:
 Make/Model N/A
 Serial Number N/A
 Temperature (°C) N/A
 Barometric Pressure N/A

Flow Measurements
 Pt. No. 1 79.5 Pt. No. 2 39.8 Pt. No. 3 19.9

Calibrator Flow (scm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
Absolute Average Percent Difference			0%	± 10%

LINEAR REGRESSION ANALYSIS
 $y=mx+b$ (where x=calculated concentration, y=indicated concentration)

SO ₂	LIMITS
Correlation= 1.0000	≥ 0.995
m (Slope)= 0.9971	0.90-1.10
b (Intercept % of FS)= 0.0000	± 3% F.S.

AENV Standards	SO ₂ Analyzer
Audit Calibrator	Make/Model <u>Teco 43C</u>
Make/Model <u>R&R MFC 201</u>	Serial/AMU Number <u>AMU 1623</u>
Serial/AMU Number <u>AMU 1690</u>	Last Calibration Date <u>Dec 15/14</u>
	Full Scale (ppm) <u>1.0</u>

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamination inside calibrator. SO2 moves through quickly.

Auditor: Al Clark Date: December 16, 2014
 Operator Signature: _____ Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-257CGA

Company: Maxxam Operator's Name: Lmln Lj
 Cylinder #: LL42475 Concentration PPM: 50.3 Tolerance(%) 1 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: December 15, 2014
 Gas Type: SO2 Conc. 98.57
 Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 22.5 C
 B.P. 701 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
 Instrument Settings: Zero: 7.7 Span: 1.018 Range: 1.0
 Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	0.01019	98.157	49.3
5114	52.1	0.502	0.01019	98.157	49.3
5093	22.3	0.214	0.00438	228.386	48.9
5073	10.9	0.105	0.00215	465.413	48.9
Average Cylinder Concentration:					49.0

Previous Stated Concentration PPM: 50.3

Percent variance from Stated: 2.6

Meets Manufacturer Tolerance, Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance, Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam Operator's Name: Limin Li
Cylinder #: LL36837 Concentration PPM: 10.0 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: December 15, 2014
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015106

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp. °C: 23.0 C
B.P.: 702 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	132.442	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	550.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: December 16, 2014
Location: McIntyre Center Edmonton



Praxair Canada, Inc.
 9501-34th Street
 Edmonton, AB T5B 2X6
 Tel: 780-449-8775
 Fax: 780-449-5502

03/27/2014

MAXAM ANALYTICS INC (NA)
 9313 40TH ST
 EDMONTON, AB T6B 2L7

Work Order No: 20248856
 Customer Reference No:

Product Lot/Batch No: Z582 4 085 02
 Product Part No: NI ME60P2P-AQ

CERTIFICATE OF ANALYSIS

Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Balance	Analytical Accuracy
Methylene Chloride	500.0ppm	501.4ppm	U	±1% rel
Propylene Glycol	200.0ppm	202ppm	U	±1% rel
Methanol	Balances	Balances		

Analytical Instruments: Mettler Toledo Analytical Balance - ID24X/USA
 Hewlett Packard (Agilent) - 8890 - GC-FID
 Filling Method: Gravimetric
 Date of Fill: 03/23/2014
 Expiration Date: 03/28/2017
 Cylinder Pressure: 2200 psig
 Cylinder Volume: 22.0 L
 Valve Stem Connection: CGA 350
 P/N (Bottle): 443874

[Signature]
 Name: Todd Hyatt

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5. The information was obtained from the manufacturer's data sheets.	6. The information was obtained from the manufacturer's data sheets.	7. The information was obtained from the manufacturer's data sheets.	8. The information was obtained from the manufacturer's data sheets.

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Calibration Gas Audit

NO Cylinder Gas

File No. 2014-252CGA

Company: Maxxam **Operators name:** Limin Li
Cylinder #: LL42475 **Conc (PPM)** 48.5/48.5 **Tolerance (%)** 1 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model Teco 146i
Serial Number AMU 1809
Last Verification Date December 15, 2014
Gas Type NO **Conc.** 48.79
Cylinder Number CAL017892

Flow Measurement Device:

Make/Model Bios DC2
Serial Number AMU 1659
Temp. °C 23.0 C
B.P. 702 mmhg

Reference Analyzer:

Make/Model Teco 42i **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.3 **Span:** 1.017 **Range:** 1.0
Last Calibration: **Date:** Dec15/14 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (secm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000	0.01662	60.181	50.0	50.1
4983	82.8	0.830	0.832	0.01662	60.181	50.0	50.1
4998	40.9	0.414	0.415	0.00818	122.200	50.6	50.7
4981	20.3	0.206	0.206	0.00408	245.369	50.5	50.5
Average Cylinder Concentration:						50.4	50.4

<u>NO</u>	<u>NOx</u>
Previous Stated Concentration PPM: <u>48.5</u>	<u>48.5</u>
Percent variance from Stated: <u>3.8</u>	<u>4.0</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 50.3 ppm of SO2.
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark **Date:** December 16, 2014
Operator Signature: *Al Clark* **Location:** McIntyre Center Edmonton

APPENDIX IV
ANALYTICAL RESULTS

PASSIVE SAMPLES

Your Project #: 2015/03/30 - 2015/05/27
Site Location: LICA

Attention: MICHAEL BISAGA

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
PO BOX 8237
5107W- 50TH STREET
BONNYVILLE, AB
CANADA T9N 2J5

Report Date: 2015/06/08
Report #: R1972156
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B545300

Received: 2015/06/01, 11:51

Sample Matrix: Air
Samples Received: 30

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	19	2015/06/04	2015/06/08	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	18	2015/06/04	2015/06/08	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis (1)	7	2015/06/05	2015/06/08	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	25	2015/06/04	2015/06/08	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	29	2015/06/03	2015/06/08	PTC SOP-00149	Tang Passive SO2 in

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The detection limit is based on a 30 day sampling period.

Encryption Key **Levi** Levi Manchak
Manchak 08 Jun 2015 12:19:47 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

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

Maxxam Job #: B545300
Report Date: 2015/06/08

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/03/30 - 2015/05/27
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		MI8741	MI8742	MI8743	MI8744	MI8745	MI8746	MI8747		
Sampling Date		2015/03/30 14:26	2015/04/01 11:33	2015/04/01 12:43	2015/03/31 17:52	2015/04/01 10:19	2015/03/30 12:06	2015/03/30 15:45		
	Units	3	4	5	6	8	9	10	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.11		0.16				0.15	0.02	7923635
Calculated NO2	ppb	0.9	0.7	0.7	3.2	0.5	0.9	2.2	0.1	7923172
Calculated O3	ppb	34.53	39.14	36.33	33.89	42.92	40.08	33.97	0.1	7922810
Calculated SO2	ppb	0.2	0.2	0.2	0.4	0.4	0.2	0.2	0.1	7921614
RDL = Reportable Detection Limit										

Maxxam ID		MI8748	MI8749	MI8750	MI8751	MI8752	MI8753		
Sampling Date		2014/10/30 12:17	2015/02/27 17:36	2015/03/31 12:01	2015/03/30 18:07	2015/03/31 10:34	2015/03/31 14:36		
	Units	11	12	13	14	15	16	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb	0.10	MISSING	0.12	0.11		0.12	0.02	7923635
Calculated NO2	ppb	0.3	MISSING	0.5	0.5	0.6	0.6	0.1	7923172
Calculated O3	ppb	22.91	MISSING	37.19	33.45	39.30	42.65	0.1	7922810
Calculated SO2	ppb	0.3	MISSING	0.3	0.5	0.2	0.2	0.1	7921614
RDL = Reportable Detection Limit									

Maxxam ID		MI8754	MI8755	MI8756		MI8757	MI8758		
Sampling Date		2015/03/31 16:55	2015/03/31 15:28	2015/03/31 09:13		2015/03/30 08:42	2015/03/31 13:43		
	Units	17	18	19	QC Batch	22	23	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb	0.16	0.09		7923635	0.10		0.02	7923635
Calculated NO2	ppb	1.0	0.7	0.6	7923172	0.8	0.2	0.1	7923172
Calculated O3	ppb	42.23	30.34	36.80	7922820	29.36	28.57	0.1	7922820
Calculated SO2	ppb	0.3	0.1	0.2	7921614	0.2	0.1	0.1	7921619
RDL = Reportable Detection Limit									

Maxxam ID		MI8759	MI8760	MI8761	MI8762	MI8763	MI8764	MI8765		
Sampling Date		2015/03/31 18:35	2015/02/27 18:58	2015/03/31 11:12	2015/03/31 10:45	2015/03/30 11:41	2015/03/30 08:44	2015/03/31 18:47		
	Units	24	25	26	27	28	29	32	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.12	MISSING	0.08	0.19		0.09	0.13	0.02	7923635
Calculated NO2	ppb	1.9				2.1	0.7	0.3	0.1	7924562
Calculated O3	ppb	33.45				40.47	33.03	42.15	0.1	7922820
Calculated SO2	ppb	0.2	MISSING	0.3	0.5	0.4	0.2	0.2	0.1	7921619
RDL = Reportable Detection Limit										

Maxxam Job #: B545300
Report Date: 2015/06/08

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/03/30 - 2015/05/27
Site Location: LICA
Sampler Initials: WA

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		MI8766	MI8769	MI8770	MI8771	MI8772		
Sampling Date		2015/03/30 13:25	2015/03/30 14:26	2015/03/30 14:26	2015/03/30 14:26	2015/03/30 14:26		
	Units	36	5 DUP	6 DUP	8 DUP	13 DUP	RDL	QC Batch
Passive Monitoring								
Calculated H2S	ppb	0.11				0.11	0.02	7923635
Calculated NO2	ppb	1.7		3.1	0.6		0.1	7924562
Calculated O3	ppb	35.92		36.79	41.76		0.1	7922820
Calculated SO2	ppb	0.2	0.2	0.2	0.5		0.1	7921619
RDL = Reportable Detection Limit								

Maxxam Job #: B545300
Report Date: 2015/06/08

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/03/30 - 2015/05/27
Site Location: LICA
Sampler Initials: WA

GENERAL COMMENTS

Sample MI8749-01 : Site Inaccessible; notes on field sheet indicate 'Access Denied.'

Sample MI8760-01 : Site Inaccessible; notes on field sheet indicate 'Access Denied.'

Results relate only to the items tested.

Maxxam Job #: B545300
Report Date: 2015/06/08

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/03/30 - 2015/05/27
Site Location: LICA
Sampler Initials: WA

QUALITY ASSURANCE REPORT

QA/QC					Date				
Batch	Init	QC Type	Parameter	Parameter	Analyzed	Value	Recovery	Units	QC Limits
7921614	SS6	Spiked Blank	Calculated SO2	Calculated SO2	2015/06/03		99	%	90 - 110
7921614	SS6	Method Blank	Calculated SO2	Calculated SO2	2015/06/03	<0.1		ppb	
7921619	SS6	Spiked Blank	Calculated SO2	Calculated SO2	2015/06/03		100	%	90 - 110
7921619	SS6	Method Blank	Calculated SO2	Calculated SO2	2015/06/03	<0.1		ppb	
7922810	OZ	Spiked Blank	Calculated O3	Calculated O3	2015/06/04		99	%	90 - 110
7922810	OZ	Method Blank	Calculated O3	Calculated O3	2015/06/04	<0.1		ppb	
7922820	OZ	Spiked Blank	Calculated O3	Calculated O3	2015/06/04		98	%	90 - 110
7922820	OZ	Method Blank	Calculated O3	Calculated O3	2015/06/04	<0.1		ppb	
7923172	SS6	Spiked Blank	Calculated NO2	Calculated NO2	2015/06/04		101	%	90 - 110
7923172	SS6	Method Blank	Calculated NO2	Calculated NO2	2015/06/04	<0.1		ppb	
7923635	SSZ	Spiked Blank	Calculated H2S	Calculated H2S	2015/06/04		101	%	90 - 110
7924562	SS6	Spiked Blank	Calculated NO2	Calculated NO2	2015/06/05		100	%	90 - 110
7924562	SS6	Method Blank	Calculated NO2	Calculated NO2	2015/06/05	<0.1		ppb	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

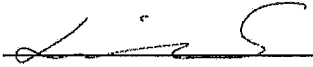
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Maxxam Job #: B545300
Report Date: 2015/06/08

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2015/03/30 - 2015/05/27
Site Location: LICA
Sampler Initials: WA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Linda Lin, Supervisor, Centre for Passive Sampling Technology

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

VOCS SAMPLES

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 6, 2015</p> <p>CANISTER ID: 1964</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	14-May-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-May-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	14-May-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2,2-Dimethylbutane	I	0.03	ppbv	0.01	AC-058	14-May-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2,3-Dimethylbutane	I	0.05	ppbv	0.02	AC-058	14-May-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 6, 2015</p> <p>CANISTER ID: 1964</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2-Methylpentane	I	0.03	ppbv	0.01	AC-058	14-May-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
3-Methylpentane	I	0.03	ppbv	0.01	AC-058	14-May-15
Acetone		3.1	ppbv	0.4	AC-058	14-May-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	14-May-15
Benzene	I	0.07	ppbv	0.01	AC-058	14-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
Carbon disulfide		0.58	ppbv	0.01	AC-058	14-May-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	14-May-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Chloromethane		0.74	ppbv	0.02	AC-058	14-May-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 6, 2015</p> <p>CANISTER ID: 1964</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.3	ppbv	0.3	AC-058	14-May-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
Freon-11		0.33	ppbv	0.02	AC-058	14-May-15
Freon-113	I	0.10	ppbv	0.01	AC-058	14-May-15
Freon-114	I	0.03	ppbv	0.02	AC-058	14-May-15
Freon-12		0.70	ppbv	0.02	AC-058	14-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	14-May-15
Isobutane	I	0.06	ppbv	0.02	AC-058	14-May-15
Isopentane	I	0.04	ppbv	0.03	AC-058	14-May-15
Isoprene	I	0.02	ppbv	0.01	AC-058	14-May-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-May-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	14-May-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	14-May-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-May-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	14-May-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-May-15
Methylcyclohexane	I	0.01	ppbv	0.01	AC-058	14-May-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-May-15
n-Butane	I	0.09	ppbv	0.03	AC-058	14-May-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	14-May-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 6, 2015</p> <p>CANISTER ID: 1964</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
n-Hexane	I	0.03	ppbv	0.01	AC-058	14-May-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	14-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	14-May-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	14-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Toluene	I	0.03	ppbv	0.01	AC-058	14-May-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050198-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 12, 2015</p> <p>CANISTER ID: 1149</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	27-May-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dichloroethane	I	0.18	ppbv	0.01	AC-058	27-May-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Hexene	I	0.05	ppbv	0.02	AC-058	27-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2-Dimethylbutane		1.99	ppbv	0.01	AC-058	27-May-15
2,3,4-Trimethylpentane	I	0.10	ppbv	0.01	AC-058	27-May-15
2,3-Dimethylbutane		5.02	ppbv	0.02	AC-058	27-May-15
2,3-Dimethylpentane		2.68	ppbv	0.02	AC-058	27-May-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

Qualifiers

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050198-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 12, 2015</p> <p>CANISTER ID: 1149</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane		1.10	ppbv	0.01	AC-058	27-May-15
2-Methylhexane		3.37	ppbv	0.01	AC-058	27-May-15
2-Methylpentane		1.76	ppbv	0.01	AC-058	27-May-15
3-Methylheptane		0.32	ppbv	0.02	AC-058	27-May-15
3-Methylhexane		5.82	ppbv	0.02	AC-058	27-May-15
3-Methylpentane		7.54	ppbv	0.01	AC-058	27-May-15
Acetone		15.3	ppbv	0.4	AC-058	27-May-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
Benzene		2.70	ppbv	0.01	AC-058	27-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Carbon disulfide		1.09	ppbv	0.01	AC-058	27-May-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	27-May-15
Chlorobenzene	I	0.04	ppbv	0.02	AC-058	27-May-15
Chloroethane	I	0.12	ppbv	0.02	AC-058	27-May-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloromethane		0.79	ppbv	0.02	AC-058	27-May-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
cis-2-Butene	I	0.04	ppbv	0.02	AC-058	27-May-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Cyclohexane		5.58	ppbv	0.02	AC-058	27-May-15
Cyclopentane		1.54	ppbv	0.01	AC-058	27-May-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.6	ppbv	0.3	AC-058	27-May-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Ethylbenzene	I	0.07	ppbv	0.01	AC-058	27-May-15
Freon-11	I	0.29	ppbv	0.02	AC-058	27-May-15
Freon-113	I	0.09	ppbv	0.01	AC-058	27-May-15
Freon-114	I	0.03	ppbv	0.02	AC-058	27-May-15
Freon-12		0.61	ppbv	0.02	AC-058	27-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Isobutane		0.55	ppbv	0.02	AC-058	27-May-15
Isopentane		10.5	ppbv	0.03	AC-058	27-May-15
Isoprene	I	0.03	ppbv	0.01	AC-058	27-May-15
Isopropyl alcohol		15.4	ppbv	0.4	AC-058	27-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
m,p-Xylene	I	0.16	ppbv	0.03	AC-058	27-May-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	27-May-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Methyl ethyl ketone		7.0	ppbv	0.3	AC-058	27-May-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
Methylcyclohexane		3.93	ppbv	0.01	AC-058	27-May-15
Methylcyclopentane		4.41	ppbv	0.02	AC-058	27-May-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
n-Butane		0.59	ppbv	0.03	AC-058	27-May-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	27-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
n-Heptane		8.80	ppbv	0.01	AC-058	27-May-15
n-Hexane		5.25	ppbv	0.01	AC-058	27-May-15
n-Octane		0.65	ppbv	0.02	AC-058	27-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	27-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
n-Nonane	I	0.05	ppbv	0.01	AC-058	27-May-15
o-Ethyltoluene	I	0.01	ppbv	0.01	AC-058	27-May-15
o-Xylene	I	0.11	ppbv	0.01	AC-058	27-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Toluene		1.22	ppbv	0.01	AC-058	27-May-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-2-Pentene	I	0.08	ppbv	0.02	AC-058	27-May-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15

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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 18, 2015</p> <p>CANISTER ID: 17119</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	27-May-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	27-May-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2-Dimethylbutane	I	0.02	ppbv	0.01	AC-058	27-May-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,3-Dimethylbutane	I	0.05	ppbv	0.02	AC-058	27-May-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

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RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15050298-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/May 18, 2015 CANISTER ID: 17119 DESCRIPTION: CLS DATE SAMPLED: 18-May-15 0:00 DATE RECEIVED: 25-May-15 REPORT CREATED: 05-Jun-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylpentane	I	0.09	ppbv	0.01	AC-058	27-May-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
3-Methylhexane	I	0.02	ppbv	0.02	AC-058	27-May-15
3-Methylpentane	I	0.05	ppbv	0.01	AC-058	27-May-15
Acetone		4.7	ppbv	0.4	AC-058	27-May-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
Benzene	I	0.16	ppbv	0.01	AC-058	27-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	27-May-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroform	I	0.03	ppbv	0.02	AC-058	27-May-15
Chloromethane		0.74	ppbv	0.02	AC-058	27-May-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

Qualifiers K Off-scale low. Actual value is known to be less than the value given T Value reported is less than the laboratory method detection limit U Compound was analyzed for but not detected I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit	Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 18, 2015</p> <p>CANISTER ID: 17119</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.5	ppbv	0.3	AC-058	27-May-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Ethylbenzene	I	0.01	ppbv	0.01	AC-058	27-May-15
Freon-11		0.32	ppbv	0.02	AC-058	27-May-15
Freon-113	I	0.10	ppbv	0.01	AC-058	27-May-15
Freon-114	I	0.03	ppbv	0.02	AC-058	27-May-15
Freon-12		0.69	ppbv	0.02	AC-058	27-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Isobutane	I	0.27	ppbv	0.02	AC-058	27-May-15
Isopentane		0.48	ppbv	0.03	AC-058	27-May-15
Isoprene	I	0.04	ppbv	0.01	AC-058	27-May-15
Isopropyl alcohol		0.9	ppbv	0.4	AC-058	27-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
m,p-Xylene	I	0.03	ppbv	0.03	AC-058	27-May-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	27-May-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
Methylcyclohexane	I	0.02	ppbv	0.01	AC-058	27-May-15
Methylcyclopentane	I	0.04	ppbv	0.02	AC-058	27-May-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
n-Butane		0.87	ppbv	0.03	AC-058	27-May-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	27-May-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 18, 2015</p> <p>CANISTER ID: 17119</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
n-Hexane	I	0.07	ppbv	0.01	AC-058	27-May-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	27-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
o-Xylene	I	0.01	ppbv	0.01	AC-058	27-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Toluene	I	0.07	ppbv	0.01	AC-058	27-May-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050316-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 24, 2015</p> <p>CANISTER ID: 2658</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 26-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	27-May-15
1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	27-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	27-May-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
1,3,5-Trimethylbenzene	I	0.02	ppbv	0.02	AC-058	27-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2-Dimethylbutane	I	0.02	ppbv	0.01	AC-058	27-May-15
2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	27-May-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050316-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 24, 2015</p> <p>CANISTER ID: 2658</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 26-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylpentane	I	0.13	ppbv	0.01	AC-058	27-May-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
3-Methylhexane	I	0.04	ppbv	0.02	AC-058	27-May-15
3-Methylpentane	I	0.10	ppbv	0.01	AC-058	27-May-15
Acetone		9.6	ppbv	0.4	AC-058	27-May-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
Benzene	I	0.15	ppbv	0.01	AC-058	27-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Carbon disulfide		0.43	ppbv	0.01	AC-058	27-May-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	27-May-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroform	I	0.03	ppbv	0.02	AC-058	27-May-15
Chloromethane		0.79	ppbv	0.02	AC-058	27-May-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
cis-2-Butene	I	0.04	ppbv	0.02	AC-058	27-May-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Cyclohexane	I	0.03	ppbv	0.02	AC-058	27-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15050316-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/May 24, 2015 CANISTER ID: 2658 DESCRIPTION: CLS DATE SAMPLED: 24-May-15 0:00 DATE RECEIVED: 26-May-15 REPORT CREATED: 19-Jun-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		3.8	ppbv	0.3	AC-058	27-May-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Ethylbenzene	I	0.03	ppbv	0.01	AC-058	27-May-15
Freon-11		0.30	ppbv	0.02	AC-058	27-May-15
Freon-113	I	0.09	ppbv	0.01	AC-058	27-May-15
Freon-114	I	0.03	ppbv	0.02	AC-058	27-May-15
Freon-12		0.65	ppbv	0.02	AC-058	27-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Isobutane		0.49	ppbv	0.02	AC-058	27-May-15
Isopentane		0.84	ppbv	0.03	AC-058	27-May-15
Isoprene		0.68	ppbv	0.01	AC-058	27-May-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
m,p-Xylene	I	0.10	ppbv	0.03	AC-058	27-May-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	27-May-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Methyl ethyl ketone		0.7	ppbv	0.3	AC-058	27-May-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
Methylcyclohexane	I	0.05	ppbv	0.01	AC-058	27-May-15
Methylcyclopentane	I	0.07	ppbv	0.02	AC-058	27-May-15
Methylene chloride		0.7	ppbv	0.3	AC-058	27-May-15
n-Butane		1.92	ppbv	0.03	AC-058	27-May-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	27-May-15

Qualifiers K Off-scale low. Actual value is known to be less than the value given T Value reported is less than the laboratory method detection limit U Compound was analyzed for but not detected I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit	Certified By: Graham Knox, Team Lead On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050316-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 24, 2015</p> <p>CANISTER ID: 2658</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 26-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
n-Hexane		4.46	ppbv	0.01	AC-058	27-May-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	27-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
n-Nonane	I	0.01	ppbv	0.01	AC-058	27-May-15
o-Ethyltoluene	I	0.02	ppbv	0.01	AC-058	27-May-15
o-Xylene	I	0.05	ppbv	0.01	AC-058	27-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Toluene	I	0.16	ppbv	0.01	AC-058	27-May-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-2-Pentene	I	0.06	ppbv	0.02	AC-058	27-May-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15060054-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 30, 2015</p> <p>CANISTER ID: 1517</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 30-May-15 0:00</p> <p>DATE RECEIVED: 05-Jun-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	06-Jun-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	06-Jun-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	06-Jun-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	06-Jun-15
1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	06-Jun-15
1,2-Dichloroethane	I	0.02 ppbv	0.01	AC-058	06-Jun-15
1,2-Dichloropropane	I	0.01 ppbv	0.01	AC-058	06-Jun-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	06-Jun-15
1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	06-Jun-15
1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	06-Jun-15
1-Butene	I	0.18 ppbv	0.02	AC-058	06-Jun-15
1-Hexene	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
2,2,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
2,2-Dimethylbutane	I	0.01 ppbv	0.01	AC-058	06-Jun-15
2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
2,3-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15060054-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 30, 2015</p> <p>CANISTER ID: 1517</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 30-May-15 0:00</p> <p>DATE RECEIVED: 05-Jun-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.01	ppbv	0.01	AC-058	06-Jun-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
2-Methylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
3-Methylhexane	I	0.02	ppbv	0.02	AC-058	06-Jun-15
3-Methylpentane	I	0.02	ppbv	0.01	AC-058	06-Jun-15
Acetone		5.8	ppbv	0.4	AC-058	06-Jun-15
Acrolein		1.9	ppbv	0.3	AC-058	06-Jun-15
Benzene	I	0.08	ppbv	0.01	AC-058	06-Jun-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
Carbon disulfide		0.32	ppbv	0.01	AC-058	06-Jun-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	06-Jun-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
Chloroethane	I	0.04	ppbv	0.02	AC-058	06-Jun-15
Chloroform	I	0.02	ppbv	0.02	AC-058	06-Jun-15
Chloromethane		0.75	ppbv	0.02	AC-058	06-Jun-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
Cyclohexane	I	0.02	ppbv	0.02	AC-058	06-Jun-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15060054-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/May 30, 2015 CANISTER ID: 1517 DESCRIPTION: CLS DATE SAMPLED: 30-May-15 0:00 DATE RECEIVED: 05-Jun-15 REPORT CREATED: 19-Jun-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.2	ppbv	0.3	AC-058	06-Jun-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Ethylbenzene	I	0.03	ppbv	0.01	AC-058	06-Jun-15
Freon-11	I	0.27	ppbv	0.02	AC-058	06-Jun-15
Freon-113	I	0.09	ppbv	0.01	AC-058	06-Jun-15
Freon-114	I	0.03	ppbv	0.02	AC-058	06-Jun-15
Freon-12		0.61	ppbv	0.02	AC-058	06-Jun-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	06-Jun-15
Isobutane		0.36	ppbv	0.02	AC-058	06-Jun-15
Isopentane	I	0.13	ppbv	0.03	AC-058	06-Jun-15
Isoprene	I	0.18	ppbv	0.01	AC-058	06-Jun-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
m,p-Xylene	I	0.07	ppbv	0.03	AC-058	06-Jun-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Jun-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	06-Jun-15
Methyl ethyl ketone		1.2	ppbv	0.3	AC-058	06-Jun-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Jun-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-15
Methylcyclohexane	I	0.03	ppbv	0.01	AC-058	06-Jun-15
Methylcyclopentane	I	0.02	ppbv	0.02	AC-058	06-Jun-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-15
n-Butane	I	0.22	ppbv	0.03	AC-058	06-Jun-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jun-15

Qualifiers

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- U Compound was analyzed for but not detected
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15060054-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/May 30, 2015</p> <p>CANISTER ID: 1517</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 30-May-15 0:00</p> <p>DATE RECEIVED: 05-Jun-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
n-Heptane	I	0.06	ppbv	0.01	AC-058	06-Jun-15
n-Hexane	I	0.06	ppbv	0.01	AC-058	06-Jun-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	06-Jun-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Jun-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jun-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jun-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
o-Xylene	I	0.03	ppbv	0.01	AC-058	06-Jun-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Jun-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Toluene	I	0.16	ppbv	0.01	AC-058	06-Jun-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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E-mail: EAS.Results@albertainnovates.ca

PAHS SAMPLES

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 6, 2015</p> <p>CANISTER ID: TE-09</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02 ug/filter	0.01	NA-017	28-May-15
2-Methylnaphthalene		0.03 ug/filter	0.01	NA-017	28-May-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Acenaphthene		0.02 ug/filter	0.01	NA-017	28-May-15
Acenaphthylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Acridine	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Anthracene		0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Chrysene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Fluoranthene		0.02 ug/filter	0.01	NA-017	28-May-15
Fluorene		0.03 ug/filter	0.01	NA-017	28-May-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Naphthalene		0.03 ug/filter	0.01	NA-017	28-May-15
Perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Phenanthrene		0.08 ug/filter	0.01	NA-017	28-May-15
Pyrene		0.02 ug/filter	0.01	NA-017	28-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 6, 2015</p> <p>CANISTER ID: TE-09</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/filter	0.01	NA-017	28-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050198-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 12, 2015</p> <p>CANISTER ID: TE-11</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02 ug/filter	0.01	NA-017	28-May-15
2-Methylnaphthalene		0.03 ug/filter	0.01	NA-017	28-May-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Acenaphthene		0.02 ug/filter	0.01	NA-017	28-May-15
Acenaphthylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Acridine	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(b,j,k)fluoranthene		0.02 ug/filter	0.01	NA-017	28-May-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Chrysene		0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Fluoranthene		0.03 ug/filter	0.01	NA-017	28-May-15
Fluorene		0.04 ug/filter	0.01	NA-017	28-May-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Naphthalene		0.03 ug/filter	0.01	NA-017	28-May-15
Perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Phenanthrene		0.13 ug/filter	0.01	NA-017	28-May-15
Pyrene		0.03 ug/filter	0.01	NA-017	28-May-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given

T Value reported is less than the laboratory method detection limit

U Compound was analyzed for but not detected

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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050198-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 12, 2015</p> <p>CANISTER ID: TE-11</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/filter	0.01	NA-017	28-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 18, 2015</p> <p>CANISTER ID: TE-04</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.01	ug/filter	0.01	NA-017	29-May-15
2-Methylnaphthalene		0.02	ug/filter	0.01	NA-017	29-May-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Acenaphthene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Acenaphthylene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Acridine	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Chrysene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Fluoranthene		0.03	ug/filter	0.01	NA-017	29-May-15
Fluorene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Naphthalene		0.01	ug/filter	0.01	NA-017	29-May-15
Perylene	K, T, U	< 0.01	ug/filter	0.01	NA-017	29-May-15
Phenanthrene		0.08	ug/filter	0.01	NA-017	29-May-15
Pyrene		0.02	ug/filter	0.01	NA-017	29-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 18, 2015</p> <p>CANISTER ID: TE-04</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.08	ug/filter	0.01	NA-017	29-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15050316-002 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/CLS/May 24, 2015 CANISTER ID: 9702 DESCRIPTION: CLS DATE SAMPLED: 24-May-15 0:00 DATE RECEIVED: 26-May-15 REPORT CREATED: 19-Jun-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.09	ug/Filter	0.01	NA-017	12-Jun-15
2-Methylnaphthalene		0.15	ug/Filter	0.01	NA-017	12-Jun-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthene		0.10	ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Anthracene		0.04	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Chrysene		0.02	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Fluoranthene		0.09	ug/Filter	0.01	NA-017	12-Jun-15
Fluorene		0.15	ug/Filter	0.01	NA-017	12-Jun-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Naphthalene		0.12	ug/Filter	0.01	NA-017	12-Jun-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Phenanthrene		0.50	ug/Filter	0.01	NA-017	12-Jun-15
Pyrene		0.07	ug/Filter	0.01	NA-017	12-Jun-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
 T Value reported is less than the laboratory method detection limit
 U Compound was analyzed for but not detected
 I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050316-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 24, 2015</p> <p>CANISTER ID: 9702</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 26-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.16	ug/Filter	0.01	NA-017	12-Jun-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given

T Value reported is less than the laboratory method detection limit

U Compound was analyzed for but not detected

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15060054-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 30, 2015</p> <p>CANISTER ID: 1801</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 30-May-15 0:00</p> <p>DATE RECEIVED: 05-Jun-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.01	ug/Filter	0.01	NA-017	12-Jun-15
2-Methylnaphthalene		0.03	ug/Filter	0.01	NA-017	12-Jun-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthene		0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(c)phenanthrene		0.09	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Fluoranthene		0.03	ug/Filter	0.01	NA-017	12-Jun-15
Fluorene		0.03	ug/Filter	0.01	NA-017	12-Jun-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Naphthalene		0.02	ug/Filter	0.01	NA-017	12-Jun-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Phenanthrene		0.11	ug/Filter	0.01	NA-017	12-Jun-15
Pyrene		0.03	ug/Filter	0.01	NA-017	12-Jun-15

Qualifiers

- K Off-scale low. Actual value is known to be less than the value given
- T Value reported is less than the laboratory method detection limit
- U Compound was analyzed for but not detected
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead

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Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15060054-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/May 30, 2015</p> <p>CANISTER ID: 1801</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 30-May-15 0:00</p> <p>DATE RECEIVED: 05-Jun-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.04	ug/Filter	0.01	NA-017	12-Jun-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given

T Value reported is less than the laboratory method detection limit

U Compound was analyzed for but not detected

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

PARTISOL SAMPLES

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050099-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA Filter # P4131547</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 27-May-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.020	mg	0.004	AC-029	19-May-15

<u>Qualifiers</u>

<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050200-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4131703</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 27-May-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.136	mg	0.004	AC-029	25-May-15

<p>Qualifiers</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050300-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4143634</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 17-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.091	mg	0.004	AC-029	27-May-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050315-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4143633</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 26-May-15</p> <p>REPORT CREATED: 17-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.336	mg	0.004	AC-029	27-May-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Mike Bisaga 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15060053-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4143632</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 30-May-15 0:00</p> <p>DATE RECEIVED: 05-Jun-15</p> <p>REPORT CREATED: 10-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.061 mg	0.004	AC-029	09-Jun-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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APPENDIX V
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2015-05-01- C</u>
Site: <u>Cold Lake South Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete	<u>msdwha</u>	Date	<u>17 - June - 2015</u>
QA Check Review	<u>msdwha</u>	Date	<u>17 - June - 2015</u>
Report Complete	<u>msdwha</u>	Date	<u>24 - June - 2015</u>
Report Reviewed	<u>E. Tangang</u>	Date	<u>26 - Jun - 15</u>
Report Shipped	_____	Date	_____

Notes



maxxam.ca

MAXXAM ANALYTICS
#1 2080 39 Ave. NE, Calgary
AB T2E 6P7

Toll Free 800-386-7247
Fax 403-219-3673

**AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
MASKWA SITE**

JOB #:2833-2015-05-30- C

MAY 2015

Prepared for:

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
BONNYVILLE, ALBERTA
T9N 2J5**

Attention: MIKE BISAGA

DATE: **June 2, 2015**

Prepared by:

Wunmi Adekanmbi, M.Sc.

Project Manager Assistant, Source Testing, Maxxam Analytics

Reviewed by:

Lily Lin, B.Sc.

Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In MAY 2015, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the Maskwa Site at Lakeland Industry & Community Association, near Bonnyville, Alberta. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the project coordinator.

All data collected this month were within the objectives outlined in the AMD1989 and AMD2006.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, Maskwa Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association						MAXIMUM VALUES							OPERATIONAL TIME (%)
Maskwa Site						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	1	9	2	7	7.1	NW	2.2	2	100.0
H2S (PPB)	10	3	0	0	0	4	29, 31	21, 3	3.5 3.9	SE ESE	0.5	VAR	100.0
THC (PPM)	-	-	-	-	2.1	2.7	27	20	18.9	NNE	2.2	VAR	100.0
NO2 (PPB)	159	-	0	-	1.6	15.2	27	20	18.9	NNE	5.3	25	100.0
NO (PPB)	-	-	-	-	0.2	4.9	2, 2	7, 23	7.1 4.9	NW NW	0.9	2	100.0
NOX (PPB)	-	-	-	-	1.7	17.7	2	23	4.9	NW	5.7	25	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	52.2	93	26, 31	VAR	VAR	VAR	85.6	6	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	946	959	17, 18	VAR	VAR	VAR	957	17	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	10.0	28.2	25	13	1	NNW	18.2	24	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	3.3	31	10	4.2	ESE	0.5	31	100.0
VECTOR WS (KPH)	-	-	-	-	5.6	19.2	16	5	-	NNE	12.6	16	100.0
VECTOR WD (DEG)	-	-	-	-	ENE	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

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1.0 Discussion

This monthly report consists of data for parameters SO₂, H₂S, THC, NO_x, NO, NO₂, WS, WD, RH, BP, Precipitation and Temperature.

Sample filters for all continuous air monitors are changed before the calibration is started. The sample manifold is cleaned during the site visit on a monthly basis.

Control checks, consisting of zero and span of the analyzer are conducted on a daily basis on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinder) is used for zero checks and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibration is done a minimum of once a month for each continuous air monitor. In addition calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

Trailer inspection was performed on May 8.

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month.

The routine monthly calibration was performed on May 8.

HYDROGEN SULPHIDE (H₂S)

The analyzer was working well throughout the month.

The routine monthly calibration was performed on May 8.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month.

The routine monthly calibration was performed on May 8.

NITROGEN DIOXIDE (NO2)

The analyzer was working well throughout the month.

The routine monthly calibration was performed on May 8.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.

The wind system was working well throughout the month.

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month.

BAROMETRIC PRESSURE (BP)

The pressure sensor was working well throughout the month.

PRECIPITATION

Both the rain gauge system and heating system were working well throughout the month.

AMBIENT TEMPERATURE (TPX)

The temperature sensor was working well throughout the month.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling personnel was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

All data collected this month were within the objectives outlined in the AMD1989 and AMD2006.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, and 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006).

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00209: Ambient H₂S Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00242: Precipitation Collector Installation /Maintenance

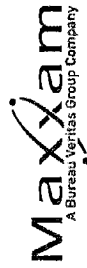
There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
- Wind System - Met One Unit
- Relative Humidity - Met One Unit
- Barometric Pressure - Met One Unit
- Ambient Temperature - Met One Unit
- Precipitation - Met One Unit
- Datalogger - ESC 8832

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE



SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

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

STATUS FLAG CODES

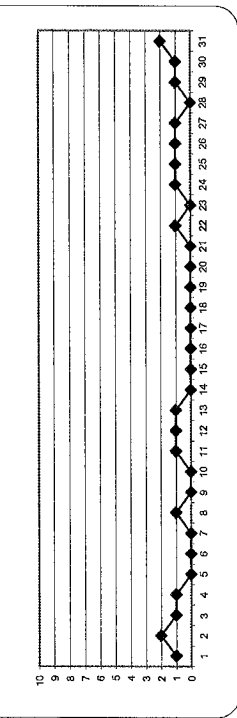
C	QUALITY ASSURANCE
V	RECOVERY
M	MAINTENANCE
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	SOUTHER REPAIR
Q	RECOVERY
R	RECOVERY
X	MACHINE MALFUNCTION
O	OPERATOR ERROR
K	COLLECTION ERROR

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

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	319
MAXIMUM 1-HR AVERAGE:	9 PPB @ HOUR(S)
MAXIMUM 24-HR AVERAGE:	2.2 PPB
ON DAY(S)	7
ON DAY(S)	2
VAR-VARIOUS	2
ISZ CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.86
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	1 PPB

24 HOUR AVERAGES FOR MAY 2015



01 Hour Averages

1000	1000	1000	1000	1000	1000
750	750	750	750	750	750
500	500	500	500	500	500
250	250	250	250	250	250
0	0	0	0	0	0

05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 SO2_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Maskwa Site - MAY 2015
 JOB # 2833-2015-05-30-C

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	HOUR																								DAILY MAX.	24-HOUR AVG.	RDGS			
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00						
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	2.8	24		
2	1	1	1	2	3	11	15	15	6	3	9	8	5	1	12	7	12	4	2	1	1	1	1	1	1	7	15	6.0	24	
3	5	2	4	1	1	6	9	1	1	1	10	7	4	5	6	5	3	2	0	0	0	0	0	0	0	0	10	2.9	24	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.8	24	
5	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.3	24
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	24	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.2	24	
9	1	1	6	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	1.2	24	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.0	24	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	2.1	24	
12	1	2	5	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1.5	24	
13	2	2	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.4	24	
14	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2.2	24	
15	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
17	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.1	24	
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	24	
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.3	24	
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.8	24	
25	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	5	2.4	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.4	24	
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.4	24	
28	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.7	24	
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.3	24	
30	5	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	2.2	24	
31	2	2	2	5	6	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	6	2.5	24	
HOURLY MAX	5	5	6	5	6	11	15	15	10	9	11	8	6	5	12	7	12	5	4	3	3	2	7	1.0	1.0	1.2				
HOURLY AVG	1.2	1.1	1.3	1.1	1.3	1.5	1.3	1.6	1.8	1.8	2.0	2.3	1.6	1.5	1.3	2.3	2.0	2.0	1.7	1.3	1.0	1.1	1.1	1.0	1.1					

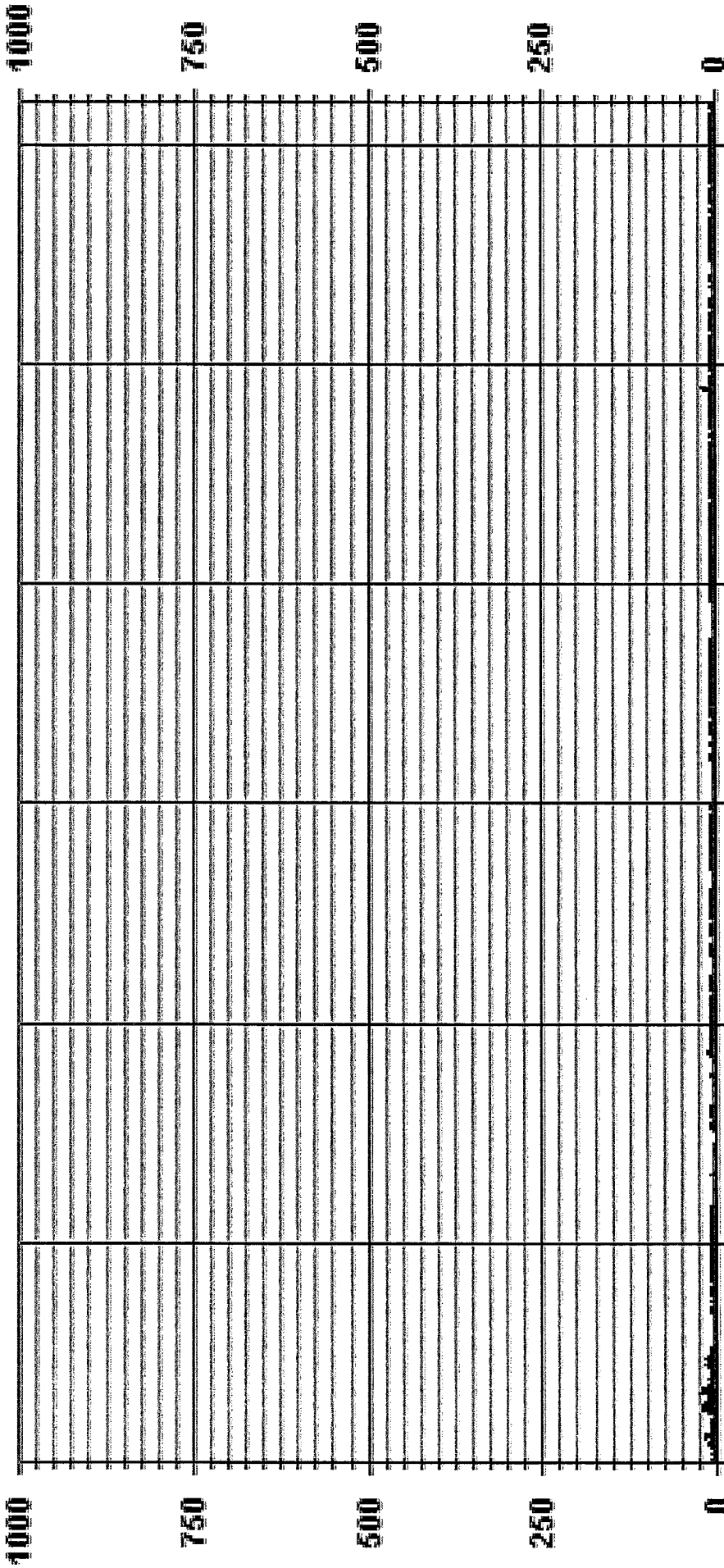
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
M	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINEMALEFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- GULF FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	573
MAXIMUM INSTANTANEOUS VALUE:	15 PPB @ HOUR(S) VAR ON DAY(S) 2
ISZ CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	1.87
OPERATIONAL TIME:	744 HRS
VAR-VARIOUS	

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 SO2MAX PPB

LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Logger Id : 30
 Site Name : LICA30
 Parameter : SO2
 Units : PPB_

Wind Parameter : WDR
 Instrument Height : 10 Meters

Distribution By % Of Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNNW	NW	NNW	Freq
< 20	4.51	11.44	11.44	7.90	4.37	7.34	7.62	7.06	9.60	11.44	7.76	1.97	1.97	1.97	1.83	1.69	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.51	11.44	11.44	7.90	4.37	7.34	7.62	7.06	9.60	11.44	7.76	1.97	1.97	1.97	1.83	1.69	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNNW	NW	NNW	Freq
< 20	32	81	81	56	31	52	54	50	68	81	55	14	14	14	13	12	708
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	32	81	81	56	31	52	54	50	68	81	55	14	14	14	13	12	

Calm : .00 %

Total # Operational Hours : 708

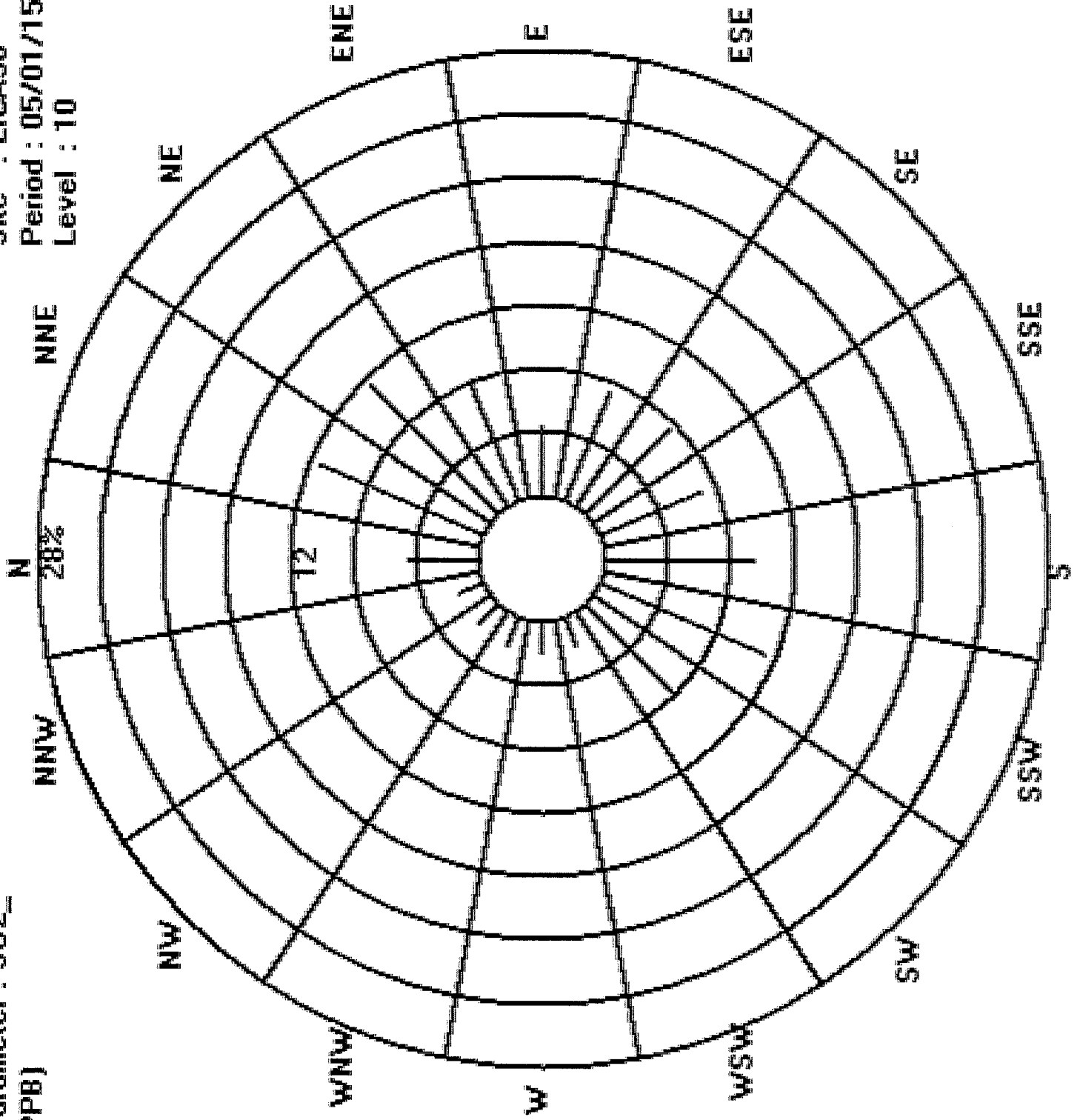
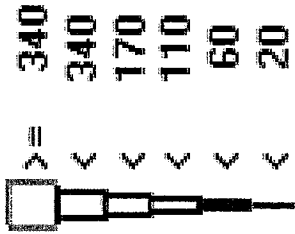
Logger : 30

Parameter : SO2_

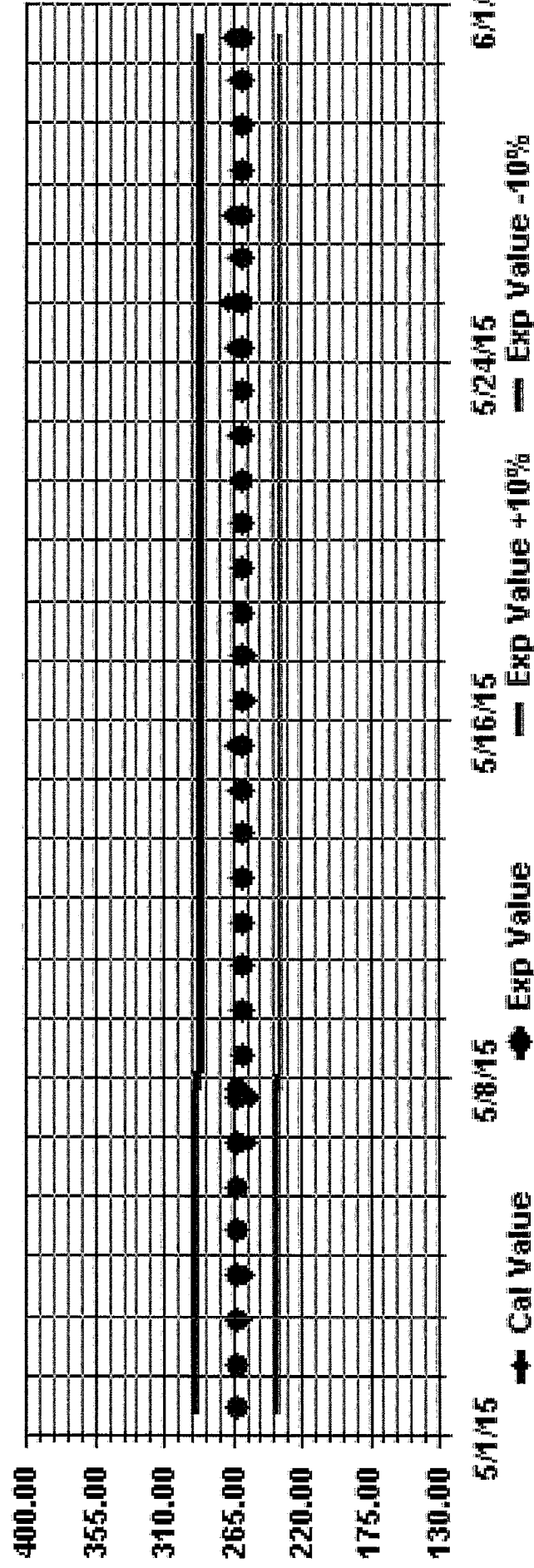
Site : LICA30

Period : 05/01/15-05/31/15

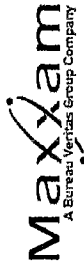
Level : 10



Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN



HYDROGEN SULPHIDE



HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

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

STATUS FLAG CODES

C	-CALIBRATION	Q	-QUALITY ASSURANCE
Y	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SPAN CHECK	X	-MACHINE MALFUNCTION
P	-POWER FAILURE	O	-OPERATOR ERROR
G	-OUT FOR REPAIR	K	-COLLECTION ERROR

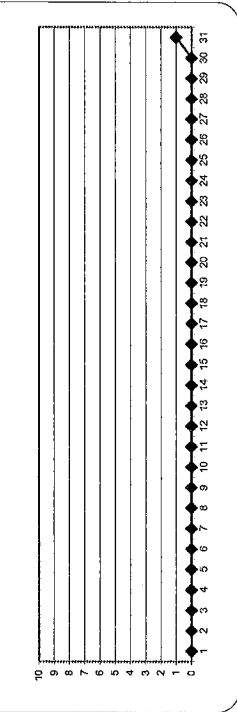
OBJECTIVE LIMIT:

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

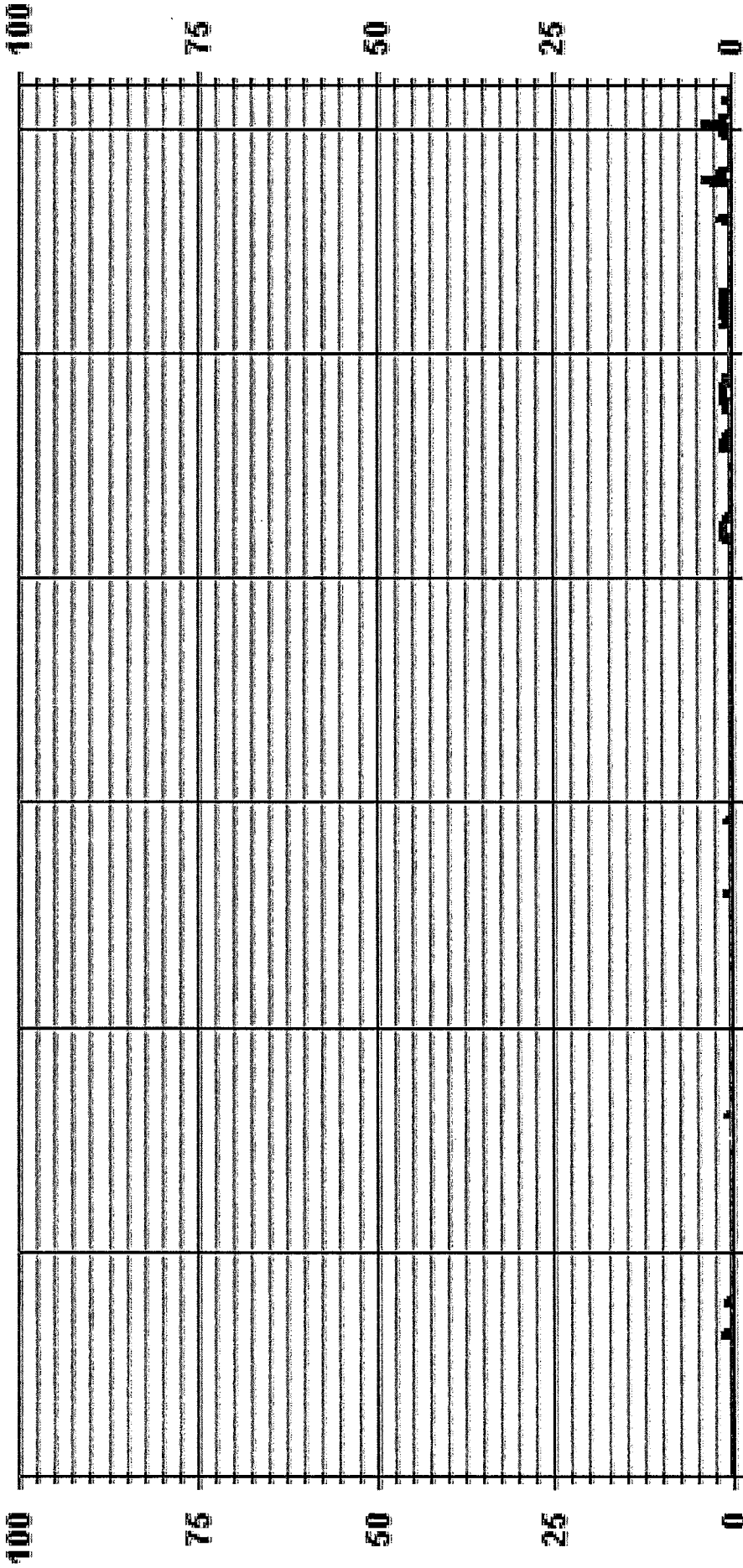
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	65
MAXIMUM 1-HR AVERAGE:	4 PPB @ HOUR(S) 21, 3
MAXIMUM 24-HR AVERAGE:	0.5 PPB ON DAY(S) VAR-VARIOUS
ISZ CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	744 HRS
AMTD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.39
MONTHLY AVERAGE:	0 PPB

24 HOUR AVERAGES FOR MAY 2015

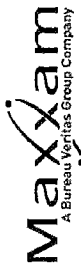


01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA30 H2S_ PPB



HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	1	3	2	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31	3	1	6	7	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HOURLY MAX	0.8	0.6	0.7	0.9	0.8	0.5	0.6	0.5	0.5	0.6	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.6	0.8	0.7	0.7

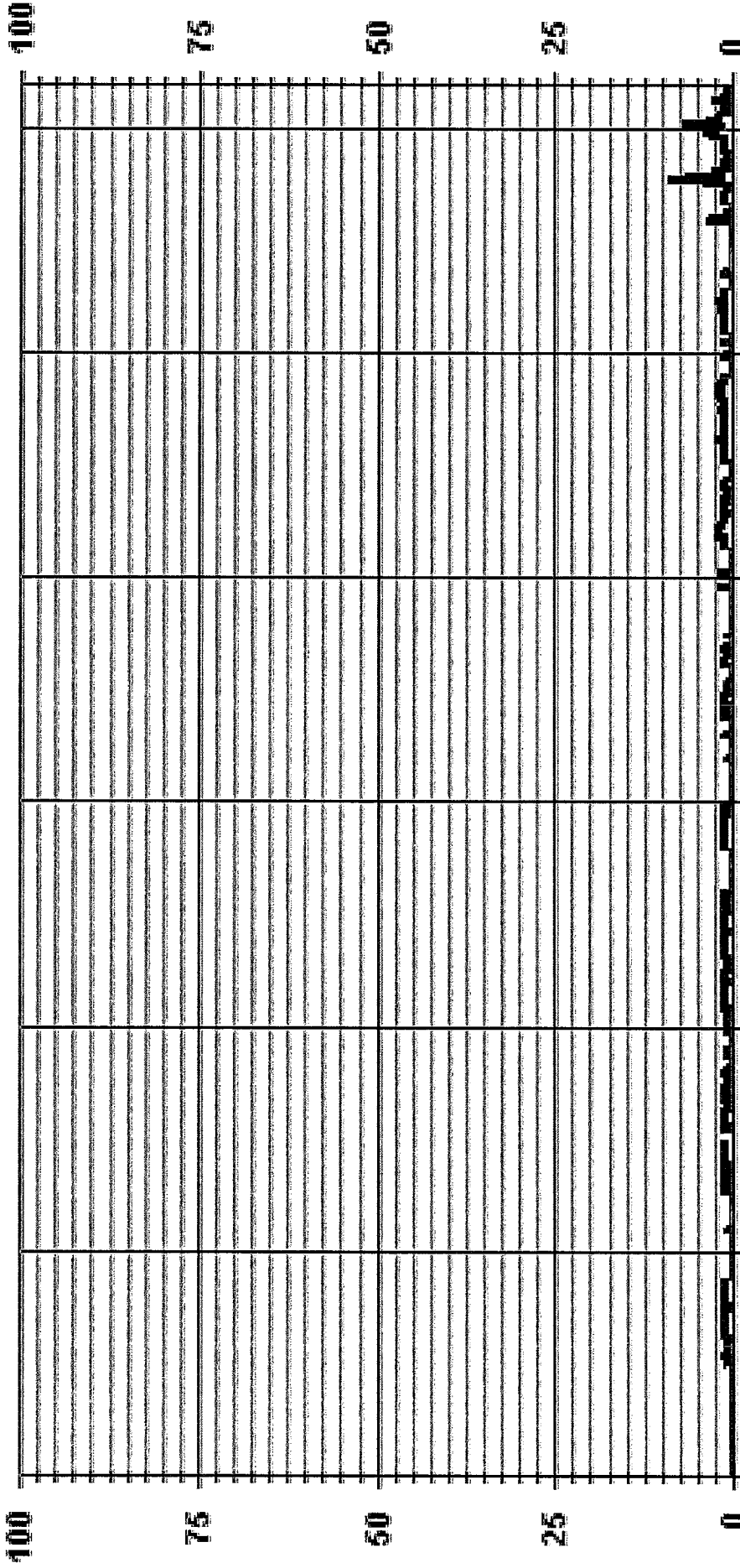
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	329
MAXIMUM INSTANTANEOUS VALUE:	9 PPB @ HOUR(S) 21 ON DAY(S) 29
1/2S CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.84
OPERATIONAL TIME:	744 HRS
VAR-VARIOUS	

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 H2SMAX PPB

LICA30
 H2s_ / WDR Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : H2S
 Units : PPS

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	4.51	11.44	11.29	7.90	4.37	7.20	7.48	6.92	9.88	11.29	7.76	1.97	1.97	1.97	1.83	1.69	99.57
< 10	.00	.00	.00	.00	.00	.14	.28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.42
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.51	11.44	11.29	7.90	4.37	7.34	7.76	6.92	9.88	11.29	7.76	1.97	1.97	1.97	1.83	1.69	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	32	81	80	56	31	51	53	49	70	80	55	14	14	14	13	12	705
< 10						1	2										3
< 50																	
>= 50																	
Totals	32	81	80	56	31	52	55	49	70	80	55	14	14	14	13	12	

Calm : .00 %

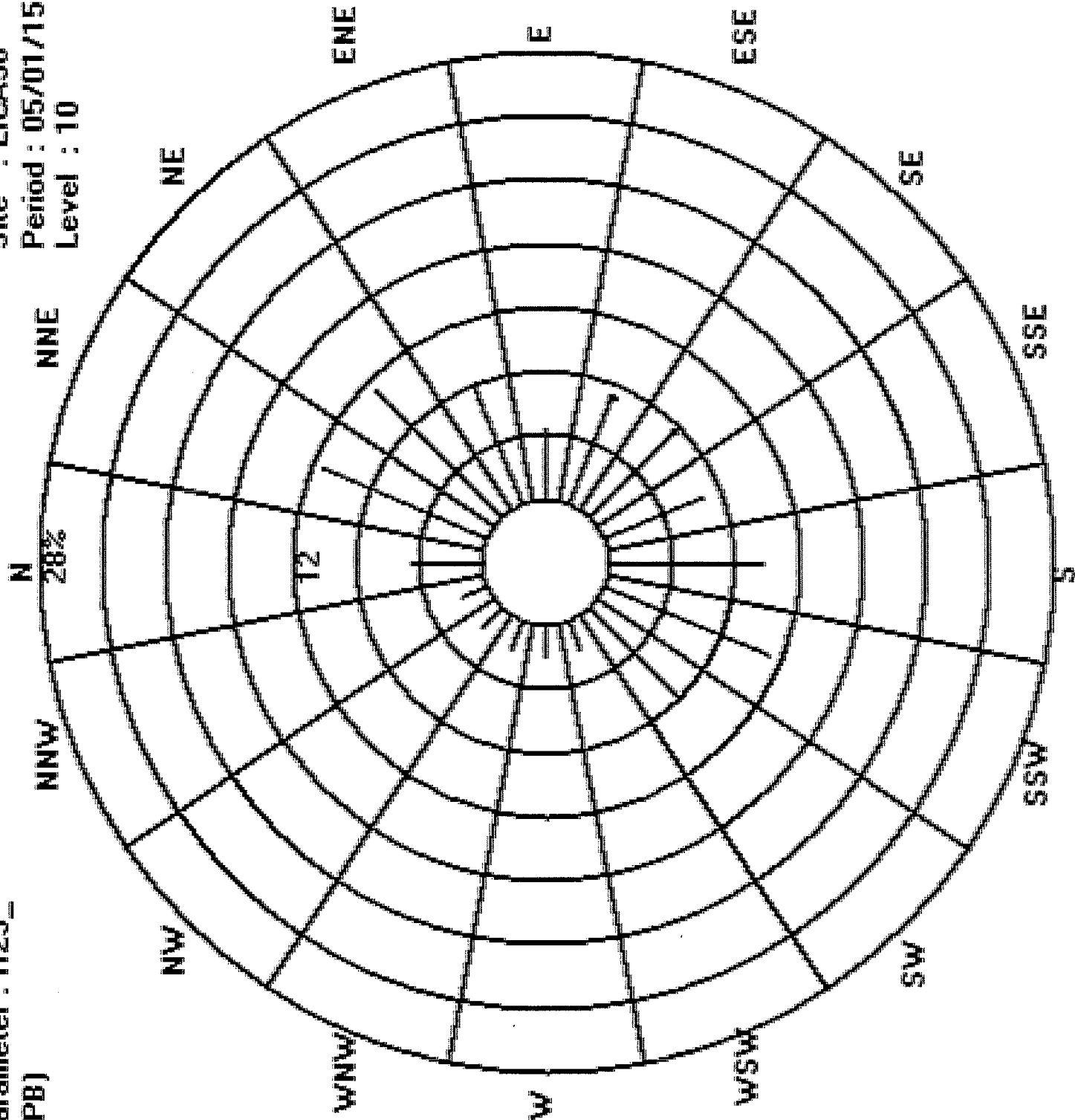
Total # Operational Hours : 708

Logger : 30 Parameter : H2S_

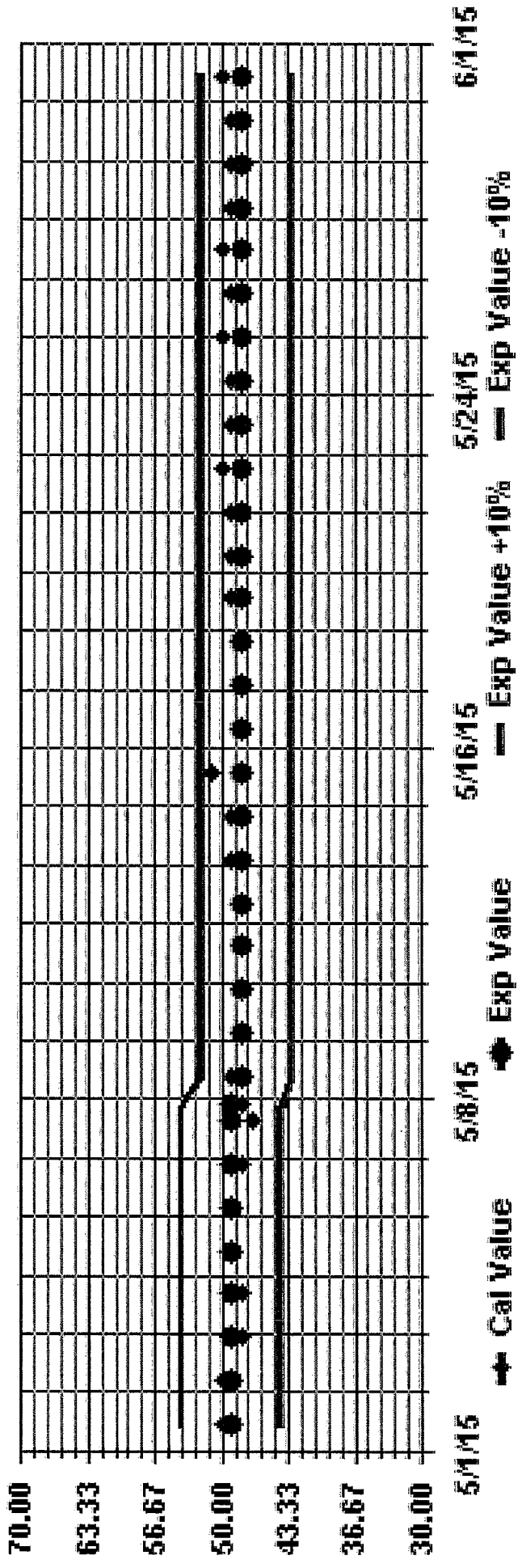
Class Limits (PPB)



Site : LICA30
Period : 05/01/15-05/31/15
Level : 10



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



TOTAL HYDROCARBON



TOTAL HYDROCARBONS (THC) hourly averages in ppm

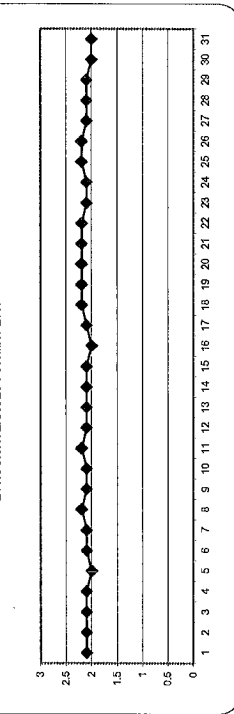
MST

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

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

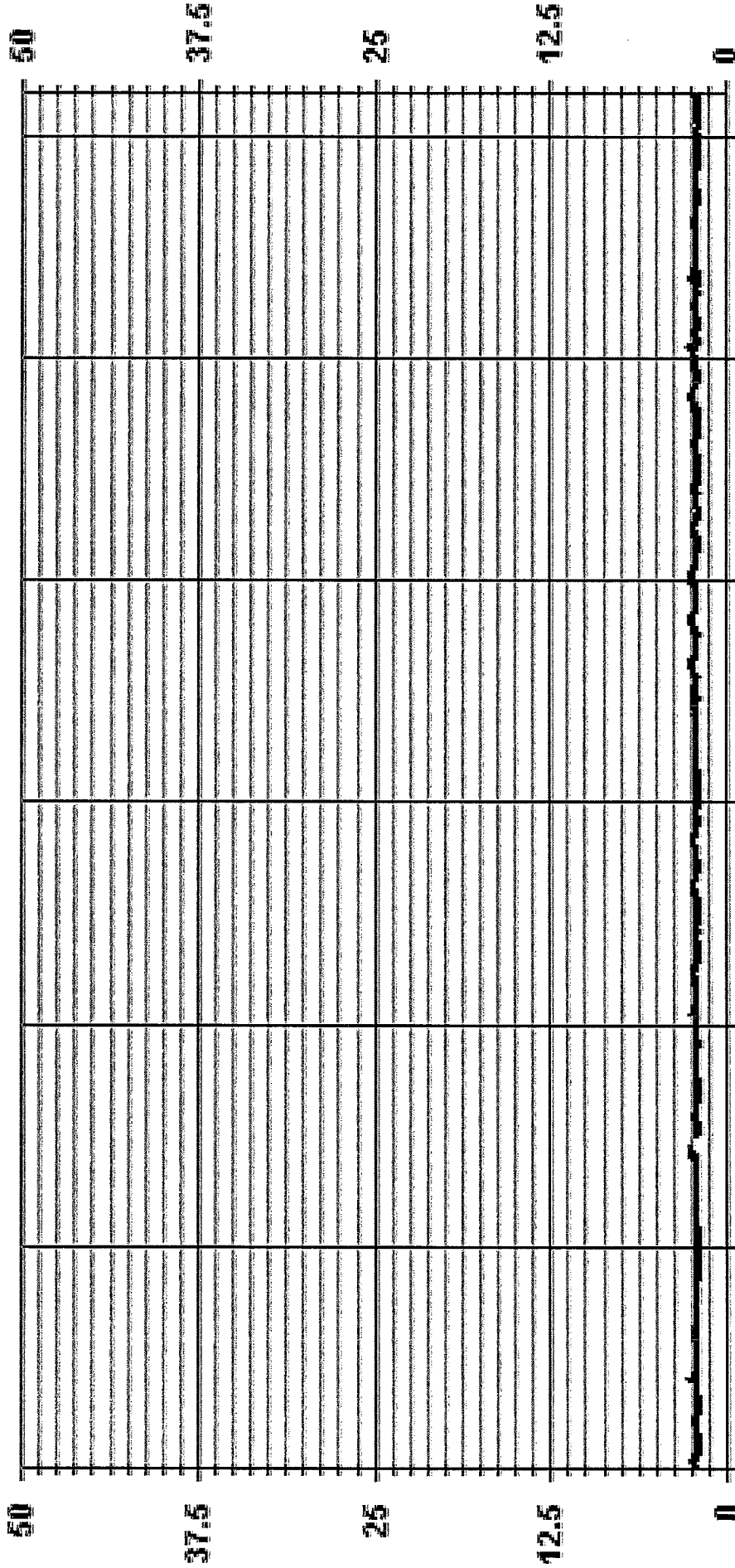
24-HOUR AVERAGES FOR MAY 2015



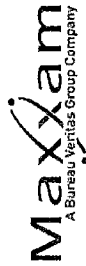
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708	ON DAY(S)	27
MAXIMUM 1-HR AVERAGE:	2.7 PPM	@ HOUR(S)	20
MAXIMUM 24-HR AVERAGE:	2.2 PPM	VAR- VARIOUS	VAR
1Z5 CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.11	MONTHLY AVERAGE:	2.1 PPM

01 Hour Averages



— LICA30 - - - - THC PPM



TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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

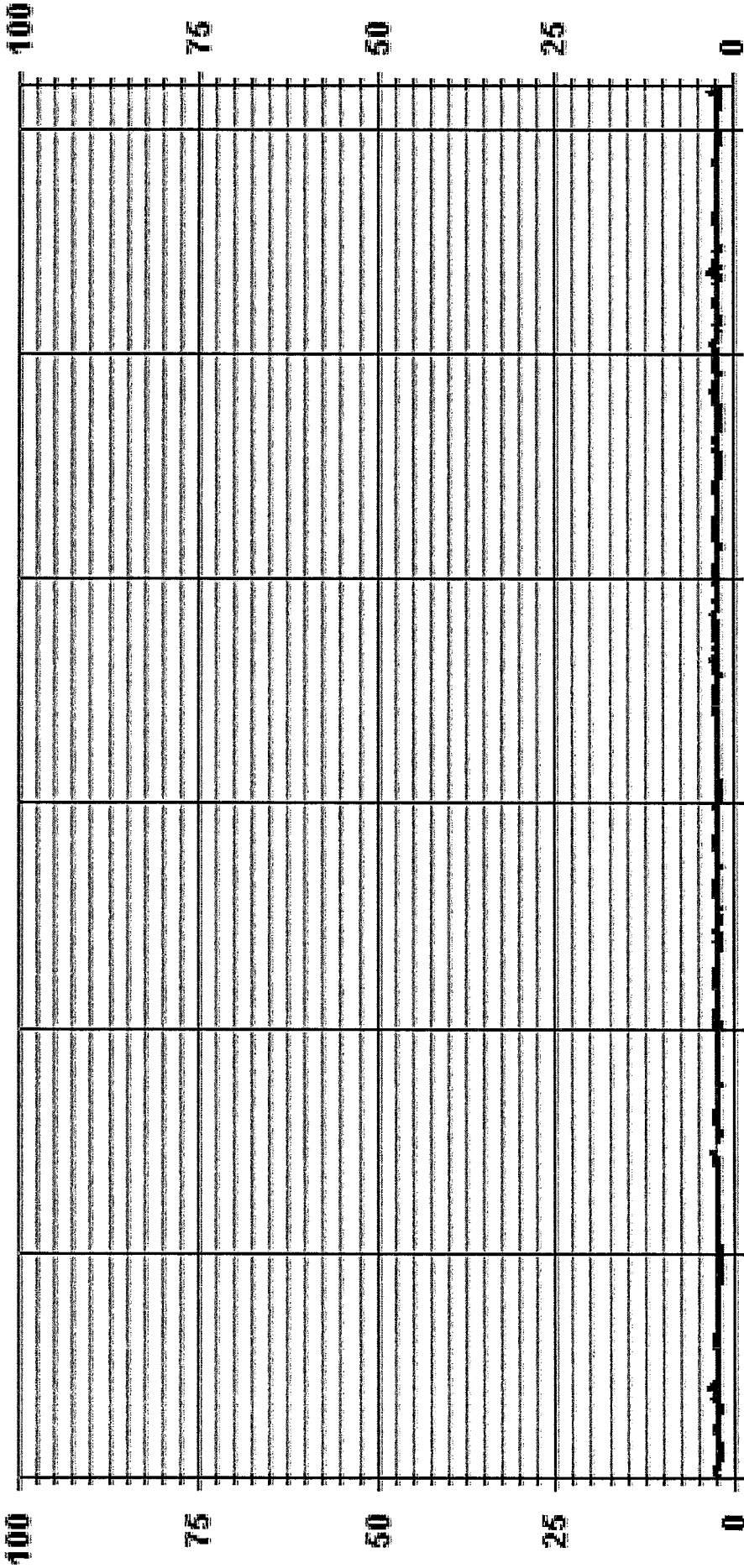
STATUS FLAG CODES

C	-CALIBRATION
Q	-QUALITY ASSURANCE
Y	-MAINTENANCE
R	-RECOVERY
X	-DAILY ZERO/SPAN CHECK
O	-OPERATOR ERROR
K	-COLLECTION ERROR
G	-OUT FOR REPAIR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708
MAXIMUM INSTANTANEOUS VALUE:	3.7 PPM
@ HOUR(S)	1
ON DAY(S)	3
VAR-VARIOUS	
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	0.16

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA30 THCMAX PPM

L1CA30
 THC / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger Id : 30
 Site Name : L1CA30
 Parameter : THC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	4.51	11.44	11.44	7.90	4.37	7.34	7.62	7.06	9.60	11.44	7.76	1.97	1.97	1.97	1.83	1.69	100.00
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.51	11.44	11.44	7.90	4.37	7.34	7.62	7.06	9.60	11.44	7.76	1.97	1.97	1.97	1.83	1.69	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples





Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	32	81	81	56	31	52	54	50	68	81	55	14	14	14	13	12	708
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	32	81	81	56	31	52	54	50	68	81	55	14	14	14	13	12	

Calm : .00 %

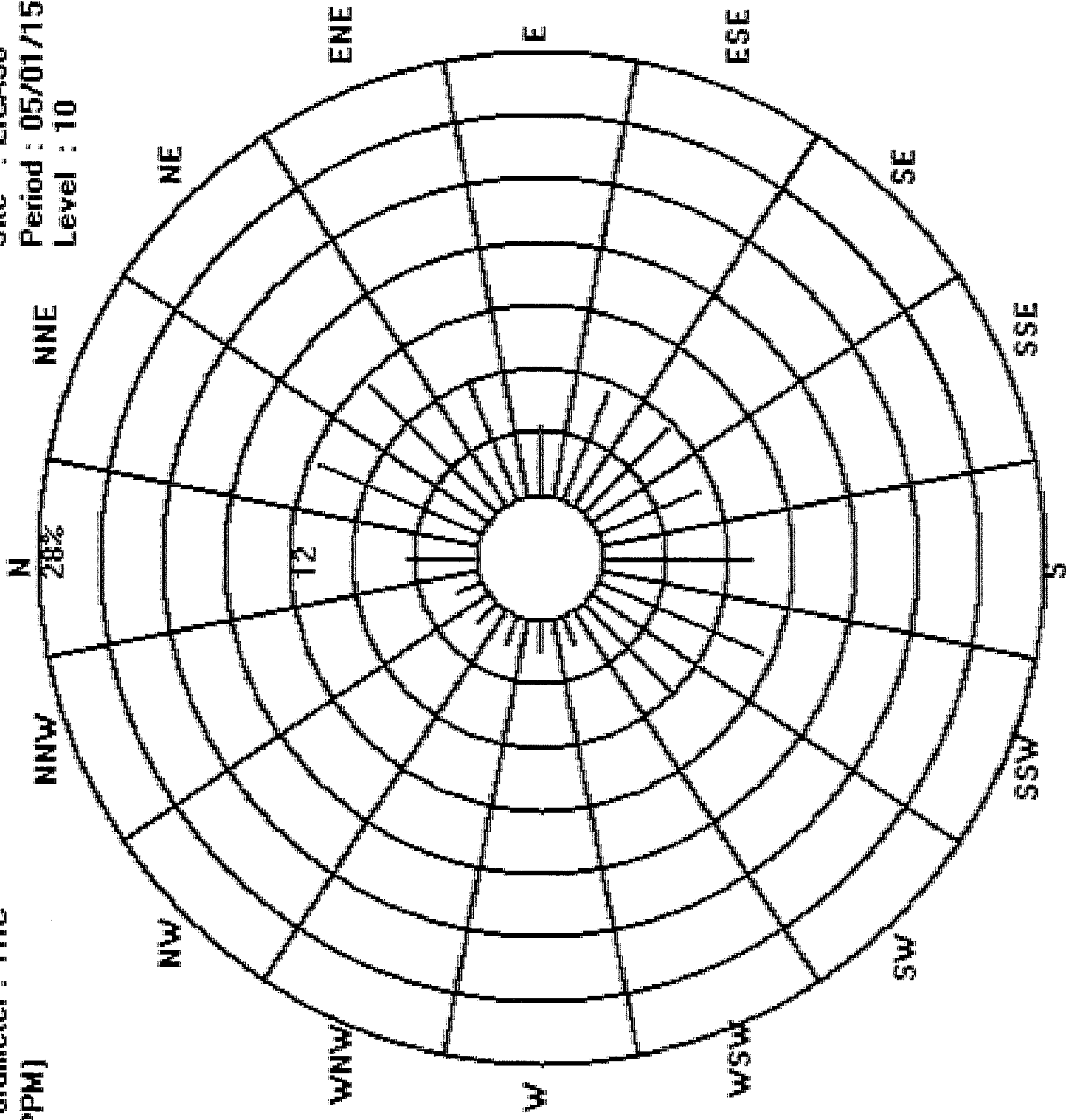
Total # Operational Hours : 708

Logger : 30 Parameter : THC

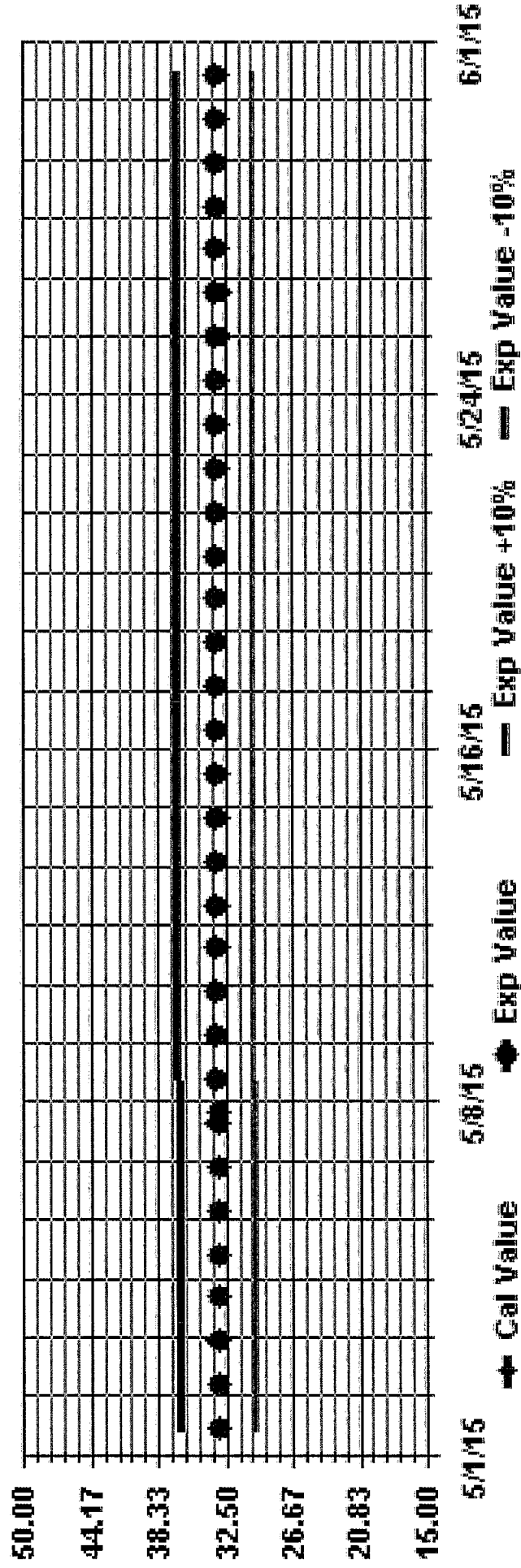
Class Limits (PPM)

-  >= 50.0
-  < 50.0
-  < 10.0
-  < 3.0

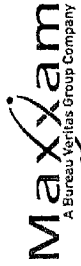
Site : LICA30
Period : 05/01/15-05/31/15
Level : 10



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



OXIDES OF NITROGEN



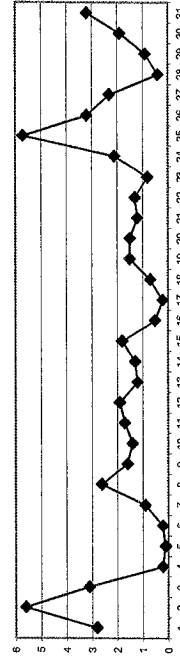
OXIDES OF NITROGEN (NOx) hourly averages in ppb

DAY	MST																								DAILY MAX.	24-HOUR AVG.	RDSS.			
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				0:00		
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	2.8	24		
2	1.3	2.1	6.1	8.4	6.6	15.6	14.6	5.0	3.9	1.6	4.1	2.3	5	0.9	7.5	5.5	9.6	5.2	1.3	0.3	0.8	2.9	17.7	17.7	17.7	5.6	24	24		
3	5.0	6.0	6.6	4.2	8.0	15.0	2.6	1.4	0.6	5.9	2.8	2.0	S	2.6	1.7	1.5	0.6	0.4	0.5	0.4	1.3	1.0	0.9	15.0	3.1	24	24	24		
4	0.5	0.4	0.5	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	S	0.4	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	24	24		
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.6	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.0	0.2	0.0	0.0	0.6	0.1	24	24		
6	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	S	0.6	0.7	0.5	0.3	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.1	0.0	0.2	0.7	0.2	24	24		
7	0.1	0.3	1.8	1.6	1.8	1.5	1.0	0.8	S	1.2	1.4	0.8	0.5	0.8	0.8	1.0	0.5	0.4	0.5	0.1	0.1	0.1	0.7	1.7	1.8	0.9	24	24		
8	1.5	1.5	2.8	3.4	4.6	6.5	6.2	S	10.6	C	C	C	C	C	C	1.6	2.8	0.0	0.0	1.1	0.3	0.6	0.5	10.6	2.6	24	24	24		
9	1.2	1.1	4.1	6.1	4.9	6.8	S	3.8	2.3	0.7	0.5	0.5	0.4	0.5	0.3	0.3	0.3	0.2	0.1	0.1	0.9	1.5	0.5	6.8	1.6	24	24	24		
10	0.4	0.8	0.4	0.5	0.4	S	1.1	3.0	4.3	3.2	4.6	2.5	1.9	0.6	1.2	0.8	1.2	2.4	1.2	0.1	0.0	0.3	0.0	4.6	1.4	24	24	24		
11	0.1	0.5	0.3	0.4	S	1.9	3.7	2.7	1.8	2.5	2.4	3.5	2.8	1.8	1.3	0.9	0.8	0.7	0.7	1.1	1.9	2.1	3.7	1.7	24	24	24			
12	2.2	2.8	2.8	S	3.1	3.6	3.9	3.5	1.9	1.4	0.7	0.4	0.5	0.2	0.4	3.5	4.0	3.8	2.7	0.2	0.0	0.1	0.2	4.0	1.9	24	24	24		
13	1.6	2.1	S	1.3	0.9	1.1	1.4	1.0	0.6	0.6	2.3	1.4	1.3	1.0	0.9	0.8	1.2	1.5	1.8	1.2	0.1	0.4	1.4	1.6	2.3	1.2	24	24		
14	1.7	S	2.7	2.5	2.2	2.0	3.3	S	1.4	1.3	1.1	1.0	0.9	0.6	0.7	0.4	0.4	0.1	0.5	1.4	1.4	1.0	1.2	3.3	1.3	24	24	24		
15	S	1.8	1.9	2.1	1.9	2.9	2.7	S	3.1	1.8	1.6	1.4	1.4	1.2	1.2	1.1	1.5	1.3	1.2	1.2	1.2	2.6	2.3	S	3.1	1.8	24	24	24	
16	1.8	1.5	1.2	1.2	0.5	0.8	0.9	0.6	1.1	0.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	S	0.0	1.8	0.5	24	24	24	
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.2	0.0	S	0.4	0.2	2.0	0.2	24	24	24	
18	0.1	0.5	1.3	0.4	0.4	0.7	1.0	1.1	1.0	0.8	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.4	0.5	S	1.1	1.0	1.5	1.5	0.7	24	24	24		
19	1.2	1.2	1.1	1.9	1.6	6.8	4.6	S	1.8	1.9	0.9	0.7	0.7	0.7	0.8	0.6	0.5	0.7	0.8	S	0.8	0.9	1.1	1.2	6.8	1.5	24	24	24	
20	3.1	4.2	2.3	1.9	1.0	0.9	4.1	4.9	2.5	0.7	0.5	0.8	0.4	0.5	0.6	0.4	0.4	S	0.9	0.8	1.0	1.3	1.2	4.9	1.5	24	24	24		
21	0.8	0.9	1.3	1.4	1.8	1.5	1.5	3.7	2.2	1.5	1.1	0.8	0.8	0.8	0.7	0.6	S	0.9	0.7	0.7	0.5	0.8	1.5	3.7	1.2	24	24	24		
22	1.3	1.0	1.1	0.9	1.0	0.7	0.9	3.6	2.5	1.8	1.7	0.5	0.4	0.7	0.4	0.5	S	1.0	0.7	0.8	0.9	3.1	2.2	2.1	3.6	1.3	24	24	24	
23	2.6	2.7	2.1	1.7	1.6	0.7	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	S	0.5	0.4	0.3	0.6	0.6	0.6	8.0	11.1	12.2	2.1	24	24	24	
24	0.7	0.9	0.8	0.6	0.5	1.0	0.4	0.3	0.4	2.4	0.1	0.8	1.1	1.1	S	1.5	0.9	0.8	1.0	0.6	0.6	8.0	11.1	12.2	2.1	24	24	24		
25	9.0	11.1	8.0	6.9	5.8	6.6	7.3	6.6	6.7	3.4	3.5	6.6	1.9	S	1.9	1.8	4.1	7.0	7.3	6.7	5.3	4.5	4.3	4.6	11.1	5.7	24	24	24	
26	4.3	1.7	3.6	3.0	1.3	4.9	3.9	2.7	1.5	0.9	0.6	1.1	S	7.7	11.2	7.9	7.3	5.6	0.8	1.1	1.3	11.3	15.2	3.6	1.8	0.7	15.2	2.3	24	24
27	1.1	0.9	0.6	1.0	0.6	0.8	0.7	1.3	1.6	1.0	1.0	S	1.3	1.4	1.6	1.6	1.2	1.1	1.3	11.3	15.2	3.6	1.8	0.7	15.2	2.3	24	24	24	
28	2.0	1.4	1.0	0.3	0.3	0.3	0.2	0.3	0.3	0.5	S	0.6	0.4	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.3	0.8	2.0	0.4	24	24	24	
29	0.5	0.2	0.0	0.1	0.1	0.1	0.2	1.7	0.8	S	1.8	1.7	1.6	1.5	1.9	1.0	1.2	1.7	0.6	0.6	0.5	0.8	0.6	0.6	1.9	0.9	24	24	24	
30	10.5	6.7	1.5	1.0	0.7	1.4	S	S	S	2.2	1.2	1.1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	3.7	0.8	0.7	0.9	10.5	1.9	24	24	24		
31	1.2	1.3	1.8	7.1	10.0	1.5	1.9	S	2.1	1.8	4.0	7.7	2.0	2.5	1.5	1.0	2.2	9.5	5.0	3.8	2.4	1.4	1.8	0.7	10.0	3.2	24	24	24	
HOURLY MAX	10.5	11.1	8.0	8.4	10.0	15.6	9.5	14.6	10.6	7.7	2.8	7.7	11.2	8.4	7.3	9.6	7.3	11.3	15.2	8.0	11.1	17.7								
HOURLY AVG	1.9	1.9	2.0	2.2	2.3	3.2	2.3	2.5	1.9	1.6	1.4	1.6	0.9	1.1	1.2	1.6	1.5	1.9	1.3	1.2	1.2	1.3	1.5	2.0						

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF-REPAIR	K	COLLECTION ERROR

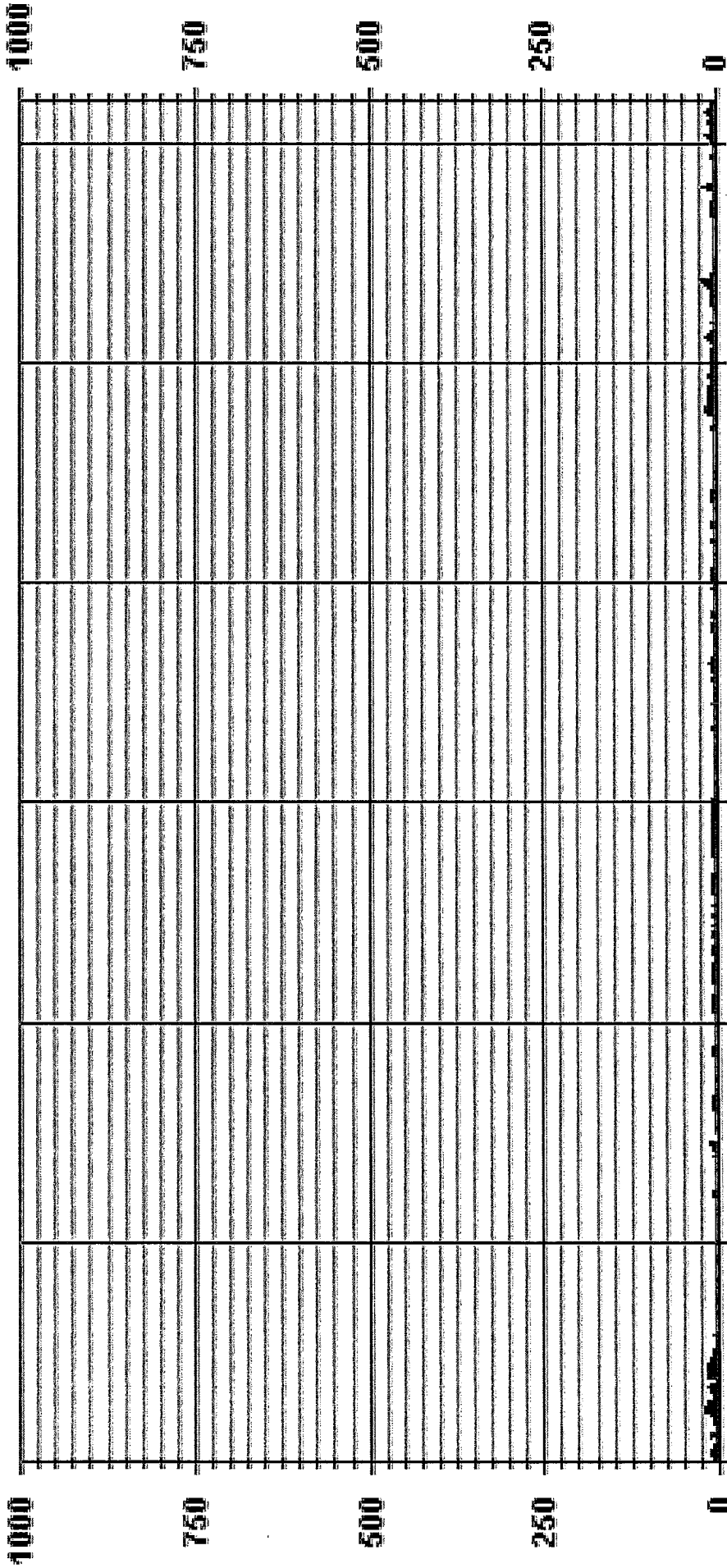
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	629	PPB @ HOUR(S)	23	ON DAY(S)	2
MAXIMUM 1-HR AVERAGE:	17.7	PPB	5.7	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	10.5	PPB	3.2	VAR-VARIOUS	
12S CALIBRATION TIME:	38	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	2.36		MONTHLY AVERAGE:	1.7	PPB

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA30 NOX_ PPB

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR		
HOURLY MAX	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG		
HOURLY AVG	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG		
1	0.1	0.4	6.0	7.4	8.0	10.2	11.1	9.4	0.0	6.3	15.3	13.5	3.3	6.3	5	42.1	7.0	1.3	1.8	1.5	1.4	1.7	1.9	1.9	1.9	42.1	6.9	24	
2	2.3	4.3	9.1	15.1	12.8	30.3	5	5	25.9	11.2	4.5	19.2	13.1	11.3	2.0	36.1	30.4	33.3	10.6	4.2	1.1	2.0	10.3	32.8	36.1	14.8	24		
3	20.1	13.7	17.0	8.0	22.5	31.5	4.4	16.2	1.2	16.9	13.0	9.0	5	11.3	10.7	5.2	4.0	0.9	0.9	1.0	1.4	2.1	1.6	1.6	31.5	9.3	24		
4	1.1	0.9	1.2	1.2	1.1	0.9	0.5	0.3	0.2	0.3	0.3	5	1.0	0.8	0.7	1.3	1.1	0.3	0.5	0.3	0.5	0.1	0.1	0.3	1.3	0.7	24		
5	0.1	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	5	1.3	1.6	0.9	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	1.3	0.5	24		
6	0.8	0.8	0.5	0.6	0.7	0.5	0.5	0.5	0.9	5	1.7	1.6	1.6	1.0	1.5	1.7	1.1	1.1	1.1	1.1	0.7	0.5	0.5	0.4	0.7	1.7	0.9	24	
7	0.5	1.3	2.7	2.5	2.7	2.2	1.9	1.9	5	2.3	2.8	1.7	1.7	2.3	1.7	1.5	3.4	1.0	1.0	0.9	0.8	0.8	1.1	2.5	3.4	1.8	24		
8	1.9	1.8	21.1	8.1	6.6	13.8	5	9.6	4.2	1.7	1.0	1.0	1.0	1.1	0.8	0.9	0.7	0.7	0.7	0.6	9.6	9.8	1.0	1.1	23.6	4.7	24		
9	1.0	1.4	0.8	1.1	0.8	5	1.9	6.2	11.2	11.2	9.0	8.2	4.4	2.3	1.5	3.8	2.7	4.3	6.9	6.7	0.5	0.6	0.9	0.5	11.2	3.8	24		
10	0.5	1.0	0.8	0.9	5	3.9	4.5	4.1	2.7	3.5	3.9	4.7	4.8	3.2	4.3	3.8	2.0	1.6	1.1	1.3	1.4	2.0	2.7	3.3	4.8	2.7	24		
11	2.7	3.9	4.2	5	4.0	10.6	6.1	4.1	3.3	1.9	1.5	0.8	3.4	1.1	1.1	7.6	6.9	8.4	8.4	0.5	0.5	0.5	1.1	1.9	10.6	3.7	24		
12	2.4	2.7	5	2.1	1.6	1.9	2.3	1.6	1.2	1.2	6.6	3.1	5.4	2.8	3.6	1.8	3.6	3.1	6.0	3.5	0.5	1.3	2.0	2.1	6.6	2.7	24		
13	2.6	5	3.2	3.1	3.0	2.7	4.1	5	4.3	2.4	2.1	2.1	2.8	1.8	2.2	1.8	2.0	2.0	1.7	1.7	2.0	2.0	1.7	1.7	4.1	2.1	24		
14	2.6	2.2	1.7	2.0	1.0	1.7	1.9	1.2	2.0	1.4	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.4	0.4	0.4	5	4.4	2.6	24	
15	0.3	0.3	0.3	0.3	0.4	0.2	0.2	4.1	1.1	1.1	0.1	0.2	2.8	0.3	2.1	1.8	4.8	4.3	2.0	2.0	0.4	0.4	0.4	0.4	1.2	0.8	4.8	1.2	24
16	0.5	1.5	2.4	1.1	1.1	3.2	1.7	1.7	1.8	1.5	0.9	1.2	1.0	1.3	1.0	1.0	1.0	1.1	0.9	1.0	1.0	1.0	1.0	1.0	3.2	1.4	24		
17	2.0	1.7	1.9	2.7	2.0	29.8	5	3.0	2.6	1.7	1.3	1.3	1.3	1.3	1.9	2.5	0.9	1.2	1.3	1.6	2.0	3.2	1.5	29.8	3.2	24			
18	7.9	7.0	3.4	2.9	1.5	1.5	12.3	3.8	2.0	1.2	1.0	2.0	1.2	2.0	2.2	1.0	1.0	1.0	1.0	1.6	1.5	1.9	1.9	1.9	12.8	3.3	24		
19	1.3	1.5	1.9	2.0	2.4	2.1	3.7	6.2	3.1	2.3	1.7	1.4	1.4	1.4	1.3	1.5	1.1	1.1	1.3	1.7	1.3	1.5	1.0	1.4	2.1	6.2	2.0	24	
20	1.9	1.6	1.5	1.3	1.8	1.2	2.0	6.3	3.2	2.3	3.2	1.9	1.0	1.4	1.0	1.2	1.2	1.0	0.9	1.4	1.6	2.0	2.0	1.9	3.4	6.3	2.2	24	
21	3.4	3.6	2.9	2.5	2.6	1.3	0.8	0.7	0.8	0.6	0.6	0.7	0.6	0.4	0.3	5	1.2	1.0	0.9	1.4	1.6	2.0	2.0	1.9	3.6	1.5	24		
22	1.2	1.4	1.3	1.2	1.0	1.7	1.0	0.8	2.0	8.9	1.2	2.9	3.0	2.2	5	3.3	2.4	2.0	2.3	1.9	1.3	1.2	1.2	1.6	6.0	21.6	8.9	24	
23	11.2	13.7	9.2	8.1	7.9	7.8	10.0	10.4	9.4	4.2	10.7	17.8	2.5	5	10.4	14.4	11.2	8.1	7.3	1.7	1.2	1.4	1.7	1.5	4.4	22.3	5.7	24	
24	2.3	2.4	5.6	5.1	1.9	13.3	7.1	3.9	2.0	1.4	1.3	2.0	5	2.0	2.0	2.4	2.2	1.9	1.7	1.8	20.3	29.1	5.4	3.4	1.4	29.1	4.1	24	
25	3.5	1.4	1.0	1.6	1.2	1.4	1.6	1.8	2.3	1.4	2.5	5	1.0	0.9	0.8	0.7	0.6	0.6	0.6	0.3	1.1	1.3	0.7	1.6	3.5	1.2	24		
26	3.5	2.3	1.5	1.3	0.9	1.3	0.8	1.2	1.2	2.0	5	2.8	3.1	3.4	2.5	2.9	1.9	2.7	7.6	1.2	1.1	1.1	1.9	1.2	7.6	2.0	24		
27	1.2	0.8	0.6	0.6	0.9	0.6	1.0	3.3	1.8	5	3.5	1.9	1.7	1.5	1.3	1.7	1.4	2.9	7.4	3.0	1.3	1.3	1.3	1.4	17.2	3.5	24		
28	1.9	1.8	3.2	13.9	18.8	2.1	2.6	5	2.9	2.6	10.4	19.3	4.6	5.2	2.2	1.6	4.6	14.3	8.6	8.0	3.4	2.9	3.0	1.4	19.3	6.1	24		
29	22.3	14.5	21.1	15.1	22.5	51.5	12.3	16.2	25.9	16.9	15.3	19.3	13.1	11.3	14.4	42.1	30.4	33.3	10.6	20.3	29.1	12.3	12.6	32.8					
30	4.0	3.2	3.8	3.6	4.0	6.4	3.6	4.5	4.2	3.5	3.7	4.4	2.6	2.5	2.5	5.0	5.8	4.1	2.8	2.6	2.6	2.6	2.5	2.5	3.8				

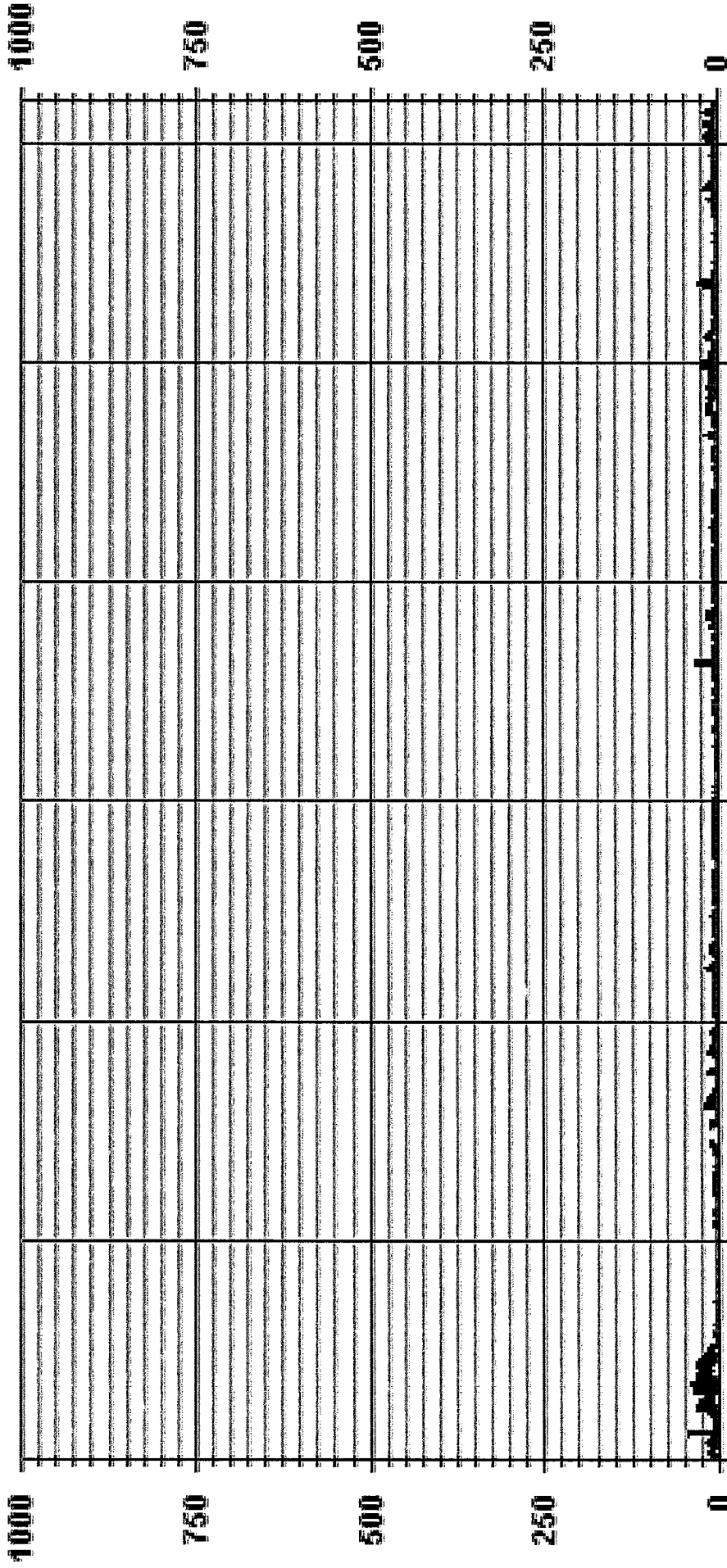
STATUS FLAG CODES

C	QUALITY ASSURANCE
Y	RECOVERY
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	OUT FOR REPAIR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685
MAXIMUM INSTANTANEOUS VALUE:	42.1 PPB @ HOUR(S) 15 ON DAY(S) 1
OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	5.19
VAR-VARIOUS	

01 Hour Averages



— LICA30 NOXMAX PPB

LICA30
 NOX_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	4.57	11.57	11.57	8.00	4.42	7.42	7.57	6.85	9.57	11.28	7.85	1.85	2.00	1.85	1.85	1.71	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.57	11.57	11.57	8.00	4.42	7.42	7.57	6.85	9.57	11.28	7.85	1.85	2.00	1.85	1.85	1.71	

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Calm : .00 %

Total # Operational Hours : 700

Distribution By Samples





Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	32	81	81	56	31	52	53	48	67	79	55	13	14	13	13	12	700
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	32	81	81	56	31	52	53	48	67	79	55	13	14	13	13	12	

Calm : .00 %

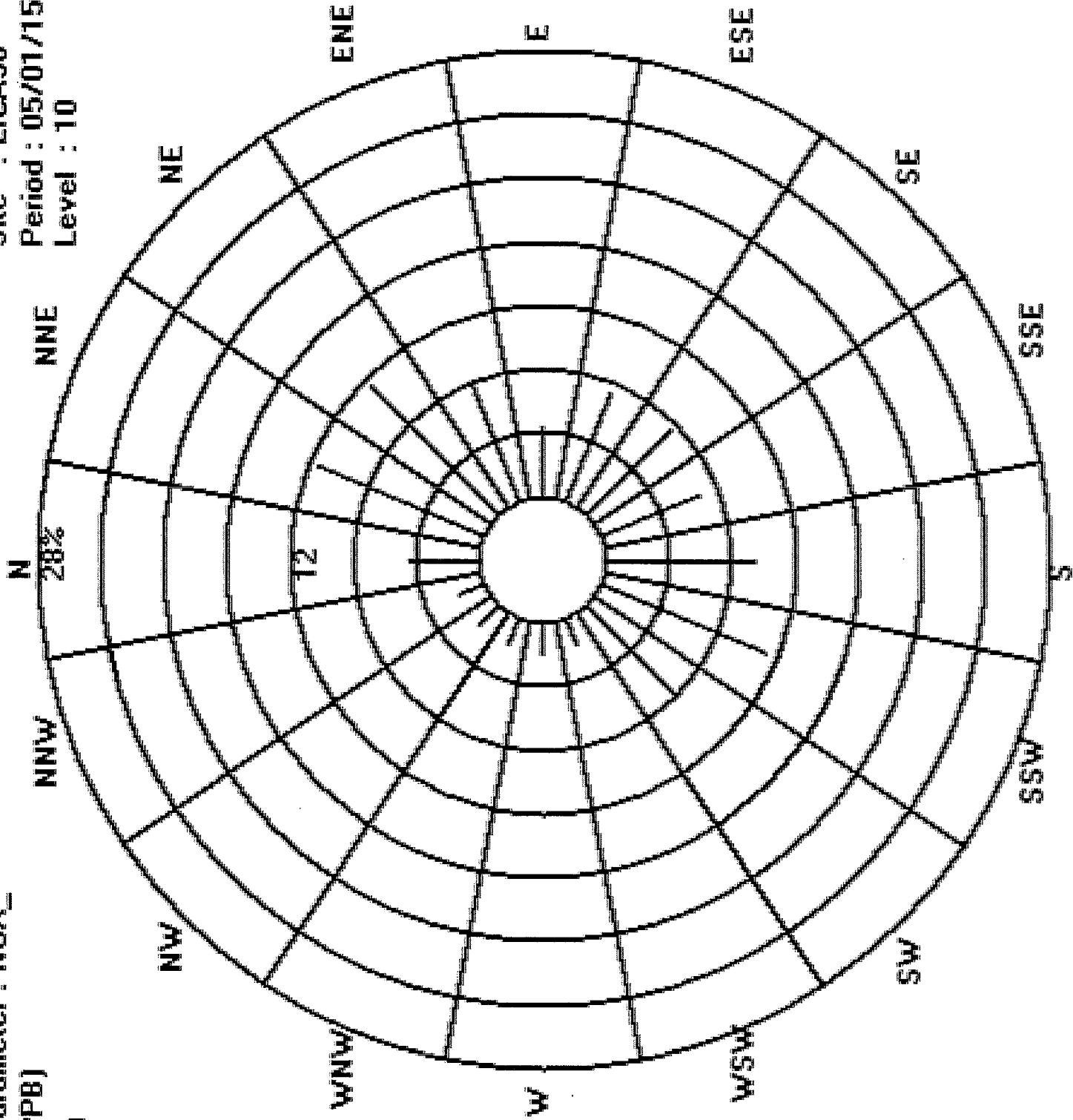
Total # Operational Hours : 700

Logger : 30 Parameter : NOX_

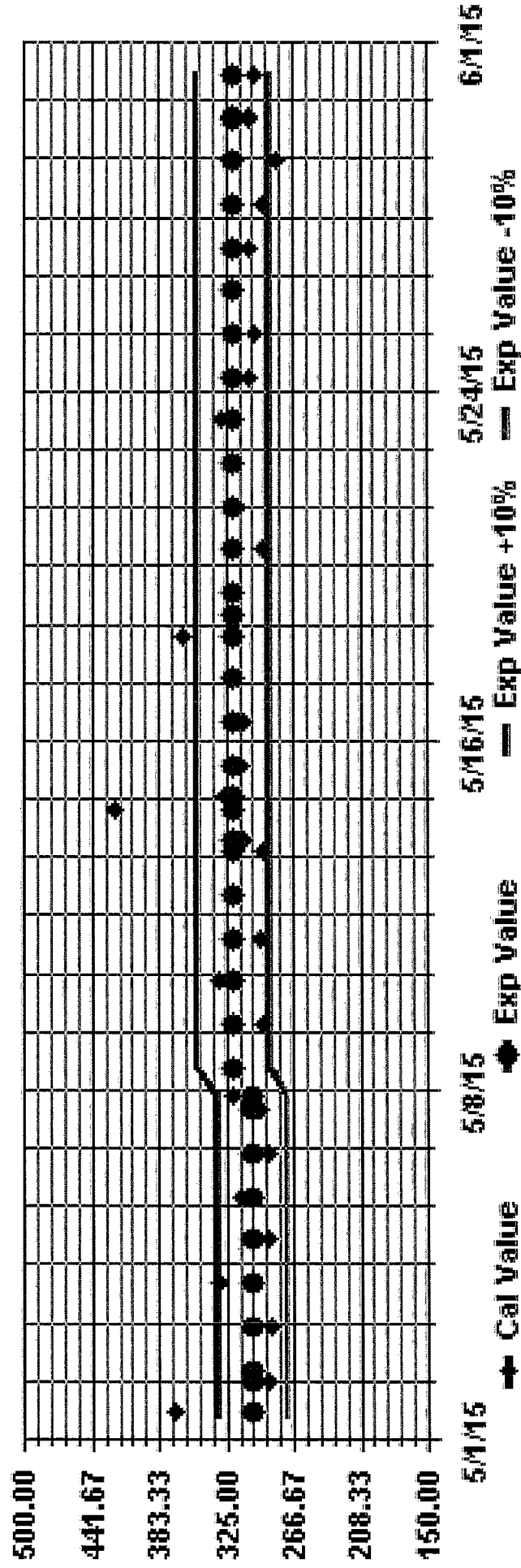
Class Limits (PPB)

-  >= 210.0
-  < 210.0
-  < 110.0
-  < 50.0

Site : LICA30
Period : 05/01/15-05/31/15
Level : 10



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



NITRIC OXIDES

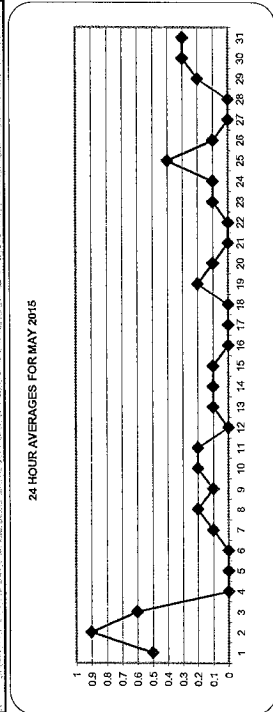


NITRIC OXIDE (NO) hourly averages in ppb

DAY	MST																								DAILY MAX.	24-HOUR AVG.	RDGS.	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				
1	0.0	0.0	0.2	0.1	0.2	0.6	1.6	1.4	0.0	0.7	1.1	1.0	0.0	0.5	\$	2.2	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.5	24
2	0.0	0.0	0.1	0.3	1.9	\$	4.9	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.6	2.6	1.2	3.3	0.9	0.0	0.0	0.0	0.0	0.0	4.9	0.9	24	
3	0.5	0.1	0.3	0.0	1.3	4.6	0.4	0.3	0.0	2.8	1.1	0.6	\$	0.6	0.3	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	4.6	0.6	24
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	24
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.4	0.5	0.4	0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24
8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	\$	2.3	C	C	C	C	C	C	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.2	24	
9	0.0	0.0	0.0	0.0	0.0	0.0	0.3	\$	0.9	0.3	0.0	0.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.1	24
10	0.1	0.0	0.0	0.0	0.0	\$	0.1	0.3	0.6	0.5	1.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	0.2	24	
11	0.0	0.0	0.0	0.0	\$	0.2	0.5	0.3	0.1	0.5	0.6	0.9	0.4	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.2	24	
12	0.0	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
13	0.0	0.0	\$	0.3	0.2	0.1	0.2	0.6	\$	0.4	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	24	
14	\$	0.1	0.0	0.0	0.0	0.3	0.5	\$	0.5	0.1	0.3	0.5	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24	
15	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.5	0.1	24	
16	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.0	0.1	24	
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.0	0.1	24	
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.0	0.1	24	
19	0.0	0.1	0.0	0.1	0.1	2.4	1.4	\$	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.2	0.0	24	
20	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	2.4	0.2	24	
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.7	0.0	24	
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.6	0.0	24	
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.5	0.1	24	
24	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.8	0.1	24	
25	0.4	0.4	0.1	0.0	0.3	0.7	0.7	0.5	0.9	0.4	0.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.9	0.4	24	
26	0.5	0.2	0.3	0.5	0.0	0.8	0.3	0.3	0.2	0.0	0.0	0.0	\$	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.8	0.1	24	
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.9	0.4	24	
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.1	0.0	24	
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$	0.5	0.4	0.4	0.5	0.2	0.2	0.2	0.2	0.2	0.2	\$	0.7	0.2	24	
30	0.7	0.0	0.0	0.0	0.0	0.1	\$	\$	\$	\$	0.8	0.3	0.4	0.0	0.0	0.3	0.1	0.0	0.4	0.3	0.3	0.5	0.5	\$	0.8	0.3	24	
31	0.3	0.6	0.5	0.6	0.9	0.4	0.6	\$	0.0	0.0	0.5	1.8	0.0	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	\$	1.8	0.3	24	
HOURLY MAX	0.7	0.6	0.5	0.6	1.3	4.6	1.6	4.9	2.3	2.8	1.3	1.8	0.4	0.6	0.6	2.6	1.2	3.3	0.9	0.3	0.5	0.5	0.5	4.9	1.8	0.3	24	
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.5	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2

STATUS FLAG CODES

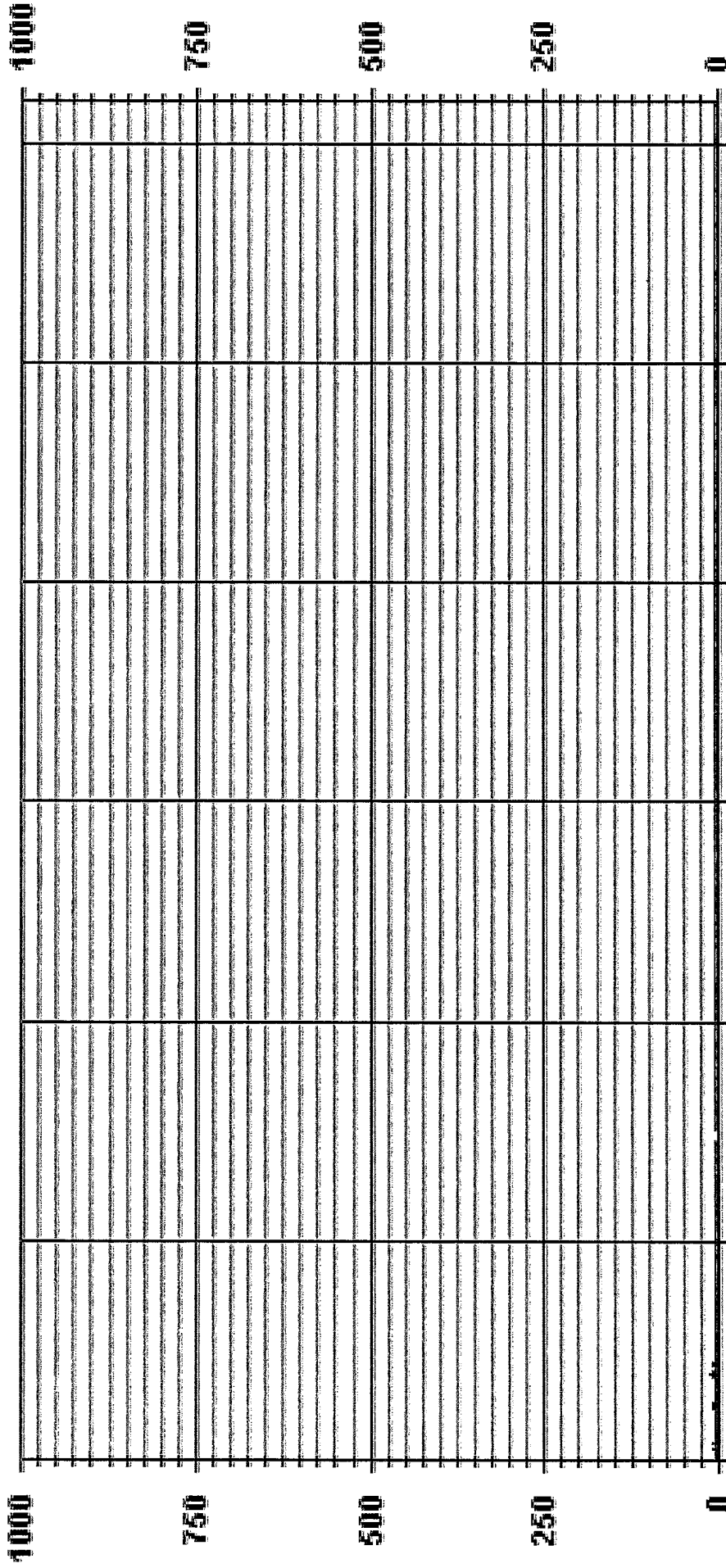
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

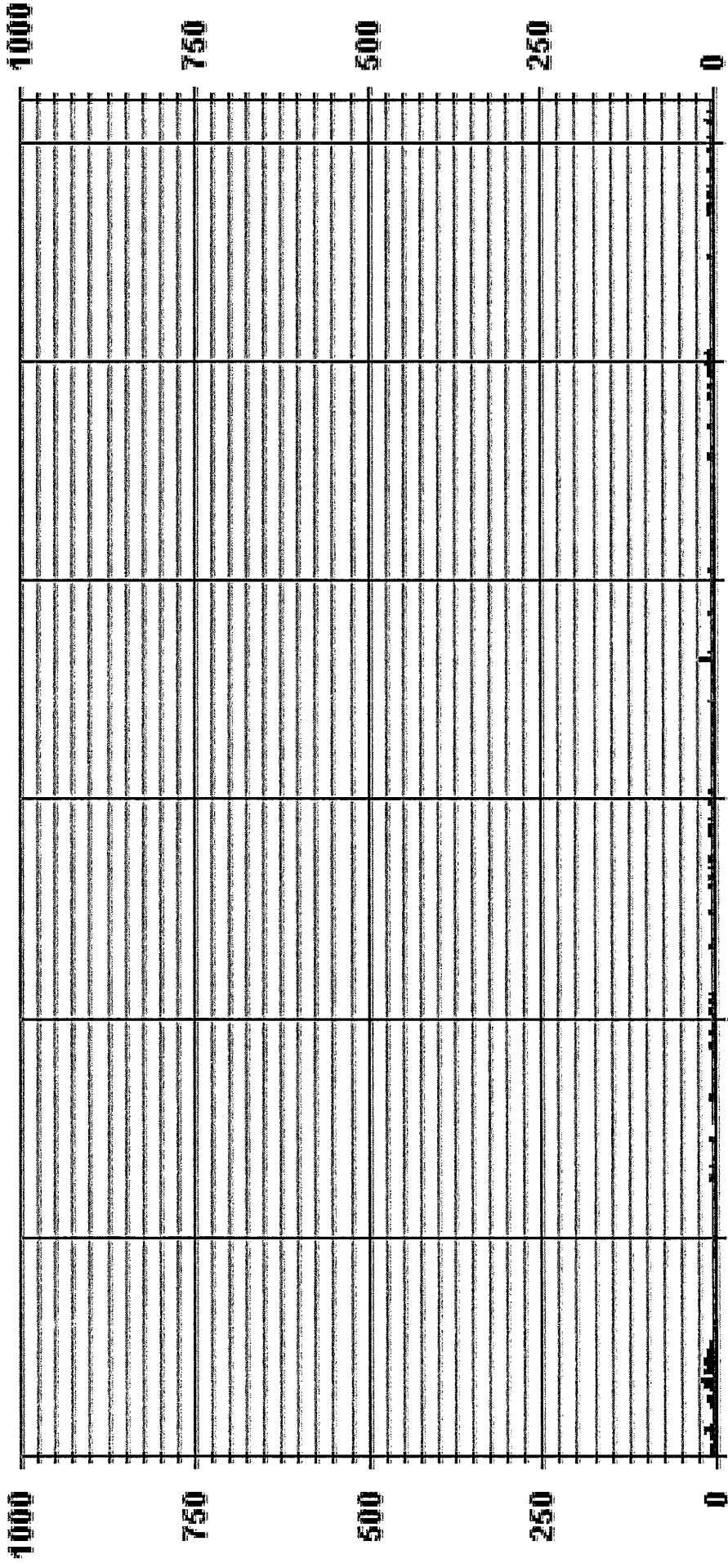
NUMBER OF NON-ZERO READINGS:	230
MAXIMUM 1-HR AVERAGE:	4.9 PPB
MAXIMUM 24-HR AVERAGE:	0.9 PPB
OPERATIONAL TIME:	38 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.46
ON DAY(S)	7, 23
ON DAY(S)	2, 2
VAR- VARIOUS	
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0.2 PPB

01 Hour Averages



— LICA30 NO_ PPB

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 NOMAX PPB

LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	4.57	11.57	11.57	8.00	4.42	7.42	7.57	6.85	9.57	11.28	7.85	1.85	2.00	1.85	1.85	1.71	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.57	11.57	11.57	8.00	4.42	7.42	7.57	6.85	9.57	11.28	7.85	1.85	2.00	1.85	1.85	1.71	

Calm : .00 %

Total # Operational Hours : 700

Distribution By Samples

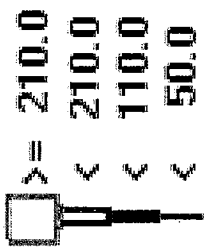
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	32	81	81	56	31	52	53	48	67	79	55	13	14	13	13	12	700
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	32	81	81	56	31	52	53	48	67	79	55	13	14	13	13	12	

Calm : .00 %

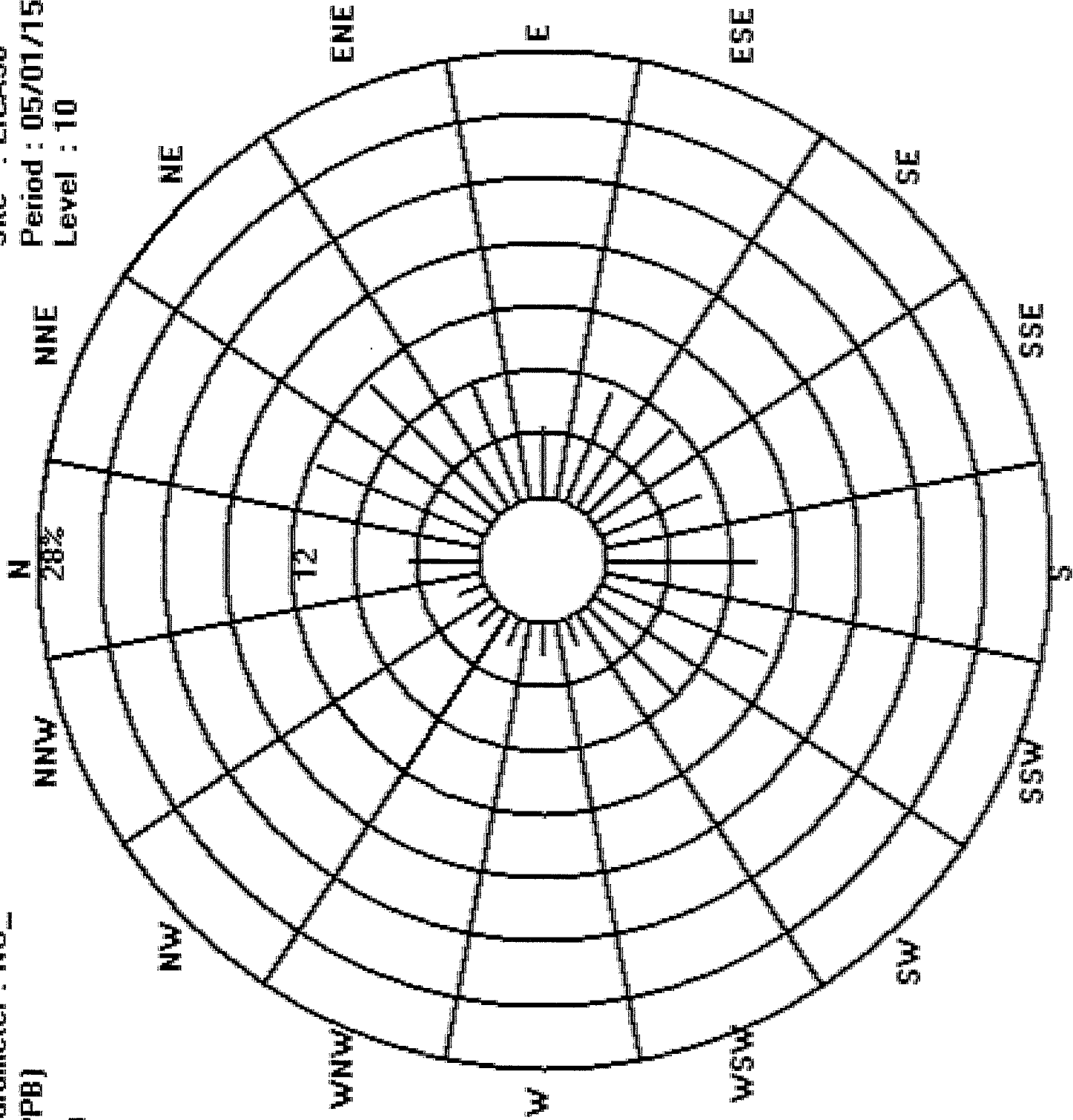
Total # Operational Hours : 700

Logger : 30 Parameter : NO₂

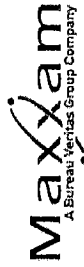
Class Limits (PPB)



Site : LICA30
Period : 05/01/15-05/31/15
Level : 10



NITROGEN DIOXIDE



NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

DAY	HOURS																								24-HOUR AVG.	RDGS.	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			
1	0.0	0.0	3.1	4.7	5.0	8.2	7.9	3.3	0.0	1.7	1.9	2.8	0.0	0.7	5	6.2	2.2	0.4	0.7	0.5	0.7	1.1	1.4	1.2	8.2	2.3	24
2	1.3	2.1	6.1	8.3	6.3	13.7	5	9.7	5.0	3.9	1.6	4.1	2.3	5	0.3	4.9	4.3	6.3	4.3	1.3	0.3	0.8	2.9	12.8	13.7	4.7	24
3	4.5	5.9	6.3	4.2	6.7	10.4	2.2	1.1	0.6	3.1	1.7	1.4	5	2.0	1.4	1.0	0.3	0.2	0.4	0.3	0.4	1.3	1.0	0.9	10.4	2.5	24
4	0.5	0.4	0.5	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.5	0.1	24
6	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.5	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.1	0.0	0.2	0.7	0.2	24
7	0.1	0.3	1.8	1.6	1.8	1.5	1.0	0.8	5	0.8	0.9	0.4	0.3	0.4	0.5	0.4	0.6	0.4	0.3	0.5	0.1	0.1	0.7	1.7	1.8	0.7	24
8	1.5	1.5	2.8	3.4	4.6	6.5	5.9	5	8.3	C	C	C	C	C	C	0.4	2.8	0.0	0.0	0.0	1.1	0.3	0.6	0.5	8.3	2.4	24
9	1.2	1.1	4.1	6.1	4.9	6.5	5	2.9	2.0	0.7	0.5	0.3	0.1	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.9	1.5	0.5	0.4	6.5	1.5	24
10	0.3	0.8	0.4	0.5	0.4	5	1.0	2.7	3.7	2.7	3.3	2.1	1.7	0.6	0.6	1.2	0.8	1.2	2.4	1.2	0.1	0.0	0.2	0.0	3.7	1.2	24
11	0.1	0.5	0.3	0.4	5	1.7	3.2	2.4	1.7	2.0	1.8	2.6	2.4	1.7	2.6	1.7	1.3	0.9	0.8	0.7	0.7	1.1	1.9	2.1	3.2	1.5	24
12	2.2	2.8	2.8	5	3.1	3.6	3.9	3.5	1.9	1.4	0.7	0.4	0.5	0.2	0.4	3.5	3.9	3.8	2.7	0.2	0.0	0.1	0.2	1.2	3.9	1.9	24
13	1.6	2.1	5	1.3	0.9	1.1	1.4	1.0	0.6	0.6	2.0	0.9	0.9	1.0	0.9	0.8	1.2	1.5	1.8	1.2	0.1	0.4	1.4	1.6	2.1	1.1	24
14	1.7	5	2.4	2.3	2.1	1.8	2.7	5	1.0	1.2	0.7	0.9	0.9	0.5	0.6	0.4	0.3	0.1	0.5	1.4	1.4	1.4	0.8	1.2	2.7	1.2	24
15	5	1.7	1.9	2.1	1.9	2.6	2.2	5	2.6	1.7	1.3	0.9	1.2	1.2	1.1	1.2	1.1	1.5	1.3	1.2	1.1	2.6	2.3	5	2.6	1.7	24
16	1.7	1.5	1.2	1.2	0.4	0.8	0.9	0.6	1.0	0.6	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	1.7	0.5	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	1.9	1.4	0.0	0.0	0.4	0.2	1.9	0.2	24
18	0.1	0.5	1.3	0.4	0.4	0.7	0.8	0.9	0.8	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.4	0.7	24
19	3.1	4.2	2.3	1.9	1.0	0.9	3.3	3.9	2.3	0.7	0.5	0.5	0.5	0.7	0.7	0.6	0.5	0.6	0.7	0.6	0.7	0.8	1.0	1.3	4.2	1.4	24
20	0.8	0.9	1.3	1.4	1.8	1.5	1.3	3.0	2.0	1.5	1.1	0.8	0.8	0.8	0.7	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.4	1.4	24
21	1.3	1.0	1.1	0.9	1.0	0.7	0.9	3.0	2.3	1.8	1.7	0.5	0.4	0.7	0.4	0.5	0.5	1.0	0.7	0.8	0.9	3.1	2.2	2.1	3.1	1.3	24
22	2.6	2.7	2.1	1.7	1.6	0.7	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	24
23	0.2	0.8	0.8	0.6	0.5	1.0	0.4	0.3	0.4	1.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7	24
24	8.6	10.7	7.9	6.9	5.5	5.9	6.6	6.1	5.8	3.0	3.3	5.9	1.9	5	1.8	1.8	4.1	6.7	6.6	6.5	4.9	4.1	4.1	4.0	10.7	5.3	24
25	3.8	1.5	3.3	2.5	1.3	4.1	3.6	2.4	1.3	0.9	0.6	1.1	5	7.6	11.0	7.9	7.3	5.6	0.8	0.7	0.8	0.8	1.0	1.2	11.0	3.1	24
26	1.1	0.9	0.6	1.0	0.6	0.8	0.7	1.3	1.5	1.0	1.0	5	1.3	1.4	1.6	1.6	1.2	1.1	1.3	11.3	15.2	3.6	1.8	0.7	15.2	2.3	24
27	2.0	1.4	1.0	0.3	0.3	0.2	0.3	0.2	0.3	0.5	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.6	2.0	0.4	24
28	0.5	0.2	0.0	0.1	0.1	0.1	1.0	0.4	5	5	1.3	1.3	1.2	1.1	1.4	0.8	1.0	1.4	0.4	0.4	0.3	0.5	0.5	0.5	1.4	0.6	24
29	9.8	6.7	1.5	1.0	0.7	1.3	5	5	1.4	0.9	0.7	0.8	0.8	0.8	0.5	0.7	0.8	3.3	0.5	0.5	0.3	0.2	0.5	0.6	9.8	1.6	24
30	0.9	0.7	1.3	6.5	9.1	1.1	1.3	5	2.1	1.8	3.5	5.9	2.0	2.3	1.5	1.0	2.2	9.0	5.0	5.0	3.8	2.4	1.4	1.8	0.7	2.9	24
31	9.8	10.7	7.9	8.3	9.1	13.7	7.9	9.7	8.3	3.9	3.5	5.9	2.4	7.6	11.0	7.9	7.3	9.0	6.6	11.3	15.2	8.0	11.1	12.8	9.1	2.9	24
HOURLY MAX	2	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
HOURLY AVG																											

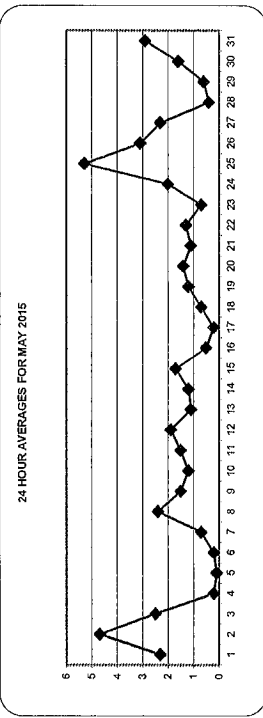
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

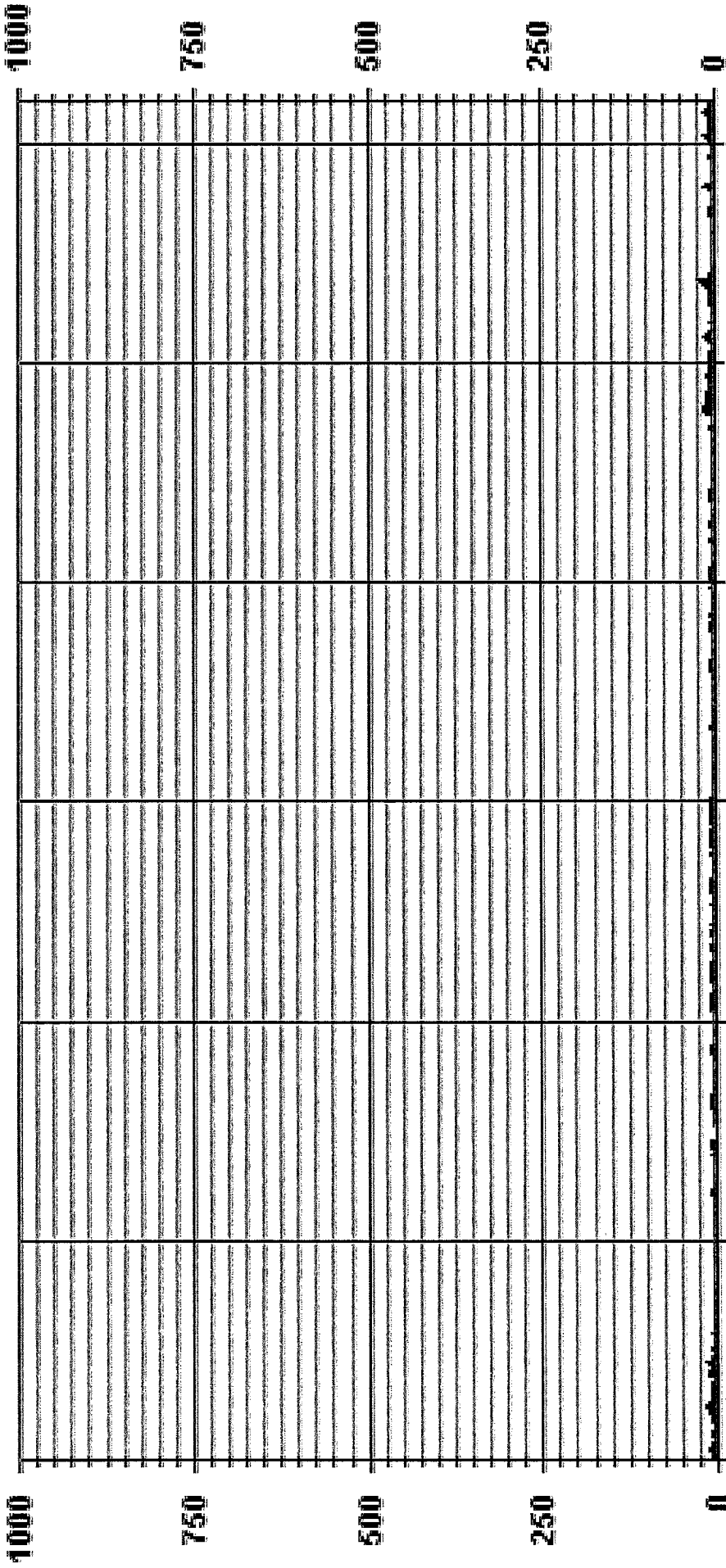
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR: 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	628
MAXIMUM 1-HR AVERAGE:	15.2 PPB
MAXIMUM 24-HR AVERAGE:	5.3 PPB
12S CALIBRATION TIME:	38 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	2.11
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	1.6 PPB
ON DAY(S):	27
ON DAY(S) VAR-VARIOUS:	25

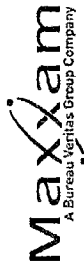


01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA30 NO2_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Maskwa Site - MAY 2015
 JOB # 2833-2015-05-30-C

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	ROSS		
1	0.8	1.3	7.0	7.9	8.8	10.5	9.5	8.1	0.9	6.5	12.7	10.9	3.9	6.2	\$	29.7	5.9	1.1	1.3	1.2	1.3	1.7	1.8	1.7	1.8	1.7	29.7	6.1	24
2	2.1	4.3	8.8	14.0	11.5	23.4	\$	\$	16.5	8.2	3.2	14.2	9.0	\$	1.4	25.3	21.5	20.6	9.2	3.8	1.1	1.8	9.6	19.4	25.3	10.9	24	24	
3	16.5	12.4	14.6	8.3	16.0	17.2	3.4	6.0	0.7	8.0	5.7	4.7	\$	6.5	6.2	3.7	3.1	1.0	0.9	0.9	1.5	1.9	1.7	1.4	17.2	6.2	24	24	
4	1.1	0.9	1.4	1.2	1.1	0.9	0.5	0.6	0.3	0.3	0.3	\$	1.1	0.5	0.5	1.0	0.7	0.5	0.3	0.3	0.3	0.2	0.2	0.4	1.4	0.6	24	24	
5	0.3	0.5	0.3	0.4	0.3	0.2	0.1	0.1	0.5	\$	1.2	1.1	0.8	1.0	0.8	0.8	0.9	0.7	0.4	0.5	0.5	0.5	0.5	1.2	0.6	24	24		
6	0.7	0.6	0.4	0.5	0.4	0.4	0.4	0.4	0.9	\$	1.1	1.4	1.4	0.7	1.0	1.3	0.9	0.6	0.7	0.2	0.2	0.2	0.3	0.5	1.4	0.7	24	24	
7	0.5	0.9	2.5	2.2	2.5	1.7	1.6	1.3	\$	1.7	2.1	1.2	1.3	1.9	1.5	1.3	2.9	1.0	0.9	0.9	0.8	0.8	1.3	2.7	2.9	1.5	24	24	
8	2.6	2.5	3.9	5.2	5.8	7.1	7.3	\$	16.6	C	C	C	C	C	C	6.6	6.6	1.4	1.3	1.3	4.0	2.1	2.4	2.4	16.6	4.5	24	24	
9	3.1	3.1	19.1	9.2	7.6	9.8	\$	7.1	3.4	1.4	0.9	1.0	0.8	1.0	0.6	0.6	0.6	0.6	0.7	9.4	9.6	0.9	1.0	19.1	4.0	24	24		
10	1.0	1.3	0.8	1.0	0.8	\$	1.5	5.0	7.9	7.9	6.4	5.6	3.5	1.9	1.2	3.1	2.5	3.8	6.4	6.4	0.6	0.7	0.9	0.6	7.9	3.1	24	24	
11	0.7	1.1	0.9	1.1	\$	3.3	3.7	3.1	2.1	2.3	2.8	3.3	3.4	2.4	3.6	3.1	1.6	1.2	1.0	1.0	0.9	2.1	2.6	2.9	3.7	2.2	24	24	
12	2.9	4.0	4.0	\$	4.0	9.1	5.4	3.8	2.8	2.0	1.3	0.9	2.9	0.9	0.6	6.0	5.5	7.3	7.3	0.7	0.5	0.5	1.1	1.9	9.1	3.3	24	24	
13	2.5	2.9	\$	2.0	1.4	1.7	1.9	1.3	1.1	1.1	4.8	2.6	4.1	2.4	2.8	1.5	3.2	2.6	5.7	3.3	0.6	1.4	2.1	2.0	5.7	2.4	24	24	
14	2.4	\$	2.8	2.8	2.6	2.2	3.3	\$	3.3	1.7	1.5	1.6	2.6	1.1	1.9	1.1	0.9	0.8	1.7	2.2	2.2	2.2	2.2	1.8	3.3	2.0	24	24	
15	\$	3.2	3.3	3.5	3.7	4.2	4.6	\$	3.3	1.7	1.5	1.7	2.2	1.4	1.5	1.5	1.5	1.7	2.2	1.4	1.5	4.2	3.4	\$	4.6	2.5	24	24	
16	2.0	1.9	1.5	1.8	0.9	1.5	1.5	1.0	1.6	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	\$	0.6	2.0	0.9	24	24
17	0.3	0.5	0.3	0.4	0.4	0.4	0.4	0.2	2.7	0.1	0.2	0.0	0.2	0.2	2.1	0.2	1.9	1.5	4.0	4.1	2.0	0.4	\$	0.9	0.6	4.1	1.0	24	24
18	0.6	1.3	2.1	0.9	0.9	2.5	1.2	1.2	1.4	1.2	0.9	0.9	0.7	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	\$	1.6	1.4	2.2	2.5	1.2	24	24
19	1.8	1.5	1.9	2.4	2.0	15.3	\$	\$	2.2	1.9	1.3	1.0	1.0	1.0	1.0	1.6	1.9	0.9	0.9	0.9	\$	2.7	3.0	4.3	2.8	15.3	2.5	24	24
20	9.1	8.2	4.6	4.1	2.8	2.8	10.2	10.6	4.3	3.0	2.3	2.1	2.6	2.4	3.1	3.1	3.1	2.1	2.5	\$	1.3	1.2	1.9	1.7	10.6	3.8	24	24	
21	1.1	1.4	1.7	1.8	2.2	1.7	2.9	4.9	2.5	1.7	1.4	1.1	1.1	1.1	1.1	1.1	1.1	0.9	\$	1.3	1.1	1.6	0.9	1.1	2.0	4.9	1.7	24	24
22	1.6	1.4	1.5	1.1	1.6	1.1	1.4	4.9	2.6	2.1	2.7	1.4	0.9	1.3	1.1	0.8	\$	1.4	1.1	1.2	1.6	4.6	3.7	3.3	4.9	1.9	24	24	
23	3.3	3.5	2.7	2.4	2.2	1.4	0.9	0.7	0.6	0.6	0.5	0.6	0.7	0.3	0.3	\$	1.1	1.1	1.0	1.4	1.6	2.1	2.0	2.0	3.5	1.4	24	24	
24	1.5	1.5	1.4	1.6	1.2	1.5	1.0	0.9	1.8	6.9	1.4	2.8	2.7	1.9	\$	3.2	2.5	2.1	2.4	2.2	1.4	12.4	12.9	13.8	3.5	24	24		
25	11.5	13.6	9.0	8.0	6.9	7.4	8.8	9.8	8.8	4.1	9.1	14.3	2.7	\$	3.1	3.1	9.0	9.7	7.2	1.6	1.2	1.1	1.6	1.3	4.5	15.2	5.0	24	24
26	15.2	2.4	5.7	5.0	2.1	8.2	5.3	3.4	2.2	1.8	1.3	2.0	\$	9.9	14.0	10.7	7.9	7.2	1.6	1.2	1.1	1.6	1.3	4.5	15.2	5.0	24	24	
27	3.4	1.4	0.9	1.4	1.0	1.3	1.1	1.6	1.8	1.3	1.6	\$	1.6	1.7	2.2	2.0	1.8	1.5	1.8	20.2	28.6	5.5	3.4	1.5	28.6	3.9	24	24	
28	3.4	2.4	1.6	1.4	1.0	0.9	0.8	1.1	1.1	1.4	\$	0.7	0.7	0.8	0.7	0.7	0.6	0.4	0.4	0.9	1.2	0.5	0.5	1.3	3.4	1.1	24	24	
29	1.0	0.7	0.6	0.6	0.7	0.5	0.7	1.9	0.9	\$	1.7	1.9	2.5	1.4	2.0	1.4	1.9	5.4	0.9	0.7	0.7	1.3	0.9	0.9	5.4	1.4	24	24	
30	15.6	13.6	2.7	1.9	0.9	2.6	\$	\$	2.5	1.5	1.3	1.1	1.1	1.2	1.2	1.2	2.2	6.1	2.7	1.2	1.0	1.0	1.1	1.4	15.6	3.0	24	24	
31	1.5	1.5	3.1	13.3	17.5	1.9	2.1	\$	2.9	2.5	7.7	13.2	3.6	3.9	1.9	1.9	4.1	13.5	8.7	7.6	3.6	3.3	3.3	1.6	17.5	5.4	24	24	
HOURLY MAX	16.5	13.6	19.1	14.0	17.5	23.4	10.2	10.6	16.6	8.2	12.7	14.3	9.0	9.9	14.0	29.7	21.5	20.6	9.2	20.2	28.6	12.4	12.9	19.4					
HOURLY AVG	3.7	3.2	3.7	3.6	3.7	4.8	3.0	3.4	3.3	2.7	2.8	3.4	2.1	2.1	2.1	3.9	3.2	3.4	2.5	2.5	2.6	2.5	2.5	3.1					

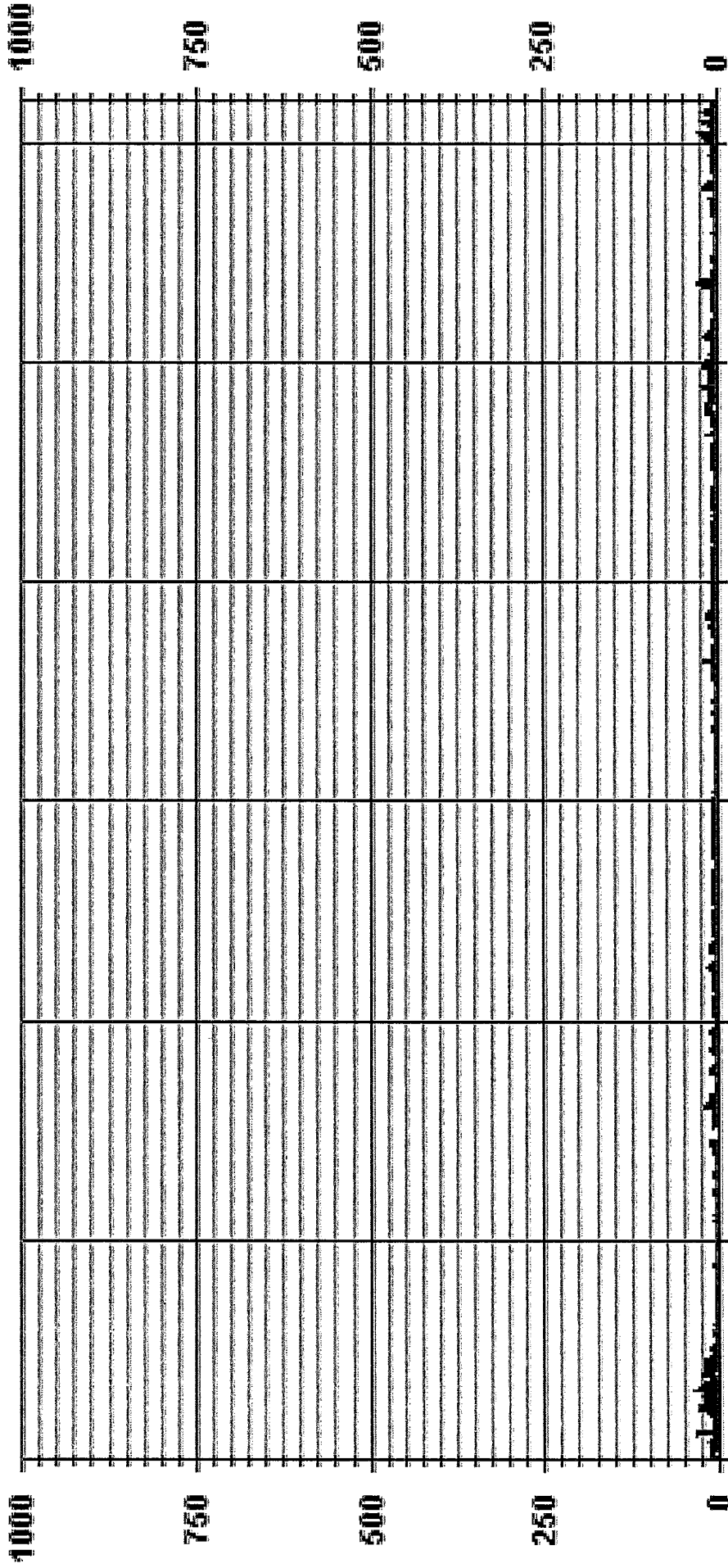
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	695
MAXIMUM INSTANTANEOUS VALUE:	29.7 PPB @ HOUR(S) 15 ON DAY(S) 1
IS CALIBRATION TIME:	41 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	3.96
OPERATIONAL TIME:	744 HRS
VAR-VARIOUS	VAR-VARIOUS

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : NO2
 Units : PPB
 Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	4.57	11.57	11.57	8.00	4.42	7.42	6.85	6.85	9.57	11.28	7.85	1.85	2.00	1.85	1.85	1.71	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.57	11.57	11.57	8.00	4.42	7.42	6.85	6.85	9.57	11.28	7.85	1.85	2.00	1.85	1.85	1.71	

Calm : .00 %

Total # Operational Hours : 700

Distribution By Samples

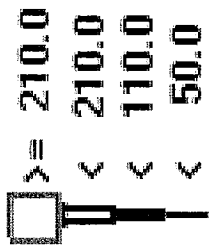
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	32	81	81	56	31	52	53	48	67	79	55	13	14	13	13	12	700
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	32	81	81	56	31	52	53	48	67	79	55	13	14	13	13	12	

Calm : .00 %

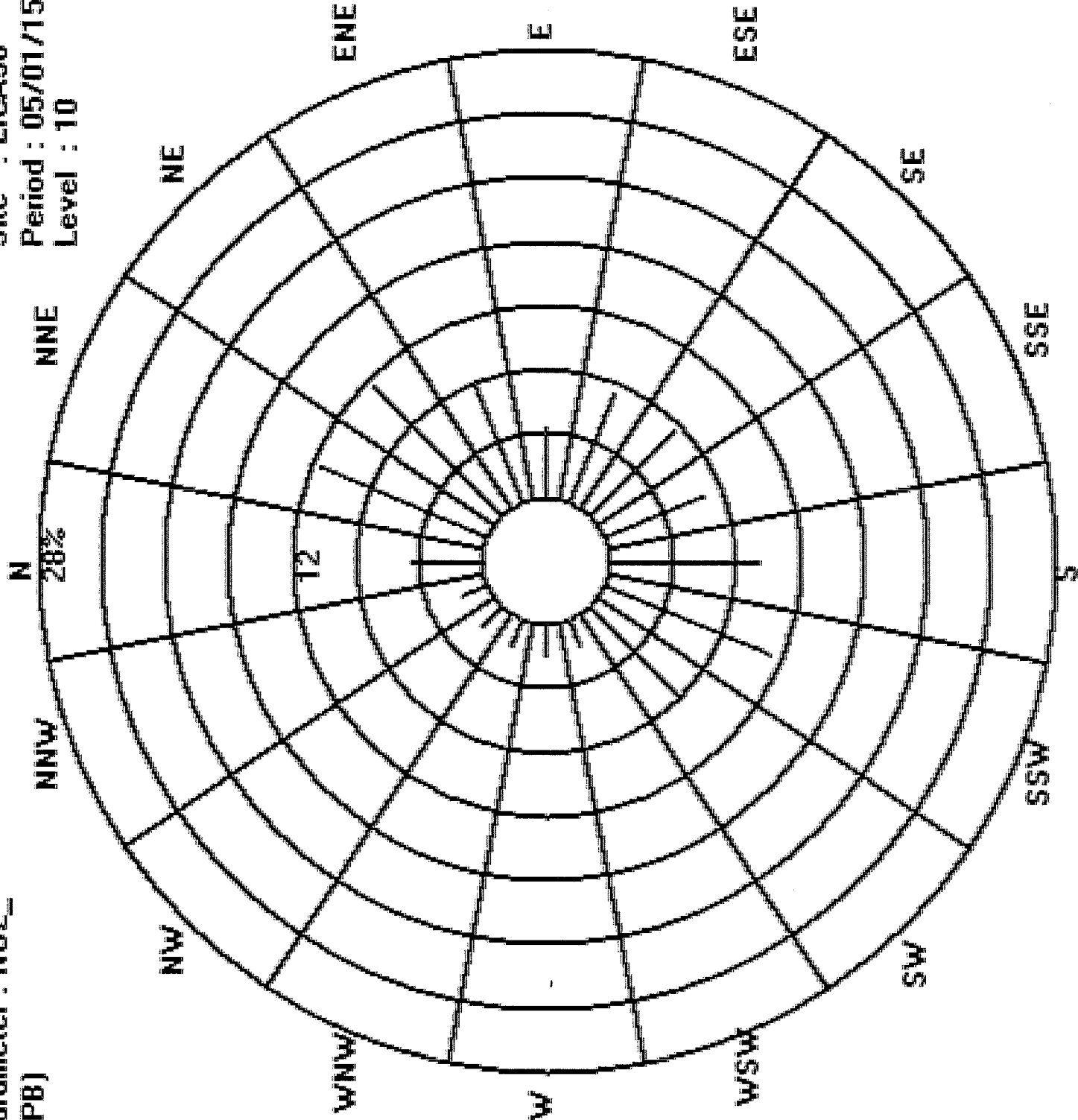
Total # Operational Hours : 700

Logger : 30 Parameter : NO2_

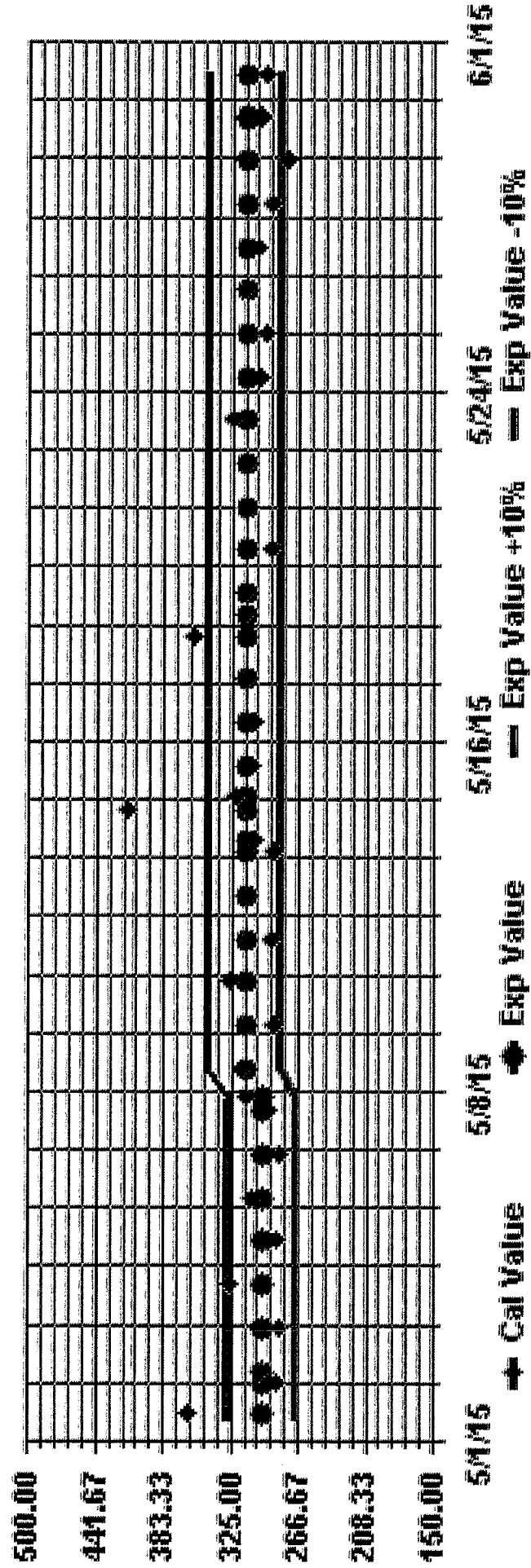
Class Limits (PPB)



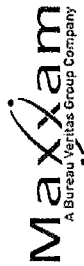
Site : LICA30
Period : 05/01/15-05/31/15
Level : 10



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



WIND SPEED



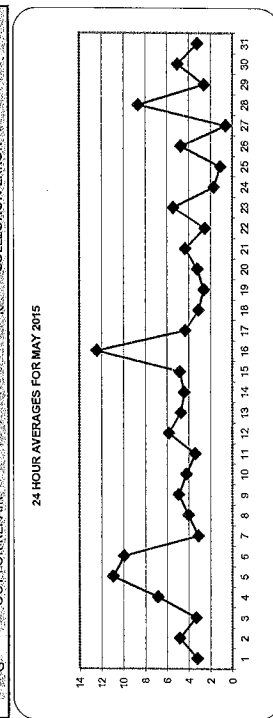
WIND SPEED (WS) hourly averages in km/hr

DAY	WIND SPEED (WS) hourly averages in km/hr																								DAILY MAX.	24-HOUR AVG.	RDGS.																				
	0:00	0:59	1:00	1:59	2:00	2:59	3:00	3:59	4:00	4:59	5:00	5:59	6:00	6:59	7:00	7:59	8:00	8:59	9:00	9:59	10:00	10:59	11:00	11:59				12:00	12:59	13:00	13:59	14:00	14:59	15:00	15:59	16:00	16:59	17:00	17:59	18:00	18:59	19:00	19:59	20:00	20:59	21:00	21:59
1	4.3	3.7	4.5	3.7	3.9	3.6	4.8	4.5	7.7	8.6	8.9	7.2	6.2	4.1	7.0	8.3	0.5	4.2	5.1	4.1	3.9	3.3	3.3	1.1	2.7	8.9	4.8	24																			
2	2.2	3.5	4.9	4.1	5.1	5.5	5.1	7.1	6.8	6.8	7.7	7.2	6.2	7.6	9.5	9.8	0.5	4.2	4.7	4.3	4.1	3.6	1.8	5.3	4.9	9.8	5.7	24																			
3	4.7	5.1	2.8	2.2	2.8	3.5	5.0	6.1	5.7	7.9	7.0	7.0	6.2	5.1	5.0	3.7	5.4	5.1	2.5	4.0	3.0	0.5	1.7	7.9	4.5	24	24																				
4	1.6	1.2	1.4	1.0	1.9	5.0	8.7	9.6	10.5	6.9	6.2	8.6	10.4	9.0	8.2	8.5	8.4	10.3	8.9	6.0	8.1	8.8	9.8	10.5	7.0	24	24																				
5	8.1	7.1	7.2	7.4	7.4	7.1	9.9	11.4	13.9	13.9	13.3	12.9	9.2	8.7	8.0	12.8	14.4	16.3	15.7	14.9	13.6	16.3	15.5	11.5	24	24	24																				
6	16.3	15.4	15.5	15.1	14.6	14.4	12.6	14.1	13.2	12.2	11.4	10.7	12.6	10.0	8.7	5.9	4.5	6.3	4.2	5.1	4.9	4.4	4.0	4.1	16.3	10.0	24	24																			
7	5.3	4.5	3.3	2.9	4.5	4.5	3.7	4.2	4.6	5.4	4.8	3.9	5.0	5.5	6.3	6.9	6.1	4.7	3.6	3.8	2.9	3.1	5.1	6.9	4.5	24	24																				
8	4.7	2.9	6.1	5.4	4.8	4.2	3.4	2.3	3.0	3.0	6.3	5.3	1.2	8.0	4.4	7.8	6.0	6.9	7.3	5.3	6.6	8.0	7.7	6.8	8.0	5.3	24	24																			
9	7.6	7.1	3.3	2.2	0.6	1.7	0.9	8.0	11.2	10.2	9.5	13.7	13.4	14.4	12.0	11.2	11.3	10.5	7.9	5.3	3.0	5.4	5.7	5.6	14.4	7.5	24	24																			
10	1.7	1.2	1.3	2.1	2.2	1.8	2.8	5.6	7.3	6.4	8.3	8.4	8.7	7.4	7.2	5.2	5.2	5.2	3.8	2.9	1.9	1.8	3.1	6.7	8.7	4.5	24	24																			
11	6.3	1.7	1.7	0.9	0.2	2.2	5.3	7.6	6.4	4.6	4.6	1.4	3.7	3.2	4.3	5.8	6.3	6.6	5.8	3.9	3.3	2.3	2.2	6.4	7.6	4.0	24	24																			
12	4.9	2.8	5.1	3.8	2.6	1.3	3.0	5.5	7.5	8.4	8.7	5.9	7.8	8.1	7.9	10.0	9.3	8.1	7.9	6.4	6.4	7.5	7.9	8.3	10.0	6.5	24	24																			
13	6.4	4.8	2.3	3.1	3.0	3.6	4.5	6.7	7.4	7.6	8.1	8.1	6.9	5.4	4.9	5.4	7.0	6.3	5.7	3.3	3.9	4.2	5.9	7.1	8.1	5.5	24	24																			
14	7.2	7.6	6.9	1.6	1.3	1.4	2.8	4.2	5.2	4.9	6.0	4.2	4.2	5.5	3.4	5.4	6.6	6.3	7.9	6.2	3.3	4.6	4.8	4.9	7.9	4.9	24	24																			
15	4.2	5.5	6.3	6.3	5.3	4.4	4.0	7.4	10.5	8.9	9.1	9.4	10.4	7.5	7.3	5.8	5.3	3.4	2.7	2.7	0.5	1.1	0.6	1.5	10.5	5.4	24	24																			
16	1.9	0.9	4.4	11.3	15.0	19.2	15.6	14.7	16.8	15.9	17.7	18.0	18.6	16.8	16.1	18.9	15.1	13.2	14.1	12.6	8.8	7.1	6.2	2.5	19.2	12.6	24	24																			
17	2.3	2.8	2.6	2.5	5.0	5.2	7.1	7.4	8.2	9.2	8.2	7.1	5.0	3.5	4.3	5.8	7.1	6.6	4.8	3.6	3.0	3.6	4.3	5.2	9.2	5.2	24	24																			
18	2.6	0.7	1.4	0.6	1.0	2.0	2.4	3.8	4.3	4.7	4.9	4.2	4.9	5.3	8.1	7.8	7.0	6.2	5.6	4.7	2.7	2.7	3.0	2.9	8.1	3.9	24	24																			
19	3.1	1.2	1.7	1.5	0.6	0.7	1.3	3.5	4.9	3.0	4.3	5.8	4.3	2.7	3.4	3.1	4.2	5.5	4.7	3.4	2.5	1.4	0.5	0.7	5.8	2.8	24	24																			
20	0.6	0.5	0.7	0.9	1.2	0.4	0.8	3.1	3.1	5.2	6.4	7.3	6.0	7.0	8.3	6.6	5.4	5.6	5.7	3.3	3.6	1.9	0.5	0.9	8.3	3.5	24	24																			
21	0.6	0.7	0.3	0.9	1.1	1.0	0.9	6.3	5.6	6.2	8.6	9.3	12.0	8.8	8.6	9.1	8.3	7.5	6.4	3.8	3.8	3.7	0.3	0.8	12.0	4.8	24	24																			
22	0.7	0.8	0.8	0.3	0.6	1.0	1.2	3.4	3.9	3.9	6.9	6.2	5.7	3.3	4.0	4.2	7.2	5.9	4.8	2.6	3.0	2.2	1.6	1.9	2.6	6.9	3.2	24	24																		
23	1.7	0.5	2.3	2.3	5.5	6.4	7.3	11.5	9.8	9.6	9.5	10.8	11.2	11.4	9.2	7.2	5.9	4.8	6.3	3.0	2.2	1.6	1.9	2.6	6.9	3.2	24	24																			
24	0.8	0.9	1.3	1.7	1.6	2.0	3.4	3.7	3.4	4.6	5.5	5.0	4.2	4.2	8.3	3.9	1.8	6.2	3.6	3.6	1.2	2.5	1.4	4.8	8.3	3.3	24	24																			
25	0.5	1.4	2.9	0.7	0.6	2.6	4.1	4.6	4.3	0.4	1.2	5.0	3.9	1.0	6.9	5.9	7.7	0.6	2.8	0.7	2.4	2.7	1.4	2.2	7.7	2.8	24	24																			
26	2.5	1.4	0.8	0.4	1.9	0.8	2.8	7.1	8.5	9.8	12.6	9.8	9.0	10.9	13.1	11.9	8.8	6.3	4.6	3.3	2.5	1.4	1.3	0.3	13.1	5.5	24	24																			
27	0.8	1.8	1.0	0.7	0.8	1.6	1.1	6.5	7.5	7.5	7.4	7.1	5.6	8.6	8.7	6.0	5.0	4.7	4.0	11.8	18.9	12.3	12.4	13.6	18.9	6.5	24	24																			
28	13.7	13.6	11.7	11.2	10.1	9.8	11.9	13.6	15.4	13.4	13.0	13.6	9.1	8.7	8.9	8.0	6.8	7.2	5.5	4.7	2.0	2.2	0.9	1.6	15.4	9.0	24	24																			
29	0.7	0.2	1.2	0.7	1.0	3.7	5.8	5.5	3.7	3.8	3.8	1.8	3.7	3.8	4.0	5.2	3.9	2.9	3.5	3.7	3.4	3.5	4.0	3.1	5.8	3.2	24	24																			
30	4.7	2.6	1.8	0.7	1.5	2.9	4.4	5.8	7.1	7.4	8.9	7.9	7.9	9.0	7.1	7.6	7.2	6.9	7.2	6.1	4.1	4.0	4.4	5.6	9.0	5.5	24	24																			
31	5.2	5.0	6.0	3.9	4.3	6.4	5.2	2.0	1.3	4.0	4.2	5.0	4.1	3.7	5.3	6.6	6.0	4.2	1.6	2.2	1.4	2.2	3.9	2.3	6.6	4.0	24	24																			
HOURLY MAX	16.3	15.4	15.5	15.1	15.0	19.2	15.6	14.7	16.8	15.9	17.7	18.0	18.6	16.8	16.1	18.9	15.1	13.2	14.1	12.6	8.8	7.1	6.2	2.5	19.2	12.6	24	24																			
HOURLY AVG	4.1	3.5	3.7	3.3	3.6	4.2	4.9	6.7	7.4	7.2	7.8	7.7	7.4	7.1	7.4	7.4	6.7	6.4	5.8	4.8	4.4	4.1	4.1	4.1	4.6	4.6	4.5	24	24																		

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/WALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF-REPAIR	K	COLLECTION ERROR

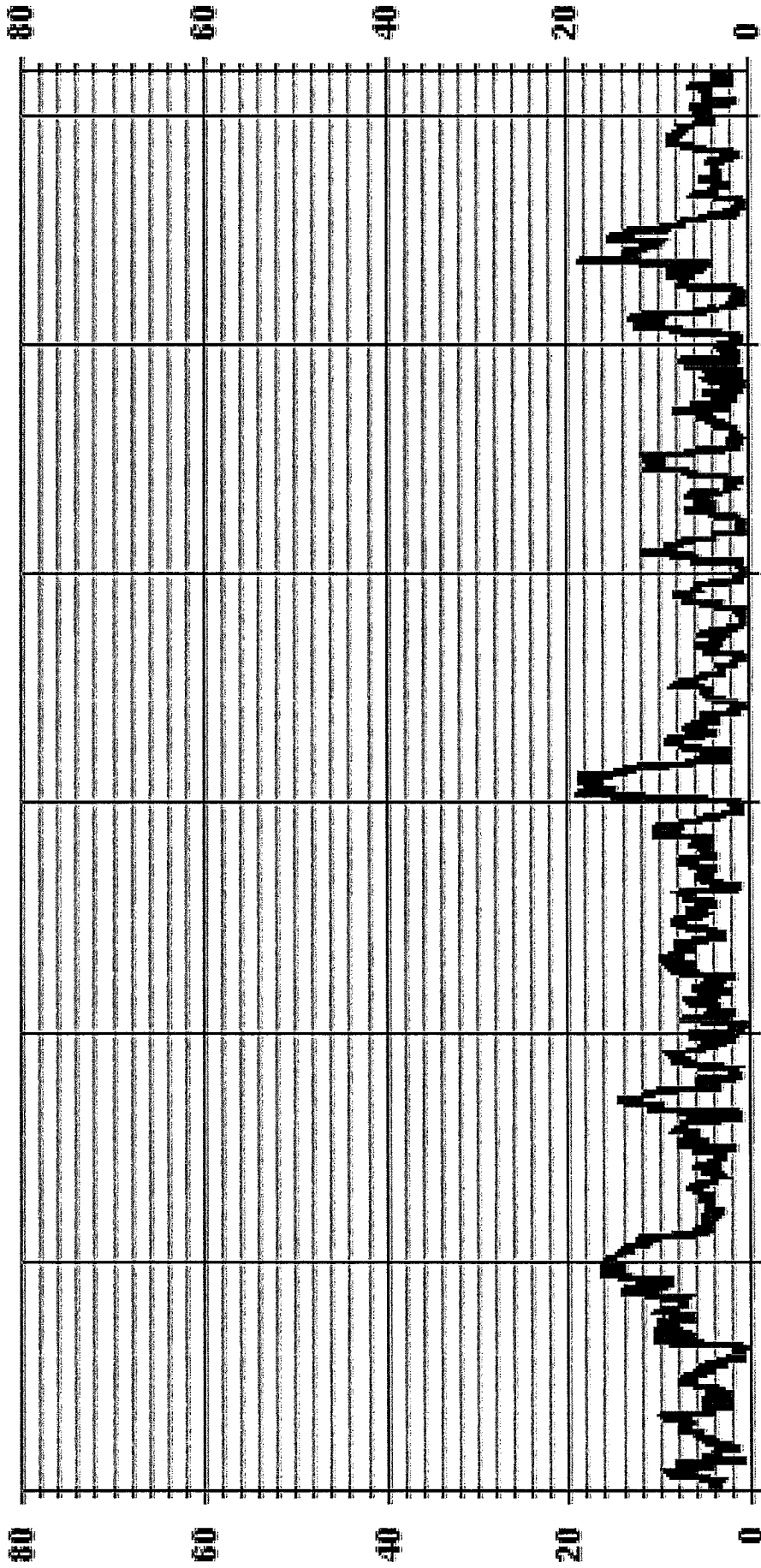
LAST CALIBRATION: March 4, 2014
DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST



MONTHLY SUMMARY

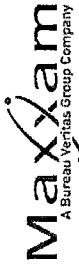
NUMBER OF NON-ZERO READINGS:	744	ON DAY(S)	16
MAXIMUM 1-HR AVERAGE:	19.2 KPH	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	12.6 KPH	VAR-VARIOUS	
MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	3.75	AMD OPERATION UPTIME:	100.0 %
		MONTHLY AVERAGE:	5.6 KPH

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 WSP KPH



VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	ROGS		
1	17.9	11.8	10.2	9.8	10.0	11.8	11.8	11.8	11.8	22.0	25.9	28.2	24.3	22.0	24.3	22.0	15.3	15.5	8.9	7.1	9.6	4.1	5.8	31.0	15.6	24	
2	6.7	14.6	10.9	13.9	18.9	19.7	22.5	23.1	26.0	24.0	41.9	41.3	24.2	36.7	28.4	46.8	31.1	19.4	13.7	17.0	15.7	6.9	15.8	16.9	46.8	22.3	24
3	16.1	16.2	13.9	11.8	11.8	18.8	21.0	17.7	35.0	29.1	27.7	30.7	21.9	22.4	16.9	17.9	17.2	14.6	7.1	16.8	9.6	4.1	3.4	35.0	17.3	24	
4	6.3	3.9	9.1	3.6	10.3	12.9	20.5	27.3	23.1	19.7	19.9	22.7	25.8	28.4	26.0	24.4	22.9	18.1	20.8	24.3	30.0	26.0	30.0	20.0	20.0	24	
5	26.2	17.5	20.3	19.9	18.6	21.0	32.6	38.0	44.0	55.3	49.2	44.2	40.9	31.1	28.3	28.0	36.3	36.3	44.8	42.4	39.4	33.0	42.6	33.7	55.3	34.3	24
6	37.0	39.2	39.8	36.7	33.9	37.0	29.8	32.2	31.5	33.7	27.5	26.7	30.0	25.8	25.1	17.7	14.6	16.4	16.7	15.0	15.0	16.4	17.0	16.8	39.8	26.3	24
7	18.1	15.0	12.0	10.4	17.1	16.0	17.7	16.4	20.1	18.8	18.8	16.8	25.3	17.5	25.1	24.9	21.4	19.9	15.3	10.1	9.3	8.0	12.6	25.3	16.4	24	
8	10.2	11.3	16.6	13.7	14.2	12.4	11.6	7.9	16.8	12.2	15.7	21.1	32.4	27.3	18.3	25.1	19.6	19.0	23.6	14.6	21.4	19.9	24.2	32.4	17.9	24	
9	20.6	16.4	17.5	9.3	8.0	6.9	6.9	24.2	27.7	31.7	29.7	35.0	32.8	37.4	36.5	28.8	29.1	26.9	23.4	14.0	9.2	13.9	15.5	13.1	37.4	21.4	24
10	10.0	9.8	10.4	10.9	11.1	9.1	6.7	15.4	22.4	18.4	27.1	29.9	29.3	28.6	31.7	27.7	22.3	22.0	18.5	8.5	3.2	5.4	10.7	20.5	31.7	17.1	24
11	19.4	9.1	8.9	3.9	3.1	12.6	14.1	17.5	29.5	16.3	16.4	19.0	20.1	17.7	19.2	24.7	20.3	20.7	16.8	11.3	6.9	9.8	7.4	16.8	29.5	15.1	24
12	15.7	10.7	13.5	11.8	9.9	6.9	9.6	13.5	19.2	24.9	30.4	22.3	31.0	30.6	28.1	26.6	29.9	26.8	25.5	18.8	17.7	19.4	20.5	23.6	31.0	20.3	24
13	17.0	12.2	12.8	7.4	6.8	6.8	17.0	23.1	25.3	22.5	27.3	32.6	31.7	28.4	22.5	25.7	26.2	18.8	19.4	10.2	8.9	9.8	14.8	15.9	32.6	18.5	24
14	15.3	21.4	14.6	8.7	3.0	3.5	10.2	13.7	15.0	20.1	23.8	20.5	20.1	25.5	18.5	26.4	22.7	19.8	23.1	19.9	8.2	13.5	11.8	13.3	26.4	16.4	24
15	10.4	13.3	13.1	13.9	12.0	10.7	10.5	21.0	31.3	25.4	26.5	31.7	29.0	25.7	32.8	17.6	15.9	16.6	9.5	10.2	5.4	6.5	6.3	6.7	32.8	16.8	24
16	8.9	5.2	22.0	35.0	36.7	48.8	39.6	34.8	37.8	34.1	42.6	42.0	41.8	41.2	47.5	43.3	42.0	43.1	37.2	33.2	26.0	17.5	14.4	10.4	48.8	32.6	24
17	7.8	9.8	8.3	6.6	9.8	17.5	19.9	21.0	20.1	22.9	23.8	26.6	23.4	20.5	19.9	26.9	25.1	22.9	19.0	10.4	6.2	7.5	10.0	11.3	26.9	16.6	24
18	12.0	7.8	3.9	8.7	9.3	5.9	5.0	12.6	15.7	19.1	20.7	18.9	24.7	24.8	25.0	22.8	28.8	24.4	17.4	12.2	4.5	5.0	6.3	7.4	28.8	14.3	24
19	6.7	5.8	9.8	2.6	1.7	8.7	14.6	14.8	14.4	24.3	21.0	22.1	21.0	16.4	15.6	15.6	19.1	17.1	15.8	8.7	4.3	3.6	3.2	2.6	24.3	11.8	24
20	2.3	2.3	2.3	3.0	2.8	3.2	6.1	10.2	14.4	18.8	22.0	25.1	26.2	31.4	32.8	29.2	21.8	22.3	17.3	11.6	6.8	6.6	4.6	5.6	32.8	13.7	24
21	3.4	4.1	2.6	3.2	6.9	3.4	12.0	17.9	16.6	20.7	29.9	28.8	36.7	34.5	30.5	36.2	26.6	22.7	21.1	12.4	9.5	9.3	4.5	2.8	36.7	16.5	24
22	3.7	4.2	5.6	3.2	4.7	3.0	3.6	13.7	13.1	14.1	20.1	27.9	25.7	22.7	25.7	27.5	26.4	20.7	19.6	12.4	10.0	4.7	5.6	11.8	27.9	13.7	24
23	5.8	6.1	7.1	7.8	13.9	13.5	19.9	25.6	20.7	26.5	33.3	25.8	30.7	28.0	25.0	20.1	18.3	15.4	9.3	3.4	3.2	4.7	5.6	7.4	33.3	15.7	24
24	4.7	3.6	6.3	4.1	3.9	6.5	9.8	10.4	10.0	20.7	20.5	26.4	20.5	26.4	20.7	15.9	16.1	18.3	13.7	10.6	15.5	14.8	4.7	16.6	26.4	13.4	24
25	8.1	6.8	9.0	5.0	3.0	7.1	11.8	11.3	12.4	6.7	9.1	23.3	18.5	30.3	33.6	35.4	26.4	17.2	8.0	6.3	6.3	10.4	7.1	7.4	35.4	13.4	24
26	9.1	7.6	5.4	3.9	6.1	3.4	8.7	26.6	24.2	33.2	33.0	28.8	28.5	31.8	29.6	26.1	23.2	16.4	15.5	8.9	7.4	6.1	5.4	4.7	33.2	16.4	24
27	6.1	5.4	4.5	3.0	2.8	6.7	7.1	17.9	18.1	21.6	29.5	25.1	21.8	31.4	27.5	25.5	22.8	21.8	25.4	41.8	47.5	31.5	28.2	33.7	47.5	21.1	24
28	39.6	33.0	32.1	30.2	28.2	29.9	37.8	31.3	38.0	40.0	36.1	32.6	32.1	34.8	26.9	25.2	26.3	23.3	18.3	14.4	8.2	5.6	4.5	6.3	40.0	26.4	24
29	5.6	2.3	10.7	4.8	4.8	9.6	15.7	14.1	16.1	20.5	21.1	15.5	19.9	23.3	23.3	19.6	18.5	16.8	12.2	10.2	8.5	8.5	12.4	12.2	23.3	13.6	24
30	19.4	13.3	8.7	5.5	6.3	12.0	17.9	19.4	24.0	27.1	30.4	32.3	33.6	28.1	29.0	27.1	25.3	27.1	23.1	23.1	12.0	12.0	13.5	19.0	33.6	20.4	24
31	18.8	20.3	19.6	20.3	17.4	21.2	19.3	8.6	7.2	12.0	19.9	20.7	15.9	14.4	24.0	23.1	24.4	24.0	45.9	13.3	9.8	12.8	9.8	8.7	45.9	17.7	24
HOURLY MAX	39.6	39.2	39.8	36.7	48.8	39.6	38.0	44.0	55.3	49.2	44.2	41.8	41.2	47.5	46.8	42.0	43.1	45.9	42.4	47.5	33.0	42.6	33.7				
HOURLY AVG	13.2	11.6	12.3	10.9	11.2	12.7	15.6	19.4	21.8	23.8	26.7	27.0	27.3	27.2	26.8	26.3	23.8	21.5	20.1	14.8	12.6	11.8	12.0	13.3			

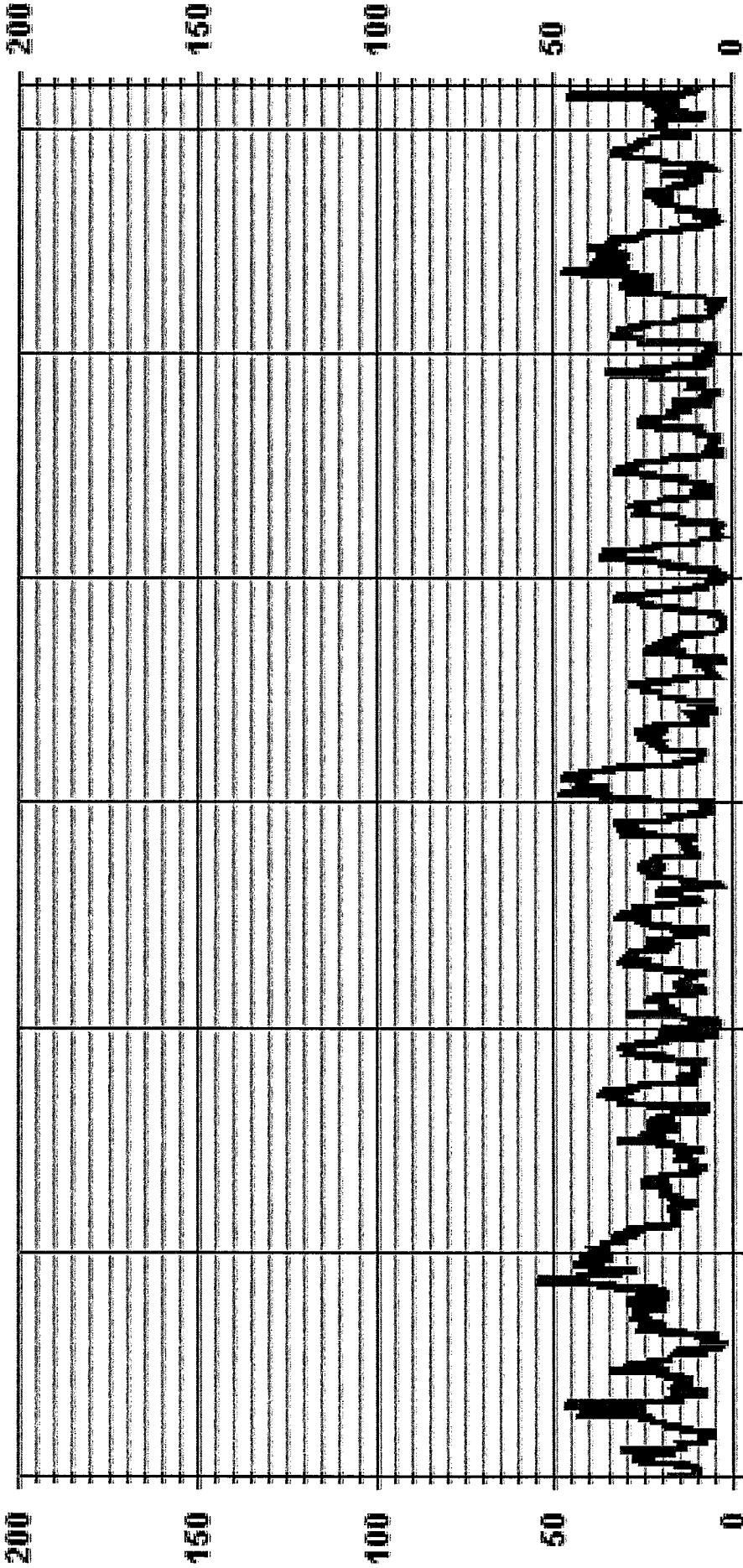
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	55.3	KPH	@ HOUR(S)	9	ON DAY(S)	5
					VAR-VARIOUS	
					OPERATIONAL TIME:	744 HRS

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 WSMAX KPH

LICA30
WSP / WDR Joint Frequency Distribution (Percent)
May 2015

Distribution BY % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	3.49	3.09	3.36	5.91	3.22	4.97	5.51	4.16	5.77	7.66	6.58	2.01	1.88	1.07	.94	1.07	60.75
< 12.0	.94	4.16	5.37	1.47	.80	2.28	2.01	2.82	4.03	4.03	.80	.13	.00	.80	1.20	.67	31.58
< 20.0	.00	4.30	2.55	.26	.40	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	7.66
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.43	11.55	11.29	7.66	4.43	7.25	7.52	6.98	9.94	11.69	7.39	2.15	1.88	1.88	2.15	1.74	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	26	23	25	44	24	37	41	31	43	57	49	15	14	8	7	8	452
< 12.0	7	31	40	11	6	17	15	21	30	30	6	1		6	9	5	235
< 20.0		32	19	2	3				1								57
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	33	86	84	57	33	54	56	52	74	87	55	16	14	14	16	13	

Calm : .00 %

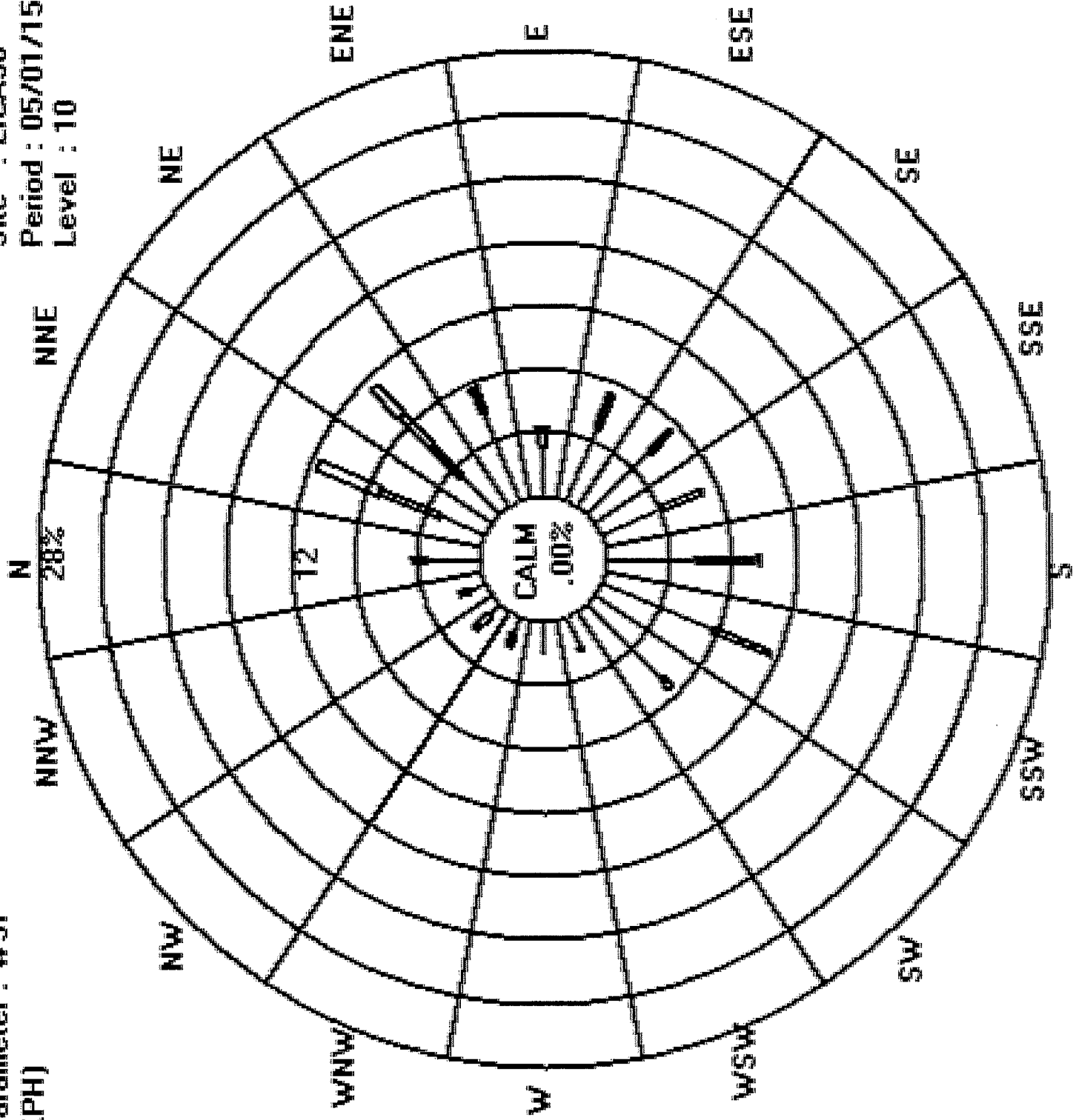
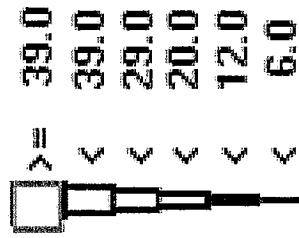
Total # Operational Hours : 744

Logger : 30 Parameter : WSP

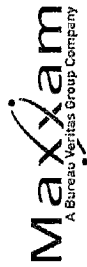
Site : LICA30

Class Limits (KPH)

Period : 05/01/15-05/31/15
Level : 10



WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Maskwa Site - MAY 2015
JOB # 2833-2015-05-30-C

WIND DIRECTION (WD) hourly averages

DAY	HOUR																								24-HOUR AVG	QUADRANT	ROGCS
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			
1	W	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	W	24
2	SW	SSW	SW	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	24
3	WNW	WNW	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	24
4	SSE	E	ESE	ESE	ESE	ENE	NE	NE	NE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	24
5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	24
6	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	24
7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	24
8	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	24
9	E	ENE	ESE	E	ENE	ESE	ENE	NE	NE	ENE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ENE	24
10	S	ESE	ESE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	24
11	SSE	SSE	ESE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24
12	S	SSE	SSE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	24
13	SSE	SSE	ESE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24
14	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	24
15	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	24
16	E	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	24
17	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	24
18	SE	NE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	24
19	SSW	WSW	W	W	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	24
20	SW	S	WSW	ENE	SE	ENE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	24
21	NNW	SSE	SSW	SE	ESE	ENE	NE	N	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	24	
22	ESE	SE	E	E	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	24
23	SE	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	24
24	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	24
25	ENE	E	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	24
26	SW	SSW	W	S	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	24
27	ESE	E	SE	S	ESE	ENE	NE	S	SSE	S	SSE	S	SSE	S	SSE	S	SSE	S	SSE	S	SSE	S	SSE	S	SSE	S	24
28	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	24
29	NE	SE	SE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24
30	E	E	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	24
31	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	24

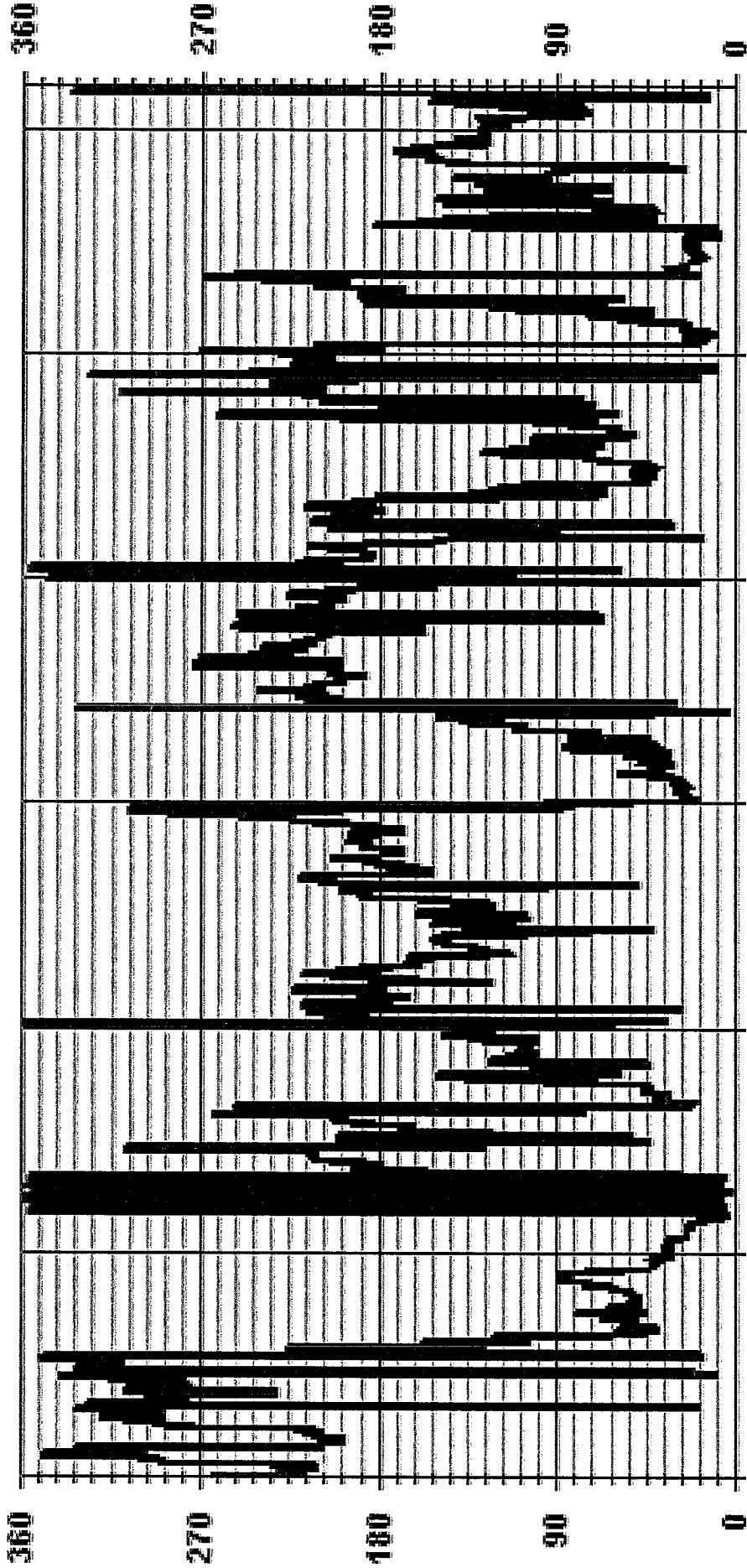
STATUS FLAG CODES

C	- CALIBRATION
Y	- MAINTENANCE
S	- DAILY ZERO/SPAN CHECK
P	- POWER FAILURE
G	- GUT FOR REPAIR
Q	- QUALITY ASSURANCE
R	- RECOVERY
X	- MACHINE MALFUNCTION
O	- OPERATOR ERROR
X	- COLLECTION ERROR

LAST CALIBRATION: March 4, 2014
DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	90.11		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	ENE	

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 WDR DEG

STANDARD DEVIATION WIND DIRECTION



STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
1	30	22	15	17	16	20	20	26	29	29	34	34	41	48	33	32	64	41	23	15	13	35	35	12	
2	28	13	15	24	31	32	33	36	34	34	34	34	34	33	27	34	26	31	34	26	32	37	25	35	
3	29	23	37	41	40	34	32	33	40	35	36	44	39	39	40	38	55	26	18	18	20	21	44	43	
4	46	26	34	50	31	19	18	21	20	33	39	24	28	30	35	28	31	22	22	24	22	21	23	22	
5	21	21	21	21	23	22	24	29	27	30	29	28	32	30	28	24	21	19	19	18	20	19	16	16	
6	16	17	17	16	16	14	16	15	15	17	15	17	17	19	18	18	21	26	24	25	24	25	34	34	
7	28	27	34	35	35	27	34	34	36	31	35	46	44	35	33	32	36	43	54	24	15	15	13	18	
8	14	29	15	18	19	20	36	42	39	34	24	47	50	28	51	25	32	30	25	21	19	20	18	17	
9	16	15	51	64	34	37	62	22	20	26	25	23	22	21	26	27	23	23	25	19	23	15	14	17	
10	16	45	28	18	17	42	28	31	30	42	31	39	40	39	48	63	47	40	38	22	7	25	24	16	
11	21	30	33	65	67	50	24	24	33	39	46	67	49	71	56	44	39	31	25	15	12	21	26	18	
12	20	32	18	19	27	54	42	24	24	33	38	50	45	42	47	29	32	32	27	22	19	18	17	20	
13	19	18	22	11	12	18	35	31	34	35	35	40	50	61	48	51	46	30	29	17	11	14	15	16	
14	15	17	14	40	26	17	41	41	37	42	46	64	63	60	68	53	48	36	25	18	12	15	16	15	
15	14	15	13	14	15	17	23	25	24	29	32	34	31	35	38	34	32	42	29	29	62	48	60	56	
16	33	60	27	16	16	15	15	15	15	17	20	20	21	21	24	19	23	26	23	19	14	12	15	25	
17	27	18	21	19	12	24	27	33	29	29	34	37	57	72	58	43	35	33	34	21	8	9	13	12	
18	23	37	37	43	41	24	14	40	42	46	57	55	56	56	35	38	36	33	31	14	8	7	13	18	
19	12	25	14	13	45	31	54	40	40	64	60	41	62	72	64	66	52	42	31	18	11	31	62	33	
20	51	48	45	34	45	34	50	39	49	44	41	38	43	53	36	43	45	44	32	18	11	25	45	47	
21	57	43	64	36	57	19	50	25	32	36	36	37	29	41	43	32	34	29	29	17	9	13	80	59	
22	59	64	60	69	44	52	27	53	36	50	34	52	52	63	58	60	42	32	25	23	24	27	42	27	
23	69	47	38	33	17	17	19	21	21	27	27	24	26	23	25	27	35	30	26	36	42	24	27	21	
24	56	36	33	15	25	28	23	29	35	40	45	51	58	50	28	53	48	31	26	20	39	24	50	18	
25	45	55	45	58	42	32	23	19	25	60	62	54	65	66	42	39	23	48	30	65	35	30	53	31	
26	30	51	45	59	25	36	32	25	27	30	22	36	34	31	20	17	21	25	23	20	18	37	43	49	
27	44	46	38	46	64	27	54	26	27	31	38	41	32	28	45	44	50	39	44	17	18	15	15	15	
28	16	18	19	22	21	22	23	19	18	22	24	24	32	43	37	35	40	36	36	27	20	19	46	30	
29	59	59	35	53	48	14	20	31	49	59	61	79	50	59	59	48	58	60	36	21	15	14	16	26	
30	35	34	35	51	50	27	41	35	34	37	37	40	42	36	42	37	42	39	32	30	23	20	24	32	
31	30	30	33	43	33	37	43	58	58	27	31	32	33	40	42	34	37	34	71	56	52	25	16	34	

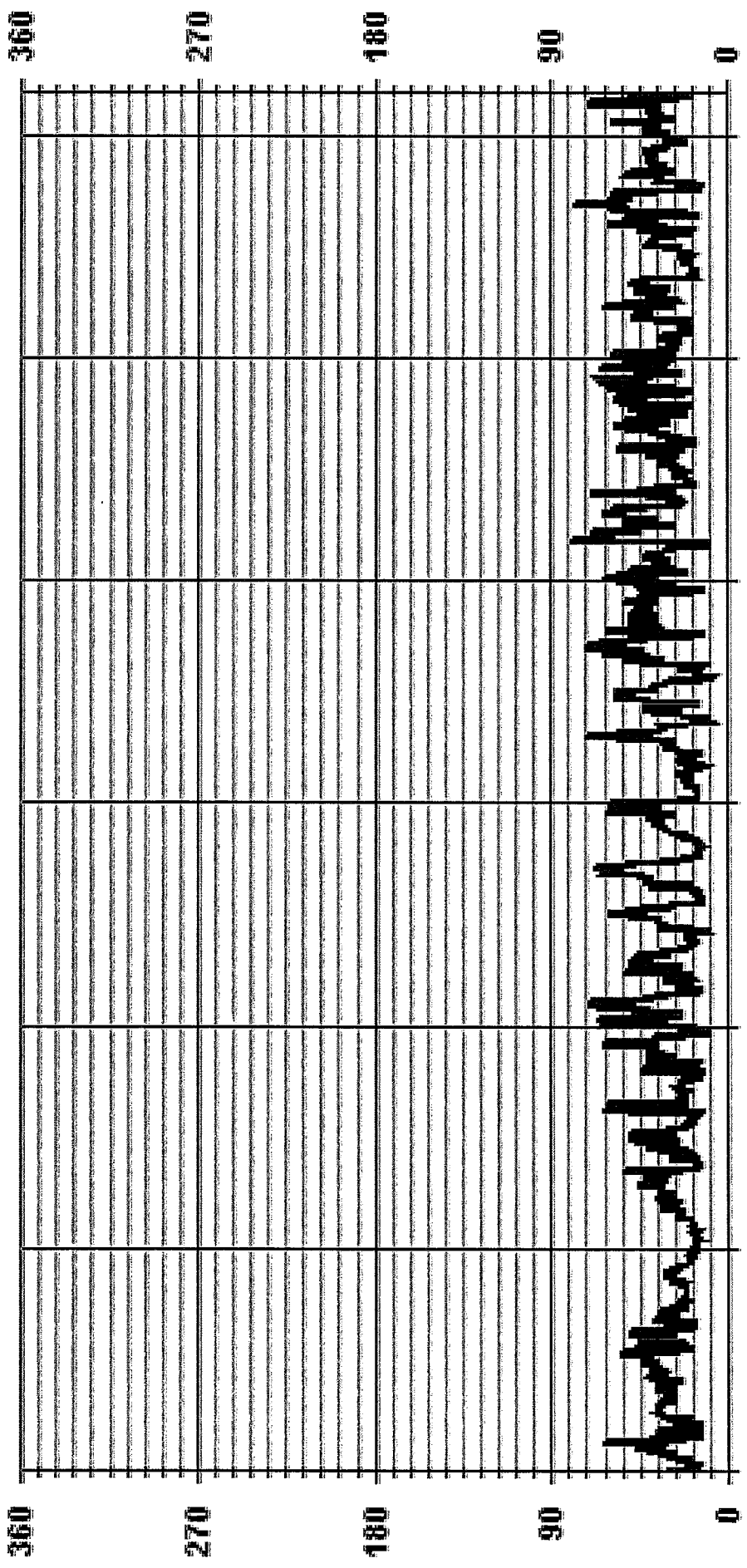
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

LAST CALIBRATION: March 4, 2014

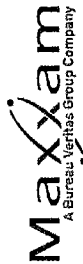
CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



— LICA30 STDWDIR DEG

RELATIVE HUMIDITY

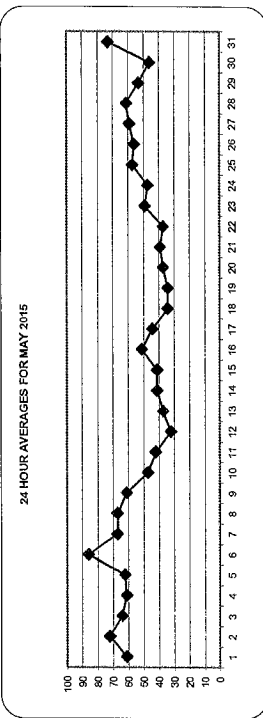


RELATIVE HUMIDITY (RH) hourly averages in %

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	ROGS		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	AVG.		
DAY																									DAILY	MAX.	MIN.	AVG.
1	56	62	67	73	76	76	68	54	41	38	37	44	45	44	49	64	58	54	54	63	75	79	79	90	90	60.5	24	
2	90	86	78	81	81	76	69	54	48	46	41	51	57	52	64	66	85	84	79	87	90	91	91	89	91	71.9	24	
3	87	89	90	91	91	85	76	62	52	49	52	43	45	39	39	39	38	39	41	47	58	75	80	87	91	64.4	24	
4	89	90	90	90	85	74	65	61	55	53	51	47	43	39	40	40	40	43	46	51	56	59	59	90	90	61.4	24	
5	62	65	69	71	70	65	60	56	53	50	61	64	63	62	59	62	59	58	57	57	60	61	63	69	71	62.1	24	
6	74	82	87	86	86	87	88	86	85	83	84	83	81	80	83	88	88	88	89	89	89	90	89	89	90	85.6	24	
7	88	88	89	89	88	86	82	77	72	68	62	59	56	51	50	46	41	40	41	53	63	71	70	70	89	67.0	24	
8	70	77	74	75	76	74	72	67	66	66	60	68	75	68	57	58	55	49	51	55	57	59	65	71	86	66.9	24	
9	71	73	73	75	80	81	69	59	59	58	58	59	60	56	52	49	45	44	42	50	63	64	66	68	81	61.4	24	
10	78	87	89	89	87	76	44	33	29	25	23	21	17	20	20	20	20	21	23	30	42	57	68	50	89	47.4	24	
11	46	65	74	79	81	70	51	45	39	34	30	25	23	22	21	20	21	22	23	29	41	46	55	50	81	42.2	24	
12	42	48	44	42	52	58	48	38	29	24	21	20	20	19	19	19	18	19	21	25	29	31	35	38	58	31.6	24	
13	43	49	57	67	72	67	48	38	33	27	22	20	21	21	21	22	22	23	23	31	38	44	44	44	72	37.4	24	
14	48	52	58	69	80	73	61	53	47	39	31	27	23	25	22	23	24	26	30	34	42	42	43	46	80	41.3	24	
15	51	52	55	58	61	58	52	47	44	37	31	27	23	25	22	23	24	26	30	34	42	48	52	53	61	40.6	24	
16	55	60	63	64	63	71	83	81	76	62	36	30	24	27	27	27	31	32	35	40	48	55	59	66	83	50.6	24	
17	73	76	80	82	82	74	66	57	49	39	31	26	22	20	20	19	16	16	16	23	36	47	45	41	82	44.0	24	
18	58	66	66	71	77	63	52	30	24	19	16	15	14	12	12	12	11	11	12	16	28	37	46	53	77	34.2	24	
19	60	70	79	80	89	77	48	27	18	15	12	10	9	7	6	6	7	8	9	14	26	38	49	60	89	34.3	24	
20	69	81	81	87	87	72	50	29	20	14	12	11	11	10	10	9	10	10	11	18	31	44	56	65	87	37.4	24	
21	72	76	80	84	84	70	55	31	25	20	17	14	13	14	12	12	11	12	12	19	35	47	61	64	84	39.2	24	
22	70	75	78	82	85	72	54	36	29	24	18	11	11	10	10	9	9	11	12	20	34	36	49	51	85	37.3	24	
23	55	62	69	71	60	59	59	54	49	39	34	31	30	29	27	26	25	25	25	30	44	61	71	75	79	48.5	24	
24	84	89	90	92	92	84	67	52	38	25	20	21	21	19	20	18	18	20	26	29	41	47	60	92	47.2	24		
25	65	69	73	82	83	81	68	60	52	42	31	24	22	18	23	28	44	47	53	66	76	82	81	86	86	56.5	24	
26	83	88	92	92	99	92	75	66	57	45	38	28	22	24	24	21	22	25	32	44	56	71	78	81	93	56.2	24	
27	83	86	89	90	91	89	72	56	50	45	41	35	31	32	34	32	30	29	33	51	67	77	85	84	91	58.8	24	
28	83	77	76	76	77	77	78	74	66	60	56	49	46	40	37	38	35	36	36	41	60	74	84	88	88	61.0	24	
29	89	90	90	89	82	70	59	47	40	37	36	34	31	28	26	26	26	26	29	39	50	52	64	90	90	53.3	24	
30	66	70	79	86	90	75	53	46	41	36	29	27	26	27	27	27	26	26	27	31	39	45	50	49	90	45.8	24	
31	53	57	58	63	68	60	56	59	75	87	88	86	84	73	63	57	57	65	77	86	92	93	93	93	93	72.6	24	
HOURLY MAX	90	90	92	92	93	92	88	86	85	87	88	86	84	80	83	88	88	89	89	92	93	93	93	93	93	93		
HOURLY AVG	68.2	72.8	75.4	78.3	80.2	75.4	65.0	54.2	48.1	43.3	38.5	36.3	34.8	33.0	32.3	32.0	32.6	33.2	35.2	42.2	52.3	59.1	64.5	66.4	66.4			

STATUS FLAG CODES

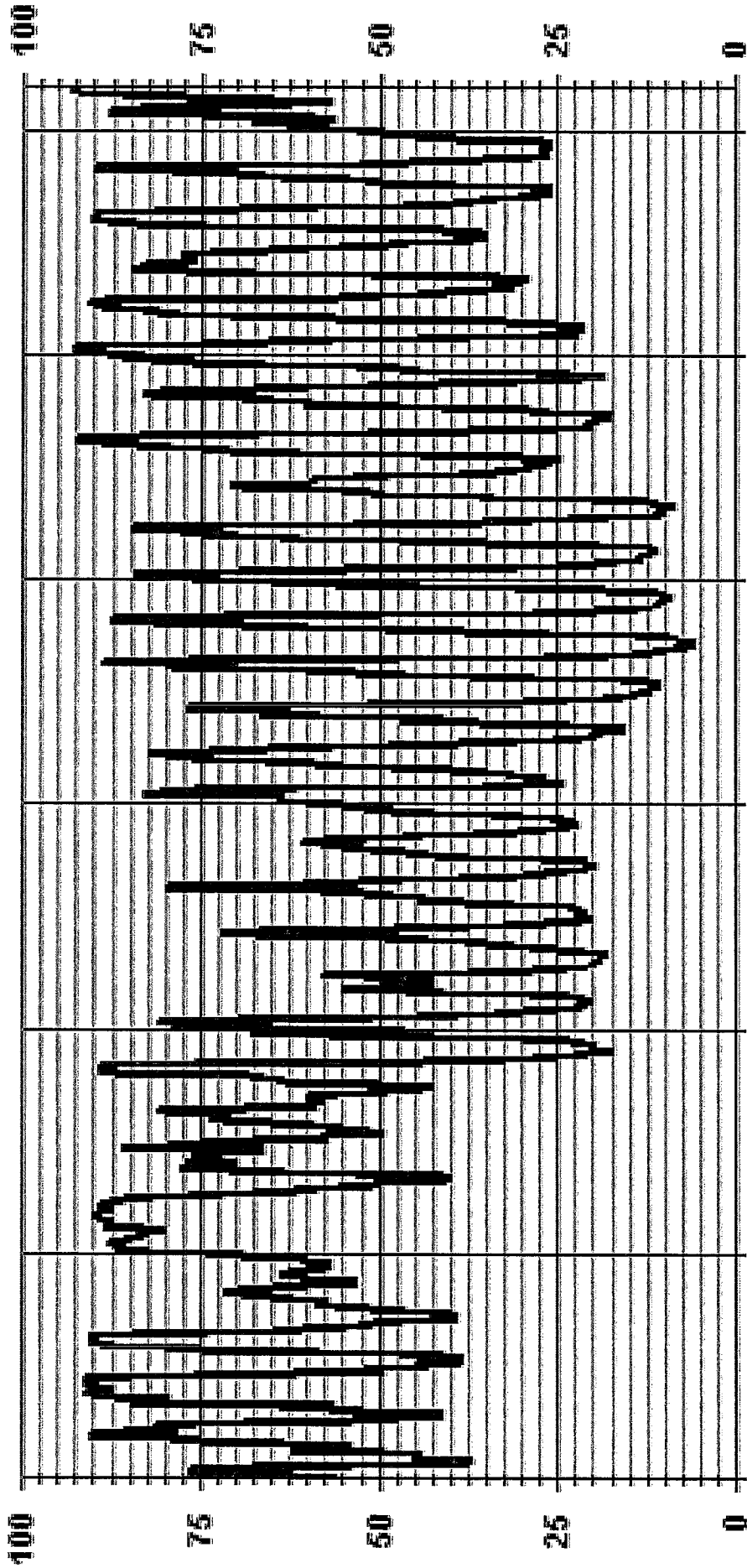
C	-	CALIBRATION	Q	-	QUALITY ASSURANCE
Y	-	MAINTENANCE	R	-	RECOVERY
S	-	DAILY ZERO/SPAN CHECK	X	-	MACHINE/MALFUNCTION
P	-	POWER FAILURE	O	-	OPERATOR ERROR
G	-	OUT FOR REPAIR	K	-	COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	93	%	@ HOUR(S)	VAR	ON DAY(S)	26, 31
MAXIMUM 24-HR AVERAGE:	85.6	%			ON DAY(S)	6
STANDARD DEVIATION:	24.14				VAR-VARIOUS	
					OPERATIONAL TIME:	744 HRS
					AMD OPERATION UPTIME:	100.0 %
					MONTHLY AVERAGE:	52 %

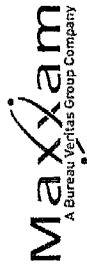
01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA30 RH %

BAROMETRIC PRESSURE



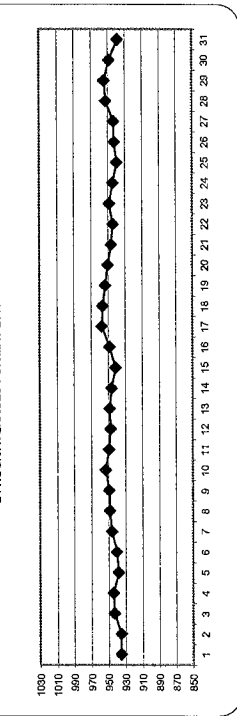
BAROMETRIC PRESSURE (BP) hourly averages in millibar

DAY	HOUR START																								DAILY MAX	24-HOUR AVG	RDGS		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				0:00	
1	936	936	936	936	936	936	936	937	937	937	936	936	935	935	935	935	934	934	932	933	933	933	932	932	937	935	24		
2	932	932	932	932	932	933	933	934	934	934	935	935	935	935	935	936	936	937	937	938	938	938	938	938	939	939	935	24	
3	939	939	939	939	941	941	942	944	944	944	945	945	945	946	946	946	946	944	944	944	944	944	944	944	944	945	943	24	
4	944	944	944	944	944	945	945	946	946	946	945	945	945	946	946	946	944	943	943	943	943	943	942	942	947	944	24		
5	942	941	940	940	939	940	939	939	939	938	938	938	938	938	938	938	937	937	937	937	937	937	937	937	938	942	938	24	
6	937	937	937	937	937	937	937	937	937	938	938	939	939	940	940	941	941	941	942	942	942	942	942	944	944	944	940	24	
7	944	944	944	944	944	944	944	945	945	945	945	945	945	946	946	946	946	947	947	947	947	947	947	947	947	948	946	24	
8	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	24	
9	946	945	945	945	946	946	946	947	947	948	948	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	948	24	
10	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	949	24	
11	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	953	24	
12	946	947	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	949	24	
13	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	947	24	
14	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	24	
15	943	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	941	24	
16	939	939	939	939	940	941	942	943	944	945	946	947	948	949	949	949	949	949	949	949	949	949	949	949	949	949	949	948	24
17	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	955	957	24
18	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	24
19	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	952	24
20	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	24
21	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	24
22	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	24
23	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	944	24
24	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	944	24
25	940	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	944	24
26	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	24
27	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	24
28	945	946	947	947	948	949	950	951	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	952	24
29	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	24
30	951	951	950	949	949	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	24
31	943	943	942	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	943	24
HOURLY MAX	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	24
HOURLY AVG	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	24

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

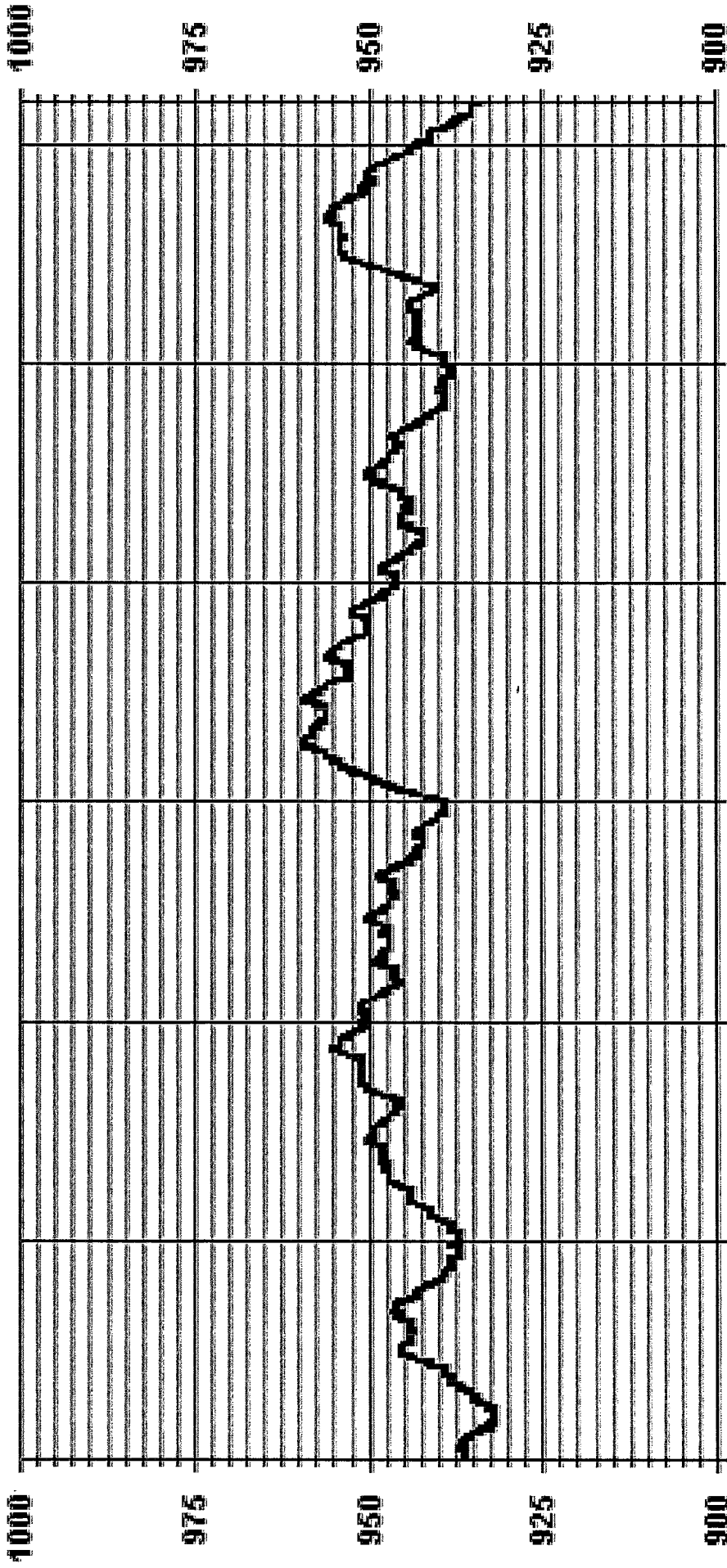
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	959	MB	@ HOUR(S)	VAR	ON DAY(S)	17, 13
MAXIMUM 24-HR AVERAGE:	957	MB			ON DAY(S)	17
STANDARD DEVIATION:	5.99				OPERATIONAL TIME:	744 HRS
					AMD OPERATION UPTIME:	100.0 %
					MONTHLY AVERAGE:	946 MB

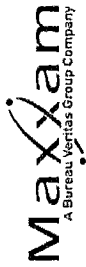
01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 BP MB

AMBIENT TEMPERATURE

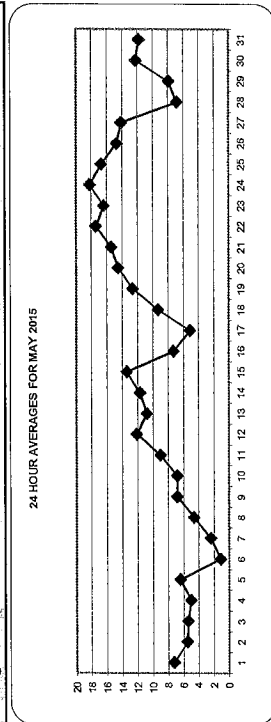


AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	AVG.	ROSS.	
1	4.7	3.4	2.5	1.7	1.1	1.6	4.1	8.3	10.9	11.4	13.3	11.5	12.1	12.6	11.8	9.9	10.7	11.2	10.8	8.0	5.2	4.0	1.5	0.3	13.3	7.2	24	
2	0.4	0.8	2.5	1.6	1.1	2.6	4.7	8.7	10.8	11.2	12.8	10.9	9.3	10.7	8.4	8.9	4.0	4.7	6.5	4.0	2.6	1.1	1.4	2.0	12.8	5.5	24	
3	1.5	0.7	0.0	-0.8	-0.9	0.1	2.2	4.2	6.6	8.4	9.2	8.7	10.8	9.9	11.6	10.5	10.4	9.5	8.7	7.1	5.0	3.6	2.7	0.4	11.6	5.4	24	
4	-1.3	-2.2	-2.7	-3.1	-3.2	-1.7	0.8	2.6	3.6	5.5	6.2	7.0	9.4	11.1	12.0	11.1	12.2	11.1	9.6	8.0	6.8	5.9	5.6	4.8	12.2	5.0	24	
5	3.8	2.6	1.5	1.0	1.1	1.9	3.8	6.4	8.0	10.0	9.6	8.6	8.7	8.3	8.5	8.9	9.4	9.3	9.1	7.8	7.0	6.6	6.3	5.5	10.0	6.4	24	
6	4.5	3.2	2.3	2.1	1.6	1.2	1.0	0.7	0.7	1.1	1.2	1.4	1.5	1.6	1.1	0.8	0.9	0.6	0.5	0.3	0.0	-0.3	-0.6	-0.6	4.5	1.1	24	
7	-0.9	-1.4	-1.9	-2.3	-2.2	-1.6	-0.7	2.1	3.1	5.5	5.7	6.1	6.4	6.4	6.4	6.4	7.6	7.6	7.2	4.2	1.6	-0.1	-1.8	0.0	7.6	2.4	24	
8	-0.4	-2.1	-1.0	-1.0	-0.4	0.7	2.3	4.5	2.4	4.5	8.0	5.4	8.3	9.4	8.3	9.4	8.8	10.3	10.6	9.6	8.0	7.1	6.5	4.1	10.6	4.6	24	
9	4.0	3.6	4.1	3.8	2.5	2.5	6.2	8.4	8.9	9.0	9.1	9.0	8.5	9.3	10.2	10.9	11.1	10.7	10.0	7.9	4.1	3.7	3.4	2.9	11.1	6.8	24	
10	-0.3	-2.7	-3.1	-3.9	-4.6	-2.6	1.7	7.1	9.4	11.4	12.7	13.7	14.6	14.9	15.1	15.1	14.7	13.7	10.4	5.4	2.6	0.3	3.6	15.1	6.8	24		
11	4.9	0.2	-2.1	-3.0	-3.3	-0.1	5.2	7.1	9.4	11.5	13.2	15.5	15.9	17.2	17.5	17.6	16.8	16.7	15.5	12.7	8.8	6.9	5.1	5.9	17.6	9.0	24	
12	7.5	5.5	5.5	5.1	3.1	3.0	6.6	9.8	13.2	15.8	17.4	18.4	18.8	18.5	19.1	18.3	18.5	17.7	16.2	13.5	11.1	10.4	9.4	8.4	19.1	12.1	24	
13	7.1	5.5	3.1	0.6	-0.5	1.6	7.5	10.9	12.9	14.7	15.7	16.1	16.9	17.1	17.8	17.5	17.6	16.1	15.8	12.3	9.1	7.0	7.6	8.0	17.8	10.8	24	
14	7.0	6.5	5.4	2.9	0.0	1.6	7.3	10.2	12.6	14.9	16.1	16.4	17.4	18.3	19.3	19.2	18.8	18.4	17.3	14.5	10.0	8.7	9.2	8.5	19.3	11.7	24	
15	7.0	7.1	6.6	6.1	5.5	7.0	9.8	11.9	13.4	15.6	17.2	18.1	19.1	19.0	20.1	18.9	18.3	18.2	17.1	15.8	14.0	13.0	11.9	11.7	20.1	13.4	24	
16	11.3	10.9	11.2	11.2	9.5	7.2	5.1	4.0	4.0	5.5	8.9	10.1	10.4	10.6	10.8	10.3	9.8	8.5	7.2	5.4	3.4	1.2	-0.2	-2.1	11.3	7.3	24	
17	-3.5	-3.6	-4.1	-4.6	-4.8	-1.6	0.9	2.8	4.1	5.8	7.9	9.6	11.4	12.3	13.4	13.2	13.5	13.5	12.9	9.8	5.5	2.8	2.1	2.2	13.5	5.1	24	
18	-1.2	-2.6	-3.2	-3.6	-4.1	-0.2	4.8	9.9	12.3	14.0	15.2	16.9	17.5	18.7	18.3	18.6	18.4	18.3	17.4	14.8	9.4	5.9	3.6	3.0	18.7	9.3	24	
19	2.3	0.4	-0.3	-0.6	-1.9	2.5	9.4	13.7	16.5	18.9	19.1	20.2	21.2	22.0	22.4	22.4	22.4	21.6	20.8	18.0	12.5	8.3	6.1	4.2	22.4	12.6	24	
20	2.8	1.4	1.2	-0.2	-0.5	3.4	11.3	16.4	19.7	21.4	22.0	22.9	23.9	24.2	24.6	24.6	24.4	23.8	22.8	19.6	14.5	10.5	7.4	5.5	24.6	14.5	24	
21	4.1	3.5	2.2	1.1	0.9	5.2	11.1	16.4	20.0	22.2	23.2	24.0	24.2	24.9	25.2	25.2	25.2	24.6	23.7	20.6	15.1	11.5	8.0	6.5	25.2	15.4	24	
22	5.3	4.0	3.1	2.0	2.0	6.2	11.7	17.5	20.4	23.7	25.0	26.7	27.2	27.6	27.7	27.8	27.7	26.8	26.1	22.6	17.0	15.6	12.6	11.1	27.8	17.4	24	
23	9.8	8.2	7.3	6.7	8.5	10.0	12.3	14.8	17.3	20.7	22.9	23.8	24.0	23.7	23.8	24.6	24.8	24.1	22.9	19.0	14.4	11.7	10.1	8.7	24.8	16.4	24	
24	7.5	6.2	5.7	5.4	5.2	7.7	12.2	17.2	21.8	25.3	26.7	27.1	27.2	27.6	26.6	26.6	27.7	27.4	25.7	24.1	22.2	18.5	15.7	12.5	12.6	27.7	18.2	24
25	12.0	11.3	10.6	9.1	8.9	9.8	12.6	14.8	17.6	21.2	24.1	26.6	27.1	28.2	25.8	23.7	19.4	18.9	18.4	15.9	13.0	11.2	11.6	10.1	28.2	16.7	24	
26	10.4	9.2	7.7	7.3	7.3	9.0	13.7	16.6	18.5	20.1	20.7	21.8	22.6	21.5	21.1	20.9	20.5	19.8	18.5	15.3	11.6	7.9	6.1	4.7	22.6	14.7	24	
27	3.6	2.9	1.8	1.2	0.6	3.6	8.3	13.6	16.1	18.4	20.3	22.1	23.3	23.5	23.4	24.3	24.8	24.9	23.6	17.0	12.3	10.6	9.2	8.8	24.9	14.1	24	
28	8.0	6.9	6.3	6.0	5.0	4.3	4.4	4.7	4.9	5.3	6.0	7.8	9.1	10.5	11.5	11.6	12.3	11.9	9.6	5.5	2.2	0.0	-1.1	12.3	6.8	24		
29	-2.2	-2.7	-3.1	-3.6	-3.3	0.0	4.6	8.1	10.5	12.4	12.6	13.2	13.6	15.2	15.5	16.2	15.9	15.2	14.9	11.8	8.0	6.5	6.2	4.7	16.2	7.9	24	
30	5.4	4.5	1.7	-0.4	-0.7	4.1	9.4	11.9	14.0	15.9	17.5	18.2	19.4	18.9	19.1	19.2	19.8	19.1	17.9	15.2	12.0	10.2	9.8	11.1	19.8	12.2	24	
31	10.9	10.0	9.9	9.0	7.8	9.9	11.3	11.1	9.8	9.0	9.3	10.7	12.2	15.7	19.3	19.7	19.5	16.6	13.5	12.3	10.2	8.3	8.7	8.4	19.7	11.8	24	
HOURLY MAX	12.0	11.3	11.2	11.2	9.5	10.0	13.7	17.5	21.8	25.3	26.7	27.1	27.2	28.2	27.7	27.8	27.7	26.8	26.1	22.6	18.5	15.7	12.6	12.6	28.2	12.6		
HOURLY AVG	4.4	3.3	2.6	1.8	1.3	3.2	6.6	9.5	11.4	13.1	14.3	15.2	15.8	16.4	16.7	16.6	16.4	15.8	15.0	12.4	9.1	7.1	5.8	5.3	17.4	5.3		

STATUS FLAG CODES

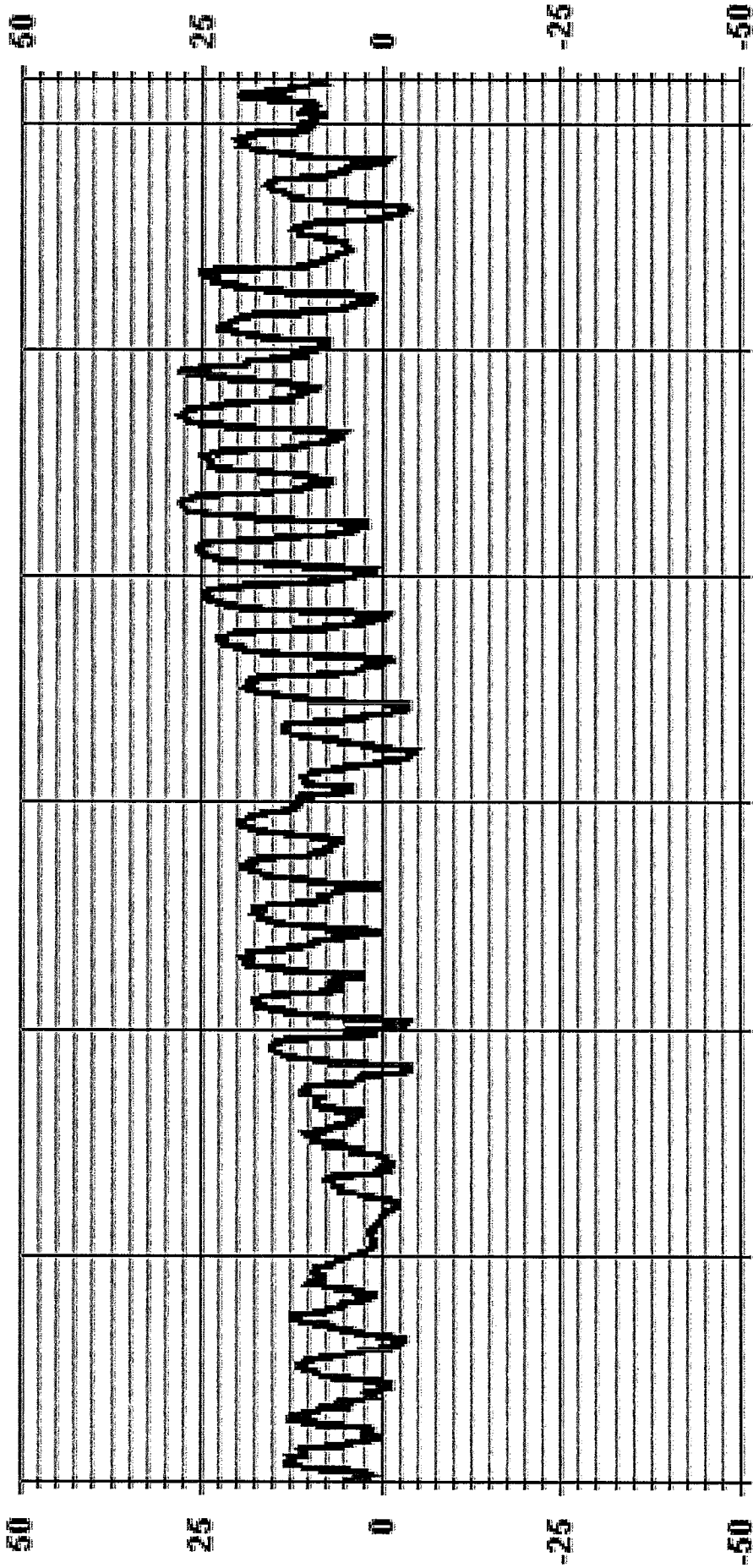
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO / SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- GOIT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-4.8 °C	@ HOUR(S)	4	ON DAY(S)	17
MAXIMUM 1-HR AVERAGE:	28.2 °C	@ HOUR(S)	13	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	18.2 °C			ON DAY(S)	24
				VAR- VARIOUS	
STANDARD DEVIATION:	7.71				
OPERATIONAL TIME:					744 HRS
AMD OPERATION UPTIME:					100.0 %
MONTHLY AVERAGE:					10.0 °C

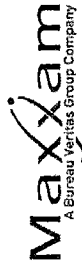
01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 TPX DGC

PRECIPITATION

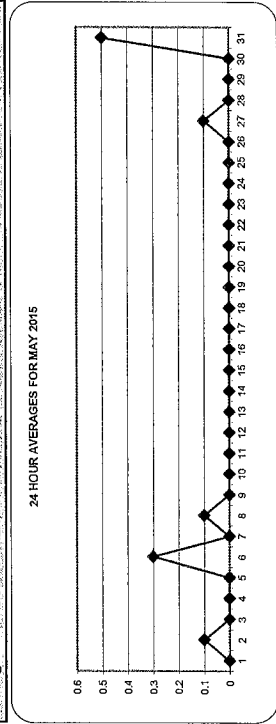


PRECIPITATION hourly averages (mm)

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
6	0.0	1.4	0.3	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	1.2	0.4	1.1	0.7	0.6	0.6	0.6	0.3	1.4	0.3	0.0	24
7	0.5	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.0	0.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	24
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	0.5	1.4	0.3	0.1	0.1	0.1	0.4	0.1	1.7	1.4	3.3	1.1	1.1	0.5	0.1	0.2	1.2	0.4	3.1	0.9	0.6	0.8	0.6	0.3	0.0	3.3	0.5	24
HOURLY AVG	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

STATUS FLAG CODES

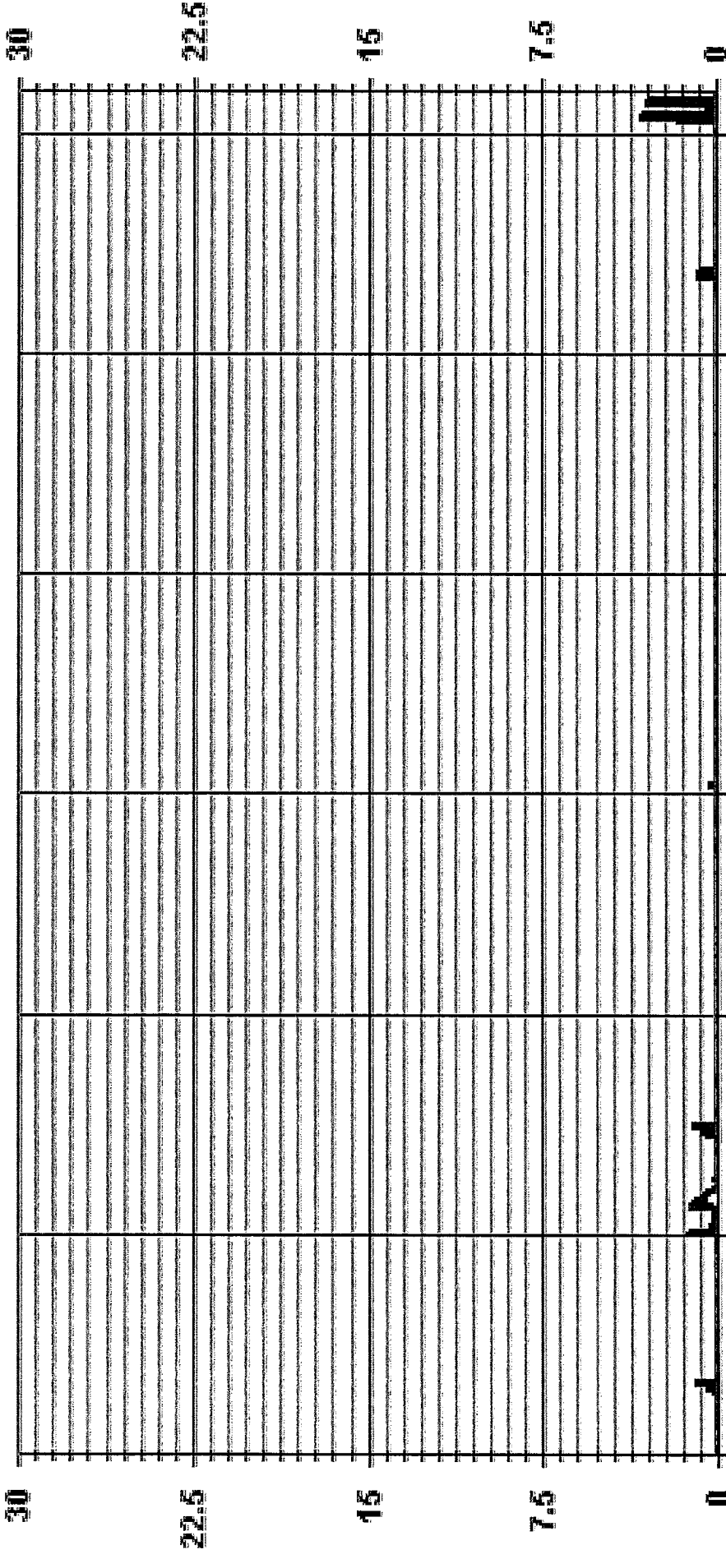
C	-CALIBRATION	Q	-QUALITY ASSURANCE
Y	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SPAN CHECK	X	-MACHINE MALFUNCTION
P	-POWER FAILURE	O	-OPERATOR ERROR
G	-OUT-OF-REPAIR	K	-COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	3.3	MM	@ HOUR(S)	10	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	0.5	MM			ON DAY(S)	31
MONTHLY TOTAL	27.1	MM			VAR-VARIOUS	
STANDARD DEVIATION:	0.23					
OPERATIONAL TIME:						744 HRS
AMD OPERATION UPTIME:						100.0 %
MONTHLY AVERAGE:						0.0 MM

01 Hour Averages

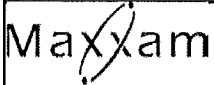


05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA30 PRECIP MM

APPENDIX II
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100E SO2 Analyzer Calibration

Date: 8-May-15

Company: LICA

Station Name/Location: Maskwa

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO2

Start/End Time (mst): 9:02 / 13:05

Calibration Purpose: Monthly Calibration

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Aug-17

Analyzer:

Serial Number: 508

Last Calibration Date: 23-Apr-15

Previous Cal High Point C.F.: 1.000

Range ppb: 1000

As Found C.F.: 1.013

New C.F.: 1.004

As found:

SLOPE: 0.996

OFFSET: 124.9

HVPS: 495

RCELL TEMP: 50.0

BOX TEMP: 28.6

PMT TEMP: 7.7

IZS TEMP: 45.0

TEST: NA

STABIL: 0.0

PRES: 24.8

SAMP FL: 587

PMT: 105.6

NORM PMT: 123.6

UV LAMP: 2961.6

LAMP RATIO: 92.4

STR. LGT: 62.2

DRK PMT: 11.6

DRK LMP: -1.8

Internal Span: 262.7

As left:

SLOPE: 1.007

OFFSET: 123.3

HVPS: 495

RCELL TEMP: 50.0

BOX TEMP: 29.9

PMT TEMP: 7.7

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 24.7

SAMP FL: 587

PMT: 109.0

NORM PMT: 125.2

UV LAMP: 2961.8

LAMP RATIO: 92.4

STR. LGT: 62.1

DRK PMT: 12.2

DRK LMP: -1.8

Internal Span: 259.4

Calibrator:

Flow Meter ID's: NA

Make & Model: EnviroNics 6100

Serial #: 4760

Cal Gas Cylinder I.D. #: 1L42475

Cal Gas Conc. (ppm): 50.3

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	4995	0	4995
high	4916	78	4994
mid	4957	38	4995
low	4975	19	4994

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4994	0.0	4994	0	-1.0	NA
adjusted zero	4994	0.0	4994	0	0.0	NA
as found high	4922	71.98	4993	725.1	716.0	1.013
adjusted high	4922	71.98	4993	725.1	725.0	1.000
mid	4958	35.98	4994	362.4	361.0	1.004
low	4975	18.50	4994	186.4	185.0	1.007
calibrator zero	4994	0.00	4994	0	0.0	NA
Average C.F.=						1.004

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>1.000</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>0.08%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-1.27%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

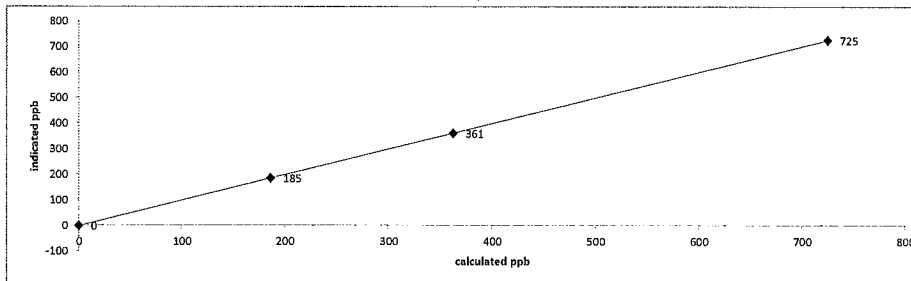
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

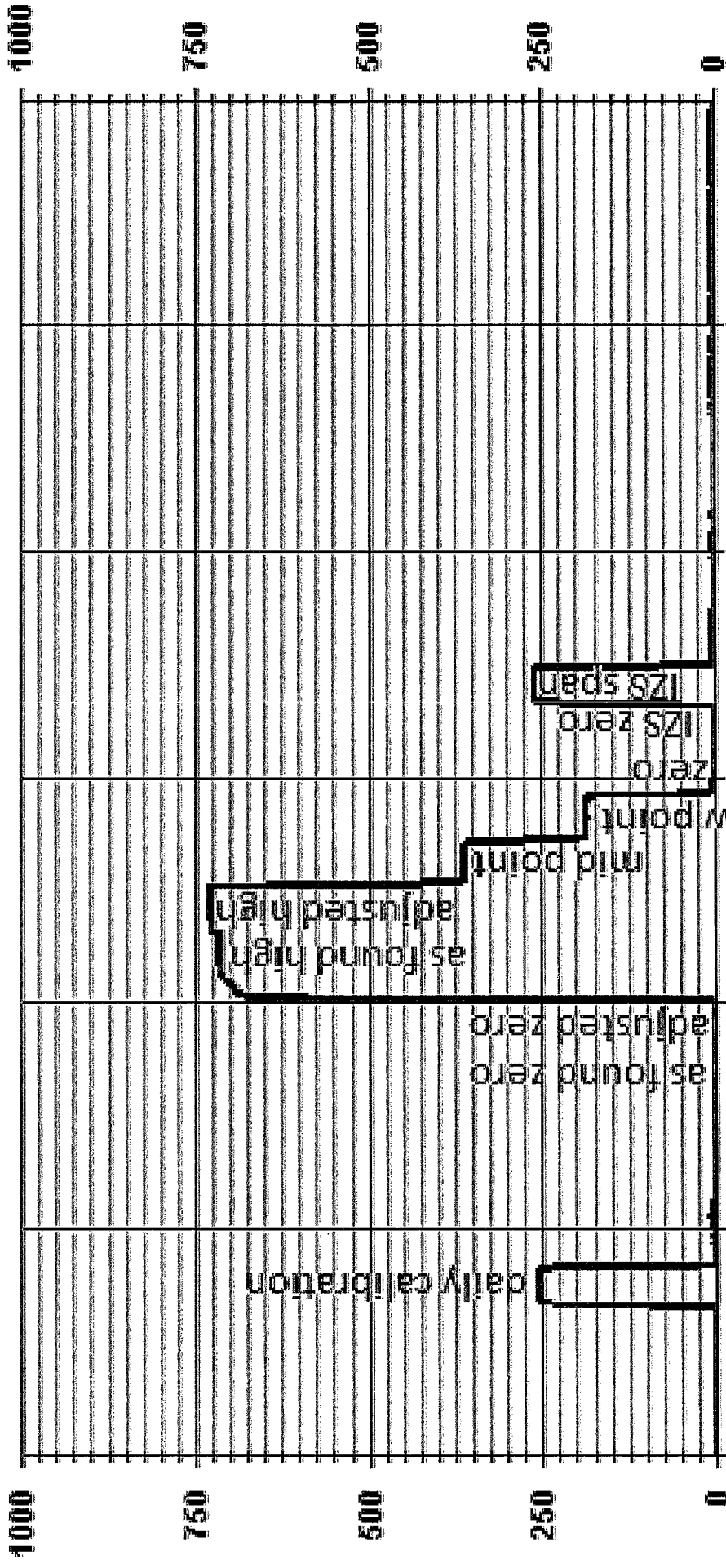
Comments:

Sample filter changed.

API 100E SO2 Analyzer Calibration



01 Minute Averages



— LICA30 SO2_ PPB

HYDROGEN SULPHIDE

API 101E H2S Analyzer Calibration

Date: 8-May-15

Company: LICA

Station Name/Location: Maskwa

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 12:11 / 16:02

Calibration Purpose: Monthly Calibration

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

Analyzer:

Serial Number: 511

Last Calibration Date: 23-Apr-15

Previous Cal High Point C.F.: 1.000

Range ppb: 100

As Found C.F.: 1.019

New C.F.: 1.009

As found:

SLOPE: 0.848

OFFSET: 48.8

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 29.8

PMT TEMP: 7.9

IZS TEMP: 45.0

TEST: 315.0

STABIL: 0.0

PRES: 29.4

SAMP FL: 661

PMT: 77.5

NORM PMT: 49.4

UV LAMP: 2738.0

LAMP RATIO: 88.0

STR. LGT: 20.7

DRK PMT: 31.6

DRK LMP: 5.6

Internal Span: 49.05

As left:

SLOPE: 0.867

OFFSET: 49.0

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 31.1

PMT TEMP: 7.8

IZS TEMP: 45.0

TEST: 315.1

STABIL: 0.1

PRES: 29.3

SAMP FL: 659

PMT: 78.2

NORM PMT: 47.7

UV LAMP: 2735.0

LAMP RATIO: 87.9

STR. LGT: 21.2

DRK PMT: 34.2

DRK LMP: 5.6

Internal Span: 47.6

Callibrator:

Flow Meter ID's: NA

Make & Model: API 700

Serial #: 830

Cal Gas Cylinder I.D. #: LL36837

Cal Gas Conc. (ppm): 10.0

Callibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	4959	39	4998
mid	4979	19	4998
low	4990	11	5001

Calibration:

Callibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	0.1	NA
adjusted zero	5000	0.0	5000	0	0.0	NA
as found high	4958	39.00	4997	78.0	76.6	1.019
adjusted high	4958	39.00	4997	78.0	78.0	1.001
mid	4979	19.00	4998	38.0	38.1	0.998
low	4989	11.00	5000	22.0	21.4	1.028
callibrator zero	5000	0.00	5000	0	-0.2	NA
Average C.F.=						1.009

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>0.998</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>0.20%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-1.89%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

****run converter efficiency test immediately following zero adjust****

SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

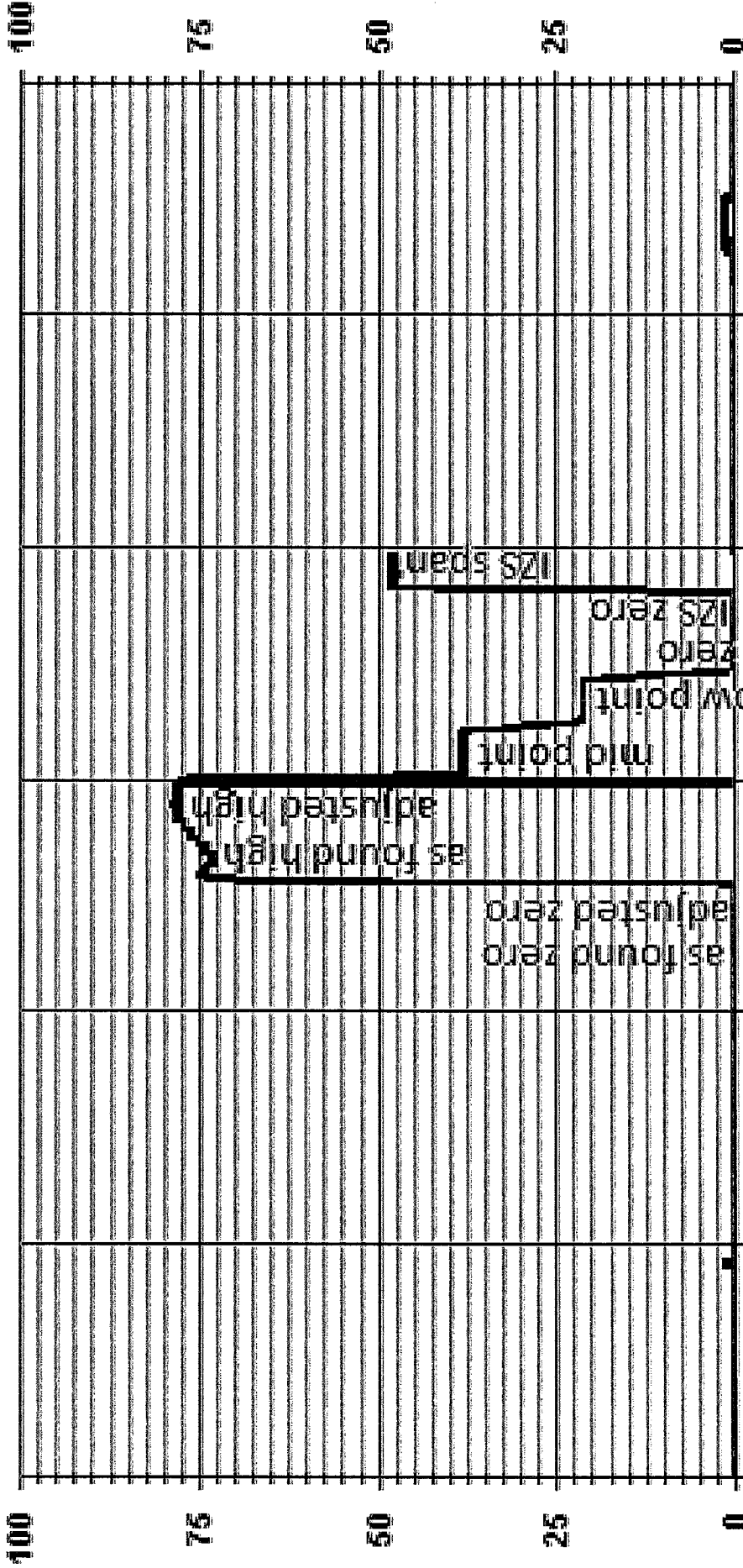
Comments:

Filter changed

API 101E H2S Analyzer Calibration

Calculated Concentration (ppb)	Indicated Concentration (ppb)
0	0.0
21.4	21.4
38.1	38.1
78.0	78.0

01 Minute Averages



05/08/15 08:00 05/08/15 10:00 05/08/15 12:00 05/08/15 14:00 05/08/15 16:00 05/08/15 18:00

— LICA30 H2S_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 8-May-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 9:02
 End Time (mst): 12:56
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 26-Mar-17

Analyzer: _____
 Serial Number: 436609738 Range ppm: 50
 Last Calibration Date: 23-Apr-15 As Found C.F.: 0.990
 Previous Cal High Point C.F.: 1.000 New C.F.: 1.003

	As found:		As left:
H ₂ cylinder (psi):	<u>100</u>	H ₂ cylinder (psi):	<u>2000</u>
H ₂ cylinder reg set (psi):	<u>25</u>	H ₂ cylinder reg set (psi):	<u>25</u>
Span Cylinder (psi):	<u>750</u>	Span Cylinder (psi):	<u>750</u>
Span Cylinder Reg Set (psi):	<u>25</u>	Span Cylinder Reg Set (psi):	<u>25</u>
Zero Air Gen Pressure:	<u>35</u>	Zero Air Gen Pressure:	<u>35</u>
measurement alarms:	<u>None</u>	measurement alarms:	<u>None</u>
service alarms:	<u>None</u>	service alarms:	<u>None</u>
FID status:	cnt: <u>896</u>	FID status:	cnt: <u>912</u>
	rng: <u>1</u>		rng: <u>1</u>
	try: <u>5</u>		try: <u>5</u>
	flm: <u>180.6</u>		flm: <u>180.0</u>
	det: <u>125.6</u>		det: <u>125.6</u>
Oven Readings:	Flame: <u>180</u>	Oven Readings:	Flame: <u>180</u>
	Filter: <u>125</u>		Filter: <u>125</u>
	Base: <u>125</u>		Base: <u>125</u>
	Pump: <u>07.51</u>		Pump: <u>07.52</u>
Voltages:	+5 <u>4.9</u>	Voltages:	+5 <u>4.9</u>
	+15 <u>14.8</u>		+15 <u>14.8</u>
	-15 <u>-15.0</u>		-15 <u>-15.0</u>
	Internal Span: <u>33.09</u>		Internal Span: <u>33.3</u>

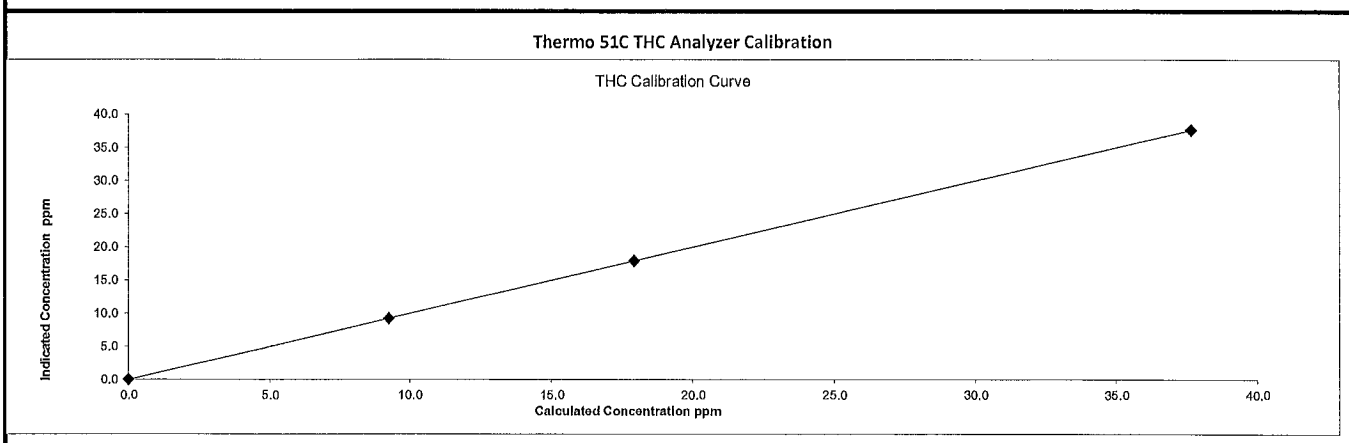
Calibrator:	Flow Meter ID's: <u>NA</u>	Calibrator Flow Targets:			
	Make & Model: <u>API 700</u>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
	Serial #: <u>830</u>	zero	<u>2000</u>	<u>0</u>	<u>2000</u>
	Cal Gas Cylinder I.D. #: <u>LL33674</u>	high	<u>1935</u>	<u>65</u>	<u>2000</u>
	CH ₄ /C ₃ H ₈ Cylinder Conc. (ppm): <u>601.4</u> <u>202.0</u>	mid	<u>1969</u>	<u>31</u>	<u>2000</u>
	CH ₄ as propane/total CH ₄ equivalents (ppm): <u>555.5</u> <u>1156.9</u>	low	<u>1984</u>	<u>16</u>	<u>2000</u>

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppm)	Indicated Concentration (ppm)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	1999	0.00	1999	0	0.04	NA
adjusted zero	1999	0.00	1999	0	0.01	NA
as found high	1932	65.00	1997	37.66	38.05	0.990
adjusted high	1932	65.00	1997	37.66	37.66	1.000
mid	1969	31.00	2000	17.93	17.92	1.001
low	1983	16.00	1999	9.26	9.21	1.007
calibrator zero	1999	0.00	1999	0	0.01	NA
Average C.F.=						1.003

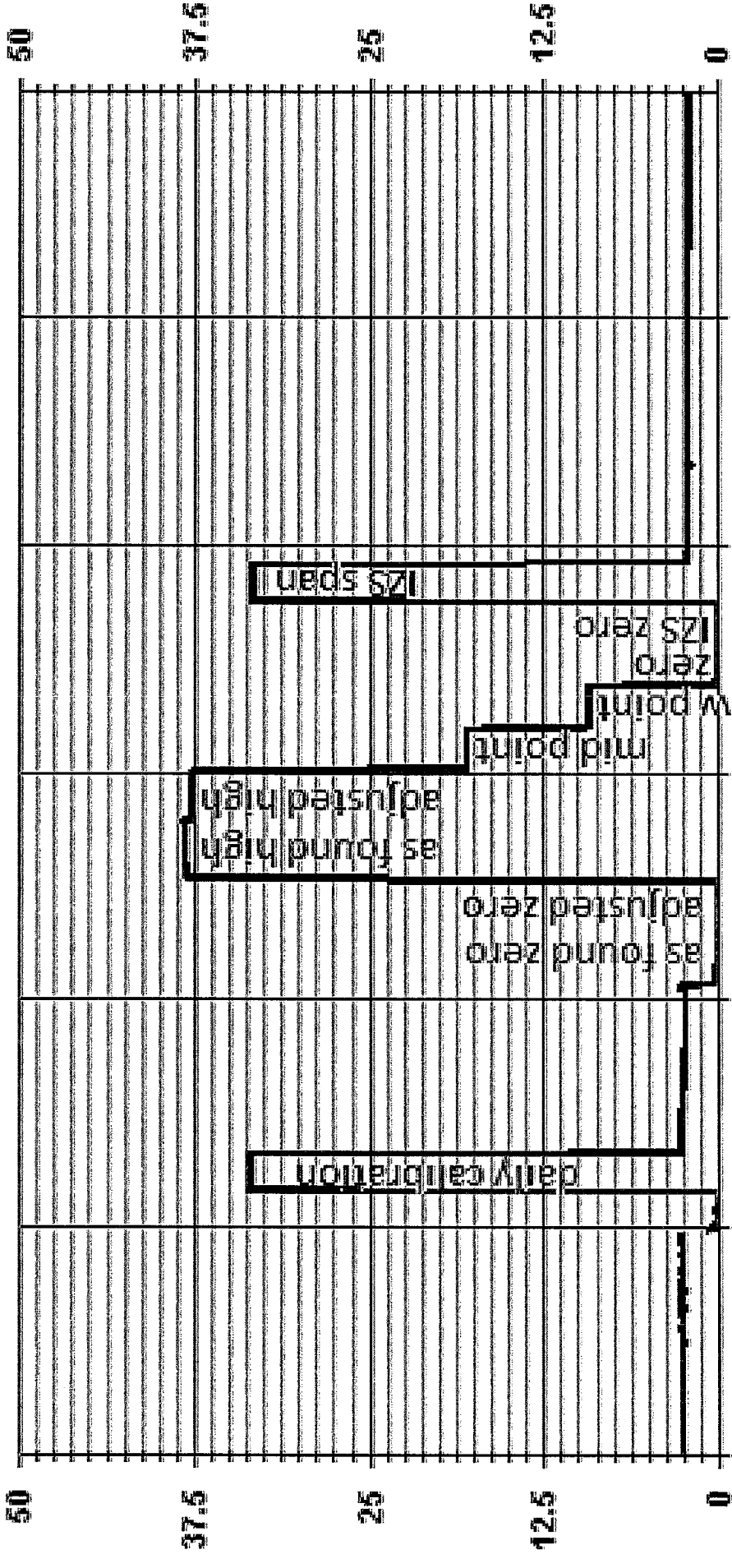
Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.000</u>	> or = 0.995	PASS
b (intercept as % of full scale)=	<u>-0.032%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>1.01%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:
 Sample filter changed. New H2 cylinder connected



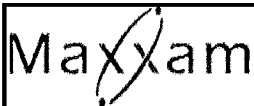
01 Minute Averages



05/08/15 05:00 05/08/15 07:00 05/08/15 09:00 05/08/15 11:00 05/08/15 13:00 05/08/15 15:00

— LICA30 - - - - - THC PPM

NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 8-May-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 9:02
 End Time (mst): 15:11
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Aug-17

Analyzer Serial Number: 593
 Last Calibration Date: 23-Apr-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.015 NO= 1.000
 NOx= 1.007 NOx= 1.000
 NO₂= 1.002 NO₂= 1.004

As found:
 NOx SLOPE: 0.969
 NOx OFF5: 2.4
 NO SLOPE: 0.975
 NO OFF5: -0.9
 TEST: 126.7
 SAMP FLW: 495
 OZONE FL: 78
 PMT: 13.1
 NORM PMT: 1.6
 AZERO: 7.5
 HVPS: 634
 RCELL TEMP: 50.0
 BOX TEMP: 31.1
 PMT TEMP: 6.7
 IZS TEMP: 50.2
 MOLY TEMP: 314.1
 RCEL: 7.1
 SAMP: 27.2
 Internal Span: 302.2/4.8/297.4

As left:
 NOx SLOPE: 0.979
 NOx OFF5: 2.8
 NO SLOPE: 0.988
 NO OFF5: -0.8
 TEST: 126.7
 SAMP FLW: 495
 OZONE FL: 78
 PMT: 10.3
 NORM PMT: 1.6
 AZERO: 7.5
 HVPS: 634
 RCELL TEMP: 50.1
 BOX TEMP: 32.5
 PMT TEMP: 6.8
 IZS TEMP: 50.4
 MOLY TEMP: 315.5
 RCEL: 7.0
 SAMP: 27.1
 Internal Span: 318.5/4.9/313.4

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: LL42475
 NO Cylinder Conc. (ppm): 48.5
 NOx Cylinder Conc. (ppm): 48.5

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	4995	0	0	4995
high	4916	78	380.00	4994
mid	4957	38	210.00	4995
low	4975	19	85.00	4994

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	4994	0.0	4994	0	0	1.0	0.0	NA	NA
adjusted zero	4994	0.0	4994	0	0	1.0	0.0	NA	NA
as found high	4922	71.98	4993	699.1	699.1	690	694	1.015	1.007
adjusted high	4922	71.98	4993	699.1	699.1	699	699	1.002	1.000
mid	4958	35.98	4994	349.4	349.4	350	350	1.001	0.998
low	4975	18.50	4994	179.7	179.7	179	179	1.009	1.004
calibrator zero	4994	0.00	4994	0	0	1.0	0.0	NA	NA
Average C.F.=								1.004	1.001

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ Increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4922	71.98	4994	0.0	706.0	700.0	-6.0	1.0	-1.0	
as found NO ₂	4922	72.0	4994	380.0	248.0	700.0	451.0	458.0	457.0	1.002
adjusted NO ₂	4922	72.0	4994	380.0	248.0	700.0	451.0	458.0	457.0	1.002
gpt mid	4922	72.0	4994	210.0	451.0	700.0	249.0	255.0	255.0	1.000
gpt low	4922	71.98	4994	85.0	608.0	701.0	92.0	98.0	98.0	1.000
Average NO ₂ C.F.=										1.001

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.999	1.000	1.001	0.85-1.15
b (Intercept as % of full scale) =	0.05%	-0.01%	-0.10%	± 3% F.S.
% change in C.F. from last cal =	-1.47%	-0.74%	0.18%	+/-15%
NO ₂ converter efficiency			99.9%	>85%

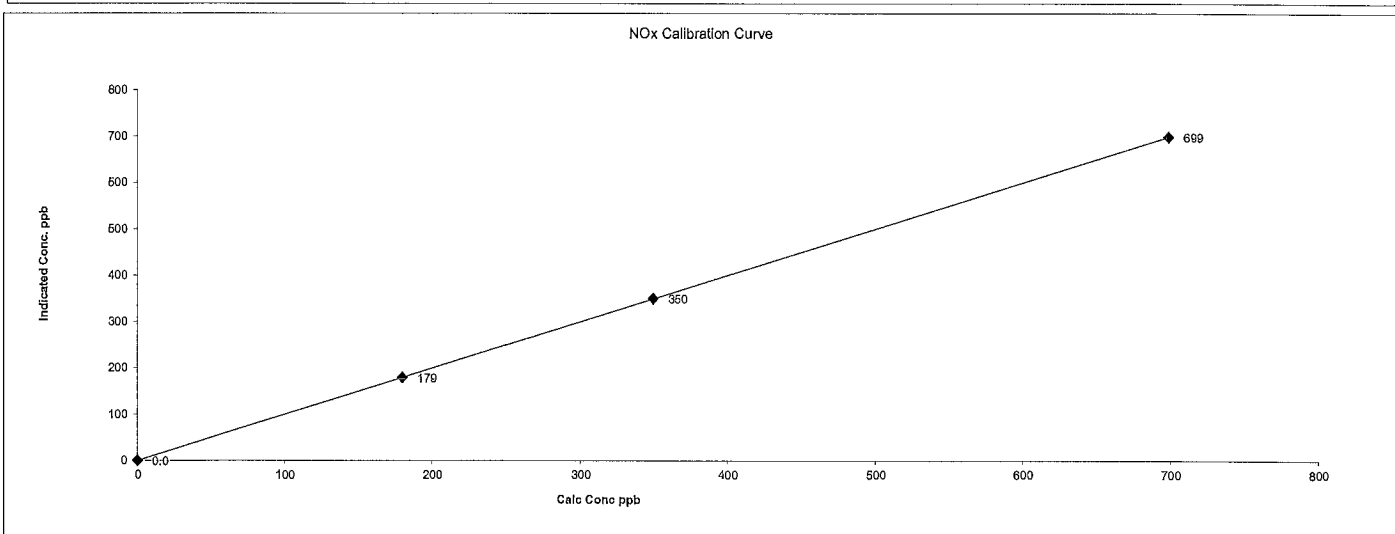
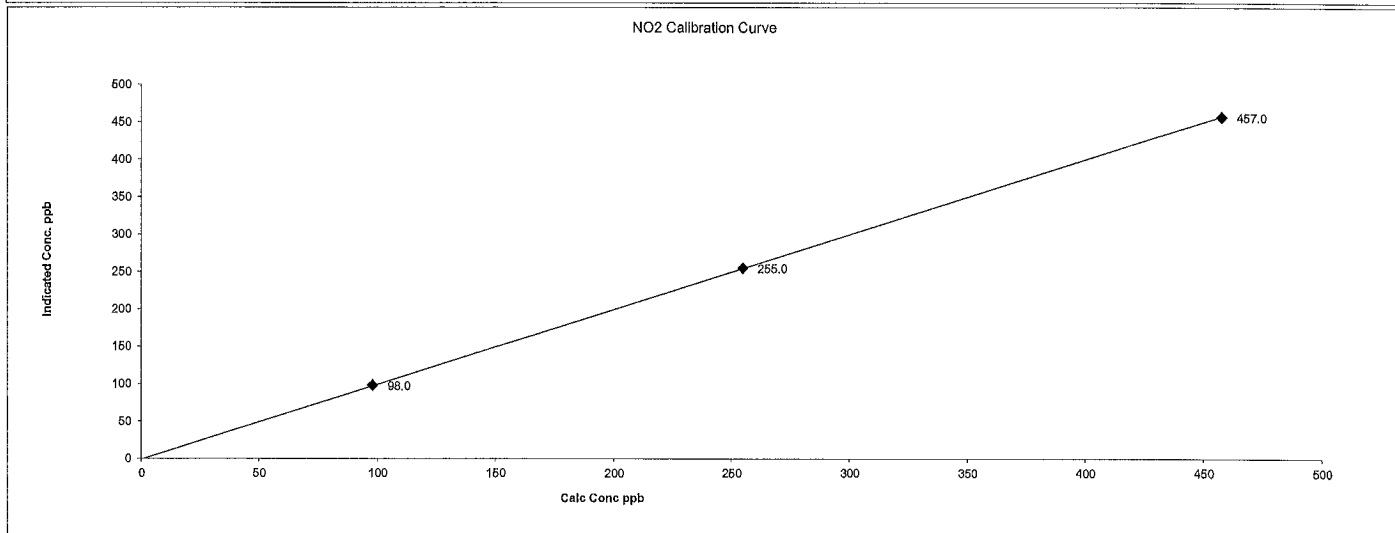
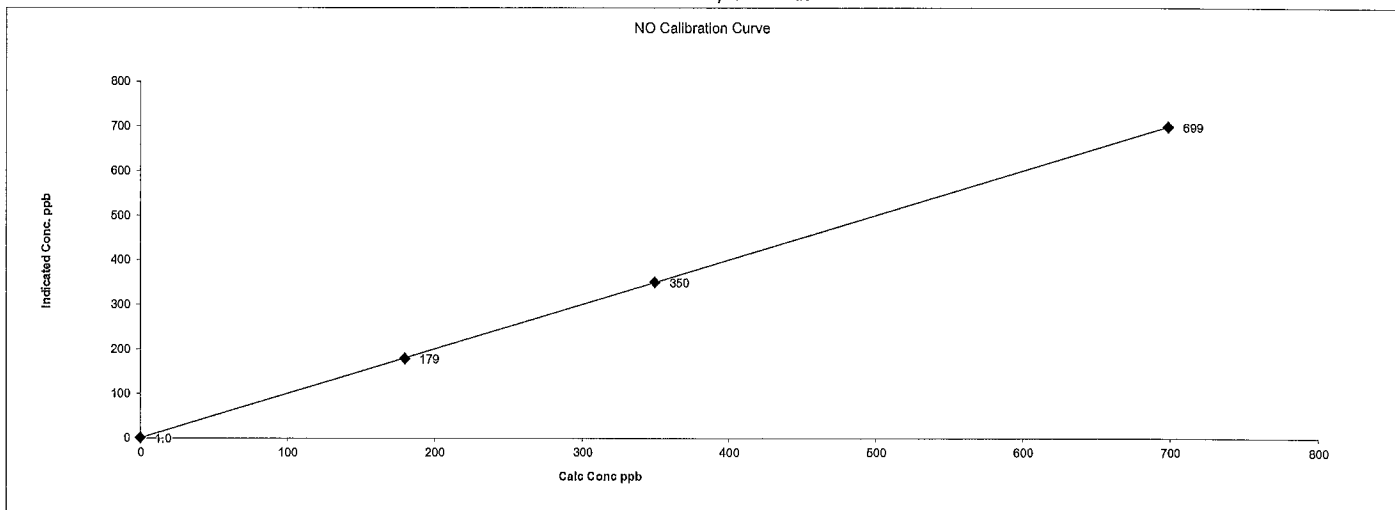
Comments:

Sample filter changed.
 No NO₂ adjustment made. Values copied from as found NO₂ for calculation only.

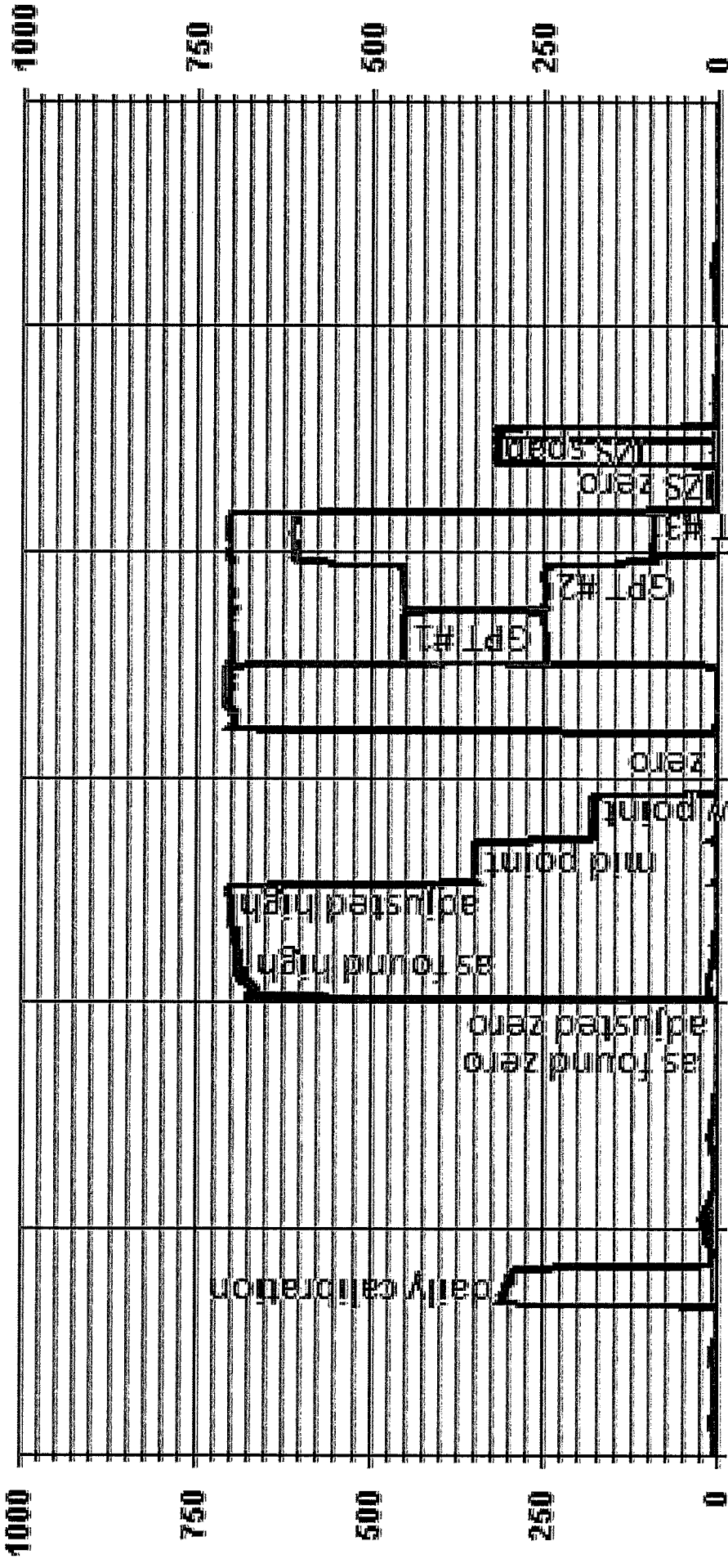
Date: 8-May-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 9:02
 End Time (mst): 15:11
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Aug-17

API 200E NOx Analyzer Calibration



01 Minute Averages



05/08/15 06:00 05/08/15 08:00 05/08/15 10:00 05/08/15 12:00 05/08/15 14:00 05/08/15 16:00

— LICA30 NOX_ PPB — LICA30 NO_ PPB — LICA30 NO2_ PPB

WIND SYSTEM

**Met One Instruments Inc.
Certificate of Calibration**

Instrument: Sonic Wind Sensor

Model No.: 50.5H

Manufacturer: Met One Instruments Inc

Serial No.: H10703

Sales Order No.: 101530

Customer: Maxxam Analytics

Tested per P.O. No.: 35-54786

Instrument Condition Within Tolerance: As Found () As Left (X)
 Corrective Action: No Adjustment () Adjust (X) Repair ()
 Preventative Maintenance ()

Quality Control Manual Revision: September 16, 2013 MP42201Rev. G

All Work Performed per Customers Purchase Order Requirements

Calibration Document No. 50.5-6100

Date (As Found): n/a

Date (As Left Test): 3/4/2014

Calibrated by: Dan Fied

Date: 3/4/14

Test Equipment Used for Calibration of Instruments

Description	Manufacturer	Model No.	Serial No.	Cal Date	Cal Due	Accuracy
Digital Multimeter	Keithley	197A	490833	3/8/2013	3/8/2014	+/- .02% of input
Counter	Hewlett Packard	5245L	71616181	3/8/2013	3/8/2014	+/- 0.0001%
Standard Cup Assembly	Met One Instruments	170.41	3309	4/24/2012	4/24/2017	<.15mph or 1% ws

Environmental Data: Temperature 65 to 80 DegF

Vibration none

Humidity 20 to 70 %

Radiation none

The standards used for calibration have accuracies equal to or greater than the instruments tested. These standards are on record and are traceable to NIST to the extent allowed by the Institute's calibration facility. Unless otherwise stated hereon, all instruments are calibrated to meet the manufacturer's published specifications. The calibration system complies with MIL-STD-45662A (8/1/88). Instruments accuracy meets the requirements of Regulatory Guide 1.23 (2/72). Compliant with ISO 9001:2008 requirements.

QC Inspector by: Byron Fawcett

Date: 3/10/14

CALIBRATORS

Company: Maxxam **Operator:** Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>N/A</u>
Serial Number	<u>830</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>Oct 2013</u>	Temperature (°C)	<u>N/A</u>
SO ₂ Cylinder Conc.	<u>50.3</u>	Barometric Pressure	<u>N/A</u>
SO ₂ Cylinder S/N	<u>LL42475</u>		

Flow Measurements

Pt. No. 1 79.5 **Pt. No. 2** 39.8 **Pt. No. 3** 19.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
Absolute Average Percent Difference			0%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

SO ₂		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		SO ₂ Analyzer	
Audit Calibrator		Make/Model	<u>Teco 43C</u>
Make/Model	<u>R&R MFC 201</u>	Serial/AMU Number	<u>AMU 1623</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>Dec 15/14</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamination inside calibrator. SO2 moves through quickly.

Auditor: Al Clark **Date:** December 16, 2014
Operator Signature: _____ **Location:** McIntyre Center Edmonton

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4760</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Callibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	5%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

<u>NO</u>		<u>LIMITS</u>		<u>NOx</u>	
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000
m (Slope)=	1.0511	0.90-1.10		m (Slope)=	1.0496
b (Intercept % of FS)=	0.0400	± 3% F.S.		b (Intercept % of FS)=	0.0400

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOX	% Diff, Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff, Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=indicated concentration)*

<u>NO₂</u>		<u>LIMITS</u>	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	1.0006	0.90-1.10	
b (Intercept % of FS)=	-0.0132	± 3% F.S.	

<u>AENV Standards</u>		<u>NO_x Analyzer</u>	
Audit Calibrator		Make/Model <u>Teco 42i</u>	
Make/Model	<u>Teco 146i</u>	Serial/AMU Number	<u>AMU 1868</u>
Serial/AMU Number	<u>AMU 1809</u>	Last Calibration Date	<u>December 15, 2014</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: _____

Auditor: Al Clark Date: December 17, 2014
 Operator Signature: [Signature] Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-257CGA

Company: Maxxam Operator's Name: Limin Li
 Cylinder #: LL42475 Concentration PPM: 50.3 Tolerance(%): 1 Certified By: Alr Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: December 15, 2014
 Gas Type: SO2 Conc. 98.57
 Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 22.5 C
 B.P. 701 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
 Instrument Settings: Zero: 7.7 Span: 1.018 Range: 1.0
 Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	0.01019	98.157	49.3
5114	52.1	0.502	0.01019	98.157	49.3
5093	22.3	0.214	0.00438	228.386	48.9
5073	10.9	0.105	0.00215	465.413	48.9
Average Cylinder Concentration:					49.0

Previous Stated Concentration PPM: 50.3

Percent variance from Stated: 2.6

Meets Manufacturer Tolerance, Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam Operator's Name: Limin Li
Cylinder #: LL36837 Concentration PPM: 10.0 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: December 15, 2014
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015106

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp. °C: 23.0 C
B.P. 702 mmhg

Reference Analyzer:

Make/Model: Teco 45C Serial/AMU Number: 1624
Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	132.442	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	550.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: December 16, 2014
Location: McIntyre Center Edmonton



Praxair Canada, Inc.
 9501-34th Street
 Edmonton AB T6B 2X8
 Tel: 780-449-0775
 Fax: 780-449-5352

03/27/2014

MAXXAM ANALYTICS INC "NA"
 9372 49TH ST
 EDMONTON, AB T6B 2L7

Work Order No. 20248656
 Customer Reference No.

Product Lot/Batch No. Z582 4 085 02
 Product Part No. NI ME600P2P-AQ

CERTIFICATE OF ANALYSIS
Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	800.0ppm	801.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance-ID2ax/USA---
 Hewlett-Packard (Agilent)-6690---GC-FID

Cylinder Style: AQ
 Cylinder Pressure @70F: 2200 psig
 Cylinder Volume: 82.0 ft³
 Valve Outlet Connection: CGA-350
 Cylinder No(s): LL33874

Filling Method: Gravimetric
 Date of Fill: 03/28/2014
 Expiration Date: 03/28/2017

Analyst: 
 Todd Hryniv

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<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector
<input type="checkbox"/> Gas Chromatography with Flame Ionization Detector	<input type="checkbox"/> Gas Chromatography with Flame Ionization Detector	<input type="checkbox"/> Gas Chromatography with Flame Ionization Detector	<input type="checkbox"/> Gas Chromatography with Flame Ionization Detector
<input type="checkbox"/> Gas Chromatography with Photoionization Detector	<input type="checkbox"/> Gas Chromatography with Photoionization Detector	<input type="checkbox"/> Gas Chromatography with Photoionization Detector	<input type="checkbox"/> Gas Chromatography with Photoionization Detector
<input type="checkbox"/> Gas Chromatography with Mass Spectrometry	<input type="checkbox"/> Gas Chromatography with Mass Spectrometry	<input type="checkbox"/> Gas Chromatography with Mass Spectrometry	<input type="checkbox"/> Gas Chromatography with Mass Spectrometry
<input type="checkbox"/> Gas Chromatography with Electrodeless Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Electrodeless Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Electrodeless Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Electrodeless Conductivity Detector
<input type="checkbox"/> Gas Chromatography with Nitrogen Phosporus Detector	<input type="checkbox"/> Gas Chromatography with Nitrogen Phosporus Detector	<input type="checkbox"/> Gas Chromatography with Nitrogen Phosporus Detector	<input type="checkbox"/> Gas Chromatography with Nitrogen Phosporus Detector
<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector	<input type="checkbox"/> Gas Chromatography with Thermal Conductivity Detector
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Calibration Gas Audit

NO Cylinder Gas

File No. 2014-262CGA

Company: Maxxam **Operators name:** Limin Li
Cylinder #: LL42475 **Conc (PPM)** 48.5/48.5 **Tolerance (%)** 1 **Certified By:** Air Liquide

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	<u>Teco 146i</u>			Make/Model	<u>Bios DC2</u>
Serial Number	<u>AMU 1809</u>			Serial Number	<u>AMU 1659</u>
Last Verification Date	<u>December 15, 2014</u>			Temp. °C	<u>23.0 C</u>
Gas Type	<u>NO</u>	Conc.	<u>48.79</u>	B.P.	<u>702 mmhg</u>
Cylinder Number	<u>CAL017892</u>				

Reference Analyzer:
 Make/Model Teco 42i Serial/AMU Number: 1868
 Instrument Settings Zero: 4.3 Span: 1.017 Range: 1.0
 Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4983	82.8	0.830	0.832	0.01662	60.181	50.0	50.1
4998	40.9	0.414	0.415	0.00818	122.200	50.6	50.7
4981	20.3	0.206	0.206	0.00408	245.369	50.5	50.5
Average Cylinder Concentration:						50.4	50.4

NO	NOx
Previous Stated Concentration PPM: <u>48.5</u>	<u>48.5</u>
Percent variance from Stated: <u>3.8</u>	<u>4.0</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 50.3 ppm of SO2.
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark Date: December 16, 2014
 Operator Signature: *Al Clark* Location: McIntyre Center Edmonton

APPENDIX III
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2015-05-30- C</u>
Site: <u>Maskwa Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete	<u>msdmhg</u>	Date	<u>01 - June - 2015</u>
QA Check Review	<u>msdmhg</u>	Date	<u>01 - June - 2015</u>
Report Complete	<u>msdmhg</u>	Date	<u>02 - June - 2015</u>
Report Reviewed	<u>E. Tangang</u>	Date	<u>02 - Jun - 2015</u>
Report Shipped	_____	Date	_____

Notes



maxxam.ca

MAXXAM ANALYTICS

#1 2080 39 Ave. NE, Calgary

AB T2E 6P7

Toll Free 800-386-7247

Fax 403-219-3673

**AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
ST. LINA SITE**

JOB #:2833-2015-05-31- C

MAY 2015

Prepared for:

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
BONNYVILLE, ALBERTA
T9N 2J5**

Attention: MIKE BISAGA

DATE: **June 4, 2015**


Prepared by:



Wunmi Adekanmbi, M.Sc.

Project Manager Assistant, Source Testing, Maxxam Analytics

Reviewed by:



Lily Lin, B.Sc.

Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In MAY 2015, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the St. Lina Site at Lakeland Industry & Community Association, near Bonnyville, Alberta. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the project coordinator.

There was one 24-HR contravention for PM_{2.5} recorded this month: concentration of 42 ug/m³ on May 23. AE Ref # 298624.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

All parameters: Hourly maximum data collected on May 6 at hour 11 were invalidated as the analyzer was recovering from a small power outage.

H₂S: The API 101E S/N: 722 was replaced with API 101E S/N: 509 for maintenance purposes. 20 hours of data collected between May 13 hour 13 and May 14 hour 8 are not valid as the analyzer was being allowed time to stabilize before installation calibration.

THC: Hourly and hourly maximum data collected on May 6 at hour 11 were invalidated as the analyzer was recovering from a small power outage.

PM 2.5: 17 hours of data were discarded due to a malfunction. 9 hours of data were invalidated as the data were below -3 ug/m³ this month.

Precipitation: Three hours of data collected on May 24 hour 12 and on May 27 hour 13 and hour 14 were invalidated due to spikes. Reason unknown.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, St. Lina Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association						MAXIMUM VALUES							OPERATIONAL TIME (%)
St. Lina Site						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0	1	VAR	VAR	VAR	VAR	0.4	25	100.0
H2S (PPB)	10	3	0	0	0	2	VAR	VAR	VAR	VAR	0.8	26	97.3
THC (PPM)	-	-	-	-	2.0	2.8	23	7	9.3	NE	2.2	VAR	99.9
NO2 (PPB)	159	-	0	-	1.1	10.3	23	7	9.3	NE	3.2	23	99.6
NO (PPB)	-	-	-	-	0.2	1.9	4	10	14.4	ENE	0.3	VAR	99.6
NOX (PPB)	-	-	-	-	1.3	11.7	23	7	9.3	NE	3.4	23	99.6
O3 (PPB)	82	-	0	-	44	74	25	16	7.7	W	56.2	22	100.0
PM2.5 (UG/M3)	-	30	-	1	7.9	169.0	23	8	8.2	NE	42.3	23	96.5
RELATIVE HUMIDITY (%)	-	-	-	-	46.1	90	4	VAR	VAR	VAR	85.2	6	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	935	947	17, 18	VAR	VAR	VAR	945	17	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	11.4	27.8	24	15	2.1	SW	20.4	24	100.0
PRECIPITATION (MM)	-	-	-	-	0.1	12.7	31	7	12.5	E	0.9	31	99.5
VECTOR WS (KPH)	-	-	-	-	9.9	32.5	5	8	-	ENE	23.9	5	100.0
VECTOR WD (DEG)	-	-	-	-	ESE	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM2.5 24- Hour Exceedences

DATE	READING (ug/m3)	WS (kph)	WD (deg)
MAY 23	42	7.4	NE

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	Total Hydrocarbon
	Oxides of Nitrogen
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	Ozone
	Particulate Matter 2.5
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	Wind Direction
	Standard Deviation Wind Direction
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	Precipitation
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	Nitrogen Dioxide
	Ozone
	Particulate Matter
	Wind System
	Calibrators
	Calibration Gases
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1.0 Discussion

This monthly report consists of data for parameters SO₂, H₂S, THC, NO_x, NO, NO₂, O₃, PM_{2.5}, WS, WD, RH, BP, Precipitation and Temperature.

Sample filters for all continuous air monitors are changed before the calibration is started. The sample manifold is cleaned during the site visit on a monthly basis.

Control checks, consisting of zero and span of the analyzer are conducted on a daily basis on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinder) is used for zero checks and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibration is done a minimum of once a month for each continuous air monitor. In addition calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

Trailer inspection was performed on May 13.

SULPHUR DIOXIDE (SO₂)

The routine monthly calibration was performed on May 13. The analyzer started spanning low on May 15 due to a depleted perm tube. The perm tube was changed on May 22 following an as found points check. Time was allowed for the new perm tube to stabilize. The expected span value was adjusted on May 29. Hourly maximum data collected on May 6 at hour 11 was invalidated as the analyzer was recovering from a small power outage.

HYDROGEN SULPHIDE (H₂S)

A removal calibration was performed on the Maxxam-supplied API 101E, S/N: 722, analyzer on May 13 and the LICA-owned, API 101E, S/N: 509, was installed. The analyzer was allowed time to stabilize. An installation calibration was performed on May 14. 20 hours of data were invalidated due to this event. The analyzer was returned to site after routine maintenance at Maxxam shop. Hourly maximum data collected on May 6 at hour 11 was invalidated as the analyzer was recovering from a small power outage.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month. The routine monthly calibration was performed on May 12. Hourly and hourly maximum data collected on May 6 at hour 11 were invalidated as the analyzer was recovering from a small power outage.

NITROGEN DIOXIDE (NO₂)

The channel was put into Maintenance mode on May 12 between hour 10 and hour 12 while reference calibration points for Ozone calibration was being performed. The routine monthly calibration was performed on May 13. After the calibration, the zero response was not as stable as expected. The calibration was repeated on May 14. The result was good. As the zero result was still within the acceptable range, no data was discarded. Hourly maximum data collected on May 6 at hour 11 was invalidated as the analyzer was recovering from a small power outage.

OZONE (O₃)

The analyzer was working well throughout the month. The routine monthly calibration was performed on May 12. A zero air maintenance was performed prior to the calibration. Hourly maximum data collected on May 6 at hour 11 was invalidated as the analyzer was recovering from a small power outage.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM_{2.5})

Two Teom audits were performed this month: one was completed on May 14, and the other audit was performed on May 22. Both the inlet filter and the FDMS filter were replaced on May 22. The dryer was also replaced on May 22 in order to enhance the unit's functionality. The Teom unit malfunctioned on May 31. Maintenance was performed on June 1 and the issue was fixed. 17 hours of data were discarded due to this issue. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m³, the data was corrected to 0 ug/m³. If the data was below -3ug/m³, the data was invalidated. 9 hours of data were invalidated as the data were below -3 ug/m³ this month.

One 24-hr contravention was recorded this month. Concentration of 42 ug/m³ on May 23. Reference #: 298624.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.

The wind system was working well throughout the month. Hourly maximum data collected on May 6 at hour 11 was invalidated as the analyzer was recovering from a small power outage.

RELATIVE HUMIDITY (RH)

The humidity sensor was working well throughout the month.

BAROMETRIC PRESSURE (BP)

The pressure sensor was working well throughout the month.

PRECIPITATION

Three hours of data collected on May 24 hour 12 and on May 27 hour 13 and hour 14 were invalidated due to spikes. Reason unknown. The system was verified on May 25 and no issues were identified.

AMBIENT TEMPERATURE (TPX)

The temperature sensor was working well throughout the month.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling personnel was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

There was one 24-HR contravention for PM_{2.5} recorded this month: concentration of 42 ug/m³ on May 23. AE Ref # 298624.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, and 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006).

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00209: Ambient H₂S Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00242: Precipitation Collector Installation /Maintenance

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - Met One Unit
- Relative Humidity - Met One Unit
- Barometric Pressure - Met One Unit
- Ambient Temperature - Met One Unit
- Precipitation - Met One Unit
- Datalogger - ESC 8832

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE



SULPHUR DIOXIDE (SO2) hourly averages in ppb

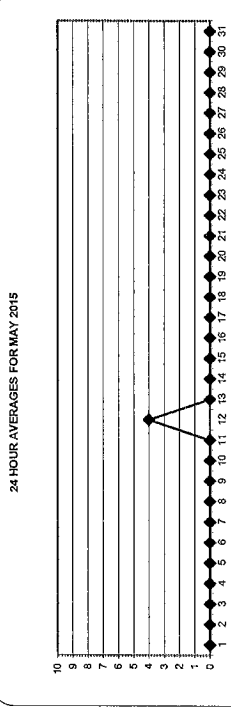
DAY	HOURS																								DAILY MAX	24-HOUR AVG	RDGS			
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00						
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24		
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	24	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.0	24	
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.0	24	
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR: 2372 PPB 24-HR: 48 PPB

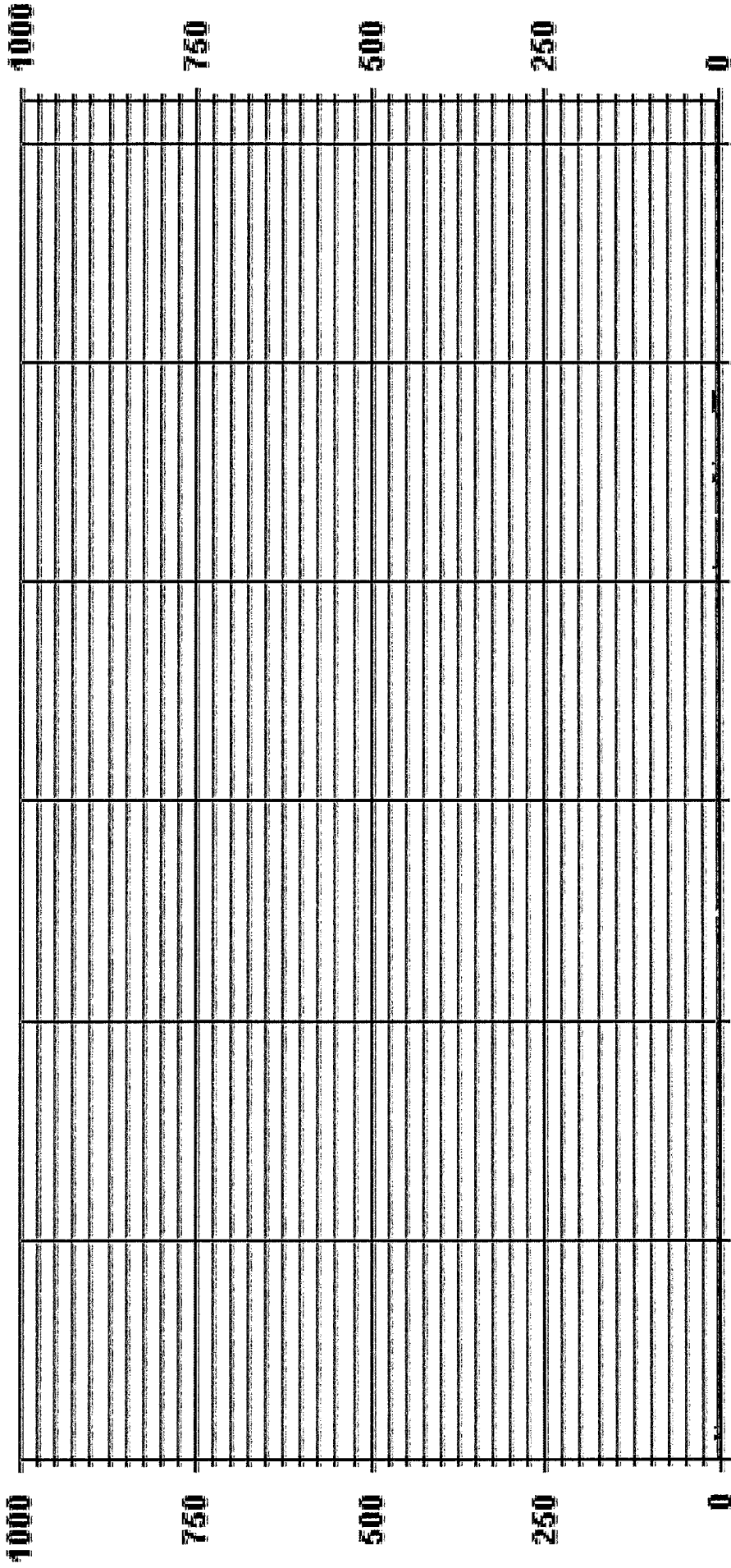
STATUS FLAG CODES: C - CALIBRATION, O - QUALITY ASSURANCE, R - RECOVERY, S - MAINTENANCE, X - DAILY ZERO/SPAN CHECK, M - MACHINE MALFUNCTION, P - POWER FAILURE, O - OPERATOR ERROR, G - OUT FOR REPAIR, K - COLLECTION ERROR

MONTHLY SUMMARY: NUMBER OF 1-HR EXCEEDENCES: 0, NUMBER OF 24-HR EXCEEDENCES: 0

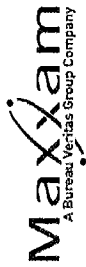
NUMBER OF NON-ZERO READINGS:	31	PPB	ON DAY(S)	VAR	VAR
MAXIMUM 1-HR AVERAGE:	1	PPB	ON DAY(S)	VAR	25
MAXIMUM 24-HR AVERAGE:	0.4	PPB	VAR-VARIOUS		
12S CALIBRATION TIME:	38	HRS	OPERATIONAL TIME:		744 HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMID OPERATION UPTIME:		100.0 %
STANDARD DEVIATION:	0.21		MONTHLY AVERAGE:		0 PPB



01 Hour Averages



— LICA31 SO2_ PPB



SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
HR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
MAX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY MAX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

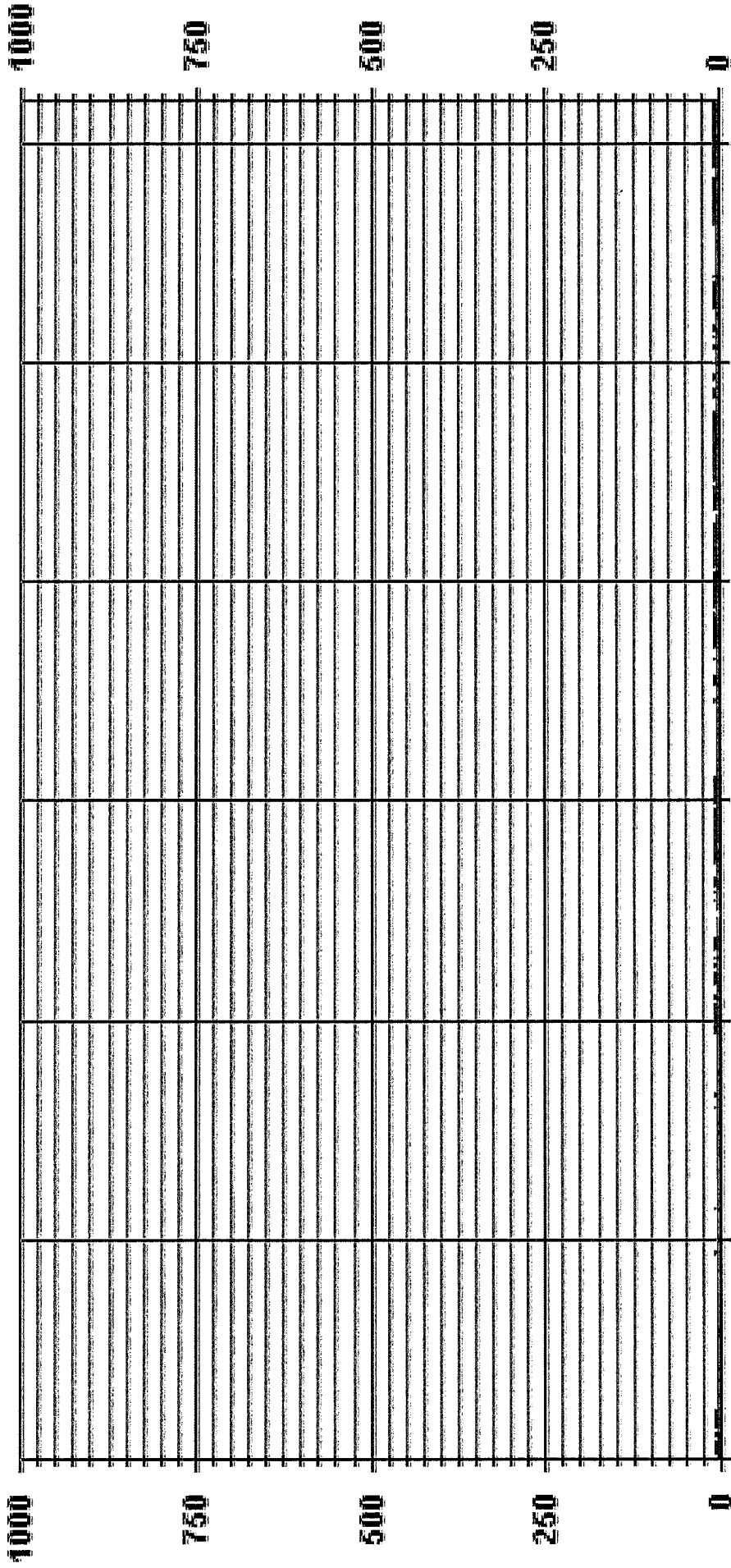
STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
V	- MAINTENANCE	R	- RECOVERY
S	- DATE/ZERO/SPAN/CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	380
MAXIMUM INSTANTANEOUS VALUE:	3 PPB @ HOUR(S) 8, 9 ON DAY(S) 21
1/2S CALIBRATION TIME:	38 HRS
MONTHLY CALIBRATION TIME:	10 HRS
STANDARD DEVIATION:	0.57
OPERATIONAL TIME:	VAR-VARIOUS
HRS	743

01 Hour Averages



— LICA31 SO2MAX PPB

LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : SO2
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	5.15	6.01	6.44	8.59	8.30	5.30	8.59	10.88	13.46	6.16	4.15	1.71	4.15	3.29	3.72	4.01	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	5.15	6.01	6.44	8.59	8.30	5.30	8.59	10.88	13.46	6.16	4.15	1.71	4.15	3.29	3.72	4.01	4.01

Calm : .00 %

Total # Operational Hours : 698

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	36	42	45	60	58	37	60	76	94	43	29	12	29	23	26	28	698
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	36	42	45	60	58	37	60	76	94	43	29	12	29	23	26	28	698

Calm : .00 %

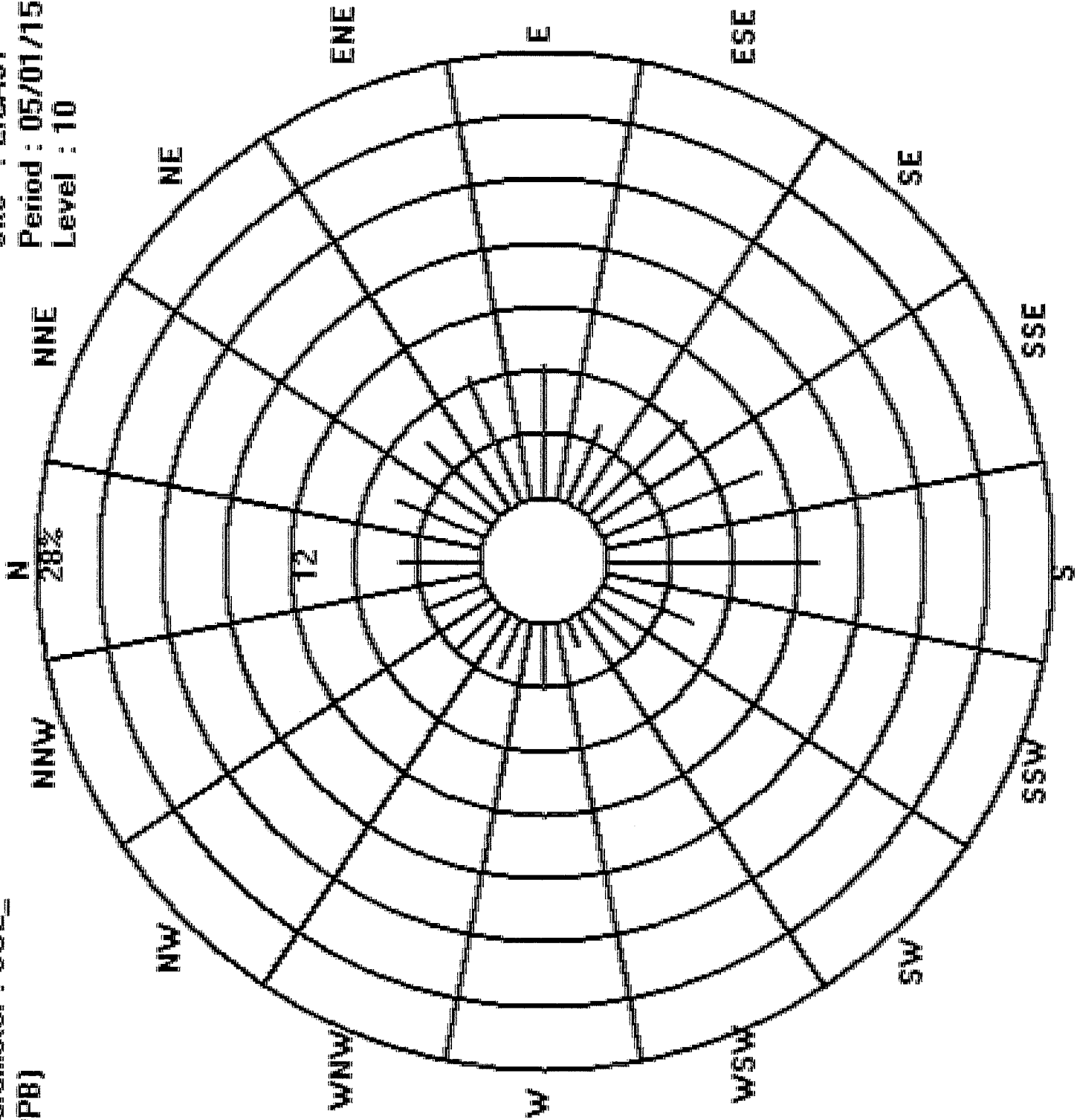
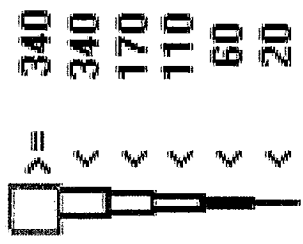
Total # Operational Hours : 698

Logger : 31 Parameter : SO2_

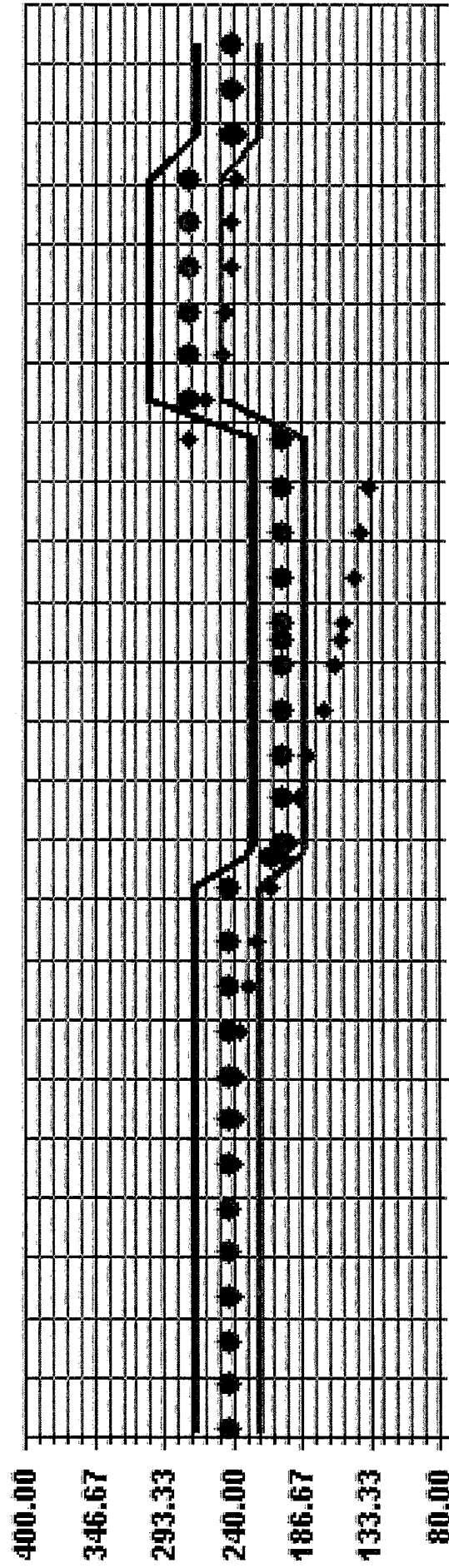
Site : LICA31

Class Limits (PPB)

Period : 05/01/15-05/31/15
Level : 10



Calibration Graph for Site: LICA31 Parameter: SO2_ Sequence: SO2 Phase: SPAN



5/11/15 5/18/15 5/24/15 5/16/15 6/11/15
 + Cal Value ● Exp Value — Exp Value +10% — Exp Value -10%

HYDROGEN SULPHIDE



HYDROGEN SULPHIDE (HZS) hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY MAX	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
Y	MAINTENANCE	K	RECOVERY
S	DAILY ZERO SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

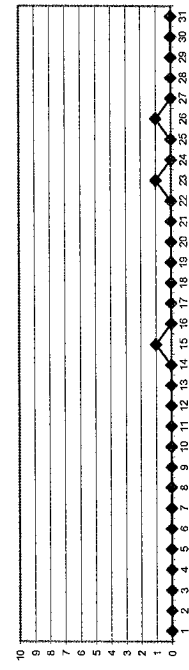
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR: 0.1 PPB | 24-HR: 0.3 PPB

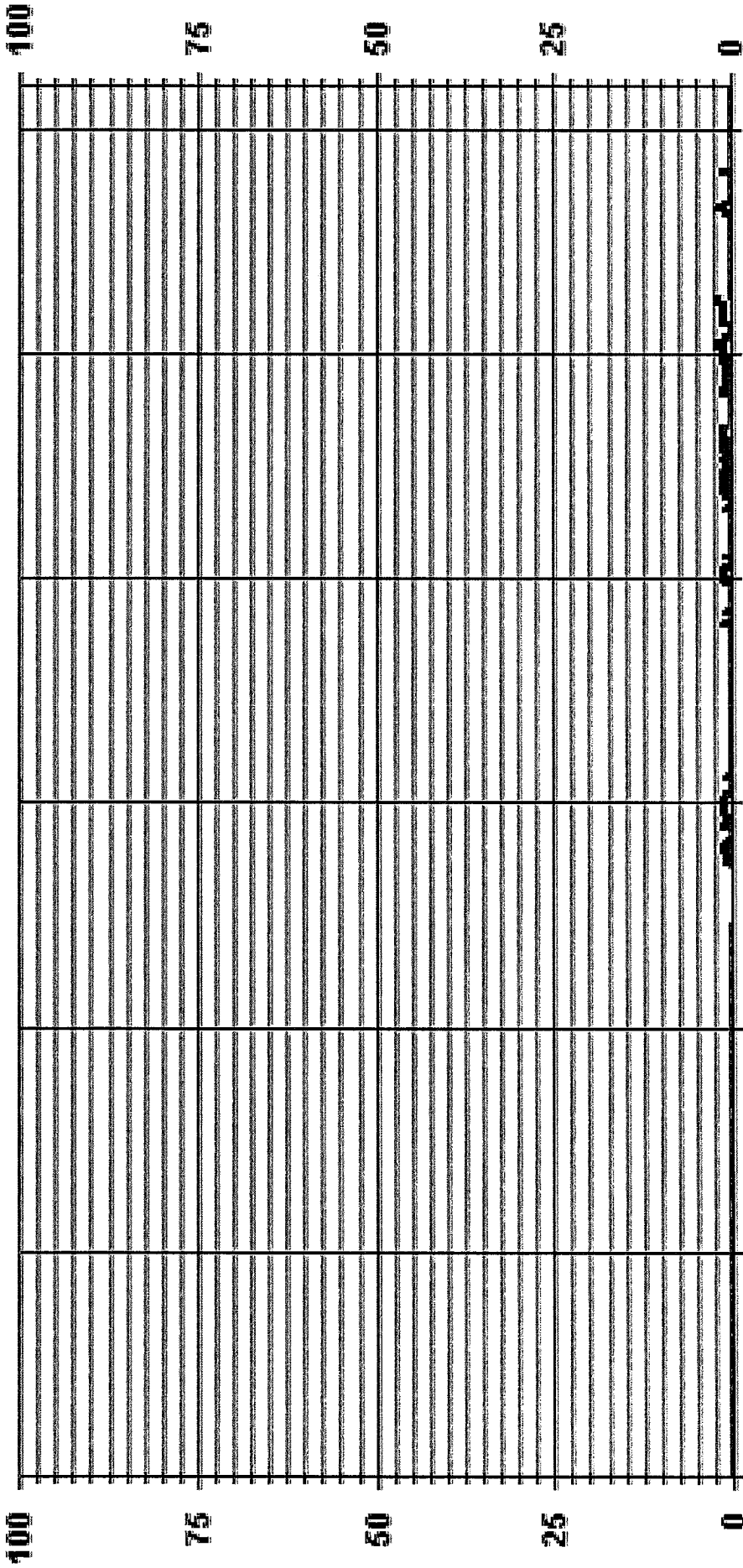
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0	NUMBER OF NON-ZERO READINGS	97
NUMBER OF 24-HR EXCEEDENCES	0	MAXIMUM 1-HR AVERAGE	2 PPB
		MAXIMUM 24-HR AVERAGE	0.8 PPB
		OPERATIONAL TIME	31 HRS
		MONTHLY CALIBRATION TIME	11 HRS
		STANDARD DEVIATION	0.39
		ON DAY(S)	VAR
		VAR-VARIOUS	26
		OPERATIONAL TIME	724 HRS
		AMT OPERATION UPTIME	97.3 %
		MONTHLY AVERAGE	0 PPB

24 HOUR AVERAGES FOR MAY 2015

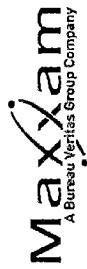


01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 H2S_ PPB



HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

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

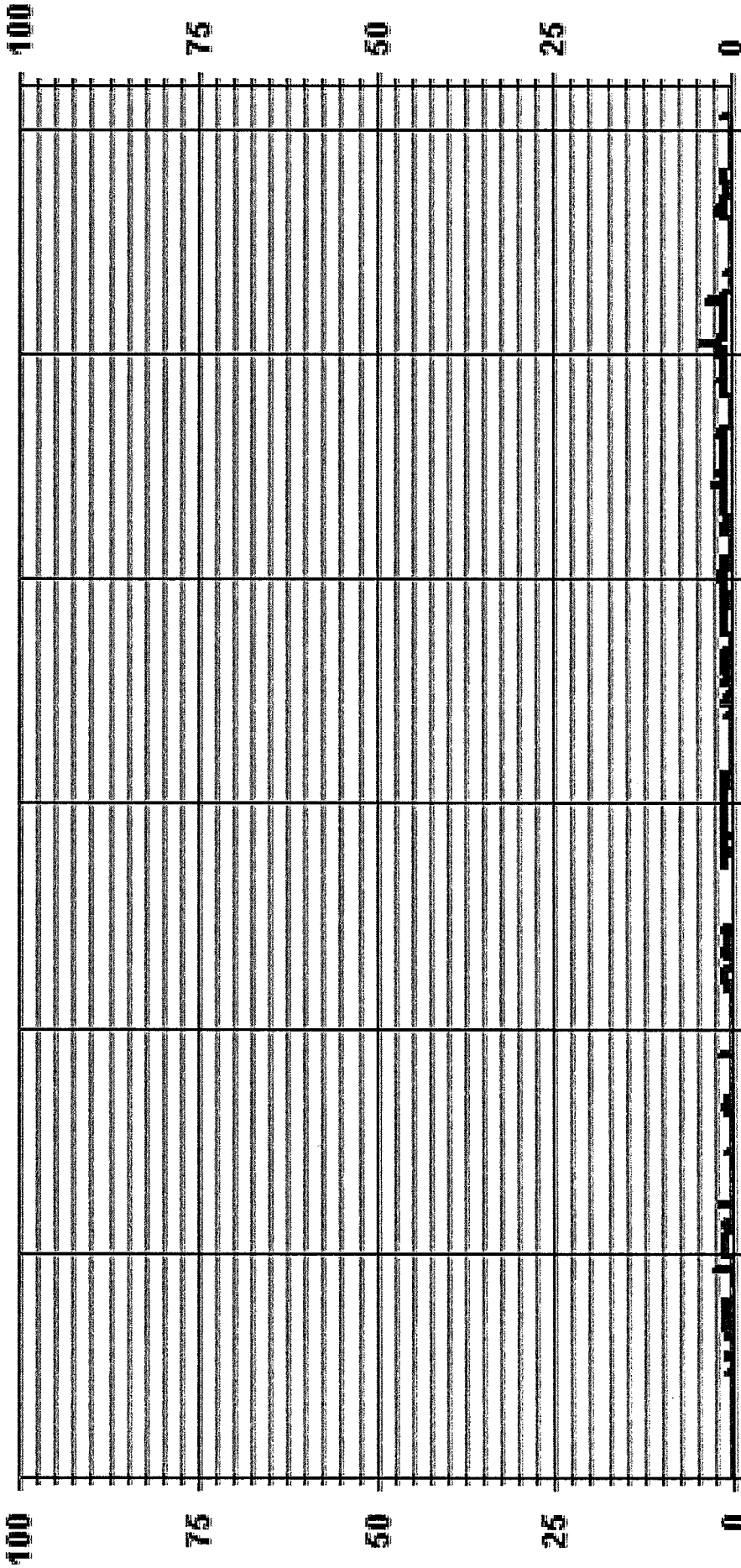
STATUS FLAG CODES

G	- CALIBRATION
Y	- MAINTENANCE
S	- DAILY ZERO/SPAN/CHECK
P	- POWER FAILURE
G	- OUT FOR REPAIR
O	- QUALITY ASSURANCE
R	- RECOVERY
X	- MACHINE MALFUNCTION
O	- OPERATOR ERROR
K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	272
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 7 ON DAY(S) 26
IS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	11 HRS
STANDARD DEVIATION:	0.60
OPERATIONAL TIME:	723 HRS
VARIOUS	VARIOUS

01 Hour Averages



— LICA31 H2SMAX PPB

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)
May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	5.27	6.15	6.59	8.79	8.50	4.98	7.47	11.14	12.60	6.59	4.25	1.75	4.39	3.37	3.81	4.25	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.27	6.15	6.59	8.79	8.50	4.98	7.47	11.14	12.60	6.59	4.25	1.75	4.39	3.37	3.81	4.25	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

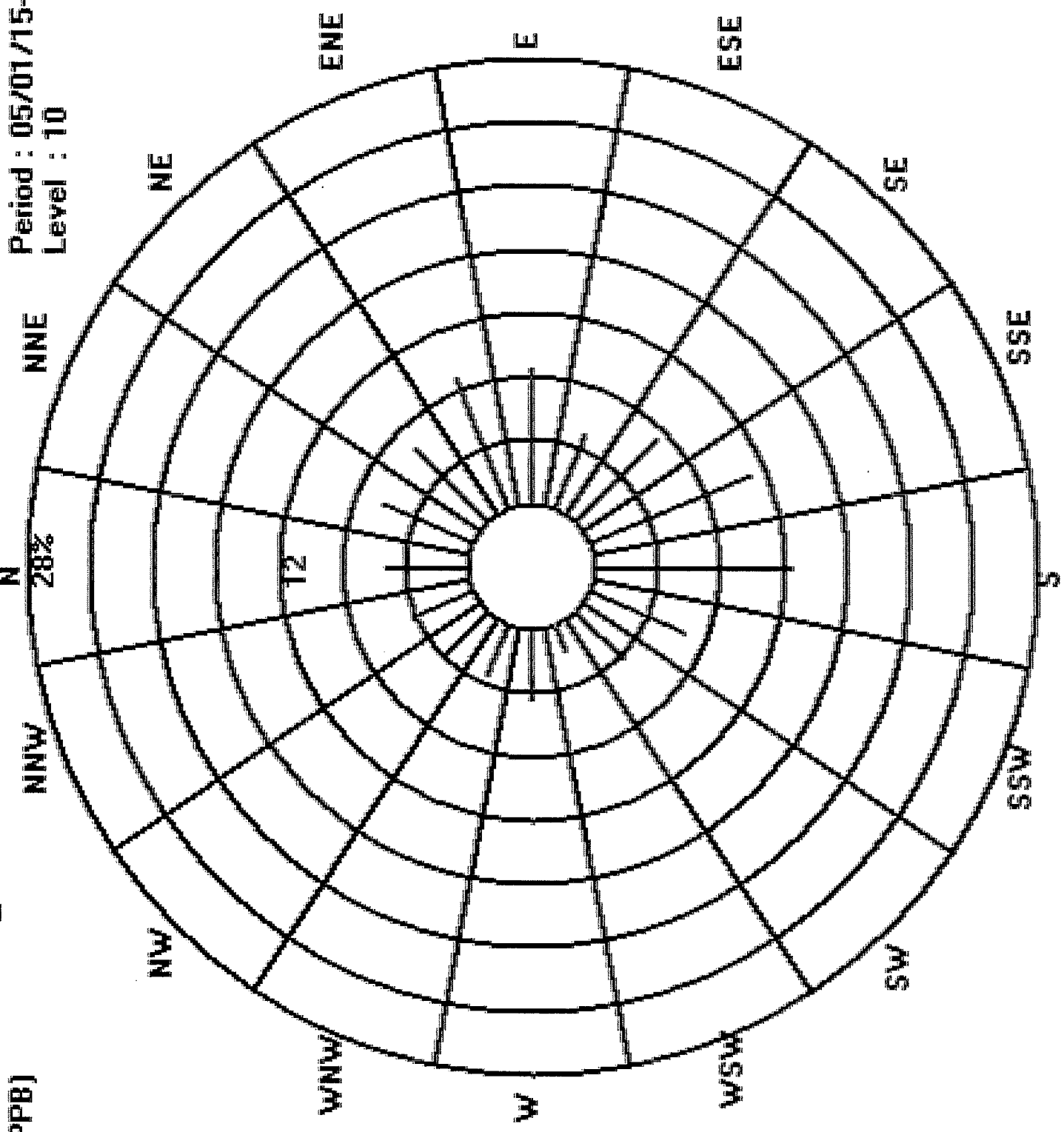
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	36	42	45	60	58	34	51	76	86	45	29	12	30	23	26	29	682
< 10																	
< 50																	
>= 50																	
Totals	36	42	45	60	58	34	51	76	86	45	29	12	30	23	26	29	

Calm : .00 %

Total # Operational Hours : 682

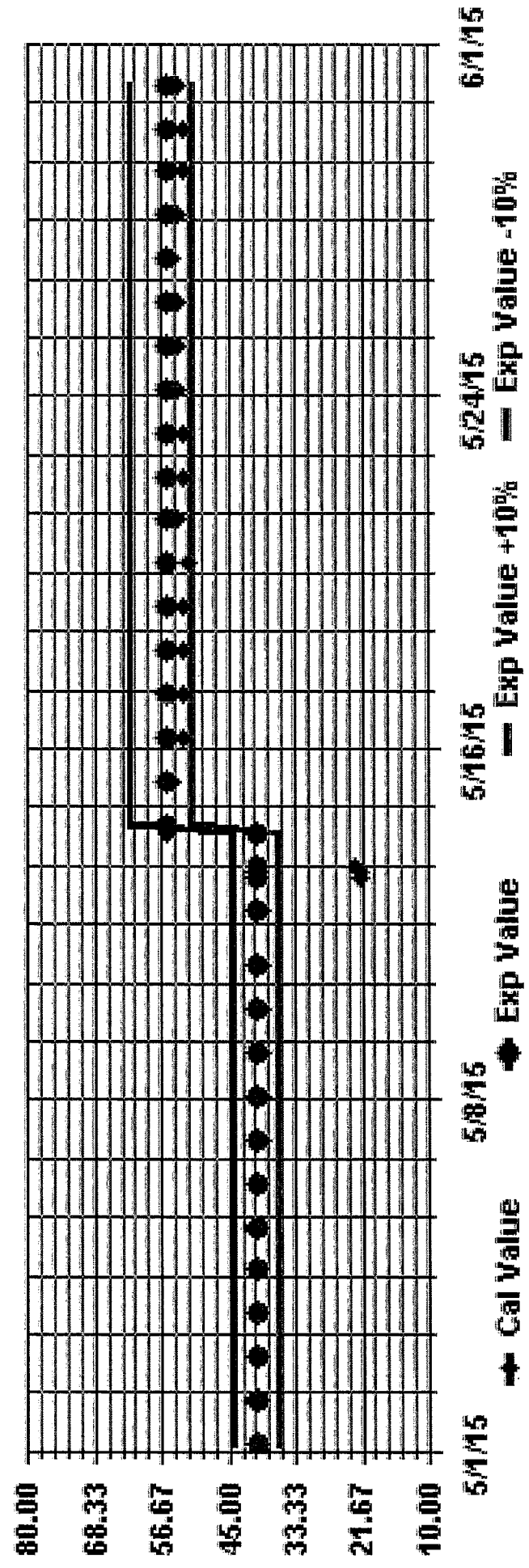
Logger : 31 Parameter : H2S_

Site : LICA31
Period : 05/01/15-05/31/15
Level : 10

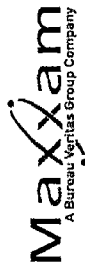


>= 50
< 50
< 10
< 3

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



TOTAL HYDROCARBON

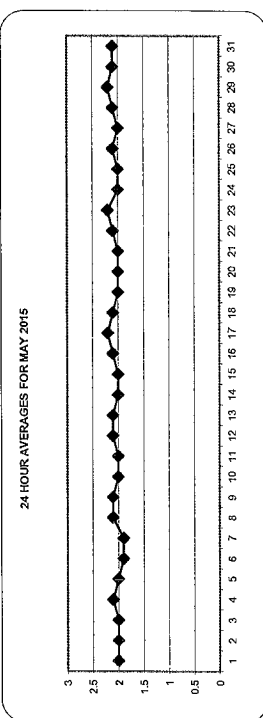


TOTAL HYDROCARBONS (THC) hourly averages in ppm

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
6	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
10	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
11	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
12	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
13	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
14	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
15	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
16	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
17	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
18	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
19	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
20	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
21	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
22	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
23	2.4	2.1	2.0	2.0	2.0	2.3	2.6	2.8	2.6	2.5	2.6	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
24	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
25	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
26	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
27	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
28	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
29	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
30	2.2	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
31	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
HOURLY MAX	2.4	2.3	2.3	2.4	2.4	2.4	2.6	2.8	2.6	2.5	2.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4
HOURLY AVG	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

STATUS FLAG CODES

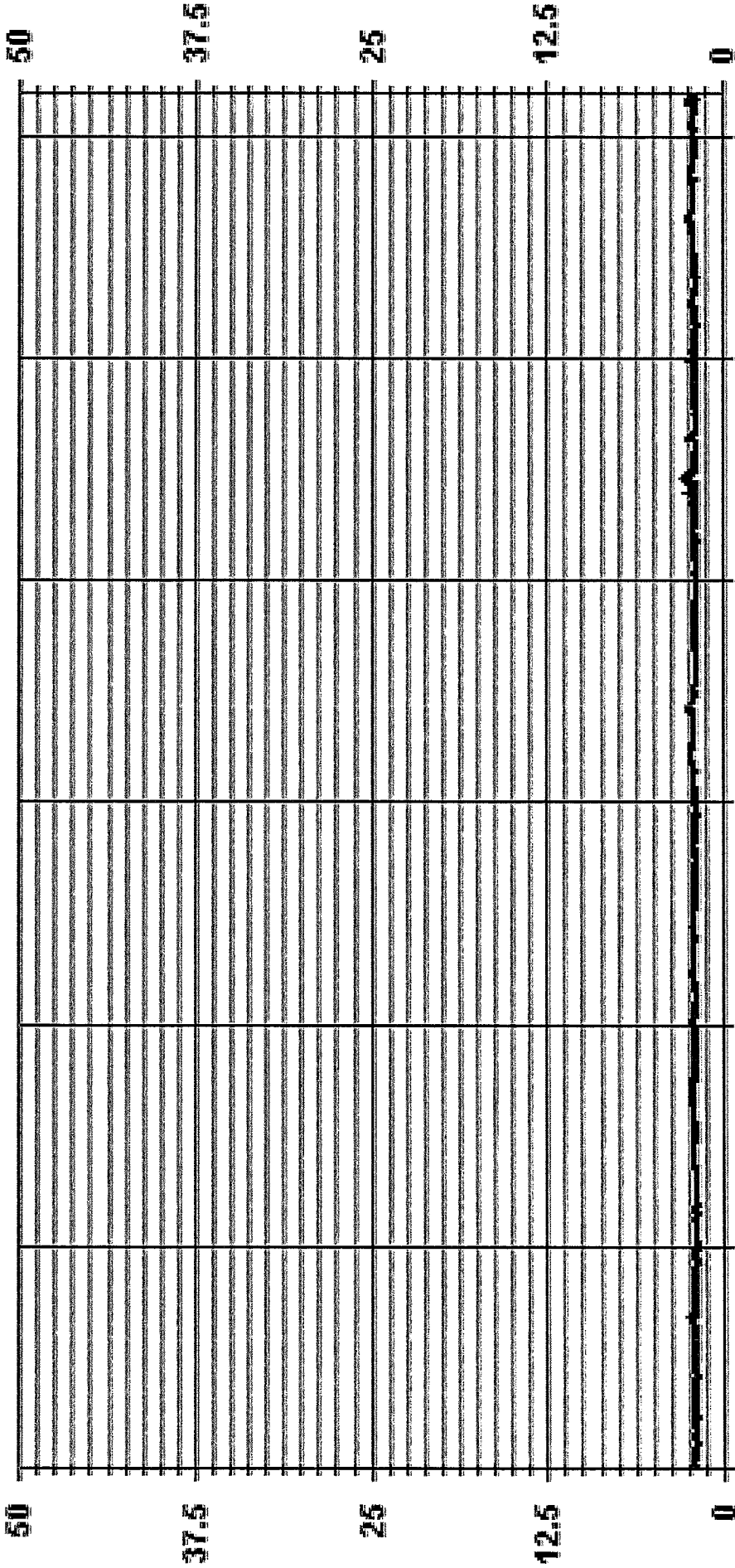
C - CALIBRATION
 Y - MAINTENANCE
 S - DAILY ZERO/SPAN CHECK
 P - POWER FAILURE
 G - OUT FOR REPAIR
 Q - QUALITY ASSURANCE
 R - RECOVERY
 X - MACHINE MALFUNCTION
 O - OPERATOR ERROR
 K - COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707	PPM @ HOUR(S)	7	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	2.8	PPM	7	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	2.2	PPM		VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:	743
MONTHLY CALIBRATION TIME:	4	HRS		AMD OPERATION UPTIME:	99.9
STANDARD DEVIATION:	0.12			MONTHLY AVERAGE:	2.0

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA31 - - - - THC PPM



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 St. Lina Site - MAY 2015
 JOB # 2833-2015-05-31- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	
1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
3	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
6	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
10	2.0	2.2	2.2	2.3	2.4	2.5	2.4	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
11	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
12	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
13	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
14	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
15	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
16	2.2	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
17	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
18	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
19	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
20	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
21	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
22	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
23	5.7	3.8	2.5	2.9	2.2	4.6	3.0	3.0	3.0	3.0	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
24	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
25	2.1	2.0	2.0	4.1	2.3	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
26	3.9	4.6	3.4	3.6	4.1	3.6	2.6	3.0	2.6	3.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
27	2.0	2.1	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
28	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
29	2.2	2.3	2.3	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
30	2.2	2.2	2.3	2.6	2.6	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
31	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
HOURLY MAX	5.7	4.6	9.2	4.1	4.1	4.6	3.0	3.2	3.0	2.7	2.9	2.7	2.5	2.4	2.5	2.4	3.0	3.0	3.0	3.3	12.3	4.5	3.4	3.7	4.9	2.2
HOURLY AVG	2.3	2.3	2.4	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2
DAILY MAX	5.7	4.6	9.2	4.1	4.1	4.6	3.0	3.2	3.0	2.7	2.9	2.7	2.5	2.4	2.5	2.4	3.0	3.0	3.0	3.3	12.3	4.5	3.4	3.7	4.9	2.2
DAILY AVG	2.3	2.3	2.4	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2
24-HOUR AVG	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

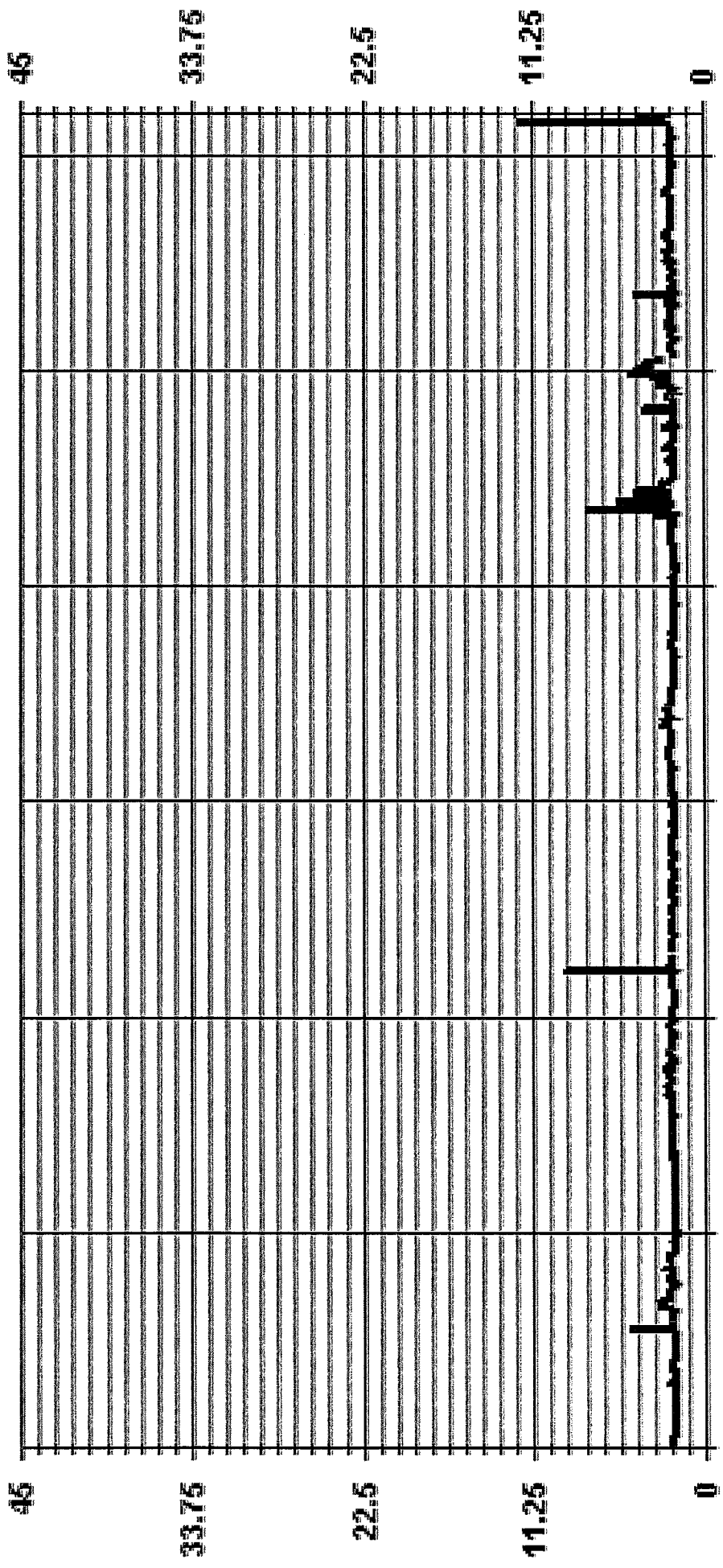
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/Span CHECK	X	MACHINE/VALVE/NOISE
P	POWER FAILURE	O	OPERATOR ERROR
S	SHUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706
MAXIMUM INSTANTANEOUS VALUE:	12.3 PPM @ HOUR(S) 19 ON DAY(S) 31
OPS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	0.63
VAR-VARIOUS	

01 Hour Averages



— LICA31 THCMAX PPM

LICA31
 THC / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	5.09	5.94	6.36	8.48	8.20	5.37	9.19	10.60	13.43	6.36	4.10	1.69	4.24	3.25	3.67	3.96	100.00
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.09	5.94	6.36	8.48	8.20	5.37	9.19	10.60	13.43	6.36	4.10	1.69	4.24	3.25	3.67	3.96	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

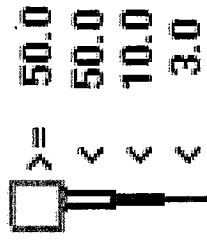
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	36	42	45	60	58	38	65	75	95	45	29	12	30	23	26	28	707
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	36	42	45	60	58	38	65	75	95	45	29	12	30	23	26	28	

Calm : .00 %

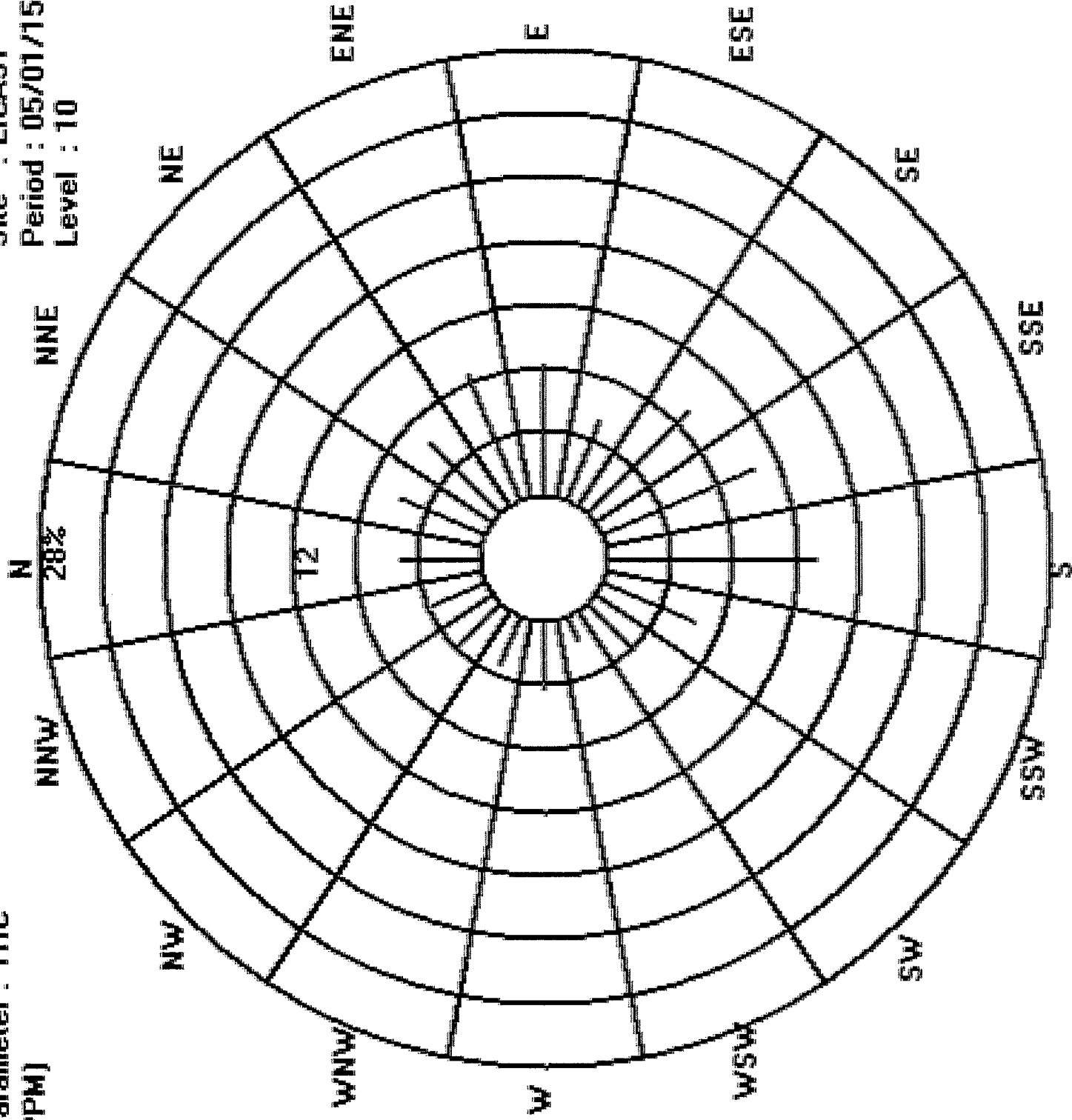
Total # Operational Hours : 707

Logger : 31 Parameter : THC

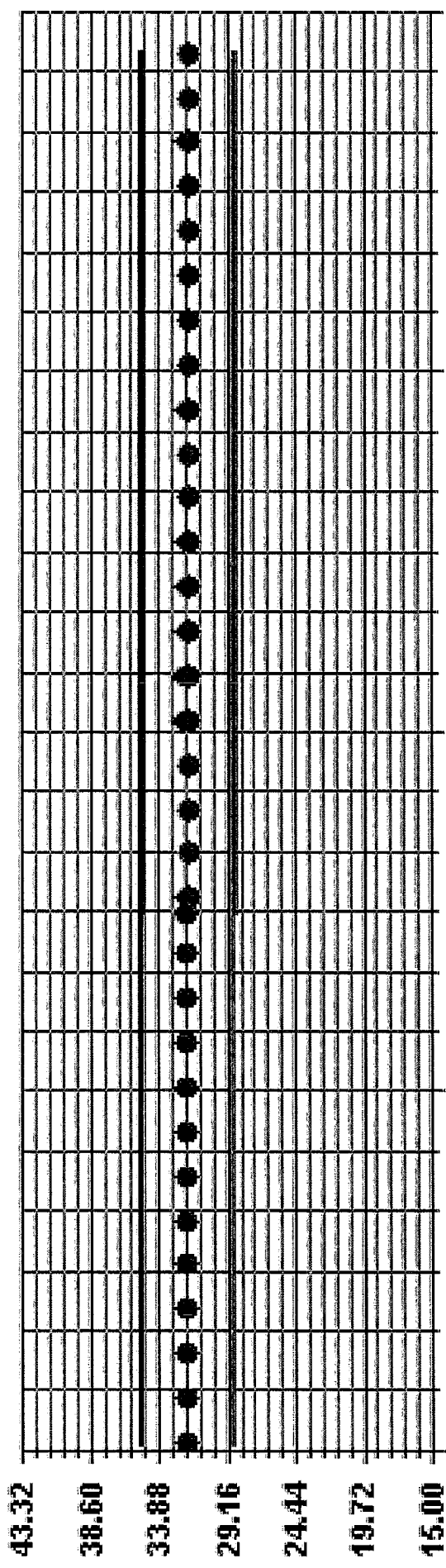
Class Limits (PPM)



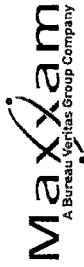
Site : LICA31
Period : 05/01/15-05/31/15
Level : 10



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



OXIDES OF NITROGEN

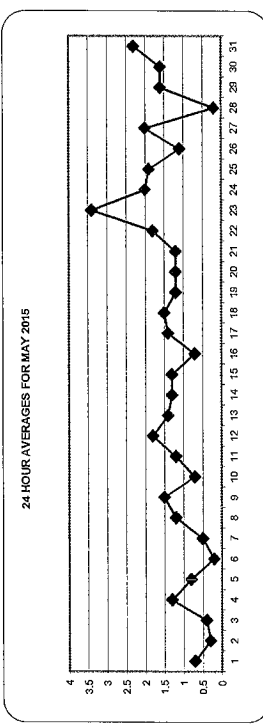


OXIDES OF NITROGEN (NOx) hourly averages in ppb

DAY	HOURS																								DAILY MAX	24-HOUR AVE.	ROGS.		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				24:00	
1	0.8	0.4	0.6	1.2	S	2.4	1.7	1.4	0.6	0.4	0.2	0.4	0.5	0.9	0.4	0.5	0.6	0.1	0.0	0.6	0.3	0.0	0.2	0.3	2.4	0.7	24		
2	0.7	1.0	0.9	S	0.6	0.5	0.6	0.9	0.4	0.2	0.2	0.3	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.0	0.2	0.2	0.0	0.1	1.0	0.3	24		
3	0.1	0.0	S	0.3	0.9	0.6	0.4	0.7	0.5	0.2	0.3	0.2	0.3	0.2	0.0	0.0	0.4	0.6	0.4	0.0	0.2	0.3	1.0	0.7	1.0	0.4	24		
4	1.8	S	1.7	1.3	1.6	1.3	1.8	1.4	1.7	2.9	4.9	1.5	0.8	0.7	0.7	0.5	0.8	0.8	0.7	0.5	0.8	1.0	0.4	4.9	1.3	24	24		
5	S	1.0	0.9	0.8	0.8	0.8	0.8	0.6	0.7	0.6	0.5	0.6	0.5	0.7	0.6	0.7	0.9	1.0	1.2	1.7	0.5	0.1	S	1.7	0.8	24	24		
6	0.3	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.4	0.2	0.7	0.2	0.0	0.1	0.0	0.2	0.2	0.2	0.3	0.2	S	0.5	0.7	0.2	24	24		
7	0.6	0.4	0.3	0.3	0.9	0.5	0.4	0.3	0.2	0.1	0.3	0.2	0.3	0.5	0.3	0.5	0.3	1.4	0.6	0.9	S	0.6	1.2	1.4	0.5	24	24		
8	1.1	1.4	1.7	1.2	1.4	1.7	2.7	2.3	2.1	1.2	0.6	0.7	0.3	0.5	0.6	0.5	0.6	1.5	0.9	S	1.2	1.7	1.8	2.7	1.2	24	24		
9	1.9	1.7	1.7	1.5	1.7	2.0	2.0	2.2	2.6	2.5	3.6	1.3	0.7	0.5	0.8	0.8	0.8	0.7	0.5	S	0.8	1.3	1.7	1.1	3.6	1.5	24	24	
10	0.5	0.5	0.7	0.7	1.2	2.0	1.9	1.3	0.8	0.7	0.6	0.4	0.2	0.3	0.3	0.4	0.3	0.3	0.3	S	0.6	0.5	0.8	1.3	2.0	0.7	24	24	
11	2.4	2.0	1.8	1.7	1.9	2.3	1.9	1.5	1.2	1.1	0.7	0.5	0.5	0.4	0.6	0.6	0.7	S	0.9	1.2	1.0	1.0	1.0	2.4	1.2	24	24		
12	1.5	1.7	2.2	3.8	4.7	3.5	4.0	4.1	3.8	2.3	Y	Y	1.1	0.2	0.2	0.0	0.3	0.1	0.3	0.6	0.6	S	1.1	4.7	1.8	21	21		
13	1.2	1.4	1.4	1.5	1.4	1.9	2.0	1.7	1.4	C	C	C	C	C	C	C	C	C	C	C	C	C	1.7	1.6	2.0	1.4	24	24	
14	1.2	1.2	1.1	1.1	1.7	1.9	1.3	1.6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.1	0.9	1.3	1.9	1.3	24	24
15	1.6	1.4	1.3	1.2	0.9	1.2	1.2	1.4	1.0	1.0	0.7	1.0	0.8	0.7	1.2	0.7	2.2	2.8	2.4	S	1.3	1.1	1.1	0.9	2.8	1.3	24	24	
16	1.4	2.3	1.1	0.9	0.7	0.4	0.6	0.4	0.2	0.5	0.7	0.4	0.2	0.2	0.3	0.3	0.3	0.2	S	0.7	0.8	1.0	1.0	1.8	2.3	0.7	24	24	
17	3.4	4.2	4.2	3.1	2.9	4.4	2.0	0.7	0.3	0.2	0.0	0.1	0.0	0.2	0.2	0.3	0.3	S	0.4	0.3	0.6	1.5	1.9	4.4	1.4	24	24		
18	1.4	2.5	1.7	2.9	3.7	3.8	3.0	2.3	1.1	1.1	0.6	0.6	0.4	0.4	0.6	0.8	S	0.9	0.7	0.4	0.7	1.7	1.0	1.3	3.8	1.5	24	24	
19	1.1	1.2	1.2	1.2	1.5	3.2	2.3	1.5	0.7	0.6	0.4	0.6	0.7	0.6	0.6	S	0.7	0.7	0.6	1.2	0.8	1.0	1.1	1.4	3.2	1.2	24	24	
20	1.6	1.4	1.6	1.8	2.0	2.7	2.2	1.9	1.7	1.1	0.7	0.6	0.6	0.6	S	0.7	0.5	0.6	0.6	1.0	1.2	1.0	1.1	2.7	1.2	24	24		
21	1.1	1.2	1.2	1.3	1.7	2.5	2.4	2.0	2.6	1.3	1.1	0.8	0.6	S	0.9	0.5	0.6	0.7	0.4	0.8	0.8	1.3	1.2	2.6	1.2	24	24		
22	1.7	1.8	1.8	1.8	2.4	3.1	5.9	3.4	2.8	2.1	2.0	0.9	S	0.9	0.9	1.0	1.0	1.5	2.6	0.9	0.4	0.8	0.7	5.9	1.8	24	24		
23	1.2	0.9	0.9	0.8	1.0	4.8	10.2	11.7	7.8	6.1	6.3	S	3.8	2.5	1.7	1.8	2.3	2.4	2.3	2.1	2.2	2.1	2.2	11.7	3.4	24	24		
24	1.9	1.4	1.3	1.6	1.9	9.1	7.7	4.9	4.0	2.1	S	0.4	0.4	0.4	0.3	0.6	0.7	0.7	0.5	0.5	0.8	1.1	1.5	1.9	9.1	2.0	24	24	
25	1.6	1.7	1.8	2.1	2.4	2.6	3.4	2.7	2.8	S	2.5	1.5	1.6	1.3	1.8	1.4	1.2	1.0	1.2	1.1	1.3	1.9	2.1	1.9	3.4	1.9	24	24	
26	1.5	1.2	0.9	0.7	0.7	1.3	1.5	1.4	S	1.1	0.6	0.7	0.6	0.7	0.5	0.2	0.5	0.7	1.2	3.3	2.9	1.8	1.5	3.3	1.1	24	24		
27	1.2	1.5	2.1	1.6	1.6	2.3	3.1	S	3.0	2.6	2.4	1.9	1.5	1.5	1.5	1.9	1.5	1.9	2.0	0.9	1.2	2.5	2.9	3.1	2.0	24	24		
28	1.0	0.3	0.0	0.4	0.4	0.3	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.7	0.2	0.3	1.0	0.2	24	24	
29	1.3	1.5	1.7	1.7	2.5	S	4.9	3.2	1.7	0.8	0.7	1.1	1.0	0.8	0.8	0.8	1.0	1.1	1.0	1.1	1.0	1.1	2.4	4.9	1.6	24	24		
30	2.9	2.2	3.0	4.4	S	4.5	3.3	2.5	2.3	1.0	0.6	0.5	0.5	0.3	0.4	0.4	0.5	0.6	0.8	0.9	1.1	1.1	1.0	1.6	4.5	1.6	24	24	
31	2.8	3.0	3.1	S	3.0	3.5	3.0	3.2	3.7	3.3	2.8	3.0	2.8	2.3	1.9	1.7	1.6	1.7	1.5	0.9	1.5	1.1	1.0	0.9	3.7	2.3	24	24	
HOURLY MAX	3.4	4.2	4.2	4.4	4.7	9.1	10.2	11.7	7.8	6.1	6.3	3.0	3.8	2.5	1.9	1.9	2.2	2.8	2.4	2.6	3.3	2.9	2.9	2.4	1.2	1.2			
HOURLY AVG	1.4	1.4	1.5	1.5	1.7	2.4	2.6	2.1	1.8	1.3	1.3	0.7	0.7	0.7	0.7	0.6	0.7	0.8	0.9	0.8	1.0	1.1	1.1	1.2	1.2				

STATUS FLAG CODES

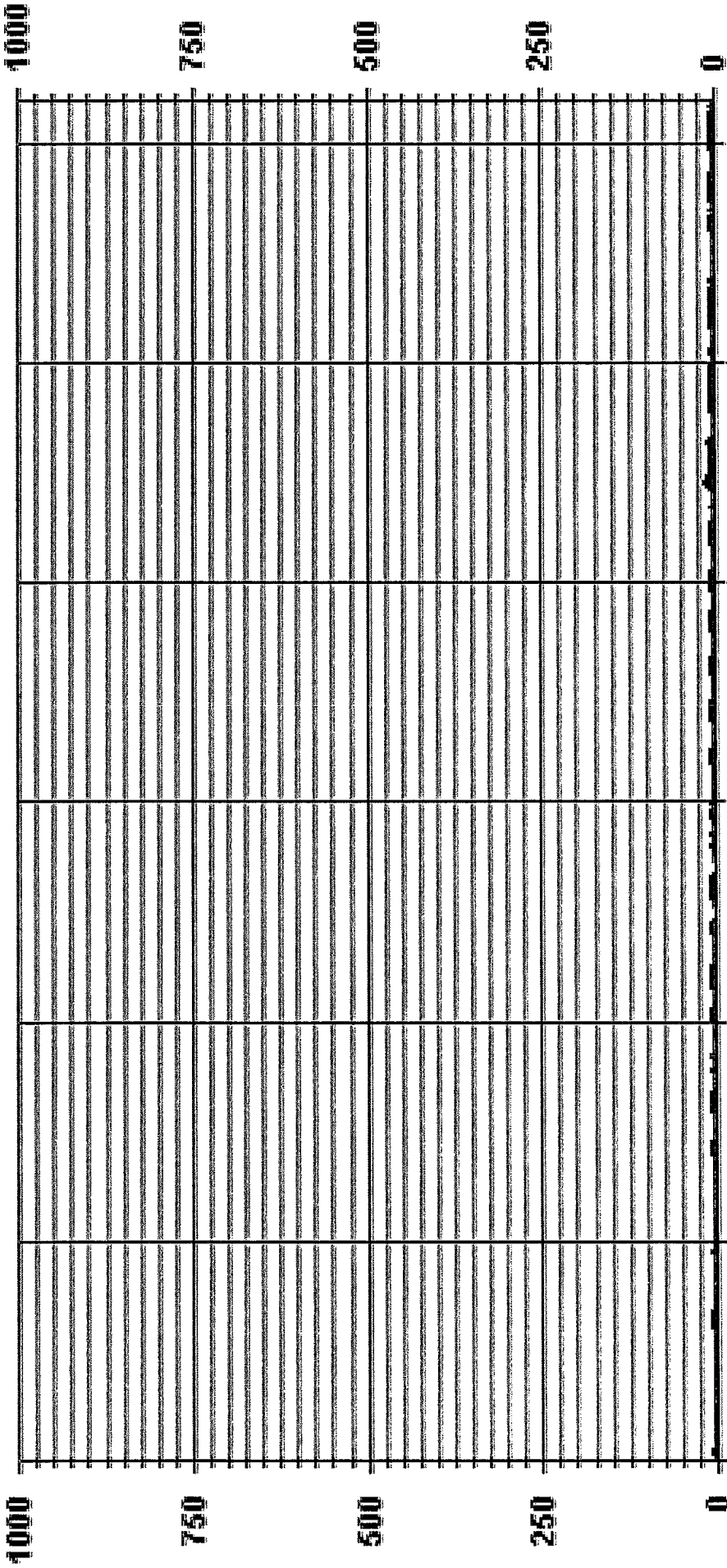
C	- CALIBRATION	Q	- QUALITY ASSURANCE
M	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE/MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



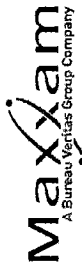
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	658	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	11.7 PPB	@ HOUR(S)	7
MAXIMUM 24-HR AVERAGE:	3.4 PPB	ON DAY(S)	23
OPS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	741 HRS
MONTHLY CALIBRATION TIME:	16 HRS	AMD OPERATION UPTIME:	99.6 %
STANDARD DEVIATION:	1.21	MONTHLY AVERAGE:	1.3 PPB

01 Hour Averages



— LICA31 NOX_ PPB



OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
1	2.3	1.0	1.5	2.0	\$	31.7	3.0	5.6	9.8	2.0	1.2	0.9	1.8	3.1	3.2	1.3	1.1	1.7	4.4	2.6	0.9	0.7	0.8	0.9	31.7	3.6	24	
2	1.8	1.5	1.5	\$	1.3	1.5	1.5	3.0	1.5	0.9	0.9	0.9	0.9	1.1	0.9	0.7	0.9	0.8	0.5	0.6	0.9	0.9	0.5	0.8	3.0	1.1	24	
3	0.6	0.5	\$	0.9	21.8	1.3	1.0	1.5	1.3	0.7	1.7	1.8	0.9	2.8	0.5	0.7	17.4	2.2	3.5	0.8	0.9	1.2	6.2	1.5	21.8	3.1	24	
4	2.5	\$	2.9	1.9	2.7	1.8	3.4	2.1	2.9	5.6	6.7	2.9	1.4	1.5	1.4	1.2	1.2	1.5	1.5	1.5	1.5	1.8	1.2	6.7	2.3	24		
5	\$	1.7	1.5	1.3	1.5	1.5	1.5	1.2	1.2	1.3	1.4	1.0	1.0	1.4	1.5	1.4	1.5	1.5	1.8	2.8	2.8	1.0	0.6	5	2.8	1.5	24	
6	0.8	0.5	0.9	0.7	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.8	0.7	0.8	1.4	1.3	2.4	1.8	\$	1.1	2.4	1.1	23	
7	1.6	0.8	1.0	1.0	4.5	3.1	1.4	1.2	1.1	0.8	0.8	1.0	0.7	1.0	1.2	1.0	1.0	0.9	24.5	1.2	1.6	\$	1.2	2.0	24.5	2.4	24	
8	2.1	2.1	2.4	2.0	2.1	2.6	5.0	16.6	16.0	2.9	1.3	2.3	1.2	1.5	3.3	1.6	1.3	2.1	25.3	2.4	\$	1.9	2.5	27	25.3	4.5	24	
9	3.4	2.3	2.4	2.0	2.4	2.7	3.1	3.0	3.5	3.8	5.7	1.9	1.6	1.4	1.6	1.4	1.5	1.5	1.2	\$	1.8	2.0	2.5	1.8	5.7	2.4	24	
10	1.2	1.1	1.5	1.4	2.2	2.6	2.8	2.6	2.8	2.6	1.7	1.2	1.2	0.9	0.8	1.1	1.1	0.9	0.7	\$	1.2	1.1	1.4	1.5	2.3	2.8	1.5	24
11	3.0	2.8	2.6	2.5	2.5	3.1	3.3	2.2	2.2	2.2	1.7	2.3	1.1	1.1	1.6	1.2	1.5	\$	1.4	2.7	1.7	1.6	1.6	1.8	3.3	2.0	24	
12	2.2	2.5	2.8	5.8	5.7	4.1	5.2	5.7	5.5	4.0	Y	Y	Y	Y	0.8	0.9	0.6	2.0	0.9	1.1	1.5	1.4	\$	1.8	5.8	2.9	20	
13	2.0	2.3	2.0	2.1	2.1	2.8	2.8	2.2	2.0	C	C	C	C	C	C	C	C	1.4	1.1	2.2	1.8	\$	2.2	2.3	2.8	2.1	24	
14	1.8	1.6	1.6	2.1	2.3	2.5	4.0	2.1	2.3	C	C	C	C	C	C	C	C	1.8	1.7	\$	1.8	1.7	2.4	4.0	2.1	24		
15	2.3	1.8	2.0	1.7	1.5	2.0	2.0	3.1	1.5	2.6	1.6	1.7	1.8	2.3	3.1	1.8	5.6	25.9	4.3	\$	2.0	1.8	1.8	1.6	1.6	3.3	24	
16	3.5	4.0	1.8	1.6	1.5	1.2	1.4	1.0	1.2	1.4	1.0	0.7	0.7	0.7	1.0	0.8	0.8	0.9	\$	1.4	1.8	1.9	1.6	4.1	1.6	24		
17	5.3	5.5	4.8	4.2	4.5	5.5	3.4	1.7	0.7	0.9	0.4	0.9	0.9	0.9	0.9	0.9	0.9	\$	1.0	0.9	1.5	2.6	3.2	2.1	5.5	2.3	24	
18	2.5	3.8	2.3	4.0	4.6	4.5	3.7	6.8	2.8	2.1	1.3	1.7	1.0	1.1	1.2	1.7	\$	2.5	1.3	1.0	1.3	3.2	1.8	2.0	6.8	2.5	24	
19	1.6	1.9	1.8	1.8	2.7	9.0	3.1	4.4	2.7	1.5	1.5	0.9	1.4	2.5	2.1	\$	1.5	1.6	1.4	2.8	1.4	1.7	1.7	2.2	9.0	2.3	24	
20	2.3	2.0	2.3	2.2	2.7	4.1	4.5	2.7	2.9	2.1	2.2	1.4	1.6	1.1	\$	1.3	1.8	1.3	1.3	1.1	1.8	2.0	1.6	2.1	4.5	2.1	24	
21	1.7	1.9	1.9	1.9	2.5	3.3	3.3	3.6	7.1	2.9	4.1	1.3	1.6	\$	2.9	1.7	2.1	2.1	1.1	1.5	1.3	1.9	1.8	1.9	7.1	2.4	24	
22	2.5	2.5	2.5	2.5	3.0	5.3	41.3	5.4	4.3	3.3	20.2	20.3	\$	2.3	2.2	3.9	15.3	22.6	6.7	15.5	2.8	1.1	2.2	1.2	41.3	8.2	24	
23	2.5	1.8	2.0	1.4	2.0	8.6	14.5	13.4	12.5	7.3	7.7	\$	4.5	3.7	2.3	2.3	2.5	3.0	3.1	2.9	2.9	2.8	2.9	2.9	14.5	4.8	24	
24	2.8	2.1	1.8	2.1	2.9	12.2	11.2	6.4	4.8	3.1	\$	1.1	0.9	1.6	0.9	1.5	1.7	1.4	1.4	1.1	1.4	1.7	2.3	2.6	12.2	3.0	24	
25	2.2	2.4	2.5	2.6	3.3	3.3	5.7	4.2	5.2	\$	4.2	2.2	3.7	2.5	7.2	2.3	2.0	1.8	2.0	1.8	2.2	2.5	4.9	2.8	7.2	5.2	24	
26	4.2	1.9	1.6	1.2	1.3	2.2	3.4	2.4	\$	2.1	1.2	1.3	1.9	2.1	2.1	1.5	0.8	2.8	1.9	4.0	4.1	3.8	2.5	2.1	4.2	2.3	24	
27	1.8	2.1	2.8	2.3	2.8	2.9	3.9	\$	3.7	4.3	3.4	2.9	4.2	2.5	2.5	5.3	4.3	3.6	5.5	1.6	1.8	3.5	3.7	3.4	5.5	3.3	24	
28	2.0	1.1	0.6	1.3	1.0	1.0	\$	0.5	0.4	0.4	0.4	1.2	0.7	0.4	0.5	1.5	0.8	0.8	1.0	0.6	1.0	1.4	1.0	1.1	2.0	0.9	24	
29	2.1	2.2	2.5	2.8	6.1	\$	6.0	4.2	2.3	1.7	1.4	1.7	1.4	1.4	1.4	1.5	1.5	1.6	1.8	2.1	2.9	2.8	3.1	6.1	2.5	24		
30	3.7	2.8	4.3	5.6	\$	5.2	4.8	3.3	3.3	2.1	1.2	1.0	1.2	0.9	1.0	1.0	1.0	1.2	1.3	1.6	1.8	1.8	1.7	2.9	5.6	2.4	24	
31	3.5	3.6	3.7	\$	3.8	5.6	3.6	4.1	4.5	4.1	3.5	3.8	3.8	2.9	2.4	2.3	2.3	2.3	2.1	1.7	2.6	2.5	2.2	2.6	5.6	3.2	24	
HOURLY MAX	5.3	5.5	4.8	5.8	21.8	31.7	41.3	16.6	16.0	7.3	20.2	20.3	4.5	3.7	7.2	5.3	17.4	25.9	25.3	15.5	4.1	3.8	6.2	4.1	21			
HOURLY AVG	2.4	2.1	2.2	2.2	3.4	4.6	5.1	3.9	3.7	2.5	3.0	2.3	1.7	1.7	1.8	1.6	2.7	3.3	3.7	2.2	1.8	1.9	2.2	2.1	2.1			

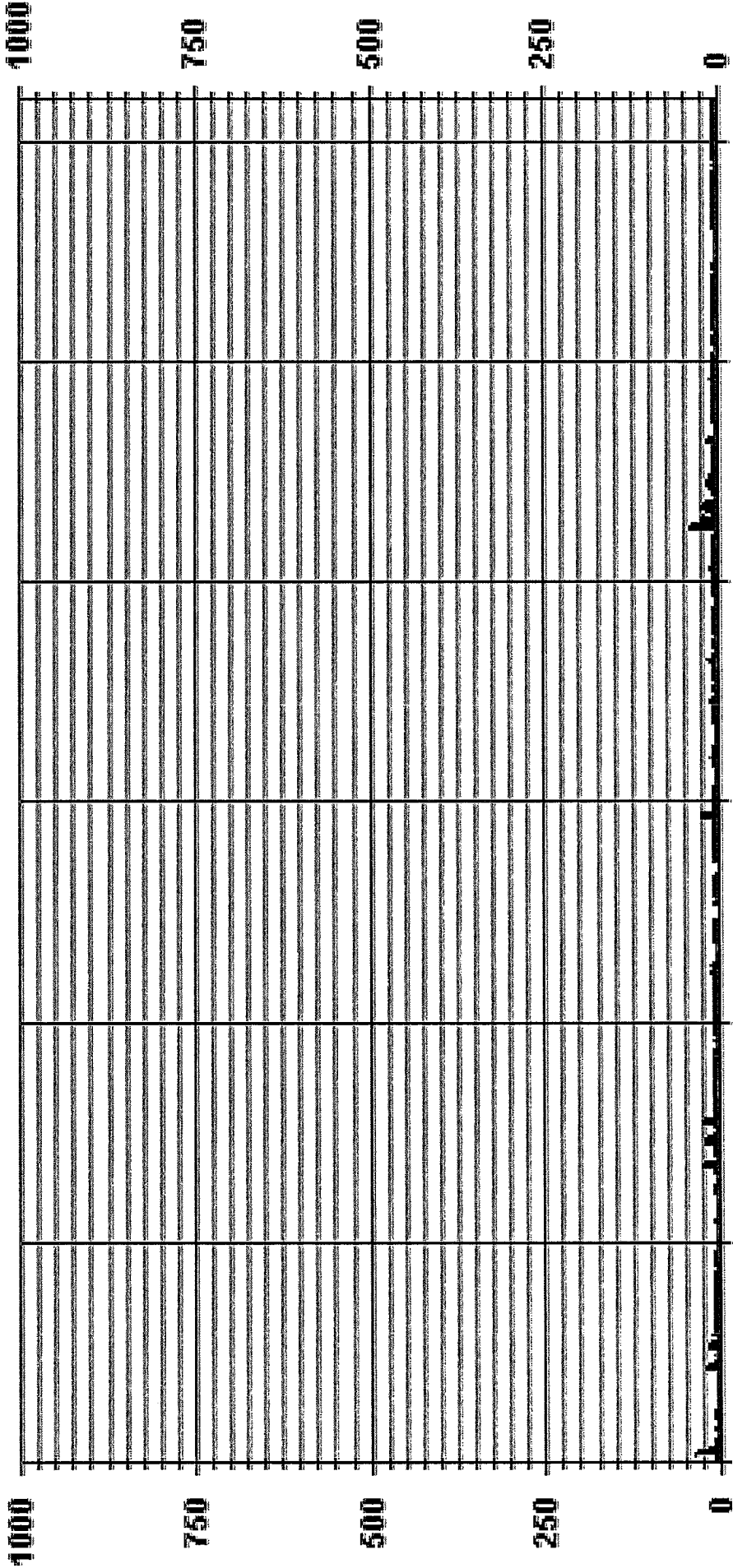
STATUS FLAG CODES

C	CALIBRATION
Q	QUALITY ASSURANCE
R	RECOVERY
S	MAINTENANCE
X	DAILY ZERO/SPAN CHECK
M	MACHINE MALFUNCTION
O	OPERATOR ERROR
P	POWER FAILURE
K	OUT FOR REPAIR
G	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	690
MAXIMUM INSTANTANEOUS VALUE:	41.3
PPB @ HOUR(S)	6
ON DAY(S)	22
VAR-VARIOUS	
OPERATIONAL TIME:	739
HRS	
MONTHLY CALIBRATION TIME:	17
HRS	
STANDARD DEVIATION:	3.42

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00:00

— LICA31 NOXMAX PPB

LIC31
 NOX_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LIC31
 Parameter : NOX_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	5.19	6.06	6.49	8.65	8.36	5.19	7.50	10.82	13.70	6.49	4.18	1.73	4.32	3.31	3.75	4.18	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.19	6.06	6.49	8.65	8.36	5.19	7.50	10.82	13.70	6.49	4.18	1.73	4.32	3.31	3.75	4.18	

Calm : .00 %

Total # Operational Hours : 693

Distribution By Samples

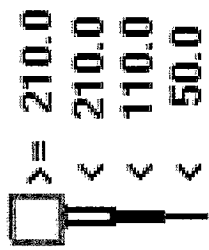
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	36	42	45	60	58	36	52	75	95	45	29	12	30	23	26	29	693
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	36	42	45	60	58	36	52	75	95	45	29	12	30	23	26	29	

Calm : .00 %

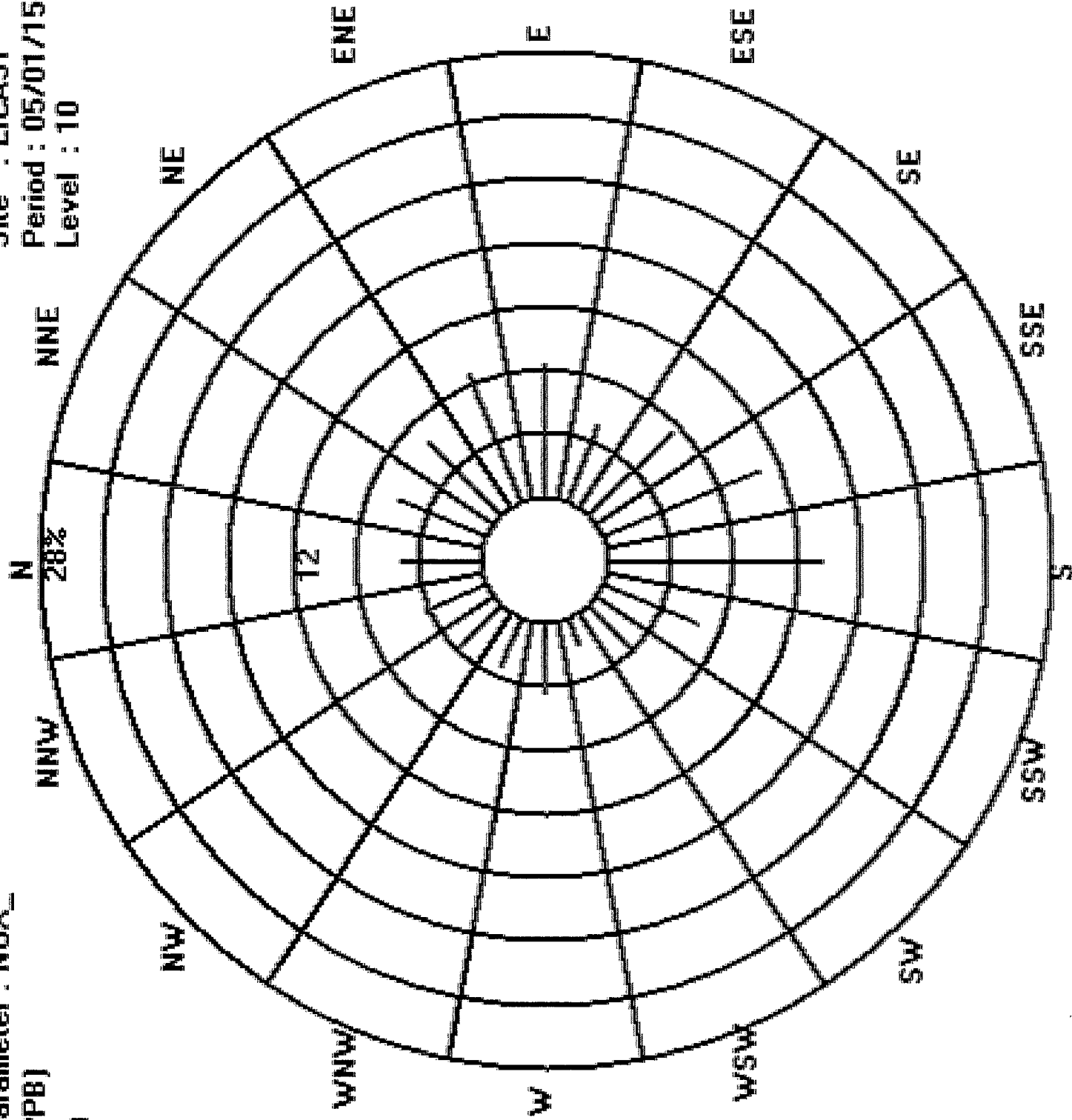
Total # Operational Hours : 693

Logger : 31 Parameter : NDX_

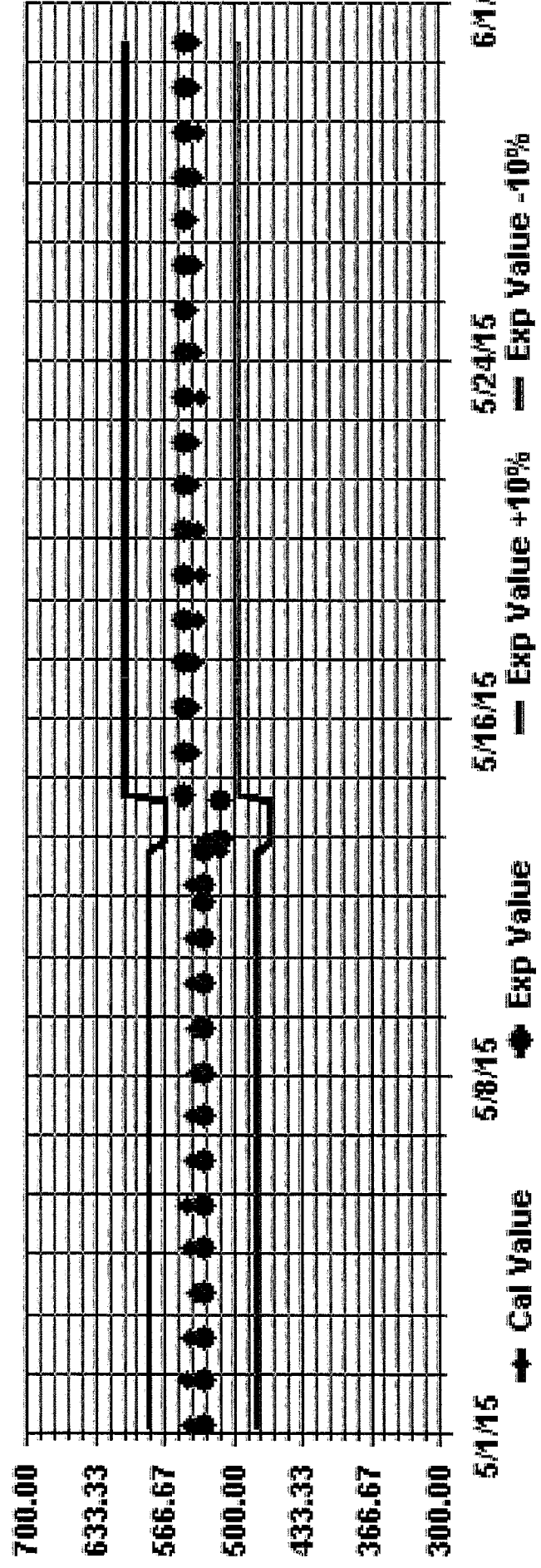
Class Limits (PPB)



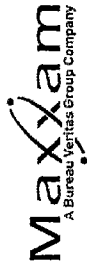
Site : LICA31
Period : 05/01/15-05/31/15
Level : 10



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



NITRIC OXIDES

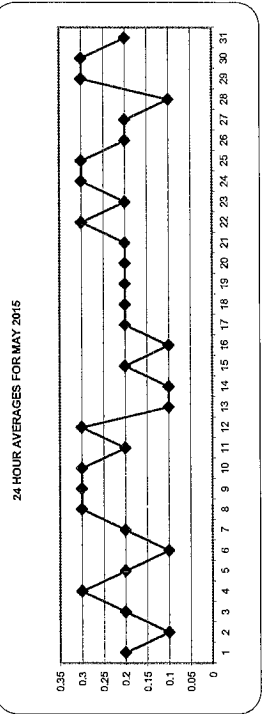


NITRIC OXIDE (NO) hourly averages in ppb

DAY	HOUR START - HOUR END																								DAILY MAX.	DAILY AVG.	24-HOUR AVG.	RDGS.	
	0:00-1:00	1:00-2:00	2:00-3:00	3:00-4:00	4:00-5:00	5:00-6:00	6:00-7:00	7:00-8:00	8:00-9:00	9:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-0:00					
1	0.0	0.0	0.0	0.0	0.6	0.4	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.0	0.1	0.1	0.1	0.6	0.2	24	
2	0.0	0.1	0.2	S	0.3	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.4	0.1	24	
3	0.0	0.0	S	0.3	0.6	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.1	0.2	0.0	0.4	0.5	0.2	0.0	0.2	0.4	0.2	0.4	0.2	0.6	0.2	24	24	
4	0.2	S	0.3	0.2	0.2	0.2	0.3	0.3	0.4	1.1	1.9	0.5	0.1	0.3	0.3	0.2	0.3	0.0	0.2	0.1	0.0	0.1	0.0	1.9	0.3	0.2	24	24	
5	S	0.3	0.2	0.2	0.1	0.1	0.3	0.2	0.3	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.0	S	0.3	0.2	24	24	
6	0.3	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.4	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	S	0.3	0.4	0.1	0.2	24	24	
7	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.0	0.1	0.1	0.2	0.3	0.1	0.4	0.1	0.5	0.3	0.3	S	0.3	0.4	0.1	0.2	0.4	24	24	
8	0.4	0.4	0.3	0.0	0.3	0.2	0.8	0.7	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.8	0.1	S	0.3	0.4	0.4	0.4	0.8	0.3	24	24	
9	0.3	0.3	0.4	0.0	0.4	0.2	0.4	0.8	0.7	1.0	0.4	0.1	0.2	0.3	0.3	0.4	0.3	0.1	0.3	0.2	S	0.3	1.0	0.3	1.0	0.3	24	24	
10	0.1	0.2	0.4	0.3	0.2	0.3	0.5	0.4	0.2	0.3	0.0	0.2	0.2	0.2	0.2	0.2	0.2	S	0.4	0.2	0.3	0.4	0.1	0.5	0.3	24	24		
11	0.2	0.1	0.2	0.1	0.2	0.1	0.5	0.5	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	S	0.5	0.2	0.3	0.1	0.2	0.1	0.5	0.2	24	24	
12	0.2	0.0	0.2	0.2	0.4	0.2	0.5	0.8	0.8	0.4	Y	Y	0.0	0.0	0.2	0.0	0.3	0.1	0.2	0.2	S	0.3	0.8	0.3	0.8	0.3	21	21	
13	0.2	0.2	0.2	0.1	0.1	0.3	0.3	0.3	0.3	C	C	C	C	C	C	C	C	0.0	0.1	0.0	0.0	S	0.0	0.0	0.3	0.1	24	24	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	C	0.3	0.2	S	0.2	0.1	0.1	0.1	0.1	0.1	24	24	
15	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.3	0.2	0.0	0.2	0.0	0.5	0.6	0.3	S	0.1	0.1	0.2	0.2	0.2	0.6	0.2	24	24	
16	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.0	0.1	0.1	S	0.2	0.0	0.2	0.1	0.2	0.2	0.2	0.1	24	24	
17	0.1	0.0	0.1	0.1	0.2	0.9	0.7	0.4	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	S	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.9	0.2	24	24	
18	0.0	0.2	0.1	0.2	0.3	0.5	0.7	0.6	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.1	S	0.4	0.2	0.2	0.1	0.0	0.1	0.0	0.6	0.2	24	24	
19	0.0	0.1	0.1	0.0	0.2	0.5	0.4	0.6	0.4	0.1	0.3	0.1	0.2	0.2	0.1	S	0.2	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.6	0.2	24	24	
20	0.1	0.0	0.0	0.1	0.1	0.2	0.4	0.4	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.4	0.2	24	24	
21	0.0	0.0	0.0	0.1	0.0	0.4	0.3	0.7	0.3	0.3	0.2	0.1	S	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.7	0.2	24	24	
22	0.2	0.1	0.0	0.2	0.1	0.3	1.4	0.9	0.6	0.5	0.6	0.2	S	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.0	0.0	0.0	1.4	0.3	24	24	
23	0.2	0.2	0.0	0.1	0.1	0.4	1.5	1.4	0.4	0.3	0.2	S	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	1.5	0.2	24	24	
24	0.2	0.2	0.1	0.1	0.1	0.0	0.9	1.2	0.8	0.6	0.2	S	0.4	0.4	0.3	0.3	0.3	0.4	0.2	0.2	0.1	0.1	0.0	0.0	1.5	0.2	24	24	
25	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.5	S	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.5	0.3	24	24	
26	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	S	0.8	0.1	0.1	0.3	0.4	0.2	0.4	0.2	0.3	0.2	0.2	0.1	0.2	0.0	0.1	0.4	0.2	24	24	
27	0.0	0.0	0.0	0.1	0.0	0.0	0.5	S	0.0	0.0	0.5	0.3	0.1	0.2	0.3	0.3	0.1	0.3	0.3	0.1	0.3	0.0	0.1	0.1	0.8	0.2	24	24	
28	0.4	0.2	0.0	0.3	0.1	0.2	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.2	0.1	0.4	0.1	24	24	
29	0.3	0.3	0.2	0.1	0.3	S	1.5	1.0	0.5	0.2	0.1	0.3	0.2	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.2	0.0	0.1	0.0	1.5	0.3	24	24	
30	0.1	0.1	0.2	0.2	0.2	S	0.7	0.8	0.9	0.8	0.4	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.9	0.3	24	24	
31	0.1	0.1	0.1	S	0.2	0.4	0.2	0.0	0.2	0.6	0.3	0.6	0.7	0.4	0.2	0.2	0.2	0.1	0.3	0.1	0.3	0.0	0.2	0.1	0.7	0.2	24	24	
HOURLY MAX	0.4	0.4	0.4	0.3	0.6	0.9	1.5	1.4	0.8	1.1	1.9	0.6	0.7	0.4	0.4	0.4	0.5	0.6	0.8	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.1	0.1	0.1
HOURLY AVG	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

STATUS FLAG CODES

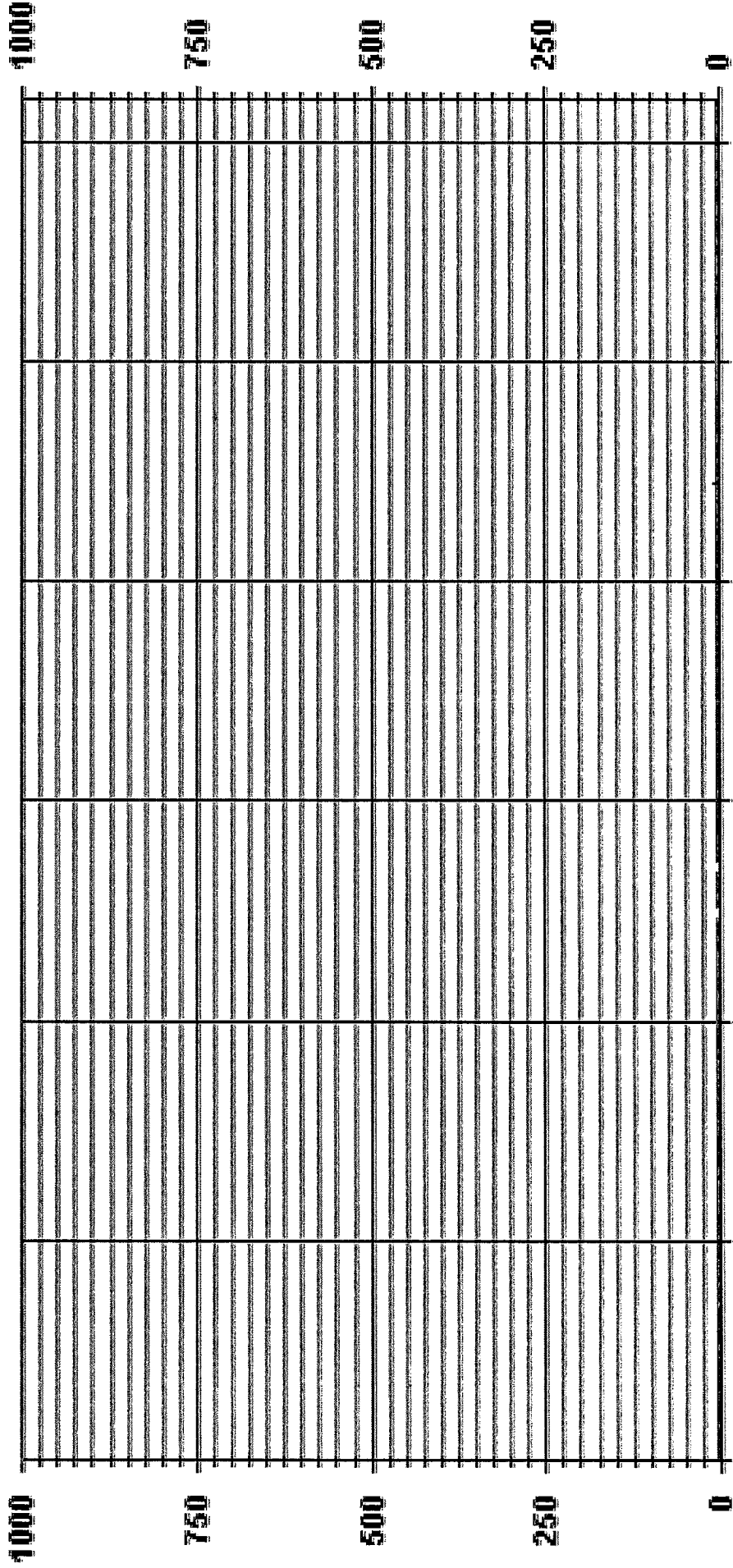
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECKS	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



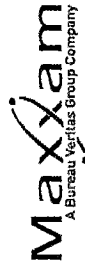
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	549	PPB @ HOUR(S)	10	ON DAY(S)	4
MAXIMUM 1-HR AVERAGE:	1.9	PPB	10	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.3	PPB	10	ON DAY(S)	VAR-VARIOUS
12S CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS
MONTHLY CALIBRATION TIME:	16	HRS	AMD OPERATION UPTIME:	99.6	%
STANDARD DEVIATION:	0.22		MONTHLY AVERAGE:	0.2	PPB

01 Hour Averages



— LICA31 NO_ PPB



NITRIC OXIDE MAX instantaneous maximum in ppb

MST

DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	ROGS.			
1	0.1	0.1	0.2	0.4	0.5	1.0	1.0	1.5	5.8	1.2	0.7	0.8	0.8	1.3	2.0	1.9	0.8	0.7	0.9	0.8	1.4	0.8	0.6	0.9	0.7	16.0	1.8	24
2	0.6	0.8	0.8	0.8	0.9	1.0	1.0	1.2	1.2	0.8	0.8	0.8	0.8	0.8	1.0	0.7	0.6	0.6	0.8	0.6	0.7	0.6	0.8	0.6	0.8	1.5	0.8	24
3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24
4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
5	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	24
6	0.8	0.9	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	23
7	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
8	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
9	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
10	0.8	0.7	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
11	1.0	0.9	0.7	0.8	0.8	0.7	1.1	1.1	1.0	1.0	1.2	0.8	0.7	0.6	0.9	0.7	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
12	0.8	0.7	1.0	1.2	0.9	0.7	1.3	1.5	1.7	1.1	Y	Y	Y	Y	Y	1.0	1.5	0.8	1.1	1.0	0.9	0.8	0.7	0.7	0.7	0.7	0.7	20
13	0.7	0.8	0.7	1.0	0.8	0.9	0.8	1.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	24	
14	0.4	0.4	0.4	0.3	0.4	0.5	0.6	0.4	0.6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	24	
15	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.8	1.3	0.9	0.8	0.7	0.9	0.7	1.0	0.9	0.6	2.2	12.1	1.0	0.8	0.7	0.7	0.7	0.7	0.7	0.7	24
16	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24
17	0.8	0.7	0.5	0.7	0.8	1.5	1.3	1.1	0.7	0.7	0.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24
18	0.7	0.8	0.7	0.8	1.0	1.2	1.3	2.2	1.2	0.9	0.7	0.8	0.5	0.6	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	24
19	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24
20	0.6	0.6	0.4	0.7	0.7	0.7	1.4	1.0	0.9	0.7	0.9	0.6	1.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24
21	0.7	0.7	0.6	0.7	0.8	1.1	1.1	1.3	2.4	0.8	1.8	1.0	0.7	0.7	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	24
22	0.9	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24
23	0.7	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24
24	0.7	0.9	0.7	0.8	0.6	1.8	1.9	1.5	1.2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
25	0.6	0.7	0.6	0.6	0.6	0.8	0.8	1.3	1.0	1.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
26	0.8	0.4	0.7	0.7	0.5	0.6	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
27	0.6	0.7	0.6	0.5	0.5	0.5	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
28	0.9	0.6	0.6	0.9	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
29	0.8	0.8	0.8	0.7	1.2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
30	1.0	0.8	0.8	0.7	0.8	1.5	1.4	1.3	1.3	1.1	0.7	0.8	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
31	0.7	0.8	0.8	0.8	0.8	0.8	1.7	0.8	0.6	0.8	1.5	0.9	1.7	1.6	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	24
HOURLY MAX	1.0	0.9	1.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	24
HOURLY AVG	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	24

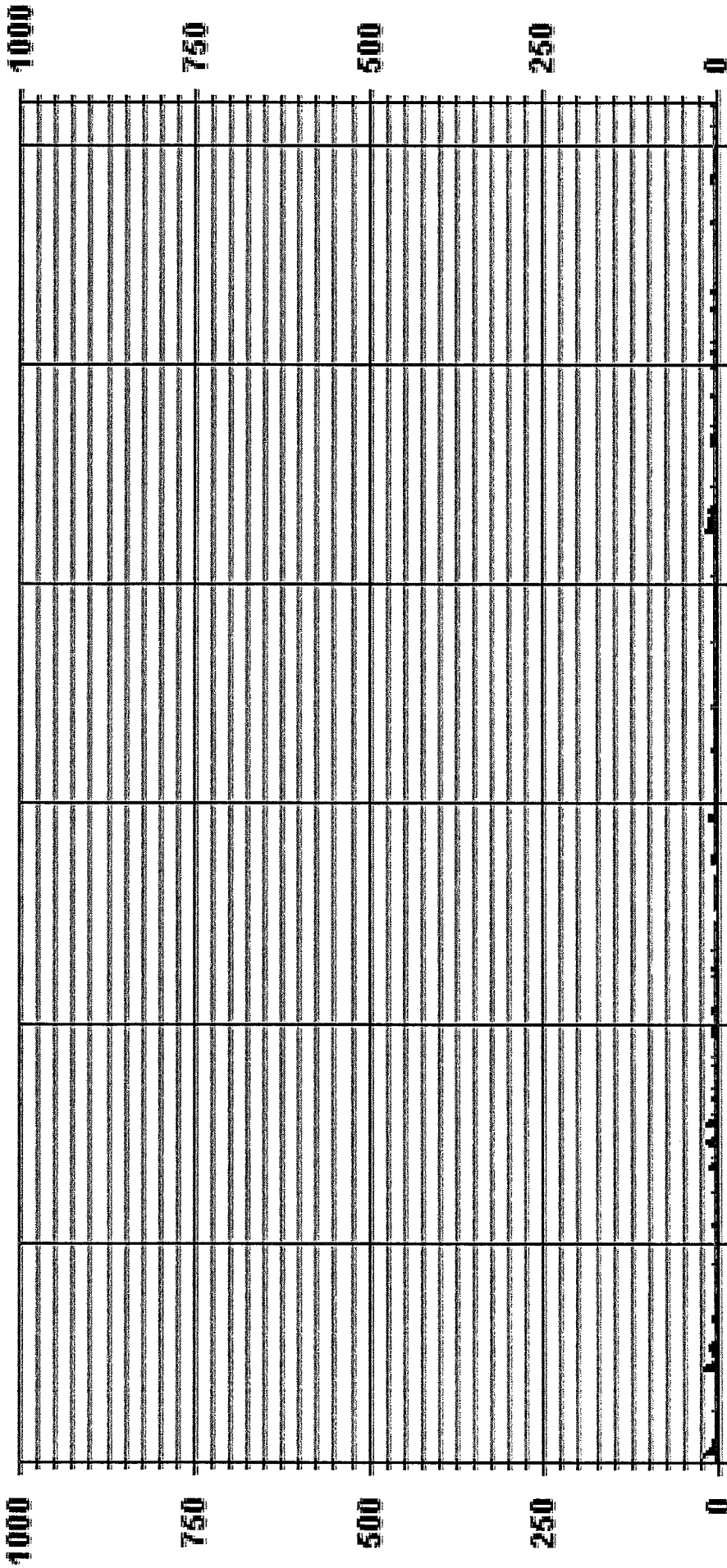
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPEAK CHECK	X	MAGNETIC MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	690
MAXIMUM INSTANTANEOUS VALUE:	19.8
PPBS @ HOUR(S)	4
ON DAY(S)	3
VAR-VARIOUS	
OPERATIONAL TIME:	739
HRS	
IZS CALIBRATION TIME:	32
HRS	
MONTHLY CALIBRATION TIME:	17
HRS	
STANDARD DEVIATION:	1.64

01 Hour Averages



05:01/15 00:05:06/15 00:05:11/15 00:05:16/15 00:05:21/15 00:05:26/15 00:05:31/15 00:00

— LICA31 - - - - NOMAX PPB

LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger id : 31
 Site Name : LICA31
 Parameter : NO
 Units : PPS

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	5.19	6.06	6.49	8.65	8.36	5.19	7.50	10.82	13.70	6.49	4.18	1.73	4.32	3.31	3.75	4.18	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.19	6.06	6.49	8.65	8.36	5.19	7.50	10.82	13.70	6.49	4.18	1.73	4.32	3.31	3.75	4.18	

Calm : .00 %

Total # Operational Hours : 693

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	36	42	45	60	58	36	52	75	95	45	29	12	30	23	26	29	693
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	36	42	45	60	58	36	52	75	95	45	29	12	30	23	26	29	

Calm : .00 %

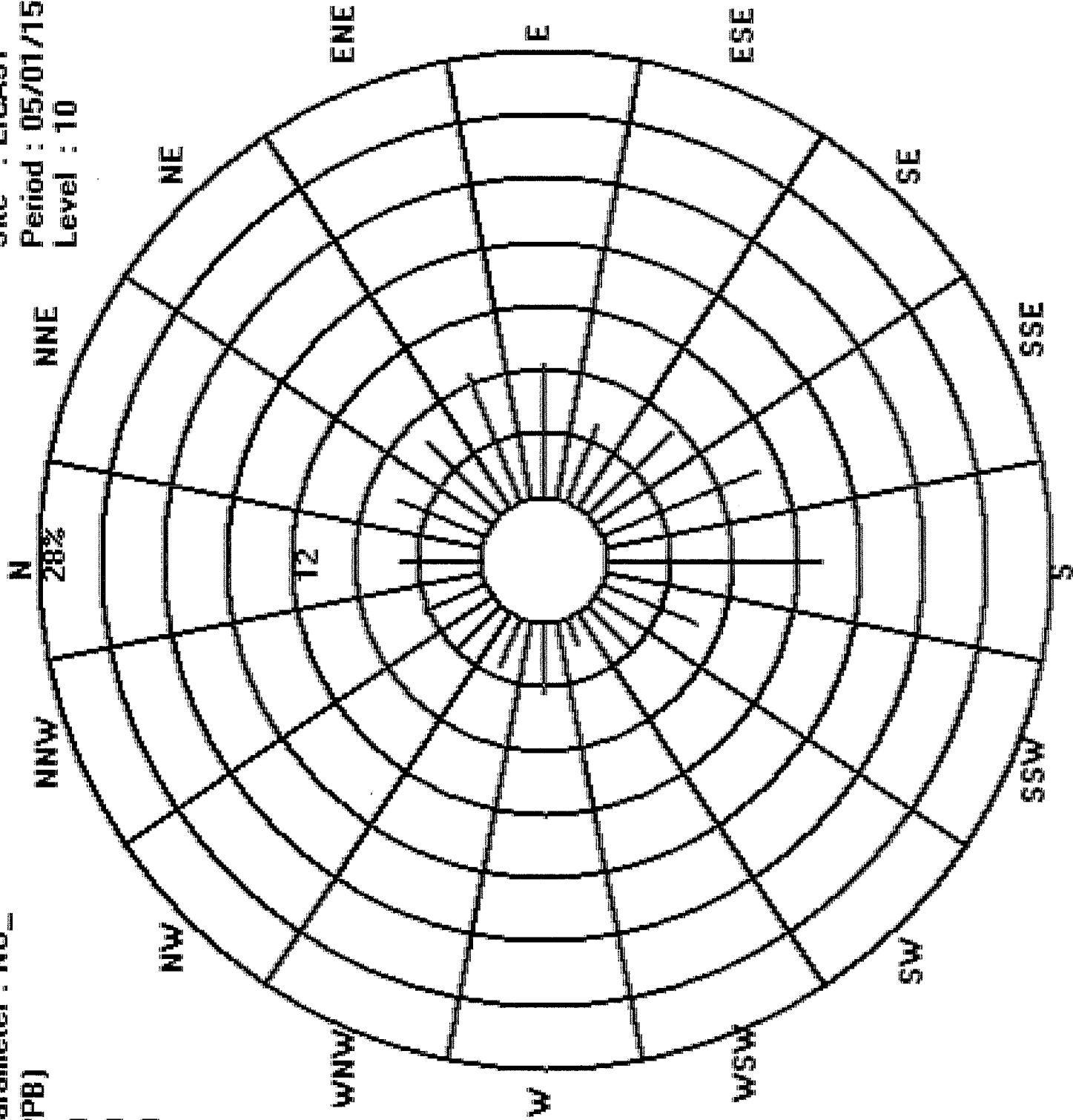
Total # Operational Hours : 693

Logger : 31 Parameter : NO₂

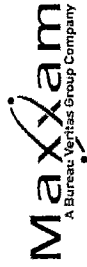
Class Limits (PPB)



Site : LICA31
Period : 05/01/15-05/31/15
Level : 10



NITROGEN DIOXIDE



NITROGEN DIOXIDE (NO2) hourly averages in ppb

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.			
1	0.8	0.4	0.6	1.2	5	1.8	1.3	0.9	0.3	0.3	0.2	0.0	0.1	0.2	0.5	0.2	0.3	0.4	0.9	0.3	0.1	0.0	0.1	0.0	0.2	1.8	0.5	24		
2	0.7	0.9	0.7	5	0.3	0.3	0.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.9	0.2	24		
3	0.1	0.0	5	0.0	0.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.0	0.2	0.1	0.6	0.5	0.6	0.1	24		
4	1.6	5	1.4	1.1	1.4	1.1	1.3	1.8	3.0	1.0	0.7	0.6	0.5	0.5	0.4	0.5	0.4	0.5	0.6	0.7	0.8	0.9	0.4	3.0	1.0	24	24			
5	5	0.7	0.7	0.6	0.7	0.7	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.6	0.5	0.7	0.9	1.0	1.5	0.3	0.1	1.5	0.6	24			
6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.3	0.6	0.6	0.0	0.0	0.2	0.4	0.1	24		
7	0.3	0.2	0.0	0.1	0.6	0.6	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.9	0.3	0.6	0.0	0.0	0.2	0.4	0.1	24		
8	0.7	1.0	1.4	1.2	1.1	1.5	1.9	1.6	1.4	0.8	0.4	0.5	0.3	0.3	0.4	0.2	0.3	0.3	0.7	0.8	0.5	0.9	1.3	1.4	1.9	0.9	24	24		
9	1.6	1.4	1.3	1.5	1.3	1.8	1.8	1.8	1.8	1.8	2.6	0.9	0.6	0.3	0.5	0.5	0.4	0.4	0.3	0.5	0.5	0.5	1.2	1.4	0.8	2.6	1.2	24		
10	0.4	0.3	0.3	0.4	1.0	1.7	1.4	0.9	0.6	0.4	0.3	0.4	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.4	1.2	1.7	0.5	24
11	2.2	1.9	1.6	1.6	1.7	2.2	1.4	1.0	0.7	0.7	0.5	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.4	1.0	0.7	0.9	0.8	0.9	2.2	1.0	24	24		
12	1.3	1.7	2.0	3.6	4.3	3.3	3.5	3.3	3.0	1.9	Y	Y	Y	Y	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	4.3	1.5	21		
13	1.0	1.2	1.2	1.4	1.3	1.6	1.7	1.4	1.1	C	C	C	C	C	C	C	C	C	C	1.0	0.8	0.7	1.0	1.0	1.7	1.6	1.7	1.2	24	
14	1.2	1.2	1.1	1.1	1.7	1.7	1.9	1.3	1.6	C	C	C	C	C	C	C	C	C	C	0.7	0.9	0.9	0.8	1.2	1.9	1.2	1.9	1.2	24	
15	1.6	1.4	1.2	1.0	0.9	1.0	1.0	1.1	0.8	0.9	0.6	0.7	0.6	0.7	1.0	0.7	1.7	2.2	2.1	0.7	0.9	0.9	0.8	1.2	1.9	1.2	1.1	24		
16	1.2	2.2	1.1	0.8	0.6	0.4	0.5	0.3	0.2	0.4	0.5	0.3	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	2.2	0.6	24	
17	3.3	4.2	4.1	3.0	2.7	3.5	3.3	3.3	3.3	0.2	0.1	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	4.2	1.2	24	24	
18	1.4	2.3	1.6	2.7	3.4	3.3	2.3	1.7	0.8	0.8	0.5	0.5	0.4	0.4	0.6	0.7	0.5	0.5	0.5	0.2	0.5	0.2	0.5	1.4	1.0	1.2	3.4	1.2	24	
19	1.1	1.1	1.1	1.2	1.3	2.7	1.9	1.7	1.1	0.6	0.3	0.3	0.4	0.5	0.5	0.3	0.5	0.4	0.4	1.1	0.8	0.9	1.1	1.4	2.7	1.0	24	24		
20	1.5	1.4	1.6	1.7	1.9	2.5	1.8	1.5	1.5	0.9	0.6	0.5	0.4	0.5	0.5	0.3	0.5	0.3	0.4	0.4	0.8	1.1	0.9	1.1	2.5	1.0	24	24		
21	1.1	1.2	1.2	1.2	1.7	2.1	2.0	1.7	1.9	1.0	0.8	0.6	0.5	0.5	0.5	0.2	0.4	0.5	0.4	0.8	0.8	1.3	1.2	1.2	2.1	1.1	24	24		
22	1.5	1.7	1.8	1.6	2.3	2.8	4.5	2.2	1.6	1.4	0.7	0.6	0.6	0.7	0.5	0.6	1.1	2.3	0.7	0.4	0.8	0.7	0.4	0.8	4.5	1.5	24	24		
23	1.0	0.7	0.9	0.7	0.9	4.4	8.7	10.3	7.4	5.8	6.1	5	3.6	2.4	1.6	1.7	1.7	2.2	2.4	2.1	2.2	2.1	2.2	2.1	2.2	10.3	3.2	24	24	
24	1.7	1.2	1.2	1.5	1.9	8.2	6.5	4.1	3.4	1.9	5	0.0	0.0	0.1	0.0	0.3	0.4	0.3	0.3	0.4	0.7	1.0	1.5	1.8	8.2	1.7	24	24		
25	1.5	1.6	1.7	2.0	2.3	2.5	3.0	2.4	2.3	5	2.0	1.1	1.2	1.0	1.5	1.1	0.9	0.8	1.0	0.9	1.2	1.7	1.8	1.6	3.0	1.6	24	24		
26	1.5	1.2	0.9	0.6	0.7	1.2	1.3	1.2	5	1.0	0.5	0.4	0.3	0.4	0.3	0.2	0.0	0.3	0.4	1.0	3.2	2.7	1.8	1.4	3.2	1.0	24	24		
27	1.2	1.5	2.1	1.5	1.6	2.3	2.6	5	2.2	2.1	1.8	1.3	1.2	1.2	1.2	1.6	1.4	1.6	1.7	0.9	1.1	2.5	2.8	2.0	2.8	1.8	24	24		
28	0.6	0.1	0.0	0.1	0.3	0.1	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.1	24	24	
29	1.0	1.2	1.5	1.6	2.2	5	3.4	2.2	1.2	0.6	0.6	0.8	0.8	0.7	0.7	0.7	0.8	0.9	1.0	1.1	1.4	1.6	2.0	2.4	3.4	1.3	24	24		
30	2.6	2.1	2.8	4.2	5	3.8	2.5	1.6	1.5	0.6	0.5	0.3	0.3	0.1	0.3	0.2	0.3	0.4	0.5	0.7	1.1	1.1	1.0	1.6	4.2	1.3	24	24		
31	2.7	2.9	3.0	5	2.8	3.1	2.8	3.2	3.5	2.7	2.5	2.4	2.1	1.9	1.7	1.5	1.4	1.6	1.2	0.8	1.2	1.1	0.8	0.8	3.5	2.1	24	24		
HOURLY MAX	3.3	4.2	4.1	4.2	4.3	8.2	8.7	10.3	7.4	5.8	6.1	2.4	3.6	2.4	1.7	1.7	1.7	2.2	2.4	2.3	3.2	2.7	2.8	2.4	10.3	3.5	2.1	24		
HOURLY AVG	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	24	

STATUS FLAG CODES

- G - CALIBRATION
- Y - MAINTENANCES
- S - DAILY ZERO/SPAN CHECK
- P - POWER FAILURE
- G - OUT FOR REPAIR
- O - QUALITY ASSURANCE
- R - RECOVERY
- X - MACHINE/VALVE/FUNCTION
- O - OPERATOR ERROR
- K - COLLECTION ERROR

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 35 HR: 359 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES: 0

NUMBER OF NON-ZERO READINGS: 623

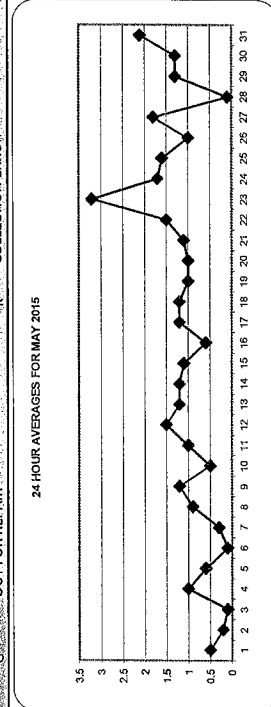
MAXIMUM 1-HR AVERAGE: 10.3 PPB @ HOUR(S) 7 ON DAY(S) 23

MAXIMUM 24-HR AVERAGE: 3.2 PPB VAR-VARIOUS ON DAY(S) 23

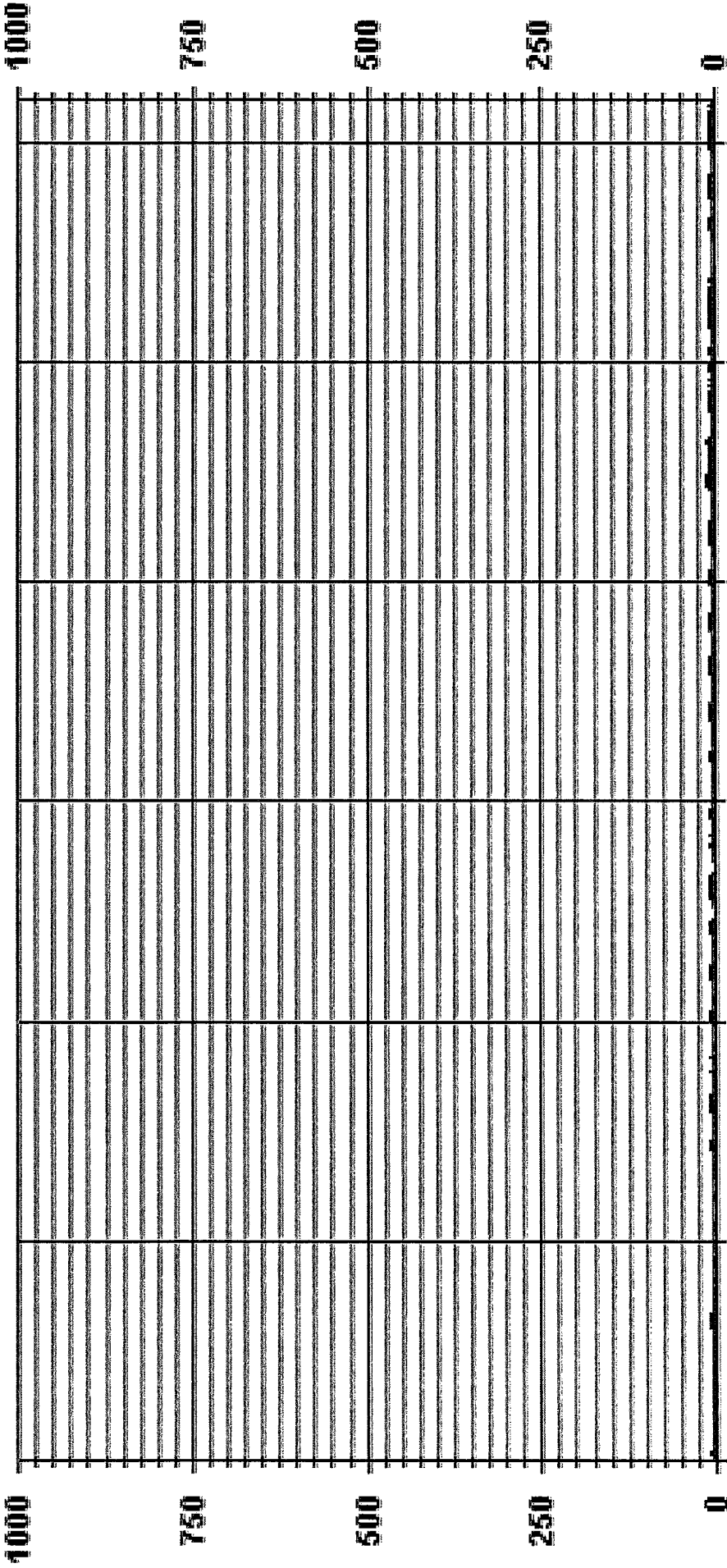
15 CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 741 HRS

MONTHLY CALIBRATION TIME: 16 HRS AMD OPERATION UPTIME: 99.6 %

STANDARD DEVIATION: 1.10 MONTHLY AVERAGE: 1.1 PPB



01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA31 NO2_ PPB



NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
HOURLY MAX	4.8	5.5	4.9	5.9	5.7	17.4	24.9	11.9	11.5	7.2	12.7	13.2	3.6	2.7	5.4	3.8	11.0	15.5	14.1	14.1	3.9	3.5	3.9	4.1	1.9	1.8	1.7	1.8	1.9	1.9	
HOURLY AVG	2.3	2.1	2.1	2.2	2.6	3.7	4.0	3.0	2.7	1.9	2.3	1.7	1.3	1.3	1.4	1.3	1.9	2.4	2.7	2.0	1.7	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
DAILY MAX	2.4	1.3	1.5	2.0	5	17.4	28	4.3	6.6	1.5	1.2	0.9	1.3	1.5	2.0	1.3	1.3	1.4	4.1	1.8	0.9	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DAILY AVG	2.1	1.6	1.8	2.1	2.1	1.2	1.2	1.8	1.0	0.7	0.7	0.7	1.0	0.8	0.5	0.8	0.5	0.9	0.7	0.5	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
24-HOUR AVG	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
ROGGS	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

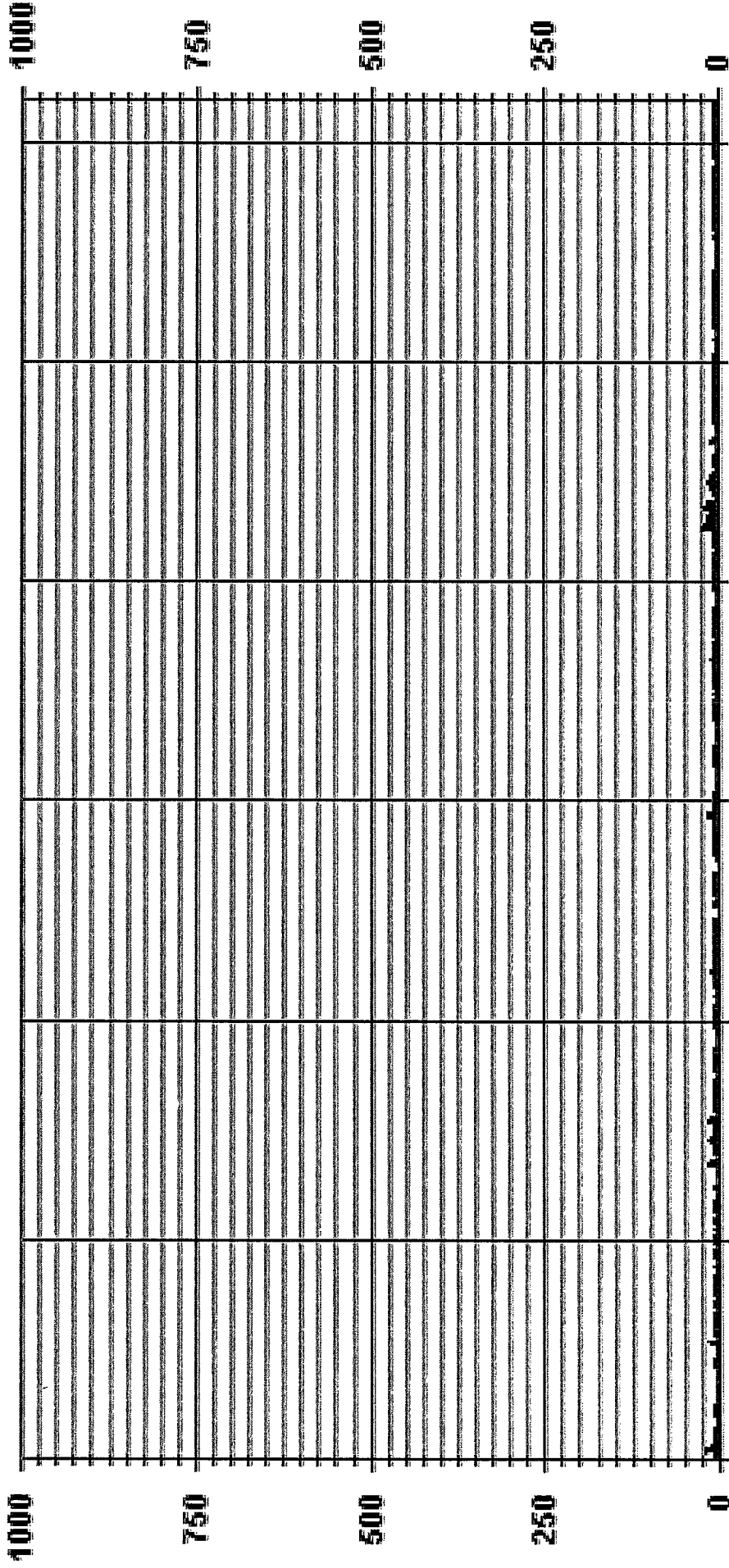
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
D	DAILY ZERO SPAN CHECK	X	MACHINE/FUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	690
MAXIMUM INSTANTANEOUS VALUE:	24.9 PPB @ HOUR(S) 6 ON DAY(S) 22
1ZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	17 HRS
STANDARD DEVIATION:	2.14
OPERATIONAL TIME:	VARIOUS
HRS	739

01 Hour Averages



— LICA31 NO2MAX PPB

L1CA31
 NO2_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	5.19	6.06	6.49	8.65	8.36	5.19	7.50	10.82	13.70	6.49	4.18	1.73	4.32	3.31	3.75	4.18	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.19	6.06	6.49	8.65	8.36	5.19	7.50	10.82	13.70	6.49	4.18	1.73	4.32	3.31	3.75	4.18	

Calm : .00 %

Total # Operational Hours : 693

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	36	42	45	60	58	36	52	75	95	45	29	12	30	23	26	29	693
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	36	42	45	60	58	36	52	75	95	45	29	12	30	23	26	29	

Calm : .00 %





Total # Operational Hours : 693

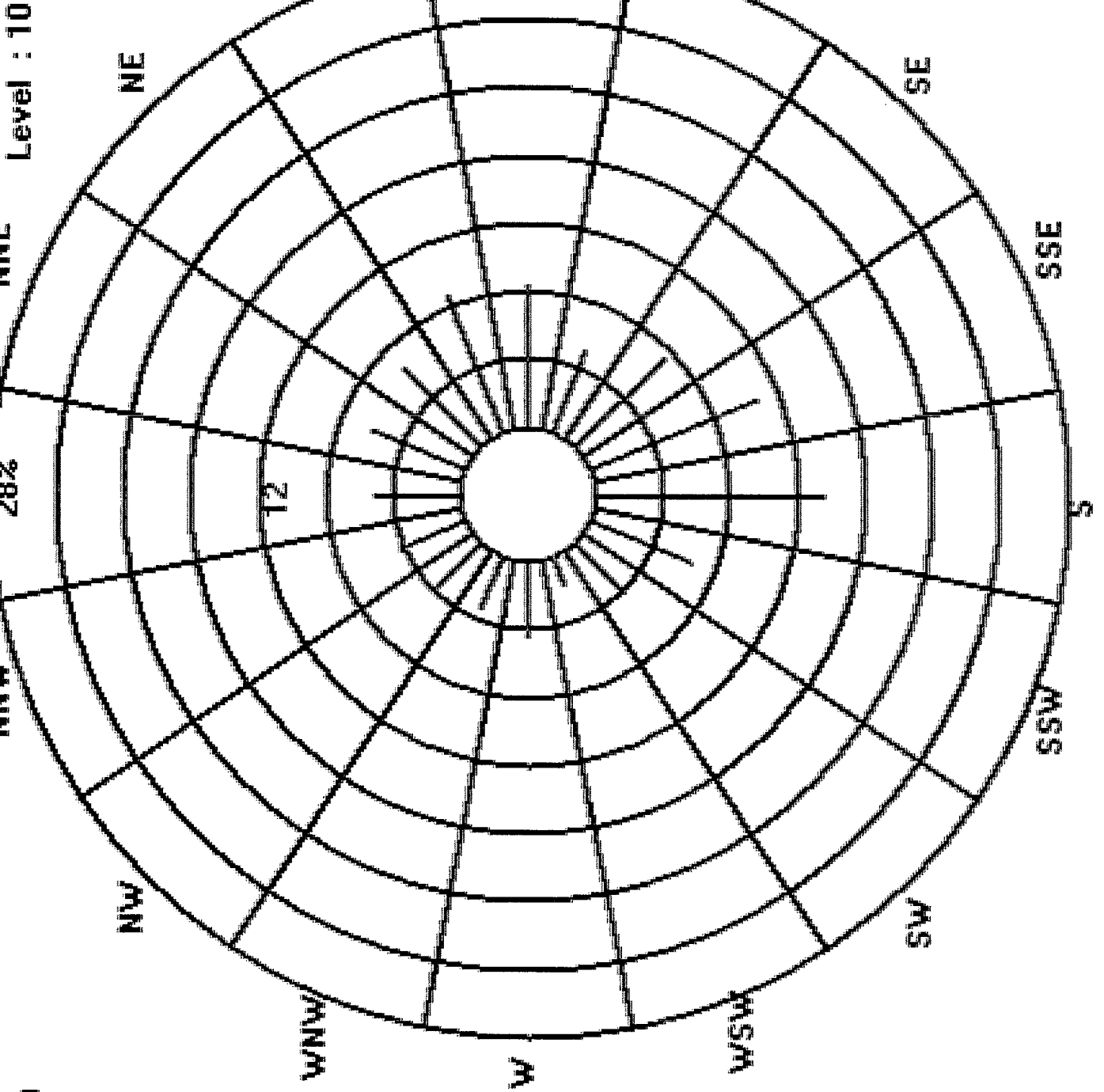
Logger : 31 Parameter : NO2_

Site : LICA31

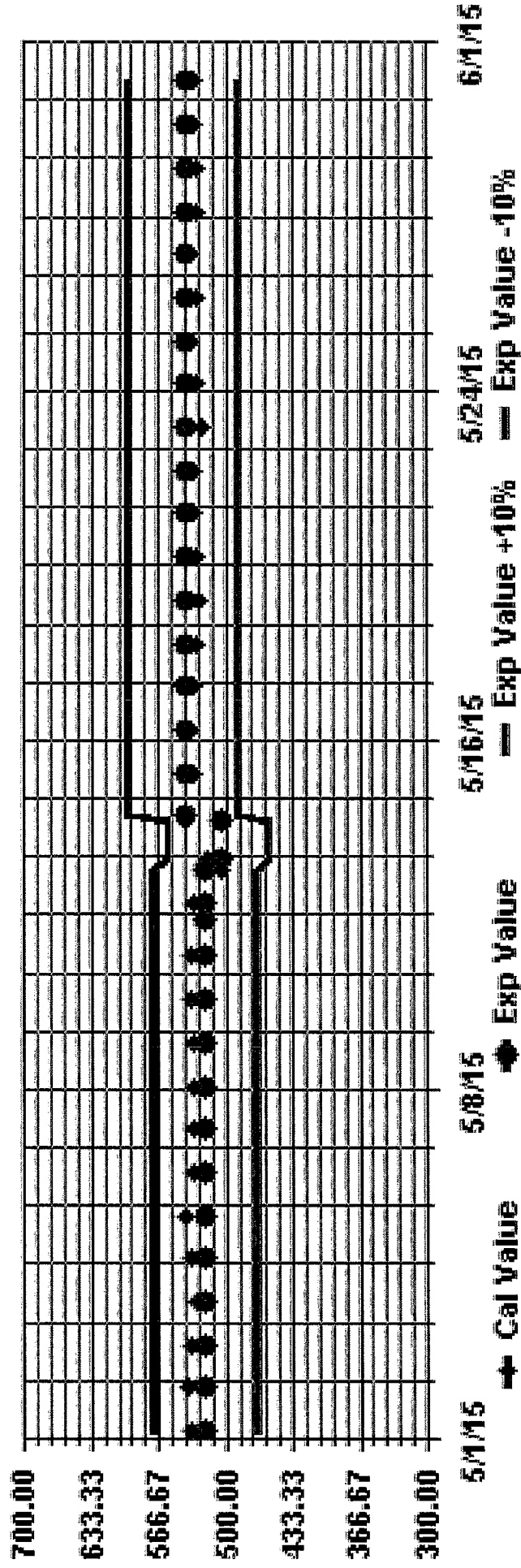
Class Limits (PPB)

Period : 05/01/15-05/31/15

-  >= 210.0
-  < 210.0
-  < 110.0
-  < 50.0



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



OZONE

OZONE (O3) hourly averages in ppb

MST

DAY	HOUR START																								DAILY MAX.	24-HOUR AVG.	ROGS.	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				0:00
1	51	49	46	41	S	36	37	45	50	54	54	55	55	54	55	55	55	54	53	53	52	49	55	50.6	24			
2	45	45	44	S	46	46	46	47	47	47	47	48	46	47	44	42	42	43	38	37	37	36	48	43.8	24			
3	34	34	S	30	28	27	25	24	23	24	26	27	27	29	30	34	36	33	31	32	30	29	36	29.5	24			
4	28	S	29	26	26	29	28	30	31	28	27	36	42	43	45	45	44	41	40	38	37	34	45	35.2	24			
5	S	32	32	30	31	32	36	37	39	39	41	41	41	40	40	40	39	38	36	32	33	S	41	36.5	24			
6	34	35	34	33	32	31	31	30	31	31	31	33	33	34	35	35	34	35	33	33	S	33	35	32.8	24			
7	33	34	34	35	35	36	39	40	42	46	49	49	48	48	48	48	49	48	47	46	S	47	49	43.2	24			
8	40	38	39	38	38	37	34	35	39	43	46	48	49	50	51	49	52	51	49	S	45	44	52	43.7	24			
9	37	36	36	36	35	33	32	38	40	42	42	46	47	50	52	48	48	49	47	S	45	44	52	41.9	24			
10	42	43	42	40	39	36	38	43	45	47	48	49	49	49	50	50	50	S	49	46	46	47	45	50	45.3	24		
11	42	41	40	38	37	37	39	42	45	47	47	49	50	51	53	54	S	56	55	56	55	56	55	56	47.4	24		
12	51	47	46	44	38	37	S	39	45	52	54	S	C	C	C	C	C	S	58	55	53	50	S	47	58	48.3	24	
13	44	42	41	40	39	39	41	45	49	51	52	53	56	S	60	59	59	58	56	53	S	48	60	49.6	24			
14	48	46	43	42	41	40	39	41	44	50	55	56	57	57	59	60	60	60	60	57	S	53	51	49	60	50.6	24	
15	46	45	44	43	41	41	42	44	46	49	52	55	56	55	52	48	42	43	S	43	45	47	47	56	46.8	24		
16	48	45	43	38	33	35	36	39	38	38	41	47	48	43	40	38	36	S	37	33	29	27	24	48	38.0	24		
17	22	20	20	20	20	19	22	24	26	30	34	38	42	44	47	47	S	46	47	47	44	44	45	47	34.6	24		
18	45	44	44	41	39	40	S	46	49	52	54	55	57	58	58	S	58	59	60	59	58	57	55	50	52.4	24		
19	47	46	46	45	45	43	43	43	48	53	55	56	57	58	57	S	58	59	60	59	58	58	57	55	60	52.4	24	
20	52	52	50	49	49	48	48	48	50	55	57	58	58	59	S	59	59	58	58	56	53	52	51	59	53.5	24		
21	50	49	49	50	48	44	42	44	47	55	60	61	60	S	59	60	61	62	63	61	60	56	53	63	54.6	24		
22	52	50	49	49	46	43	39	40	45	51	59	67	S	66	S	67	67	67	66	63	66	64	64	68	56.2	24		
23	62	64	59	61	58	46	42	44	47	55	60	61	S	57	56	55	55	54	60	57	48	42	39	38	37	64	52.2	24
24	38	40	38	37	34	22	25	30	35	41	S	48	52	53	55	59	62	62	60	57	57	54	53	56	62	46.4	24	
25	55	54	53	49	48	46	42	47	49	S	60	67	68	67	66	72	74	67	67	63	66	64	64	68	64	52.2	24	
26	50	41	43	43	40	33	31	S	37	39	41	41	44	47	47	52	54	56	56	53	46	42	40	56	44.4	24		
27	40	36	37	36	32	32	S	35	39	44	49	50	54	57	58	60	55	52	54	40	37	34	34	60	43.7	24		
28	35	35	34	32	29	28	S	26	28	33	32	33	37	39	40	41	42	42	42	39	35	33	34	42	34.9	24		
29	31	31	30	26	19	S	26	28	33	36	39	42	44	46	48	49	49	49	49	46	44	43	41	40	49	38.7	24	
30	39	40	35	30	S	26	30	35	38	41	45	47	48	49	49	49	51	52	52	50	46	45	44	52	42.8	24		
31	41	38	36	S	35	31	25	25	24	25	26	24	26	28	37	45	48	49	46	49	40	36	33	49	34.8	24		
HOURLY MAX	62	64	59	61	58	48	48	48	55	60	61	67	68	67	66	72	74	67	66	63	66	68	64	64	64	43.5		
HOURLY AVG	42.8	41.9	40.5	38.7	37.6	35.7	35.0	37.6	40.4	43.0	45.8	47.4	48.1	49.1	49.8	50.4	51.3	51.5	51.0	49.4	46.3	45.2	44.3	43.5	43.5			

STATUS FLAG CODES

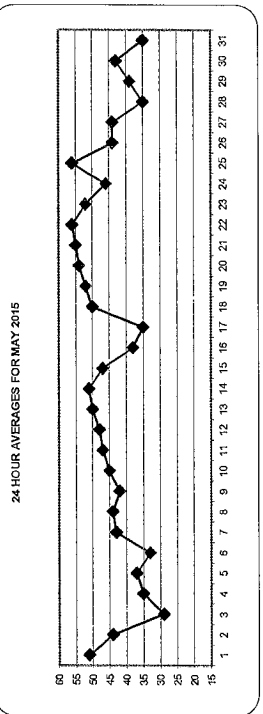
C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	CORRECTION ERROR

OBJECTIVE LIMIT:

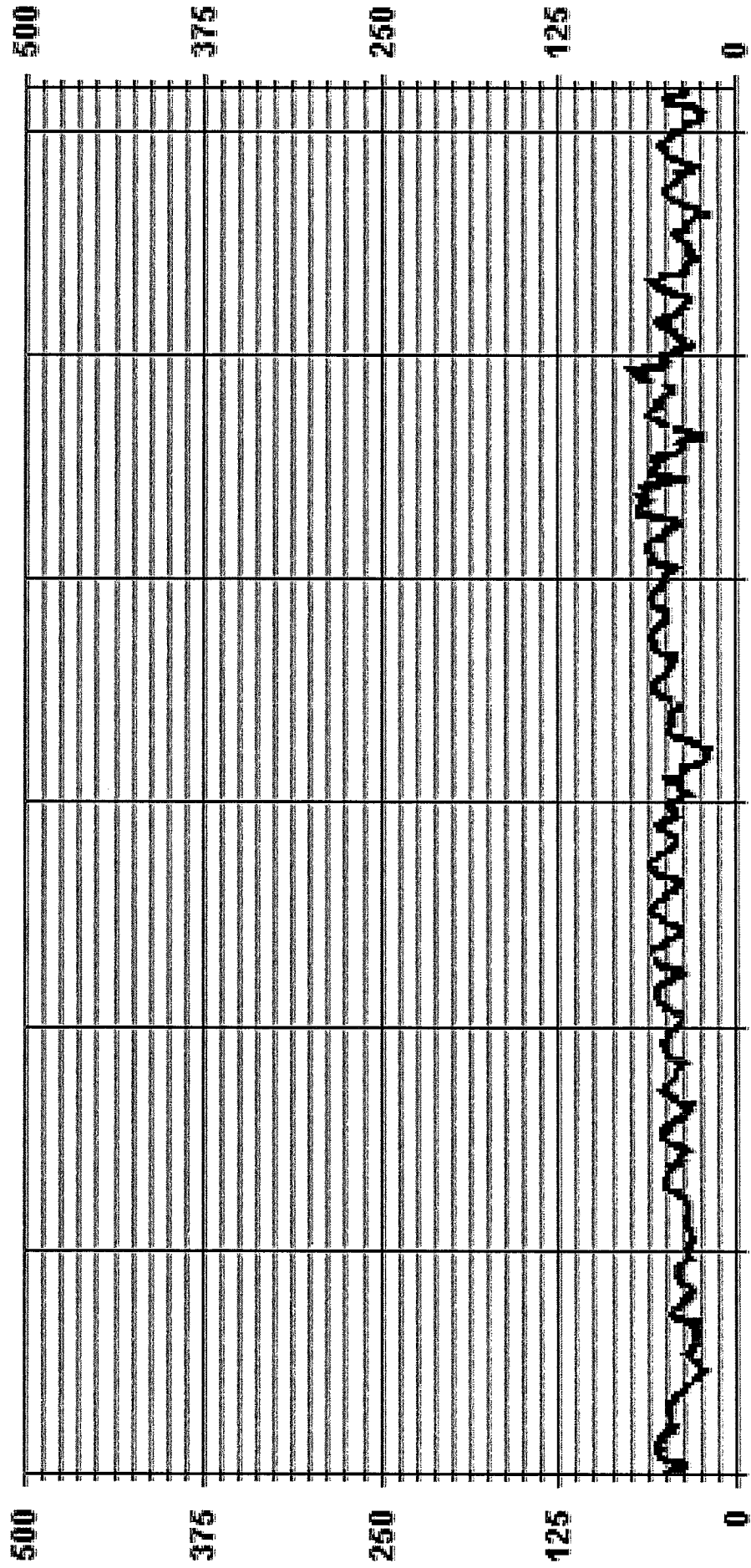
ALBERTA ENVIRONMENT: 1-HR: 52; 8-HR: 32; 24-HR: 35; 1-MONTH: 35; 3-MONTH: 35; 1-YEAR: 35; 3-YEAR: 35; 10-YEAR: 35; 15-YEAR: 35; 20-YEAR: 35; 25-YEAR: 35; 30-YEAR: 35; 35-YEAR: 35; 40-YEAR: 35; 45-YEAR: 35; 50-YEAR: 35; 55-YEAR: 35; 60-YEAR: 35; 65-YEAR: 35; 70-YEAR: 35; 75-YEAR: 35; 80-YEAR: 35; 85-YEAR: 35; 90-YEAR: 35; 95-YEAR: 35; 100-YEAR: 35

MONTHLY SUMMARY

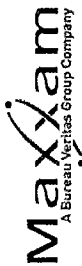
NUMBER OF 1-HR EXCEEDENCES:	0	
NUMBER OF NON-ZERO READINGS:	699	
MAXIMUM 1-HR AVERAGE:	74 PPB @ HOUR(S)	16 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	56.2 PPB	22 ON DAY(S)
1-Z CALIBRATION TIME:	39 HRS	OPERATION TIME: 744 HRS
MONTHLY CALIBRATION TIME:	6 HRS	AMD OPERATION UPTIME: 100.0 %
STANDARD DEVIATION:	10.07	MONTHLY AVERAGE: 44 PPB



01 Hour Averages



-- LICA31 03_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 St. Lina Site - MAY 2015
 JOB # 2833-2015-05-31- C

OZONE MAX instantaneous maximum in ppb

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	DAILY MAX	24-HOUR AVG	RDGS.
1	53	50	48	43	5	38	43	49	53	55	56	56	56	56	57	57	57	57	57	57	57	56	54	53	53	50	57	52.4	24	57	52.4	24		
2	48	46	46	5	27	47	47	47	48	49	48	47	48	47	48	47	44	43	44	44	44	44	43	39	38	37	49	45.3	24	49	45.3	24		
3	35	35	5	31	29	28	27	25	25	26	29	28	31	31	35	35	38	35	35	35	35	35	34	32	33	30	38	31.1	24	38	31.1	24		
4	29	5	36	27	28	31	31	32	33	33	32	39	45	45	46	46	46	43	41	40	38	38	35	46	46	37.4	24	46	37.4	24				
5	5	32	32	32	32	35	38	38	40	40	42	42	42	42	41	41	41	41	39	38	32	34	34	34	34	34	36	37.6	24	42	37.6	24		
6	35	35	35	34	34	32	32	32	33	32	32	32	R	34	34	36	36	36	36	36	36	34	34	34	34	34	36	34.1	23	36	34.1	23		
7	34	35	35	36	37	40	40	40	42	44	47	52	50	51	49	49	51	51	50	48	47	5	48	46	52	44.8	24	52	44.8	24				
8	43	40	40	39	39	38	35	37	41	46	48	49	49	51	52	52	50	53	53	51	5	46	46	43	53	45.3	24	53	45.3	24				
9	39	37	37	36	36	35	36	41	42	44	46	47	49	52	53	52	49	50	50	50	5	46	45	43	42	53	43.8	24	53	43.8	24			
10	43	45	43	42	42	42	38	39	47	47	48	49	50	50	50	51	51	51	51	51	5	50	48	47	47	51	46.7	24	51	46.7	24			
11	43	41	41	39	39	38	38	42	46	47	48	51	52	53	54	55	55	5	57	57	56	56	56	56	56	57	48.7	24	57	48.7	24			
12	56	49	46	46	43	38	5	49	55	55	57	C	C	C	C	C	C	C	C	C	59	57	54	52	48	59	50.9	24	59	50.9	24			
13	45	43	42	40	40	40	39	44	47	51	52	53	54	58	5	61	60	60	60	58	55	5	50	48	61	50.5	24	61	50.5	24				
14	48	48	45	43	42	42	41	44	47	53	56	57	58	59	60	61	62	62	59	56	5	53	52	51	62	52.0	24	62	52.0	24				
15	47	46	45	43	42	41	41	43	47	47	51	55	53	58	57	54	51	46	46	46	5	46	49	49	50	58	48.8	24	58	48.8	24			
16	50	48	48	40	41	35	39	39	43	41	40	45	52	52	45	44	40	37	48	49	48	47	49	46	46	49	36.3	24	49	36.3	24			
17	23	21	20	21	21	21	24	26	29	32	36	41	44	47	49	49	48	5	47	48	49	46	46	46	46	60	51.5	24	60	51.5	24			
18	47	45	45	43	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
19	48	47	46	46	46	46	44	46	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
20	53	53	51	49	50	49	49	49	52	58	59	60	60	60	60	60	60	60	59	57	55	53	53	52	60	54.8	24	60	54.8	24				
21	51	50	50	51	49	46	46	43	47	50	62	62	61	61	61	61	62	63	64	63	64	63	62	63	57	54	56.3	24	64	56.3	24			
22	53	51	50	50	47	45	43	44	48	56	64	70	67	67	67	67	67	67	69	69	69	69	68	66	70	58.3	24	70	58.3	24				
23	66	65	65	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	
24	39	41	39	38	36	32	27	33	38	43	5	50	54	55	59	62	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	
25	56	55	55	51	53	48	45	50	53	5	66	70	72	70	71	75	78	74	64	51	52	55	52	50	78	59.4	24	78	59.4	24				
26	56	46	44	45	43	37	36	5	40	41	43	46	47	51	49	55	56	58	58	57	49	44	42	58	47.4	24	42	47.4	24					
27	42	41	38	39	39	34	33	5	37	42	47	52	53	57	59	61	63	59	56	59	46	41	36	36	63	46.5	24	41	46.5	24				
28	36	36	35	34	31	32	5	38	33	34	35	34	36	40	41	42	44	44	43	42	37	34	36	35	44	37.0	24	35	37.0	24				
29	33	32	31	28	26	5	28	32	35	39	41	43	46	48	50	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	
30	40	41	38	33	5	28	35	37	39	43	47	48	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
31	43	39	37	5	36	33	28	26	25	27	28	27	28	32	43	49	51	52	50	53	49	38	34	36	53	37.6	24	53	37.6	24				
HOURLY MAX	63	66	65	65	63	63	66	67	70	72	70	71	75	78	74	69	69	69	68	66	70	58.3	24	78	59.4	24								
HOURLY AVG	44.4	43.1	42.1	40.1	39.7	37.8	37.6	40.4	42.9	45.4	48.1	49.7	50.1	50.9	51.3	52.4	52.6	53.4	53.3	51.6	48.6	46.7	45.9	44.9	44.9	44.9	44.9							

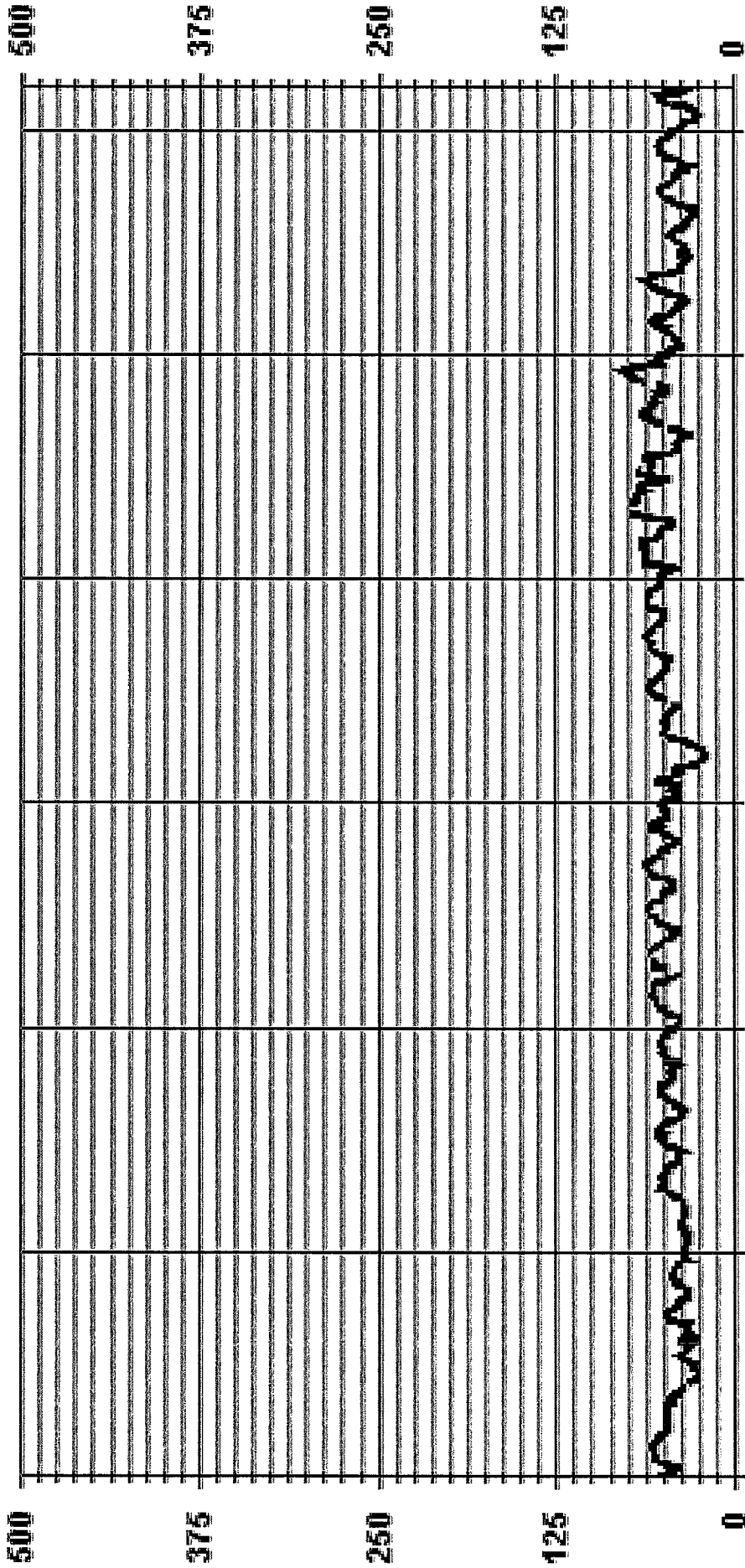
STATUS FLAG CODES

C	CALIBRATION	D	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT OF REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	695	PPB @ HOUR(S)	16	ON DAY(S)	25
MAXIMUM INSTANTANEOUS VALUE:	78	PPB	78	PPB	78
OPS CALIBRATION TIME:	42	HRS	42	HRS	42
MONTHLY CALIBRATION TIME:	6	HRS	6	HRS	6
STANDARD DEVIATION:	10.14				
OPERATIONAL TIME:	743	HRS	743	HRS	743
VAR-VARIOUS					

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 O3MAX PPB

LiCA31
 O3_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LiCA31
 Parameter : O3
 Units : PPS

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	4.72	5.15	5.29	7.58	7.43	3.86	3.14	6.29	8.01	4.00	2.71	.57	2.86	2.71	3.00	3.00	70.38
< 110	.42	.85	1.14	1.00	.85	1.57	5.86	4.14	5.29	2.14	1.43	1.14	1.43	.57	.71	1.00	29.61
< 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	5.15	6.00	6.43	8.58	8.29	5.43	9.01	10.44	13.30	6.15	4.14	1.71	4.29	3.29	3.71	4.00	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	33	36	37	53	52	27	22	44	56	28	19	4	20	19	21	21	492
< 110	3	6	8	7	6	11	41	29	37	15	10	8	10	4	5	7	207
< 210																	
>= 210																	
Totals	36	42	45	60	58	38	63	73	93	43	29	12	30	23	26	28	

Calm : .00 %

Total # Operational Hours : 699

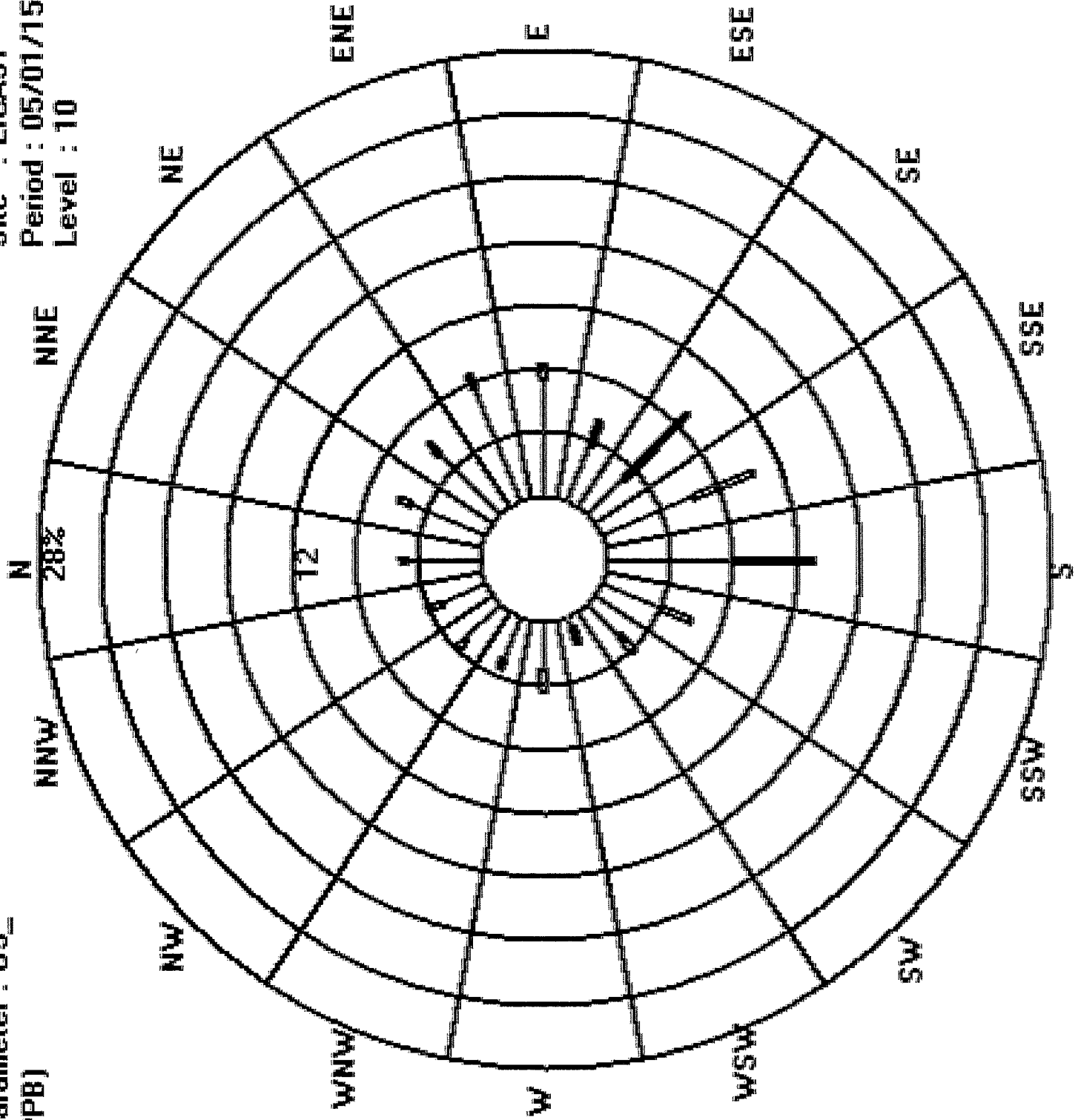
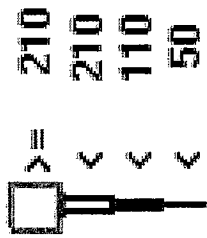
Logger : 31 Parameter : O3_

Site : LICA31

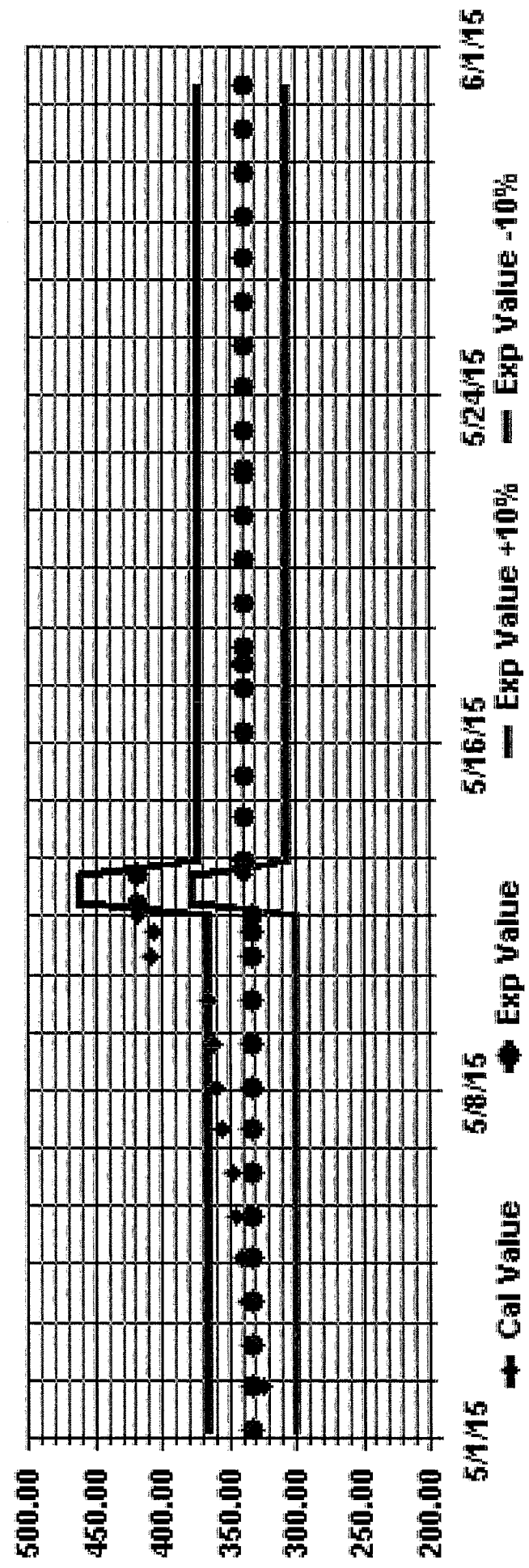
Period : 05/01/15-05/31/15

Level : 10

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: Q3_ Sequence: Q3 Phase: SPAN



PARTICULATE MATTER 2.5

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

MST

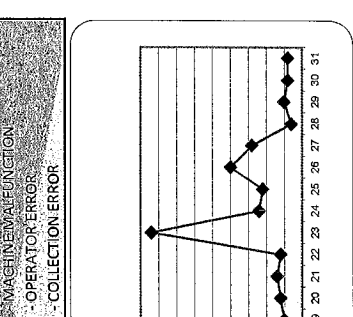
DAY	HOUR START																								DAILY MAX	24-HOUR AVG	ROGS	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				24:00
1	4	8	9	5	2	5	8	0	4	7	1	0	0	0	2	0	0	5	4	1	1	5	4	9	3.3	24		
2	4	10	2	9	6	6	4	4	4	5	X	0	2	2	1	0	4	8	0	1	3	0	3	2	10	3.5	23	
3	8	9	2	0	0	2	7	4	0	5	1	0	2	0	0	8	X	1	6	0	3	2	7	1	9	3.0	23	
4	5	4	7	6	1	5	5	7	3	2	1	0	8	4	0	0	X	0	X	0	3	3	7	8	8	3.6	22	
5	4	4	2	6	3	1	2	10	7	8	6	9	4	9	5	6	0	4	3	0	5	8	6	5	10	4.9	24	
6	1	5	8	7	7	4	6	4	6	4	0	0	3	5	6	4	5	6	4	5	9	2	7	0	9	4.0	23	
7	0	6	1	6	3	1	3	5	1	2	0	2	1	7	8	0	7	3	2	0	3	8	7	10	10	3.6	24	
8	13	9	9	9	7	10	7	7	12	6	3	4	6	3	5	0	4	X	5	3	7	11	9	10	13	6.9	23	
9	9	8	6	8	6	9	5	4	8	2	2	3	0	0	X	0	X	0	0	3	8	3	2	5	9	4.2	21	
10	6	10	6	8	1	9	0	3	5	4	3	12	0	0	2	1	2	0	0	3	3	2	4	9	12	3.9	24	
11	9	6	9	9	6	1	9	8	1	4	3	6	2	3	0	6	0	0	4	6	9	9	5	6	9	5.0	24	
12	16	19	21	42	68	18	7	18	12	7	2	8	6	8	10	3	5	0	5	12	4	10	11	5	12	13.7	24	
13	10	5	9	12	7	9	8	6	4	5	7	9	9	12	8	5	12	4	10	10	11	5	12	12	8.0	24		
14	16	13	9	11	12	7	11	8	9	6	6	0	7	C	2	6	7	2	9	11	11	11	8	10	16	8.3	24	
15	6	9	15	14	13	7	6	10	7	5	8	2	3	6	8	13	9	8	12	12	8	8	12	15	9.0	24		
16	14	13	12	11	12	8	7	6	5	7	13	7	0	3	4	3	1	7	4	7	4	5	3	8	14	6.8	24	
17	6	12	7	0	15	10	3	5	1	5	1	3	6	5	3	4	6	3	5	7	5	4	6	15	5.3	24		
18	11	6	4	9	9	8	10	6	4	9	5	3	4	4	6	6	0	2	3	7	12	4	11	10	12	6.4	24	
19	5	9	6	7	5	9	12	6	3	0	2	1	0	2	5	0	6	1	2	0	4	9	8	11	12	4.7	24	
20	8	4	11	11	7	6	4	10	5	6	2	9	5	5	0	0	4	6	9	0	5	4	11	5	11	5.7	24	
21	9	9	6	7	7	7	10	8	8	0	6	2	2	1	9	5	5	1	1	9	15	18	9	10	18	6.9	24	
22	10	10	6	10	7	4	10	6	6	C	C	C	6	2	3	3	4	9	5	4	6	4	5	7	4	10	5.9	24
23	5	3	8	9	8	9	10	88	169	132	141	87	72	22	17	16	18	41	49	39	25	18	15	14	169	42.3	24	
24	11	10	8	9	14	17	16	13	11	10	13	12	13	9	13	9	13	11	12	14	12	13	12	17	17	12.1	24	
25	15	14	14	13	12	8	9	8	10	13	11	9	9	10	4	9	10	10	10	11	12	11	13	13	15	10.8	24	
26	17	13	15	13	16	16	17	19	17	24	13	13	13	9	9	2	4	4	14	92	73	28	23	92	19.5	24		
27	11	11	8	8	6	7	5	6	2	7	15	18	14	14	15	16	13	14	12	14	16	39	31	38	39	14.2	24	
28	18	9	6	4	3	5	2	4	5	3	1	0	3	2	0	1	0	2	5	3	1	1	0	3	18	3.4	24	
29	8	8	9	6	4	7	6	2	3	0	8	6	6	0	6	1	6	3	3	4	6	3	5	9	4.6	24		
30	5	0	4	2	0	3	1	4	3	2	4	1	0	5	3	3	1	6	4	6	4	6	8	8	8	3.6	24	
31	3	5	2	6	5	2	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	6	3.9	7	
HOURLY MAX	18	19	21	42	68	18	17	88	169	132	141	87	72	22	17	16	18	41	49	39	25	18	15	14	169	42.3	24	
HOURLY AVG	8.6	8.4	7.9	8.9	8.8	7.3	6.9	9.5	11.3	10.1	9.9	8.1	6.5	5.0	5.1	4.8	5.4	5.5	6.5	6.4	10.5	10.2	8.6	9.2	6	3.9	7	

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3

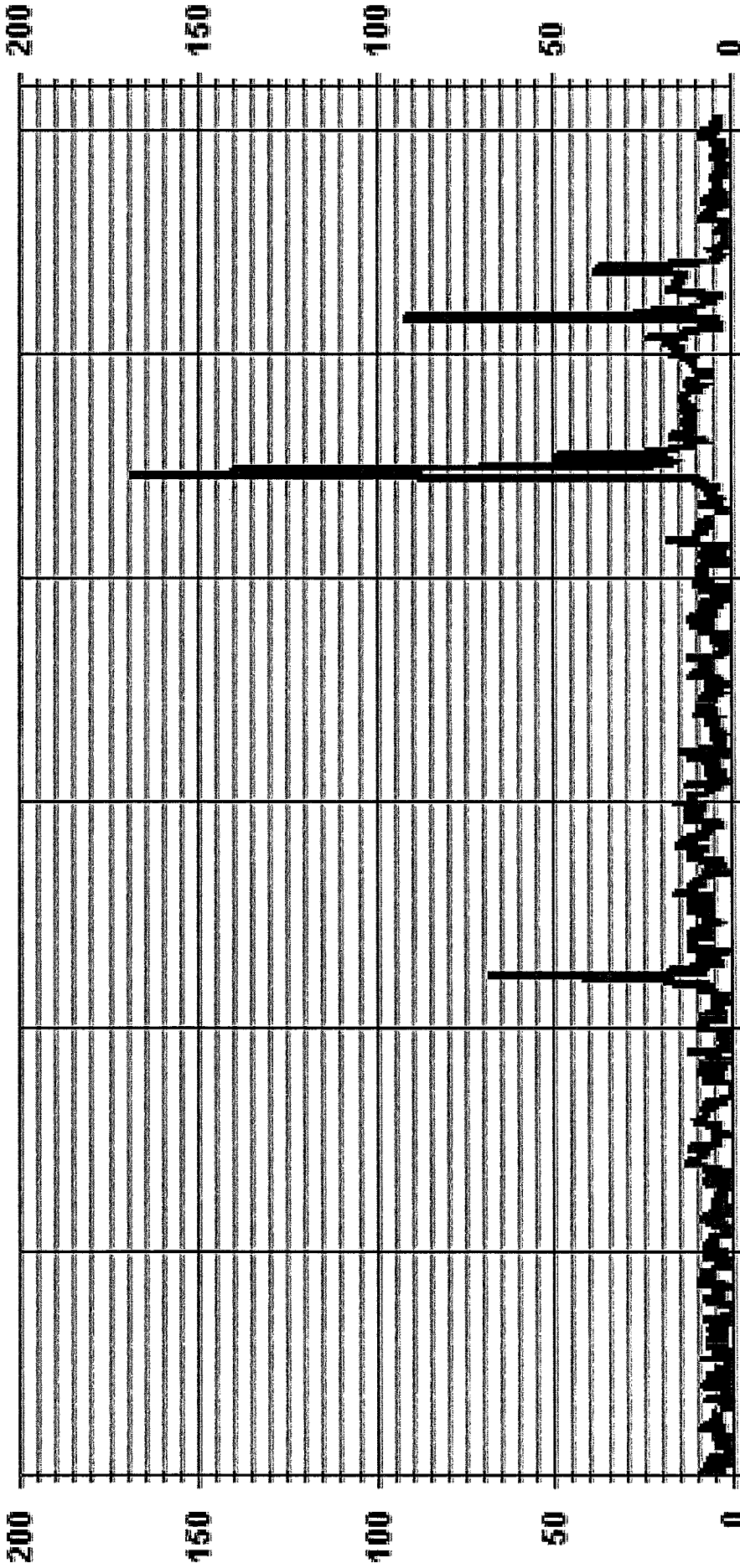
MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES: 1

NUMBER OF NON-ZERO READINGS:	644	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	169.0 ug/m3 @ HOUR(S)	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	42.3 ug/m3	VAR-VARIOUS	
MONTHLY CALIBRATION TIME:	4 HRS	OPERATIONAL TIME:	718 HRS
STANDARD DEVIATION:	12.67	AMTD OPERATION UPTIME:	96.5 %
		MONTHLY AVERAGE:	7.9 ug/m3



01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 PM2 UGM3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	5.04	5.60	5.18	8.26	7.56	5.74	9.38	11.20	13.72	6.16	3.50	1.82	3.78	3.08	3.64	4.06	97.75
< 60	.00	.42	.28	.14	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.98
< 80	.00	.00	.00	.28	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.42
< 120	.00	.00	.28	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.42
< 240	.00	.00	.42	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.42
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.04	6.02	6.16	8.82	7.56	5.74	9.38	11.20	13.86	6.30	3.50	1.82	3.78	3.08	3.64	4.06	

Calm : .00 %

Total # Operational Hours : 714

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	36	40	37	59	54	41	67	80	98	44	25	13	27	22	26	29	698
< 60	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	7
< 80				2					1								3
< 120			2	1													3
< 240			3														3
>= 240																	
Totals	36	43	44	63	54	41	67	80	99	45	25	13	27	22	26	29	

Calm : .00 %

Total # Operational Hours : 714

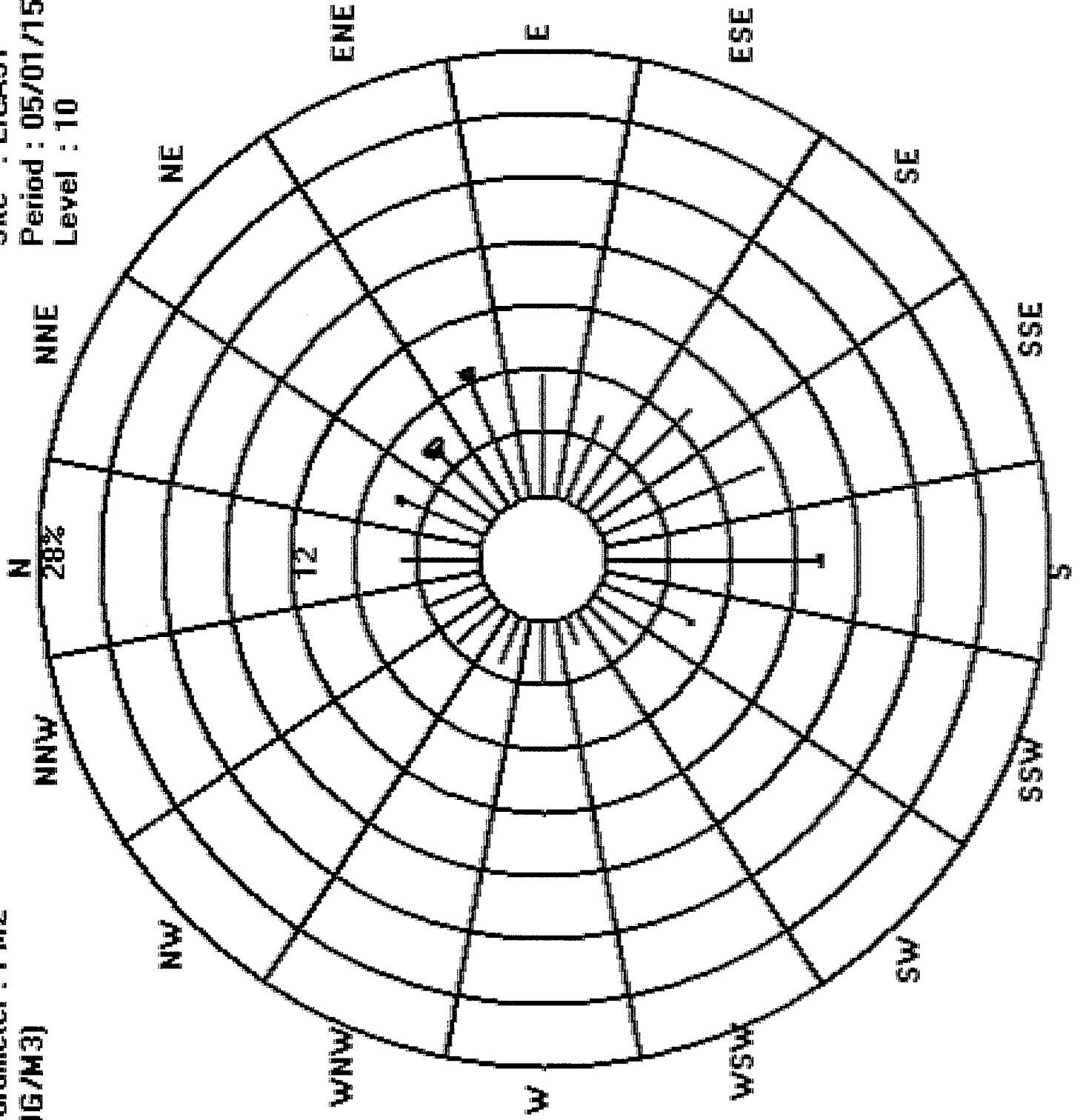
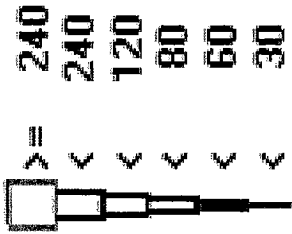
Logger : 31 Parameter : PM2

Site : LICA31

Class Limits (UG/M3)

Period : 05/01/15-05/31/15

Level : 10



WIND SPEED



WIND SPEED (WS) hourly averages in km/hr

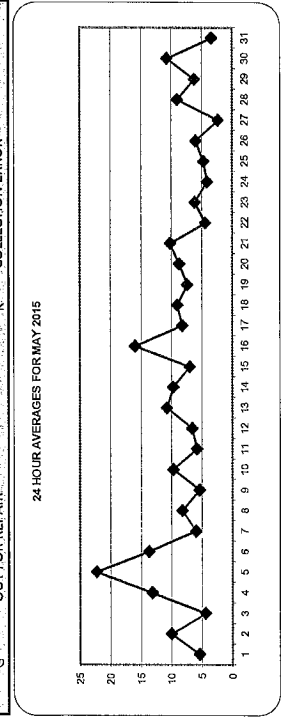
MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00			
HR	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	24:59			
WS	8.5	7.7	8.8	8.8	9.3	8.2	6.8	8.5	10.7	9.4	6.9	6.4	7.2	11.1	12.5	4.9	5.0	6.0	1.6	8.9	5.4	4.8	8.0	8.5	12.5	7.7	24	
1	6.8	9.3	11.6	10.8	9.1	11.2	13.2	10.5	12.1	10.6	12.4	11.8	14.1	14.8	16.2	17.8	9.1	8.7	6.1	4.3	8.6	11.6	9.9	9.4	17.8	10.8	24	
2	10.1	10.3	10.1	10.5	10.0	7.6	7.1	5.1	3.0	3.9	6.8	8.4	8.6	6.2	0.9	2.9	3.8	14.5	7.7	6.7	7.1	6.4	7.1	7.0	14.5	7.2	24	
3	6.8	6.3	1.3	7.0	7.6	8.6	3.6	6.5	9.6	13.3	14.4	16.7	17.8	19.5	17.6	18.0	21.6	21.1	19.0	20.5	21.9	19.8	22.4	24.3	14.4	24		
4	24.6	25.0	25.7	23.9	23.5	27.3	27.8	26.0	32.5	28.4	26.7	24.4	21.5	21.7	23.8	25.1	22.6	20.5	19.4	19.2	19.5	20.8	23.7	32.5	23.9	24		
5	23.7	21.9	19.3	15.8	13.7	14.5	13.9	13.6	13.8	12.4	12.2	12.2	16.4	13.8	16.0	13.9	14.4	13.5	13.1	11.5	12.4	12.0	11.5	10.6	23.7	14.6	24	
6	12.1	11.8	9.6	12.8	9.0	9.0	9.2	7.8	7.6	8.4	8.0	6.2	7.8	9.4	9.5	10.8	7.7	8.3	6.1	6.2	5.7	7.1	7.0	7.5	12.8	8.5	24	
7	7.1	9.0	9.7	9.0	8.8	8.7	9.6	8.8	6.9	6.3	6.6	14.3	16.9	15.1	9.3	3.5	10.2	10.8	7.6	12.0	13.1	14.4	14.8	14.1	16.9	10.3	24	
8	13.6	13.5	12.2	12.6	10.1	5.3	2.0	3.1	8.0	11.5	10.8	9.4	8.8	11.8	10.6	14.3	18.1	15.3	13.5	14.1	12.0	11.3	12.7	12.1	18.1	11.1	24	
9	10.8	9.4	9.3	9.1	9.7	8.6	8.6	8.3	11.9	12.6	13.0	12.1	10.2	9.8	9.1	9.2	10.3	11.2	10.6	10.2	10.1	11.0	10.3	11.7	13.0	10.3	24	
10	10.6	10.1	10.2	10.4	8.8	8.8	7.1	9.5	10.4	10.6	3.0	5.4	7.2	5.0	6.5	7.3	6.3	7.1	6.5	6.5	6.3	6.8	7.9	7.5	10.6	7.7	24	
11	6.0	8.7	8.2	6.4	8.5	7.6	6.1	3.8	3.6	4.2	4.0	7.7	5.7	4.8	5.3	5.8	6.1	7.1	10.5	11.2	11.3	12.7	12.8	12.2	12.8	7.5	24	
12	12.2	11.8	11.8	9.9	9.3	9.9	9.9	11.2	12.9	12.9	14.2	12.8	14.1	15.0	11.1	10.3	9.2	11.1	10.0	8.0	10.0	10.5	10.3	9.4	15.0	11.2	24	
13	10.0	10.6	10.7	9.9	10.2	8.0	6.8	6.1	12.1	15.2	14.9	13.2	13.0	12.8	11.2	11.1	11.9	10.2	9.3	10.7	11.3	11.5	15.2	10.6	10.6	10.6	24	
14	11.6	11.5	11.5	11.8	12.3	11.2	12.5	13.5	14.7	11.2	11.5	12.2	10.2	12.4	9.8	9.7	6.9	3.2	5.0	6.0	5.3	4.2	4.1	14.7	9.7	24	24	
15	5.4	4.4	7.9	12.9	15.4	19.2	22.2	21.2	20.3	20.5	18.7	19.3	19.8	21.9	21.2	20.5	19.7	18.4	18.4	15.3	12.9	13.0	14.2	11.0	22.2	16.4	24	
16	11.2	9.6	9.0	8.5	9.4	10.7	11.4	10.7	10.0	8.5	8.8	9.1	8.8	9.7	7.5	7.7	8.2	6.5	5.3	5.9	7.4	8.4	9.5	8.4	11.4	8.8	24	
17	9.7	12.2	11.8	11.3	11.1	9.6	9.0	9.3	9.1	8.1	10.6	8.9	9.1	9.8	10.6	9.4	8.5	9.0	7.1	6.8	7.8	8.9	9.7	9.8	12.2	9.5	24	
18	10.0	10.1	10.3	10.4	9.7	9.4	7.9	7.2	6.3	5.5	6.3	8.9	9.0	5.2	7.8	7.0	5.2	7.0	4.9	6.4	8.6	9.5	9.6	9.9	10.4	8.0	24	
19	9.8	8.6	8.5	9.0	8.6	7.4	6.2	7.3	6.5	8.5	7.8	10.7	11.7	12.1	8.9	9.7	10.4	9.5	8.8	6.8	7.9	9.4	10.2	10.1	12.1	8.9	24	
20	9.9	9.9	10.2	10.6	11.0	10.5	8.8	9.2	7.8	14.4	15.2	16.7	15.7	14.6	12.9	11.5	8.9	9.0	7.0	4.8	9.0	10.2	9.7	9.8	16.7	10.7	24	
21	9.6	9.5	9.6	9.6	8.5	8.0	7.8	6.9	4.7	2.7	2.7	5.2	2.4	2.4	2.4	4.4	5.1	3.2	1.0	1.4	2.5	4.3	4.1	2.8	4.8	9.6	24	
22	5.2	5.9	4.2	3.9	6.6	5.6	6.3	9.3	8.2	9.0	7.8	11.7	9.3	7.5	7.0	7.0	7.9	6.4	6.6	7.0	7.8	8.2	9.7	10.2	11.7	7.4	24	
23	10.8	10.5	8.9	8.5	7.0	7.6	6.8	5.9	5.4	6.5	9.6	6.4	4.4	2.6	2.1	10.4	13.2	4.0	6.4	5.4	7.9	6.6	7.5	13.2	7.2	24	24	
24	7.9	8.0	6.9	6.6	8.9	10.0	5.9	8.4	7.9	3.0	4.8	5.5	8.6	18.8	9.5	10.8	7.7	10.3	7.4	4.7	2.5	3.2	7.4	6.7	18.8	7.6	24	
25	7.8	7.2	9.4	6.9	6.9	4.9	5.0	2.4	3.3	9.6	9.1	10.5	10.5	11.7	9.8	8.8	8.6	9.0	8.4	4.0	5.5	6.3	7.5	8.4	11.7	7.6	24	
26	9.3	7.5	8.5	8.6	8.3	7.6	8.2	9.7	7.6	6.2	5.8	7.8	8.7	7.5	8.7	7.7	7.7	4.9	6.4	15.3	19.0	16.4	10.4	13.5	19.0	9.4	24	
27	12.8	17.2	12.8	9.7	9.4	12.8	16.9	15.0	14.8	11.1	11.5	11.6	10.8	9.9	9.0	8.5	7.6	6.7	5.8	3.8	4.6	6.1	7.3	8.1	17.2	10.2	24	
28	7.4	6.8	6.2	5.7	6.1	5.1	6.4	6.0	5.7	5.4	3.9	6.9	6.0	7.3	6.3	7.2	7.6	5.9	6.7	8.5	9.8	9.4	10.3	10.3	6.8	24	24	
29	9.8	9.2	8.1	7.0	8.0	7.8	9.7	10.9	12.3	14.6	14.2	14.5	13.9	14.6	14.4	13.5	13.5	13.3	11.8	11.3	11.0	11.1	13.0	14.2	14.6	11.7	24	
30	12.8	11.1	10.3	10.4	11.9	4.9	5.4	12.5	9.2	14.0	9.7	9.2	6.4	2.9	1.7	4.2	6.3	9.1	4.2	0.7	6.8	7.4	6.9	6.0	14.0	7.7	24	
31	24.6	25.0	25.7	23.9	23.5	27.3	27.8	26.0	32.5	28.7	26.7	24.4	21.5	21.9	21.7	23.8	25.1	22.6	20.5	20.5	21.9	19.8	22.4	24.3	24.3	24.3	24	
HOURLY MAX	10.4	10.5	10.1	9.9	9.9	9.5	9.3	9.5	9.8	10.0	10.0	11.1	10.9	11.0	10.1	10.0	10.0	10.2	8.4	8.5	9.3	9.8	10.2	10.4	10.4	10.4	24	
HOURLY AVG																												24

STATUS FLAG CODES

- Q - QUALITY ASSURANCE
- V - MAINTENANCE
- S - DAILY ZERO/SPAN CHECK
- P - POWER FAILURE
- G - OUT FOR REPAIR
- R - RECOVERY
- X - MACHINE MAINTENANCE
- O - OPERATOR ERROR
- K - COLLECTION ERROR

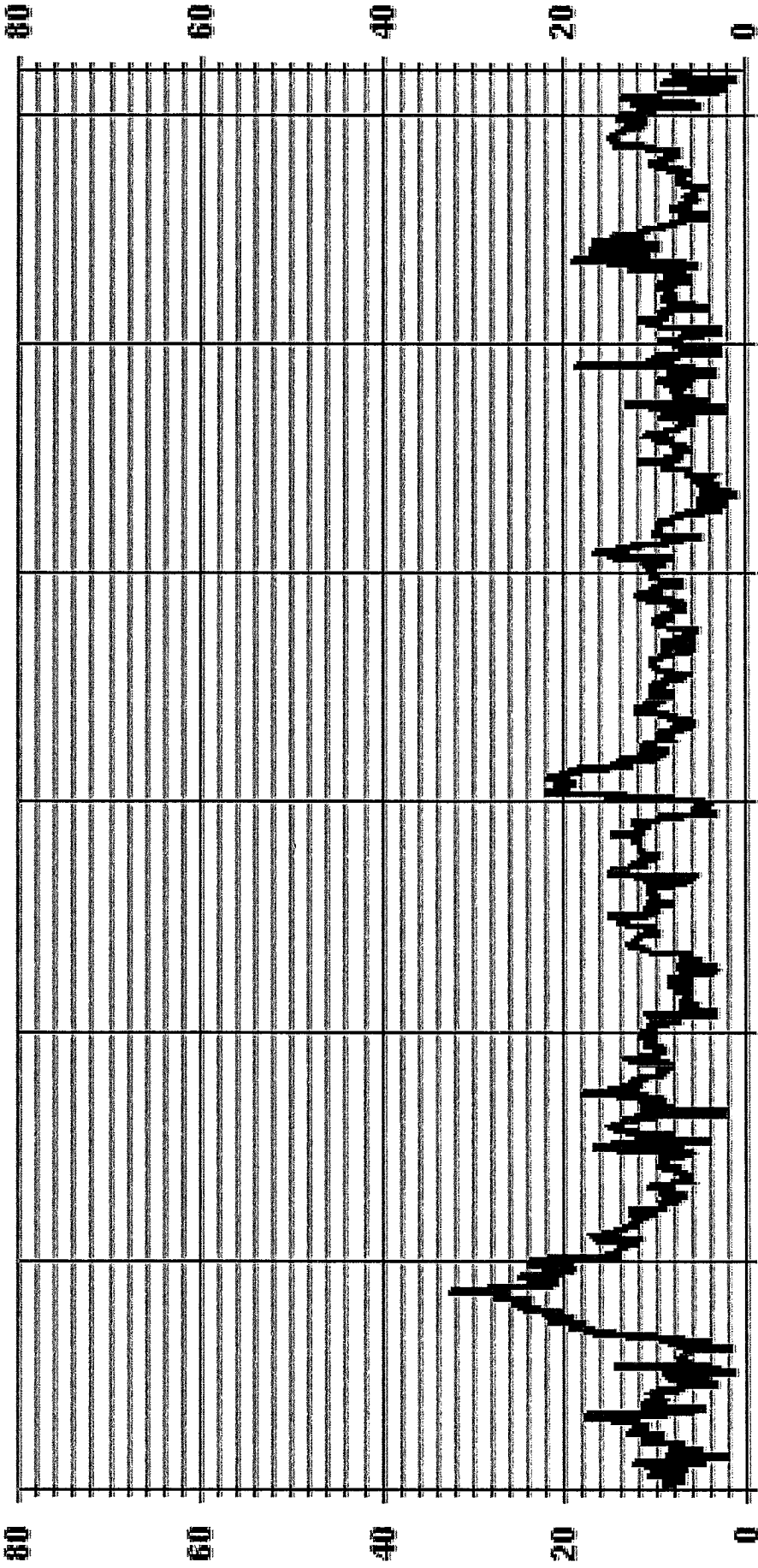
LAST CALIBRATION: August 28, 2014
 DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST



MONTHLY SUMMARY

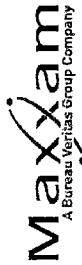
NUMBER OF NON-ZERO READINGS:	744	ON DAY(S)	5
MAXIMUM 1-HR AVERAGE:	32.5 KPH	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	23.9 KPH	VAR-VARIOUS	
MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	4.59	AMD OPERATION UPTIME:	100.0 %
		MONTHLY AVERAGE:	9.9 KPH

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 WSP KPH



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 St. Lima Site - MAY 2015
 JOB # 2833-2015-05-31-C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

DAY	HOUR																								24-HOUR MAX.	24-HOUR AVG.	ROGS.
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			
1	14.7	13.1	13.8	15.1	14.0	13.5	11.4	21.2	28.1	25.0	25.5	27.9	29.6	27.4	31.1	20.4	16.7	18.2	9.2	31.1	11.8	10.3	11.6	12.3	31.1	18.9	24
2	15.5	14.9	19.9	24.1	21.0	22.7	33.2	26.0	28.3	44.4	34.6	41.4	37.8	44.4	41.4	56.6	24.2	22.3	16.2	10.5	23.6	27.7	20.7	17.7	56.6	27.9	24
3	19.0	20.5	21.2	19.9	21.0	19.0	16.8	14.4	8.3	17.3	20.0	24.0	26.0	17.3	15.0	13.1	32.4	47.0	23.1	12.9	11.8	11.4	12.2	12.0	47.0	19.0	24
4	9.6	9.7	9.4	12.0	11.4	15.7	18.7	14.4	20.1	24.7	35.3	43.2	47.3	48.3	48.4	43.4	49.1	56.1	44.7	42.9	52.6	47.1	55.6	59.4	59.4	24	
5	54.8	51.7	59.6	48.4	49.9	62.6	68.2	62.4	73.6	71.8	63.9	55.2	55.0	50.2	47.5	49.5	54.3	49.5	52.0	39.4	40.0	49.2	42.9	46.2	73.6	54.1	24
6	53.7	47.0	42.3	38.7	36.9	36.9	33.4	45.2	33.4	34.9	R	40.9	38.8	35.6	33.1	30.1	30.1	25.9	27.5	29.1	27.5	23.0	53.7	35.4	23		
7	24.2	26.8	25.3	27.9	30.4	25.9	27.3	26.4	20.5	22.3	22.3	22.5	25.4	32.0	28.5	28.5	27.8	25.2	16.4	14.7	9.4	9.7	10.8	10.3	32.0	22.5	24
8	11.6	14.7	15.1	17.7	14.8	13.1	16.9	17.4	16.9	19.9	20.9	40.1	41.6	37.1	47.4	23.9	22.9	27.2	16.5	26.5	33.4	33.5	34.8	27.1	47.4	24.6	24
9	29.6	28.5	23.4	25.2	17.8	14.2	11.0	11.9	23.3	25.5	32.3	29.2	29.4	31.4	36.9	35.1	40.6	33.3	26.7	33.3	25.8	26.3	27.2	23.2	40.6	26.7	24
10	21.7	16.4	13.6	13.6	12.5	14.3	22.6	20.8	28.0	26.3	37.7	41.5	31.2	38.8	27.2	33.4	29.0	25.0	24.9	20.8	16.7	21.9	18.9	24.8	41.5	24.2	24
11	19.3	16.2	18.9	16.4	15.5	14.2	16.7	21.3	21.7	24.0	17.6	21.1	26.3	22.7	22.4	22.2	20.3	17.5	14.3	12.3	10.6	11.2	10.8	10.5	26.3	17.7	24
12	11.0	12.1	14.0	10.7	13.3	13.1	10.1	8.4	12.4	27.5	21.6	23.4	24.7	23.1	31.4	27.6	25.0	23.3	25.2	20.6	21.5	23.6	23.9	21.9	31.4	19.6	24
13	22.1	23.2	25.4	16.2	16.4	19.5	20.8	24.8	27.6	34.2	39.7	47.6	37.3	37.8	26.0	31.0	32.9	28.1	21.7	20.8	20.3	21.7	21.3	20.4	47.6	26.5	24
14	18.5	20.3	18.2	16.0	16.6	14.0	18.6	16.3	16.0	20.7	31.6	41.7	38.0	36.2	43.9	32.5	31.7	27.8	24.4	29.4	17.1	20.2	23.0	24.8	43.9	24.9	24
15	20.2	21.1	22.4	20.4	20.4	28.9	30.5	34.0	36.0	31.7	29.8	24.6	33.6	33.4	31.4	21.9	17.6	15.0	7.7	9.7	8.9	7.9	8.0	6.3	36.0	21.7	24
16	7.5	7.5	17.8	27.1	35.9	43.6	51.6	46.3	47.6	48.5	47.9	44.9	52.1	47.4	51.5	47.1	47.8	51.7	42.1	35.3	31.1	27.4	31.8	24.1	52.1	38.2	24
17	20.8	20.3	19.0	17.3	17.3	21.0	26.0	24.7	26.5	23.2	33.1	25.7	27.2	29.8	33.8	23.1	23.5	19.6	15.6	14.1	11.1	12.0	13.8	13.4	33.8	21.3	24
18	18.7	24.5	22.5	20.2	16.0	15.6	18.0	21.5	17.2	19.4	21.5	29.9	32.7	27.5	30.1	29.9	25.3	20.3	15.7	12.2	15.2	15.4	15.2	15.0	32.7	19.2	24
19	15.2	13.4	14.3	14.9	13.8	16.0	16.1	15.6	17.2	19.4	21.5	29.9	32.7	27.5	30.1	29.9	25.3	20.3	15.7	12.2	15.2	15.4	15.2	15.0	32.7	19.2	24
20	15.2	15.0	14.3	12.6	13.2	11.7	14.8	15.4	15.7	23.4	25.3	37.8	34.1	35.8	36.9	32.6	37.3	32.3	24.4	15.4	13.0	15.6	18.9	17.4	37.8	22.0	24
21	19.6	13.2	17.6	17.4	19.3	19.1	20.0	20.9	21.0	39.4	46.6	44.2	43.5	42.3	42.8	39.5	34.3	28.6	29.5	11.5	15.0	18.5	18.1	17.0	46.6	26.6	24
22	15.6	14.1	15.6	17.5	15.2	14.7	18.5	16.7	13.1	15.7	14.9	23.6	18.6	17.6	26.0	23.5	24.9	14.4	6.1	5.2	5.6	5.2	8.5	6.9	26.0	14.9	24
23	12.0	12.0	15.8	10.4	13.9	11.1	17.4	24.8	22.9	22.3	24.4	29.8	24.9	25.2	24.7	30.1	25.6	22.7	18.6	15.0	14.5	14.6	18.5	20.5	30.1	19.7	24
24	20.0	24.6	16.5	16.5	11.5	11.9	14.1	13.9	15.2	18.3	29.9	28.0	21.9	19.7	20.1	14.2	48.9	50.2	23.3	13.9	19.4	13.7	12.8	13.3	50.2	20.5	24
25	14.3	16.3	15.4	14.1	19.6	18.0	15.0	20.9	27.7	14.6	18.8	28.8	27.2	44.1	21.6	24.2	20.1	56.3	25.1	11.3	10.6	6.6	12.1	12.8	56.3	20.6	24
26	22.4	19.2	27.7	18.0	15.0	11.6	15.9	13.7	23.1	32.8	34.5	36.5	37.5	38.9	34.5	28.8	30.5	32.7	26.8	18.2	11.5	13.0	11.3	17.8	38.9	23.8	24
27	22.6	14.3	42.9	36.1	32.6	41.3	46.3	47.7	38.6	37.2	37.7	42.3	30.4	34.8	33.5	29.4	27.2	26.1	17.3	14.7	15.1	9.0	10.8	14.7	53.2	31.5	24
28	36.0	53.2	42.9	36.1	32.6	41.3	46.3	47.7	38.6	37.2	37.7	42.3	30.4	34.8	33.5	29.4	27.2	26.1	17.3	14.7	15.1	9.0	10.8	14.7	53.2	31.5	24
29	14.3	10.3	8.4	9.7	11.2	10.3	14.7	15.6	21.9	20.0	18.3	23.9	23.9	25.3	25.7	25.3	25.1	19.8	15.8	14.7	16.3	19.7	20.9	23.0	25.7	18.1	24
30	24.8	20.8	18.4	17.8	15.8	16.3	30.9	27.8	31.8	39.7	43.2	40.6	42.3	42.5	37.7	35.1	46.9	33.6	29.9	29.6	28.3	28.1	42.1	32.9	46.9	31.5	24
31	29.6	29.8	21.7	30.2	28.8	19.7	17.5	44.6	28.4	49.3	32.1	24.3	18.9	10.8	13.1	17.7	18.3	46.9	19.1	9.2	16.9	16.9	14.1	17.4	49.3	24.0	24
HOURLY MAX	54.8	53.2	59.6	48.4	49.9	62.6	68.2	62.4	73.6	71.8	63.9	55.2	55.0	50.2	51.5	56.6	54.3	56.3	52.0	63.7	52.6	49.2	55.6	59.4			
HOURLY AVG	21.1	20.8	20.8	19.9	19.4	20.1	23.1	24.1	25.9	29.0	30.5	33.3	33.0	33.1	32.2	30.2	30.4	30.4	22.7	21.0	19.9	20.3	20.8	20.5			

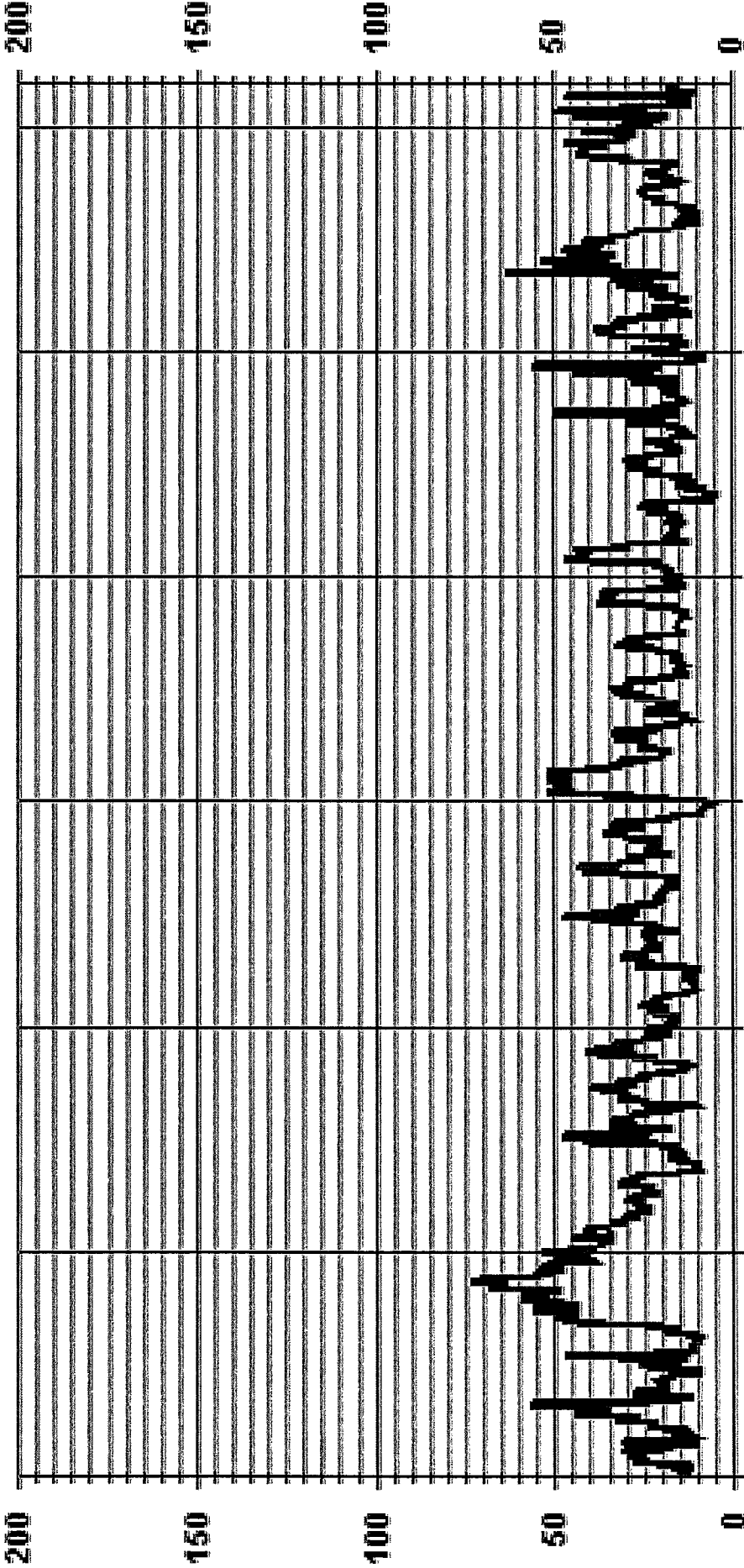
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
D	DEVIANCE	R	RECOVERY
E	DAILY ZERO/SFANG CHECK	X	MACHINE MALFUNCTION
F	POWER FAILURE	O	OPERATION ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	73.6	KPH	@ HOUR(S)	8	ON DAY(S)	5
OPERATIONAL TIME:	743	HRS	VAR-VARIOUS			

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 WSMAX KPH

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 6.0	.67	.67	.67	1.07	1.20	.67	.40	.67	1.74	1.20	1.34	.26	1.20	.53	.40	.94	13.70			
< 12.0	2.82	1.88	3.09	3.89	5.51	4.56	6.58	7.66	10.34	4.56	2.15	1.34	2.41	2.15	1.74	2.15	62.90			
< 20.0	1.34	2.55	1.07	1.34	1.20	.40	2.15	2.41	1.34	.53	.53	.13	.53	.53	1.34	.94	18.41			
< 29.0	.13	.94	1.34	2.28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.70			
< 39.0	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13			
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
Totals	4.97	6.04	6.18	8.73	7.93	5.64	9.13	10.75	13.44	6.31	4.03	1.74	4.16	3.22	3.49	4.03				

Calm : .13 %

Total # Operational Hours : 744

Distribution By Samples

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 6.0	5	5	5	8	9	5	3	5	13	9	10	2	9	4	3	7	102			
< 12.0	21	14	23	29	41	34	49	57	77	34	16	10	18	16	13	16	468			
< 20.0	10	19	8	10	9	3	16	18	10	4	4	1	4	4	10	7	137			
< 29.0	1	7	10	17													35			
< 39.0				1													1			
>= 39.0																				
Totals	37	45	46	65	59	42	68	80	100	47	30	13	31	24	26	30				

Calm : .13 %

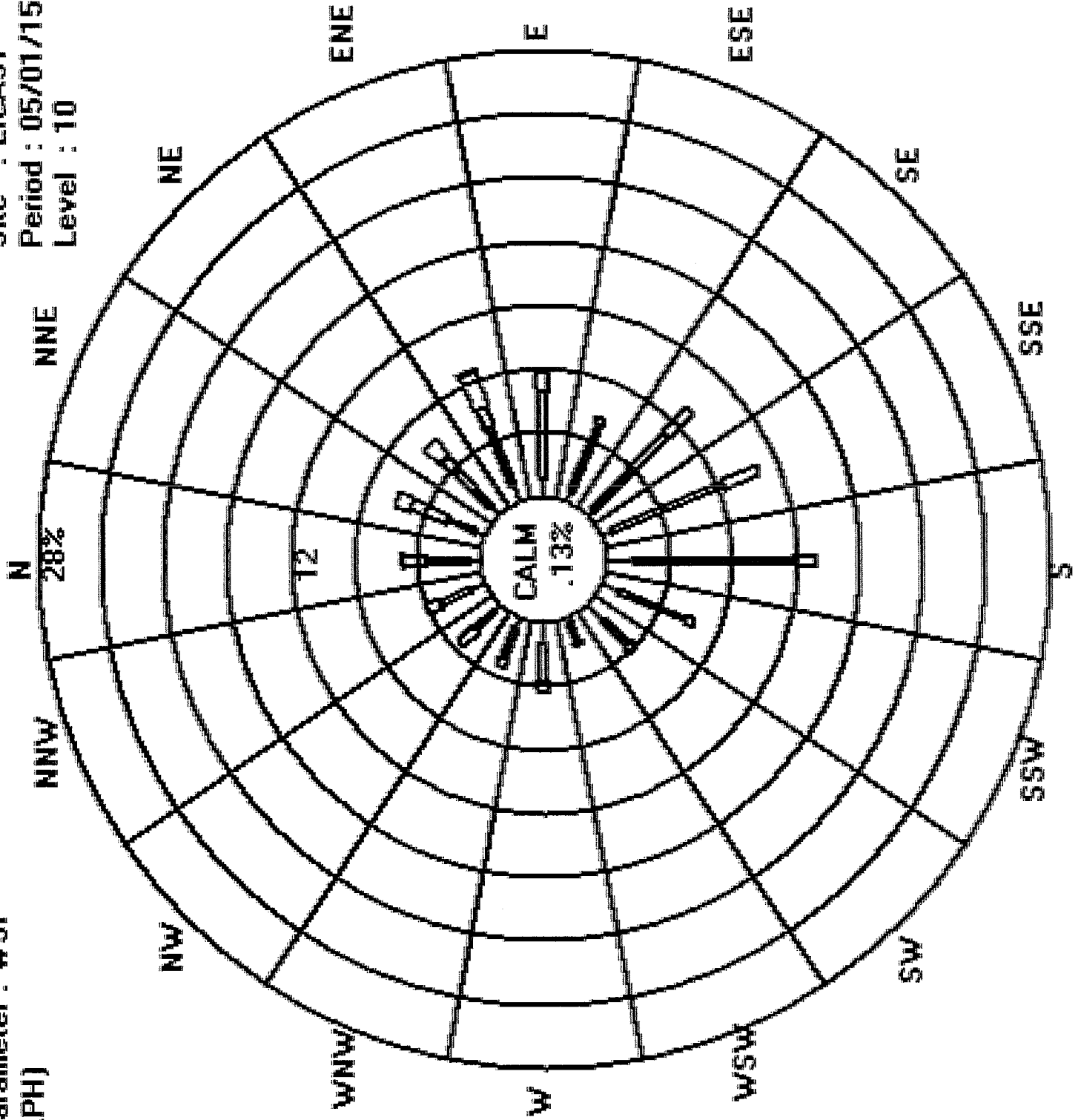
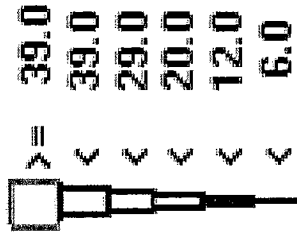
Total # Operational Hours : 744

Logger : 31 Parameter : WSP

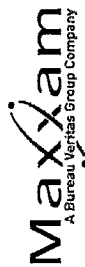
Site : LICA31

Class Limits (KPH)

Period : 05/01/15-05/31/15
Level : 10



WIND DIRECTION



WIND DIRECTION (WD) hourly averages

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	24-HOUR AVG	QUADRANT	RDGS.
1	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
2	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WNW	24
3	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
4	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
5	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
6	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
7	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
8	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
9	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
10	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
11	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
12	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
13	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
14	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
15	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
16	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
17	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
18	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
19	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
20	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
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22	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
23	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
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26	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24
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31	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24

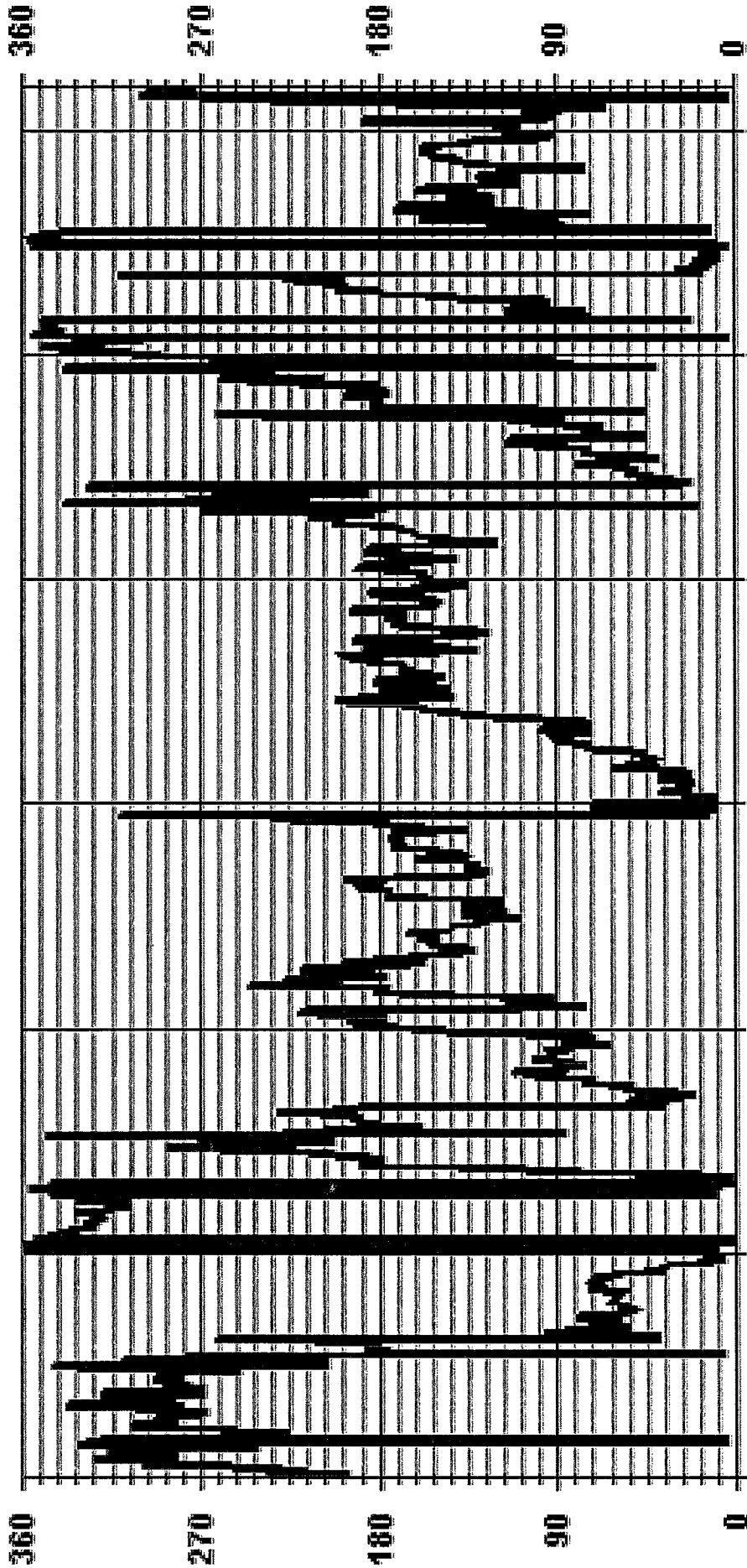
STATUS FLAG CODES

C	CALIBRATION	G	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SIGNAL CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

LAST CALIBRATION: August 28, 2014
 DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	92.01		AMID OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	ESE	

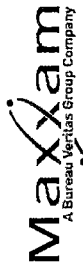
01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 WDR DEG

STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - MAY 2015
JOB # 2833-2015-05-31 - C

STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	6	6	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
2	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
6	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
9	12	11	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
10	10	9	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
11	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
12	14	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
13	11	11	10	8	7	11	14	17	18	23	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
14	9	10	8	8	8	9	10	16	23	26	35	27	22	25	28	29	23	31	20	17	13	10	10	10	10	10	10	10	10	10	10
15	10	9	10	9	10	12	14	16	17	24	26	18	24	31	21	14	10	14	20	10	6	6	6	6	6	6	6	6	6	6	6
16	5	12	13	11	12	12	13	13	13	13	15	17	18	17	18	17	18	16	15	14	12	11	12	11	12	11	12	11	12	11	12
17	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
18	9	11	10	8	6	10	10	15	18	23	29	35	34	32	36	31	33	33	26	24	14	6	6	6	6	6	6	6	6	6	6
19	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
20	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
21	8	6	7	8	9	11	15	16	23	21	24	22	25	27	24	24	24	26	24	23	11	8	10	12	9	8	8	8	8	8	8
22	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
23	12	7	14	29	13	34	15	16	22	22	28	22	28	22	28	22	28	22	28	22	28	22	28	22	28	22	28	22	28	22	28
24	10	12	11	9	13	8	16	21	26	27	27	26	37	52	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
25	9	11	16	14	17	13	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
26	16	25	16	16	13	18	20	32	29	30	27	28	30	26	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
27	13	10	11	9	7	12	16	20	28	31	34	30	32	38	34	19	25	23	11	17	18	17	20	18	17	20	18	17	20	18	
28	19	18	19	21	21	24	18	20	20	23	24	30	28	31	29	33	32	30	30	23	13	7	7	10	7	7	10	7	7	10	7
29	9	6	4	15	10	12	16	26	35	51	50	43	44	46	40	44	28	25	19	12	10	13	14	16	16	16	16	16	16	16	16
30	17	15	11	12	13	17	19	21	20	22	23	25	26	22	20	20	22	20	20	22	20	20	22	18	17	18	17	18	17	18	17
31	17	16	15	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18

STATUS FLAG CODES

C	- CALIBRATION	Q	- QUALITY ASSURANCE
F	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR

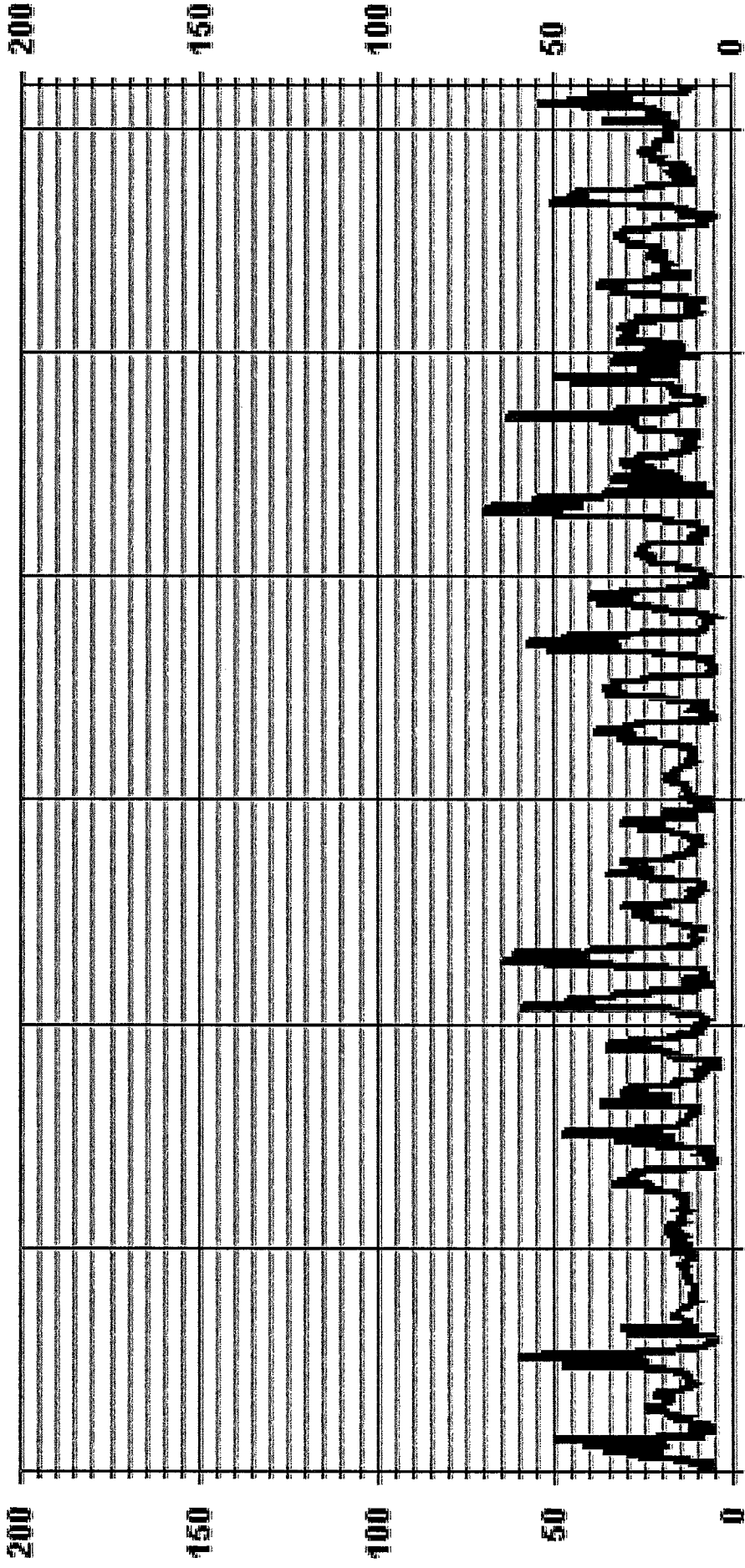
LAST CALIBRATION:

August 28, 2014

CALIBRATION TIME: 0 HRS

OPERATIONAL TIME: 744 HRS

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 STOWDIR DEG

RELATIVE HUMIDITY



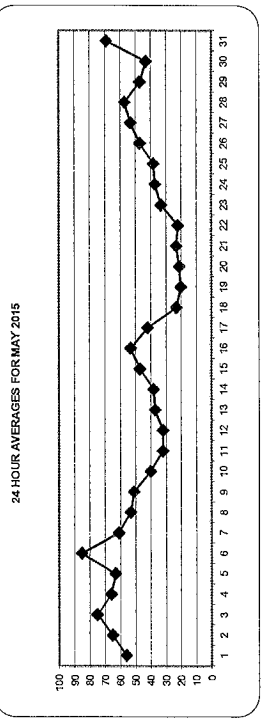
RELATIVE HUMIDITY (RH) hourly averages in %

MST

DAY	HOUR																								DAILY MAX.	24-HOUR AVG.	RDGS.	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				0:00
1	69	74	74	75	71	71	65	52	44	39	38	37	42	46	51	48	48	47	45	51	63	65	68	71	75	56.4	24	
2	72	69	68	65	63	64	58	59	54	51	47	49	60	59	58	77	77	71	64	63	70	72	77	82	82	64.6	24	
3	83	86	87	88	89	88	86	80	81	78	70	59	51	47	44	44	44	46	48	50	51	53	54	55	90	66.0	24	
4	89	89	88	90	90	88	84	81	81	78	70	68	60	60	58	59	58	59	63	65	63	67	71	72	85.4	24		
5	59	63	68	70	71	72	70	68	60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	85.2	24		
6	74	78	80	81	84	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85.2	24	
7	87	87	87	85	84	77	70	71	64	58	53	49	45	41	40	39	39	42	47	53	54	59	59	87	61.2	24		
8	67	71	70	70	73	72	69	64	60	51	46	40	42	34	30	31	37	28	29	42	51	59	65	69	73	52.9	24	
9	72	72	71	69	68	69	68	53	48	46	43	41	37	31	29	36	37	34	39	44	48	50	58	65	72	51.2	24	
10	66	63	67	74	77	77	67	51	41	32	26	24	23	21	19	18	18	20	22	26	31	33	34	77	40.1	24		
11	39	43	47	51	52	51	47	42	35	31	26	25	24	22	21	20	20	21	22	24	28	28	27	31	52	32.4	24	
12	38	47	49	51	56	58	55	47	39	34	30	28	26	25	24	24	25	25	26	30	37	39	42	46	58	36.9	24	
13	45	49	51	56	58	55	47	39	34	30	28	26	25	24	24	25	25	25	26	30	37	39	42	46	58	36.9	24	
14	49	53	23	66	67	66	61	53	46	38	29	25	24	23	21	20	21	23	28	30	35	38	40	44	67	36.5	24	
15	49	52	56	59	61	60	55	50	45	39	34	35	26	25	24	25	26	27	28	30	31	33	34	34	74	42.3	24	
16	50	53	59	77	85	82	85	85	83	74	58	43	29	26	26	27	28	30	31	33	43	50	53	57	85	52.8	24	
17	61	64	67	72	74	69	65	61	55	47	38	31	25	23	22	21	20	20	22	25	29	35	34	34	74	42.3	24	
18	35	35	34	38	41	40	37	29	23	19	16	14	14	13	11	11	11	11	11	15	19	21	24	28	41	23.0	24	
19	28	30	31	33	33	31	29	28	22	15	13	12	12	11	10	10	10	10	11	11	14	17	20	21	24	33	19.8	24
20	29	30	32	34	33	31	28	26	21	16	13	12	12	11	11	11	12	12	14	17	21	24	25	27	34	20.9	24	
21	30	33	34	33	36	37	36	32	25	19	16	14	13	11	11	12	12	13	13	19	21	24	25	28	37	22.8	24	
22	31	35	36	37	41	40	38	36	29	23	16	11	11	10	10	10	10	10	10	13	17	18	17	19	41	22.5	24	
23	21	32	34	40	45	44	45	44	40	36	33	30	28	24	22	21	23	23	27	34	40	44	45	47	47	33.9	24	
24	47	44	49	52	61	65	59	52	43	35	26	23	20	20	17	18	18	24	26	32	33	36	38	65	65	36.5	24	
25	39	42	44	52	50	50	45	41	39	27	21	23	31	28	19	17	26	36	42	45	44	53	53	53	53	38.3	24	
26	56	70	66	66	69	70	63	65	59	48	40	36	34	31	28	26	21	20	20	29	46	55	53	57	70	47.0	24	
27	52	55	60	61	65	64	58	54	49	43	40	35	30	29	28	33	34	40	48	52	83	83	83	82	83	52.5	24	
28	81	77	73	75	79	76	63	65	64	63	56	50	45	40	37	33	33	36	42	54	60	63	60	81	56.7	24		
29	64	65	69	76	83	72	61	54	44	38	35	33	31	30	29	29	31	31	33	38	41	43	45	46	83	46.7	24	
30	45	46	52	58	64	58	49	43	42	39	37	36	36	36	37	38	35	35	35	38	39	42	44	44	64	42.8	24	
31	47	52	55	56	55	63	83	88	89	85	81	74	71	63	56	54	55	59	58	73	80	83	84	89	68.5	24		
HOURLY MAX	89	89	89	90	90	90	88	88	89	89	89	88	88	87	87	86	83	83	83	86	86	87	87	87	87	87	87	87
HOURLY AVG	54.0	56.4	57.4	61.4	63.7	63.0	59.4	55.0	49.8	44.4	39.3	36.3	34.3	32.9	31.6	31.6	31.8	31.8	35.5	39.4	45.3	48.1	50.2	52.3	52.3	52.3		

STATUS FLAG CODES

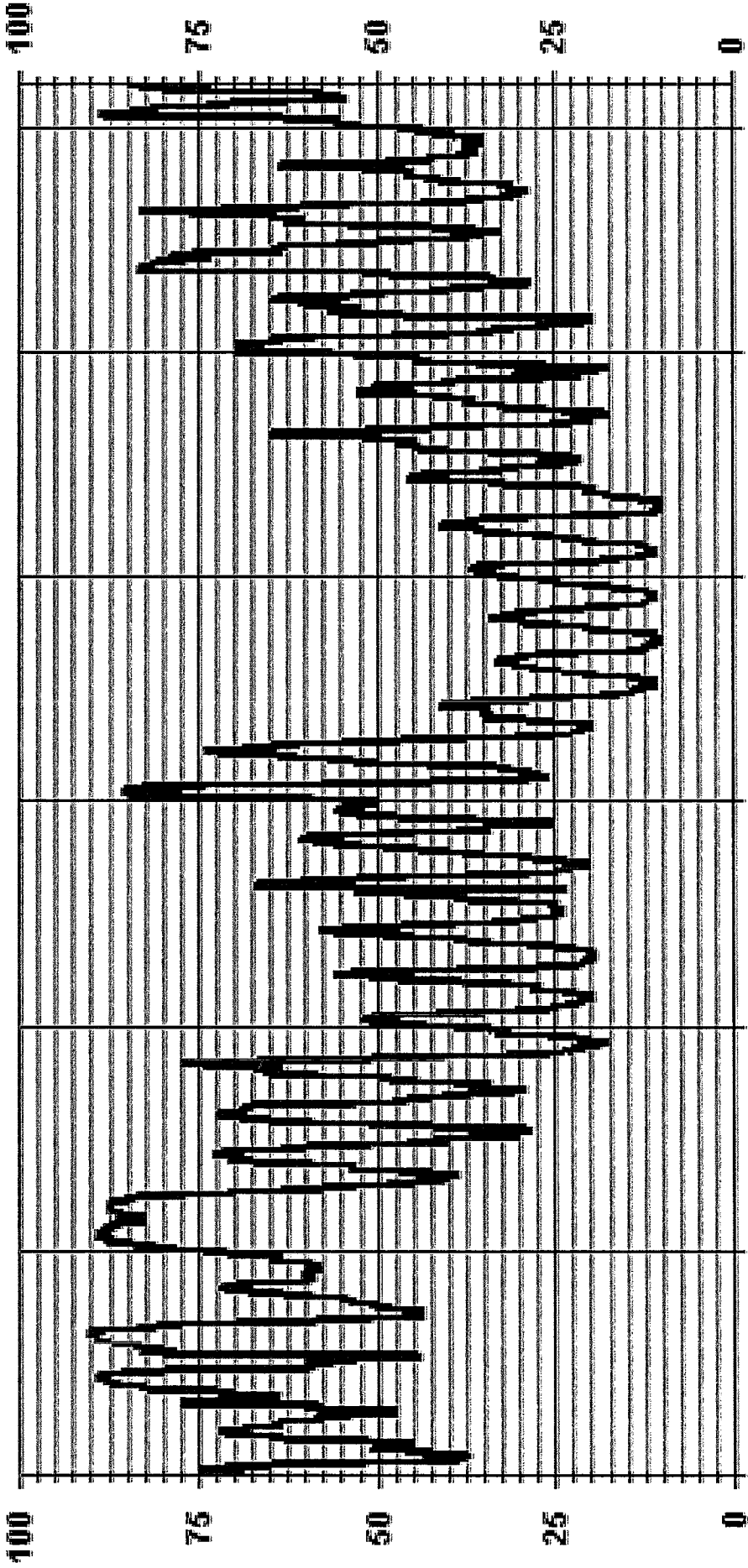
C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/MAJORITY
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	90	% @ HOUR(S)	VAR	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	85.2	%		ON DAY(S)	6
STANDARD DEVIATION:	21.40			VAR-VARIOUS	
				OPERATIONAL TIME:	744 HRS
				AMD OPERATION UPTIME:	100.0 %
				MONTHLY AVERAGE:	46 %

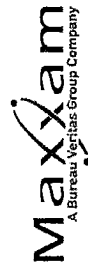
01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICAS1 RH %FS

BAROMETRIC PRESSURE



BAROMETRIC PRESSURE (BP) hourly averages in millibar

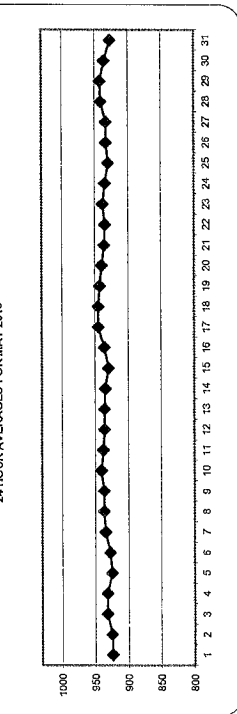
MST

DAY	24-HOUR AVG.																										
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00		
1	925	924	924	924	924	924	925	925	926	926	926	925	925	924	924	924	923	923	923	922	922	921	921	921	926	924	
2	921	921	921	921	922	922	922	923	923	924	924	925	925	926	926	926	927	927	927	928	928	928	928	928	928	928	925
3	928	928	928	928	929	929	930	931	932	933	933	934	934	934	934	934	933	933	932	932	932	932	932	932	932	924	
4	952	932	932	932	932	932	933	933	933	933	934	934	934	934	934	933	932	932	931	930	930	929	929	929	929	924	
5	928	927	926	925	925	925	925	925	925	925	925	925	925	926	926	926	925	925	925	925	925	925	925	925	925	924	
6	925	924	924	924	924	924	925	925	925	925	926	926	927	927	927	928	928	929	930	930	931	931	932	932	928	924	
7	932	932	932	932	932	932	933	934	935	935	935	935	936	936	936	937	937	937	937	937	937	937	937	937	937	924	
8	936	936	936	936	936	936	937	938	938	939	939	939	939	938	938	938	938	938	938	938	938	938	938	938	938	924	
9	954	934	933	933	934	934	934	935	935	937	937	938	939	940	940	940	940	940	940	940	940	939	939	940	937	924	
10	939	939	939	939	939	939	940	941	942	942	943	943	943	943	943	943	943	943	942	942	941	940	939	939	941	924	
11	939	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	937	937	936	935	935	940	924	
12	934	934	934	934	934	934	935	936	937	937	938	938	938	938	938	938	938	938	937	937	937	936	935	935	938	924	
13	935	935	935	935	935	935	936	936	937	937	938	938	938	938	938	938	938	938	937	937	937	936	935	935	938	924	
14	935	935	934	934	934	934	935	935	936	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	924	
15	931	931	930	930	930	930	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	924	
16	928	928	929	929	929	929	930	931	932	932	933	934	935	936	936	937	937	938	939	940	940	940	940	940	940	924	
17	942	942	942	942	943	943	945	946	946	946	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	924	
18	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	924	
19	943	943	942	942	942	942	943	944	945	945	945	945	945	945	945	945	945	945	944	943	942	941	940	940	943	924	
20	940	940	940	939	939	940	940	941	941	942	942	942	942	941	941	941	940	940	939	939	938	937	937	936	942	924	
21	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	924	
22	933	933	932	932	932	932	933	934	935	936	936	937	937	937	937	937	937	937	937	937	937	937	937	937	937	924	
23	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	924	
24	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	924	
25	930	930	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	924	
26	933	933	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	924	
27	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	924	
28	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	924	
29	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	942	924	
30	939	939	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	924	
31	931	930	929	928	928	928	928	928	927	926	926	927	927	928	928	927	927	927	927	927	927	927	927	927	927	924	
HOURLY MAX	944	944	944	944	944	944	945	946	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	947	944	954	
HOURLY AVG	934	933	933	933	933	934	934	935	936	936	936	937	937	937	937	937	937	937	937	937	937	937	937	937	934	934	

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATION ERROR
G	OUT-OF-REPAIR	K	COLLECTION ERROR

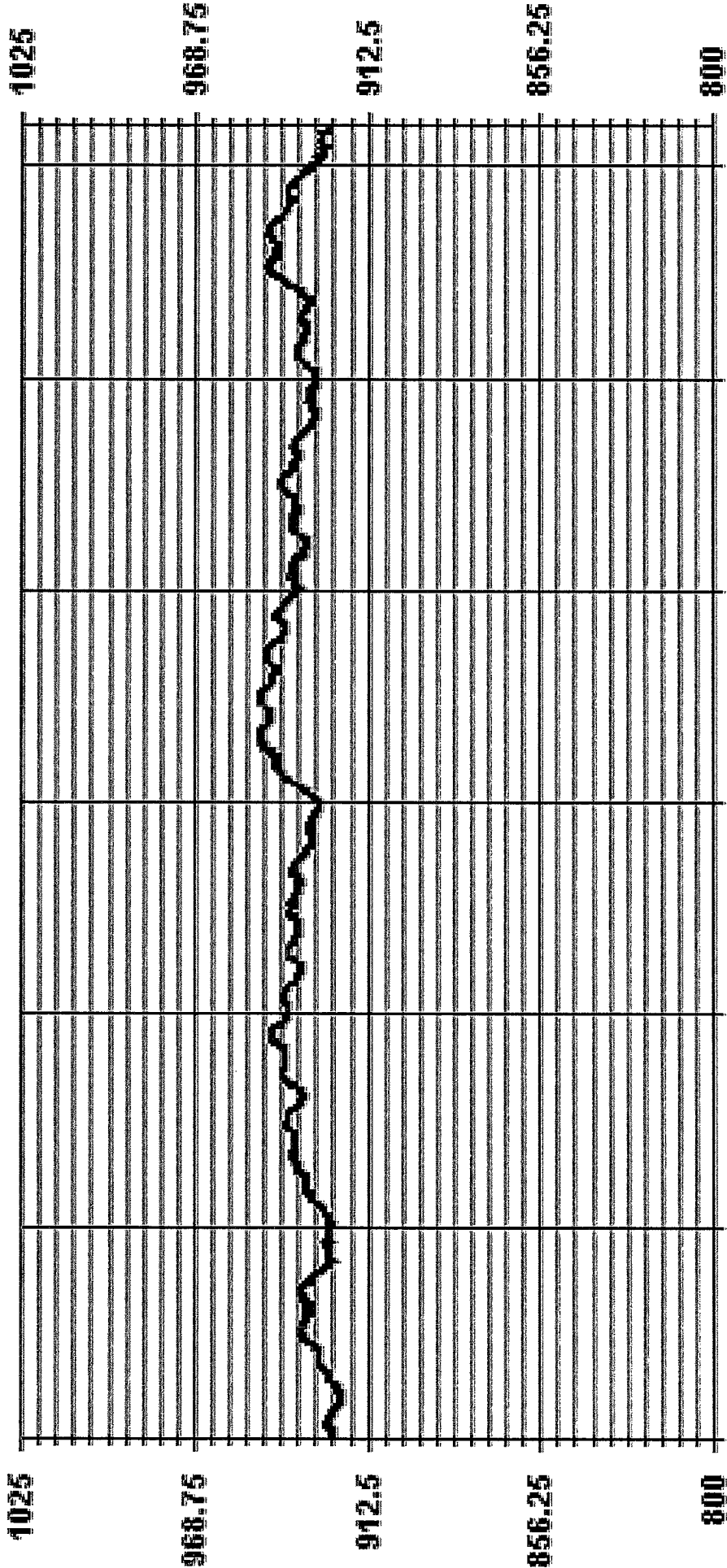
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	947	MB	@ HOUR(S)	VAR	ON DAY(S)	17, 18
MAXIMUM 24-HR AVERAGE:	945	MB		VAR	ON DAY(S)	17, 18
STANDARD DEVIATION:	5.98				VAR-VARIOUS	
OPERATIONAL TIME:	744	HRS				
AMD OPERATION UPTIME:	100.0	%				
MONTHLY AVERAGE:	935	MB				

01 Hour Averages



— LICA31 BP MB

AMBIENT TEMPERATURE

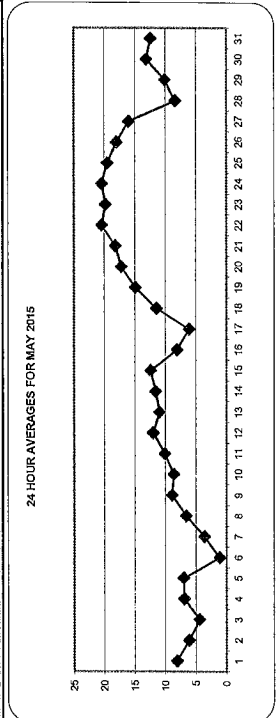


AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

DAY	HOUR START																								DAILY MAX	24-HOUR AVG	RDGS.	
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				0:00
1	3.5	2.9	2.7	2.2	2.6	2.7	4.8	8.0	10.5	11.7	13.1	14.0	12.4	12.1	11.4	12.5	12.0	11.7	11.5	9.4	6.9	6.4	5.5	4.8	14.0	8.1	24	
2	4.3	4.4	4.3	4.6	4.5	4.6	6.1	6.1	7.9	9.4	10.2	9.8	7.4	7.7	8.1	4.5	5.7	6.8	7.7	6.2	5.2	4.2	3.3	2.2	10.2	10.2	24	
3	1.7	1.5	1.1	0.8	0.5	0.9	1.3	2.3	4.1	6.8	7.9	8.4	8.3	8.0	9.0	10.4	9.6	4.4	4.4	3.3	2.8	2.4	2.2	10.4	4.4	24		
4	1.8	1.6	1.5	0.3	0.6	1.3	2.0	3.5	4.7	6.7	8.8	10.1	11.5	12.2	12.4	12.4	10.9	10.2	11.2	10.3	9.5	8.7	7.9	7.4	6.8	12.4	24	
5	5.4	4.4	3.5	2.8	2.7	3.2	4.9	5.9	8.4	8.7	9.0	9.2	9.4	9.8	10.7	10.8	10.9	10.2	9.2	7.6	6.2	5.8	4.8	4.2	10.9	7.0	24	
6	3.7	3.1	2.7	2.4	2.0	1.4	1.0	0.6	0.4	0.6	0.9	0.7	0.1	1.0	1.0	1.6	1.6	1.0	0.1	-0.1	-0.3	-0.6	-0.7	3.7	1.1	24		
7	-0.8	-0.9	-1.2	-1.3	-1.9	-1.6	0.0	1.9	2.2	4.3	5.0	6.6	7.5	7.5	8.8	8.6	8.7	7.9	6.8	5.5	3.7	3.1	2.8	2.0	8.8	3.6	24	
8	1.2	0.4	-0.1	-0.7	-1.1	-0.7	1.1	4.3	6.7	9.4	10.0	10.8	10.8	12.4	12.6	12.0	12.3	12.8	11.6	9.4	7.3	6.0	5.3	4.8	12.8	6.6	24	
9	4.2	3.9	3.6	3.4	3.7	4.3	5.4	9.5	11.1	12.3	13.8	13.9	14.4	14.7	15.0	14.4	13.0	11.9	10.6	9.1	7.1	6.1	4.9	3.6	15.0	8.9	24	
10	2.9	2.5	1.6	0.4	0.0	1.3	3.8	6.4	8.3	10.6	12.3	13.2	13.9	14.5	14.8	14.9	14.9	13.9	12.7	11.3	9.2	8.2	7.6	7.0	14.9	8.6	24	
11	5.7	4.8	3.8	2.9	2.3	2.4	4.7	7.5	9.7	11.6	14.0	14.5	14.6	15.2	15.5	15.6	15.9	14.9	14.2	13.1	11.3	10.4	10.0	8.1	15.9	10.1	24	
12	7.0	5.5	5.1	4.5	2.8	3.8	7.5	11.3	14.7	16.2	16.9	17.3	17.8	18.3	18.0	18.5	17.1	16.8	15.7	14.4	12.2	10.5	9.0	8.0	18.5	12.0	24	
13	6.8	6.1	5.6	4.6	3.9	4.6	7.4	10.1	12.1	13.7	14.2	15.1	15.2	15.4	15.9	16.2	16.3	15.2	14.3	13.1	11.2	10.1	8.8	7.8	16.3	11.0	24	
14	7.1	6.0	5.1	4.6	4.5	5.0	7.2	10.1	12.5	14.2	14.7	15.4	15.9	16.7	16.7	16.9	16.9	16.5	15.6	14.4	12.2	11.1	10.5	9.6	16.9	11.6	24	
15	8.5	7.6	6.8	6.2	5.7	6.7	8.9	11.3	13.1	14.7	15.2	15.5	17.3	18.3	17.0	16.2	15.1	14.5	14.3	13.4	13.7	12.6	12.5	12.2	18.3	12.4	24	
16	12.5	12.1	11.6	9.7	8.9	7.8	5.9	4.9	4.2	3.8	6.2	10.1	11.8	12.3	12.0	11.8	11.4	10.3	9.0	7.4	4.7	2.7	1.7	0.4	12.5	8.1	24	
17	-0.6	-1.5	-1.9	-2.3	-2.5	-0.8	1.6	3.4	4.9	6.2	7.9	9.6	10.6	11.3	12.3	12.9	12.8	12.6	11.8	10.6	8.1	6.9	6.0	5.8	12.9	6.1	24	
18	5.1	4.6	4.3	3.2	3.0	4.0	6.0	9.6	12.5	13.6	14.4	15.4	16.4	17.1	17.3	17.9	17.7	17.2	16.3	15.0	12.7	11.5	10.5	9.3	17.9	11.5	24	
19	8.5	7.6	6.7	6.2	6.1	7.5	9.8	12.4	15.6	17.6	18.6	19.4	19.6	20.8	21.2	21.4	21.5	20.6	19.5	18.2	16.1	14.9	13.7	12.9	21.5	14.9	24	
20	11.6	10.9	9.9	9.1	9.5	10.7	13.0	15.1	18.5	19.9	21.2	21.8	22.1	22.6	23.3	23.1	22.8	22.5	21.5	19.9	17.4	16.1	15.4	14.4	23.3	17.2	24	
21	13.3	12.2	11.8	11.6	10.8	10.9	12.9	16.2	19.9	20.8	21.6	22.4	22.8	23.3	23.6	24.0	24.2	23.6	22.5	20.9	18.7	17.4	16.5	15.4	24.2	18.2	24	
22	14.4	13.4	12.8	12.2	10.9	11.8	14.1	17.1	20.5	23.6	25.8	25.8	26.5	27.5	27.5	26.7	26.8	26.1	24.9	22.9	20.2	19.0	19.0	19.0	27.5	20.4	24	
23	18.1	17.4	14.7	14.3	12.2	12.7	15.4	16.6	18.8	21.2	23.0	23.8	25.3	25.9	26.5	26.8	27.1	27.1	23.2	22.8	20.7	18.4	17.0	16.5	15.9	26.8	19.8	24
24	15.7	16.2	14.9	14.0	12.1	11.8	14.8	17.9	20.9	23.9	25.6	26.2	26.6	26.7	26.5	27.8	27.1	23.2	22.8	20.7	19.1	18.7	18.3	17.9	27.8	20.4	24	
25	17.0	15.8	14.8	12.9	12.9	13.5	16.1	17.5	18.8	21.3	25.4	27.0	23.5	22.3	24.0	26.8	26.9	23.8	21.9	19.4	18.1	17.8	15.6	15.4	27.0	19.5	24	
26	14.8	12.6	13.4	13.4	12.6	13.0	16.1	16.6	18.9	21.8	23.0	23.1	23.6	23.5	23.8	24.0	23.5	22.4	20.8	18.8	15.1	13.1	12.5	11.6	24.0	18.0	24	
27	11.4	10.0	8.7	8.0	7.6	8.6	11.4	14.1	16.9	19.7	20.9	22.2	23.8	24.3	25.2	23.8	23.7	22.6	20.3	18.1	11.8	10.4	9.9	9.5	25.2	16.0	24	
28	9.1	7.9	7.0	6.6	6.1	5.4	6.1	5.7	6.7	6.5	8.2	9.5	11.2	11.9	12.4	12.8	12.7	12.4	11.1	9.9	7.1	5.5	4.7	4.7	12.8	8.4	24	
29	4.6	4.4	3.8	2.6	1.1	3.2	6.0	8.9	11.2	12.8	13.4	14.0	15.0	15.4	15.1	15.4	14.9	14.6	13.7	12.3	10.9	10.2	9.7	9.5	15.4	10.1	24	
30	9.2	8.7	7.3	5.9	5.0	7.3	10.2	11.9	13.5	14.7	15.9	16.7	17.2	17.0	16.2	16.2	17.2	17.0	16.9	15.4	14.3	13.6	12.9	13.0	17.2	13.1	24	
31	12.0	10.7	9.8	9.9	10.3	9.5	7.4	6.4	6.7	8.6	9.8	11.1	14.1	16.2	19.2	20.5	20.9	18.7	16.3	15.3	12.9	11.3	9.9	9.1	20.9	12.4	24	
HOURLY MAX	18.1	17.4	14.9	14.3	12.9	13.5	16.1	17.9	20.9	23.9	25.8	27.0	26.6	27.5	27.5	27.8	27.1	26.1	24.9	22.9	20.2	19.7	19.0	19.0				
HOURLY AVG	7.7	7.0	6.3	5.7	5.1	5.7	7.5	9.5	11.4	13.1	14.4	15.3	15.7	16.2	16.5	16.7	16.5	15.6	14.6	13.1	11.1	10.1	9.3	8.6				

STATUS FLAG CODES

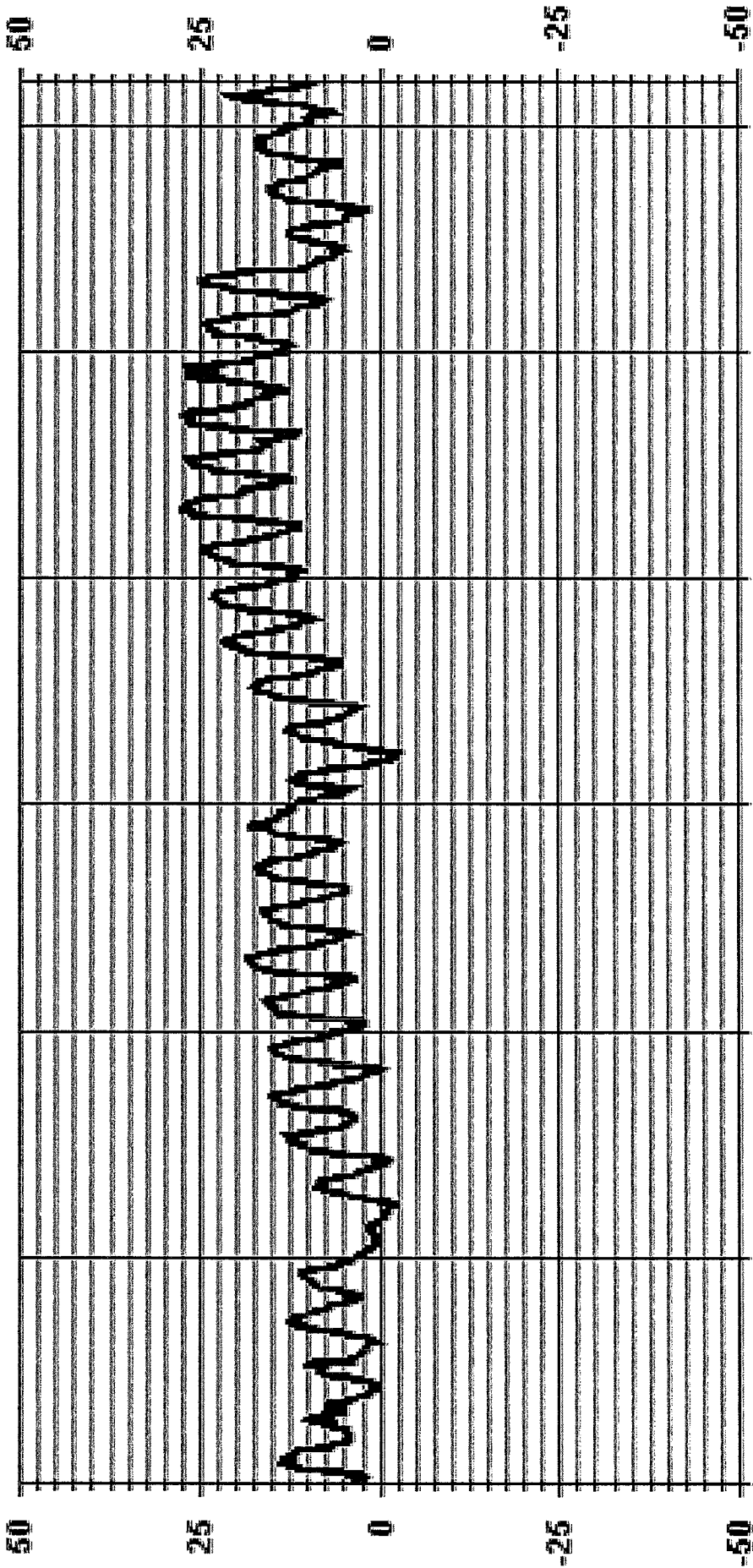
C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-2.5	°C	@ HOUR(S)	4	ON DAY(S)	17
MAXIMUM 1-HR AVERAGE:	27.8	°C	@ HOUR(S)	15	ON DAY(S)	24
MAXIMUM 24-HR AVERAGE:	20.4	°C			VAR-VARIOUS	24
OPERATIONAL TIME:						
AMD OPERATION UPTIME:	744	HRS				
MONTHLY AVERAGE:	100.0	%				
STANDARD DEVIATION:	6.83					
MONTHLY AVERAGE:	11.4	°C				

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 TPX DGC

PRECIPITATION

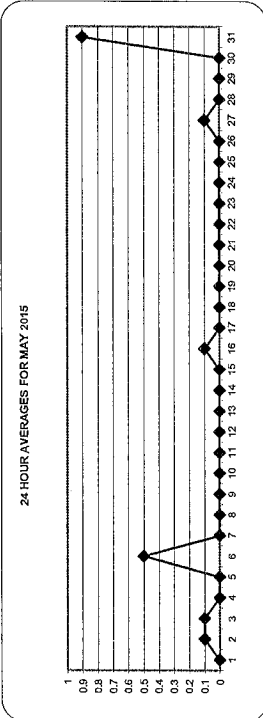


PRECIPITATION hourly averages (mm)

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOURLY MAX	0.0	0.1	0.0	0.4	0.2	0.5	6.5	12.7	1.8	0.5	1.8	1.7	1.8	0.9	1.0	1.9	0.4	3.1	0.1	1.7	0.5	0.1	0.1	0.0	0.0	0.0
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0

STATUS FLAG CODES

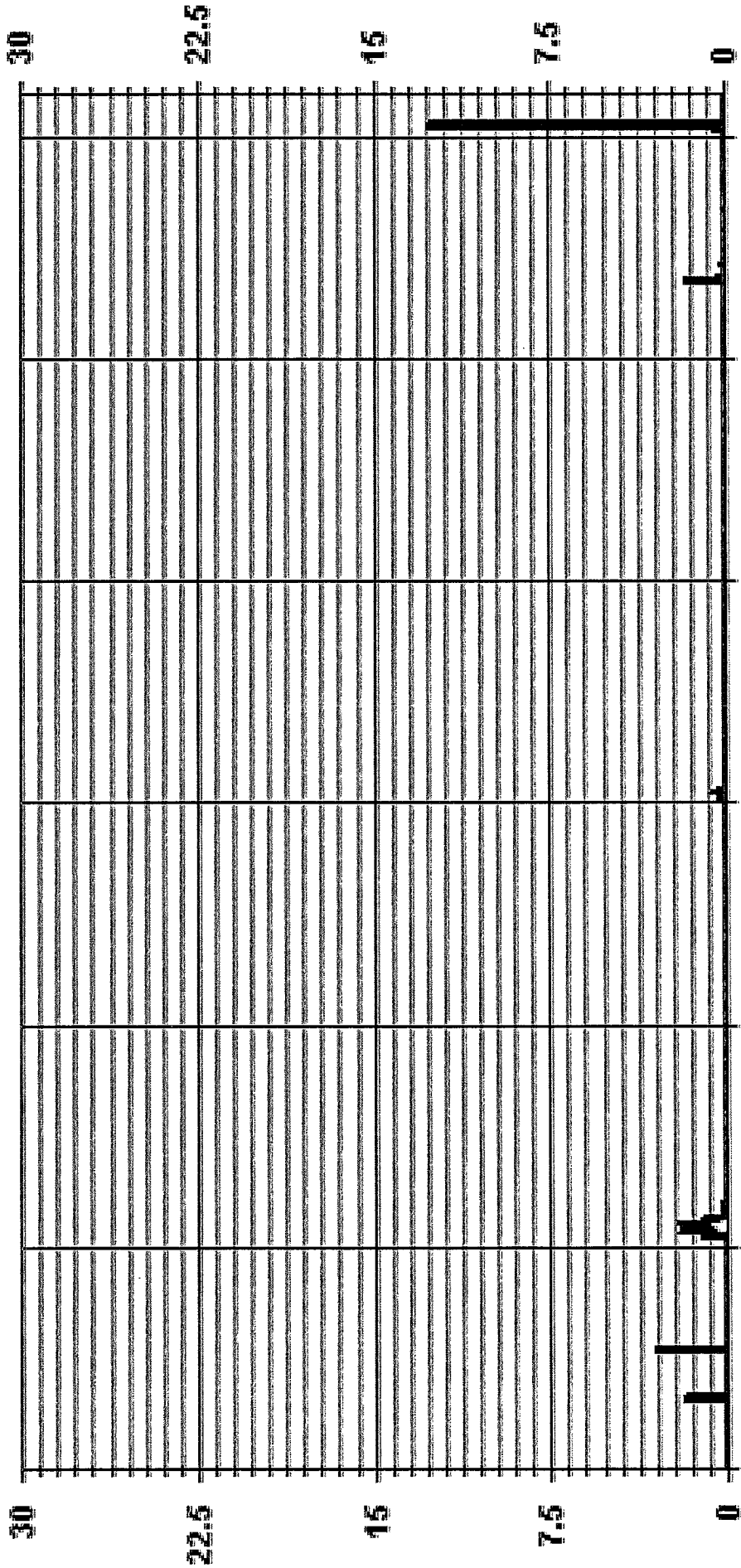
C	QUALITY ASSURANCE
Y	MAINTENANCE
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	SHUT-DOWN FOR REPAIR
O	RECOVERY
R	RECOVERY
X	MACHINE MALFUNCTION
10	OPERATOR ERROR
K	COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	12.7	MM	@ HOUR(S)	7	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	0.9	MM			ON DAY(S)	31
MONTHLY TOTAL	42.3	MM			VAR-VARIOUS	
STANDARD DEVIATION:	0.56					
					OPERATIONAL TIME:	740 HRS
					AMD OPERATION UPTIME:	99.5 %
					MONTHLY AVERAGE:	0.1 MM

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA31 PRECIP MM

APPENDIX II
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

Maxxam
API 100E SO2 Analyzer Calibration

Date: 13-May-15

Company: LICA

Station Name/Location: St Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO2

Start/End Time (mst): 9:10 / 14:07

Calibration Purpose: Monthly Calibration

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Mar-19

Analyser:

Serial Number: 468

Last Calibration Date: 13-Apr-15

Previous Cal High Point C.F.: 1.000

Range ppb: 1000

As Found C.F.: 1.006

New C.F.: 1.002

As found:

SLOPE: 0.950

OFFSET: 62.3

HVPS: 532

RCELL TEMP: 50.0

BOX TEMP: 31.0

PMT TEMP: 7.9

IZS TEMP: 40.0

TEST: NA

STABIL: 0.1

PRES: 24.3

SAMP FL: 580

PMT: 60.7

NORM PMT: 64.4

UV LAMP: 2077.2

LAMP RATIO: 84

STR. LGT: 29.6

DRK PMT: 18.1

DRK LMP: 3.6

Internal Span: 210

As left:

SLOPE: 0.956

OFFSET: 64.5

HVPS: 532

RCELL TEMP: 50.0

BOX TEMP: 28.4

PMT TEMP: 7.8

IZS TEMP: 40

TEST: NA

STABIL: 0.1

PRES: 24.3

SAMP FL: 582

PMT: 61.1

NORM PMT: 64.4

UV LAMP: 2080.3

LAMP RATIO: 84.1

STR. LGT: 30.9

DRK PMT: 18.1

DRK LMP: 3.6

Internal Span: 203

Calibrator:

Flow Meter ID's: NA

Make & Model: EnviroNics 6100

Serial #: 4760

Cal Gas Cylinder I.D. #: BLM002073

Cal Gas Conc. (ppm): 49.5

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	4995	0	4995
high	4916	78	4994
mid	4957	38	4995
low	4975	19	4994

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4994	0.0	4994	0	1.0	NA
adjusted zero	4994	0.0	4994	0	0.0	NA
as found high	4922	73.92	4996	732.4	728.0	1.006
adjusted high	4922	73.92	4996	732.4	732.0	1.001
mid	4958	37.45	4995	371.1	371.0	1.000
low	4977	17.74	4995	175.8	175.0	1.005
calibrator zero	4994	0.00	4994	0	0.0	NA
Average C.F. =						1.002

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>1.000</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>0.03%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-0.61%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

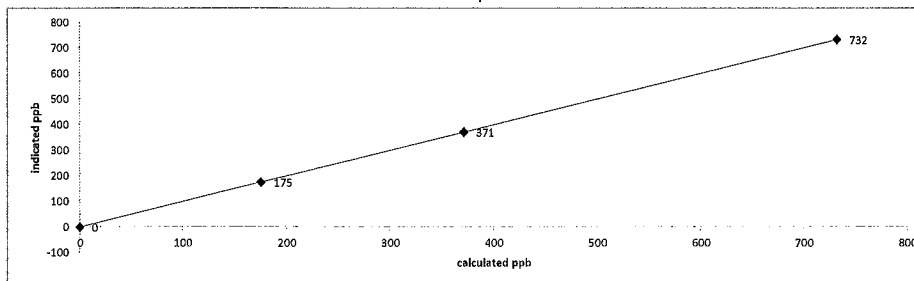
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

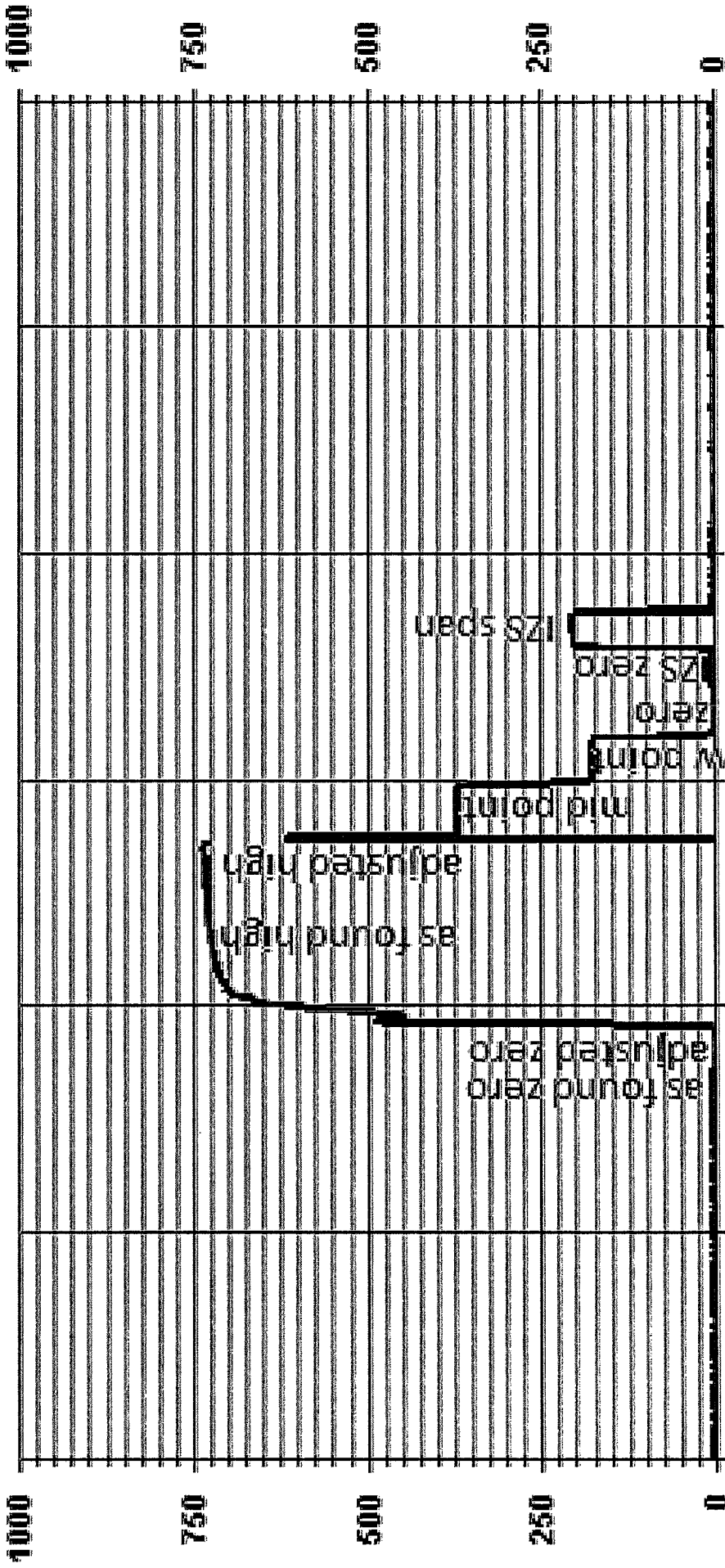
Comments:

Sample filter changed.

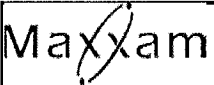
API 100E SO2 Analyzer Calibration



01 Minute Averages



— LICA31 SO2 — PPB



API 100E SO2 Analyzer Calibration

Date: 22-May-15

Company: LICA

Station Name/Location: St. Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO₂

Start/End Time (mst): 12:11 / 15:01

Calibration Purpose: As Found

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Mar-19

Analyzer:

Serial Number: 468

Last Calibration Date: 13-May-15

Previous Cal High Point C.F.: 1.001

Range ppb: 1000

As Found C.F.: 1.000

New C.F.: NA

As found:

SLOPE: 0.956

OFFSET: 64.5

HVPS: 533

RCELL TEMP: 50.0

BOX TEMP: 29.2

PMT TEMP: 7.8

IZS TEMP: 40.0

TEST: NA

STABIL: 0.2

PRES: 24.2

SAMP FL: 578

PMT: 64.5

NORM PMT: 67.1

UV LAMP: 2060.3

LAMP RATIO: 83.4

STR. LGT: 30.9

DRK PMT: 18.2

DRK LMP: 3.6

Internal Span: 203

As left:

SLOPE: 0.956

OFFSET: 64.5

HVPS: 533

RCELL TEMP: 50.0

BOX TEMP: 28.2

PMT TEMP: 7.8

IZS TEMP: 40.0

TEST: NA

STABIL: 0.1

PRES: 24.2

SAMP FL: 580

PMT: 63.7

NORM PMT: 65.5

UV LAMP: 2062.9

LAMP RATIO: 83.5

STR. LGT: 30.9

DRK PMT: 18.8

DRK LMP: 3.7

Internal Span: 275

Calibrator:

Flow Meter ID's: NA

Make & Model: Environics 6100

Serial #: 4760

Cal Gas Cylinder I.D. #: BLM002073

Cal Gas Conc. (ppm): 49.5

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	4995	0	4995
high	4916	78	4994
mid	4957	38	4995
low	4975	19	4994

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4994	0.0	4994	0	0.9	NA
adjusted zero		NA				
as found high	4919	75.67	4995	749.9	750.0	1.000
adjusted high		NA				
mid		NA				
low		NA				
calibrator zero	4994	0.00	4994	0	0.5	NA

Average C.F.=

Linear Regression/Calibration Results:

Correlation Coefficient =		LIMITS	Pass/Fail ?
Slope =		> or = 0.995	
b (Intercept as % of full scale) =		0.85-1.15	
% change in C.F. from last cal	0.11%	± 3% F.S.	
		± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

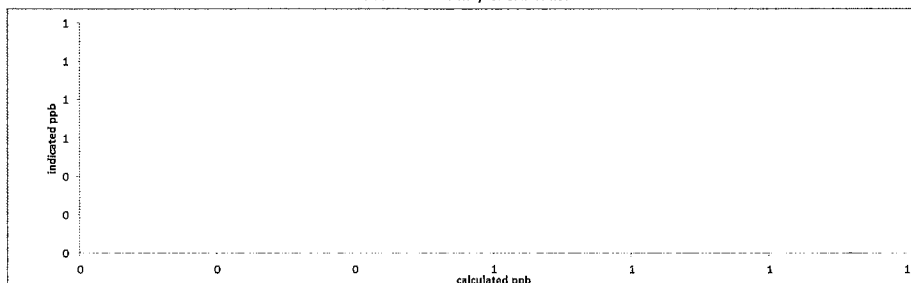
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

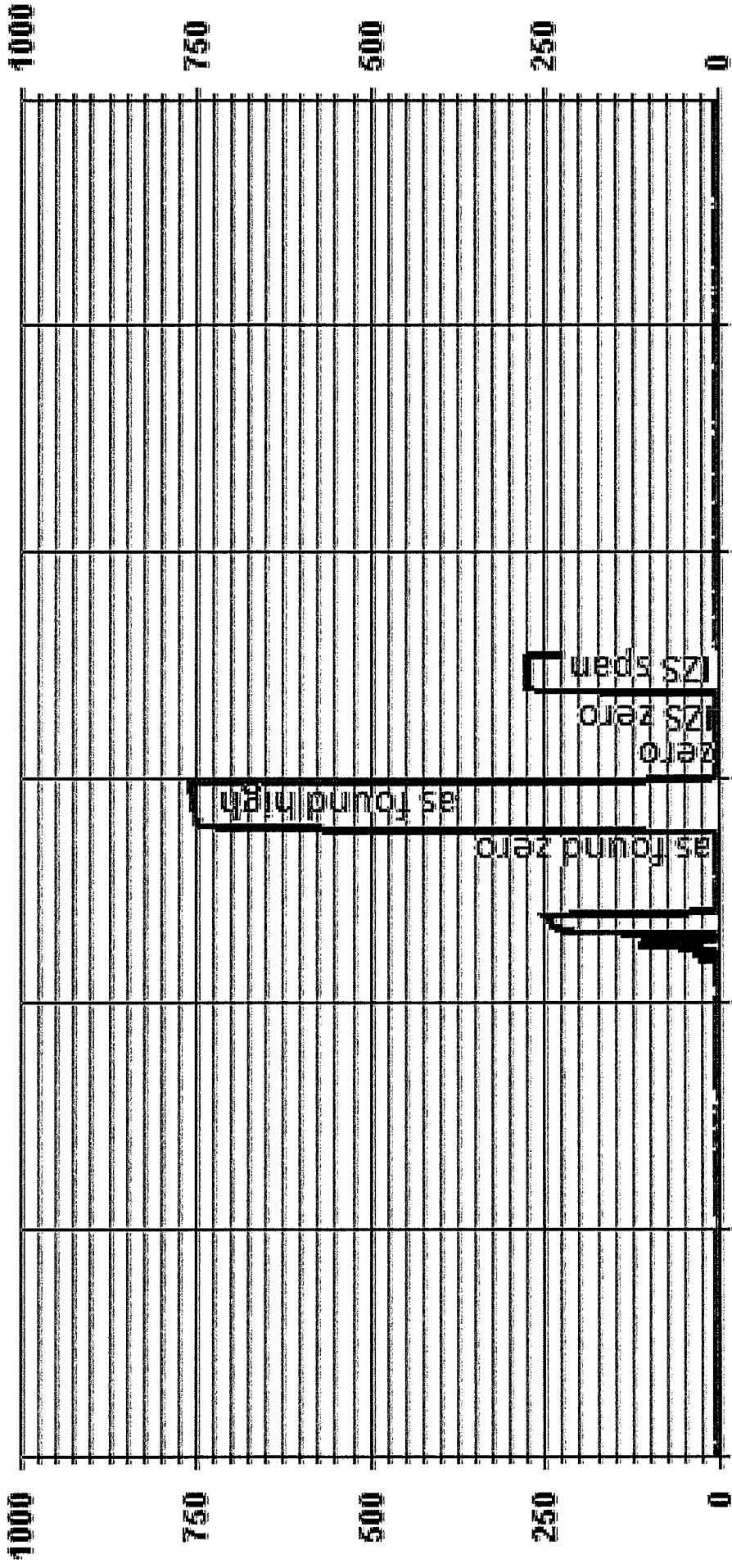
Comments:

"As Found" calibration performed after perm tube had been exchanged. 12:21 - 12:42 Permeation Tube change. Scheduled calibrations for SO2 and O3 at 11:00 were aborted. As Found ZERO starts at 12:59. 14:13 - O3 analyzer was placed in "M" mode; ZS check triggered for both analyzers SO2 and O3.

API 100E SO2 Analyzer Calibration



01 Minute Averages



— LICA31 SO2_ PPB

HYDROGEN SULPHIDE

Maxxam

API 101E H2S Analyzer Calibration

Date: 13-May-15

Company: LICA

Station Name/Location: St.Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 9:10 - 11:45

Calibration Purpose: Removal Calibration

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

Analyzer:

Serial Number: 722

Last Calibration Date: 14-Apr-15

Previous Cal High Point C.F.: 1.001

Range ppb: 100

As Found C.F.: NA

New C.F.: 1.028

As found:

SLOPE: 1.023

OFFSET: 60.1

HVPS: 607

RCELL TEMP: 50.0

BOX TEMP: 31.4

PMT TEMP: 8.2

IZS TEMP: 45.0

TEST: 3150.2

STABIL: 0.1

PRES: 25.2

SAMP FL: 604

PMT: 74.8

NORM PMT: 59.2

UV LAMP: 2408.6

LAMP RATIO: 96.2

STR. LGT: 30.7

DRK PMT: 25.1

DRK LMP: 3.2

Internal Span: 39.8

As left:

SLOPE: NA

OFFSET: NA

HVPS: NA

RCELL TEMP: NA

BOX TEMP: NA

PMT TEMP: NA

IZS TEMP: NA

TEST: NA

STABIL: NA

PRES: NA

SAMP FL: NA

PMT: NA

NORM PMT: NA

UV LAMP: NA

LAMP RATIO: NA

STR. LGT: NA

DRK PMT: NA

DRK LMP: NA

Internal Span: NA

Calibrator:

Flow Meter ID's: NA

Make & Model: API 700

Serial #: 830

Cal Gas Cylinder I.D. #: 1L36837

Cal Gas Conc. (ppm): 10.0

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	4959	39	4998
mid	4980	19	4999
low	4990	11	5001

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	0.0	NA
adjusted zero		NA				
as found high	4958	39.00	4997	78.0	75.3	1.037
adjusted high		NA				
mid	4979	19.00	4998	38.0	37.5	1.014
low	4990	11.00	5001	22.0	21.3	1.033
calibrator zero		NA				
Average C.F. =						1.028

Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.015</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>0.12%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>NA</u>	± 3% F.S.	PASS
		± 15%	NA

Converter Efficiency Check for H₂S/TRS application:

****run converter efficiency test immediately following zero adjust****

SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

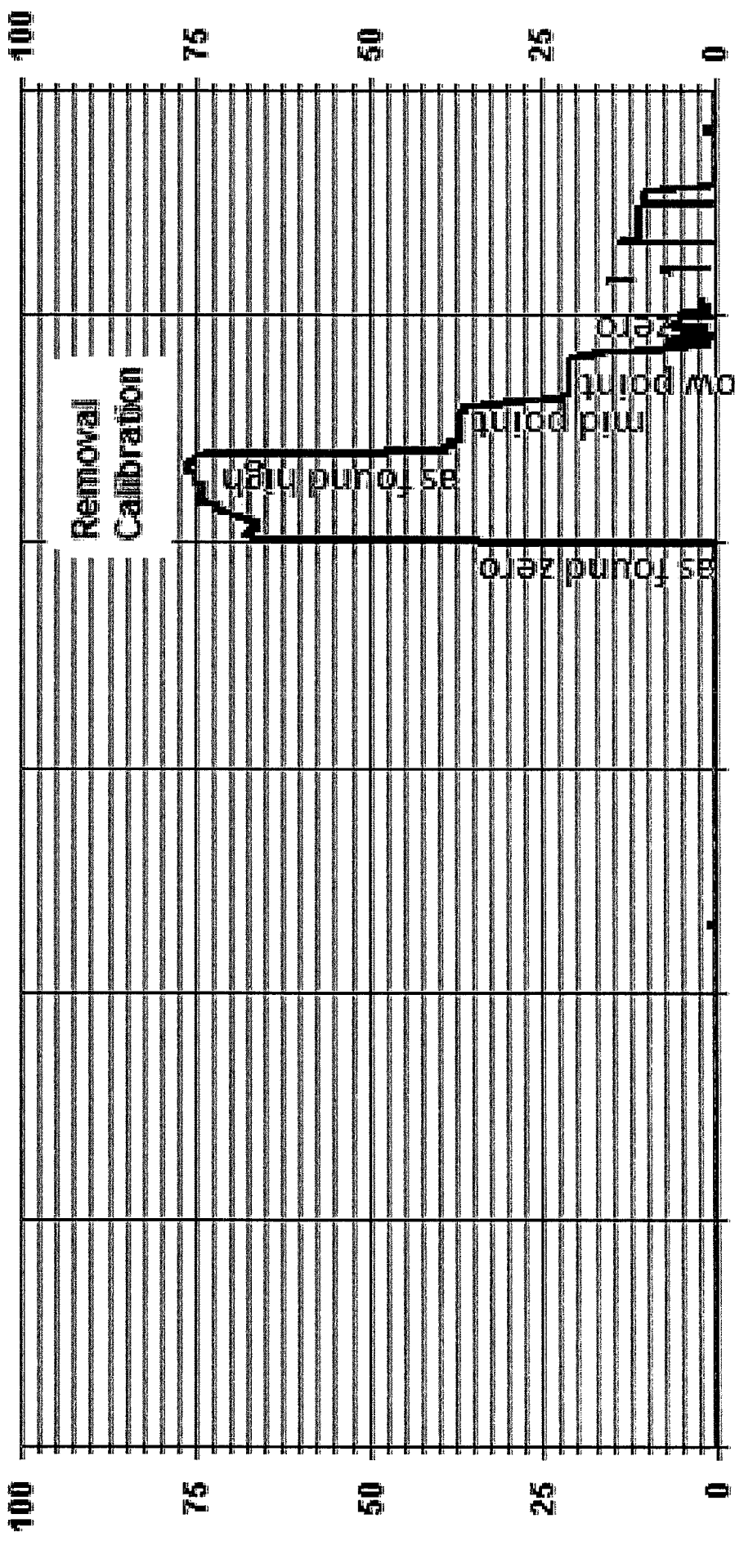
Comments:

Removal calibration. No adjustments for High Point and Zero made.

API 101E H2S Analyzer Calibration

Calculated Concentration (ppb)	Indicated Concentration (ppb)
0	0
21.3	21.3
37.5	37.5

01 Minute Averages



— LICA31 H2S_ PPB

API 101E H2S Analyzer Calibration

Date: 14-May-15

Company: LICA

Station Name/Location: St.Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 9:39 / 15:48

Calibration Purpose: Installation Calibration

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

Analyzer:

Serial Number: 509

Last Calibration Date: 13-May-15

Previous Cal High Point C.F.: 1.000

Range ppb: 100

As Found C.F.: 0.974

New C.F.: 1.005

As found:

SLOPE: 1.092

OFFSET: 28.8

HVPS: 488

RCELL TEMP: 50.0

BOX TEMP: 32.2

PMT TEMP: 7.9

IZS TEMP: 35.0

TEST: 314.0

STABIL: 0.0

PRES: 20.7

SAMP FL: 507

PMT: 40.5

NORM PMT: 32.8

UV LAMP: 3294.9

LAMP RATIO: 99.3

STR. LGT: 15.7

DRK PMT: 18.1

DRK LMP: 1.1

Internal Span: 39.8

As left:

SLOPE: 1.085

OFFSET: 32.9

HVPS: 488

RCELL TEMP: 50.0

BOX TEMP: 30.5

PMT TEMP: 7.9

IZS TEMP: 48.0

TEST: 314.5

STABIL: 0.1

PRES: 20.6

SAMP FL: 506

PMT: 39.5

NORM PMT: 33.7

UV LAMP: 3300.2

LAMP RATIO: 99.4

STR. LGT: 17.8

DRK PMT: 17.7

DRK LMP: 1.0

Internal Span: 56.3

Calibrator:

Flow Meter ID's: NA

Make & Model: API 700

Serial #: 830

Cal Gas Cylinder I.D. #: LL36837

Cal Gas Conc. (ppm): 10.0

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	4959	39	4998
mid	4980	19	4999
low	4990	11	5001

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5000	0.0	5000	0	0.8	NA
adjusted zero	5000	0.0	5000	0	0.0	NA
as found high	4958	39.00	4997	78.0	80.1	0.974
adjusted high	4958	39.00	4997	78.0	78.4	0.996
mid	4980	19.00	4999	38.0	38.0	1.000
low	4989	11.00	5000	22.0	21.6	1.019
calibrator zero	5000	0.00	5000	0	0.2	NA
Average C.F. =						1.005

Linear Regression/Calibration Results:

	LIMITS	Pass/Fail ?
Correlation Coefficient = <u>1.000</u>	> or = 0.995	PASS
Slope = <u>0.994</u>	0.85-1.15	PASS
b (Intercept as % of full scale) = <u>0.23%</u>	± 3% F.S.	PASS
% change in C.F. from last cal = <u>2.56%</u>	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

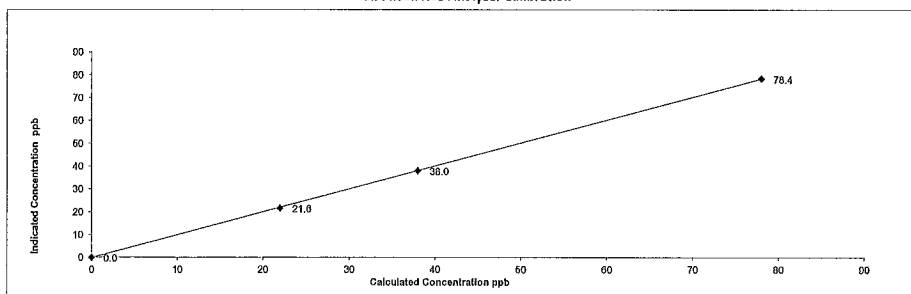
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

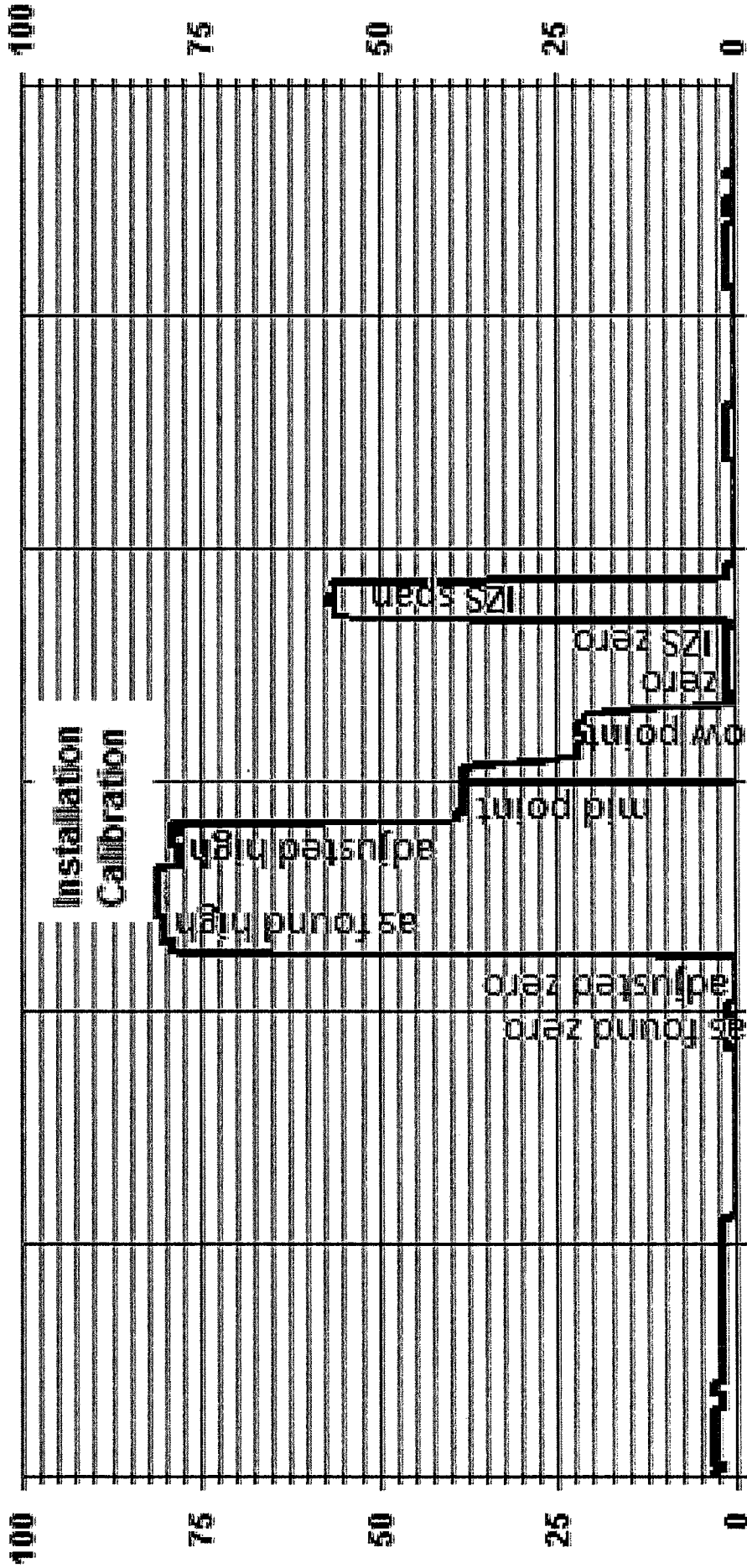
Comments:

Sample filter changed. Calibration stopped at 10:29 for Zero Air Supply maintenance. "As Found" Zero started at 11:45

API 101E H2S Analyzer Calibration



01 Minute Averages



— LICA31 H2S_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 12-May-15 Start Time (mst): 10:13
 Company: LICA End Time (mst): 14:10
 Station Name/Locaton: St. Lina Calibration Purpose: Monthly Calibration
 Performed by: Alex Yakupov Cal Gas Expiry Date: 12-Aug-17

Analyzer: 436609739 Range ppm: 50
 Serial Number: 13-Apr-15 As Found C.F.: 0.999
 Last Calibration Date: 1.001 New C.F.: 1.003
 Previous Cal High Point C.F.:

	As found:	As left:
H ₂ cylinder (psi):	<u>300</u>	<u>2100</u>
H ₂ cylinder reg set (psi):	<u>32</u>	<u>32</u>
Span Cylinder (psi):	<u>750</u>	<u>750</u>
Span Cylinder Reg Set (psi):	<u>45</u>	<u>45</u>
Zero Air Gen Pressure:	<u>42</u>	<u>42</u>
measurement alarms:	<u>None</u>	<u>None</u>
service alarms:	<u>None</u>	<u>None</u>
FID status: cnt:	<u>2209</u>	<u>2205</u>
rng:	<u>1</u>	<u>1</u>
try:	<u>1</u>	<u>1</u>
flm:	<u>207.1</u>	<u>206.6</u>
det:	<u>125.6</u>	<u>125.7</u>
Oven Readings: Flame:	<u>207</u>	<u>206</u>
Filter:	<u>125</u>	<u>125</u>
Base:	<u>125</u>	<u>125</u>
Pump:	<u>06.78</u>	<u>06.82</u>
Voltages: +5	<u>4.9</u>	<u>4.9</u>
+15	<u>14.9</u>	<u>14.9</u>
-15	<u>-15.0</u>	<u>-15.0</u>
Internal Span:	<u>31.89</u>	<u>31.82</u>

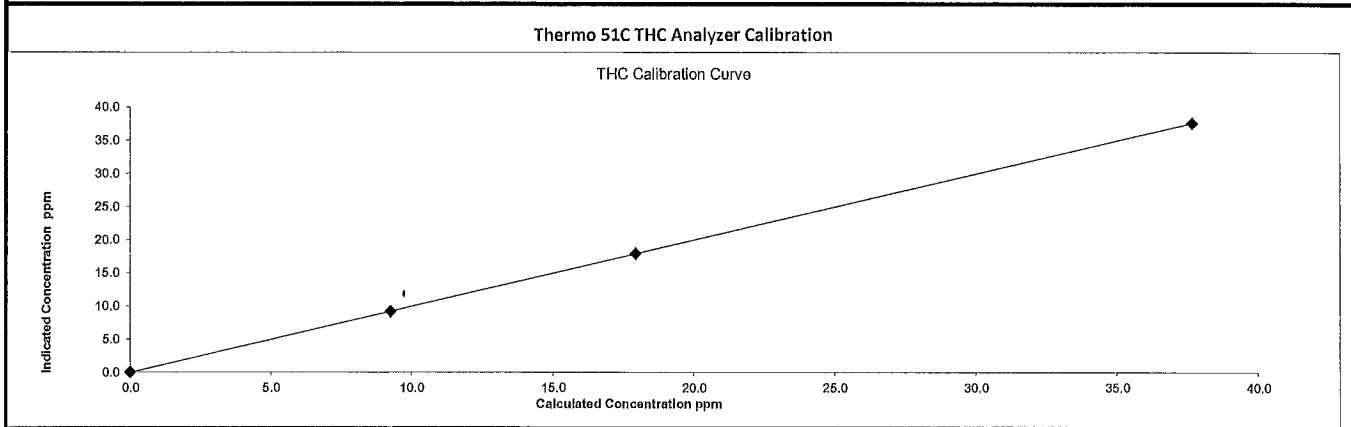
Calibrator:	Flow Meter ID's:	<u>NA</u>	Calibrator Flow Targets:			
	Make & Model:	<u>API 700</u>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
	Serial #:	<u>830</u>	zero	<u>2000</u>	<u>0</u>	<u>2000</u>
	Cal Gas Cylinder I.D. #:	<u>LL33674</u>	high	<u>1935</u>	<u>65</u>	<u>2000</u>
	CH ₄ /C ₃ H ₈ Cylinder Conc. (ppm):	<u>601.4</u> <u>202.0</u>	mid	<u>1969</u>	<u>31</u>	<u>2000</u>
	CH ₄ as propane/total CH ₄ equilivants (ppm):	<u>555.5</u> <u>1156.9</u>	low	<u>1984</u>	<u>16</u>	<u>2000</u>

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppm)	Indicated Concentration: (ppm)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	1999	0.00	1999	0	0.10	NA
adjusted zero	1999	0.00	1999	0	0.00	NA
as found high	1931	65.00	1996	37.67	37.70	0.999
adjusted high	1931	65.00	1996	37.67	37.60	1.002
mid	1969	31.00	2000	17.93	17.90	1.002
low	1983	16.00	1999	9.26	9.20	1.007
calibrator zero	1999	0.00	1999	0	0.00	NA
Average C.F. =						1.003

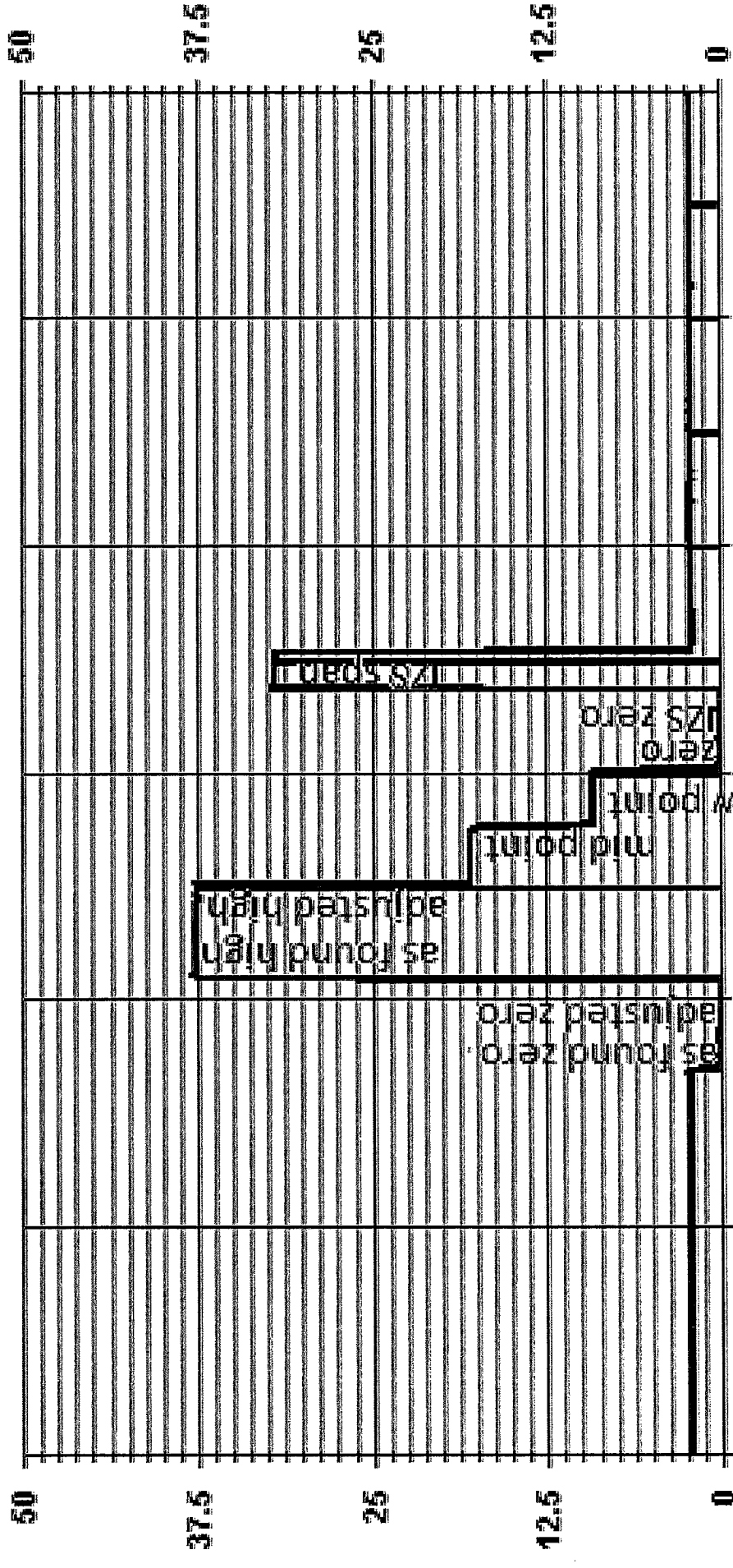
Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>0.999</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>-0.032%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>0.17%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:
 Sample filter changed. New H2 Cylinder connected

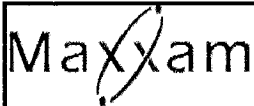


01 Minute Averages



— LICA31 THC PPM

NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 13-May-15
 Company: LICA
 Station Name/Location: St.Lina
 Performed by: Alex Yakupov

Start Time (mst): 9:10
 End Time (mst): 16:07
 Calibration Purpose: Monthly Calibration *
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 594
 Last Calibration Date: 13-Apr-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 0.985 NO= 1.000
 NOx= 0.979 NOx= 0.999
 NO₂= 1.002 NO₂= 1.000

As found:
 NOx SLOPE: 0.980
 NOx OFFS: 1.9
 NO SLOPE: 0.888
 NO OFFS: -0.8
 TEST: NA
 SAMP FLW: 456
 OZONE FL: 78
 PMT: 24.8
 NORM PMT: 1.7
 AZERO: 16.5
 HVPS: 771
 RCELL TEMP: 50.0
 BOX TEMP: 31.7
 PMT TEMP: 6.7
 IZS TEMP: 45.4
 MOLY TEMP: 314.1
 RCEL: 6.6
 SAMP: 27.0
 Internal Span: 527.8/7.8/519.8

As left:
 NOx SLOPE: 0.879
 NOx OFFS: 8.5
 NO SLOPE: 0.876
 NO OFFS: 0.1
 TEST: NA
 SAMP FLW: 456
 OZONE FL: 78
 PMT: 14.8
 NORM PMT: 1.1
 AZERO: 16.2
 HVPS: 771
 RCELL TEMP: 50.1
 BOX TEMP: 29.5
 PMT TEMP: 6.6
 IZS TEMP: 45.3
 MOLY TEMP: 315.4
 RCEL: 6.6
 SAMP: 26.5
 Internal Span: 512.8/7.3/505.6

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: BML002073
 NO Cylinder Conc. (ppm): 50.6
 NOx Cylinder Conc. (ppm): 50.6

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	4995	0	0	4995
high	4916	78	400.00	4994
mid	4957	38	230.00	4995
low	4975	19	75.00	4994

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	4994	0.0	4994	0	0	0.0	8.0	NA	NA
adjusted zero	4994	0.0	4994	0	0	0.0	0.0	NA	NA
as found high	4922	73.92	4996	748.7	748.7	760	765	0.985	0.979
adjusted high	4922	73.92	4996	748.7	748.7	749	749	1.000	1.000
mid	4958	37.45	4995	379.3	379.3	379	379	1.001	1.001
low	4977	17.74	4995	179.7	179.7	180	180	0.998	0.998
calibrator zero	4994	0.00	4994	0	0	0.0	-2.0	NA	NA
Average C.F.=								1.000	1.000

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4922	73.93	4996	0.0	746.0	746.0	-2.0	0.0	0.0	
as found NO ₂	4922	73.9	4996	400.0	259.0	744.0	484.0	487.0	486.0	1.002
adjusted NO ₂	4922	73.9	4996	400.0	259.0	744.0	484.0	487.0	486.0	1.002
gpt mid	4922	73.9	4996	230.0	466.0	745.0	278.0	280.0	280.0	1.000
gpt low	4922	73.93	4996	75.0	658.0	744.0	86.0	88.0	88.0	1.000
Average NO ₂ C.F.=										1.001

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.000	1.000	0.998	0.85-1.15
b (Intercept as % of full scale)=	0.00%	0.00%	0.02%	± 3% F.S.
% change in C.F. from last cal=	1.49%	2.03%	-0.21%	+/-15%
NO2 converter efficiency			99.9%	>85%

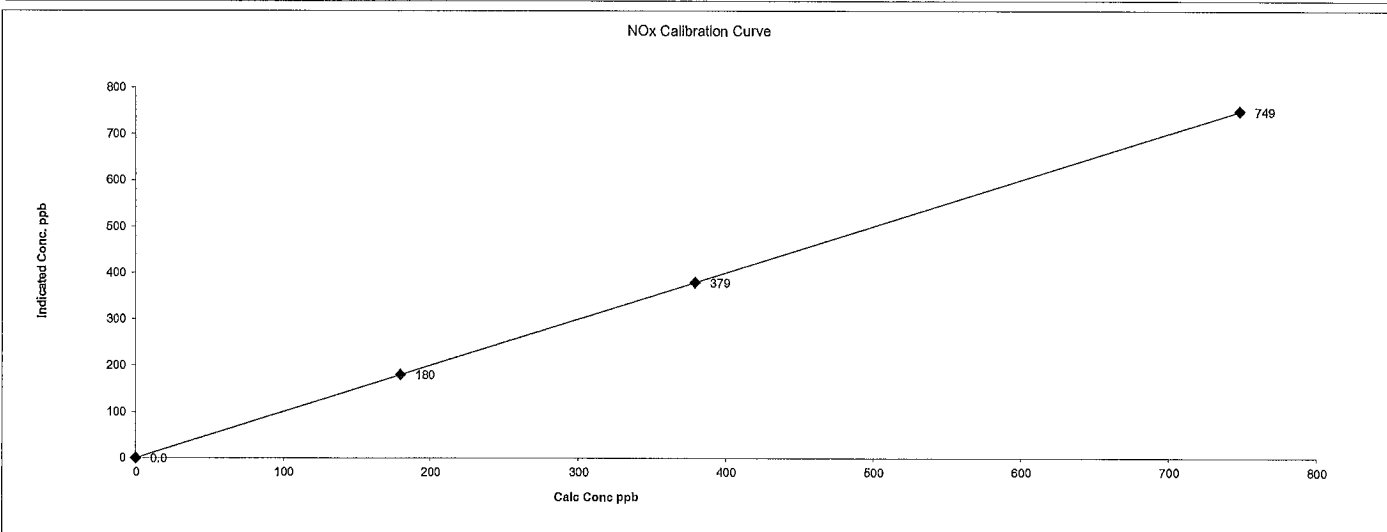
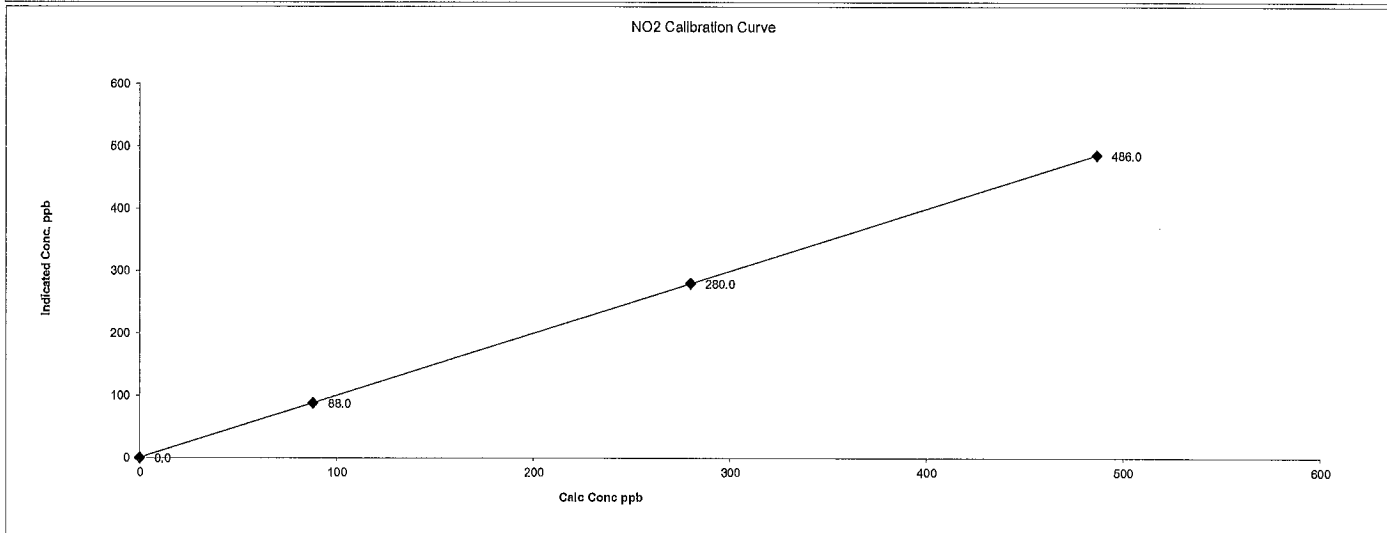
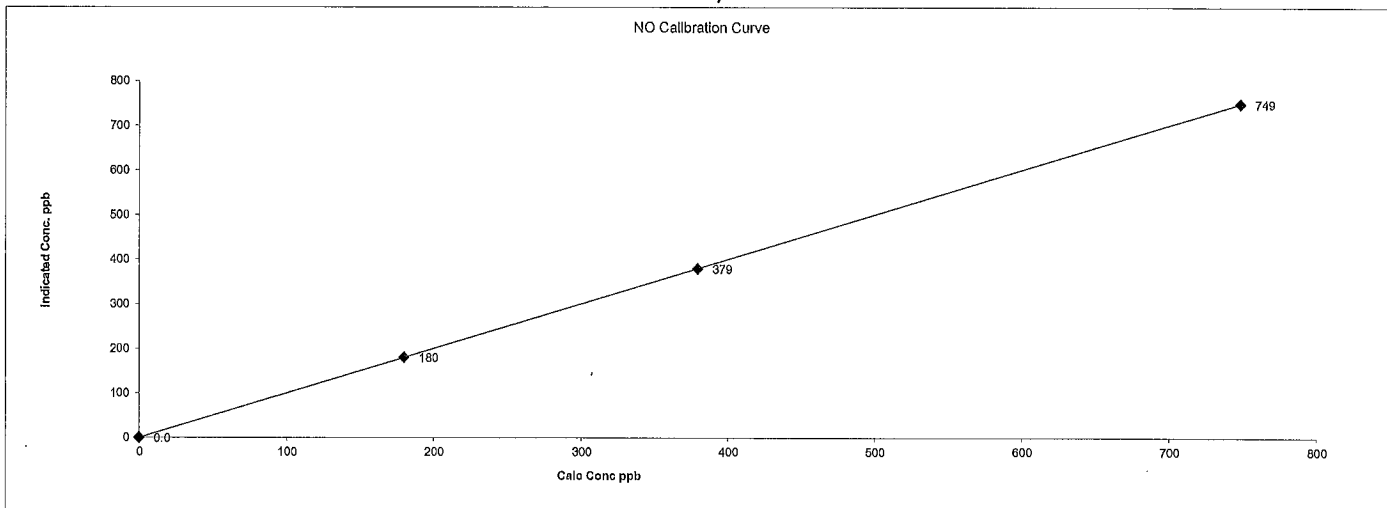
Comments:

Sample filter changed. No adjustments made for NO2. Data copied for calculation purposes only. * Due to unstable Zero response re-calibration in to be done on May 14, 2014 *

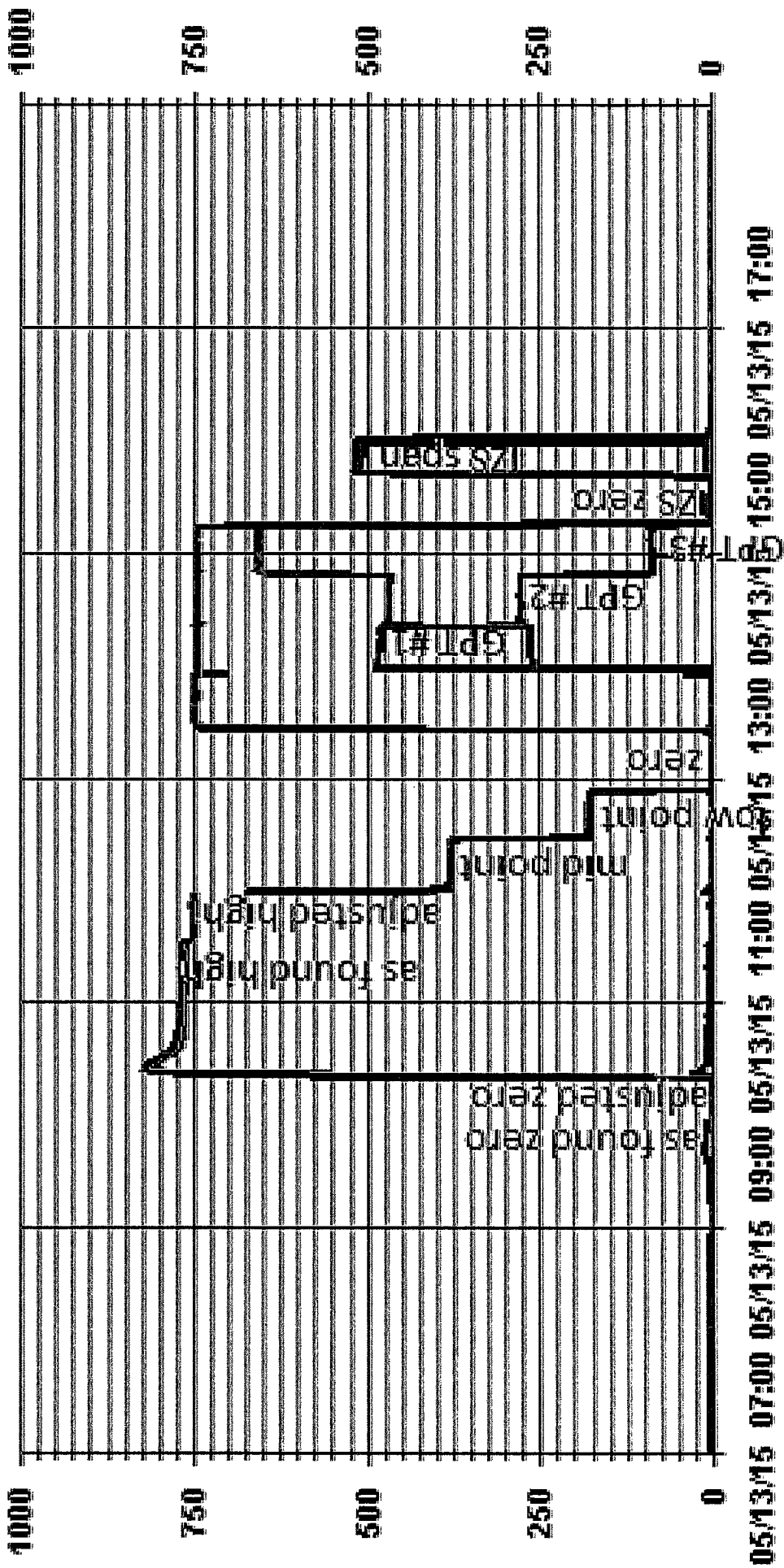
Date: 13-May-15
 Company: LICA
 Station Name/Location: St.Lina
 Performed by: Alex Yakupov

Start Time (mst): 9:10
 End Time (mst): 16:07
 Calibration Purpose: Monthly Calibration *
 Cal Gas Expiry Date: 12-Mar-19

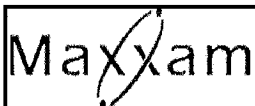
API 200E NOx Analyzer Calibration



01 Minute Averages



— LICA31 NOX_ PPB — LICA31 NO_ PPB — LICA31 NO2_ PPB



API 200E NOx Analyzer Calibration

Date: 14-May-15
 Company: LICA
 Station Name/Location: St.Lina
 Performed by: Alex Yakupov

Start Time (mst): 9:39
 End Time (mst): 17:48
 Calibration Purpose: Re-Calibration
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 594
 Last Calibration Date: 13-May-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.018 NO= 1.000
 NOx= 1.025 NOx= 1.000
 NO₂= 1.000 NO₂= 1.002

As found:
 NOx SLOPE: 0.897
 NOx OFFS: 8.5
 NO SLOPE: 0.876
 NO OFFS: 0.1
 TEST: NA
 SAMP FLW: 455
 OZONE FL: 78
 PMT: 15.9
 NORM PMT: 24.1
 AZERO: 16.8
 HVPS: 771
 RCELL TEMP: 50.1
 BOX TEMP: 31.7
 PMT TEMP: 6.7
 IZS TEMP: 45.3
 MOLY TEMP: 316.7
 RCEL: 6.6
 SAMP: 26.5
 Internal Span: 512.8/7.3/505.6

As left:
 NOx SLOPE: 0.897
 NOx OFFS: 0.5
 NO SLOPE: 0.891
 NO OFFS: -0.6
 TEST: NA
 SAMP FLW: 455
 OZONE FL: 78
 PMT: 16.4
 NORM PMT: -1.0
 AZERO: 16.6
 HVPS: 771
 RCELL TEMP: 50.0
 BOX TEMP: 29.5
 PMT TEMP: 6.7
 IZS TEMP: 45.3
 MOLY TEMP: 316.6
 RCEL: 6.6
 SAMP: 26.4
 Internal Span: 548.4/7.0/541

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: BML002073
 NO Cylinder Conc. (ppm): 50.6
 NOx Cylinder Conc. (ppm): 50.6

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	4995	0	0	4995
high	4916	78	400.00	4994
mid	4957	38	230.00	4995
low	4975	19	75.00	4994

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	4994	0.0	4994	0	0	0.0	-3.0	NA	NA
adjusted zero	4994	0.0	4994	0	0	0.0	0.0	NA	NA
as found high	4921	73.95	4995	749.1	749.1	736	731	1.018	1.025
adjusted high	4921	73.95	4995	749.1	749.1	750	750	0.999	0.999
mid	4958	37.45	4995	379.3	379.3	379	379	1.001	1.001
low	4975	18.71	4994	189.6	189.6	189	190	1.003	0.998
calibrator zero	4994	0.00	4994	0	0	0.0	0.0	NA	NA
Average C.F.=								1.001	0.999

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ Increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4921	73.96	4995	0.0	751.0	754.0	2.0	0.0	0.0	
as found NO ₂	4921	74.0	4995	400.0	275.0	754.0	478.0	476.0	476.0	1.000
adjusted NO ₂	4921	74.0	4995	400.0	275.0	754.0	478.0	476.0	476.0	1.000
gpt mid	4921	74.0	4995	230.0	477.0	755.0	277.0	274.0	275.0	0.996
gpt low	4921	73.96	4995	75.0	667.0	756.0	88.0	84.0	86.0	0.977
Average NO ₂ C.F.=										0.991

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.001	0.999	0.85-1.15
b (Intercept as % of full scale)=	-0.05%	-0.01%	0.10%	± 3% F.S.
% change in C.F. from last cal=	-1.78%	-2.47%	0.20%	+/-15%
NO ₂ converter efficiency			100.9%	>85%

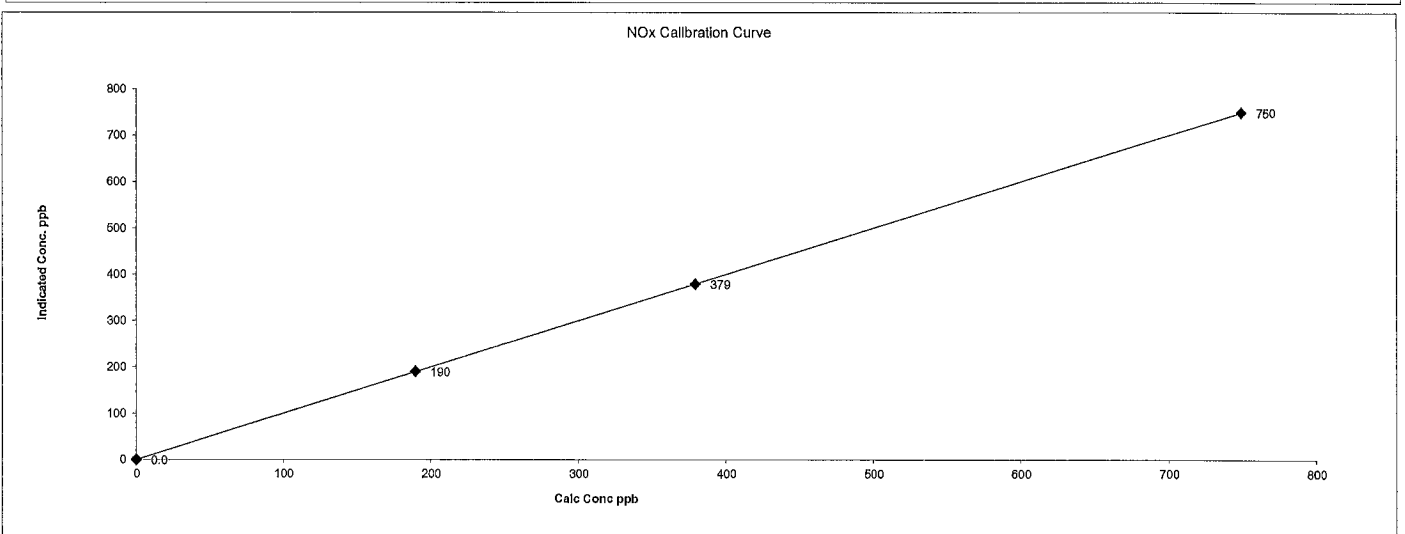
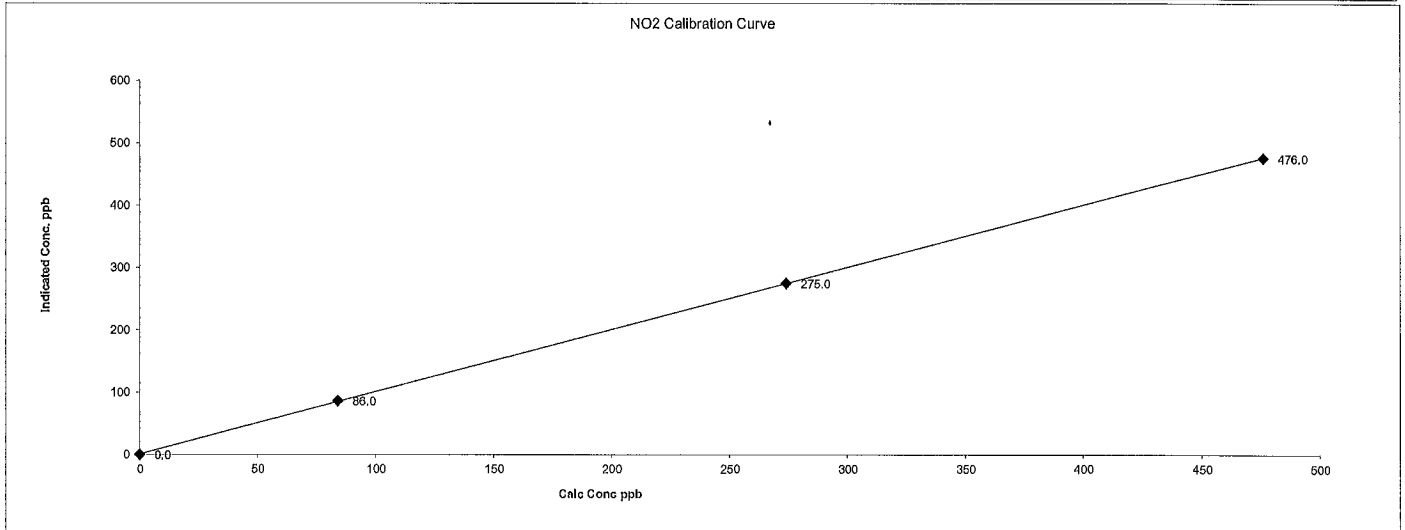
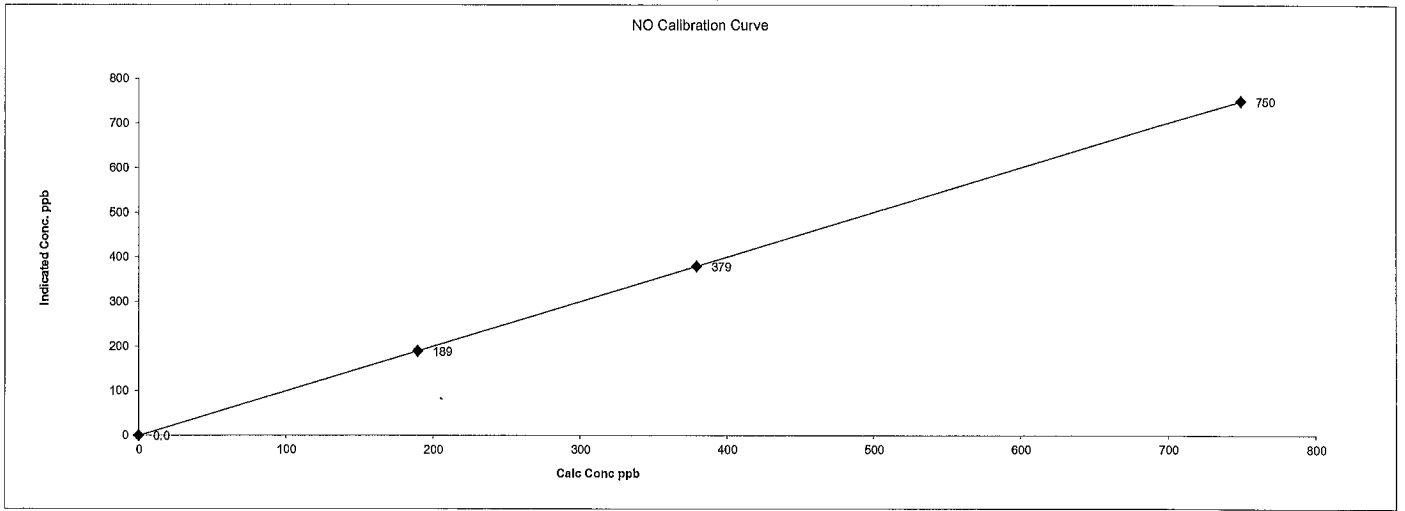
Comments:

No adjustments made for NO₂. Data copied for calculation purposes only. Calibration stopped for Zero Air Supply maintenance at 10:30 Re-calibration re-started at 11:45 ("As Found" Zero)

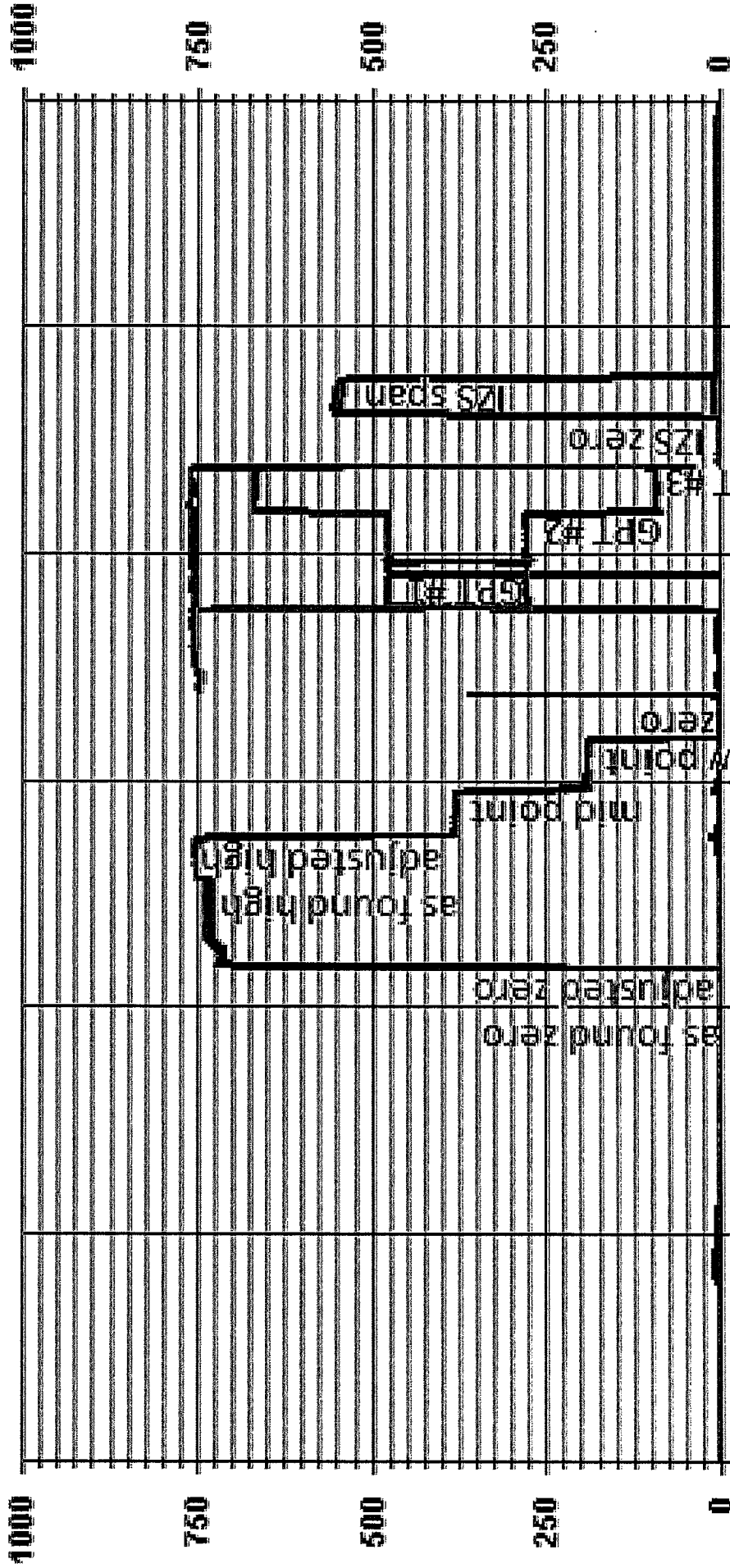
Date: 14-May-15
 Company: LICA
 Station Name/Location: St.Lina
 Performed by: Alex Yakupov

Start Time (mst): 9:39
 End Time (mst): 17:48
 Calibration Purpose: Re-Calibration
 Cal Gas Expiry Date: 12-Mar-19

API 200E NOx Analyzer Calibration



01 Minute Averages



— LICA31 NOX_ PPB — LICA31 NO_ PPB — LICA31 NO2_ PPB

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: 12-May-15	Start Time (mst): 12:19
Company: LICA	End Time (mst): 17:37
Station Name/Location: St.Lina	Calibration Purpose: Monthly Calibration
Performed by: Alex Yakupov	G.P.T. Date: 12-May-15

Analyzer:	
Serial Number: 1002240371	Range ppm: 500
Last Calibration Date: 15-Apr-15	As Found C.F.: 1.027
Previous Cal High Point C.F.: 1.000	New C.F.: 0.986

	As found:	As left:
Motherboard:	O ₃ Bkg: -0.2	O ₃ Bkg: -1.4
	O ₃ Coef: 0.969	O ₃ Coef: 0.995
	3.3 3.3	3.3 3.3
	15.0 14.8	15.0 14.8
	24.0 23.7	24.0 23.7
Interface Board:	-3.3 -3.2	-3.3 -3.2
	3.3 3.2	3.3 3.2
	5.0 4.9	5.0 4.9
	15.0 14.7	15.0 14.7
	-15.0 -15.0	-15.0 -15.0
Photo Lamp:	9.4 9.4	9.4 9.4
	24.0 23.4	24.0 23.4
	O ₃ Lamp: 8.3	O ₃ Lamp: 8.3
	Bench: 27.8	Bench: 27.7
	Bench Lamp: 53.6	Bench Lamp: 53.6
	O ₃ Lamp: 67.8	O ₃ Lamp: 67.8
	Pressure: 684.1	Pressure: 683.8
	Cell A lpm: 0.730	Cell A lpm: 0.730
	Cell B lpm: 0.724	Cell B lpm: 0.724
	O ₃ ppb: -3.3	O ₃ ppb: 1.4
	Cell A ppb: 2.4	Cell A ppb: 1.4
	Cell B ppb: -8.9	Cell B ppb: 0.9
	Cell A Int: 61387	Cell A Int: 61416
	Cell B Int: 73102	Cell B Int: 73133
	Internal Span: 332.1	Internal Span: 338.8

Callibrator: Make & Model: Environics 6100 Serial #: 4760 NOx Gas Cylinder I.D. #: BLM002073 NOx Cylinder Conc. (ppm): 50.6	Callibrator Flow Targets: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>total flow (cc/min)</th> <th>O₃ setting (v or ppb)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>5000</td> <td>0</td> </tr> <tr> <td>high</td> <td>5000</td> <td>305</td> </tr> <tr> <td>mid</td> <td>5000</td> <td>140</td> </tr> <tr> <td>low</td> <td>5000</td> <td>70</td> </tr> </tbody> </table>	point	total flow (cc/min)	O ₃ setting (v or ppb)	zero	5000	0	high	5000	305	mid	5000	140	low	5000	70
point	total flow (cc/min)	O ₃ setting (v or ppb)														
zero	5000	0														
high	5000	305														
mid	5000	140														
low	5000	70														

Callibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4995	0.0	4995	0.0	-3.0	NA
adjusted zero	4995	0.0	4995	0.0	0.0	NA
as found high	4995	305.00	5300	377.0	367.0	1.027
adjusted high	4995	305.00	5300	377.0	377.0	1.000
mid	4995	140.00	5135	173.0	174.0	0.994
low	4995	70.00	5065	80.0	83.0	0.964
calibrator zero	4995	0.00	4995	0.0	1.0	NA

Average C.F.= 0.986

copy and paste flows and NO decrease from NOx cal in to calculated concentration

Linear Regression/Calibration Results:			
Correlation Coefficient =	1.000	LIMITS	Pass/Fail ?
Slope =	0.997	> or = 0.995	PASS
b (Intercept as % of full scale)=	0.286%	0.85-1.15	PASS
% change in C.F. from last cal	-3%	± 3% F.S.	PASS
		± 15%	PASS

Comments:

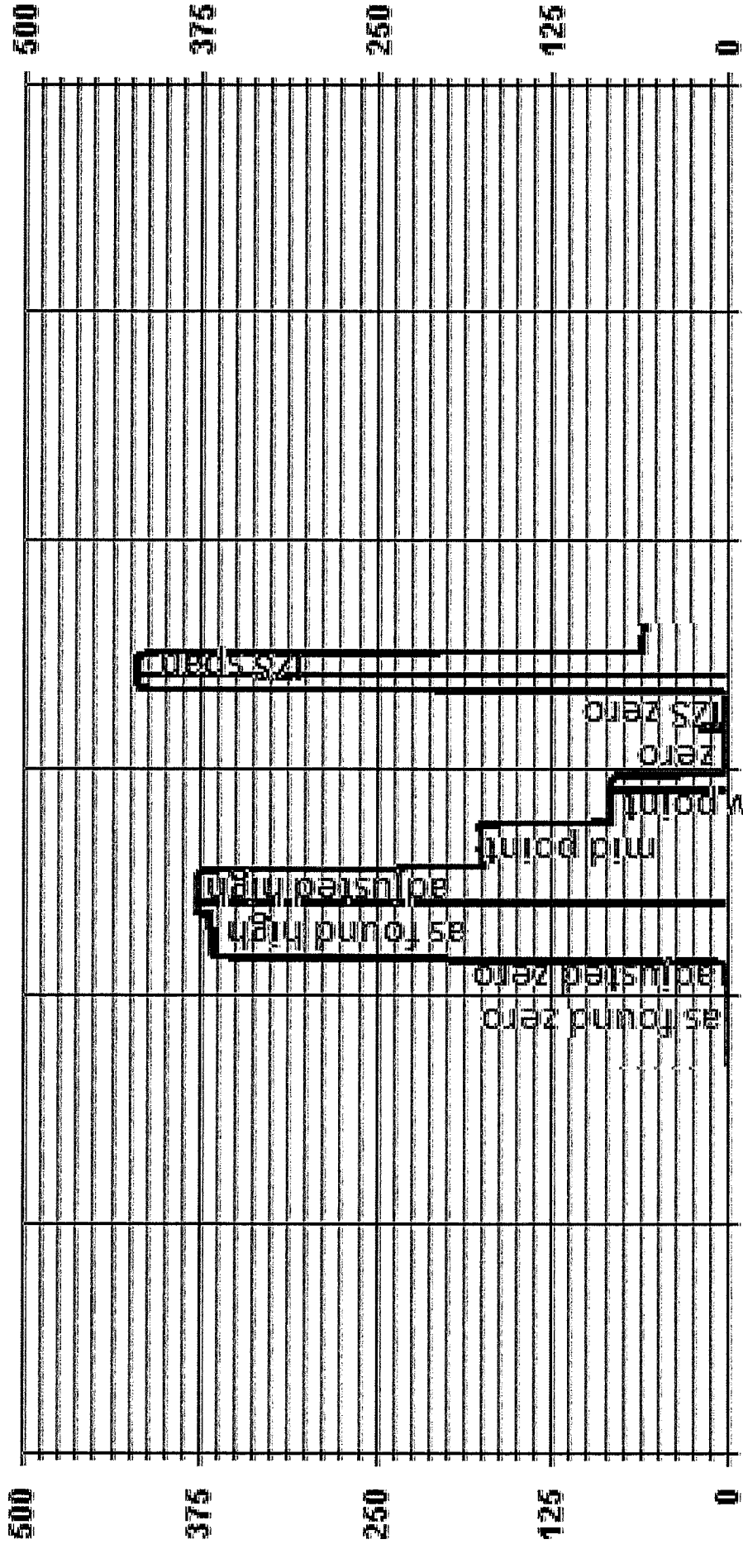
Filter changed

Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

Calc Conc (ppb)	Indicated Conc (ppb)
0.0	0.0
83.0	83.0
174.0	174.0
377.0	377.0

01 Minute Averages



05/M2/M5 09:10 05/M2/M5 11:10 05/M2/M5 13:10 05/M2/M5 15:10 05/M2/M5 17:10 05/M2/M5 19:10

— LICA31 03_ PPB

PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 14-May-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 28-Apr-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 13:01 - 13:44
 Calibration Purpose: 1st Audit

1400A Information and Status:

Serial Number: <u>1405A208301003</u>	As Found Filter Loading %: <u>27.36</u>
Ko Factor: <u>13125.0</u>	As Left Filter Loading %: <u>27.76</u>
Ambient Temperature °C: <u>19.04</u>	As Found Noise: <u>0.005</u>
Ambient Pressure atm: <u>0.923</u>	As Left Noise: <u>0.000</u>
Main Flow Reading lpm: <u>3.00</u>	Pump Vacuum: <u>0.37</u>
Aux Flow Reading lpm: <u>13.67</u>	Warnings: <u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make: <u>Dwyer</u>	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model: <u>475 Mark III</u>	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number: <u>NA</u>	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date: <u>NA</u>	<u>NA</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.15	0.00	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.66	0.00	-0.66
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.15	0.00	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.66	0.00	-0.66
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C 1405F temperature °C: <u>19.0</u> reference temperature °C: <u>18.6</u> difference °C: <u>-0.4</u>	tolerance +/- 0.01 atm 1405F pressure atm: <u>0.923</u> reference pressure: <u>0.924</u> difference: <u>-0.001</u>
---	---

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C 1405F temperature °C: <u>18.6</u> reference temperature °C: <u>18.6</u> difference °C: <u>0.0</u>	tolerance +/- 0.01 atm 1405F pressure atm: <u>0.924</u> reference pressure: <u>0.924</u> difference: <u>0.000</u>
--	--

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.06</u> difference lpm: <u>0.06</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7% 1400A total/aux flow lpm: <u>16.67</u> reference total/aux flow lpm: <u>16.86</u> difference lpm: <u>0.19</u>
--	---

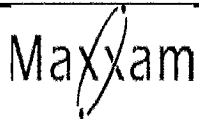
As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm 1405F main flow lpm: <u>3.00</u> reference main flow lpm: <u>3.06</u> difference lpm: <u>0.06</u>	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7% 1400A total/aux flow lpm: <u>16.67</u> reference total/aux flow lpm: <u>16.86</u> difference lpm: <u>0.19</u>
--	---

K_o Audit:

Last K_o audit date: 20-Mar-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13213.2000
 % difference: 0.67

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 22-May-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 14-May-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 09:12 - 12:35
 Calibration Purpose: 2nd Audit

1400A Information and Status:

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>27.36</u>
Ko Factor:	<u>13125.0</u>	As Left Filter Loading %:	<u>21.65</u>
Ambient Temperature °C:	<u>25.27</u>	As Found Noise:	<u>0.004</u>
Ambient Pressure atm:	<u>0.919</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.37</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.15	0.00	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.66	0.00	-0.66
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.15	0.00	-0.15
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.66	0.00	-0.66
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>25.3</u>	1405F pressure atm:	<u>0.919</u>
reference temperature °C:	<u>23.5</u>	reference pressure:	<u>0.923</u>
difference °C:	<u>-1.8</u>	difference :	<u>-0.004</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>23.5</u>	1405F pressure atm:	<u>0.923</u>
reference temperature °C:	<u>23.5</u>	reference pressure:	<u>0.923</u>
difference °C:	<u>0.0</u>	difference :	<u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>16.67</u>
reference main flow lpm:	<u>3.09</u>	reference total/aux flow lpm:	<u>16.96</u>
difference lpm:	<u>0.09</u>	difference lpm:	<u>0.29</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm		total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%	
1405F main flow lpm:	<u>3.00</u>	1400A total/aux flow lpm:	<u>16.67</u>
reference main flow lpm:	<u>3.06</u>	reference total/aux flow lpm:	<u>16.80</u>
difference lpm:	<u>0.06</u>	difference lpm:	<u>0.13</u>

K_o Audit:

Last K_o audit date: 20-Mar-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13213.2000
 % difference: 0.67

Comments:

External filter part # 10-002387-0100 has been changed and Particulate Sampling filter changed. 09:12- 11:35 Dryer replacement / post instalation maintenance and leak troubleshooting. 11:40 - 12:35 - TEOM Audit #2

WIND SYSTEM



Met One Instruments

3206 Main St., Suite 106

Regional Service Center

Rowell, TX 75088

Wind Tunnel Calibration

Data Sheet

50.5-6100

MIST Cup Model No. 170.41

Serial No. 3309

NIST Sensor Model No. 50.1B

Serial No. 1263

Average wind speed this test in mps 11.19

WD Setting Degree	WD Output Volts	WD Reading Degree	WD Error ± 3 Deg	WS Standard mps	WS Output Volts	WS Reading mps	WS Error ± 0.24 MPS
35.0	0.982	29.6	-0.1	11.21	0.221	11.19	-0.02
40.0	0.164	59.0	-1.0	11.17	0.227	11.33	0.16
120.0	0.321	119.1	-0.9	11.08	0.221	11.66	0.02
150.0	0.120	151.3	1.3	11.29	0.222	11.11	-0.18
210.0	0.382	209.1	-0.6	11.25	0.223	11.16	-0.09
240.0	0.665	239.1	-0.6	11.18	0.226	11.32	0.14
290.0	0.835	300.5	0.5	11.16	0.224	11.18	0.02
330.0	0.817	330.0	0.0	11.18	0.223	11.15	-0.03

Average wind speed this test in mps 2.21

WD Setting Degree	WD Output Volts	WD Reading Degree	WD Error ± 3 Deg	WS Standard mps	WS Output Volts	WS Reading mps	WS Error ± 0.20 MPS
35.0	0.081	28.5	-0.7	2.18	0.042	2.08	-0.10
40.0	0.163	58.5	-1.5	2.20	0.043	2.11	-0.06
120.0	0.332	118.6	-0.1	2.21	0.042	2.08	-0.13
150.0	0.117	150.3	0.3	2.22	0.042	2.07	-0.15
210.0	0.544	210.1	0.1	2.20	0.042	2.12	-0.08
240.0	0.668	239.8	-0.2	2.23	0.042	2.10	-0.13
290.0	0.835	300.8	0.6	2.22	0.043	2.18	-0.04
330.0	0.817	330.0	0.0	2.21	0.043	2.17	-0.04

Instrument Condition As Found As Left

Sensor Model No. 50.5B

Sensor Serial No. H12635

Sensor Output Range 0V - 10V

Sensor Output Range 0 - 50 MPS

Customer: Mission Analytics

Sales Order No. 104703

Test Order No. 0-2-0007

Calibration Date: 08/28/2014

Customer: Mission Analytics

QC Inspection

Diana Dawson

CALIBRATORS

Company <u>Maxxam</u>		Operator: <u>Limin Li</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>Envionics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4760</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	5%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=Indicated concentration)*

NO		LIMITS		NOx
Correlation=	1.0000	≥ 0.990		Correlation= 1.0000
m (Slope)=	1.0511	0.90-1.10		m (Slope)= 1.0496
b (Intercept % of FS)=	0.0400	± 3% F.S.		b (Intercept % of FS)= 0.0400

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff. Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=Indicated concentration)*

NO₂		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0006	0.90-1.10
b (Intercept % of FS)=	-0.0132	± 3% F.S.

AENV Standards	NO_x Analyzer
Audit Calibrator	
Make/Model <u>Teco 1461</u>	Make/Model <u>Teco 42i</u>
Serial/AMU Number <u>AMU 1809</u>	Serial/AMU Number <u>AMU 1868</u>
	Last Calibration Date <u>December 15, 2014</u>
	Full Scale (ppm) <u>1.0</u>

COMMENTS: _____

Auditor: Al Clark Date: December 17, 2014
 Operator Signature:  Location: McIntyre Center Edmonton

Company: Maxxam

Operator: Limin Li

Calibrator:
 Make/Model API 700
 Serial Number 830
 Last Verification Date Oct 2013
 SO₂ Cylinder Conc. 50.3
 SO₂ Cylinder S/N LL42475

Flow Measurement Device:
 Make/Model N/A
 Serial Number N/A
 Temperature (°C) N/A
 Barometric Pressure N/A

Flow Measurements
 Pt. No. 1 79.5 Pt. No. 2 39.8 Pt. No. 3 19.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
Absolute Average Percent Difference			0%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

SO ₂	LIMITS
Correlation= 1.0000	≥ 0.995
m (Slope)= 0.9971	0.90-1.10
b (Intercept % of FS)= 0.0000	± 3% F.S.

AENV Standards		SO ₂ Analyzer	
Audit Calibrator		Make/Model	<u>Teco 43C</u>
Make/Model	<u>R&R MFC 201</u>	Serial/AMU Number	<u>AMU 1623</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>Dec 15/14</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamination inside calibrator. SO2 moves through quickly.

Auditor: Al Clark Date: December 16, 2014
 Operator Signature: _____ Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam **Operator's Name:** Limin Li
Cylinder #: BLM002073 **Concentration PPM:** 49.5 **Tolerance(%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: March 31, 2015
Gas Type: SO2 **Conc.** 98.57
Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Blos DC2
Serial Number: AMU 1659
Temp. °C: 22.5 C
B.P. 690 mmhg

Reference Analyzer:

Make/Model: Teco 43C **Serial/AMU Number:** 1623
Instrument Settings: **Zero:** 7.9 **Span:** 1.028 **Range:** 1.0
Last Calibration: **Date:** Mar 31/15 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	0.00000	0.00000	0.000
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00406	246.386	47.6
Average Cylinder Concentration:					48.0

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: 3.0

Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: March 31, 2015
Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam Operator's Name: Limin Li
 Cylinder #: LL36837 Concentration PPM: 10.0 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:	Flow Measurement Device:
Make/Model: <u>R&R MFC 201</u>	Make/Model: <u>Bios DC2</u>
Serial Number: <u>AMU 1690</u>	Serial Number: <u>AMU 1659</u>
Last Verification Date: <u>December 15, 2014</u>	Temp. °C: <u>23.0 C</u>
Gas Type: <u>H2S</u> Conc. <u>20.43</u>	B.P. <u>702 mmhg</u>
Cylinder Number: <u>CAL015106</u>	

Reference Analyzer:
 Make/Model: Teco 45C Serial/AMU Number: 1624
 Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
 Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.00755	132.442	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	550.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0
 Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark Date: December 16, 2014
 Operator Signature: *Al Clark* Location: McIntyre Center Edmonton



Praxair Canada, Inc.
 9501-34th Street
 Edmonton, AB T5G 2X8
 Tel: 780-449-0773
 Fax: 780-449-6302

03/27/2014

MAXXAM ANALYTICS INC "NA"
 5372 49TH ST
 EDMONTON, AB T6B 2L7

Work Order No. 20248856
 Customer Reference No.

Product Lot/Batch No. Z582 4 085 02
 Product Part No. NI ME600P2P-AQ

CERTIFICATE OF ANALYSIS
Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	600.0ppm	601.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance-ID2ax/USA---
 Hewlett-Packard (Agilent)-5690---GC-FID

Cylinder Style: AQ
 Cylinder Pressure @70F: 2200 psig
 Cylinder Volume: 82.0 ft3
 Valve Outlet Connection: CGA-350
 Cylinder No(s): LC33574

Filling Method: Gravimetric
 Date of Fill: 03/28/2014
 Expiration Date: 03/28/2017

Analyst: Todd Hryniv

This gas cylinder is/are supplied prepared by Praxair Canada, Inc. is/are considered a certified standard. It is prepared by an primary, secondary, or tertiary pressure load process. The preparation standard used is a certified against Praxair Canada, Inc. reference standards which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada, or the ISO 9001 Standard reference material stock provider.

Analysis Method	Analysis Method	Analysis Method	Analysis Method
1. Gas Chromatography with Flame Ionization Detector	2. Gas Chromatography with Thermal Conductivity Detector	3. Gas Chromatography with Oxidation Catalytic Converter	4. Gas Chromatography with Photoacoustic Cell
5. Gas Chromatography with Nitrogen Phosporus Detector	6. Gas Chromatography with Infrared Detector	7. Gas Chromatography with Thermal Conductivity Detector	8. Gas Chromatography with Photoacoustic Cell
9. Gas Chromatography with Thermal Conductivity Detector	10. Gas Chromatography with Thermal Conductivity Detector	11. Gas Chromatography with Thermal Conductivity Detector	12. Gas Chromatography with Thermal Conductivity Detector
13. Gas Chromatography with Thermal Conductivity Detector	14. Gas Chromatography with Thermal Conductivity Detector	15. Gas Chromatography with Thermal Conductivity Detector	16. Gas Chromatography with Thermal Conductivity Detector
17. Gas Chromatography with Thermal Conductivity Detector	18. Gas Chromatography with Thermal Conductivity Detector	19. Gas Chromatography with Thermal Conductivity Detector	20. Gas Chromatography with Thermal Conductivity Detector

IMPORTANT:
 The information provided herein has been prepared in good faith by personnel within Praxair Canada, Inc. While we believe the information is accurate within the limits of the analytical method used, we do not warrant or represent as to the accuracy of the use of the information for any particular purpose. The information is provided "as is" without any warranty of accuracy or reliability. The user assumes all liability for the use of the information and the user's safety. Praxair Canada, Inc. is not liable for any injury or damage resulting from the use of the information provided herein.



Calibration Gas Audit

NO Cylinder Gas

File No. 2015-346CGA

Company: Maxxam Operators name: Limin Li
Cylinder #: BLM002073 Conc (PPM) 50.6/50.6 Tolerance (%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model Teco 146I
Serial Number AMU 1809
Last Verification Date March 31, 2015
Gas Type NO Conc. 48.79
Cylinder Number CAL018024

Flow Measurement Device:

Make/Model Bios DC2
Serial Number AMU 1659
Temp. °C 22.5 C
B.P. 690 mmhg

Reference Analyzer:

Make/Model Teco 42I Serial/AMU Number: 1868
Instrument Settings Zero: 4.2 Span: 1.008 Range: 1.0
Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000	0.01660	60.242	51.5	51.1
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
Average Cylinder Concentration:						52.0	51.3

NO NOx

Previous Stated Concentration PPM: 50.6 50.6

Percent variance from Stated: 2.8 1.4

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 49.5 ppm SO2 in cylinder
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark Date: March 31, 2015
Operator Signature: [Signature] Location: McIntyre Center Edmonton

APPENDIX III
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: <u>Lakeland Industry & Community Association</u>	Project #: <u>2833-2015-05-31- C</u>
Site: <u>St. Lina Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete msdmh Date 3 - June - 2015

QA Check Review msdmh Date 3 - June - 2015

Report Complete msdmh Date 4 - June - 2015

Report Reviewed E. Tangang Date 05 - Jun - 2015

Report Shipped _____ Date _____

Notes

**AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
ELK POINT AIRPORT SITE**

JOB #:196-2015-05-93- C

MAY 2015

Prepared for:

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
BOX 8237, 5107W - 50 STREET
BONNYVILLE, ALBERTA
T9N 2J5**

Attention: MIKE BISAGA

DATE: **June 24, 2015**

Prepared by:



Wunmi Adekanmbi, M.Sc.

Project Manager Assistant, Source Testing, Maxxam Analytics

Reviewed by:



Lily Lin, B.Sc.

Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In MAY 2015, the Air Services Group of Maxxam Analytics conducted an ambient air monitoring program on the Elk Point Airport Site at Lakeland Industry & Community Association, near Bonnyville, Alberta. Sampling was carried out to determine the concentrations of non-compliance parameters as requested by the project coordinator.

All data collected this month were within the objectives outlined in the AMD1989 and AMD2006, except PM 2.5.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

PM 2.5: Two 24-hr contraventions were recorded this month: concentration of 31 ug/m³ on May 25 and concentration of 41 ug/m³ on May 26. AE Reference numbers 298738 and 298790 respectively.

All Parameters: Hourly maximum data collected on May 5 at hour 3 were invalidated as the analyzers were recovering from a power outage.

H₂S: Maxxam-owned Thermo 450i analyzer was replaced with LICA-owned API 101E analyzer. 18 hours of data are invalid during the time the analyzer was stabilizing.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, Elk Point Airport Site.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Lakeland Industry & Community Association Elk Point Airport Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
						1-HOUR				24-HOUR			
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0	2	2, 3	23, 0	9.3 11.2	W W	0.9	3	100.0
H2S (PPB)	10	3	0	0	0	2	VAR	VAR	VAR	VAR	1.0	20	97.6
THC (PPM)	-	-	-	-	2.4	7.2	23	6	2.6	WNW	3.0	VAR	99.9
CH4 (PPM)	-	-	-	-	2.4	7.0	23	6	2.6	WNW	3.0	VAR	99.9
NMHC (PPM)	-	-	-	-	0.01	0.30	27	21	31.2	N	0.04	26	99.9
NO2 (PPB)	159	-	0	-	6.0	34.4	23	2	4.1	WNW	15.1	19	100.0
NO (PPB)	-	-	-	-	1.5	57.7	23	6	2.6	WNW	8.3	23	100.0
NOX (PPB)	-	-	-	-	7.4	85.5	23	6	2.6	WNW	18.2	19	100.0
O3 (PPB)	82	-	0	-	37	70	25	16	10	NW	47.7	25	100.0
PM2.5 (UG/M3)	-	30	-	2	8.2	269.0	27	21	31.2	N	41.4	26	99.5
VECTOR WS (KPH)	-	-	-	-	10.3	33.9	2	16	-	NW	21.9	5	100.0
VECTOR WD (DEG)	-	-	-	-	ENE	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS

Exceedence Summary Report

SO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

SO₂ 24- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 1- Hour Exceedences

No Exceedences Recorded During the Month

H₂S 24- Hour Exceedences

No Exceedences Recorded During the Month

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM_{2.5} 24- Hour Exceedences

DATE	READING (ug/m3)	WS (kph)	WD (deg)
MAY 25	31	8.3	WSW
MAY 26	41	10.6	N

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
MAY 6, 2015	2.60	ACETONE
MAY 12, 2015	6.90	ETHANOL
MAY 18, 2015	7.60	ACETONE
MAY 24, 2015	7.20	ACETONE
MAY 30, 2015	3.10	ACETONE

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
MAY 6, 2015	0.05	PHENANTHRENE
MAY 12, 2015	0.10	2-METHYLNAPHTHALENE
MAY 18, 2015	0.16	2-METHYLNAPHTHALENE
MAY 24, 2015	0.10	PHENANTHRENE
MAY 30, 2015	0.06	PHENANTHRENE

Note: NA

Volatile Organics (VOCs) Data Summary - NMHC Canister System

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
MAY 22, 2015	46.9	ACETONE

Note: NA

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	Hydrogen Sulphide
	Total Hydrocarbon
	Methane
	Non-Methane Hydrocarbon
	Oxides of Nitrogen
	Nitric Oxides
	Nitrogen Dioxide
	Ozone
	Particulate Matter 2.5
	Wind Speed
	Wind Direction
	Standard Deviation Wind Direction
Appendix II	Non-Continuous Monitoring Data Results
	VOC Results
	PAH Results
	NMHC Canister Results
Appendix III	Analyzer Calibration Results
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Nitrogen Dioxide
	Ozone
	Particulate Matter
	Wind System
	Calibrators
	Calibration Gases

Appendix IV

Analytical Results

VOCs Samples

PAHs Samples

NMHC Canister Samples

Appendix V

Chain of Custody

1.0 Discussion

This monthly report consists of data for parameters SO₂, H₂S, THC, CH₄, NMHC, NO_x, NO, NO₂, O₃, PM_{2.5}, WS and WD. It also includes results for non-continuous parameters VOC, PAH and NMHC canister.

Sample filters for all continuous air monitors are changed before the calibration is started. The sample manifold is cleaned during the site visit on a monthly basis.

Control checks, consisting of zero and span of the analyzer are conducted on a daily basis on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinder) is used for zero checks and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibration is done a minimum of once a month for each continuous air monitor. In addition calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time (minimum), on a monthly basis.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Hourly/minute data have been reviewed based on daily zero/span results and multi-points calibration results. Data may be considered as invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor (greater than 15%).

Hourly data is corrected using daily zero information.

Trailer inspection was conducted on May 22.

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on May 19. Hourly maximum data collected on May 5 at hour 3 was invalidated as the analyzer was recovering from a power outage.

HYDROGEN SULPHIDE (H₂S)

The Maxxam-owned Thermo 450i analyzer was replaced with the LICA-owned API 101E analyzer that was brought to Maxxam shop for maintenance. The Thermo 450i removal calibration was performed on May 20 and the API 101E was installed. The analyzer was allowed time to stabilize overnight and the installation calibration was performed on May 21. The analyzer drifted outside acceptance limits after the calibration on May 21. An as found points check was performed on May 22. The result was within acceptance limits. 18 hours of data are not valid during the time the analyzer was stabilizing. Hourly maximum data collected on May 5 at hour 3 was invalidated as the analyzer was recovering from a power outage.

TOTAL HYDROCARBONS (THC), METHANE (CH₄), and NON-METHANE HYDROCARBONS (NMHC)

The analyzer was working well throughout the month. The routine monthly calibration was performed on May 19. Hourly data collected on May 5 at hour 4 and hourly maximum data collected on May 5 at hour 3 and hour 4 were invalidated as the analyzer was recovering from a power outage.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on May 19. Hourly maximum data collected on May 5 at hour 3 was invalidated as the analyzer was recovering from a power outage.

OZONE (O₃)

The analyzer was working well throughout the month. The routine monthly calibration was performed on May 20. Hourly maximum data collected on May 5 at hour 3 was invalidated as the analyzer was recovering from a power outage.

PARTICULATE MATTER 2.5 (LESS THAN 2.5 MICRONS) (PM_{2.5})

Two Teom audits were performed this month: one was completed on May 4, and the other audit was performed on May 19. The inlet filter, the FDMS filter and the dryer were replaced on May 19. Data was corrected using Alberta air quality guideline. If the data was between 0 to -3 ug/m³, the data was corrected to 0 ug/m³. If the data was below -3ug/m³, the data was invalidated. 4 hours of data were invalidated as the data were below -3 ug/m³ this month.

Two 24-hr contraventions were recorded this month: concentration of 31 ug/m³ on May 25 and concentration of 41 ug/m³ on May 26. AE Reference numbers 298738 and 298790 respectively.

WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)

The wind system is reported as vector wind speed and vector wind direction. The wind direction data included in this report represents where the wind was coming from.

The wind system was working well throughout the month. Hourly maximum data collected on May 5 at hour 3 was invalidated as the analyzer was recovering from a power outage.

VOC SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs were reported as ppb in 2 decimal places.

Samples were collected on May 6, 12, 18, 24 and 30. They were sent to the lab for analysis. Results are included in this report.

PAH SAMPLES

The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs were reported as μg in 2 decimal places.

Samples were collected on May 6, 12, 18, 24 and 30. They were sent to the lab for analysis. Results are included in this report.

NMHC CANISTER SAMPLES

The sampler is triggered when the 5-minute average concentration of NMHC is above 0.30ppm. One canister was collected this month: concentration of 0.3 ppm on May 22 at 6:25.

2.0 Project Personnel

Mike Bisaga was the contact for Lakeland Industry & Community Association, and the Maxxam field sampling personnel was Alexander Yakupov.

3.0 Plant Monthly Required AMD Summary

All data collected this month were within the objectives outlined in the AMD1989 and AMD2006, except PM 2.5.

Two 24-hr contraventions were recorded for PM 2.5 this month: concentration of 31 ug/m³ on May 25 and concentration of 41 ug/m³ on May 26. AE Reference numbers 298738 and 298790 respectively.

The operational uptime for all analyzers and meteorological system were above the 90% requirement.

4.0 Calculations and Results

All calculations and reporting of results follow the method described in the Air Monitoring Directive, 1989, and 2006 Amendments to the Air Monitoring Directive, 1989 (AMD 2006).

5.0 Methods and Procedures

The following methods and procedures were used to complete the test program:

- Maxxam AIR SOP-00001 - Methane, Non-Methane Hydrocarbon Analyzer Monitoring
- Maxxam AIR SOP-00208: RM Young Monitor Calibration
- Maxxam AIR SOP-00209: Ambient H₂S Monitoring
- Maxxam AIR SOP-00211: Ambient SO₂ Monitoring
- Maxxam AIR SOP-00212: Ambient O₃ Monitoring
- Maxxam AIR SOP-00213: Ambient NO/NO₂/NO_x Monitoring
- Maxxam AIR SOP-00215: Teom Operation
- Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canister and Xontech

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

- Sulphur Dioxide - API 100E UV Fluorescent Analyzer
- Hydrogen Sulphide - Thermo 450i and API 101E UV Fluorescent Analyzers
- Total Hydrocarbons - Thermo 55i FID Analyzer
- Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
- Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
- Ozone - Thermo 49i Photometric Analyzer
- Particulate Matter (PM_{2.5}) - R&P 1405F Teom Unit
- Wind System - RM Young Unit
- Datalogger - ESC 8832

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE



SULPHUR DIOXIDE (SO2) hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24
3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6
HOURLY AVG	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

STATUS FLAG CODES

C	GENERATION	CS	COURTESY ASSURANCE
D	MAINTENANCE	R	RECOVERY
E	DAILY ZERO SPAN CHECK	M	MAGNETIC MALFUNCTION
F	FLOW RATE	O	OPERATOR ERROR
G	OUT OF RANGE	K	COLLECTION ERROR

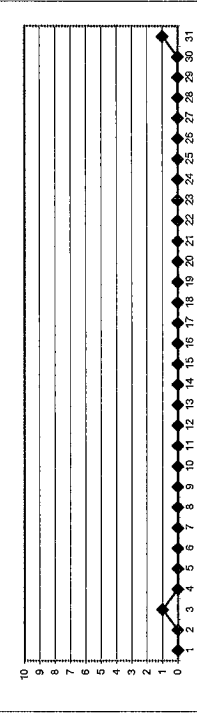
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:

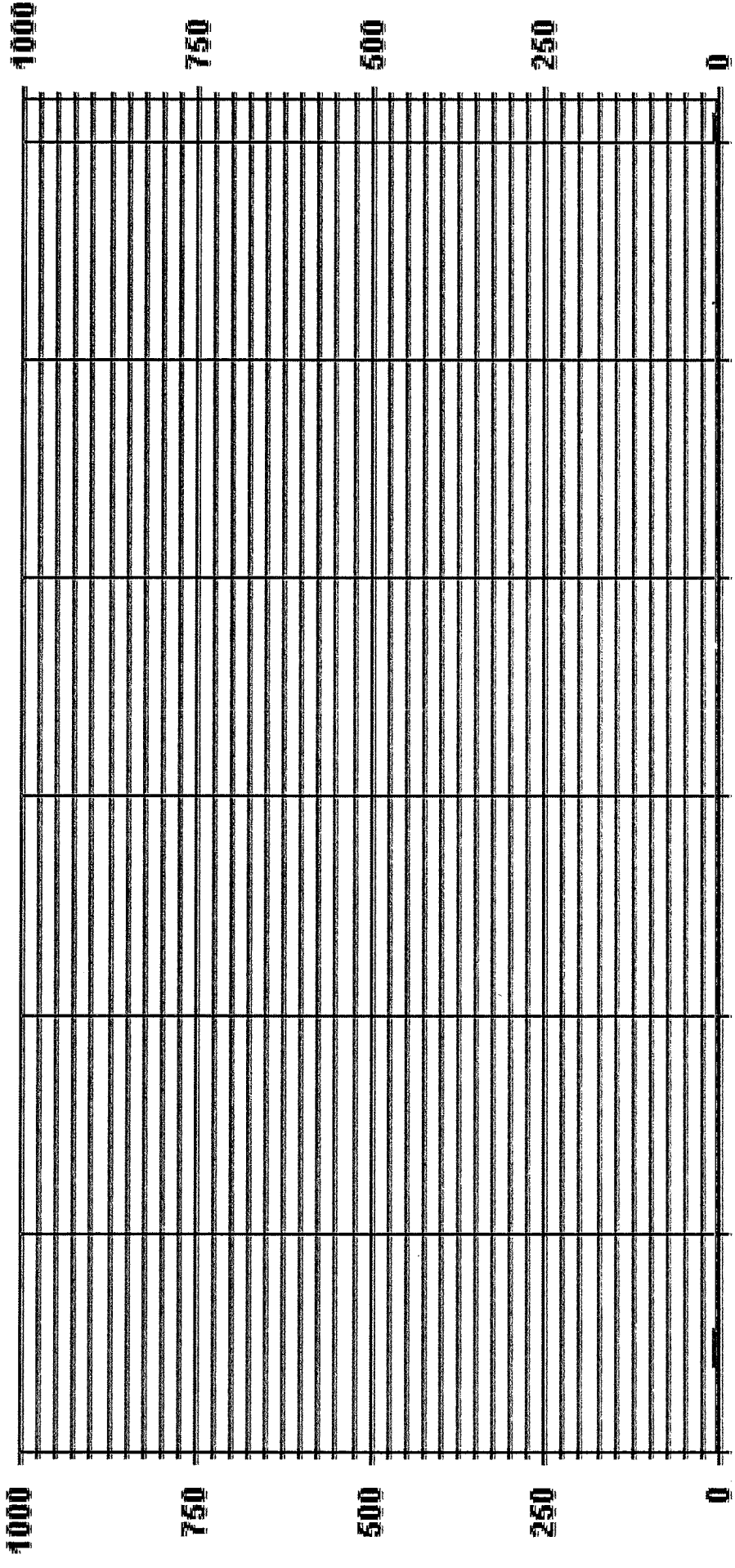
MONTHLY SUMMARY

NUMBER OF EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	41
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S)
MAXIMUM 24-HR AVERAGE:	0.9 PPB
24 CALIBRATION TIME:	34 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.25
OPERATIONAL TIME:	744 HRS
AMTD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0 PPB
ON DAY(S)	23, 0
ON DAY(S) VAR-VARIOUS	3
ON DAY(S)	2, 3

24 HOUR AVERAGES FOR MAY 2015



01 Hour Averages



— LICA35 SO2_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Elk Point Airport Site - MAY 2015
 JOB # 196-2015-05-93- C

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	READING															DAILY MAX	24-HOUR AVE	RDGS								
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00				15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00
DAY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HOURLY MAX	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HOURLY AVG	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5

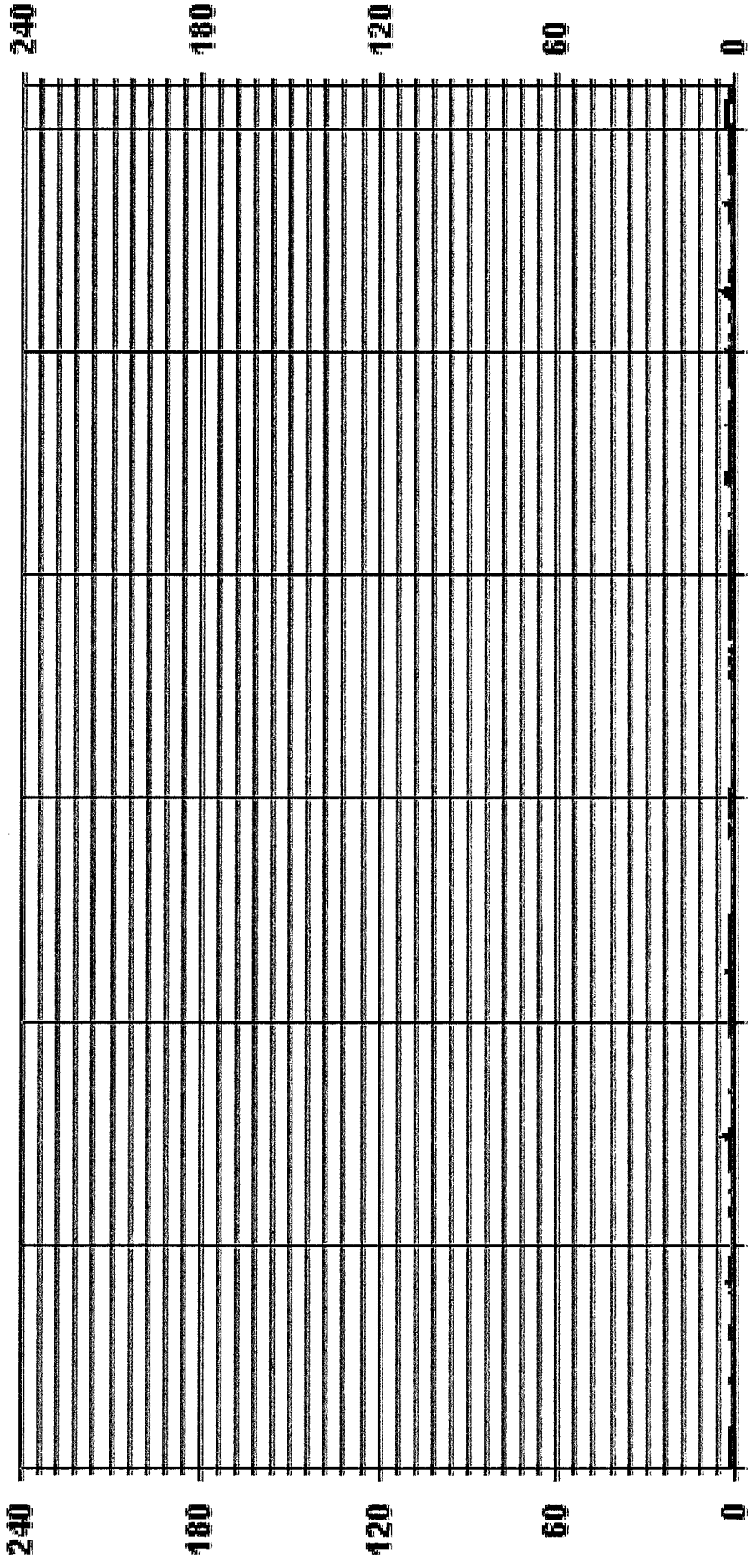
STATUS FLAG CODES

C	CALIBRATION
D	QUALITY ASSURANCE
E	RECOVERY
F	MAINTENANCE
G	POWER FAILURE
H	OUT OF REPAIR
I	COLLECTION ERROR
J	SWITCHING ERROR
K	NO DATA
L	NO SIGNAL
M	NOISE
N	NOISE
O	NOISE
P	NOISE
Q	NOISE
R	NOISE
S	NOISE
T	NOISE
U	NOISE
V	NOISE
W	NOISE
X	NOISE
Y	NOISE
Z	NOISE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	342
MAXIMUM INSTANTANEOUS VALUE:	3 PPB @ HOUR(S) 10,9 ON DAY(S) 8, 27
IS CALIBRATION TIME:	34 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.58
OPERATIONAL TIME:	VAR-VARIOUS
743 HRS	

01 Hour Averages



05/01/15 00:00:05, 06/15 00:00:05, 11/15 00:00:05, 16/15 00:00:05, 21/15 00:00:05, 26/15 00:00:05, 31/15 00:00:00

— LICA35 SO2MAX PPB

LICA-FLK
 SO2_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Logger Id : 35
 Site Name : LICA-FLK
 Parameter : SO2
 Units : PPB
 Wind Parameter : WDR
 Instrument Height : 10 Meters

Distribution By % Of Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	6.25	6.53	4.11	9.09	11.36	14.91	6.67	7.52	4.11	2.13	2.13	3.12	4.54	6.10	6.25	5.11	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	6.25	6.53	4.11	9.09	11.36	14.91	6.67	7.52	4.11	2.13	2.13	3.12	4.54	6.10	6.25	5.11	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	44	46	29	64	80	105	47	53	29	15	15	22	32	43	44	36	704
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	44	46	29	64	80	105	47	53	29	15	15	22	32	43	44	36	

Calm : .00 %

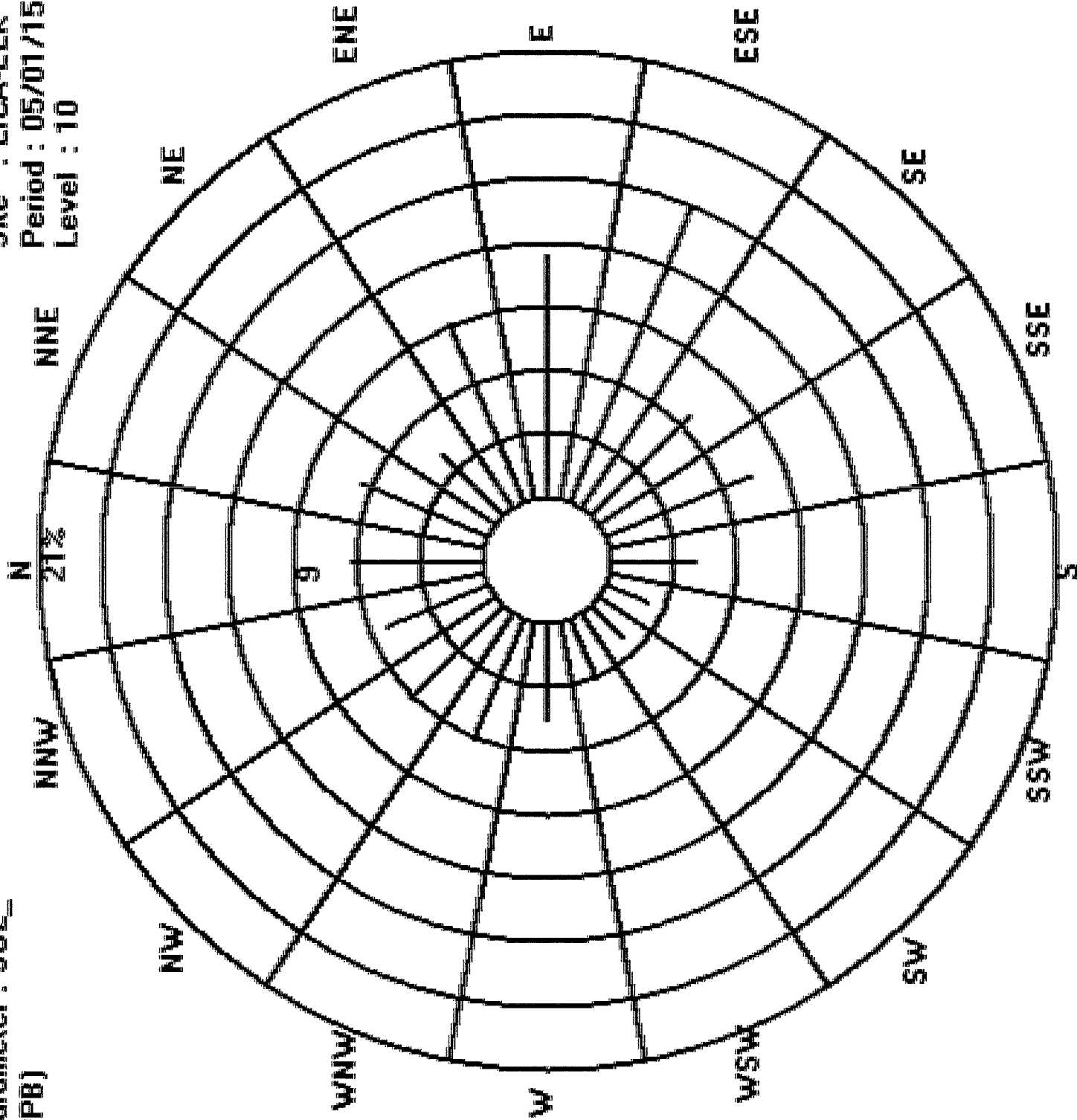
Total # Operational Hours : 704

Logger : 35 Parameter : SO2_

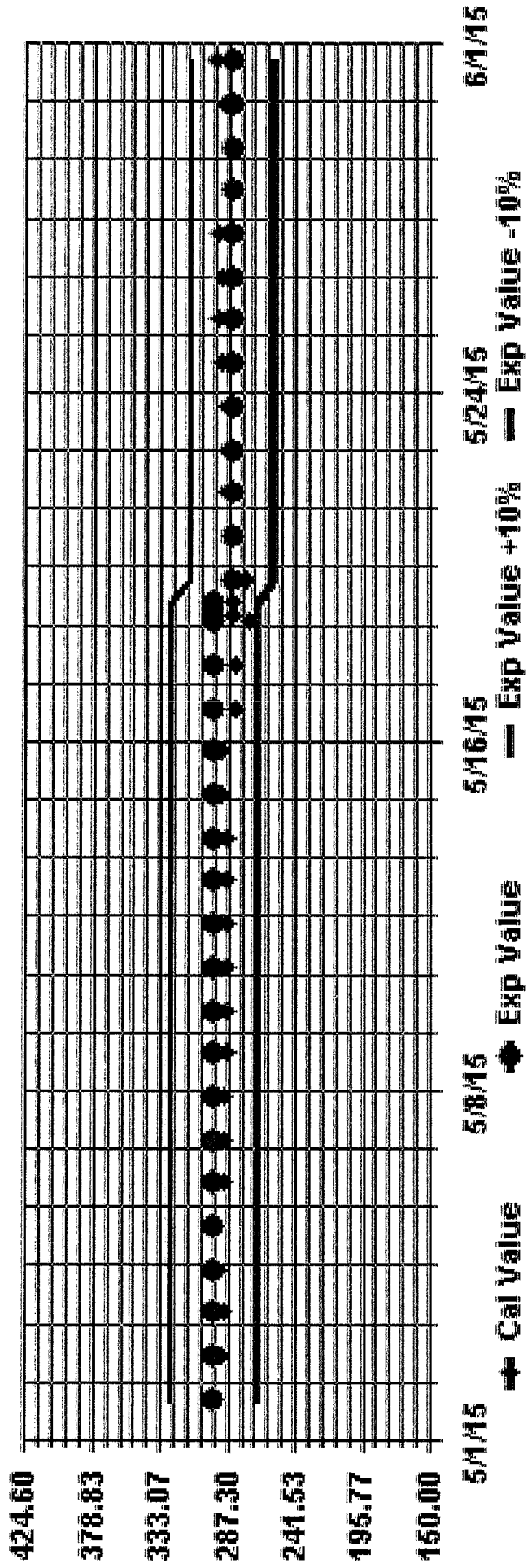
Class Limits (PPB)



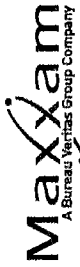
Site : LICA-ELK
Period : 05/01/15-05/31/15
Level : 10



Calibration Graph for Site: LICA35 Parameter: SO2_ Sequence: SO2 Phase: SPAN



HYDROGEN SULPHIDE



HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX	24-HOUR AVG.	RDS.	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	15
21	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	0.0	15
22	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
31	0	1	2	1	1	1	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.6	24
HOURLY MAX	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	24
HOURLY AVG	0.1	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1

STATUS FLAG CODES

C	CALIBRATION	()	QUANTITY/SAMPLE RANGE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SAMPLE CHECK	X	MACHINE/MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT OF RANGE	K	COLLECTION ERROR

OBJECTIVE LIMIT:

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

MONTHLY SUMMARY

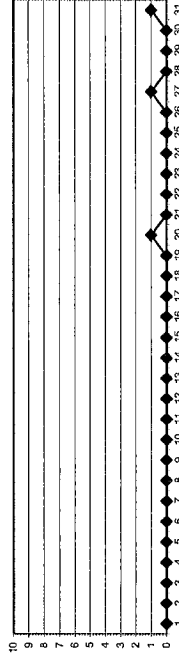
NUMBER OF 24-HR EXCEEDENCES: 0
 NUMBER OF 24-HR EXCEEDENCES: 0

NUMBER OF NON-ZERO READINGS: 78

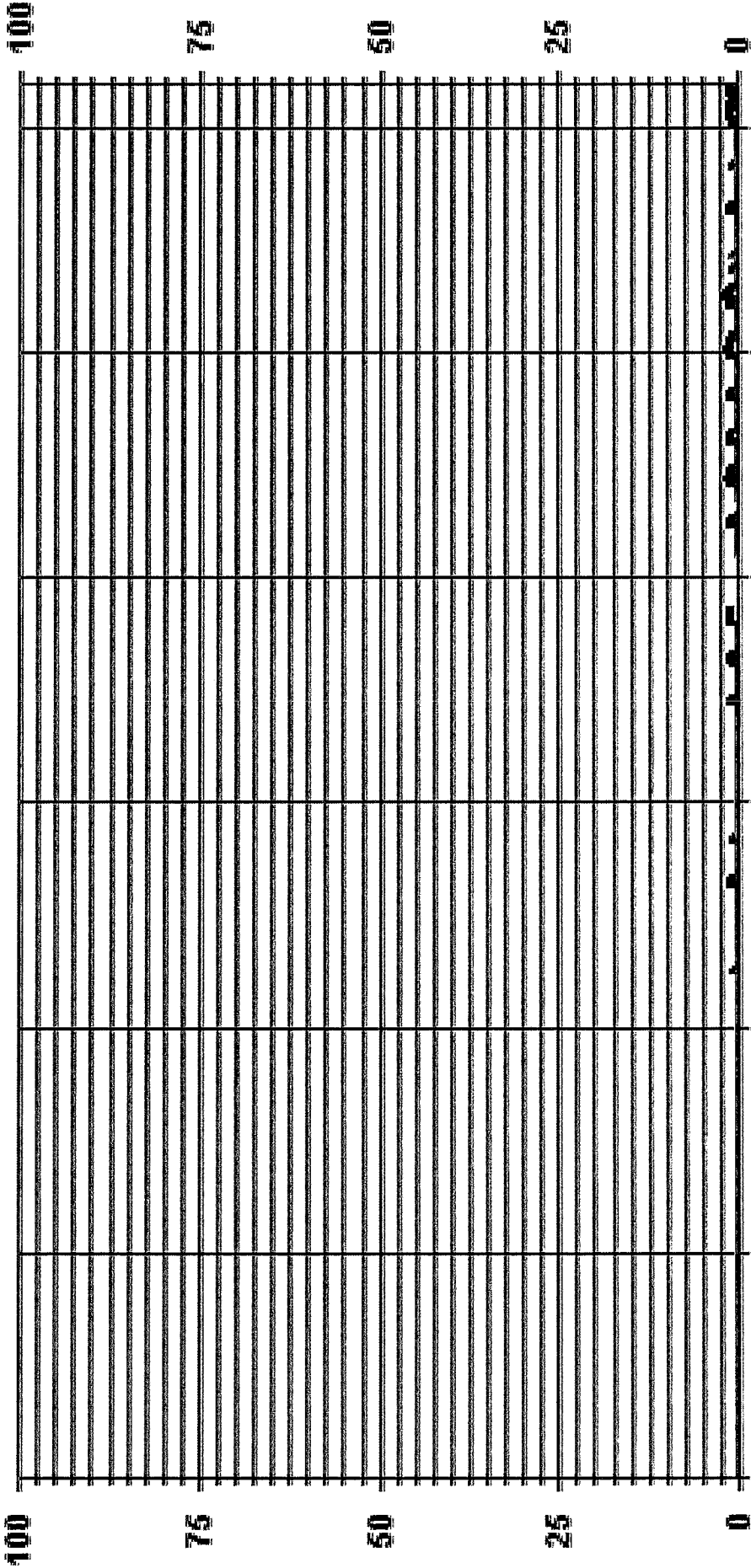
MAXIMUM 1-HR AVERAGE: 2 PPB @ HOUR(S) VAR ON DAY(S) VAR
 MAXIMUM 24-HR AVERAGE: 1.0 PPB VAR VAR-VARIOUS

125 CALIBRATION TIME: 34 HRS OPERATIONAL TIME: 726 HRS
 MONTHLY CALIBRATION TIME: 14 HRS AMD OPERATION UPTIME: 97.6 %
 STANDARD DEVIATION: 0.34 MONTHLY AVERAGE: 0 PPB

24 HOUR AVERAGES FOR MAY 2015



01 Hour Averages



— LICA35 H2S_ PPB



HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

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

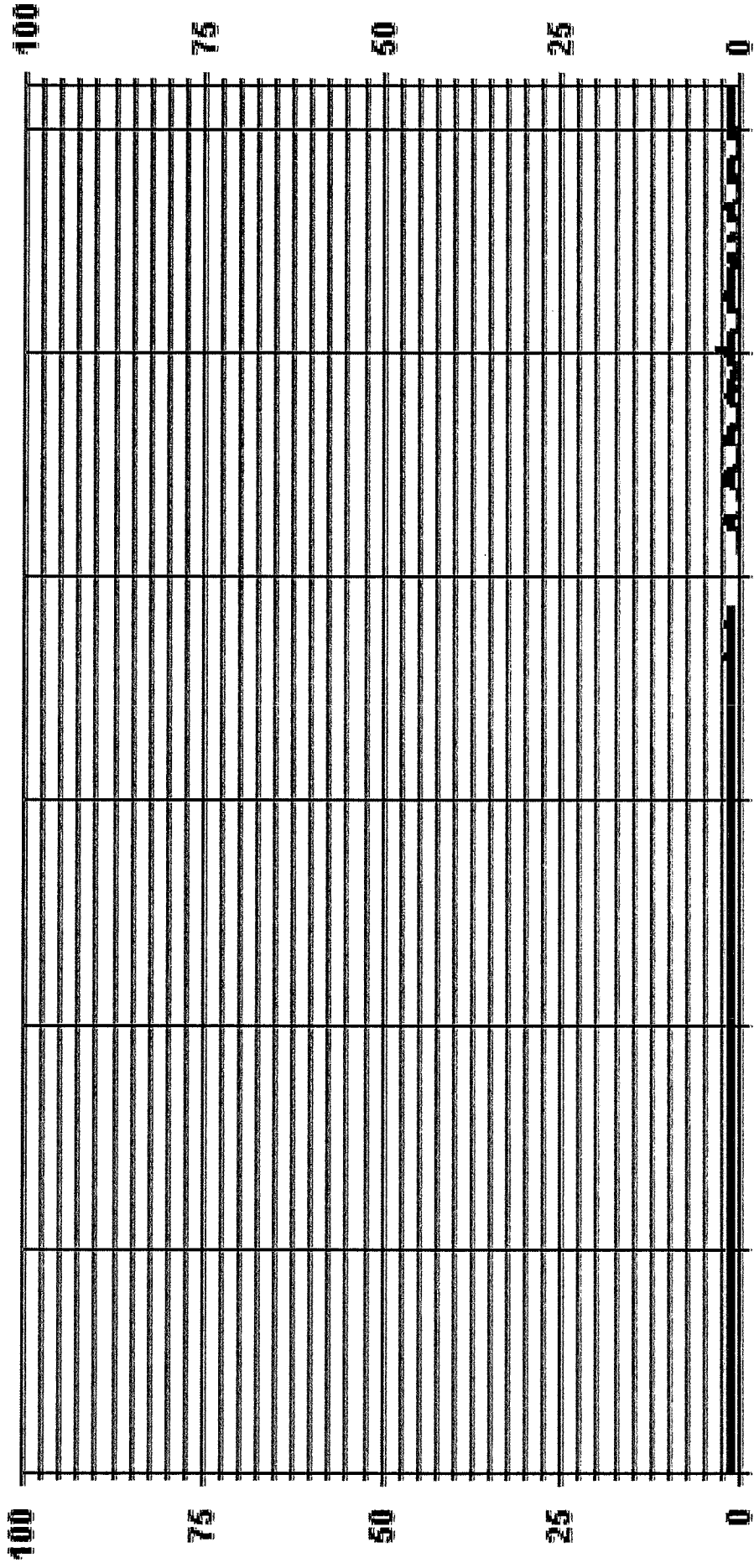
STATUS FLAG CODES

C	SCALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	SAMPLER/SAMPLER	X	WASHABLE JUNCTION
F	FLOW FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	572
MAXIMUM INSTANTANEOUS VALUE:	3 PPB @ HOUR(S) 2 ON DAY(S) 26
IZS CALIBRATION TIME:	40 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION:	0.42
OPERATIONAL TIME:	726 HRS
VAR-VARIOUS	

01 Hour Averages



05/01/15 00:00/05/06/15 00:00/05/11/15 00:00/05/16/15 00:00/05/21/15 00:00/05/26/15 00:00/05/31/15 00:00

— LICA35 H2SMAX PPB

H2S_ / WDR Joint Frequency Distribution (Percent)

LICA-ELK

May 2015

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : H2S
 Units : PPS

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 3	6.19	6.78	4.27	8.84	11.94	14.89	6.93	6.48	3.98	1.62	2.21	3.09	4.71	6.34	6.34	5.30	100.00	
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	6.19	6.78	4.27	8.84	11.94	14.89	6.93	6.48	3.98	1.62	2.21	3.09	4.71	6.34	6.34	5.30		

Calm : .00 %

Total # Operational Hours : 678

Distribution By Samples

Limit	Direction																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 3	42	46	29	60	81	101	47	44	27	11	15	21	32	43	43	36	678	
< 10																		
< 50																		
>= 50																		
Totals	42	46	29	60	81	101	47	44	27	11	15	21	32	43	43	36		

Calm : .00 %

Total # Operational Hours : 678

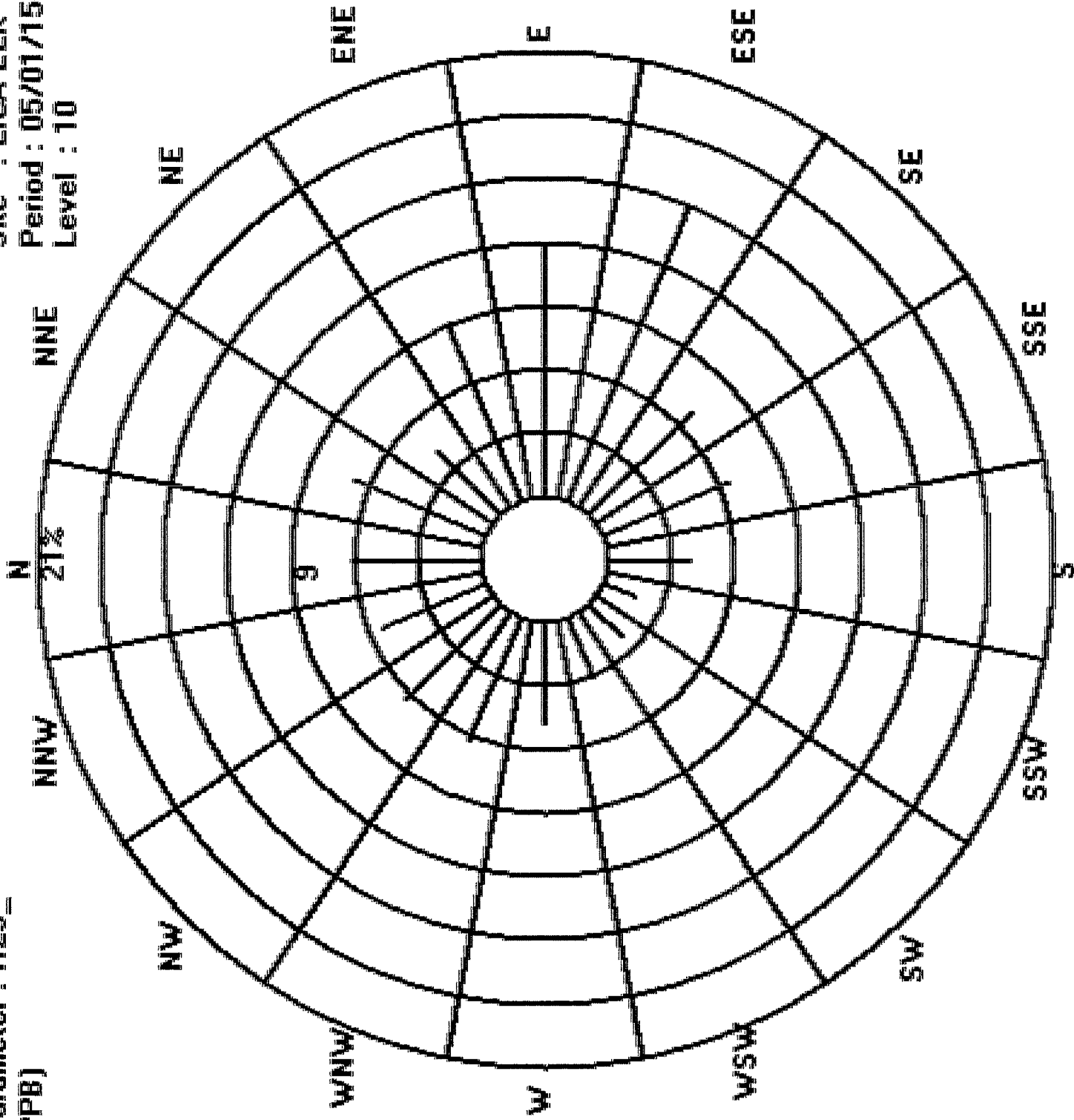
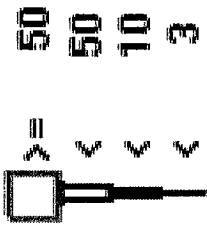
Logger : 35 Parameter : H2S_

Site : LICA-ELK

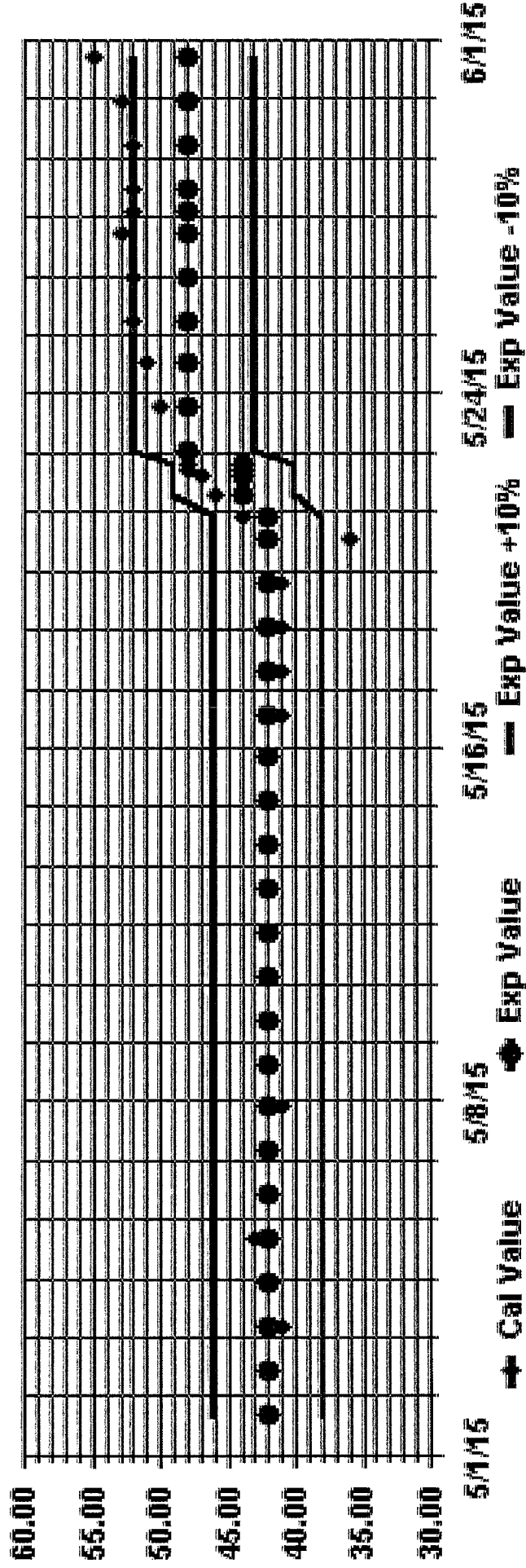
Period : 05/01/15-05/31/15

Level : 10

Class Limits (PPB)

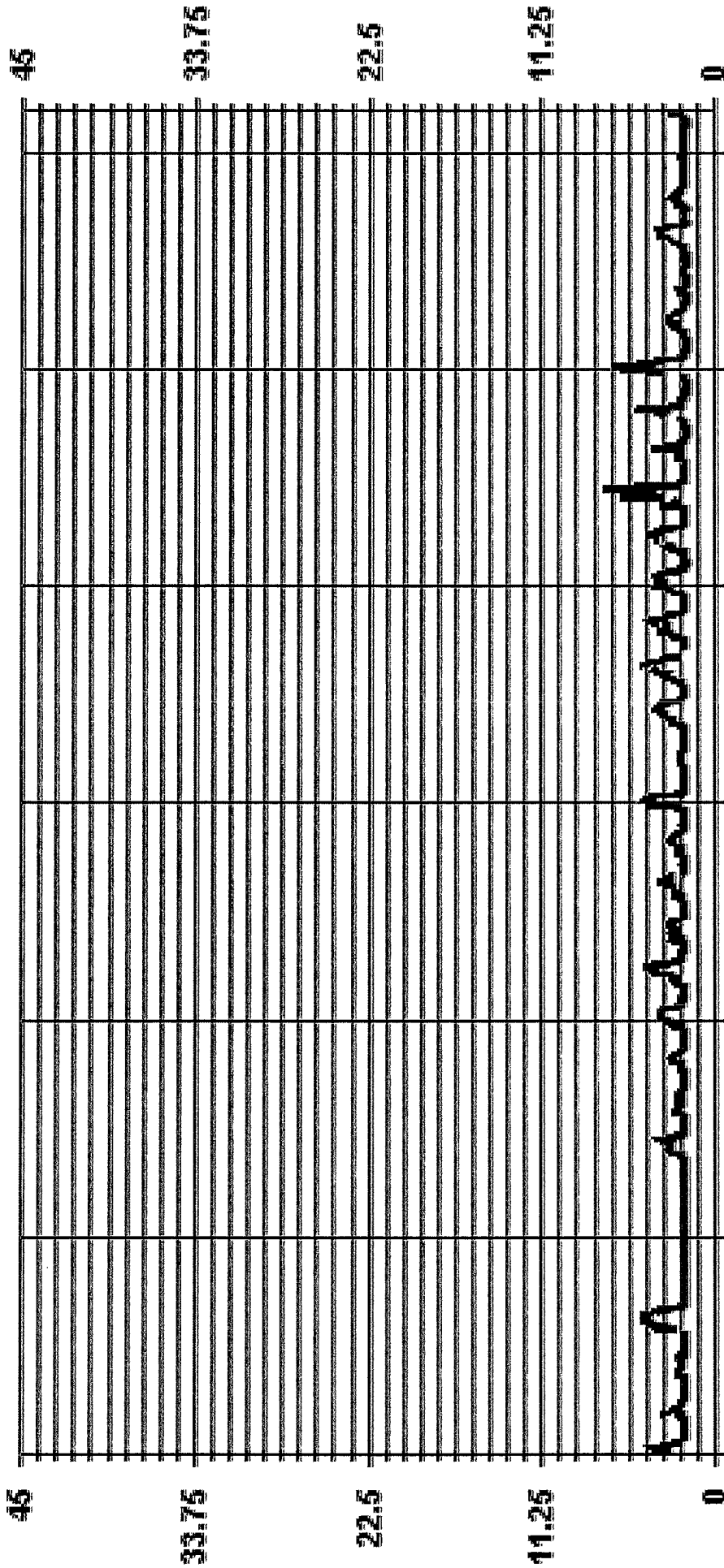


Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAN

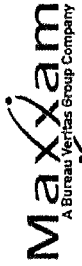


TOTAL HYDROCARBON

01 Hour Averages



— LICA35 - - - - - THC55 PPM



TOTAL HYDROCARBONS MAX Instantaneous maximum in ppm

MST

DAY	HOURS																								DAILY MAX	24-HOUR AVG	RDGS.		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00					
1	4.6	3.1	3.1	4.7	4.9	4.1	3.5	2.7	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.2	2.1	4.7	4.9	2.9	24	
2	3.6	2.8	3.0	3.2	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.2	2.1	2.3	2.7	2.1	2.5	3.6	2.4	24	
3	2.5	2.3	2.3	2.5	2.6	2.4	2.5	2.6	2.4	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	6.4	4.8	24	
4	4.5	5.1	5.4	5.1	4.8	4.8	5.8	4.5	4.1	3.5	2.5	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	5.8	3.3	24	
5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
7	3.3	3.2	3.1	3.0	3.3	3.9	4.1	3.5	3.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.2	3.2	3.2	2.2	24	
8	2.8	2.6	2.4	2.4	2.4	2.5	2.4	2.6	2.6	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.8	2.9	2.3	4.1	2.7	24
9	2.4	2.8	3.1	3.1	3.1	2.9	2.6	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	3.1	3.1	3.5	2.5	24	
10	3.6	4.0	3.9	3.7	3.6	3.6	3.8	3.5	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	3.1	3.1	3.0	4.0	2.9	24
11	2.8	3.4	3.9	4.3	4.3	4.6	4.9	4.7	3.7	2.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
12	2.9	3.3	3.0	2.9	3.1	3.1	3.2	3.0	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
13	2.9	2.9	3.1	3.8	3.8	3.8	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.6	24
14	2.3	3.0	3.0	3.0	3.1	3.1	3.0	2.9	3.1	3.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
15	5.7	5.0	5.2	4.9	4.9	3.1	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
16	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
17	3.4	3.6	3.5	4.1	4.2	5	4.0	3.8	3.6	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
18	3.8	4.8	5.0	4.5	5	5.3	4.5	4.2	3.6	3.2	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
19	6.0	4.0	3.8	5	4.8	4.5	4.4	3.8	3.8	3.2	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.8	24
20	10.7	4.6	5	3.9	4.0	4.3	4.3	3.7	3.6	3.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
21	3.1	5	7.2	4.2	4.9	5.3	4.1	3.7	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
22	4.7	8.6	6.3	4.6	10.3	10.4	8.0	2.5	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
23	3.0	3.6	2.4	2.9	9.1	3.2	3.3	2.9	2.9	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
24	4.5	6.9	7.1	4.9	2.3	2.4	2.4	2.8	2.9	2.1	4.7	1.9	2.0	2.1	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
25	6.9	8.4	9.0	6.7	5.8	4.2	3.2	2.3	2.0	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
26	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
27	3.7	3.5	4.4	3.7	3.8	4.0	3.7	3.4	2.7	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
28	3.1	2.9	2.8	2.5	2.5	2.3	2.3	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
29	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
30	10.7	8.4	9.0	6.7	9.1	10.3	10.4	8.0	4.1	3.5	4.7	2.6	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
31	3.6	3.5	3.8	3.6	3.6	3.5	3.5	3.1	2.7	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
HOURLY MAX																													
HOURLY AVG																													

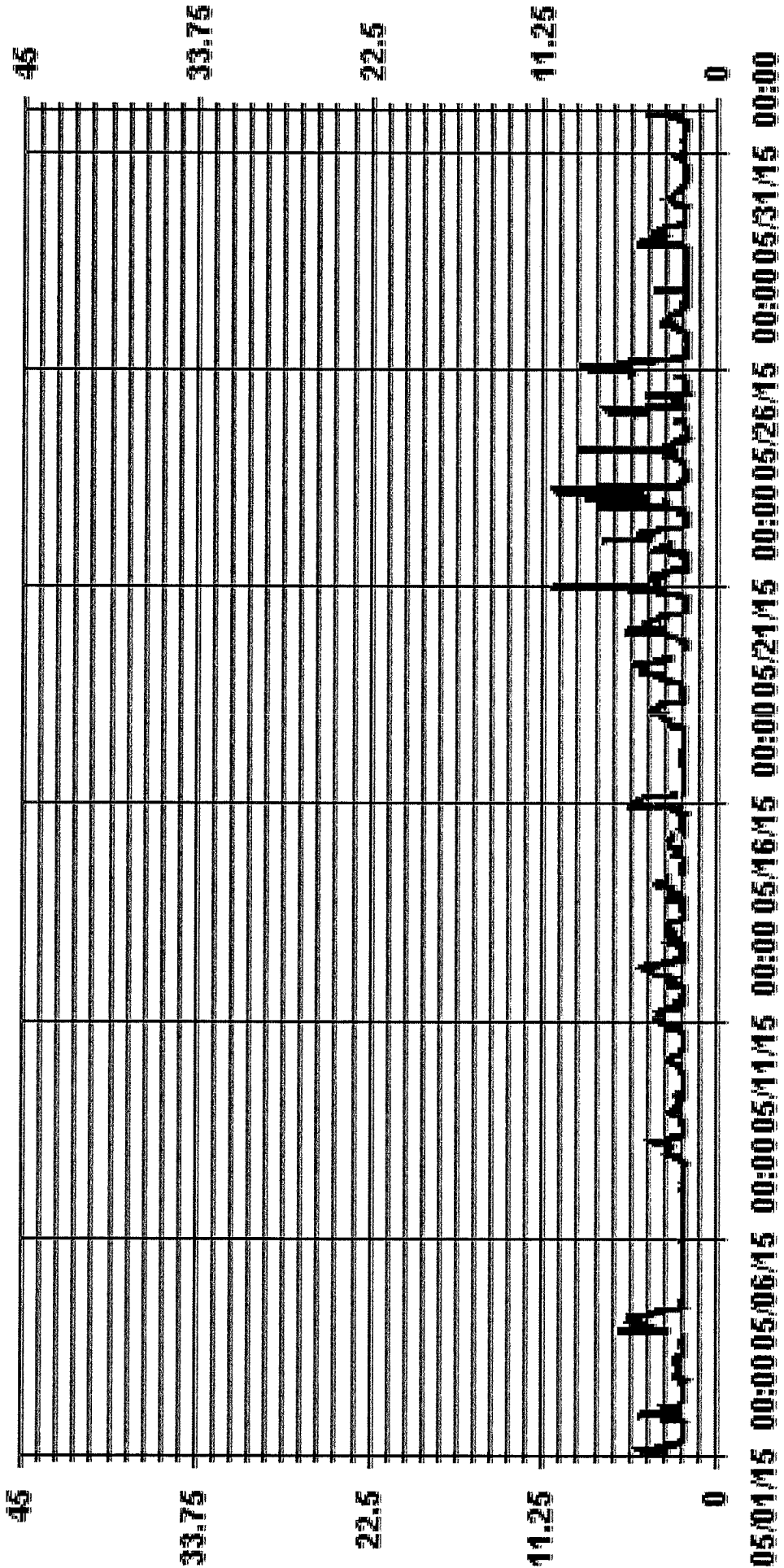
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/Span CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUTSIDE REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	10.7 PPM @ HOUR(S) 0 ON DAY(S) 21
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	1.20
OPERATIONAL TIME:	742 HRS
VAR-VARIOUS	

01 Hour Averages



— LICA35 THC55MAX PPM

THC55 / WDR Joint Frequency Distribution (Percent)

LICA35

May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	5.66	6.37	3.96	7.36	6.79	10.90	6.23	7.36	3.96	1.84	1.69	2.69	3.82	3.68	4.81	4.81	82.01
< 10.0	.56	.14	.14	1.69	4.53	3.96	.56	.14	.28	.28	.42	.42	.70	2.40	1.41	.28	17.98
< 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	6.23	6.51	4.10	9.06	11.33	14.87	6.79	7.50	4.24	2.12	2.12	3.11	4.53	6.09	6.23	5.09	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

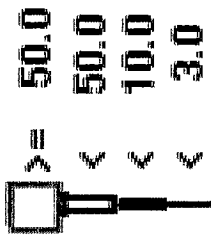
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	40	45	28	52	48	77	44	52	28	13	12	19	27	26	34	34	579
< 10.0	4	1	1	12	32	28	4	1	2	2	3	3	5	17	10	2	127
< 50.0																	
>= 50.0																	
Totals	44	46	29	64	80	105	48	53	30	15	15	22	32	43	44	36	

Calm : .00 %

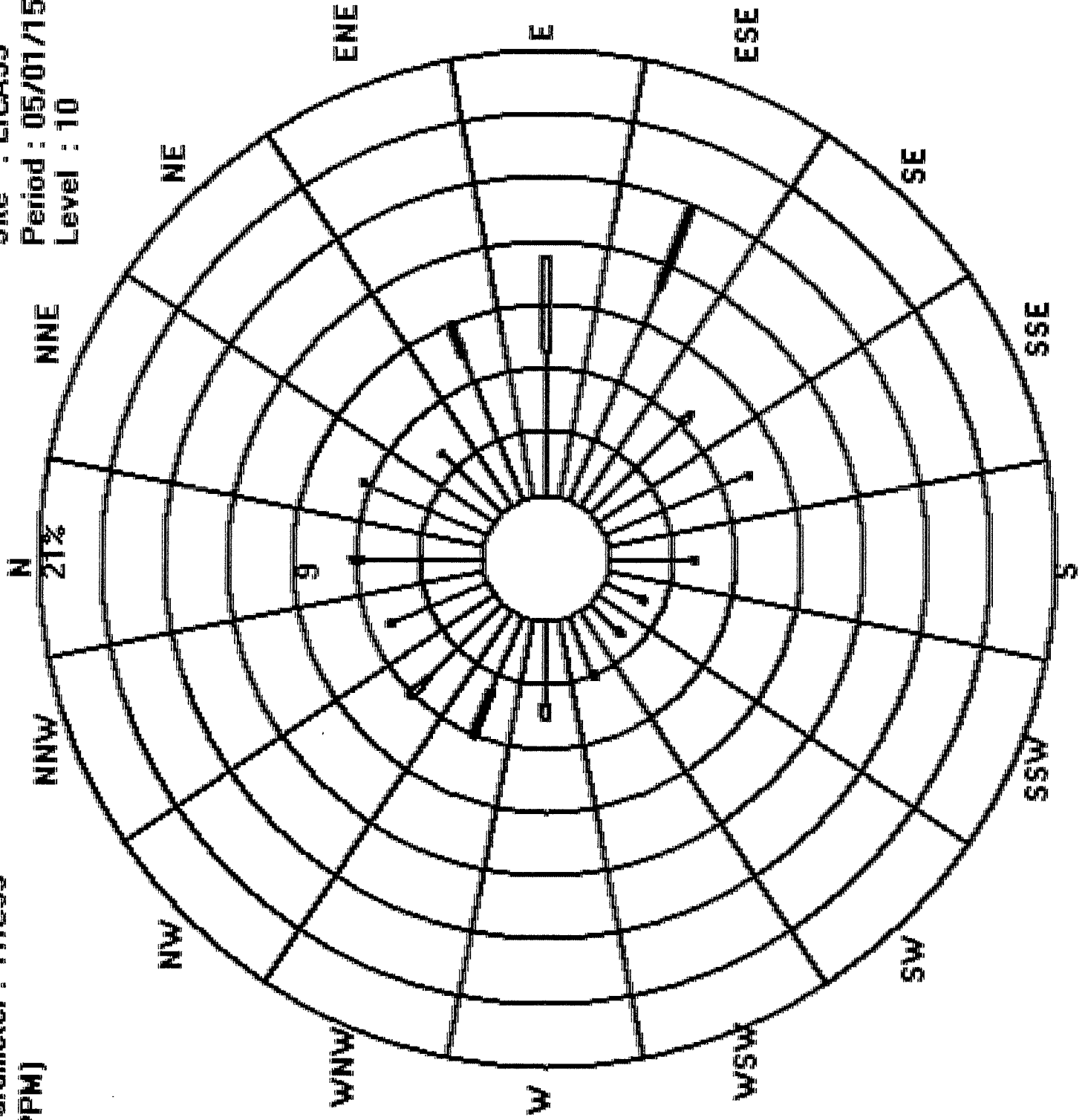
Total # Operational Hours : 706

Logger : 35 Parameter : THC55

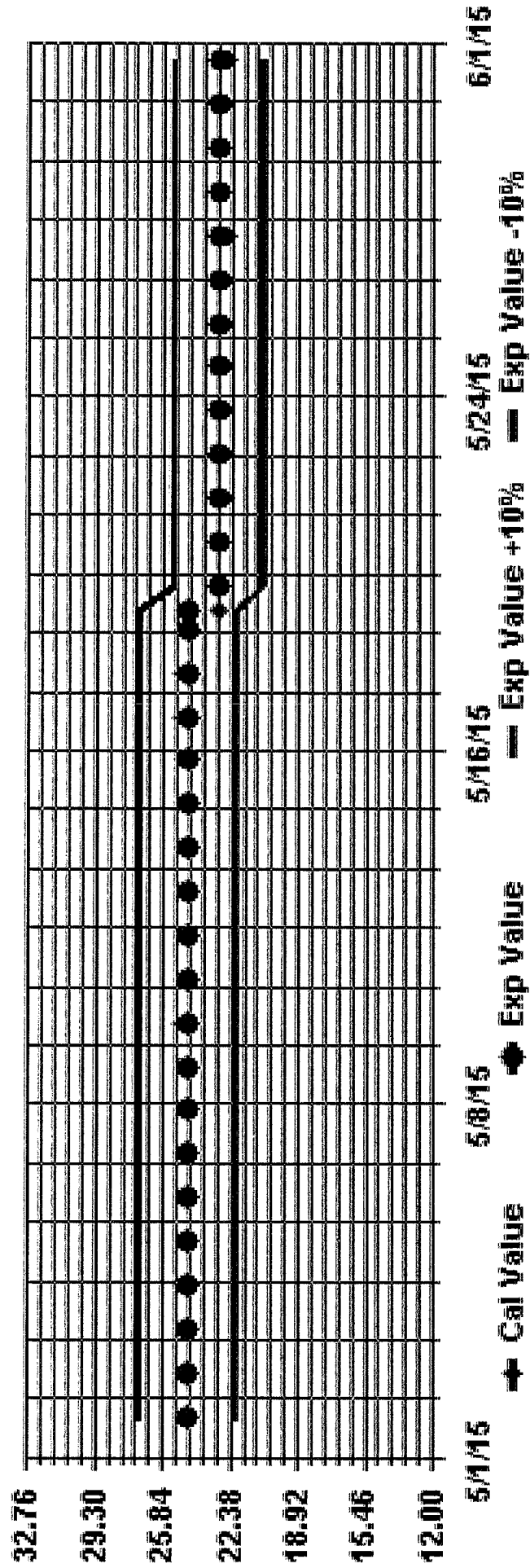
Class Limits (PPM)



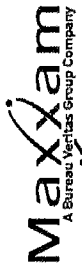
Site : LICA35
Period : 05/01/15-05/31/15
Level : 10



Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN



METHANE



METHANE (CH4) hourly averages in ppm

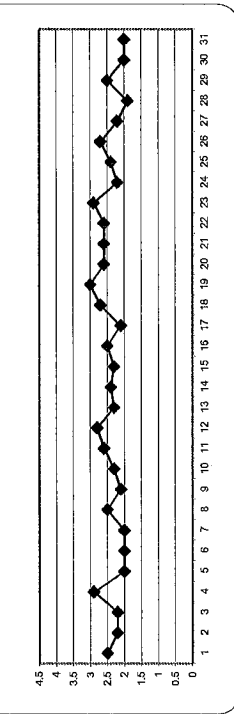
MST

DAY	HOURS																								DAILY MAX	24-HOUR AVG	RDGS		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00					
1	3.2	2.8	2.5	4.0	4.2	3.6	3.0	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	5	3.3	4.2	2.5	24	
2	3.1	2.5	2.7	2.5	2.2	2.2	2.1	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	3.1	2.2	24
3	2.3	2.2	2.2	2.3	2.4	2.2	2.4	2.1	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.6	2.3	24
4	4.0	4.4	4.8	4.4	4.5	4.5	4.7	4.0	3.8	3.0	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.8	3.0	24
5	2.0	2.0	2.0	2.0	R	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	23
6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
8	3.1	2.9	3.0	2.9	3.1	3.4	3.6	3.2	2.7	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.4	2.5	2.2	3.6	2.5	24
9	2.6	2.3	2.3	2.2	2.3	2.3	2.2	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.6	2.2	24
10	2.2	2.6	2.8	2.9	2.9	2.7	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.7	2.8	3.0	2.3	2.4	24
11	3.2	3.5	3.6	3.5	3.5	3.5	3.5	2.8	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
12	2.7	2.9	2.8	2.7	2.9	3.0	2.7	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
13	2.6	2.6	2.8	3.2	3.3	3.5	3.0	3.1	2.9	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.5	2.2	3.5	2.4	24	
14	2.2	2.5	2.8	2.9	2.9	2.8	2.6	2.6	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
15	4.4	3.9	4.5	4.3	3.9	2.8	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	24
16	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
17	3.1	3.3	3.3	3.6	4.0	3.7	3.6	3.0	3.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
18	3.4	2.9	3.2	3.8	3.9	3.8	3.8	3.4	3.7	3.4	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	24
19	4.0	3.5	3.4	3.6	3.7	3.8	3.5	3.3	3.5	3.3	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
20	2.8	3.7	3.7	3.9	4.5	3.9	3.6	2.9	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
21	3.6	6.0	5.1	3.7	5.1	7.0	5.1	2.3	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
22	2.3	2.3	2.2	2.2	4.0	2.7	2.9	2.4	2.3	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24
23	3.2	3.7	5.0	3.1	2.1	2.1	2.2	2.3	2.1	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	24
24	5.0	5.8	6.6	4.9	3.9	3.3	2.5	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
25	2.6	2.8	2.6	2.8	2.9	3.0	2.9	2.6	2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
26	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
27	2.9	3.0	3.6	3.3	3.6	3.7	3.4	3.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
28	2.7	2.6	2.4	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
29	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
30	5.0	5.8	6.6	5.1	4.5	5.1	7.0	5.1	3.8	3.0	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
31	2.9	2.9	3.2	3.1	3.1	3.1	2.8	2.4	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
HOURLY MAX																													
HOURLY AVG																													

STATUS FLAG CODES

C	CONCENTRATION	Q	QUANTITY SURCHARGE
V	VENTILATION	R	RECOVERY
M	MAINTENANCE	X	MACHINE/ALFUNCTION
S	DAILY ZERO/SPAN CHECK	O	OPERATOR ERROR
P	POWER FAILURE	K	COLLECTION ERROR
G	OUT OF RANGE		

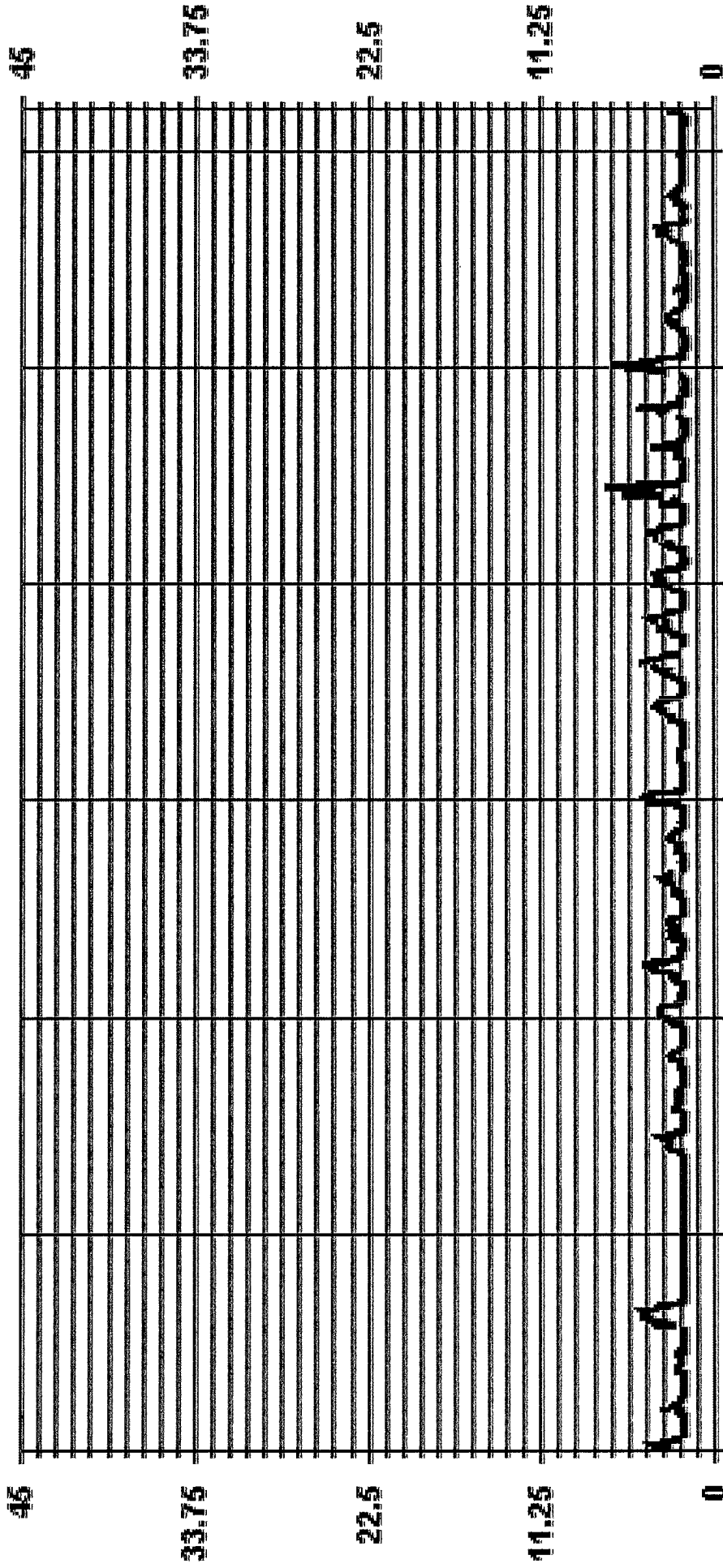
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	7.0 PPM	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	3.0 PPM	ON DAY(S)	VAR-VARIOUS
IPS CALIBRATION TIME:	32 HRS	OPERATION TIME:	743 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.74	MONTHLY AVERAGE:	2.4 PPM

01 Hour Averages



— LIGA35 - - - - - METHANE PPM



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - MAY 2015
JOB # 196-2015-05-93-C

METHANE MAX instantaneous maximum in ppm

MST

DAY	HOURS																								24-HOUR AVG.	RDGS			
	0000	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000	20000	21000	22000	23000			24000		
1	4.6	3.0	3.6	4.7	4.8	3.9	3.5	2.7	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.4	\$	4.7	4.8	2.9	24	
2	3.5	2.8	3.0	3.2	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.7	\$	2.6	2.5	2.4	24
3	2.5	2.3	2.3	2.5	2.6	2.4	2.5	2.6	2.4	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	3.1	6.4	4.7	24
4	4.5	5.1	5.4	4.9	4.8	4.7	5.8	4.5	4.0	3.5	4.0	3.5	2.5	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
8	3.3	3.2	3.1	3.0	3.3	3.9	4.1	3.5	3.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
9	2.7	2.6	2.4	2.4	2.4	2.5	2.4	2.7	2.6	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
10	2.4	2.8	3.1	3.1	3.1	2.9	2.6	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
11	3.6	4.0	3.9	3.7	3.6	3.6	3.8	3.4	2.5	2.4	2.2	2.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
12	2.8	3.4	3.9	4.1	4.3	4.6	4.9	4.7	3.7	2.8	2.3	\$	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
13	2.9	3.3	3.0	2.9	3.1	3.1	3.2	3.0	2.5	2.3	\$	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
14	2.8	3.1	3.8	3.8	3.8	3.8	3.3	3.2	3.2	3.2	\$	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
15	2.3	3.0	2.9	3.0	3.1	3.1	3.0	2.9	\$	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
16	5.4	4.8	5.0	4.8	4.7	3.0	2.6	\$	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
17	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	\$	2.1	2.1	2.1	2.1	24
18	3.4	3.6	3.5	4.1	4.2	\$	4.0	3.8	3.6	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	\$	2.1	2.1	2.1	2.1	24
19	3.8	4.8	5.0	4.5	\$	5.3	4.5	4.2	3.5	3.2	C	C	C	C	C	C	C	C	C	C	C	C	C	\$	2.1	2.1	2.1	2.1	24
20	6.0	4.0	3.8	\$	4.8	4.5	4.4	3.8	3.6	3.2	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
21	10.7	4.5	\$	3.9	4.0	4.3	4.2	3.7	3.6	3.2	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
22	3.1	\$	7.3	4.2	4.9	4.9	4.5	3.7	3.6	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	\$	2.1	2.1	2.1	2.1	24
23	\$	4.7	8.5	6.2	4.6	10.2	10.2	7.8	2.5	2.4	2.3	2.1	2.0	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
24	3.0	3.6	2.3	2.9	9.2	3.2	3.3	2.7	2.9	2.1	2.0	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
25	4.4	6.7	6.9	4.8	2.3	2.4	2.4	2.8	2.9	2.1	2.5	1.9	2.0	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
26	6.9	8.0	8.8	6.6	5.6	4.0	3.2	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	\$	2.1	2.1	2.1	2.1	24
27	3.0	3.3	3.7	3.0	3.1	3.2	3.1	2.8	2.5	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	\$	2.1	2.1	2.1	2.1	24
28	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
29	3.7	3.5	4.4	3.6	3.8	4.0	3.7	3.4	2.7	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
30	3.1	2.9	2.8	2.5	2.5	2.3	2.3	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.1	2.1	2.1	24
31	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24
HOURLY MAX	10.7	8.0	8.8	6.6	9.2	10.2	10.2	7.8	4.0	3.5	2.5	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	\$	2.1	2.1	2.1	2.1	24
HOURLY AVG	3.6	3.5	3.8	3.5	3.6	3.5	3.5	3.1	2.7	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.1	2.1	2.1	2.1	24

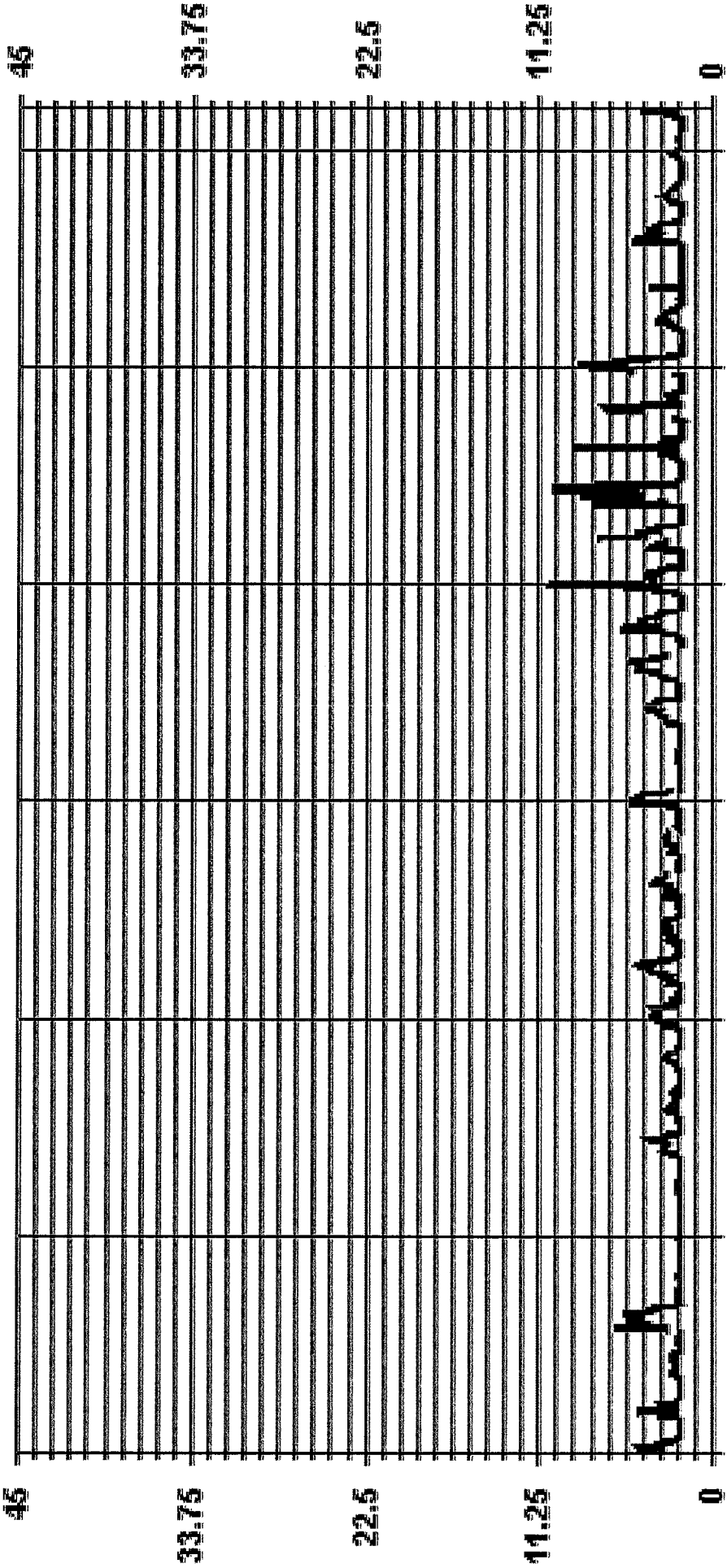
STATUS FLAG CODES

C	QUALITY ASSURANCE
S	MAINTENANCE
P	RECOVERY
V	DAILY ZERO/SPIG CHECK
O	OPERATOR ERROR
X	COLLECTION ERROR
Y	MACHINE MALFUNCTION
Z	OUT FOR REPAIR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	10.7 PPM @ HOUR(S) 0 ON DAY(S) 21
IS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	1.17
OPERATIONAL TIME:	VAR-VARIOUS
742 HRS	

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

--- LICA35 MATHMAX PPM

LIIA35
 METHANE / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger Id : 35
 Site Name : LIIA35
 Parameter : METHANE
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	5.66	6.37	3.96	7.36	6.79	10.90	6.23	7.36	3.96	1.84	1.69	2.69	3.82	3.68	4.81	4.81	82.01
< 10.0	.56	.14	.14	1.69	4.53	3.96	.56	.14	.28	.28	.42	.42	.70	2.40	1.41	.28	17.98
< 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	6.23	6.51	4.10	9.06	11.33	14.87	6.79	7.50	4.24	2.12	2.12	3.11	4.53	6.09	6.23	5.09	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

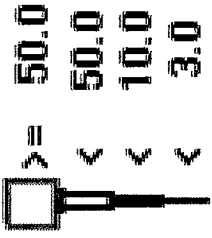
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	40	45	28	52	48	77	44	52	28	13	12	19	27	26	34	34	579
< 10.0	4	1	1	12	32	28	4	1	2	2	3	3	5	17	10	2	127
< 50.0																	
>= 50.0																	
Totals	44	46	29	64	80	105	48	53	30	15	15	22	32	43	44	36	

Calm : .00 %

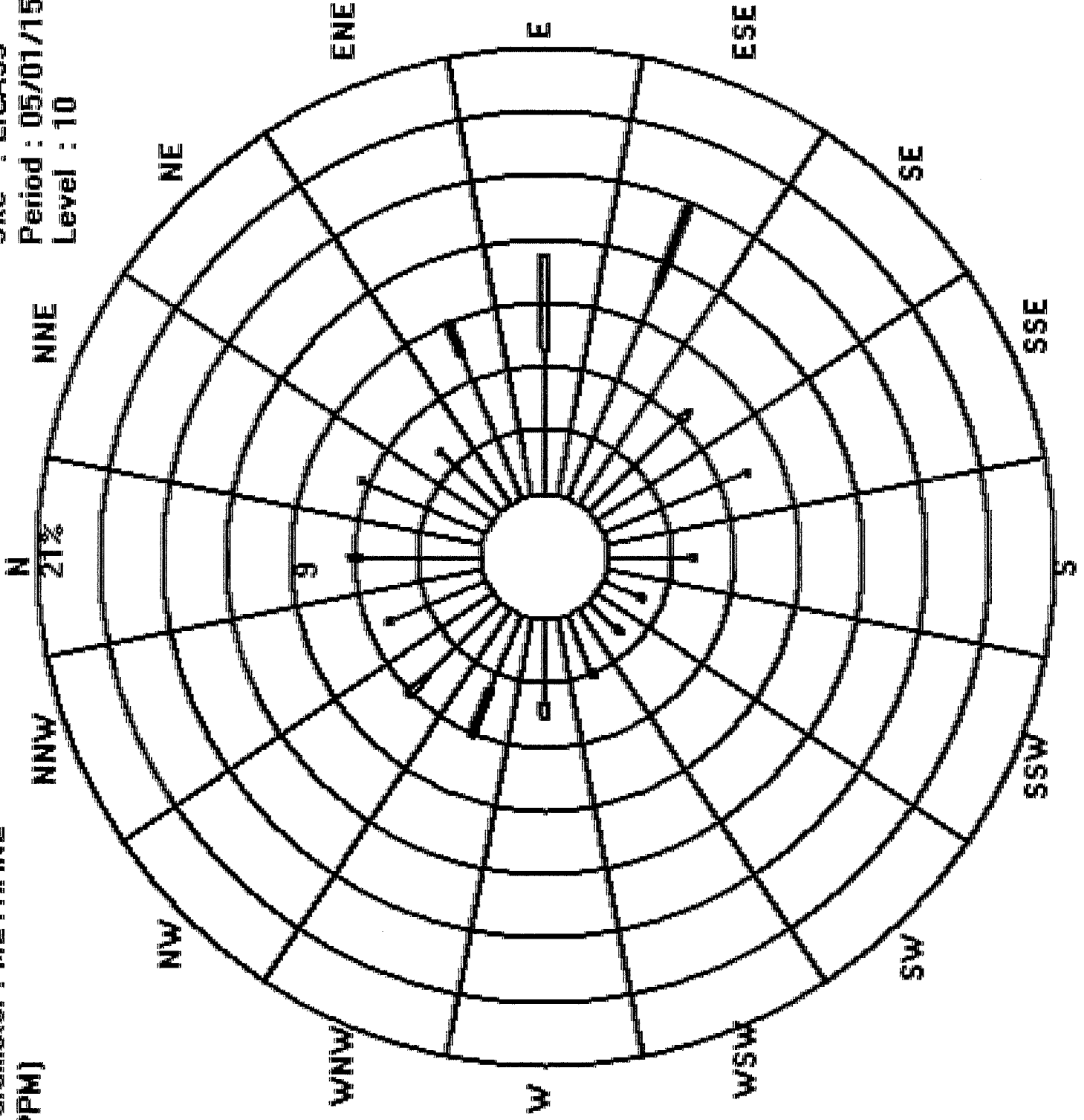
Total # Operational Hours : 706

Logger : 35 Parameter : METHANE

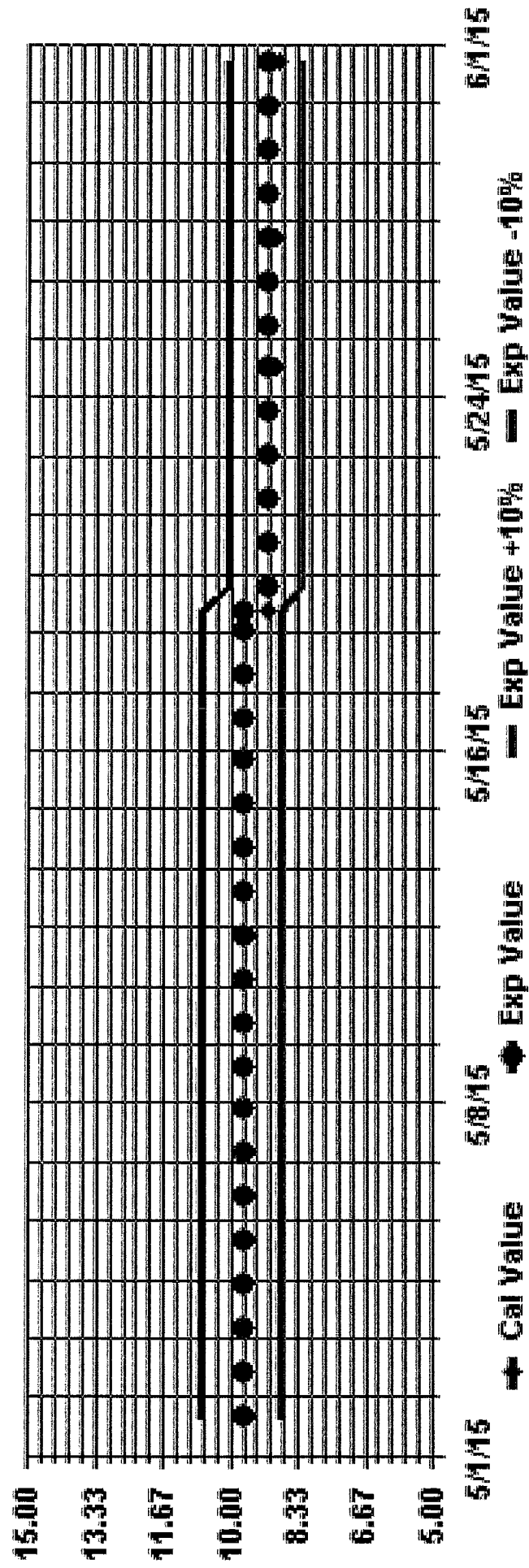
Class Limits (PPM)



Site : LICA35
Period : 05/01/15-05/31/15
Level : 10



Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN



NON-METHANE HYDROCARBON



NON-METHANE HYDROCARBONS (NMHC) hourly averages in ppm

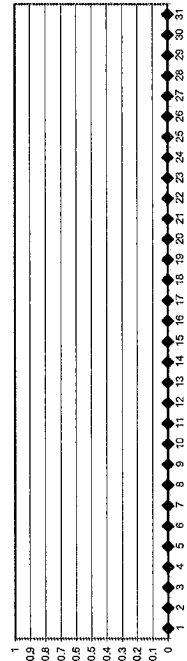
MST

DAY	DAILY MAX																								24-HOUR AVG.	RDGS.			
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			24:00		
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	24	
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	24	
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
16	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.20	0.20	0.10	0.20	0.10	0.10	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
HOURLY AVG	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

STATUS FLAG CODES

C	CALIBRATION
G	QUALITY ASSURANCE
Y	MAINTENANCE
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	COURT FOR REPAIR
R	RECOVERY
X	MACHINE MALFUNCTION
O	OPERATOR ERROR
K	COLLECTION ERROR

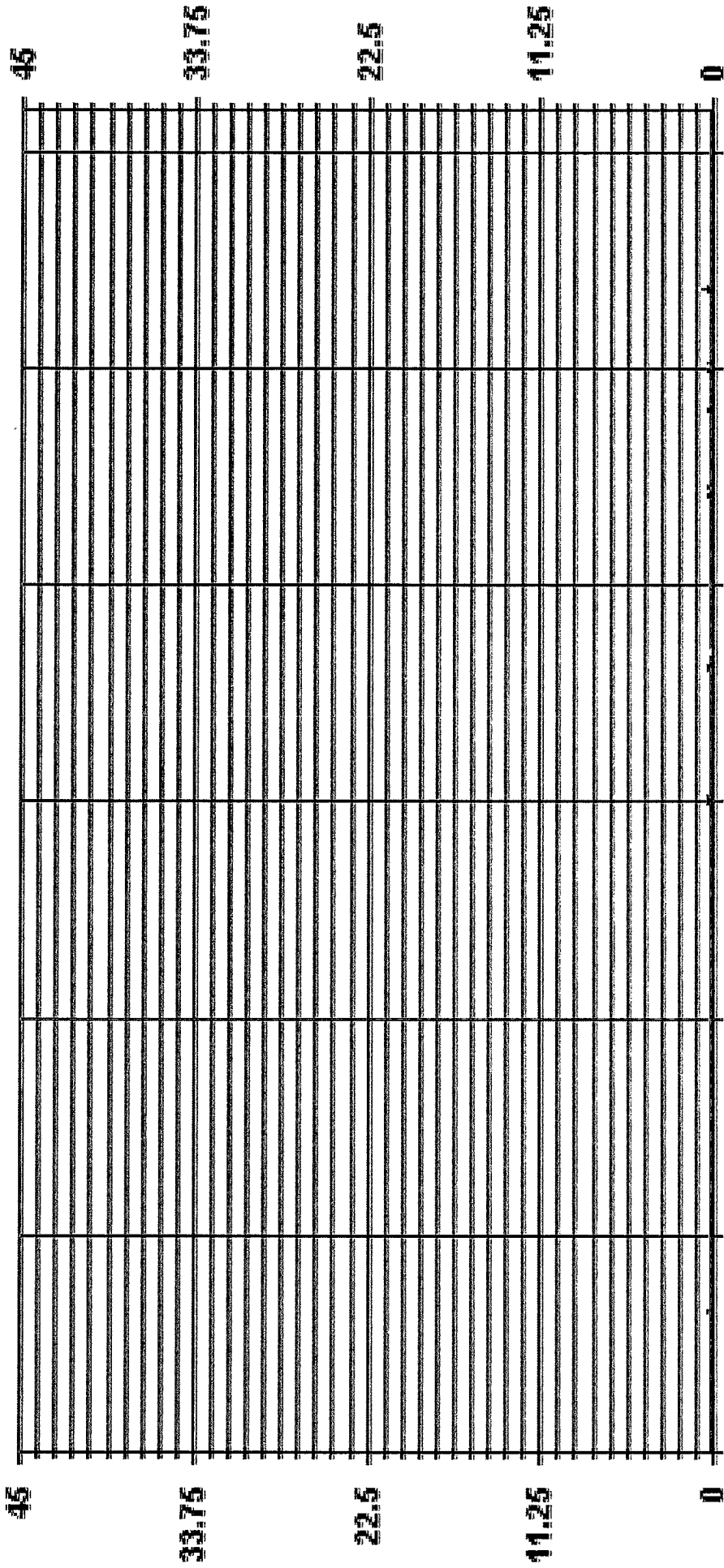
24 HOUR AVERAGES FOR MAY 2015



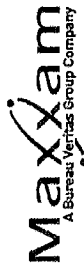
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	37	ON DAY(S)	27
MAXIMUM 1-HR AVERAGE:	0.30 PPM	@ HOUR(S)	21
MAXIMUM 24-HR AVERAGE:	0.04 PPM	ON DAY(S)	26
1/2S CALIBRATION TIME:	32 HRS	OPERATION TIME:	743 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.03	MONTHLY AVERAGE:	0.01 PPM

01 Hour Averages



— LICA35 NMHC PPM



NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

MST

DAY	HOURS																								24-HOUR AVG.	ROGS.		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00				
1	0.08	0.13	0.16	0.14	0.13	0.19	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.12	\$	0.10	0.19	0.06	24
2	0.13	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.19	\$	0.00	0.00	0.00	24
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.08	0.04	0.11	0.01	24
4	0.15	0.15	0.22	0.26	0.04	0.14	0.08	0.15	0.15	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.26	0.06	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	\$	0.00	0.00	0.00	0.08	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	\$	0.00	0.00	0.00	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
9	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.11	0.00	0.10	0.00	0.00	0.13	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.13	0.03	24
12	0.00	0.00	0.00	0.20	0.13	0.15	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.20	0.02	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
14	0.11	0.12	0.00	0.00	0.08	0.15	0.00	0.12	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.15	0.03	24
15	0.00	0.00	0.11	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
16	0.25	0.18	0.27	0.25	0.32	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.32	0.06	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
18	0.00	0.09	0.00	0.00	0.00	0.19	0.00	0.14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
19	0.00	0.12	0.00	0.20	0.00	0.35	0.21	0.00	0.17	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
20	0.11	0.12	0.00	0.13	0.13	0.08	0.00	0.00	0.07	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.09	0.16	0.13	0.09	0.39	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.17	0.32	0.27	0.17	0.21	0.37	0.36	0.00	0.00	0.09	0.00	0.10	0.00	0.11	0.07	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
23	\$	0.17	0.32	0.27	0.17	0.21	0.37	0.36	0.00	0.00	0.09	0.00	0.10	0.00	0.11	0.07	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.24	0.23	0.28	0.32	0.00	0.00	0.14	0.10	0.00	0.00	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
25	0.33	0.33	0.37	0.39	0.25	0.19	0.11	0.15	0.00	0.13	0.13	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.18	0.00	0.00	0.00	0.14	0.12	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
27	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
28	0.16	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.33	0.38	0.37	0.39	0.35	0.21	0.99	0.39	0.26	0.13	2.18	0.13	0.10	0.00	0.22	0.10	0.06	0.20	0.53	0.16	0.26	0.38	0.29	0.49				
HOURLY AVG	0.05	0.07	0.07	0.08	0.07	0.07	0.08	0.07	0.04	0.02	0.08	0.01	0.01	0.00	0.01	0.01	0.00	0.03	0.04	0.01	0.06	0.05	0.07					

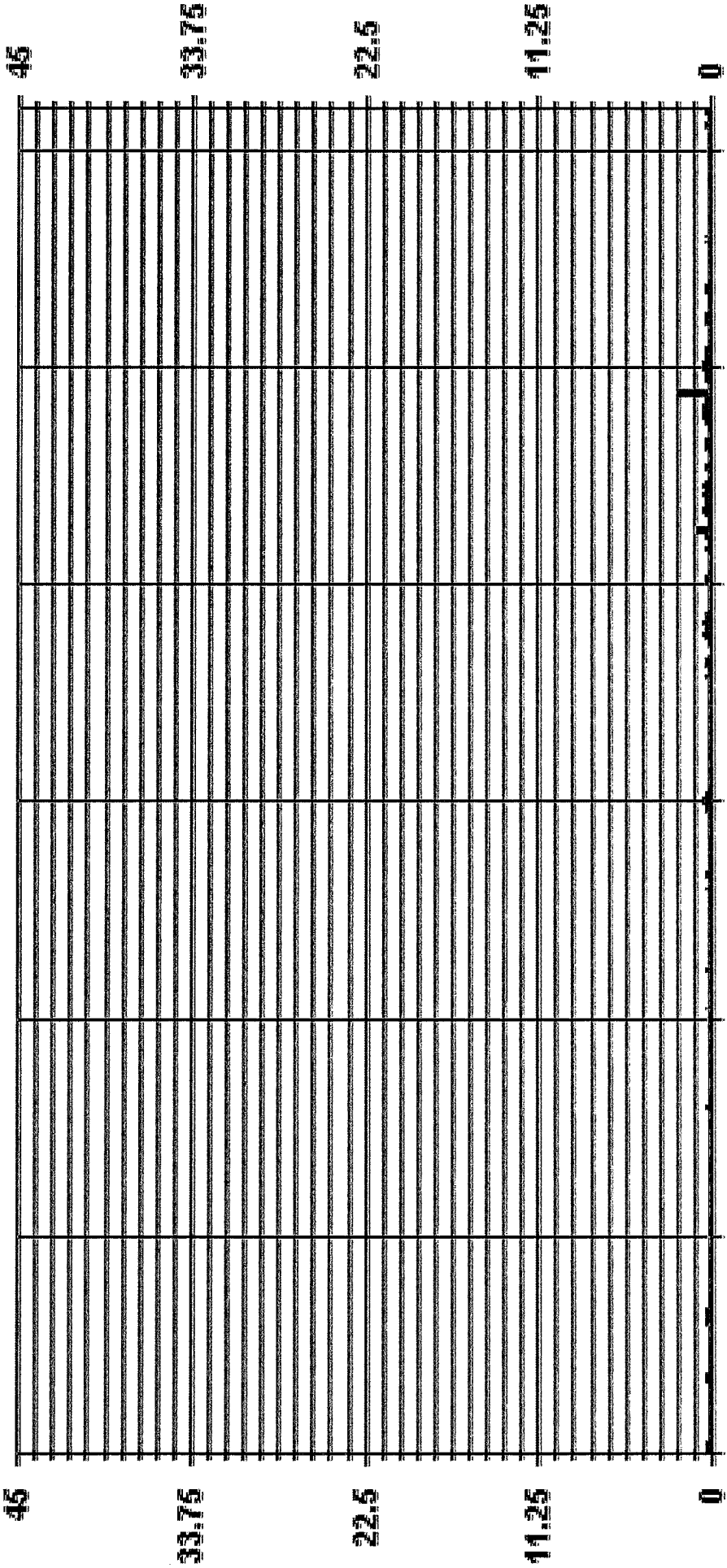
STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
M	MAINTENANCE	N	NEGATIVE
S	DATA ZERO/SPAN CHECK	X	MACHINE/FAULT FUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF-REPAIR	K	SCHEMATIC ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	182
MAXIMUM INSTANTANEOUS VALUE:	2.18 PPM @ HOUR(S) 10 ON DAY(S) 25
VAR-VARIOUS	
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	742 HRS
STANDARD DEVIATION:	0.12

01 Hour Averages



05:01/15 00:05/06/15 00:05/11/15 00:05/16/15 00:05/21/15 00:05/26/15 00:05/31/15 00:00

— LICA35 NMHC MAX PPM

LIICA35
 NMHC / WDR Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

Logger Id : 35
 Site Name : LIICA35
 Parameter : NMHC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< .2	6.09	6.51	4.10	9.06	11.33	14.87	6.79	7.50	4.24	2.12	2.12	3.11	4.53	6.09	6.23	5.09	99.85			
< .5	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14			
< 1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
< 2.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
< 4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
>= 4.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
Totals	6.23	6.51	4.10	9.06	11.33	14.87	6.79	7.50	4.24	2.12	2.12	3.11	4.53	6.09	6.23	5.09	5.09			

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

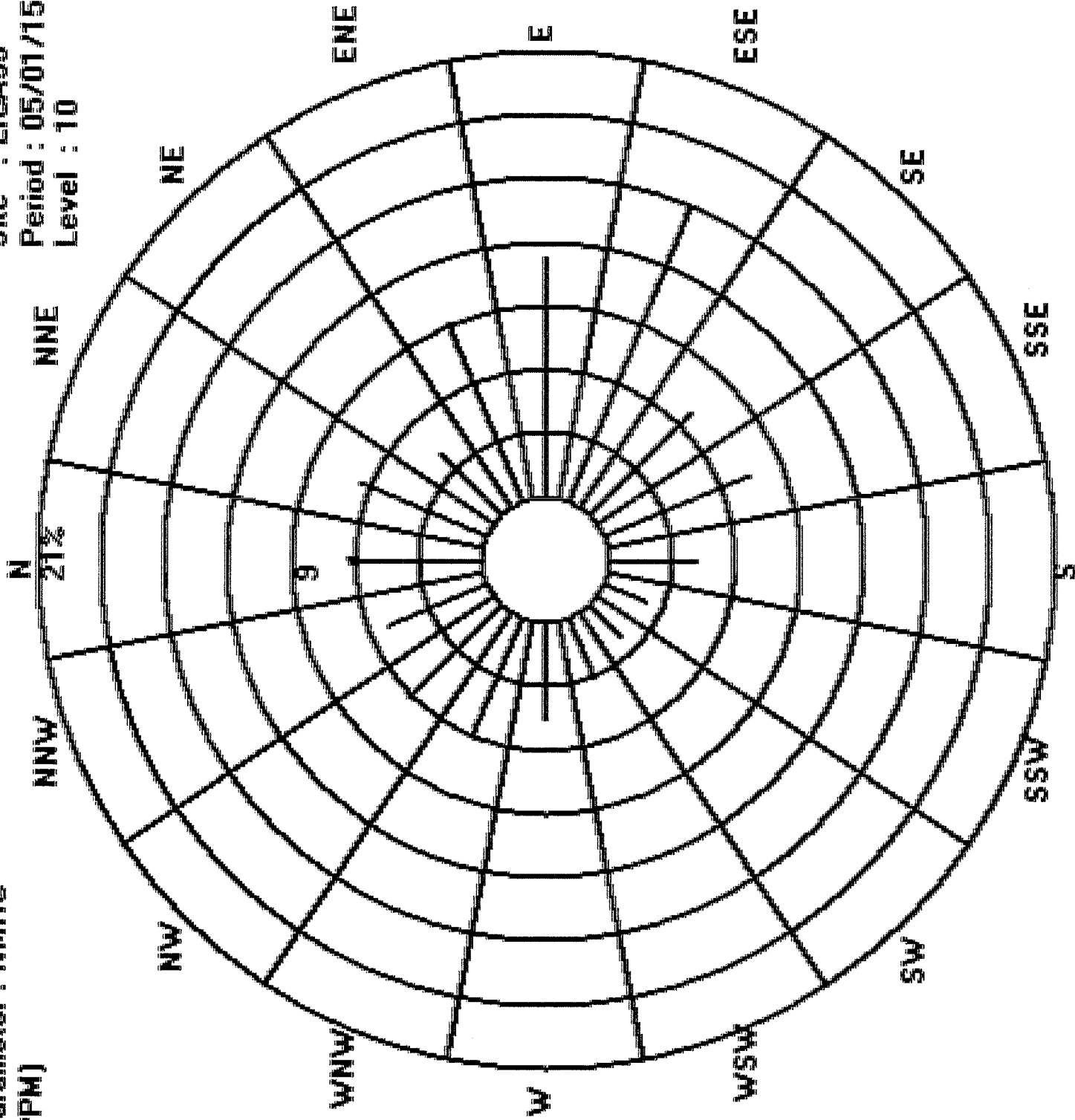
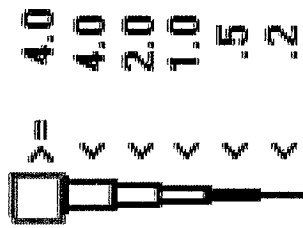
Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW				
< .2	43	46	29	64	80	105	48	53	30	15	15	22	32	43	44	36	705			
< .5	1																1			
< 1.0																				
< 2.0																				
< 4.0																				
>= 4.0																				
Totals	44	46	29	64	80	105	48	53	30	15	15	22	32	43	44	36	36			

Calm : .00 %

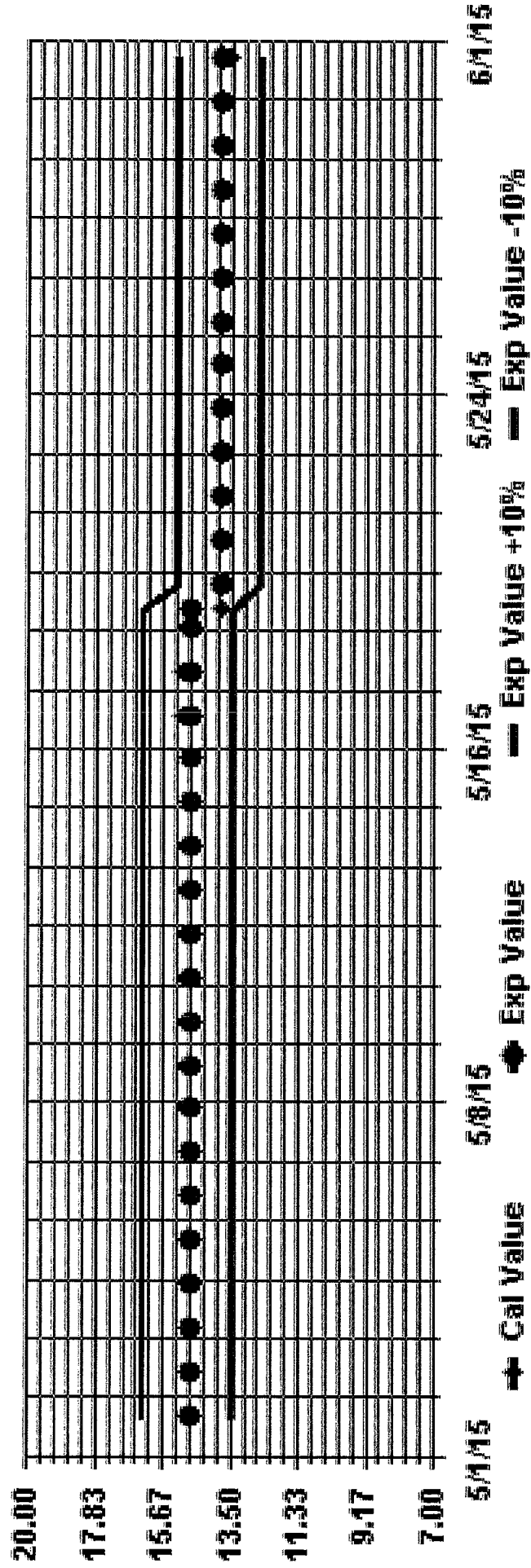
Total # Operational Hours : 706

Site : LICA35
 Period : 05/01/15-05/31/15
 Level : 10

Logger : 35 Parameter : NMHC
 Class Limits (PPM)



Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN



OXIDES OF NITROGEN



OXIDES OF NITROGEN (NOx) hourly averages in ppb

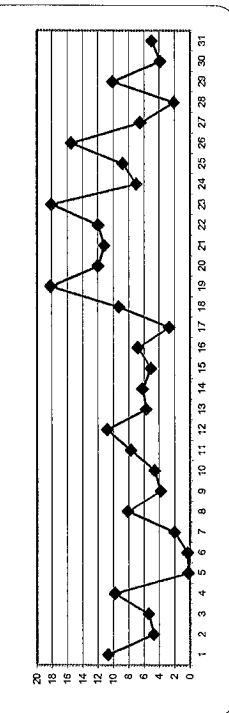
MST

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
HOURLY MAX	17.0	14.6	9.1	7.9	2.9	1.0	1.2	0.8	0.9	1.1	0.4	0.5	0.6	1.1	1.1	1.1	2.8	10.2	\$	18.0	\$	45.2	10.7	24							
HOURLY AVG	53.3	74.4	80.8	53.4	45.2	42.9	85.5	53.6	13.9	7.1	3.9	3.5	2.4	2.8	1.9	1.6	2.4	2.7	5.1	9.1	13.5	33.3	26.8	36.1							
24-HOUR AVG	13.5	13.2	16.3	17.2	16.1	17.0	14.5	10.5	5.5	2.7	1.4	1.0	0.9	1.0	0.9	0.7	0.9	1.1	1.6	2.6	5.6	8.6	9.8	12.7							

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

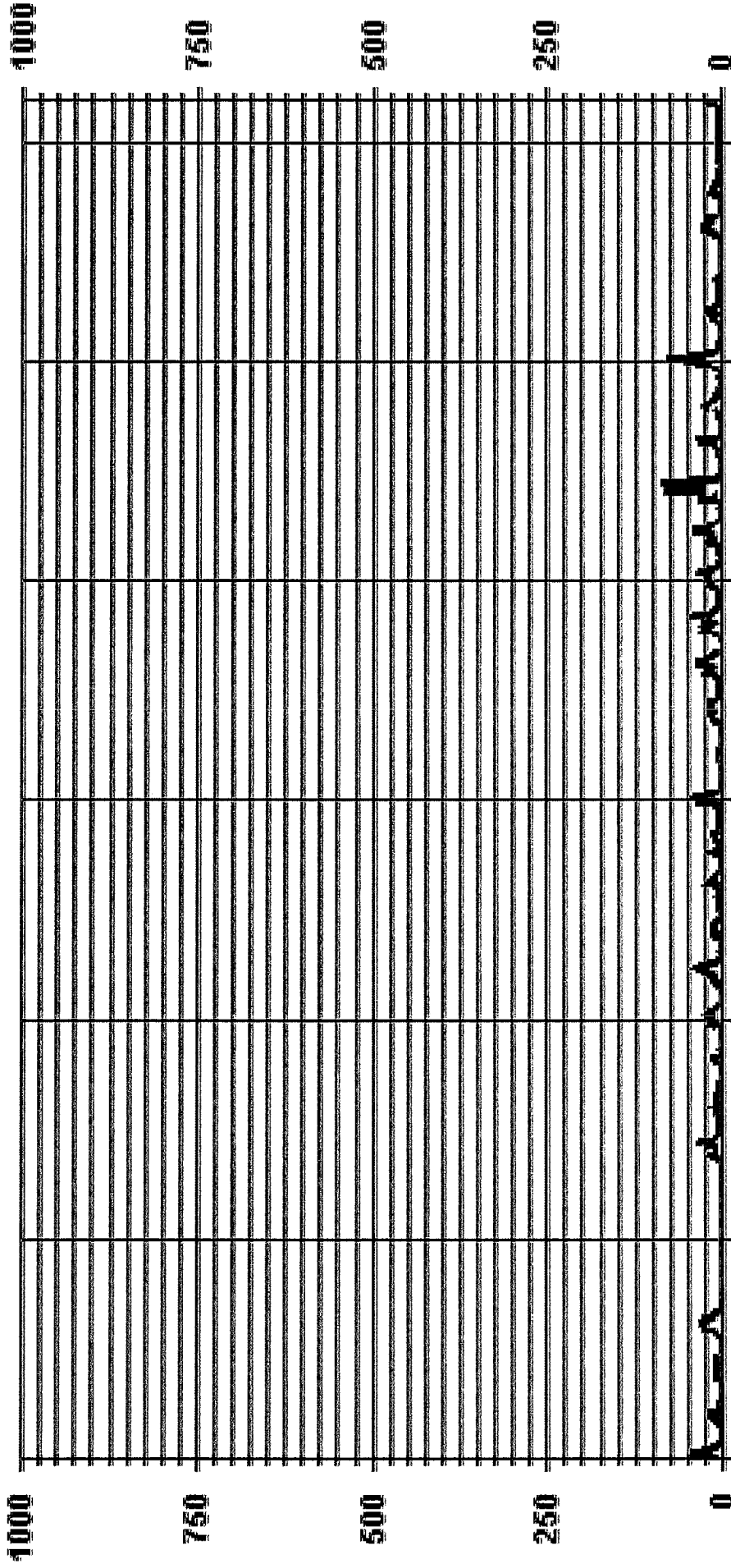
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684	PPB @ HOURS(S)	6	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	85.5	PPB	18.2	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	13.5	PPB	13.5	VAR-VARIOUS	
1/2 CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:	744
MONTHLY CALIBRATION TIME:	8	HRS		AMTD OPERATIONAL UPTIME:	100.0
STANDARD DEVIATION:	10.79			MONTHLY AVERAGE:	7.4
					PPB

01 Hour Averages



— LICA35 NOX_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - MAY 2015
JOB # 196-2015-05-93-C

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR	0:00		1:00		2:00		3:00		4:00		5:00		6:00		7:00		8:00		9:00		10:00		11:00		12:00		13:00		14:00		15:00		16:00		17:00		18:00		19:00		20:00		21:00		22:00		23:00		24:00	
	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG				
1	32.9	20.1	28.4	64.2	63.6	40.7	24.4	13.7	11.1	5.8	1.7	2.0	2.1	1.8	2.1	1.1	1.2	1.2	1.2	2.5	1.7	6.8	40.9	\$	23.7	64.2	17.1	24																						
2	14.2	18.3	43.9	22.9	8.4	11.8	6.8	5.1	1.9	1.5	1.2	1.3	1.4	2.4	1.5	1.3	1.3	0.7	0.8	25.7	24.1	\$	12.6	13.2	43.9	10.1	24																							
3	20.4	10.2	10.2	10.4	16.9	13.6	14.1	13.4	9.6	3.0	3.0	0.8	1.2	1.1	1.2	1.5	3.6	1.9	2.6	4.7	\$	20.5	30.8	112.4	13.1	24																								
4	30.0	66.1	29.9	52.8	30.2	47.3	43.1	21.0	15.6	10.5	3.6	1.9	1.8	1.5	1.8	1.5	1.3	1.3	1.0	\$	1.3	0.9	0.6	66.1	15.9	24																								
5	0.8	0.9	0.7	R	0.7	0.7	0.9	1.3	0.9	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.7	\$	1.2	1.1	1.2	1.3	1.6	1.6	0.9	23																								
6	1.3	1.3	1.1	1.0	1.4	1.0	1.4	1.0	0.8	1.2	1.2	1.0	1.1	1.5	1.5	1.5	0.9	\$	1.6	1.5	2.1	3.3	18.3	53.5	25.9	24																								
7	1.6	1.1	1.8	1.7	1.3	1.4	1.2	1.7	1.6	1.1	1.1	0.9	1.1	1.0	1.0	1.0	\$	9.4	6.6	3.7	4.3	6.3	12.4	19.7	5.4	74.1	14.0	24																						
8	11.3	14.8	12.5	21.0	35.0	74.1	27.2	20.5	14.0	4.2	6.6	4.9	3.0	2.8	2.9	\$	9.4	6.6	3.7	4.3	6.3	12.4	19.7	5.4	74.1	14.0	24																							
9	7.3	9.1	25.8	25.0	44.1	21.7	4.1	2.9	2.8	2.2	1.5	0.9	1.1	\$	1.2	1.0	0.9	0.9	0.9	0.9	0.9	1.3	1.4	1.5	2.8	16.3	6.2	24																						
10	18.3	17.8	22.8	81.2	43.1	73.4	19.9	10.6	6.0	3.9	2.5	1.2	\$	1.8	1.6	1.6	1.3	1.4	1.4	61.3	36.5	8.5	13.0	17.9	19.4	24																								
11	17.5	32.3	26.0	41.2	52.1	70.5	32.6	26.1	17.4	6.8	2.6	\$	2.2	2.2	2.4	3.1	3.1	1.5	4.4	6.0	12.6	7.6	23.5	22.3	70.5	18.1	24																							
12	25.1	22.5	15.2	18.4	20.2	25.3	15.2	10.1	5.9	3.5	\$	2.0	2.8	2.2	2.6	2.5	3.5	3.1	4.8	8.2	12.1	9.1	5.2	7.0	25.3	9.9	24																							
13	7.7	8.6	11.7	82.0	25.4	23.0	16.3	11.9	11.2	\$	2.0	1.6	1.3	1.2	1.5	2.2	2.0	3.0	7.1	15.9	29.1	7.3	6.0	3.2	82.0	12.2	24																							
14	3.5	8.1	8.6	9.1	17.1	18.0	15.8	11.3	\$	2.6	2.3	4.0	4.7	5.1	4.1	2.9	3.2	5.4	5.0	2.5	4.1	13.0	22.9	31.3	8.9	24																								
15	56.5	37.4	67.4	37.8	17.9	7.4	5.0	\$	1.2	1.1	1.3	1.3	1.1	1.0	1.1	0.9	0.4	1.0	0.9	1.1	2.8	2.0	2.7	67.4	10.9	24																								
16	3.3	3.4	2.4	2.3	2.3	2.4	\$	1.2	0.9	0.6	0.7	0.5	0.5	0.7	1.1	0.5	1.2	0.8	2.4	12.5	17.5	53.3	20.2	28.0	53.3	6.9	24																							
17	34.6	20.0	18.2	23.4	20.1	\$	26.0	18.4	17.4	6.5	2.7	2.8	2.1	3.0	2.0	3.0	2.3	5.4	7.8	10.2	10.9	19.3	58.1	30.6	58.1	15.0	24																							
18	32.9	24.7	31.4	68.0	\$	53.2	31.5	27.4	15.4	9.8	C	C	C	C	C	C	C	C	4.2	20.2	63.8	59.6	34.7	35.9	68.0	34.2	24																							
19	42.9	20.9	28.7	\$	102.1	71.7	45.4	20.7	17.3	9.6	4.3	3.3	3.0	2.4	4.2	3.6	2.6	6.0	10.6	11.5	9.0	18.4	23.1	26.4	102.1	21.2	24																							
20	24.6	29.9	\$	24.5	61.3	61.7	33.4	18.9	14.7	10.7	3.5	3.4	3.4	3.4	2.3	2.1	3.3	4.7	4.7	13.9	12.5	12.7	31.6	30.4	24.5	61.7	18.8	24																						
21	18.4	\$	20.8	60.6	48.8	56.9	28.3	20.7	20.0	5.6	3.2	2.9	2.0	1.7	1.9	2.1	2.4	3.5	10.5	10.9	22.5	87.7	31.1	19.6	87.7	21.0	24																							
22	\$	56.1	133.2	77.6	35.6	63.3	106.9	83.3	6.2	5.2	3.8	2.3	2.0	1.6	1.2	1.5	1.7	1.8	1.7	1.6	3.1	3.1	20.1	\$	133.2	27.9	24																							
23	10.5	11.9	22.5	21.7	59.5	90.7	45.1	7.6	6.0	2.4	1.0	1.0	0.8	0.8	0.8	1.1	2.8	3.4	1.2	5.5	6.8	18.2	\$	93.6	90.7	15.4	24																							
24	31.6	36.5	27.7	19.5	8.6	12.3	149.4	21.8	10.8	8.3	5.2	2.2	11.2	5.1	2.5	2.2	1.8	1.8	3.3	4.5	21.8	\$	47.7	41.7	149.4	20.8	24																							
25	100.1	122.2	97.1	91.2	48.5	22.2	21.2	7.3	3.1	2.3	2.5	1.9	1.9	1.3	1.4	1.4	0.6	2.9	4.3	3.0	\$	8.5	10.8	59.5	122.2	26.7	24																							
26	17.5	17.1	14.0	31.7	29.5	30.3	15.4	9.1	7.2	5.9	4.4	2.8	2.8	3.1	2.7	3.7	3.9	2.8	5.7	\$	16.4	12.9	3.4	2.0	31.7	10.6	24																							
27	1.8	1.4	1.6	1.7	1.7	1.8	1.1	1.6	1.1	1.1	1.3	1.3	1.3	1.3	44.4	3.0	1.1	1.3	1.2	\$	1.4	5.9	6.4	15.7	52.0	6.6	24																							
28	50.4	34.5	32.5	31.0	29.1	19.2	19.0	102.6	10.0	2.2	2.3	1.8	1.1	1.1	1.1	1.1	1.5	\$	2.7	12.8	16.0	52.0	40.0	26.0	102.6	21.3	24																							
29	20.3	16.8	12.4	14.3	18.5	7.2	5.8	3.8	3.9	2.9	2.9	1.6	1.8	2.4	2.4	2.3	\$	2.6	2.8	3.5	12.0	11.8	9.0	5.1	20.3	7.2	24																							
30	4.9	4.6	4.7	5.7	4.5	6.0	6.6	6.7	5.7	4.1	6.4	4.6	3.8	2.6	2.9	\$	2.3	3.5	11.5	11.8	10.7	25.6	21.9	26.1	26.1	8.1	24																							
31	100.1	122.2	133.2	91.2	102.1	90.7	149.4	102.6	20.0	10.7	6.6	4.9	11.2	44.4	4.2	3.7	9.4	6.6	13.3	61.3	63.8	87.7	58.1	112.4	26.1	8.1	24																							
32	21.9	22.7	25.4	33.0	28.7	31.4	25.8	17.3	8.3	4.4	2.7	2.1	2.3	3.5	2.0	1.8	2.2	2.6	4.2	9.0	13.3	20.3	20.0	23.8	26.1	8.1	24																							

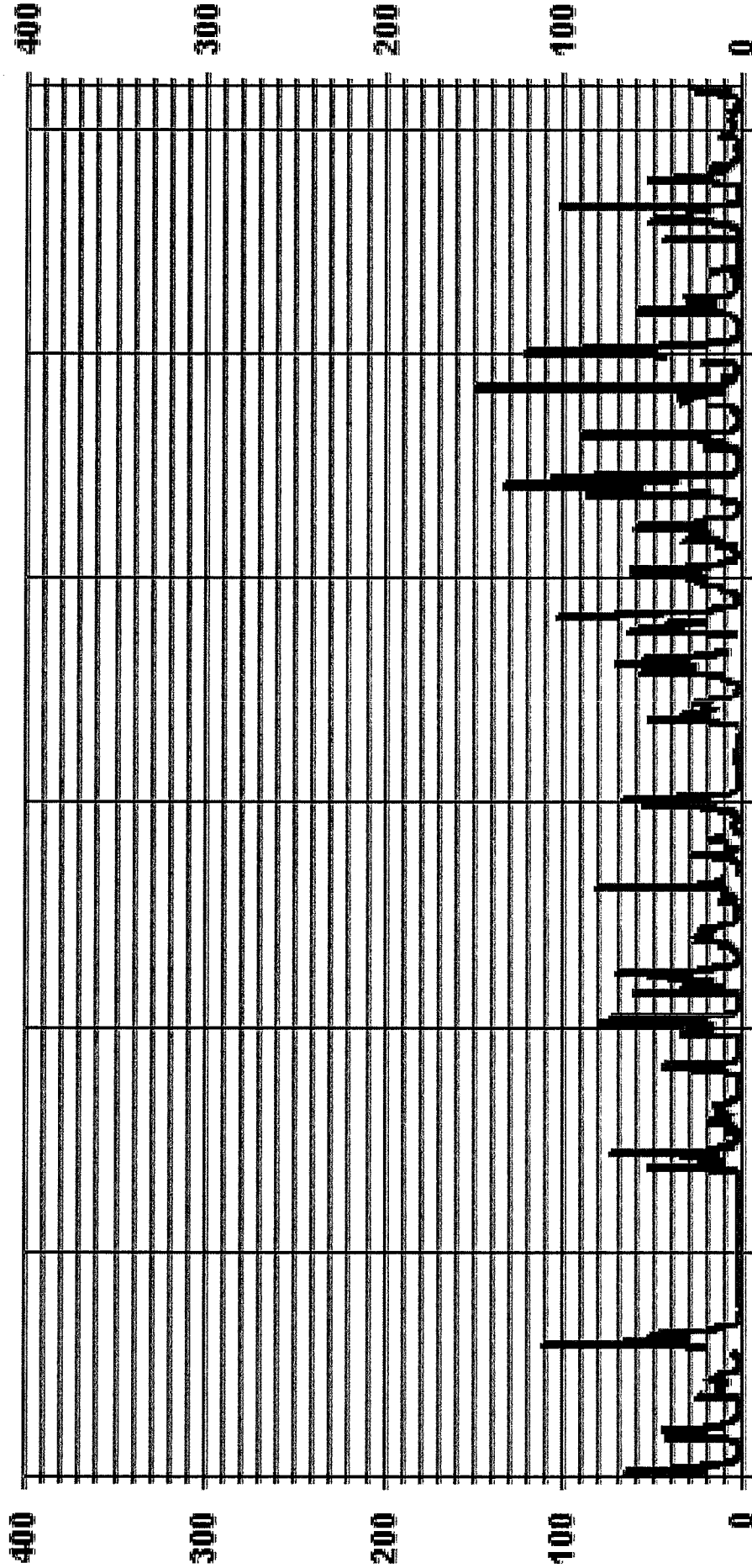
STATUS FLAG CODES

C	CALIBRATION
D	QUALITY ASSURANCE
E	RECOVERY
F	MAINTENANCE
G	DAILY ZERO CHECK
H	WIND DIRECTION
I	POWER FAILURE
J	OPERATIONAL ERROR
K	COLLECTION ERROR
L	SOIL FOR REPAIR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703
MAXIMUM INSTANTANEOUS VALUE:	149.4 PPB @ HOUR(S) 6 ON DAY(S) 25
IS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	8 HRS
OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	20.14
VAR-VARIOUS	VAR-VARIOUS

01 Hour Averages



05/01/15 00:00:05:06/15 00:00:05:11/15 00:00:05:16/15 00:00:05:21/15 00:00:05:26/15 00:00:05:31/15 00:00

— LICA35 NOXMAX PPB

LICA-ELK
 NOX_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 50.0	6.25	6.53	4.11	9.09	11.50	14.91	6.81	7.38	3.97	2.13	2.13	3.12	4.26	5.53	5.96	5.11	98.86			
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28	.56	.28	.00	1.13			
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			
Totals	6.25	6.53	4.11	9.09	11.50	14.91	6.81	7.38	3.97	2.13	2.13	3.12	4.54	6.10	6.25	5.11				

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples





Limit	Direction																NNW	NW	NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	W	WNW				
< 50.0	44	46	29	64	81	105	48	52	28	15	15	22	30	39	42	36	696			
< 110.0													2	4	2		8			
< 210.0																				
>= 210.0																				
Totals	44	46	29	64	81	105	48	52	28	15	15	22	32	43	44	36				

Calm : .00 %

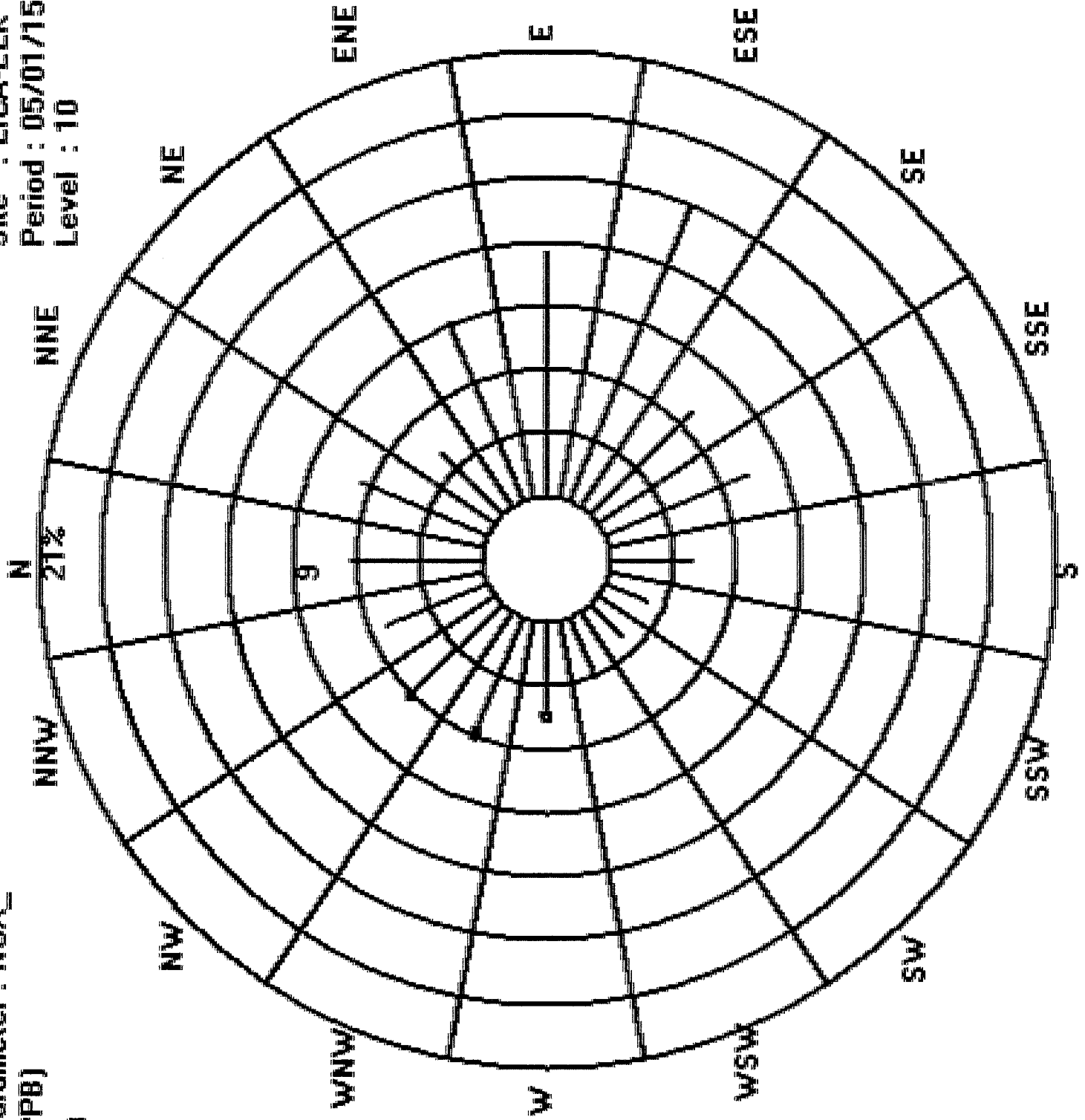
Total # Operational Hours : 704

Logger : 35 Parameter : NOX_

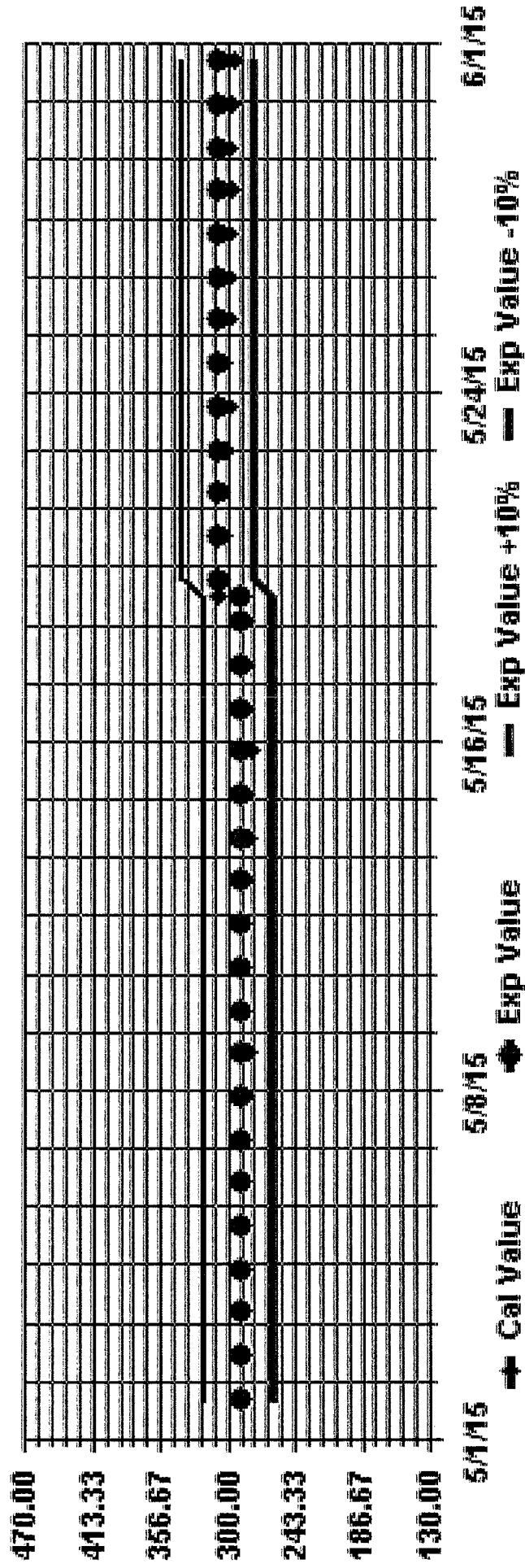
Class Limits (PPB)

-  >= 210.0
-  < 210.0
-  < 110.0
-  < 50.0

Site : LICA-ELK
Period : 05/01/75-05/31/75
Level : 10



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



NITRIC OXIDES



NITRIC OXIDE (NO) hourly averages in ppb

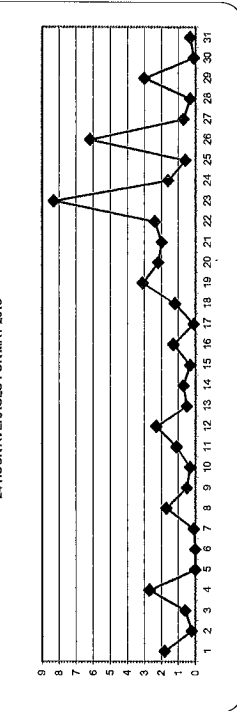
MST

DAY	HOURS																								DAILY MAX.	24-HOUR AVG.	RDGS.		
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00					
1	0.9	0.1	0.8	8.2	13.5	8.1	4.1	1.9	1.9	0.8	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	13.5	1.8	24	
2	0.3	0.0	0.2	0.0	0.2	0.1	0.7	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.8	0.2	24
3	0.0	0.0	0.0	0.1	0.5	0.9	1.2	2.7	1.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	6.3	0.6	24
4	2.6	3.9	4.8	13.2	6.8	9.7	13.7	3.9	2.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7	2.7	24
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
6	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
8	0.3	0.8	0.5	0.7	4.2	14.9	5.6	3.7	2.5	0.9	0.9	0.6	0.2	0.1	0.2	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.1	0.3	0.5	0.2	14.9	1.7	24
9	0.5	0.2	0.1	0.3	0.5	1.0	1.0	0.5	0.3	0.4	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.5	24
10	0.0	0.0	0.3	0.5	1.0	1.0	0.5	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	24
11	0.2	0.2	0.3	4.4	2.9	6.3	4.1	2.0	1.4	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	1.1	24
12	0.2	0.8	0.8	3.6	11.6	13.2	9.5	7.8	2.7	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	2.3	24
13	0.9	0.6	0.2	0.3	0.8	1.7	2.6	1.9	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.5	24
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.7	24
15	0.0	0.0	0.0	0.0	0.2	1.3	2.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.3	24
16	8.1	0.9	15.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.1	1.3	24
17	0.4	0.2	0.3	0.4	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24
18	0.4	0.0	0.1	0.6	2.2	6.6	6.3	3.5	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	1.2	24
19	1.9	0.3	0.5	5.9	12.7	10.5	6.0	4.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7	3.1	24
20	0.4	0.2	0.0	0.2	1.0	5.4	16.5	7.5	5.1	3.7	1.5	0.2	0.4	0.3	0.1	0.2	0.3	0.4	0.5	0.7	0.3	0.3	0.5	0.3	0.3	16.5	2.2	24	
21	0.2	0.2	0.0	0.3	0.8	1.5	6.2	6.3	3.6	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	2.4	24
22	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	2.4	24
23	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	2.4	24
24	0.0	0.1	0.7	0.2	12.9	16.0	5.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9	2.0	24
25	1.0	1.6	0.6	0.4	0.2	0.5	1.6	1.1	0.4	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	24
26	19.4	42.1	45.8	23.4	6.4	2.3	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.8	0.6	24
27	0.1	0.3	0.0	1.8	2.4	5.4	2.2	1.8	1.5	0.9	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.7	24
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.3	24
29	8.5	5.9	9.1	8.6	8.2	6.8	6.6	12.4	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	3.0	24
30	0.2	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	24
31	0.1	0.0	0.0	0.1	0.1	0.1	0.4	1.0	0.9	0.5	0.5	0.4	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	24
HOURLY MAX	19.4	42.1	46.4	25.0	13.5	18.6	57.7	31.3	4.3	1.5	0.9	0.6	0.4	1.1	0.4	0.3	0.4	0.5	0.7	0.6	1.6	3.0	3.9	6.3	6.3	57.7	8.3	24	
HOURLY AVG	1.6	2.1	4.3	3.8	3.5	5.7	5.6	3.6	1.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.8

STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
D	DATA ZERO/SFAN CHECK	R	RECOVERY
E	POWER FLUKE	X	MACHINE MALFUNCTION
F	OUT-OF-REPAIR	O	OPERATOR ERROR
G		K	COLLECTION ERROR

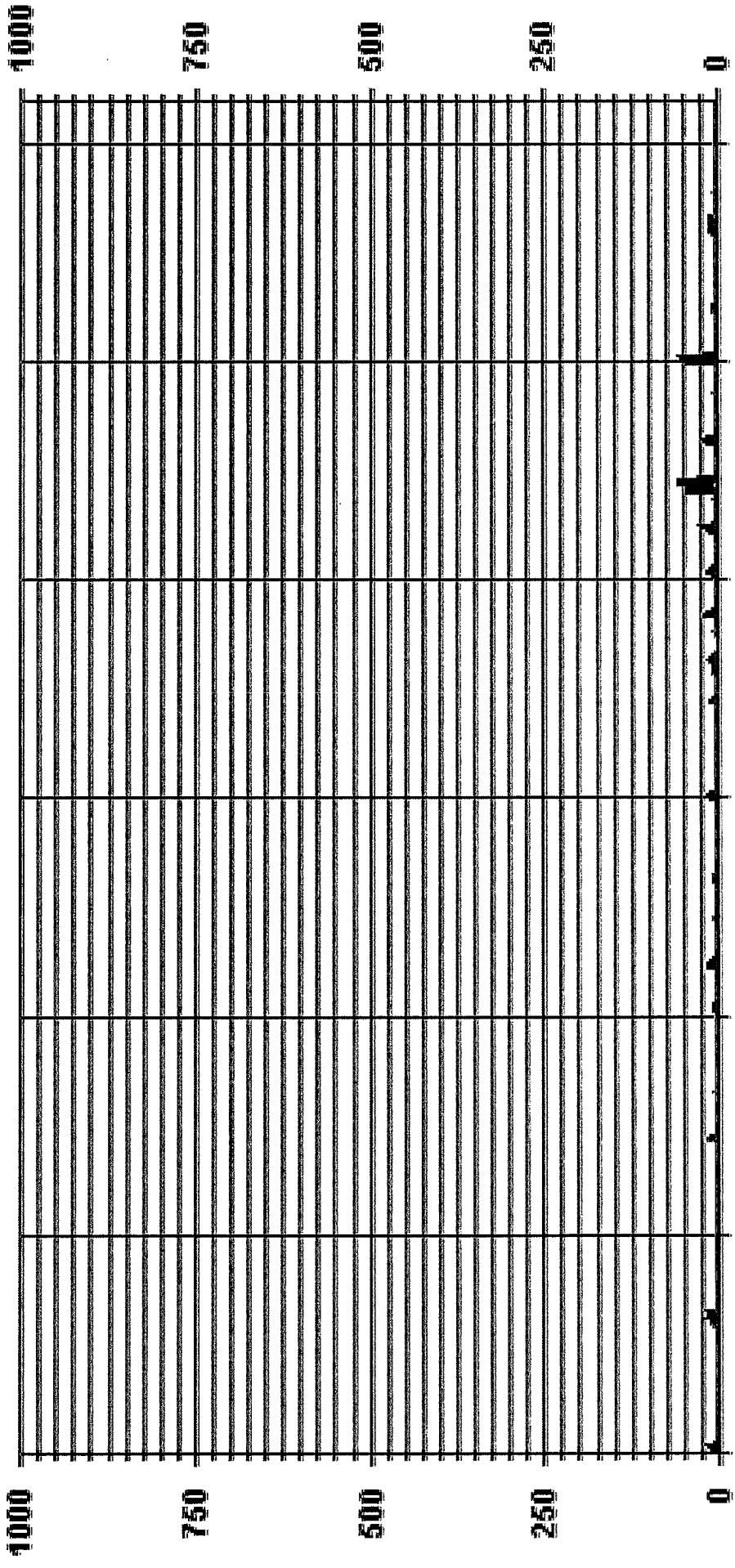
24 HOUR AVERAGES FOR MAY 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	386	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	57.7 PPB	@ HOUR(S)	6
MAXIMUM 24-HR AVERAGE:	8.3 PPB	ON DAY(S)	23
1ZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	8 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	4.77	MONTHLY AVERAGE:	1.5 PPB

01 Hour Averages



05/01/15 00:00:05, 06/15 00:00:05, 11/15 00:00:05, 16/15 00:00:05, 21/15 00:00:05, 26/15 00:00:05, 31/15 00:00:05

— LIC#35 NO_ PPB



NITRIC OXIDE MAX instantaneous maximum in ppb

MST

DAY	HOURS																								DAILY MAX	24-HOUR AVG	RDGS	
	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300				
1	3.7	1.5	4.0	28.5	30.7	14.5	6.6	3.8	3.0	2.1	0.7	0.4	0.6	0.8	0.4	0.6	0.2	0.6	0.7	0.5	13.4	\$	2.2	30.7	5.2	24		
2	1.9	0.7	0.5	1.5	3.5	3.4	3.1	4.3	3.0	1.1	1.4	0.6	0.6	0.4	0.6	0.4	0.3	0.5	0.3	0.5	4.3	\$	1.6	21.5	2.1	24		
3	0.9	1.3	0.9	1.5	3.5	3.4	3.1	4.3	3.0	1.1	1.4	0.6	0.6	0.4	0.6	0.4	0.3	0.5	0.3	0.5	4.3	\$	1.6	21.5	2.1	24		
4	6.2	38.3	8.8	36.4	14.5	28.0	23.8	6.8	4.1	2.4	0.8	0.5	0.7	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.3	85.1	5.4	24		
5	0.5	0.5	0.2	R	0.4	0.7	0.6	0.7	0.6	0.3	0.5	0.5	0.3	0.3	0.4	0.3	\$	0.5	0.6	0.5	0.4	0.7	0.7	0.7	7.6	24		
6	0.5	0.5	0.5	0.6	0.8	0.6	0.6	0.6	0.5	0.5	0.7	0.6	0.7	0.6	0.7	0.5	\$	0.6	0.6	0.4	0.3	0.4	0.8	0.8	0.6	24		
7	0.6	0.5	0.6	0.3	0.3	0.3	0.7	0.6	0.6	0.4	0.5	0.6	0.6	0.5	0.3	\$	1.3	0.9	0.7	0.7	1.6	25.9	2.7	25.9	1.8	24		
8	0.8	4.3	2.0	2.2	11.8	49.2	12.1	6.6	4.7	1.9	1.2	0.9	0.8	1.0	\$	2.1	1.5	0.8	1.0	0.8	1.3	2.6	1.2	49.2	4.9	24		
9	1.4	1.0	0.7	1.1	2.4	2.4	2.9	4.6	3.7	2.4	1.1	1.0	0.7	0.6	\$	0.5	0.6	0.6	0.4	0.7	0.5	0.4	0.5	4.6	1.3	24		
10	0.4	0.5	5.5	3.8	17.4	7.5	1.1	1.0	1.1	1.0	0.9	0.6	0.7	\$	1.0	0.7	0.6	0.7	0.6	0.8	0.8	5.3	0.9	4.2	2.5	24		
11	0.9	0.9	2.0	51.5	15.7	54.8	6.7	3.3	2.3	1.7	1.1	0.5	\$	0.8	0.7	1.1	0.8	0.7	0.7	16.2	3.4	0.7	0.8	1.2	54.8	7.3	24	
12	1.4	3.5	2.7	13.7	23.8	40.1	12.9	10.2	6.0	2.0	0.9	\$	0.9	1.0	0.8	0.6	0.9	0.9	1.5	0.8	2.6	2.2	40.1	5.7	24			
13	3.6	3.6	1.0	2.0	2.4	7.5	3.6	2.8	2.1	1.3	\$	0.6	0.7	0.6	0.5	1.0	0.9	1.0	1.9	0.5	0.3	0.5	0.5	7.5	1.7	24		
14	0.5	0.4	0.5	58.0	6.4	6.2	3.8	4.1	3.4	\$	0.6	0.4	0.4	0.3	0.5	0.4	1.1	1.5	1.7	0.6	0.5	0.4	58.0	4.0	24			
15	0.7	0.4	0.4	0.7	2.5	3.8	4.0	3.4	\$	0.9	0.7	1.0	1.4	1.2	0.9	0.6	0.4	0.4	0.4	0.2	0.8	3.2	4.0	1.3	24			
16	27.3	8.2	31.6	7.3	0.7	0.2	0.5	\$	0.9	0.9	1.0	0.8	1.1	1.0	1.1	0.8	0.6	0.9	0.9	0.7	0.9	0.9	31.6	3.9	24			
17	1.2	0.9	1.0	1.1	0.9	1.1	\$	0.9	0.7	0.5	0.5	0.4	0.3	0.5	0.4	0.4	0.4	0.4	0.7	3.1	12.2	0.7	1.9	12.2	1.3	24		
18	3.2	0.7	0.6	1.4	4.5	\$	11.1	7.1	6.8	1.8	0.9	1.1	0.7	1.0	0.7	0.9	0.6	1.3	1.2	1.1	1.4	1.5	25.1	8.7	24			
19	9.0	1.7	6.0	32.3	\$	27.9	14.3	10.8	5.2	3.3	C	C	C	C	C	C	C	0.9	1.3	32.4	14.4	2.3	2.9	32.4	11.0	24		
20	7.3	0.6	2.8	\$	64.8	38.7	23.2	7.0	5.9	2.3	0.9	1.1	1.2	1.3	0.7	0.9	0.6	1.0	1.5	1.0	0.2	0.3	0.5	1.8	64.8	7.2	24	
21	2.5	2.4	\$	2.6	37.6	35.2	14.7	6.7	4.9	3.4	1.1	1.2	1.3	0.7	1.3	1.2	1.3	1.4	2.2	1.7	1.1	1.7	1.7	0.9	37.6	5.6	24	
22	1.3	\$	18.1	102.6	47.0	7.7	35.2	78.7	57.9	1.3	1.1	0.6	0.1	0.4	0.3	0.3	0.4	0.3	0.5	0.4	0.7	0.4	0.1	0.6	\$	102.6	16.1	24
23	0.7	1.2	5.4	4.1	39.0	67.3	23.6	1.3	1.4	0.7	0.4	0.2	0.2	0.4	0.2	0.4	0.4	0.3	0.5	0.3	0.2	0.4	\$	2.2	67.3	6.3	24	
24	2.6	7.0	2.5	2.0	0.9	1.5	46.9	3.8	1.7	1.4	1.8	0.6	5.7	1.1	0.8	0.6	0.7	0.7	0.7	0.5	0.9	\$	18.8	8.9	46.9	4.9	24	
25	61.8	90.9	69.1	54.6	17.2	5.9	5.5	1.2	0.5	0.6	0.4	0.4	0.6	0.5	0.6	0.7	0.2	0.2	0.3	0.2	\$	0.9	0.7	27.4	90.9	14.8	24	
26	0.9	1.2	0.8	7.3	7.7	12.1	4.0	2.5	2.2	1.7	1.2	0.9	0.6	0.7	0.6	1.1	0.6	0.8	\$	1.0	0.6	0.5	0.3	12.1	2.2	24		
27	0.2	0.6	0.7	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	29.9	3.4	24		
28	29.2	15.6	17.7	15.4	18.2	10.5	8.8	47.8	4.2	1.3	1.0	1.1	0.5	0.6	0.6	0.6	0.7	\$	0.3	0.9	0.9	16.0	10.7	3.6	47.8	9.0	24	
29	1.9	1.1	0.7	1.4	3.1	1.2	1.3	1.0	1.2	0.3	0.5	0.2	0.2	0.6	0.6	0.3	\$	1.3	0.8	0.6	1.2	0.9	0.7	0.7	3.1	0.9	24	
30	0.7	0.6	0.7	0.8	0.9	1.4	2.5	2.3	1.0	1.4	1.3	1.8	1.0	0.9	0.8	\$	0.5	0.4	0.6	1.6	0.5	3.8	3.4	2.3	3.8	1.4	24	
31	61.8	90.9	102.6	58.0	64.8	67.3	78.7	57.9	7.0	3.4	1.9	1.8	5.7	34.3	1.3	1.2	2.1	1.5	2.2	16.2	32.4	38.4	25.9	85.1	6.7			
HOURLY MAX	5.8	7.0	9.8	14.0	11.8	16.3	11.0	7.1	2.7	1.4	0.9	0.7	0.8	1.8	0.7	0.6	0.7	0.7	0.7	1.5	2.1	4.2	4.0	4.0	6.7			
HOURLY AVG																												

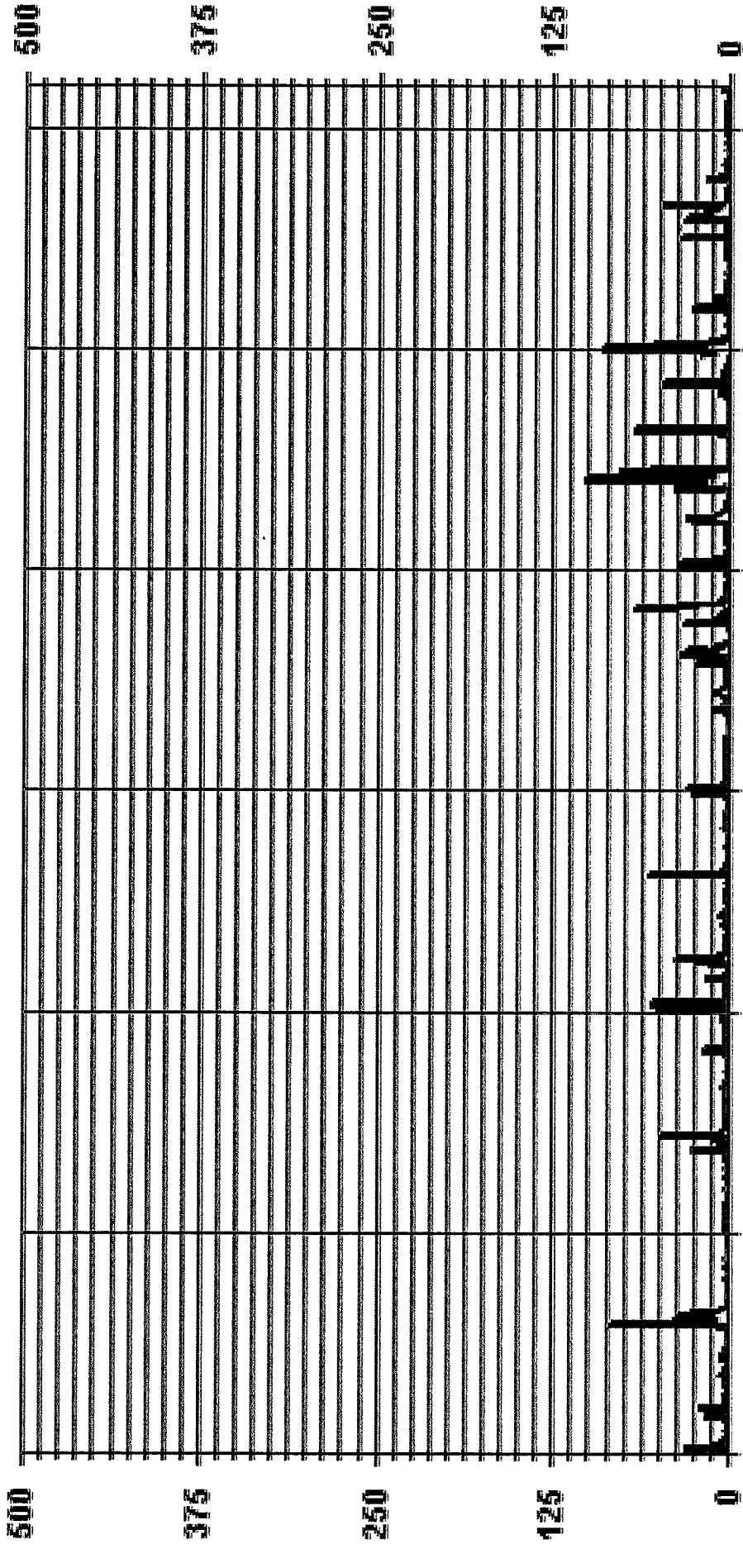
STATUS FLAG CODES

C	QUALITY ASSURANCE
D	RECOVERY
E	MAINTENANCE
F	DAILY ZERO/Span CHECK
G	POWER FAILURE
H	OPERATOR ERROR
I	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703
MAXIMUM INSTANTANEOUS VALUE:	102.6
PPB	102.6
@ HOUR(S)	2
ON DAY(S)	23
VAR-VARIOUS	
OPERATIONAL TIME:	743
HRS	
MONTHLY CALIBRATION TIME:	8
HRS	
STANDARD DEVIATION:	11.72

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA35 - - - - NOMAX PPB

NO_ / WDR Joint Frequency Distribution (Percent)

LICA-ELK

May 2015

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : NO
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	6.25	6.53	4.11	9.09	11.50	14.91	6.81	7.38	3.97	2.13	2.13	3.12	4.54	6.10	6.10	5.11	99.85
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.14
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.25	6.53	4.11	9.09	11.50	14.91	6.81	7.38	3.97	2.13	2.13	3.12	4.54	6.10	6.25	5.11	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples





Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	44	46	29	64	81	105	48	52	28	15	15	22	32	43	43	36	703
< 110.0															1		1
< 210.0																	
>= 210.0																	
Totals	44	46	29	64	81	105	48	52	28	15	15	22	32	43	44	36	

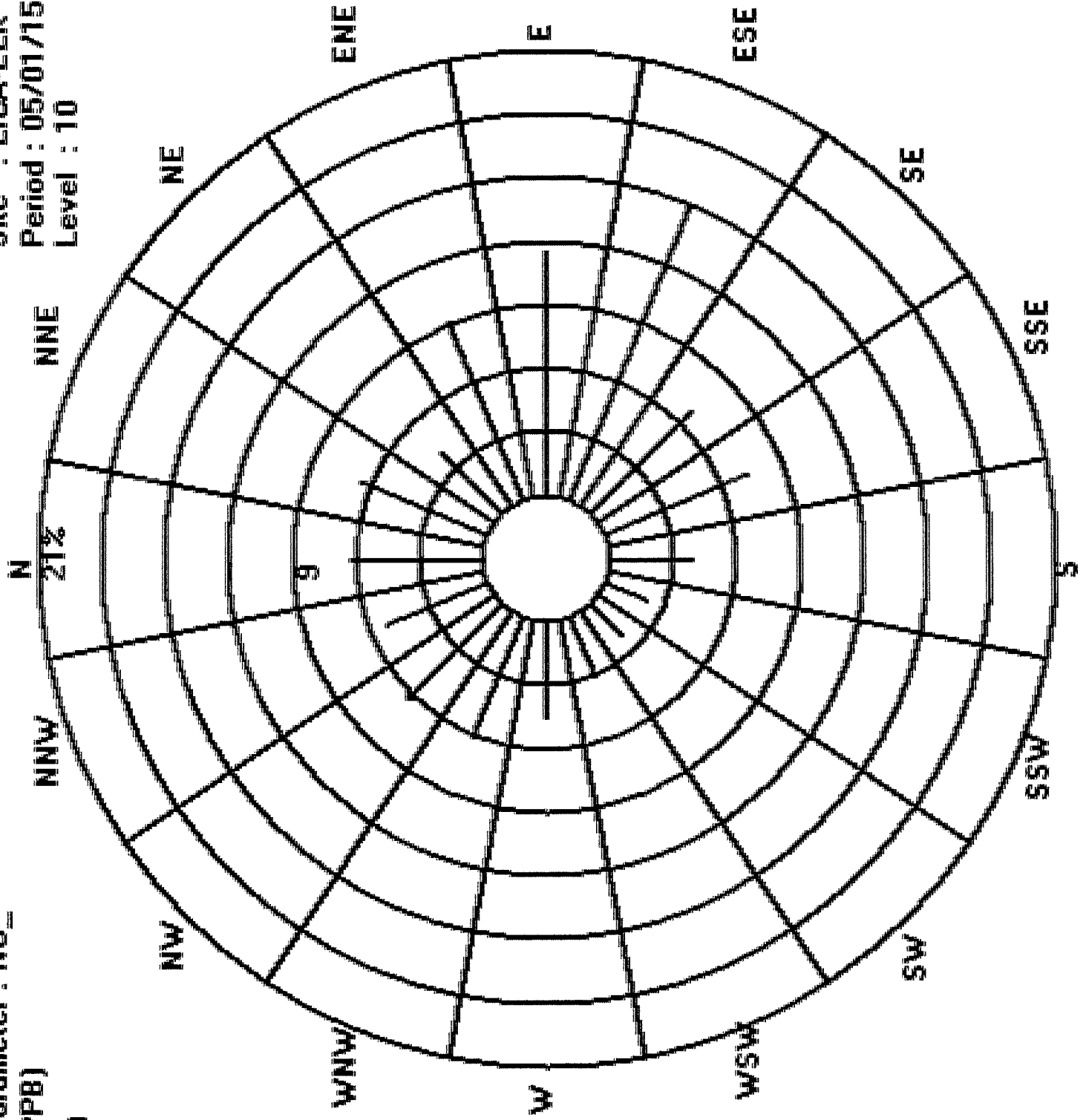
Calm : .00 %

Total # Operational Hours : 704

Logger : 35 Parameter : NO₂
Class Limits (PPB)

Site : LICA-ELK
Period : 05/01/15-05/31/15
Level : 10

-  >= 210.0
-  < 210.0
-  < 110.0
-  < 50.0



NITROGEN DIOXIDE



NITROGEN DIOXIDE (NO2) hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	16.1	14.5	20.9	29.9	31.7	23.9	13.3	7.2	6.0	2.1	1.0	0.8	0.9	1.0	0.4	0.5	0.6	1.1	1.1	1.1	2.8	9.9	\$	17.6	31.7	8.9	24	
2	16.4	9.7	16.7	8.7	4.9	6.6	4.4	2.6	1.0	0.7	0.5	0.3	0.5	0.7	0.4	0.6	0.2	0.1	0.1	3.6	9.0	\$	9.1	7.4	16.7	4.5	24	
3	6.0	6.6	8.0	8.9	6.7	7.7	7.3	3.8	1.2	1.1	0.0	0.2	0.5	0.3	0.3	0.3	1.0	0.8	0.7	0.4	\$	10.2	12.5	18.4	18.4	4.8	24	
4	22.1	20.6	19.7	17.4	14.3	15.2	16.3	11.6	10.3	5.7	2.1	1.2	1.0	0.6	0.8	0.7	0.6	0.4	\$	0.6	0.0	0.0	0.1	22.1	7.0	24		
5	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.3	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.0	\$	0.5	0.4	0.5	0.5	0.6	0.2	24		
6	0.4	0.5	0.3	0.3	0.5	0.3	0.2	0.4	0.4	0.3	0.4	0.4	0.4	0.6	0.5	0.3	0.2	\$	0.3	0.3	0.3	0.0	0.2	0.3	0.6	0.3	24	
7	0.7	0.4	0.5	0.6	0.6	0.7	0.7	1.0	0.7	0.4	0.4	0.2	0.3	0.2	0.3	0.3	\$	0.6	0.6	0.9	2.3	5.6	14.4	12.0	14.4	1.9	24	
8	9.2	7.7	9.4	11.7	20.3	21.5	10.1	9.9	7.0	2.2	3.0	2.9	1.2	1.5	1.5	\$	2.1	2.0	1.9	2.3	3.1	7.3	6.0	3.3	21.5	6.4	24	
9	10.9	5.2	5.6	5.8	6.7	7.6	7.2	8.3	5.9	3.4	2.1	1.5	1.2	1.2	\$	0.1	0.3	0.2	0.2	0.2	0.5	0.5	0.7	0.7	10.9	3.3	24	
10	1.6	7.2	6.6	10.6	9.4	5.8	2.5	1.3	1.3	1.0	0.5	0.1	0.2	0.5	0.3	0.1	0.3	0.3	0.7	0.4	0.7	4.0	14.2	11.1	20.2	20.2	4.3	24
11	13.4	12.6	14.2	17.4	16.6	13.1	10.0	4.8	3.2	1.8	1.2	0.7	\$	0.9	0.8	0.7	0.5	0.6	0.6	4.9	9.2	4.7	8.0	11.8	17.4	6.6	24	
12	11.2	16.4	17.7	25.2	25.4	20.3	15.2	13.1	6.6	3.1	0.9	\$	0.8	0.9	0.9	0.9	0.9	0.9	1.9	2.5	7.5	4.5	4.5	12.7	25.4	8.4	24	
13	12.6	10.5	10.2	9.3	12.7	9.7	9.0	5.4	3.1	1.4	\$	1.1	1.2	1.3	1.5	1.4	1.7	1.6	2.9	3.1	7.4	5.7	3.6	3.6	12.7	5.2	24	
14	5.5	6.5	7.1	16.1	14.9	12.8	8.7	7.7	6.2	\$	0.8	0.5	0.4	0.5	0.7	0.9	0.7	2.4	8.7	13.3	4.8	3.3	1.9	16.1	5.4	24		
15	2.3	4.4	7.1	7.7	9.1	9.4	9.2	5.0	\$	1.4	1.3	1.8	2.2	2.1	1.7	1.5	1.7	2.2	2.5	1.4	1.9	4.4	9.7	21.5	4.8	24		
16	27.3	20.7	28.3	24.3	14.4	6.0	0.9	\$	0.3	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	0.8	1.6	28.3	5.5	24		
17	1.9	2.1	1.1	1.0	1.2	0.9	\$	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.4	1.7	8.3	11.7	12.6	15.9	15.9	2.6	24		
18	17.7	13.1	14.2	17.7	14.1	\$	12.4	10.7	7.4	2.5	1.4	1.3	1.1	1.4	1.1	1.5	1.3	1.5	2.8	5.2	6.6	11.7	22.9	17.6	22.9	8.1	24	
19	16.8	14.0	17.1	28.0	\$	20.0	15.1	11.1	8.9	4.0	C	C	C	C	C	C	C	2.0	4.4	11.3	24.4	22.7	27.0	28.0	45.1	24		
20	22.9	13.4	17.6	\$	25.7	24.3	17.6	12.8	10.2	5.8	2.3	1.6	1.3	1.3	1.7	1.6	1.3	2.6	3.1	4.2	4.8	13.1	19.1	16.7	25.7	9.8	24	
21	17.8	20.5	\$	18.3	18.9	21.7	14.2	10.8	8.3	4.5	1.3	1.4	1.2	0.8	0.7	1.3	1.5	2.2	4.4	3.3	8.1	16.4	19.1	15.4	21.7	9.2	24	
22	13.5	\$	14.8	27.8	25.2	20.9	13.7	12.4	8.7	3.3	1.4	1.3	1.0	0.9	1.0	0.9	1.2	1.3	1.7	4.3	11.0	30.3	14.4	10.7	30.3	9.6	24	
23	\$	27.0	34.4	28.4	23.6	24.4	27.8	22.3	3.7	3.4	2.7	1.1	1.3	0.9	0.6	0.7	0.9	0.9	0.7	0.9	2.0	1.8	7.2	\$	34.4	9.9	24	
24	6.4	7.3	8.4	8.8	17.1	16.1	10.0	3.8	2.9	1.3	0.4	0.4	0.1	0.2	0.2	0.3	1.1	1.3	0.5	2.3	3.5	7.9	\$	23.5	5.4	24		
25	25.1	21.4	17.3	10.1	4.7	6.7	9.0	8.0	4.2	5.0	2.8	1.1	1.3	2.4	1.3	1.3	1.1	1.6	3.6	9.7	\$	17.3	32.3	32.3	8.2	24		
26	33.9	32.3	28.9	29.4	23.6	13.7	8.7	3.7	2.0	1.3	1.5	1.1	1.0	0.6	0.6	0.4	0.0	1.7	3.2	2.0	\$	5.3	7.7	11.7	33.9	9.3	24	
27	12.4	11.3	9.6	16.1	13.0	12.8	8.1	5.8	4.3	3.7	2.7	1.8	1.6	1.9	1.6	1.6	1.6	1.5	2.0	\$	7.2	9.3	1.8	1.2	16.1	5.8	24	
28	0.7	0.8	0.7	0.4	0.8	1.0	0.5	0.8	0.5	0.8	0.6	0.6	0.6	0.6	0.4	0.5	0.3	0.7	0.6	\$	0.3	2.4	9.5	14.4	14.4	1.8	24	
29	16.8	16.8	14.5	14.1	10.4	7.2	8.4	11.2	1.4	0.7	1.0	0.9	0.5	0.5	0.3	0.4	0.4	\$	1.4	5.0	9.2	14.5	13.3	12.5	16.8	7.0	24	
30	12.8	8.2	7.1	6.2	7.0	4.9	3.3	2.7	2.3	1.5	1.2	0.9	1.1	1.1	1.1	1.1	\$	1.2	1.4	2.0	4.6	6.7	5.1	3.8	12.8	3.8	24	
31	3.4	3.6	3.3	4.2	3.5	4.2	3.9	3.6	3.1	2.4	2.9	2.2	2.1	1.7	1.8	1.8	1.4	1.3	3.6	3.4	6.2	11.7	15.6	18.9	4.7	24		
HOURLY MAX	33.9	32.3	34.4	29.9	31.7	24.4	27.8	22.3	10.3	5.8	3.0	2.9	2.2	2.4	1.8	1.6	2.1	2.6	4.4	8.7	13.3	30.3	22.9	32.3				
HOURLY AVG	12	11	12	13	13	11	9	7	4	2	1	1	1	1	1	1	1	1	1	2	3	5	8	9	12			

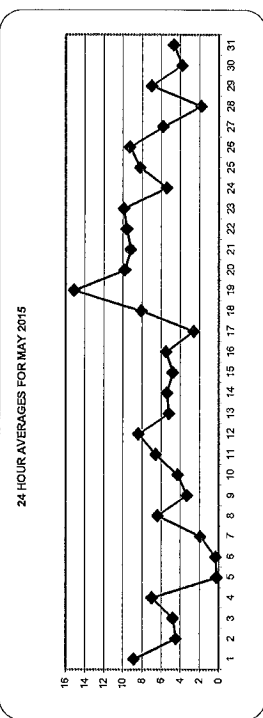
STATUS FLAG CODES

C	CALIBRATION	G	QUANTITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SRAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
F	OUT FOR REPAIR	C	COLLECTION ERROR

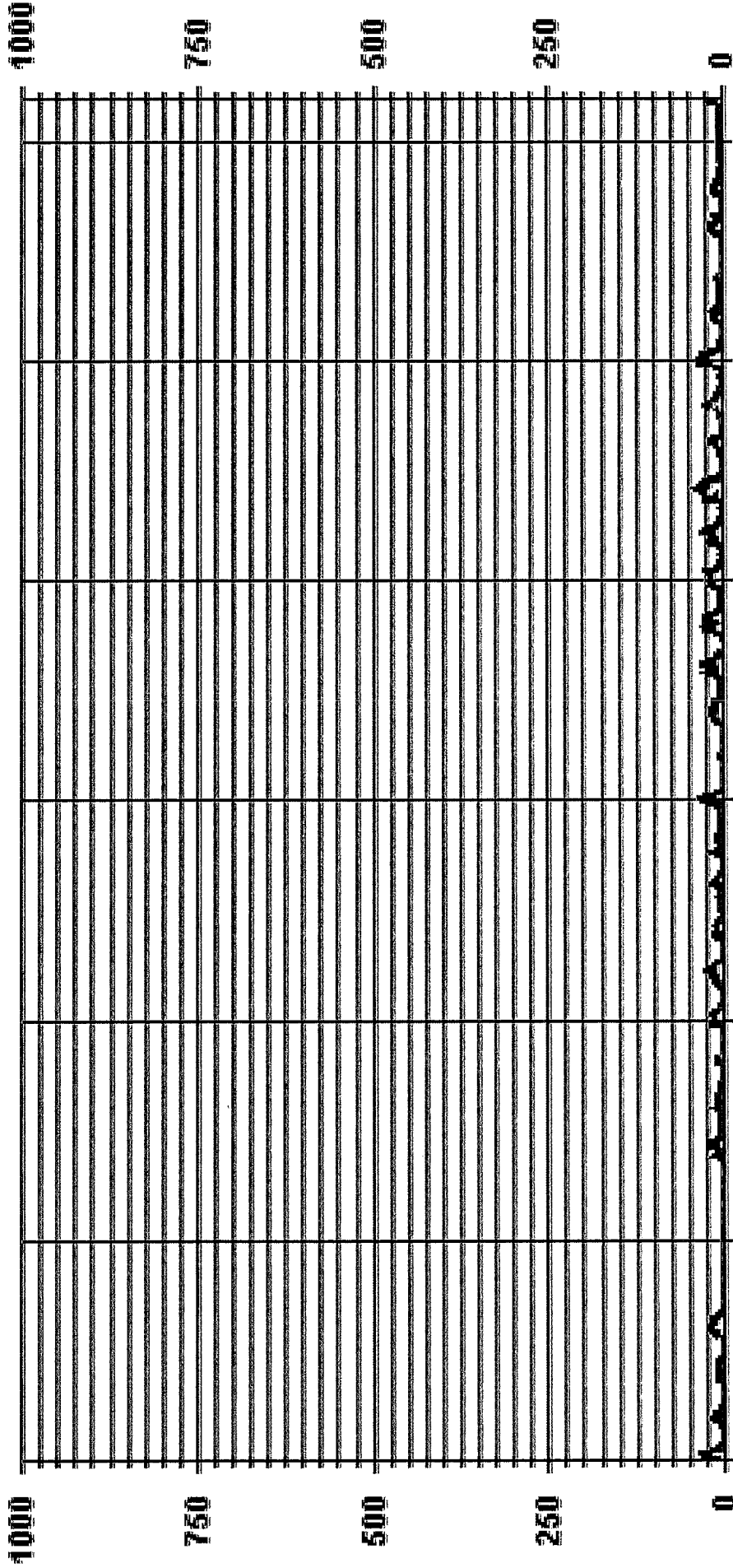
ALBERTA ENVIRONMENT: 1-HR: LS: PPB:

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	678	PPB @ HOUR(S)	2	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	34.4	PPB	15.1	VAR-VARIOUS	19
MAXIMUM 24-HR AVERAGE:	32	HRS	8	OPERATIONAL TIME:	744
1/2 CALIBRATION TIME:	8	HRS		AMTD OPERATION UPTIME:	100.0
MONTHLY CALIBRATION TIME:	7.26			MONTHLY AVERAGE:	6.0
STANDARD DEVIATION:					PPB



01 Hour Averages



— LICA35 NO2_ PPB



NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	HOURS START																								24-HOUR MAX.	24-HOUR AVG.	RDGS.	
	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00					
1	29.7	19.1	28.6	37.6	34.2	31.1	18.7	10.2	8.6	4.3	1.8	2.0	1.7	1.5	1.2	1.3	1.5	3.0	1.9	6.8	28.9	\$	23.8	37.6	13.0	24		
2	22.7	17.7	26.3	22.8	8.3	11.1	6.2	4.6	1.6	1.2	1.3	1.2	2.3	1.5	1.2	1.3	1.0	1.0	20.9	21.3	\$	11.2	12.3	26.3	8.7	24		
3	9.8	9.7	10.2	13.1	13.7	10.5	11.0	9.6	6.8	2.0	1.9	0.9	0.7	0.9	1.1	1.2	2.2	1.6	2.4	4.5	\$	18.9	21.6	32.3	8.1	24		
4	24.4	29.5	22.9	21.6	17.4	19.7	14.7	11.7	8.2	2.8	1.6	1.5	1.2	1.5	1.4	1.3	1.2	1.1	1.1	1.0	\$	1.0	1.0	0.8	9.0	24		
5	1.0	1.1	0.8	\$	1.0	1.0	1.3	1.1	1.2	0.9	0.8	1.1	1.2	1.1	1.2	1.1	0.9	1.0	\$	1.0	1.0	1.1	1.3	1.0	24			
6	1.3	1.1	1.0	1.1	1.2	0.8	0.8	0.9	1.2	0.7	0.7	1.0	1.1	1.3	1.2	1.1	0.8	\$	1.2	1.1	1.3	1.1	1.1	1.3	1.0	24		
7	1.6	1.3	1.8	1.7	1.6	1.7	1.3	1.7	1.7	1.2	1.1	1.1	1.0	0.9	0.9	0.9	0.9	\$	1.3	1.3	2.3	3.2	31.8	31.8	4.4	24		
8	11.2	11.0	11.9	19.6	25.6	29.5	15.6	14.4	10.0	3.4	5.7	4.4	2.5	2.3	2.5	\$	7.5	5.6	3.5	3.7	6.0	11.7	17.5	5.3	29.5	10.0	24	
9	15.0	11.3	8.3	9.9	11.6	12.0	9.7	12.4	7.7	5.4	3.5	2.2	2.0	\$	0.8	1.0	1.1	0.9	0.9	1.3	1.5	1.7	2.7	15.0	5.4	24		
10	7.8	9.3	20.9	21.6	29.2	14.7	3.6	2.3	2.3	1.7	1.4	0.9	0.8	\$	0.9	0.6	0.9	0.9	1.2	1.2	1.2	1.2	1.2	29.5	9.4	24		
11	18.5	17.4	21.0	31.1	27.3	24.2	13.8	7.3	4.1	2.6	2.0	1.2	\$	1.5	1.3	1.6	1.3	1.4	47.4	33.6	8.3	13.0	17.4	47.4	13.0	24		
12	16.8	29.4	24.7	31.0	28.9	35.4	20.7	16.6	11.5	5.4	2.0	\$	1.9	2.0	2.4	2.8	1.5	3.9	6.0	11.3	7.3	21.2	20.4	35.4	13.3	24		
13	21.8	19.4	14.9	16.8	18.3	18.2	11.9	7.8	4.2	2.5	\$	1.7	2.3	1.8	2.1	2.2	2.6	2.6	4.6	6.6	12.2	9.4	5.2	7.4	21.8	8.5	24	
14	7.9	8.6	11.6	34.0	21.7	18.4	12.9	8.7	8.0	\$	1.9	1.4	1.5	1.3	1.8	2.0	2.2	2.9	6.5	14.9	28.0	7.2	6.0	3.4	34.0	9.3	24	
15	3.9	8.2	9.0	9.3	15.2	16.4	12.3	8.4	\$	2.1	2.1	3.4	4.0	4.5	3.6	2.8	3.0	5.7	5.2	2.5	4.5	12.5	20.7	29.0	8.2	24		
16	31.5	29.6	37.1	31.1	17.6	7.6	5.1	\$	0.8	0.5	0.7	0.8	0.5	0.5	0.5	0.2	0.4	0.4	0.4	0.4	1.0	2.5	1.8	2.7	37.1	7.6	24	
17	2.8	3.0	1.7	1.9	1.8	\$	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.8	0.5	1.2	0.8	2.4	12.0	14.8	40.7	20.2	26.2	40.7	5.9	24	
18	31.7	19.8	18.0	22.3	16.4	\$	15.3	11.4	10.7	4.9	2.0	2.0	1.6	2.5	1.6	2.6	2.2	4.1	7.1	9.2	10.2	18.4	38.3	26.8	38.3	12.1	24	
19	24.8	23.3	25.4	35.9	\$	28.5	18.5	16.9	10.4	7.2	\$	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24
20	35.8	20.9	26.6	\$	44.5	33.3	22.6	14.4	11.7	7.5	3.9	2.6	2.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24
21	22.6	27.9	\$	22.2	27.0	26.7	18.9	12.7	10.2	7.8	2.9	2.6	2.6	2.1	1.5	2.5	3.8	4.0	11.9	11.2	12.3	30.5	29.1	23.7	30.5	13.8	24	
22	17.7	\$	20.1	34.0	29.2	26.8	18.3	13.7	13.2	4.9	2.7	2.8	2.0	1.7	1.7	2.2	2.5	3.3	10.9	10.2	22.2	53.7	30.6	19.5	53.7	15.0	24	
23	\$	38.2	41.9	33.4	28.3	31.7	33.6	30.2	5.3	4.5	3.6	2.5	2.4	1.8	1.5	1.4	1.6	1.8	1.6	1.9	3.4	3.7	19.8	\$	41.9	13.4	24	
24	10.3	11.4	17.4	18.2	27.3	25.8	21.6	6.4	4.8	2.5	1.2	1.3	1.2	1.3	1.2	1.3	3.0	3.4	1.3	6.0	6.9	18.3	\$	31.9	31.9	9.7	24	
25	29.7	29.9	26.4	18.6	8.2	11.4	40.2.8	18.2	9.3	7.3	4.7	2.3	6.1	4.6	2.1	2.3	1.5	1.5	3.3	4.5	21.6	\$	34.6	35.9	40.2.8	16.8	24	
26	42.5	42.0	38.1	41.9	31.4	17.3	16.2	6.3	3.2	2.3	2.4	2.3	1.9	1.3	1.4	1.1	1.0	3.2	4.5	3.1	\$	8.5	10.5	34.2	42.5	13.5	24	
27	17.5	16.4	13.8	25.0	23.5	18.8	11.7	7.0	5.5	4.7	4.1	2.6	3.0	2.8	2.7	3.2	3.4	2.8	5.4	\$	16.3	12.9	3.3	1.9	25.0	9.1	24	
28	1.7	1.4	1.2	1.3	1.6	1.9	1.2	1.4	1.1	0.9	1.4	1.2	1.1	1.2	1.5	1.7	1.0	1.2	\$	1.5	6.2	6.2	15.3	22.4	22.4	3.8	24	
29	21.8	19.4	16.6	16.4	13.2	9.4	11.2	5.5	6.2	1.6	2.0	1.7	1.4	1.1	1.0	1.1	1.2	\$	2.7	12.3	15.8	36.3	29.4	22.8	55.1	13.0	24	
30	18.3	16.0	12.2	13.1	16.0	6.5	5.1	3.3	3.1	2.7	2.6	2.0	2.2	2.1	2.1	2.4	\$	2.4	2.9	3.4	11.2	11.3	8.7	5.3	18.3	6.7	24	
31	4.7	4.6	4.2	5.3	4.2	5.1	4.7	4.8	5.0	3.3	5.7	4.2	3.4	2.4	2.6	\$	2.5	3.9	11.4	10.8	10.8	22.2	20.8	25.2	25.2	7.5	24	
HOURLY MAX	42.5	42.0	41.9	41.9	44.5	35.4	102.8	55.1	15.2	8.2	5.7	4.4	6.1	12.5	3.6	3.2	7.5	5.7	11.9	47.4	41.2	53.7	38.3	35.9				
HOURLY AVG	16.9	16.6	17.0	20.4	18.2	16.6	15.5	10.8	6.1	3.5	2.4	1.9	1.9	2.2	1.7	1.6	2.0	2.4	4.0	8.0	12.1	16.7	16.9	18.2				

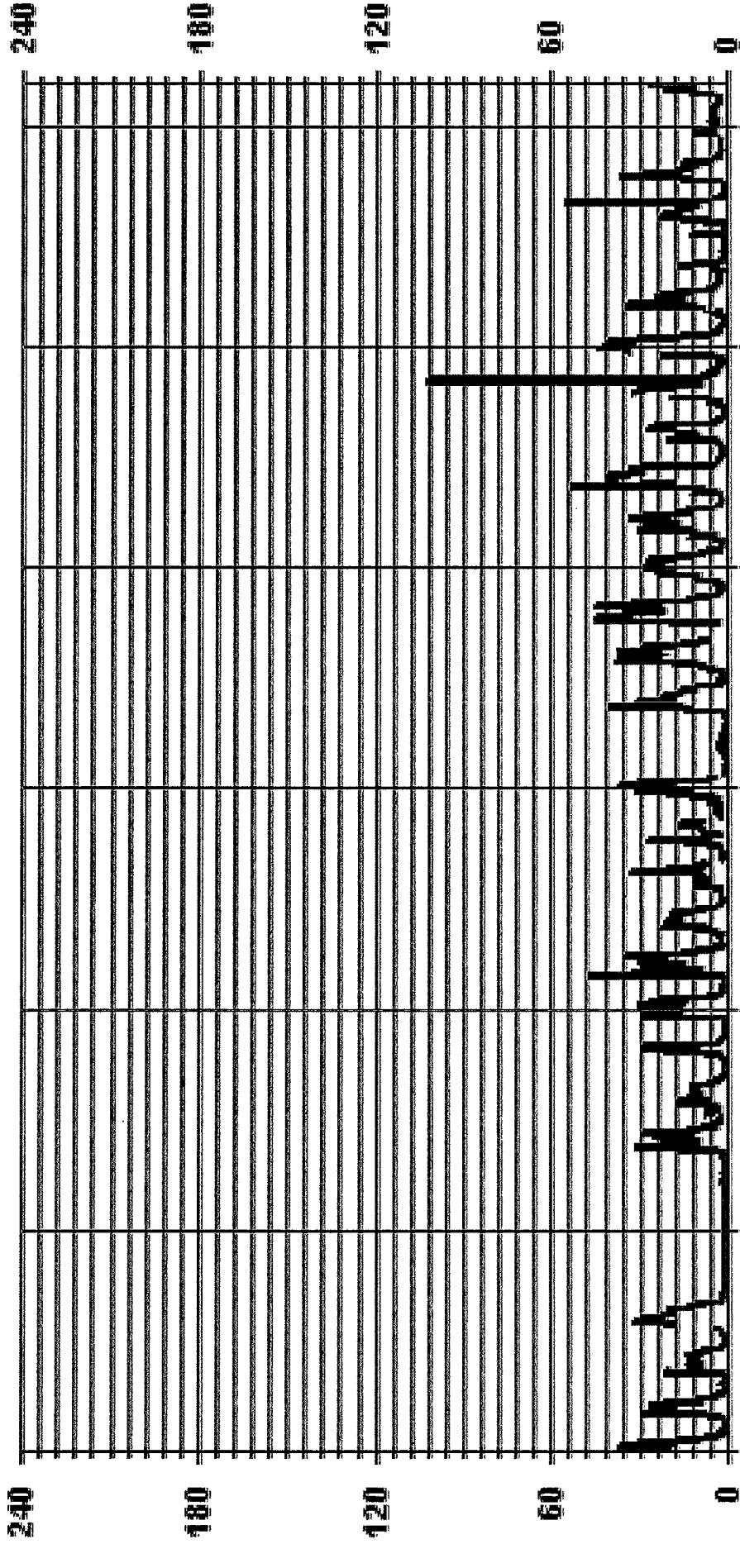
STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF-REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703
MAXIMUM INSTANTANEOUS VALUE:	102.8 PPB @ HOUR(S) 6 ON DAY(S) 25
12S CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	8 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	11.25
VAR- VARIOUS	VAR-VARIOUS

01 Hour Averages



05/01/15 00:00 05/06/15 00:00 05/11/15 00:00 05/16/15 00:00 05/21/15 00:00 05/26/15 00:00 05/31/15 00:00

— LICA35 NO2MAX PPB

LICA-ELK
 NO2_ / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : NO2
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	6.25	6.53	4.11	9.09	11.50	14.91	6.81	7.38	3.97	2.13	2.13	3.12	4.54	6.10	6.25	5.11	100.00
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.25	6.53	4.11	9.09	11.50	14.91	6.81	7.38	3.97	2.13	2.13	3.12	4.54	6.10	6.25	5.11	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples





Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	44	46	29	64	81	105	48	52	28	15	15	22	32	43	44	36	704
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	44	46	29	64	81	105	48	52	28	15	15	22	32	43	44	36	

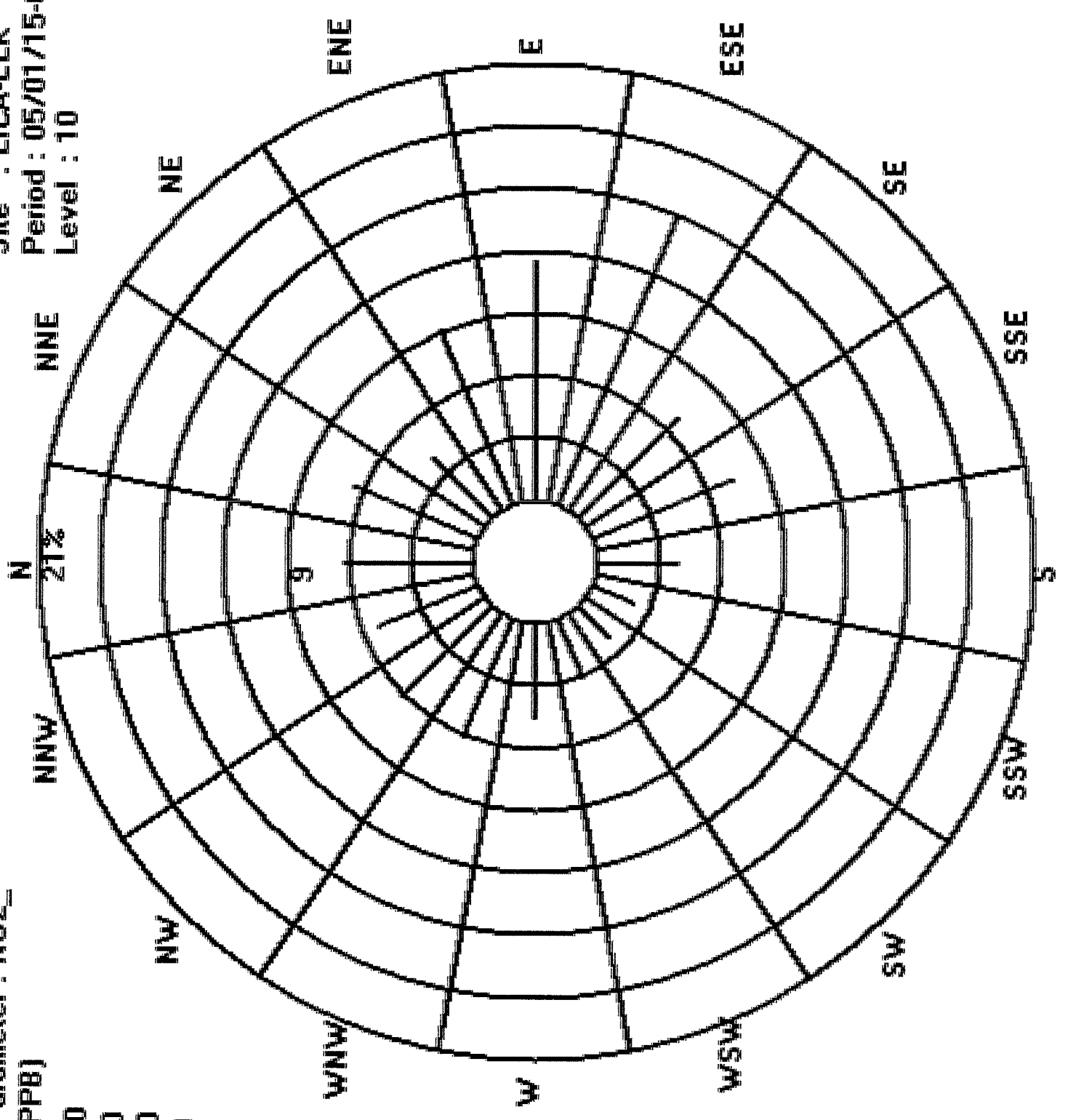
Calm : .00 %

Total # Operational Hours : 704

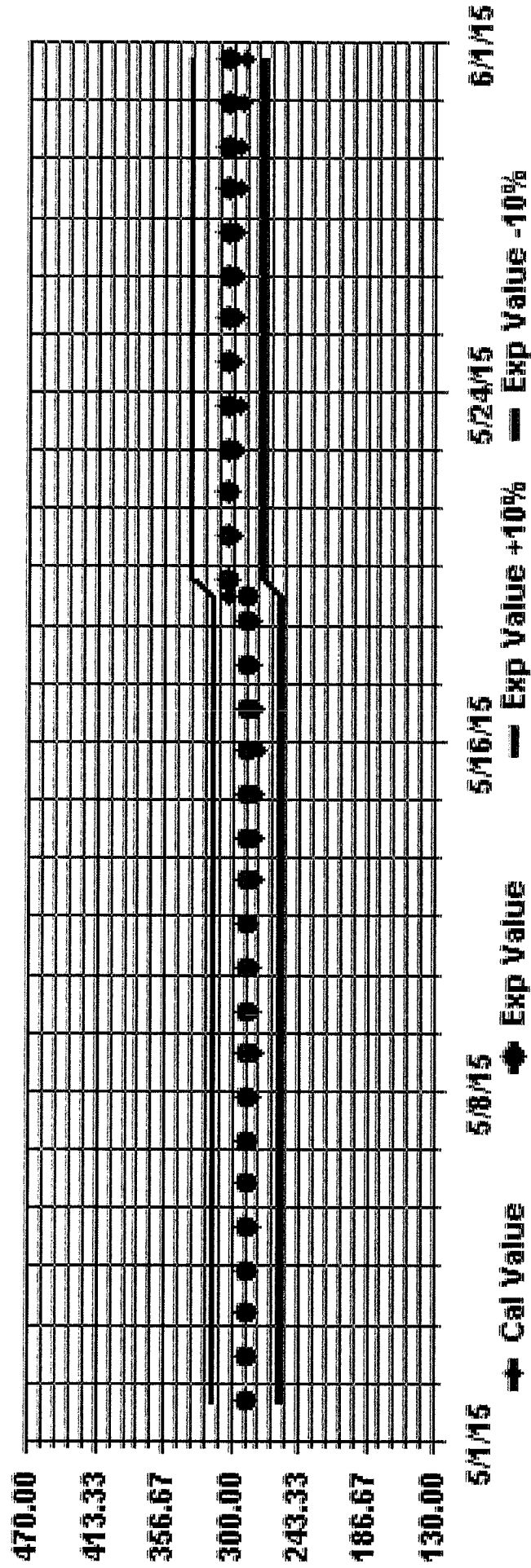
Site : LICA-ELK
Period : 05/01/15-05/31/15
Level : 10

Logger : 35 Parameter : NO2_
Class Limits (PPB)

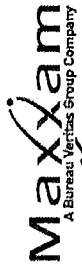
-  >= 210.0
-  < 210.0
-  < 110.0
-  < 50.0



Calibration Graph for Site: LICA35 Parameter: MO2_ Sequence: MO2 Phase: SPAN



OZONE



OZONE (O3) hourly averages in ppb

MST

HOUR	START	END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX	24-HOUR AVG	RDGS
1	23	25	14	6	6	20	34	39	50	55	57	57	57	56	56	57	55	52	46	32	5	22	57	38.3	24			
2	28	30	22	34	37	35	37	42	47	48	48	50	53	51	50	48	48	44	37	29	5	23	24	53	39.6	24		
3	27	23	21	18	17	17	17	22	29	31	34	35	32	36	41	40	41	39	38	5	21	16	6	41	26.9	24		
4	4	2	1	0	1	3	8	16	20	30	42	45	49	50	50	48	48	47	5	43	40	38	37	50	29.2	24		
5	39	39	39	37	37	37	40	41	41	41	41	41	41	41	41	41	41	41	41	41	40	39	36	33	42	39.7	24	
6	34	34	33	33	32	31	31	31	33	34	35	34	35	34	34	34	34	34	34	34	32	31	30	31	35	32.7	24	
7	31	32	30	30	32	33	38	37	40	45	49	53	55	56	57	5	55	54	51	48	41	22	29	57	41.7	24		
8	30	27	25	19	7	6	15	23	33	44	45	47	51	50	51	49	47	44	43	37	38	39	51	36.0	24			
9	27	34	34	32	30	26	27	25	31	41	50	52	51	50	5	54	52	51	49	47	44	43	41	54	40.5	24		
10	38	30	30	22	23	29	37	44	47	48	49	50	50	5	51	52	53	52	51	49	42	31	20	53	40.3	24		
11	24	19	18	12	11	13	23	35	40	45	47	49	5	53	54	55	56	57	57	48	42	44	36	28	57	37.7	24	
12	28	17	13	6	3	7	14	22	39	48	52	5	54	56	57	56	57	57	55	51	42	45	40	27	57	36.8	24	
13	37	33	29	17	16	25	26	35	5	54	56	58	59	60	59	60	59	55	45	38	46	48	44	57	44	42.0	24	
14	46	39	32	27	22	22	27	36	5	51	53	57	58	59	60	59	55	45	38	46	48	48	44	57	44	42.6	24	
15	4	10	3	4	15	30	37	5	38	37	36	36	42	49	45	40	39	39	39	34	33	31	28	24	49	34.0	24	
16	23	22	23	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	49	34.0	24
17	18	18	15	9	8	5	19	24	34	50	51	54	55	55	55	54	52	47	44	33	16	15	56	36.4	24			
18	15	19	13	4	5	8	15	26	31	46	53	55	56	57	58	58	59	59	54	44	23	22	13	59	36.8	24		
19	15	21	18	5	7	8	17	28	34	C	C	C	C	C	C	C	C	55	52	48	32	22	21	57	35.6	24		
20	15	13	5	9	11	7	21	27	38	46	58	58	59	58	58	59	60	55	56	44	32	24	25	60	38.6	24		
21	21	5	16	3	4	7	20	24	35	49	58	60	62	63	64	65	63	64	57	42	17	26	28	65	39.7	24		
22	5	5	1	2	10	7	2	14	37	38	48	57	54	59	62	61	60	49	40	37	35	26	5	62	34.8	24		
23	24	21	19	18	4	5	14	28	35	43	44	48	50	49	52	61	62	60	60	56	52	41	5	13	62	37.3	24	
24	8	9	11	38	54	55	50	48	55	52	63	68	67	66	67	68	70	69	64	54	37	5	70	47.7	24			
25	3	2	2	2	9	15	25	36	42	47	47	44	44	44	44	48	51	53	63	64	54	5	19	5	64	34.1	24	
26	22	20	19	10	10	10	22	25	29	35	42	47	49	51	52	52	53	50	48	5	36	39	40	38	53	34.7	24	
27	37	38	36	35	34	31	30	33	31	28	32	38	40	40	42	42	41	41	38	31	26	14	8	42	35.3	24		
28	3	2	1	1	2	6	13	20	33	35	38	40	43	45	47	47	47	47	47	47	47	46	42	38	49	37.8	24	
29	20	26	26	26	24	27	30	33	36	41	45	46	47	48	49	49	49	49	49	49	49	49	49	49	49	49	37.8	24
30	37	35	34	30	29	27	26	27	27	32	34	37	39	43	45	50	52	47	43	36	21	14	14	52	35.9	24		
31	45	39	39	38	54	55	50	48	55	52	63	68	67	66	67	68	70	69	64	57	52	46	48	48	48	25.1		
HOURLY MAX	23.6	22.3	20.1	17.7	17.7	19.1	24.3	29.5	35.5	41.8	46.0	48.3	49.7	51.0	52.0	52.8	52.4	53.2	51.1	46.4	40.3	34.3	28.9	25.1				
HOURLY AVG																												

STATUS FLAG CODES

C	COMBUSTION
D	DECONTAMINATION
E	EMERGENCY
F	FLARE
G	FOR REPAIR
H	HAZARDOUS WASTE
I	INOPERATIVE
J	JOB IN PROGRESS
K	KEEP OFF
L	LOADING
M	MAINTENANCE
N	NOISE
O	OPERATOR ERROR
P	POWER FAILURE
Q	QUALITY ASSURANCE
R	RECOVERY
S	SAMPLE
T	TESTING
U	UNIDENTIFIED
V	VENT
W	WATER
X	MACHINE MALFUNCTION
Y	YIELD
Z	ZONING

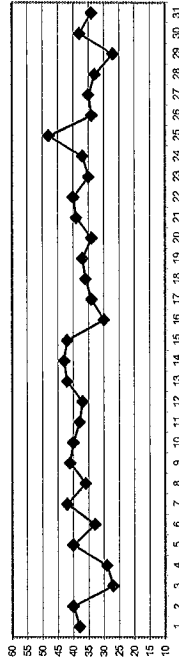
OBJECTIVE LIMIT: 25 PPB

ALBERTA ENVIRONMENT: 25 PPB

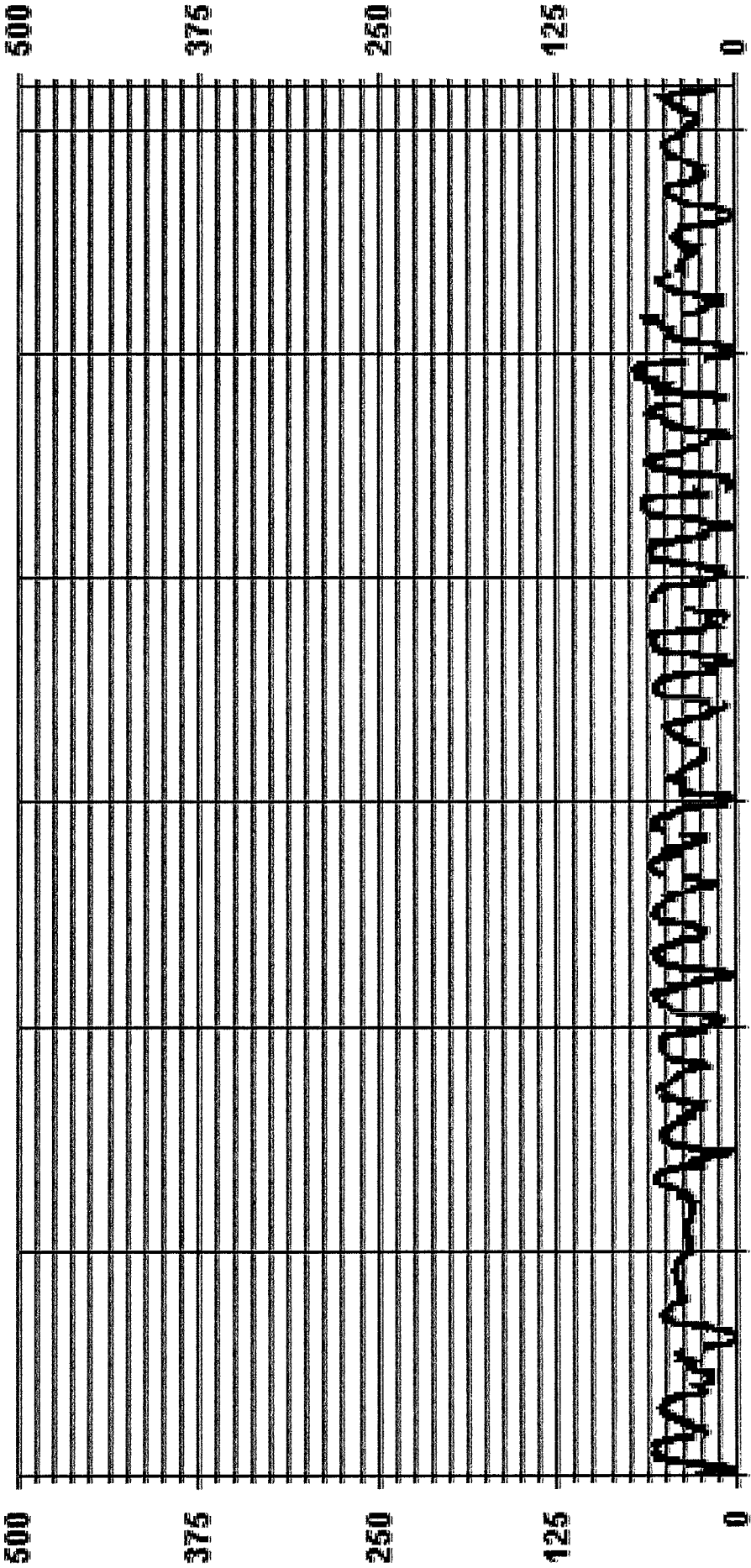
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	706
MAXIMUM 1-HR AVERAGE	70 PPB
MAXIMUM 24-HR AVERAGE	47.7 PPB
IS CALIBRATION TIME	32 HRS
MONTHLY CALIBRATION TIME	5 HRS
STANDARD DEVIATION	15.94
OPERATIONAL TIME	744 HRS
AMD OPERATION UPTIME	100.0 %
MONTHLY AVERAGE	37 PPB
ON DAY(S)	25
ON DAY(S) VAR-VARIOUS	25

24 HOUR AVERAGES FOR MAY 2015



01 Hour Averages



— LICA35 03_ PPB



Elk Point Airport Site - MAY 2015
JOB # 196-2015-05-93-C

OZONE MAX instantaneous maximum in ppb

MST

HOURLY START	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX	24-HOUR AVG	RDCS				
37	34	20	12	2	15	31	41	46	46	55	56	57	58	58	58	58	58	58	58	57	54	52	41	\$	31	58	43.0	24				
31	37	28	39	42	39	40	47	49	50	50	50	52	52	53	53	53	53	53	53	50	45	43	38	\$	26	30	43.7	24				
31	26	24	23	22	22	21	20	28	30	36	36	36	36	36	41	43	42	44	41	40	\$	27	27	15	44	44	30.9	24				
10	5	3	1	2	5	15	20	26	39	46	48	51	51	52	54	50	48	49	\$	44	42	39	38	54	32.1	24	32.1	24				
5	40	40	40	R	57	41	42	43	42	42	42	42	42	43	43	43	42	42	\$	41	40	40	40	35	57	41.9	23	41.9	23			
35	35	34	34	34	34	34	34	34	35	36	36	36	36	36	36	36	35	35	\$	34	33	33	32	31	32	36	34.0	24	34.0	24		
32	33	33	33	34	34	34	34	34	39	45	48	52	56	57	57	59	\$	57	56	54	50	47	39	32	59	44.8	24	44.8	24			
34	38	37	36	34	32	30	28	38	45	55	54	53	52	52	53	53	52	48	46	43	41	41	41	41	53	40.4	24	40.4	24			
43	37	36	33	33	34	40	50	50	49	50	51	\$	52	54	54	54	53	52	50	49	46	44	43	43	56	43.5	24	43.5	24			
30	30	23	24	20	15	20	31	39	44	47	50	51	\$	54	55	56	57	59	59	57	50	46	43	37	59	42.0	24	42.0	24			
11	34	25	19	12	7	11	18	29	46	53	53	\$	56	57	58	59	59	59	57	55	47	47	43	34	59	40.8	24	40.8	24			
31	28	30	29	27	28	32	39	47	54	\$	57	57	59	59	58	56	57	56	54	51	47	49	49	49	50	63	47.0	24	47.0	24		
14	43	37	33	24	26	22	28	29	46	\$	55	58	60	61	62	61	60	58	55	49	47	46	45	34	23	61	46.0	24	46.0	24		
48	47	34	31	27	26	30	47	\$	54	57	60	59	61	61	61	60	58	55	49	47	46	45	34	23	61	46.0	24	46.0	24			
13	21	23	9	35	36	39	\$	39	38	38	38	48	51	47	45	42	40	40	36	34	34	31	26	51	34.9	24	34.9	24	34.9	24		
24	24	23	23	24	\$	28	32	37	40	41	42	45	47	49	49	50	51	49	42	40	33	34	51	36.9	24	36.9	24	36.9	24			
24	26	22	13	13	\$	23	26	46	54	53	56	58	57	57	57	56	55	54	50	42	27	25	58	41.3	24	41.3	24	41.3	24			
25	29	20	13	\$	15	20	30	40	53	56	57	58	59	59	59	61	62	61	60	55	39	29	25	62	42.8	24	42.8	24	42.8	24		
24	24	\$	17	15	12	28	31	37	57	60	60	60	60	60	59	60	62	62	60	59	54	44	35	29	62	43.9	24	43.9	24			
27	\$	23	13	8	13	29	27	47	55	61	61	63	64	65	66	65	67	65	54	35	31	36	67	45.3	24	45.3	24	45.3	24			
29	26	27	22	21	10	23	33	39	46	47	50	53	53	58	66	64	63	62	60	59	50	\$	22	66	42.7	24	42.7	24	42.7	24		
12	23	17	68	58	63	62	58	70	62	68	70	71	69	70	71	71	71	72	72	71	53	\$	31	15	72	55.7	24	55.7	24	55.7	24	
6	3	3	11	24	24	24	31	42	45	52	46	46	46	47	50	53	55	67	71	59	\$	42	35	32	71	39.0	24	39.0	24	39.0	24	
28	28	27	24	19	20	25	26	31	40	45	48	51	53	54	55	56	56	53	50	\$	46	44	41	40	56	39.3	24	39.3	24	39.3	24	
39	40	38	36	35	34	31	36	34	30	36	39	41	42	44	44	44	43	42	\$	40	35	31	24	14	44	36.0	24	36.0	24	36.0	24	
11	4	3	3	5	11	19	27	36	37	40	43	45	47	48	49	48	\$	49	47	42	35	34	32	49	31.1	24	31.1	24	31.1	24		
28	31	30	29	27	28	32	35	37	43	46	48	48	48	49	50	51	\$	50	49	48	46	40	40	39	51	40.2	24	40.2	24	40.2	24	
39	37	35	32	31	30	28	28	29	36	37	39	41	46	47	\$	51	53	52	49	48	44	35	25	22	53	37.7	24	37.7	24	37.7	24	
48	47	40	68	58	63	62	58	70	62	68	70	71	69	70	71	71	71	72	72	71	53	\$	31	15	72	55.7	24	55.7	24	55.7	24	
28.8	27.7	24.9	23.3	24.2	24.1	29.3	34.4	40.9	45.8	48.9	50.3	52.0	53.1	53.9	55.1	54.3	55.4	54.2	50.3	46.5	40.9	35.2	31.3									
HOURLY MAX																																
HOURLY AVG																																

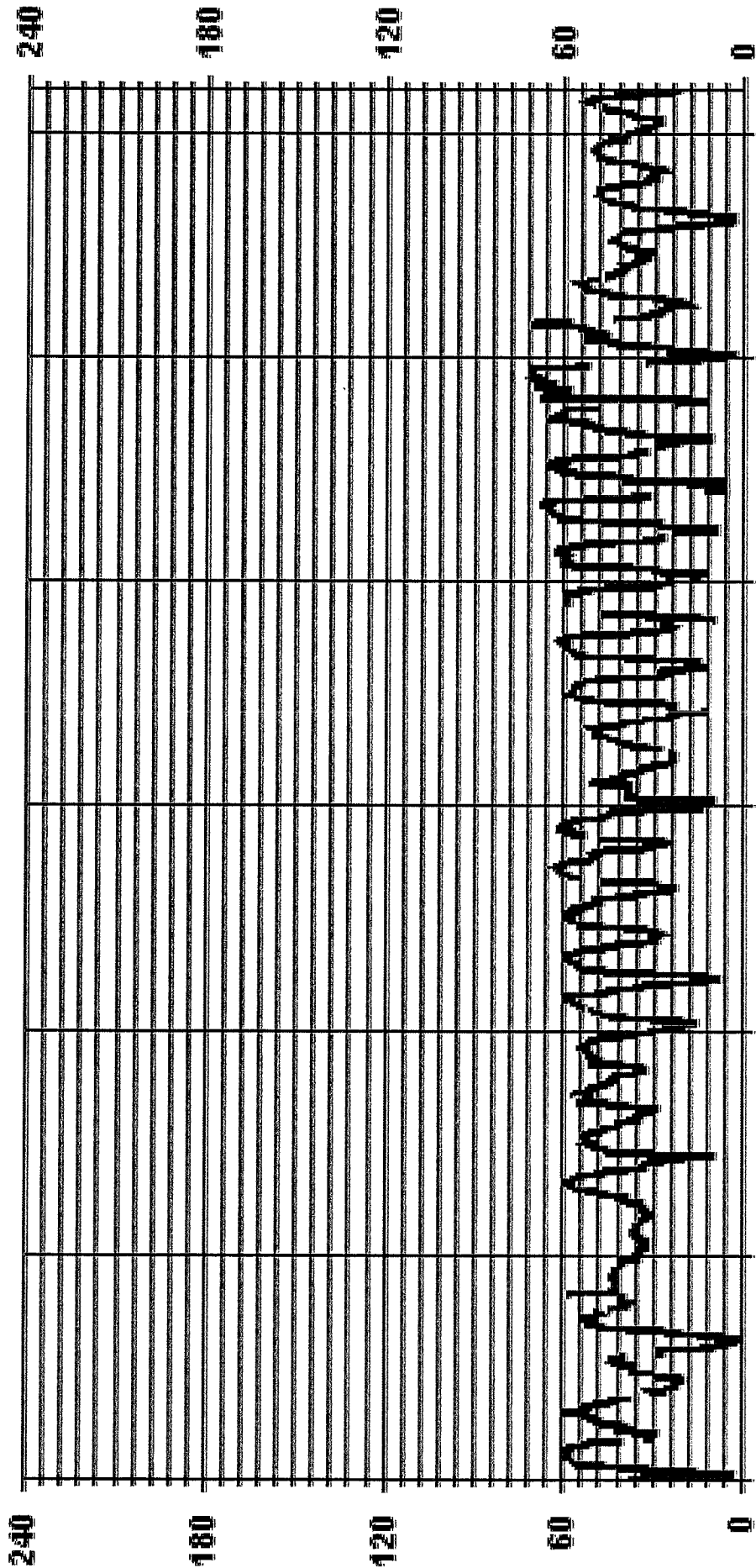
STATUS FLAG CODES

G	QUALITY ASSURANCE
H	RECOVERY
I	MAINTENANCE
J	DATA ZERO/SPAN CHECK
K	POWER FAILURE
L	OUT OF RANGE
M	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706
MAXIMUM INSTANTANEOUS VALUE:	72 PPB @ HOUR(S) 18 ON DAY(S) 25
12S CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	14.83
VAR-VARIOUS	

01 Hour Averages



05:01/15 00:00/05/06/15 00:00/05/11/15 00:00/05/16/15 00:00/05/21/15 00:00/05/26/15 00:00/05/31/15 00:00

— LICA35 O3MAX PPB

LICA-ELK
O3 / WDR Joint Frequency Distribution (Percent)

May 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : O3
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4.52	4.95	2.97	8.06	10.46	12.30	4.80	3.96	.70	.99	1.41	2.26	3.96	4.52	5.09	4.24	75.24
< 110	1.69	1.55	1.13	.99	.99	2.54	2.12	3.39	3.53	1.13	.70	.84	.56	1.55	1.13	.84	24.75
< 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	6.22	6.50	4.10	9.05	11.45	14.85	6.93	7.35	4.24	2.12	2.12	3.11	4.52	6.08	6.22	5.09	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	32	35	21	57	74	87	34	28	5	7	10	16	28	32	36	30	532
< 110	12	11	8	7	7	18	15	24	25	8	5	6	4	11	8	6	175
< 210																	
>= 210																	
Totals	44	46	29	64	81	105	49	52	30	15	15	22	32	43	44	36	

Calm : .00 %

Total # Operational Hours : 707

Logger : 35 Parameter : 03_

Site : LICA-ELK

Period : 05/01/15-05/31/15

Level : 10

N 21%

NNW

NW

WNW

W

WSW

SW

SSW

S

SSE

SE

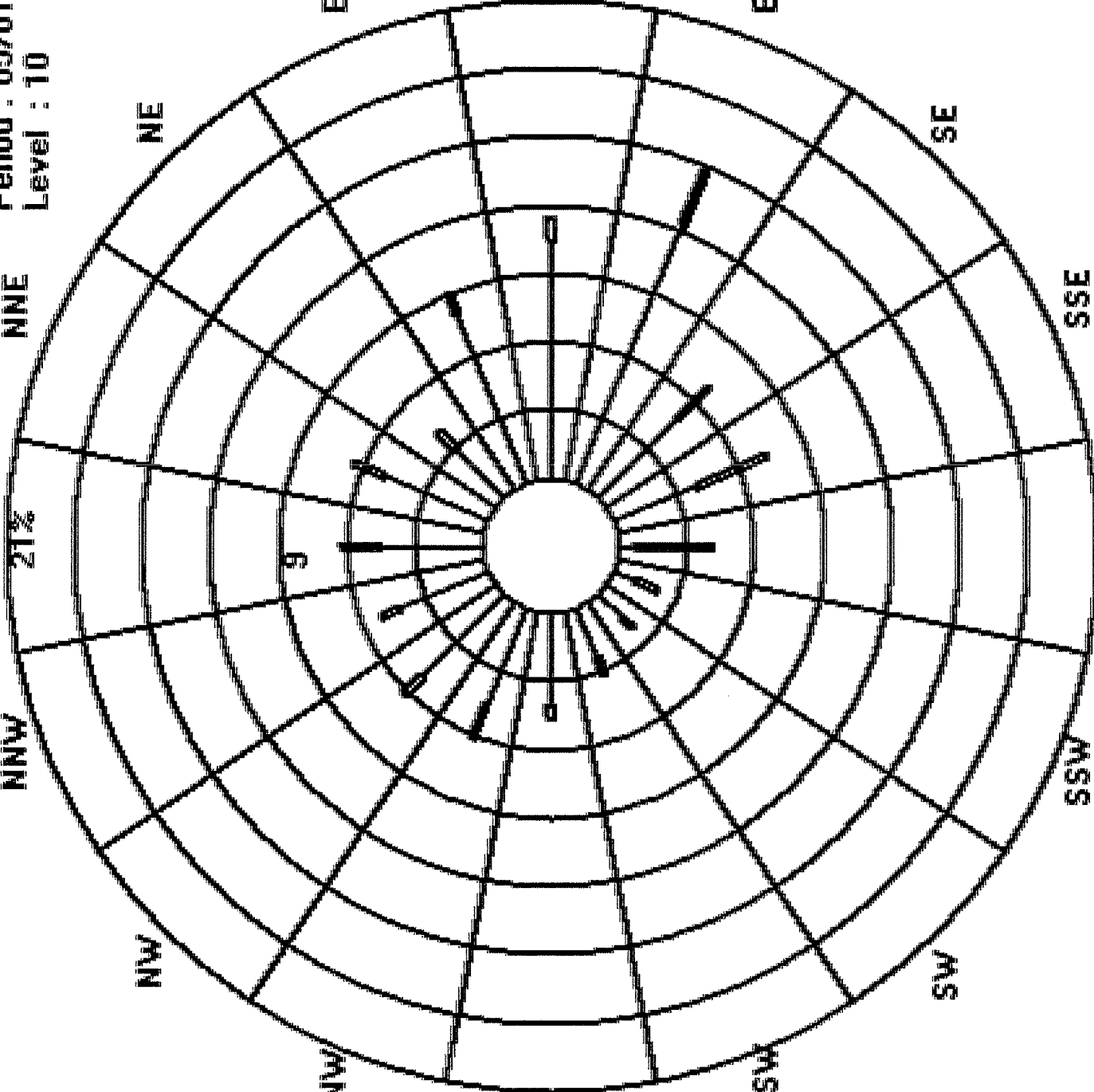
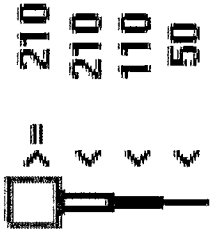
ESE

E

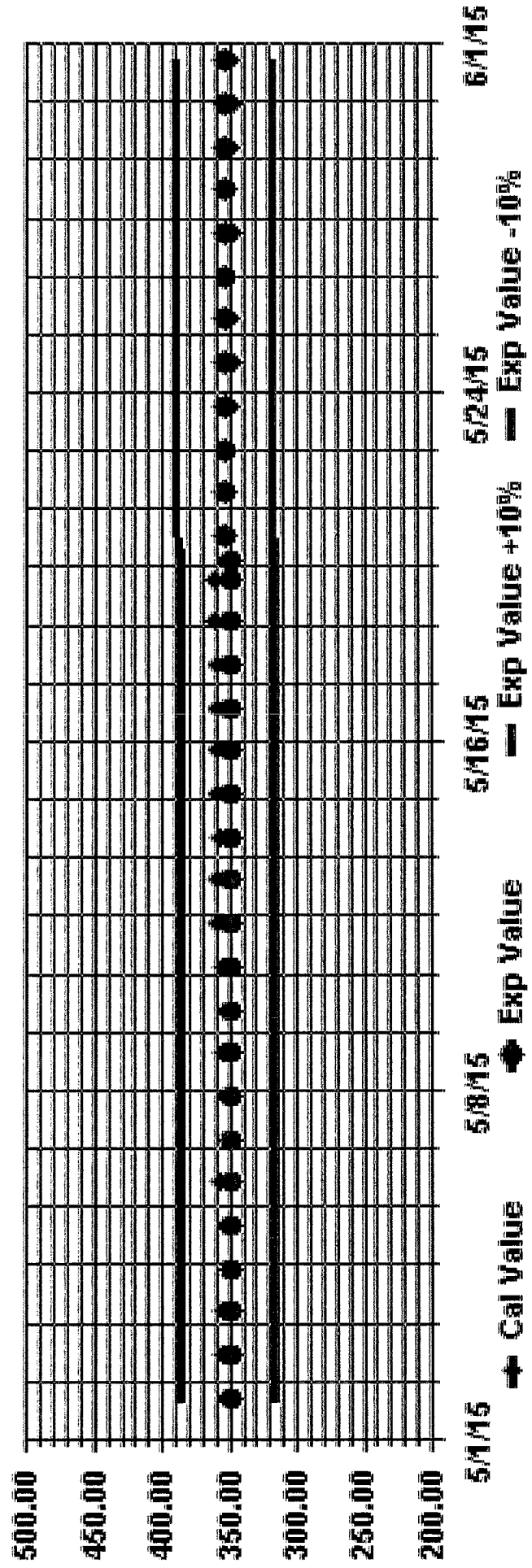
ENE

NE

NNE



Calibration Graph for Site: LICA35 Parameter: O3_ Sequence: O3 Phase: SPAN



PARTICULATE MATTER 2.5



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

MST

HOURS START	HOURS																								DAILY MAX	24-HOUR AVG	RDGS.
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			
1	0	3	6	8	2	0	4	6	3	2	3	4	3	2	2	0	5	0	2	6	8	5	3	8	3.3	24	
2	3	5	0	1	3	0	2	0	5	3	0	3	1	2	0	3	0	1	1	0	0	2	0	0	5	1.5	24
3	1	0	2	1	0	0	3	1	4	X	0	1	1	0	0	0	0	0	1	2	3	3	1	3	4	1.2	23
4	0	3	2	2	2	3	5	5	8	6	3	C	0	1	0	0	3	5	1	1	3	3	3	8	2.8	24	
5	6	0	2	X	0	0	3	3	1	6	3	1	0	2	3	4	6	7	4	3	5	4	6	0	7	3.0	23
6	4	6	1	0	2	1	3	2	2	0	1	X	1	3	0	5	4	2	4	7	7	2	X	0	7	2.6	22
7	0	0	2	0	2	0	3	1	0	0	7	4	4	6	0	2	5	5	4	5	4	2	5	6	7	2.7	24
8	6	4	5	2	5	6	6	7	5	6	4	5	2	7	6	2	5	5	3	4	6	9	6	9	5.0	24	
9	10	8	2	5	12	8	3	4	9	2	3	0	2	1	5	5	2	2	3	4	2	5	2	12	4.5	24	
10	1	0	1	1	0	2	3	4	9	2	3	0	2	2	1	5	5	2	2	3	4	2	3	8	9	2.7	24
11	6	4	6	8	7	8	7	4	5	3	6	5	2	5	7	5	4	3	3	5	8	3	5	8	5.2	24	
12	4	9	7	9	7	6	6	14	6	7	2	5	4	4	6	2	8	11	5	7	5	11	7	14	6.5	24	
13	9	8	5	6	9	5	6	8	6	7	13	8	10	10	7	8	10	5	5	9	6	8	8	13	7.7	24	
14	11	10	9	5	10	4	7	11	11	8	10	6	10	6	9	2	6	7	7	6	5	7	8	5	11	7.5	24
15	6	6	4	8	4	8	10	5	3	3	3	2	8	10	8	3	7	7	4	3	4	0	2	10	11	6.2	24
16	13	9	9	11	8	8	0	4	1	2	0	1	2	0	1	3	4	0	2	1	0	2	1	0	10	3.9	24
17	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	2	4	4	4	3	3	4	1.6	24	
18	9	5	4	4	7	7	2	4	4	11	3	4	3	4	6	7	8	7	2	2	2	3	5	6	11	5.0	24
19	6	6	5	4	11	8	7	9	6	10	8	3	6	C	C	C	C	12	5	6	8	8	8	12	7.0	24	
20	10	6	7	7	6	9	11	7	8	5	8	5	7	4	6	5	1	1	0	7	5	6	7	7	11	6.0	24
21	6	8	6	10	12	11	11	9	2	4	3	7	6	7	5	5	4	0	4	0	2	6	9	10	12	6.1	24
22	9	9	11	6	8	12	9	8	6	6	3	6	0	5	3	4	1	3	2	7	7	11	7	12	6.4	24	
23	13	8	11	13	9	10	8	11	9	15	24	24	31	23	18	16	20	22	12	11	17	10	13	31	15.3	24	
24	15	14	13	12	15	12	14	14	16	13	15	17	16	14	13	16	8	9	14	13	17	18	18	18	14.0	24	
25	17	20	16	18	14	9	14	6	9	11	13	7	7	9	14	17	13	10	29	88	99	119	95	119	31.2	24	
26	93	88	76	64	43	30	27	28	20	26	27	29	23	18	19	16	17	51	108	66	38	29	39	19	108	41.4	24
27	10	14	12	9	9	10	9	15	25	22	23	23	13	14	21	12	11	14	8	7	269	24	16	269	25.0	24	
28	11	8	3	11	19	30	9	21	12	10	18	17	16	12	17	10	11	10	12	10	9	10	14	11	30	13.0	24
29	9	11	6	6	6	11	6	3	5	0	2	3	1	2	4	3	0	4	1	4	4	3	2	3	11	4.1	24
30	6	4	4	2	2	6	4	4	2	6	4	7	6	1	11	3	5	6	4	1	6	8	7	11	4.5	24	
31	5	7	3	5	5	7	4	6	7	7	6	6	9	9	1	7	8	6	11	6	7	9	9	12	12	6.8	24
HOURLY MAX	93	88	76	64	43	30	27	28	20	26	27	29	31	23	19	21	20	51	108	88	99	269	95	95			
HOURLY AVG	9.6	9.2	7.9	7.8	7.4	7.7	6.7	7.1	6.1	7.0	7.3	6.7	6.7	6.6	6.3	6.0	6.0	7.4	9.3	9.1	9.2	18.8	11.3	10.0			

STATUS FLAG CODES

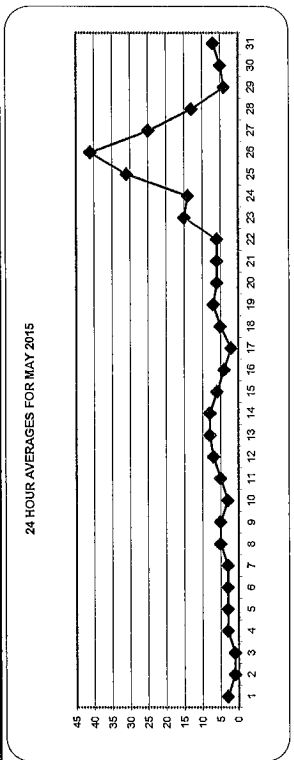
C	CALIBRATION
Y	MAINTENANCE
S	DAILY ZERO / SPAN / CHECK
P	POWER FAILURE
G	OUT OF RANGE
Q	QUALITY ASSURANCE
R	RECOVERY
X	MACHINE MALFUNCTION
O	OPERATOR ERROR
K	COLLECTION ERROR

OBJECTIVE LIMIT:

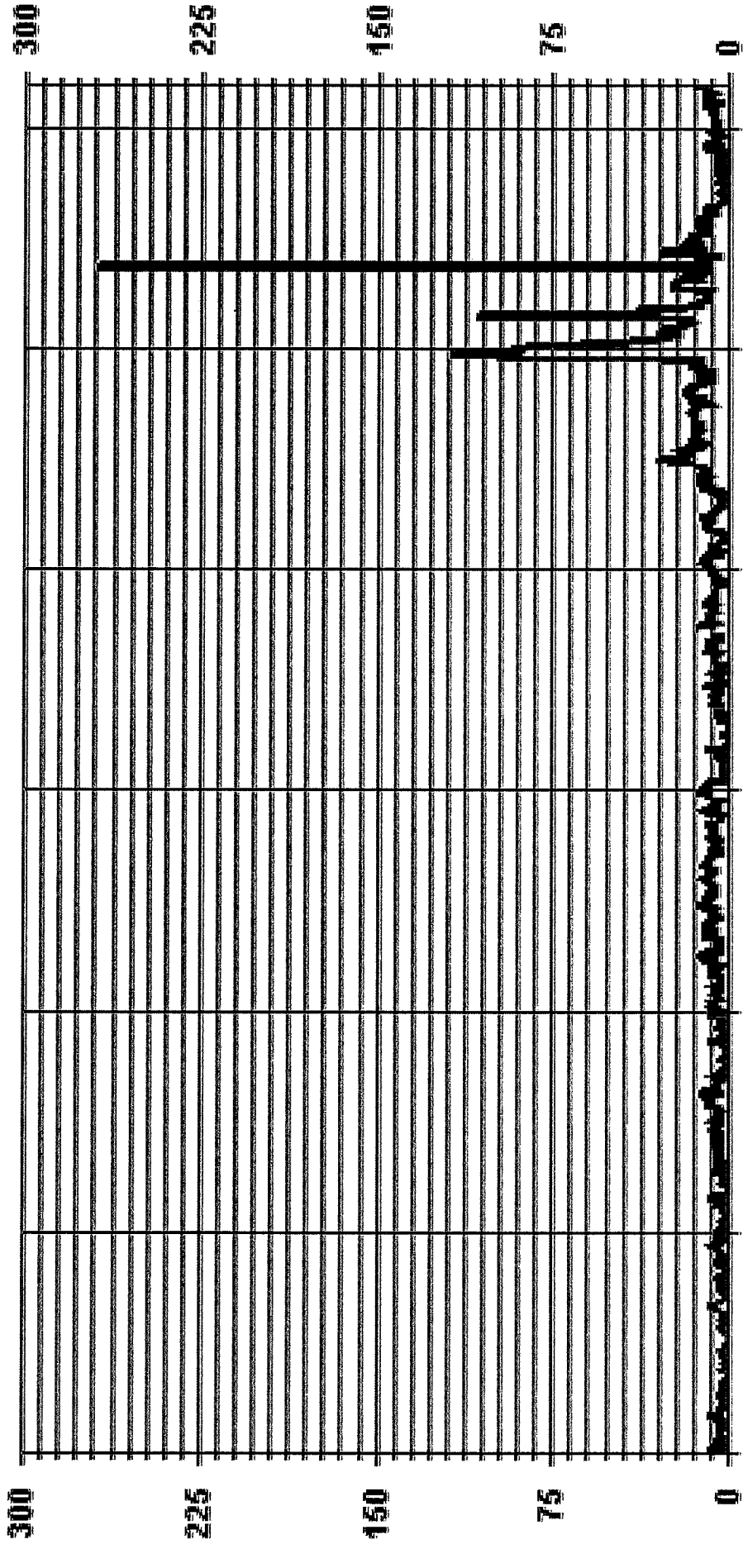
ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES	2			
NUMBER OF NON-ZERO READINGS	665			
MAXIMUM 1-HR AVERAGE	269 ug/m3 @ HOUR(S)	21	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE	41.4 ug/m3		ON DAY(S)	26
MONTHLY CALIBRATION TIME	5 HRS	OPERATIONAL TIME	740 HRS	
STANDARD DEVIATION	15.37	AMD OPERATION UPTIME	99.5 %	
		MONTHLY AVERAGE	8.2 ug/m3	



01 Hour Averages



— LICA35 PM2 UGM3

LICA-ELK
 PM2 / WDR Joint Frequency Distribution (Percent)
 May 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	6.12	6.39	3.67	8.84	11.15	14.82	7.21	7.34	4.08	2.04	2.31	3.12	4.08	5.30	5.85	5.03	97.41
< 60	.13	.13	.13	.27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.95
< 80	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.13	.00	.00	.40
< 120	.00	.00	.13	.13	.00	.00	.00	.13	.00	.13	.00	.00	.27	.27	.00	.00	1.08
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13
Totals	6.39	6.53	4.08	9.25	11.15	14.82	7.21	7.48	4.08	2.17	2.31	3.12	4.48	5.98	5.85	5.03	

Calm : .00 %

Total # Operational Hours : 735

Distribution By Samples

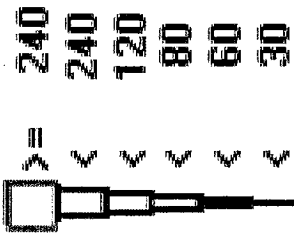
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30	45	47	27	65	82	109	53	54	30	15	17	23	30	39	43	37	716
< 60	1	1	1	2										2			7
< 80			1										1	1			3
< 120		1	1	1			1			1			2	2			8
< 240																	
>= 240	1																1
Totals	47	48	30	68	82	109	53	55	30	16	17	23	33	44	43	37	

Calm : .00 %

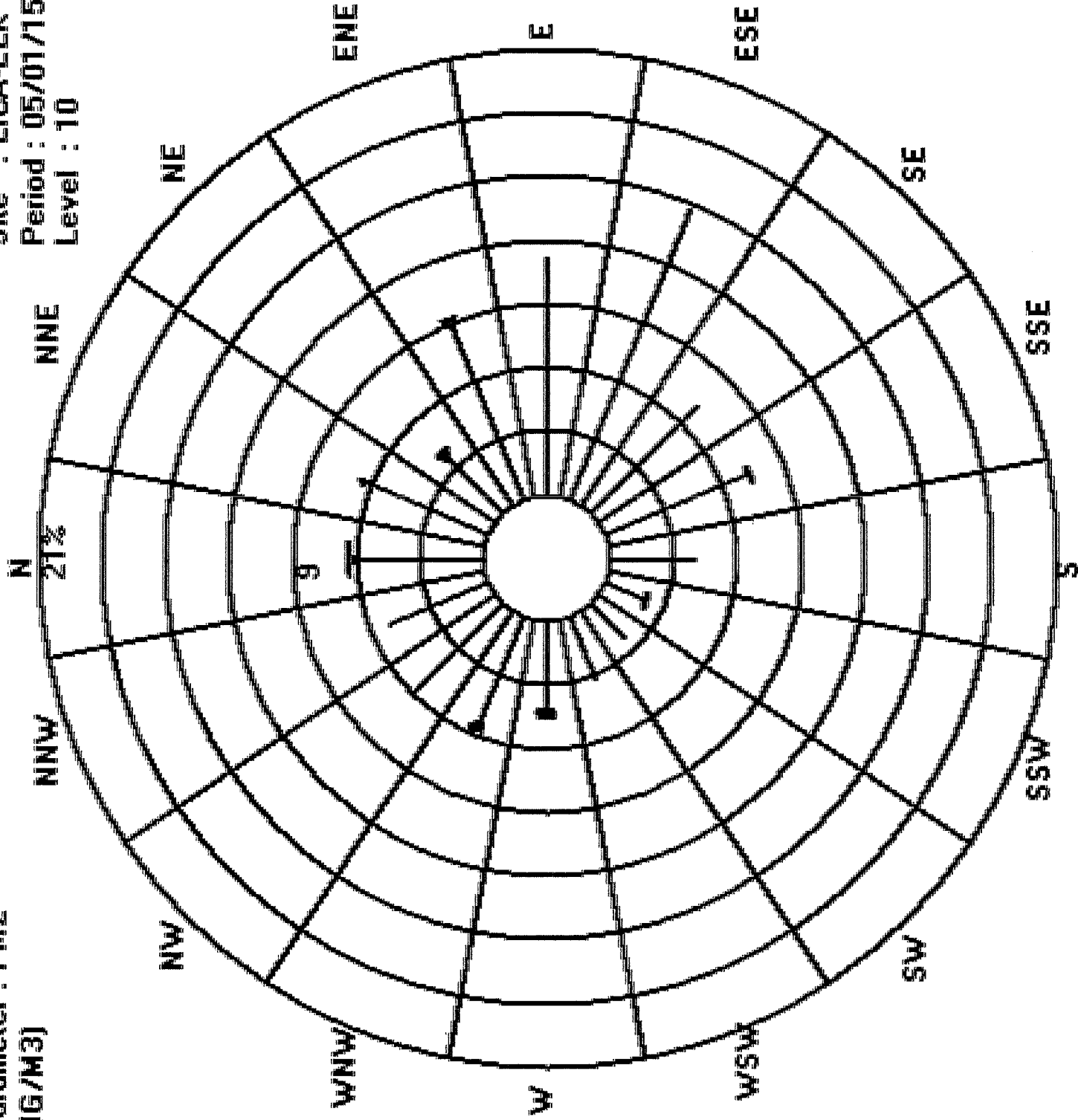
Total # Operational Hours : 735

Logger : 35 Parameter : PM2

Class Limits (UG/M3)

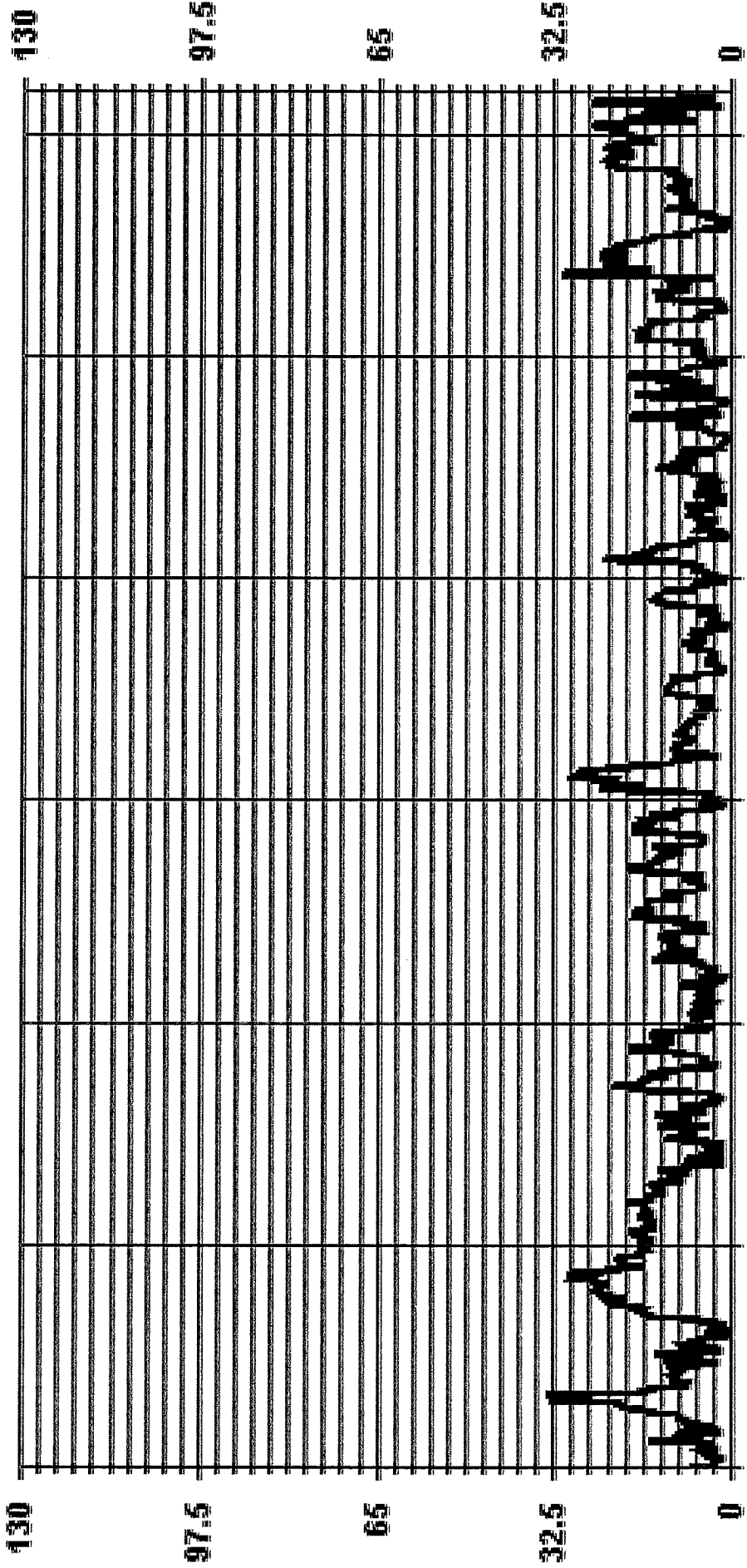


Site : LICA-ELK
Period : 05/01/15-05/31/15
Level : 10



WIND SPEED

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA35 WSP KPH



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Elk Point Airport Site - MAY 2015
JOB # 196-2015-05-93-C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

DATE	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX	24-HOUR AVG	RDS
1	13.4	7.5	6.1	5.9	9.6	6.3	8.8	8.9	12.6	20.6	17.8	19.4	24.7	15.7	26.0	32.4	25.8	16.0	47.1	24.7	6.5	10.5	8.1	13.2	32.4	15.3	24
2	11.1	14.0	13.9	17.5	15.4	19.7	22.2	24.7	30.0	31.3	33.6	40.1	42.8	56.3	44.0	43.9	58.3	41.4	47.6	23.1	11.9	14.1	15.5	18.3	58.3	28.7	24
3	17.9	15.6	15.7	15.8	14.2	15.3	13.5	15.2	15.2	11.9	17.6	27.7	21.3	21.4	47.2	39.8	16.7	22.4	31.2	28.3	9.1	9.5	8.6	4.7	47.2	19.0	24
4	4.4	3.9	3.8	6.6	6.9	5.9	6.1	9.7	10.8	19.5	32.7	29.0	31.2	35.3	35.2	36.0	36.0	42.7	44.1	33.7	37.0	40.0	41.5	44.1	24.7	24	
5	42.6	42.3	42.5	R	42.8	42.3	42.5	50.4	51.0	51.2	52.7	42.4	43.6	39.4	38.5	39.0	38.5	39.4	39.1	33.4	33.8	32.5	26.6	30.1	52.7	40.1	23
6	34.6	34.0	34.7	29.1	28.3	28.5	28.8	29.6	30.5	31.3	28.8	23.1	27.1	26.3	28.3	28.9	31.4	26.7	28.6	28.1	30.0	27.7	29.0	29.8	34.7	29.3	24
7	32.0	31.4	29.3	28.6	23.7	21.5	24.0	23.2	22.9	24.9	23.9	21.7	25.0	25.6	31.3	28.7	32.0	23.4	20.9	16.7	8.3	5.0	7.6	12.7	32.0	22.7	24
8	12.0	4.8	8.3	4.9	5.3	6.6	5.1	7.2	17.6	19.5	29.1	26.8	37.4	23.2	20.7	27.9	22.5	23.2	23.2	22.5	15.2	14.5	23.8	24.7	37.4	17.8	24
9	16.7	17.7	19.4	16.3	20.6	30.7	11.1	15.2	12.6	12.0	22.7	28.7	37.6	40.3	40.7	36.3	33.1	27.7	30.6	21.0	21.7	24.0	22.8	13.3	40.7	23.9	24
10	11.5	6.3	5.5	7.6	10.2	9.2	12.2	20.1	19.6	28.9	35.5	40.4	35.3	33.7	30.9	26.4	26.5	28.9	26.9	22.5	14.4	9.6	6.7	9.8	40.4	19.9	24
11	8.0	11.0	9.7	11.3	6.5	7.7	13.2	15.5	13.1	12.8	21.7	19.9	24.2	21.8	18.8	22.6	18.2	22.5	17.3	6.6	18.9	17.8	11.2	7.5	24.2	14.9	24
12	6.0	10.0	9.9	6.3	7.1	5.5	9.3	9.5	11.7	28.5	35.3	33.1	32.6	28.4	28.3	27.6	27.7	23.7	25.1	22.7	15.3	25.6	19.9	17.9	35.3	19.5	24
13	16.5	11.9	11.3	8.4	9.8	7.0	18.3	19.8	20.3	31.9	37.5	42.3	43.0	36.3	32.9	29.2	33.1	24.8	26.0	19.8	14.1	18.0	24.4	23.7	43.0	23.3	24
14	26.9	11.6	8.1	8.2	8.4	12.9	14.5	11.3	21.9	26.5	37.1	35.0	41.0	37.2	52.6	30.1	30.2	28.2	26.1	19.6	14.7	15.1	17.7	21.9	52.6	23.2	24
15	25.9	22.3	8.5	9.3	7.4	9.8	14.9	30.7	31.6	35.2	32.0	37.2	36.0	38.3	31.2	24.4	24.1	24.3	20.5	18.3	8.5	9.9	5.8	9.5	38.3	21.5	24
16	11.8	13.8	10.5	10.4	17.3	20.9	44.6	46.5	37.3	45.1	43.7	42.9	52.2	52.2	49.1	48.0	52.1	44.3	43.4	35.7	26.8	20.5	18.9	14.6	52.2	33.4	24
17	13.1	10.9	11.7	17.1	19.2	18.7	21.1	22.0	21.2	27.2	26.0	24.4	27.7	27.3	26.1	23.7	24.6	24.8	16.0	12.5	11.2	10.7	6.4	8.0	27.7	18.8	24
18	9.4	8.6	8.0	7.3	6.2	6.1	10.3	8.5	14.9	23.8	26.7	31.8	38.3	28.1	30.2	30.8	31.4	22.9	21.7	12.8	11.2	11.7	5.4	7.2	38.3	17.2	24
19	4.0	5.8	5.8	7.3	5.3	5.8	8.1	8.7	8.5	15.2	23.7	23.0	26.8	23.8	24.3	22.1	20.5	15.6	13.7	12.8	9.2	7.8	4.3	4.9	26.8	12.8	24
20	6.7	5.6	5.1	4.9	5.3	7.3	12.2	9.3	11.3	21.7	24.4	29.5	32.7	38.0	34.2	32.9	31.9	25.2	24.3	15.6	10.5	11.7	8.8	5.4	38.0	17.3	24
21	6.4	5.5	7.1	7.4	8.3	8.2	12.6	14.9	15.2	30.2	40.3	44.9	39.5	40.4	36.7	35.2	31.6	27.0	17.1	12.9	12.2	7.2	5.0	44.9	20.3	24	
22	7.2	6.0	8.4	8.5	7.6	9.5	11.5	10.6	15.4	16.5	25.5	23.8	24.9	21.2	19.6	21.0	23.1	17.2	5.6	5.7	7.8	5.3	7.7	9.2	25.5	13.3	24
23	8.1	6.5	8.9	8.8	9.1	11.1	9.3	8.6	10.2	13.1	16.3	27.7	27.7	23.7	23.2	22.5	17.2	16.3	22.4	17.9	18.3	17.1	7.8	7.0	27.7	15.0	24
24	7.3	6.2	3.8	3.3	2.8	3.8	7.7	9.8	9.7	15.3	24.7	24.4	22.8	22.4	22.7	20.2	40.3	25.4	30.5	17.9	15.8	5.6	4.8	3.2	40.3	14.6	24
25	4.0	6.7	8.5	43.8	33.7	31.3	10.0	11.1	59.8	16.9	16.6	22.1	43.0	45.6	36.3	26.1	22.4	18.9	30.0	16.1	8.2	7.4	11.9	11.3	59.8	22.6	24
26	10.6	9.9	15.6	22.8	15.9	13.2	11.5	11.5	25.9	30.0	32.8	33.6	33.2	34.4	36.3	32.8	33.1	30.4	28.0	24.7	14.8	8.6	8.9	8.2	36.3	21.9	24
27	8.7	4.1	3.6	6.6	6.1	6.2	17.0	16.9	23.7	26.9	30.0	32.2	20.6	25.7	26.2	25.3	32.4	23.7	17.1	6.5	64.9	65.1	42.9	29.0	65.1	23.4	24
28	42.2	42.7	44.6	42.9	40.3	37.2	42.2	39.8	41.4	37.5	43.9	41.6	40.7	40.5	36.0	35.6	35.4	25.0	20.7	14.0	12.5	9.8	3.9	4.8	44.6	32.3	24
29	7.0	7.1	3.1	6.5	7.1	6.3	14.0	19.8	25.2	24.3	21.4	29.9	26.5	26.8	26.4	24.6	23.4	20.8	21.8	17.6	15.4	14.5	12.0	10.0	29.9	17.1	24
30	13.4	16.3	13.6	14.9	14.9	19.5	30.4	34.8	41.6	38.2	57.8	48.4	42.7	41.7	47.6	39.3	40.3	37.2	36.8	34.8	25.2	23.6	24.6	32.6	57.8	32.1	24
31	29.3	28.7	39.1	36.5	40.5	37.6	38.3	34.2	14.2	36.3	42.1	35.0	34.7	34.7	23.2	22.4	22.2	23.3	79.6	44.3	17.3	7.5	17.3	17.1	79.6	31.5	24
HOURLY MAX	42.6	42.7	44.6	43.8	42.8	45.0	50.4	51.0	59.8	52.7	57.8	48.4	52.2	56.3	52.6	48.0	58.3	44.3	79.6	44.3	18	65.1	42.9	41.9	79.6	31.5	24
HOURLY AVG	15.1	13.8	13.7	14.2	14.7	15.3	17.8	19.3	22.5	26.0	30.4	31.7	33.3	32.1	32.3	30.2	30.2	26.2	27.9	20.9	17.5	16.5	14.9	14.7	31.5	14.9	24

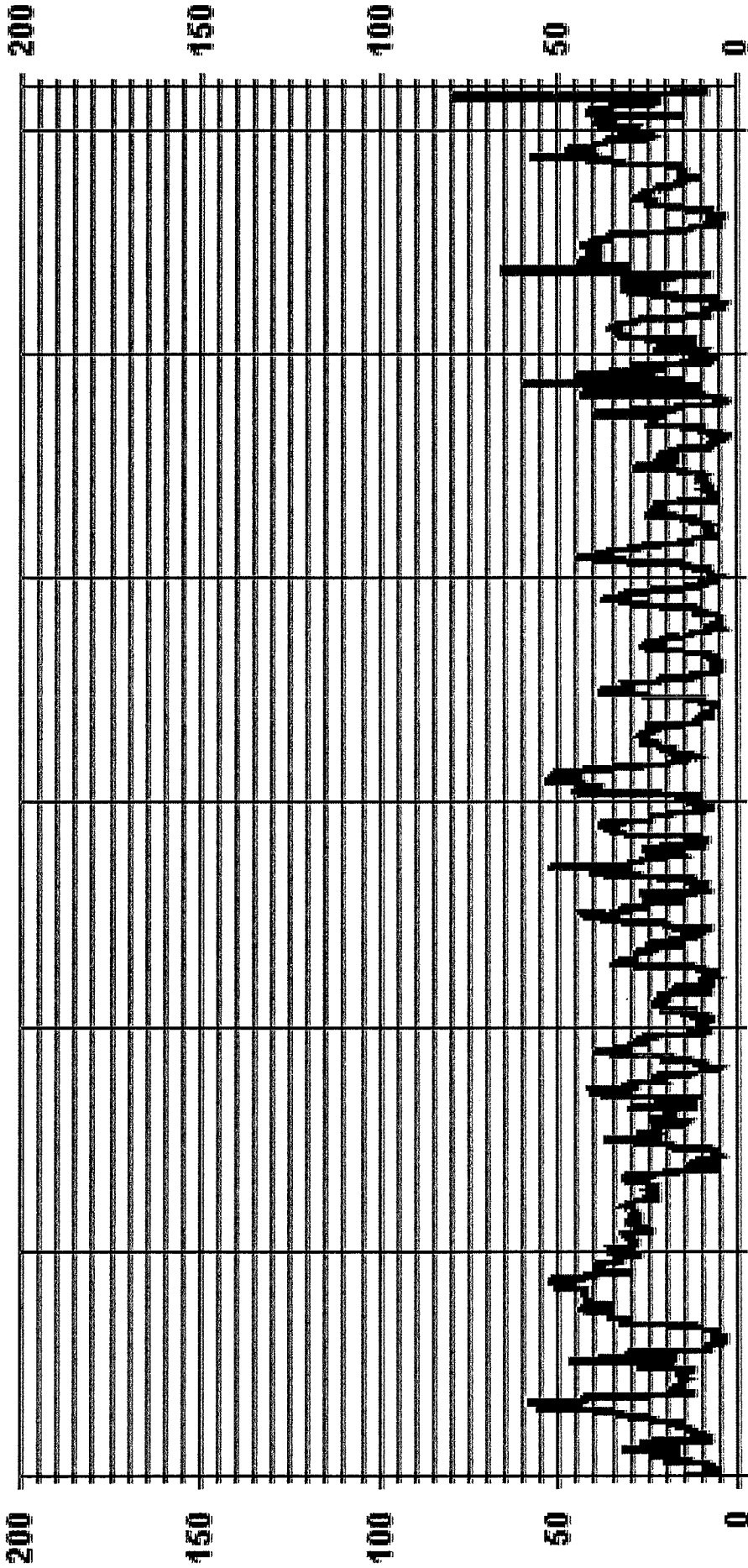
STATUS FLAG CODES

C	CALIBRATION	IO	QUALITY SOURCE
M	MAINTENANCE	RE	RECOVERY
S	DAILY ZERO SPAN CHECK	MA	MINIMUM LENGTH
P	POWER FAILURE	O	OPERATOR ERROR
G	ROUT FOR REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	79.6	KPH	@	HOUR(S)	18	ON DAY(S)	31
OPERATIONAL TIME:	743	HRS	VAR-VARIOUS				

01 Hour Averages



— LICA35 WSMAX KPH

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

May 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	.94	1.20	1.47	4.56	5.51	3.89	1.61	1.07	1.20	1.20	.80	.80	1.47	2.82	2.28	.94	31.85
< 12.0	1.34	1.20	1.47	2.01	3.22	6.31	2.28	4.03	1.61	.53	.94	2.15	2.55	1.61	1.20	1.20	33.73
< 20.0	2.41	2.41	.67	.80	1.74	3.49	2.28	2.15	1.61	.40	.53	.13	.40	.80	2.15	2.82	24.86
< 29.0	1.47	1.47	.40	1.74	.40	.94	.94	.26	.00	.00	.00	.00	.13	.53	.13	.13	8.60
< 39.0	.13	.13	.00	.13	.26	.00	.00	.00	.00	.00	.00	.00	.00	.13	.13	.00	.94
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.31	6.45	4.03	9.27	11.15	14.65	7.12	7.52	4.43	2.15	2.28	3.09	4.56	5.91	5.91	5.10	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

Direction

Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	7	9	11	34	41	29	12	8	9	9	6	6	11	21	17	7	237
< 12.0	10	9	11	15	24	47	17	30	12	4	7	16	19	12	9	9	251
< 20.0	18	18	5	6	13	26	17	16	12	3	4	1	3	6	16	21	185
< 29.0	11	11	3	13	3	7	7	2					1	4	1	1	64
< 39.0	1	1		1	2									1	1		7
>= 39.0																	
Totals	47	48	30	69	83	109	53	56	33	16	17	23	34	44	44	38	

Calm : .00 %

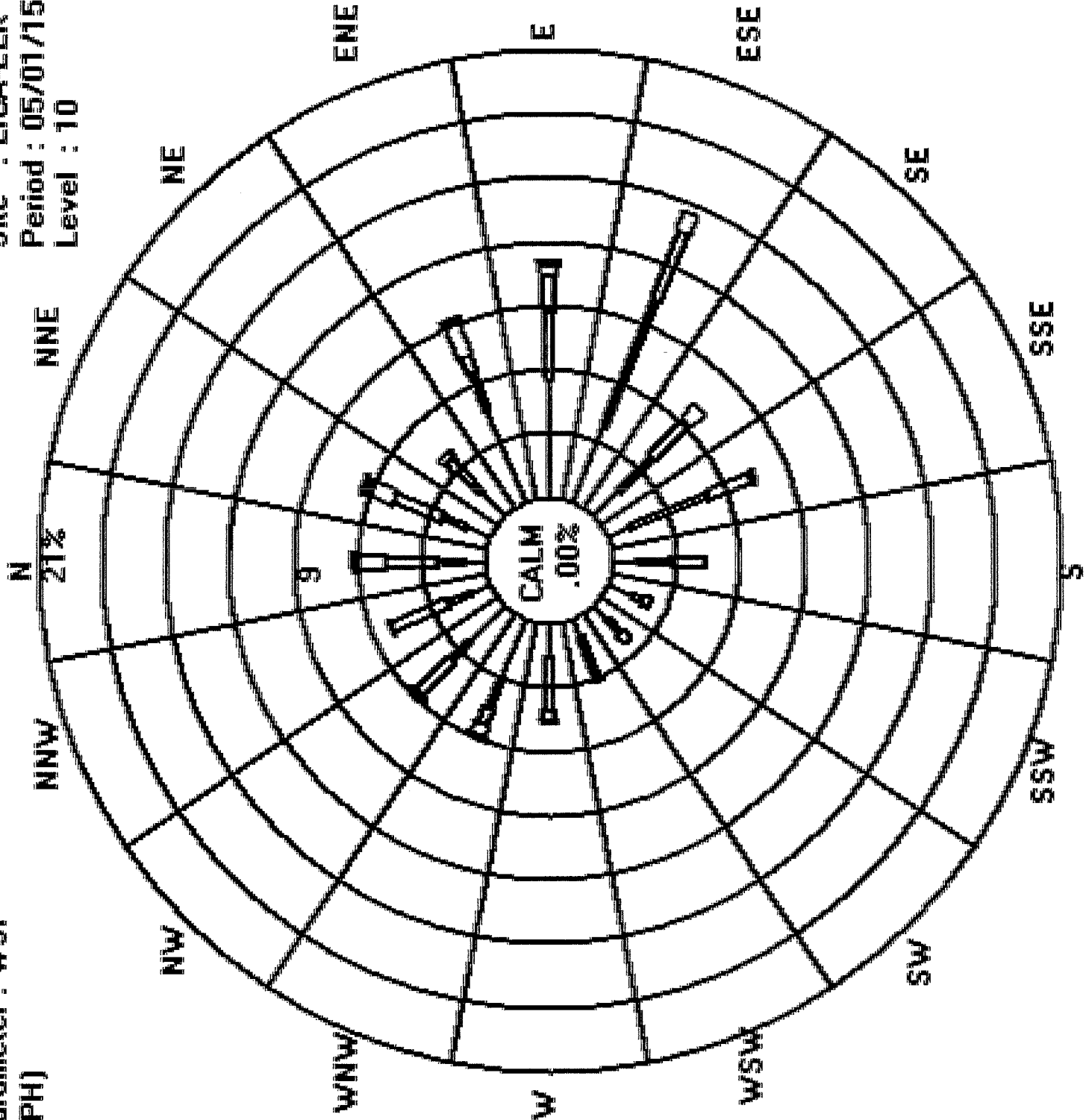
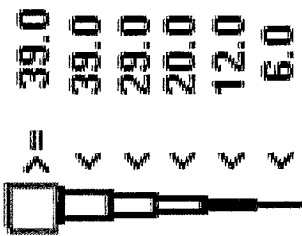
Total # Operational Hours : 744

Logger : 35 Parameter : WSP

Site : LICA-ELK

Class Limits (KPH)

Period : 05/01/15-05/31/15
Level : 10



WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Elk Point Airport Site - MAY 2015
 JOB # 196-2015-05-93- C

WIND DIRECTION (WD) hourly averages

MST

HOURLY START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	0:00
ROGS.																									
QUADRANT																									
1	SW	NW	NW	NW	NW	NW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
2	WSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
3	W	WSW	WSW	WSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
4	NNW	NNW	SSW	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
5	ENE	ENE	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
6	NNE	N	N	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW
7	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW
8	E	NNE	WNW	ENE	E	ESE	SW	W	SW	ESE	SW	W	SW	ESE	SW	W	SW	ESE	SW	W	SW	ESE	SW	W	SW
9	ENE	ENE	NE	NE	ENE	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
12	ESE	ESE	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
13	ESE	ENE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
14	SSE	SE	E	E	ESE	SE	SSE	SE	SSE	SE	SSE	SE	SSE	SE	SSE	SE	SSE	SE	SSE	SE	SSE	SE	SSE	SE	SSE
15	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW
16	WNW	WNW	S	ENE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE
17	NNE	NNE	NE	NE	ENE	NE	ENE	NE	ENE	NE	ENE	NE	ENE	NE	ENE	NE	ENE	NE	ENE	NE	ENE	NE	ENE	NE	ENE
18	E	ENE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
19	N	ENE	E	E	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
20	WNW	WNW	E	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	SE
21	NW	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE
22	ENE	ENE	E	E	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
23	W	WNW	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW
24	NE	NNE	NW	WNW	WNW	S	NNE	ENE	E	ENE	ENE	E	ENE	ENE	E	ENE	ENE	E	ENE	ENE	E	ENE	ENE	E	ENE
25	S	NW	WNW	SW	SW	S	WNW	ESE	WSW	WSW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW
26	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W	WNW	W
27	E	NNE	E	ENE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
28	NNW	NNW	N	N	N	NNW	N	N	NNW	N	N	NNW	N	N	NNW	N	N	NNW	N	N	NNW	N	N	NNW	N
29	WNW	E	NW	ESE	E	E	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE
30	ESE	ESE	ESE	E	E	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE	SE	SE	ESE	SE
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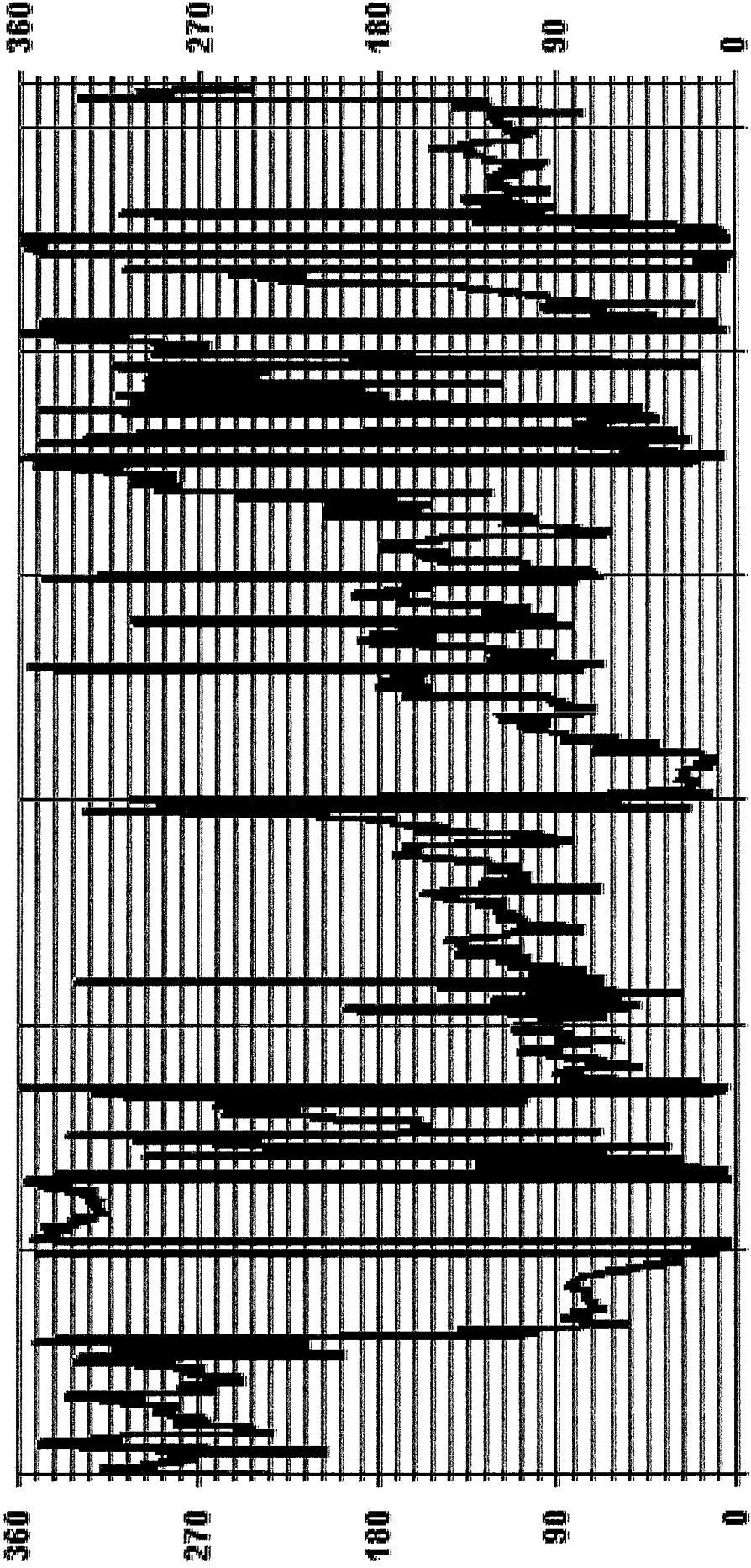
STATUS FLAG CODES

C	CALIBRATION	IC	QUALITY ASSURANCE
S	MAINTENANCE	OC	OVERCOURT
Y	DAILY PROSPAN CHECK	RE	RECOVERY
P	POWER FAILURE	WA	WIND SPEED ADJUSTION
G	OUT FOR REPAIR	OP	OPERATOR ERROR
		K	COLLECTION ERROR

LAST CALIBRATION: February 21, 2014
 DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME: 0 HRS
 STANDARD DEVIATION: 101.91
 MONTHLY AVERAGE: 744 HRS
 OPERATIONAL TIME: 100.0 %
 AMD OPERATION UPTIME:
 MONTHLY AVERAGE: ENE

01 Hour Averages



05/01/15 00:00:05/06/15 00:00:05/11/15 00:00:05/16/15 00:00:05/21/15 00:00:05/26/15 00:00:05/31/15 00:00

— LICA35 WDR DEG

STANDARD DEVIATION WIND DIRECTION



STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
1	7	31	10	13	32	15	17	22	37	41	35	47	45	26	45	15	22	37	38	7	14	10	17	8	
2	11	10	9	7	14	8	11	11	13	13	14	11	11	11	10	11	11	11	11	14	5	10	8	10	8
3	9	8	6	7	5	7	10	11	17	50	39	22	20	41	42	33	58	22	14	12	13	9	11	21	
4	29	24	21	35	25	48	54	27	18	15	17	20	19	18	21	15	15	13	12	12	12	12	11	12	
5	12	11	12	11	10	9	11	10	11	11	12	13	15	16	14	14	14	14	13	13	13	13	12	15	
6	15	15	14	15	13	10	12	10	12	9	12	9	10	14	11	12	10	10	8	9	8	8	9	8	
7	8	9	9	8	9	9	9	10	13	12	14	27	33	34	26	26	36	18	18	14	12	21	7	8	
8	16	26	15	19	9	8	15	27	47	25	30	25	47	32	42	33	57	15	13	11	9	11	11	12	
9	16	23	15	19	22	23	46	34	59	43	40	33	29	19	17	19	19	17	15	13	7	6	5	5	
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21	47	41	50	6	5	6	13	28	52	34	39	44	32	50	64	52	40	39	48	11	16	39	7	5	
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28	8	23	21	19	10	10	14	17	15	40	39	48	36	37	33	39	36	29	17	7	4	4	5	6	
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31	7	6	8	7	7	8	8	11	21	12	25	35	14	20	35	57	26	17	9	17	11	15	7	10	

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
N	SWAY/TILT/NEEDLES	R	RECOVERY
S	DATA ZERO/SWITCH CHECK	X	WIND MEASUREMENT ERROR
P	POWER FAILURE	O	OPERATOR ERROR
G	SOOT/FOR REPAIR	K	COLLECTION ERROR

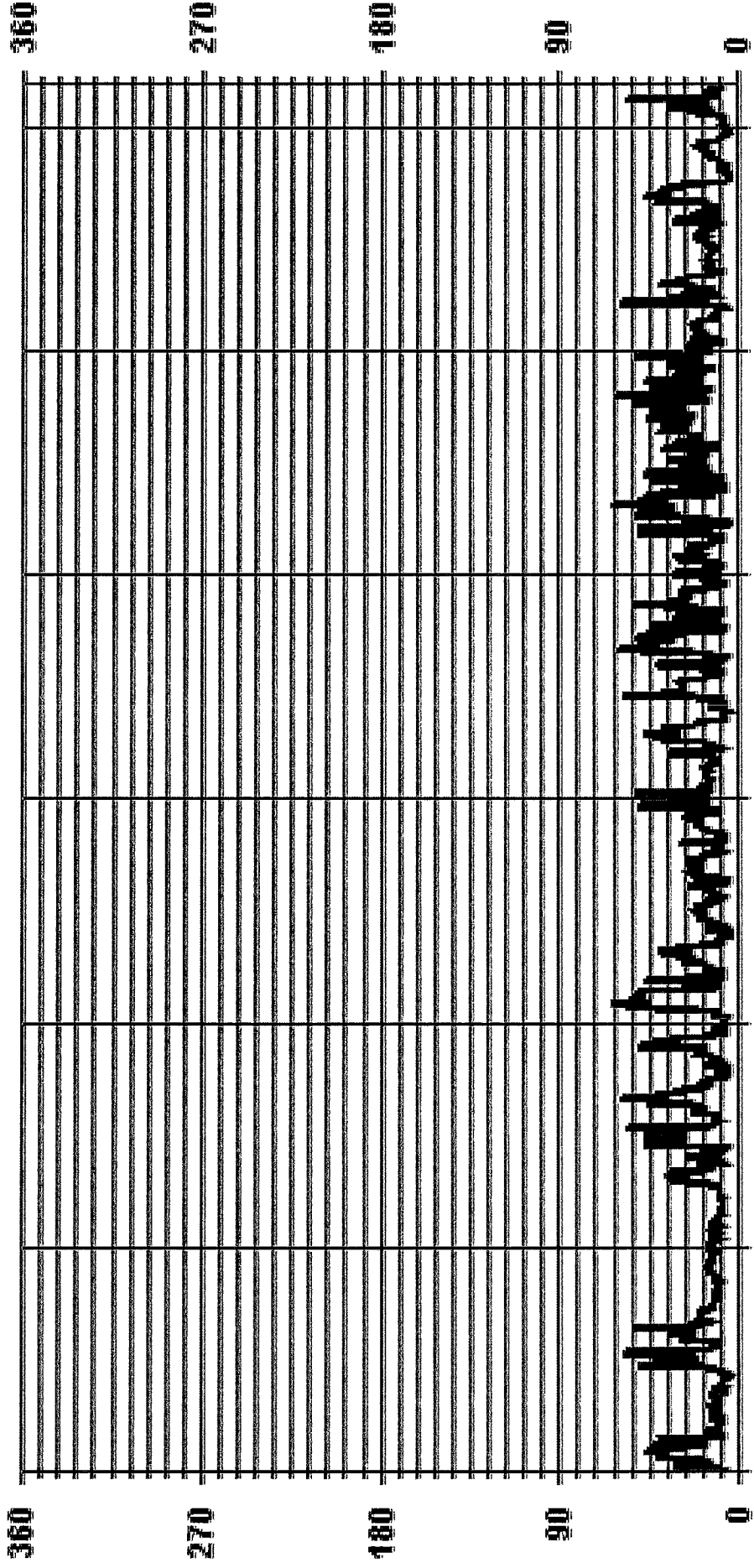
LAST CALIBRATION:

February 21, 2014

CALIBRATION TIME: 0 HRS

OPERATIONAL TIME: 744 HRS

01 Hour Averages



— LICA35 STDWDIR DEG

APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

VOC RESULTS

Sample ID: 15050100-003

Customer ID: LICA

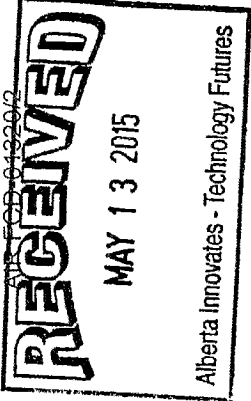
Cust. Samp ID: LICAVOC/EP/ May 6, 2015

Priority: Normal

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: Elk Point Airport
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/EP/ May 6, 2015
 Sampler SIN: 6200
 Canister ID: 2654
 Canister Installation Date/Time: May 4, 2015 @ 13:29
 Canister Removal Date/Time: May 11, 2015 @ 18:18



Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 6, 2015	00:00 May 6, 2015	00:00 May 7, 2015	24.0

Canister Information	
Initial Canister Vacuum (inHg)	28.2
Final Canister Pressure (psig)	19.2

189h
SUN

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

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

Comments:

Technician Signature: _____
 Sample in - by Alex Volupov
 Sample out by Alex Volupov
 Date: May 11, 2015

Volatile Organics Data Results

Date: MAY 6, 2015
Canister ID: 2654

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.04
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.04
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.07
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.04
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.03
Acetone	2.6
Acrolein	< 0.3
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.13
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.06
Chloromethane	0.85
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	0.6
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.33

Volatile Organics Data Results

Date: MAY 6, 2015
Canister ID: 2654

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.11
Freon-114	0.03
Freon-12	0.71
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.07
Isopentane	0.20
Isoprene	0.03
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.02
Methylcyclopentane	0.03
Methylene chloride	< 0.3
n-Butane	0.24
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.04
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	< 0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.02
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	0.5
Vinyl chloride	< 0.02

Sample ID: 15050198-003

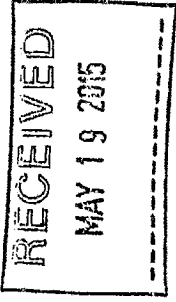
Customer ID: LICA

Cust Samp ID: LICAVOC/EP/May 12, 2015

Maxxam

VOC Sample Collection Data Sheet

AIR FCD-01320/2



Client: LICA
 Location: ELK POINT AIRPORT
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/EP/May 12, 2015
 Sampler S/N: 6200
 Canister ID: S 5693
 Canister Installation Date/Time: May 11, 2015 @ 12:19
 Canister Removal Date/Time: May 15, 2015 @ 11:42

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 12, 2015	00:00 May 12, 2015	00:00 May 13, 2015

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

Canister Information	
Initial Canister Vacuum (inHg)	29.8
Final Canister Pressure (psig)	19.4

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

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov

Date: May 15, 2015

Volatile Organics Data Results

Date: MAY 12, 2015
Canister ID: S5673

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	0.03
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	0.03
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.05
1,2-Dichloropropane	0.03
1,3,5-Trimethylbenzene	0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	0.04
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.08
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.16
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.02
2-Methylhexane	< 0.01
2-Methylpentane	0.11
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.09
Acetone	4.3
Acrolein	0.7
Benzene	0.17
Benzyl chloride	< 0.4
Bromodichloromethane	0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.09
Carbon tetrachloride	0.12
Chlorobenzene	0.03
Chloroethane	< 0.02
Chloroform	0.04
Chloromethane	< 0.02
cis-1,2-Dichloroethene	0.02
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.11
Cyclopentane	< 0.01
Dibromochloromethane	0.02
Ethanol	6.9
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.32

Volatile Organics Data Results

Date: MAY 12, 2015
Canister ID: S5673

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.11
Freon-114	< 0.02
Freon-12	< 0.02
Hexachloro-1,3-butadiene	< 0.50
Isobutane	< 0.02
Isopentane	0.33
Isoprene	0.03
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.08
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	0.5
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.16
Methylcyclopentane	0.09
Methylene chloride	< 0.3
n-Butane	< 0.03
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.18
n-Nonane	0.02
n-Octane	0.03
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.01
o-Xylene	0.04
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.14
trans-1,2-Dichloroethylene	0.02
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	0.02
Trichloroethylene	0.05
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

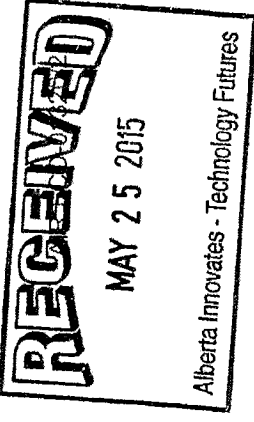
Sample ID: 15050298-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/EP/May 18, 2015

Maxxam

VOC Sample Collection Data Sheet



Client: LICA
 Location: Elk Point Airport
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/EP/May 18, 2015

Sampler S/N: 6200
 Canister ID: 575680
 Canister Installation Date/Time: May 15, 2015 @ 11:44
 Canister Removal Date/Time: May 19, 2015 @ 14:57

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 18, 2015	00:00 May 18, 2015	00:00 May 19, 2015
		Elapsed Time (Hours) 24.0

Flow Settings		
Meter Reading (scm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.8	19.1

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

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
 Date: May 19, 2015

Volatile Organics Data Results

Date: MAY 18, 2015
Canister ID: S5680

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.04
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.06
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.13
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.11
3-Methylheptane	< 0.02
3-Methylhexane	0.05
3-Methylpentane	0.06
Acetone	7.6
Acrolein	< 0.3
Benzene	0.09
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.63
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	0.75
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.11
cis-2-Pentene	0.03
Cyclohexane	0.08
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	0.9
Ethyl acetate	< 0.4
Ethylbenzene	0.12
Freon-11	0.31

Volatile Organics Data Results

Date: MAY 18, 2015
Canister ID: S5680

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.10
Freon-114	0.03
Freon-12	0.68
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.43
Isopentane	0.34
Isoprene	< 0.01
Isopropyl alcohol	0.5
Isopropylbenzene	< 0.01
m,p-Xylene	0.13
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	1.7
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.16
Methylcyclopentane	0.08
Methylene chloride	< 0.3
n-Butane	0.65
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.09
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.02
o-Xylene	0.06
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.58
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15050334-002

Customer ID: LICA

Cust Samp ID: LICA/VOC/EP/May 24, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: EIK POINT AIRPORT
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/EP/May 24, 2015

Sampler S/N: 6200
 Canister ID: H2P25
 Canister Installation Date/Time: May 19, 2015 @ 14:56
 Canister Removal Date/Time: May 25, 2015 @ 13:42

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 24, 2015	00:00 May 24, 2015	00:00 May 25, 2015	24.0

Canister Information	
Initial Canister Vacuum (in-Hg)	28.8
Final Canister Pressure (psig)	19.2

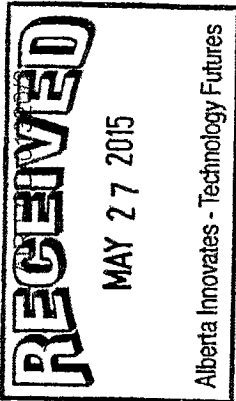
+ 20psi
SMP

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

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

Comments:

Technician Signature: _____
 Sample in by Alex Yakupov
 Sample cert by Alex Yakupov
 Date: May 25, 2015



Volatile Organics Data Results

Date: MAY 24, 2015
Canister ID: H2825

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.16
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	0.03
2,3-Dimethylbutane	0.12
2,3-Dimethylpentane	0.13
2,4-Dimethylpentane	0.08
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.05
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.03
Acetone	7.2
Acrolein	< 0.3
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.70
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	0.83
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.03
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	2.1
Ethyl acetate	< 0.4
Ethylbenzene	0.01
Freon-11	0.30

Volatile Organics Data Results

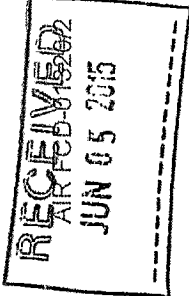
Date: MAY 24, 2015
Canister ID: H2825

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.02
Freon-12	0.65
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.22
Isopentane	0.55
Isoprene	0.32
Isopropyl alcohol	0.7
Isopropylbenzene	< 0.01
m,p-Xylene	< 0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	0.5
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.06
Methylcyclopentane	< 0.02
Methylene chloride	< 0.3
n-Butane	0.68
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.07
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.10
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15060054-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/EP/May 30, 2015



Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: Elk Point Airport
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/EP/May 30, 2015

Sampler S/N: 6200
 Canister ID: S5284
 Canister Installation Date/Time: May 25, 2015 @ 13:45
 Canister Removal Date/Time: June 01, 2015 @ 16:09

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 30, 2015	00:00	May 31, 2015	24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.0	18.3

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

Comments:

Technician Signature: Sample in by Alex Yakupov
Sample out by Alex Yakupov

Date: June 01, 2015

Volatile Organics Data Results

Date: MAY 30, 2015
Canister ID: S5684

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.06
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.05
Acetone	3.1
Acrolein	< 0.3
Benzene	0.09
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.56
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.84
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.04
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	0.7
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.27

Volatile Organics Data Results

Date: MAY 30, 2015
Canister ID: S5684

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.02
Freon-12	0.60
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.17
Isopentane	0.12
Isoprene	0.07
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.03
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.07
Methylcyclopentane	0.04
Methylene chloride	< 0.3
n-Butane	0.22
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.03
n-Hexane	0.14
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.02
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.04
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

PAH RESULTS

Sample ID: 15050100-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/May 6, 2015

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Puf+ S/N: TE-06

Location: ELK Point Airport

Motor S/N: 1139

Station ID: LICA 35

Installation Date/Time: May 4, 2015 @ 13:18

Field Sample ID: LICA/PUF/EP/May 6, 2015

Removal Date/Time: May 11, 2015 @ 12:14

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST) / Elapsed Time (Hours)
May 6, 2015	00:00	00:00 / 240
	May 6, 2015	May 7, 2015

PUF and QFF Information		
Date Received	Date Shipped	Puf Expiration Date
NA	NA	NA
		QFF Prep Date
		NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

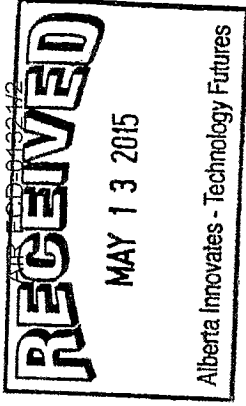
Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
706	228	2.2 °C
		Volume (Vstd m³)
		228

330.19

Time set correctly prior to sampling? YES/NO
 Timer set correctly prior to sampling? YES/NO
 Sampling data saved to memory card after sampling? YES/NO

Comments: No date was stored on the screen
 Data has been retrieved from internal memory.

Technician Signature: Sample in - by Alex Yakupov
 Sample out - by Alex Yakupov
 Date: May 11, 2015



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 6, 2015
PUF S/N: TE06

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.02
2-Methylnaphthalene	0.03
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.02
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 0.01
Phenanthrene	0.05
Pyrene	0.02
Retene	0.01

Sample ID: 15050198-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/May 12, 2015

Priority: Normal

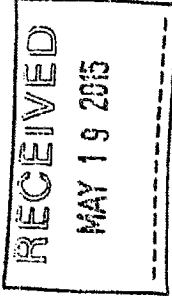
Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/EP/May 12, 2015

TE-05
Puf+ S/N: 1139
Motor S/N:
Installation Date/Time: May 11, 2015 @ 14:16
Removal Date/Time: May 15, 2015 @ 14:36

AIR FCD-01321/2



Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 12, 2015	00:00	24:00
	May 12, 2015	May 13, 2015

PUF and QFF Information		
Date Received	Date Shipped	Puf Expiration Date
NA	NA	NA
		QFF Prep Date
		NA

Set Flow Rate (slpm): 230
Date of Last Calibration: 22. sept - 11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
711	229	9.5 °C
		Volume (Vstd m³)
		330.19

Time set correctly prior to sampling? YES/NO
Timer set correctly prior to sampling? YES/NO
Sampling data saved to memory card after sampling? YES/NO

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out by Alex Yakupov Date May 15, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 12, 2015
PUF S/N: TE05

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.10
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.04
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.05
Perylene	< 0.01
Phenanthrene	0.07
Pyrene	0.02
Retene	0.01

Sample ID: 15050298-004

Customer ID: LICA

Cust Samp ID: LICAPUF/EP/May 18, 2015

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/PUF/EP/May 18, 2015

Puf+ SIN: TE-01
Motor SIN: 1133
Installation Date/Time: May 15, 2015 @ 11:38
Removal Date/Time: May 19, 2015 @ 14:34

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 18, 2015	00:00 May 18, 2015	00:00 May 18, 2015
		Elapsed Time (Hours) 24.0

PUF and QFF Information		
Date Received	Date Shipped	Puf Expiration Date
NA	NA	NA
		QFF Prep Date NA

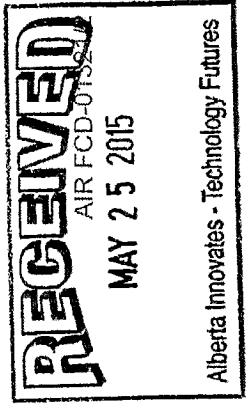
Set Flow Rate (slpm): 230
Date of Last Calibration: 22 - Sept - 11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
718	229	8.8 °C
		Volume (Vstd m³) 330.20

Time set correctly prior to sampling? YES NO
Timer set correctly prior to sampling? YES NO
Sampling data saved to memory card after sampling? YES NO

Comments:

Technician Signature: _____
Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date May 19, 2015



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 18, 2015
PUF S/N: TE01

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.09
2-Methylnaphthalene	0.16
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.02
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	< 0.01
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.04
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.09
Perylene	< 0.01
Phenanthrene	0.09
Pyrene	0.02
Retene	0.02

Sample ID: 15050334-003

Customer ID: LICA

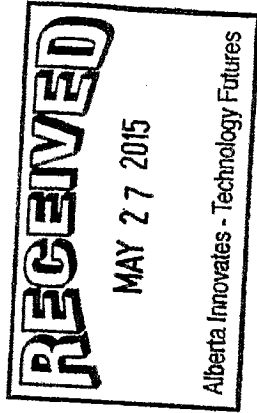
Cust Samp ID: LICA/PUF/EP/May 24, 2015

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: P13-01
 Location: ELK POINT AIRPORT Motor S/N: 1139
 Station ID: LICA 35 Installation Date/Time: May 19, 2015 @ 14:36
 Field Sample ID: LICA/PUF/EP/May 24, 2015 Removal Date/Time: May 25, 2015 @ 13:33



Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
May 24, 2015	00:00 May 24, 2015	00:00 May 25, 2015
		Elapsed Time (Hours) 24.0

PUF and QFF Information		
Date Received	Date Shipped	Puf Expiration Date
NA	NA	NA
		QFF Prep Date
		NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 22 - Sept - 11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
709	229	17.8
		Volume (Vstd m³)
		330.80

Time set correctly prior to sampling? YES / NO
 Timer set correctly prior to sampling? YES / NO
 Sampling data saved to memory card after sampling? YES / NO

Comments:

Technician Signature: _____
 Sample in - by Alex Yakupov
 Sample out by Alex Yakupov Date May 25, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 24, 2015
PUF S/N: P1301

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.03
2-Methylnaphthalene	0.05
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.02
Benzo(c)phenanthrene	0.04
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.04
Perylene	< 0.01
Phenanthrene	0.10
Pyrene	0.02
Retene	0.02

Sample ID: 15060054-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/May 30, 2015

Priority: Normal

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: ELK POINT AIRPORT
Station ID: LICA 35
Field Sample ID: LICA/PUF/EP/May 30, 2015

Puf+ S/N: ~~6200~~ A.Y. A 13-02
Motor S/N: 1139
Installation Date/Time: May 25, 2015 @ 13:36
Removal Date/Time: June 01, 2015 @ 16:02

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
May 30, 2015	00:00	00:00	24.0
	May 30, 2015	May 31, 2015	

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
NA	NA	NA	NA

Set Flow Rate (slpm): 230

Date of Last Calibration: 22 - sept - 11

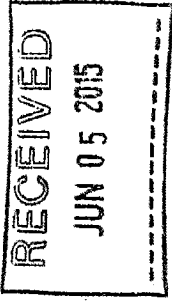
Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	18.7°	330.16

Time set correctly prior to sampling? YES/NO
Timer set correctly prior to sampling? YES/NO
Sampling data saved to memory card after sampling? YES/NO

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
Date: June 01, 2015

AIR FCD-01321/2



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: MAY 30, 2015
PUF S/N: A1302

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.02
2-Methylnaphthalene	0.04
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.01
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.01
Benzo(c)phenanthrene	0.02
Benzo(e)pyrene	< 0.01
Benzo(ghi)perylene	< 0.01
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.02
Perylene	< 0.01
Phenanthrene	0.06
Pyrene	0.02
Retene	0.04

NMHC RESULTS

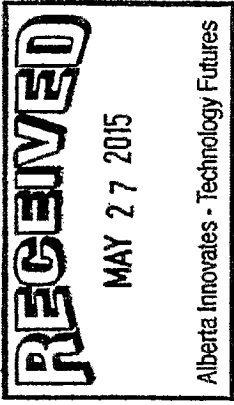
Sample ID: 15050334-001

Customer ID: LICA

Cust Samp ID: LICAVOC/ELK/May 22, 2015

Maxxam Analytics Inc.

Canister Collection Data Sheet



Client: LICA

Location: ELK Point Airport

Station ID: Lica 35

Field Sample ID: LICA VOC/ELK1 May 22, 2015

Canister ID: S 56 47

Canister Installation Date/Time: March 18, 2015 (MST)

Canister Removal Date/Time: May 25, 2015 (MST)

Date and Time Information	
Sample Date and time (MST)	
<u>May 22, 2015</u>	<u>@ 06:20</u>

Canister Information	
Initial Canister Vacuum (in-Hg)	<u>-4 psig</u>
Final Canister Pressure (psig)	<u>-4 psig</u>

-4 inHg (58) Canister is passed the use-by date. - see email, ok to run.

Canister valve open after to connection?: YES

Canister valve closed prior to disconnection?: YES

Comments:

Technician Signature:

Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
May 25, 2015

Volatile Organics Data Results (NMHC Canister System)

Date: MAY 22, 2015
Canister ID: S5647

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	0.03
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	0.03
1,1-Dichloroethylene	< 0.05
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 1.0
1,2,4-Trimethylbenzene	0.11
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.04
1,2-Dichloroethane	0.05
1,2-Dichloropropane	0.05
1,3,5-Trimethylbenzene	0.10
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.4
1,4-Dichlorobenzene	< 0.5
1,4-Dioxane	< 0.5
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	3.36
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	0.62
2,3-Dimethylbutane	0.52
2,3-Dimethylpentane	2.18
2,4-Dimethylpentane	0.74
2-Methylheptane	0.05
2-Methylhexane	< 0.01
2-Methylpentane	0.32
3-Methylheptane	0.06
3-Methylhexane	0.12
3-Methylpentane	0.25
Acetone	46.9
Acrolein	< 0.4
Benzene	0.23
Benzyl chloride	< 0.5
Bromodichloromethane	0.04
Bromoform	0.03
Bromomethane	< 0.01
Carbon disulfide	0.30
Carbon tetrachloride	0.12
Chlorobenzene	0.05
Chloroethane	< 0.02
Chloroform	0.05
Chloromethane	< 0.02
cis-1,2-Dichloroethene	0.02
cis-1,3-Dichloropropene	< 0.05
cis-2-Butene	< 0.02
cis-2-Pentene	0.03
Cyclohexane	0.21
Cyclopentane	< 0.01
Dibromochloromethane	0.04
Ethanol	3.7
Ethyl acetate	0.9
Ethylbenzene	0.12
Freon-11	0.34


Volatile Organics Data Results (NMHC Canister System)

Date: MAY 22, 2015
Canister ID: S5647

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.13
Freon-114	< 0.02
Freon-12	< 0.02
Hexachloro-1,3-butadiene	< 0.60
Isobutane	< 0.02
Isopentane	1.10
Isoprene	0.13
Isopropyl alcohol	< 0.5
Isopropylbenzene	< 0.01
m,p-Xylene	0.29
m-Diethylbenzene	< 0.05
m-Ethyltoluene	< 0.10
Methyl butyl ketone	< 0.60
Methyl ethyl ketone	2.1
Methyl isobutyl ketone	< 0.5
Methyl methacrylate	< 0.08
Methyl tert butyl ether	< 0.04
Methylcyclohexane	0.36
Methylcyclopentane	< 0.02
Methylene chloride	0.4
n-Butane	< 0.04
n-Decane	0.14
n-Dodecane	< 0.5
n-Heptane	0.29
n-Hexane	0.51
n-Nonane	0.07
n-Octane	0.08
n-Pentane	< 0.1
n-Propylbenzene	< 0.06
n-Undecane	< 0.6
Naphthalene	< 0.6
o-Ethyltoluene	0.03
o-Xylene	0.13
p-Diethylbenzene	< 0.05
p-Ethyltoluene	< 0.08
Styrene	< 0.05
Tetrachloroethylene	1.18
Tetrahydrofuran	< 0.5
Toluene	2.16
trans-1,2-Dichloroethylene	0.03
trans-1,3-Dichloropropylene	0.05
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.05
Vinyl acetate	5.9
Vinyl chloride	< 0.02

APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100E SO2 Analyzer Calibration

Date: 19-May-15

Company: LICA

Station Name/Location: Elk Point

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO₂

Start/End Time (mst): 10:41 / 15:35

Calibration Purpose: Monthly

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Mar-19

Analyzer:

Serial Number: 467

Last Calibration Date: 8-Apr-15

Previous Cal High Point C.F.: 0.999

Range ppb: 1000

As Found C.F.: 0.990

New C.F.: 1.001

As found:

SLOPE: 0.967

OFFSET: 118.8

HVPS: 524

RCELL TEMP: 50.0

BOX TEMP: 33.2

PMT TEMP: 8.1

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 25.1

SAMP FL: 623

PMT: 124.1

NORM PMT: 117.0

UV LAMP: 3126.6

LAMP RATIO: 113.6

STR. LGT: 57.4

DRK PMT: 15.0

DRK LMP: 2.8

Internal Span: 296.7

As left:

SLOPE: 0.958

OFFSET: 118.0

HVPS: 524

RCELL TEMP: 50.0

BOX TEMP: 33.4

PMT TEMP: 8.1

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 25.0

SAMP FL: 622

PMT: 126.0

NORM PMT: 117.6

UV LAMP: 3125.8

LAMP RATIO: 113.7

STR. LGT: 56.5

DRK PMT: 15.6

DRK LMP: 2.8

Internal Span: 284.4

Calibrator:

Flow Meter ID's: NA

Make & Model: Envionics 6100

Serial #: 4760

Cal Gas Cylinder I.D. #: BLM002073

Cal Gas Conc. (ppm): 49.5

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	64	5064
mid	5000	35	5035
low	5000	17	5017

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	4994	0.0	4994	0	0.0	NA
adjusted zero	4994	0.0	4994	0	0.0	NA
as found high	4930	63.99	4994	634.3	641.0	0.990
adjusted high	4930	63.99	4994	634.3	637.0	0.996
mid	4961	34.46	4995	341.5	341.0	1.001
low	4977	16.72	4994	165.7	165.0	1.005
calibrator zero	4994	0.00	4994	0	0.0	NA
Average C.F. =						1.001

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>0.997</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>0.03%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>0.95%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

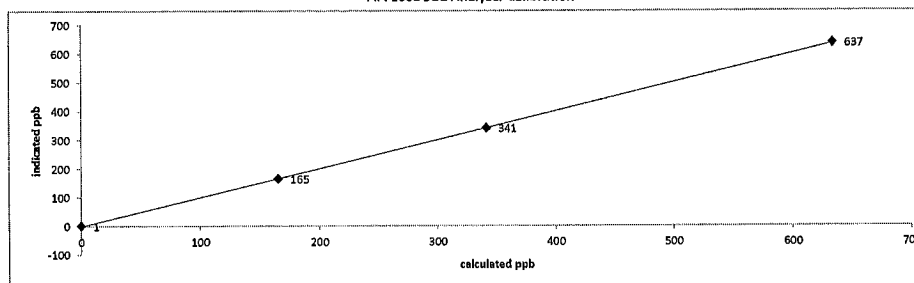
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

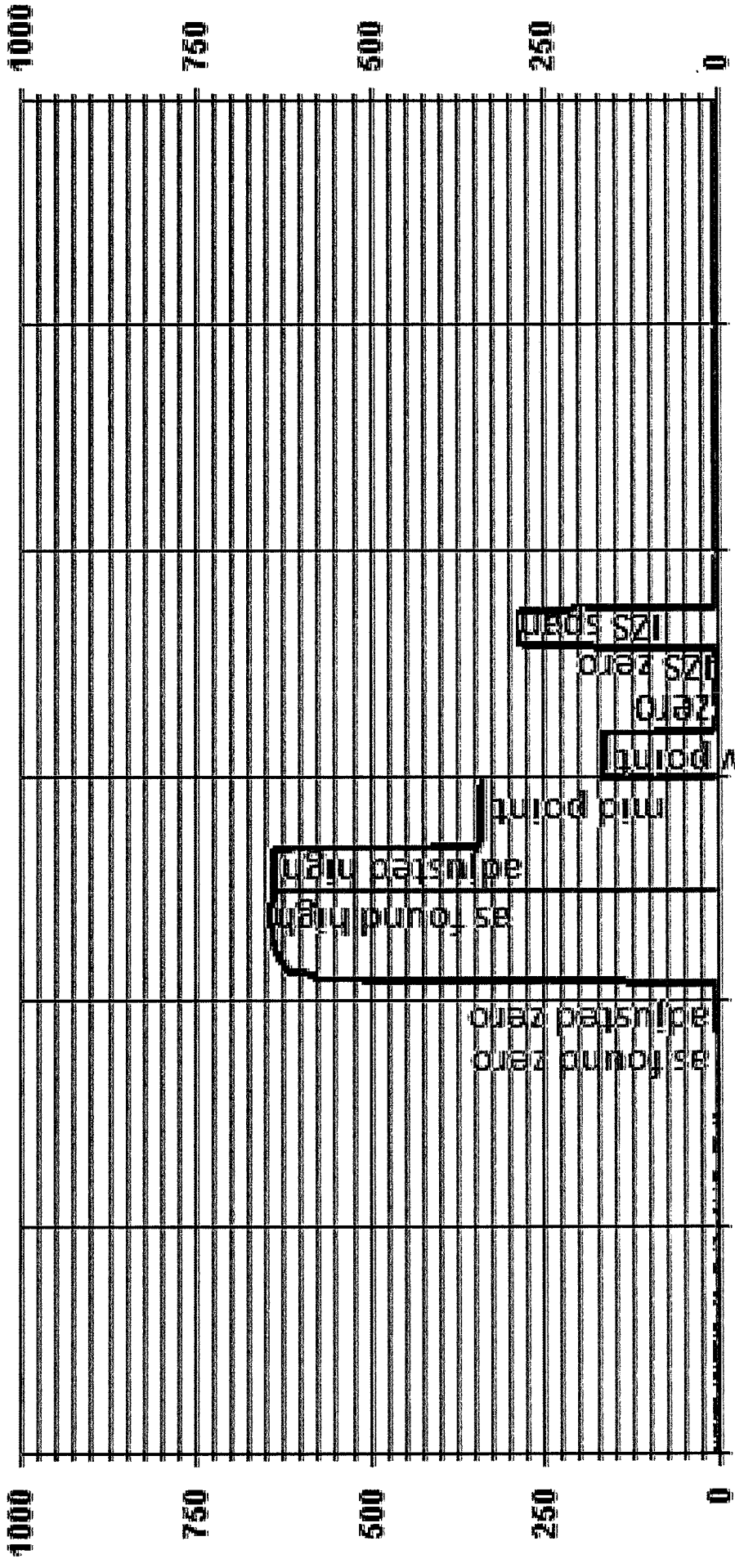
Comments:

Filter Changed.

API 100E SO2 Analyzer Calibration



01 Minute Averages



— LICA35 SO2_ PPB

HYDROGEN SULPHIDE

Maxxam Thermo 450i H2S Analyzer Calibration

Date: 20-May-15 **Start/End Time (mst):** 9:24 / 11:45
Company: LICA **Calibration Purpose:** Removal
Station Name/Location: Elk Point **Converter Make & Model:** Internal
Performed by: Alex Yakupov **Converter Serial #:** NA
Application H₂S/TRS/SO₂: H2S **Cal Gas Expiry Date:** 15-Jul-17

Analyzer:
Serial Number: 1226154721 **Range ppb:** 100
Last Calibration Date: 8-Apr-15 **As Found C.F.:** 1.007
Previous Cal High Point C.F.: 0.999 **New C.F.:** 1.004

<p>MOTHERBOARD:</p> <p style="text-align: center;">As found:</p> <p>BKG: 14.6</p> <p>COEF: 1.001</p> <p>3.3 3.3</p> <p>5.0 5.0</p> <p>15.0 15.1</p> <p>24.0 24.0</p> <p>-3.3 -3.2</p> <p>INTERFACE BOARD:</p> <p>PMT: -654.5</p> <p>FLASH: 931</p> <p>3.3 3.3</p> <p>5.0 5.0</p> <p>15.0 14.9</p> <p>-15.0 -15.1</p> <p>24.0 24.1</p> <p>INTERNAL: 33.5</p> <p>CHAMBER: 45.1</p> <p>CONVERTER TEMP: 338</p> <p>CONVERTER SET: 340</p> <p>PERM OVEN GAS: 35.0</p> <p>PERM OVEN HTR: 34.26</p> <p>PRESSURE: 582.2</p> <p>SAMPLE FLOW: 0.889</p> <p>LAMP INTENSITY: 91</p> <p>Internal Span: 39.8</p>	<p style="text-align: center;">As left:</p> <p>BKG: NA</p> <p>COEF: NA</p> <p>3.3 NA</p> <p>5.0 NA</p> <p>15.0 NA</p> <p>24.0 NA</p> <p>-3.3 NA</p> <p>PMT: NA</p> <p>FLASH: NA</p> <p>3.3 NA</p> <p>5.0 NA</p> <p>15.0 NA</p> <p>-15.0 NA</p> <p>24.0 NA</p> <p>INTERNAL: NA</p> <p>CHAMBER: NA</p> <p>CONVERTER TEMP: NA</p> <p>CONVERTER SET: NA</p> <p>PERM OVEN GAS: NA</p> <p>PERM OVEN HTR: NA</p> <p>PRESSURE: NA</p> <p>SAMPLE FLOW: NA</p> <p>LAMP INTENSITY: NA</p> <p>Internal Span: NA</p>
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Calibrator:

<p>Flow Meter ID's: na</p> <p>Make & Model: API 700</p> <p>Serial #: 830</p> <p>Cal Gas Cylinder I.D. #: LL36837</p> <p>Cal Gas Conc. (ppm): 10.0</p>	<p>Calibrator Flow Targets:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>diluent (cc/min)</th> <th>cal gas (cc/min)</th> <th>total (cc/min)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>5000</td> <td>0</td> <td>5000</td> </tr> <tr> <td>high</td> <td>5000</td> <td>39</td> <td>5039</td> </tr> <tr> <td>mid</td> <td>5000</td> <td>19</td> <td>5019</td> </tr> <tr> <td>low</td> <td>5000</td> <td>11</td> <td>5011</td> </tr> </tbody> </table>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	5000	0	5000	high	5000	39	5039	mid	5000	19	5019	low	5000	11	5011
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)																		
zero	5000	0	5000																		
high	5000	39	5039																		
mid	5000	19	5019																		
low	5000	11	5011																		

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	4999	0.0	4999	0	0.0	NA
adjusted zero		NA				NA
as found high	4958	39.00	4997	78.0	77.5	1.007
adjusted high		NA				
mid	4978	19.00	4997	38.0	38.0	1.001
low	4987	11.00	4998	22.0	21.9	1.005
calibrator zero		NA				
Average C.F.=						1.004

Linear Regression/Calibration Results:

<p>Correlation Coefficient = 1.000</p> <p>Slope = 1.006</p> <p>b (Intercept as % of full scale) = -0.07%</p> <p>% change in C.F. from last cal = -0.81%</p>	<p>LIMITS Pass/Fail ?</p> <p>> or = 0.995 PASS</p> <p>0.85-1.15 PASS</p> <p>± 3% F.S. PASS</p> <p>± 15% PASS</p>
---	--

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

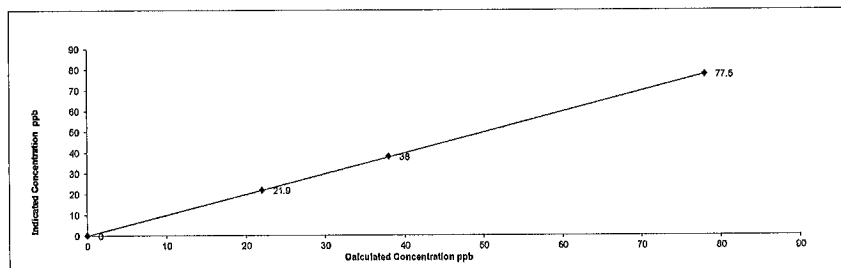
SO₂ High Point gas concentration: 20 ppb Time gas run (mst): 10:10 - 10:20

Zero corrected analyzer response: 0.4 ppb

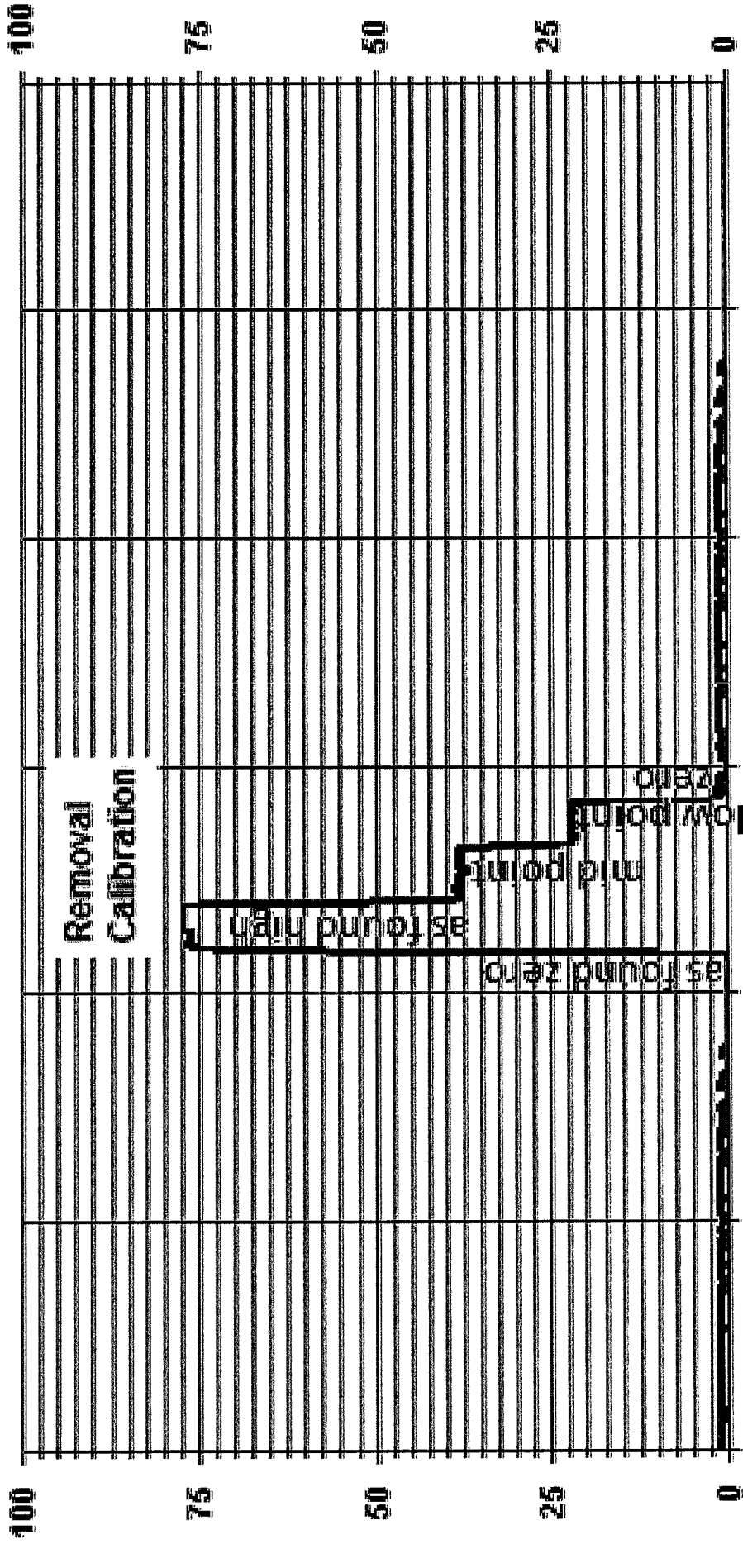
Comments:

Filter changed

Thermo 450i H2S Analyzer Calibration



01 Minute Averages



— LICA35 H2S_ PPB

API 101E H2S Analyzer Calibration

Date: 21-May-15

Company: LICA

Station Name/Location: Elk Point

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 9:24 / 14:02

Calibration Purpose: Installation

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

Analyzer: 510

Serial Number: NA

Last Calibration Date: NA

Previous Cal High Point C.F.: NA

Range ppb: 100

As Found C.F.: 1.000

New C.F.: 1.000

As found:

SLOPE: 1.028

OFFSET: 27.2

HVPS: 526

RCELL TEMP: 50.0

BOX TEMP: 34.9

PMT TEMP: 8.4

IZS TEMP: 45.0

TEST: 315.2

STABIL: 0.1

PRES: 22.2

SAMP FL: 574

PMT: 84.0

NORM PMT: 26.4

UV LAMP: 3194.2

LAMP RATIO: 100.7

STR. LGT: 14.0

DRK PMT: 65.3

DRK LMP: -1.5

Internal Span: NA

As left:

SLOPE: 1.218

OFFSET: 26.5

HVPS: 526

RCELL TEMP: 50.0

BOX TEMP: 34.9

PMT TEMP: 8.4

IZS TEMP: 45.0

TEST: 315.2

STABIL: 0.0

PRES: 22.2

SAMP FL: 573

PMT: 82.7

NORM PMT: 26.5

UV LAMP: 3191.7

LAMP RATIO: 100.6

STR. LGT: 16.2

DRK PMT: 62.9

DRK LMP: -1.6

Internal Span: 44.38

Calibrator:

Flow Meter ID's: na

Make & Model: API 700

Serial #: 830

Cal Gas Cylinder I.D. #: LL36837

Cal Gas Conc. (ppm): 10.0

Calibrator Flow Targets:

point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
zero	5000	0	5000
high	5000	39	5039
mid	5000	19	5019
low	5000	11	5011

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	NA	NA				
adjusted zero	5000	0.0	5000	0	-0.3	NA
as found high	NA	NA				
adjusted high	4958	39.00	4997	78.0	78.0	0.997
mid	4979	19.00	4998	38.0	37.9	0.995
low	4990	11.00	5001	22.0	21.5	1.009
calibrator zero	5000	0.00	5000	0	-0.3	NA
Average C.F.=						1.000

Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>0.995</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>0.40%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>NA</u>	± 3% F.S.	PASS
		± 15%	NA

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

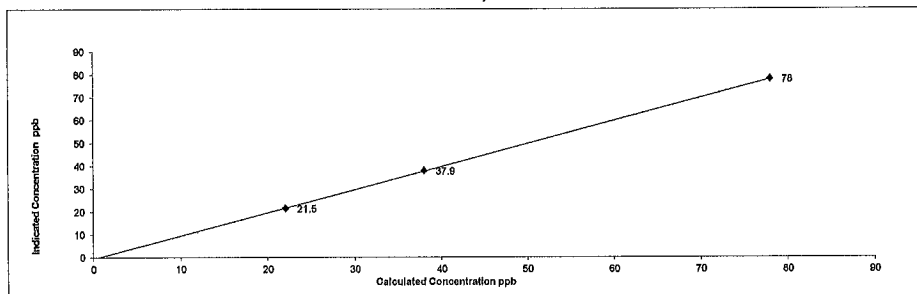
SO₂ High Point gas concentration: 20 ppb Time gas run (mst): 10:18 - 10:27

Zero corrected analyzer response: 0.2 ppb

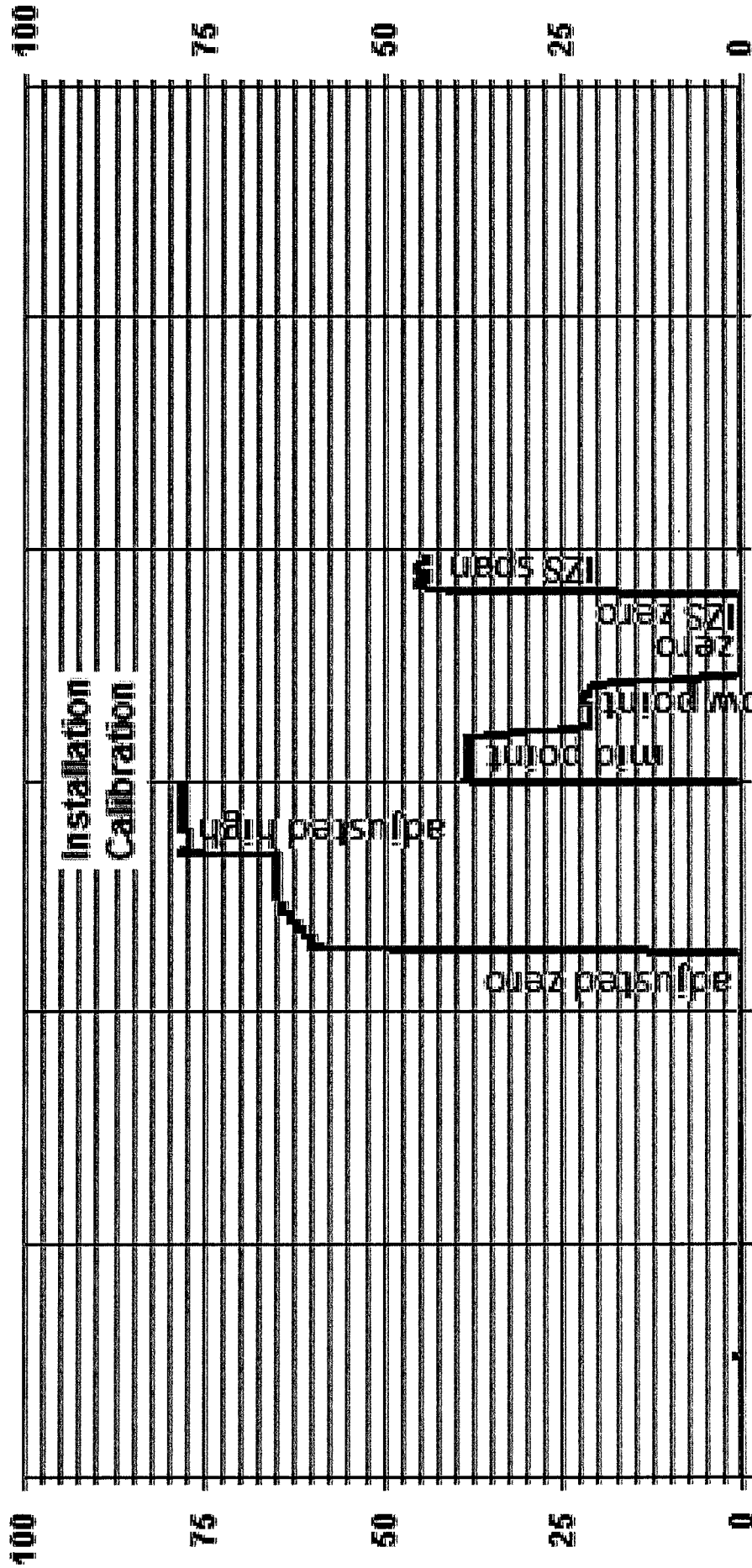
Comments:

May 20, 2015 analyzer left in "M" overnight for stabilizing its readings (after installation readings are 33 ppb out of Zero Air generator with very slow reduction). Calibration is to be done on May 21, 2015. Filter changed. The analyzer requires analog output voltage adjustment to compensate for -0.3 ppb.

API 101E H2S Analyzer Calibration

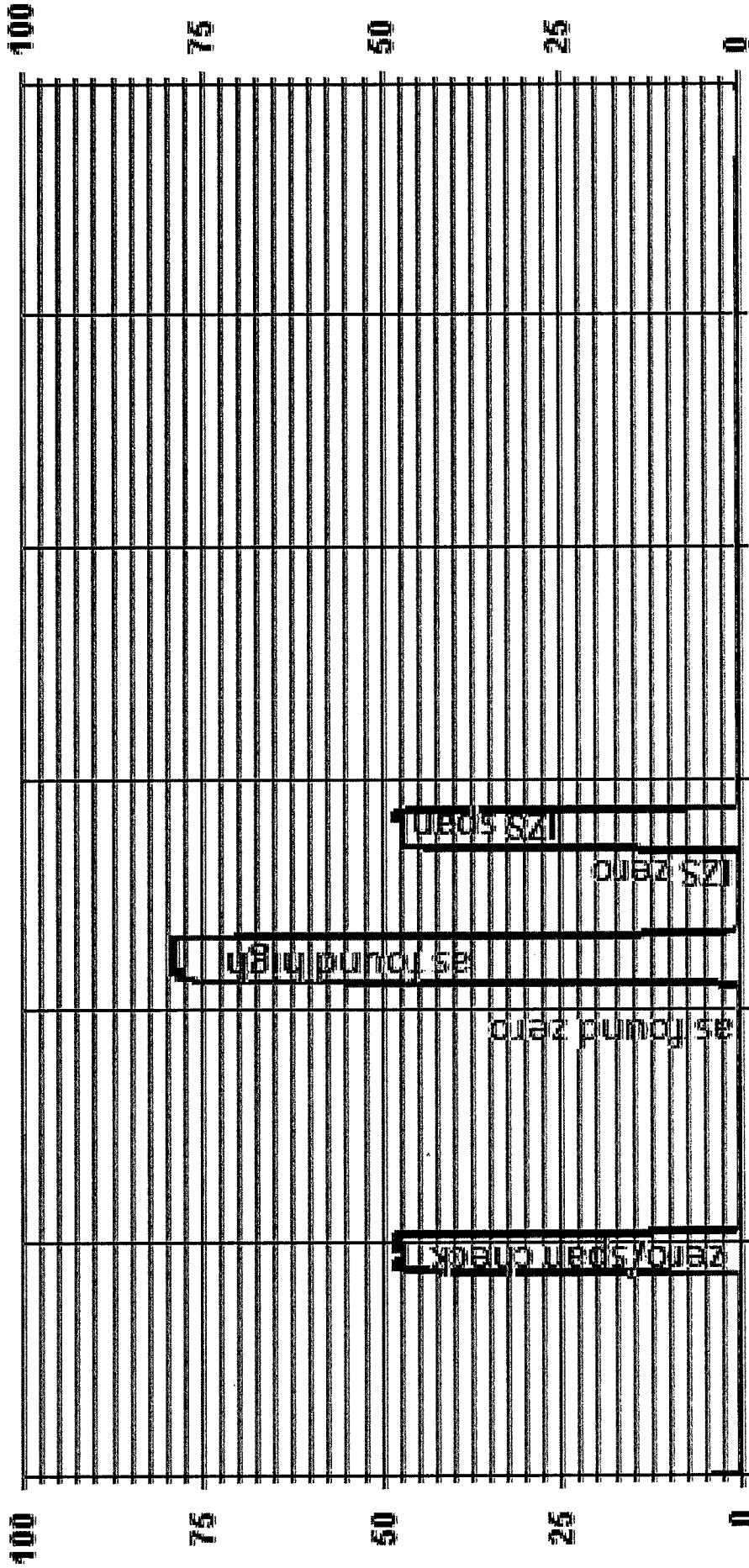


01 Minute Averages



— LICA35 H2S_ PPB

01 Minute Averages



— LICA35 H2S_ PPB

TOTAL HYDROCARBON

Thermo 55I Methane/Non-Methane Analyzer Calibration

Date: 19-May-15

Company: LICA

Station Name: Elk Point

Performed by: Alex Yakupov

Start Time (mst): 10:41

End Time (mst): 15:14

Calibration Purpose: routine monthly

Cal Gas Expiry Date: 26-Mar-17

Analyzer & Diagnostics:

Serial Number: 1236656107

Last Calibration Date: 8-Apr-15

As found C.F.

CH₄= 0.933

NMHC= 0.923

THC= 0.928

Previous Cal High Point C.F.

CH₄= 0.997

NMHC= 0.997

THC= 0.997

Analyzer Range

CH₄= 20

NMHC= 20

THC= 40

Mother Board Voltages:

3.3: 3.3

5.0: 4.9

15.0: 14.9

24.0: 24.0

-3.3: -3.2

Interface Board Voltages:

3.3: 3.3

5.0: 5.0

15.0: 15.0

24.0: 23.6

-15.0: -15.1

Bias Supply: -293.2

Temperatures:

Detector Oven: 175.0

Filter: 175.1

Column Oven: 75.0

Flame: 381.2

Internal: 35.0

Pressures cylinder/reg.:

Carrier: 780 | 48

Fuel: 200 | 40.0

Air: 46 | 32.3

FID Status:

Status: LIT

Counts: 26213

Flame: 381.5

Det Base: 175.0

Flame and Power Stats:

Last Power On: May 05 2015 @ 05:38

Flameouts: 40

Det Oven at Start: 170.1

Col Oven at Start: 74.5

Calibration History>1:

Time: NA

Type: NA

Status: NA

Check/Adjust: NA

CH₄ Span Conc: NA

Calibration History cnt'd>1:

CH₄ SP Ratio: NA

CH₄ RT: NA

CH₄ PK IDX: NA

CH₄ PK HT: NA

NM Span Conc: NA

NM SP Ratio: NA

NM Peak Area: NA

Run History>1:

Date: May 19, 2015

Time: 12:58

CH₄ PK HT: 0

CH₄ RT: 8.0

CH₄ Baseline: 2236

CH₄ LOD: 63

CH₄ 5D: 20

CH₄ CONC: 0.00

NM PK HT: 0

NM Peak Area: 0

NM CONC: 0

NM Base Start: 2207

NM Base End: 2223

NM LOD: 17

NM Start IDX: 35

NM End IDX: 83

NM Max Slope: 8.5e-01

NM Min Slope: -4.8e-01

NM PT Count: 0

Previous CH₄: 9.729

Previous NMHC: 14.89

Previous THC: 24.64

New CH₄: 9.14

New NMHC: 13.89

New THC: 23.06

Daily Zero/Span Values:

Calibrator and Gas Information:

Make & Model: API 700

Serial #: 830

Cal Gas Cylinder I.D. #: L133674

CH₄ Cylinder Conc.= 601.4 | 202.0 =C₃H₈ Cylinder Conc.

CH₄ as C₃H₈= 555.5 | 1156.9 =total CH₄ equivalent

Calibrator Flow Targets: (cc/min):

point	diluent	cal gas	total flow
zero	2000	0	2000
high	2000	53	2053
mid	2000	25	2025
low	2000	12	2012

Calibration Data:

Calibrator Flow Rates (cc/min)				Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow							CH ₄	NMHC	THC
20 min as found zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA
20 min as found high point	2000	53.00	2053	15.53	14.34	29.87	16.65	15.53	32.20	0.933	0.923	0.928
20 min adjusted high	2000	53.00	2053	15.53	14.34	29.87	15.53	14.36	29.90	1.000	0.999	0.999
20 min mid	2000	25.00	2025	7.42	6.86	14.28	7.47	6.93	14.41	0.994	0.990	0.991
20 min low	2000	12.00	2012	3.59	3.31	6.90	3.61	3.35	6.95	0.994	0.989	0.993
20 min calibrator zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA
Average C.F.=										0.996	0.992	0.994

Linear Regression/Calibration Results:

	CH ₄	NMHC	THC
Correlation Coefficient =	1.000	1.000	1.000
Slope =	1.000	1.001	1.001
b (Intercept as % of full scale)=	0.09%	0.13%	0.10%
% change in C.F. from last cal=	6.92%	-7.97%	-7.49%

LIMITS

> or = 0.995

0.85-1.15

± 3% F.S.

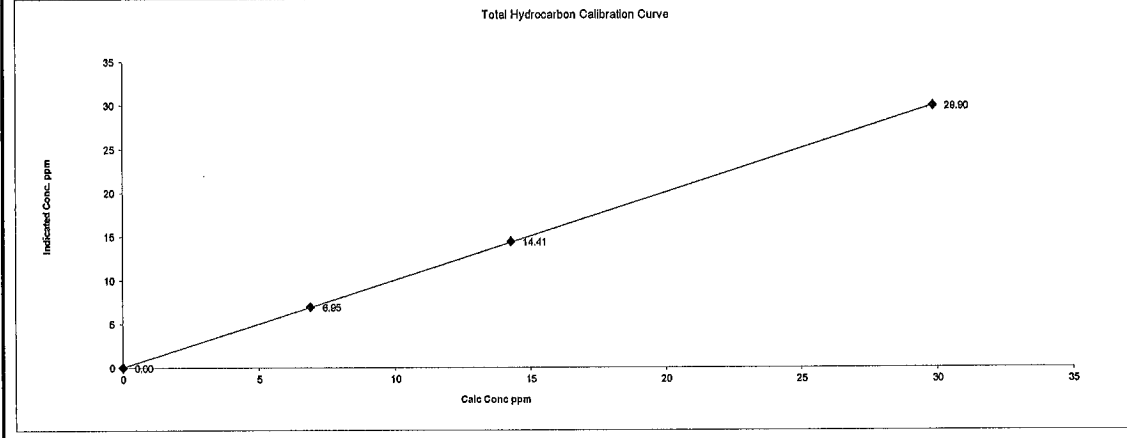
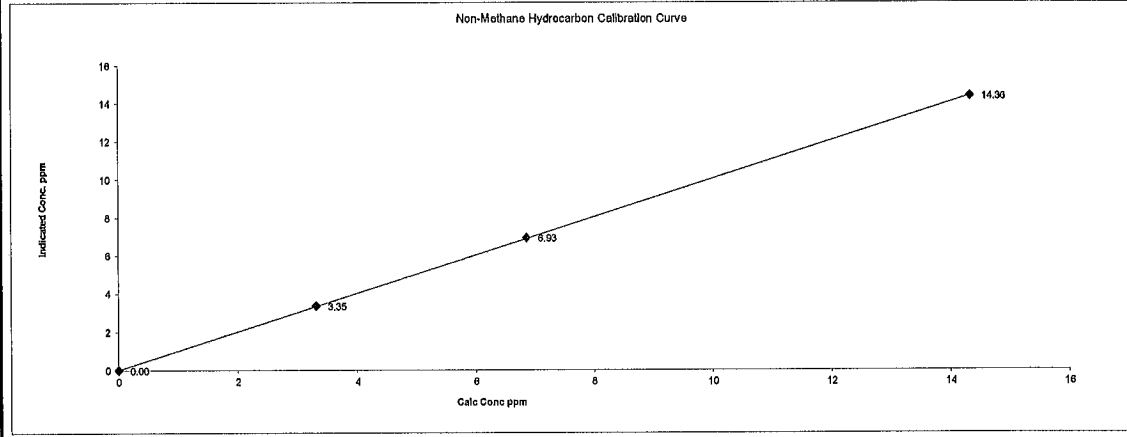
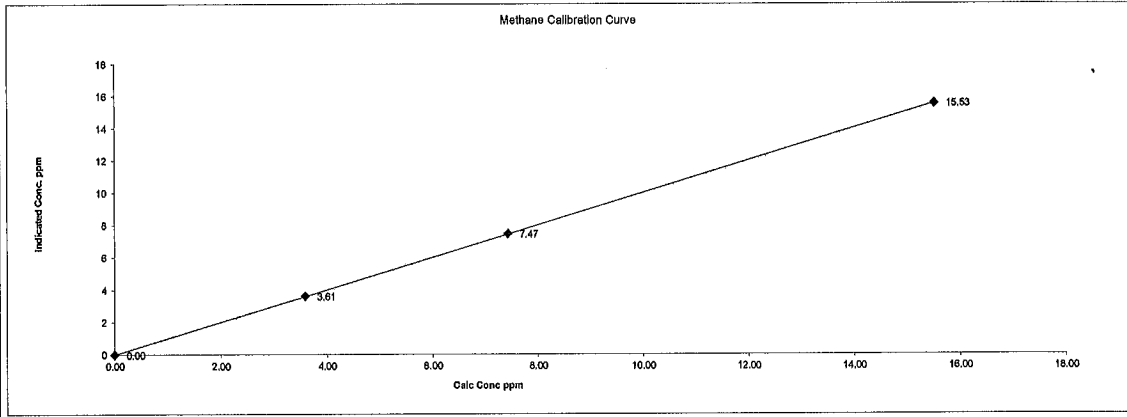
+/-15%

Comments:

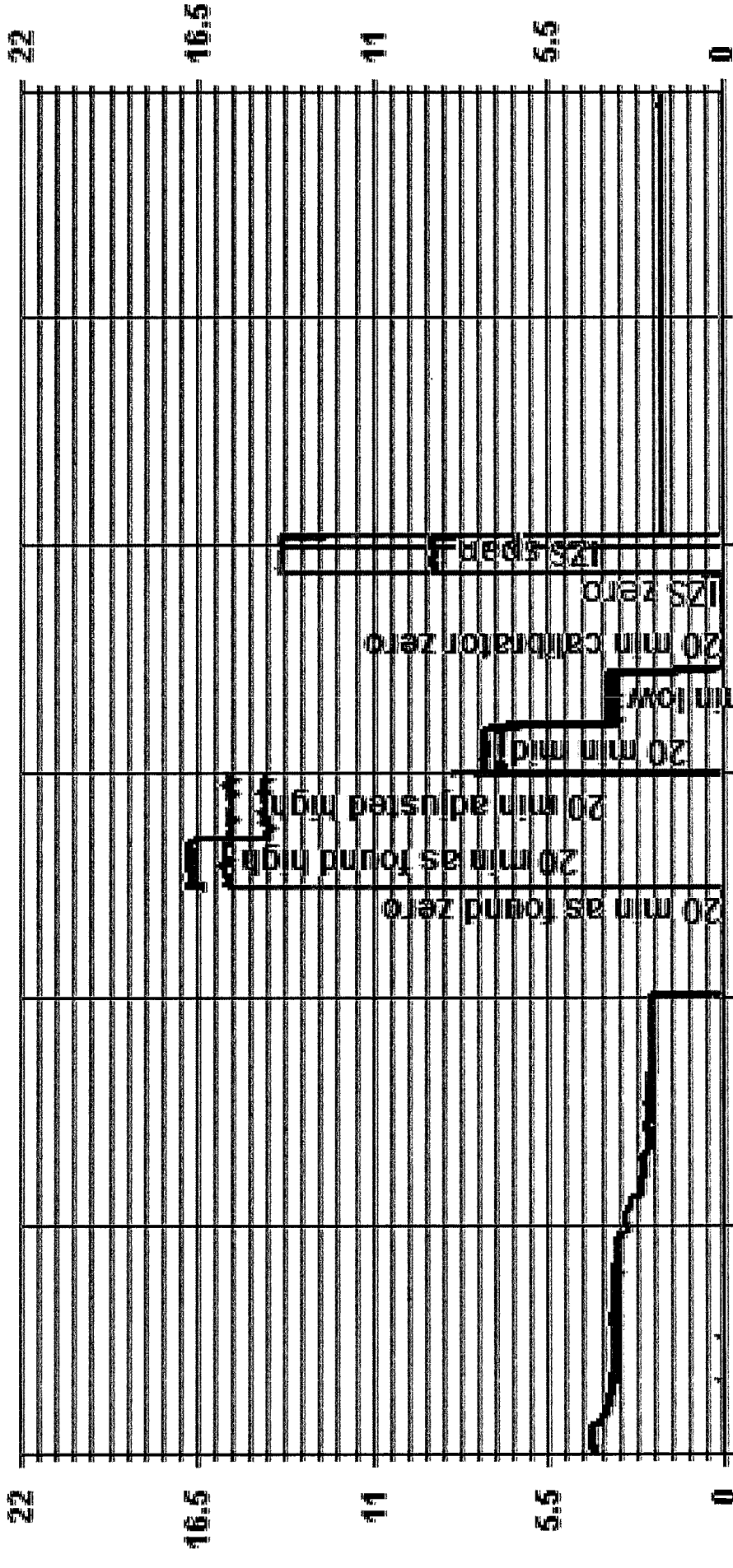
Filter changed

Date:	19-May-15	Start Time (mst):	10:41
Company:	LICA	End Time (mst):	15:14
Station Name:	Elk Point	Calibration Purpose:	routine monthly
Performed by:	Alex Yakupov	Cal Gas Expiry Date:	26-Mar-17

Thermo 55C Methane/Non-Methane Analyzer Calibration



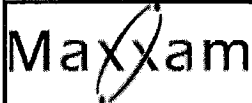
01 Minute Averages



05/19/15 07:00 05/19/15 09:00 05/19/15 11:00 05/19/15 13:00 05/19/15 15:00 05/19/15 17:00

— LICA35 METHANE PPM — LICA35 NMHC PPM

NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 19-May-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Alex Yakupov

Start Time (mst): 10:41
 End Time (mst): 17:58
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Mar-19

Correction Factors:

Analyzer Serial Number: 592
 Last Calibration Date: 20-Apr-15
 Range ppb: 1000

As found C.F. Previous Cal High Point C.F.:
 NO= 1.065 NO= 1.000
 NOx= 1.068 NOx= 1.000
 NO₂= 1.000 NO₂= 1.005

As found:
 NOx SLOPE: 0.990
 NOx OFFS: 4.0
 NO SLOPE: 0.990
 NO OFFS: 0.4
 TEST: 127.5
 SAMP FLW: 489
 OZONE FL: 75
 PMT: 19.5
 NORM PMT: 0.1
 AZERO: 17.3
 HVPS: 637
 RCELL TEMP: 50.0
 BOX TEMP: 31.8
 PMT TEMP: 6.9
 IZS TEMP: 40.2
 MOLY TEMP: 316.3
 RCEL: 6.8
 SAMP: 28.2
 Internal Span: 290.7/4.93/286.5

As left:
 NOx SLOPE: 1.054
 NOx OFFS: 0.1
 NO SLOPE: 1.050
 NO OFFS: -0.3
 TEST: 127.5
 SAMP FLW: 488
 OZONE FL: 75
 PMT: 16.4
 NORM PMT: 0.3
 AZERO: 17.2
 HVPS: 637
 RCELL TEMP: 50.0
 BOX TEMP: 31.7
 PMT TEMP: 6.9
 IZS TEMP: 40.3
 MOLY TEMP: 315.7
 RCEL: 6.2
 SAMP: 27.5
 Internal Span: 307.7/5.1/303.5

Calibrator Flow Targets:

Make & Model: EnviroNics 6100
 Serial #: 4760
 Cal Gas Cylinder I.D. #: BLM002073
 NO Cylinder Conc. (ppm): 50.6
 NOx Cylinder Conc. (ppm): 50.6

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	5000	77	330.00	5077
mid	5000	33	165.00	5033
low	5000	16	80.00	5016

Calibration:

Calibrator Flow Rates (cc/min)				Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		
as found zero	4994	0	4994	0	0	0.0	-1.0	NA	NA
adjusted zero	4994	0.0	4994	0	0	0.0	1.0	NA	NA
as found high	4930	63.99	4994	648.4	648.4	609	608	1.065	1.068
adjusted high	4930	63.99	4994	648.4	648.4	648	649	1.001	1.001
mid	4961	34.46	4995	349.1	349.1	349	349	1.000	1.003
low	4977	16.72	4994	169.4	169.4	169	170	1.002	1.002
calibrator zero	4994	0.00	4994	0	0	0.0	1.0	NA	NA
Average C.F.=								1.001	1.002

Calibrator Flow Rates (cc/min)				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO ₂	NO drop	NO ₂ increase	NO ₂ C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4931	64.02	4995	0.0	652.0	652.0	1.0	0.0	1.0	
as found NO ₂	4931	64.02	4995	330.0	267.0	653.0	386.0	385.0	385.0	1.000
adjusted NO ₂	4931	64.02	4995	330.0	267.0	653.0	386.0	385.0	385.0	1.000
gpt mid	4931	64.02	4995	165.0	456.0	653.0	197.0	196.0	196.0	1.000
gpt low	4931	64.02	4995	80.0	562.0	653.0	92.0	90.0	91.0	0.989
Average NO ₂ C.F.=									0.996	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.000	0.999	0.997	0.85-1.15
b (Intercept as % of full scale)=	-0.01%	0.07%	0.10%	± 3% F.S.
% change in C.F. from last cal=	-6.46%	-6.81%	0.50%	+/-15%
NO2 converter efficiency			100.4%	>85%

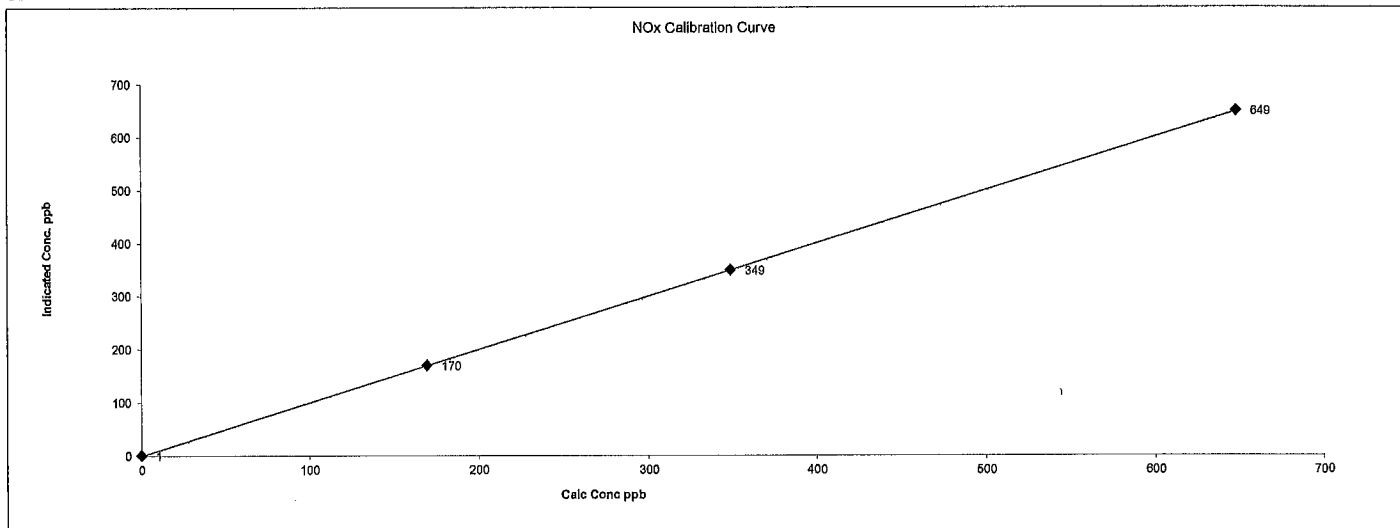
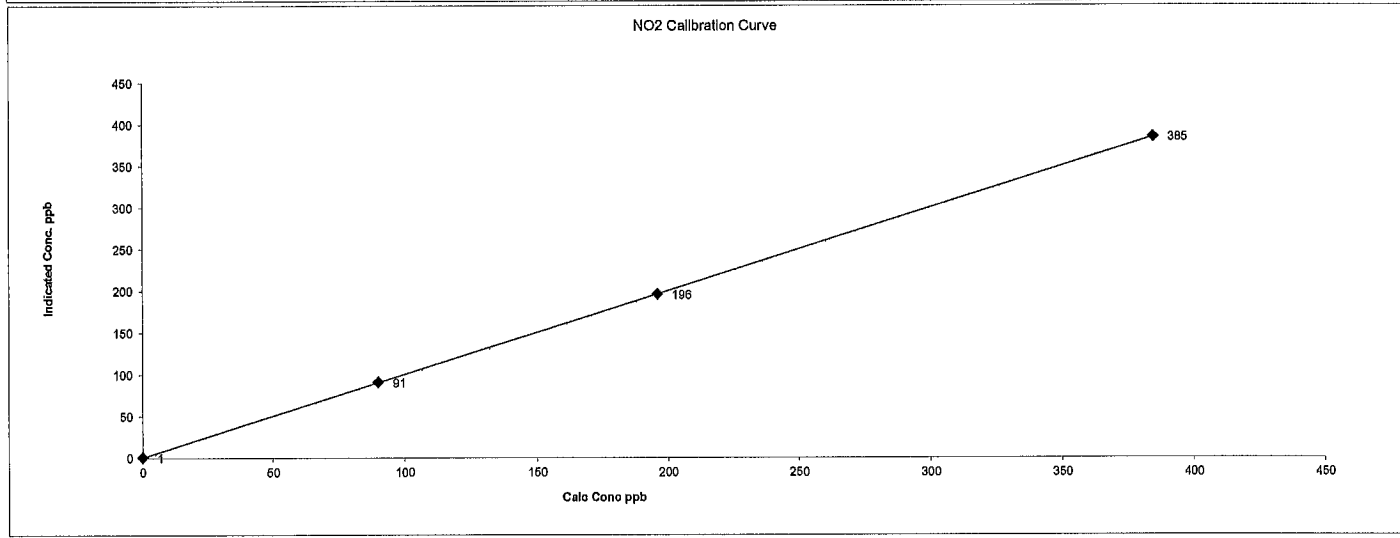
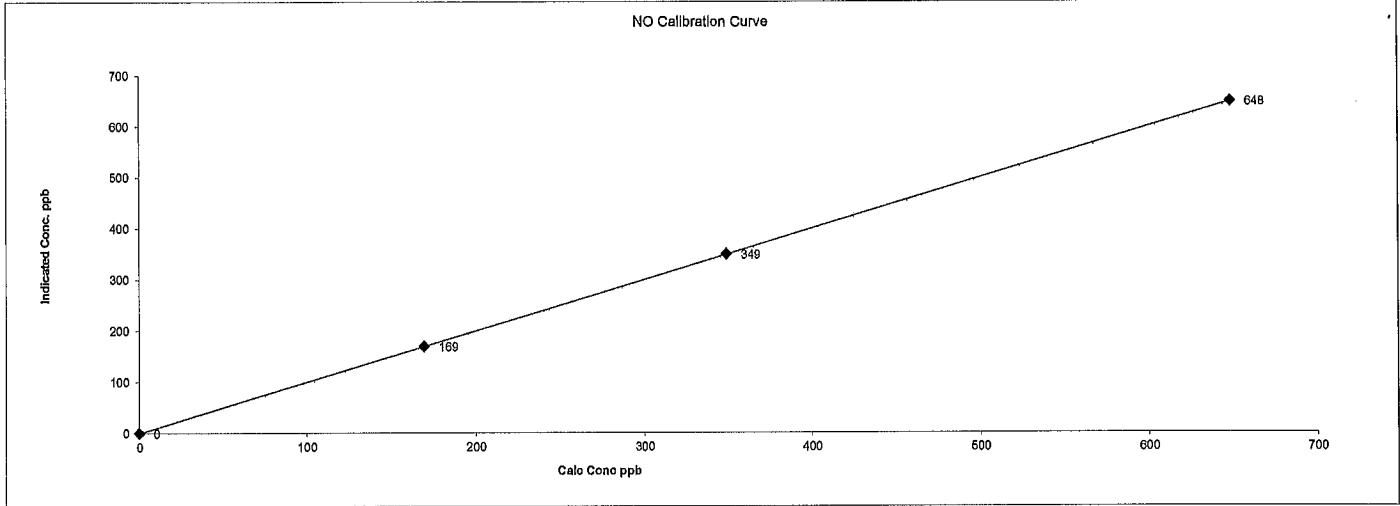
Comments:

Filter Changed. No NO2 adjustment made. 12:15 - High Point concentration of NO was increased from 610 to 650 ppb to keep SO2 concentration upper than 600 ppb

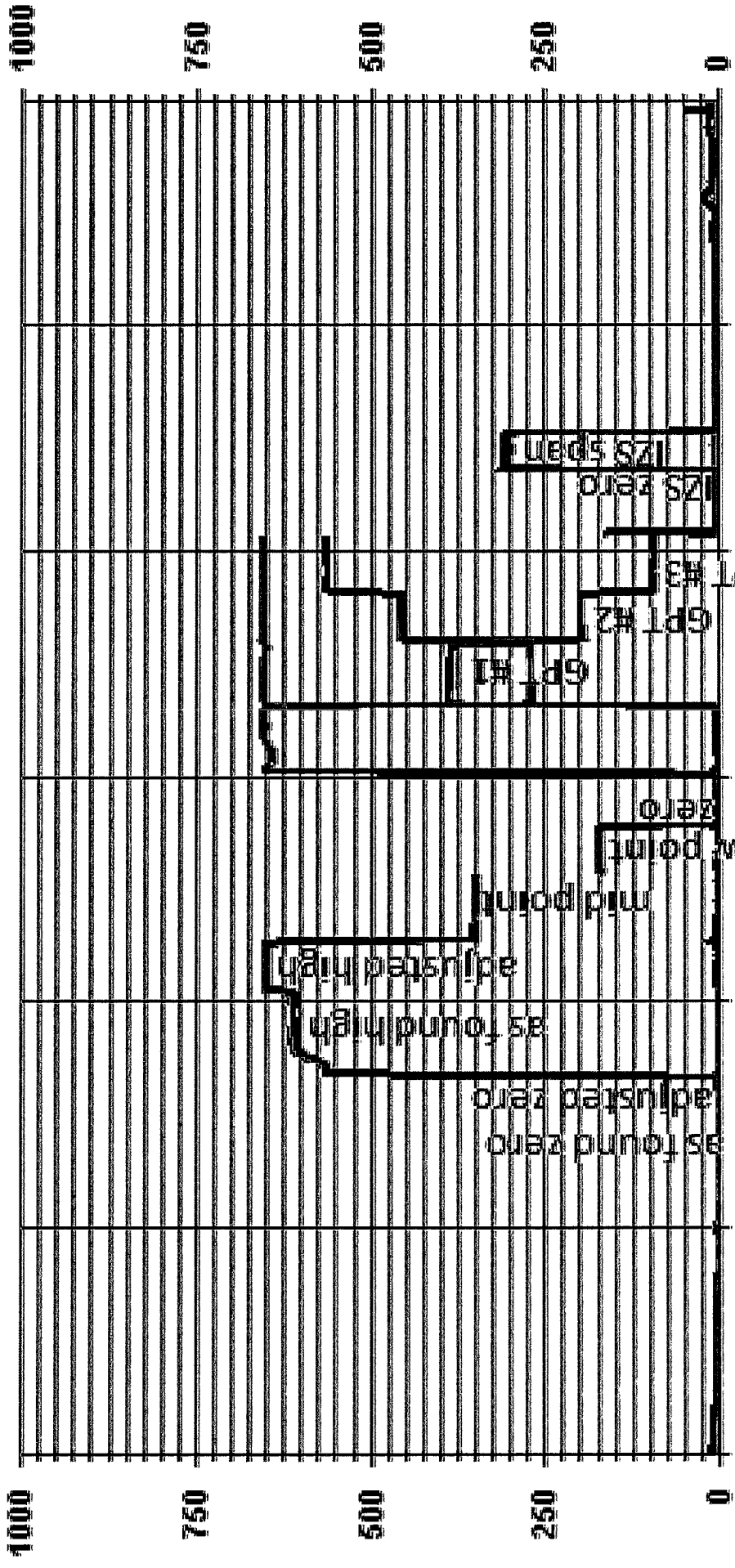
Date: 19-May-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Alex Yakupov

Start Time (mst): 10:41
 End Time (mst): 17:58
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 12-Mar-19

API 200E NOx Analyzer Calibration



01 Minute Averages



05/19/15 08:50 05/19/15 10:50 05/19/15 12:50 05/19/15 14:50 05/19/15 16:50 05/19/15 18:50

— LICA35 NOX_ PPB — LICA35 NO_ PPB — LICA35 NO2_ PPB

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: <u>20-May-15</u> Company: <u>LICA</u> Station Name/Location: <u>Elk Point</u> Performed by: <u>Alex Yakupov</u>	Start Time (mst): <u>9:24</u> End Time (mst): <u>13:59</u> Calibration Purpose: <u>Monthly</u> G.P.T. Date: <u>19-May-15</u>
--	---

Analyzer: _____ Serial Number: <u>1002240372</u> Last Calibration Date: <u>9-Apr-15</u> Previous Cal High Point C.F.: <u>0.999</u>	Range ppm: <u>500</u> As Found C.F.: <u>0.990</u> New C.F.: <u>0.995</u>
---	--

	As found:	As left:	
Motherboard:	O ₃ Bkg: <u>0.0</u>	O ₃ Bkg: <u>-0.1</u>	
	O ₃ Coef: <u>1.035</u>	O ₃ Coef: <u>1.019</u>	
	<u>3.3</u> <u>3.3</u>	<u>3.3</u> <u>3.3</u>	
	<u>15.0</u> <u>15.0</u>	<u>15.0</u> <u>15.0</u>	
	<u>24.0</u> <u>23.9</u>	<u>24.0</u> <u>23.9</u>	
Interface Board:	<u>-3.3</u> <u>-3.2</u>	<u>-3.3</u> <u>-3.2</u>	
	<u>3.3</u> <u>3.3</u>	<u>3.3</u> <u>3.3</u>	
	<u>5.0</u> <u>5.0</u>	<u>5.0</u> <u>5.0</u>	
	<u>15.0</u> <u>14.9</u>	<u>15.0</u> <u>14.9</u>	
	<u>-15.0</u> <u>-15.1</u>	<u>-15.0</u> <u>-15.1</u>	
Photo Lamp	<u>9.8</u>	Photo Lamp <u>9.8</u>	
	<u>24.0</u> <u>23.5</u>		<u>24.0</u> <u>23.5</u>
O ₃ Lamp	<u>9.4</u>	O ₃ Lamp <u>9.4</u>	
Bench:	<u>31.1</u>	Bench: <u>31.5</u>	
Bench Lamp:	<u>54.1</u>	Bench Lamp: <u>54.1</u>	
O ₃ Lamp:	<u>68.2</u>	O ₃ Lamp: <u>68.2</u>	
Pressure:	<u>706.6</u>	Pressure: <u>705.7</u>	
Cell A lpm:	<u>0.753</u>	Cell A lpm: <u>0.752</u>	
Cell B lpm:	<u>0.761</u>	Cell B lpm: <u>0.761</u>	
O ₃ ppb:	<u>0.3</u>	O ₃ ppb: <u>-0.1</u>	
Cell A ppb:	<u>2.2</u>	Cell A ppb: <u>-5.8</u>	
Cell B ppb:	<u>-1.6</u>	Cell B ppb: <u>5.6</u>	
Cell A Int:	<u>47964</u>	Cell A Int: <u>47939</u>	
Cell B Int:	<u>44510</u>	Cell B Int: <u>44489</u>	
Internal Span:	<u>350.4</u>	Internal Span: <u>353.6</u>	

Calibrator: Make & Model: <u>EnviroNics 6100</u> Serial #: <u>4760</u> NOx Gas Cylinder I.D. #: <u>BLM002073</u> NOx Cylinder Conc. (ppm): <u>50.6</u>	Calibrator Flow Targets: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>point</th> <th>total flow (cc/min)</th> <th>O₃ setting (v or ppb)</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>5000</td> <td>0</td> </tr> <tr> <td>high</td> <td>5000</td> <td>330</td> </tr> <tr> <td>mid</td> <td>5000</td> <td>165</td> </tr> <tr> <td>low</td> <td>5000</td> <td>80</td> </tr> </tbody> </table>	point	total flow (cc/min)	O ₃ setting (v or ppb)	zero	5000	0	high	5000	330	mid	5000	165	low	5000	80
point	total flow (cc/min)	O ₃ setting (v or ppb)														
zero	5000	0														
high	5000	330														
mid	5000	165														
low	5000	80														

Point	Diluent	Cal Gas	Total	Calculated Concentration (ppb)	Indicated Concentration (ppb)	Correction Factors
as found zero	4994	0.0	4994	0.0	0.2	NA
adjusted zero	4994	0.0	4994	0.0	0.0	NA
as found high	4994	330.00	5324	385.0	389.0	0.990
adjusted high	4994	330.00	5324	385.0	385.5	0.999
mid	4994	165.00	5159	196.0	196.1	0.999
low	4994	80.00	5074	90.0	91.1	0.988
calibrator zero	4994	0.00	4994	0.0	0.0	NA
Average C.F.=					0.995	

copy and paste flows and NO decrease from NOx cal in to calculated concentration

Linear Regression/Calibration Results:			
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.000</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>0.074%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>1%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

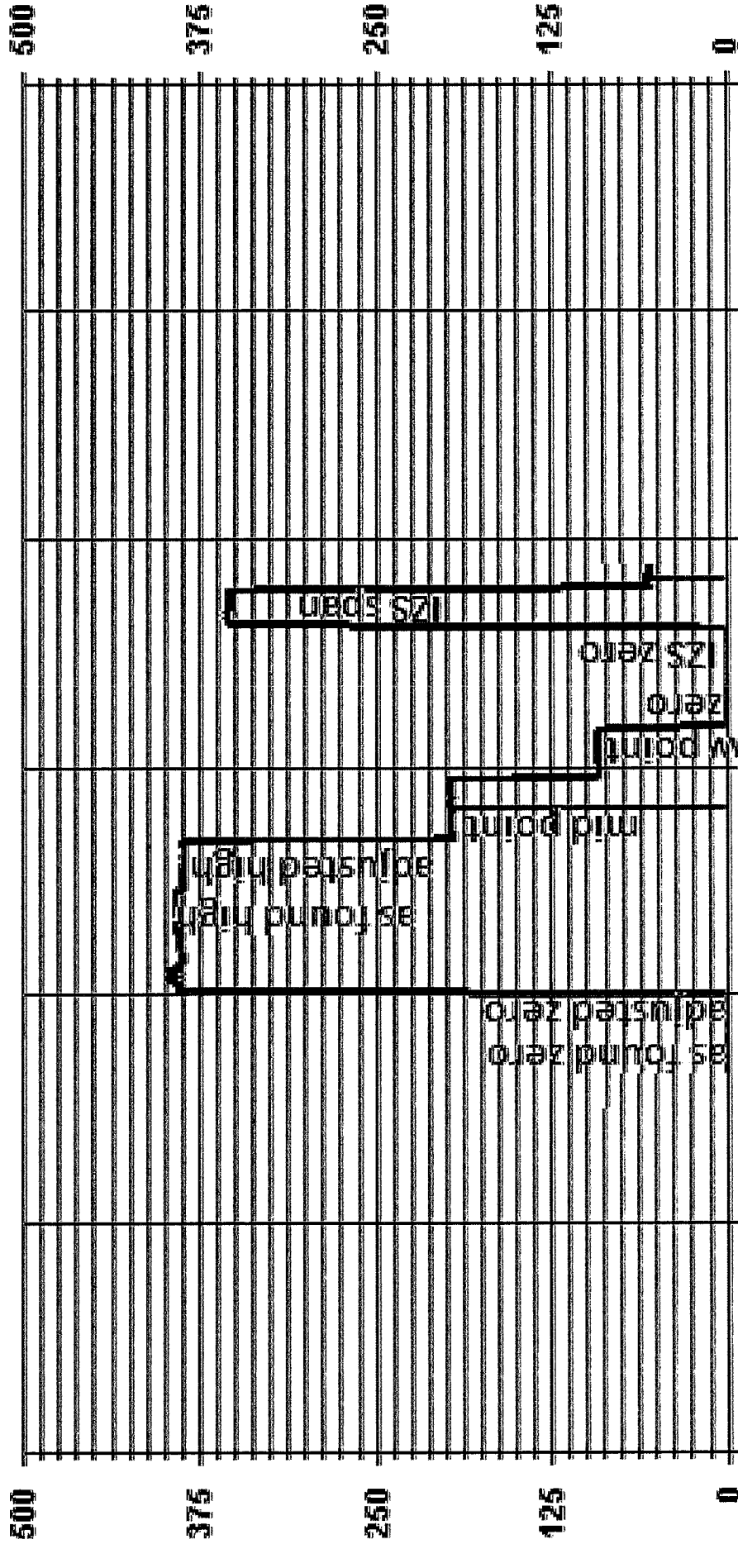
Filter changed

Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

Calc Conc (ppb)	Indicated Conc (ppb)
0.0	0.0
91.1	91.1
196.1	196.1
385.5	385.5

01 Minute Averages



— LICA35 03_ PPB

PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 4-May-15
 2015/05/04 LICA
 Station Name/Location: Elk Point
 Previous Audit Date: 28-Apr-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 12:43 - 13:20
 Calibration Purpose: Monthly Audit #1

1400A Information and Status:

Serial Number:	<u>1405A207691003</u>	As Found Filter Loading %:	<u>18.99</u>
Ko Factor:	<u>15634</u>	As Left Filter Loading %:	<u>18.99</u>
Ambient Temperature °C:	<u>14.02</u>	As Found Noise:	<u>0.004</u>
Ambient Pressure atm:	<u>0.933</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.36</u>
Aux Flow Reading lpm:	<u>13.66</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.45	0.00	-0.45
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.45	0.00	-0.45
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>14.0</u>	1405F pressure atm:	<u>0.933</u>
reference temperature °C:	<u>14.1</u>	reference pressure:	<u>0.933</u>
difference °C:	<u>0.1</u>	difference :	<u>0.000</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>14.1</u>	1405F pressure atm:	<u>0.933</u>
reference temperature °C:	<u>14.1</u>	reference pressure:	<u>0.933</u>
difference °C:	<u>0.0</u>	difference :	<u>0.000</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.66</u>
reference main flow lpm: <u>2.99</u>	reference total/aux flow lpm: <u>16.65</u>
difference lpm: <u>-0.01</u>	difference lpm: <u>-0.01</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.66</u>
reference main flow lpm: <u>2.99</u>	reference total/aux flow lpm: <u>16.65</u>
difference lpm: <u>-0.01</u>	difference lpm: <u>-0.01</u>

K_o Audit:

Last K_o audit date: 20-Mar-15
 1405F K_o factor: 15634
 Measured K_o factor: 15712.9000
 % difference: 0.50

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 19-May-15
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: 4-May-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 14:53 - 17:13
 Calibration Purpose: Monthly Audit #1

1400A Information and Status:

Serial Number:	<u>1405A207691003</u>	As Found Filter Loading %:	<u>27.82</u>
Ko Factor:	<u>15634</u>	As Left Filter Loading %:	<u>18.58</u>
Ambient Temperature °C:	<u>22.36</u>	As Found Noise:	<u>0.004</u>
Ambient Pressure atm:	<u>0.940</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.37</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>None</u>

Reference Standards:

	Flow:	Pressure:	Temperature:
Make:	<u>Dwyer</u>	<u>Fisher</u>	<u>Fisher</u>
Model:	<u>475 Mark III</u>	<u>FB61291</u>	<u>FB61291</u>
Serial Number:	<u>NA</u>	<u>130168457</u>	<u>130168457</u>
Calibration Date:	<u>NA</u>	<u>18-Mar-15</u>	<u>18-Mar-15</u>

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.45	0.00	-0.45
	limit	0.60	0.60	0.60	0.60

As left leak check (same as above if as found passes):

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.06	0.00	0.06
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.45	0.00	-0.45
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>22.4</u>	1405F pressure atm:	<u>0.940</u>
reference temperature °C:	<u>22.8</u>	reference pressure:	<u>0.941</u>
difference °C:	<u>0.4</u>	difference :	<u>-0.001</u>

As left temperature and pressure (same as above if as found adequate):

tolerance +/- 2.0°C		tolerance +/- 0.01 atm	
1405F temperature °C:	<u>22.8</u>	1405F pressure atm:	<u>0.940</u>
reference temperature °C:	<u>22.8</u>	reference pressure:	<u>0.941</u>
difference °C:	<u>0.0</u>	difference :	<u>0.001</u>

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.11</u>	reference total/aux flow lpm: <u>16.92</u>
difference lpm: <u>0.11</u>	difference lpm: <u>0.25</u>

As left flows (same as above if as found adequate):

main flow tolerance 3.00 lpm +/- 0.20 lpm	total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
1405F main flow lpm: <u>3.00</u>	1400A total/aux flow lpm: <u>16.67</u>
reference main flow lpm: <u>3.06</u>	reference total/aux flow lpm: <u>16.81</u>
difference lpm: <u>0.06</u>	difference lpm: <u>0.14</u>

K_o Audit:

Last K_o audit date: 20-Mar-15
 1405F K_o factor: 15634
 Measured K_o factor: 15712.9000
 % difference: 0.50

Comments:

WIND SYSTEM



Meteorological Sensor Audit

Station Information

Company:	LICA	Performed By:	Chris Wesson/Kevin Hope
Location:	Elk Point	Reason:	BI-annual audit
Audit Date:	21-Feb-14	Start Time (mst):	15:10
Previous Audit Date:	24-Nov-11	End Time (mst):	15:40

Wind Speed

Sensor make:	RM Young	Sensor height:	10M
Sensor model:	5103VK	Serial Number:	56589
Calibrator:	RM Young	Variable speed motor:	CA 03309
Voltage range:	0 - 1	Output signal range:	0 - 200 KPH

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.0	0.02	0.03	-
1000	17.6	17.79	17.75	0.99
2000	35.28	35.64	35.53	0.99
3000	52.92	53.29	53.31	0.99
4000	70.56	71.08	71.08	0.99
5000	88.2	88.88	88.91	0.99
6000	105.84	106.6	106.7	0.99
7000	123.48	124.4	124.5	0.99
8000	141.12	142.2	142.2	0.99
9000	158.76	160	160.1	0.99
10000	176.4	177.8	177.8	0.99
Average Correction Factor:				0.99

Wind Direction

Sensor make:	RM Young	Sensor height:	10M
Sensor model:	5103VK	Serial Number:	56589
Calibrator:	RM Young	Variable speed motor:	CA03309
Voltage range:	0 - 1	Output signal range:	0 - 360

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	355.0	NA
45	43.1	1.04
90	89.5	1.01
135	135.5	1.00
180	181.2	0.99
225	226.1	1.00
270	270.1	1.00
315	312.3	1.01
360	354.7	1.01
Average Correction Factor:		1.01

Remarks:

CALIBRATORS

Company <u>Maxxam</u>		Operator: <u>Limin Li</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 6100</u>	Make/Model	<u>N/A</u>
Serial Number	<u>4760</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>December 2013</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOx Concentration	<u>48.5/48.5</u>		

Dilution Flow (sccm)			
Pt. #1	<u>5000</u>	Pt. #2	<u>5000</u>
Pt. #3	<u>5000</u>		
Gas Flow (sccm)			
Pt. #1	<u>80</u>	Pt. #2	<u>40</u>
Pt. #3	<u>20</u>	Gas flows not available from display.	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4980	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4993	0.0	0.799	0.799	0.840	-0.001	0.839	5%	5%
4994	0.0	0.399	0.399	0.420	-0.001	0.419	5%	5%
4991	0.0	0.200	0.200	0.211	0.000	0.211	5%	5%
Absolute Average Percent Difference							5%	5%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=Indicated concentration)*

NO	LIMITS	NOx
Correlation= 1.0000	≥ 0.990	Correlation= 1.0000
m (Slope)= 1.0511	0.90-1.10	m (Slope)= 1.0496
b (Intercept % of FS)= 0.0400	± 3% F.S.	b (Intercept % of FS)= 0.0400

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
4993	0.000	0.000	0.823	-0.001	0.822	NO ₂	% Diff. Limit
4993	0.480	0.530	0.293	0.530	0.823	0	± 10%
4993	0.240	0.269	0.554	0.269	0.823	0	± 10%
4993	0.090	0.096	0.727	0.097	0.824	0	± 10%
Absolute Average Percent Difference						0	± 10%

LINEAR REGRESSION ANALYSIS *y=mx+b (where x=calculated concentration, y=Indicated concentration)*

NO₂	LIMITS	
Correlation= 1.0000	≥ 0.995	
m (Slope)= 1.0006	0.90-1.10	
b (Intercept % of FS)= -0.0132	± 3% F.S.	

AENV Standards	NO_x Analyzer
Audit Calibrator	
Make/Model <u>Teco 146i</u>	Make/Model <u>Teco 42i</u>
Serial/AMU Number <u>AMU 1809</u>	Serial/AMU Number <u>AMU 1868</u>
	Last Calibration Date <u>December 15, 2014</u>
	Full Scale (ppm) <u>1.0</u>

COMMENTS: _____

Auditor: Al Clark Date: December 17, 2014

Operator Signature:  Location: McIntyre Center Edmonton

Company: Maxxam **Operator:** Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>N/A</u>
Serial Number	<u>830</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>Oct 2013</u>	Temperature (°C)	<u>N/A</u>
SO ₂ Cylinder Conc.	<u>50.3</u>	Barometric Pressure	<u>N/A</u>
SO ₂ Cylinder S/N	<u>LL42475</u>		

Flow Measurements

Pt. No. 1 79.5 **Pt. No. 2** 39.8 **Pt. No. 3** 19.9

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4918	0.800	0.798	0%	± 10%
4960	0.400	0.398	-1%	± 10%
4977	0.200	0.200	0%	± 10%
Absolute Average Percent Difference			0%	± 10%

LINEAR REGRESSION ANALYSIS
y=mx+b (where x=calculated concentration, y=indicated concentration)

<u>SO₂</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9971	0.90-1.10
b (Intercept % of FS)=	0.0000	± 3% F.S.

AENV Standards		SO₂ Analyzer	
Audit Calibrator		Make/Model	<u>Teco 43C</u>
Make/Model	<u>R&R MFC 201</u>	Serial/AMU Number	<u>AMU 1623</u>
Serial/AMU Number	<u>AMU 1690</u>	Last Calibration Date	<u>Dec 15/14</u>
		Full Scale (ppm)	<u>1.0</u>

COMMENTS: H2S gas was slow to move through the calibrator. Check for contamination inside calibrator. SO2 moves through quickly.

Auditor: Al Clark Date: December 16, 2014
Operator Signature: _____ Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-344CGA

Company: Maxxam Operator's Name: Limin Li
Cylinder #: BLM002073 Concentration PPM: 49.5 Tolerance(%): 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: March 31, 2015
Gas Type: SO2 Conc. 98.57
Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Blos DC2
Serial Number: AMU 1659
Temp. °C: 22.5 C
B.P.: 690 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0
Last Calibration: Date: Mar 31/15 C.F.: 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	0.00000	0.00000	0.000
4976	82.6	0.801	0.01660	60.242	48.3
4993	41.0	0.396	0.00821	121.780	48.2
4977	20.2	0.193	0.00406	246.386	47.6
Average Cylinder Concentration:					48.0

Previous Stated Concentration PPM: 49.5

Percent variance from Stated: 3.0

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: March 31, 2015
Location: McIntyre Center Edmonton



Calibration Gas Audit

NO Cylinder Gas

File No. 2015-345CGA

Company: Maxxam **Operators name:** Limin Li
Cylinder #: BLM002073 **Conc (PPM)** 50.6/50.6 **Tolerance (%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model Teco 146I
Serial Number AMU 1809
Last Verification Date March 31, 2015
Gas Type NO **Conc.** 48.79
Cylinder Number CAL018024

Flow Measurement Device:

Make/Model Bios DC2
Serial Number AMU 1659
Temp. °C 22.5 C
B.P. 690 mmhg

Reference Analyzer:

Make/Model Teco 42I **Serial/AMU Number:** 1868
Instrument Settings **Zero:** 4.2 **Span:** 1.008 **Range:** 1.0
Last Calibration: **Date:** Mar 31/15 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000				
4976	82.6	0.855	0.848	0.01660	60.242	51.5	51.1
4993	41.0	0.427	0.421	0.00821	121.780	52.0	51.3
4977	20.2	0.213	0.209	0.00406	246.386	52.5	51.5
Average Cylinder Concentration:						52.0	51.3

NO **NOx**

Previous Stated Concentration PPM: 50.6 50.6

Percent variance from Stated: 2.8 1.4

Cylinder gas tolerances based on NO only

- Meets Manufacturer Tolerance. Use manufacturers stated concentration **COMMENTS:** _____
- < =5% Outside Manufacturer Tolerance. Use manufacturers concentration **Contains 49.5 ppm SO2 in cylinder**
- > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark **Date:** March 31, 2015
Operator Signature: *Al Clark* **Location:** McIntyre Center Edmonton



Praxair Canada, Inc.
 9501-34th Street
 Edmonton, AB T6B 2X6
 Tel: 780-449-0778
 Fax: 780-449-5302

03/27/2014

MAXXAM ANALYTICS INC *NA*
 9372 49TH ST
 EDMONTON, AB T6B 2L7

Work Order No. 20248656
 Customer Reference No.

Product Lot/Batch No. Z582 4 085 02
 Product Part No. NI ME600P2P-AQ

CERTIFICATE OF ANALYSIS
Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	600.0ppm	601.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments	Mettler-Toledo Analytical Balance-ID2x/USA-- Hewlett-Packard (Agilent)-6690--GC-FID	Filling Method	Gravimetric
Cylinder Style	AQ	Date of Fill	03/26/2014
Cylinder Pressure @70F	2200 psig	Expiration Date	03/26/2017
Cylinder Volume	82.0 ft3		
Valve Outlet Connection	CGA-350		
Cylinder No(s)	LL33874		

Analyst: Todd Hryniv

The gas contained in this cylinder is a certified standard prepared by Praxair Canada, Inc. It is certified as a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard is provided by certified primary Praxair Canada, Inc. Reference Materials which are either prepared by weight or by volume according to the National Institute of Standards and Technology (NIST), Measurement Canada or by other NIST-recognized Reference Materials which produce.

Note: All concentrations are concentration in p.p.m. (v/v or ppm) gas for gas phase, by volume (e.g., ppmv), unless otherwise noted.

1. Gas Chromatography with Flame Ionization Detector	2. Gas Chromatography with Thermal Conductivity Detector	3. Gas Chromatography with Electrode Conductivity Detector	4. Gas Chromatography with Microthermal Conductance	5. Gas Chromatography with Photoacoustic Detector
6. Gas Chromatography with Refractive Index Detector	7. Gas Chromatography with Thermal Conductivity Detector	8. Infrared - FTIR or ICH	9. Gravimetric	10. Specific Vapor Analysis
11. Other	12. Other	13. Other	14. Other	15. Other

IMPORTANT:

The information contained herein has been prepared at your request by personnel within Praxair Canada, Inc. While we believe the information is accurate within the limits of the analytical methods employed, we do not warrant or represent as to the suitability of the use of the information for any particular purpose. The information is intended only for understanding the quality of the information as it is obtained and not for the use in any other application. Praxair Canada, Inc. disclaims any liability for the information contained herein, except the fee associated for providing such information.



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2014-251CGA

Company: Maxxam Operator's Name: Limin Li
Cylinder #: LL36837 Concentration PPM: 10.0 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:	Flow Measurement Device:
Make/Model: <u>R&R MFC 201</u>	Make/Model: <u>Bios DC2</u>
Serial Number: <u>AMU 1690</u>	Serial Number: <u>AMU 1659</u>
Last Verification Date: <u>December 15, 2014</u>	Temp. °C: <u>23.0 C</u>
Gas Type: <u>H2S</u> Conc. <u>20.43</u>	B.P. <u>702 mmhg</u>
Cylinder Number: <u>CAL015106</u>	

Reference Analyzer:
Make/Model: Teco 45C Serial/AMU Number: 1624
Instrument Settings: Zero: 6.4 Span: 1.160 Range: 0.1
Last Calibration: Date: Dec15/14 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	10000.0	10.0
5099	38.5	0.0754	0.00755	132.442	10.0
5092	18.0	0.0349	0.00353	282.889	9.9
5066	9.2	0.0178	0.00182	560.652	9.8
Average Cylinder Concentration:					9.9

Previous Stated Concentration PPM: 10.0

Percent variance from Stated: 1.1

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration _____
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder _____

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: December 16, 2014
Location: McIntyre Center Edmonton

APPENDIX IV
ANALYTICAL RESULTS

VOCs

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 6, 2015</p> <p>CANISTER ID: 2654</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	14-May-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-May-15
1,2-Dichloroethane	I	0.04	ppbv	0.01	AC-058	14-May-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2,2,4-Trimethylpentane	I	0.04	ppbv	0.01	AC-058	14-May-15
2,2-Dimethylbutane	I	0.03	ppbv	0.01	AC-058	14-May-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2,3-Dimethylbutane	I	0.07	ppbv	0.02	AC-058	14-May-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
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U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 6, 2015</p> <p>CANISTER ID: 2654</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
2-Methylpentane	I	0.04	ppbv	0.01	AC-058	14-May-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
3-Methylpentane	I	0.03	ppbv	0.01	AC-058	14-May-15
Acetone		2.6	ppbv	0.4	AC-058	14-May-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	14-May-15
Benzene	I	0.08	ppbv	0.01	AC-058	14-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
Carbon tetrachloride	I	0.13	ppbv	0.01	AC-058	14-May-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Chloroform	I	0.06	ppbv	0.02	AC-058	14-May-15
Chloromethane		0.85	ppbv	0.02	AC-058	14-May-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15

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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Ethanol		0.6 ppbv	0.3	AC-058	14-May-15
Ethyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	14-May-15
Ethylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	14-May-15
Freon-11		0.33 ppbv	0.02	AC-058	14-May-15
Freon-113	I	0.11 ppbv	0.01	AC-058	14-May-15
Freon-114	I	0.03 ppbv	0.02	AC-058	14-May-15
Freon-12		0.71 ppbv	0.02	AC-058	14-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50 ppbv	0.5	AC-058	14-May-15
Isobutane	I	0.07 ppbv	0.02	AC-058	14-May-15
Isopentane	I	0.20 ppbv	0.03	AC-058	14-May-15
Isoprene	I	0.03 ppbv	0.01	AC-058	14-May-15
Isopropyl alcohol	K, T, U	< 0.4 ppbv	0.4	AC-058	14-May-15
Isopropylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	14-May-15
m,p-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-May-15
m-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-May-15
m-Ethyltoluene	K, T, U	< 0.08 ppbv	0.08	AC-058	14-May-15
Methyl butyl ketone	K, T, U	< 0.50 ppbv	0.5	AC-058	14-May-15
Methyl ethyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	14-May-15
Methyl isobutyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	14-May-15
Methyl methacrylate	K, T, U	< 0.07 ppbv	0.07	AC-058	14-May-15
Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	14-May-15
Methylcyclohexane	I	0.02 ppbv	0.01	AC-058	14-May-15
Methylcyclopentane	I	0.03 ppbv	0.02	AC-058	14-May-15
Methylene chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	14-May-15
n-Butane	I	0.24 ppbv	0.03	AC-058	14-May-15
n-Decane	K, T, U	< 0.06 ppbv	0.06	AC-058	14-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
n-Hexane	I	0.04	ppbv	0.01	AC-058	14-May-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	14-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	14-May-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	14-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	14-May-15
Toluene	I	0.02	ppbv	0.01	AC-058	14-May-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-May-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-May-15
Vinyl acetate		0.5	ppbv	0.4	AC-058	14-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	14-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	I	0.03	ppbv	0.02	AC-058	27-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2-Trichloroethane	I	0.03	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	27-May-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dichloroethane	I	0.05	ppbv	0.01	AC-058	27-May-15
1,2-Dichloropropane	I	0.03	ppbv	0.01	AC-058	27-May-15
1,3,5-Trimethylbenzene	I	0.02	ppbv	0.02	AC-058	27-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Hexene	I	0.04	ppbv	0.02	AC-058	27-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2-Dimethylbutane	I	0.08	ppbv	0.01	AC-058	27-May-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,3-Dimethylbutane	I	0.16	ppbv	0.02	AC-058	27-May-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.02	ppbv	0.01	AC-058	27-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylpentane	I	0.11	ppbv	0.01	AC-058	27-May-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
3-Methylhexane	I	0.04	ppbv	0.02	AC-058	27-May-15
3-Methylpentane	I	0.09	ppbv	0.01	AC-058	27-May-15
Acetone		4.3	ppbv	0.4	AC-058	27-May-15
Acrolein		0.7	ppbv	0.3	AC-058	27-May-15
Benzene	I	0.17	ppbv	0.01	AC-058	27-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Bromodichloromethane		0.02	ppbv	0.02	AC-058	27-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Carbon disulfide	I	0.09	ppbv	0.01	AC-058	27-May-15
Carbon tetrachloride	I	0.12	ppbv	0.01	AC-058	27-May-15
Chlorobenzene	I	0.03	ppbv	0.02	AC-058	27-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroform	I	0.04	ppbv	0.02	AC-058	27-May-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
cis-1,2-Dichloroethene	I	0.02	ppbv	0.01	AC-058	27-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Cyclohexane	I	0.11	ppbv	0.02	AC-058	27-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Dibromochloromethane	I	0.02	ppbv	0.01	AC-058	27-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		6.9	ppbv	0.3	AC-058	27-May-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Ethylbenzene	I	0.04	ppbv	0.01	AC-058	27-May-15
Freon-11		0.32	ppbv	0.02	AC-058	27-May-15
Freon-113	I	0.11	ppbv	0.01	AC-058	27-May-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Freon-12	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Isobutane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Isopentane		0.33	ppbv	0.03	AC-058	27-May-15
Isoprene	I	0.03	ppbv	0.01	AC-058	27-May-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
m,p-Xylene	I	0.08	ppbv	0.03	AC-058	27-May-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	27-May-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Methyl ethyl ketone		0.5	ppbv	0.3	AC-058	27-May-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
Methylcyclohexane	I	0.16	ppbv	0.01	AC-058	27-May-15
Methylcyclopentane	I	0.09	ppbv	0.02	AC-058	27-May-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
n-Butane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	27-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given T Value reported is less than the laboratory method detection limit U Compound was analyzed for but not detected I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050198-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 12, 2015</p> <p>CANISTER ID: S5673</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
n-Hexane	I	0.18	ppbv	0.01	AC-058	27-May-15
n-Octane	I	0.03	ppbv	0.02	AC-058	27-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	27-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
n-Nonane	I	0.02	ppbv	0.01	AC-058	27-May-15
o-Ethyltoluene	I	0.01	ppbv	0.01	AC-058	27-May-15
o-Xylene	I	0.04	ppbv	0.01	AC-058	27-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Toluene	I	0.14	ppbv	0.01	AC-058	27-May-15
trans-1,2-Dichloroethylene	I	0.02	ppbv	0.01	AC-058	27-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-2-Pentene	I	0.02	ppbv	0.02	AC-058	27-May-15
Trichloroethylene	I	0.05	ppbv	0.04	AC-058	27-May-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 18, 2015</p> <p>CANISTER ID: S5680</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	27-May-15
1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	27-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	27-May-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2,2-Dimethylbutane	I	0.06	ppbv	0.01	AC-058	27-May-15
2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	27-May-15
2,3-Dimethylbutane	I	0.13	ppbv	0.02	AC-058	27-May-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 18, 2015</p> <p>CANISTER ID: S5680</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylpentane	I	0.11	ppbv	0.01	AC-058	27-May-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
3-Methylhexane	I	0.05	ppbv	0.02	AC-058	27-May-15
3-Methylpentane	I	0.06	ppbv	0.01	AC-058	27-May-15
Acetone		7.6	ppbv	0.4	AC-058	27-May-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
Benzene	I	0.09	ppbv	0.01	AC-058	27-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Carbon disulfide		0.63	ppbv	0.01	AC-058	27-May-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	27-May-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloromethane		0.75	ppbv	0.02	AC-058	27-May-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
cis-2-Butene	I	0.11	ppbv	0.02	AC-058	27-May-15
cis-2-Pentene	I	0.03	ppbv	0.02	AC-058	27-May-15
Cyclohexane	I	0.08	ppbv	0.02	AC-058	27-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 18, 2015</p> <p>CANISTER ID: S5680</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.9	ppbv	0.3	AC-058	27-May-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Ethylbenzene	I	0.12	ppbv	0.01	AC-058	27-May-15
Freon-11		0.31	ppbv	0.02	AC-058	27-May-15
Freon-113	I	0.10	ppbv	0.01	AC-058	27-May-15
Freon-114	I	0.03	ppbv	0.02	AC-058	27-May-15
Freon-12		0.68	ppbv	0.02	AC-058	27-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Isobutane		0.43	ppbv	0.02	AC-058	27-May-15
Isopentane		0.34	ppbv	0.03	AC-058	27-May-15
Isoprene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Isopropyl alcohol		0.5	ppbv	0.4	AC-058	27-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
m,p-Xylene	I	0.13	ppbv	0.03	AC-058	27-May-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	27-May-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Methyl ethyl ketone		1.7	ppbv	0.3	AC-058	27-May-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
Methylcyclohexane	I	0.16	ppbv	0.01	AC-058	27-May-15
Methylcyclopentane	I	0.08	ppbv	0.02	AC-058	27-May-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
n-Butane		0.65	ppbv	0.03	AC-058	27-May-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	27-May-15

Qualifiers

- K Off-scale low. Actual value is known to be less than the value given
- T Value reported is less than the laboratory method detection limit
- U Compound was analyzed for but not detected
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 18, 2015</p> <p>CANISTER ID: S5680</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
n-Hexane	I	0.09	ppbv	0.01	AC-058	27-May-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	27-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
o-Ethyltoluene	I	0.02	ppbv	0.01	AC-058	27-May-15
o-Xylene	I	0.06	ppbv	0.01	AC-058	27-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Toluene		0.58	ppbv	0.01	AC-058	27-May-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15

Qualifiers

- K Off-scale low. Actual value is known to be less than the value given
- T Value reported is less than the laboratory method detection limit
- U Compound was analyzed for but not detected
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-002</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 24, 2015</p> <p>CANISTER ID: H2825</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	27-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	27-May-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	27-May-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	27-May-15
1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	27-May-15
1,2-Dichloroethane	I	0.02 ppbv	0.01	AC-058	27-May-15
1,2-Dichloropropane	I	0.01 ppbv	0.01	AC-058	27-May-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	27-May-15
1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	27-May-15
1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	27-May-15
1-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1-Hexene	K, T, U	< 0.02 ppbv	0.02	AC-058	27-May-15
1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	27-May-15
2,2,4-Trimethylpentane	I	0.16 ppbv	0.01	AC-058	27-May-15
2,2-Dimethylbutane	I	0.03 ppbv	0.01	AC-058	27-May-15
2,3,4-Trimethylpentane	I	0.03 ppbv	0.01	AC-058	27-May-15
2,3-Dimethylbutane	I	0.12 ppbv	0.02	AC-058	27-May-15
2,3-Dimethylpentane	I	0.13 ppbv	0.02	AC-058	27-May-15
2,4-Dimethylpentane	I	0.08 ppbv	0.01	AC-058	27-May-15

Qualifiers

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
 K Off-scale low. Actual value is known to be less than the value given
 T Value reported is less than the laboratory method detection limit
 U Compound was analyzed for but not detected

Certified By: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-002</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 24, 2015</p> <p>CANISTER ID: H2825</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
2-Methylpentane	I	0.05	ppbv	0.01	AC-058	27-May-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
3-Methylpentane	I	0.03	ppbv	0.01	AC-058	27-May-15
Acetone		7.2	ppbv	0.4	AC-058	27-May-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
Benzene	I	0.08	ppbv	0.01	AC-058	27-May-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Carbon disulfide		0.70	ppbv	0.01	AC-058	27-May-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	27-May-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Chloromethane		0.83	ppbv	0.02	AC-058	27-May-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Cyclohexane	I	0.03	ppbv	0.02	AC-058	27-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15

Qualifiers

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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-002</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/May 24, 2015</p> <p>CANISTER ID: H2825</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.1	ppbv	0.3	AC-058	27-May-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Ethylbenzene	I	0.01	ppbv	0.01	AC-058	27-May-15
Freon-11	I	0.30	ppbv	0.02	AC-058	27-May-15
Freon-113	I	0.09	ppbv	0.01	AC-058	27-May-15
Freon-114	I	0.02	ppbv	0.02	AC-058	27-May-15
Freon-12		0.65	ppbv	0.02	AC-058	27-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Isobutane	I	0.22	ppbv	0.02	AC-058	27-May-15
Isopentane		0.55	ppbv	0.03	AC-058	27-May-15
Isoprene		0.32	ppbv	0.01	AC-058	27-May-15
Isopropyl alcohol		0.7	ppbv	0.4	AC-058	27-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	27-May-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	27-May-15
Methyl ethyl ketone		0.5	ppbv	0.3	AC-058	27-May-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-May-15
Methylcyclohexane	I	0.06	ppbv	0.01	AC-058	27-May-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	27-May-15
n-Butane		0.68	ppbv	0.03	AC-058	27-May-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	27-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
n-Hexane	I	0.07	ppbv	0.01	AC-058	27-May-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	27-May-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-May-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	27-May-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
o-Xylene	I	0.01	ppbv	0.01	AC-058	27-May-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	27-May-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Toluene	I	0.10	ppbv	0.01	AC-058	27-May-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	27-May-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-May-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	27-May-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	27-May-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Jun-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	06-Jun-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	06-Jun-15
1,2-Dichloropropane	I	0.01	ppbv	0.01	AC-058	06-Jun-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
2,2-Dimethylbutane	I	0.03	ppbv	0.01	AC-058	06-Jun-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
2,3-Dimethylpentane	I	0.02	ppbv	0.02	AC-058	06-Jun-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15

Qualifiers

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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
2-Methylhexane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
2-Methylpentane	I	0.06 ppbv	0.01	AC-058	06-Jun-15
3-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
3-Methylhexane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
3-Methylpentane	I	0.05 ppbv	0.01	AC-058	06-Jun-15
Acetone		3.1 ppbv	0.4	AC-058	06-Jun-15
Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	06-Jun-15
Benzene	I	0.09 ppbv	0.01	AC-058	06-Jun-15
Benzyl chloride	K, T, U	< 0.4 ppbv	0.4	AC-058	06-Jun-15
Bromodichloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
Bromomethane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
Carbon disulfide		0.56 ppbv	0.01	AC-058	06-Jun-15
Carbon tetrachloride	I	0.09 ppbv	0.01	AC-058	06-Jun-15
Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
Chloroform	I	0.02 ppbv	0.02	AC-058	06-Jun-15
Chloromethane		0.84 ppbv	0.02	AC-058	06-Jun-15
cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
cis-1,3-Dichloropropene	K, T, U	< 0.04 ppbv	0.04	AC-058	06-Jun-15
cis-2-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	06-Jun-15
Cyclohexane	I	0.04 ppbv	0.02	AC-058	06-Jun-15
Cyclopentane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15
Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	06-Jun-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.7	ppbv	0.3	AC-058	06-Jun-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Ethylbenzene	I	0.02	ppbv	0.01	AC-058	06-Jun-15
Freon-11	I	0.27	ppbv	0.02	AC-058	06-Jun-15
Freon-113	I	0.09	ppbv	0.01	AC-058	06-Jun-15
Freon-114	I	0.02	ppbv	0.02	AC-058	06-Jun-15
Freon-12		0.60	ppbv	0.02	AC-058	06-Jun-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	06-Jun-15
Isobutane	I	0.17	ppbv	0.02	AC-058	06-Jun-15
Isopentane	I	0.12	ppbv	0.03	AC-058	06-Jun-15
Isoprene	I	0.07	ppbv	0.01	AC-058	06-Jun-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
m,p-Xylene	I	0.03	ppbv	0.03	AC-058	06-Jun-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Jun-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	06-Jun-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Jun-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-15
Methylcyclohexane	I	0.07	ppbv	0.01	AC-058	06-Jun-15
Methylcyclopentane	I	0.04	ppbv	0.02	AC-058	06-Jun-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-15
n-Butane	I	0.22	ppbv	0.03	AC-058	06-Jun-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jun-15

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
n-Heptane	I	0.03	ppbv	0.01	AC-058	06-Jun-15
n-Hexane	I	0.14	ppbv	0.01	AC-058	06-Jun-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	06-Jun-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Jun-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jun-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jun-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
o-Xylene	I	0.02	ppbv	0.01	AC-058	06-Jun-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Jun-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Toluene	I	0.04	ppbv	0.01	AC-058	06-Jun-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	06-Jun-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-15

Qualifiers

K Off-scale low. Actual value is known to be less than the value given
T Value reported is less than the laboratory method detection limit
U Compound was analyzed for but not detected
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

PAHs

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 6, 2015</p> <p>CANISTER ID: TE-06</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02 ug/filter	0.01	NA-017	28-May-15
2-Methylnaphthalene		0.03 ug/filter	0.01	NA-017	28-May-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Acenaphthene		0.01 ug/filter	0.01	NA-017	28-May-15
Acenaphthylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Acridine	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Chrysene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Fluoranthene		0.02 ug/filter	0.01	NA-017	28-May-15
Fluorene		0.02 ug/filter	0.01	NA-017	28-May-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Naphthalene		0.03 ug/filter	0.01	NA-017	28-May-15
Perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	28-May-15
Phenanthrene		0.05 ug/filter	0.01	NA-017	28-May-15
Pyrene		0.02 ug/filter	0.01	NA-017	28-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050100-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 6, 2015</p> <p>CANISTER ID: TE-06</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 06-May-15 0:00</p> <p>DATE RECEIVED: 13-May-15</p> <p>REPORT CREATED: 03-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.01 ug/filter	0.01	NA-017	28-May-15

Qualifiers

- K Off-scale low. Actual value is known to be less than the value given
- T Value reported is less than the laboratory method detection limit
- U Compound was analyzed for but not detected
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Ops Manager

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050198-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 12, 2015</p> <p>CANISTER ID: TE-05</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.05	ug/filter	0.01	NA-017	28-May-15
2-Methylnaphthalene		0.10	ug/filter	0.01	NA-017	28-May-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Acenaphthene		0.01	ug/filter	0.01	NA-017	28-May-15
Acenaphthylene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Acridine	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Chrysene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Fluoranthene		0.02	ug/filter	0.01	NA-017	28-May-15
Fluorene		0.04	ug/filter	0.01	NA-017	28-May-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Naphthalene		0.05	ug/filter	0.01	NA-017	28-May-15
Perylene	K, T, U	< 0.01	ug/filter	0.01	NA-017	28-May-15
Phenanthrene		0.07	ug/filter	0.01	NA-017	28-May-15
Pyrene		0.02	ug/filter	0.01	NA-017	28-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050198-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 12, 2015</p> <p>CANISTER ID: TE-05</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 12-May-15 0:00</p> <p>DATE RECEIVED: 19-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Retene		0.01	ug/filter	0.01	NA-017	28-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 18, 2015</p> <p>CANISTER ID: TE-01</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.09 ug/filter	0.01	NA-017	29-May-15
2-Methylnaphthalene		0.16 ug/filter	0.01	NA-017	29-May-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Acenaphthene		0.02 ug/filter	0.01	NA-017	29-May-15
Acenaphthylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Acridine	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Benzo(b,j,k)fluoranthene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Chrysene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Fluoranthene		0.02 ug/filter	0.01	NA-017	29-May-15
Fluorene		0.04 ug/filter	0.01	NA-017	29-May-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Naphthalene		0.09 ug/filter	0.01	NA-017	29-May-15
Perylene	K, T, U	< 0.01 ug/filter	0.01	NA-017	29-May-15
Phenanthrene		0.09 ug/filter	0.01	NA-017	29-May-15
Pyrene		0.02 ug/filter	0.01	NA-017	29-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi LICA 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050298-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 18, 2015</p> <p>CANISTER ID: TE-01</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 18-May-15 0:00</p> <p>DATE RECEIVED: 25-May-15</p> <p>REPORT CREATED: 05-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/filter	0.01	NA-017	29-May-15

<p>Qualifiers</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p>	<p>Certified By: Graham Knox, Ops Manager</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-003</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 24, 2015</p> <p>CANISTER ID: P13-01</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.03	ug/Filter	0.01	NA-017	12-Jun-15
2-Methylnaphthalene		0.05	ug/Filter	0.01	NA-017	12-Jun-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthene		0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(c)phenanthrene		0.04	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Chrysene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Fluoranthene		0.02	ug/Filter	0.01	NA-017	12-Jun-15
Fluorene		0.03	ug/Filter	0.01	NA-017	12-Jun-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Naphthalene		0.04	ug/Filter	0.01	NA-017	12-Jun-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	12-Jun-15
Phenanthrene		0.10	ug/Filter	0.01	NA-017	12-Jun-15
Pyrene		0.02	ug/Filter	0.01	NA-017	12-Jun-15

<p>Qualifiers</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-003</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 24, 2015</p> <p>CANISTER ID: P13-01</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 24-May-15 0:00</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/Filter	0.01	NA-017	12-Jun-15

<p>Qualifiers</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15060054-004 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/EP/May 30, 2015 CANISTER ID: A13-02 DESCRIPTION: Elk Point Airport DATE SAMPLED: 30-May-15 0:00 DATE RECEIVED: 05-Jun-15 REPORT CREATED: 19-Jun-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.02 ug/Filter	0.01	NA-017	12-Jun-15
2-Methylnaphthalene		0.04 ug/Filter	0.01	NA-017	12-Jun-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthene		0.01 ug/Filter	0.01	NA-017	12-Jun-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Benzo(b,j,k)fluoranthene		0.01 ug/Filter	0.01	NA-017	12-Jun-15
Benzo(c)phenanthrene		0.02 ug/Filter	0.01	NA-017	12-Jun-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Fluoranthene		0.02 ug/Filter	0.01	NA-017	12-Jun-15
Fluorene		0.03 ug/Filter	0.01	NA-017	12-Jun-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Naphthalene		0.02 ug/Filter	0.01	NA-017	12-Jun-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	12-Jun-15
Phenanthrene		0.06 ug/Filter	0.01	NA-017	12-Jun-15
Pyrene		0.02 ug/Filter	0.01	NA-017	12-Jun-15

Qualifiers K Off-scale low. Actual value is known to be less than the value given T Value reported is less than the laboratory method detection limit U Compound was analyzed for but not detected I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit	Certified By: Graham Knox, Team Lead On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15060054-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/May 30, 2015</p> <p>CANISTER ID: A13-02</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 30-May-15 0:00</p> <p>DATE RECEIVED: 05-Jun-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.04 ug/Filter	0.01	NA-017	12-Jun-15

Qualifiers

- K Off-scale low. Actual value is known to be less than the value given
- T Value reported is less than the laboratory method detection limit
- U Compound was analyzed for but not detected
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Certified By: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

NMHC CANISTER

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/ELK/May 22, 2015</p> <p>CANISTER ID: S5647</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 22-May-15 6:20</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	I	0.03	ppbv	0.02	AC-058	28-May-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
1,1-Dichloroethane	I	0.03	ppbv	0.02	AC-058	28-May-15
1,1-Dichloroethylene	K, T, U	< 0.05	ppbv	0.04	AC-058	28-May-15
1,2,3-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.05	AC-058	28-May-15
1,2,4-Trichlorobenzene	K, T, U	< 1.0	ppbv	0.8	AC-058	28-May-15
1,2,4-Trimethylbenzene	I	0.11	ppbv	0.03	AC-058	28-May-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
1,2-Dichlorobenzene	K, T, U	< 0.04	ppbv	0.03	AC-058	28-May-15
1,2-Dichloroethane	I	0.05	ppbv	0.01	AC-058	28-May-15
1,2-Dichloropropane	I	0.05	ppbv	0.01	AC-058	28-May-15
1,3,5-Trimethylbenzene	I	0.10	ppbv	0.02	AC-058	28-May-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.3	AC-058	28-May-15
1,4-Dichlorobenzene	K, T, U	< 0.5	ppbv	0.4	AC-058	28-May-15
1,4-Dioxane	K, T, U	< 0.5	ppbv	0.4	AC-058	28-May-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	28-May-15
2,2,4-Trimethylpentane		3.36	ppbv	0.01	AC-058	28-May-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	28-May-15
2,3,4-Trimethylpentane		0.62	ppbv	0.01	AC-058	28-May-15
2,3-Dimethylbutane		0.52	ppbv	0.02	AC-058	28-May-15
2,3-Dimethylpentane		2.18	ppbv	0.02	AC-058	28-May-15
2,4-Dimethylpentane		0.74	ppbv	0.01	AC-058	28-May-15

<p>Qualifiers</p> <p>I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit</p> <p>K Off-scale low. Actual value is known to be less than the value given</p> <p>T Value reported is less than the laboratory method detection limit</p> <p>U Compound was analyzed for but not detected</p>	<p>Certified By: Graham Knox, Team Lead</p> <p>On behalf of: PJ Pretorius, Portfolio Manager, EAS</p> <p>Inquiries: (780) 632 8455</p> <p>E-mail: EAS.Results@albertainnovates.ca</p>
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<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/ELK/May 22, 2015</p> <p>CANISTER ID: S5647</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 22-May-15 6:20</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	I	0.05	ppbv	0.01	AC-058	28-May-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	28-May-15
2-Methylpentane	I	0.32	ppbv	0.01	AC-058	28-May-15
3-Methylheptane	I	0.06	ppbv	0.02	AC-058	28-May-15
3-Methylhexane	I	0.12	ppbv	0.02	AC-058	28-May-15
3-Methylpentane	I	0.25	ppbv	0.01	AC-058	28-May-15
Acetone		46.9	ppbv	0.4	AC-058	28-May-15
Acrolein	K, T, U	< 0.4	ppbv	0.3	AC-058	28-May-15
Benzene	I	0.23	ppbv	0.01	AC-058	28-May-15
Benzyl chloride	K, T, U	< 0.5	ppbv	0.4	AC-058	28-May-15
Bromodichloromethane		0.04	ppbv	0.02	AC-058	28-May-15
Bromoform	I	0.03	ppbv	0.02	AC-058	28-May-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	28-May-15
Carbon disulfide	I	0.30	ppbv	0.01	AC-058	28-May-15
Carbon tetrachloride	I	0.12	ppbv	0.01	AC-058	28-May-15
Chlorobenzene	I	0.05	ppbv	0.02	AC-058	28-May-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
Chloroform	I	0.05	ppbv	0.02	AC-058	28-May-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
cis-1,2-Dichloroethene	I	0.02	ppbv	0.01	AC-058	28-May-15
cis-1,3-Dichloropropene	K, T, U	< 0.05	ppbv	0.04	AC-058	28-May-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
cis-2-Pentene	I	0.03	ppbv	0.02	AC-058	28-May-15
Cyclohexane	I	0.21	ppbv	0.02	AC-058	28-May-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	28-May-15
Dibromochloromethane	I	0.04	ppbv	0.01	AC-058	28-May-15

Qualifiers

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
 K Off-scale low. Actual value is known to be less than the value given
 T Value reported is less than the laboratory method detection limit
 U Compound was analyzed for but not detected

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

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E-mail: EAS.Results@albertainnovates.ca

<p>RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE</p> <p>Calgary AB T2E 6P8</p> <p>INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15050334-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/ELK/May 22, 2015</p> <p>CANISTER ID: S5647</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 22-May-15 6:20</p> <p>DATE RECEIVED: 27-May-15</p> <p>REPORT CREATED: 19-Jun-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		3.7	ppbv	0.3	AC-058	28-May-15
Ethyl acetate		0.9	ppbv	0.4	AC-058	28-May-15
Ethylbenzene	I	0.12	ppbv	0.01	AC-058	28-May-15
Freon-11	I	0.34	ppbv	0.02	AC-058	28-May-15
Freon-113	I	0.13	ppbv	0.01	AC-058	28-May-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
Freon-12	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
Hexachloro-1,3-butadiene	K, T, U	< 0.60	ppbv	0.5	AC-058	28-May-15
Isobutane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
Isopentane		1.10	ppbv	0.03	AC-058	28-May-15
Isoprene	I	0.13	ppbv	0.01	AC-058	28-May-15
Isopropyl alcohol	K, T, U	< 0.5	ppbv	0.4	AC-058	28-May-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	28-May-15
m,p-Xylene	I	0.29	ppbv	0.03	AC-058	28-May-15
m-Diethylbenzene	K, T, U	< 0.05	ppbv	0.04	AC-058	28-May-15
m-Ethyltoluene	K, T, U	< 0.10	ppbv	0.08	AC-058	28-May-15
Methyl butyl ketone	K, T, U	< 0.60	ppbv	0.5	AC-058	28-May-15
Methyl ethyl ketone		2.1	ppbv	0.3	AC-058	28-May-15
Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.4	AC-058	28-May-15
Methyl methacrylate	K, T, U	< 0.08	ppbv	0.07	AC-058	28-May-15
Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.03	AC-058	28-May-15
Methylcyclohexane	I	0.36	ppbv	0.01	AC-058	28-May-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-May-15
Methylene chloride		0.4	ppbv	0.3	AC-058	28-May-15
n-Butane	K, T, U	< 0.04	ppbv	0.03	AC-058	28-May-15
n-Decane	I	0.14	ppbv	0.06	AC-058	28-May-15

Qualifiers

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

K Off-scale low. Actual value is known to be less than the value given

T Value reported is less than the laboratory method detection limit

U Compound was analyzed for but not detected

Certified By: Graham Knox, Team Lead

On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

RESULTS TO: Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE Calgary AB T2E 6P8 INVOICE TO: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	LABORATORY SAMPLE ID: 15050334-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/ELK/May 22, 2015 CANISTER ID: S5647 DESCRIPTION: Elk Point Airport DATE SAMPLED: 22-May-15 6:20 DATE RECEIVED: 27-May-15 REPORT CREATED: 19-Jun-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.5 ppbv	0.4	AC-058	28-May-15
n-Heptane	I	0.29 ppbv	0.01	AC-058	28-May-15
n-Hexane		0.51 ppbv	0.01	AC-058	28-May-15
n-Octane	I	0.08 ppbv	0.02	AC-058	28-May-15
n-Pentane	K, T, U	< 0.1 ppbv	0.1	AC-058	28-May-15
n-Propylbenzene	K, T, U	< 0.06 ppbv	0.05	AC-058	28-May-15
n-Undecane	K, T, U	< 0.6 ppbv	0.5	AC-058	28-May-15
Naphthalene	K, T, U	< 0.6 ppbv	0.5	AC-058	28-May-15
n-Nonane	I	0.07 ppbv	0.01	AC-058	28-May-15
o-Ethyltoluene	I	0.03 ppbv	0.01	AC-058	28-May-15
o-Xylene	I	0.13 ppbv	0.01	AC-058	28-May-15
p-Diethylbenzene	K, T, U	< 0.05 ppbv	0.04	AC-058	28-May-15
p-Ethyltoluene	K, T, U	< 0.08 ppbv	0.07	AC-058	28-May-15
Styrene	K, T, U	< 0.05 ppbv	0.04	AC-058	28-May-15
Tetrachloroethylene		1.18 ppbv	0.04	AC-058	28-May-15
Tetrahydrofuran	K, T, U	< 0.5 ppbv	0.4	AC-058	28-May-15
Toluene		2.16 ppbv	0.01	AC-058	28-May-15
trans-1,2-Dichloroethylene	I	0.03 ppbv	0.01	AC-058	28-May-15
trans-1,3-Dichloropropylene	I	0.05 ppbv	0.04	AC-058	28-May-15
trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	28-May-15
trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	28-May-15
Trichloroethylene	K, T, U	< 0.05 ppbv	0.04	AC-058	28-May-15
Vinyl acetate		5.9 ppbv	0.4	AC-058	28-May-15
Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	28-May-15

Qualifiers I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit K Off-scale low. Actual value is known to be less than the value given T Value reported is less than the laboratory method detection limit U Compound was analyzed for but not detected	Certified By: Graham Knox, Team Lead On behalf of: PJ Pretorius, Portfolio Manager, EAS Inquiries: (780) 632 8455 E-mail: EAS.Results@albertainnovates.ca
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APPENDIX V
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: Lakeland Industry & Community Association

Project #: 196-2015-05-93- C

Site: Elk Point Airport Site

Contact: Mike Bisaga

QA Check Complete WAdmha Date 22 - June - 2015

QA Check Review WAdmha Date 22 - June - 2015

Report Complete WAdmha Date 24 - June - 2015

Report Reviewed E. Tangang Date 24 - Jun - 15

Report Shipped _____ Date _____

Notes