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October 20, 2015

RE: August 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 #:2833-2015-08-01- C

AUGUST 2015

Prepared for:

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

DATE: **September 28, 2015**

Prepared by:



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Reviewed by:



Lily Lin, B.Sc.

Senior Project Manager, Air Services, Maxxam Analytics

SUMMARY

In AUGUST 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.

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

PM 2.5: Twenty-five hours of data were invalidated as the data were below -3 ug/m^3 this month.

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 Cold Lake South Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	1-HOUR					24-HOUR		
	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO2 (PPB)	172	48	0	0	0	3	2	8	1	W	0.9	29	100.0
TRS (PPB)	-	-	-	-	0	7	12	0	1.1	NNW	1.2	13	100.0
THC (PPM)	-	-	-	-	2.2	3.2	11, 13	6, 4	0.8 0.7	W SW	2.4	VAR	100.0
NO2 (PPB)	159	-	0	-	1.6	6.6	24	20	1.3	ENE	2.6	31	100.0
NO (PPB)	-	-	-	-	0.4	8.7	27	7	1.2	WSW	1.0	27	100.0
NOX (PPB)	-	-	-	-	2.0	12.6	27	7	1.2	WSW	3.0	27,31	100.0
O3 (PPB)	82	-	0	-	20	58	28	13	6	S	31.8	30	100.0
PM2.5 (UG/M3)	-	30	-	0	6.3	40.0	27, 28	15, 17	7 10.2	SW SE	19.6	28	96.6
RELATIVE HUMIDITY (%)	-	-	-	-	70.5	100	6	VAR	VAR	VAR	96.2	5	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	16.9	31.9	13	15	6.7	SW	23.0	13	100.0
VECTOR WS (KPH)	-	-	-	-	5.0	16.8	29	23	-	SE	8.4	4	100.0
VECTOR WD (DEG)	-	-	-	-	WSW	-	-	-	-	-	-	-	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

NO₂ 1- Hour Exceedences

No Exceedences Recorded During the Month

PM_{2.5} 24- Hour Exceedences

No Exceedences Recorded During the Month

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
AUGUST 4, 2015	4.20	ACETONE
AUGUST 10, 2015	7.00	ACETONE
AUGUST 16, 2015	2.30	ACETONE
AUGUST 22, 2015	4.30	ACETONE
AUGUST 28, 2015	5.50	ACETONE

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
AUGUST 4, 2015	0.31	PHENANTHRENE
AUGUST 10, 2015	0.17	PHENANTHRENE
AUGUST 16, 2015	0.25	PHENANTHRENE
AUGUST 22, 2015	0.13	PHENANTHRENE
AUGUST 28, 2015	0.30	PHENANTHRENE

Note: NA

Partisol Sampler Summary

Sample Collected Date	Concentration (mg)
AUGUST 4, 2015	0.102
AUGUST 10, 2015	0.068
AUGUST 16, 2015	0.026
AUGUST 22, 2015	0.011
AUGUST 28, 2015	0.390

Note: NA

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	Oxides of Nitrogen
	Nitric Oxides
	Nitrogen Dioxide
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	Particulate Matter 2.5
	Wind Speed
	Wind Direction
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Appendix II	Non-Continuous Monitoring Data Results
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Appendix IV

Analytical Results

VOCs Samples

PAHs Samples

Partisol Samples

Chain of Custody

Appendix V

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 Ambient Temperature. It also includes reports for non-continuous parameters 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 analyzer was working well throughout the month.
The routine monthly calibration was performed on August 10.

TOTAL REDUCED SULPHUR (TRS)

The analyzer spanned low on July 30. An as found points check was completed on August 2. The check result was within acceptance limits. The routine monthly calibration was completed on August 10.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on August 11.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on August 10.

OZONE (O₃)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on August 11.

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

Two audits were performed on this month: one was completed on August 7, and the other audit was performed on August 26. Both the inlet filter and the FDMS filter were replaced on August 7. 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. Twenty-five hours of data were invalidated as the data were below -3 ug/m³ this month.

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

No passive results are included in this monthly report as the sampling program is based on a two-month sample collection period.

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 in ppb.

Samples were collected on August 4, 10, 16, 22 and 28. Analytical 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 in µg.

Samples were collected on August 4, 10, 16, 22 and 28. Analytical 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 in mg.

Samples were collected on August 4, 10, 16, 22 and 28. Analytical 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.

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-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.

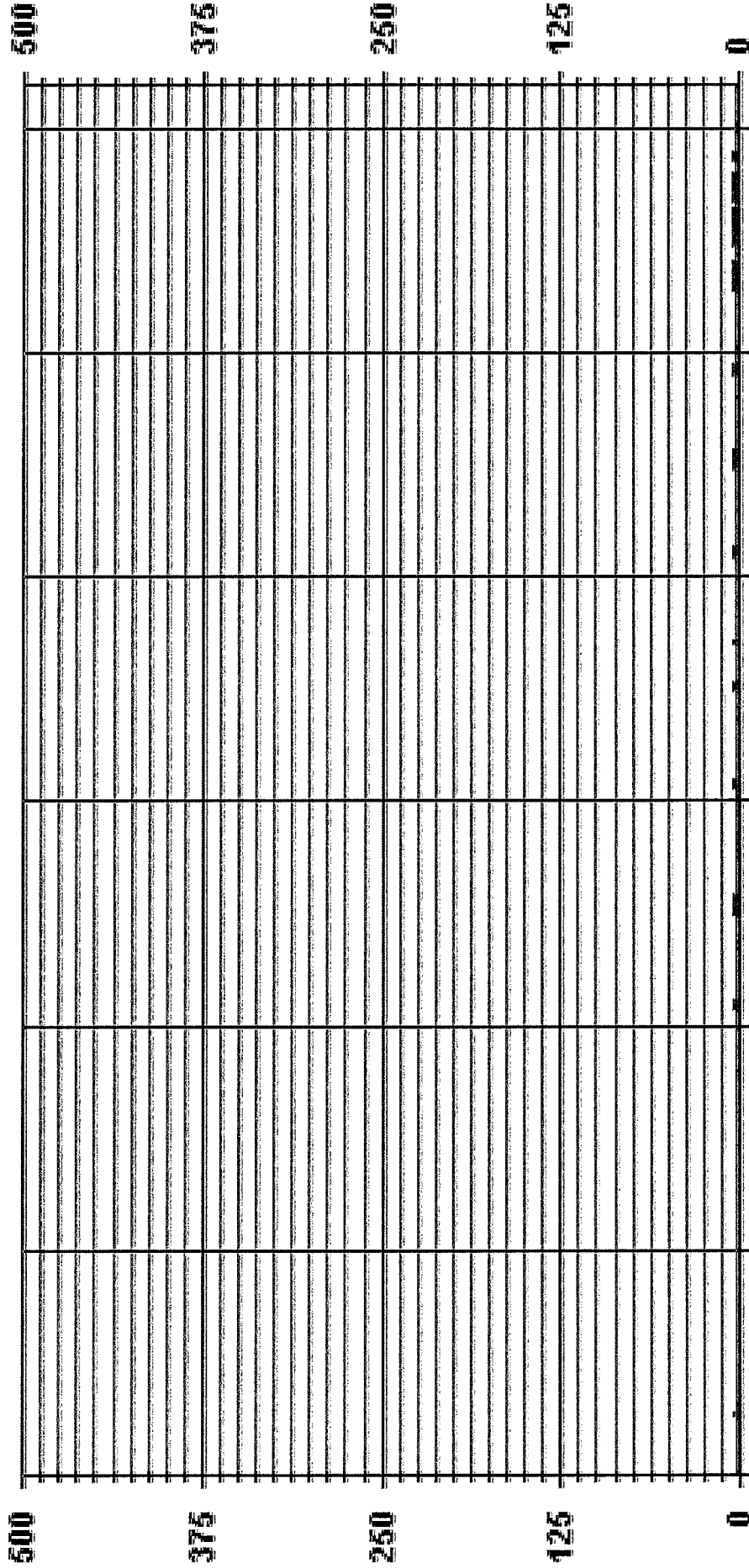
The following instruments were used to perform the test program:

- 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

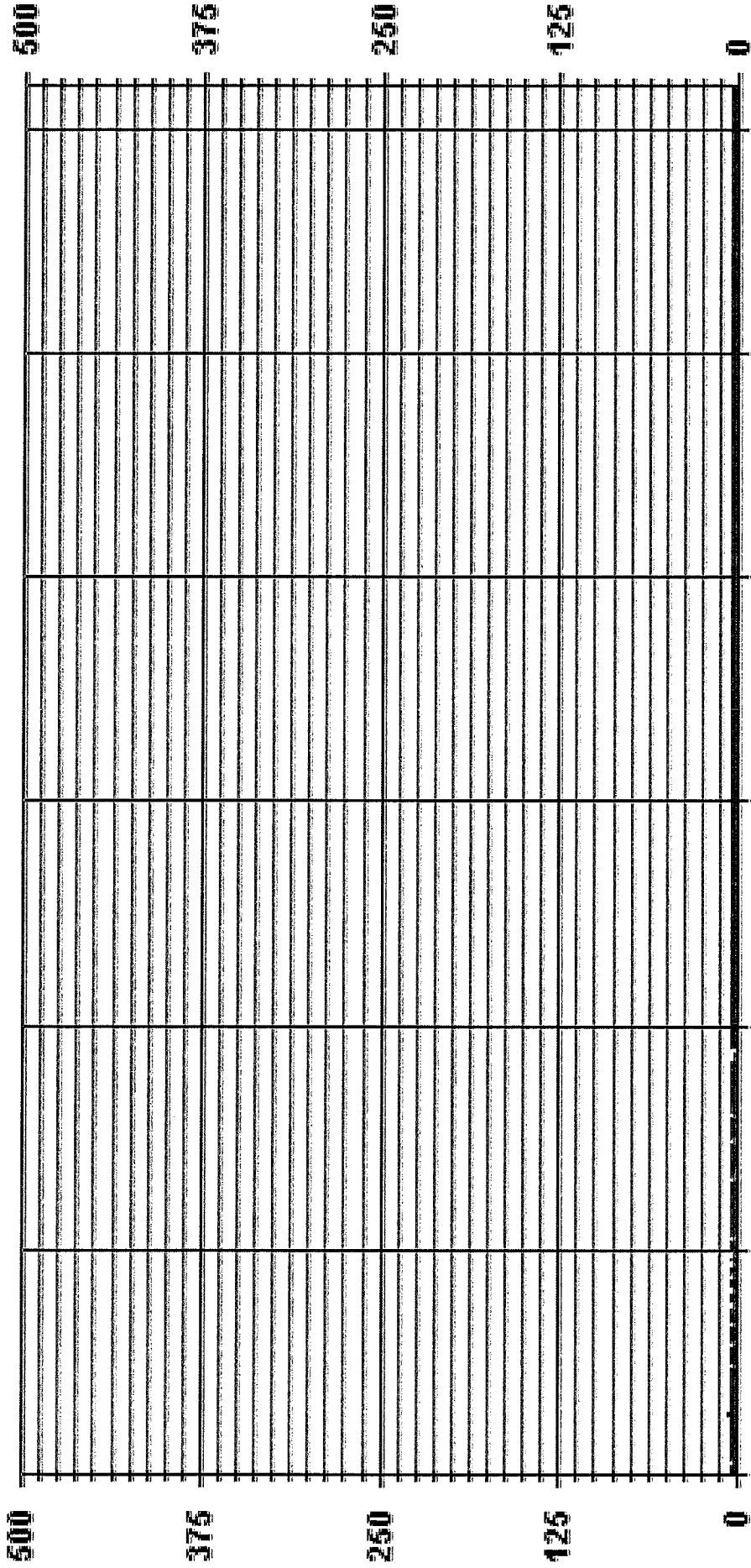
01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA S02_ PPB

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA SO2MAX PPB

LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

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

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	2.96	4.09	3.10	3.67	6.07	6.49	12.71	5.36	3.81	4.80	6.21	11.44	9.60	8.89	6.92	3.81	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	2.96	4.09	3.10	3.67	6.07	6.49	12.71	5.36	3.81	4.80	6.21	11.44	9.60	8.89	6.92	3.81	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

Direction

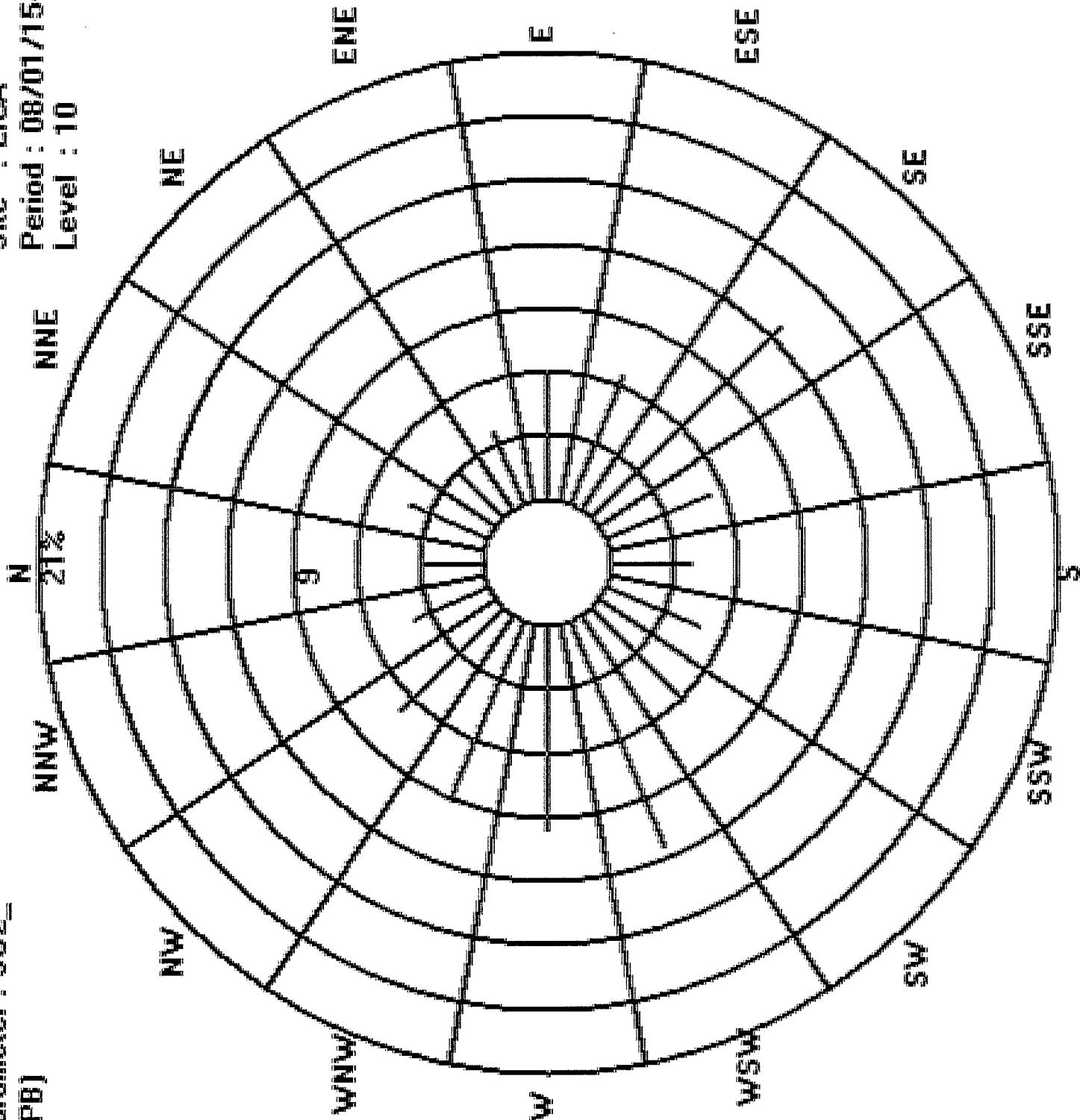
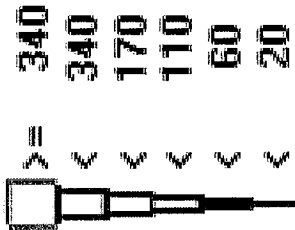
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	21	29	22	26	43	46	90	38	27	34	44	81	68	63	49	27	708
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	21	29	22	26	43	46	90	38	27	34	44	81	68	63	49	27	

Calm : .00 %

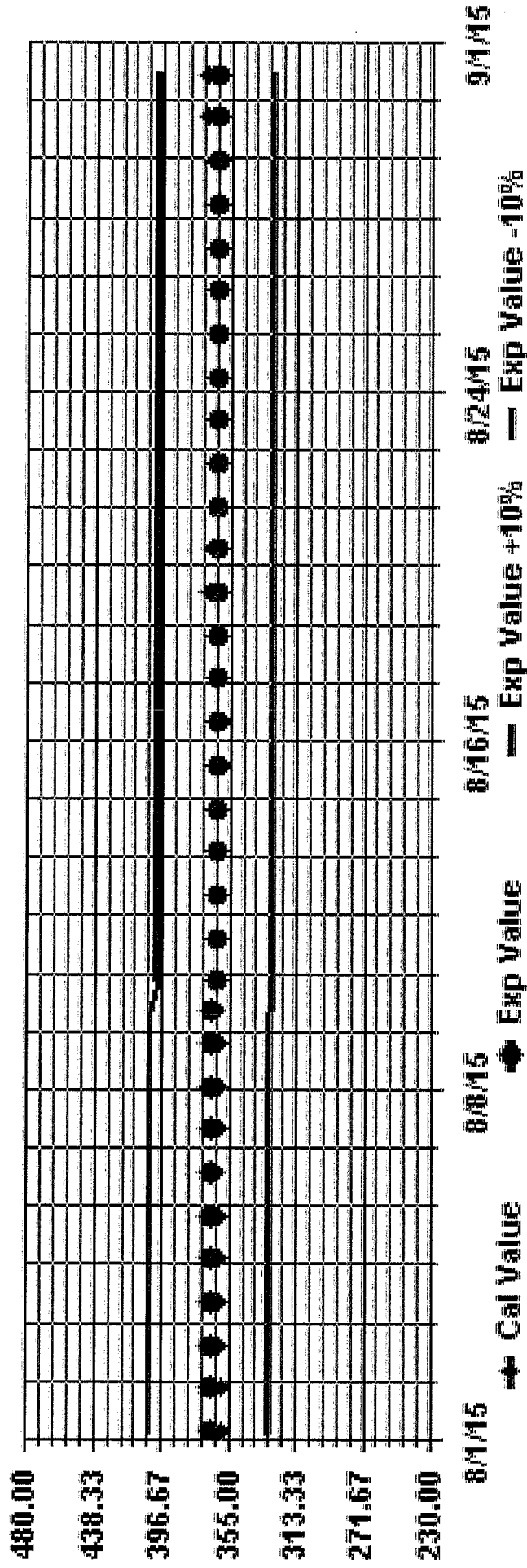
Total # Operational Hours : 708

Site : LICA
 Period : 08/01/15-08/31/15
 Level : 10

Logger : 01 Parameter : SO2_



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



TOTAL REDUCED SULPHUR



TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

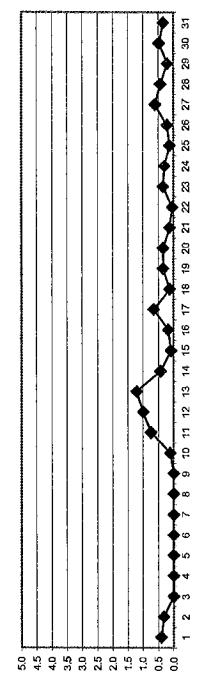
MST

DAY	HOUR																								DAILY MAX	24-HOUR AVG	ROGS		
	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	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.4	24	
2	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	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	1	1	1	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
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0.7	24
13	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
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	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	1	2	2	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24
18	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	0.1	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	0.3	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	0.1	24
21	1	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	0.1	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	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	1	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	0.3	24
25	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	0.1	24
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	0	0	0.2	24
27	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	0.6	24
28	2	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	0.4	24
29	1	1	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	0.2	24
30	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	1	0.5	24
31	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	1	0.3	24
HOURLY MAX	7	2	2	2	2	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	
HOURLY AVG	0.8	0.6	0.6	0.4	0.5	0.7	0.7	0.5	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	0.1	0.7	0.7	

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	OUTSIDE REPAIR	K	COLLECTION ERROR

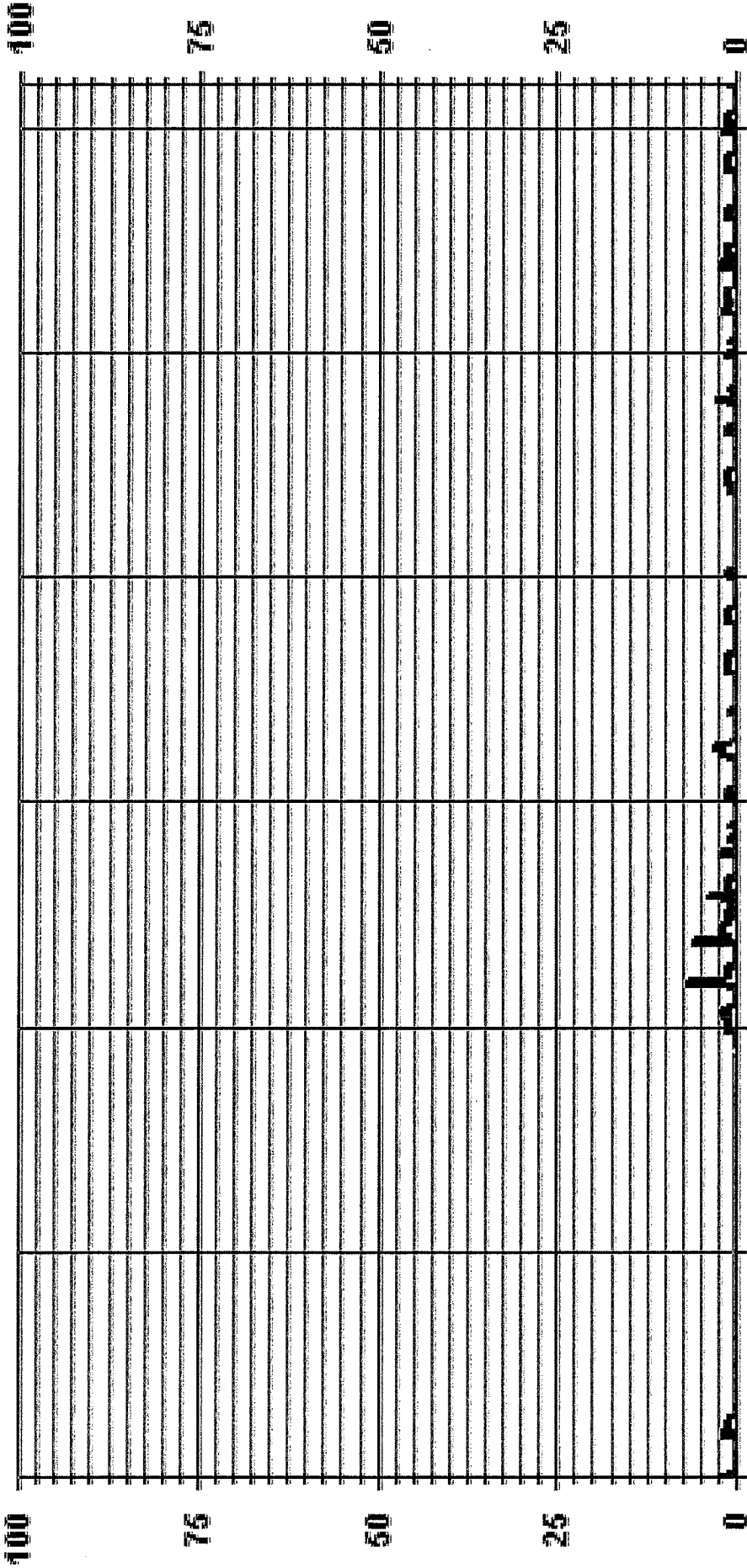
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

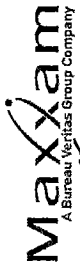
NUMBER OF NON-ZERO READINGS:	160	ON DAY(S)	12
MAXIMUM 1-HR AVERAGE:	7 PPB	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	1.2 PPB	VAR-VARIOUS	
IZS CALIBRATION TIME:	35 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	9 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.67	MONTHLY AVERAGE:	0 PPB

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

-- LICA TRS_ PPB



TOTAL REDUCED SULPHUR 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.	ROGS.		
1	9	2	2	1	1	6	6	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	2.3	24	
2	1	5	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.3	24	
3	0	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	0.9	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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.1	24	
12	21	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	14	2.1	24	
13	14	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	3.6	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	14	3.3	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	9	1.6	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	2	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	2	1.2	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	4	1.7	24	
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.0	24
20	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	1.2	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	2	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	2	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	2	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	2	1.1	24	
25	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	8	1.6	24	
26	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6	1.3	24	
27	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	7	1.6	24	
28	7	6	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	1.7	24	
HOURLY MAX	21	6	3	4	3	6	4	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	1.7	24	
HOURLY AVG	3.0	1.6	1.4	1.4	1.4	1.7	1.6	1.3	1.2	1.2	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	1.3	3.2	4.3		

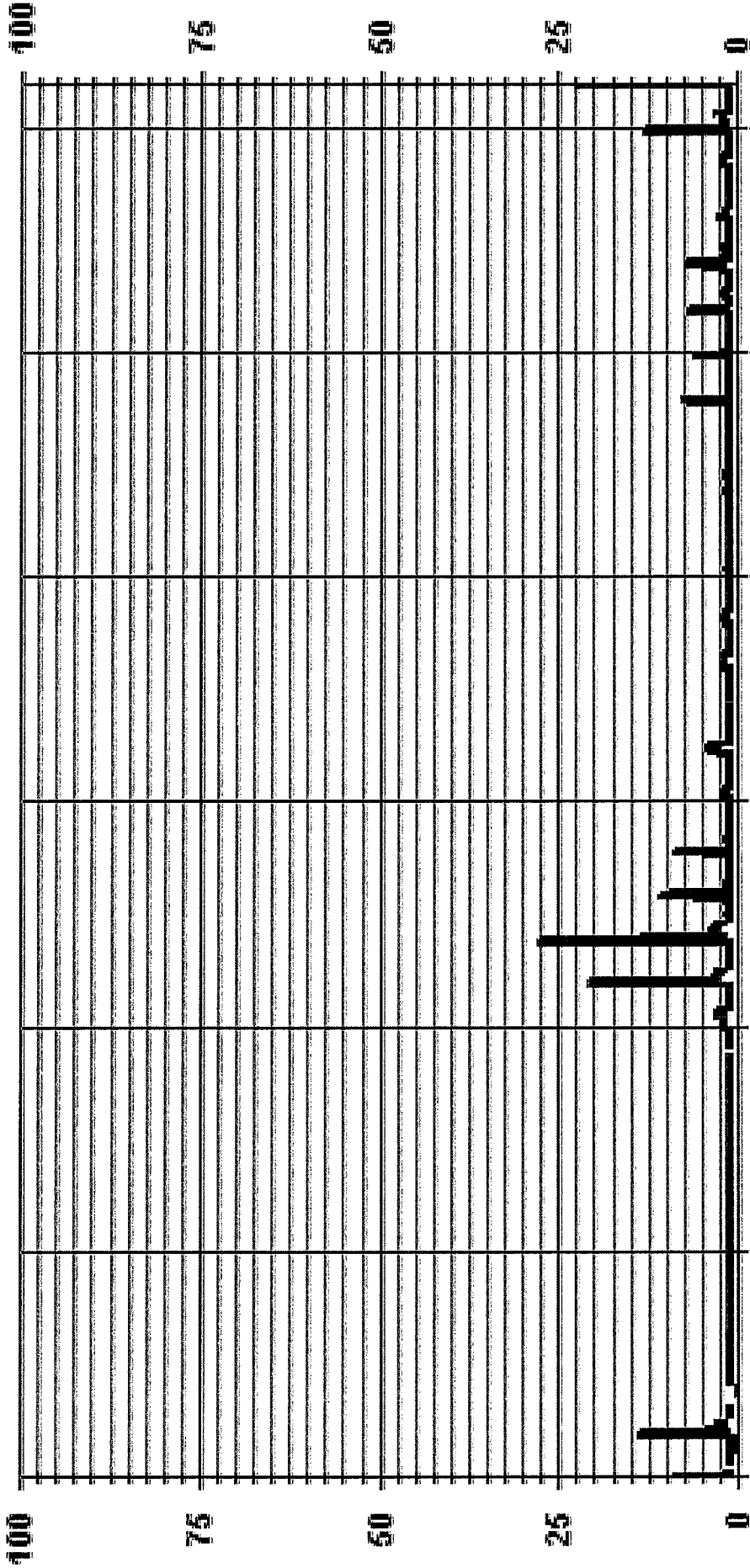
STATUS FLAG CODES

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:	688
MAXIMUM INSTANTANEOUS VALUE:	28 PPB @ HOUR(S) 22 ON DAY(S) 12
IZS CALIBRATION TIME:	37 HRS
MONTHLY CALIBRATION TIME:	11 HRS
STANDARD DEVIATION:	2.06
OPERATIONAL TIME:	744 HRS
VAR-VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA TRSMAX PPB

LICA
 TFS_ / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : TFS
 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	
< 3	2.85	4.14	3.14	3.71	6.14	6.42	12.85	5.42	3.85	4.71	6.14	10.71	9.57	8.85	6.71	3.71	99.00
< 10	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.28	.00	.00	.28	.14	1.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.00	4.14	3.14	3.71	6.14	6.42	12.85	5.42	3.85	4.71	6.28	11.00	9.57	8.85	7.00	3.85	

Calm : .00 %

Total # Operational Hours : 700

Distribution By Samples

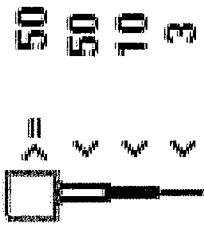
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	20	29	22	26	43	45	90	38	27	33	43	75	67	62	47	26	693
< 10	1									1	2				2	1	7
< 50																	
>= 50																	
Totals	21	29	22	26	43	45	90	38	27	33	44	77	67	62	49	27	

Calm : .00 %

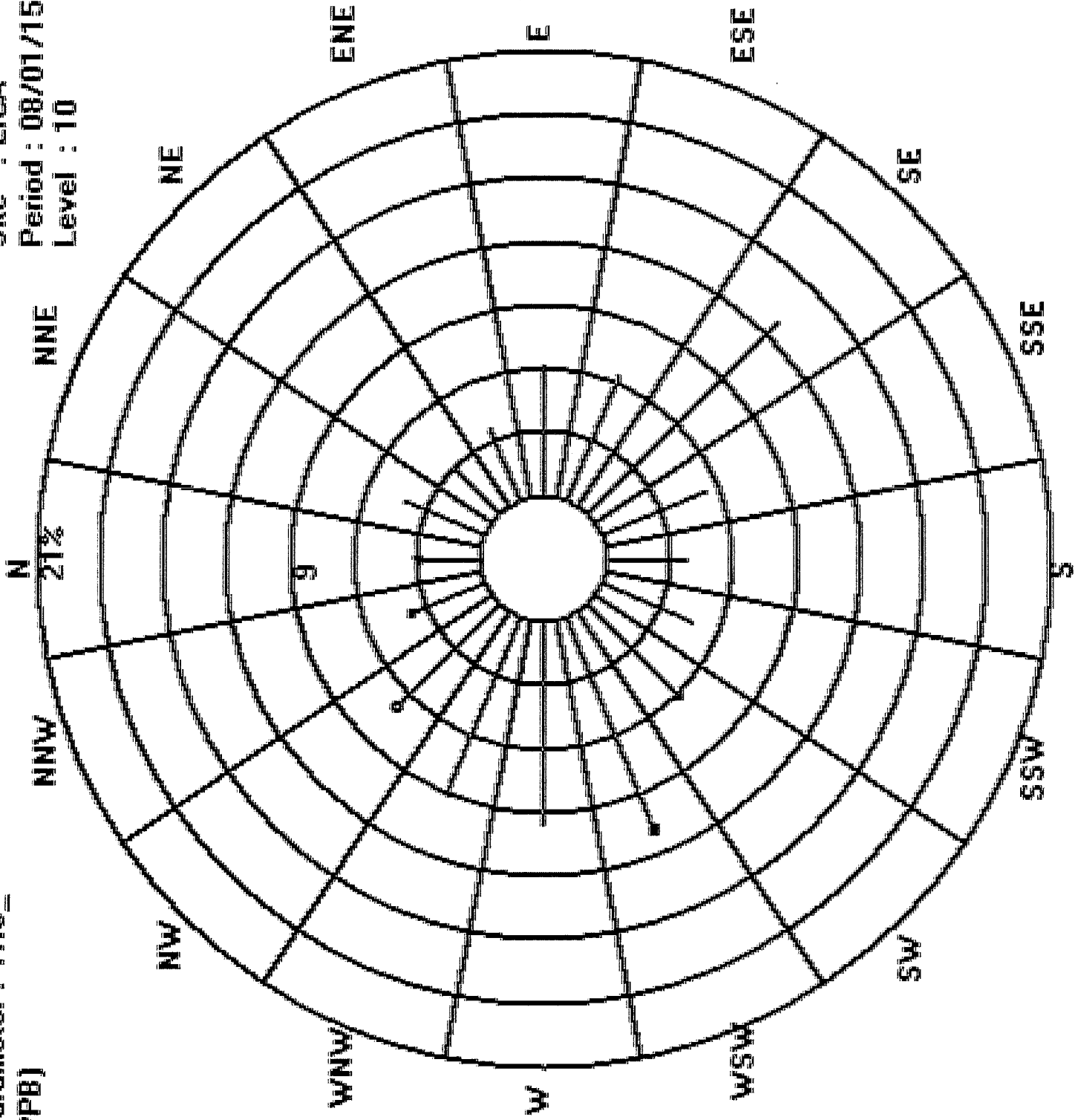
Total # Operational Hours : 700

Logger : 01 Parameter : TRS_

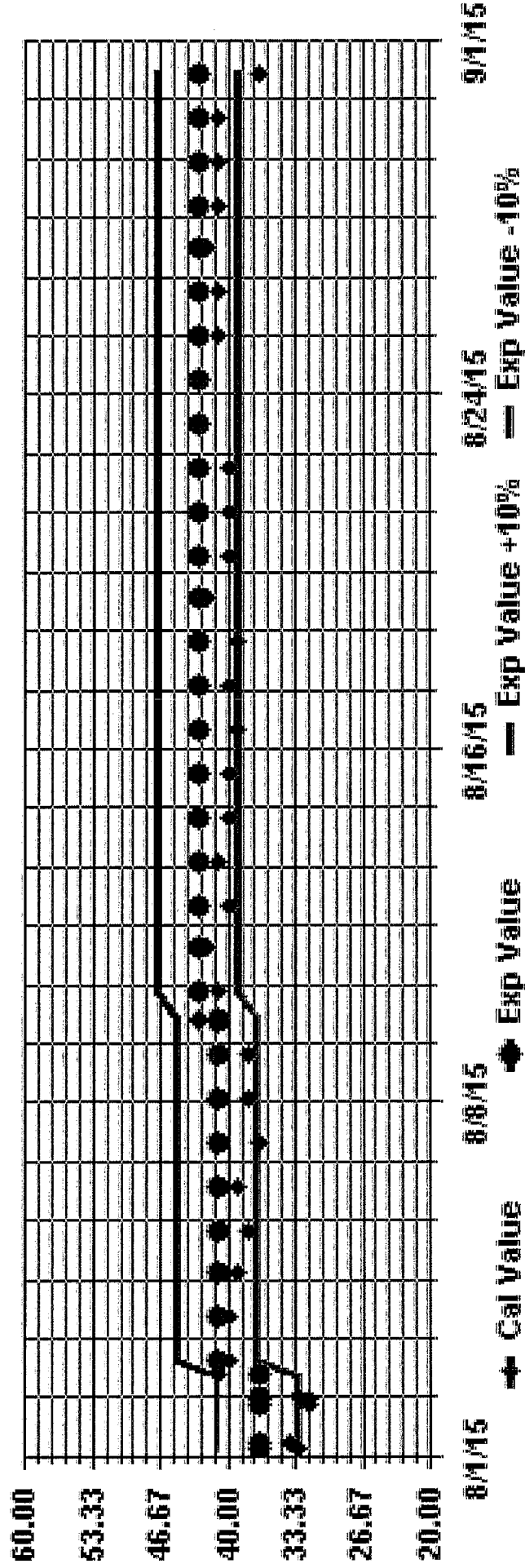
Class Limits (PPB)



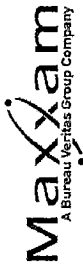
Site : LICA
Period : 08/01/15-08/31/15
Level : 10



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



TOTAL HYDROCARBON

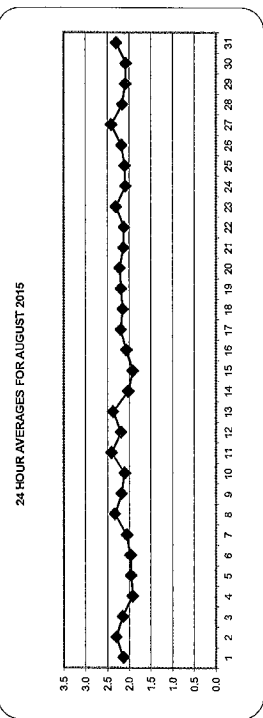


TOTAL HYDROCARBONS (THC) hourly averages in ppm

DAY	24-HOUR AVG.																										
	00:00	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	ROGS		
1	2.1	2.2	2.3	2.3	2.3	2.2	2.3	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.4	2.1	24
2	2.4	2.5	2.6	2.5	2.5	2.7	2.8	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
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	2.1	2.1	2.1	2.1	24
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	2.0	24
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	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	2.0	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	24
8	2.5	2.4	2.5	2.7	2.7	2.6	2.5	2.3	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	24
9	2.2	2.4	2.4	2.4	2.4	2.5	2.5	2.2	2.1	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	24
10	2.0	2.0	2.1	1.9	1.9	2.0	2.0	2.0	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	24
11	2.5	3.0	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	24
12	2.3	2.5	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	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	24
13	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	2.6	2.6	24
14	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	24
15	2.0	2.0	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
16	2.0	2.0	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
17	2.3	2.5	2.5	2.6	2.8	2.9	2.7	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	2.0	2.0	2.0	2.0	2.0	24
18	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
19	2.6	2.4	2.6	2.7	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	2.1	24
20	2.3	2.4	2.5	2.5	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	2.4	2.4	24
21	2.2	2.2	2.3	2.4	2.5	2.6	2.5	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
22	2.1	2.1	2.1	2.1	2.1	2.2	2.3	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
23	2.4	2.6	2.6	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	24
24	2.0	2.0	2.1	2.3	2.4	2.3	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	2.0	24
25	2.3	2.2	2.3	2.3	2.4	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	24
26	2.5	2.6	2.9	2.9	2.9	2.8	2.9	3.1	2.7	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	2.3	2.3	2.3	24
27	2.5	2.7	2.3	1.8	1.8	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	2.0	2.0	2.0	2.0	24
28	2.5	2.8	2.7	2.7	2.8	2.3	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	24
29	1.8	1.9	2.0	2.0	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	2.0	2.0	24
30	2.2	2.3	2.4	2.7	2.9	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	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24
31	2.6	3.0	2.9	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.1	24
HOURLY MAX	2.2	2.3	2.3	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	2.4	2.4	2.4	24
HOURLY AVG	2.2	2.3	2.3	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	2.4	2.4	2.4	24

STATUS FLAG CODES

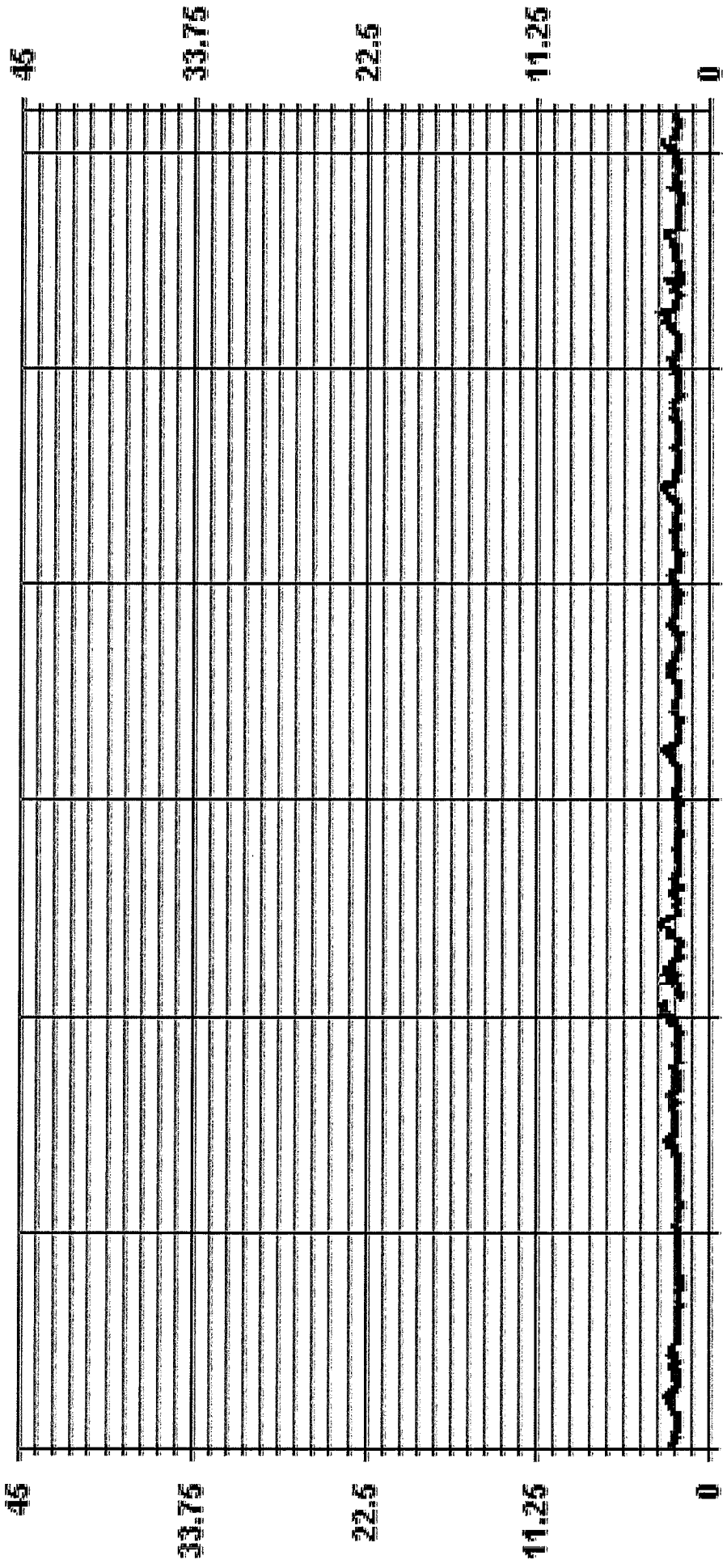
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/ALIGNMENT
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707	PPM @ HOUR(S)	6, 4	ON DAY(S)	11, 13
MAXIMUM 1-HR AVERAGE:	3.2	PPM	6, 4	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	2.4	PPM		VAR-VARIOUS	
IS CALIBRATION TIME:	37	HRS		OPERATIONAL TIME:	744
MONTHLY CALIBRATION TIME:	0	HRS		AMTD OPERATION UPTIME:	100.0
STANDARD DEVIATION:	0.26			MONTHLY AVERAGE:	2.2
					2.3

01 Hour Averages



08:00/15 00:00/08/16/15 00:00/08/21/15 00:00/08/26/15 00:00/08/31/15 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
HOURLY MAX	2.6	2.8	2.9	2.6	3.0	2.4	2.9	2.3	2.3	2.2	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
HOURLY AVG	3.4	4.3	3.8	3.5	3.8	3.8	3.8	3.9	3.1	2.6	2.5	2.4	2.8	3.0	4.0	2.5	2.3	2.8	3.4	4.9	3.7	3.4	3.4	3.6	
1	2.6	2.8	2.9	2.6	S	3.0	3.0	2.9	2.3	2.2	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	2.7	2.7	2.8	S	3.0	3.0	3.0	2.9	2.3	2.2	2.3	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	
3	2.8	2.3	S	3.3	2.8	2.5	2.5	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	
4	2.1	S	2.1	2.1	2.1	2.1	2.1	2.0	2.0	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	
5	S	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	2.1	2.8	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	
6	2.1	2.6	2.4	2.7	2.6	3.5	2.3	2.2	2.0	2.1	2.0	2.0	2.0	S	S	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
7	2.1	2.1	2.1	2.2	2.3	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	
8	2.9	2.8	2.8	3.1	3.0	2.7	2.7	2.5	2.4	2.4	2.3	2.2	2.3	2.2	2.7	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
9	2.5	2.7	3.0	2.6	2.9	3.3	2.6	2.2	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	
10	2.1	2.1	2.2	2.1	2.0	2.5	2.6	2.4	2.2	2.3	2.5	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	
11	3.2	3.7	3.3	3.1	S	3.8	3.8	C	C	C	C	C	C	C	C	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
12	2.9	3.0	3.3	S	3.5	3.3	3.0	2.5	2.3	2.2	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	
13	3.1	3.1	S	3.5	3.8	3.4	3.2	3.6	2.7	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	
14	2.0	S	2.8	2.7	2.5	2.4	2.5	2.7	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	2.0	2.0	2.0	
15	S	1.9	2.0	2.0	2.1	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	
16	2.0	2.1	2.2	2.5	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	2.1	2.1	2.1	2.1	2.1	
17	2.7	2.8	2.6	3.1	3.0	3.1	3.0	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	
18	2.6	3.0	2.3	2.3	2.3	2.4	2.2	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	
19	2.8	2.6	2.8	2.8	2.7	2.6	2.6	2.9	2.6	2.3	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	
20	2.5	2.6	2.8	2.8	2.6	2.6	2.6	2.6	2.6	2.3	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	
21	2.5	2.4	2.5	2.7	2.7	2.8	2.7	2.7	2.7	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	
22	2.2	2.2	2.2	2.2	2.3	2.5	2.5	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	2.2	2.2	2.2	
23	2.6	2.7	2.8	2.9	3.0	3.0	3.0	3.1	3.2	3.0	2.5	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	
24	2.1	2.1	2.3	2.5	3.1	2.4	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	
25	2.5	2.4	2.7	2.5	2.5	2.8	2.6	2.9	2.4	2.2	2.2	2.2	2.2	S	3.0	2.1	2.2	2.1	2.1	2.2	2.3	2.4	2.9	3.2	
26	2.7	2.5	2.5	2.5	2.8	2.6	2.9	2.4	2.2	2.2	2.2	2.2	2.2	S	3.0	2.1	2.2	2.1	2.1	2.2	2.3	2.4	2.9	3.2	
27	3.3	3.2	3.3	3.3	3.2	3.0	3.3	3.9	3.1	2.6	2.4	S	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.2	2.5	2.7	2.9	3.6	
28	3.0	3.5	3.0	2.1	2.3	2.5	2.7	2.4	2.2	2.2	S	2.4	2.2	2.2	2.4	2.3	2.2	2.3	2.3	2.4	2.4	2.5	2.4	2.8	
29	3.4	4.3	3.8	3.1	3.4	2.8	2.1	2.2	2.1	S	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.5	
30	2.0	2.2	2.5	2.2	3.1	2.3	2.4	2.1	S	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.4	2.1	2.7	2.7	3.1	
31	2.5	2.7	2.5	2.8	3.3	3.5	3.3	S	2.6	2.3	2.3	2.2	2.7	2.3	2.2	2.3	2.1	2.2	2.9	3.4	2.4	2.4	2.6	2.6	
MONTHLY MAX	3.4	4.3	3.8	3.5	3.8	3.8	3.8	3.9	3.1	2.6	2.5	2.4	2.8	3.0	4.0	2.5	2.3	2.8	3.4	4.9	3.7	3.4	3.4	3.6	
MONTHLY AVG	2.6	2.7	2.6	2.6	2.8	2.7	2.7	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.5	2.6	2.6	2.6	

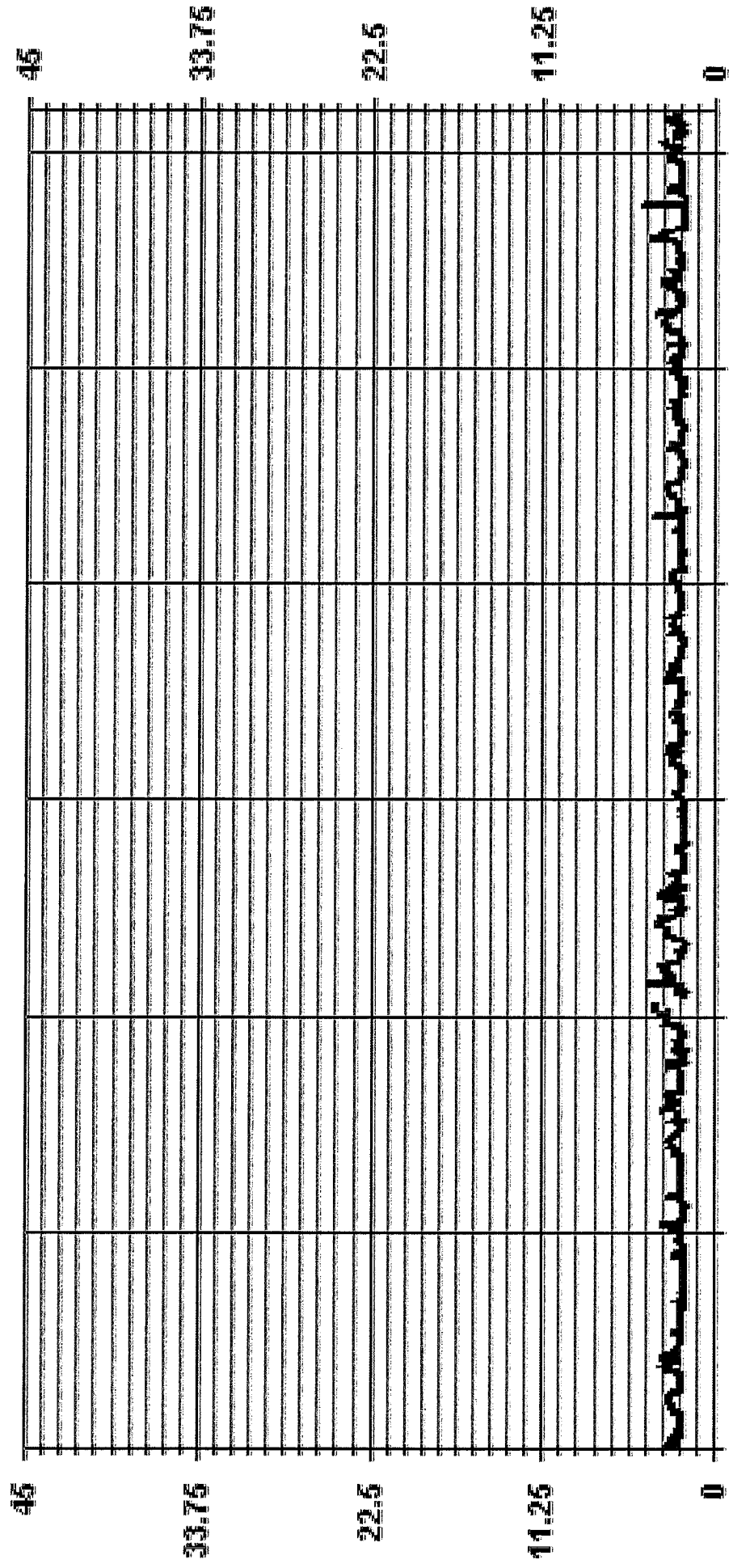
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705
MAXIMUM INSTANTANEOUS VALUE:	4.9 PPM @ HOUR(S) 19 ON DAY(S) 29
IZS CALIBRATION TIME:	34 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	0.43
VAR-VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA THCMAX PPM

LICA
THC / WD Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.97	4.10	2.97	3.53	6.08	6.36	12.72	5.23	3.81	4.80	5.79	10.60	9.47	9.47	6.93	3.81	98.72
< 10.0	.00	.00	.00	.14	.00	.14	.00	.14	.00	.00	.28	.42	.14	.00	.00	.00	1.27
< 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	2.97	4.10	2.97	3.67	6.08	6.50	12.72	5.37	3.81	4.80	6.08	11.03	9.61	9.47	6.93	3.81	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples





Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	21	29	21	25	43	45	90	37	27	34	41	75	67	67	49	27	698
< 10.0				1		1		1		2	3	1					9
< 50.0																	
>= 50.0																	
Totals	21	29	21	26	43	46	90	38	27	34	43	78	68	67	49	27	

Calm : .00 %

Total # Operational Hours : 707

Logger : 01 Parameter : THC

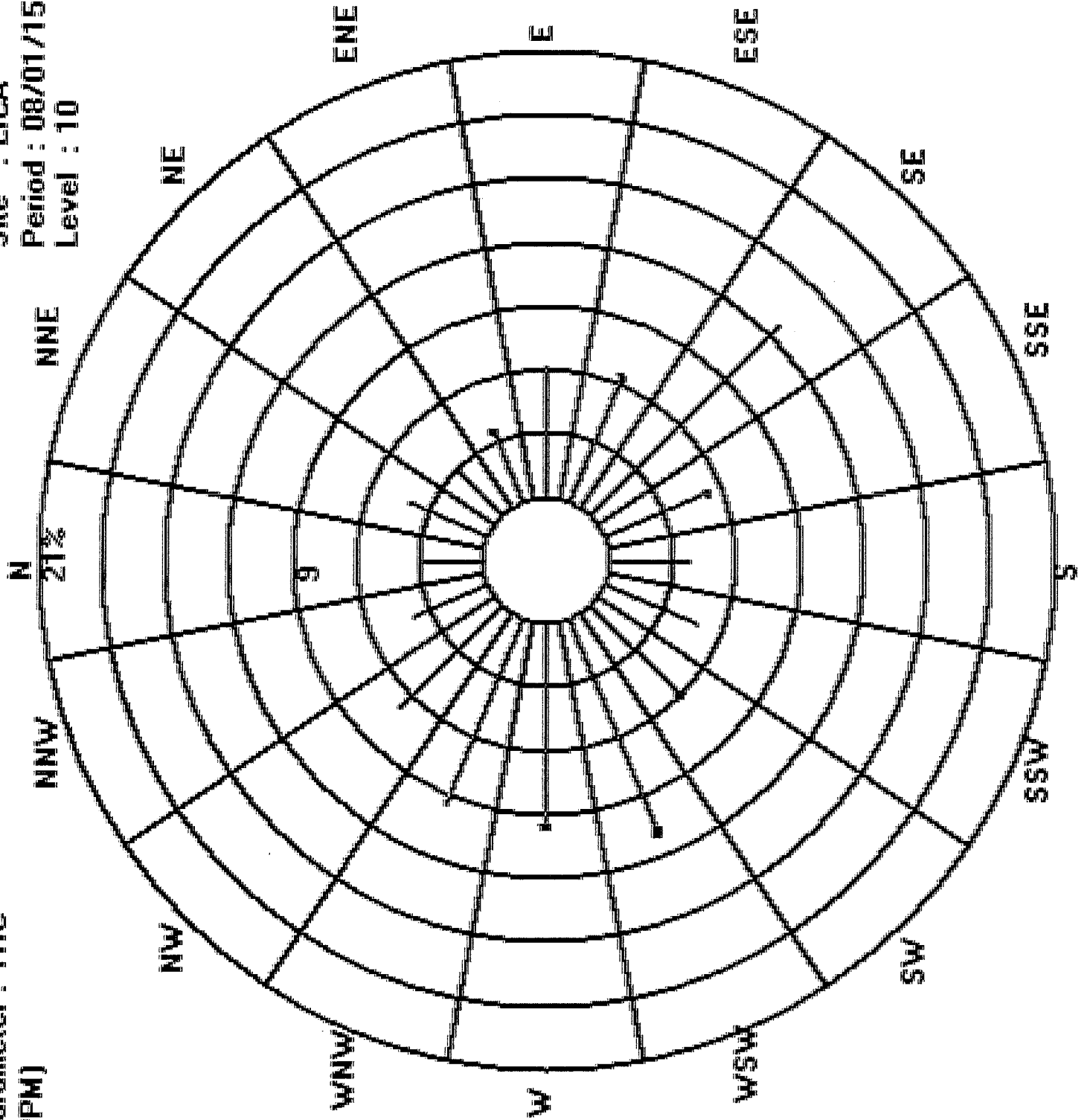
Class Limits (PPM)

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

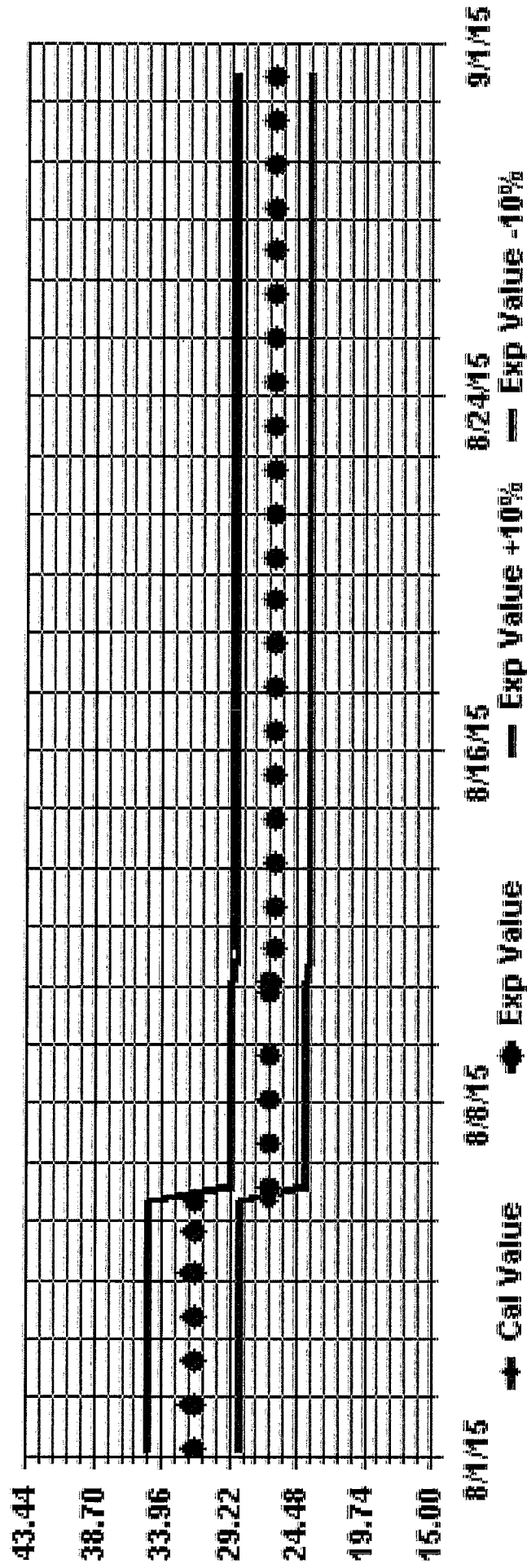
Site : LICA

Period : 08/01/15-08/31/15

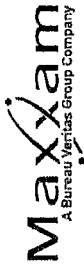
Level : 10



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



OXIDES OF NITROGEN



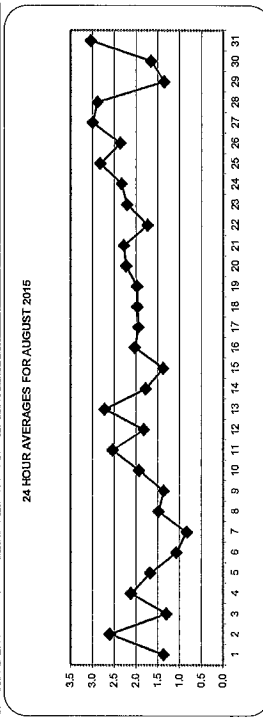
OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST

DAY	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 AVE.	RDS.
1	1.0	1.4	1.7	1.9	\$	1.5	4.3	3.4	1.1	1.4	1.7	0.8	0.7	0.4	0.3	0.4	0.5	0.7	0.5	0.9	1.6	1.6	1.7	1.8	4.3	1.4	24
2	1.8	1.6	2.3	\$	2.7	3.3	6.1	6.2	10.6	5.9	2.6	0.8	0.7	0.7	0.6	0.4	0.4	0.4	0.6	1.4	2.4	2.6	2.7	2.4	10.5	2.5	24
3	1.5	0.8	\$	1.2	0.8	2.6	2.9	1.4	1.1	1.5	1.2	1.0	1.4	1.5	0.8	1.1	2.0	1.0	1.4	0.9	1.1	1.2	0.9	0.6	2.9	1.3	24
4	0.4	\$	0.8	0.8	0.7	0.9	1.5	2.5	2.7	2.9	5.2	3.5	4.5	3.5	9.1	1.1	1.2	1.6	1.5	0.6	1.3	0.8	0.8	0.7	9.1	2.1	24
5	\$	0.9	0.9	0.8	1.1	1.2	1.2	1.8	1.8	2.1	2.1	2.3	1.5	2.0	2.5	2.0	1.4	2.1	3.8	1.6	0.9	1.2	\$	3.8	1.7	24	
6	1.0	1.3	1.5	1.1	1.3	2.2	2.6	1.4	0.9	0.8	0.7	0.5	0.5	0.7	0.4	0.6	0.7	1.5	1.5	1.5	\$	0.7	2.6	1.1	2.4	1.1	24
7	0.6	0.4	0.7	0.6	1.1	0.6	0.4	2.0	2.0	2.0	0.3	0.1	0.3	0.3	0.7	0.7	0.9	1.0	0.6	0.5	1.3	\$	2.1	1.2	2.1	0.8	24
8	1.7	3.1	2.0	1.5	1.3	2.9	4.6	1.8	1.3	0.8	0.8	0.5	0.3	0.4	0.7	0.9	0.6	0.9	1.3	\$	1.9	2.0	1.5	4.6	1.5	24	
9	1.8	2.0	1.5	2.5	1.7	2.1	1.8	1.5	1.2	1.0	1.1	0.7	0.5	0.5	0.4	0.6	0.4	0.6	1.0	\$	2.8	3.2	1.6	0.9	3.2	1.4	24
10	1.2	1.3	2.0	1.9	1.7	2.8	3.1	2.1	2.3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	3.4	1.9	24
11	3.6	3.4	3.0	3.2	\$	2.4	4.9	3.6	3.4	3.9	2.6	1.7	1.5	1.2	0.8	0.9	1.0	1.0	1.2	2.8	2.5	2.9	3.5	3.2	4.9	2.5	24
12	2.2	3.0	4.5	\$	2.8	3.2	3.2	2.2	2.1	2.7	0.8	1.3	1.4	0.9	0.6	0.5	1.0	0.4	0.1	1.4	2.1	2.4	1.9	2.0	4.5	1.8	24
13	2.1	2.4	\$	2.8	2.5	3.6	10.5	7.0	3.3	2.1	0.7	0.6	1.4	1.1	1.0	0.8	1.6	1.2	1.8	2.4	3.9	3.1	3.2	3.3	10.5	2.7	24
14	0.7	\$	1.3	2.0	2.5	4.6	6.7	4.8	1.1	1.2	0.3	0.2	0.2	0.2	0.1	0.1	0.5	0.5	1.6	4.3	3.2	2.7	1.9	6.7	1.8	24	
15	\$	0.2	0.2	0.0	0.2	0.3	0.7	0.3	0.9	0.8	1.4	2.1	3.3	3.0	1.4	1.2	1.4	1.9	3.0	2.3	1.7	2.2	1.7	\$	3.3	1.4	24
16	2.5	4.5	5.3	3.9	3.2	3.4	3.4	2.6	3.9	3.0	1.4	0.9	0.8	0.5	0.1	0.3	0.2	0.6	0.6	1.5	1.9	2.5	\$	1.3	5.3	2.0	24
17	1.4	1.4	4.0	4.1	3.2	3.7	5.1	4.7	2.8	1.5	1.1	0.2	0.3	0.2	0.2	0.2	0.2	0.6	0.5	1.5	1.9	2.5	\$	1.5	2.1	1.9	24
18	2.3	2.1	2.6	4.3	2.9	2.6	3.4	4.1	3.5	3.0	2.1	1.0	0.5	0.6	0.8	0.6	0.5	0.5	0.6	1.7	\$	1.6	1.8	2.2	4.3	2.0	24
19	1.8	1.7	3.2	3.1	3.4	3.0	2.9	2.5	1.8	1.6	1.6	1.2	1.4	1.5	1.7	1.4	1.3	0.9	1.2	\$	2.1	3.3	1.5	1.3	3.4	2.0	24
20	1.1	2.5	2.5	4.3	5.2	3.9	4.4	3.4	3.7	4.0	3.9	0.8	0.4	0.4	0.2	0.1	0.1	0.1	\$	0.3	2.2	2.5	2.8	2.9	5.2	2.2	24
21	1.9	2.4	2.0	2.5	3.0	3.9	7.7	6.4	1.0	1.9	1.1	1.1	0.8	0.7	0.7	0.9	0.9	\$	1.2	1.9	3.3	3.0	2.7	1.3	7.7	2.3	24
22	2.1	2.7	2.2	1.9	2.4	4.6	4.4	4.3	2.1	0.5	0.3	1.2	0.7	1.3	0.4	0.5	\$	0.5	1.0	0.9	1.1	2.0	\$	1.3	5.3	2.0	24
23	3.1	2.4	2.9	2.6	2.0	4.1	6.9	8.2	4.0	2.4	1.3	0.8	0.9	0.8	0.9	\$	0.8	0.8	1.2	1.2	1.1	0.7	0.7	0.9	8.2	2.2	24
24	1.0	1.3	1.2	1.2	1.3	2.1	3.5	4.1	2.3	1.0	1.5	0.8	1.5	0.9	\$	0.9	1.4	1.2	3.1	3.1	6.9	6.2	4.8	2.2	6.9	2.3	24
25	2.0	2.0	1.9	2.2	2.0	3.6	6.8	12.4	5.8	1.3	1.1	1.3	0.7	\$	0.7	0.7	1.0	1.3	1.8	5.6	2.7	2.9	3.2	1.7	12.4	2.8	24
26	1.4	1.1	0.9	1.1	1.5	2.0	6.5	8.1	8.2	2.1	1.2	0.9	\$	1.6	0.8	0.5	0.6	0.6	1.4	2.7	3.7	3.1	2.4	1.9	8.2	2.4	24
27	2.3	2.1	1.9	1.7	1.8	2.8	5.5	12.6	7.7	7.0	3.3	\$	1.4	1.1	1.4	1.5	1.1	1.1	1.8	2.0	2.5	2.0	2.2	2.0	12.6	3.0	24
28	2.7	2.0	3.1	1.3	5.5	3.7	7.0	9.0	4.8	2.4	\$	1.7	1.7	1.7	1.5	2.4	1.6	2.0	1.9	1.9	1.6	2.3	2.6	2.6	9.0	2.9	24
29	2.8	2.8	2.2	2.6	2.8	2.4	0.4	1.2	1.3	\$	0.8	0.7	1.0	1.1	1.0	0.8	0.8	2.2	1.2	0.8	0.7	0.7	0.5	0.4	2.8	1.4	24
30	0.6	0.7	1.8	2.2	2.2	1.9	1.9	2.2	\$	1.9	1.8	1.4	0.9	0.7	0.5	0.2	0.6	1.3	1.9	1.4	2.1	2.2	3.5	4.0	4.0	1.6	24
31	3.8	3.6	3.7	6.3	6.0	5.3	8.1	\$	5.0	2.7	1.5	1.4	1.4	1.0	0.8	0.8	0.4	0.6	0.9	4.1	3.1	3.2	4.2	1.9	8.1	3.0	24
HOURLY MAX	3.8	4.5	5.3	6.3	6.0	5.3	10.5	12.6	10.6	7.0	5.2	3.5	4.5	3.5	9.1	2.5	2.4	2.2	3.1	5.6	6.9	6.2	4.8	4.0			
HOURLY AVE	1.8	2.0	2.2	2.3	2.4	2.8	4.3	4.3	3.1	2.2	1.5	1.1	1.2	1.0	1.1	0.8	0.9	0.9	1.3	1.8	2.3	2.3	2.2	1.9			

STATUS FLAG CODES

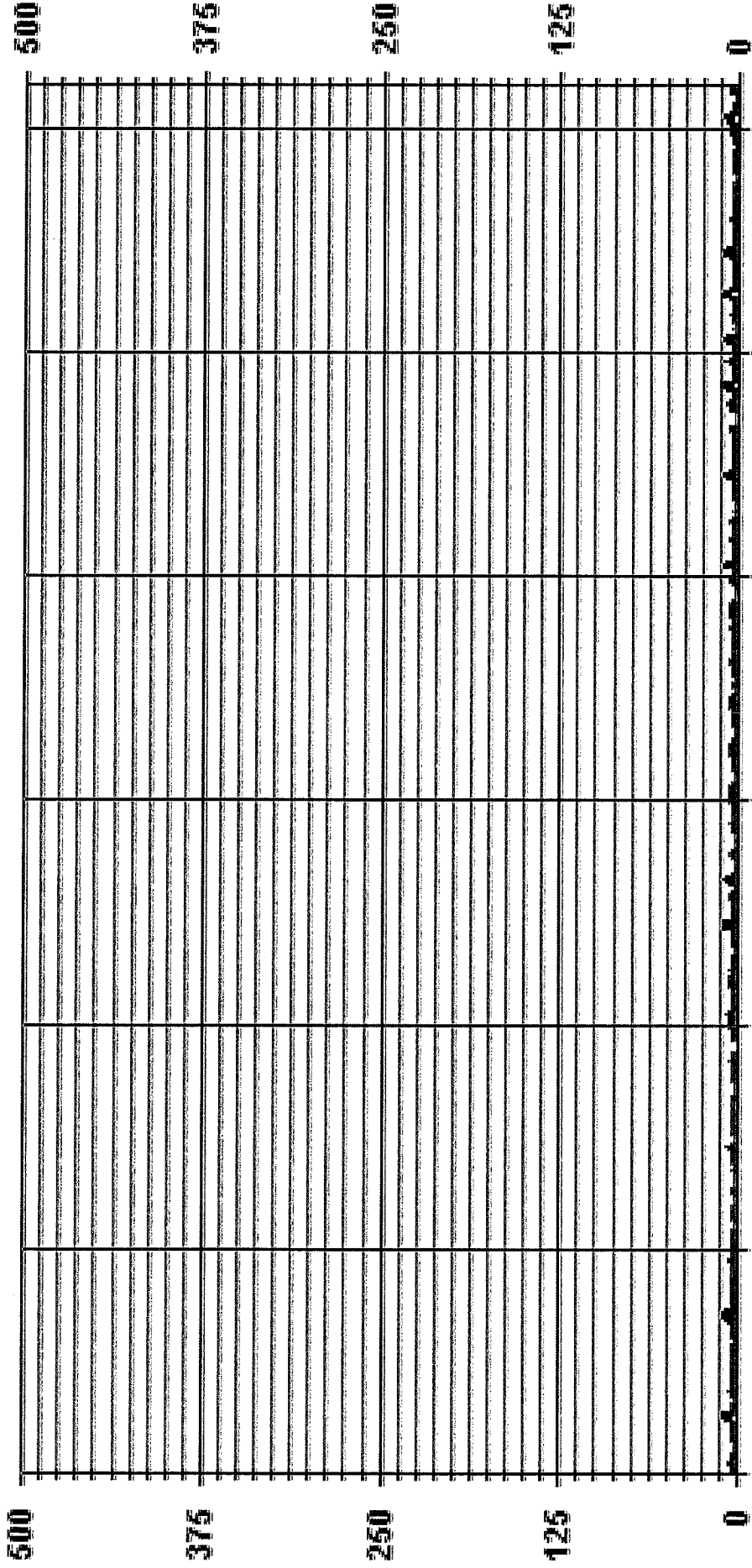
C	-CALIBRATION	Q	-QUALITY ASSURANCE
Y	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SPAN CHECK	X	-MACHINE MALFUNCTION
P	-POWER FAILURE	O	-OPERATOR ERROR
G	-OUT-OF-REPAIR	K	-COLLECTION ERROR



MONTHLY SUMMARY

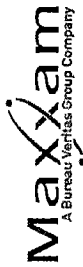
NUMBER OF NON-ZERO READINGS:	703	ON DAY(S)	27
MAXIMUM 1-HR AVERAGE:	12.6 PPB	ON DAY(S)	27, 31
MAXIMUM 24-HR AVERAGE:	3.0 PPB	VAR-VARIOUS	
1/25 CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	8 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	1.66	MONTHLY AVERAGE:	2.0 PPB

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA NOX_ PPB



OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

DAY	24-HOUR AVG.																								ROGS.		
	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400			
1	1.8	1.8	3.3	2.8	5	2.6	9.6	7.1	2.6	4.1	2.6	1.1	0.7	1.1	0.6	2.1	1.6	1.1	2.6	2.6	2.6	2.7	2.1	9.6	2.7	24	
2	2.6	2.1	3.2	5	3.8	8.7	10.7	14.2	8.7	3.8	2.2	1.2	1.2	1.2	1.2	1.2	0.7	1.2	2.2	3.2	3.8	3.7	3.7	16.2	4.5	24	
3	7.2	1.2	5	4.2	1.2	5.8	11.2	2.2	1.7	4.7	8.2	3.3	5.8	6.3	2.2	4.3	2.2	2.2	6.3	10.7	1.7	1.2	0.7	11.2	4.3	24	
4	0.7	5	1.3	1.3	1.3	4.3	12.4	4.4	11.4	41.3	20.8	30.9	35.8	82.8	4.8	2.8	26.3	26.3	1.9	12.8	1.3	1.9	0.8	82.8	14.8	24	
5	5	2.3	1.9	1.3	2.3	1.9	3.4	2.3	2.4	13.8	2.9	5.4	2.8	4.4	6.8	26.8	2.3	4.3	40.8	3.4	1.8	3.9	5	40.8	6.3	24	
6	3.0	2.0	4.5	2.4	1.9	4.0	3.5	2.9	2.4	1.9	3.4	1.4	0.9	1.4	5.4	0.9	4.5	5.5	2.9	3.5	2.9	5	1.1	9.9	3.1	24	
7	1.7	1.1	2.1	1.1	1.6	1.1	1.1	16.6	10.6	9.7	6.6	0.6	4.6	2.1	3.7	1.1	0.6	1.7	1.6	2.6	5	3.4	2.8	16.6	3.5	24	
8	2.4	4.9	2.9	2.3	1.9	8.3	3.4	2.8	2.3	1.8	1.3	0.8	2.3	2.3	1.3	0.8	1.8	1.8	3.5	1.8	5	4.0	3.0	2.4	9.3	3.2	24
9	3.0	3.0	3.5	8.5	2.4	3.5	3.0	2.4	2.0	2.9	3.0	1.4	1.4	0.9	8.9	0.9	6.9	3.5	4.0	5.0	3.4	1.4	8.9	3.3	3.4	24	
10	2.0	1.5	2.9	2.9	2.4	6.9	6.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.0	3.1	3.6	3.1	5.1	6.9	3.4	24	
11	5.6	4.6	3.6	5.1	5	3.5	11.0	7.5	4.6	7.0	4.6	8.5	2.6	1.6	1.0	1.5	1.1	4.1	6.5	3.6	5.1	5.1	6.1	11.0	4.6	24	
12	3.5	4.6	6.1	5	4.1	5.6	6.5	4.1	4.6	2.0	2.6	2.5	2.6	1.6	2.0	0.5	0.5	0.5	3.6	3.6	4.6	2.5	2.6	6.5	3.2	24	
13	3.5	3.5	5	4.6	3.6	4.6	20.6	15.0	9.6	13.0	4.1	3.1	18.6	7.0	3.6	1.5	13.0	1.5	3.1	5.1	5.6	5.6	5.1	20.6	7.0	24	
14	2.0	5	2.7	3.2	3.2	6.1	15.6	8.2	3.2	12.6	1.1	0.6	1.1	1.1	1.1	0.6	1.1	0.6	3.2	5.7	5.7	3.2	15.6	3.8	24		
15	5	0.6	6.2	0.2	0.7	0.7	1.2	0.7	2.2	1.7	3.2	4.2	4.2	2.2	2.2	2.1	3.6	4.2	2.2	2.2	2.2	2.2	3.2	6.2	2.4	24	
16	3.5	5.5	6.5	5.0	5.0	5.5	5.5	5.5	5.0	4.5	1.9	1.5	1.9	3.0	0.4	0.9	7.9	1.0	1.5	1.9	10.5	5	3.0	10.5	3.8	24	
17	2.5	3.0	5.0	5.0	4.5	6.4	5.9	5.5	2.5	7.9	0.4	11.4	3.0	2.5	5.0	3.4	0.9	3.0	5.5	7.4	5	2.1	2.6	11.4	4.4	24	
18	3.1	3.1	3.1	6.6	3.6	3.1	5.1	5.1	4.6	3.1	2.5	1.0	1.5	2.5	1.0	0.5	1.0	1.0	4.6	5	2.6	3.1	3.6	6.6	3.4	24	
19	2.6	2.5	3.6	3.6	4.1	4.1	5.1	6.6	4.6	2.5	5.6	1.6	2.0	2.6	3.1	3.0	2.0	1.6	2.0	4.2	4.7	2.7	2.7	6.6	3.4	24	
20	2.1	3.7	3.7	7.1	6.6	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	1.4	3.4	3.9	3.9	6.2	7.1	3.8	24	
21	3.6	4.1	2.6	3.1	6.5	6.1	6.2	9.6	2.0	3.1	2.1	2.0	1.6	1.6	2.6	8.5	1.6	5	1.4	3.4	3.9	3.9	6.2	6.1	24		
22	2.9	3.4	3.4	3.4	2.3	2.9	7.8	5.4	6.4	3.4	1.4	0.8	13.3	0.8	15.3	2.3	1.9	5	1.1	1.7	2.7	5.7	2.2	3.6	4.0	24	
23	15.1	3.2	6.1	4.2	2.7	6.1	17.7	14.1	7.6	3.2	5.7	6.6	4.7	2.1	4.6	5	1.8	2.8	3.3	2.2	1.2	0.7	1.2	1.8	17.7	5.2	24
24	1.3	1.8	1.3	1.2	2.2	7.2	6.3	26.2	33.7	8.7	20.7	4.7	30.7	5.8	5	3.9	27.8	3.3	6.4	8.8	11.9	11.8	6.4	3.4	33.7	10.2	24
25	2.9	2.9	2.9	6.3	4.4	8.3	12.4	96.8	10.4	3.8	1.8	15.3	1.3	5	5.2	2.1	3.2	2.7	3.7	73.1	6.2	6.2	7.1	3.2	96.8	12.3	24
26	2.2	2.1	1.7	3.2	3.2	6.2	13.6	32.1	17.7	13.6	6.2	3.2	5	13.1	11.1	8.1	13.1	0.6	4.7	4.7	5.2	4.2	3.7	2.7	32.1	7.7	24
27	3.2	3.2	3.2	2.2	4.2	4.2	13.6	19.1	10.6	24.1	4.2	5	4.0	1.6	2.5	5.1	1.6	4.5	3.1	3.6	4.1	2.6	3.1	24.1	5.8	24	
28	4.1	3.1	6.5	3.0	7.5	10.6	12.5	23.6	9.6	3.1	5	4.7	3.1	3.2	5.7	4.1	25.1	2.6	6.2	4.2	6.2	2.1	4.1	3.7	75.5	9.9	24
29	3.6	6.2	5.7	3.7	3.7	5.2	0.6	2.1	1.7	5	1.1	2.6	11.7	3.2	3.2	4.7	3.2	27.1	1.7	1.6	2.1	1.7	1.1	0.6	27.1	4.3	24
30	0.6	1.2	2.2	2.7	2.7	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.2	5.2	4.2	5.2	5.2	8.6	3.3	24	
31	4.7	4.2	4.7	8.6	9.7	6.2	14.1	5	7.5	6.1	3.1	2.0	3.1	5.1	3.6	7.5	1.0	1.6	3.1	9.1	5.6	5.6	6.5	5.1	14.1	5.6	24
HOURLY MAX	15.1	6.2	6.5	8.6	7.5	10.6	62.0	96.8	33.7	24.1	41.3	20.8	30.9	35.8	82.8	16.2	27.8	27.1	26.3	73.1	12.8	11.8	7.1	6.1	6.1	3.0	
HOURLY AVG	3.3	3.0	3.7	3.7	5.9	5.1	10.0	11.7	6.9	6.1	6.0	4.3	5.5	4.7	6.1	3.7	5.4	4.0	3.9	7.4	4.9	4.1	4.1	3.5	3.0		

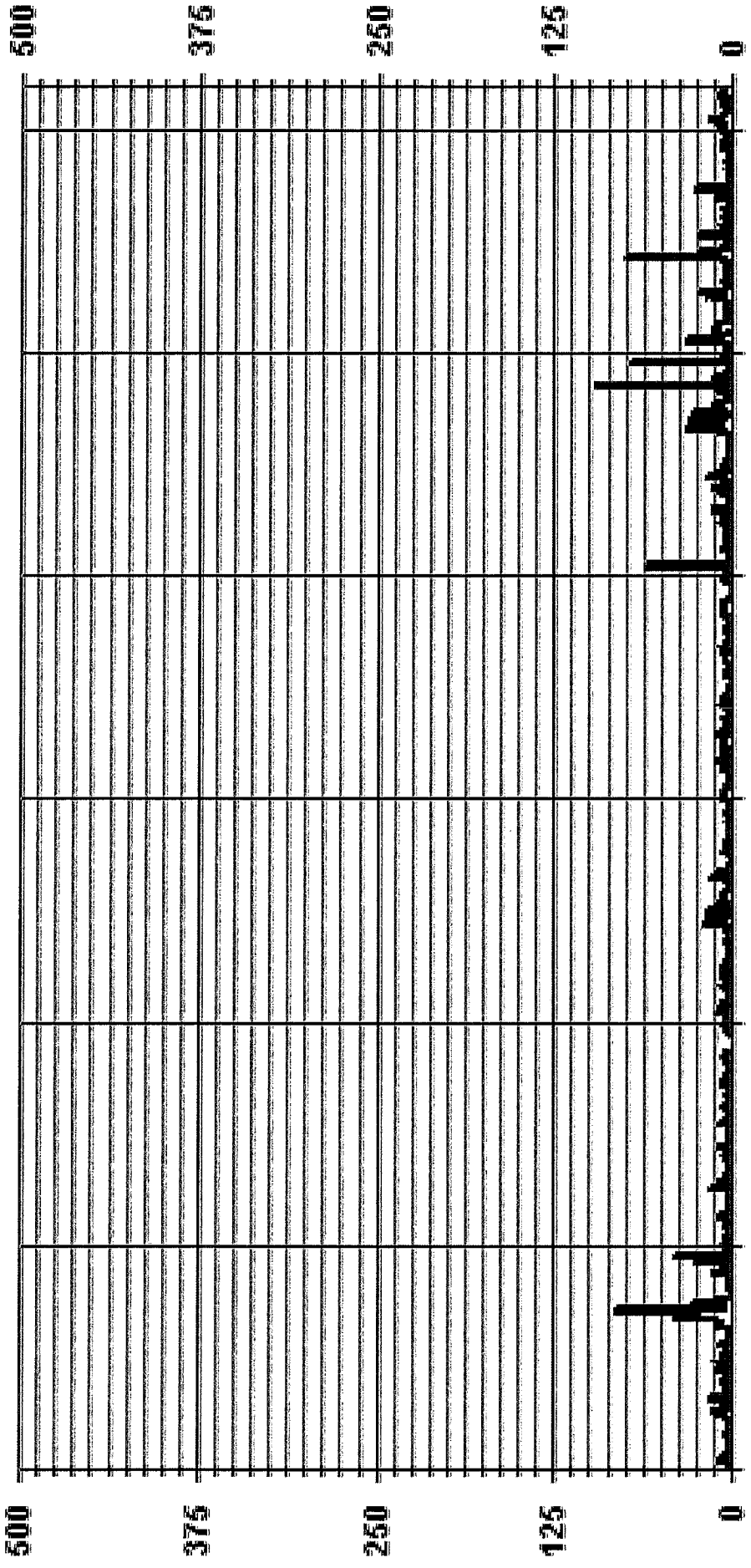
STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE/VALVE/JUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	CORRECTION REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	96.8
PPB	7
@ HOUR(S)	25
ON DAY(S)	744
HRS	8.07
OPERATIONAL TIME:	VAR-VARIOUS
STANDARD DEVIATION:	8.07

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA - - - NOXMAX . . . PPB

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

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

Wind Parameter : WD
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	2.98	4.11	3.12	3.69	6.10	6.53	12.78	5.39	3.83	4.82	6.25	11.50	9.23	8.80	6.96	3.83	100.00			
< 110.0	.00	.00	.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	.00	.00	
>= 210.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	2.98	4.11	3.12	3.69	6.10	6.53	12.78	5.39	3.83	4.82	6.25	11.50	9.23	8.80	6.96	3.83				

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	21	29	22	26	43	46	90	38	27	34	44	81	65	62	49	27	704			
< 110.0																				
< 210.0																				
>= 210.0																				
Totals	21	29	22	26	43	46	90	38	27	34	44	81	65	62	49	27				

Calm : .00 %

Total # Operational Hours : 704

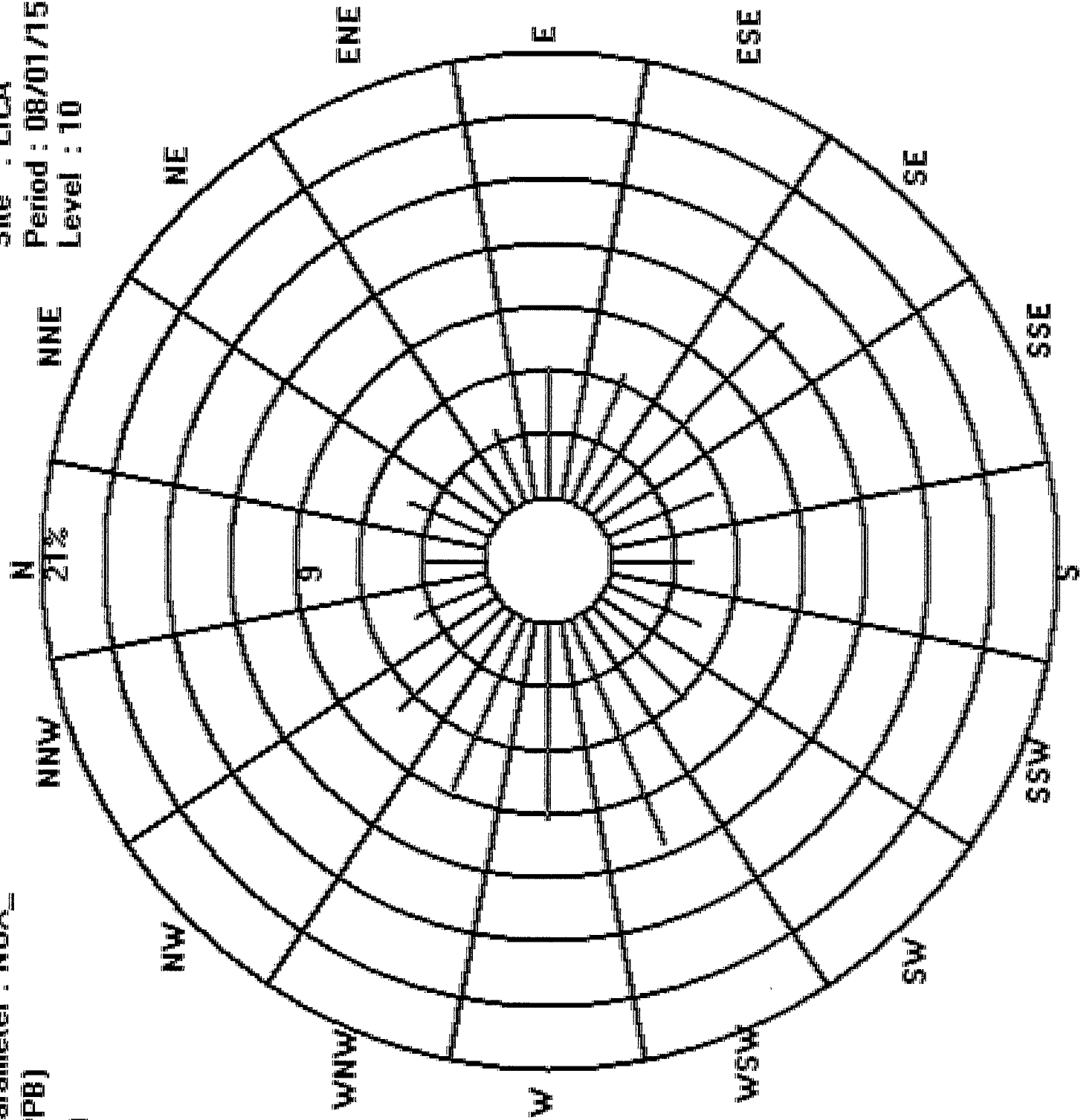
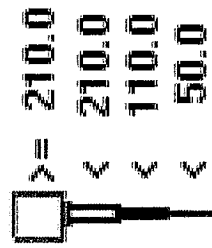
Logger : 01

Parameter : NOX_

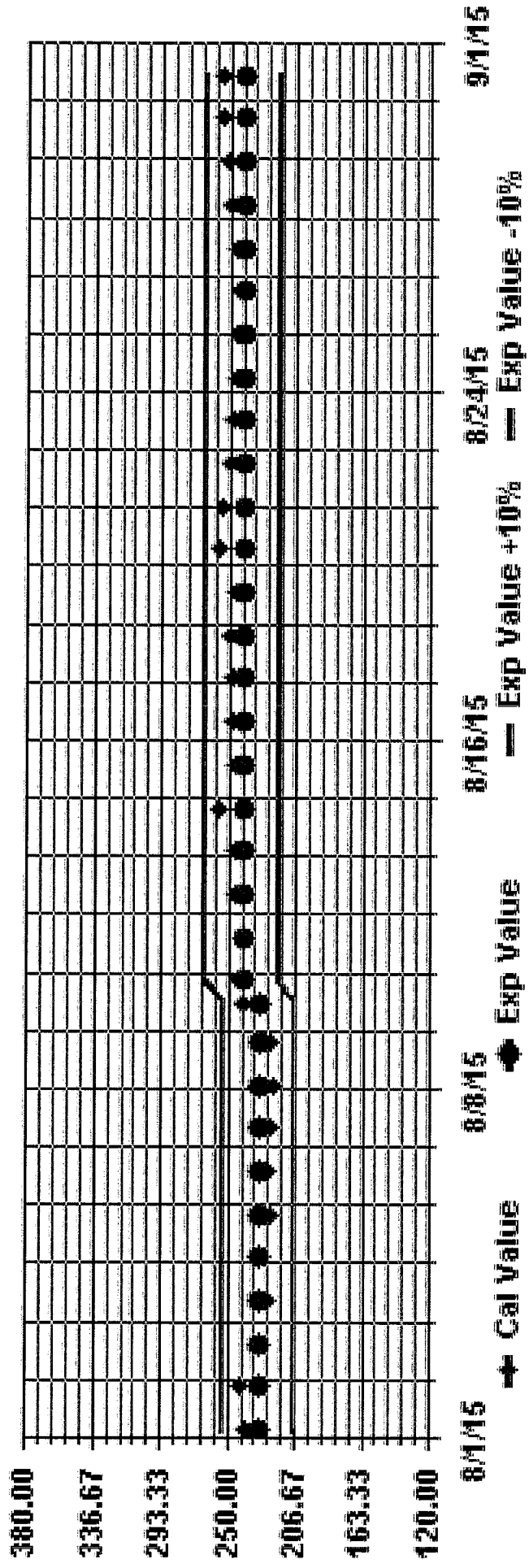
Site : LICA

Period : 08/01/15-08/31/15

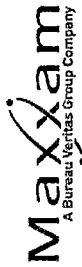
Level : 10



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



NITRIC OXIDES



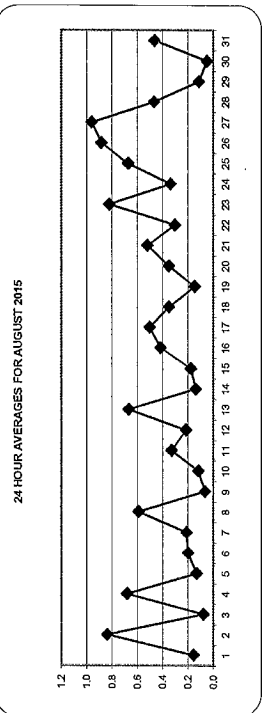
NITRIC OXIDE (NO) hourly averages in ppb

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	0.1	0.1	0.1	0.2	0.9	0.8	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.9	
2	0.5	0.0	0.9	S	1.3	2.1	3.7	2.9	4.3	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.9	
3	0.0	0.0	S	0.0	0.0	0.4	0.5	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
4	0.0	S	0.0	0.0	0.1	0.2	0.3	0.6	0.8	1.6	1.3	1.1	5.7	0.2	0.1	0.9	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	5.7	
5	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	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	0.1	0.1	0.2	0.2	0.4	0.9	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.2	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	
8	0.7	2.1	1.3	1.0	0.9	2.2	3.4	1.1	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	
9	0.0	0.0	0.1	0.3	0.0	0.6	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	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	0.2	0.3	0.2	0.3	0.2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	0.6	
11	0.2	0.2	0.2	0.3	S	0.7	2.6	0.8	0.6	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	
12	0.3	0.3	0.3	S	0.2	0.6	0.9	0.5	0.4	0.4	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2
13	0.4	0.3	S	0.5	0.6	1.9	6.8	2.7	0.7	0.6	0.1	0.0	0.2	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8
14	0.0	S	0.1	0.1	0.0	0.3	0.9	1.1	0.2	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	
15	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.8	0.7	0.3	0.2	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.1	0.0	0.2	0.3	0.5	0.5	0.6	0.8	1.8	1.3	0.5	0.3	0.1	0.3	0.0	0.0	0.1	0.4	0.1	0.4	0.1	0.0	0.2	0.9	0.6	1.8	
17	0.7	0.5	0.4	0.4	0.4	1.2	2.7	2.5	1.4	0.6	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
18	0.2	0.2	0.1	0.1	0.1	0.3	0.9	1.7	1.5	1.1	0.7	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	
19	0.2	0.0	0.1	0.1	0.1	0.1	0.4	0.5	0.3	0.3	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
20	0.2	0.1	0.1	0.2	0.3	0.5	1.2	1.2	0.9	1.1	1.0	0.1	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	
21	0.2	0.1	0.2	0.2	0.5	1.2	3.0	3.2	0.4	0.7	0.4	0.3	0.3	0.3	0.4	0.2	S	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	0.6	1.6	2.1	0.8	0.1	0.0	0.5	0.1	0.0	0.1	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
23	1.0	0.3	0.6	0.5	0.5	2.3	5.4	5.3	1.6	0.8	0.3	0.1	0.1	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	
24	0.0	0.0	0.0	0.0	0.0	0.1	0.5	2.0	1.3	0.3	0.4	0.1	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
25	0.1	0.1	0.1	0.3	0.2	1.2	2.6	5.9	1.7	0.2	0.2	0.2	0.2	0.0	S	0.0	0.1	0.1	0.1	1.8	0.0	0.1	0.2	0.2	0.2	0.2	
26	0.4	0.4	0.4	0.4	0.6	1.0	5.1	4.6	3.8	1.2	0.3	0.2	S	0.4	0.3	0.1	0.4	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	
27	0.2	0.3	0.4	0.4	0.7	1.3	4.4	8.7	2.9	2.1	0.5	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	
28	0.2	0.2	0.0	0.0	0.9	0.5	3.1	4.0	1.2	0.5	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	0.0	
29	0.1	0.2	0.3	0.2	0.2	0.1	0.0	0.2	0.3	S	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	
30	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.4	S	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	
31	0.0	0.1	0.2	0.2	0.6	1.3	4.5	S	1.7	0.7	0.3	0.2	0.3	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
HOURLY MAX	1.0	2.1	1.3	1.0	1.3	2.3	6.8	8.7	4.3	2.1	1.6	1.3	1.3	1.1	5.7	0.4	0.4	0.9	0.5	1.8	0.5	0.9	0.9	0.5	0.6	0.6	
HOURLY AVG	0.2	0.2	0.2	0.2	0.3	0.7	1.9	1.8	1.0	0.6	0.3	0.2	0.2	0.2	0.3	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

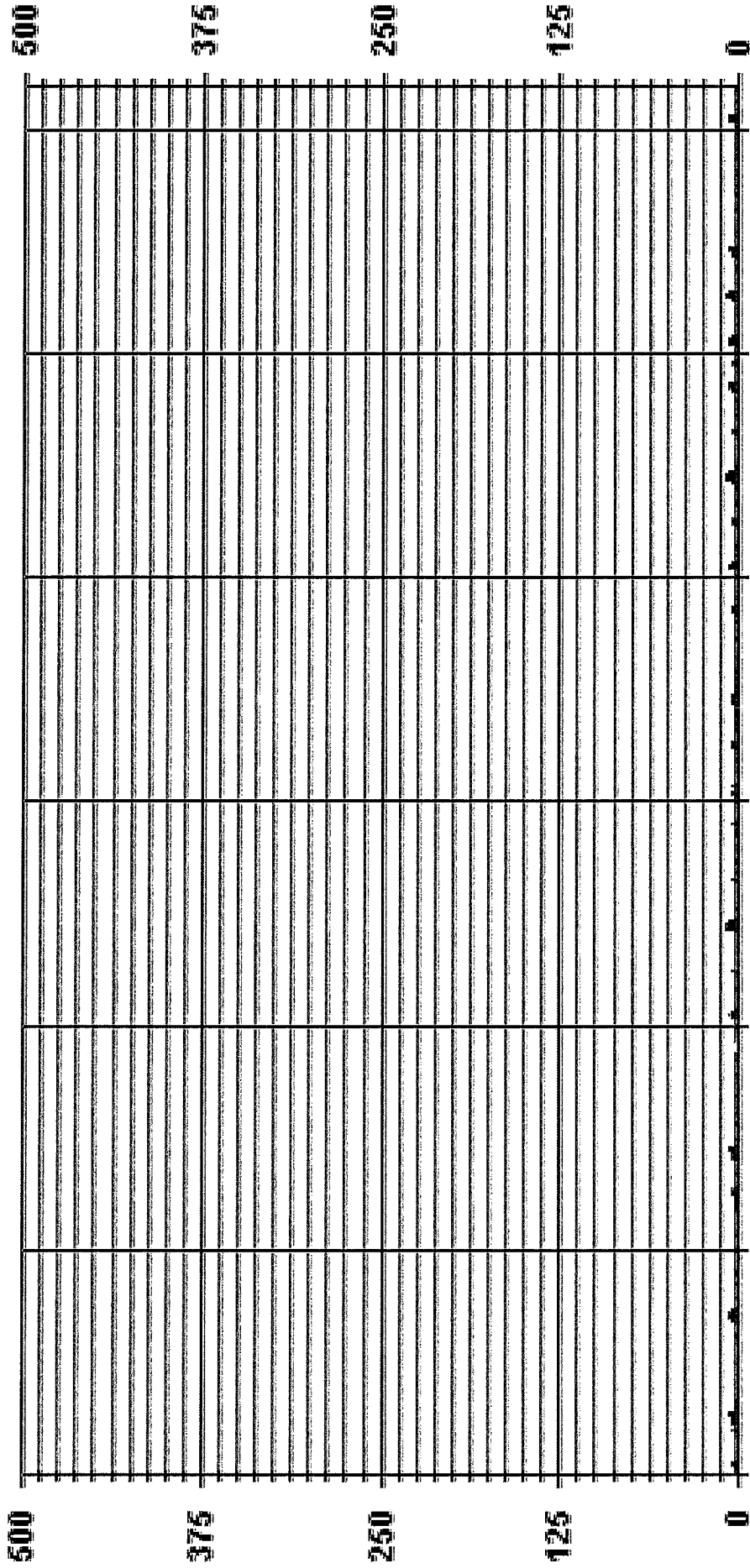
C	CALIBRATION	Q	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO SPAN CHECK	X	MACHINE MALFUNCTION
F	POWER FAILURE	O	OPERATOR ERROR
G	- OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	428	PPB @ HOUR(S)	7	ON DAY(S)	27
MAXIMUM 1-HR AVERAGE:	8.7	PPB	1.0	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	1.0	PPB		VAR-VARIOUS	
1ZS CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:	744
MONTHLY CALIBRATION TIME:	8	HRS		AMD OPERATION UPTIME:	100.0
STANDARD DEVIATION:	0.87			MONTHLY AVERAGE:	0.4

01 Hour Averages



08/01/15 00:00:08/06/15 00:00:08/11/15 00:00:08/16/15 00:00:08/21/15 00:00:08/26/15 00:00:08/31/15 00:00

— LICA NO_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - AUGUST 2015
JOB # 2833-2015-08-01- C

NITRIC OXIDE 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	RDSS	
1	0.4	0.4	0.4	0.9	0.9	0.9	3.5	2.9	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.4	0.4	0.5	0.5	0.0	0.5	0.4	0.4	0.9	0.9	3.5	0.8	24
2	0.9	1.4	1.9	0.9	2.0	3.0	5.0	6.1	3.5	1.0	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.6	1.0	0.5	6.1	0.6	1.0	0.5	6.1	1.7	24	
3	1.5	0.1	0.1	0.4	0.4	1.4	2.9	0.5	0.5	1.9	3.4	0.5	0.9	1.4	0.5	1.9	1.4	0.5	0.5	3.4	4.4	0.0	0.0	0.0	4.4	1.2	24	
4	0.0	0.0	0.0	0.1	0.1	2.0	7.5	1.0	3.0	8.5	36.6	19.0	44.1	42.5	66.5	7.5	1.0	40.0	18.6	0.5	14.5	0.5	0.5	0.1	66.5	13.7	24	
5	0.0	0.0	0.0	0.4	0.4	0.4	0.9	0.4	0.4	0.4	3.9	0.9	4.4	2.9	6.0	3.5	1.4	23.5	0.4	0.4	1.9	0.4	0.4	0.4	23.5	2.7	24	
6	1.5	0.5	1.0	0.5	0.5	2.0	1.5	1.5	1.0	2.0	3.0	1.0	0.6	0.6	2.5	0.6	5.0	2.5	4.5	0.5	0.5	0.5	0.5	0.5	0.4	5.0	1.5	24
7	0.9	0.0	0.9	0.4	0.4	0.0	0.9	18.0	7.4	6.5	4.9	0.4	3.4	1.4	2.4	0.4	0.4	0.4	0.9	0.4	0.9	0.4	0.9	0.4	1.4	18.0	2.4	24
8	1.5	3.5	2.4	1.4	6.9	6.9	10.4	2.4	0.9	1.4	0.4	0.5	0.9	0.9	0.4	0.0	0.4	5.5	0.4	0.4	10.4	0.4	0.4	0.4	10.4	2.2	24	
9	0.4	0.4	0.9	4.5	0.4	1.4	0.9	0.9	0.4	0.5	0.9	0.5	0.5	0.5	0.0	2.9	0.0	2.4	0.4	0.4	0.0	1.4	0.4	0.0	4.5	0.9	24	
10	0.0	0.0	0.0	0.0	1.4	0.9	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	2.9	0.0	2.4	0.4	0.4	0.9	0.4	0.9	0.9	1.4	0.5	24	
11	0.9	0.9	0.9	1.4	1.4	6.5	3.4	0.9	1.9	1.4	2.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	6.5	1.2	24
12	0.9	0.9	1.0	0.9	2.4	2.4	1.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4	1.4	0.4	0.4	0.4	0.1	0.4	0.9	0.4	0.9	0.9	2.4	0.9	24	
13	1.4	0.9	0.9	1.5	2.9	15.9	6.9	6.5	9.9	1.4	0.4	8.4	2.9	0.9	0.4	9.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	15.9	3.2	24	
14	0.4	0.4	0.4	0.4	0.4	6.5	2.9	0.9	5.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	6.5	1.0	24	
15	0.5	0.5	0.5	0.5	0.5	1.4	1.5	2.5	2.0	0.9	0.4	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	8.0	0.9	24	
16	0.5	0.5	0.5	0.5	0.5	1.4	1.4	1.5	2.5	2.0	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	8.0	1.6	24	
17	1.9	1.4	0.4	0.4	4.0	4.0	3.0	3.0	3.0	3.0	3.4	0.4	2.9	1.9	0.9	2.9	1.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9	4.4	1.6	24	
18	0.5	0.5	0.5	0.5	0.5	1.5	2.0	1.9	1.9	1.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.0	0.8	24	
19	0.4	0.4	0.4	0.4	0.9	1.9	5.5	2.4	1.9	2.9	3.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	5.5	0.8	24	
20	0.5	0.4	0.4	0.4	0.9	0.9	1.9	5.5	2.4	1.9	2.9	1.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	5.5	1.1	24	
21	0.4	0.4	0.4	0.4	0.9	1.9	32.9	6.0	0.9	1.0	0.9	1.4	0.9	0.4	2.4	4.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	32.9	2.6	24	
22	0.4	0.4	0.4	0.4	1.4	2.0	3.5	1.4	0.5	0.4	6.9	0.4	11.4	2.4	0.4	4.9	0.4	0.4	0.4	0.4	0.5	2.4	0.4	0.4	11.4	1.7	24	
23	10.4	1.9	2.9	1.4	4.0	14.9	10.9	4.0	0.9	4.9	2.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	14.9	3.0	24	
24	0.4	0.5	0.5	0.4	0.4	1.9	1.4	31.0	44.5	0.9	7.4	1.4	40.9	2.9	0.9	1.9	0.9	0.9	0.9	0.9	1.4	6.5	0.9	0.9	44.5	6.4	24	
25	0.4	0.4	0.4	0.4	0.9	4.5	5.0	72.9	4.0	0.9	0.9	2.4	0.5	0.5	1.4	2.9	2.9	0.5	0.5	0.5	41.9	0.4	0.9	0.9	72.9	6.5	24	
26	1.5	1.4	0.9	1.9	1.4	4.4	12.9	21.4	8.9	22.4	1.9	1.4	0.9	0.9	13.9	3.9	25.4	0.5	1.4	0.9	0.4	0.4	0.4	0.4	25.4	5.8	24	
27	0.9	0.4	0.9	1.4	1.9	2.4	10.0	13.9	5.0	12.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.9	0.5	0.5	0.4	0.4	0.4	0.4	13.9	2.5	24	
28	0.5	0.9	0.9	0.4	18.5	4.5	7.4	12.9	2.9	0.9	0.9	0.9	0.5	0.5	0.5	0.5	0.5	6.0	0.5	0.9	0.5	0.5	0.5	0.5	18.5	2.7	24	
29	0.4	0.9	1.4	0.9	0.9	0.4	0.4	0.4	0.4	0.9	0.5	2.4	3.9	1.4	0.5	1.4	0.9	29.9	0.5	0.5	0.5	0.5	0.5	0.5	29.9	2.2	24	
30	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	3.9	0.8	24	
31	0.4	0.4	0.4	0.4	0.4	3.5	2.9	9.4	0.4	0.4	2.9	2.4	1.4	0.9	0.9	0.9	8.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	9.4	1.7	24	
HOURLY MAX	10.4	3.5	8.0	4.5	18.5	6.9	32.9	72.9	44.5	22.4	36.6	19.0	44.1	42.5	66.5	8.4	25.4	40.0	18.6	41.9	14.5	8.0	1.9	1.5				
HOURLY AVG	1.1	0.8	1.0	1.0	1.5	2.0	5.5	8.2	3.9	3.2	3.1	1.8	4.2	2.9	3.9	1.9	2.4	3.3	1.4	2.8	1.2	1.0	0.6	0.6				

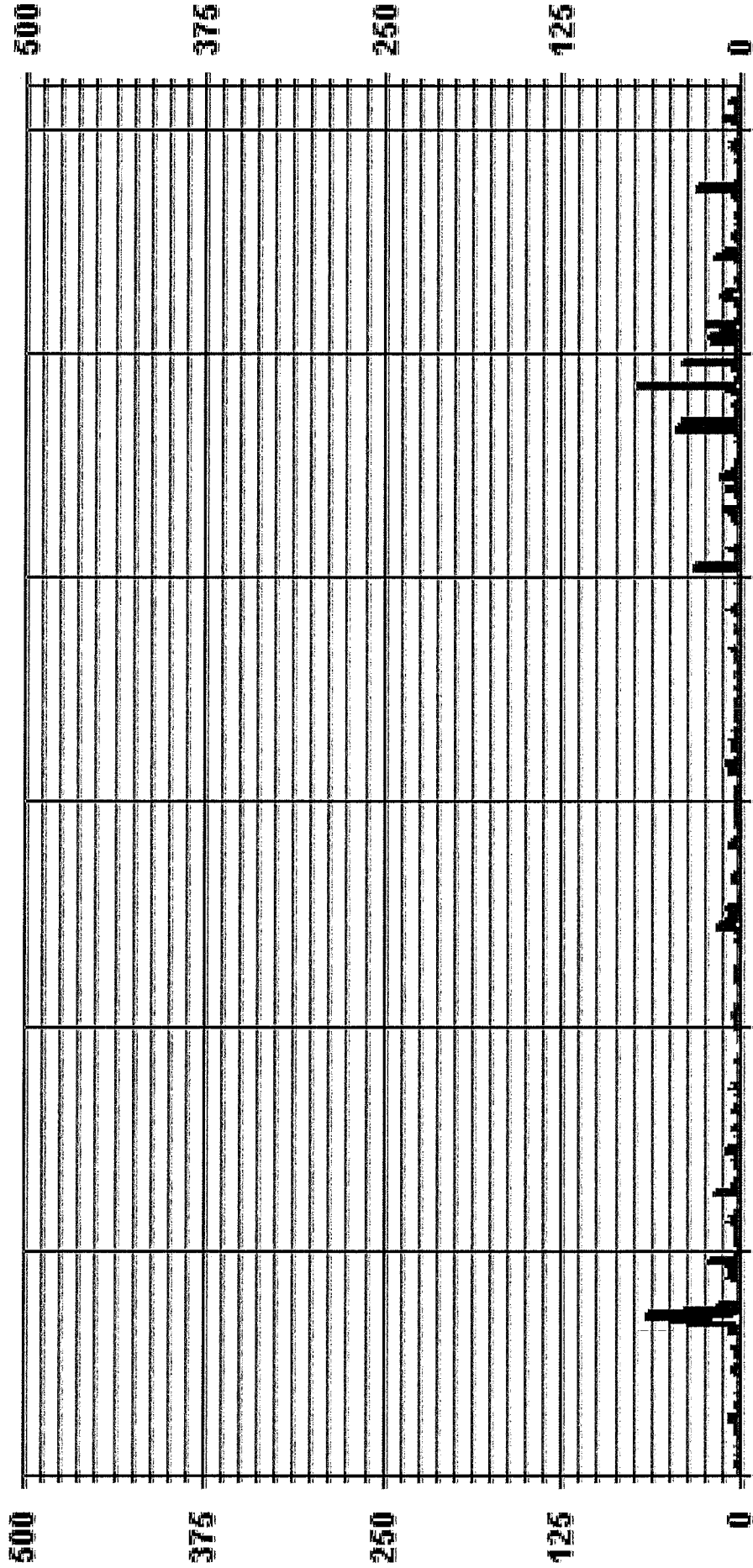
STATUS FLAG CODES

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

NUMBER OF NON-ZERO READINGS:	682
MAXIMUM INSTANTANEOUS VALUE:	72.9 PPB @ HOUR(S) 7 ON DAY(S) 25
ISZ CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	6.44
OPERATIONAL TIME:	744 HRS
VAR- VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA - - - - NOMAX PPB

LICA
NO_ / WD Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

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

Wind Parameter : WD
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				
< 50.0	2.98	4.11	3.12	3.69	6.10	6.53	12.78	5.39	3.83	4.82	6.25	11.50	9.23	8.80	6.96	3.83	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	2.98	4.11	3.12	3.69	6.10	6.53	12.78	5.39	3.83	4.82	6.25	11.50	9.23	8.80	6.96	3.83				

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	NW	NNW				
< 50.0	21	29	22	26	43	46	90	38	27	34	44	81	65	62	49	27	704			
< 110.0																				
< 210.0																				
>= 210.0																				
Totals	21	29	22	26	43	46	90	38	27	34	44	81	65	62	49	27				

Calm : .00 %

Total # Operational Hours : 704

Logger : 01 Parameter : ND_

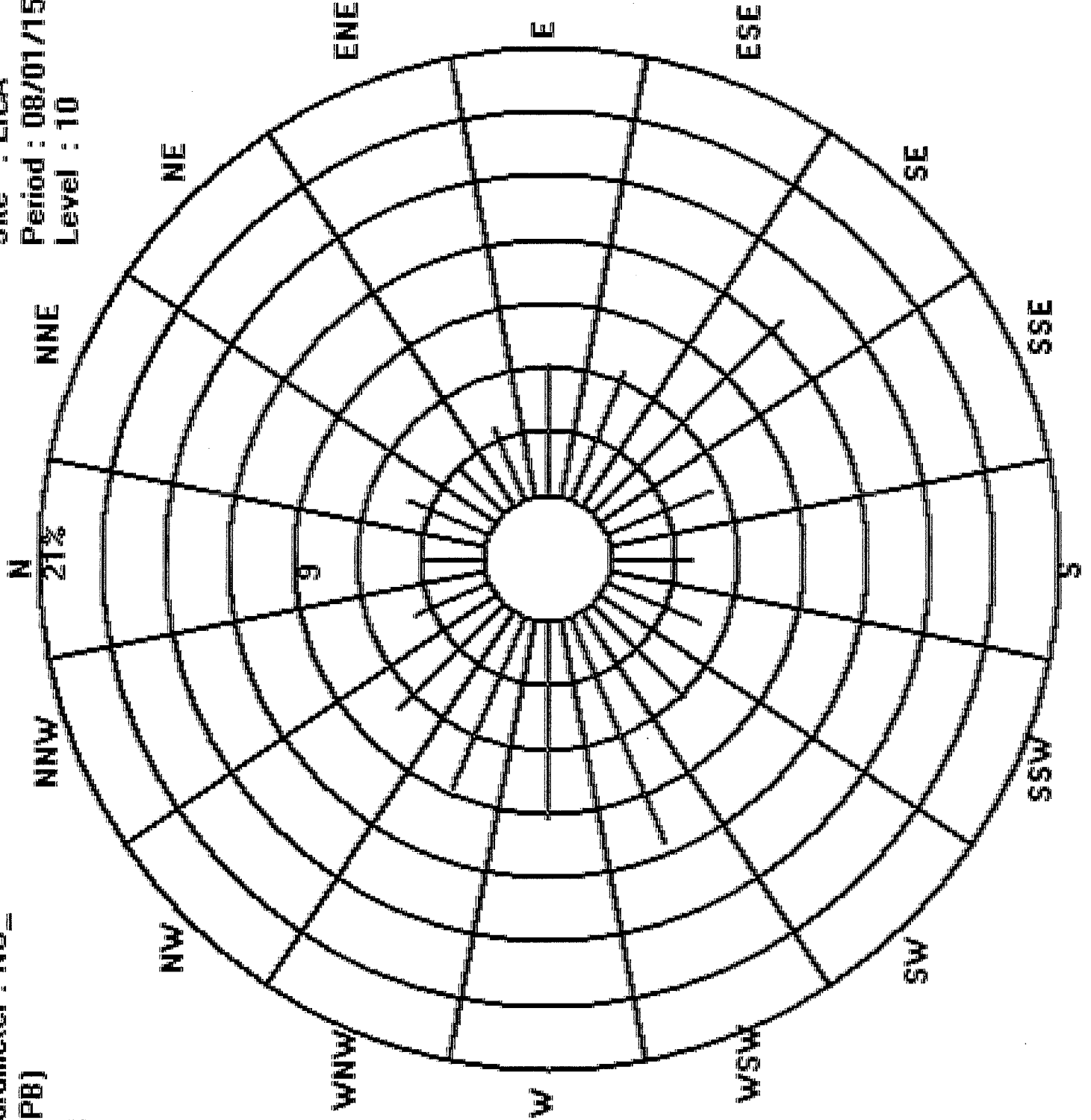
Class Limits (PP8)

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

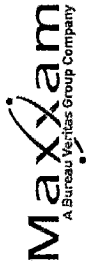
Site : LICA

Period : 08/01/15-08/31/15

Level : 10



NITROGEN DIOXIDE



NITROGEN DIOXIDE (NO2) 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	
1	1.0	1.4	1.4	1.8	1.4	1.3	3.4	2.6	1.0	1.1	1.6	0.8	0.7	0.4	0.3	0.4	0.5	0.7	0.5	0.9	1.5	1.4	1.4	1.4	3.4
2	1.3	1.1	1.4	1.4	1.4	1.2	3.4	3.3	6.3	4.1	2.2	0.8	0.7	0.4	0.6	0.4	0.4	0.4	0.6	1.4	2.3	2.4	2.4	2.4	6.3
3	1.4	0.8	0.8	1.2	0.8	2.2	2.4	1.4	1.1	1.4	1.1	1.0	1.3	1.3	0.8	1.0	1.8	1.0	1.4	0.9	1.1	1.2	0.9	0.6	2.4
4	0.4	0.4	0.8	0.7	0.7	0.8	1.3	2.2	2.1	2.1	3.6	2.2	3.2	2.4	3.4	0.9	1.1	0.7	1.0	0.8	0.7	0.7	0.6	0.6	2.4
5	0.4	0.9	0.9	0.8	1.1	1.2	1.2	1.2	1.8	1.5	1.8	2.0	1.4	1.8	2.1	1.8	1.3	1.9	2.6	1.6	0.9	1.2	0.7	0.6	2.4
6	0.9	1.2	1.4	0.9	1.1	1.8	1.7	1.0	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.6	0.3	0.4	0.5	1.4	1.4	1.4	0.7	0.7	2.4
7	0.6	0.4	0.7	0.6	1.1	0.6	0.4	0.9	0.8	0.7	0.2	0.3	0.3	0.7	0.2	0.9	0.6	0.5	1.1	1.6	0.9	1.6	0.9	1.6	2.4
8	1.0	1.0	0.7	0.5	0.4	0.7	1.2	0.7	0.8	0.7	0.8	0.5	0.3	0.4	0.7	0.7	0.6	0.9	1.2	1.3	1.9	1.9	1.4	1.9	2.4
9	1.8	2.0	1.4	2.2	1.7	1.5	1.6	1.3	1.1	1.0	1.1	0.7	0.5	0.5	0.4	0.6	0.4	0.6	1.0	2.8	3.2	3.2	1.6	0.9	2.4
10	1.2	1.3	2.0	1.9	1.7	2.6	2.8	1.9	2.0	2.0	1.1	0.7	0.5	0.5	0.4	0.6	0.4	0.6	1.0	2.8	3.2	3.2	1.6	0.9	2.4
11	3.4	3.2	2.8	2.9	1.7	2.3	2.8	2.8	3.1	2.2	1.6	1.5	1.2	0.8	0.9	1.0	1.0	1.2	2.6	2.5	2.8	3.4	2.9	3.4	2.2
12	1.9	2.7	4.2	2.6	2.6	2.6	2.3	1.7	1.7	2.3	0.8	1.2	1.2	0.9	0.6	0.5	0.1	0.4	0.1	1.4	2.0	2.2	1.7	1.7	4.2
13	1.7	2.1	2.3	1.9	1.7	3.7	4.3	2.6	1.5	0.6	0.6	1.2	1.0	1.0	0.8	1.2	1.2	1.8	2.4	3.9	3.1	3.1	3.3	4.3	
14	0.7	1.2	1.9	2.5	4.3	5.8	3.7	0.9	0.9	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.5	0.5	1.6	4.2	3.1	2.7	1.9	5.8	
15	0.2	0.1	0.0	0.2	0.3	0.7	0.3	0.8	0.6	1.0	1.7	2.5	2.3	1.1	0.9	1.2	1.8	2.8	2.3	1.7	2.2	1.6	1.6	2.8	
16	4.5	5.1	3.6	2.7	2.9	2.8	1.8	2.1	1.7	0.9	0.6	0.7	0.2	0.1	0.3	0.1	0.4	0.5	0.9	0.9	1.1	1.1	1.1	5.1	
17	0.7	0.9	3.6	3.7	2.8	2.5	2.4	2.2	1.4	0.9	0.6	0.2	0.2	0.2	0.2	0.2	0.5	0.6	1.4	1.9	2.5	1.5	2.1	3.7	
18	2.1	1.9	2.5	4.2	2.8	2.3	2.5	2.4	2.0	1.9	1.4	0.9	0.5	0.6	0.7	0.6	0.5	0.5	0.6	1.6	1.6	1.6	1.6	4.2	
19	1.6	1.7	3.1	3.0	3.3	2.9	2.5	2.0	1.5	1.3	1.2	0.9	1.2	1.4	1.6	1.4	1.3	0.9	1.2	2.1	3.3	1.4	1.2	3.3	
20	0.9	2.4	2.4	4.1	4.9	3.4	3.2	2.2	2.8	2.9	2.3	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.3	2.0	2.2	2.5	2.6	4.9	
21	1.7	2.3	1.8	2.3	2.5	2.7	4.7	3.2	0.6	1.2	0.7	0.5	0.4	0.4	0.5	0.7	0.7	1.2	1.9	3.3	3.0	2.7	1.3	4.7	
22	2.1	2.7	2.2	1.9	2.4	4.0	2.8	2.2	1.3	0.4	0.3	0.7	0.6	0.7	0.3	0.5	0.5	0.9	0.9	1.5	1.2	1.5	1.5	4.0	
23	2.1	2.1	2.3	2.1	1.5	1.8	1.5	2.9	2.4	1.6	1.0	0.7	0.8	0.8	0.8	0.8	0.8	0.8	1.2	1.2	1.1	0.7	0.9	2.9	
24	1.0	1.3	1.2	1.2	1.3	2.0	3.0	2.1	1.0	0.7	1.1	0.7	0.4	0.8	0.8	0.8	1.4	1.2	2.9	3.0	6.6	5.5	4.5	2.0	
25	1.9	1.9	1.8	1.9	1.8	2.4	4.2	6.5	4.1	1.1	0.9	1.1	0.7	1.1	0.7	0.6	0.9	1.2	1.7	3.8	2.7	2.8	3.0	1.5	
26	1.0	0.7	0.5	0.7	0.9	1.0	1.4	3.5	4.4	0.9	0.9	0.7	0.7	1.2	0.5	0.4	0.2	0.6	1.4	2.6	3.5	3.0	2.3	1.7	
27	2.1	1.8	1.5	1.3	1.1	1.5	1.1	3.9	4.8	4.9	2.8	1.4	1.1	1.4	1.5	1.1	1.1	1.8	2.0	2.5	2.0	2.1	1.9	4.9	
28	2.6	1.8	3.1	1.3	4.6	3.2	3.9	5.0	3.6	1.9	0.8	1.7	1.7	1.7	1.7	1.5	2.2	1.6	2.0	1.9	1.9	1.6	2.3	2.6	
29	2.6	2.6	1.9	2.4	2.6	2.3	0.4	1.0	1.0	0.8	0.7	0.9	1.0	1.0	1.0	0.8	0.8	1.4	1.2	0.8	0.7	1.6	2.6	5.0	
30	0.6	0.7	1.8	2.2	2.1	1.9	1.6	1.8	1.8	1.7	1.7	1.4	0.9	0.7	0.5	0.2	0.6	1.3	1.9	1.4	2.1	2.2	3.5	3.9	
31	3.8	3.5	3.5	6.1	5.4	4.0	3.6	1.8	3.3	2.0	1.2	1.2	1.1	0.9	0.7	0.6	0.4	0.6	0.9	4.0	3.1	3.2	4.1	6.1	
HOURLY MAX	3.8	4.5	5.1	6.1	5.4	4.3	5.8	6.5	6.3	4.9	3.6	2.2	3.2	2.4	3.4	2.1	2.2	1.8	2.9	4.0	6.6	5.5	4.5	3.9	
HOURLY AVG	1.6	1.8	2.0	2.1	2.1	2.1	2.4	2.4	2.1	1.6	1.2	0.9	1.0	0.9	0.8	0.7	0.8	0.9	1.2	1.7	2.3	2.1	2.1	1.7	

STATUS FLAG CODES

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

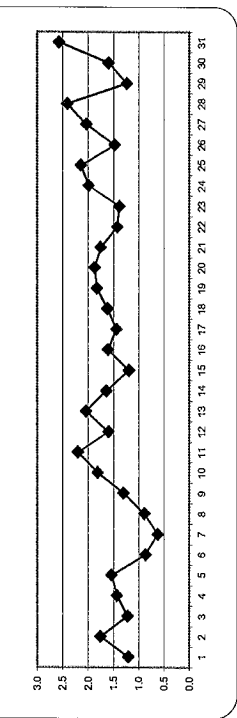
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 159 PPB

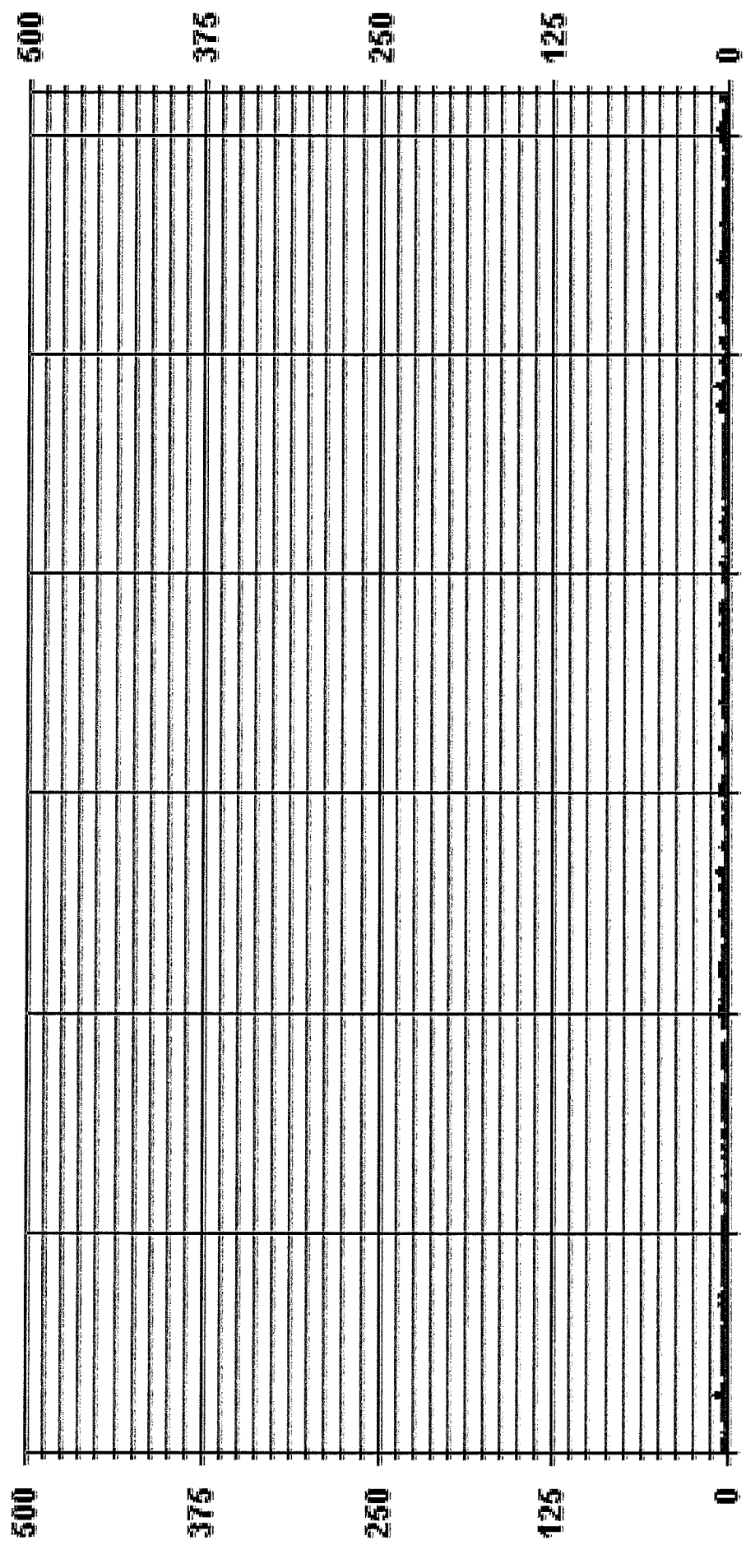
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	703
MAXIMUM 1-HR AVERAGE:	6.6 PPB
MAXIMUM 24-HR AVERAGE:	2.6 PPB
ISZ CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	1.11
OPERATIONAL TIME:	744 HRS
AMTD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	1.6 PPB
ON DAY(S)	24
ON DAY(S) VAR-IOUS	31

24 HOUR AVERAGES FOR AUGUST 2015

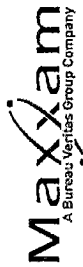


01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA NO2_ PPB



NITROGEN DIOXIDE 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				0000
1	1.7	1.7	1.7	2.7	2.2	\$	1.5	2.0	1.5	3.0	2.0	1.0	0.5	0.5	0.5	2.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	1.5	6.5	2.0	24	
2	1.5	1.5	2.0	2.0	\$	1.6	2.1	4.6	6.1	8.1	5.6	3.1	1.6	1.1	1.1	12.6	0.6	0.6	0.6	2.1	2.1	3.1	3.1	3.6	12.6	3.1	24	
3	5.7	1.1	\$	3.7	1.2	4.2	3.7	7.7	4.7	1.7	5.2	3.7	4.7	4.7	1.7	3.2	1.7	2.2	2.2	3.2	3.2	2.2	1.2	1.2	7.7	3.2	24	
4	0.7	\$	1.1	1.1	1.1	2.6	6.1	3.6	8.1	6.6	18.6	5.1	12.1	12.1	31.1	1.6	2.1	9.6	12.1	1.1	5.6	1.1	1.1	0.6	31.1	6.3	24	
5	\$	1.1	1.1	1.1	1.6	1.6	1.6	2.1	1.6	2.1	1.6	2.1	3.1	2.1	3.1	3.6	21.1	1.6	3.1	27.1	2.6	1.1	2.1	\$	27.1	4.4	24	
6	1.6	1.6	3.1	1.6	1.1	2.2	2.1	1.6	1.1	0.6	1.1	0.6	0.6	0.6	3.1	0.6	5.1	2.1	2.1	2.1	2.6	2.1	\$	1.5	5.1	1.8	24	
7	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	4.0	4.5	2.5	0.5	2.5	1.0	1.5	1.0	0.5	1.0	1.0	1.5	\$	2.1	1.1	1.8	24		
8	1.2	1.2	1.1	0.6	0.6	1.1	1.6	1.1	1.6	1.1	1.1	1.1	0.6	1.6	2.1	1.1	0.6	1.1	3.6	1.6	\$	3.3	2.3	1.8	1.7	24		
9	2.8	2.8	2.3	3.9	2.3	2.3	2.3	4.8	2.3	1.8	1.3	1.8	2.3	0.8	0.8	6.8	0.8	4.3	2.8	\$	3.8	4.3	3.3	1.3	6.8	2.5	24	
10	5.1	4.6	3.6	3.6	\$	2.8	4.8	4.8	4.3	3.8	5.9	4.3	6.3	2.3	1.8	1.3	1.8	1.3	4.3	6.4	3.3	4.8	4.8	4.8	6.4	3.8	24	
11	3.3	3.8	5.9	\$	3.6	3.6	4.1	2.6	3.6	3.6	2.1	2.1	2.1	2.1	1.1	1.6	0.6	0.6	3.6	3.6	3.1	4.1	4.1	2.2	5.9	2.7	24	
12	2.6	2.6	\$	2.8	2.8	2.8	2.8	7.7	7.7	4.2	6.7	4.2	2.7	1.7	7.7	1.7	7.7	1.7	5.2	5.7	5.7	5.7	4.7	4.7	13.7	4.6	24	
13	2.2	\$	2.1	2.6	3.1	5.7	10.1	6.6	2.1	7.1	0.6	0.6	1.1	0.6	1.1	0.6	0.1	1.1	0.6	3.1	5.7	5.7	3.6	2.6	10.1	3.0	24	
14	\$	0.6	1.2	0.2	0.7	0.7	1.2	0.7	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.7	3.2	3.7	2.2	2.2	2.7	3.2	\$	3.7	1.8	24	
15	3.7	5.7	6.7	4.6	4.6	4.1	4.6	2.7	3.2	2.7	1.6	1.1	1.6	1.6	2.1	0.6	0.6	2.1	1.1	4.4	6.9	\$	2.1	2.6	8.4	3.1	24	
16	1.4	2.9	5.0	4.4	3.9	3.4	3.4	2.9	2.5	1.4	4.4	0.4	0.4	0.4	1.9	2.4	1.9	0.9	2.4	4.4	4.4	6.9	\$	2.1	2.6	8.4	3.1	24
17	2.6	3.1	3.1	6.6	3.1	3.1	3.1	3.1	3.1	2.5	3.0	2.0	0.5	1.0	2.0	0.5	0.5	0.5	4.0	4.4	2.3	2.8	3.3	6.6	2.4	24		
18	2.2	2.2	3.8	3.8	4.3	3.8	4.3	3.8	4.3	3.8	1.7	2.7	1.7	1.7	2.2	2.7	1.7	1.7	2.2	\$	4.4	4.9	2.4	2.4	4.9	3.0	24	
19	1.8	3.8	3.3	6.8	6.3	4.8	3.8	3.3	4.8	4.3	4.3	4.3	0.8	1.3	0.8	0.3	0.3	0.3	\$	1.8	3.8	3.8	3.8	6.8	3.1	24		
20	3.8	3.8	2.8	2.8	4.8	4.8	29.8	4.8	1.3	2.3	1.9	1.3	1.3	1.3	1.8	4.3	1.3	\$	1.3	3.8	3.8	3.8	3.8	6.8	3.1	24		
21	6.2	2.7	3.7	2.7	1.7	2.7	3.7	4.2	4.2	4.2	2.2	1.7	4.2	4.2	1.7	4.2	0.8	\$	1.4	2.4	2.9	1.9	1.4	1.4	6.2	2.8	24	
22	1.5	1.5	1.5	1.4	1.9	5.9	5.4	15.9	21.9	7.9	19.4	3.4	3.9	3.9	\$	2.9	25.9	2.9	6.5	8.4	10.9	6.9	6.0	3.5	25.9	7.4	24	
23	2.4	2.9	2.4	3.4	3.4	4.4	7.4	29.4	6.9	2.9	1.4	13.4	0.9	\$	3.7	1.2	1.7	2.7	3.2	33.2	5.8	5.2	6.2	2.2	33.2	6.4	24	
24	1.8	1.2	1.2	1.7	1.7	1.7	2.2	11.2	9.2	4.7	5.2	2.2	\$	11.3	3.8	4.3	3.8	0.8	3.3	4.8	4.8	3.8	3.4	2.3	11.3	3.9	24	
25	2.8	2.8	2.3	2.3	2.3	2.3	3.3	5.4	7.3	13.8	3.3	\$	3.2	1.7	2.2	3.7	3.2	1.7	4.2	3.2	3.7	4.2	2.7	2.7	13.8	3.7	24	
26	3.7	3.3	6.7	2.7	58.7	6.7	7.2	11.2	6.7	2.2	\$	3.7	3.2	3.2	3.2	5.2	3.7	23.2	2.2	5.2	3.7	5.2	2.2	3.2	58.7	7.7	24	
27	3.3	5.3	5.3	3.7	3.7	4.7	0.7	1.7	1.7	\$	1.2	1.2	7.7	2.7	3.2	2.2	14.2	1.7	1.2	1.7	1.7	1.7	0.7	0.7	14.2	3.2	24	
28	0.7	1.2	2.2	2.7	2.2	2.2	2.2	2.2	2.7	2.2	2.2	1.2	2.7	2.7	1.2	2.7	5.2	0.7	1.2	2.2	4.7	4.2	5.3	5.3	5.7	2.8	24	
29	4.2	4.2	4.7	8.2	7.2	5.3	\$	4.7	4.6	1.6	2.1	2.6	4.1	2.6	2.1	0.6	1.6	3.1	8.6	5.7	5.6	6.6	4.6	8.6	4.3	24		
30	6.2	5.7	6.7	8.2	58.7	6.7	29.8	29.4	21.9	13.8	19.4	13.4	13.7	12.1	31.1	12.6	25.9	14.2	12.1	33.2	10.9	6.9	6.6	5.3	6.6	4.6	24	
31	2.6	2.6	3.0	3.0	4.7	3.4	5.0	5.3	4.3	3.7	3.8	2.8	3.1	2.9	3.3	2.4	4.0	2.4	2.9	5.1	4.1	4.1	3.5	3.1	2.6	2.6	24	

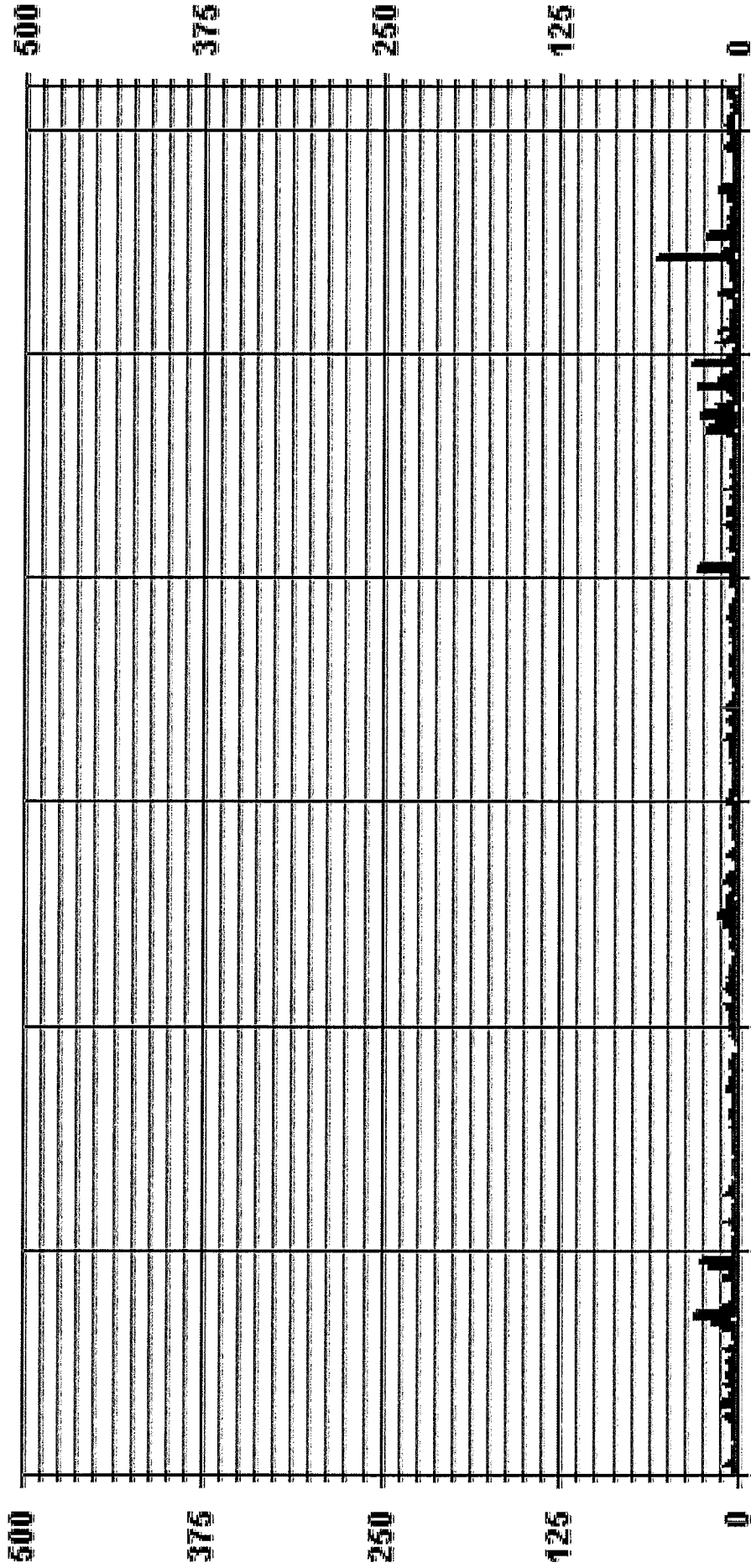
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	58.7 PPB
OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	4.17
ON DAY(S)	4
VAR-VARIOUS	28

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA NO2MAX PPB

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : NO2
Units : PPB

Wind Parameter : WD
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				
< 50.0	2.98	4.11	3.12	3.69	6.10	6.53	12.78	5.39	3.83	4.82	6.25	11.50	9.23	8.80	6.96	3.83	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	2.98	4.11	3.12	3.69	6.10	6.53	12.78	5.39	3.83	4.82	6.25	11.50	9.23	8.80	6.96	3.83				

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	NW	NNW				
< 50.0	21	29	22	26	43	46	90	38	27	34	44	81	65	62	49	27	704			
< 110.0																				
< 210.0																				
>= 210.0																				
Totals	21	29	22	26	43	46	90	38	27	34	44	81	65	62	49	27				

Calm : .00 %

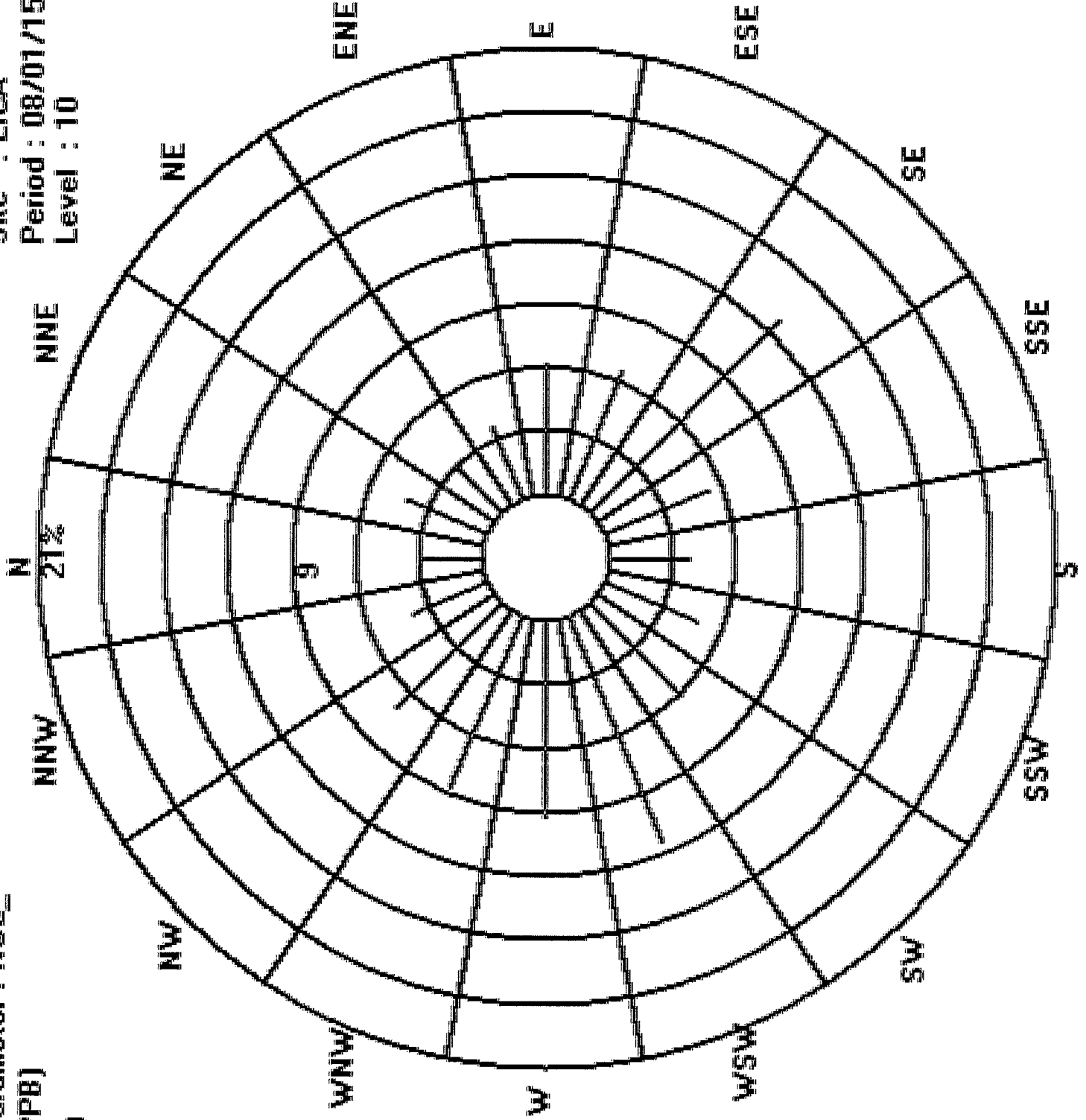
Total # Operational Hours : 704

Logger : 01 Parameter : NO2_

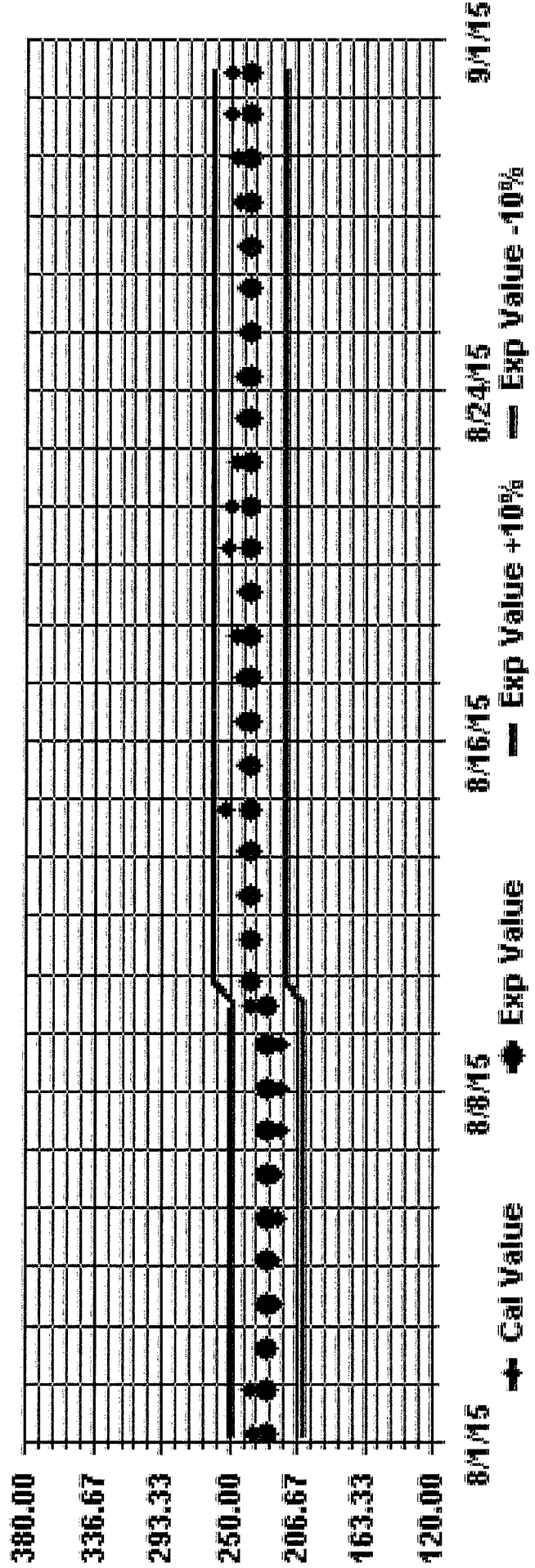
Class Limits (PPB)

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

Site : LICA
Period : 08/01/15-08/31/15
Level : 10



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



OZONE

OZONE (O3) hourly averages in ppb

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	DAILY	24-HOUR	ROSS		
HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	1:00	MAX	AVG			
DAY	11	7	4	4	4	4	5	15	19	21	29	28	28	31	30	30	30	25	24	24	11	6	3	2	31	31	17.0	24		
1	2	1	1	1	1	1	3	10	17	28	34	35	35	37	36	34	34	31	24	24	11	6	3	2	31	31	17.0	24		
2	16	20	5	12	9	8	18	26	28	31	32	35	33	34	35	35	36	36	31	30	28	25	23	24	36	36	26.3	24		
3	4	5	25	24	23	21	18	17	15	14	16	16	16	16	15	18	19	20	24	23	23	24	26	27	27	27	20.7	24		
4	5	28	30	28	26	25	22	21	21	21	20	16	17	16	17	16	16	14	13	11	9	10	5	30	30	19.3	24			
5	6	9	7	8	5	4	4	8	9	9	11	13	14	15	14	16	14	14	12	12	8	5	10	16	16	10.3	24			
6	7	13	10	9	6	5	8	11	11	8	11	14	15	18	19	18	19	18	14	5	5	2	1	19	19	11.8	24			
7	8	1	0	0	0	0	2	5	10	16	22	25	25	26	22	29	38	35	26	21	8	6	5	38	38	14.0	24			
8	9	10	6	3	5	5	3	14	22	27	29	30	29	30	32	31	31	33	34	32	5	11	13	19	21	34	20.4	24		
9	10	19	18	14	19	28	20	24	28	32	37	45	52	53	48	46	46	46	46	46	26	15	10	6	5	53	30.1	24		
10	11	6	4	4	4	5	2	3	16	C	C	C	C	45	43	42	43	46	44	36	20	15	12	10	5	46	21.1	24		
11	12	7	3	2	5	6	5	10	17	24	33	36	38	39	37	37	35	34	34	28	20	13	8	7	5	39	20.8	24		
12	13	5	3	5	1	1	0	2	12	24	29	30	34	40	50	53	52	53	53	42	40	34	29	24	23	53	27.6	24		
13	14	30	5	21	17	18	17	18	21	26	28	30	32	34	36	34	32	30	27	22	17	16	17	22	36	36	24.9	24		
14	15	18	17	16	15	13	14	16	14	15	14	11	8	9	9	11	12	14	12	11	9	5	1	18	18	12.7	24			
15	16	10	9	7	6	2	5	6	6	10	14	21	25	23	23	26	25	24	18	21	15	7	3	5	1	26	13.3	24		
16	17	1	1	5	4	3	3	4	8	12	19	23	26	29	30	30	31	32	28	23	33	25	5	20	18	33	17.7	24		
17	18	13	8	13	12	14	13	13	14	16	20	24	27	29	30	33	34	30	32	32	20	5	9	6	6	34	19.5	24		
18	19	9	14	14	14	17	18	19	23	25	26	29	31	33	35	37	40	34	32	29	5	26	21	23	15	40	24.5	24		
19	20	9	11	8	8	6	6	11	16	22	25	26	26	25	25	24	24	24	23	5	20	11	8	6	6	26	16.1	24		
20	21	5	7	3	2	1	2	4	7	17	19	21	22	22	21	21	21	19	17	14	11	9	10	13	22	30	16.5	24		
21	22	12	11	11	11	9	6	7	10	15	22	25	25	25	25	25	25	25	25	25	25	25	25	25	25	44	23.6	24		
22	23	2	1	1	0	0	0	1	6	17	19	35	39	41	42	44	5	43	43	41	37	35	34	32	29	44	23.6	24		
23	24	29	28	25	23	21	20	18	23	25	26	27	26	27	26	27	5	34	36	33	28	18	8	5	4	7	36	23.1	24	
24	25	6	5	3	4	2	3	5	16	26	27	26	27	26	27	5	31	32	33	31	28	22	19	14	7	5	33	16.4	24	
25	26	3	2	1	1	0	0	0	4	11	22	26	30	30	30	29	30	29	25	18	14	12	10	5	31	14.5	24			
26	27	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	0	
27	28	7	5	19	33	20	8	4	14	26	32	5	47	53	58	54	54	51	44	38	33	28	19	15	58	31.1	24			
28	29	12	6	3	5	3	15	24	22	27	5	35	36	39	40	41	40	36	32	31	31	33	31	31	30	41	26.2	24		
29	30	31	30	26	24	17	20	19	24	5	32	36	41	43	43	42	41	45	41	38	41	35	24	21	18	45	31.8	24		
30	31	16	10	6	6	2	1	2	5	18	27	37	38	38	39	39	39	38	36	30	17	19	24	16	20	39	22.5	24		
31	31	30	33	28	26	25	28	32	37	45	52	53	58	58	54	54	53	53	44	41	35	34	32	30	30	30	22.5	24		
HOURLY MAX	11.1	9.5	9.8	10.2	9.1	8.2	10.0	14.4	18.8	25.2	26.9	29.3	31.0	32.2	32.1	32.2	32.8	31.9	28.4	23.5	18.3	15.1	13.8	12.5	13.8	30	28	28	24	
HOURLY AVG																														

STATUS FLAG CODES

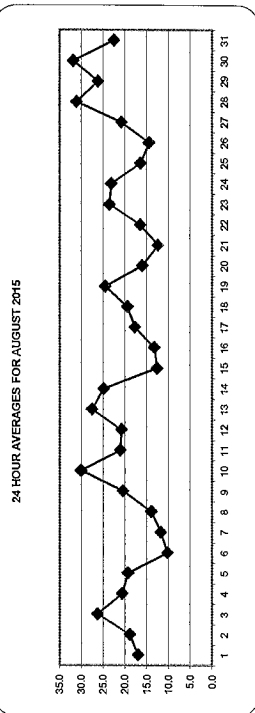
C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATION ERROR
G	- OUT FOR REPAIR	K	COLLECTION ERROR

OBJECTIVE LIMIT:

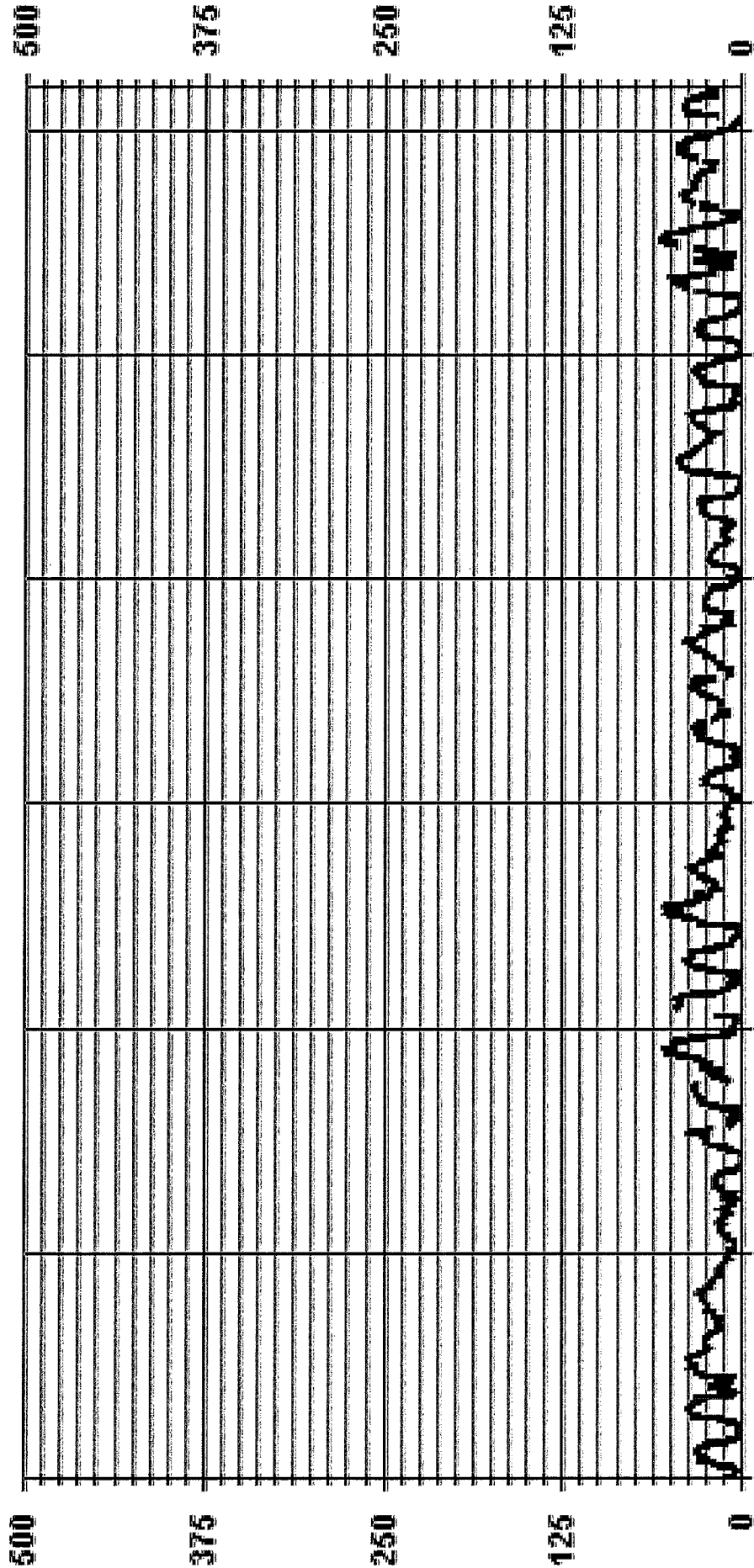
ALBERTA ENVIRONMENT: 2 HR: 32 PPB

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	691
MAXIMUM 1-HR AVERAGE:	58
MAXIMUM 24-HR AVERAGE:	31.8
IS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	12.86
PPB @ HOUR(S)	13
ON DAY(S)	28
ON DAY(S)	30
VAR-VARIOUS	
OPERATIONAL TIME:	744 HRS
AMTD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	20
PPB	



01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA 03_ PPB



OZONE 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	15	10	9	6	5	8	8	21	21	26	32	33	31	33	32	32	32	32	30	26	27	26	10	5	4	33	20.7	24
2	4	3	2	5	1	2	8	15	24	33	38	38	38	38	38	38	38	38	35	32	33	25	12	8	17	39	22.6	24
3	21	22	5	17	13	15	24	24	30	33	34	37	35	36	36	38	38	38	35	31	29	27	24	26	38	38	29.0	24
4	28	5	28	27	25	25	23	21	18	16	17	18	18	18	18	22	21	22	26	25	26	27	27	29	29	29	22.8	24
5	31	31	31	32	30	28	26	24	22	22	21	21	18	18	18	18	18	18	16	15	15	13	13	12	5	32	21.1	24
6	11	9	9	7	9	7	11	10	11	13	14	15	17	16	16	16	16	16	16	15	15	10	5	13	19	12.7	24	
7	14	13	11	7	6	9	12	13	10	13	15	17	21	21	20	23	20	21	21	17	10	5	4	3	23	14.0	24	
8	1	1	1	1	2	1	4	8	14	21	25	28	28	28	28	26	40	42	39	29	26	5	13	8	12	42	17.3	24
9	16	12	5	7	8	9	22	25	30	32	33	33	34	33	34	33	34	35	36	34	5	17	19	23	22	36	24.0	24
10	21	20	17	25	31	28	33	33	35	42	50	55	56	51	49	49	49	49	47	47	44	29	20	16	8	47	25.1	24
11	10	8	6	5	5	2	7	C	C	C	C	C	C	47	46	44	46	47	47	44	29	20	16	8	47	25.1	24	
12	10	5	5	5	12	8	17	21	31	38	38	42	44	39	39	36	35	36	31	28	17	12	13	7	44	24.5	24	
13	8	5	5	2	2	1	5	18	28	31	33	37	45	55	55	55	55	56	52	45	40	37	31	27	56	31.5	24	
14	34	5	25	22	21	20	20	24	28	29	30	32	34	36	39	37	33	32	29	25	21	18	20	24	39	27.5	24	
15	5	20	17	17	17	14	16	17	16	16	15	13	9	10	10	11	12	15	16	13	13	13	10	5	20	14.1	24	
16	10	10	8	8	4	6	7	8	13	18	26	27	26	26	27	27	26	26	25	19	12	7	5	1	27	16.0	24	
17	2	3	6	6	4	5	6	11	15	23	25	28	31	33	33	32	33	34	33	30	36	33	5	25	22	36	20.7	24
18	17	13	15	15	17	14	16	17	17	17	23	27	29	32	31	37	38	33	34	33	30	5	14	9	10	38	22.5	24
19	13	15	16	16	18	20	21	25	27	28	31	33	35	37	40	42	40	42	34	33	5	29	26	30	21	42	27.4	24
20	13	15	11	11	9	8	14	20	25	27	28	28	26	26	27	27	25	25	5	23	17	10	9	9	28	18.8	24	
21	9	9	5	4	2	4	5	16	19	21	23	23	24	22	23	22	20	20	5	19	15	13	10	12	14	24	14.5	24
22	13	12	13	12	10	8	8	13	18	26	26	27	28	29	29	28	27	27	28	29	28	27	12	9	5	31	18.7	24
23	2	2	1	1	1	1	2	12	19	29	39	41	42	44	45	5	45	44	43	39	36	34	94	31	45	25.5	24	
24	30	29	27	25	25	24	23	27	26	26	29	32	33	36	37	38	36	36	33	27	13	7	9	10	38	26.2	24	
25	8	8	8	5	6	6	7	10	21	28	28	28	28	5	32	33	34	34	30	28	24	21	15	8	34	19.6	24	
26	5	4	3	2	2	1	1	8	19	24	29	31	5	33	32	31	32	31	28	23	18	16	15	9	33	17.3	24	
27	4	3	1	1	1	1	1	4	19	26	34	5	42	43	49	50	50	51	46	38	29	28	29	22	51	24.9	24	
28	16	12	31	39	33	13	7	30	28	40	5	52	58	60	58	57	55	54	48	41	36	32	28	22	60	37.0	24	
29	20	9	8	9	4	23	26	24	30	5	37	38	41	42	43	42	43	42	33	34	32	33	32	31	43	28.8	24	
30	32	32	29	25	24	24	23	26	5	35	39	44	45	44	44	44	43	47	44	40	42	40	33	24	20	47	34.7	24
31	20	16	9	8	4	1	7	5	25	31	42	41	40	41	41	40	40	38	36	26	30	31	22	26	42	26.7	24	
HOURLY MAX	34	32	31	39	33	28	33	33	35	42	50	55	58	60	58	57	55	56	52	45	40	37	34	31				
HOURLY AVG	14.0	12.1	12.3	12.6	11.7	10.9	13.0	18.2	22.0	26.5	29.6	31.7	33.4	34.3	34.4	34.9	34.9	34.7	32.0	28.2	23.3	19.3	17.8	15.9				

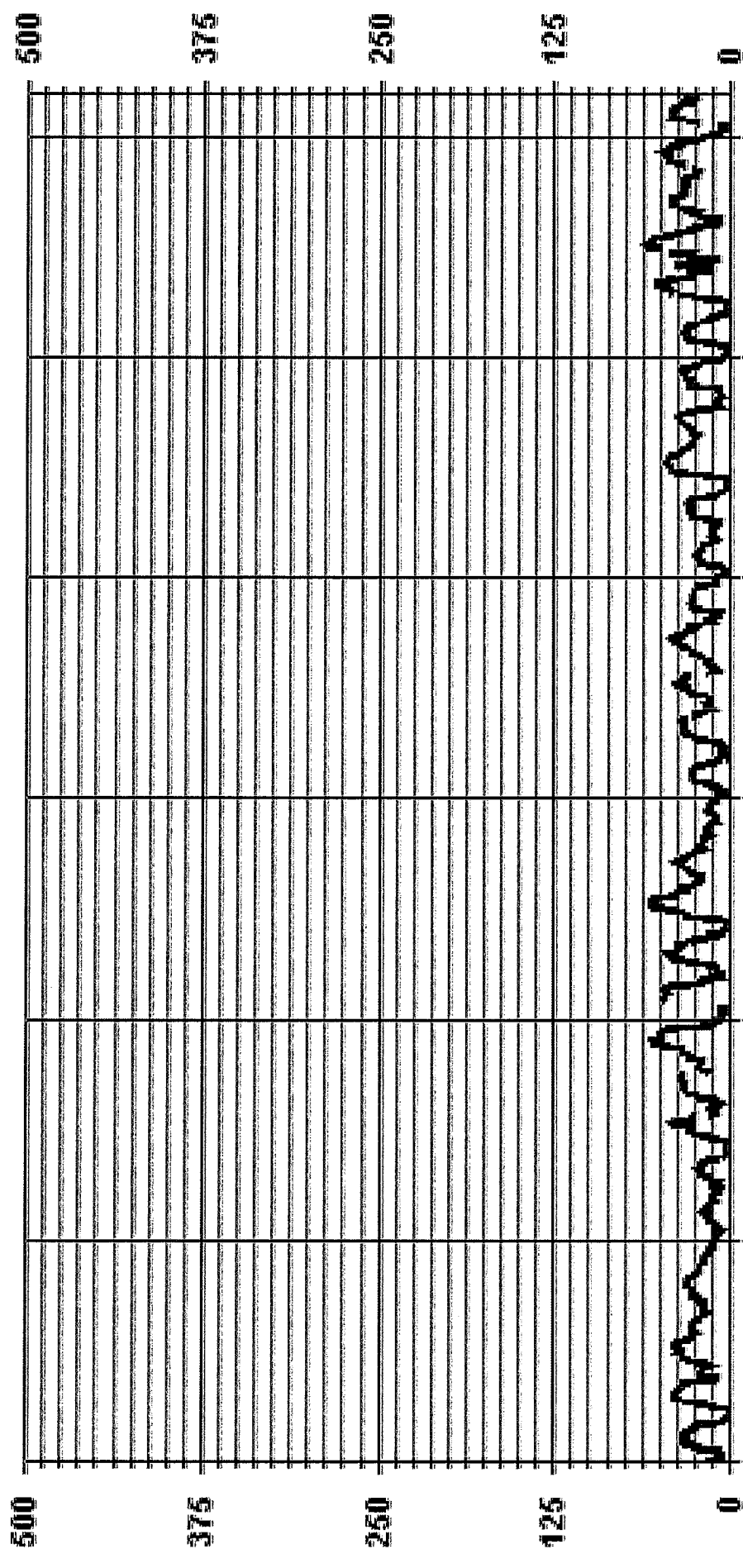
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707				
MAXIMUM INSTANTANEOUS VALUE:	60				
PPB	@	HOURLY(S)	13	ON DAY(S)	28
VAR-VARIOUS					
OPERATIONAL TIME: 744 HRS					
MONTHLY CALIBRATION TIME: 5 HRS					
STANDARD DEVIATION: 13.06					

01 Hour Averages



— LICA O3MAX PPB

IICA
 O3_ / WD Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 01
 Site Name : IICA
 Parameter : O3
 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	2.96	4.09	3.10	3.67	6.07	6.49	12.42	4.94	3.53	4.80	5.93	10.73	9.46	9.18	6.92	3.81	98.16
< 110	.00	.00	.00	.00	.00	.00	.28	.42	.28	.00	.14	.28	.14	.28	.00	.00	1.83
< 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	2.96	4.09	3.10	3.67	6.07	6.49	12.71	5.36	3.81	4.80	6.07	11.01	9.60	9.46	6.92	3.81	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

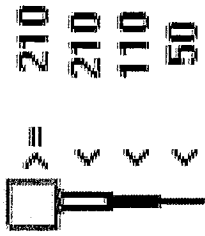
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	21	29	22	26	43	46	88	35	25	34	42	76	67	65	49	27	695
< 110							2	3	2	1	2	1	1	2			13
< 210																	
>= 210																	
Totals	21	29	22	26	43	46	90	38	27	34	43	78	68	67	49	27	

Calm : .00 %

Total # Operational Hours : 708

Logger : 01 Parameter : O3_

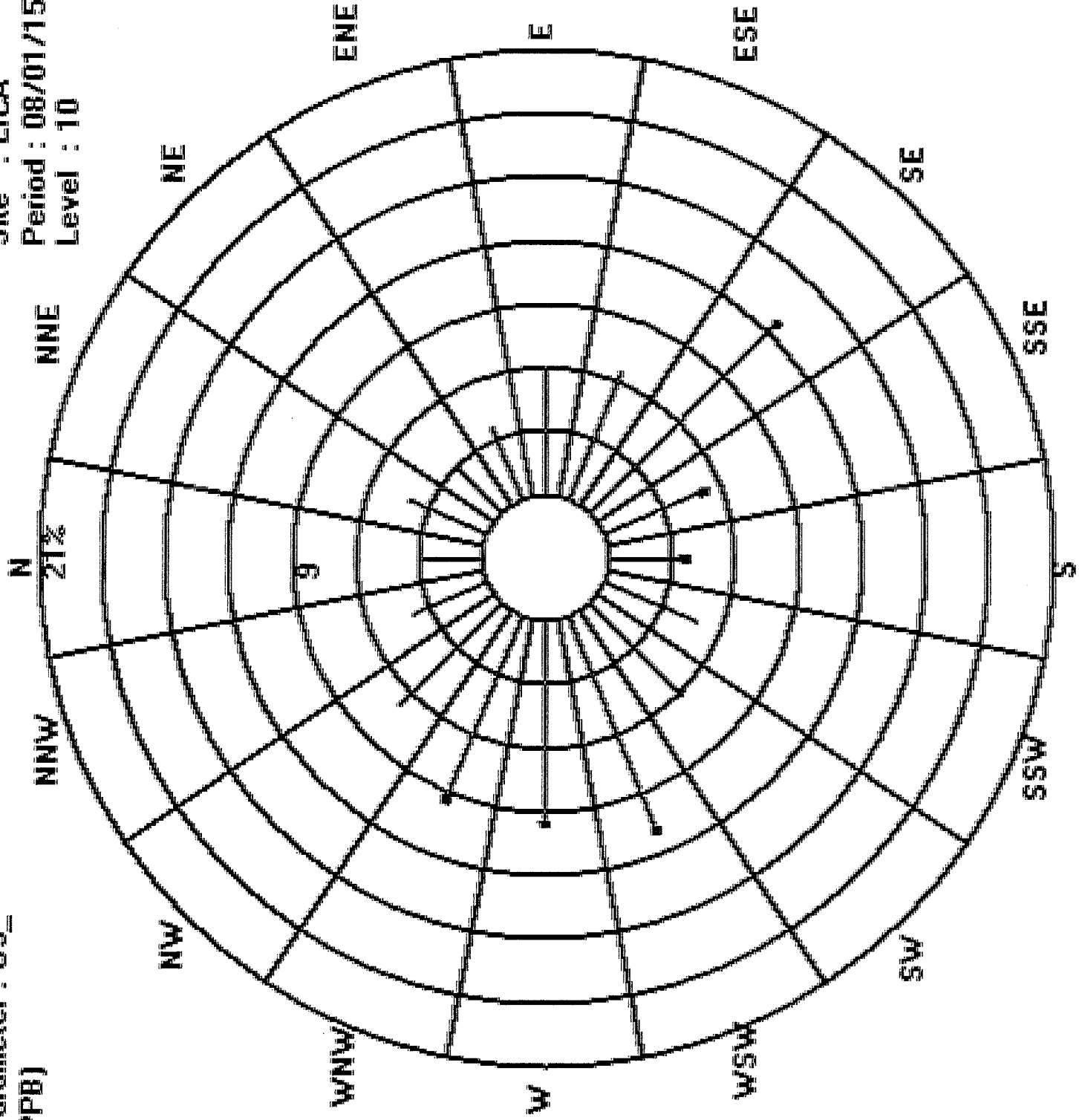
Class Limits (PPB)



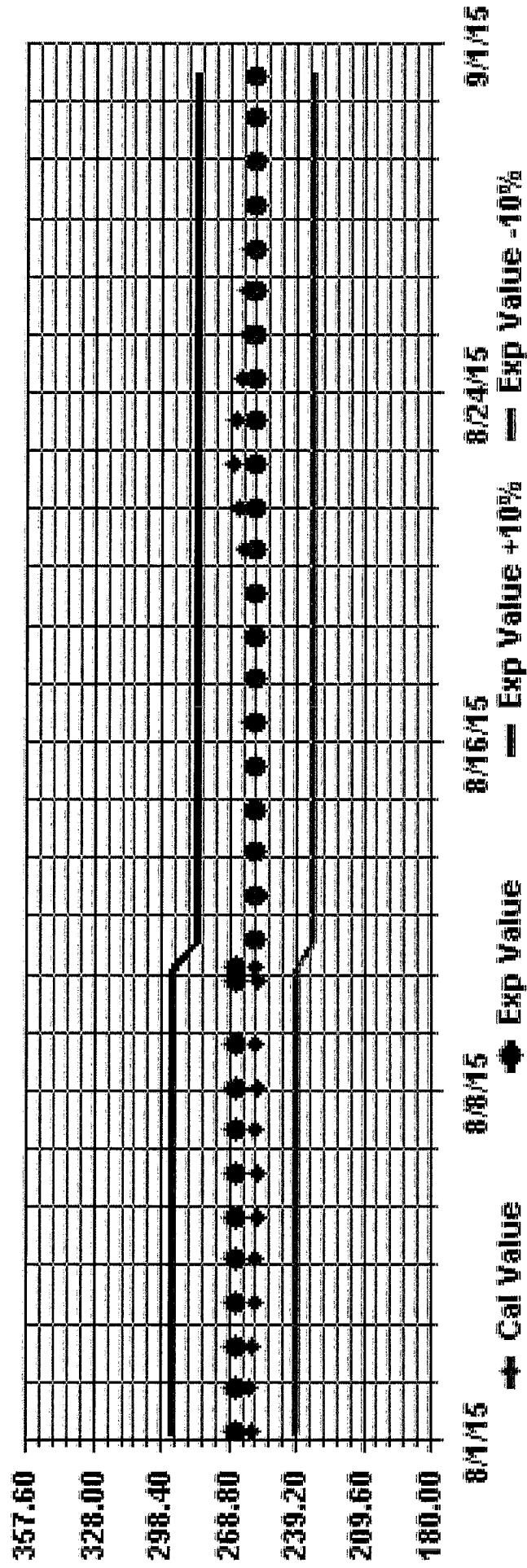
Site : LICA

Period : 08/01/15-08/31/15

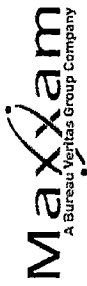
Level : 10



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

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	7	6	2	3	7	9	7	12	7	10	10	8	4	2	5	3	8	7	4	4	5	10	13	10	11	9	13	7.3	24
2	8	8	10	11	8	7	11	7	8	6	12	10	10	11	10	2	4	4	0	4	4	10	10	12	11	11	12	8.2	24
3	13	7	8	8	9	5	7	5	4	7	9	5	4	8	8	5	8	5	9	8	9	11	8	5	9	13	7.5	24	
4	13	10	11	6	6	10	7	8	3	8	7	6	7	5	6	4	7	2	8	5	4	8	5	4	8	2	13	6.6	24
5	8	4	4	3	4	0	0	0	2	5	1	X	0	2	2	0	0	0	0	6	0	1	4	2	4	2	8	2.3	23
6	1	1	4	2	4	3	3	0	0	3	2	1	5	2	2	4	1	2	1	3	3	7	6	3	7	2	7	2.5	24
7	0	4	3	5	4	4	C	C	0	4	8	7	6	8	5	0	4	12	5	3	7	2	2	12	12	4.6	24		
8	5	0	0	3	5	1	0	3	0	X	5	3	17	0	0	15	8	5	8	11	9	10	5	10	5	17	5.0	23	
9	1	2	3	5	0	7	3	4	9	6	4	5	8	6	7	4	8	5	6	1	9	8	4	4	9	5.0	24		
10	5	6	6	12	1	10	8	6	3	10	4	X	6	0	0	X	2	0	8	6	7	4	4	7	12	5.2	22		
11	9	12	7	7	6	4	5	0	9	13	12	14	4	13	9	6	7	9	8	10	9	10	14	13	14	8.8	24		
12	14	12	8	6	7	10	8	5	7	3	4	1	6	7	4	1	6	3	5	4	5	4	5	1	4	14	5.6	24	
13	3	3	3	2	2	3	8	4	3	0	6	9	12	17	3	19	18	12	13	24	16	12	16	24	24	8.8	24		
14	4	8	5	3	4	3	0	1	4	4	0	0	12	0	8	0	X	X	X	2	2	4	0	2	12	3.1	21		
15	0	0	0	0	0	0	0	2	4	2	4	0	1	2	3	0	0	0	3	5	X	3	0	2	0	5	1.3	23	
16	1	5	3	2	3	2	3	0	2	1	2	12	9	1	X	0	2	0	6	X	2	2	0	4	12	2.8	22		
17	0	0	1	0	7	2	1	6	1	2	0	0	0	0	X	10	0	4	7	3	10	3	4	2	9	10	3.1	23	
18	3	2	5	5	2	2	2	3	5	3	2	0	8	10	4	6	8	0	3	10	0	8	0	4	10	4.0	24		
19	5	4	3	4	8	8	4	2	4	X	3	0	6	5	4	X	1	0	7	X	5	9	0	2	9	4.0	21		
20	0	1	0	2	2	1	1	3	0	3	6	3	X	9	X	0	1	1	X	2	0	0	2	4	9	2.0	21		
21	0	0	2	0	2	1	5	1	6	2	0	3	5	6	3	2	1	2	2	1	2	0	0	2	6	2.0	24		
22	4	0	0	0	2	2	0	0	4	0	1	X	0	0	0	0	X	7	5	2	6	5	5	6	7	2.2	22		
23	2	0	2	1	0	3	2	2	1	3	2	7	3	1	2	0	4	0	3	6	8	3	0	3	8	2.4	24		
24	4	1	1	3	3	7	2	7	0	5	3	6	2	10	3	1	3	2	8	13	13	8	7	13	5.2	24			
25	7	9	7	3	5	7	2	5	4	0	X	4	3	0	7	3	9	7	9	7	9	9	8	4	9	5.5	23		
26	7	6	4	7	5	4	3	4	3	0	5	12	1	0	C	2	28	12	X	11	7	11	6	6	28	6.5	23		
27	8	9	13	6	8	9	4	3	10	35	X	1	12	12	16	40	19	31	24	29	19	16	20	25	40	16.0	23		
28	21	13	21	7	5	3	4	3	9	10	17	24	12	25	16	18	35	40	32	29	30	36	31	30	40	19.6	24		
29	33	35	26	27	23	24	14	0	11	12	10	3	5	13	10	23	9	11	15	14	11	13	16	26	35	16.0	24		
30	24	18	25	32	29	25	23	10	15	14	8	10	9	10	13	3	21	6	10	6	8	5	8	10	32	14.3	24		
31	8	4	10	13	10	5	5	9	14	0	2	X	2	0	8	X	11	2	X	9	0	10	4	5	14	6.2	21		
HOURLY MAX	33	35	26	32	29	25	23	10	15	35	17	24	12	25	17	40	35	40	32	29	30	36	31	30					
HOURLY AVG	7.0	6.1	6.4	6.0	5.8	6.1	5.0	3.7	5.2	5.9	4.2	5.6	5.4	5.4	6.7	5.9	5.6	7.9	6.9	7.3	8.9	7.8	7.9	6.7	7.6				

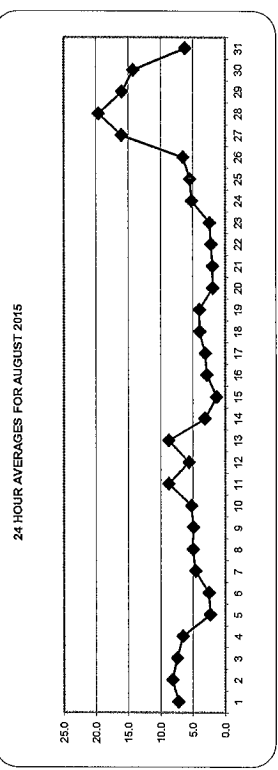
STATUS FLAG CODES

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

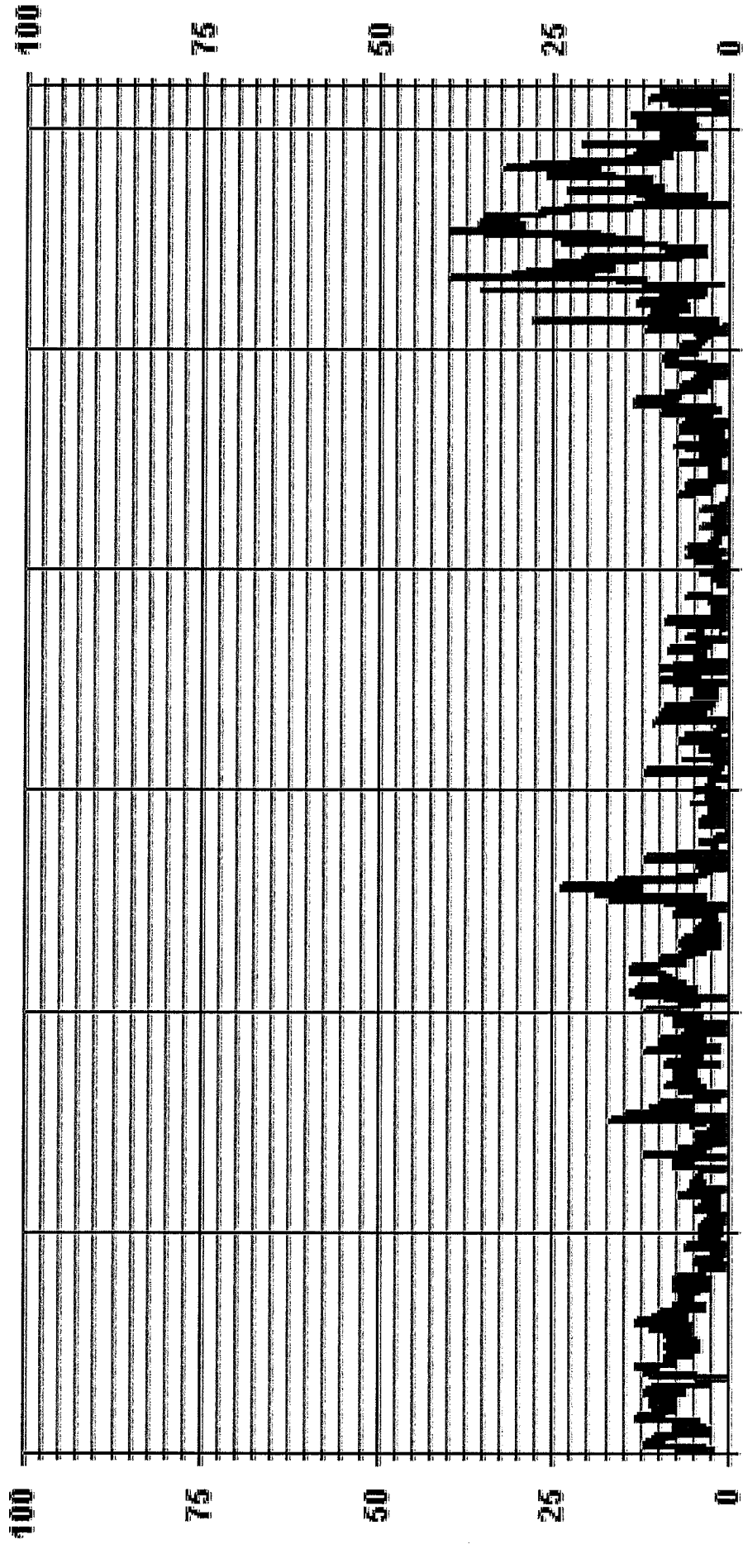
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 24-HRS: 30 ug/m3

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	616
MAXIMUM 1-HR AVERAGE:	40 ug/m3 @ HOUR(S) 15, 17
MAXIMUM 24-HR AVERAGE:	19.6 ug/m3
MONTHLY CALIBRATION TIME:	4 HRS
MONTHLY AVERAGE:	6.3 ug/m3
OPERATIONAL TIME:	719 HRS
AMTD OPERATION UPTIME:	96.6 %
MONTHLY AVERAGE:	6.3 ug/m3



01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA PM2 UG/M3

LIICA
PM2 / WD Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 01
Site Name : LIICA
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	2.79	4.19	3.07	3.63	6.29	6.43	12.02	5.17	3.77	5.03	5.87	12.02	9.37	8.25	6.85	3.35	98.18
< 60	.00	.00	.00	.00	.00	.27	.83	.00	.13	.00	.27	.00	.00	.13	.13	.00	1.81
< 80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.79	4.19	3.07	3.63	6.29	6.71	12.86	5.17	3.91	5.03	6.15	12.02	9.37	8.39	6.99	3.35	

Calm : .00 %

Total # Operational Hours : 715

Distribution By Samples

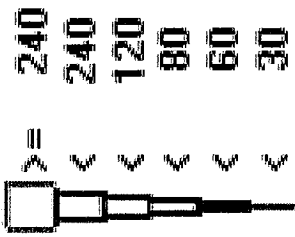
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	20	30	22	26	45	46	86	37	27	36	42	86	67	59	49	24	702
< 60						2	6		1		2			1	1		13
< 80																	
< 120																	
< 240																	
>= 240																	
Totals	20	30	22	26	45	48	92	37	28	36	44	86	67	60	50	24	

Calm : .00 %

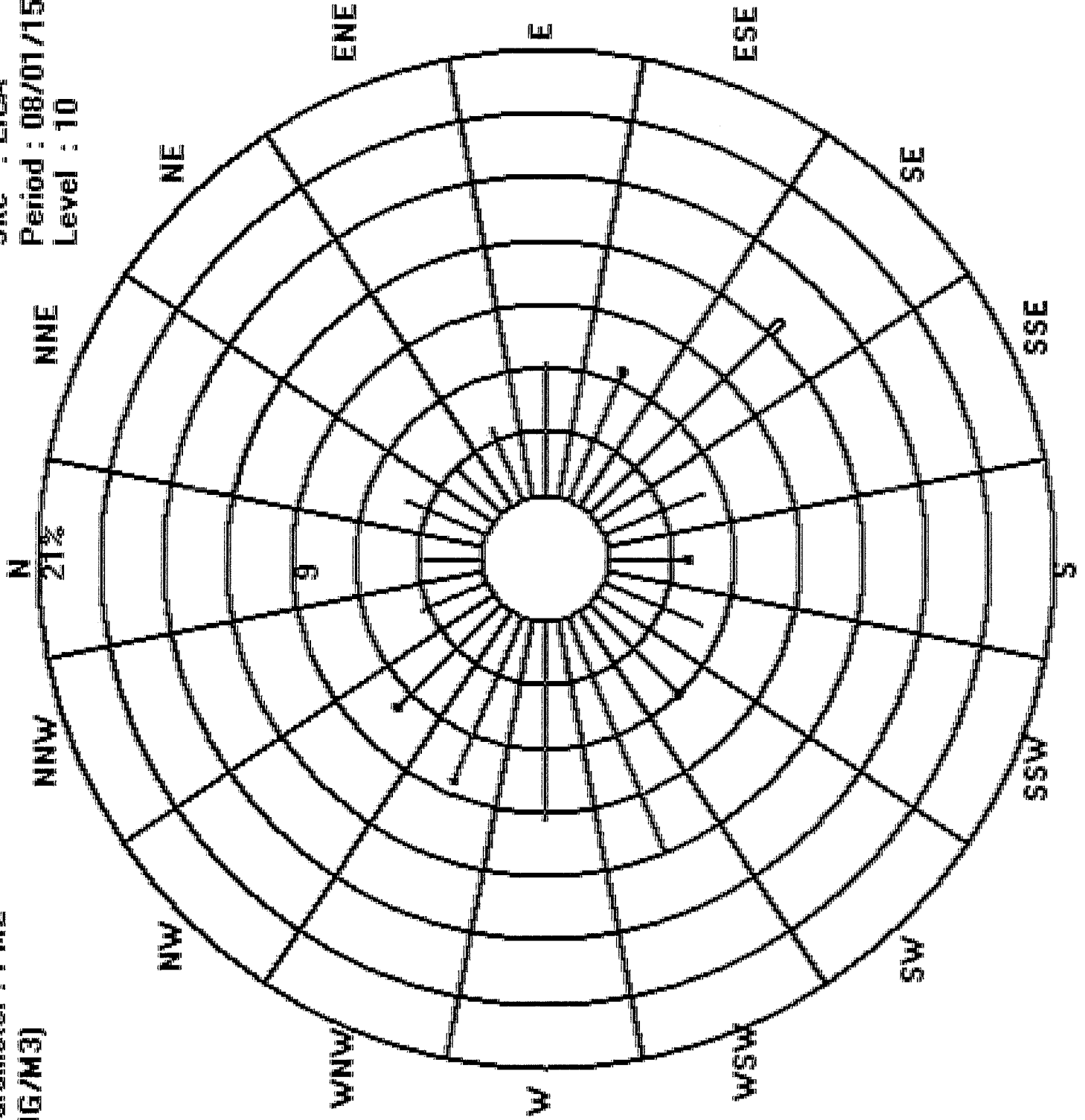
Total # Operational Hours : 715

Logger : 01 Parameter : PM2

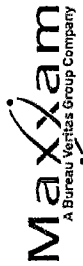
Class Limits (UG/M3)



Site : LICA
Period : 08/01/15-08/31/15
Level : 10



WIND SPEED



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - AUGUST 2015
JOB # 2833-2015-08-01 - C

WIND SPEED (WS) hourly averages in km/hr

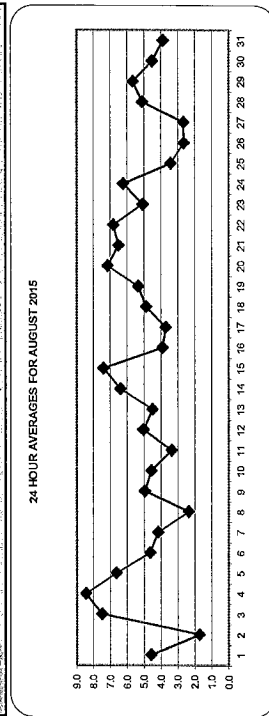
MST

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	
1	0.5	0.3	0.9	0.6	0.7	1.3	1.4	1.9	5.7	6.4	8.9	12.7	15.2	11.2	8.0	6.7	6.6	7.2	5.2	4.5	1.7	1.6	0.6	0.4	15.2	4.6
2	1.0	0.3	1.3	1.1	0.8	0.7	1.0	1.8	1.0	3.1	1.2	3.3	3.0	3.1	2.4	1.4	3.7	2.7	1.7	3.1	0.8	0.8	0.4	1.4	3.7	1.7
3	3.9	2.4	2.5	1.3	2.3	1.3	4.0	5.0	5.0	5.1	7.5	10.2	12.3	13.9	16.0	12.7	11.4	9.8	9.9	12.0	10.3	7.5	6.8	6.8	16.0	7.5
4	6.9	6.1	10.1	10.3	9.9	9.8	4.2	11.4	8.5	6.3	7.6	6.1	5.0	5.8	8.8	5.8	5.8	4.8	3.5	8.6	8.9	10.8	11.2	12.7	8.4	24
5	10.0	11.0	10.9	10.3	7.9	4.2	8.1	7.2	6.0	8.9	9.6	8.2	5.5	6.8	5.8	4.8	2.5	2.5	2.7	3.0	11.0	11.0	6.6	24	24	
6	4.3	2.3	2.4	0.4	0.2	2.6	2.5	4.2	5.1	4.0	5.3	5.3	5.9	7.5	7.7	7.8	9.3	8.4	7.7	5.7	3.2	2.1	4.0	3.8	9.3	
7	3.8	3.8	2.4	1.7	3.8	3.1	5.4	5.0	6.8	8.5	7.9	8.7	7.4	5.6	3.3	4.5	3.9	4.9	4.3	2.3	0.7	0.5	1.7	0.4	8.7	
8	0.3	0.1	0.2	0.8	1.1	0.7	3.1	5.5	6.6	5.8	5.8	3.4	2.4	2.8	1.5	3.4	3.3	1.7	2.7	2.0	1.3	0.4	0.6	1.1	6.6	
9	1.0	1.4	0.6	1.8	0.4	1.2	3.1	4.8	5.3	6.1	8.2	8.9	9.4	9.7	9.4	8.1	8.3	9.7	6.8	1.5	1.3	2.4	3.6	6.2	9.7	
10	5.6	4.3	4.8	6.8	5.0	0.6	3.6	4.8	7.0	6.5	8.1	8.8	7.9	5.9	6.3	6.0	5.5	4.9	3.0	1.3	1.4	1.0	0.3	0.6	8.8	
11	0.6	0.0	1.2	0.8	0.2	0.4	0.8	2.3	3.2	6.1	7.3	8.4	8.6	7.9	8.1	7.6	7.4	3.8	2.0	1.1	1.0	1.0	0.7	0.5	8.6	
12	1.1	1.3	1.5	1.0	0.2	1.7	2.4	2.9	3.1	5.9	7.8	8.7	11.2	12.8	12.5	11.2	14.2	10.4	6.1	1.9	0.8	0.4	0.4	1.6	14.2	
13	0.9	0.7	0.8	0.4	0.7	0.4	1.6	2.8	3.1	7.2	11.9	10.4	10.5	7.6	6.1	6.7	8.1	6.6	3.5	4.2	3.1	2.4	1.5	7.1	11.9	
14	11.6	2.5	2.1	1.7	2.8	4.0	4.3	5.8	10.9	9.6	9.8	9.3	11.0	10.7	11.0	9.3	7.8	5.6	3.4	4.3	3.5	3.8	3.4	5.4	11.6	
15	11.1	12.9	11.5	7.9	4.2	5.2	7.5	5.1	6.2	8.6	9.0	8.3	7.1	7.0	8.5	7.8	7.2	10.0	8.1	4.5	5.3	5.0	4.4	5.5	12.9	
16	6.4	8.1	5.8	2.5	2.7	3.8	4.6	3.1	4.3	3.5	4.6	4.3	9.0	6.5	4.0	4.0	5.2	0.4	3.8	3.3	1.2	1.0	1.2	0.7	9.0	
17	1.3	1.1	4.1	2.5	2.3	2.1	2.7	4.4	4.6	4.2	4.7	6.5	7.2	6.1	5.6	5.3	5.2	3.1	1.1	7.6	0.7	1.1	2.2	3.9	7.6	
18	2.2	1.5	3.9	3.8	4.3	3.8	6.1	6.5	6.2	5.9	7.4	8.0	8.2	8.4	8.4	8.2	7.3	7.2	5.2	2.0	0.8	0.6	0.7	0.7	8.4	
19	1.5	1.6	1.7	2.5	4.2	4.5	7.2	9.1	7.2	6.9	8.6	8.4	7.9	5.8	6.6	6.2	6.3	4.5	5.5	4.8	6.9	4.2	3.7	2.2	9.1	
20	2.0	2.8	3.0	3.7	3.3	2.8	4.7	6.2	6.4	8.5	10.9	14.9	16.6	15.2	15.7	13.1	12.0	9.8	4.5	2.4	2.0	2.6	2.3	16.6	7.2	
21	1.7	1.9	1.0	0.8	1.0	1.6	3.7	4.0	10.0	8.3	10.1	9.6	11.0	10.2	13.6	13.8	9.0	7.3	8.2	8.0	5.9	4.6	5.5	5.7	13.8	
22	4.8	5.7	5.4	5.0	4.5	5.8	3.9	4.7	5.1	11.6	12.9	13.4	10.3	11.5	13.3	12.5	9.9	11.6	7.4	1.5	1.0	0.4	0.7	0.7	13.4	
23	0.1	0.6	0.6	0.6	0.3	0.5	0.4	2.1	3.6	3.4	5.7	6.8	6.2	7.4	6.8	6.6	8.1	7.2	7.6	8.9	9.5	10.3	9.0	10.3	5.1	
24	10.3	7.8	5.9	6.1	4.3	2.0	3.4	9.9	12.2	9.4	9.1	10.0	9.2	10.9	9.7	9.5	7.1	5.1	3.2	1.0	1.3	0.8	0.8	12.2	6.2	
25	0.9	1.3	0.4	0.9	0.3	1.9	0.5	0.6	1.8	5.1	6.2	7.1	7.8	8.5	8.0	7.3	7.2	4.5	4.1	2.5	2.1	1.8	0.9	0.9	8.5	
26	1.0	1.0	0.6	0.2	1.0	0.1	1.1	1.2	1.3	3.4	2.3	4.3	3.0	3.9	4.2	3.4	6.1	7.6	6.6	4.4	3.4	2.4	0.6	0.4	7.6	
27	0.7	0.6	0.2	0.4	0.5	0.3	0.2	1.2	2.1	1.7	2.6	4.7	7.1	8.6	7.0	6.6	6.0	2.7	1.2	1.9	1.7	2.9	1.1	8.6	2.7	
28	0.8	2.5	7.7	5.6	0.6	0.3	1.4	3.2	6.9	7.7	8.4	7.7	3.6	6.0	5.8	6.0	10.2	7.9	6.8	6.9	5.2	1.2	1.2	10.2	5.1	
29	0.6	2.1	0.9	2.8	1.8	5.9	4.2	3.4	2.4	1.6	4.4	2.8	2.7	3.7	8.3	8.8	7.6	7.2	9.7	10.7	11.2	13.4	16.8	5.7		
30	11.6	9.5	3.4	1.6	2.7	2.6	2.4	4.5	5.1	4.0	3.1	2.3	3.6	5.6	7.3	7.2	6.1	4.9	3.7	8.9	1.0	1.2	4.1	2.4	11.6	
31	1.6	0.9	1.9	3.3	0.8	0.4	1.7	3.0	4.9	6.6	7.7	7.8	7.0	8.5	6.1	6.3	8.9	5.3	1.7	1.5	1.5	2.1	1.9	1.8	8.9	
HOURLY MAX	11.6	12.9	11.5	10.3	9.3	9.9	9.8	9.9	12.2	11.6	12.9	13.4	15.2	16.6	16.0	15.7	14.2	12.0	9.9	12.0	10.7	11.2	13.4	16.8	16.8	
HOURLY AVG	3.6	3.2	3.2	2.9	2.4	2.4	3.4	4.4	5.5	6.2	7.0	7.6	7.8	7.9	7.7	7.6	7.5	6.6	5.2	4.4	3.3	3.0	3.1	3.5	3.5	

STATUS FLAG CODES

C	QUALITY ASSURANCE	Q	RECOVERY
D	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/Span Check	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR

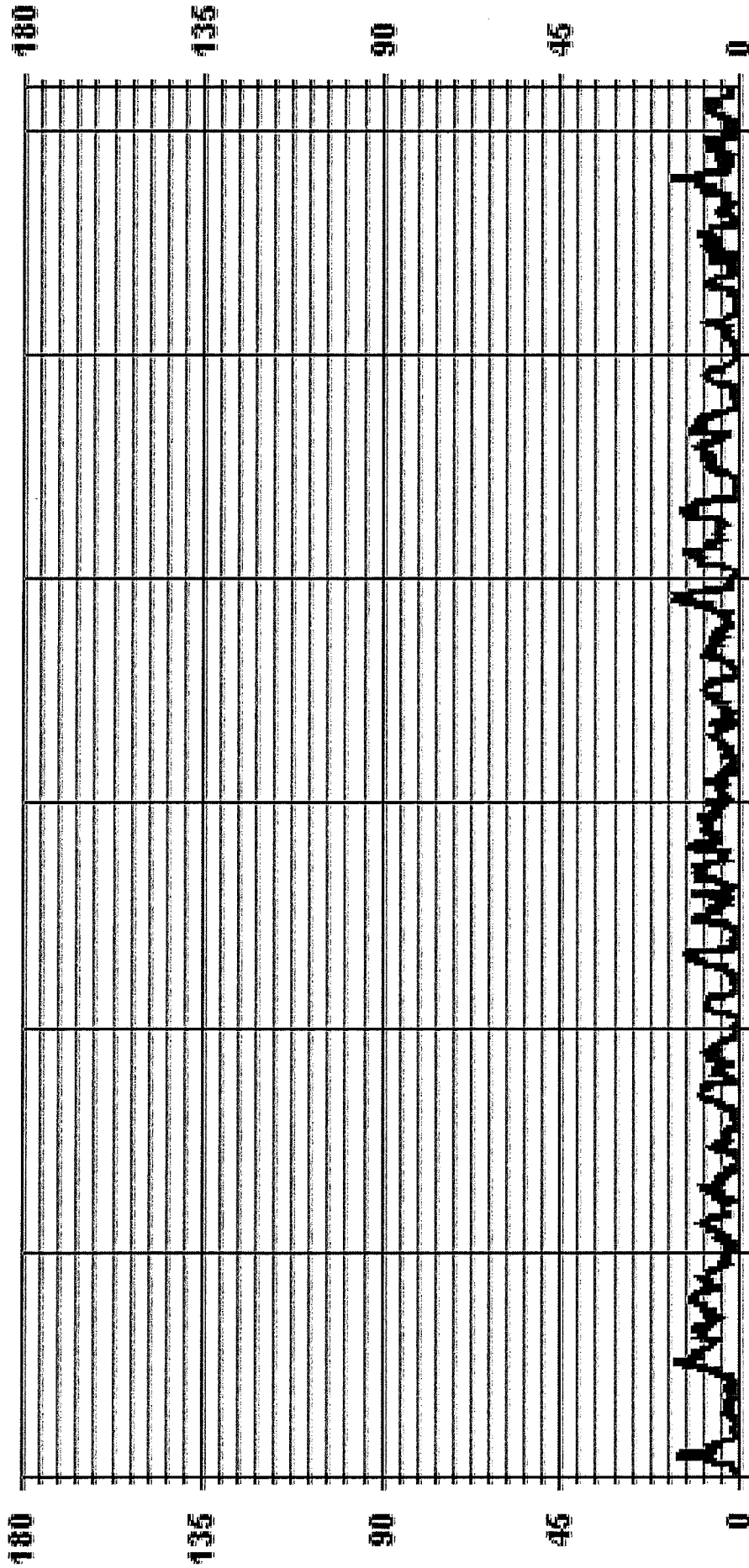
LAST CALIBRATION: April 1, 2015
DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST



MONTHLY SUMMARY

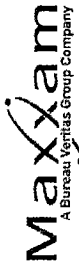
NUMBER OF NON-ZERO READINGS:	743
MAXIMUM 1-HR AVERAGE:	16.8 KPH
MAXIMUM 24-HR AVERAGE:	8.4 KPH
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION:	3.54
OPERATIONAL TIME:	744 HRS
AMT OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	5.0 KPH

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA WSP KPH



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - AUGUST 2015
JOB # 2833-2015-08-01-C

VECTOR WIND SPEED MAX instantaneous maximum 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	ROGS.		
1	8.4	5.4	3.9	3.4	3.8	4.3	3.9	5.6	11.7	11.6	19.2	23.7	24.3	18.4	15.9	13.6	12.7	20.5	10.2	15.0	4.0	4.5	2.2	2.7	24.3	10.4	24	
2	3.8	3.1	5.9	3.9	2.6	2.7	3.3	3.9	4.7	6.4	9.5	10.6	13.0	12.5	10.3	8.1	10.0	7.3	5.3	11.2	2.7	2.3	2.9	4.0	13.0	6.3	24	
3	9.4	11.5	8.0	2.9	4.7	2.8	9.2	12.1	11.3	14.1	16.6	22.3	20.1	27.8	20.1	21.8	18.0	17.0	19.0	15.8	11.9	10.3	11.0	27.8	13.6	24		
4	12.4	10.9	15.8	15.2	13.7	16.6	14.7	14.8	18.5	15.2	10.9	13.4	11.5	9.6	14.5	12.9	16.8	14.1	14.2	15.5	20.3	18.1	19.8	20.3	14.5	24		
5	16.8	20.6	17.6	17.7	13.5	28.3	12.2	11.5	14.0	16.7	14.6	15.7	11.1	15.3	10.2	12.0	10.3	9.5	6.5	8.8	6.6	7.4	4.9	5.8	28.3	12.8	24	
6	7.2	4.7	5.0	5.2	4.4	6.5	5.8	11.0	10.4	8.9	10.8	9.6	11.8	12.2	11.9	13.7	15.3	14.7	14.2	13.6	9.1	4.4	7.9	8.6	15.3	9.5	24	
7	9.2	8.2	4.7	2.9	6.3	5.3	8.6	9.4	13.5	15.4	14.1	15.7	13.3	13.9	8.3	8.2	7.3	8.3	7.7	5.2	3.3	3.4	4.2	2.2	15.7	8.3	24	
8	2.1	2.7	1.9	2.5	3.3	2.9	7.5	9.1	11.2	10.7	10.5	16.7	9.2	8.7	6.0	11.3	8.9	7.1	7.4	6.9	8.6	4.1	4.7	3.7	16.7	7.0	24	
9	3.8	6.4	3.1	6.1	5.0	3.5	6.2	8.8	9.0	11.9	15.2	17.6	19.1	20.4	16.2	17.4	14.0	15.0	12.4	5.5	3.3	4.1	7.7	10.5	20.4	10.1	24	
10	9.2	8.8	17.6	11.4	9.7	5.2	8.2	9.7	12.8	11.6	14.1	16.2	15.1	12.1	12.3	12.1	11.8	9.8	6.8	2.5	4.3	2.6	2.0	1.8	17.6	9.5	24	
11	2.5	3.6	2.4	2.6	3.5	3.6	2.8	5.3	6.9	11.6	12.9	16.2	16.5	15.9	14.6	13.4	12.4	10.8	5.9	2.9	2.5	3.6	2.6	3.1	16.5	7.4	24	
12	8.0	6.3	4.8	7.6	5.8	8.7	4.9	5.7	10.7	16.9	17.1	18.5	25.6	23.9	20.3	21.2	17.6	11.6	5.3	2.2	3.1	4.4	3.9	25.6	10.9	24		
13	3.6	2.4	3.5	2.4	3.1	1.8	5.3	7.6	8.0	14.6	20.9	19.3	18.5	16.7	12.9	18.3	13.3	12.3	6.3	6.5	8.3	9.4	7.5	21.4	10.2	24		
14	25.1	7.8	6.9	5.3	6.5	11.2	7.7	9.8	20.6	14.9	17.7	17.6	19.7	18.5	23.9	16.6	15.1	12.0	6.9	6.5	5.6	7.6	5.6	9.1	25.1	12.4	24	
15	18.4	21.3	17.2	14.0	7.3	10.2	11.9	8.3	10.3	13.3	13.2	12.3	11.5	12.4	12.3	12.3	12.8	16.5	14.0	9.7	7.2	8.4	7.0	7.9	21.3	12.1	24	
16	11.6	10.6	10.5	5.9	4.7	5.0	7.5	5.3	7.5	8.0	9.2	10.2	17.2	14.1	11.6	17.4	13.7	7.2	9.7	8.8	3.3	3.0	3.0	2.4	17.4	8.6	24	
17	3.4	4.9	6.4	4.4	5.0	4.8	6.9	7.8	8.7	8.6	10.9	12.7	16.9	15.8	13.4	12.6	10.3	7.4	19.4	20.6	5.9	7.7	13.7	6.9	20.6	9.8	24	
18	4.4	3.2	6.4	7.0	8.1	8.2	10.7	11.0	12.1	14.7	14.6	15.2	15.1	15.3	14.7	16.4	14.6	11.9	9.4	4.1	2.1	2.7	2.2	2.8	16.4	9.5	24	
19	4.0	4.4	5.2	4.1	8.8	10.9	10.5	11.9	13.3	14.0	15.9	16.1	17.7	14.1	12.3	14.0	12.4	9.1	18.1	14.6	14.3	8.4	12.8	4.8	18.1	11.3	24	
20	5.0	5.8	6.4	6.2	5.5	4.6	7.3	10.2	10.6	14.9	12.0	25.0	22.9	25.7	24.5	22.9	18.5	20.3	16.1	9.1	4.1	5.2	5.1	4.1	25.7	12.2	24	
21	5.1	5.4	3.1	2.3	3.5	4.9	6.1	12.5	15.8	14.2	16.1	14.8	18.3	15.7	21.5	22.1	17.7	15.2	18.3	13.5	9.0	22.1	7.8	9.9	9.0	22.1	11.8	24
22	7.4	9.0	9.0	6.7	6.5	9.0	7.8	8.4	9.5	23.0	19.6	19.5	17.7	23.7	22.2	24.2	19.6	19.6	12.0	6.8	3.0	2.3	2.5	2.3	24.2	12.1	24	
23	5.2	4.6	4.8	3.6	1.7	2.7	2.0	6.6	9.3	8.4	11.2	17.1	13.5	15.8	15.8	13.9	13.9	15.5	11.5	9.6	12.1	12.5	13.1	11.7	17.1	9.9	24	
24	13.5	12.0	8.6	8.2	8.4	7.1	8.3	15.9	17.2	15.9	16.7	18.1	15.3	17.8	16.6	16.1	13.5	9.3	5.5	3.7	2.7	1.9	1.4	2.7	18.1	10.7	24	
25	3.0	3.4	2.5	3.4	3.2	6.6	4.9	4.2	7.1	10.1	12.8	11.5	14.4	13.1	12.5	11.0	9.4	6.8	5.3	4.4	3.7	2.8	3.7	14.4	7.1	24		
26	3.4	3.2	2.5	3.0	2.9	2.2	3.8	2.9	4.4	7.7	8.2	9.5	10.5	11.2	14.9	10.5	11.0	11.2	10.8	6.2	5.8	4.4	3.5	2.5	14.9	6.5	24	
27	2.9	3.4	3.3	2.1	1.9	2.1	2.2	2.6	4.8	7.2	7.0	9.3	12.2	15.5	14.9	12.7	14.4	12.8	6.2	3.6	4.3	4.5	4.4	3.2	15.5	6.6	24	
28	2.7	6.1	18.2	12.4	7.0	3.6	4.8	11.6	10.7	14.3	18.1	12.6	11.5	15.5	14.9	17.3	14.2	13.9	11.3	10.0	10.2	8.7	4.9	5.7	18.2	10.8	24	
29	4.1	6.2	4.2	6.3	5.3	12.6	9.5	7.1	6.7	7.1	10.5	8.8	10.6	9.6	10.3	12.2	14.3	11.4	11.6	15.9	16.8	18.1	19.9	26.0	11.0	24		
30	19.5	17.2	7.7	6.1	6.4	6.2	5.5	9.2	10.2	9.4	8.3	7.8	11.4	16.1	21.2	15.4	12.2	9.0	18.0	20.9	7.2	5.3	10.6	6.4	21.2	11.1	24	
31	7.0	6.2	6.0	9.5	4.7	4.6	4.3	8.5	10.3	11.6	14.4	12.9	15.9	16.2	14.6	14.0	14.6	12.6	6.6	4.6	13.5	7.3	3.5	16.4	16.4	10.0	24	
HOURLY MAX	25.1	21.3	18.2	17.7	13.7	28.3	14.7	15.9	20.6	23.0	20.9	25.0	24.3	25.7	27.8	24.2	21.8	20.5	19.4	20.9	16.8	20.3	19.9	26.0	7.3			
HOURLY AVG	7.8	7.4	7.2	6.3	5.7	6.7	6.9	8.6	10.7	12.1	13.6	14.8	15.4	15.8	15.2	15.0	13.7	12.6	10.9	9.4	7.1	6.5	6.6	6.6	7.3			

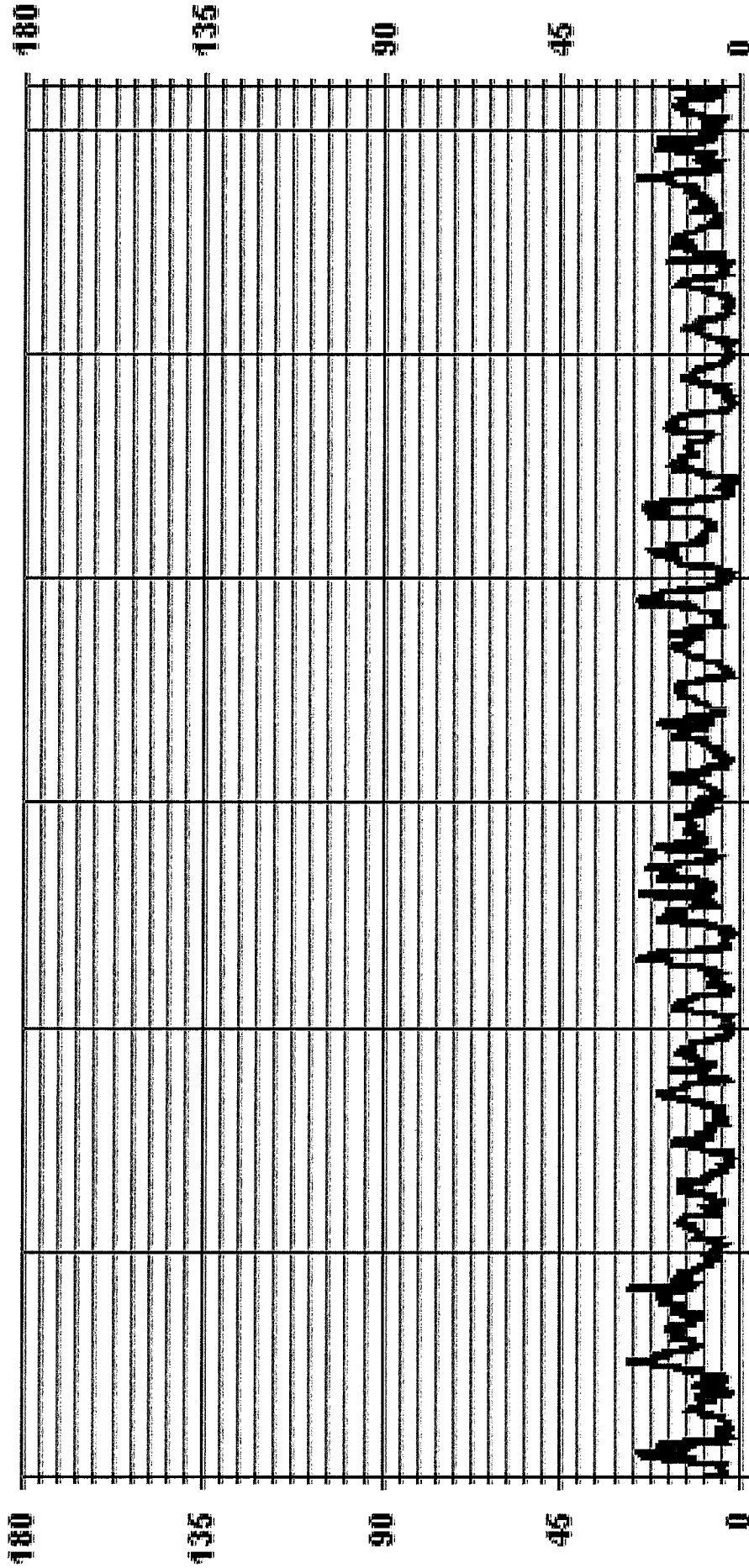
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	28.3	KPH	@ HOUR(S)	5	ON DAY(S)	5	
OPERATIONAL TIME:						744	HRS
						VAR-VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA WSMAX KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

August 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	1.74	2.55	1.47	2.68	3.36	3.22	4.97	3.09	3.22	4.56	4.16	9.81	5.64	4.97	2.28	1.74	59.54
< 12.0	.67	1.61	1.47	.80	2.41	2.82	6.18	1.88	.67	.00	1.74	1.88	3.36	3.49	3.62	1.61	34.27
< 20.0	.13	.00	.00	.00	.26	.00	.94	.00	.00	.00	.00	.00	.26	.67	1.07	.26	3.62
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.55	4.16	2.95	3.49	6.04	6.04	12.09	4.97	3.89	4.56	5.91	11.69	9.27	9.13	6.98	3.62	

Calm : 2.55 %

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	13	19	11	20	25	24	37	23	24	34	31	73	42	37	17	13	443
< 12.0	5	12	11	6	18	21	46	14	5	13	14	14	25	26	27	12	255
< 20.0	1				2		7						2	5	8	2	27
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	19	31	22	26	45	45	90	37	29	34	44	87	69	68	52	27	

Calm : 2.55 %

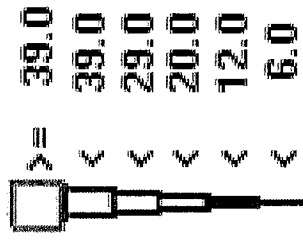
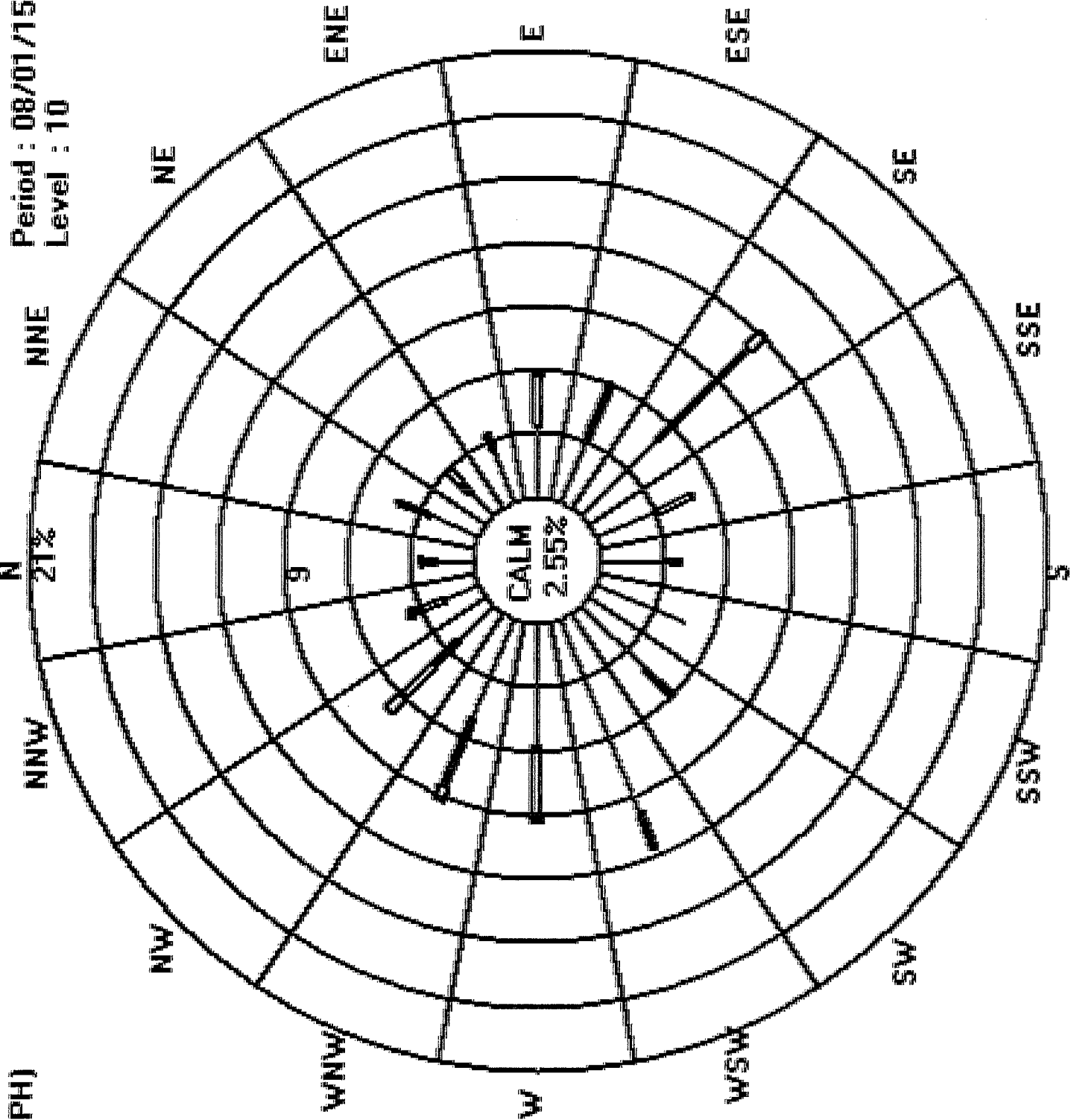
Total # Operational Hours : 744

Logger : 01 Parameter : WSP

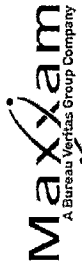
Site : LICA

Period : 08/01/15-08/31/15

Level : 10



WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - AUGUST 2015
JOB # 2833-2015-08-01 - C

WIND DIRECTION (WD) hourly averages

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

24-HOUR AVG
QUADRANT

RD.SS. 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

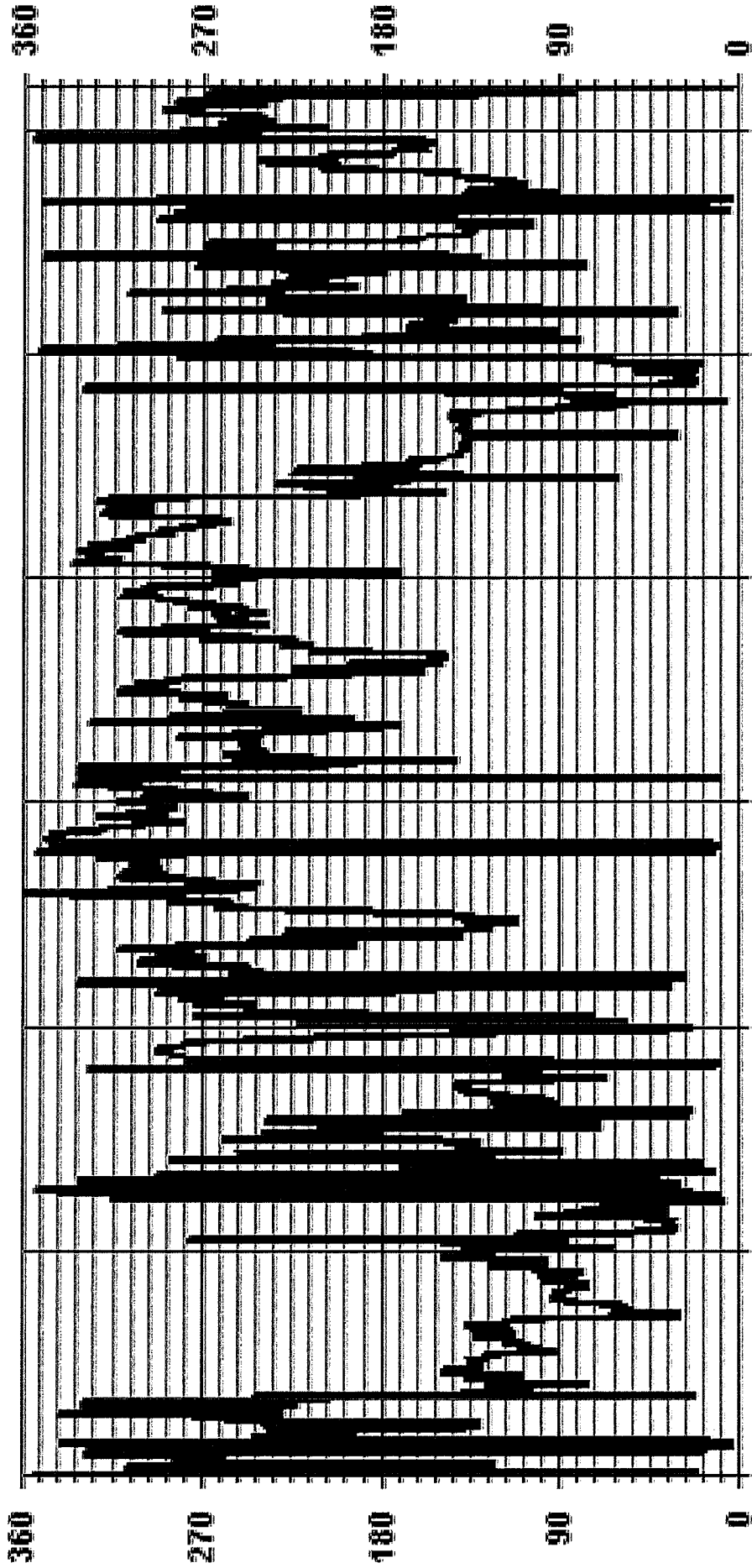
STATUS FLAG CODES

C	CALIBRATION	O	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALLEGRON
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 CALIBRATION TIME: 0 HRS
STANDARD DEVIATION: 92.37
MONTHLY CALIBRATION TIME: 744 HRS
AMT OPERATION UPTIME: 100.0 %
MONTHLY AVERAGE: WSW

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA - - - WDR . . . DEG

STANDARD DEVIATION WIND DIRECTION



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Cold Lake South Site - AUGUST 2015
JOB # 2833-2015-08-01- C

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	24:00
1	76	72	42	65	59	49	37	39	24	32	28	23	22	23	33	31	32	22	18	21	45	34	39	46	
2	53	63	61	47	61	49	49	38	56	48	57	66	66	50	50	44	38	39	42	35	45	41	52	41	
3	28	29	35	44	24	32	30	29	36	36	24	25	20	20	20	21	23	23	22	21	20	22	23	23	
4	24	24	21	19	25	24	24	24	20	17	23	24	25	27	26	21	23	23	23	22	29	23	23	21	
5	22	22	23	24	24	51	22	23	53	23	22	22	22	25	26	25	23	24	22	28	23	36	34	22	
6	15	31	35	60	63	37	28	34	28	40	36	31	34	26	25	26	22	24	25	23	27	27	22	21	
7	26	25	26	23	18	22	24	22	18	23	29	28	35	43	38	26	39	32	27	32	43	41	39	56	
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9	56	48	34	59	79	53	27	26	30	31	27	28	26	21	26	23	14	18	38	29	15	22	22	22	
10	21	33	35	30	26	31	29	35	21	28	25	25	29	38	35	39	38	26	29	33	30	52	68	50	
11	40	55	34	56	76	60	60	36	38	31	28	30	33	30	32	30	27	35	36	52	53	57	60	58	
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13	50	52	32	43	58	60	55	34	45	26	20	23	24	37	38	38	26	23	17	15	43	39	49	39	
14	24	33	29	54	45	41	22	26	24	24	20	23	29	28	25	24	23	21	20	15	19	18	24	21	
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19	53	59	57	33	25	31	18	18	30	38	36	97	40	39	34	37	21	28	35	39	14	17	25	29	
20	27	50	26	16	15	19	23	23	26	23	32	31	26	23	23	21	20	19	20	16	23	43	29	28	
21	39	38	51	41	36	38	21	26	17	21	22	23	22	19	18	20	20	22	16	13	14	15	17	17	
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23	72	67	45	66	55	50	61	34	40	40	40	42	43	43	44	44	42	32	22	12	11	12	12	12	
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27	42	46	66	51	42	62	64	45	44	51	52	60	42	36	37	36	34	28	32	49	39	49	23	44	
28	47	33	31	49	74	38	39	34	24	29	31	34	54	45	47	37	19	15	13	13	12	18	53	54	
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30	19	18	34	59	29	43	34	28	32	41	47	67	63	53	41	37	38	23	43	19	53	51	16	40	
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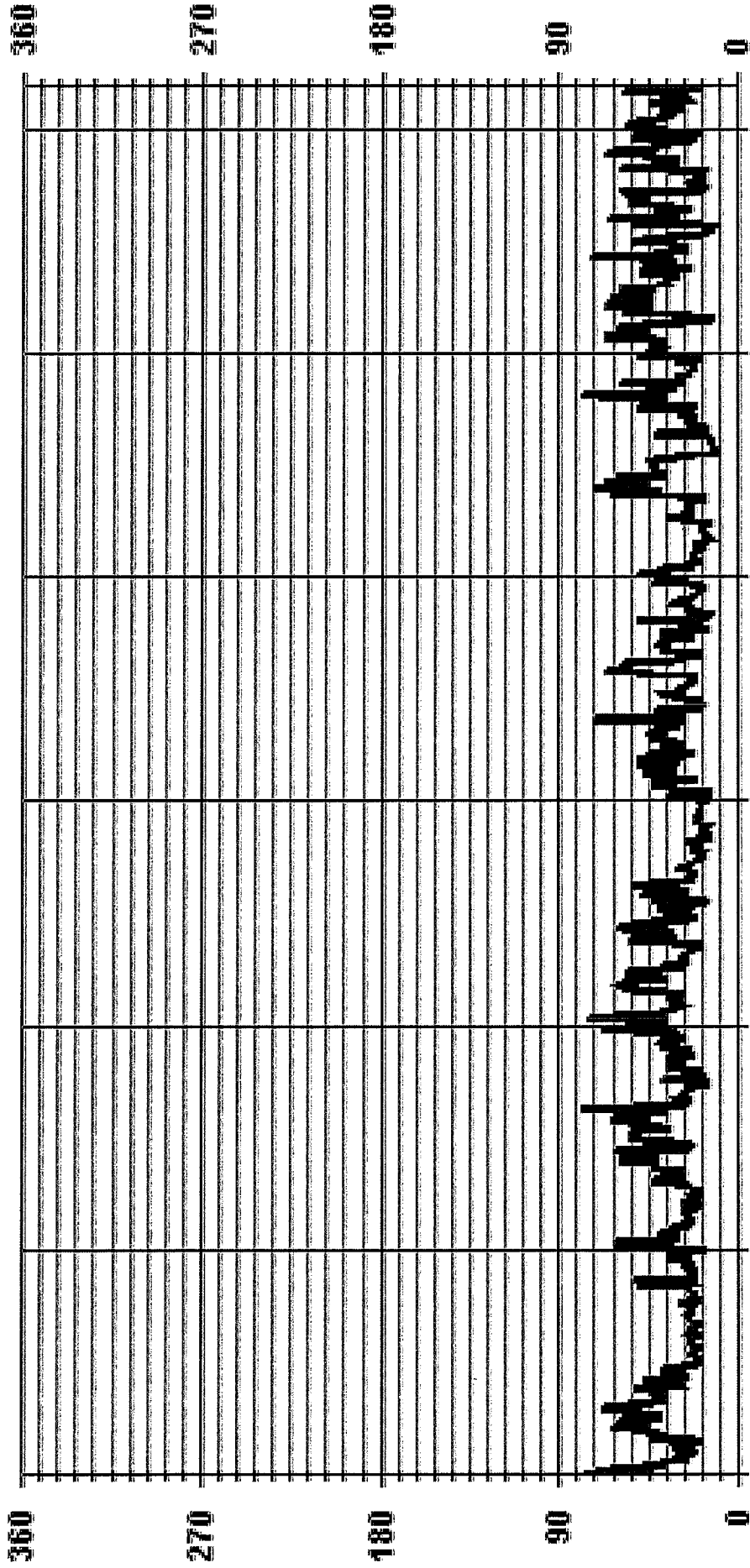
STATUS FLAG CODES

C	-CALIBRATION	Q	-QUALITY ASSURANCE
M	-MAINTENANCE	R	-RECOVERY
S	-DAILY ZERO/SPAN CHECK	X	-MACHINE/VELOCITY
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

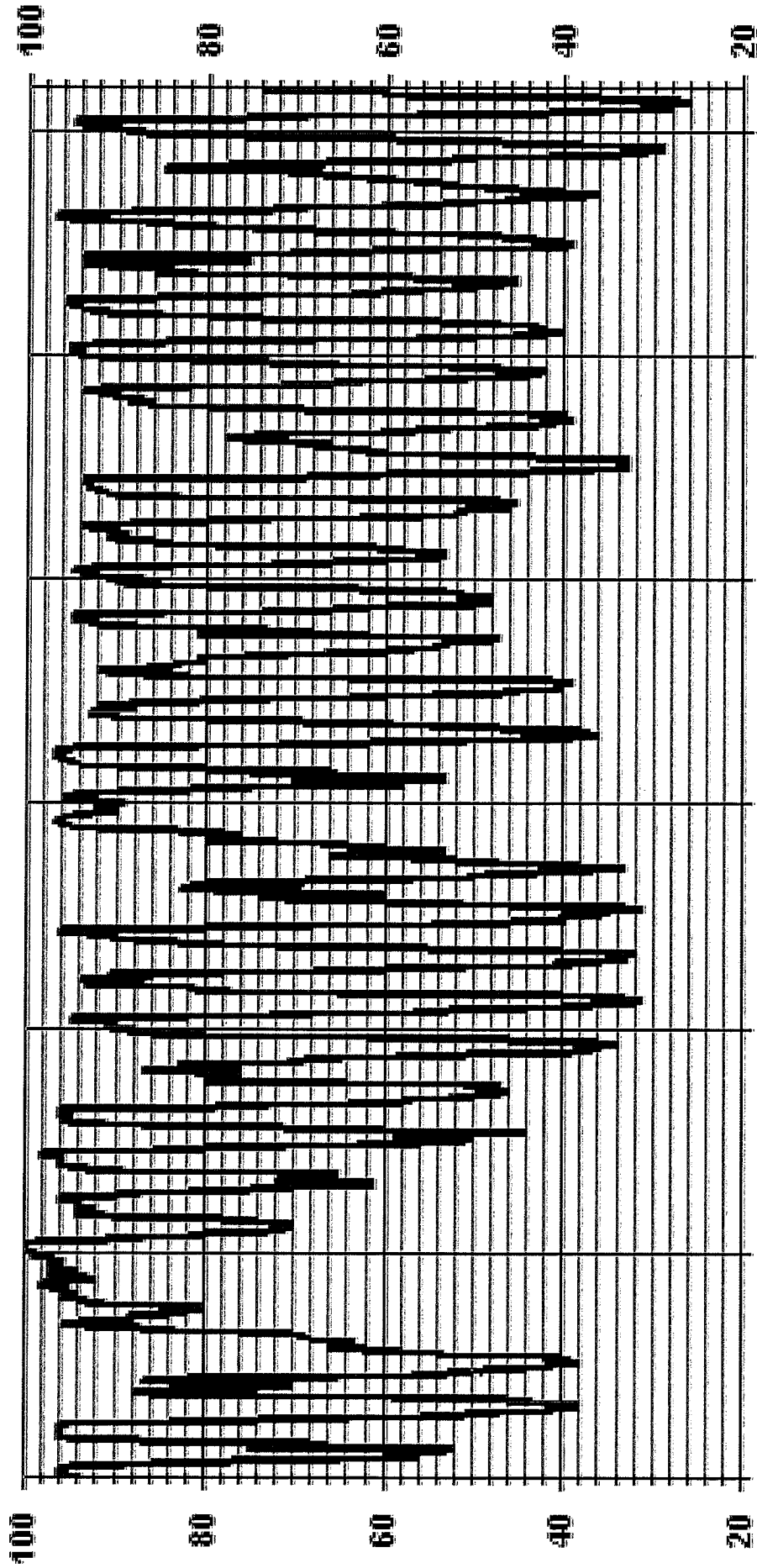


08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA STOWDIR DEG

RELATIVE HUMIDITY

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA RH %FS

AMBIENT TEMPERATURE



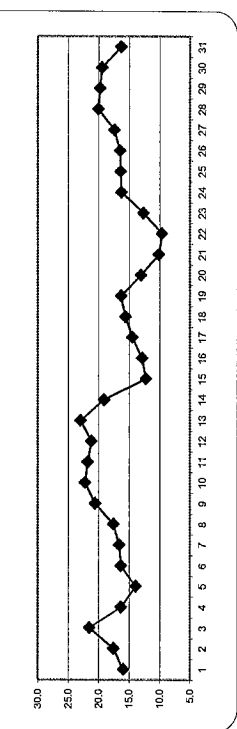
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

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-HOUR AVG.	ROBS.		
1	13.1	12.2	11.6	11.0	10.4	10.9	12.6	15.1	15.7	17.9	20.5	21.0	21.2	20.3	20.9	20.9	21.3	18.2	19.9	18.9	17.1	12.7	11.7	10.7	21.3	16.0	24	
2	9.8	9.0	8.4	7.9	7.4	8.6	13.1	16.8	19.1	20.3	21.9	22.5	24.2	24.5	24.8	24.9	25.2	24.6	24.8	21.4	15.8	15.5	14.6	15.4	17.6	24	24	
3	17.0	17.3	17.5	15.4	14.2	15.3	19.0	20.9	22.2	23.6	23.9	25.2	25.5	25.4	26.2	26.4	26.0	25.6	24.2	23.2	22.0	21.0	19.9	19.6	26.4	21.5	24	
4	19.5	18.6	18.1	18.2	18.2	18.0	17.4	16.6	16.3	15.9	15.0	14.0	16.0	15.8	15.8	16.0	16.0	16.0	15.6	15.3	14.5	13.9	13.6	19.5	16.4	24	24	
5	13.4	13.2	13.1	12.9	13.0	13.0	13.0	13.1	12.9	13.0	14.0	14.3	14.3	14.3	14.3	14.5	14.6	14.8	14.9	15.1	15.0	14.9	14.7	14.6	14.5	15.1	24	
6	14.5	14.4	14.4	14.3	14.2	14.3	14.4	15.1	15.3	16.3	16.8	17.4	18.6	18.8	18.9	19.3	19.2	18.9	18.5	16.8	16.1	15.5	15.6	15.4	19.3	16.4	24	
7	15.0	15.1	15.0	14.8	14.6	14.7	14.7	15.1	15.2	16.3	17.0	18.4	19.6	20.0	19.2	19.1	20.0	20.8	20.5	19.0	15.8	14.1	13.2	12.3	20.9	17.6	24	
8	11.5	10.8	10.2	9.3	8.8	9.4	12.5	15.6	17.4	19.5	21.4	22.9	24.2	24.6	24.6	24.0	24.8	24.8	23.3	21.6	18.4	16.3	14.5	13.7	24.8	17.6	24	
9	13.5	13.1	12.3	12.2	12.2	12.4	16.9	18.6	20.9	22.7	24.0	25.0	25.8	26.4	27.0	27.2	27.3	27.0	26.3	23.8	20.3	19.5	19.5	20.2	27.3	20.6	24	
10	19.5	18.9	17.7	17.7	17.5	16.5	19.1	20.4	21.3	23.0	24.7	26.3	27.6	28.6	29.0	28.9	28.8	28.7	26.8	23.7	19.2	17.2	16.4	16.3	29.0	22.2	24	
11	15.9	15.9	15.5	14.6	13.4	13.2	16.9	20.2	21.4	24.3	25.8	27.1	28.6	29.2	29.4	29.6	29.2	29.8	28.8	23.7	19.7	17.9	17.3	15.6	29.8	21.8	24	
12	14.6	14.2	14.5	15.8	15.7	14.7	17.6	20.6	22.8	24.4	25.9	25.6	26.7	27.5	27.8	28.2	27.7	27.4	26.0	22.9	18.8	17.7	16.7	15.7	28.2	21.2	24	
13	15.1	14.8	14.4	13.9	13.1	12.8	16.9	20.8	23.7	25.3	26.9	28.1	29.4	30.8	31.4	31.9	31.6	30.7	27.8	25.3	23.6	21.4	20.8	20.6	31.9	23.0	24	
14	20.2	18.3	16.6	15.6	15.6	15.5	16.0	18.6	19.8	21.0	20.6	20.9	22.3	22.9	22.9	22.4	22.5	21.6	20.5	19.1	17.7	16.5	16.1	16.0	22.9	19.1	24	
15	16.0	14.7	13.7	13.2	12.4	11.7	11.7	11.8	11.9	12.2	12.2	11.2	11.1	11.4	11.7	11.9	12.3	12.1	12.1	12.2	12.1	12.2	12.1	11.7	11.3	16.0	12.3	24
16	10.9	10.8	9.9	9.0	8.4	9.5	10.4	11.6	13.3	14.7	16.1	17.3	15.0	15.4	17.8	17.2	16.2	15.4	16.3	13.4	12.4	11.1	9.5	8.2	17.8	12.9	24	
17	7.0	6.5	8.1	8.7	8.1	8.3	9.3	12.5	15.0	17.4	18.7	19.3	19.9	21.1	21.1	21.5	21.3	19.3	17.8	15.4	14.2	13.2	12.1	12.1	14.5	14.5	24	
18	11.8	11.5	11.5	11.3	11.1	10.1	10.7	13.2	14.9	17.3	18.6	19.8	20.7	21.7	21.9	22.7	21.8	21.7	21.2	17.1	13.1	11.4	10.3	9.8	22.7	15.6	24	
19	9.6	10.6	11.4	11.5	12.2	12.7	13.1	14.1	15.5	16.7	18.7	20.2	21.5	22.3	22.8	23.9	23.0	23.5	20.2	16.6	15.6	13.7	13.0	10.1	23.9	16.4	24	
20	8.6	8.6	7.5	7.2	7.0	6.9	10.4	13.4	15.7	16.4	18.0	19.9	19.6	19.4	18.8	17.9	16.6	16.2	15.5	13.3	10.6	9.4	8.5	8.4	19.9	13.1	24	
21	8.3	8.8	7.8	6.9	5.4	5.1	7.6	9.9	11.4	12.3	12.9	13.4	13.9	13.8	14.0	13.4	12.8	12.7	10.9	10.2	9.4	8.4	7.5	7.4	14.0	10.2	24	
22	6.9	6.4	6.0	5.6	5.1	4.3	5.7	8.4	10.7	11.7	12.9	13.3	13.3	14.2	15.1	14.4	14.9	15.5	14.6	11.5	7.6	5.8	4.6	3.5	15.5	9.7	24	
23	2.7	1.9	1.3	0.8	0.3	0.1	4.0	10.1	13.2	14.9	18.2	19.3	20.6	21.2	21.4	21.3	20.8	19.5	16.8	15.3	14.5	13.6	12.4	12.4	12.7	24	24	
24	12.2	11.2	10.1	9.3	8.9	9.5	10.7	13.0	14.2	16.3	18.8	20.9	22.1	22.8	23.1	23.7	23.9	23.6	22.7	19.0	16.0	14.1	13.2	12.1	23.9	16.3	24	
25	11.5	11.1	10.3	9.5	8.8	8.2	9.7	13.1	16.5	17.9	18.9	20.3	21.8	22.9	23.7	23.6	23.5	23.0	22.1	19.3	17.3	15.4	13.5	12.1	23.7	16.4	24	
26	11.1	10.0	9.0	8.2	7.9	7.9	9.4	13.1	17.2	19.3	21.5	22.2	23.2	24.1	23.8	24.1	23.4	22.4	21.1	18.5	16.8	15.5	14.4	12.4	24.1	16.5	24	
27	11.5	10.6	10.0	9.2	8.6	8.2	10.1	13.7	17.4	19.9	21.5	23.5	23.9	24.7	25.2	25.5	26.1	25.2	23.6	19.3	16.6	15.3	15.5	14.3	26.1	17.5	24	
28	13.4	12.9	14.6	15.8	13.4	11.0	12.7	15.8	21.9	24.1	25.7	26.5	26.7	27.1	26.7	26.4	25.9	24.4	22.3	20.4	19.2	17.2	15.8	27.1	20.0	24		
29	14.7	13.4	12.7	12.6	11.9	13.4	16.1	17.7	19.8	21.4	21.8	22.8	24.6	25.6	25.7	25.0	24.0	22.9	21.8	21.4	20.8	19.9	19.1	25.7	19.8	24		
30	18.3	17.3	16.0	14.9	13.0	13.4	14.5	17.8	19.9	21.9	22.7	24.5	26.0	26.4	26.6	26.6	26.0	24.1	21.7	19.3	17.6	14.2	12.4	11.8	26.6	19.5	24	
31	11.2	10.9	10.0	10.5	9.0	7.5	9.4	14.0	16.6	19.2	21.5	21.2	22.4	23.6	23.5	23.9	23.5	23.4	21.0	15.5	14.7	15.1	12.0	12.2	23.9	16.3	24	
HOURLY MAX	20.2	18.9	18.1	18.2	18.2	18.0	19.1	20.9	23.7	25.3	26.9	28.1	29.4	30.8	31.4	31.9	31.6	30.7	28.8	25.3	23.6	21.4	20.8	20.6				
HOURLY AVG	12.8	12.4	11.9	11.5	11.0	10.9	12.8	15.2	17.0	18.6	19.9	20.8	21.6	22.1	22.4	22.5	22.3	21.9	20.8	18.4	16.3	15.0	14.0	13.3				

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

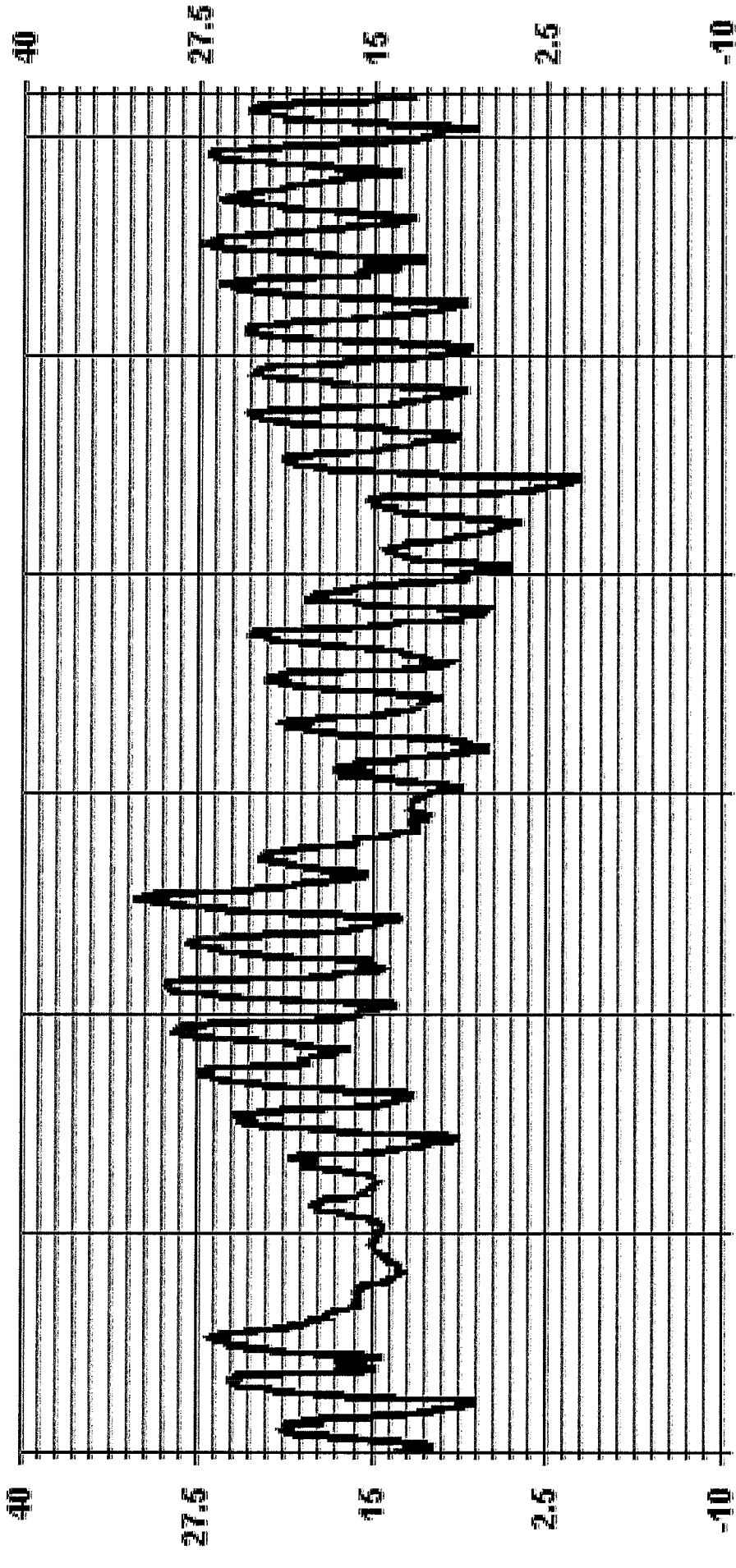
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	0.1	°C	@ HOUR(S)	5	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	31.9	°C	@ HOUR(S)	15	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	23.0	°C			ON DAY(S)	13
					VARIOUS	
STANDARD DEVIATION:	5.84					
OPERATIONAL TIME:	744	HRS				
AMD OPERATION UPTIME:	100.0	%				
MONTHLY AVERAGE:	16.9	°C				

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA TPX DGC

APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

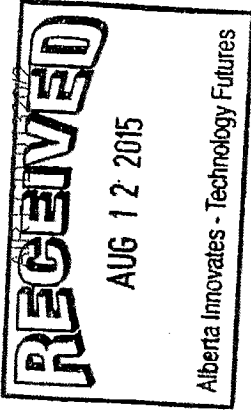
VOC RESULTS

Sample ID: 15080137-001

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/August 4, 2015

Maxxam

VOC Sample Collection Data Sheet



Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/August 4, 2015

Sampler S/N: 6167
Canister ID: 14698
Canister Installation Date/Time: July 30, 2015 @ 08:32
Canister Removal Date/Time: August 6, 2015 @ 15:05

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 4, 2015	00:00 August 4, 2015	00:00 August 5, 2015	24

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)
28.8	23.3

21.95

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 Yankov
Sample out by Alex Yankov

Date: August 6, 2015

Volatile Organics Data Results

Date: AUGUST 4, 2015
Canister ID: 14398

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	0.01
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	0.02
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	0.04
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.02
Acetone	4.2
Acrolein	< 0.3
Benzene	0.03
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.63
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	1.0
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.29

Volatile Organics Data Results

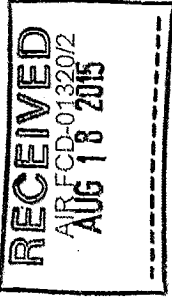
Date: AUGUST 4, 2015
Canister ID: 14398

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.65
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.08
Isopentane	0.21
Isoprene	0.23
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	0.26
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	0.05
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: 15080281-001

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/August 10, 2015



Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: CLS
 Station ID: LICA 01
 Field Sample ID: LICA/VOC/CLS/August 10, 2015

Sampler S/N: 6167
 Canister ID: 15759
 Canister Installation Date/Time: August 6, 2015 @ 15:06
 Canister Removal Date/Time: August 12, 2015 @ 09:21

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 10, 2015	00:00 August 10, 2015	00:00 August 11, 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)
28.0	23.6

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 Yampor

Sample out - by Alex Yampor

Date: August 12, 2015

Volatile Organics Data Results

Date: AUGUST 10, 2015
Canister ID: 15759

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	0.01
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	0.10
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.03
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	0.06
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.03
Acetone	7.0
Acrolein	< 0.3
Benzene	0.03
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.18
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.59
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	0.02
Dibromochloromethane	< 0.01
Ethanol	1.9
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.30

Volatile Organics Data Results

Date: AUGUST 10, 2015
Canister ID: 15759

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.67
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.15
Isopentane	0.30
Isoprene	5.75
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.05
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	0.03
Methylcyclopentane	0.03
Methylene chloride	< 0.3
n-Butane	0.41
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	< 0.01
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	0.08
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.02
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15080333-001

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/August 16, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/VOC/CLS/August 16, 2015

Sampler S/N: 6167
Canister ID: 55658
Canister Installation Date/Time: August 12, 2015 @ 08:22
Canister Removal Date/Time: August 20, 2015 @ 08:55

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 16, 2015	00:00	00:00	24.0
August 16, 2015 August 17, 2015			

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

23861
2015

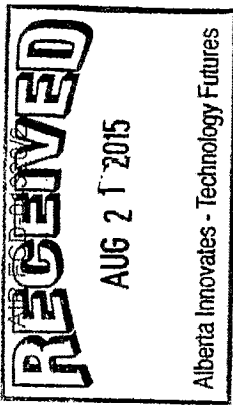
Canister valve open prior to sampling? YES NO
Timer set to 0.00 minutes prior to sampling? YES NO
Canister valve closed prior to disconnection? YES NO

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

Comments:

Technician Signature: Sample in - by Alex Yauspor
Sample out - by Alex Yauspor

Date: August 20, 2015



Volatile Organics Data Results

Date: AUGUST 16, 2015
Canister ID: S5658

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	0.01
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	0.04
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	0.03
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.02
Acetone	2.3
Acrolein	< 0.3
Benzene	0.02
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.08
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.50
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	0.8
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.29

Volatile Organics Data Results

Date: AUGUST 16, 2015
Canister ID: S5658

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.67
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.07
Isopentane	0.25
Isoprene	0.48
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	< 0.02
Methylene chloride	< 0.3
n-Butane	0.17
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: 15080449-001

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/August 22, 2015

AIR FCD-01320/2

Maxxam

VOC Sample Collection Data Sheet

Client: LICA Sampler S/N: 6167
 Location: CLS Canister ID: 1685
 Station ID: LICA 01 Canister Installation Date/Time: August 20, 2015 @ 08:56
 Field Sample ID: LICA/VOC/CLS/August 22, 2015 Canister Removal Date/Time: August 26, 2015 @ 13:53

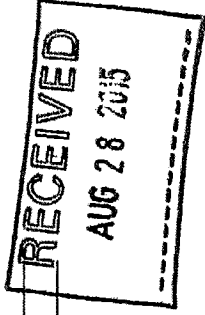
Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 22, 2015	00:00	00:00	24.0
	August 22, 2015	August 23, 2015	

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

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

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: August 26, 2015

Volatile Organics Data Results

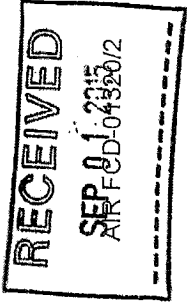
Date: AUGUST 22, 2015
Canister ID: 1685

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,1,2-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	0.06
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
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	0.15
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	0.04
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.04
Acetone	4.3
Acrolein	0.6
Benzene	0.03
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	1.26
Carbon tetrachloride	0.08
Chlorobenzene	< 0.02
Chloroethane	0.08
Chloroform	0.03
Chloromethane	0.78
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.03
cis-2-Pentene	< 0.02
Cyclohexane	0.04
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	1.0
Ethyl acetate	< 0.4
Ethylbenzene	0.01
Freon-11	0.29

Volatile Organics Data Results

Date: AUGUST 22, 2015
Canister ID: 1685

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.61
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.09
Isopentane	0.18
Isoprene	0.37
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.05
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	0.06
Methylcyclopentane	0.03
Methylene chloride	< 0.3
n-Butane	0.20
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	< 0.01
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	0.6
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	0.04
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02



Sample ID: 15090005-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/August 28, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: CLS
 Station ID: LICA 01
 Field Sample ID: LICA/VOC/CLS/AUGUST 28, 2015

Sampler S/N: 6167
 Canister ID: H2P21
 Canister Installation Date/Time: AUGUST 26, 2015 @ 13:54
 Canister Removal Date/Time: AUGUST 31, 2015 @ 08:24

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 28, 2015	00:00	00:00	24.0

Flow Settings	
Meter Reading (sccm)	Pump Pressure Setting (psig)
10.0	6.52
	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.0	24.0

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 Yampoor
 Sample out - by Alex Yampoor
 Date: August 31, 2015

Volatile Organics Data Results

Date: AUGUST 28, 2015
Canister ID: H2821

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	0.01
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	0.10
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	0.05
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.01
2-Methylhexane	0.03
2-Methylpentane	0.12
3-Methylheptane	< 0.02
3-Methylhexane	0.03
3-Methylpentane	0.07
Acetone	5.5
Acrolein	< 0.3
Benzene	0.13
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.08
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.68
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	0.02
Dibromochloromethane	< 0.01
Ethanol	2.7
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.27

Volatile Organics Data Results

Date: AUGUST 28, 2015
Canister ID: H2821

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.62
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.56
Isopentane	0.52
Isoprene	3.28
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.06
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	0.05
Methylcyclopentane	0.06
Methylene chloride	< 0.3
n-Butane	1.21
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.16
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	0.13
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: 15080137-002

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/August 4, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/August 4, 2015
Puf+ SIN: TE-06
Motor SIN: 1138
Installation Date/Time: July 30, 2015 @ 09:38
Removal Date/Time: August 6, 2015 @ 14:49

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 4, 2015	00:00 August 4, 2015	00:00 August 5, 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)
710	229	16.6°	330.21

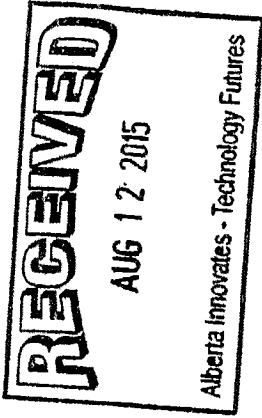
Time set correctly prior to sampling? YES/NO
Timer set correctly prior to sampling? YES/NO
Sampling data saved to memory card after sampling? YES (NO)

Comments:

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

Date: August 6, 2015

AIR FCD-01321/2



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 4, 2015
PUF S/N: TE06

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.01
2-Methylnaphthalene	0.09
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	0.02
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	0.05
Fluorene	0.07
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.06
Perylene	< 0.01
Phenanthrene	0.31
Pyrene	0.04
Retene	0.06

Sample ID: 15080281-002

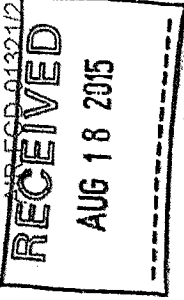
Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/August 10, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: CLS
Station ID: LICA 01
Field Sample ID: LICA/PUF/CLS/August 10, 2015

Puf+ SIN: TE-05
Motor SIN: 1138
Installation Date/Time: August 6, 2015 @ 14:51
Removal Date/Time: August 12, 2015 @ 08:27



Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 10, 2015	00:00	00:00	24.0
	August 10, 2015	August 11, 2015	

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

Set Flow Rate (slpm): 250
Date of Last Calibration: 01- sep 08 - 11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
711	219	24.2°
		Volume (Vstd m³)
		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 Yakupov
Sample out - by Alex Yakupov
Date: August 12, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 10, 2015
PUF S/N: TE05

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.05
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.05
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	0.03
Fluorene	0.05
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 0.01
Phenanthrene	0.17
Pyrene	0.04
Retene	0.02

Sample ID: 15080333-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/August 16, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ SIN: TE-03
 Location: CLS Motor SIN: 1138
 Station ID: LICA 01 Installation Date/Time: August 12, 2015 @ 08:20
 Field Sample ID: LICA/PUF/CLS/August 16, 2015 Removal Date/Time: August 20, 2015 @ 08:48

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST) Elapsed Time (Hours)
August 16, 2015	00:00	00:00 24.0

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

Set Flow Rate (slpm): 180

Date of Last Calibration: 01-Sept-11

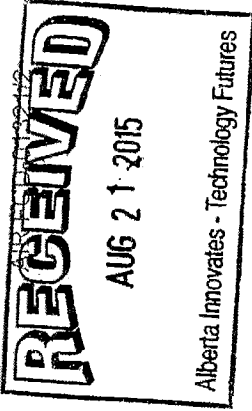
Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C) Volume (Vstd m ³)
715	229	14.4° 330.21

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 Yanupor
 Sample out- by Alex Yanupor

Date: August 20, 2015



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 16, 2015
PUF S/N: TE03

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.03
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	< 0.01
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	0.04
Fluorene	0.05
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.03
Perylene	< 0.01
Phenanthrene	0.25
Pyrene	0.04
Retene	0.04

Sample ID: 15080449-002

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/August 22, 2015

AIR FCD-01321/2

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ SIN: P13-01
 Location: CLS Motor SIN: 1138
 Station ID: LICA 01 Installation Date/Time: August 20, 2015 @ 08:49
 Field Sample ID: LICA/PUF/CLS/August 22, 2015 Removal Date/Time: August 26, 2015 @ 12:37

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 22, 2015	00:00	00:00	24.0
	August 22, 2015	August 23, 2015	

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

Set Flow Rate (slpm): 230

Date of Last Calibration: 01- Sept - 11

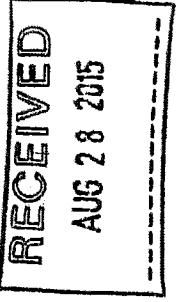
Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
714	229	10.9
		Volume (Vstd m ³)
		330.19

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: August 26, 2015



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 22, 2015
PUFS/N: P1301

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.10
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	0.05
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
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,i)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.03
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	0.01
Naphthalene	0.08
Perylene	< 0.01
Phenanthrene	0.13
Pyrene	0.04
Retene	< 0.01

RECEIVED
 SEP 01 2015
 AIR FCD-0132112

Sample ID: 15090005-002
 Customer ID: LICA
 Cust Samp ID: LICA/PUF/CLS/August 28, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE-04
 Location: CLS Motor S/N: 1138
 Station ID: LICA 01 Installation Date/Time: August 26, 2015 @ 13:38
 Field Sample ID: LICA / PUF / CLS / August 28, 2015 Removal Date/Time: August 31, 2015 @ 08:30

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 28, 2015	00:00	00:00	24.0
	August 28, 2015	August 29, 2015	

Set Flow Rate (slpm): 230
 Date of Last Calibration: 01 - Sept - 14

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

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

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
705	229	21.4 ^o	330.21

Comments:

Technician Signature: Sample in - by Alex Yakupov
Sample out - by Alex Yakupov
 Date: August 31, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 28, 2015
PUF S/N: TE04

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.04
2-Methylnaphthalene	0.07
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	< 0.01
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.03
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	0.05
Fluorene	0.08
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.05
Perylene	0.02
Phenanthrene	0.30
Pyrene	0.05
Retene	0.03

PARTISOL RESULTS

Sample ID: 15080136-001

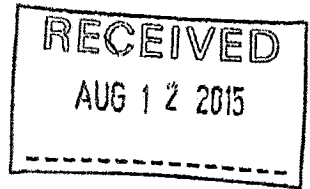
Customer ID: LICA

Cust Samp ID: LICA P4149454

AIR FCD-01318/2

Partisol Sample Data Sheet

Priority: Normal



Date Sampled: August 4, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P414 9454

Start Time 00:00 August 4, 2015

End Time 00:00 August 5, 2015

Status OK

Std Vol 23.185

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Yanupov

Date: August 6, 2015 @ 15:11

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"

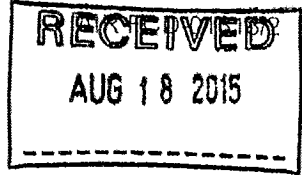
Note: Beginning & End Date should be same date

Sample ID: 15080282-001

Customer ID: LICA

Cust Samp ID: LICA P4149455

Partisol Sample Data Sheet



Priority: Normal

Date Sampled: August 10, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P4149455

Start Time 00:00 August 10, 2015

End Time 00:00 August 11, 2015

Status OK

Std Vol 22.611

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

Empty lines for comments

Technician Signature: Alex Yakupov

Date: August 12, 2015 @ 08:47

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: 15080332-001

Customer ID: LICA

AIR FCD-01318/2

Cust Samp ID: LICA P4149572

Partisol Sample Data Sheet

Priority: Normal

Date Sampled: August 16, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P 414 95 72

Start Time 00:00 August 16, 2015

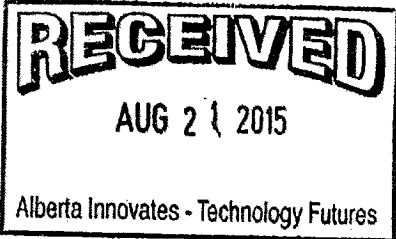
End Time 00:00 August 17, 2015

Status OK

Std Vol 23.591

Valid Time 24:00

Total Time 24



Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Vakupov

Date: August 20, 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"

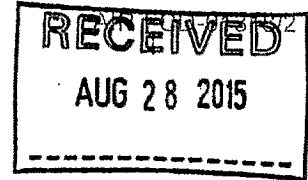
Note: Beginning & End Date should be same date

Sample ID: 15080448-001

Customer ID: LICA

Cust Samp ID: LICA P4149571

Partisol Sample Data Sheet



Priority: Normal

Date Sampled: August 22, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P4149571

Start Time 00:00 August 22, 2015

End Time 00:00 August 23, 2015

Status OK

Std Vol 23.793

Valid Time 24:00

Total Time 24:00

Comments: Weather Conditions, etc.

Horizontal lines for handwritten comments.

Technician Signature: Alex Yakupov

Date: August 26, 2015
(13:55)

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

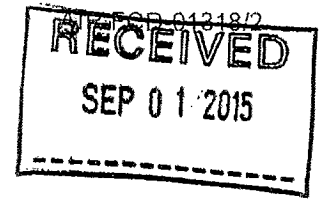
Sample ID: 15090003-001

Customer ID: LICA

Cust Samp ID: LICA P5010238

Partisol Sample Data Sheet

Priority: Normal



Date Sampled: August 28, 2015

Location: CLS

Parameter: TSP PM10

PM2.5

Filter #: LICA P5010238

Start Time 00:00 August 28, 2015

End Time 00:00 August 29, 2015

Status OK

Std Vol 22.664

Valid Time 24:00

Total Time 24

Comments: Weather Conditions, etc.

Empty lines for comments

Technician Signature: Alex Yankov

Date: August 31, 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



Partisol Sampler Results

Date	Filter NO.	Concentration (mg)
AUGUST 4	P4149454	0.102
AUGUST 10	P4149455	0.068
AUGUST 16	P4149572	0.026
AUGUST 22	P4149571	0.011
AUGUST 28	P5010238	0.39

APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

Maxxam Thermo 43i SO2 Analyzer Calibration

Date: 10-Aug-15 Start/End Time (mst): 9:18 - 13:10
 Company: LICA Calibration Purpose: Monthly
 Station Name/Location: Cold Lake South Converter Make & Model: NA
 Performed by: Alex Yakupov Converter Serial #: NA
 Application H₂S/TRS/SO₂: SO2 Cal Gas Expiry Date: 12-Mar-19

Analyzer:
 Serial Number: 806528242 Range ppb: 500
 Last Calibration Date: 8-Jul-15 As Found C.F.: 1.011
 Previous Cal High Point C.F.: 1.000 New C.F.: 0.990

	As found:		As left:
MOTHERBOARD:	BKG: <u>6.8</u>	BKG:	<u>6.7</u>
	COEF: <u>1.067</u>	COEF:	<u>1.077</u>
	<u>3.3</u>		<u>3.3</u>
	<u>5.0</u>		<u>5.0</u>
	<u>15.0</u>		<u>15.0</u>
	<u>24.0</u>		<u>23.9</u>
	<u>-3.3</u>		<u>-3.2</u>
INTERFACE BOARD:	PMT: <u>-632.3</u>	PMT:	<u>-632.7</u>
	FLASH: <u>707</u>	FLASH:	<u>705</u>
	<u>3.3</u>		<u>3.3</u>
	<u>5.0</u>		<u>5.0</u>
	<u>15.0</u>		<u>14.8</u>
	<u>-15.0</u>		<u>-15.1</u>
	<u>24.0</u>		<u>23.7</u>
	INTERNAL: <u>27.7</u>	INTERNAL:	<u>27.8</u>
	CHAMBER: <u>45.1</u>	CHAMBER:	<u>45.2</u>
	PERM OVEN GAS: <u>45.0</u>	PERM OVEN GAS:	<u>45.0</u>
	PERM OVEN HEATER: <u>44.19</u>	PERM OVEN HEATER:	<u>44.19</u>
	PRESSURE: <u>680.1</u>	PRESSURE:	<u>680.1</u>
	SAMPLE FLOW: <u>0.475</u>	SAMPLE FLOW:	<u>0.476</u>
	LAMP INTENSITY: <u>77</u>	LAMP INTENSITY:	<u>77</u>
	CONVERTER: <u>NA</u>	CONVERTER:	<u>NA</u>
	CONVERTER SET: <u>NA</u>	CONVERTER SET:	<u>NA</u>
	Internal Span: <u>367.2</u>	Internal Span:	<u>362.9</u>

Calibrator:

Flow Meter ID's: <u>NA</u>	Calibrator Flow Targets:			
Make & Model: <u>SABIO 2010 D</u>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
Serial #: <u>11900613</u>	zero	<u>5012</u>	<u>0</u>	<u>5012</u>
Cal Gas Cylinder I.D. #: <u>BLM002073</u>	high	<u>4976</u>	<u>38</u>	<u>5014</u>
Cal Gas Conc. (ppm): <u>49.5</u>	mid	<u>4996</u>	<u>18</u>	<u>5014</u>
	low	<u>5004</u>	<u>9</u>	<u>5013</u>

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5012	0.0	5012	0	0.0	NA
adjusted zero	5012	0.0	5012	0	0.0	NA
as found high	4976	37.70	5014	372.2	368.0	1.011
adjusted high	4976	37.70	5014	372.2	372.0	1.001
mid	4997	17.90	5015	176.7	178.0	0.993
low	5004	9.00	5013	88.9	91.0	0.977
calibrator zero	5012	0.00	5012	0	0.0	NA
Average C.F.=						0.990

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>-0.23%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-1.14%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

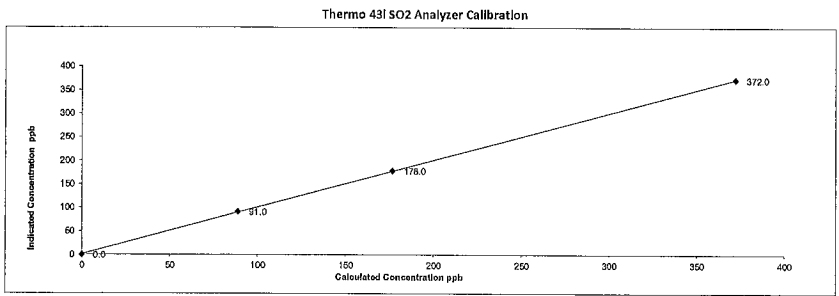
run converter efficiency test immediately following zero adjust

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

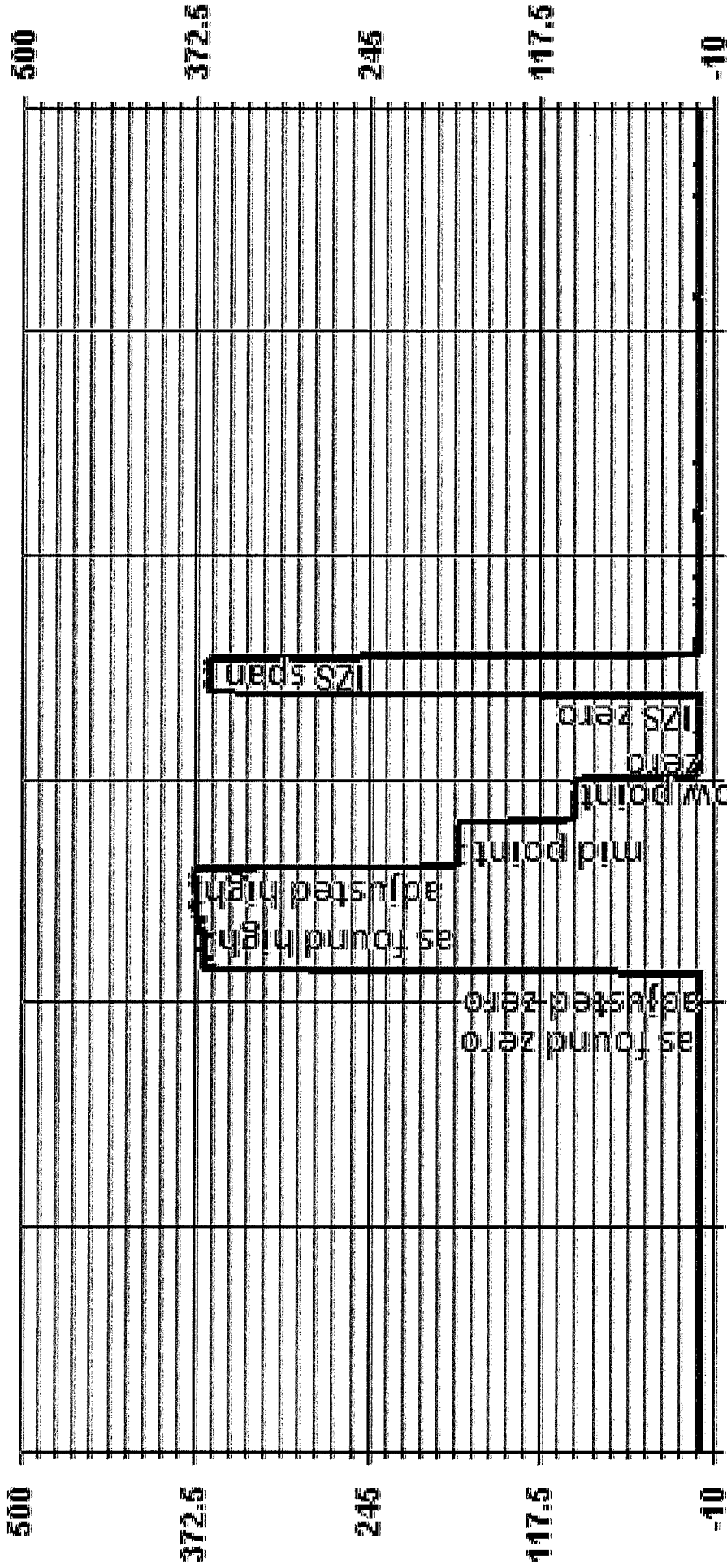
Zero corrected analyzer response: NA

Comments:

Sample filter changed.



01 Minute Averages



— LICA SO2_ PPB

TOTAL REDUCED SULPHUR

Maxxam Thermo 450i TRS Analyzer Calibration

Date: <u>2-Aug-15</u>	Start/End Time (mst): <u>15:50 - 19:06</u>
Company: <u>LICA</u>	Calibration Purpose: <u>Repeat Monthly Calibration</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>13-Jul-15</u>	As Found C.F.: <u>1.111</u>
Previous Cal High Point C.F.: <u>1.001</u>	New C.F.: <u>0.999</u>

	As found:	As left:
MOTHERBOARD:	BKG: <u>12.8</u>	BKG: <u>14.5</u>
	COEF: <u>0.908</u>	COEF: <u>1.028</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>24.0</u>	24.0 <u>24.0</u>
	-3.3 <u>-3.2</u>	-3.3 <u>-3.2</u>
	PMT: <u>-650.8</u>	PMT: <u>-650.8</u>
	FLASH: <u>741</u>	FLASH: <u>740</u>
	3.3 <u>3.2</u>	3.3 <u>3.2</u>
5.0 <u>5.0</u>	5.0 <u>5.0</u>	
15.0 <u>14.7</u>	15.0 <u>14.7</u>	
-15.0 <u>-15.0</u>	-15.0 <u>-15.0</u>	
24.0 <u>23.5</u>	24.0 <u>23.5</u>	
INTERNAL: <u>31.2</u>	INTERNAL: <u>31.5</u>	
CHAMBER: <u>45.1</u>	CHAMBER: <u>45.2</u>	
CONVERTER TEMP: <u>325.2</u>	CONVERTER TEMP: <u>327.5</u>	
CONVERTER SET: <u>325.0</u>	CONVERTER SET: <u>325.0</u>	
PERM OVEN GAS: <u>45.00</u>	PERM OVEN GAS: <u>45.00</u>	
PERM OVEN HTR: <u>44.38</u>	PERM OVEN HTR: <u>44.38</u>	
PRESSURE: <u>656.3</u>	PRESSURE: <u>655.7</u>	
SAMPLE FLOW: <u>0.510</u>	SAMPLE FLOW: <u>0.510</u>	
LAMP INTENSITY: <u>91</u>	LAMP INTENSITY: <u>92</u>	
Internal Span: <u>36.9</u>	Internal Span: <u>40.9</u>	

Callibrator: Flow Meter ID's: <u>NA</u> Make & Model: <u>API 700</u> Serial #: <u>830</u> Cal Gas Cylinder I.D. #: <u>LL36837</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>7500</td> <td>0</td> <td>7500</td> </tr> <tr> <td>high</td> <td>7455</td> <td>45</td> <td>7500</td> </tr> <tr> <td>mid</td> <td>7478</td> <td>23</td> <td>7501</td> </tr> <tr> <td>low</td> <td>7488</td> <td>11</td> <td>7499</td> </tr> </tbody> </table>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	7500	0	7500	high	7455	45	7500	mid	7478	23	7501	low	7488	11	7499
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)																		
zero	7500	0	7500																		
high	7455	45	7500																		
mid	7478	23	7501																		
low	7488	11	7499																		

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7497	0.0	7497	0	0.0	NA
as found high	7455	45.00	7500	60.0	54.0	1.111
adjusted high	7455	45.00	7500	60.0	60.0	1.000
mid	7478	22.50	7501	30.0	30.0	1.000
low	7488	11.20	7499	14.9	15.0	0.996
calibrator zero	7497	0.00	7497	0	0.0	NA
Average C.F. =						0.999

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>-11.00%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

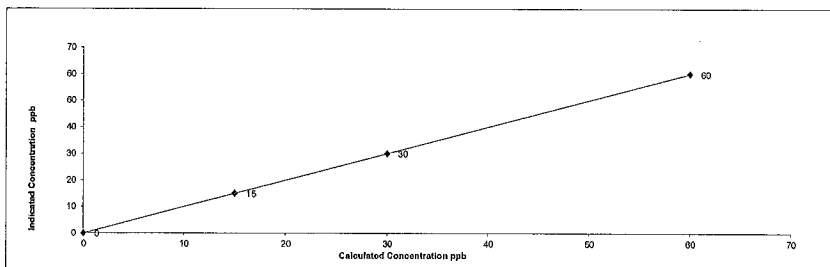
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

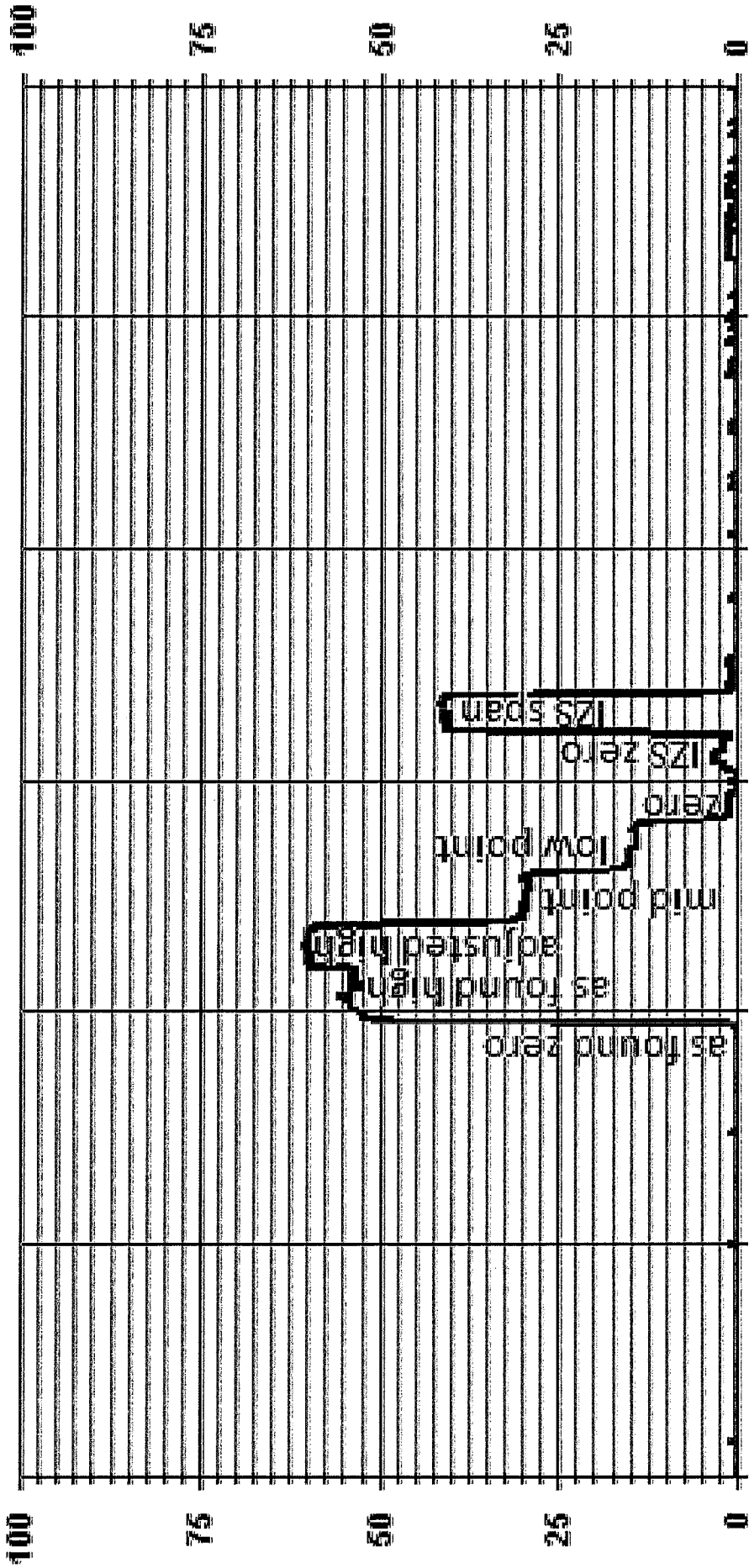
Comments:

No ZERO adjustments made. As Found check was performed as the TRS span check was low, 32/37, drift was -13.51%. An "As Found" check passed with less than than 15% difference, then a three point calibration performed.

Thermo 450i TRS Analyzer Calibration



01 Minute Averages



08:02/15 12:18 08/02/15 14:18 08/02/15 16:18 08/02/15 18:18 08/02/15 20:18 08/02/15 22:18

— LICA TRS_ PPB

Maxxam Thermo 450i TRS Analyzer Calibration

Date: <u>10-Aug-15</u>	Start/End Time (mst): <u>9:18- 14:25</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>2-Aug-15</u>	As Found C.F.: <u>1.099</u>
Previous Cal High Point C.F.: <u>1.000</u>	New C.F.: <u>0.972</u>

As found:

MOTHERBOARD:

BKG: 14.5

COEF: 1.028

3.3 3.3

5.0 5.0

15.0 15.0

24.0 23.9

-3.3 -3.2

INTERFACE BOARD:

PMT: -650.8

FLASH: 742

3.3 3.2

5.0 5.0

15.0 14.7

-15.0 -15.0

24.0 23.5

INTERNAL: 31.1

CHAMBER: 44.9

CONVERTER TEMP: 327.5

CONVERTER SET: 325.0

PERM OVEN GAS: 45.00

PERM OVEN HTR: 44.38

PRESSURE: 656.6

SAMPLE FLOW: 0.507

LAMP INTENSITY: 92

Internal Span: 40.9

As left:

BKG: 15.3

COEF: 1.095

3.3 3.3

5.0 5.0

15.0 15.0

24.0 23.9

-3.3 -3.2

PMT: -650.8

FLASH: 741

3.3 3.2

5.0 5.0

15.0 14.7

-15.0 -15.0

24.0 23.5

INTERNAL: 31.2

CHAMBER: 44.9

CONVERTER TEMP: 325.3

CONVERTER SET: 325.0

PERM OVEN GAS: 45.00

PERM OVEN HTR: 44.38

PRESSURE: 656.0

SAMPLE FLOW: 0.510

LAMP INTENSITY: 92

Internal Span: 43

Calibrator: Flow Meter ID's: <u>NA</u> Make & Model: <u>API 700</u> Serial #: <u>830</u> Cal Gas Cylinder I.D. #: <u>LL36837</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>7500</td> <td>0</td> <td>7500</td> </tr> <tr> <td>high</td> <td>7442</td> <td>59</td> <td>7501</td> </tr> <tr> <td>mid</td> <td>7473</td> <td>29</td> <td>7502</td> </tr> <tr> <td>low</td> <td>7486</td> <td>14</td> <td>7500</td> </tr> </tbody> </table>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	7500	0	7500	high	7442	59	7501	mid	7473	29	7502	low	7486	14	7500
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)																		
zero	7500	0	7500																		
high	7442	59	7501																		
mid	7473	29	7502																		
low	7486	14	7500																		

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7497	0.0	7497	0	0.0	NA
adjusted zero	7497	0.0	7497	0	0.0	NA
as found high	7442	58.50	7501	78.0	71.0	1.099
adjusted high	7442	58.50	7501	78.0	79.0	0.987
mid	7473	28.50	7502	38.0	39.0	0.974
low	7486	14.30	7500	19.1	20.0	0.953
calibrator zero	7497	0.00	7497	0	0.0	NA
Average C.F.=						0.972

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>0.989</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>-0.36%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-9.85%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

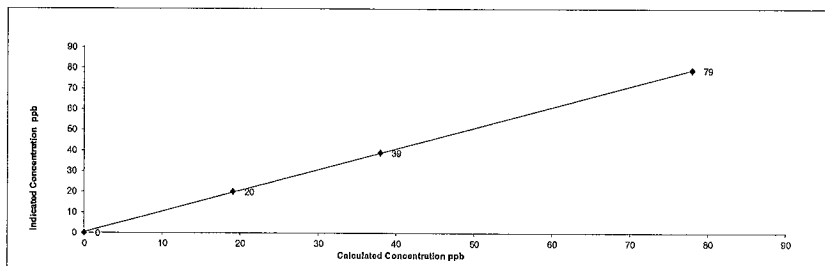
SO₂ High Point gas concentration: 20 ppb Time gas run (mst): 10:09 - 10:15

Zero corrected analyzer response: 0 ppb

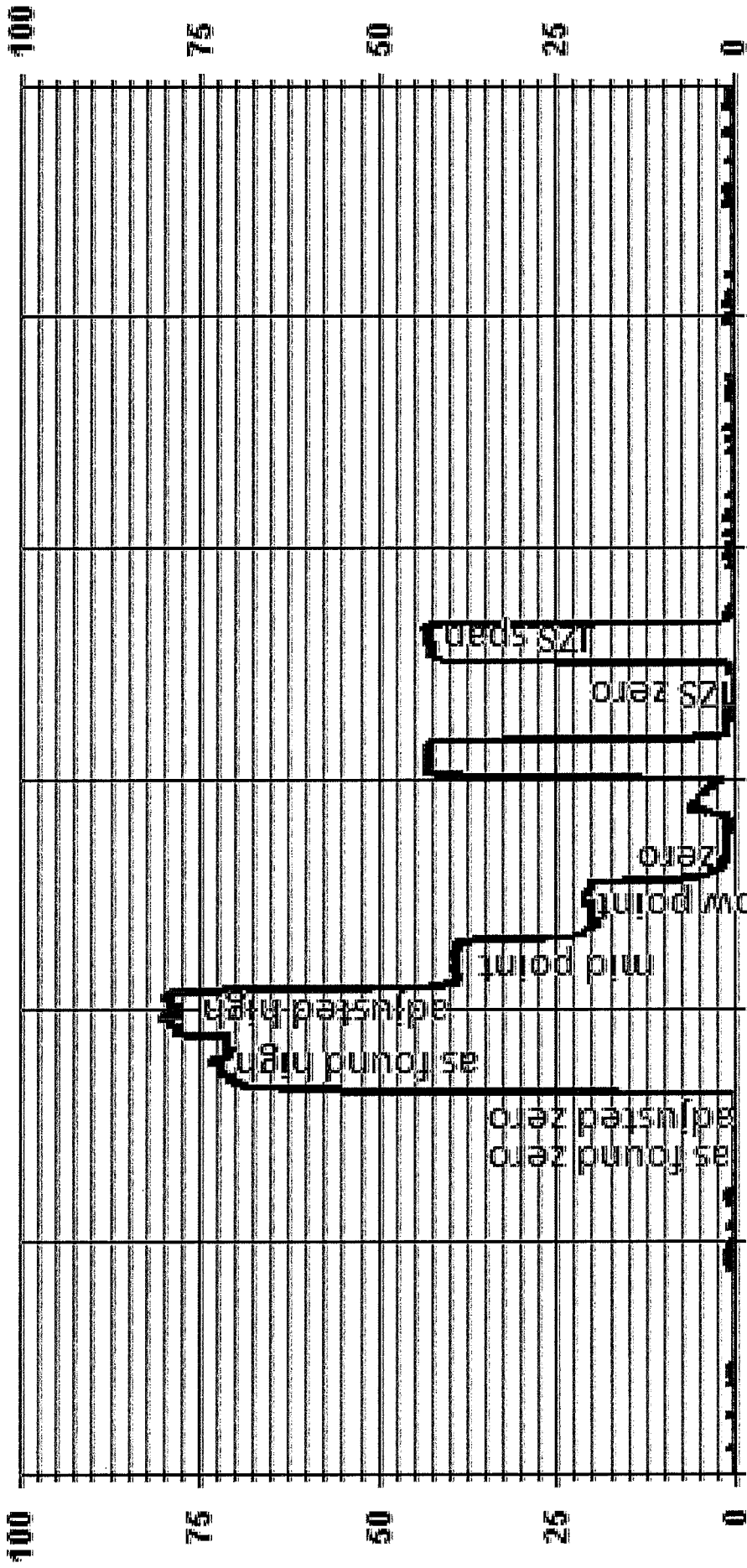
Comments:

Filter changed.

Thermo 450i TRS Analyzer Calibration



01 Minute Averages



08/10/15 07:00 08/10/15 09:00 08/10/15 11:00 08/10/15 13:00 08/10/15 15:00 08/10/15 17:00

— LICA TRS_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 11-Aug-15 Start Time (mst): 7:52
 Company: LICA End Time (mst): 11:37
 Station Name/Location: Cold Lake South Calibration Purpose: Monthly Calibration
 Performed by: Alex Yakupov Cal Gas Expiry Date: 12-Aug-17

Analyzer:
 Serial Number: 427408718 Range ppm: 50
 Last Calibration Date: 8-Jul-15 As Found C.F.: 0.991
 Previous Cal High Point C.F.: 1.002 New C.F.: 1.009

	As found:		As left:
H ₂ cylinder (psi):	<u>1800</u>	H ₂ cylinder (psi):	<u>1800</u>
H ₂ cylinder reg set (psi):	<u>22</u>	H ₂ cylinder reg set (psi):	<u>22</u>
Span Cylinder (psi):	<u>1900</u>	Span Cylinder (psi):	<u>1900</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: 1446 cnt: 1443
 rng: 1 rng: 1
 try: 0 try: 0
 flm: 183.7 flm: 183.6
 det: 125.4 det: 125.4

Oven Readings: Flame: 183 Flame: 183
 Filter: 125 Filter: 125
 Base: 125 Base: 125
 Pump: 06.53 Pump: 06.52

Voltages: +5 5.0 +5 5.0
 +15 14.8 +15 14.8
 -15 -15.1 -15 -15.1
 Internal Span: 26.41 Internal Span: 26

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	<u>2000</u>	<u>0</u>	<u>2000</u>
	high	<u>1935</u>	<u>65</u>	<u>2000</u>
	mid	<u>1969</u>	<u>31</u>	<u>2000</u>
low	<u>1984</u>	<u>16</u>	<u>2000</u>	

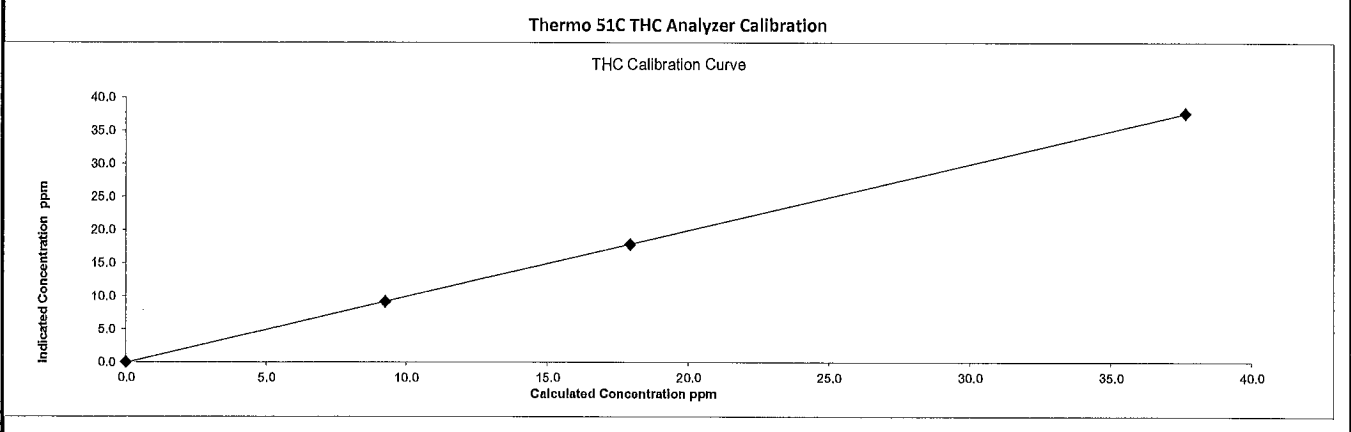
Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppm)	Indicated Concentration (ppm)	Correction Factors
	Diluent	Cal Gas	Total			
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	38.00	0.991
adjusted high	1932	65.00	1997	37.66	37.60	1.002
mid	1969	31.00	2000	17.93	17.80	1.007
low	1984	16.00	2000	9.26	9.10	1.017
calibrator zero	2000	0.00	2000	0	0.00	NA
Average C.F. =						1.009

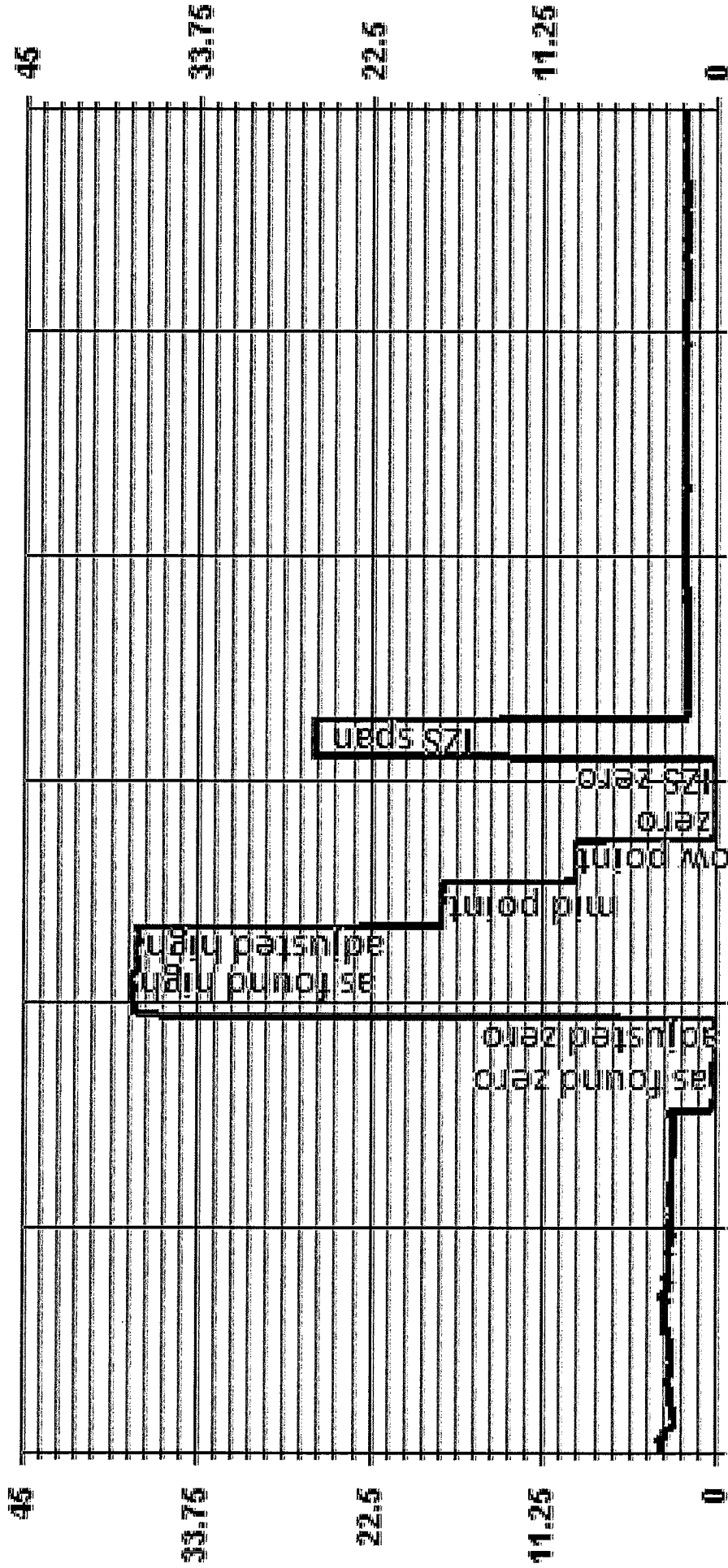
Linear Regression/Calibration Results:

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>-0.158%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>1.11%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:
 Sample filter changed.



01 Minute Averages



— LICA - - - - - THC PPM

NITROGEN DIOXIDE



Thermo 42C NOx Analyzer Calibration

Date: 10-Aug-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Performed by: Alex Yakupov

Start Time (mst): 9:18
 End Time (mst): 16:35
 Calibration Purpose: monthly
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 427408716
 Last Calibration Date: 8-Jul-15
 Range ppb: 500

Correction Factors:

As found C.F. Previous Cal High Point C.F.:
 NO= 1.063 NO= 0.999
 NOx= 1.063 NOx= 0.999
 NO₂= 1.000 NO₂= 1.000

As found:
 NO Bkg ppb: 5.0
 NOx Bkg ppb: 5.0
 NO Coef: 0.988
 NOx Coef: 1.013
 NO₂ Coef: 1.003
 PMT: -850
 +15: 15.1
 +5: 5.0
 -15: 15.1
 -15: -15.1
 Battery: 3.2
 Internal: 25.4
 Chamber: 49.5
 Cooler: -2.5
 Converter: 317
 Converter Set: 320
 Pressure: 201
 Sample Flow: 0.521
 Ozonator Flow: OK
 Internal Span: 229.9/4.5/225.4

As left:
 NO Bkg ppb: 5.1
 NOx Bkg ppb: 5.2
 NO Coef: 1.044
 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: 25.7
 Chamber: 49.6
 Cooler: -2.5
 Converter: 317
 Converter Set: 320
 Pressure: 200.7
 Sample Flow: 0.522
 Ozonator Flow: OK
 Internal Span: 241/4.4/236.4

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5012	0	0	5012
high	4976	38	250.00	5014
mid	4997	18	135.00	5015
low	5004	9	45.00	5013

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	5012	0.0	5012	0	0	0.0	0.0	NA	NA
adjusted zero	5012	0.0	5012	0	0	0.0	0.0	NA	NA
as found high	4976	37.70	5014	380.5	380.5	358	358	1.063	1.063
adjusted high	4976	37.70	5014	380.5	380.5	380	380	1.001	1.001
mid	4997	17.90	5015	180.6	180.6	180	180	1.003	1.003
low	5004	9.00	5013	90.8	90.8	93	93	0.977	0.977
calibrator zero	5012	0.00	5012	0	0	0.0	0.0	NA	NA
Average C.F.=								0.994	0.994

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	4976	37.70	5014	0.0	380.0	380.0	0.0	0.0	0.0	
as found NO ₂	4976	37.70	5014	250.0	138.0	380.0	242.0	242.0	242.0	1.000
gpt mid	4976	37.70	5014	135.0	244.0	380.0	136.0	136.0	136.0	1.000
gpt low	4976	37.70	5014	45.0	332.0	380.0	48.0	48.0	48.0	1.000
Average NO ₂ C.F.=									1.000	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.997	0.997	1.000	0.85-1.15
b (Intercept as % of full scale)=	0.16%	0.16%	0.00%	± 3% F.S.
% change In C.F. from last cal=	-6.39%	-6.39%	0.00%	+/-15%
NO ₂ converter efficiency			100.0%	>85%

Comments:

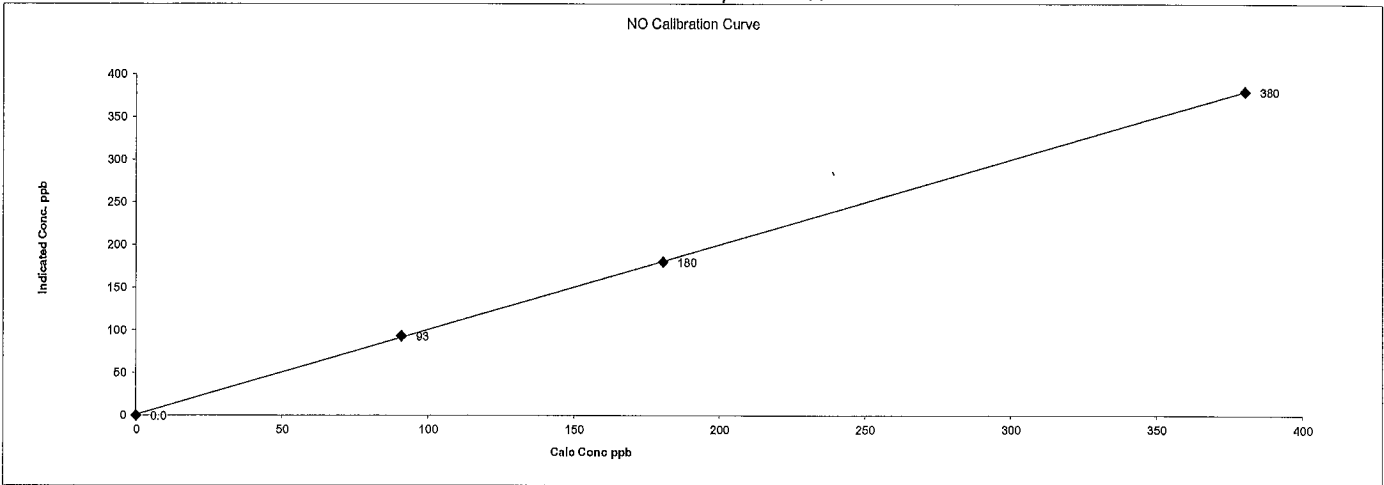
Filter changed. Zero Air filter rebuilt. GPT starts at 14:13. NO₂ adjustment not made.

Date: 10-Aug-15
Company: LICA
Station Name/Location: Cold Lake South
Performed by: Alex Yakupov

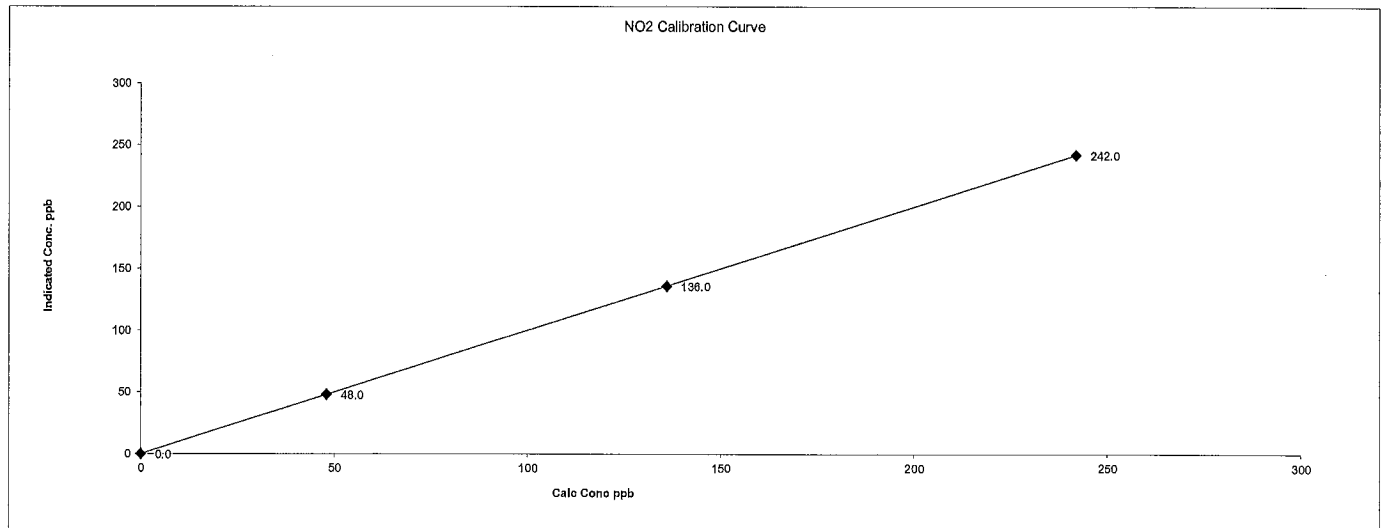
Start Time (mst): 9:18
End Time (mst): 16:35
Calibration Purpose: monthly
Cal Gas Expiry Date: 12-Mar-19

Thermo 42C NOx Analyzer Calibration

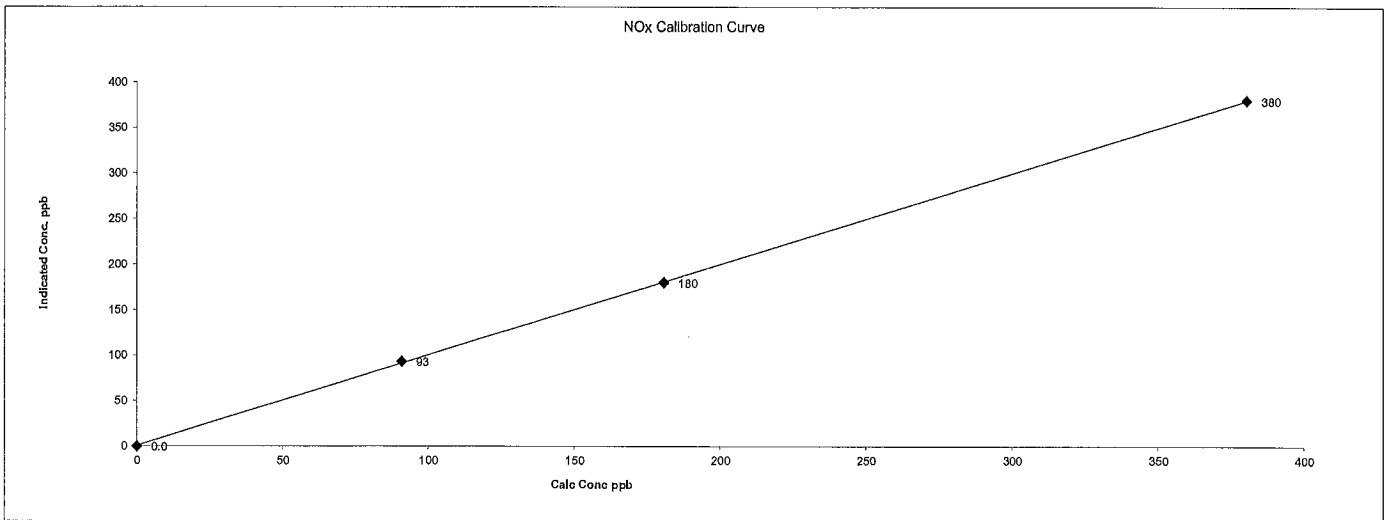
NO Calibration Curve



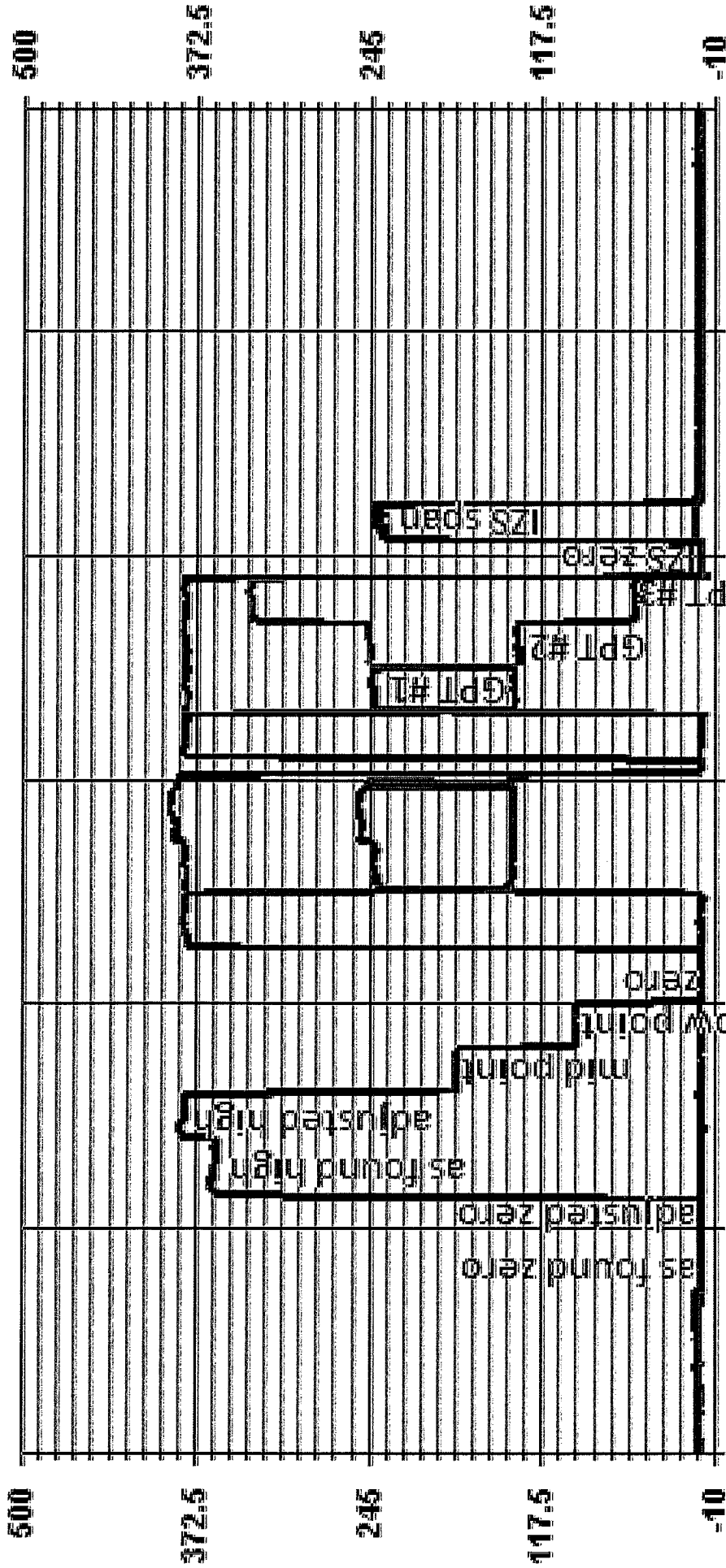
NO2 Calibration Curve



NOx Calibration Curve



01 Minute Averages



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

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: 11-Aug-15	Start Time (mst): 7:52
Company: LICA	End Time (mst): 11:49
Station Name/Location: Cold Lake South	Calibration Purpose: Monthly Calibration
Performed by: Alex Yakupov	G.P.T. Date: NA

Analyzer: Serial Number: 700419951	Range ppm: 500
Last Calibration Date: 9-Jul-15	As Found C.F.: 1.003
Previous Cal High Point C.F.: 1.000	New C.F.: 1.000

	As found:	As left:
Motherboard:	O ₃ Bkg: -0.0	O ₃ Bkg: 0.1
	O ₃ Coef: 1.011	O ₃ Coef: 1.008
	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 -14.9	-15.0 -14.9
Photo Lamp:	8.7	8.7
	24.0 23.7	24.0 23.7
	O ₃ Lamp: 9.0	O ₃ Lamp: 9.0
	Bench: 27.5	Bench: 27.5
	Bench Lamp: 53.4	Bench Lamp: 53.4
O ₃ Lamp:	67.3	67.3
	Pressure: 702.6	Pressure: 702.3
	Cell A lpm: 0.714	Cell A lpm: 0.713
	Cell B lpm: 0.752	Cell B lpm: 0.751
	O ₃ ppb: 2.7	O ₃ ppb: 0.2
Cell A ppb:	7.0	13.2
	Cell B ppb: -1.6	Cell B ppb: -12.8
	Cell A Int: 57951	Cell A Int: 58033
	Cell B Int: 56329	Cell B Int: 56401
	Internal Span: 266	Internal Span: 256.7

Calibrator: Make & Model: SABIO 2010 D	Calibrator Flow Targets:
Serial #: 11900613	point total flow (cc/min) O ₃ setting (v or ppb)
NOx Gas Cylinder I.D. #: BLM002073	zero 5012 0
NOx Cylinder Conc. (ppm): 50.6	high 5013 381
	mid 5014 180
	low 5015 90

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5012	0.0	5012	0.0	2.0	NA
adjusted zero	5012	0.0	5012	0.0	0.0	NA
as found high	5012	0.00	5012	380.0	379.0	1.003
adjusted high	5012	0.00	5012	380.0	380.0	1.000
mid	5012	0.00	5012	180.0	180.0	1.000
low	5012	0.00	5012	90.0	90.0	1.000
calibrator zero	5012	0.00	5012	0.0	0.0	NA
Average C.F. =						1.000

Linear Regression/Calibration Results:			
Correlation Coefficient =	1.000	LIMITS	Pass/Fail ?
Slope =	1.000	> or = 0.995	PASS
b (Intercept as % of full scale) =	0.000%	0.85-1.15	PASS
% change in C.F. from last cal	0%	± 3% F.S.	PASS
		± 15%	PASS

Comments:

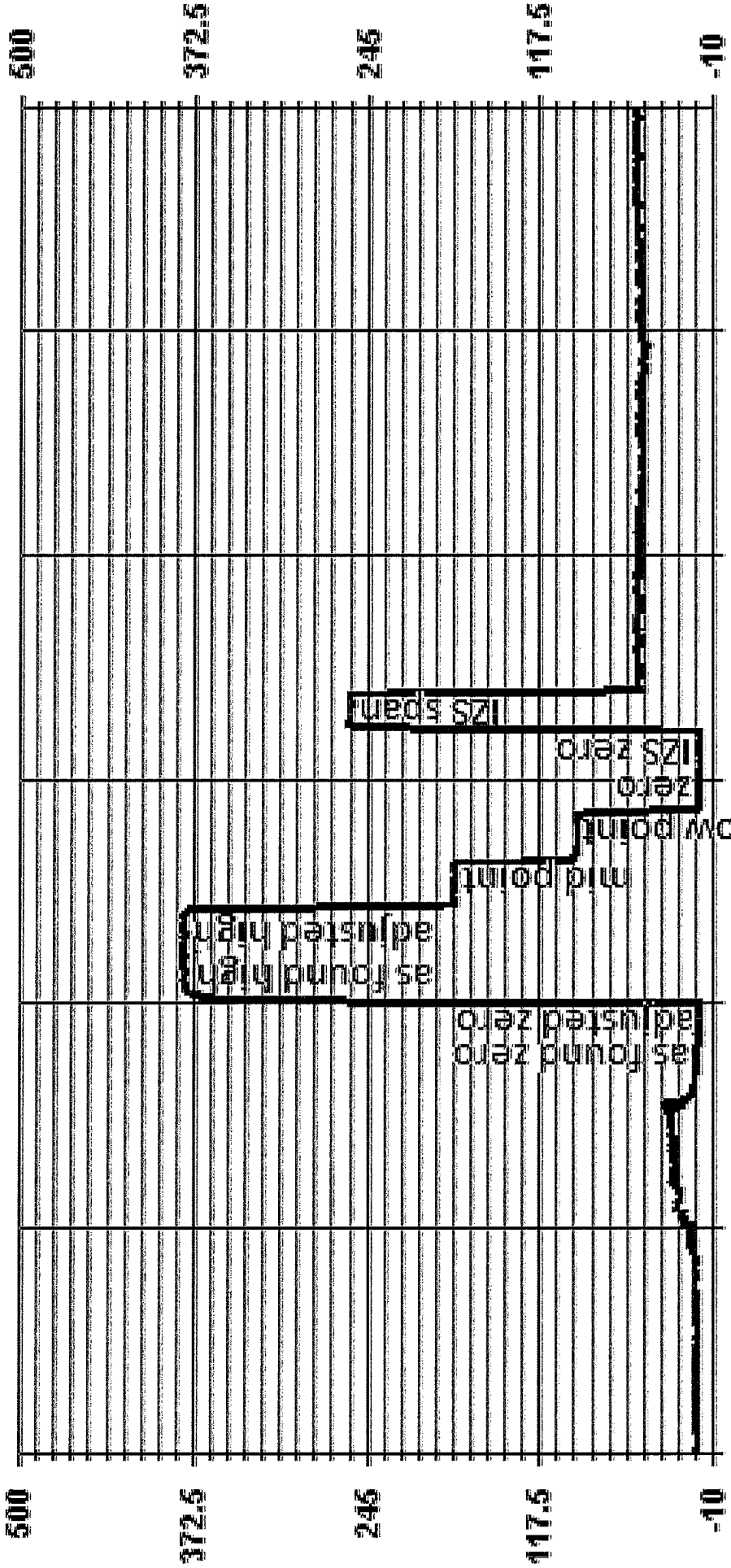
Filter changed.

Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

The graph shows a linear relationship between the calculated concentration (x-axis) and the indicated concentration (y-axis) for O₃. The x-axis ranges from 0 to 400 ppb, and the y-axis ranges from 0 to 400 ppb. Four data points are plotted: (0, 0), (90.0, 90.0), (180.0, 180.0), and (380.0, 380.0). A straight line is drawn through these points, indicating a 1:1 relationship.

01 Minute Averages



— LICA 03_ PPB

PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 7-Aug-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: 16-Jul-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 07:16 - 09:35
 Calibration Purpose: 1st Audit

1400A Information and Status:

Serial Number: 1405A201620804 As Found Filter Loading %: 26.75
 Ko Factor: 14578 As Left Filter Loading %: 16.75
 Ambient Temperature °C: 15.63 As Found Noise: 0.004
 Ambient Pressure atm: 0.932 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.38
 Aux Flow Reading lpm: 13.67 Warnings: None

Reference Standards:

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

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	0.17	0.02	0.17
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.22	-0.10	0.20	-0.10
	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	0.17	0.04	0.17
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.05	-0.10	0.04	-0.10
	limit	0.60	0.60	0.60	0.60

As found temperature and pressure:

tolerance +/- 2.0°C
 1405F temperature °C: 15.6
 reference temperature °C: 15.7
 difference °C: 0.1

tolerance +/- 0.01 atm
 1405F pressure atm: 0.932
 reference pressure: 0.933
 difference : -0.001

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

tolerance +/- 2.0°C
 1405F temperature °C: 15.6
 reference temperature °C: 15.7
 difference °C: 0.1

tolerance +/- 0.01 atm
 1405F pressure atm: 0.932
 reference pressure: 0.933
 difference : 0.001

As found flows:

main flow tolerance 3.00 lpm +/- 0.20 lpm
 1405F main flow lpm: 3.00
 reference main flow lpm: 3.05
 difference lpm: 0.05

total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
 1400A total/aux flow lpm: 16.67
 reference total/aux flow lpm: 17.01
 difference lpm: 0.34

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

main flow tolerance 3.00 lpm +/- 0.20 lpm
 1405F main flow lpm: 3.00
 reference main flow lpm: 2.99
 difference lpm: -0.01

total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm +/- 7%
 1400A total/aux flow lpm: 16.67
 reference total/aux flow lpm: 16.67
 difference lpm: 0.00

K_o Audit:

Last K_o audit date: 16-Jul-15
 1405F K_o factor: 14578
 Measured K_o factor: 14760.7000
 % difference: 1.25

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 26-Aug-15
 Company: LICA
 Station Name/Location: Cold Lake South
 Previous Audit Date: 7-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 14:10 - 14:51
 Calibration Purpose: 2nd Audit

1400A Information and Status:

Serial Number:	<u>1405A201620804</u>	As Found Filter Loading %:	<u>24.10</u>
Ko Factor:	<u>14578</u>	As Left Filter Loading %:	<u>24.67</u>
Ambient Temperature °C:	<u>25.18</u>	As Found Noise:	<u>0.005</u>
Ambient Pressure atm:	<u>0.942</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	0.00	0.18	0.02	0.18
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.04	-0.10	0.03	-0.10
	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	0.18	0.00	0.18
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.04	-0.10	0.03	-0.10
	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>25.2</u>	1405F pressure atm:	<u>0.943</u>
reference temperature °C:	<u>25.3</u>	reference pressure:	<u>0.944</u>
difference °C:	<u>0.1</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>25.3</u>	1405F pressure atm:	<u>0.944</u>
reference temperature °C:	<u>25.3</u>	reference pressure:	<u>0.944</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>2.95</u>	reference total/aux flow lpm:	<u>16.69</u>
difference lpm:	<u>-0.05</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>2.95</u>	reference total/aux flow lpm:	<u>16.69</u>
difference lpm:	<u>-0.05</u>	difference lpm:	<u>0.02</u>

K_o Audit:

Last K_o audit date: 16-Jul-15
 1405F K_o factor: 14578
 Measured K_o factor: 14760.7000
 % difference: 1.25

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 herein, 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

PARTISOL SAMPLER

PARTISOL

Station		Audit Transfer Standard	
Date:	August 31, 2015	Make/Model:	BIOS DryCAI DC-2
Company:	LICA	S/N Flow/Cell:	B1193/2272
Plant:	CLS	Temperature (°C):	NA
Station:	LICA 01	Serial Number:	Brunton ADC-Summit

Sampler		Ambient Data	
Make/Model:	R & P 2000H	Temperature (°C):	22.1
Unit #:	#1517	Pressure (ATM):	0.925
S/N:	2000A204009710	Set Flow (l/min):	16.7

Note: Tolerances are noted as **BOLD** in Brackets

Calibration Data

Calibration Constants						
Item	Calculated		Offset		Span	
	Initial	Final	Initial	Final	Initial	Final
Analog Input	0.01	NA	0.0054	NA	0.9894	NA
Temperature	22.4	NA	NA	NA	1.0017	NA
Pressure	0.925	NA	NA	NA	0.9961	NA
Flow	-0.1	NA	-0.0436	NA	0.9989	NA
Interface Board Calibration						
Item	Acceptable		Pre Calibration		Post Calibration	
R21	6.00 VDC (±0.05 V)		NA		NA	
R44	10.000 VDC (±0.002 V)		NA		NA	
Analog Input Calibration						
Item	Acceptable		Pre Calibration		Post Calibration	
"AO" Offset	0.050 - 0.150 VDC (±0.005 V)		NA		NA	
"AO" Span	4.800 - 4.900 VDC (±0.002 V)		NA		NA	
Temperature/Pressure Calibration						
Calc Temp (±2 °C)	22.4		Δ °C	0.3		
Calc Press (±0.02 ATM)	0.925		Δ ATM	0		
Leak Check						
Unit	Flow Controller Valve Closed (V1)		Pump Valve Closed after 10 Secs. (V2)		Leakage Calculation (V2 > VL) After 10 Secs	
Hub	-14	inHg	-13.5	inHg	-7	inHg
					OK	inHg
Flow Calibration						
Item	Acceptable		Calculated		Actual	
"Zero" Offset	Enter Zero for "Actual"		-0.1		Zero	
"Flow" Span	±7.0 % Adjust to 16.7 L		16.7		16.53	

Rubber Seals:	Condition	OK	Inlet:	Condition	OK	Inline Filter:	Condition	OK	Status:	Condition	OK
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Comments:	Audit Start Time (MST):	9:02	Audit End Time (MST):	9:53
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Calibration Performed By: Alex Yakupov

CALIBRATORS

Company: Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sablo 2010D</u>	Make/Model	<u>N/A</u>
Serial Number	<u>11900613</u>	Serial Number	<u>N/A</u>
Oven Temperature	<u>N/A</u>	Temperature (°C)	<u>N/A</u>
Last Verification Date	<u>N/A</u>	Barometric Pressure	<u>N/A</u>

Flow Measurements

Pt. No. 1 5000 Pt. No. 2 5000 Pt. No. 3 5000

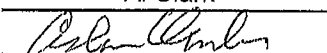
Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
5013	0.000	0.001		
5013	0.400	0.407	1%	± 10%
5013	0.200	0.204	1%	± 10%
5014	0.100	0.101	0%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

O_3		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0163	0.90-1.10
b (Intercept % of FS)=	0.0800	± 3% F.S.

AENV Standards		Ozone Analyzer	
Audit Calibrator		Make/Model	<u>Teco 49i</u>
Make/Model	<u>Teco 49i PS</u>	Serial/AMU Number	<u>AMU 1843</u>
Serial/AMU Number	<u>AMU 1808</u>	Last Calibration Date	<u>May 21, 2015</u>
Ozone Standard	<u>Primary</u>	Full Scale (ppm)	<u>0.5</u>

COMMENTS: _____

Auditor: Al Clark Date: May 21, 2015
 Operator Signature:  Location: McIntyre Center Edmonton

Company: Maxxam

Operator: Limin Li

Calibrator:

Make/Model	<u>API 700</u>
Serial Number	<u>830</u>
Last Verification Date	<u>Oct 2013</u>
SO ₂ Cylinder Conc.	<u>50.3</u>
SO ₂ Cylinder S/N	<u>LL42475</u>

Flow Measurement Device:

Make/Model	<u>N/A</u>
Serial Number	<u>N/A</u>
Temperature (°C)	<u>N/A</u>
Barometric Pressure	<u>N/A</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)

SO₂		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

Operator Signature: _____

Date: December 16, 2014

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	0.000	0.000	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:

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	0.00755	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
 Operator Signature: *Al Clark*

Date: December 16, 2014
 Location: McIntyre Center Edmonton



Praxair Canada, Inc.
 9501-34th Street
 Edmonton, AB T6B 2X6
 Tel: 780-449-0778
 Fax: 780-440-5302

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-ID2ax/USA---
 Hewlett-Packard (Agilent)-6890---GC-FID

Cylinder Style: AQ
 Cylinder Pressure @70F: 2200 psig
 Cylinder Volume: 82.0 ft3
 Valve Outlet Connection: CGA-350
 Cylinder No(s): LL93874

Filling Method: Gravimetric
 Date of Fill: 03/28/2014
 Expiration Date: 03/26/2017

Analyst: Todd Hryniv

The gas calibration cylinder standards prepared by Praxair Canada, Inc. is considered a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard provided is certified against Praxair Canada, Inc. reference materials which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST), Massachusetts, Canada, or by using NIST Standard Reference Materials where available.

Note: All expressions for concentrations (g, % or ppm) are for gas phase, by volume (v/v) unless otherwise noted.

ASTM Designation	Method	Method	Method
F152	Gas Chromatography with Electrode Detection	E	Gas Chromatography with Electrode Detection
F153	Gas Chromatography with Thermal Conductivity Detector	F	Gas Chromatography with Thermal Conductivity Detector
F154	Gas Chromatography with Infrared Detection	G	Gas Chromatography with Infrared Detection
F155	Gas Chromatography with Mass Spectrometry	H	Gas Chromatography with Mass Spectrometry
F156	Gas Chromatography with Photoacoustic Detection	I	Gas Chromatography with Photoacoustic Detection
F157	Gas Chromatography with Flame Ionization Detector	J	Gas Chromatography with Flame Ionization Detector
F158	Gas Chromatography with Thermal Conductivity Detector	K	Gas Chromatography with Thermal Conductivity Detector
F159	Gas Chromatography with Thermal Conductivity Detector	L	Gas Chromatography with Thermal Conductivity Detector
F160	Gas Chromatography with Thermal Conductivity Detector	M	Gas Chromatography with Thermal Conductivity Detector
F161	Gas Chromatography with Thermal Conductivity Detector	N	Gas Chromatography with Thermal Conductivity Detector
F162	Gas Chromatography with Thermal Conductivity Detector	O	Gas Chromatography with Thermal Conductivity Detector
F163	Gas Chromatography with Thermal Conductivity Detector	P	Gas Chromatography with Thermal Conductivity Detector
F164	Gas Chromatography with Thermal Conductivity Detector	Q	Gas Chromatography with Thermal Conductivity Detector
F165	Gas Chromatography with Thermal Conductivity Detector	R	Gas Chromatography with Thermal Conductivity Detector
F166	Gas Chromatography with Thermal Conductivity Detector	S	Gas Chromatography with Thermal Conductivity Detector
F167	Gas Chromatography with Thermal Conductivity Detector	T	Gas Chromatography with Thermal Conductivity Detector
F168	Gas Chromatography with Thermal Conductivity Detector	U	Gas Chromatography with Thermal Conductivity Detector
F169	Gas Chromatography with Thermal Conductivity Detector	V	Gas Chromatography with Thermal Conductivity Detector
F170	Gas Chromatography with Thermal Conductivity Detector	W	Gas Chromatography with Thermal Conductivity Detector
F171	Gas Chromatography with Thermal Conductivity Detector	X	Gas Chromatography with Thermal Conductivity Detector
F172	Gas Chromatography with Thermal Conductivity Detector	Y	Gas Chromatography with Thermal Conductivity Detector
F173	Gas Chromatography with Thermal Conductivity Detector	Z	Gas Chromatography with Thermal Conductivity Detector

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 and to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. It is no warranty that Praxair Canada, Inc. deriving out of the use of the information contained herein, except that we warrant for providing such information.

APPENDIX IV
ANALYTICAL RESULTS

VOCS SAMPLES

<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: 15080137-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 4, 2015</p> <p>CANISTER ID: 14698</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-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-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	14-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	14-Aug-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Aug-15
1,2-Dichloroethane	I	0.01 ppbv	0.01	AC-058	14-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	14-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	14-Aug-15
1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	14-Aug-15
1-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1-Hexene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
2,2,4-Trimethylpentane	I	0.02 ppbv	0.01	AC-058	14-Aug-15
2,2-Dimethylbutane	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
2,3-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-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: 15080137-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 4, 2015</p> <p>CANISTER ID: 14698</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-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-Aug-15
2-Methylhexane	I	0.01	ppbv	0.01	AC-058	14-Aug-15
2-Methylpentane	I	0.04	ppbv	0.01	AC-058	14-Aug-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
3-Methylpentane	I	0.02	ppbv	0.01	AC-058	14-Aug-15
Acetone		4.2	ppbv	0.4	AC-058	14-Aug-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Aug-15
Benzene	I	0.03	ppbv	0.01	AC-058	14-Aug-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Bromomethane	I	0.01	ppbv	0.01	AC-058	14-Aug-15
Carbon disulfide	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	14-Aug-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Chloroform	I	0.02	ppbv	0.02	AC-058	14-Aug-15
Chloromethane		0.63	ppbv	0.02	AC-058	14-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-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: 15080137-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 4, 2015</p> <p>CANISTER ID: 14698</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.0	ppbv	0.3	AC-058	14-Aug-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
Freon-11	I	0.29	ppbv	0.02	AC-058	14-Aug-15
Freon-113	I	0.07	ppbv	0.01	AC-058	14-Aug-15
Freon-114	I	0.02	ppbv	0.02	AC-058	14-Aug-15
Freon-12		0.65	ppbv	0.02	AC-058	14-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	14-Aug-15
Isobutane	I	0.08	ppbv	0.02	AC-058	14-Aug-15
Isopentane	I	0.21	ppbv	0.03	AC-058	14-Aug-15
Isoprene	I	0.23	ppbv	0.01	AC-058	14-Aug-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Aug-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	14-Aug-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	14-Aug-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	14-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Aug-15
Methylcyclohexane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Aug-15
n-Butane	I	0.26	ppbv	0.03	AC-058	14-Aug-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Aug-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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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
n-Hexane	I	0.03	ppbv	0.01	AC-058	14-Aug-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	14-Aug-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-Aug-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Aug-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Aug-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	14-Aug-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Toluene	I	0.05	ppbv	0.01	AC-058	14-Aug-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-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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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	22-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	22-Aug-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	22-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	22-Aug-15
1,2-Dichloroethane	I	0.01 ppbv	0.01	AC-058	22-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	22-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
1-Butene	I	0.10 ppbv	0.02	AC-058	22-Aug-15
1-Hexene	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
2,2,4-Trimethylpentane	I	0.03 ppbv	0.01	AC-058	22-Aug-15
2,2-Dimethylbutane	I	0.01 ppbv	0.01	AC-058	22-Aug-15
2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
2,3-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-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, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2-Methylhexane	I	0.01	ppbv	0.01	AC-058	22-Aug-15
2-Methylpentane	I	0.06	ppbv	0.01	AC-058	22-Aug-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
3-Methylpentane	I	0.03	ppbv	0.01	AC-058	22-Aug-15
Acetone		7.0	ppbv	0.4	AC-058	22-Aug-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
Benzene	I	0.03	ppbv	0.01	AC-058	22-Aug-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
Carbon disulfide	I	0.18	ppbv	0.01	AC-058	22-Aug-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	22-Aug-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Chloroform	I	0.03	ppbv	0.02	AC-058	22-Aug-15
Chloromethane		0.59	ppbv	0.02	AC-058	22-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Cyclohexane	I	0.03	ppbv	0.02	AC-058	22-Aug-15
Cyclopentane	I	0.02	ppbv	0.01	AC-058	22-Aug-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.9	ppbv	0.3	AC-058	22-Aug-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Ethylbenzene	I	0.02	ppbv	0.01	AC-058	22-Aug-15
Freon-11	I	0.30	ppbv	0.02	AC-058	22-Aug-15
Freon-113	I	0.07	ppbv	0.01	AC-058	22-Aug-15
Freon-114	I	0.02	ppbv	0.02	AC-058	22-Aug-15
Freon-12		0.67	ppbv	0.02	AC-058	22-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	22-Aug-15
Isobutane	I	0.15	ppbv	0.02	AC-058	22-Aug-15
Isopentane		0.30	ppbv	0.03	AC-058	22-Aug-15
Isoprene		5.75	ppbv	0.01	AC-058	22-Aug-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
m,p-Xylene	I	0.05	ppbv	0.03	AC-058	22-Aug-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	22-Aug-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	22-Aug-15
Methyl ethyl ketone		0.5	ppbv	0.3	AC-058	22-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
Methylcyclohexane	I	0.03	ppbv	0.01	AC-058	22-Aug-15
Methylcyclopentane	I	0.03	ppbv	0.02	AC-058	22-Aug-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
n-Butane		0.41	ppbv	0.03	AC-058	22-Aug-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Aug-15

Qualifiers

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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
n-Hexane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	22-Aug-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
o-Xylene	I	0.02	ppbv	0.01	AC-058	22-Aug-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Aug-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Toluene	I	0.08	ppbv	0.01	AC-058	22-Aug-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
trans-2-Butene	I	0.02	ppbv	0.01	AC-058	22-Aug-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-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: 15080333-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/August 16, 2015 CANISTER ID: S5658 DESCRIPTION: CLS DATE SAMPLED: 16-Aug-15 0:00 DATE RECEIVED: 21-Aug-15 REPORT CREATED: 03-Sep-15 REPORT VERSION: Version 01
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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	22-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	22-Aug-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	22-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1-Butene	I	0.04	ppbv	0.02	AC-058	22-Aug-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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: 15080333-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 16, 2015</p> <p>CANISTER ID: S5658</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2-Methylpentane	I	0.03	ppbv	0.01	AC-058	22-Aug-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
3-Methylpentane	I	0.02	ppbv	0.01	AC-058	22-Aug-15
Acetone		2.3	ppbv	0.4	AC-058	22-Aug-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
Benzene	I	0.02	ppbv	0.01	AC-058	22-Aug-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
Carbon disulfide	I	0.08	ppbv	0.01	AC-058	22-Aug-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	22-Aug-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Chloroform	I	0.02	ppbv	0.02	AC-058	22-Aug-15
Chloromethane		0.50	ppbv	0.02	AC-058	22-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Cyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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: 15080333-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/August 16, 2015 CANISTER ID: S5658 DESCRIPTION: CLS DATE SAMPLED: 16-Aug-15 0:00 DATE RECEIVED: 21-Aug-15 REPORT CREATED: 03-Sep-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.8	ppbv	0.3	AC-058	22-Aug-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
Freon-11	I	0.29	ppbv	0.02	AC-058	22-Aug-15
Freon-113	I	0.07	ppbv	0.01	AC-058	22-Aug-15
Freon-114	I	0.02	ppbv	0.02	AC-058	22-Aug-15
Freon-12		0.67	ppbv	0.02	AC-058	22-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	22-Aug-15
Isobutane	I	0.07	ppbv	0.02	AC-058	22-Aug-15
Isopentane	I	0.25	ppbv	0.03	AC-058	22-Aug-15
Isoprene		0.48	ppbv	0.01	AC-058	22-Aug-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	22-Aug-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	22-Aug-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
Methylcyclohexane	I	0.02	ppbv	0.01	AC-058	22-Aug-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
n-Butane	I	0.17	ppbv	0.03	AC-058	22-Aug-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Aug-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: 15080333-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 16, 2015</p> <p>CANISTER ID: S5658</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
n-Hexane	I	0.03	ppbv	0.01	AC-058	22-Aug-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	22-Aug-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
o-Xylene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Aug-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Toluene	I	0.03	ppbv	0.01	AC-058	22-Aug-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-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: 15080449-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 22, 2015</p> <p>CANISTER ID: 1685</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-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	02-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
1,2,3-Trimethylbenzene	I	0.05	ppbv	0.05	AC-058	02-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	02-Sep-15
1,2,4-Trimethylbenzene	I	0.06	ppbv	0.03	AC-058	02-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	02-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
1-Butene	I	0.15	ppbv	0.02	AC-058	02-Sep-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-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: 15080449-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/CLS/August 22, 2015 CANISTER ID: 1685 DESCRIPTION: CLS DATE SAMPLED: 22-Aug-15 0:00 DATE RECEIVED: 28-Aug-15 REPORT CREATED: 25-Sep-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	02-Sep-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2-Methylpentane	I	0.04	ppbv	0.01	AC-058	02-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
3-Methylhexane	I, K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
3-Methylpentane	I	0.04	ppbv	0.01	AC-058	02-Sep-15
Acetone		4.3	ppbv	0.4	AC-058	02-Sep-15
Acrolein		0.6	ppbv	0.3	AC-058	02-Sep-15
Benzene	I	0.03	ppbv	0.01	AC-058	02-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
Carbon disulfide		1.26	ppbv	0.01	AC-058	02-Sep-15
Carbon tetrachloride	I	0.08	ppbv	0.01	AC-058	02-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
Chloroethane	I	0.08	ppbv	0.02	AC-058	02-Sep-15
Chloroform	I	0.03	ppbv	0.02	AC-058	02-Sep-15
Chloromethane		0.78	ppbv	0.02	AC-058	02-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
cis-2-Butene	I	0.03	ppbv	0.02	AC-058	02-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
Cyclohexane	I	0.04	ppbv	0.02	AC-058	02-Sep-15
Cyclopentane	I	0.01	ppbv	0.01	AC-058	02-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-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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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.0	ppbv	0.3	AC-058	02-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Ethylbenzene	I	0.01	ppbv	0.01	AC-058	02-Sep-15
Freon-11	I	0.29	ppbv	0.02	AC-058	02-Sep-15
Freon-113	I	0.07	ppbv	0.01	AC-058	02-Sep-15
Freon-114	I	0.02	ppbv	0.02	AC-058	02-Sep-15
Freon-12		0.61	ppbv	0.02	AC-058	02-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Sep-15
Isobutane	I	0.09	ppbv	0.02	AC-058	02-Sep-15
Isopentane	I	0.18	ppbv	0.03	AC-058	02-Sep-15
Isoprene		0.37	ppbv	0.01	AC-058	02-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
m,p-Xylene	I	0.05	ppbv	0.03	AC-058	02-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Sep-15
Methyl ethyl ketone		0.3	ppbv	0.3	AC-058	02-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-15
Methylcyclohexane	I	0.06	ppbv	0.01	AC-058	02-Sep-15
Methylcyclopentane	I	0.03	ppbv	0.02	AC-058	02-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-15
n-Butane	I	0.20	ppbv	0.03	AC-058	02-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Sep-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: 15080449-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 22, 2015</p> <p>CANISTER ID: 1685</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-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	02-Sep-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
n-Hexane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	02-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Sep-15
Naphthalene		0.6	ppbv	0.5	AC-058	02-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
o-Xylene	I	0.02	ppbv	0.01	AC-058	02-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Toluene	I	0.04	ppbv	0.01	AC-058	02-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
trans-2-Butene	I	0.04	ppbv	0.01	AC-058	02-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-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: 15090005-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 28, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 01-Sep-15</p> <p>REPORT CREATED: 25-Sep-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	03-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	03-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	03-Sep-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	03-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	03-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
1-Butene	I	0.10	ppbv	0.02	AC-058	03-Sep-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
2,2-Dimethylbutane	I	0.02	ppbv	0.01	AC-058	03-Sep-15
2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	03-Sep-15
2,3-Dimethylbutane	I	0.05	ppbv	0.02	AC-058	03-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-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: 15090005-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 28, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 01-Sep-15</p> <p>REPORT CREATED: 25-Sep-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	03-Sep-15
2-Methylhexane	I	0.03	ppbv	0.01	AC-058	03-Sep-15
2-Methylpentane	I	0.12	ppbv	0.01	AC-058	03-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
3-Methylhexane	I	0.03	ppbv	0.02	AC-058	03-Sep-15
3-Methylpentane	I	0.07	ppbv	0.01	AC-058	03-Sep-15
Acetone		5.5	ppbv	0.4	AC-058	03-Sep-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	03-Sep-15
Benzene	I	0.13	ppbv	0.01	AC-058	03-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
Carbon disulfide	I	0.08	ppbv	0.01	AC-058	03-Sep-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	03-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
Chloroform	I	0.03	ppbv	0.02	AC-058	03-Sep-15
Chloromethane		0.68	ppbv	0.02	AC-058	03-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
Cyclohexane	I	0.04	ppbv	0.02	AC-058	03-Sep-15
Cyclopentane	I	0.02	ppbv	0.01	AC-058	03-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-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: 15090005-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 28, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 01-Sep-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.7	ppbv	0.3	AC-058	03-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
Ethylbenzene	I	0.02	ppbv	0.01	AC-058	03-Sep-15
Freon-11	I	0.27	ppbv	0.02	AC-058	03-Sep-15
Freon-113	I	0.07	ppbv	0.01	AC-058	03-Sep-15
Freon-114	I	0.02	ppbv	0.02	AC-058	03-Sep-15
Freon-12		0.62	ppbv	0.02	AC-058	03-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	03-Sep-15
Isobutane		0.56	ppbv	0.02	AC-058	03-Sep-15
Isopentane		0.52	ppbv	0.03	AC-058	03-Sep-15
Isoprene		3.28	ppbv	0.01	AC-058	03-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
m,p-Xylene	I	0.06	ppbv	0.03	AC-058	03-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	03-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	03-Sep-15
Methyl ethyl ketone		0.5	ppbv	0.3	AC-058	03-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	03-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	03-Sep-15
Methylcyclohexane	I	0.05	ppbv	0.01	AC-058	03-Sep-15
Methylcyclopentane	I	0.06	ppbv	0.02	AC-058	03-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	03-Sep-15
n-Butane		1.21	ppbv	0.03	AC-058	03-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	03-Sep-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: 15090005-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/CLS/August 28, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 01-Sep-15</p> <p>REPORT CREATED: 25-Sep-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	03-Sep-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
n-Hexane	I	0.16	ppbv	0.01	AC-058	03-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	03-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	03-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	03-Sep-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	03-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
o-Xylene	I	0.02	ppbv	0.01	AC-058	03-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	03-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
Toluene	I	0.13	ppbv	0.01	AC-058	03-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	03-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	03-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	03-Sep-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 SAMPLES

<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: 15080137-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 4. 2015</p> <p>CANISTER ID: TE-06</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-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/PUF	0.01	NA-017	28-Aug-15
2-Methylnaphthalene		0.09	ug/PUF	0.01	NA-017	28-Aug-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Acenaphthene		0.04	ug/PUF	0.01	NA-017	28-Aug-15
Acenaphthylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Anthracene		0.02	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(b,j,k)fluoranthene		0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Chrysene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Fluoranthene		0.05	ug/PUF	0.01	NA-017	28-Aug-15
Fluorene		0.07	ug/PUF	0.01	NA-017	28-Aug-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Naphthalene		0.06	ug/PUF	0.01	NA-017	28-Aug-15
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Phenanthrene		0.31	ug/PUF	0.01	NA-017	28-Aug-15
Pyrene		0.04	ug/PUF	0.01	NA-017	28-Aug-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>

<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: 15080137-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 4. 2015</p> <p>CANISTER ID: TE-06</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.06 ug/PUF	0.01	NA-017	28-Aug-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: 15080281-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 10, 2015</p> <p>CANISTER ID: TE-05</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 10-Aug-15 0:00</p> <p>DATE RECEIVED: 18-Aug-15</p> <p>REPORT CREATED: 03-Sep-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/PUF	0.01	NA-017	29-Aug-15
2-Methylnaphthalene		0.05	ug/PUF	0.01	NA-017	29-Aug-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthene		0.05	ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Anthracene		0.01	ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Benzo(b,j,k)fluoranthene		0.01	ug/PUF	0.01	NA-017	29-Aug-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Chrysene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Fluoranthene		0.03	ug/PUF	0.01	NA-017	29-Aug-15
Fluorene		0.05	ug/PUF	0.01	NA-017	29-Aug-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Naphthalene		0.03	ug/PUF	0.01	NA-017	29-Aug-15
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	29-Aug-15
Phenanthrene		0.17	ug/PUF	0.01	NA-017	29-Aug-15
Pyrene		0.04	ug/PUF	0.01	NA-017	29-Aug-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: 15080281-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 10, 2015</p> <p>CANISTER ID: TE-05</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 10-Aug-15 0:00</p> <p>DATE RECEIVED: 18-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/PUF	0.01	NA-017	29-Aug-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: 15080333-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 16, 2015</p> <p>CANISTER ID: TE-03</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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/PUF	0.01	NA-017	29-Aug-15
2-Methylnaphthalene		0.03 ug/PUF	0.01	NA-017	29-Aug-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthene		0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acridine	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Anthracene		0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(b,j,k)fluoranthene		0.02 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Chrysene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Fluoranthene		0.04 ug/PUF	0.01	NA-017	29-Aug-15
Fluorene		0.05 ug/PUF	0.01	NA-017	29-Aug-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Naphthalene		0.03 ug/PUF	0.01	NA-017	29-Aug-15
Perylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Phenanthrene		0.25 ug/PUF	0.01	NA-017	29-Aug-15
Pyrene		0.04 ug/PUF	0.01	NA-017	29-Aug-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: 15080333-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 16, 2015</p> <p>CANISTER ID: TE-03</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.04 ug/PUF	0.01	NA-017	29-Aug-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: 15080449-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 22, 2015</p> <p>CANISTER ID: P13-01</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.06 ug/Filter	0.01	NA-017	17-Sep-15
2-Methylnaphthalene		0.10 ug/Filter	0.01	NA-017	17-Sep-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthene		0.04 ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthylene		0.05 ug/Filter	0.01	NA-017	17-Sep-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(b,j,k)fluoranthene		0.03 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(c)phenanthrene		0.04 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Fluoranthene		0.03 ug/Filter	0.01	NA-017	17-Sep-15
Fluorene		0.06 ug/Filter	0.01	NA-017	17-Sep-15
Indeno(1,2,3-cd)pyrene		0.01 ug/Filter	0.01	NA-017	17-Sep-15
Naphthalene		0.08 ug/Filter	0.01	NA-017	17-Sep-15
Perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Phenanthrene		0.13 ug/Filter	0.01	NA-017	17-Sep-15
Pyrene		0.04 ug/Filter	0.01	NA-017	17-Sep-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: 15080449-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 22, 2015</p> <p>CANISTER ID: P13-01</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-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: 15090005-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 28, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 01-Sep-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.04 ug/Filter	0.01	NA-017	17-Sep-15
2-Methylnaphthalene		0.07 ug/Filter	0.01	NA-017	17-Sep-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthene		0.03 ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(b,j,k)fluoranthene		0.03 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Fluoranthene		0.05 ug/Filter	0.01	NA-017	17-Sep-15
Fluorene		0.08 ug/Filter	0.01	NA-017	17-Sep-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Naphthalene		0.05 ug/Filter	0.01	NA-017	17-Sep-15
Perylene		0.02 ug/Filter	0.01	NA-017	17-Sep-15
Phenanthrene		0.30 ug/Filter	0.01	NA-017	17-Sep-15
Pyrene		0.05 ug/Filter	0.01	NA-017	17-Sep-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: 15090005-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/CLS/August 28, 2015</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 01-Sep-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.03 ug/Filter	0.01	NA-017	17-Sep-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>

PARTISOL SAMPLES

<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: 15080136-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4149454</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 19-Aug-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.102 mg	0.004	AC-029	14-Aug-15

<p>Qualifiers</p>	<p>Certified By: Graham Knox, Team Lead 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: 15080282-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4149455</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 10-Aug-15 0:00</p> <p>DATE RECEIVED: 18-Aug-15</p> <p>REPORT CREATED: 20-Aug-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.068	mg	0.004	AC-029	19-Aug-15

<p><u>Qualifiers</u></p>	<p>Certified By: 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: 15080332-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4149572</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 09-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Particulate Weight		0.026	mg	0.004	AC-029	25-Aug-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Team Lead 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: 15080448-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P4149571</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 15-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.011 mg	0.004	AC-029	10-Sep-15

<p>Qualifiers</p>	<p>Certified By: Graham Knox, Team Lead 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: 15090003-001</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA P5010238</p> <p>CANISTER ID:</p> <p>DESCRIPTION: CLS</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 01-Sep-15</p> <p>REPORT CREATED: 15-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Particulate Weight		0.390 mg	0.004	AC-029	10-Sep-15

<p><u>Qualifiers</u></p>	<p>Certified By: Graham Knox, Team Lead 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>2833-2015-08-01- C</u>
Site: <u>Cold Lake South Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete	<u>msclmkg</u>	Date	<u>22 - Sept - 2015</u>
QA Check Review	<u>msclmkg</u>	Date	<u>22 - Sept - 2015</u>
Report Complete	<u>msclmkg</u>	Date	<u>28 - Sept - 2015</u>
Report Reviewed	<u>E. Tangang</u>	Date	<u>29 - Sep - 15</u>
Report Shipped	_____	Date	_____

Notes

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

JOB #:2833-2015-08-30- C

AUGUST 2015


Prepared for:

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

Attention: MIKE BISAGA

DATE: **September 17, 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 AUGUST 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.

SO₂: The analyzer failed the daily span check on August 24. The analyzer was replaced on August 25. Hourly data was invalidated back to the last good daily calibration which was August 23. Thirty-six hours of data were discarded due to this issue.

NO_x/NO/NO₂: The LICA-owned API 200E, S/N: 593, analyzer was replaced with the Maxxam-supplied API 200A, S/N: 1899 on August 13 for maintenance purposes. Thirty 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, 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	11	21	23	5.5	NW	2.9	22	95.2
H2S (PPB)	10	3	0	0	0	5	4	10	4.3	ESE	0.7	4	100.0
THC (PPM)	-	-	-	-	2.1	2.9	28, 28	3, 4	5 2.1	SSW SW	2.4	28	100.0
NO2 (PPB)	159	-	0	-	2.2	22.1	19	21	5	NW	4.7	22	96.0
NO (PPB)	-	-	-	-	0.7	20.9	21	23	5.5	NW	4.0	22	96.0
NOX (PPB)	-	-	-	-	3.0	36.3	21	23	5.5	NW	8.6	22	96.0
RELATIVE HUMIDITY (%)	-	-	-	-	71.7	94	VAR	VAR	VAR	VAR	92.5	5	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	941	950	16, 26	VAR	VAR	VAR	948	16	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	16.1	30.9	13	15	3.9	S	22.0	13	100.0
PRECIPITATION (MM)	-	-	-	-	0.1	7.6	15	11	4.3	N	0.7	5	100.0
VECTOR WS (KPH)	-	-	-	-	4.0	13.0	19	11	-	SSW	6.5	19	100.0
VECTOR WD (DEG)	-	-	-	-	S	-	-	-	-	-	-	-	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 Ambient 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 conducted on August 13.

SULPHUR DIOXIDE (SO₂)

The routine monthly calibration was performed on August 14. The analyzer did not span properly on August 24. It was decided that the analyzer be replaced for maintenance purposes. The LICA-owned API 100E, S/N: 508, analyzer was replaced with the Maxxam-supplied API 100A, S/N: 1124 on August 24. The analyzer was allowed time to stabilize overnight and the installation calibration was completed on August 25. Data was invalidated back to the last good daily calibration which was August 23. Thirty-six hours of data were discarded due to this issue. The LICA-owned analyzer was brought to Maxxam shop for repair and will be installed back once maintenance is completed.

HYDROGEN SULPHIDE (H2S)

The analyzer was working well throughout the month.

The routine monthly calibration was performed on August 13.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month.

The routine monthly calibration was performed on August 14.

NITROGEN DIOXIDE (NO2)

The analyzer showed instability in its daily span readings during the earlier part of the month. The LICA-owned API 200E, S/N: 593, analyzer was removed following a shut-down calibration on August 13. The shut-down calibration passed AMD requirements. The analyzer was sent back to Maxxam shop for maintenance. The replacement analyzer, Maxxam-supplied API 200A, S/N: 1899 was installed on the same day. The analyzer was allowed time to stabilize overnight and the installation calibration was completed on August 14. The analyzer spanned low on August 19. An as found points check was performed on August 20. The result was good. The analyzer spanned low again on August 24. Another as found points check was completed on August 25. The result was good. As the analyzer continued showing unstable span results, a shut-down calibration was performed prior to maintenance on August 27. The pump was rebuilt and the analyzer was allowed time to stabilize overnight. A post-repair calibration was completed on August 28. No further issues were identified. Thirty hours of data are invalid during the time the analyzer was stabilizing in both cases.

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

The rain gauge system was 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 team consisted of Alexander Yakupov and Christopher Wesson.

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 and API 100A UV Fluorescent Analyzers
- Hydrogen Sulphide - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51C FID Analyzer
- Oxides of Nitrogen - API 200E and API 200A Chemiluminescent Analyzers
- 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	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DAILY MAX	24-HOUR AVG	RDGS
1	1	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	0.5	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	3	0.5	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	2	0.8	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.3	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.1	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	0.9	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	0.9	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	2	0.9	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	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	1	0.1	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	1	0.1	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	1	0.7	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	4	1.2	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	6	1.5	24
16	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.1	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	2	0.6	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	3	1.3	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	2	0.4	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	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	11	1.8	24
22	4	3	6	7	2	3	6	9	5	3	3	2	4	1	1	1	1	1	1	1	1	1	1	1	1	9	2.9	24
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1	1.0	20
24	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	1	0.8	16
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	2	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	1	0.6	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	2	0.5	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	7	1.7	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	1	0.8	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	0.4	24
31	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	0.4	24
HOURLY MAX	4	3	6	7	2	3	6	9	5	3	3	2	4	3	2	3	2	3	5	7	6	8	9	11	11			
HOURLY AVG	0.7	0.6	0.6	0.7	0.6	0.6	0.6	1.1	1.0	0.9	0.9	0.7	0.8	0.8	0.7	0.9	0.7	0.9	0.9	0.8	1.1	0.9	1.2	1.1				

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	L	LOCK
		K	COLLECTION ERROR

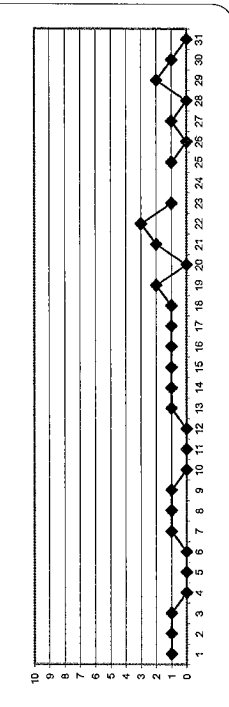
OBJECTIVE LIMIT:

1-HR	172	PPB	24-HR	48	PPB
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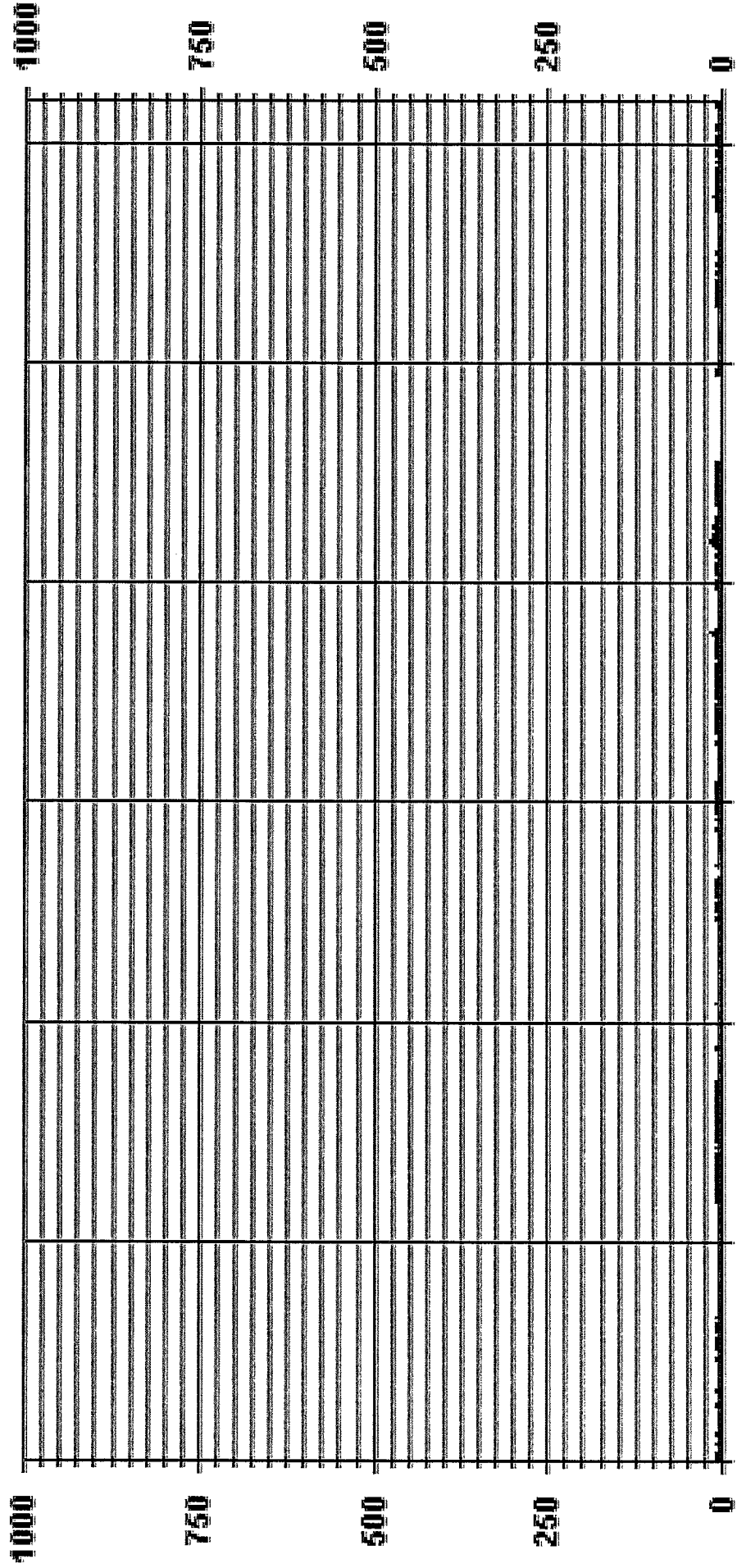
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0				
NUMBER OF 24-HR EXCEEDENCES	0				
NUMBER OF NON-ZERO READINGS	365				
MAXIMUM 1-HR AVERAGE	11 PPB	@ HOUR(S)	23	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE	2.9 PPB			ON DAY(S)	22
1ZS CALIBRATION TIME	35 HRS	OPERATIONAL TIME			708 HRS
MONTHLY CALIBRATION TIME	11 HRS	AMD OPERATION UPTIME			95.2 %
STANDARD DEVIATION	1.22	MONTHLY AVERAGE			1 PPB

24-HOUR AVERAGES FOR AUGUST 2015

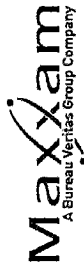


01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 SO2_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Maskwa Site - AUGUST 2015
 JOB # 2833-2015-08-30-C

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

DAY	24-HOUR AVG.																							
	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	1	2	2	2	2	5	1	1	1	1	1	1	2	3	4	5	1	6	1	1	1	1	1	6
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
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
4	2	2	2	2	2	4	1	2	2	2	2	2	3	3	3	1	1	1	1	1	1	2	2	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
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
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
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
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
10	0	5	3	1	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
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
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
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
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
16	7	5	3	3	1	5	7	7	2	3	2	2	4	4	1	1	1	1	1	1	1	1	1	1
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
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
19	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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
21	2	2	1	4	5	3	3	2	3	4	4	5	6	5	2	1	1	1	1	1	1	1	1	1
22	6	14	9	5	8	10	14	10	8	9	10	12	8	8	3	3	3	3	3	3	3	3	3	3
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
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
25	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
26	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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
30	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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
HOURLY MAX	13	6	14	9	6	8	10	14	10	8	9	10	12	8	8	7	7	9	9	12	13	14	16	16
HOURLY AVG	1.5	1.5	1.6	1.5	1.4	1.7	1.5	2.3	1.9	1.9	1.8	2.0	2.1	2.0	2.1	2.3	1.8	2.0	2.2	1.6	2.2	1.8	2.3	2.0

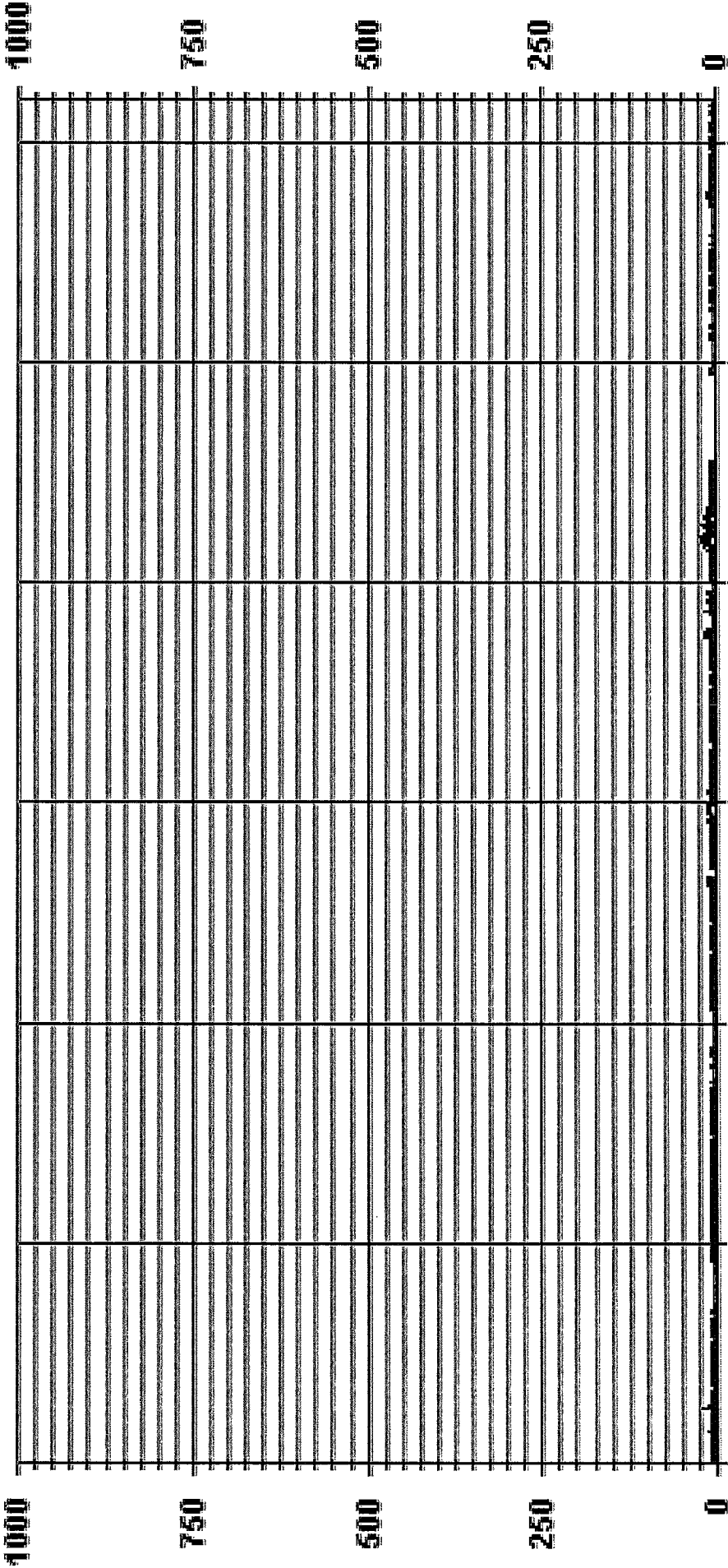
STATUS FLAG CODES

C	CALIBRATION	O	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

NUMBER OF NON-ZERO READINGS:	571
MAXIMUM INSTANTANEOUS VALUE:	16 PPB @ HOUR(S) 23 ON DAY(S) 21
OPERATIONAL TIME:	708 HRS
MONTHLY CALIBRATION TIME:	15 HRS
STANDARD DEVIATION:	2.30
VAR-VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 SO2MAX PPB

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

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : SO2
 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
< 20	3.32	5.13	7.25	7.09	4.98	4.83	5.43	3.77	7.55	15.40	9.81	4.68	3.92	6.34	6.79	3.62	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.32	5.13	7.25	7.09	4.98	4.83	5.43	3.77	7.55	15.40	9.81	4.68	3.92	6.34	6.79	3.62	

Calm : .00 %

Total # Operational Hours : 662

Distribution By Samples

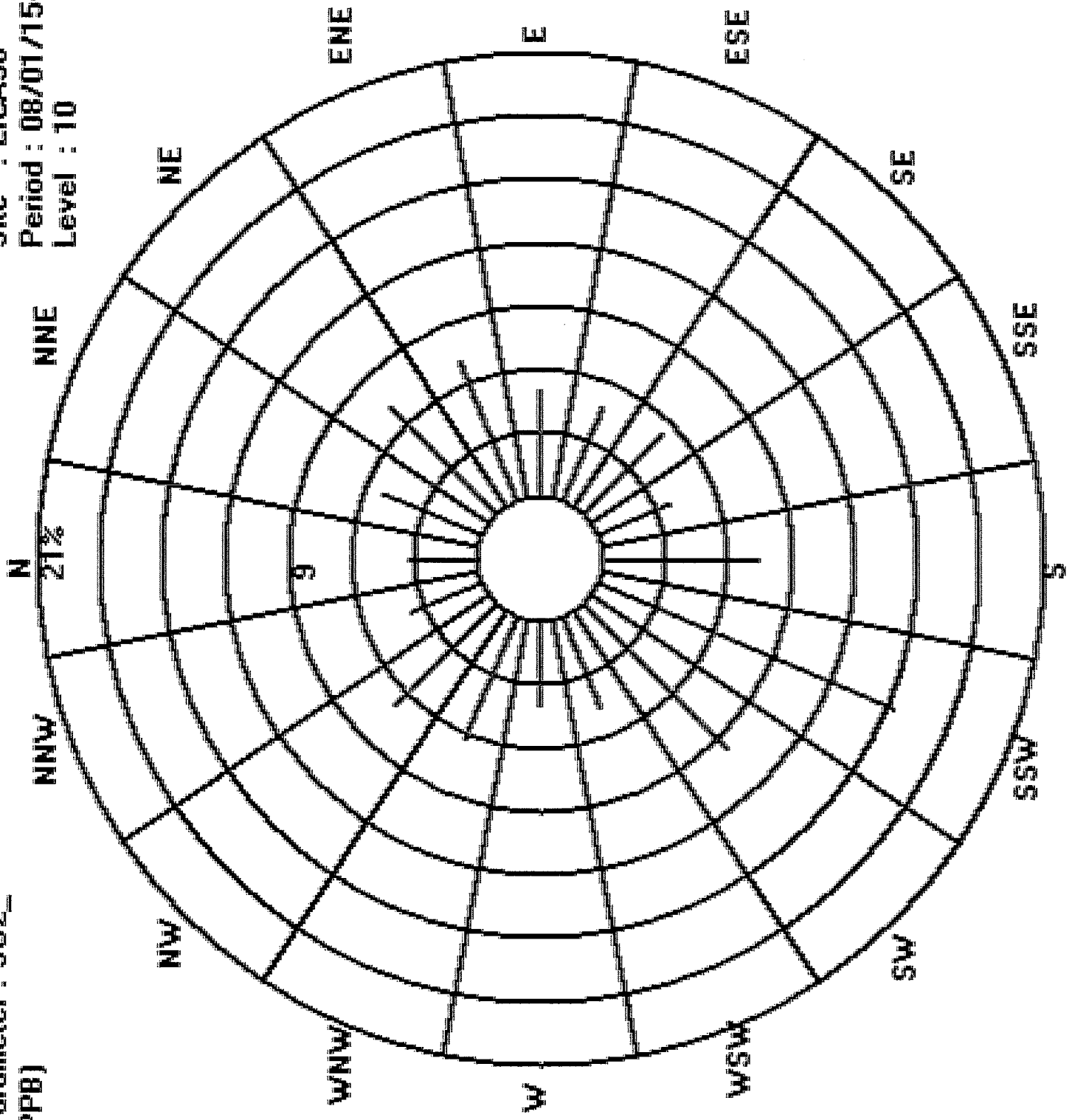
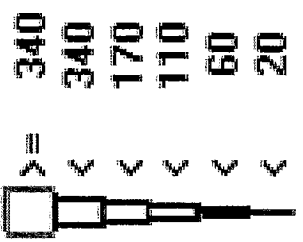
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	22	34	48	47	33	32	36	25	50	102	65	31	26	42	45	24	662
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	22	34	48	47	33	32	36	25	50	102	65	31	26	42	45	24	

Calm : .00 %

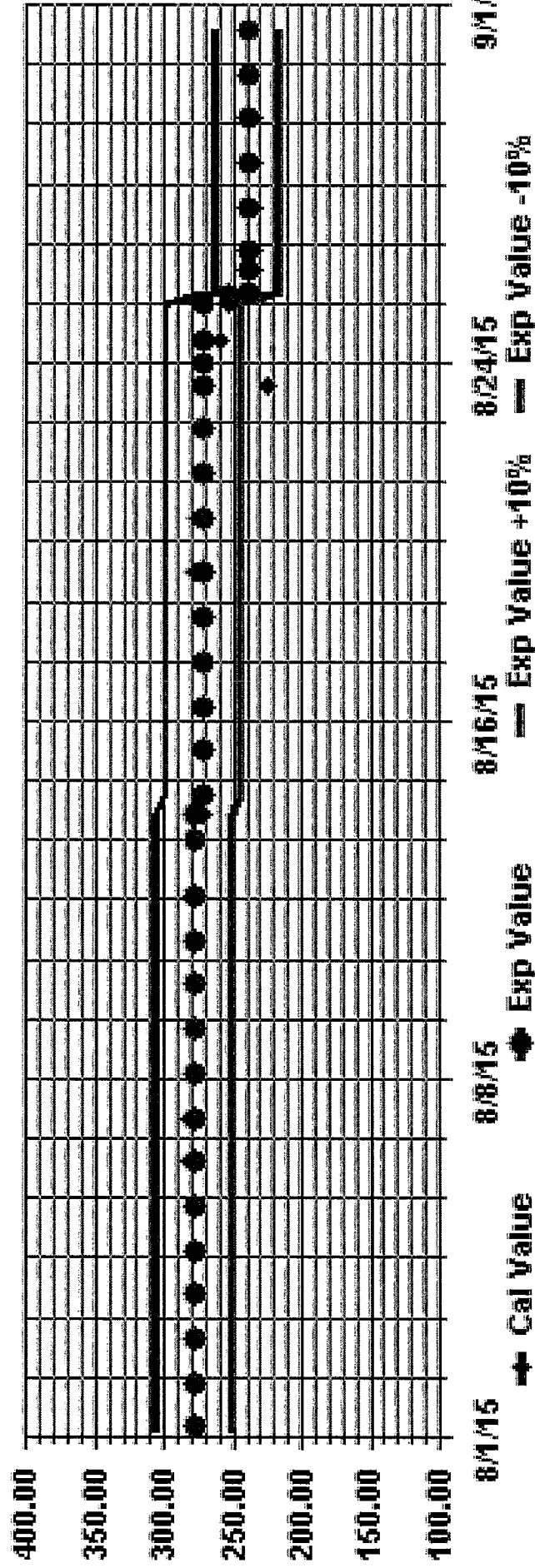
Total # Operational Hours : 662

Site : LICA30
 Period : 08/01/15-08/31/15
 Level : 10

Logger : 30 Parameter : SO2_
 Class Limits (PPB)

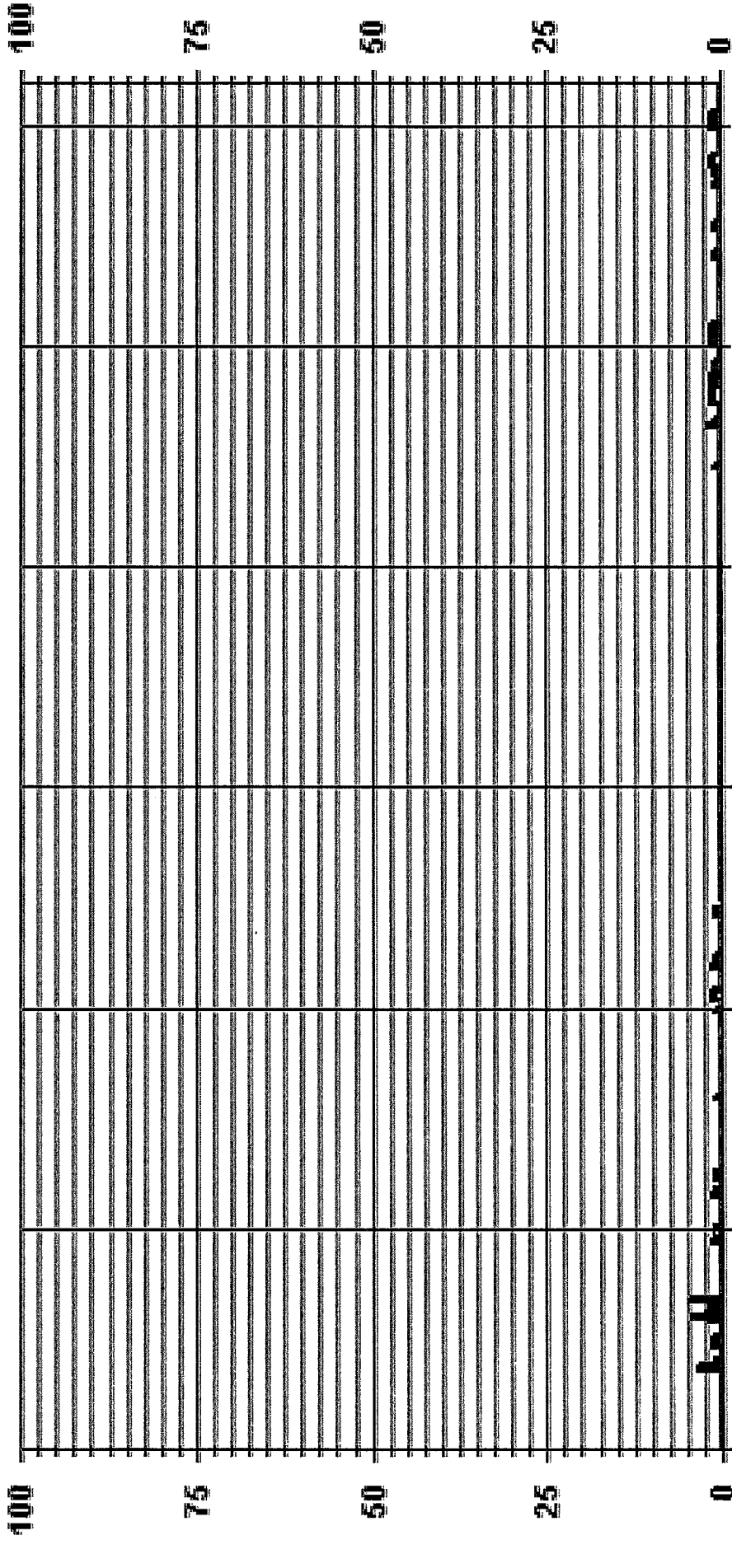


Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: SO2 Phase: SPAN



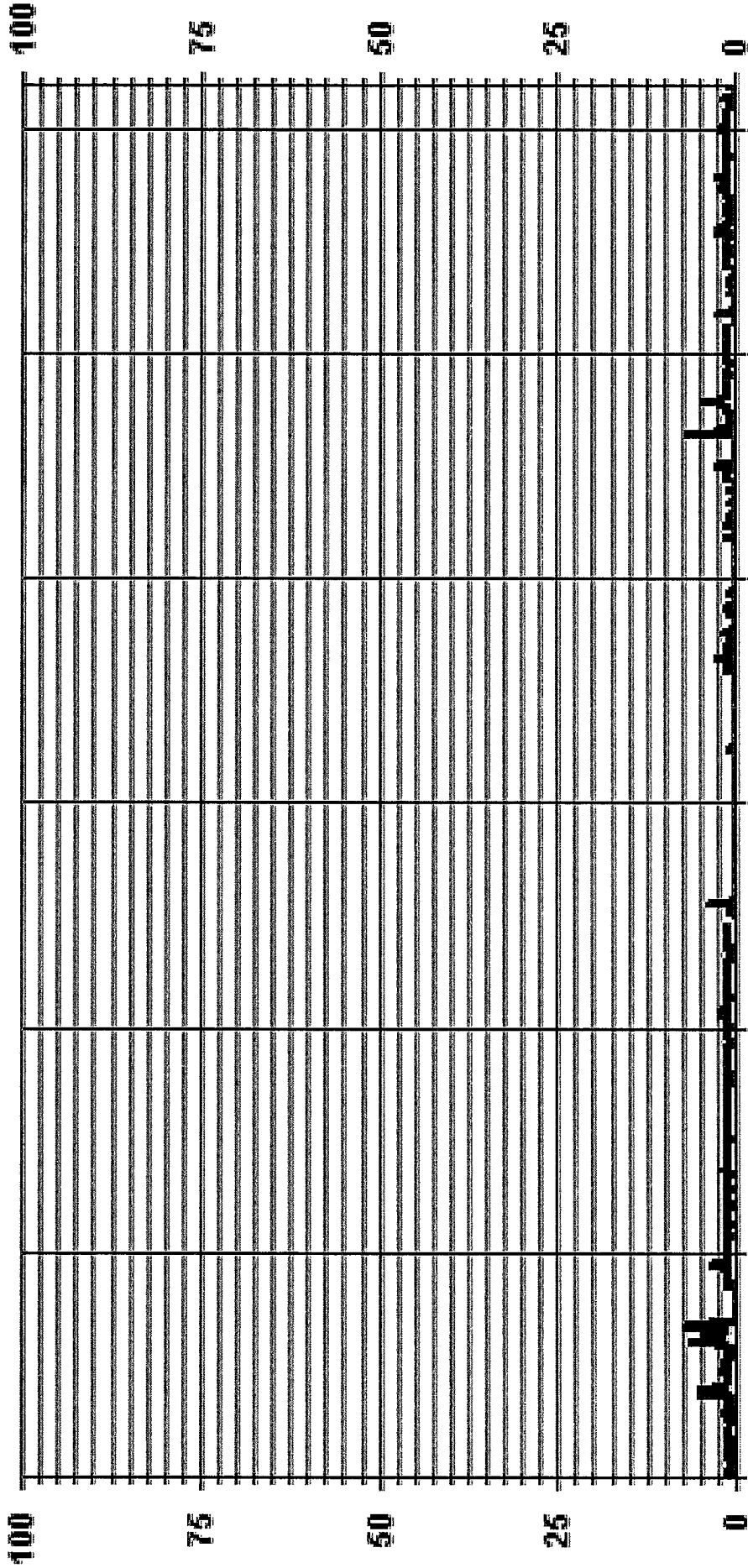
HYDROGEN SULPHIDE

01 Hour Averages



— LICA30 H2S_ PPB

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 H2SMAX PPB

H2S_ / WDR Joint Frequency Distribution (Percent)
 LIC30

August 2015

Distribution By % Of Samples

Logger Id : 30
 Site Name : LIC30
 Parameter : H2S
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	3.11	4.95	7.49	8.20	5.37	4.66	5.65	4.80	7.07	14.42	9.19	4.38	3.67	6.36	6.50	3.53	99.43
< 10	.00	.00	.00	.14	.14	.14	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.56
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.11	4.95	7.49	8.34	5.51	4.80	5.79	4.80	7.07	14.42	9.19	4.38	3.67	6.36	6.50	3.53	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

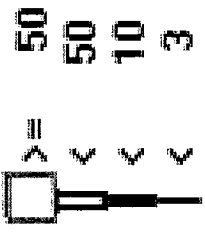
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	22	35	53	58	38	33	40	34	50	102	65	31	26	45	46	25	703
< 10				1	1	1	1										4
< 50																	
>= 50																	
Totals	22	35	53	59	39	34	41	34	50	102	65	31	26	45	46	25	

Calm : .00 %

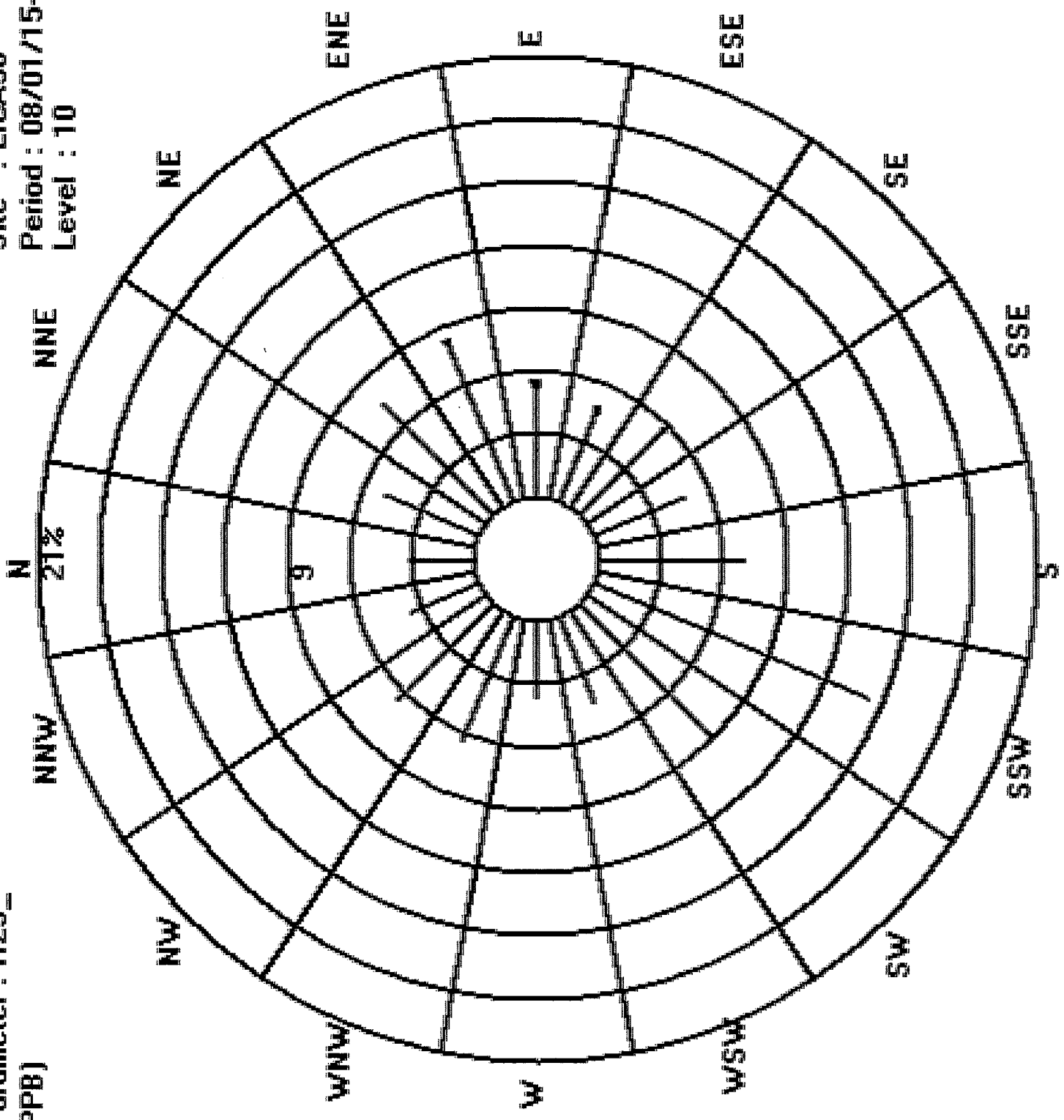
Total # Operational Hours : 707

Logger : 30 Parameter : H2S_

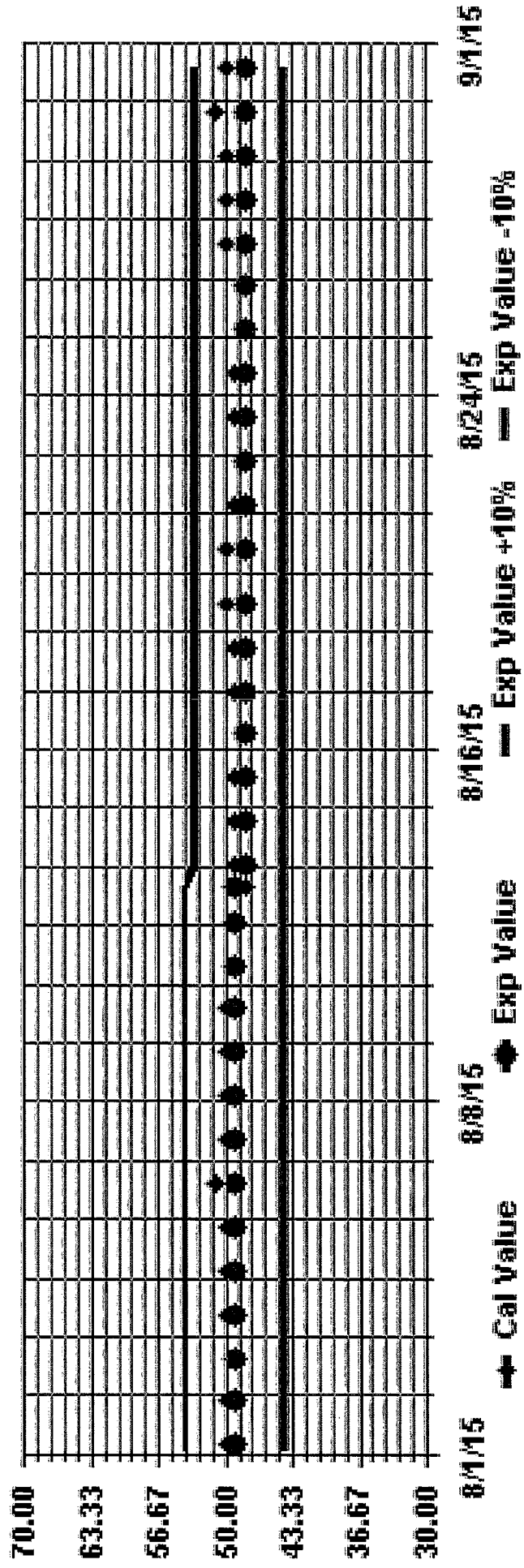
Class Limits (PPB)



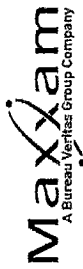
Site : LICA30
Period : 08/01/15-08/31/15
Level : 10



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



TOTAL HYDROCARBON



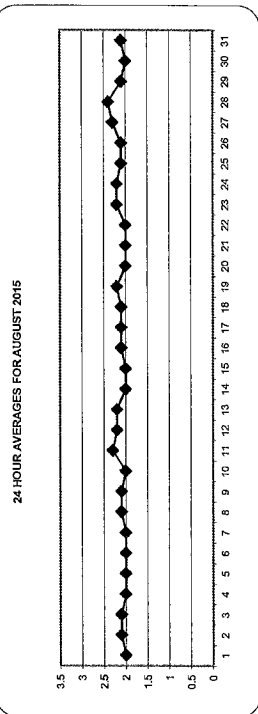
TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST

DAY	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	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	2.1	2.1	2.1	2.1	2.1	2.1
HOURLY AVG	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	2.1	2.1	2.1	2.1	2.1	2.1

STATUS FLAG CODES

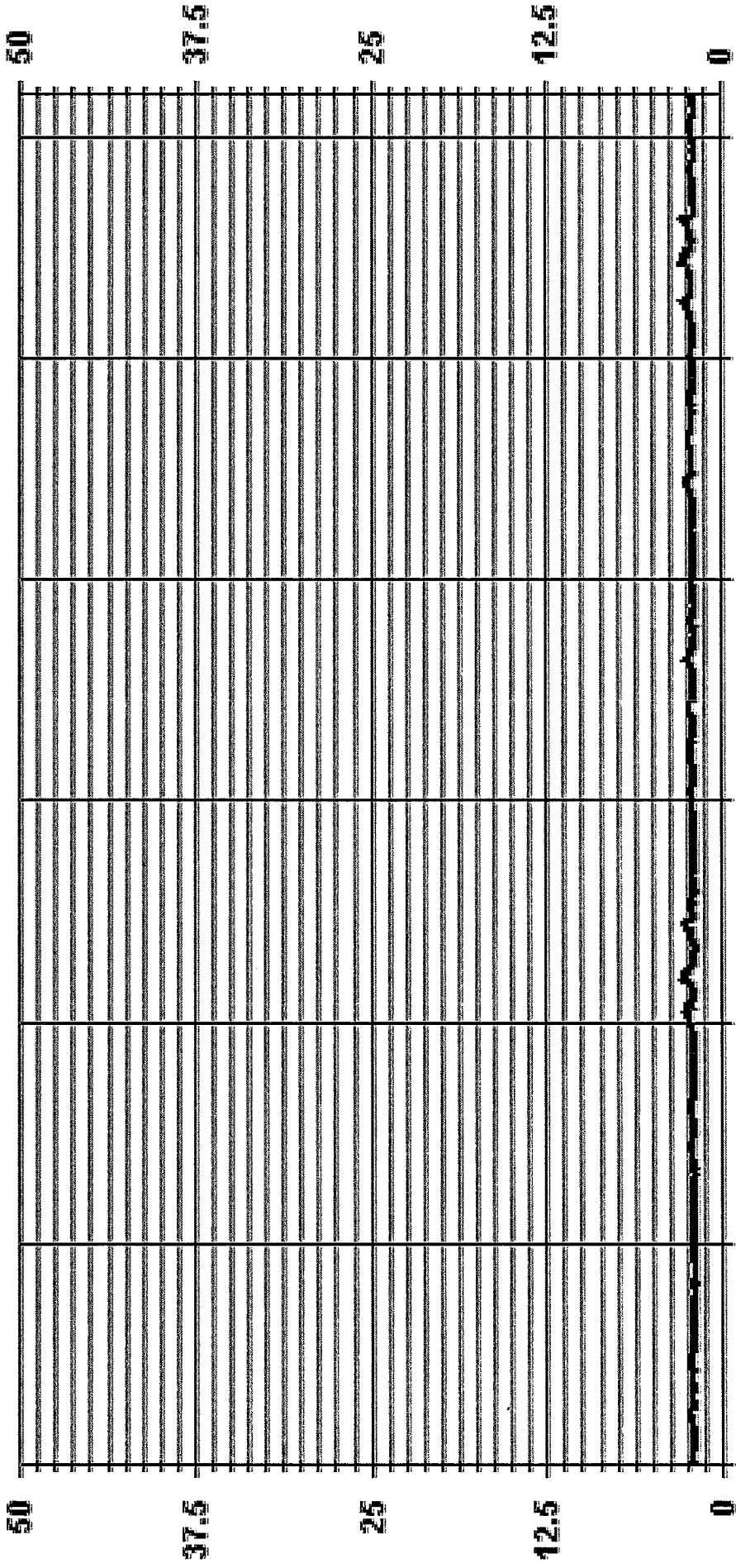
C	CALIBRATION	O	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPEAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF-REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708	ON DAY(S)	28, 28
MAXIMUM 1-HR AVERAGE:	2.9 PPM	@ HOUR(S)	3, 4
MAXIMUM 24-HR AVERAGE:	2.4 PPM	ON DAY(S)	28
IS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.15	MONTHLY AVERAGE:	2.1 PPM

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 - - - - - THC PPM



TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	ROGS.	
1	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	24
2	2.3	2.3	2.3	2.3	2.4	2.4	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	2.0	2.0	2.1	2.1	2.1	2.2	2.2	24
3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	24
4	2.1	2.0	2.0	2.0	2.0	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	24
5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	24
6	2.0	2.0	2.1	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
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	24
8	2.1	2.2	2.3	2.3	2.3	2.3	2.3	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
9	2.3	2.3	2.3	2.3	2.3	2.3	2.3	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	2.0	2.1	2.1	2.1	2.1	2.1	24
10	2.0	2.4	2.1	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	24
11	2.3	2.4	2.4	2.5	2.5	2.7	2.8	2.8	2.5	2.6	2.7	2.5	2.3	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	24
12	2.7	2.8	2.9	2.6	2.4	2.8	2.6	2.5	2.2	2.1	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	24
13	2.4	2.3	2.6	2.5	2.5	2.6	2.8	3.0	2.5	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	24
14	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.3	C	C	C	C	C	C	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
15	2.0	2.1	2.1	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	24
16	2.1	2.2	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	24
17	2.3	2.4	2.3	2.3	2.3	2.3	2.3	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
18	2.2	2.3	2.3	2.3	2.4	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	24
19	2.2	2.2	2.3	2.3	2.4	2.6	2.8	2.6	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	24
20	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.2	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	24
21	2.1	2.2	2.1	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	24
22	2.1	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	24
23	2.3	2.3	2.3	2.3	2.5	2.5	2.5	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	24
24	2.2	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	24
25	2.3	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	24
26	2.2	2.2	2.2	2.2	2.2	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	24
27	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.8	2.6	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	24
28	2.4	2.4	2.8	3.0	2.9	2.8	2.8	3.0	2.6	2.4	2.3	2.7	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
29	2.4	2.4	2.7	2.9	2.7	2.3	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	24	
30	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	24	
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	24
HOURLY MAX	2.7	2.8	2.9	3.0	2.9	2.8	2.8	3.0	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	
HOURLY AVG	2.2	2.2	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	
DAILY MAX	2.3	2.3	2.3	2.3	2.4	2.4	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	
DAILY AVG	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	

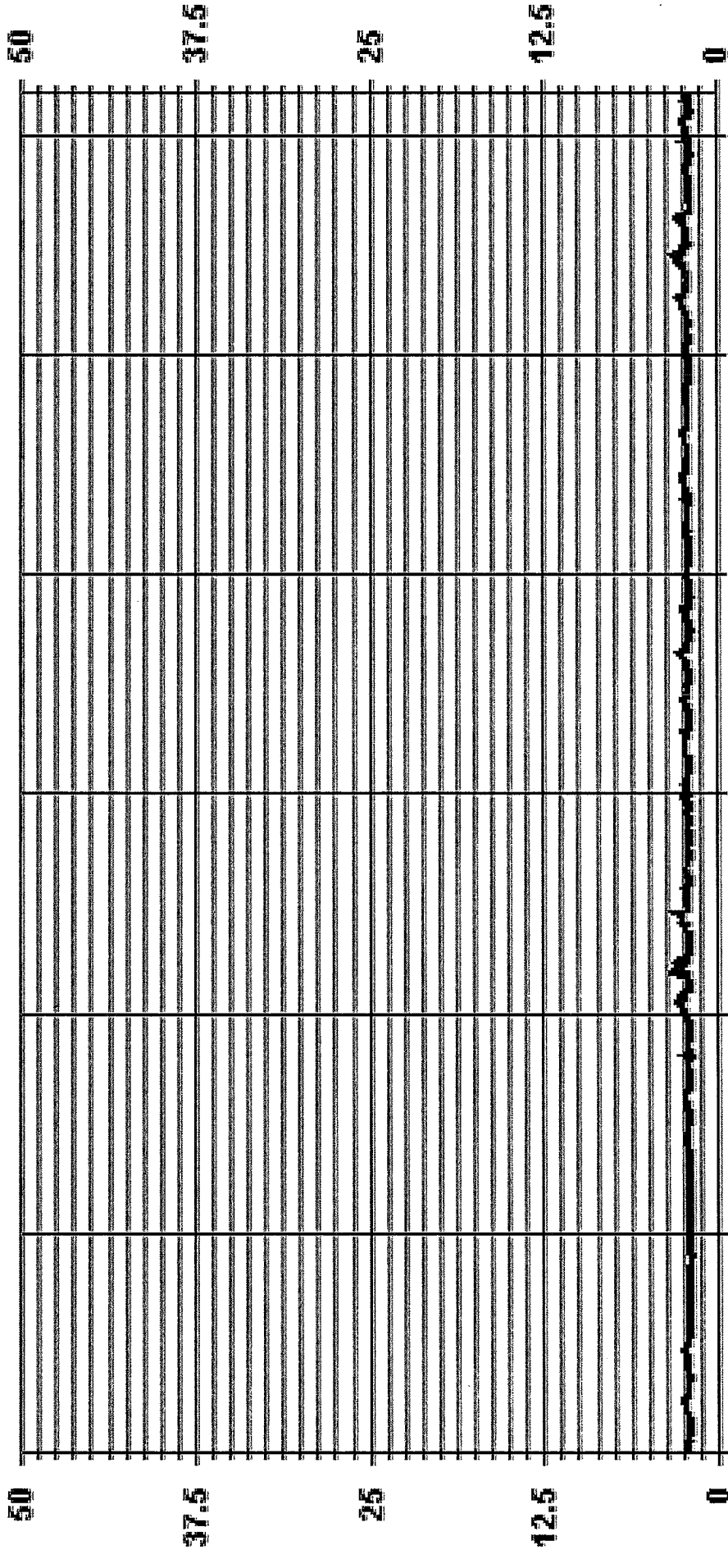
STATUS FLAG CODES

C	CALIBRATION
V	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:	708
MAXIMUM INSTANTANEOUS VALUE:	3.5 PPM @ HOUR(S) 23 ON DAY(S) 11
ISZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	0.20
VAR- VARIOUS	

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	3.10	4.94	7.48	8.33	5.50	4.94	6.21	4.80	7.20	14.40	9.18	4.37	3.67	5.93	6.35	3.53	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	3.10	4.94	7.48	8.33	5.50	4.94	6.21	4.80	7.20	14.40	9.18	4.37	3.67	5.93	6.35	3.53	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

Direction

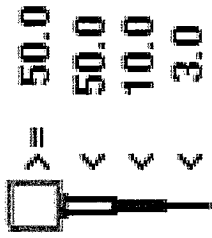
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	22	35	53	59	39	35	44	34	51	102	65	31	26	42	45	25	708
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	22	35	53	59	39	35	44	34	51	102	65	31	26	42	45	25	

Calm : .00 %

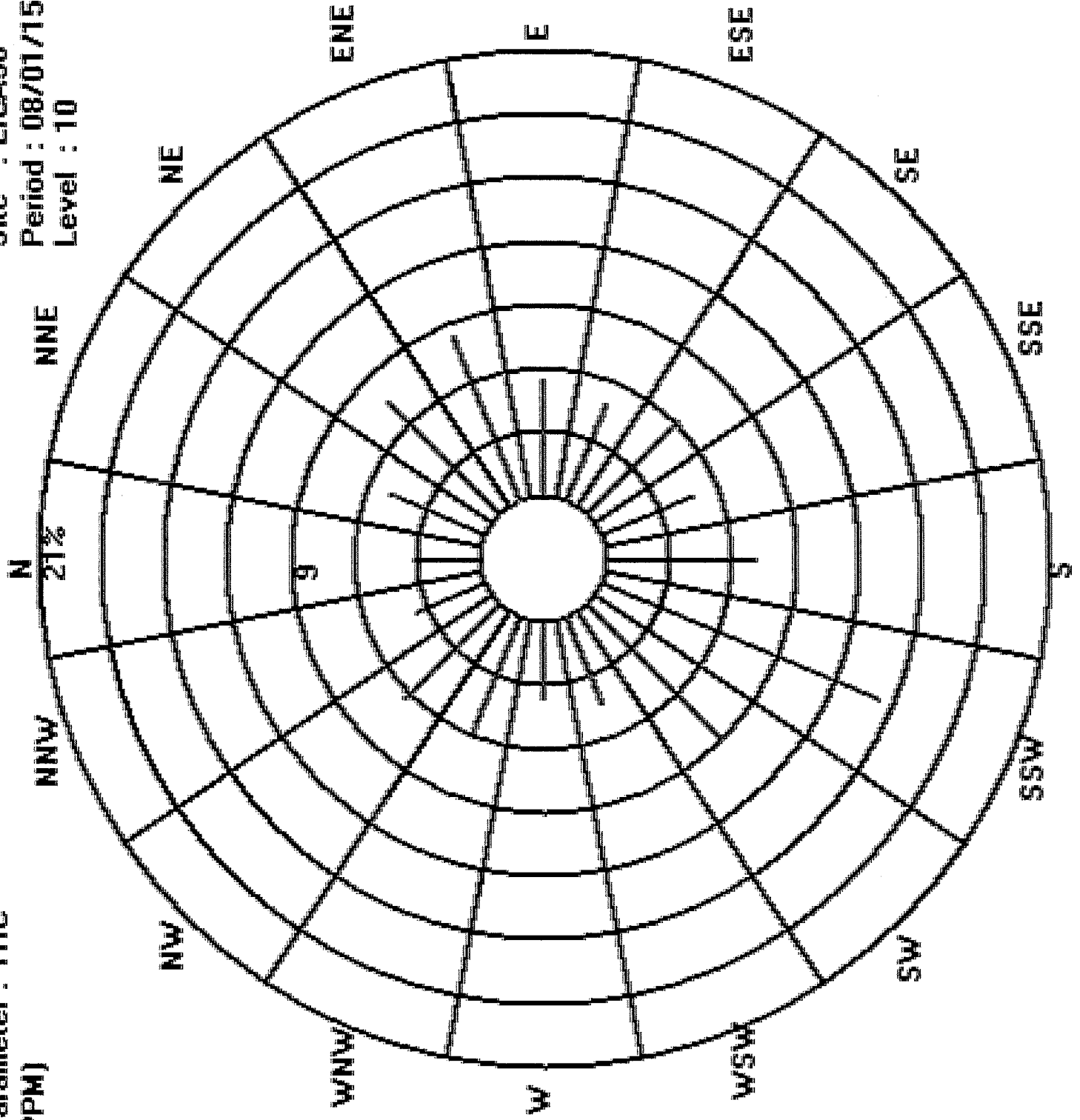
Total # Operational Hours : 708

Logger : 30 Parameter : THC

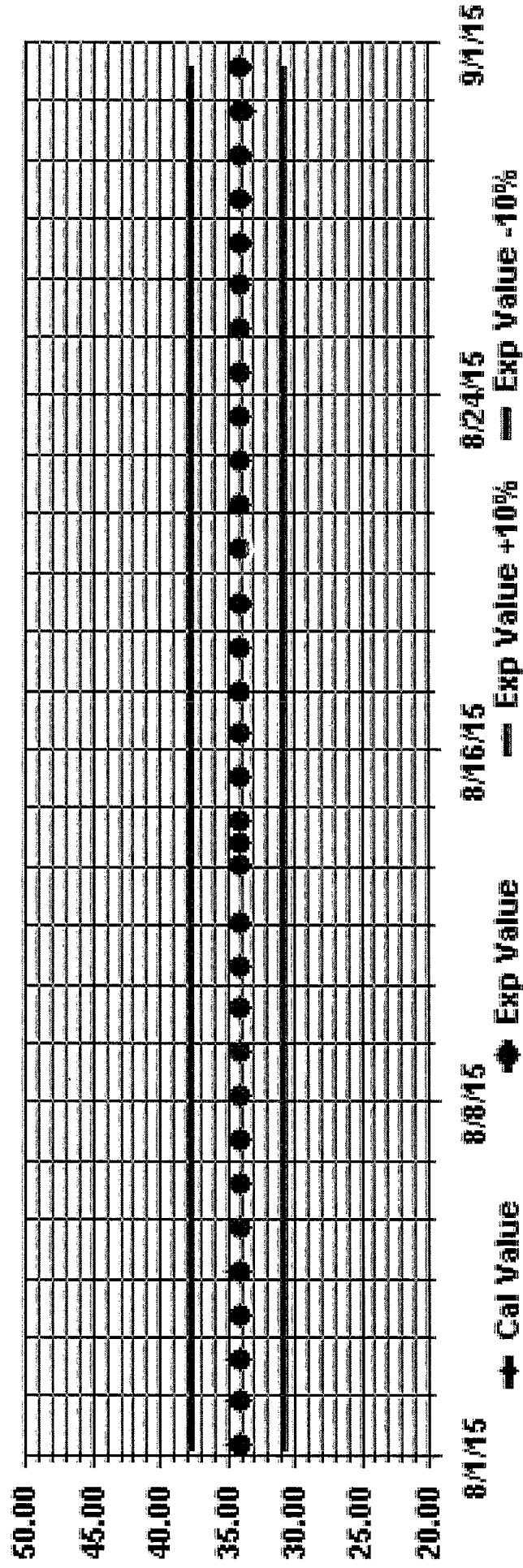
Class Limits (PPM)



Site : LICA30
Period : 08/01/15-08/31/15
Level : 10

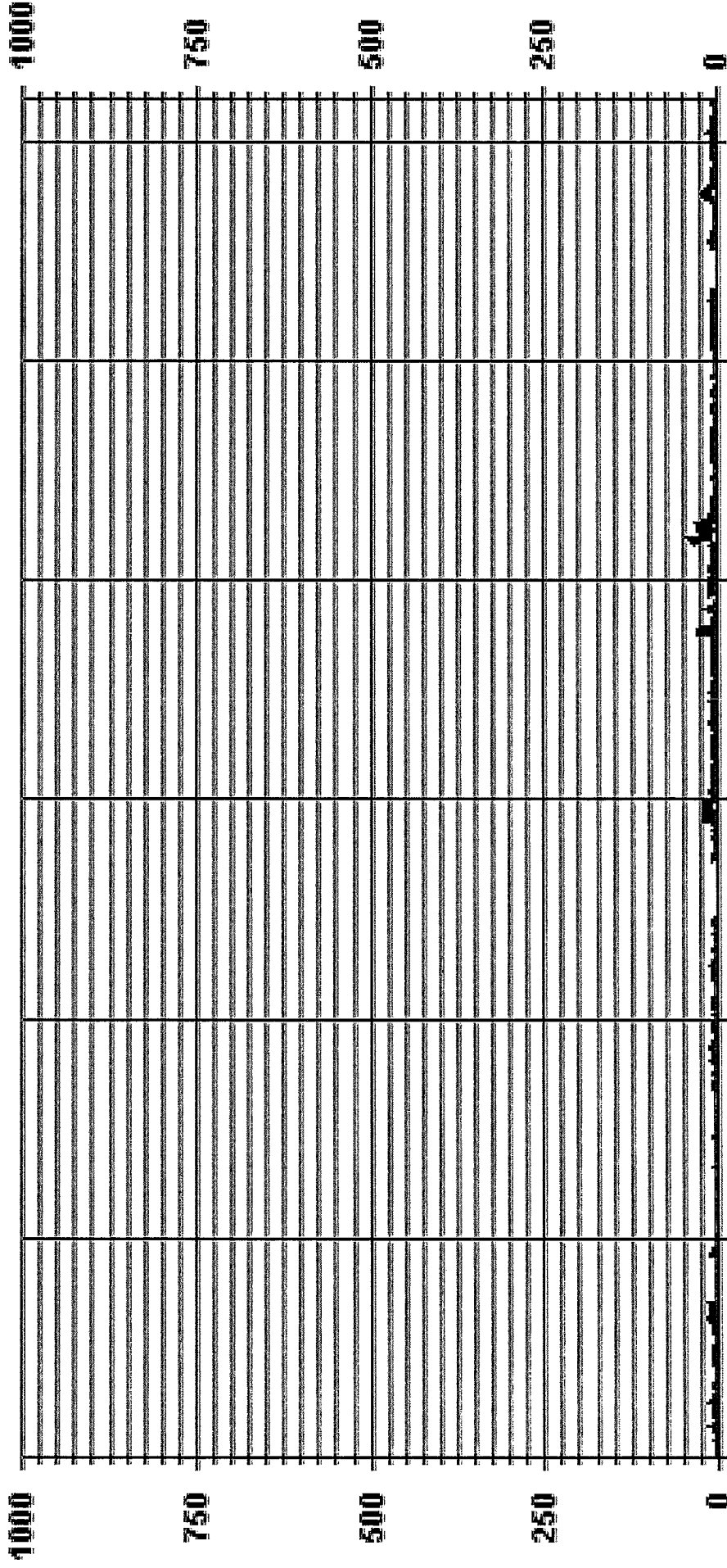


Calibration Graph for Site: LICA30 Parameter: THC Sequence: THC Phase: SPAN

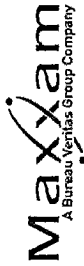


OXIDES OF NITROGEN

01 Hour Averages



— LICA30 NOX_ PPB



OXIDES OF NITROGEN 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	0.4	0.6	0.4	0.7	0.7	S	S	S	2.7	1.6	10.5	10.4	4	2.7	5.4	10.1	28	4.7	14.9	0.6	0.7	1.5	3.1	2.9	28	5.1	24	
2	2.2	2.5	3.9	3	S	6.3	6.4	37.3	19.2	11.9	6.7	2.3	2.2	1.7	1.6	2.5	4.3	5.7	1.1	2.1	2.3	1.3	0.9	1.4	37.3	5.6	24	
3	1.1	2.9	2.7	S	1.8	1.7	4.7	4.6	10.9	10.3	7.2	9.9	10	11	11.9	2.4	1.4	1.2	1.3	1	1.2	8.2	8.7	8.8	11.9	5.4	24	
4	11.4	4.1	S	8.3	19.5	26.7	S	S	18.1	4.3	4.4	15.8	16.2	0.9	1	0.9	0.9	0.7	0.9	0.7	0.9	1	1	0.8	26.7	6.6	24	
5	0.7	S	1	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	2.1	5.6	12	11	7.6	8.6	8.8	1	1	0.7	12	3.0	24		
6	S	1.4	1.2	0.9	2.2	1.4	S	S	0.9	1.7	0.7	0.7	0.7	3.1	2.9	0.5	0.3	0.4	0.4	0.4	0.5	0.7	0.5	S	3.1	1.1	24	
7	0.8	0.8	0.7	0.7	0.6	0.7	1.5	1	1.3	1	0.9	0.9	1.3	2.3	3.5	9.1	4.8	1	0.6	0.6	0.6	0.7	S	2.8	9.1	1.7	24	
8	1.3	0.9	1.2	0.9	0.7	0.8	1	2.3	2.7	4.7	1.6	1.9	0.9	0.9	3.4	1.7	0.9	0.9	1.7	1.6	S	1.5	1.3	4.7	1.6	24		
9	1.3	1.1	1.7	1.5	1.2	1.2	S	S	2.1	6.5	5	5.6	12.4	3.2	2.8	5.1	2.2	1	6.8	4.5	S	1.7	1.2	1.9	12.4	3.3	24	
10	1.2	33.4	19.4	2.1	1.4	3.2	4.7	6.8	11.9	13.2	10.1	10	9.1	5.4	1.1	1.1	1.3	1	1.5	S	1.9	2.1	1.9	1.8	33.4	6.3	24	
11	1.7	1.6	3	2.9	1.9	3.9	9.6	8.7	6.7	8.8	7.2	13.2	2.6	3.3	1.5	1.2	2.1	S	1.7	1.2	1.9	2.1	1.0	10.7	13.2	4.5	24	
12	3	2.2	3	3.3	3.5	3.6	6.9	8.3	6.1	2.1	1.4	1.6	1.2	0.8	4.2	10.6	0.8	S	1.1	0.9	1.2	1.4	1.2	3.3	36.1	4.5	24	
13	3.2	1.5	1.3	1.3	2.7	4.5	4.3	5.3	C	C	C	C	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	5.3	3.0	14
14	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	5.3	3.0	14
15	1.3	0.7	0.6	2.9	1.3	1.3	1.2	2.3	2.9	3.5	1.8	1.8	5.3	21.7	16.4	46.4	21.2	5.3	17	23.5	30.5	S	34	36.9	46.4	12.2	24	
16	23.5	18.2	12.9	12.3	6.5	29.3	S	S	7.1	10	8.2	7.6	10	10	10	1.8	3.5	2.4	8.2	4.1	S	0.6	1.3	1.8	29.3	9.0	24	
17	2.3	2.3	1.3	1.3	1.8	1.8	4.7	9.4	8.8	4.1	4.7	2.9	1.8	1.3	1.2	1.8	1.3	1.3	1.7	S	7.6	4.1	2.9	2.9	17	3.9	24	
18	2.9	3.5	3.5	2.9	4.1	4.1	5.9	S	S	17	10.6	9.4	14.6	13.5	5.3	1.3	7	S	3.5	3.5	2.9	2.9	4.7	17	6.3	24		
19	2.9	2.3	2.3	2.9	3.5	5.3	4.1	4.1	2.3	2.9	2.9	2.3	2.3	2.3	1.8	18.2	4.7	S	2.6	7.3	47.2	41.9	21.5	5	47.2	8.4	24	
20	3.2	5.6	5.6	5	3.2	2.1	S	S	8.8	16.4	7.6	2.9	1.8	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	20.3	8.5	24	
21	12.9	11.2	2.9	14.6	18.8	8.8	S	S	10	8.8	12.3	11.7	9.4	0	9.4	7.6	7	11.2	0.7	5.3	27	S	50.4	51	13.9	24		
22	43.4	20	53.9	27.6	20	42.2	27	32.2	27.6	14	13.4	15.8	21.7	10.6	8.8	10	3.5	11.8	4.7	0.1	S	9.4	4.1	1.8	53.9	18.4	24	
23	1.3	1.3	1.2	0.6	0.6	0.6	0.6	0.6	0.6	1.3	1.8	1.3	0.6	1.3	1.8	1.2	1.2	1.2	1.8	S	8.8	4.7	2.9	2.9	8.8	2.0	24	
24	3.5	3.5	2.3	2.9	2.9	4.1	4.1	2.3	4.7	1.8	2.3	1.3	7.6	6.5	2.9	1.2	0.6	1.3	S	2.9	3.5	2.9	2.4	7.6	3.1	24		
25	1.9	1.9	1.2	1.2	0.7	8.8	S	S	5.6	5	3.2	C	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	8.8	2.5	24	
26	0	0	0	0	0	0	S	S	7.8	7.2	4.3	2.5	12.5	2.5	2	2	S	3.5	4.1	2.9	2.9	1.8	1.8	1.8	12.5	2.8	24	
27	1.3	1.3	1.3	1.8	2.4	6.5	S	S	5.3	13.5	8.2	5.3	2.9	2.4	1.8	S	C	C	C	C	C	Y	Y	Y	13.5	4.2	20	
28	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	13.5	4.2	20	
29	2.1	1.5	0.9	2.1	1.5	0	0	0	2.1	1.5	0	0.9	1.5	S	5.9	5.3	1.8	18.8	21.7	25.7	21.1	21.7	20	18.2	25.7	7.6	24	
30	0.6	3.5	2.9	2.9	3.5	5.3	16.4	4.7	5.3	4.1	3.5	2.3	S	2.9	4.7	3.5	2.9	2.3	10.6	8.8	6.4	2.9	4.7	5.9	16.4	4.8	24	
31	8.8	7.6	7	7	7	55.1	S	S	8.2	8.3	8.2	S	6.5	6	4.7	3.6	1.8	0.6	0.6	1.2	3	5.3	0	55.1	7.2	24		
HOURLY MAX	43.4	33.4	53.9	27.6	20	55.1	27	37.3	27.6	17	13.4	15.8	21.7	16.4	46.4	28	18.8	21.7	25.7	47.2	41.9	50.4	51					
HOURLY AVG	5.0	4.9	5.0	4.1	4.1	9.4	5.8	7.6	7.2	6.7	5.4	5.2	6.5	4.7	4.8	6.3	4.4	5.3	6.5	5.0	7.5	5.1	6.9	6.9				

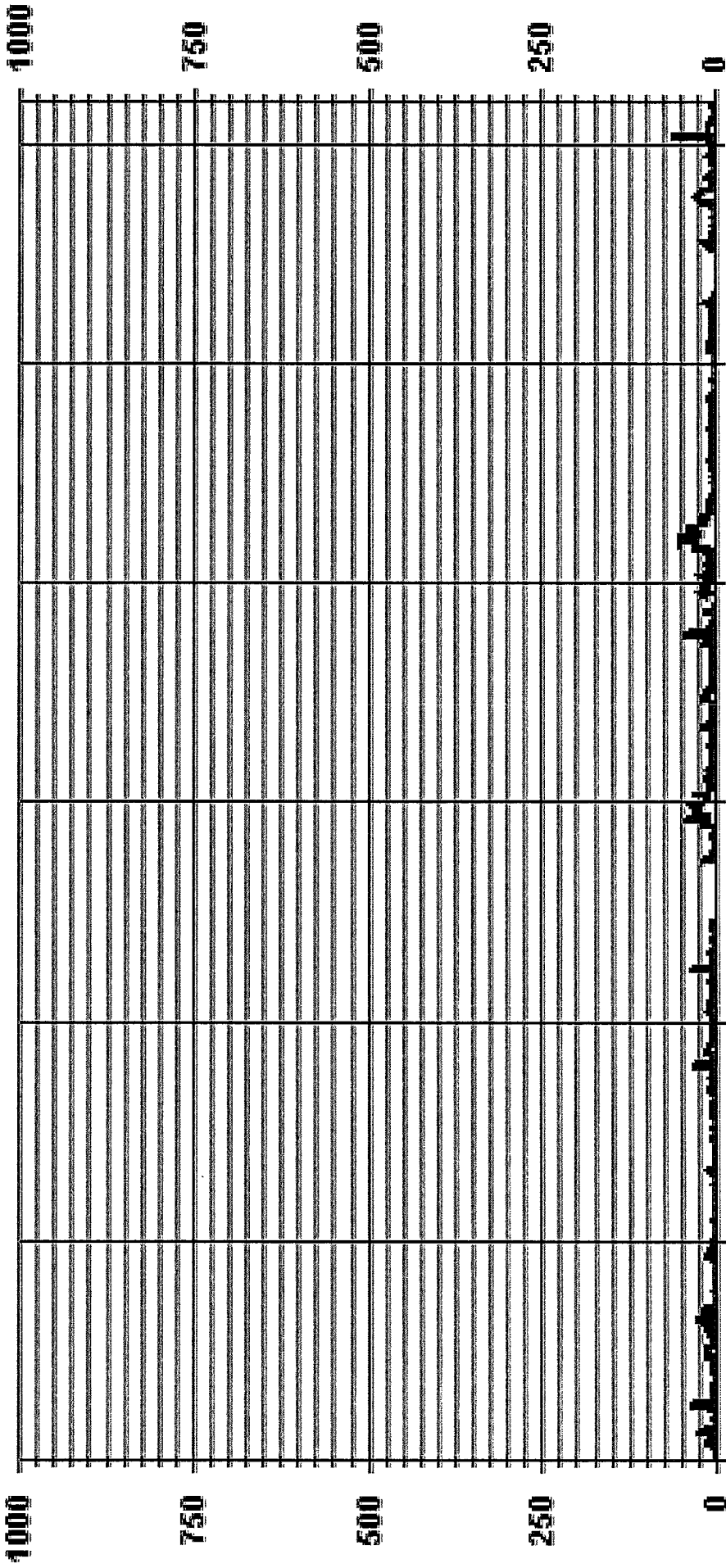
STATUS FLAG CODES

C	QUALITY ASSURANCE
Y	RECOVERY
S	MAINTENANCE
D	SPAN CHECK
P	POWER FAILURE
G	OUT FOR REPAIR
	COLLECTION ERROR
	MACHINE MALFUNCTION

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	610
MAXIMUM INSTANTANEOUS VALUE:	55.1
PPB @ HOUR(S)	5
ON DAY(S)	31
VAR-VARIOUS	
OPERATIONAL TIME:	714
HRS	
IS CALIBRATION TIME:	58
MONTHLY CALIBRATION TIME:	32
HRS	
STANDARD DEVIATION:	8.06

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 NOXMAX PPB

LIC30
 NOX_ / WDR Joint Frequency Distribution (Percent)
 August 2015

Distribution By % Of Samples

Logger Id : 30
 Site Name : LIC30
 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	3.30	5.03	7.70	8.64	5.50	5.18	6.28	5.03	7.70	14.15	8.96	4.08	3.61	4.87	6.60	3.30	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	3.30	5.03	7.70	8.64	5.50	5.18	6.28	5.03	7.70	14.15	8.96	4.08	3.61	4.87	6.60	3.30	

Calm : .00 %

Total # Operational Hours : 636

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	32	49	55	35	33	40	32	49	90	57	26	23	31	42	21	636
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	21	32	49	55	35	33	40	32	49	90	57	26	23	31	42	21	

Calm : .00 %

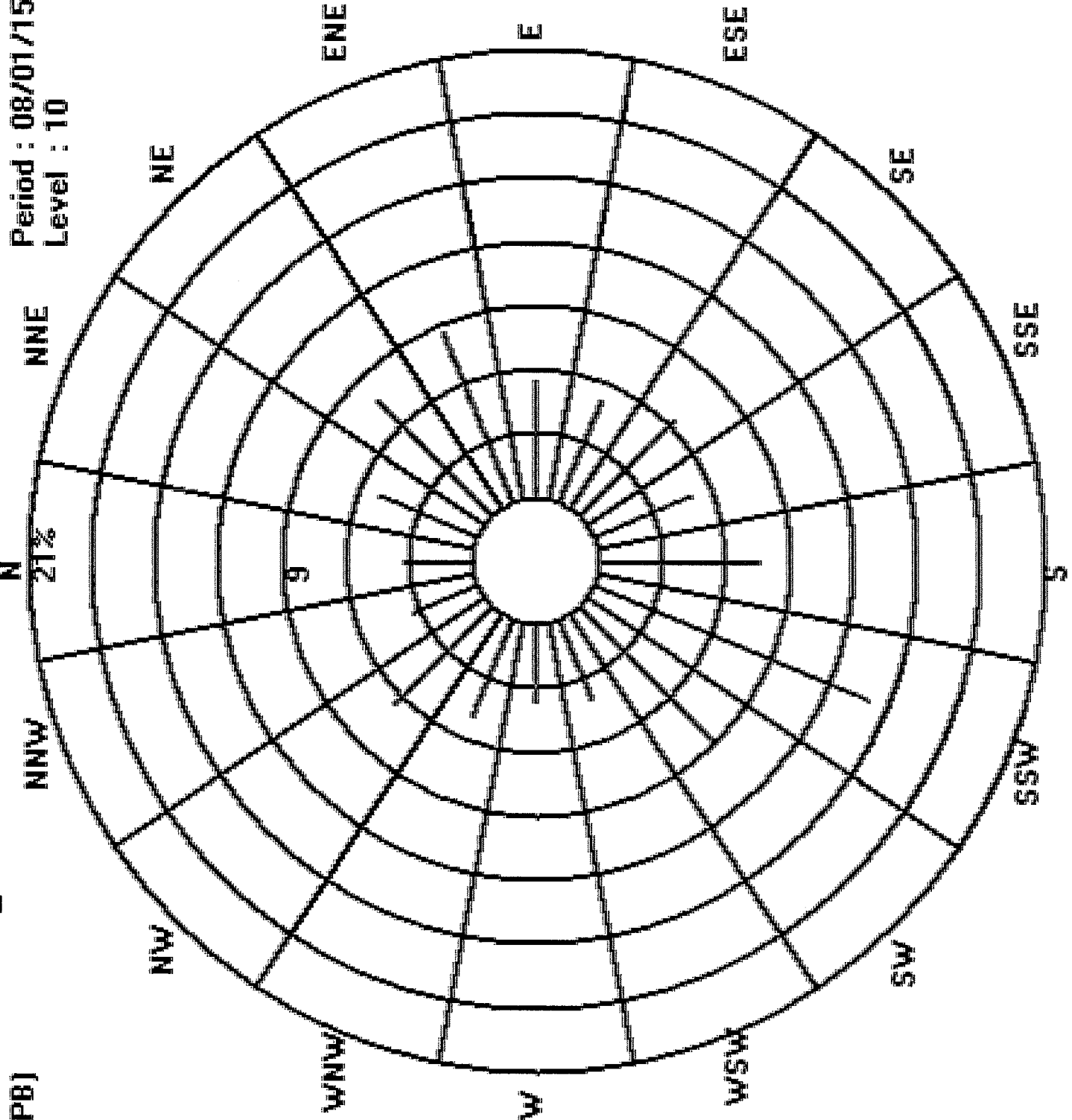
Total # Operational Hours : 636

Logger : 30 Parameter : NOX_

Site : LICA30

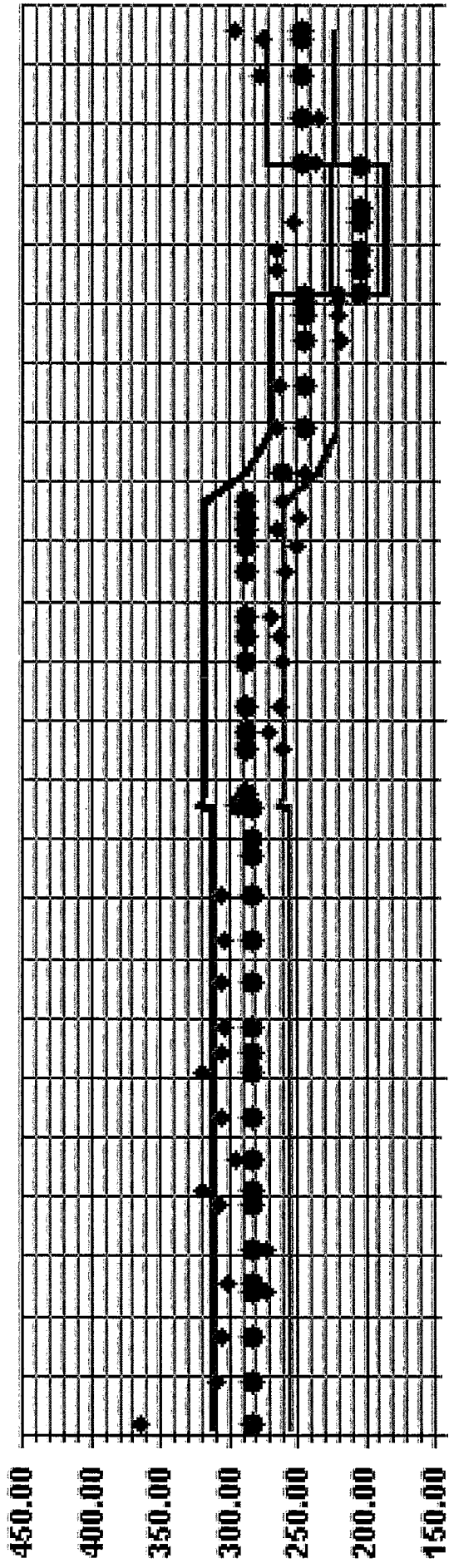
Period : 08/01/15-08/31/15

Level : 10



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

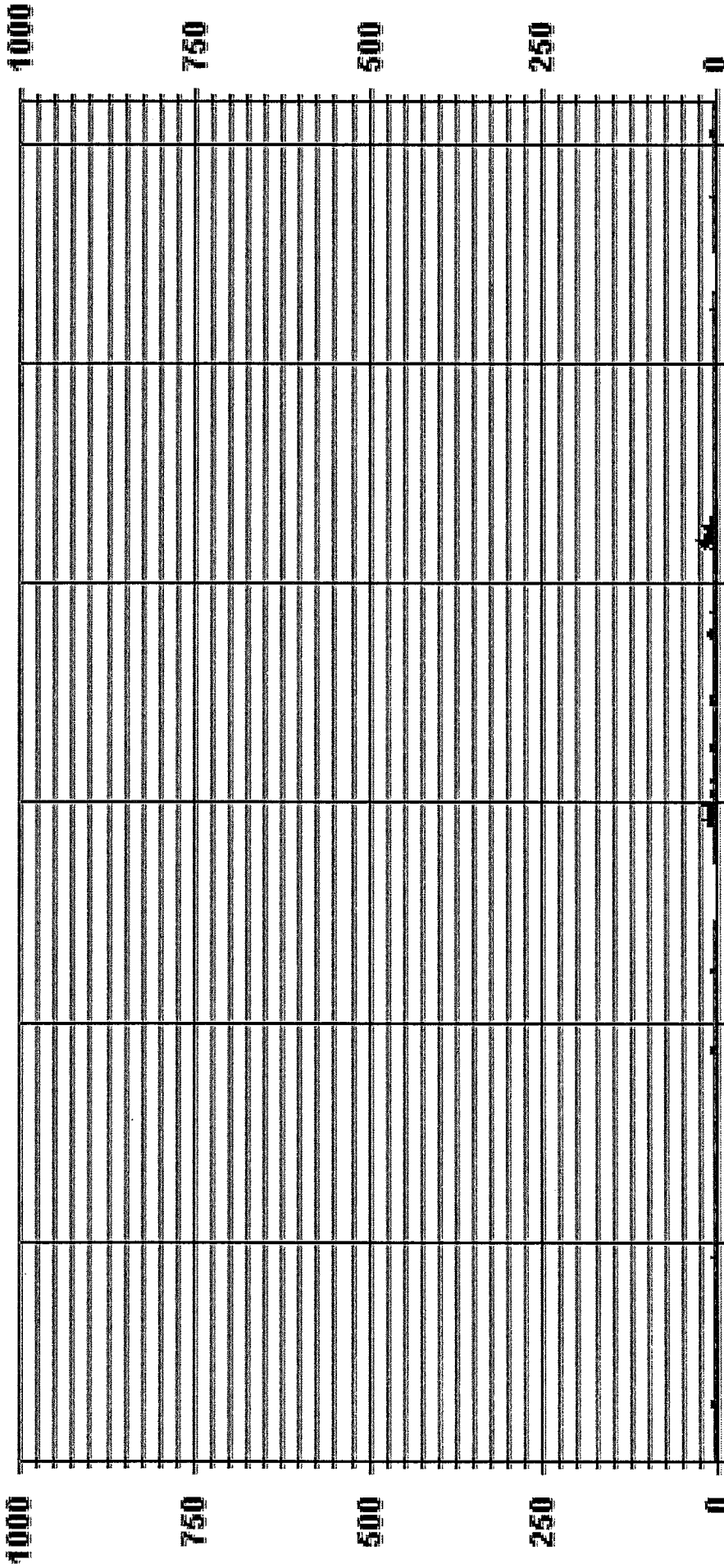
Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN



8/1/15 8/8/15 8/16/15 8/24/15 9/1/15
Exp Value +10% Exp Value -10%

NITRIC OXIDES

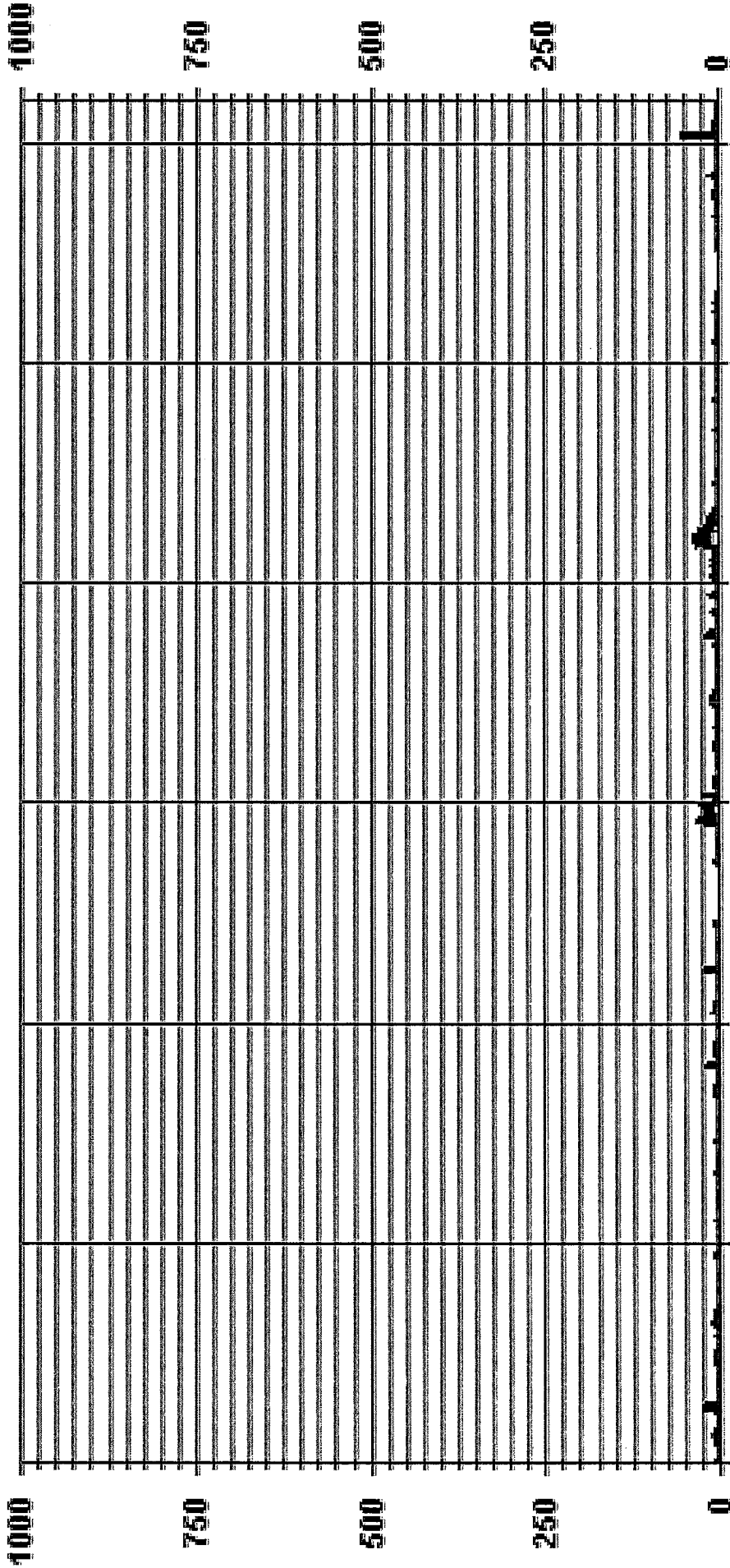
01 Hour Averages



08/01/15 00:00:08/06/15 00:00:08/11/15 00:00:08/16/15 00:00:08/21/15 00:00:08/26/15 00:00:08/31/15 00:00

— LICA30 NO_ PPB

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 - - - NOMAX . . . PPB

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

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : NO
 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	NW	NNW				
< 50.0	3.30	5.03	7.70	8.64	5.50	5.18	6.28	5.03	7.70	14.15	8.96	4.08	3.61	4.87	6.60	3.30	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	3.30	5.03	7.70	8.64	5.50	5.18	6.28	5.03	7.70	14.15	8.96	4.08	3.61	4.87	6.60	3.30				

Calm : .00 %

Total # Operational Hours : 636

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				
< 50.0	21	32	49	55	35	33	40	32	49	90	57	26	23	31	42	21	636			
< 110.0																				
< 210.0																				
>= 210.0																				
Totals	21	32	49	55	35	33	40	32	49	90	57	26	23	31	42	21				

Calm : .00 %

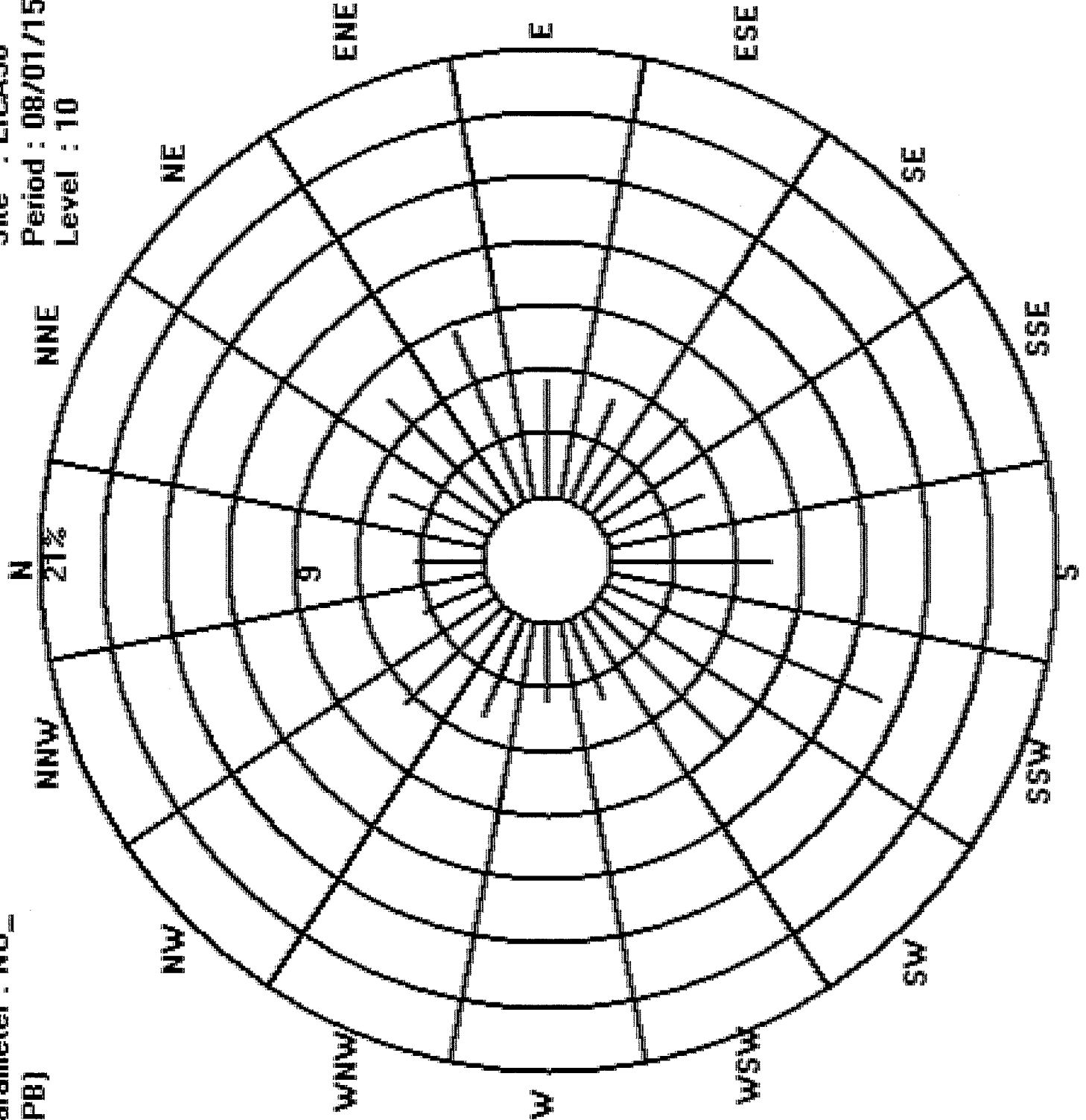
Total # Operational Hours : 636

Logger : 30 Parameter : NO₂

Class Limits (PPB)

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

Site : LICA30
Period : 08/01/15-08/31/15
Level : 10



NITROGEN DIOXIDE



NITROGEN DIOXIDE (NO2) 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	0.1	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	4.7	1.1	24	
2	1.4	1.7	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	2.2	2.2	4.7	1.1	24	
3	0.3	1.3	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	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	4.8	2.1	24	
4	4.5	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.8	2.1	24	
5	0.3	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	4.9	1.1	24	
6	0.6	0.5	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9	0.3	24	
7	0.1	0.3	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	0.9	0.3	24	
8	0.7	0.5	0.4	0.3	0.1	0.2	0.4	0.6	0.9	1.3	0.7	0.9	0.3	0.4	0.4	0.2	0.9	1.5	2.3	0.4	0.1	0.1	0.2	0.2	0.2	1.2	0.5	24	
9	0.7	0.6	0.8	0.7	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	0.6	0.6	0.6	0.6	0.6	0.9	0.3	24	
10	0.4	3.5	1.7	1.2	1.0	1.5	1.3	2.7	5.2	3.9	4.4	1.9	2.4	2.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5.2	1.7	24	
11	1.0	0.9	1.9	1.5	1.2	1.7	3.7	4.4	3.9	4.3	5.2	3.8	2.5	1.2	1.1	0.5	0.5	1.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	5.2	2.1	24	
12	1.9	1.6	1.7	1.4	2.3	3.3	2.5	3.7	3.6	0.9	0.5	0.4	0.3	0.2	0.4	3.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.7	1.4	24	
13	2.0	1.0	0.8	0.7	1.6	1.3	1.3	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.1	1.4	24	
14	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	2.1	1.4	24	
15	1.1	0.6	0.6	1.3	1.1	1.0	0.7	1.4	1.8	2.2	0.9	1.3	1.5	4.7	3.7	7.7	6.3	0.9	4.6	8.4	8.4	8.4	8.4	8.4	8.4	9.2	3.3	24	
16	5.9	3.9	4.1	2.4	3.0	3.5	5.1	5.2	2.6	4.2	3.4	3.3	3.1	3.2	3.7	0.9	1.8	1.4	4.1	2.5	5.2	2.5	2.4	2.5	6.3	1.8	24		
17	2.0	1.9	1.2	0.7	1.0	0.8	1.5	2.5	2.6	1.3	2.1	1.2	1.0	0.7	0.4	0.7	0.8	1.0	6.3	5.2	2.5	2.4	2.5	2.4	2.5	6.3	1.8	24	
18	2.5	3.0	2.8	2.5	3.5	3.2	3.0	3.7	3.6	5.1	3.9	2.9	4.4	3.3	2.2	0.6	2.3	1.5	3.4	13.2	22.1	6.8	2.3	22.1	3.9	3.0	24		
19	2.4	2.0	2.2	2.5	3.3	4.6	3.7	2.9	1.7	2.0	1.8	1.7	2.0	1.7	2.0	1.7	2.2	1.5	3.4	13.2	22.1	6.8	2.3	22.1	3.9	3.0	24		
20	1.7	3.4	4.6	3.5	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.1	0.8	2.1	9.3	4.1	24	
21	8.3	6.6	1.7	2.4	4.5	1.4	1.4	7.7	4.7	3.6	2.2	1.8	1.1	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	14.9	3.9	24	
22	8.0	7.9	9.8	11.0	5.7	6.9	8.6	9.2	5.1	3.5	3.0	2.4	4.5	2.6	2.0	3.5	0.9	2.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	11.0	4.7	24	
23	0.6	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	6.4	1.1	24	
24	3.0	3.0	2.3	2.7	2.2	3.1	3.0	1.7	1.9	1.3	1.1	1.2	2.8	2.7	1.1	0.9	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	6.4	1.1	24	
25	1.8	1.5	1.1	0.8	0.6	1.6	1.2	1.2	1.2	1.2	1.2	1.2	2.8	2.7	1.1	0.9	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	6.4	1.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	1.1	24	
27	0.8	0.9	0.5	0.7	1.5	1.4	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	6.4	1.1	24	
28	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	6.4	1.1	24	
29	1.7	1.0	0.8	0.5	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	6.4	1.1	24	
30	0.6	1.8	2.0	2.4	3.0	4.6	4.9	3.8	4.0	2.6	2.4	1.9	1.3	3.2	2.7	2.2	2.3	3.9	4.7	4.1	2.0	2.8	4.1	4.9	2.9	2.9	24		
31	5.5	4.6	4.2	4.5	5.3	4.9	2.5	5.2	2.8	5.1	4.6	3.9	4.3	2.8	1.6	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5.5	2.8	24	
HOURLY MAX	8.3	7.9	9.8	11.0	8.4	9.2	8.6	9.2	7.8	7.3	5.2	4.4	6.7	4.7	3.8	7.7	6.3	7.9	14.5	17.7	14.6	22.1	14.9	15.4	15.4	11.0	4.7	24	
HOURLY AVG	2	2	2	2	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

STATUS FLAG CODES

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

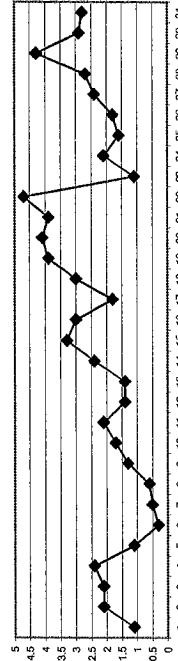
ALBERTA ENVIRONMENT: CHR 159 PPB

OBJECTIVE LIMIT:

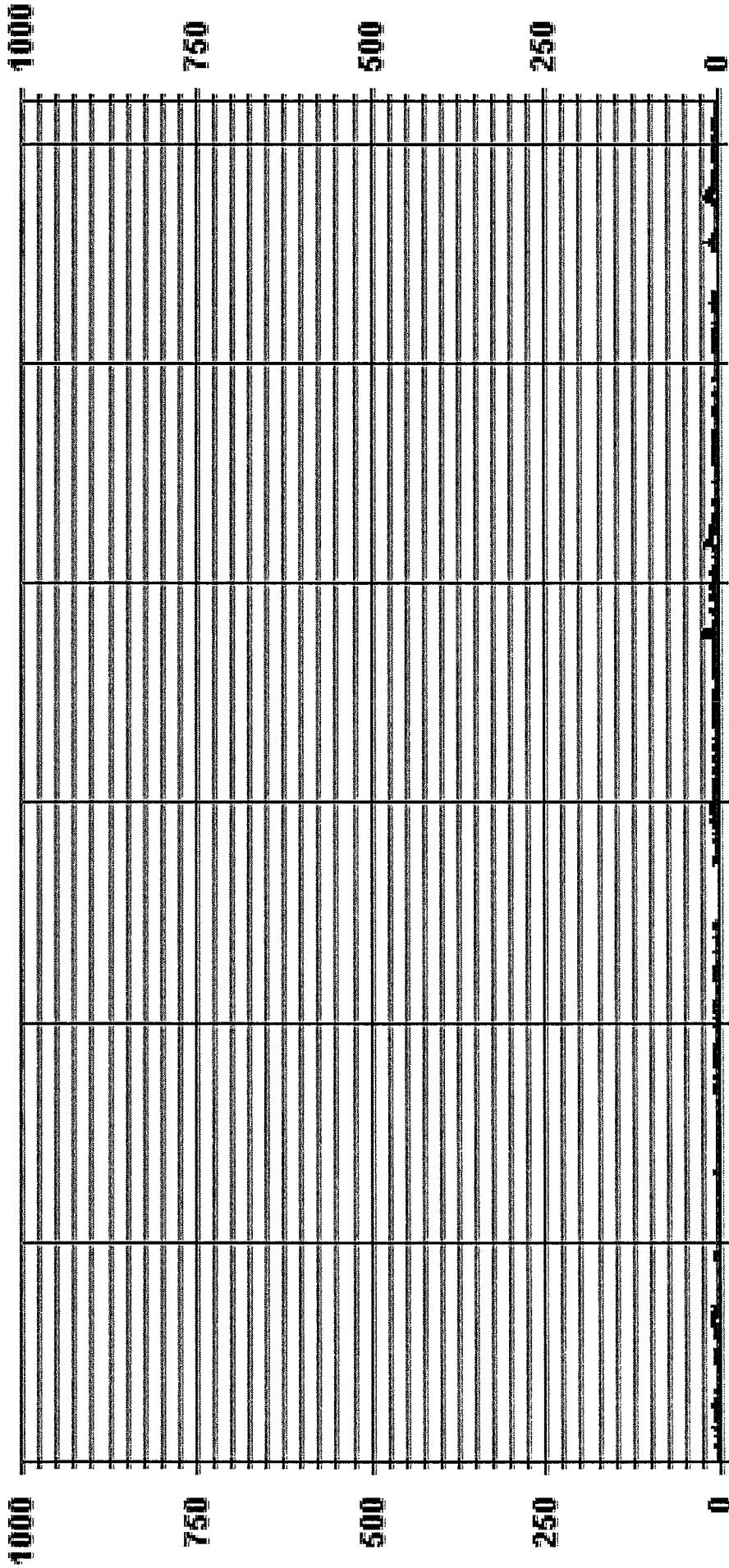
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	600
MAXIMUM 1-HR AVERAGE	22.1
MAXIMUM 24-HR AVERAGE	4.7
OPERATIONAL TIME	46 HRS
MONTHLY CALIBRATION TIME	32 HRS
STANDARD DEVIATION	2.52
ON DAY(S)	21
ON DAY(S) VAR- VARIOUS	19
OPERATIONAL TIME: HRS	714
AMD OPERATION UPTIME: %	96.0
MONTHLY AVERAGE: PPB	2.2

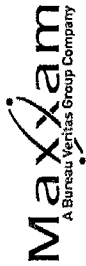
24 HOUR AVERAGES FOR AUGUST 2015



01 Hour Averages



— LICA30 NO2_ PPB



NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR	DAILY																								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	0.7	0.7	1	0.7	0.7	S	S	S	2.2	1.5	8.1	8.1	2.4	2.1	3.7	5.9	16.1	3.6	10.6	0.5	0.9	1.6	3.4	3.3	16.1	3.7	24	
2	2.6	2.9	3.9	3	S	3.4	13.9	11	8.1	4.4	1.9	1.8	1.6	1.5	2.5	4	5.3	1.1	1.8	2.4	1.1	1	0.9	13.9	3.6	24		
3	1.1	2.9	2.3	S	1.1	1.2	2.8	7.1	6.7	5.2	6.2	6.6	8.4	8.9	1.8	0.8	1	1	1	0.9	7.4	7.8	7.8	8.9	4.0	24		
4	10.7	4.2	S	7.3	14.5	S	S	12.3	3.2	3.2	10.9	11.4	0.7	0.5	0.7	0.5	0.5	0.3	0.6	0.6	0.5	0.5	0.3	18.9	4.9	24		
5	0.5	S	0.4	0.5	0.4	0.6	0.6	0.6	0.5	0.7	0.4	0.3	0.3	1.5	3.5	8.3	8.1	5.7	6.7	7.2	0.5	0.7	0.4	8.3	2.1	24		
6	S	0.9	0.7	0.4	1.8	1.2	S	S	0.6	1.5	0.8	0.5	1.8	1.3	0.4	0.4	0.5	0.4	0.3	0.5	0.4	0.3	S	1.8	0.8	24		
7	0.3	0.3	0.4	0.5	0.3	0.4	0.8	0.6	0.4	0.4	0.5	0.4	1.1	2.1	4.7	2.6	0.5	0.3	0.2	0.2	0.1	S	1.8	4.7	0.8	24		
8	0.8	0.5	0.4	0.3	0.5	0.4	0.4	0.8	1.3	2.4	1.2	1.5	0.7	0.6	2.6	1.3	0.7	1.9	1.6	S	1.4	1.2	2.6	1.0	24			
9	1.2	1	1.3	1.1	1.2	1.1	S	S	1.8	4.7	3.8	4	8.3	2.6	2.6	4.3	2.3	1	6.5	4.8	S	1.6	1	1.8	8.3	2.8	24	
10	1.1	15.4	10.3	2	1.5	2.8	4	5.1	8.6	9.5	7.8	7.3	6.8	4.4	0.9	0.8	1.1	1	1.1	S	1.8	1.8	1.6	1.4	15.4	4.3	24	
11	1.2	1.4	2.6	1.6	2.2	4.5	4.8	7.2	5.5	6.7	5.9	10.8	2.2	2.4	1	0.8	1.8	S	0.6	0.5	0.5	1	1	2.9	10.8	3.5	24	
12	3	2.4	3.1	3.5	3.8	10.8	4.5	5.6	4.5	1.7	1.4	1.2	0.8	0.8	2.4	7.2	0.8	S	0.6	0.5	0.5	1	1	2.9	10.8	3.5	24	
13	2.8	1.5	1	0.8	2.3	2.1	1.8	3.2	C	C	C	C	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	3.2	1.9	14	
14	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	C	C	C	C	C	S	S	13	2.9	1.2	1.2	S	2.3	13	3.9	16
15	1.2	0.6	0.6	2.3	1.2	1.2	0.6	1.7	2.3	2.9	1.2	1.2	2.9	8.2	6.4	15.8	9.4	2.9	8.8	11.2	11.8	S	12.4	13	15.8	5.2	24	
16	12.4	11.2	7.6	7.6	5.3	11.2	S	S	3.5	5.9	4.7	5.9	6.4	6.4	5.3	1.2	2.4	1.8	5.9	3.5	S	0.6	1.8	2.4	12.4	5.4	24	
17	2.4	2.4	1.2	1.2	1.8	1.2	4.1	4.1	4.1	2.3	2.9	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.9	13.5	2.9	24	
18	2.9	3.5	3.5	3.5	4.1	4.1	4.1	S	S	7.6	7.1	5.9	6.5	9.4	10	4.7	1.2	5.9	S	3.5	3.5	2.9	2.9	4.7	10	4.8	24	
19	3.5	2.4	2.4	2.9	3.5	5.3	4.1	4.1	2.3	2.3	2.3	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	
20	2.9	5.3	5.9	4.1	3.5	1.8	S	S	7.1	10.6	4.7	2.3	1.8	C	C	C	C	C	10.8	12.5	9	10.2	7.8	S	14.6	6.8	24	
21	11.2	9.4	2.3	7.6	10	5.9	S	S	6.5	5.9	7.6	5.9	4.7	0.1	3.5	4.1	4.1	5.9	1.2	2.9	10.1	S	18.8	20.6	7.1	24		
22	17	10.7	18.2	12.4	10.6	15.8	11.2	11.8	10.6	6.5	6.5	7.6	10	5.3	5.9	5.9	2.4	8.2	3.5	0.1	S	9.5	4.1	1.8	18.2	8.5	24	
23	1.3	1.3	0.7	0.7	1.2	1.8	1.8	1.8	2.9	1.2	1.3	1.3	5.3	4.7	2.4	1.2	1.3	1.3	S	3	3.5	3.5	3	2.4	5.3	2.7	24	
24	3.5	3.5	2.3	2.9	4.1	3.5	1.8	2.9	1.2	1.3	1.3	5.3	4.7	2.4	1.2	1.3	1.3	S	3	3.5	3.5	3	2.4	5.3	2.7	24		
25	2.4	1.9	1.2	1.2	0.7	5.3	S	S	5.3	5.3	3	C	C	C	C	C	C	S	S	1.7	0	0	0	0	5.3	2.3	24	
26	0	0	0	0	0	0	S	S	6.5	6.5	4.1	2.4	9.5	1.8	1.8	1.9	S	S	2.9	3.5	2.4	2.4	1.3	1.3	9.5	2.4	24	
27	1.2	0.7	0.7	1.2	1.8	1.8	S	S	4.7	10.1	6.5	4.7	2.9	2.4	1.9	S	C	C	C	C	C	Y	Y	Y	10.1	3.1	20	
28	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10.1	3.1	20	
29	2.3	1.7	0.6	1.7	1.7	0	0	0	1.1	0.5	0	0.6	1.1	S	4.7	4.1	1.8	17.6	20	22.9	18.8	19.4	18.2	15.9	22.9	6.7	24	
30	1.3	3.5	3.5	2.9	4.1	5.3	10	4.1	4.7	2.9	2.9	2.4	S	3	4.7	3.5	2.9	10.7	8.2	6.5	2.9	4.7	5.3	10.7	4.5	24		
31	8.8	7.6	7.1	7.1	7.1	9.4	S	S	4.7	6.5	6.5	S	5.9	5.4	4.2	2.4	1.8	0.6	0.6	1.8	3	3.6	0.1	9.4	4.5	24		
HOURLY MAX	17	15	18	12	15	19	11	14	12	11	8	11	11	9	10	16	16	18	20	23	31	28	19	21				
HOURLY AVG	3.6	3.6	3.0	2.9	3.2	4.2	3.3	3.9	4.7	4.5	3.8	3.7	4.4	3.1	3.2	3.9	3.0	4.2	5.2	4.0	5.3	4.2	4.5	4.6				

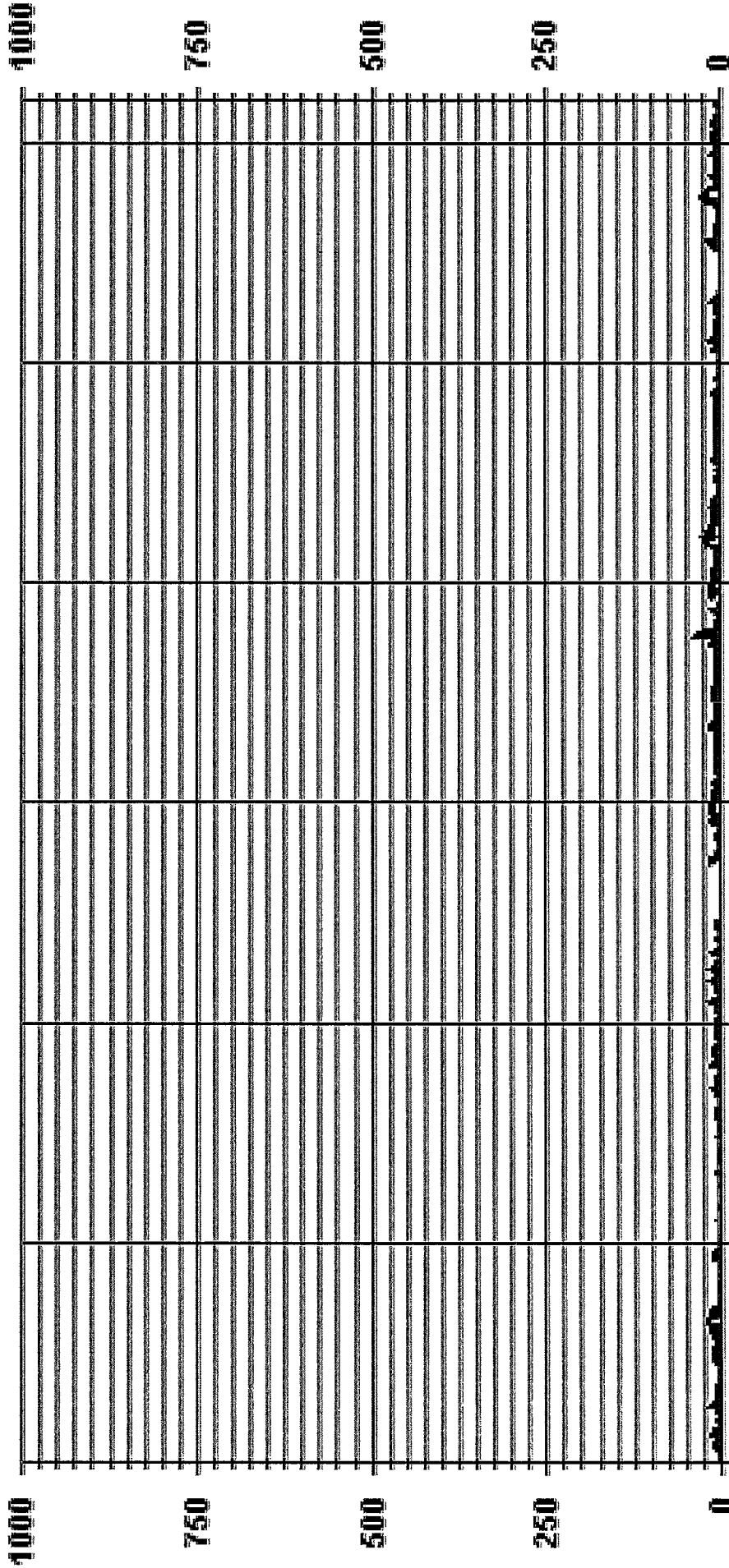
STATUS FLAG CODES

C	QUALITY ASSURANCE
Y	RECOVERY
S	MAINTENANCE
P	DAILY ZERO/SPAN CHECK
G	POWER FAILURE
	OUT OF REPAIR
	COLLECTION ERROR
	MACHINE MALFUNCTION

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	611				
MAXIMUM INSTANTANEOUS VALUE:	31.1				
PPB	@	HOUR(S)	20	ON DAY(S)	19
VAR-VARIOUS					
ISZ CALIBRATION TIME:	58	HRS	OPERATIONAL TIME:	714	HRS
MONTHLY CALIBRATION TIME:	32	HRS			
STANDARD DEVIATION:	4.20				

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

August 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	3.30	5.03	7.70	8.64	5.50	5.18	6.28	5.03	7.70	14.15	8.96	4.08	3.61	4.87	6.60	3.30	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	3.30	5.03	7.70	8.64	5.50	5.18	6.28	5.03	7.70	14.15	8.96	4.08	3.61	4.87	6.60	3.30	

Calm : .00 %

Total # Operational Hours : 636

Distribution By Samples

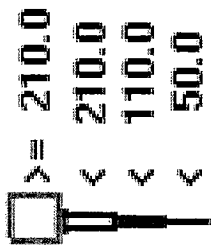
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	21	32	49	55	35	33	40	32	49	90	57	26	23	31	42	21	636
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	21	32	49	55	35	33	40	32	49	90	57	26	23	31	42	21	

Calm : .00 %

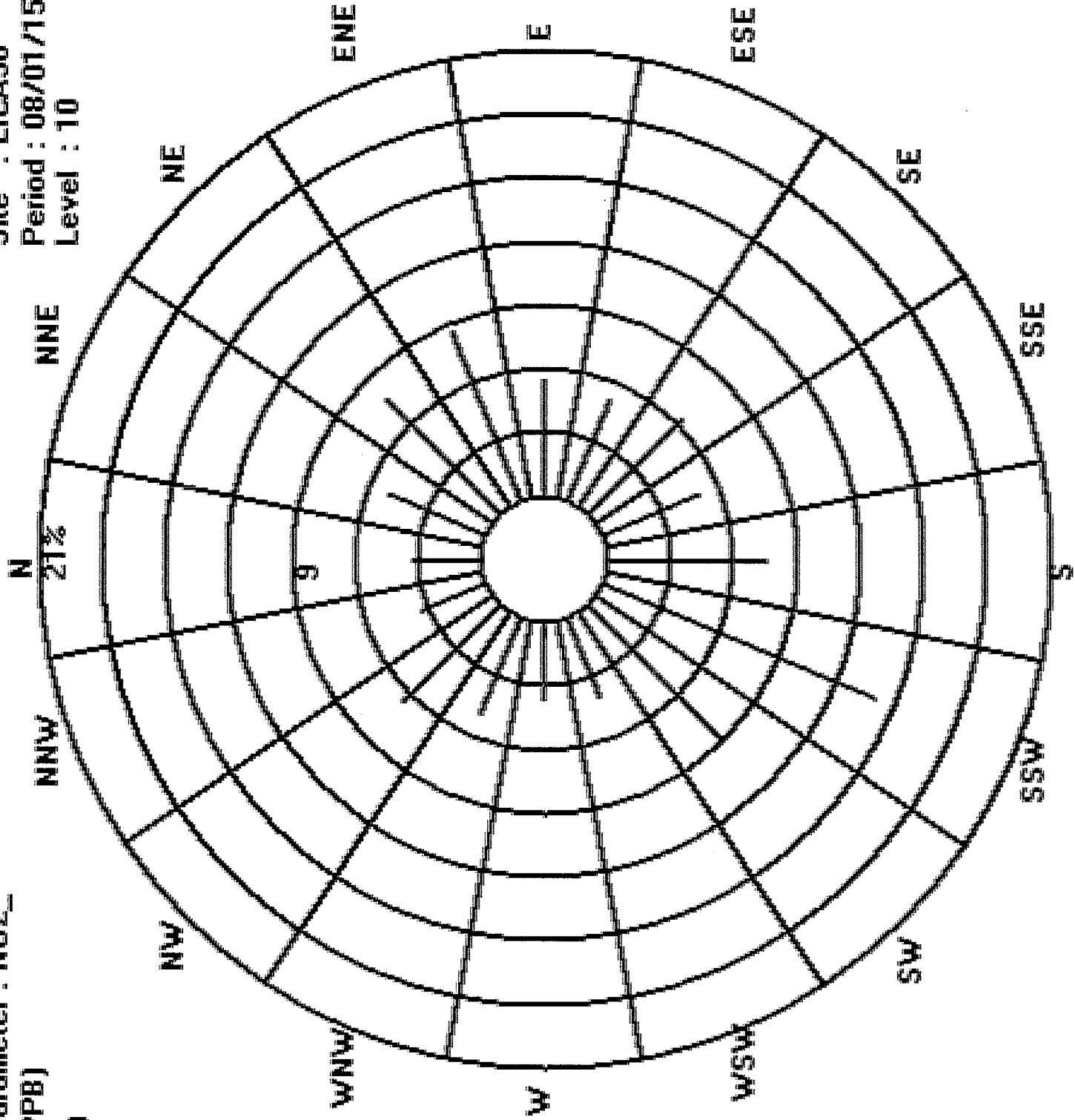
Total # Operational Hours : 636

Logger : 30 Parameter : NO2_

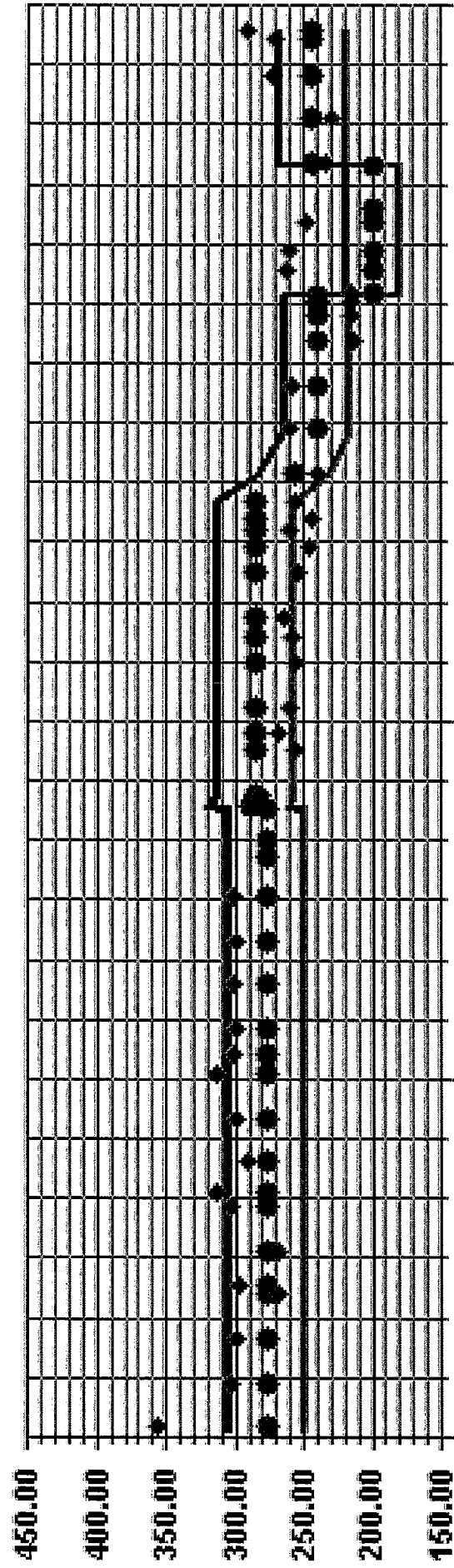
Class Limits (PPB)



Site : LICA30
Period : 08/01/15-08/31/15
Level : 10

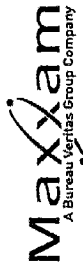


Calibration Graph for Site: LICA30 Parameter: NO2_ Sequence: NO2 Phase: SPAN



8/1/15 8/8/15 8/16/15 8/24/15 9/1/15
Cal Value Exp Value Exp Value +10% Exp Value -10%

WIND SPEED



WIND SPEED (WS) hourly averages in km/hr

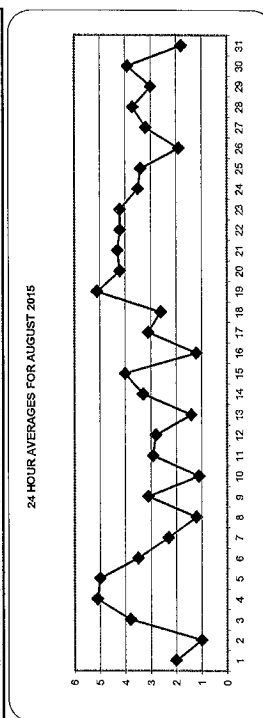
DAY	HOUR																								24-HOUR AVG.	RODS.																																																																						
	0:00	0:15	0:30	0:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	2:45	3:00	3:15	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45			6:00	6:15	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	21:15	21:30	21:45	22:00	22:15	22:30	22:45	23:00	23:15
1	1.3	1.7	0.1	1.0	0.5	0.9	1.8	1.1	3.1	3.6	5.4	6.2	7.9	8.4	6.5	6.1	5.3	2.8	4.4	0.9	2.2	1.3	1.7	8.4	3.3	24																																																																						
2	1.1	1.3	1.2	2.7	1.6	1.0	0.2	1.1	1.3	3.0	2.9	5.0	4.9	2.1	1.6	0.6	3.4	4.0	5.6	2.6	1.6	1.0	1.8	5.6	2.3	24																																																																						
3	2.6	3.0	1.9	0.5	1.0	1.5	1.2	2.3	2.1	3.9	4.0	5.7	8.1	5.9	5.9	7.8	8.1	7.4	6.3	5.5	4.4	4.8	3.9	8.1	4.2	24																																																																						
4	4.9	6.3	5.9	6.3	6.6	7.6	7.2	4.7	6.2	4.3	3.9	4.0	5.1	5.1	8.6	6.4	6.7	5.2	5.6	8.8	8.2	8.8	6.2	24	24																																																																							
5	7.5	7.6	7.4	6.8	6.3	6.7	7.3	6.5	6.7	6.5	6.9	6.0	7.6	8.7	5.1	5.1	5.1	3.7	2.7	3.5	3.3	2.3	2.7	8.7	5.6	24																																																																						
6	0.9	0.4	0.8	1.0	2.1	2.6	3.4	5.1	3.6	3.0	4.2	2.8	5.6	4.1	4.5	5.9	7.1	7.5	7.2	5.8	3.4	2.2	3.0	2.8	3.7	24																																																																						
7	4.1	2.8	2.1	3.5	2.7	4.9	5.6	4.7	4.3	3.7	7.1	6.0	7.1	1.5	1.2	1.5	1.0	0.1	1.1	0.8	2.0	1.3	1.9	0.9	7.1	2.8	24																																																																					
8	0.9	0.2	1.0	1.0	0.5	0.7	2.4	1.2	3.0	3.0	4.0	5.0	4.3	4.5	6.2	6.8	3.0	4.6	6.1	2.8	2.1	0.5	1.1	0.9	6.8	2.7	24																																																																					
9	0.6	0.8	0.4	1.4	2.6	2.6	3.2	5.2	5.3	5.3	5.1	6.9	5.8	5.5	5.4	4.4	4.9	4.9	3.6	2.4	2.2	2.6	3.6	3.9	3.7	24																																																																						
10	4.1	2.8	6.8	4.5	1.0	2.3	0.8	3.3	3.2	3.9	4.0	4.9	3.0	3.5	5.2	2.7	3.2	6.5	3.4	2.4	2.6	3.9	0.5	3.3	6.8	3.4	24																																																																					
11	1.3	2.0	3.7	0.5	1.2	0.2	3.2	3.7	6.9	4.6	4.4	4.6	5.6	4.8	4.7	4.9	3.2	3.3	1.8	3.2	4.0	3.9	1.2	2.1	6.9	3.3	24																																																																					
12	0.5	1.0	0.9	2.0	2.1	1.4	1.4	3.4	4.0	4.6	5.0	6.2	5.8	7.6	7.6	6.7	6.0	6.5	3.1	2.6	1.8	1.5	1.7	2.1	7.6	3.6	24																																																																					
13	1.2	0.4	1.3	2.6	0.4	1.0	0.7	2.6	2.7	4.7	7.0	6.5	6.2	4.8	4.2	3.9	7.5	3.3	2.5	2.7	2.9	3.3	1.7	7.0	7.5	3.4	24																																																																					
14	5.1	1.7	2.1	2.3	3.0	3.3	3.0	6.5	7.4	5.0	5.5	5.1	6.4	6.4	5.2	4.4	4.5	4.0	2.1	1.0	2.8	4.2	2.6	5.4	7.4	4.1	24																																																																					
15	7.8	6.2	7.2	3.4	4.6	3.1	3.6	2.9	4.1	5.4	4.6	4.3	4.1	5.2	6.2	5.6	6.6	4.7	5.5	3.6	2.7	3.4	4.1	5.1	7.8	4.8	24																																																																					
16	4.7	3.4	3.0	1.7	2.0	2.1	2.1	2.2	3.1	2.4	2.3	1.4	1.7	3.2	3.3	3.0	4.8	3.6	1.9	0.6	3.4	2.8	3.2	2.2	4.8	2.7	24																																																																					
17	2.0	2.2	2.3	2.8	3.2	1.3	2.3	2.5	2.7	5.3	7.0	5.8	4.6	3.7	4.6	5.3	6.3	6.6	6.6	3.0	3.9	2.8	3.5	2.5	7.0	3.7	24																																																																					
18	2.9	3.0	2.6	3.2	4.5	2.8	2.8	3.1	3.8	5.3	4.5	4.9	5.0	5.7	3.9	3.1	2.3	2.1	3.2	2.8	4.1	3.7	4.3	4.1	5.7	3.7	24																																																																					
19	5.0	4.7	4.9	4.0	4.1	5.7	7.9	7.7	6.6	10.0	12.8	13.0	9.7	8.0	9.0	5.0	5.2	5.5	4.4	7.3	5.0	5.0	1.8	4.0	13.0	6.5	24																																																																					
20	5.3	4.4	2.7	2.0	1.9	1.1	0.7	2.3	6.8	6.6	7.0	9.5	8.8	10.3	9.0	7.7	7.2	6.4	6.1	4.4	1.5	1.7	0.3	1.8	10.3	4.8	24																																																																					
21	1.5	1.7	3.1	1.8	3.0	2.6	4.4	4.0	4.4	5.0	5.3	6.4	7.1	6.8	6.7	5.3	5.4	5.2	5.6	4.3	4.1	4.2	5.3	5.5	7.1	4.5	24																																																																					
22	5.1	3.1	4.5	4.1	3.1	5.1	5.4	6.3	6.6	7.9	6.9	6.8	8.6	7.9	6.6	5.7	7.0	4.9	3.6	1.4	1.7	2.1	1.2	0.4	8.6	4.8	24																																																																					
23	0.7	0.7	0.4	0.4	0.5	0.3	0.8	1.9	4.2	6.1	8.2	7.5	8.4	7.5	6.7	7.5	6.6	5.2	5.1	6.7	8.2	8.2	7.3	8.4	4.9	24																																																																						
24	8.7	7.8	6.5	6.0	1.5	2.7	3.2	3.1	5.6	6.0	4.9	4.3	4.1	3.5	4.3	5.3	4.6	2.8	2.3	1.3	1.3	1.5	2.3	1.9	8.7	4.0	24																																																																					
25	2.2	1.1	2.8	2.6	3.0	0.9	0.4	4.4	6.9	6.6	9.0	7.0	6.0	5.8	4.3	4.1	3.5	2.9	3.8	2.7	2.5	2.8	1.3	0.3	9.0	3.6	24																																																																					
26	0.5	0.6	1.3	2.3	3.1	1.2	1.5	3.6	3.6	2.2	4.8	1.3	2.9	3.7	5.7	6.1	4.5	5.3	4.2	5.3	5.0	5.3	3.4	6.1	3.2	24																																																																						
27	1.4	1.0	1.6	0.7	1.7	0.5	1.7	0.3	3.2	2.3	3.1	6.2	6.4	6.3	8.1	6.6	4.8	3.1	3.3	3.6	2.8	2.1	3.9	4.5	8.1	3.3	24																																																																					
28	4.1	5.8	7.2	5.0	2.1	1.5	0.8	1.7	6.7	7.7	5.4	3.4	3.4	6.0	7.7	5.8	5.2	4.8	4.7	4.8	5.6	5.1	3.9	3.2	7.7	4.7	24																																																																					
29	0.9	1.1	1.4	0.8	5.1	5.3	2.3	3.5	2.4	3.1	2.7	3.2	3.8	4.2	5.4	4.9	4.5	4.6	5.4	4.6	5.4	7.0	7.2	6.8	8.5	4.1	24																																																																					
30	7.3	5.7	7.0	6.5	6.7	6.7	5.2	5.3	3.2	3.6	4.8	5.2	5.3	5.7	5.1	6.5	5.6	3.9	5.1	2.4	0.8	1.4	2.1	1.3	7.3	4.7	24																																																																					
31	1.5	0.8	1.5	2.0	0.8	1.7	0.6	0.5	3.6	4.2	4.0	4.4	5.1	3.6	6.1	6.3	3.8	2.2	1.8	2.5	1.4	1.5	3.0	3.5	6.3	2.8	24																																																																					
HOURLY MAX	8.7	7.8	7.4	6.8	6.7	7.6	7.9	7.7	7.4	10.0	12.8	13.0	9.7	10.3	9.0	8.6	8.1	7.5	7.2	7.3	8.8	8.3	8.2	8.2	8.3	3.0	3.3																																																																					
HOURLY AVG	3.2	2.8	3.1	2.8	2.7	2.6	2.8	3.5	4.4	4.8	5.4	5.5	5.5	5.5	5.5	5.3	5.1	4.4	4.1	4.4	4.1	3.4	3.4	3.3	3.0	3.3																																																																						

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

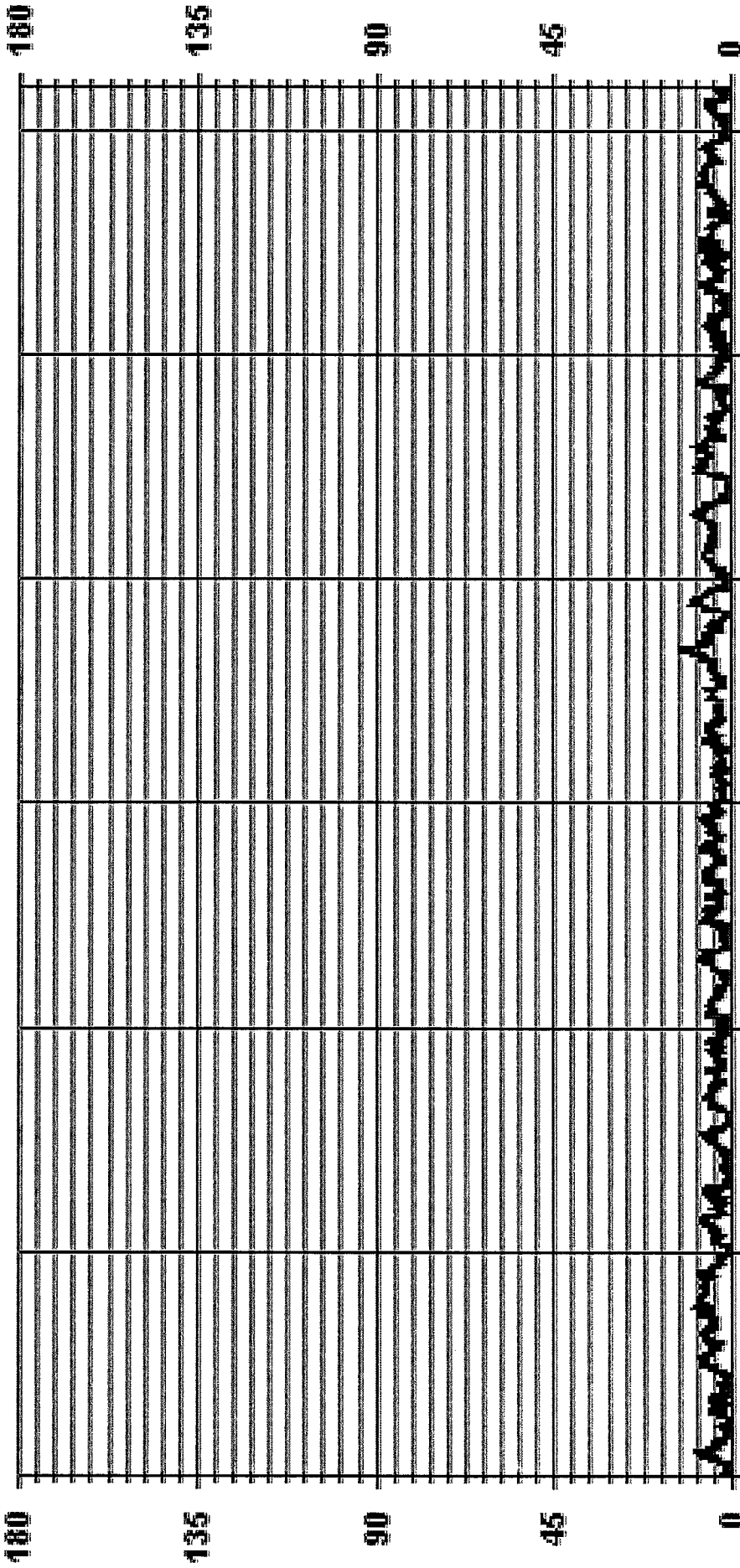
STATUS FLAG CODES
 C - CALIBRATION
 Y - MAINTENANCE
 S - DAILY ZERO/SPAN CHECK
 P - POWER FAILURE
 G - OUT FOR REPAIR
 O - QUALITY ASSURANCE
 R - RECOVERY
 X - MACHINE/SENSOR/JUNCTION
 * - OPERATOR ERROR
 K - COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	744
MAXIMUM 1-HR AVERAGE:	13.0 KPH
MAXIMUM 24-HR AVERAGE:	6.5 KPH
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION:	2.22
OPERATIONAL TIME:	744 HRS
AMT OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	4.0 KPH
ON DAY(S):	19
ON DAY(S) VARIOUS:	19



01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 WSP KPH



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Maskwa Site - AUGUST 2015
 JOB # 2833-2015-08-30 - C

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

HOUR	DAILY																								24-HOUR AVG.	RODS				
	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	7.6	4.3	3.2	5.8	4.3	3.6	7.1	6.5	12.2	15.5	22.7	26.0	28.8	26.0	26.0	21.8	26.6	16.3	23.1	20.7	3.0	4.5	3.9	4.5	28.8	13.6	24			
2	6.7	4.3	3.6	7.6	6.1	3.3	4.8	5.7	9.6	11.8	11.8	20.1	11.5	8.0	7.1	10.0	19.8	21.4	9.5	8.0	5.8	7.1	8.5	5.8	30.6	10.5	24			
3	8.0	10.9	10.4	5.0	3.9	6.3	6.1	12.8	12.4	13.3	15.2	24.9	25.5	21.1	31.0	30.3	38.0	30.1	26.4	19.4	27.9	16.6	22.5	16.8	33.0	17.9	24			
4	18.5	23.8	22.9	32.6	23.8	33.2	25.1	17.7	28.9	22.1	21.5	17.8	18.1	13.3	15.0	21.2	21.8	18.8	15.0	17.4	22.9	28.6	31.2	30.6	33.2	22.6	24			
5	31.2	24.2	25.8	20.7	22.7	21.8	26.2	20.9	19.9	30.2	25.3	25.1	25.3	29.3	26.9	22.0	18.8	13.8	16.2	14.9	16.2	10.3	8.7	9.1	60.2	22.9	24			
6	5.6	3.2	3.4	4.3	6.7	7.4	9.3	11.5	10.9	12.0	13.9	12.4	20.9	15.2	15.2	18.1	20.7	30.4	18.1	15.9	13.5	8.0	9.3	9.3	30.4	12.3	24			
7	8.9	8.2	5.8	9.6	9.1	11.1	14.4	16.4	10.7	12.9	19.3	20.8	11.6	17.5	8.0	12.6	10.6	4.5	6.3	4.1	6.1	4.5	7.6	5.4	20.8	10.3	24			
8	3.2	1.9	3.6	3.9	2.6	3.6	6.7	9.6	12.4	10.9	14.6	15.5	23.3	18.1	18.5	19.8	23.1	15.0	16.3	8.7	7.6	6.1	6.3	5.7	23.3	10.7	24			
9	6.4	4.8	7.5	6.4	8.5	6.9	8.0	12.2	19.0	19.6	22.9	25.7	26.4	26.2	21.8	19.4	17.6	23.3	13.3	9.5	5.8	8.5	8.5	10.0	26.4	14.1	24			
10	10.2	22.3	25.1	15.7	7.4	10.0	9.8	9.8	11.1	19.8	18.1	20.1	25.7	19.0	19.6	13.3	16.3	18.8	11.3	5.6	5.8	8.5	6.3	10.5	25.7	14.2	24			
11	5.1	6.2	8.8	7.9	4.4	5.9	12.2	12.8	19.2	15.7	16.5	22.7	29.2	29.2	24.2	17.4	13.3	7.8	8.7	7.1	7.4	9.5	7.1	29.2	12.8	24				
12	4.3	9.1	7.6	9.1	16.3	5.6	4.7	10.7	12.0	22.2	21.1	29.0	30.8	34.9	32.5	30.1	32.7	24.2	22.0	7.4	5.6	4.7	4.7	5.0	34.9	16.1	24			
13	4.3	3.3	4.0	8.8	4.4	3.7	3.9	5.6	10.6	20.7	23.8	26.6	25.7	23.1	16.1	12.2	28.4	17.0	8.2	12.6	22.0	21.6	9.5	40.6	40.6	14.8	24			
14	17.9	12.2	13.3	12.0	21.6	15.9	13.3	30.8	30.1	23.5	21.6	25.1	32.8	31.4	24.2	23.8	20.5	17.4	12.8	6.5	11.3	20.3	10.0	17.2	32.8	19.4	24			
15	19.7	17.5	21.7	16.0	14.6	10.7	11.3	12.2	19.0	16.8	21.0	17.5	19.4	19.4	21.8	24.7	29.7	24.4	24.2	16.8	14.6	12.8	17.2	19.4	29.7	18.4	24			
16	18.8	17.9	12.6	12.0	9.0	10.1	14.6	11.3	11.8	11.5	14.1	24.0	14.4	15.0	19.6	10.9	11.5	16.4	10.4	3.4	8.0	10.0	8.9	7.1	24.0	12.6	24			
17	5.4	5.6	5.2	6.3	6.7	5.0	6.3	10.1	13.1	18.4	17.5	22.3	19.2	22.0	25.7	25.7	19.6	11.7	40.6	15.9	18.8	11.3	20.1	10.7	40.6	15.1	24			
18	8.7	11.3	9.8	7.8	11.1	7.8	9.1	13.5	14.8	22.3	23.8	22.7	24.0	28.1	16.1	13.7	12.6	19.6	13.9	5.4	7.6	5.9	8.5	8.1	28.1	13.7	24			
19	12.1	13.6	13.7	10.9	12.2	17.4	23.8	22.0	21.1	32.8	33.9	31.2	27.7	24.9	22.2	24.6	20.1	19.0	30.6	38.0	20.5	27.9	18.8	11.5	38.0	22.1	24			
20	12.8	9.8	10.7	6.3	7.6	5.6	5.4	11.5	28.8	26.1	30.6	36.8	38.8	39.9	32.4	32.2	31.0	26.0	32.3	17.4	10.4	11.8	7.1	8.5	39.9	20.0	24			
21	12.6	7.8	11.3	12.2	13.3	12.4	23.8	19.9	14.4	19.6	22.3	24.9	26.0	25.3	33.4	23.0	23.7	30.2	23.7	18.8	15.5	23.3	23.2	33.4	20.2	24				
22	20.7	19.0	16.8	22.0	12.4	19.7	26.6	25.1	24.4	37.8	25.8	30.5	35.5	38.6	36.1	34.3	32.3	21.8	13.7	3.9	3.9	6.9	3.6	5.4	38.6	21.5	24			
23	6.7	2.3	9.6	8.9	2.6	7.4	3.7	4.3	14.4	15.0	20.1	20.7	25.3	21.1	20.5	21.1	23.5	20.9	18.3	13.5	19.9	23.3	22.0	21.8	25.3	15.3	24			
24	31.5	24.4	19.9	17.7	15.5	8.9	14.4	11.8	17.4	18.3	17.0	24.9	17.0	16.1	17.4	15.5	17.0	12.4	8.5	5.4	4.6	5.3	6.4	7.7	31.5	14.8	24			
25	6.8	4.7	7.6	8.3	8.5	6.3	3.6	4.1	3.4	7.1	3.9	8.5	8.7	17.2	17.9	24.9	19.8	25.5	25.1	21.6	19.2	12.2	8.7	9.2	7.2	9.4	9.9	25.5	11.7	24
26	4.3	3.0	5.2	8.9	10.7	3.9	4.0	8.7	8.2	13.1	15.2	15.2	15.2	15.2	25.3	19.6	16.1	14.4	12.2	12.8	13.5	10.6	8.9	3.2	25.3	11.1	24			
27	4.8	3.6	4.3	3.6	4.1	3.4	7.1	3.9	8.5	8.7	17.2	17.9	24.9	19.8	25.5	25.1	21.6	19.2	12.2	8.7	9.2	7.2	9.4	9.9	25.5	11.7	24			
28	14.4	14.8	29.0	13.5	9.3	4.5	4.5	5.6	18.3	26.8	17.6	16.8	13.7	19.2	22.7	21.3	20.9	17.9	18.1	14.1	15.5	16.6	12.6	10.4	29.0	15.8	24			
29	6.3	5.6	6.9	8.2	15.9	13.7	11.5	10.9	11.3	11.8	16.6	15.2	18.6	15.6	20.4	20.2	18.6	15.8	18.4	23.7	36.1	27.3	30.8	36.1	17.2	24				
30	30.6	19.2	18.8	16.3	14.6	15.5	20.1	15.7	10.6	13.1	19.2	20.1	23.8	20.3	17.4	21.6	21.6	14.4	40.4	17.9	7.1	10.7	6.7	5.6	40.4	17.6	24			
31	6.9	10.7	6.1	5.4	3.9	6.3	3.5	14.5	12.3	16.6	19.2	24.0	19.6	23.3	28.6	27.3	11.7	5.2	11.5	13.1	7.8	22.7	10.4	28.6	13.2	24				
HOURLY MAX	31.5	24.4	29.0	32.6	23.8	33.2	26.6	30.8	30.1	37.8	33.9	36.8	38.8	39.9	36.1	34.3	33.0	30.4	60.2	38.0	36.1	28.6	31.2	40.6						
HOURLY AVG	11.6	10.7	11.4	10.8	10.1	9.6	11.2	12.4	15.7	18.5	20.4	22.7	23.6	22.5	22.2	21.2	21.1	18.4	19.3	12.8	12.5	12.3	12.2	12.2						

STATUS FLAG CODES

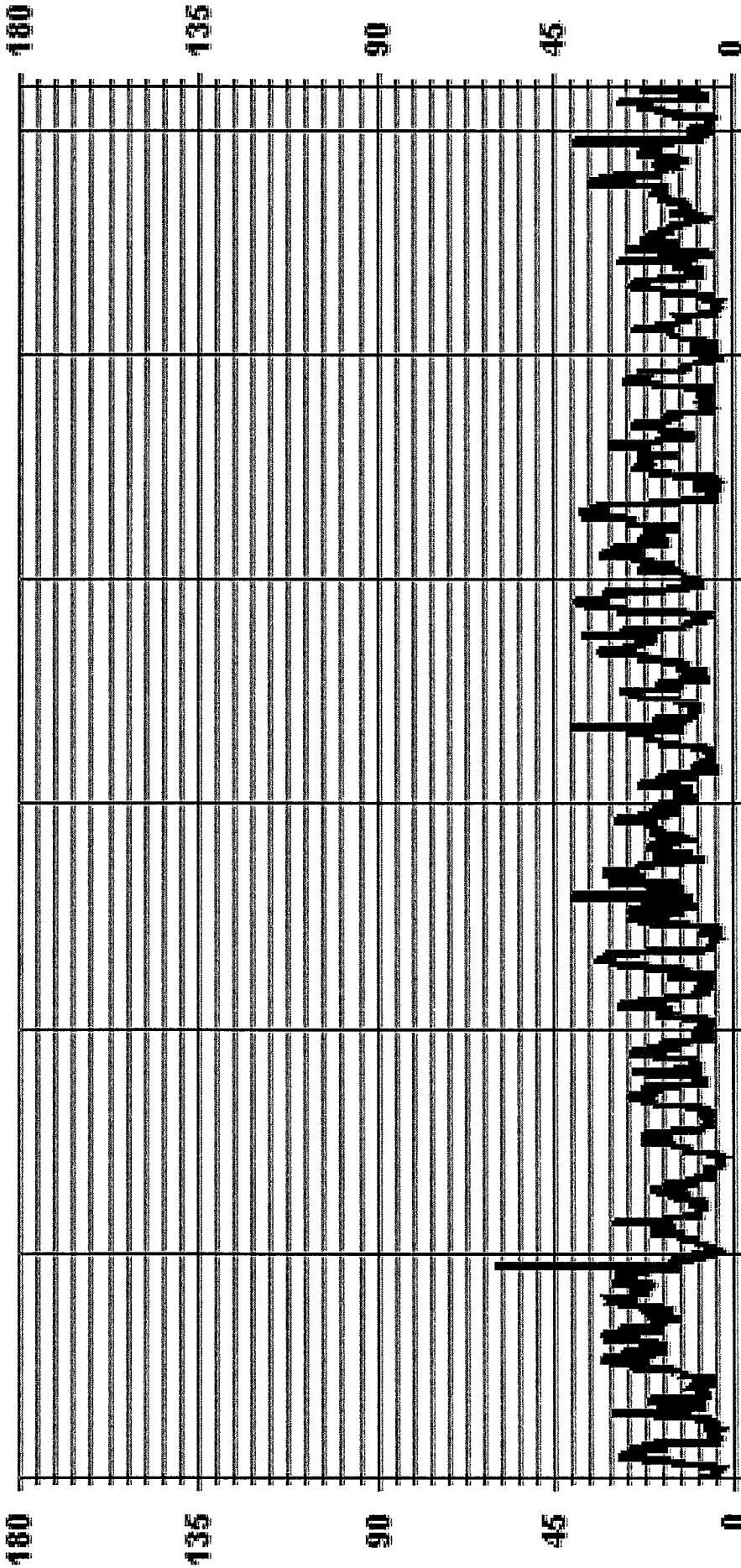
G	CALIBRATION	O	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/Span CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
CG	OUT-OF-REPAIR	K	COLLECTION ERROR

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	60.2	KPH	@ HOUR(S)	18	ON DAY(S)	5
OPERATIONAL TIME:				744	HRS	

VAR-VARIOUS

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 WSMAX KPH

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

August 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	2.82	4.03	5.24	6.04	5.10	3.76	4.83	4.03	6.04	10.21	8.60	4.03	3.49	4.83	4.30	2.01	79.43
< 12.0	.40	1.07	2.01	2.15	.53	1.20	1.20	.80	1.20	3.76	.53	.13	.40	1.61	1.88	1.34	20.29
< 20.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00	.00	.26
< 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	3.22	5.10	7.25	8.19	5.64	4.97	6.04	4.83	7.25	14.24	9.13	4.16	3.89	6.45	6.18	3.36	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

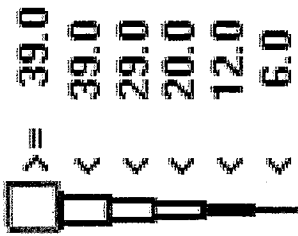
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	21	30	39	45	38	28	36	30	45	76	64	30	26	36	32	15	591
< 12.0	3	8	15	16	4	9	9	6	9	28	4	1	3	12	14	10	151
< 20.0										2							2
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	24	38	54	61	42	37	45	36	54	106	68	31	29	48	46	25	

Calm : .00 %

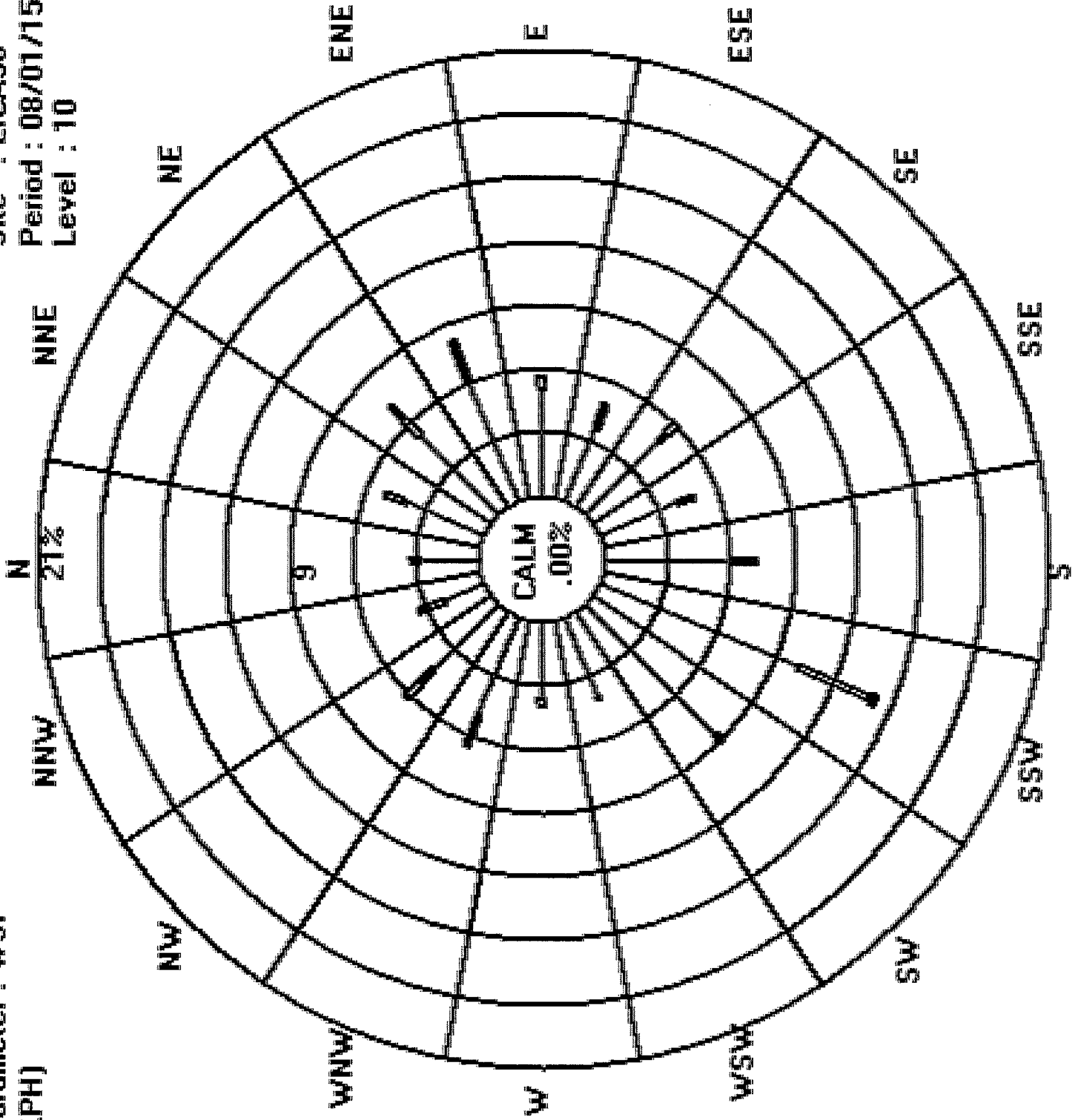
Total # Operational Hours : 744

Logger : 30 Parameter : WSP

Class Limits (KPH)



Site : LICA30
Period : 08/01/15-08/31/15
Level : 10



WIND DIRECTION



WIND DIRECTION (WD) hourly averages

MST

INDUSTRY QUADRANT	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	ENE	ENE	E	SSW	SSW	W	NE	E	NNW	SW	WSW	NNW	N	NNE	N	NW	N	NW	N	NNW	N	NE	W	SSW	SSW	SW	NNW	24		
2	SW	SSE	S	SSW	SSW	W	NE	E	NNW	SW	WSW	NNW	N	NNE	N	NW	N	NW	N	NNW	N	NE	W	SSW	SSW	SW	NNW	24		
3	NE	E	ENE	NNE	E	ENE	E	ENE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	24		
4	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	24		
5	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	24	
6	S	ENE	ENE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	E	24	
7	NNE	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	NNE	E	24	
8	NE	WINW	E	ENE	ENE	E	ENE	ENE	ENE	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	E	24	
9	E	ENE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	24	
10	NE	NNW	NNE	NE	E	ENE	E	NNW	SW	WSW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	W	24		
11	SSW	SSW	S	ENE	ESE	ESE	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24	
12	WSW	WSW	S	ENE	ESE	ESE	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24	
13	S	SSE	SSE	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	SSW	S	W	24	
14	NNE	N	WSW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	24	
15	NNE	NNE	NNE	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	W	24	
16	NW	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	NNW	W	24
17	SSW	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24	
18	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24	
19	S	S	SSW	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	W	24	
20	SSW	SSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24	
21	WSW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	N	NNW	W	24	
22	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	W	24	
23	S	SSW	SSE	SSW	SSW	SSW	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	24	
24	SSE	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	24	
25	E	ENE	NE	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	S	24	
26	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	ENE	ENE	S	24	
27	S	SSW	SSW	SSW	SSW	SSW	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	24	
28	SSW	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	24	
29	ENE	E	SW	W	NNE	NNE	NNE	NNE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	S	24	
30	SE	SSE	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	
31	SW	S	SSW	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	E	24	

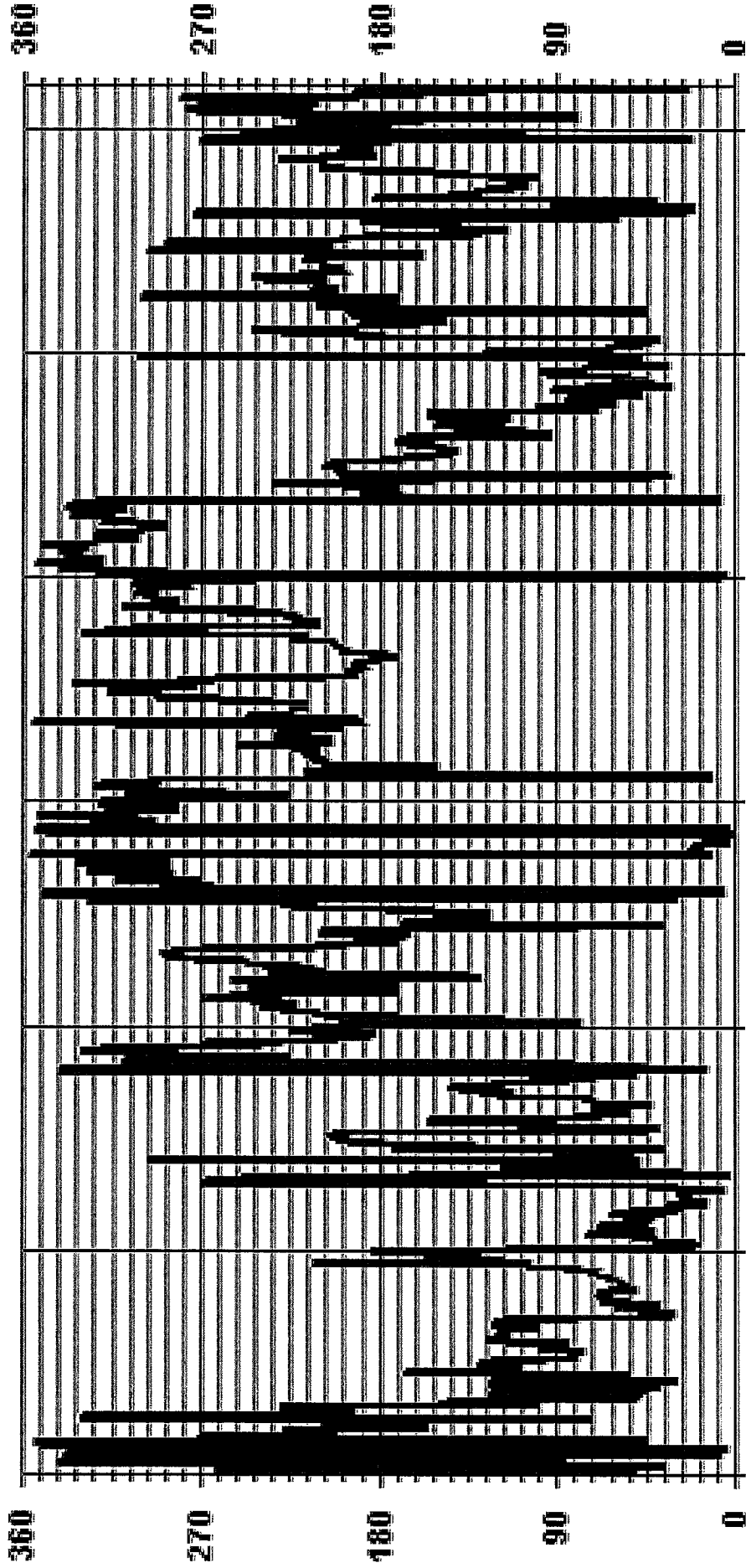
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME: 0 HRS
 STANDARD DEVIATION: 94.57
 OPERATIONAL TIME: 744 HRS
 AMD OPERATION UPTIME: 100.0 %
 MONTHLY AVERAGE: S

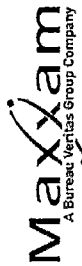
01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 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	24:00
1	53	36	72	55	43	33	27	48	38	49	43	43	35	34	36	43	44	40	33	32	42	20	29	25	
2	55	43	42	40	34	58	57	50	71	50	54	54	39	62	42	62	29	40	21	26	28	30	39	32	
3	33	26	30	43	37	21	38	50	47	35	42	46	34	36	39	34	34	34	32	33	37	38	32	31	
4	37	32	36	40	36	36	36	38	36	36	34	37	39	30	22	15	23	20	26	24	21	25	29	30	
5	31	29	29	26	22	23	24	27	27	28	29	28	28	27	33	39	38	37	61	34	30	30	32	38	
6	43	41	62	52	36	26	23	20	31	32	34	39	33	43	41	27	25	29	21	21	25	28	25	25	
7	13	20	26	18	22	15	18	17	32	37	26	38	51	40	45	50	55	58	49	35	21	35	24	57	
8	45	59	25	36	66	44	24	55	43	51	44	43	55	54	34	20	68	27	19	24	28	54	35	56	
9	57	40	28	59	27	29	18	20	34	30	42	41	44	46	46	46	32	27	24	24	24	15	21		
10	17	29	28	27	41	32	53	32	43	44	49	40	60	59	39	60	48	19	25	20	14	12	48	21	
11	42	39	17	50	34	41	42	26	21	37	37	44	38	45	43	47	49	38	39	8	10	12	38	41	
12	66	62	48	51	36	31	27	23	35	36	43	41	47	43	42	44	42	33	44	22	48	50	43	33	
13	44	44	34	28	60	38	46	13	38	39	35	42	42	42	38	30	23	37	33	38	53	46	56	37	
14	38	48	52	50	53	48	43	42	38	42	40	49	45	40	49	44	46	45	45	55	34	27	22	16	
15	16	25	19	38	21	26	35	38	36	27	38	39	47	39	36	39	43	48	44	44	55	34	34	39	
16	42	40	37	59	32	46	58	56	42	55	52	64	68	45	54	30	24	33	46	53	39	23	12	21	
17	24	14	14	13	11	36	20	44	39	30	29	40	43	55	41	35	28	21	48	49	40	30	38	42	
18	27	28	30	14	13	22	32	36	39	36	47	47	47	48	42	44	39	52	54	43	14	7	8	9	
19	12	15	17	18	21	24	23	25	23	22	23	22	23	22	24	23	35	29	29	37	41	44	38	47	
20	13	12	25	26	28	48	57	42	34	39	41	39	41	40	36	42	37	41	42	34	61	47	59	38	
21	53	38	34	52	44	43	44	45	36	44	45	42	43	43	44	44	44	44	38	41	42	39	37	41	
22	40	47	43	46	45	33	37	43	45	46	44	50	41	46	47	42	40	42	39	46	24	10	34	76	
23	54	50	79	63	43	60	34	13	49	24	23	32	29	32	31	33	28	27	18	17	21	23	22	23	
24	23	22	22	23	61	23	29	43	35	35	45	51	50	56	51	37	35	38	27	27	37	29	21	42	
25	31	38	19	25	22	50	44	14	21	31	27	33	40	42	49	36	35	34	16	19	21	19	39	47	
26	51	50	21	30	22	32	38	19	22	36	33	55	62	48	36	36	35	22	16	15	18	13	23	47	
27	36	41	29	35	23	57	33	72	29	47	63	30	38	30	30	33	44	46	31	12	13	41	14	13	
28	23	14	24	18	41	53	54	30	27	26	34	60	47	34	26	31	34	29	29	20	21	20	20	36	
29	66	36	54	64	19	16	47	27	41	40	48	59	46	47	48	41	36	33	33	39	36	39	35	43	
30	28	28	21	17	15	16	31	25	43	41	30	35	42	45	38	28	29	19	37	47	62	44	32	49	
31	42	55	46	26	51	36	48	68	28	26	45	47	49	52	37	40	48	53	26	36	50	49	47	23	

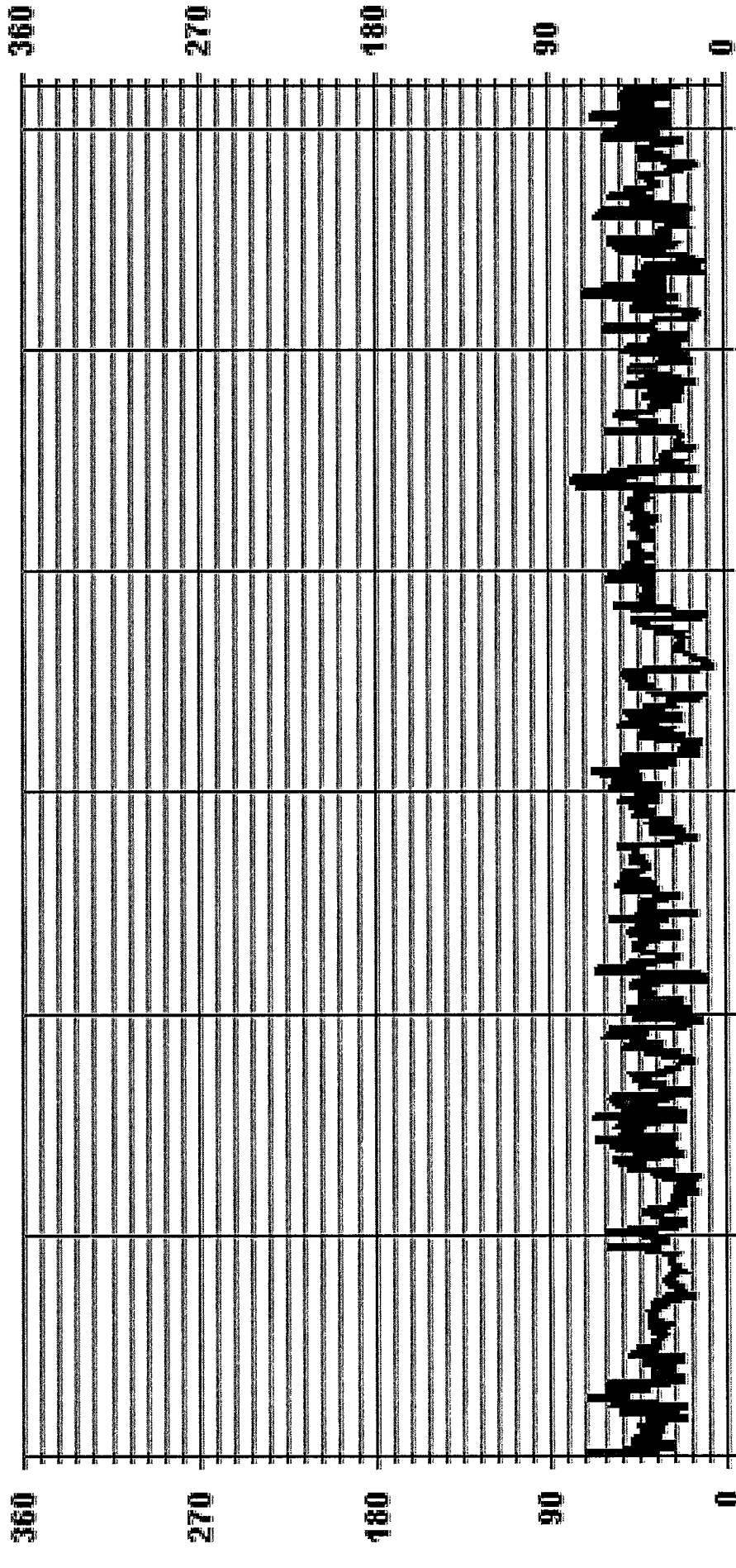
STATUS FLAG CODES

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

LAST CALIBRATION: March 4, 2014

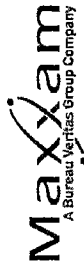
CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



— LICA30 STDWDIR DEG

RELATIVE HUMIDITY



RELATIVE HUMIDITY (RH) hourly averages in %

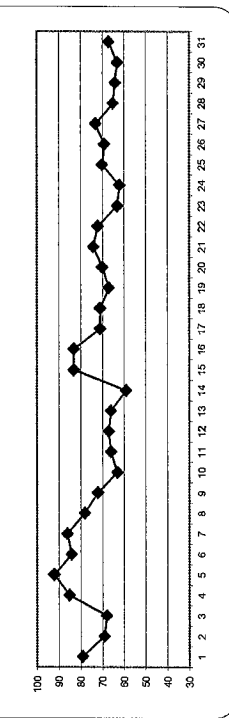
MST

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	92	93	93	93	93	94	93	92	92	86	75	67	64	59	57	53	49	65	72	64	72	87	92	93	93	94	78.8	24	
2	93	93	93	93	93	93	93	91	91	60	53	49	49	47	44	47	48	48	56	64	70	80	84	85	94	85	69.4	24	
3	88	91	92	93	93	93	91	91	91	60	57	57	57	57	52	49	50	52	63	66	68	72	76	76	93	85	68.5	24	
4	70	66	68	69	77	75	82	82	82	81	87	91	91	90	91	91	91	91	89	91	91	92	92	92	92	92	84.6	24	
5	92	92	93	93	93	93	93	93	93	93	93	93	93	92	92	92	91	91	92	92	92	92	93	93	93	93	92.5	24	
6	93	93	93	93	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	24
7	92	92	92	92	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	86.0	24	
8	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	94	77.8	24	
9	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	94	72.5	24	
10	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	63.5	24	
11	89	91	86	87	92	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	66.4	24	
12	92	93	92	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	66.7	24	
13	90	90	92	91	92	91	92	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	65.9	24	
14	70	79	78	83	80	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	59.4	24	
15	63	69	72	72	74	77	78	78	78	79	83	88	89	89	90	89	89	89	90	90	90	90	90	90	90	90	82.8	24	
16	86	89	91	91	92	92	90	85	80	71	60	75	76	71	61	83	70	74	87	90	92	92	93	93	93	93	82.7	24	
17	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	71.1	24	
18	87	88	87	88	91	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	71.3	24	
19	85	81	79	78	78	77	75	75	75	68	62	60	59	59	59	56	54	52	51	56	52	58	64	71	82	85	67.0	24	
20	81	86	87	91	92	92	89	70	56	52	50	49	51	47	54	54	54	54	56	56	67	78	81	86	90	92	66.5	24	
21	87	88	86	87	86	84	82	73	68	62	59	56	54	56	56	59	61	70	79	83	87	87	86	86	88	88	74.3	24	
22	86	88	89	89	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	72.1	24	
23	91	92	92	92	91	91	92	90	64	55	46	45	46	45	43	41	39	42	46	59	76	87	89	91	92	92	65.1	24	
24	61	64	68	67	68	75	71	58	54	49	46	45	45	43	41	39	42	46	59	76	87	89	91	92	92	92	61.5	24	
25	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	70.0	24	
26	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	69.4	24	
27	92	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	72.6	24	
28	77	76	73	78	87	92	93	83	60	56	46	39	37	40	41	41	44	50	62	72	74	74	75	79	93	64.5	24		
29	87	91	92	92	90	86	80	70	61	52	47	44	47	41	40	40	40	40	51	57	61	61	63	67	66	92	63.8	24	
30	67	70	71	75	79	81	80	72	61	52	49	43	35	30	29	30	32	42	54	85	91	93	93	93	93	93	62.8	24	
31	93	93	94	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	94	94	66.7	24	
HOURLY MAX	93	93	94	93	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	24
HOURLY AVG	85.7	86.9	86.7	87.4	88.5	89.0	88.1	80.9	80.7	70.7	63.4	57.7	54.7	52.5	50.9	50.8	51.9	52.8	55.8	62.4	72.7	79.1	81.7	84.0	85.2	85.2	85.2	85.2	24

STATUS FLAG CODES

C	QUALITY ASSURANCE	G	COLLECTION ERROR
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

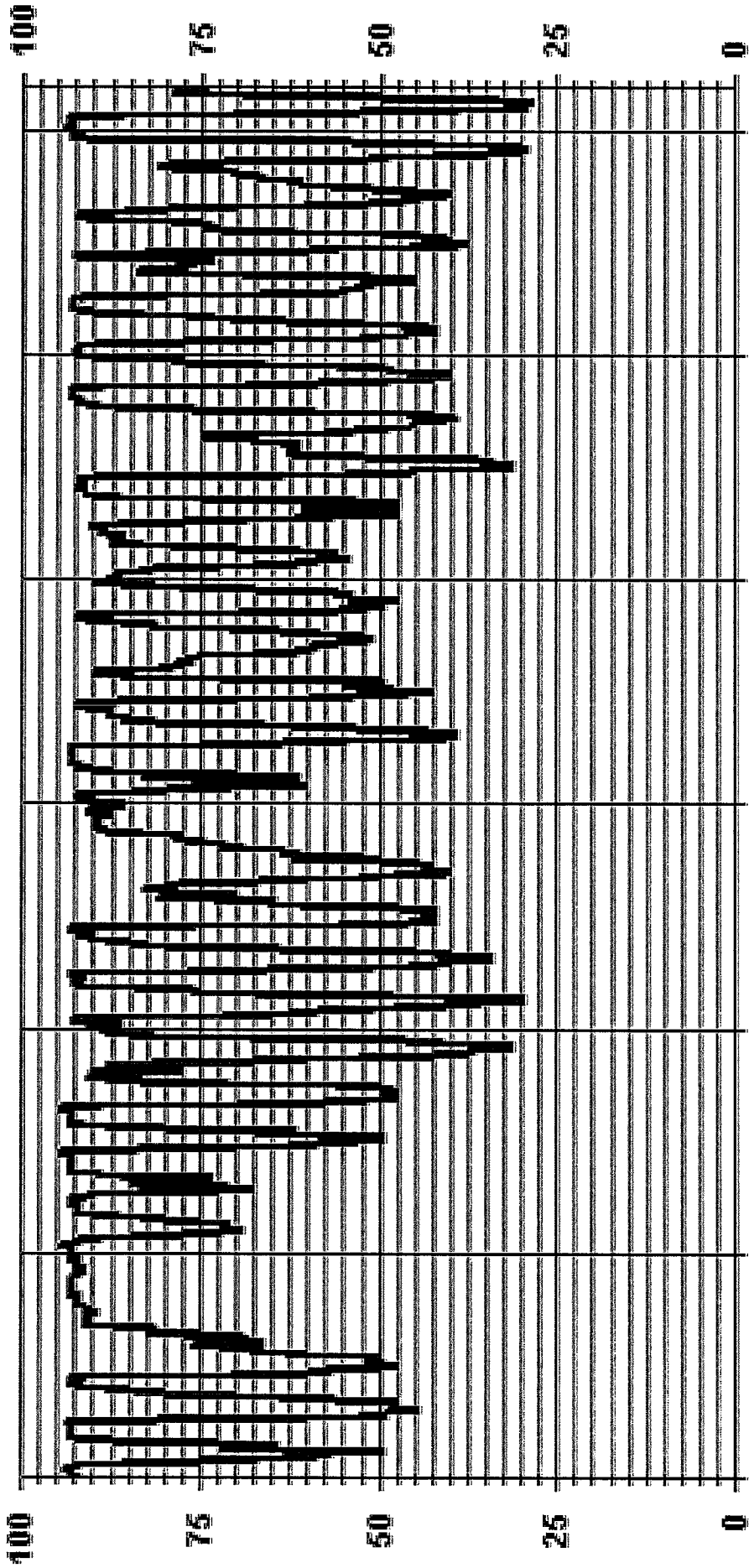
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	94	%	@ HOURS(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	92.5	%			ON DAY(S)	5
OPERATIONAL TIME:						
AMD OPERATION UPTIME:						
MONTHLY AVERAGE:						
STANDARD DEVIATION:	19.15					72 %
						HRS 744
						% 100.0

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 RH %

BAROMETRIC PRESSURE



BAROMETRIC PRESSURE (BP) hourly averages in millibar

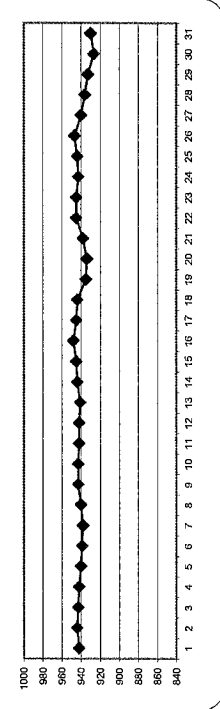
MST

DAY	HOURS																								DAILY				
	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	942	942	941	941	941	941	942	942	942	942	942	942	942	942	942	943	943	943	943	943	943	943	943	943	943	943	942	942	
2	944	944	944	944	944	944	945	945	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	946	944	944
3	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	943
4	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
5	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940
6	937	937	937	937	937	937	937	937	937	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	937	937	937
7	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938
8	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
9	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
10	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
11	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	942
12	940	940	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
13	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	942
14	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941
15	944	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
16	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	947	947
17	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	946
18	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	943
19	940	940	940	939	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938
20	934	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933
21	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935
22	942	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
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	945	945
24	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	943
25	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	942
26	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	946
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	943
28	936	936	937	937	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
29	932	931	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932
30	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925	925
31	927	926	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927
HOURLY MAX	947	947	947	947	947	947	947	947	947	948	948	948	948	948	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949
HOURLY AVG	940	940	940	940	940	940	940	940	940	940	940	940	940	940	941	941	941	941	941	941	941	941	941	941	941	941	941	941	940
DAILY MAX	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	943
DAILY AVG	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	942
24-HOUR AVG	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	942

STATUS FLAG CODES

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

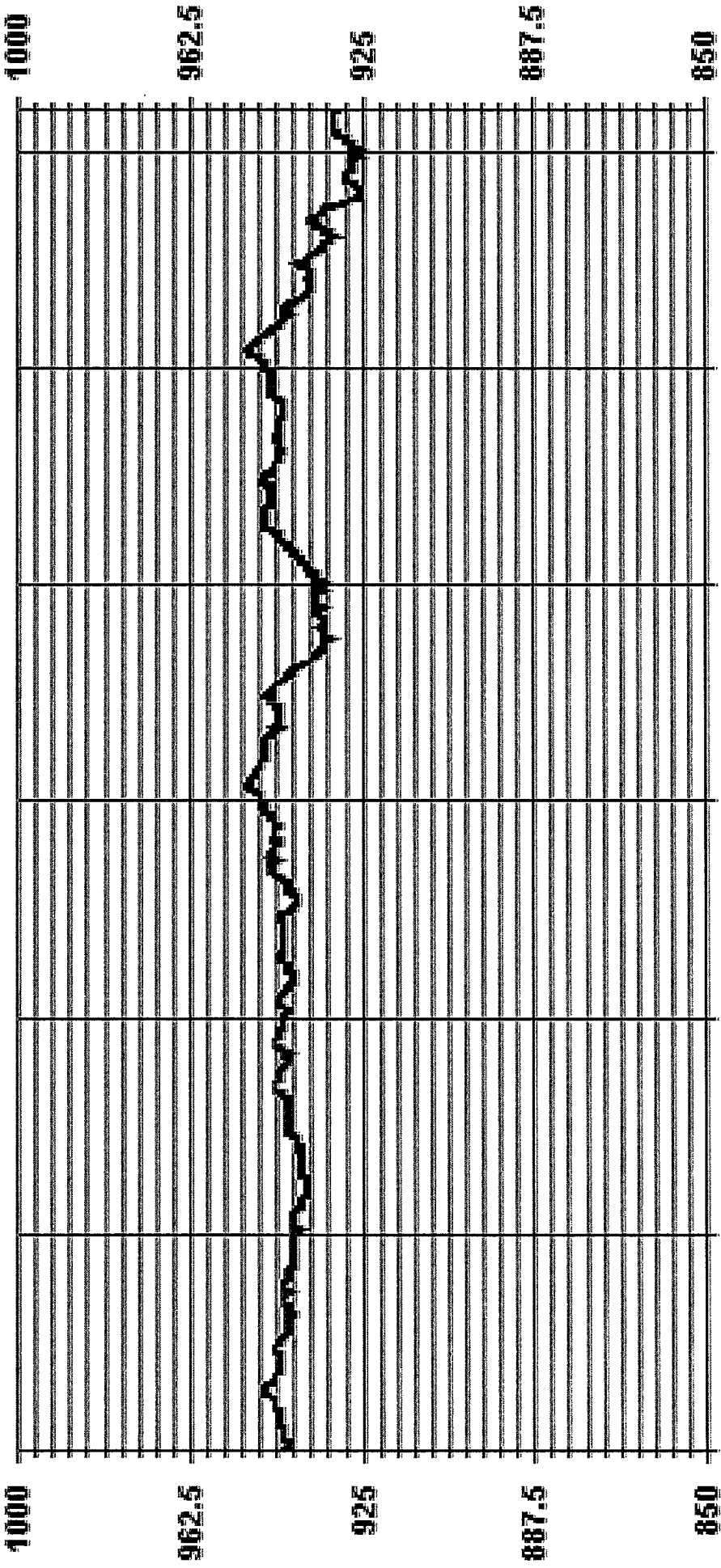
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	950	MB	@	948	HR(S)	VAR	ON DAY(S)	16, 26
MAXIMUM 24-HR AVERAGE:	948	MB					ON DAY(S)	16
STANDARD DEVIATION:	5.06						VAR-VARIOUS	
OPERATIONAL TIME:	744	HRS						
AMD OPERATION UPTIME:	100.0	%						
MONTHLY AVERAGE:	941	MB						

01 Hour Averages



— LICA30 BP MB

AMBIENT TEMPERATURE



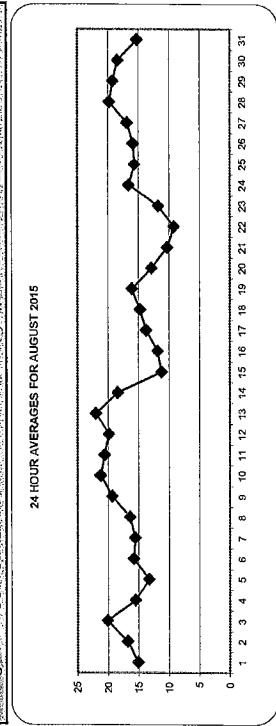
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

MST

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	DAILY MAX.	24-HOUR AVG.	RDGS.
1	11.4	10.6	9.6	9.2	9.4	10.6	11.7	13.5	15.5	18.6	20.2	19.8	20.4	21.0	21.6	22.1	19.6	19.1	19.9	16.0	12.6	11.0	10.1	9.8	22.1	15.1	24								
2	9.4	8.1	7.5	7.4	7.4	8.0	10.8	15.6	20.0	24.9	23.3	23.6	23.8	24.4	23.2	24.0	23.4	20.4	21.3	19.1	16.1	12.8	13.7	24.4	16.8	24									
3	14.0	14.3	13.8	12.2	12.4	12.9	15.6	19.5	22.7	24.0	23.9	26.1	26.4	24.4	25.2	24.7	25.4	22.9	21.4	20.1	19.4	18.4	17.5	26.4	20.1	24									
4	18.1	18.2	17.7	17.9	16.9	17.2	16.1	16.2	16.6	15.9	15.5	15.1	14.8	14.2	14.1	14.3	13.6	13.5	13.3	13.1	18.2	15.5	24												
5	13.1	12.9	12.7	12.6	12.4	12.2	12.3	12.4	12.9	13.0	12.9	12.9	13.1	13.3	13.3	14.3	14.5	14.4	14.3	14.2	14.1	13.9	13.8	14.5	13.3	24									
6	13.0	13.3	13.2	12.6	12.9	13.0	13.4	14.2	14.7	15.3	17.0	17.9	19.0	19.8	19.5	19.3	19.1	18.8	17.6	16.8	15.9	14.9	13.9	13.8	19.8	15.8	24								
7	13.9	14.1	14.0	13.8	13.6	14.0	13.9	14.1	16.0	18.3	19.3	19.2	19.5	17.1	16.8	16.2	14.1	12.8	11.9	11.3	19.7	15.6	24												
8	10.4	9.7	8.9	8.7	7.8	8.2	10.4	13.8	17.9	21.2	22.7	23.4	24.4	25.2	25.4	22.2	20.4	21.7	20.8	17.4	15.0	12.5	11.9	25.4	16.4	24									
9	11.1	10.3	10.0	9.6	9.7	9.9	11.8	16.0	20.6	23.3	24.7	26.3	27.0	27.4	28.0	28.4	28.2	27.6	25.7	21.3	17.8	16.6	15.8	28.4	19.3	24									
10	16.1	16.4	17.2	15.3	13.0	12.4	14.8	19.0	21.8	25.0	27.3	28.2	28.7	29.2	29.0	29.6	29.2	27.5	26.0	21.0	17.2	15.7	15.0	29.6	21.2	24									
11	14.1	13.7	15.1	13.8	12.2	12.1	15.2	20.0	21.5	22.6	24.7	26.7	27.6	28.9	29.5	29.8	29.6	28.7	25.7	20.3	17.2	16.0	14.9	33.8	20.6	24									
12	13.1	13.0	14.0	13.8	13.5	12.7	13.9	18.3	21.2	24.2	25.1	25.8	26.4	27.7	28.3	27.5	26.1	25.3	24.8	20.1	16.6	16.0	15.0	28.3	19.9	24									
13	13.9	13.6	13.5	13.4	12.2	11.8	13.3	18.9	24.3	27.1	27.9	28.6	29.5	30.1	30.7	30.9	29.7	28.5	24.7	23.1	23.0	21.4	19.7	30.9	22.0	24									
14	17.6	15.3	15.5	14.8	15.0	15.3	15.4	17.1	18.9	21.3	21.3	22.1	22.8	23.4	23.7	23.1	23.0	20.8	19.1	16.9	16.8	16.4	13.9	12.6	23.7	18.4	24								
15	13.1	11.8	11.3	11.6	11.1	10.6	10.5	10.7	10.9	10.5	10.6	10.7	10.9	11.4	11.6	12.1	12.0	11.6	12.0	12.0	11.2	9.9	10.8	10.8	13.1	11.2	24								
16	10.5	9.2	8.2	8.3	7.9	8.9	10.1	11.6	13.0	15.3	17.5	14.4	14.0	15.2	17.1	13.8	16.5	14.7	12.4	12.0	11.0	9.5	7.5	17.5	11.9	24									
17	6.8	6.6	7.5	8.1	8.4	7.1	7.6	10.9	15.1	17.3	18.3	19.7	20.2	20.1	21.0	20.8	20.4	18.7	15.6	13.8	12.1	11.4	11.6	11.3	21.0	13.8	24								
18	10.9	10.6	10.6	10.3	9.5	8.7	9.5	11.0	15.6	18.3	20.2	21.4	21.7	22.6	20.5	20.0	19.6	20.7	19.2	14.5	11.5	10.0	9.2	9.0	22.6	14.8	24								
19	10.4	11.6	11.8	11.8	12.0	12.2	12.5	13.6	14.3	16.4	18.4	19.5	20.5	20.9	22.8	22.7	22.4	22.2	22.2	20.2	18.3	15.8	14.2	12.3	9.4	22.8	16.1	24							
20	10.2	9.0	8.1	6.8	6.2	6.2	8.3	13.9	17.7	18.8	20.0	19.8	19.2	19.7	17.4	16.8	16.0	15.2	14.7	12.1	9.5	9.0	7.4	6.6	22.0	12.9	24								
21	7.3	6.9	7.7	7.5	8.2	8.6	9.1	10.7	11.3	12.6	13.3	13.9	14.4	13.6	13.5	12.7	12.8	11.9	10.1	9.5	8.5	7.6	7.1	14.4	10.3	24									
22	6.6	5.8	5.3	5.1	4.2	4.4	5.4	7.9	10.5	11.9	12.8	13.6	14.8	15.8	15.0	13.5	14.7	15.1	13.3	8.7	5.7	4.4	3.5	2.3	15.8	9.2	24								
23	1.4	0.8	0.2	-0.3	-0.7	-1.3	0.6	5.8	13.0	14.9	17.1	18.7	20.0	20.9	21.3	21.9	21.8	21.2	17.7	14.8	14.0	14.0	13.5	13.0	21.9	11.8	24								
24	13.2	12.3	11.2	11.1	11.1	9.7	11.1	14.6	16.8	18.4	20.1	21.4	23.1	24.3	25.1	25.0	24.4	23.6	20.2	15.8	13.1	11.9	10.4	10.3	25.1	16.6	24								
25	10.2	9.0	8.4	8.5	8.0	8.2	8.6	11.3	15.4	18.7	20.7	22.7	24.1	25.1	25.7	23.7	22.9	22.7	20.6	16.8	13.6	12.6	10.6	9.2	25.7	15.7	24								
26	8.2	7.5	6.9	6.6	6.6	6.3	8.1	11.6	16.4	20.8	21.9	23.7	24.3	24.6	24.3	24.1	23.9	22.3	19.5	17.0	16.4	15.5	14.0	11.7	24.6	15.9	24								
27	10.6	9.9	9.2	8.7	8.2	7.7	9.4	13.0	16.5	19.9	23.2	23.7	24.3	24.1	24.9	25.7	25.9	24.7	22.4	17.9	14.4	13.5	13.6	14.5	25.9	16.9	24								
28	14.8	15.1	16.0	14.4	11.5	9.7	10.0	14.8	20.0	21.2	24.2	26.7	26.6	26.8	27.1	26.8	27.1	25.9	22.7	20.5	19.6	18.8	18.0	16.7	27.1	19.8	24								
29	14.1	12.7	12.2	12.4	12.5	12.6	13.6	16.1	18.7	21.4	23.7	24.6	25.1	25.7	26.3	26.2	24.6	22.3	20.4	20.0	20.2	19.5	18.8	18.5	26.3	19.2	24								
30	17.4	16.4	15.9	14.9	13.8	13.2	13.6	15.9	19.4	22.3	23.6	24.8	26.1	26.8	26.5	26.5	24.9	22.0	19.3	14.2	12.8	11.5	10.9	9.9	26.8	18.4	24								
31	9.4	9.6	10.5	10.1	8.0	7.5	8.0	11.8	15.4	17.6	21.0	22.8	23.6	24.3	23.6	23.3	22.6	22.5	17.7	13.5	12.1	11.0	11.3	10.3	24.3	15.3	24								
HOURLY MAX	18.1	18.2	17.7	17.9	16.9	17.2	16.1	20.0	24.3	27.1	27.9	28.6	29.5	30.1	30.7	30.9	29.7	28.7	26.0	23.1	23.0	21.4	19.7	19.2	31.2	23.0	24								
HOURLY AVG	11.8	11.2	11.1	10.7	10.2	10.0	11.1	14.0	16.9	18.9	20.4	21.2	21.8	22.3	22.4	22.1	21.8	20.9	19.1	16.4	14.6	13.5	12.7	12.0	16.6	12.7	24								

STATUS FLAG CODES

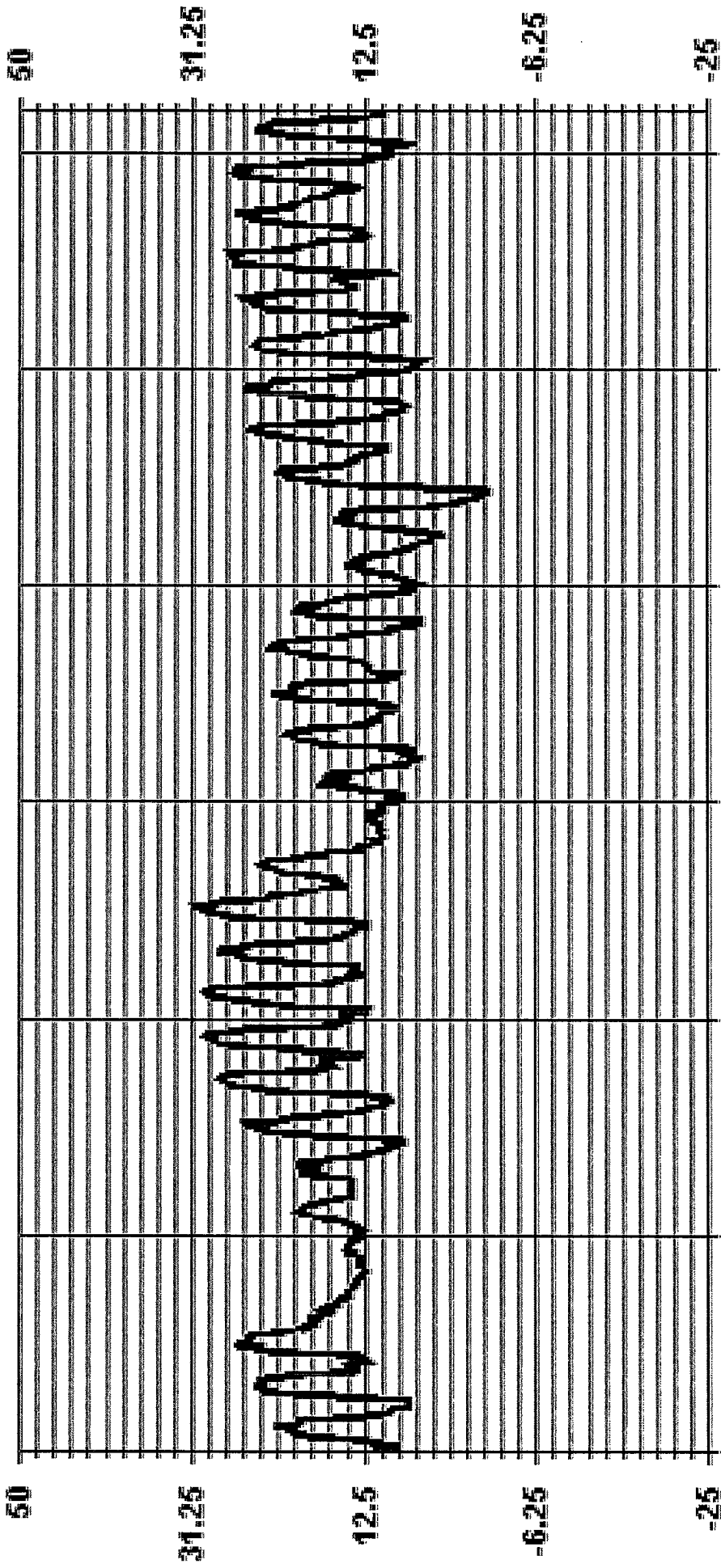
C	CALIBRATION	Q	QUALITY ASSURANCE
M	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
SP	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-1.3	°C	@ HOUR(S)	5	ON DAY(S)	23
MAXIMUM 1-HR AVERAGE:	30.9	°C	@ HOUR(S)	15	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	22.0	°C			ON DAY(S)	13
STANDARD DEVIATION:	6.12				VAR-VARIOUS	
OPERATIONAL TIME:						744 HRS
AMD OPERATION UPTIME:						100.0 %
MONTHLY AVERAGE:						16.1 °C

01 Hour Averages



— LICA30 TPX DGC

PRECIPITATION

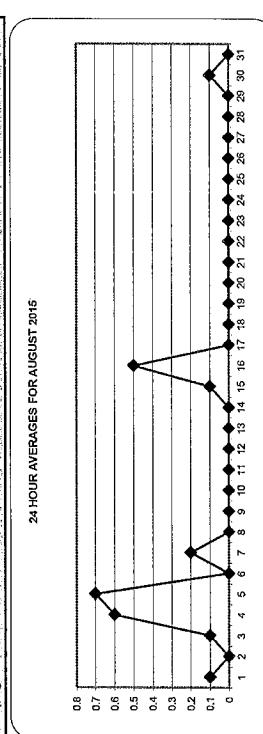


PRECIPITATION hourly averages (mm)

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	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	0.4	1.4	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
4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.5	2.6	2.0	1.7	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.7	0.9	0.8	1.3	1.3	1.0	1.0	1.0	1.3	0.9	0.7	2.2	1.8	0.4	0.5	0.4	0.1	0.2	0.5	0.1	0.2	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	0.1	1.1	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.6	2.2	0.5	0.0	0.3	0.4	0.1	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	0.1	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
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	0.1	0.1	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	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	0.2	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
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	0.1	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
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	0.7	1.4	1.1	1.3	1.3	1.0	1.0	1.0	1.3	1.5	2.6	7.6	2.0	2.2	1.4	1.8	1.1	0.6	0.5	2.0	0.6	0.5	1.0	0.2	0.0	0.0
HOURLY AVG	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
DAILY 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	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
DAILY AVG	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
24-HOUR	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
RDCS	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

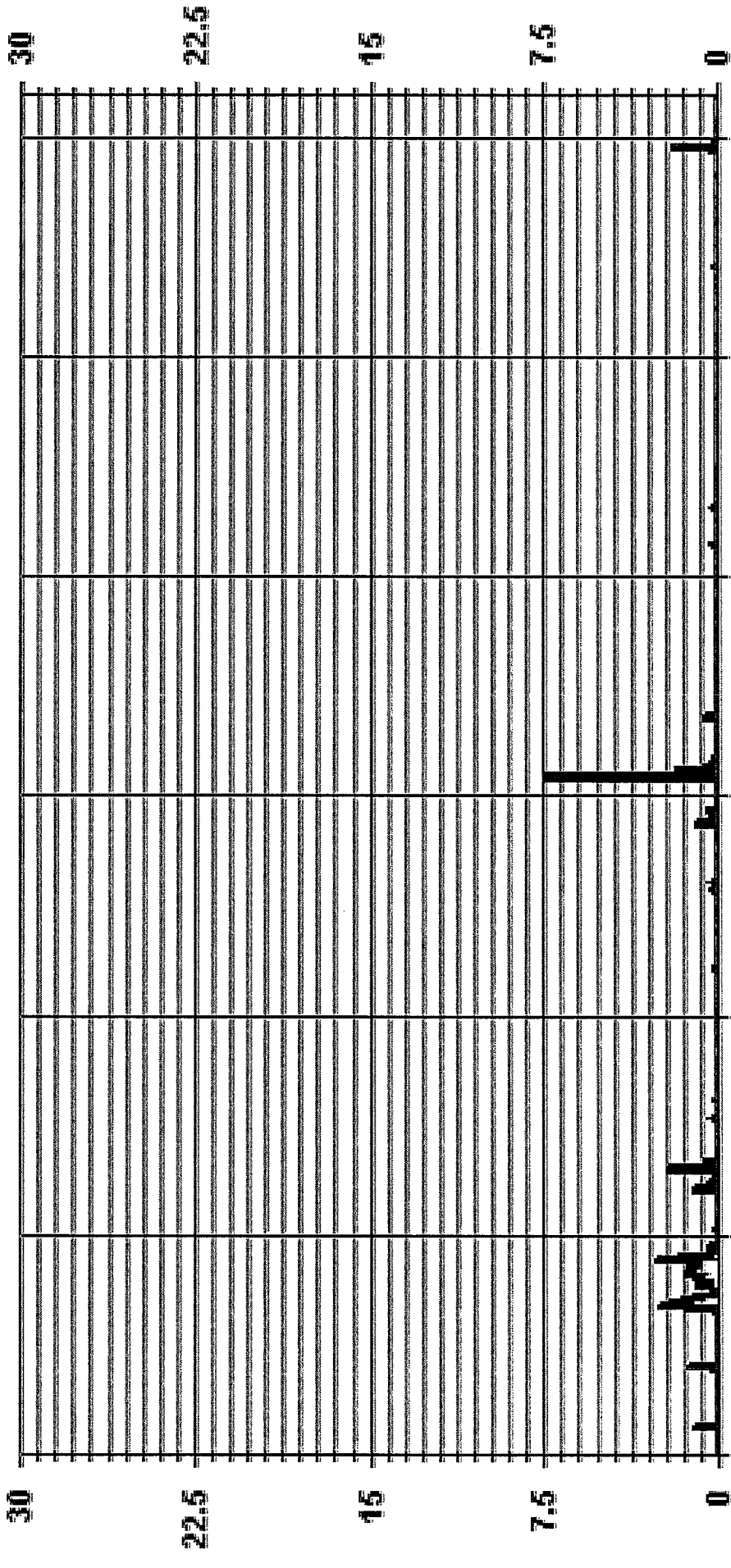
- C - CALIBRATION
- M - MAINTENANCE
- S - DAILY ZERO/SPAN/CHECK
- P - POWER FAILURE
- G - GOUT FOR REPAIR
- Q - QUALITY ASSURANCE
- R - RECOVERY
- X - MACHINE MALFUNCTION
- O - OPERATOR ERROR
- K - COLLECTION ERROR



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	7.6	MM	@ HOUR(S)	11	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	0.7	MM			ON DAY(S)	5
MONTHLY TOTAL	61.7	MM			VAR- VARIOUS	
STANDARD DEVIATION:	0.41					
OPERATIONAL TIME:	744	HRS				
AMD OPERATION UPTIME:	100.0	%				
MONTHLY AVERAGE:	0.1	MM				

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA30 PRECIP MM

APPENDIX II
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

API 100E SO2 Analyzer Calibration

Date: 14-Aug-15

Company: LICA

Station Name/Location: Maskwa

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO2

Start/End Time (mst): 8:08 - 12:47

Calibration Purpose: Monthly Calibration

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Mar-19

Analyzer:

Serial Number: 508

Last Calibration Date: 13-Jul-15

Previous Cal High Point C.F.: 1.000

Range ppb: 1000

As Found C.F.: 0.984

New C.F.: 0.993

As found:

SLOPE: 0.969

OFFSET: 127.2

HVPS: 495

RCELL TEMP: 50.0

BOX TEMP: 29.9

PMT TEMP: 7.7

IZS TEMP: 45.0

TEST: NA

STABIL: 0.2

PRES: 24.4

SAMP FL: 578

PMT: 120.0

NORM PMT: 134.3

UV LAMP: 3171.5

LAMP RATIO: 98.9

STR. LGT: 61.6

DRK PMT: 12.0

DRK LMP: -1.6

Internal Span: 277.8

As left:

SLOPE: 0.956

OFFSET: 133.5

HVPS: 495

RCELL TEMP: 50.0

BOX TEMP: 28.5

PMT TEMP: 7.7

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 24.5

SAMP FL: 579

PMT: 119.0

NORM PMT: 134.5

UV LAMP: 3179.6

LAMP RATIO: 99.1

STR. LGT: 63.8

DRK PMT: 12.3

DRK LMP: -1.6

Internal Span: 271

Calibrator:

Flow Meter ID's: NA

Make & Model: SABIO 2010 D

Serial #: 11900613

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	5013	0	5013
high	4923	77	5000
mld	4976	37	5013
low	4981	19	5000

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5013	0.0	5013	0	3.0	NA
adjusted zero	5013	0.0	5013	0	0.0	NA
as found high	4923	77.10	5000	763.3	776.0	0.984
adjusted high	4923	77.10	5000	763.3	764.0	0.999
mld	4976	37.70	5014	372.2	374.0	0.995
low	4981	18.80	5000	186.1	189.0	0.985
calibrator zero	5012	0.00	5012	0	0.0	NA
Average C.F. =						0.993

Linear Regression/Calibration Results:

	LIMITS	Pass/Fail ?
Correlation Coefficient = <u>1.000</u>	> or = 0.995	PASS
Slope = <u>1.000</u>	0.85-1.15	PASS
b (Intercept as % of full scale) = <u>-0.14%</u>	± 3% F.S.	PASS
% change in C.F. from last cal = <u>1.64%</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

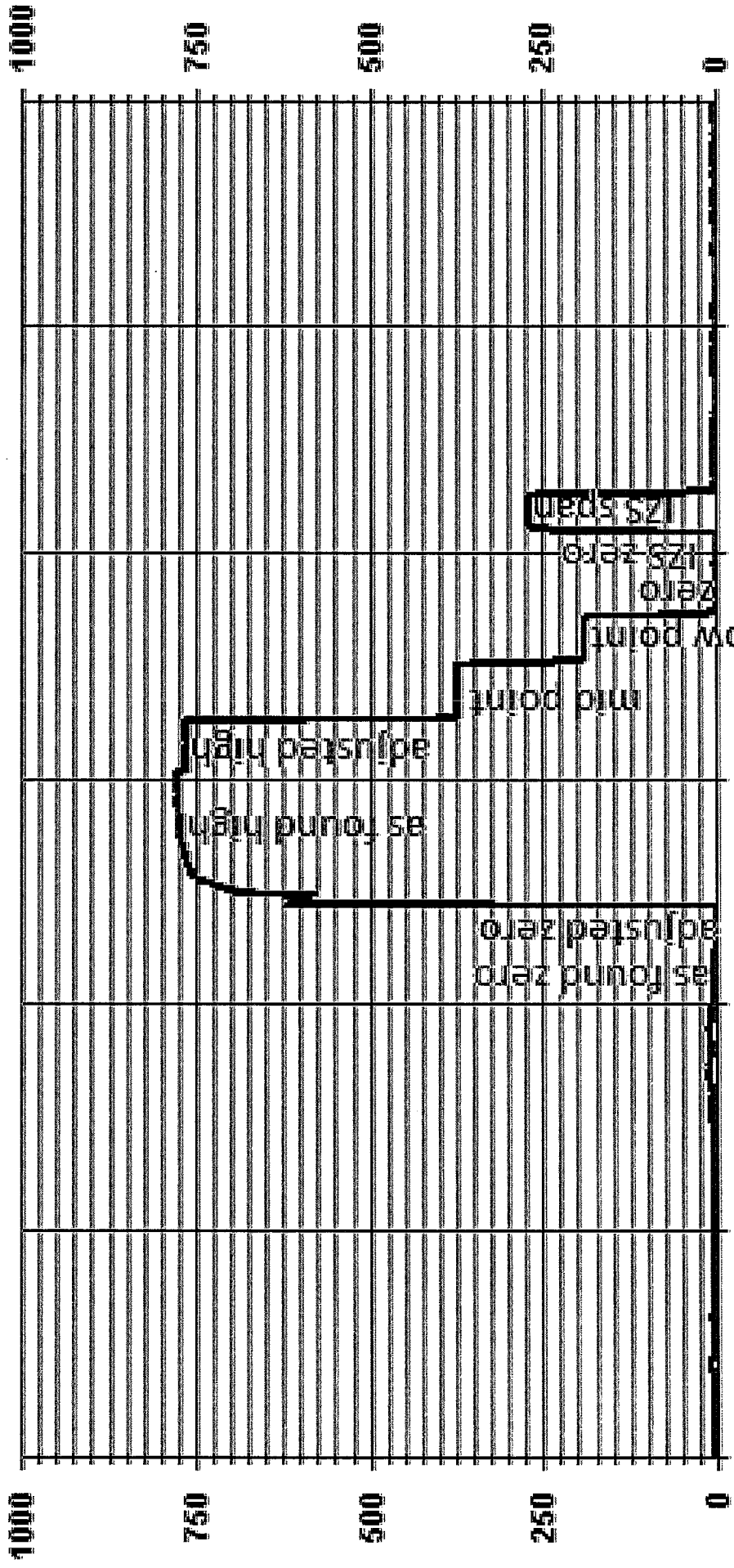
Comments:

Sample filter changed.

API 100E SO2 Analyzer Calibration

Calculated (ppb)	Indicated (ppb)
0	0
189	189
374	374
764	764

01 Minute Averages



— LICA30 SO2_ PPB

Maxxam API 100A SO2 Analyzer Calibration

Date: 25-Aug-15	Start/End Time (mst): 8:35 - 14:12
Company: LICA	Calibration Purpose: Installation
Station Name/Location: Maskwa	Converter Make & Model: NA
Performed by: Alex Yakupov	Converter Serial #: NA
Application H ₂ S/TRS/SO ₂ : SO2	Cal Gas Expiry Date: 12-Mar-19

Analyzer:	Range ppb: 1000
Serial Number: 1124	As Found C.F.: N/A
Last Calibration Date: 13-Aug-15	New C.F.: 0.995
Previous Cal High Point C.F.: NA	

As found:	As left:
SLOPE: NA	SLOPE: 0.960
OFFSET: NA	OFFSET: 24.1
HVPS: NA	HVPS: 782
DCPS: NA	DCPS: 2569
RCELL TEMP: NA	RCELL TEMP: 50.0
BOX TEMP: NA	BOX TEMP: 28.5
PMT TEMP: NA	PMT TEMP: 7.3
IZS TEMP: NA	IZS TEMP: 45.0
STABIL: NA	STABIL: 0.1
PRES: NA	PRES: 25.2
SAMP FL: NA	SAMP FL: 681
PMT: NA	PMT: 66.8
UV LAMP: NA	UV LAMP: 2020.5
STR. LGT: NA	STR. LGT: 11.6
DRK PMT: NA	DRK PMT: 45.5
DRK LMP: NA	DRK LMP: -10.9
Internal Span: NA	Internal Span: 239.3

Calibrator: Flow Meter ID's: NA Make & Model: SABIO 2010 D Serial #: 11900613 Cal Gas Cylinder I.D. #: BLM002073 Cal Gas Conc. (ppm): 49.5	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">Calibrator Flow Targets:</th> </tr> <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>5013</td><td>0</td><td>5013</td></tr> <tr><td>high</td><td>4935</td><td>79</td><td>5014</td></tr> <tr><td>mid</td><td>4976</td><td>39</td><td>5015</td></tr> <tr><td>low</td><td>4994</td><td>19</td><td>5013</td></tr> </tbody> </table>	Calibrator Flow Targets:				point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)	zero	5013	0	5013	high	4935	79	5014	mid	4976	39	5015	low	4994	19	5013
Calibrator Flow Targets:																									
point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)																						
zero	5013	0	5013																						
high	4935	79	5014																						
mid	4976	39	5015																						
low	4994	19	5013																						

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
adjusted zero	5013	0.0	5013	0	0.0	NA
adjusted high	4935	79.00	5014	779.9	781.0	0.999
mid	4976	38.50	5015	380.0	383.0	0.992
low	4994	19.30	5013	190.6	192.0	0.993
calibrator zero	5013	0.00	5013	0	1.0	NA
Average C.F. =						0.995

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000	LIMITS	Pass/Fail ?
Slope = 0.999	> or = 0.995	PASS
b (Intercept as % of full scale) = -0.10%	0.85-1.15	PASS
% change in C.F. from last cal = N/A	± 3% F.S.	PASS
	± 15%	FAIL

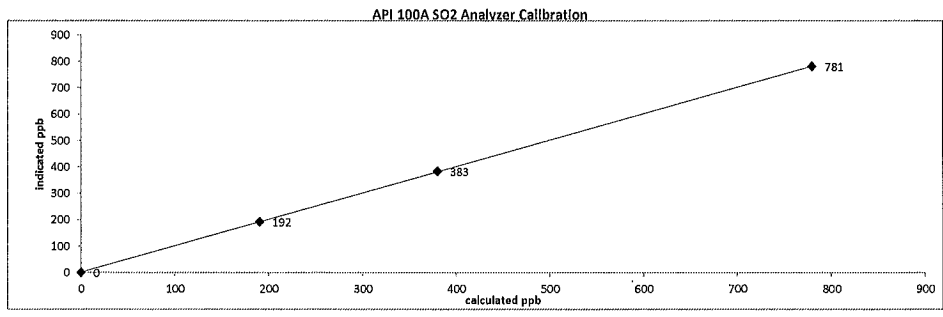
Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

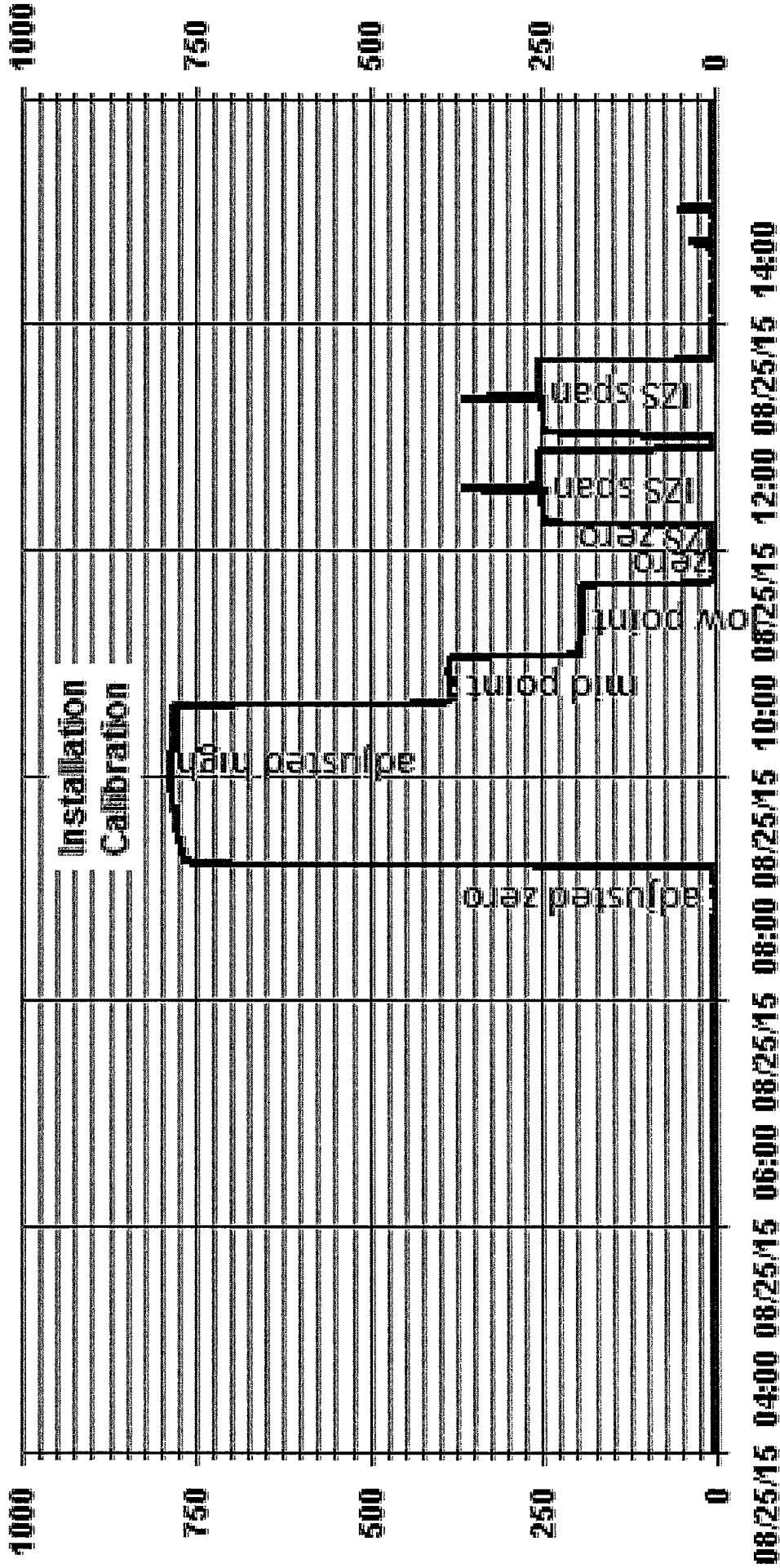
SO ₂ High Point gas concentration: NA	Time gas run (mst): NA
Zero corrected analyzer response: NA	

Comments:

Filter changed. The analyzer was installed on August 24, 2015, the channel was left in "M" for stabilization. Calibration was performed on August 25, 2015.

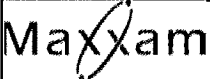


01 Minute Averages



— LICA30 SO2_ PPB

HYDROGEN SULPHIDE



API 101E H2S Analyzer Calibration

Date: 13-Aug-15

Company: LICA

Station Name/Location: Maskwa

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 8:38 - 12:47

Calibration Purpose: Monthly

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

Analyzer:

Serial Number: 511

Last Calibration Date: 10-Jul-15

Previous Cal High Point C.F.: 1.001

Range ppb: 100

As Found C.F.: 1.001

New C.F.: 0.999

As found:

SLOPE: 0.843

OFFSET: 48.1

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 30.6

PMT TEMP: 7.8

IZS TEMP: 45.0

TEST: NA

STABIL: 0.0

PRES: 29.0

SAMP FL: 656

PMT: 76.6

NORM PMT: 50.0

UV LAMP: 2618.4

LAMP RATIO: 84.2

STR. LGT: 20.3

DRK PMT: 33.3

DRK LMP: 5.3

Internal Span: 48.98

As left:

SLOPE: 0.842

OFFSET: 49.6

HVPS: 616

RCELL TEMP: 50.0

BOX TEMP: 30.0

PMT TEMP: 7.8

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 28.9

SAMP FL: 654

PMT: 75.6

NORM PMT: 50.5

UV LAMP: 2620.6

LAMP RATIO: 84.3

STR. LGT: 20.9

DRK PMT: 32.7

DRK LMP: 5.3

Internal Span: 48.38

Callibrator:

Flow Meter ID's: NA

Make & Model: API

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	7497	0	7497
high	7442	59	7501
mid	7472	29	7501
low	7486	14	7500

Calibration:

Callibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7497	0.0	7497	0	1.0	NA
adjusted zero	7497	0.0	7497	0	0.3	NA
as found high	7442	58.50	7501	78.0	78.2	1.001
adjusted high	7442	58.50	7501	78.0	78.0	1.004
mid	7472	28.50	7501	38.0	38.7	0.990
low	7486	14.30	7500	19.1	19.3	1.004
callibrator zero	7497	0.00	7497	0	0.3	NA
Average C.F. =						0.999

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>1.003</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>-0.41%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>-0.02%</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: 20 ppb

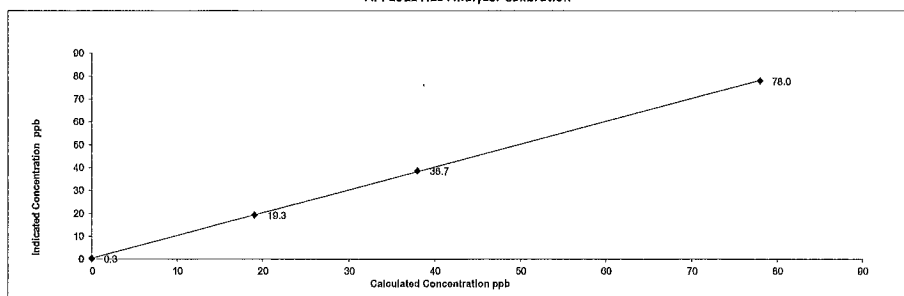
Zero corrected analyzer response: 0 ppb

Time gas run (mst): 09:24 - 09:30

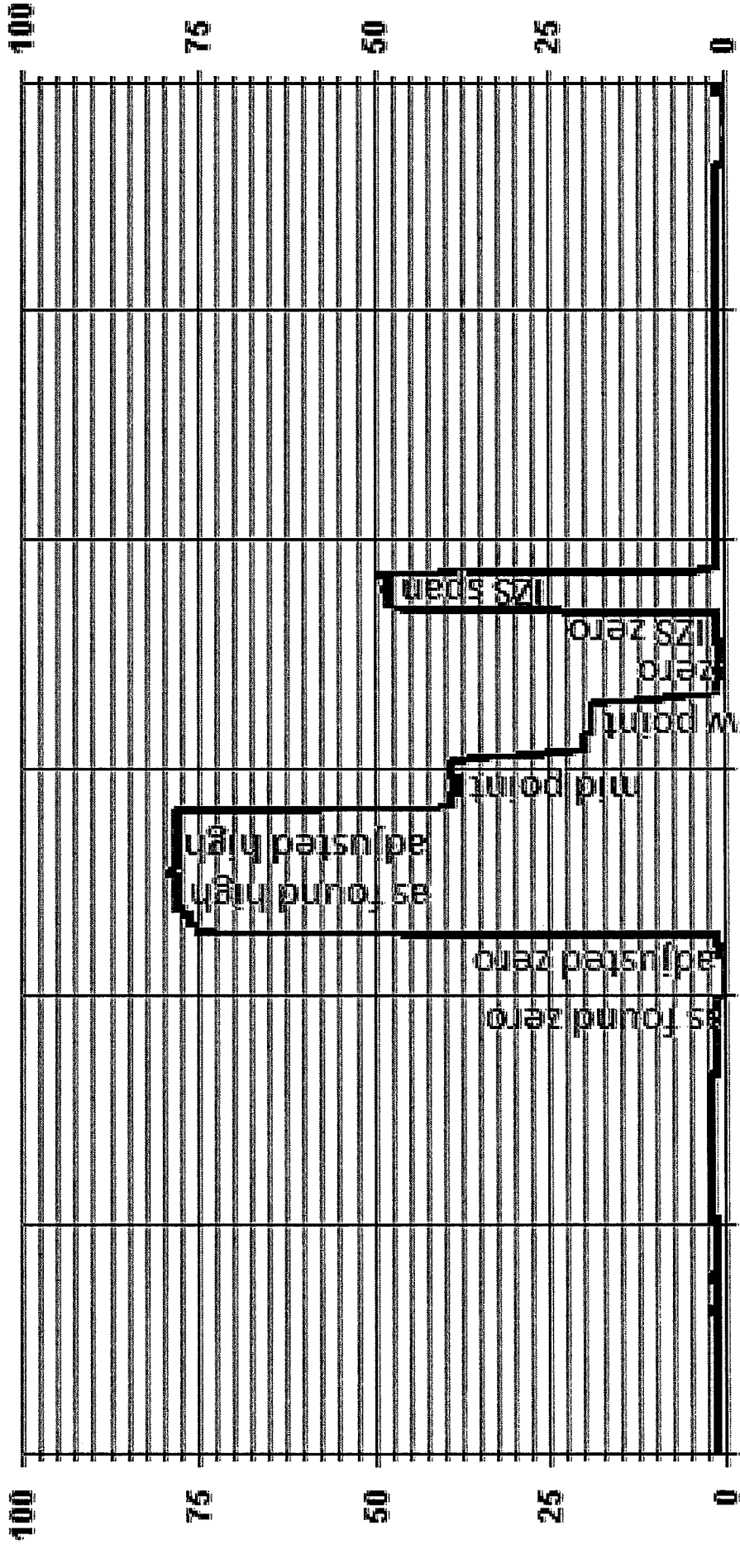
Comments:

Filter changed.

API 101E H2S Analyzer Calibration



01 Minute Averages



— LICA30 H2S_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 14-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 8:08
 End Time (mst): 11:27
 Calibration Purpose: Monthly Calibration
 Cal Gas Expiry Date: 26-Mar-17

Analyzer:
 Serial Number: 436609738 Range ppm: 50
 Last Calibration Date: 10-Jul-15 As Found C.F.: 0.990
 Previous Cal High Point C.F.: 0.999 New C.F.: 1.004

	As found:	As left:
H ₂ cylinder (psi):	<u>1700</u>	<u>1700</u>
H ₂ cylinder reg set (psi):	<u>30</u>	<u>30</u>
Span Cylinder (psi):	<u>1500</u>	<u>1500</u>
Span Cylinder Reg Set (psi):	<u>26</u>	<u>26</u>
Zero Air Gen Pressure:	<u>35</u>	<u>35</u>
measurement alarms:	<u>None</u>	<u>None</u>
service alarms:	<u>None</u>	<u>None</u>
FID status:	cnt: <u>869</u>	cnt: <u>909</u>
	rng: <u>1</u>	rng: <u>1</u>
	try: <u>0</u>	try: <u>0</u>
	flm: <u>179.4</u>	flm: <u>180.1</u>
	det: <u>125.1</u>	det: <u>125.5</u>
Oven Readings:	Flame: <u>179</u>	Flame: <u>180</u>
	Filter: <u>125</u>	Filter: <u>125</u>
	Base: <u>125</u>	Base: <u>125</u>
	Pump: <u>07.52</u>	Pump: <u>07.52</u>
Voltages:	+5 <u>4.9</u>	+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>34.22</u>	Internal Span: <u>34.19</u>

Calibrator:
 Flow Meter ID's: NA
 Make & Model: API 700
 Serial #: 830
 Cal Gas Cylinder I.D. #: LL33674
 CH₄/C₃H₈ Cylinder Conc. (ppm): 601.4 202.0
 CH₄ as propane/total CH₄ equivalents (ppm): 555.5 1156.9

Callibrator 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:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration:	Indicated Concentration:	Correction Factors:
	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero	1999	0.00	1999	0	0.00	NA
as found high	1932	65.00	1997	37.66	38.02	0.990
adjusted high	1932	65.00	1997	37.66	37.65	1.000
mid	1969	31.00	2000	17.93	17.90	1.002
low	1984	16.00	2000	9.26	9.16	1.010
calibrator zero	1999	0.00	1999	0	0.02	NA
Average C.F.=						1.004

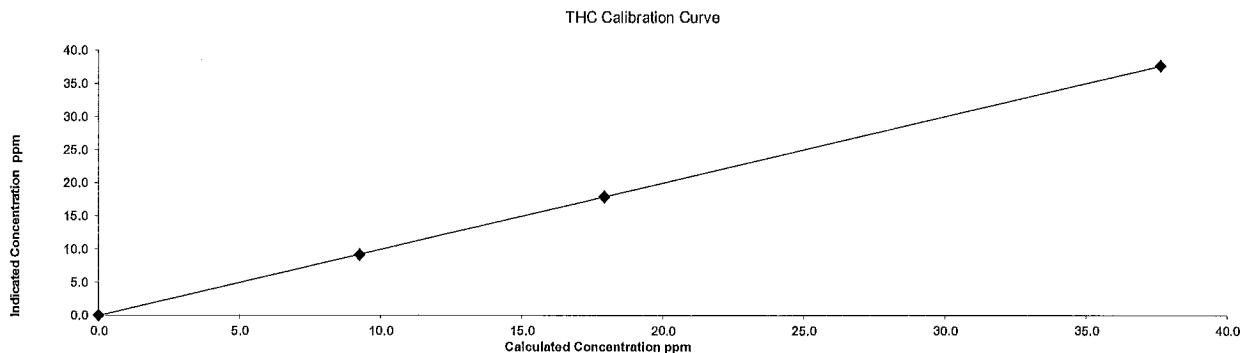
Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.001</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>-0.088%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>0.86%</u>	± 3% F.S.	PASS
		± 15%	PASS

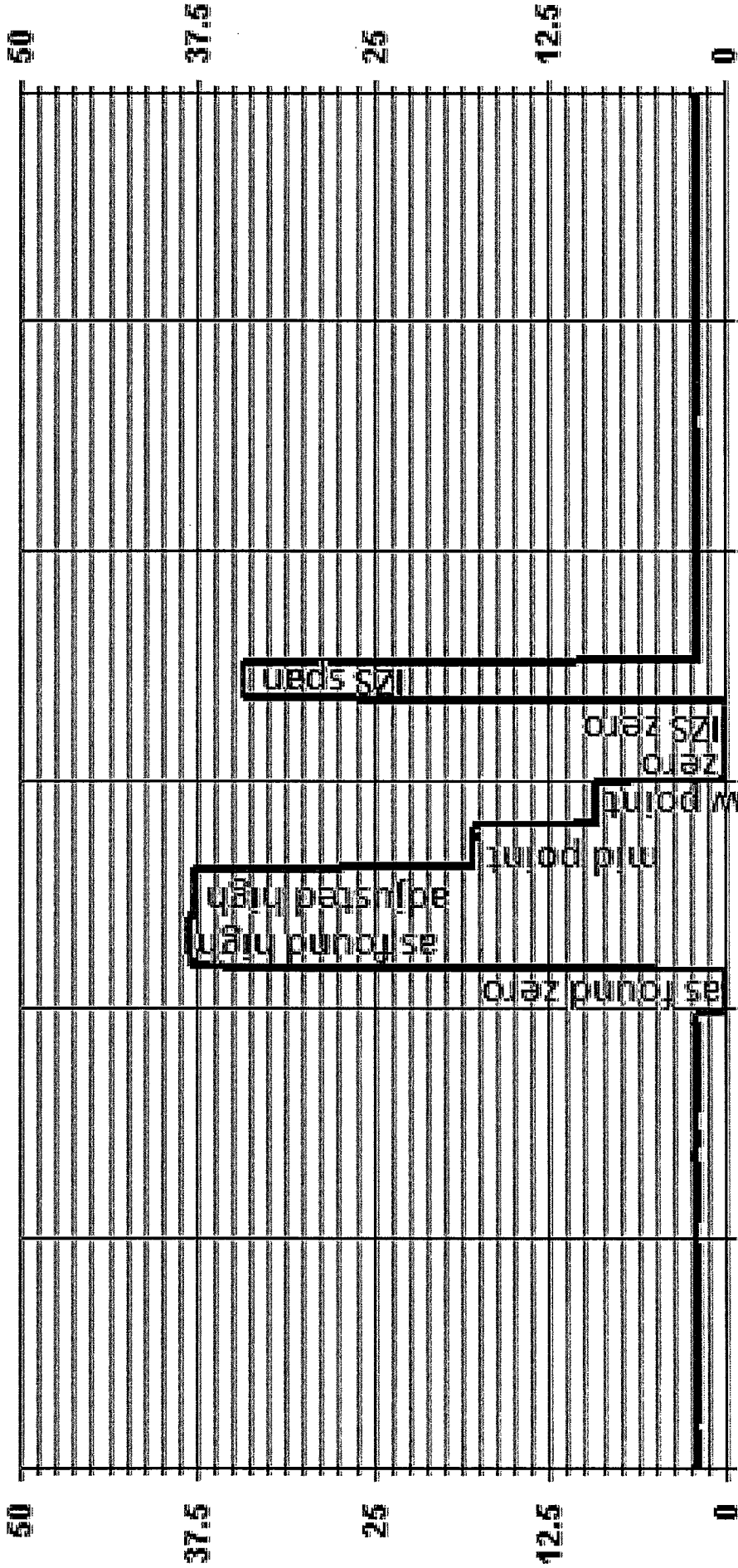
Comments:

Sample filter changed. No zero adjustment made.

Thermo 51C THC Analyzer Calibration

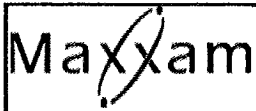


01 Minute Averages



— LICA30 THC PPM

NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 13-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 8:38
 End Time (mst): 13:08
 Calibration Purpose: Shutdown
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 593
 Last Calibration Date: 10-Jul-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.020 NO= 0.999
 NOx= 1.013 NOx= 0.999
 NO₂= 1.002 NO₂= 1.000

As found:
 NOx SLOPE: 1.029
 NOx OFFS: 2.2
 NO SLOPE: 1.017
 NO OFFS: -1.3
 TEST: 126.7
 SAMP FLW: 476
 OZONE FL: 77
 PMT: 8.0
 NORM PMT: -1.4
 AZERO: 8.0
 HVPS: 634
 RCELL TEMP: 50.0
 BOX TEMP: 31.8
 PMT TEMP: 6.7
 IZS TEMP: 50.0
 MOLY TEMP: 315.4
 RCEL: 7.7
 SAMP: 26.9
 Internal Span: 282.4/5.9/276.3

As left:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 TEST: NA
 SAMP FLW: NA
 OZONE FL: NA
 PMT: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 RCELL TEMP: NA
 BOX TEMP: NA
 PMT TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4923	77	500.00	5000
mid	4976	38	280.00	5014
low	4981	19	100.00	5000

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	5013	0.0	5013	0	0	1.0	1.0	NA	NA
as found high	4923	77.10	5000	780.2	780.2	766	771	1.020	1.013
mid	4976	37.70	5014	380.5	380.5	378	378	1.009	1.009
low	4981	18.80	5000	190.3	190.3	191	191	1.001	1.001
Average C.F.=								1.010	1.008

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	4938	77.20	5015	0.0	766.0	771.0	5.0	1.0	0.0	
as found NO ₂	4938	77.20	5015	500.0	299.0	770.0	471.0	467.0	466.0	1.002
gpt mid	4938	77.20	5015	280.0	503.0	773.0	270.0	263.0	265.0	0.992
gpt low	4938	77.20	5015	100.0	667.0	773.0	106.0	99.0	101.0	0.980
Average NO ₂ C.F.=									0.992	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.979	0.986	0.999	0.85-1.15
b (Intercept as % of full scale)=	0.32%	0.22%	0.08%	± 3% F.S.
% change in C.F. from last cal=	-2.09%	-1.43%	-0.21%	+/-15%
NO2 converter efficiency			100.8%	>85%

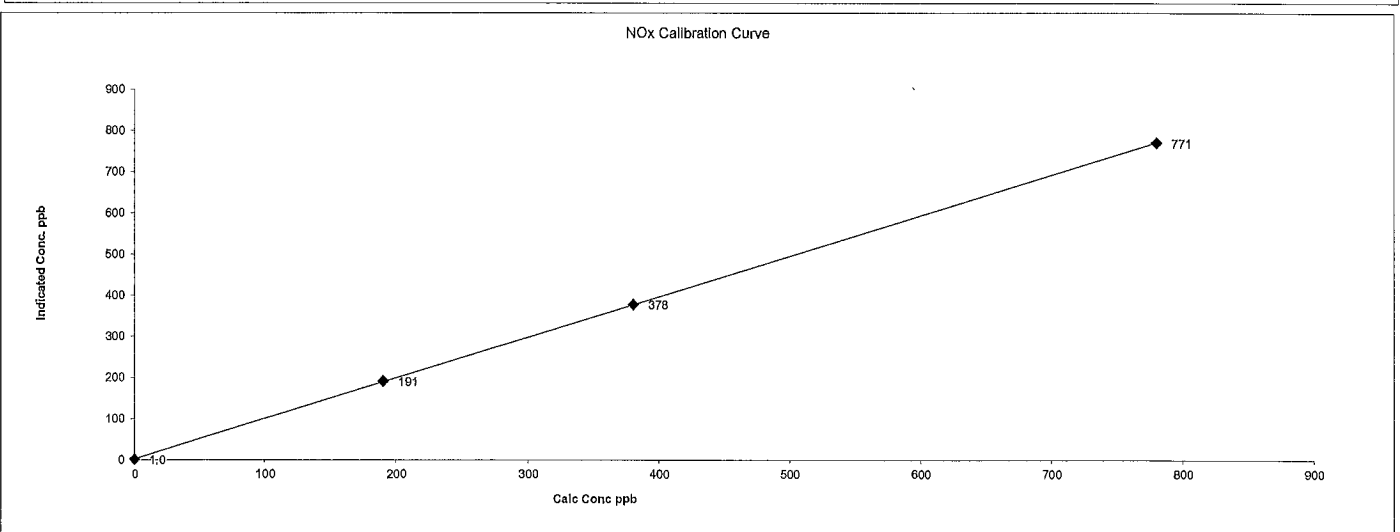
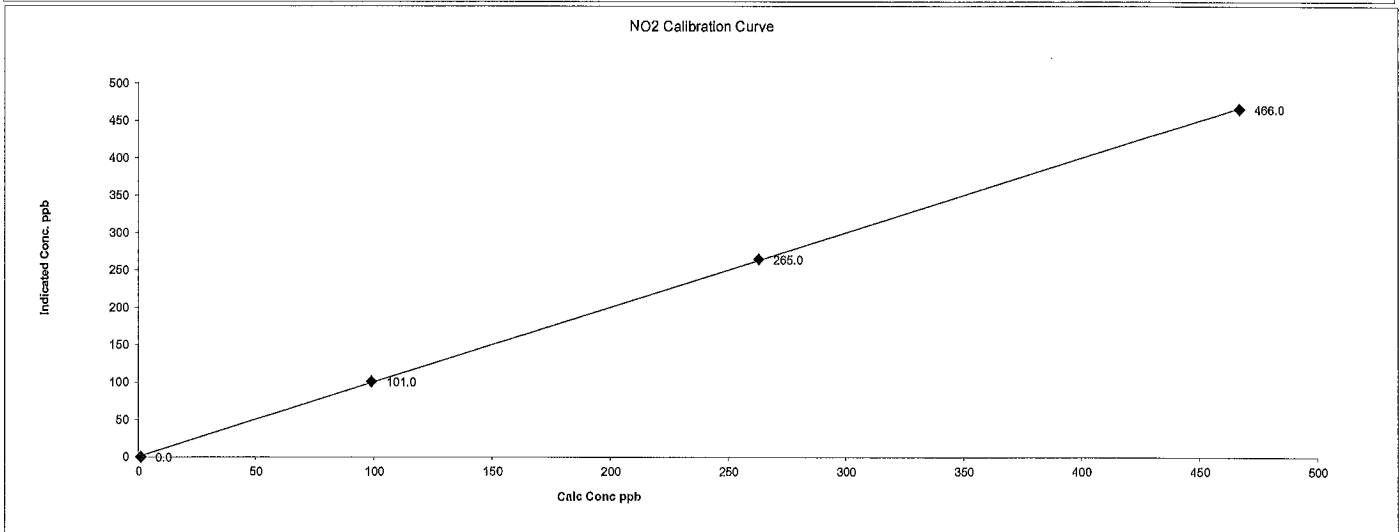
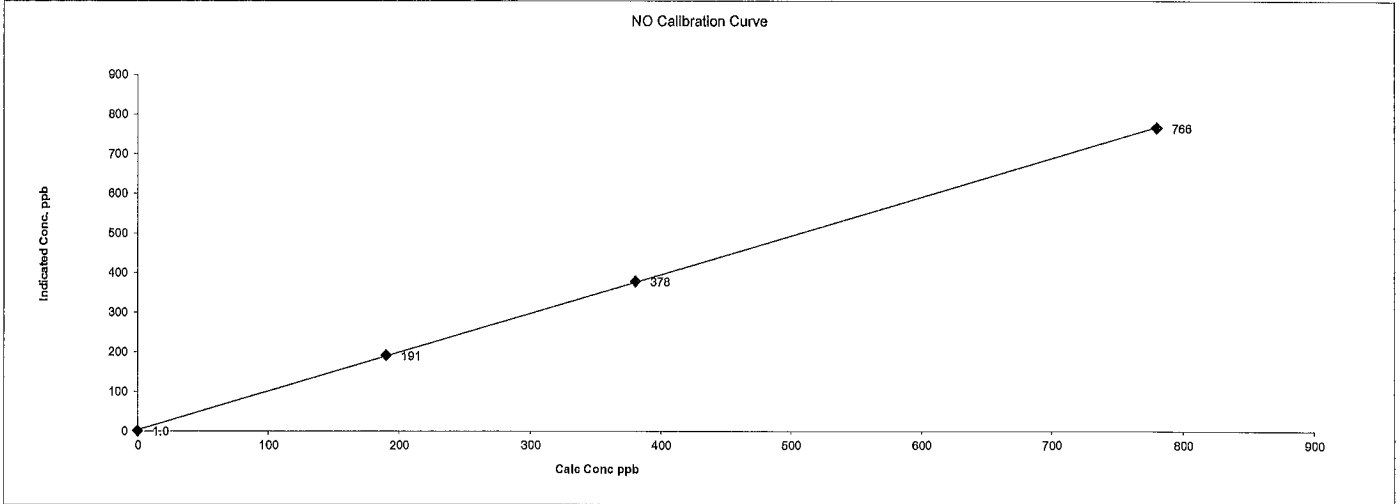
Comments:

Shutdown calibration performed to arrange for the analyzer's repair/maintenance due to unstable span readings. This analyzer is to be removed from the station and replaced with another analyzer indefinitely.

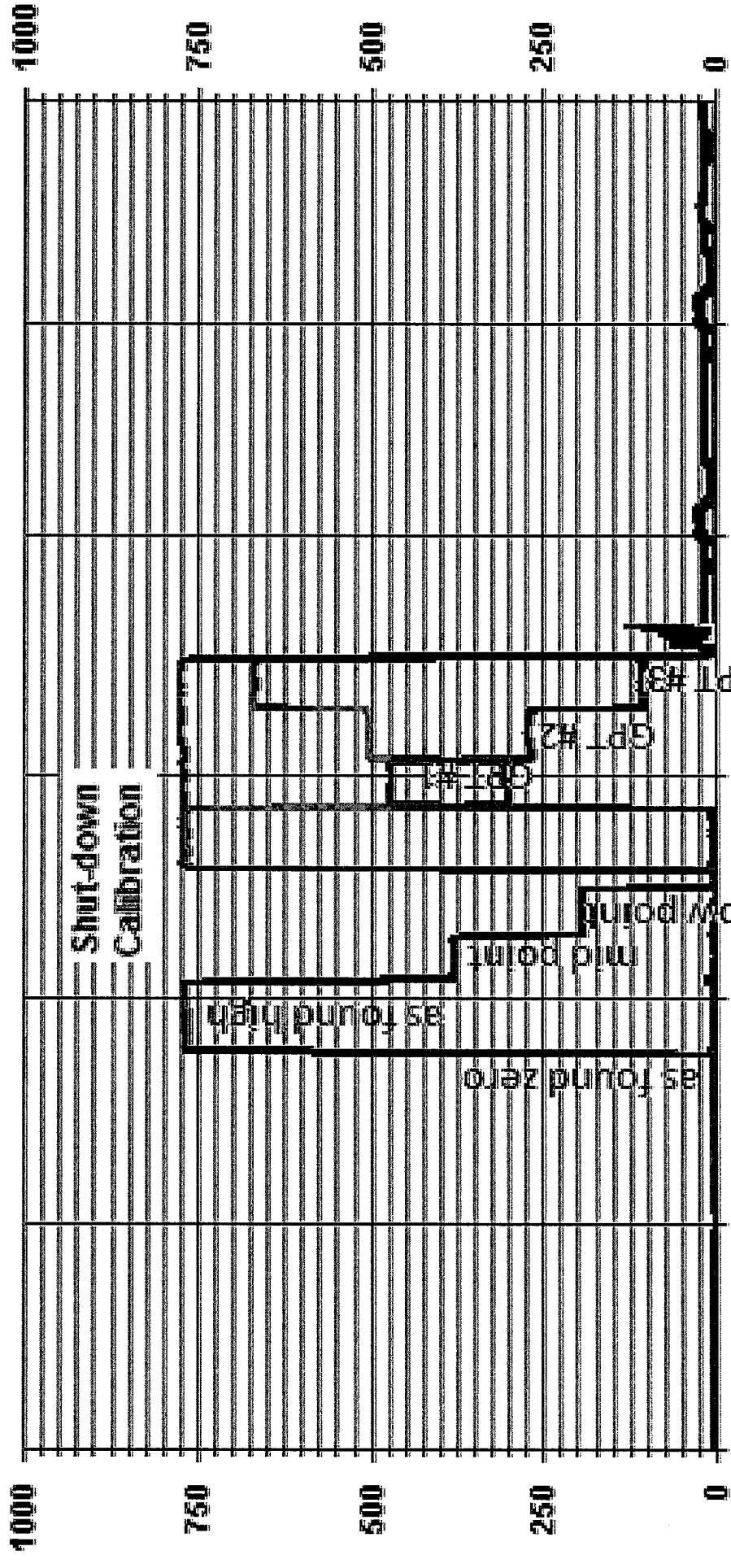
Date: 13-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 8:38
 End Time (mst): 13:08
 Calibration Purpose: Shutdown
 Cal Gas Expiry Date: 12-Mar-19

API 200E NOx Analyzer Calibration



01 Minute Averages



— LICA30 NOX_ PPB — LICA30 NO2_ PPB



API 200A NOx Analyzer Calibration

Date: 14-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 8:08
 End Time (mst): 14:35
 Calibration Purpose: Installation
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 1899
 Last Calibration Date: NA
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= NA NO= NA
 NOx= NA NOx= NA
 NO₂= NA NO₂= NA

As found:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 NOx STB: NA
 SAMP FLW: NA
 OZONE FL: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 DCPS: NA
 RCELL: NA
 BOX TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

As left:
 NOx SLOPE: 0.881
 NOx OFFS: -0.9
 NO SLOPE: 0.883
 NO OFFS: -2.0
 NOx STB: 0.1
 SAMP FLW: 453
 OZONE FL: 78
 NORM PMT: -2.0
 AZERO: 26.6
 HVPS: 670
 DCPS: 2580
 RCELL: 50.0
 BOX TEMP: 28.3
 IZS TEMP: 40.1
 MOLY TEMP: 314.9
 RCEL: 8.1
 SAMP: 26.6
 Internal Span: 287.3/2.8/284.4

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4923	77	500.00	5000
mid	4976	38	280.00	5014
low	4981	19	100.00	5000

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)		
adjusted zero	5013	0.0	5013	0	0	0.0	0.0	NA	NA
adjusted high	4923	77.10	5000	780.2	780.2	781	781	0.999	0.999
mid	4976	37.70	5014	380.5	380.5	380	380	1.001	1.001
low	4981	18.80	5000	190.3	190.3	190	190	1.001	1.001
calibrator zero	5013	0.00	5013	0	0	0.0	0.0	NA	NA
Average C.F.=								1.001	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	4923	77.10	5000	0.0	779.0	780.0	1.0	0.0	0.0	
as found NO ₂	4923	77.10	5000	500.0	292.0	781.0	488.0	487.0	487.0	1.000
gpt mid	4923	77.10	5000	280.0	502.0	781.0	279.0	277.0	278.0	0.996
gpt low	4923	77.10	5000	100.0	675.0	780.0	105.0	104.0	104.0	1.000
Average NO ₂ C.F.=									0.999	

Linear Regression/Calibration Results:

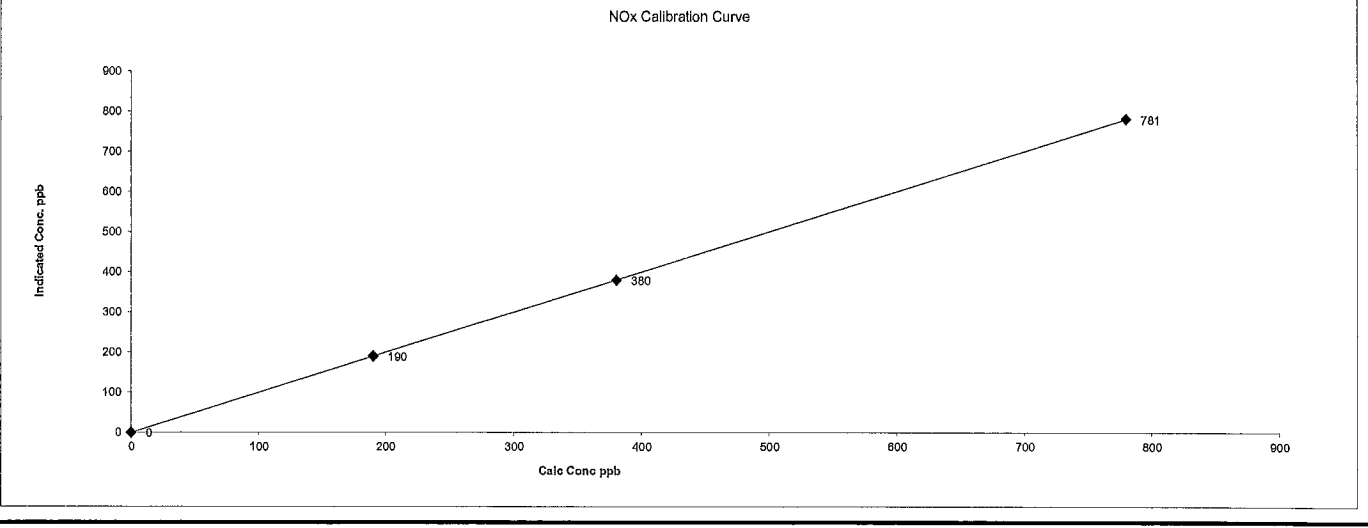
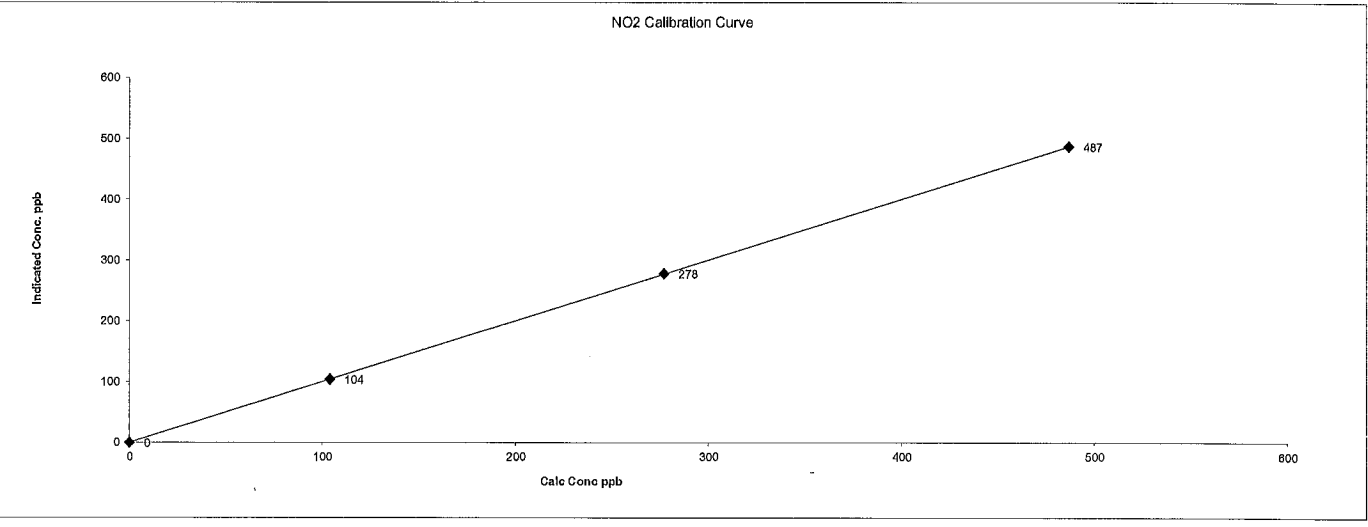
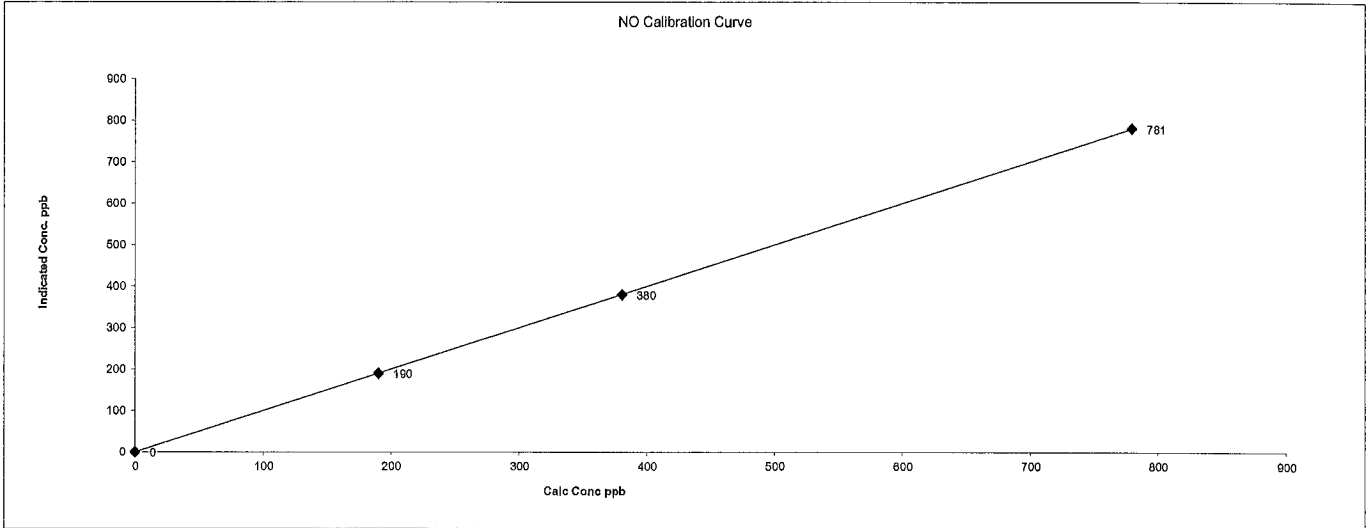
	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.001	1.000	0.85-1.15
b (Intercept as % of full scale) =	-0.04%	-0.04%	0.02%	± 3% F.S.
% change in C.F. from last cal =	NA	NA	NA	+/-15%
NO ₂ converter efficiency			100.1%	>85%

Comments:

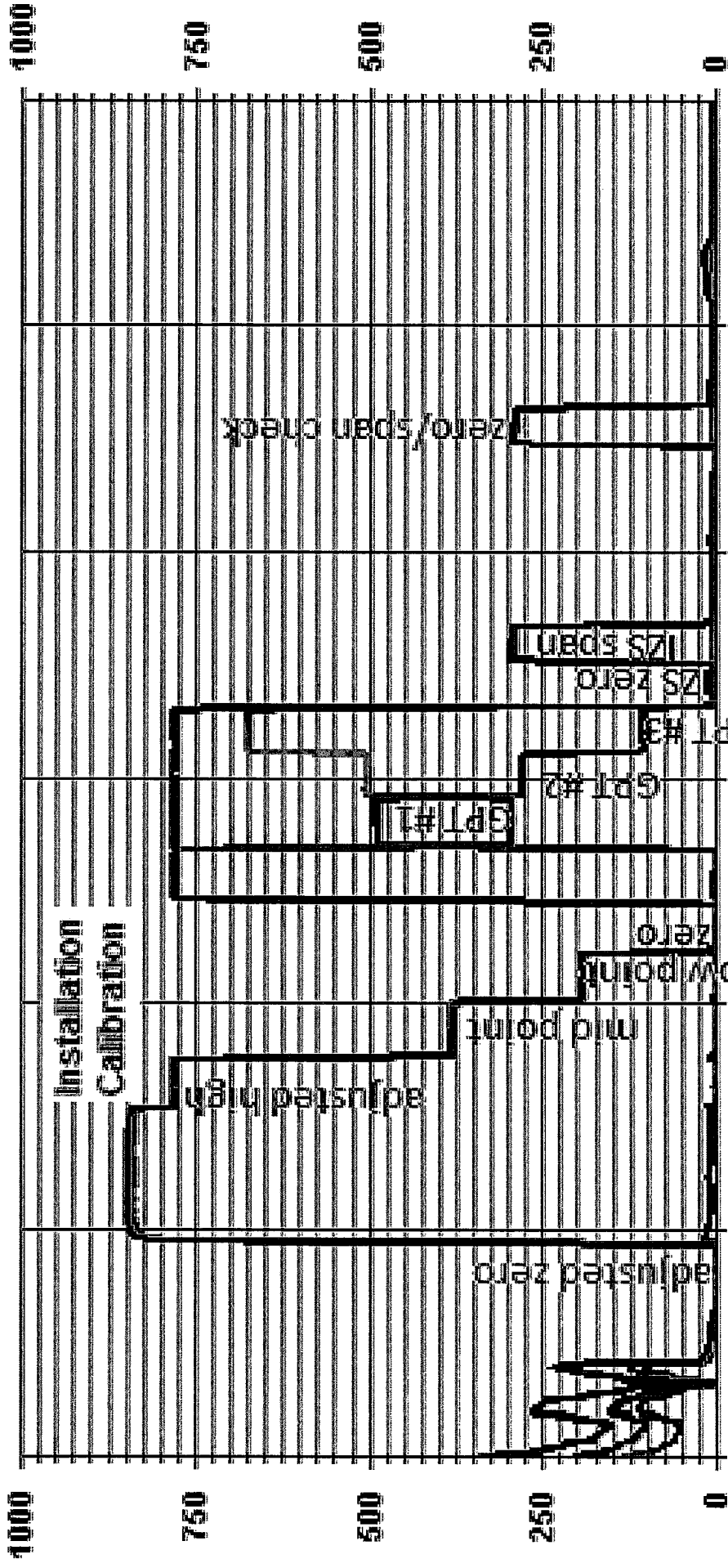
Filter changed. No NO₂ adjustment made. Installation calibration performed after a 20 hours stabilizing period (analyzer was installed on August 13, 2015 and left overnight for stabilizing).

Date:	14-Aug-15	Start Time (mst):	8:08
Company:	LICA	End Time (mst):	14:35
Station Name/Location:	Maskwa	Calibration Purpose:	Installation
Performed by:	Alex Yakupov	Cal Gas Expiry Date:	12-Mar-19

API 200A NOx Analyzer Calibration

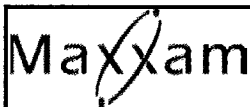


01 Minute Averages



08/14/15 07:10 08/14/15 09:10 08/14/15 11:10 08/14/15 13:10 08/14/15 15:10 08/14/15 17:10

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



API 200A NOx Analyzer Calibration

Date: 20-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 13:27
 End Time (mst): 16:15
 Calibration Purpose: As Found
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 1899
 Last Calibration Date: 14-Aug-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.044 NO= 0.999
 NOx= 1.044 NOx= 0.999
 NO₂= 0.998 NO₂= 1.000

As found:
 NOx SLOPE: 0.881
 NOx OFFS: -0.9
 NO SLOPE: 0.883
 NO OFFS: -2.0
 NOx STB: 0.1
 SAMP FLW: 449
 OZONE FL: 78
 NORM PMT: -0.7
 AZERO: 23.9
 HVPS: 670
 DCPS: 2573
 RCELL: 49.6
 BOX TEMP: 29.4
 IZS TEMP: 40.3
 MOLY TEMP: 316.6
 RCEL: 8.0
 SAMP: 26.6
 Internal Span: 287.3/2.8/284.4

As left:
 NOx SLOPE: 0.881
 NOx OFFS: -0.9
 NO SLOPE: 0.883
 NO OFFS: -2.0
 NOx STB: 0.2
 SAMP FLW: 449
 OZONE FL: 78
 NORM PMT: 0.4
 AZERO: 24.0
 HVPS: 670
 DCPS: 2581
 RCELL: 50.4
 BOX TEMP: 29.3
 IZS TEMP: 40.0
 MOLY TEMP: 315.6
 RCEL: 8.1
 SAMP: 26.3
 Internal Span: 243.8/3.9/239.8

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
low	4981	19	100.00	5000

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	5013	0.0	5013	0	0	0.0	0.0	NA	NA
as found high	4938	77.20	5015	778.9	778.9	746	746	1.044	1.044
Average C.F.=								1.044	1.044

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	4938	77.20	5015	0.0	746.0	746.0	0.0	0.0	0.0	
as found NO ₂	4938	77.20	5015	500.0	275.0	747.0	472.0	471.0	472.0	0.998
Average NO ₂ C.F.=										NA

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	NA	NA	NA	> or = 0.995
Slope =	NA	NA	NA	0.85-1.15
b (Intercept as % of full scale) =	NA	NA	NA	± 3% F.S.
% change in C.F. from last cal =	-4.51%	-4.51%	0.21%	+/-15%
NO2 converter efficiency			NA	>85%

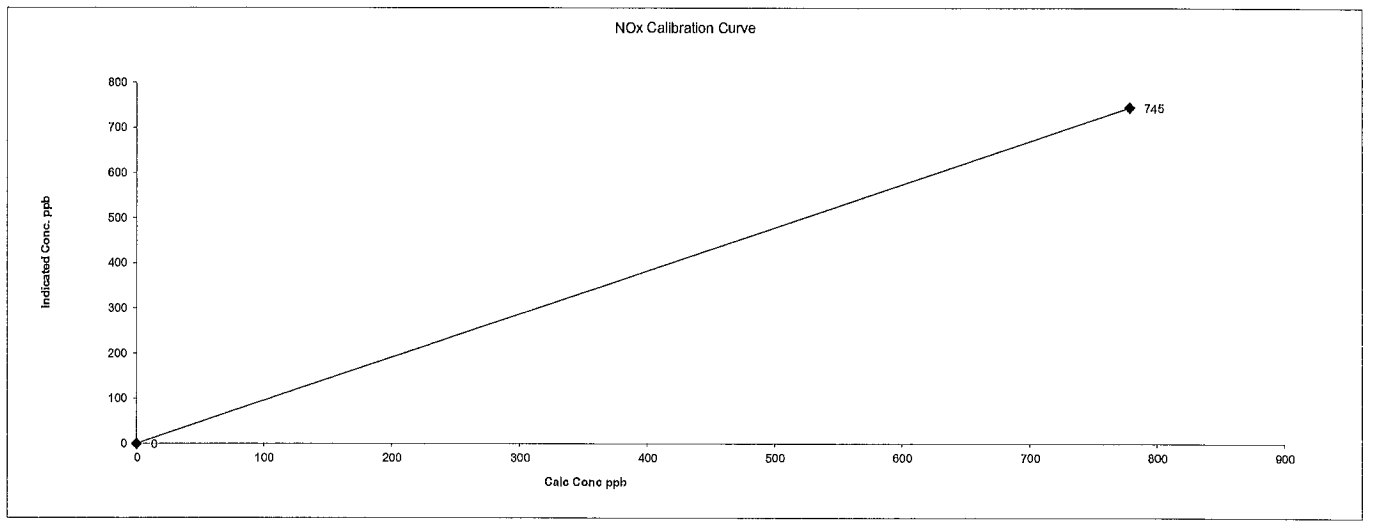
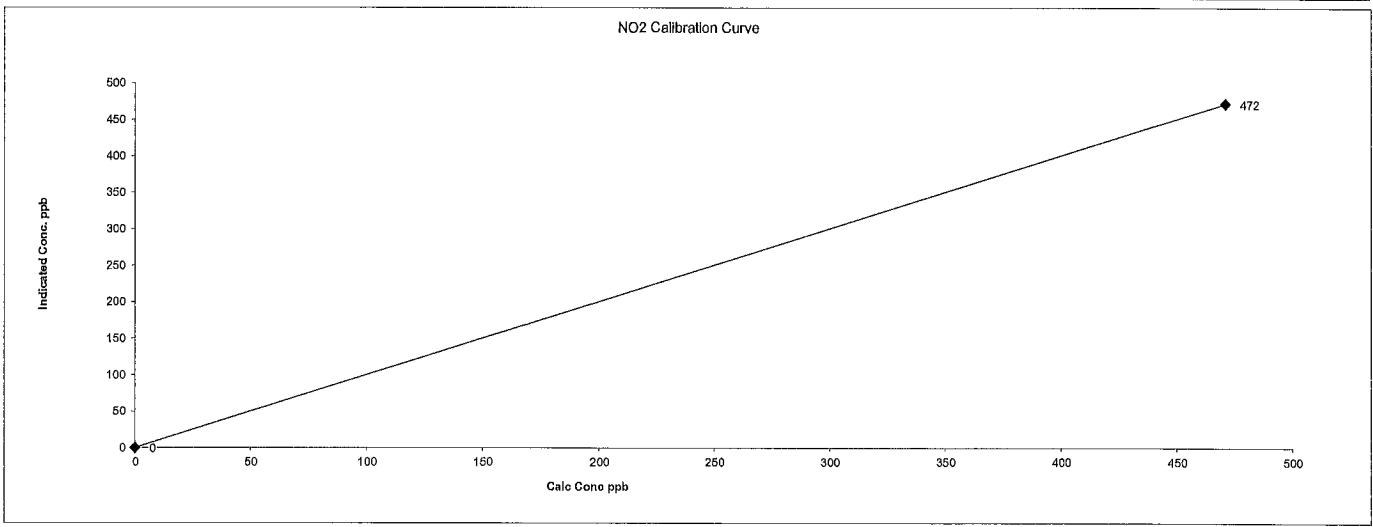
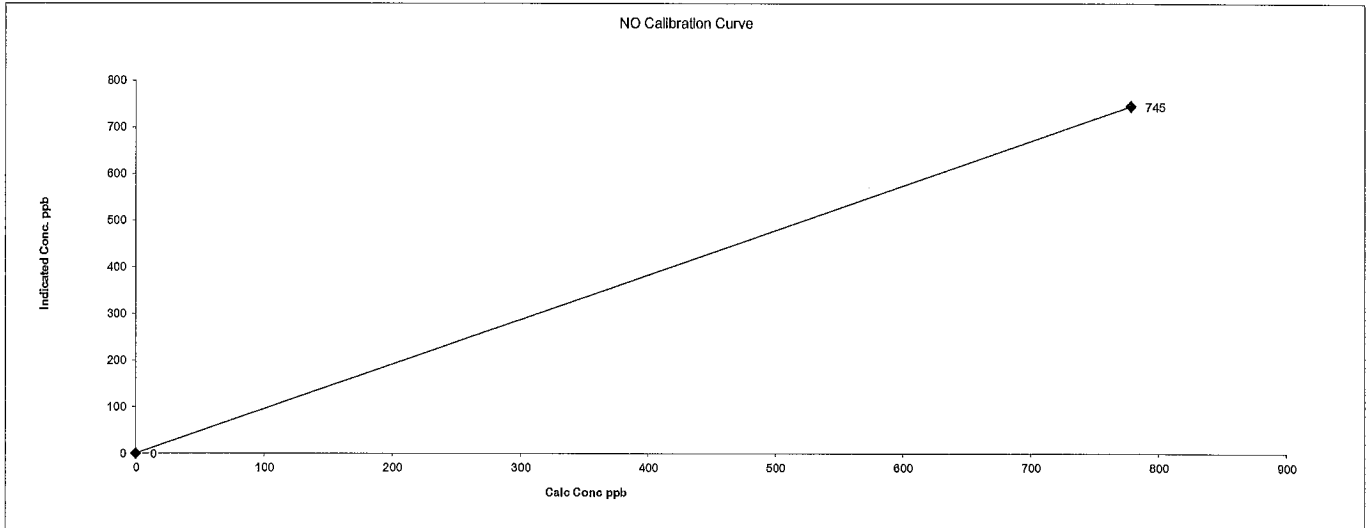
Comments:

As Found Calibration required as SPAN drift during daily ZS check was over 10%. No ZERO adjustments made. No High Point adjustments made. No NO2 adjustment made. As Found High Point starts at 14:09.

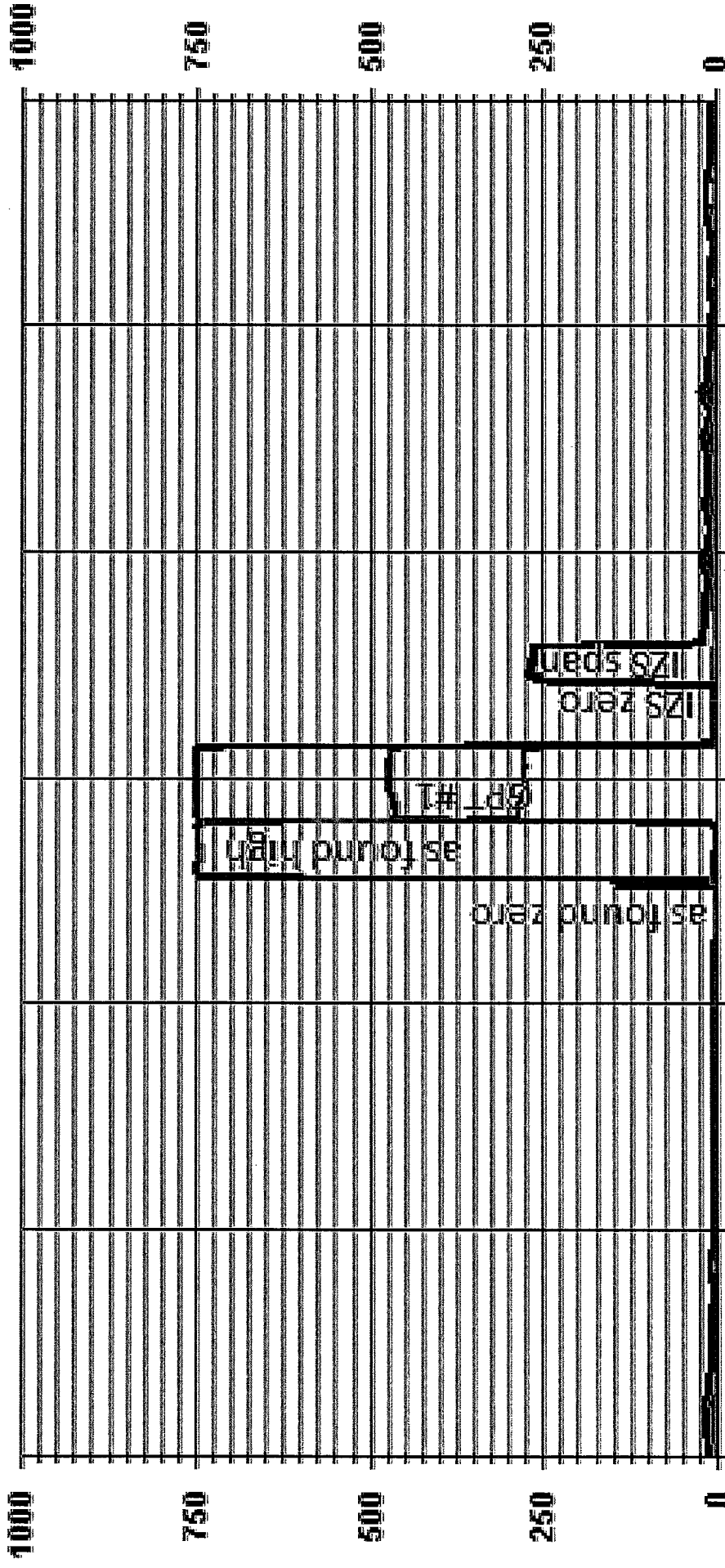
Date: 20-Aug-15
Company: LICA
Station Name/Location: Maskwa
Performed by: Alex Yakupov

Start Time (mst): 13:27
End Time (mst): 16:15
Calibration Purpose: As Found
Cal Gas Expiry Date: 12-Mar-19

API 200A NOx Analyzer Calibration



01 Minute Averages



08/20/15 09:00 08/20/15 11:00 08/20/15 13:00 08/20/15 15:00 08/20/15 17:00 08/20/15 19:00

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



API 200A NOx Analyzer Calibration

Date: 25-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Alex Yakupov

Start Time (mst): 11:45
 End Time (mst): 14:31
 Calibration Purpose: As Found
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 1899
 Last Calibration Date: 14-Aug-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.050 NO= 0.999
 NOx= 1.050 NOx= 0.999
 NO₂= 1.000 NO₂= 1.000

As found:
 NOx SLOPE: 0.881
 NOx OFFS: -0.9
 NO SLOPE: 0.883
 NO OFFS: -2.0
 NOx STB: 0.3
 SAMP FLW: 452
 OZONE FL: 78
 NORM PMT: -1.0
 AZERO: 23.9
 HVPS: 670
 DCPS: 2579
 RCELL: 49.9
 BOX TEMP: 28.7
 IZS TEMP: 40.1
 MOLY TEMP: 316.8
 RCEL: 8.3
 SAMP: 26.6
 Internal Span: 243.8/3.9/239.8

As left:
 NOx SLOPE: 0.881
 NOx OFFS: -0.9
 NO SLOPE: 0.883
 NO OFFS: -2.0
 NOx STB: 0.3
 SAMP FLW: 453
 OZONE FL: 78
 NORM PMT: 1.8
 AZERO: 23.5
 HVPS: 670
 DCPS: 2570
 RCELL: 50.0
 BOX TEMP: 29.1
 IZS TEMP: 40.2
 MOLY TEMP: 316.4
 RCEL: 8.2
 SAMP: 26.6
 Internal Span: 243.8/3.9/239.8

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
low	4981	19	100.00	5000

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	5013	0.0	5013	0	0	0.0	0.0	NA	NA
as found high	4938	77.20	5015	778.9	778.9	742	742	1.050	1.050
Average C.F.=								N/A	N/A

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	4938	77.20	5015	0.0	742.0	742.0	0.0	0.0	0.0	
as found NO ₂	4938	77.20	5015	500.0	277.0	742.0	465.0	465.0	465.0	1.000
Average NO ₂ C.F.=									N/A	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	N/A	N/A	N/A	> or = 0.995
Slope =	N/A	N/A	N/A	0.85-1.15
b (Intercept as % of full scale) =	N/A	N/A	N/A	± 3% F.S.
% change in C.F. from last cal =	-5.08%	-5.08%	0.00%	+/-15%
NO2 converter efficiency			N/A	>85%

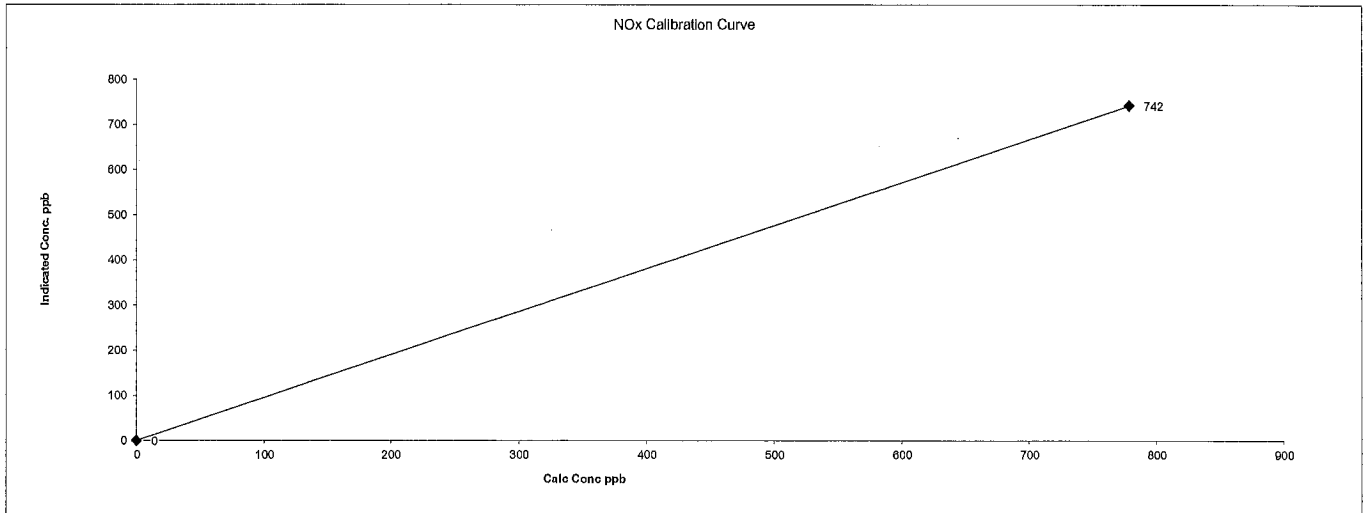
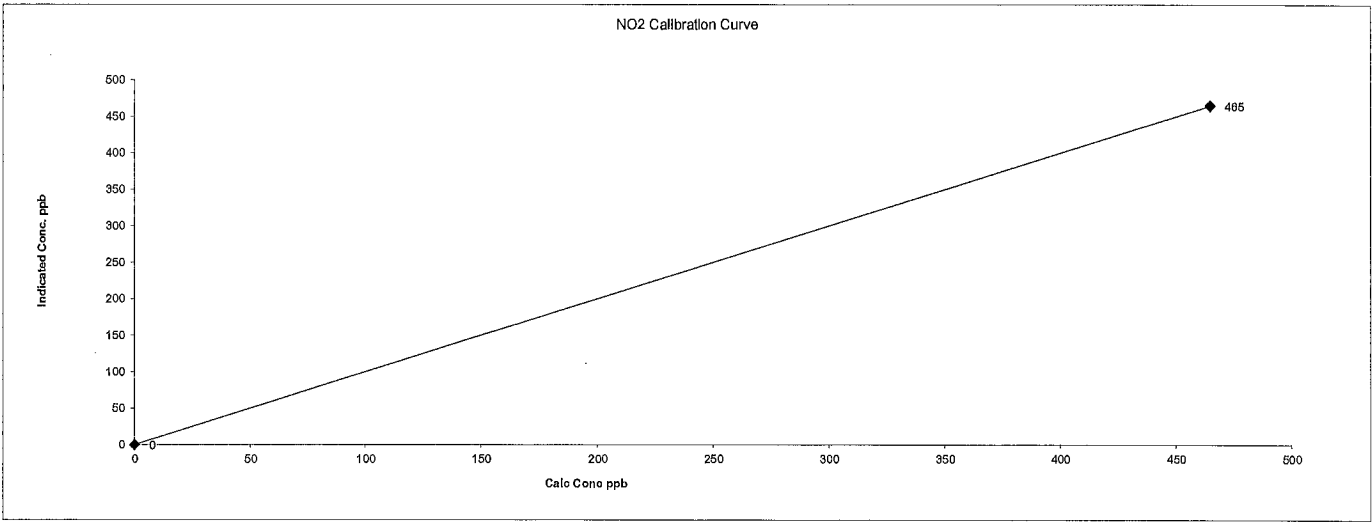
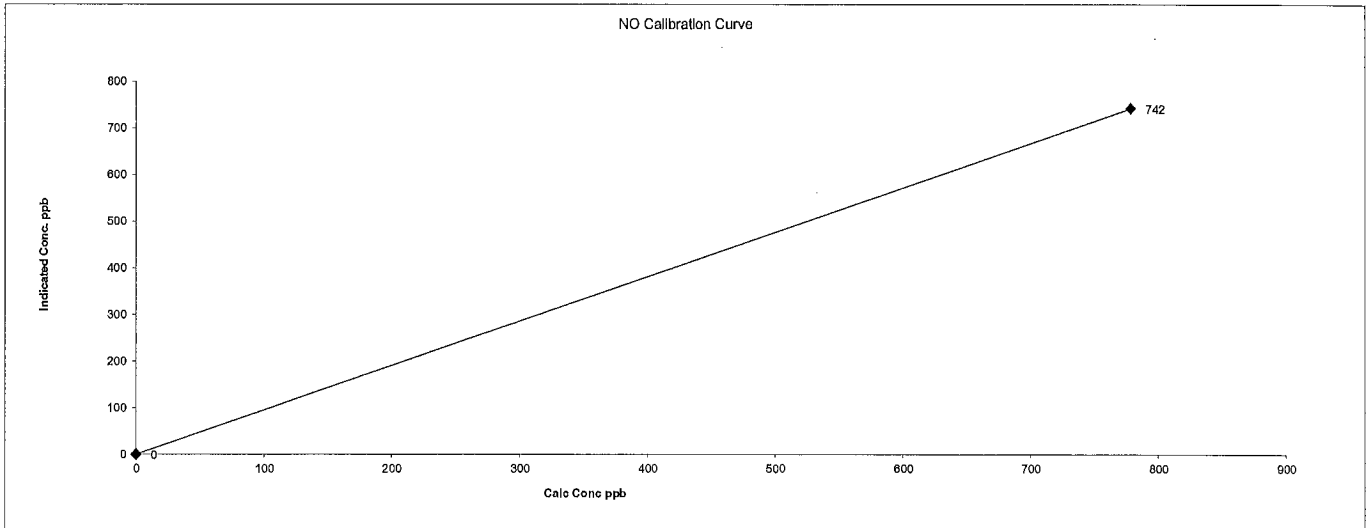
Comments:

As Found Calibration required as SPAN drift during daily ZS check was over 10%. No ZERO adjustments made. No High Point adjustments made. No NO2 adjustment made.

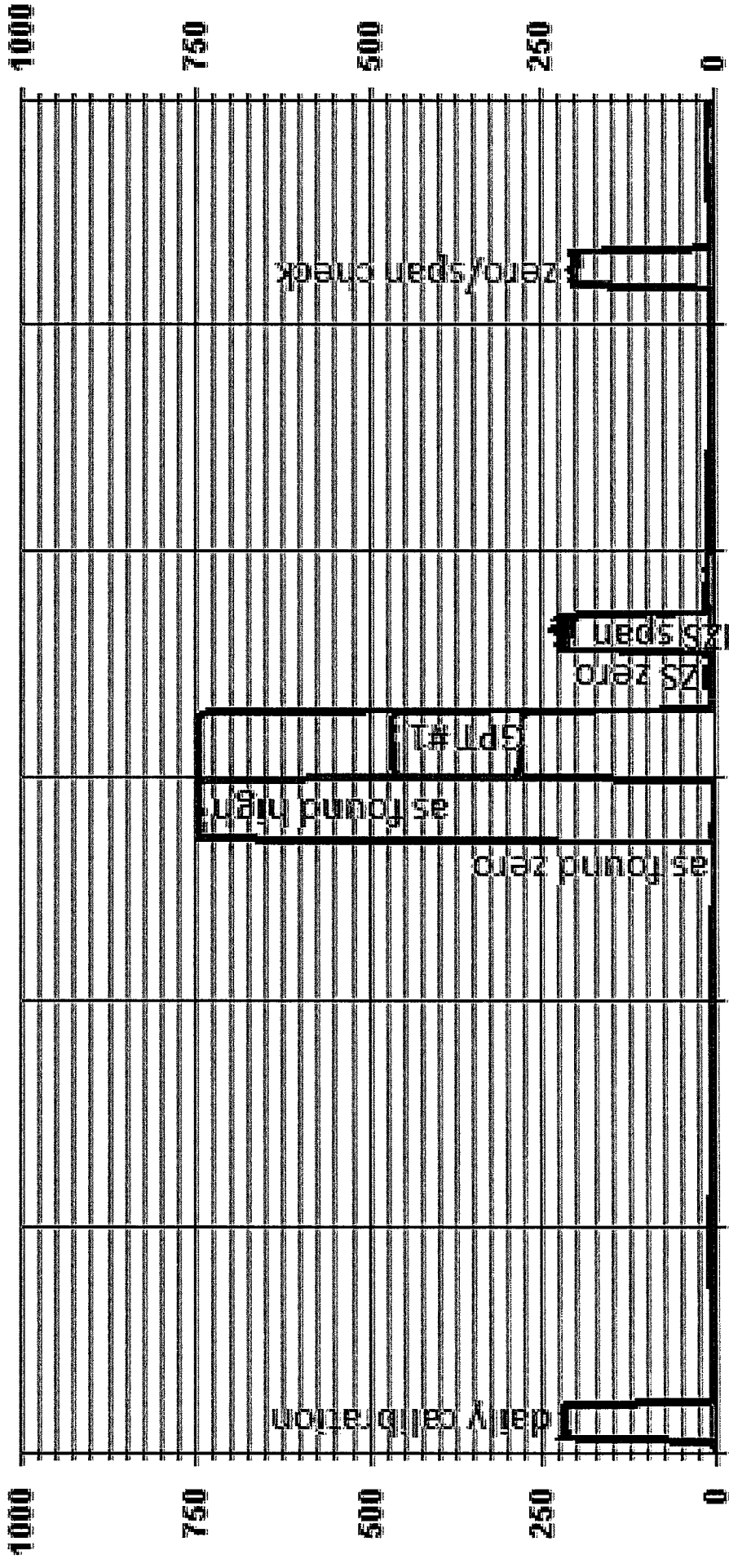
Date: 25-Aug-15
Company: LICA
Station Name/Location: Maskwa
Performed by: Alex Yakupov

Start Time (mst): 11:45
End Time (mst): 14:31
Callbration Purpose: As Found
Cal Gas Expiry Date: 12-Mar-19

API 200A NOx Analyzer Calibration

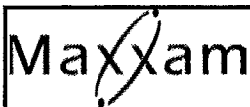


01 Minute Averages



08/25/15 07:00 08/25/15 09:00 08/25/15 11:00 08/25/15 13:00 08/25/15 15:00 08/25/15 17:00

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



API 200A NOx Analyzer Calibration

Date: 27-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Chris Wesson

Start Time (mst): 15:41
 End Time (mst): 19:09
 Calibration Purpose: Shut-Down
 Cal Gas Expiry Date: 15-Mar-18

Analyzer Serial Number: 1899
 Last Calibration Date: 14-Aug-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.063 NO= 1.001
 NOx= 1.062 NOx= 1.001
 NO₂= 1.002 NO₂= 1.000

As found:
 NOx SLOPE: 0.881
 NOx OFFS: -0.9
 NO SLOPE: 0.883
 NO OFFS: -2.0
 NOx STB: 0.5
 SAMP FLW: 450
 OZONE FL: 78
 NORM PMT: -1.9
 AZERO: 23.5
 HVPS: 670
 DCPS: 2560
 RCELL: 50.2
 BOX TEMP: 27.6
 IZS TEMP: PMT=7.1; IZS=40.0
 MOLY TEMP: 316.2
 RCEL: 8.2
 SAMP: 25.2
 Internal Span: NOX:204,NO:4.1,NO2:199

As left:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 NOx STB: NA
 SAMP FLW: NA
 OZONE FL: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 DCPS: NA
 RCELL: NA
 BOX TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

Calibrator Flow Targets:

Make & Model: Sabio 2010
 Serial #: 17100415
 Cal Gas Cylinder I.D. #: BR004108M400
 NO Cylinder Conc. (ppm): 49.7
 NOx Cylinder Conc. (ppm): 49.7

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	4920	80	500.00	5000
mid	4960	40	250.00	5000
low	4980	20	95.00	5000

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	5015	0.0	5015	0	0	0.0	0.0	NA	NA
as found high	4940	78.70	5019	779.4	779.4	733	734	1.063	1.062
mid	4977	38.40	5015	380.5	380.5	354	356	1.075	1.069
low	4996	19.30	5015	191.3	191.3	175	176	1.093	1.087
Average C.F.=								1.077	1.072

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	4940	78.70	5019	0.0	738.0	739.0	1.0	0.0	0.0	
as found NO ₂	4940	78.70	5019	500.0	274.0	739.0	464.0	464.0	463.0	1.002
gpt mid	4940	78.70	5019	250.0	508.0	739.0	231.0	230.0	230.0	1.000
gpt low	4940	78.70	5019	95.0	653.0	739.0	86.0	85.0	85.0	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 =	0.942	0.943	0.998	0.85-1.15
b (Intercept as % of full scale) =	-0.27%	-0.21%	0.02%	± 3% F.S.
% change in C.F. from last cal =	-6.22%	-6.07%	-0.22%	+/-15%
NO ₂ converter efficiency			99.9%	>85%

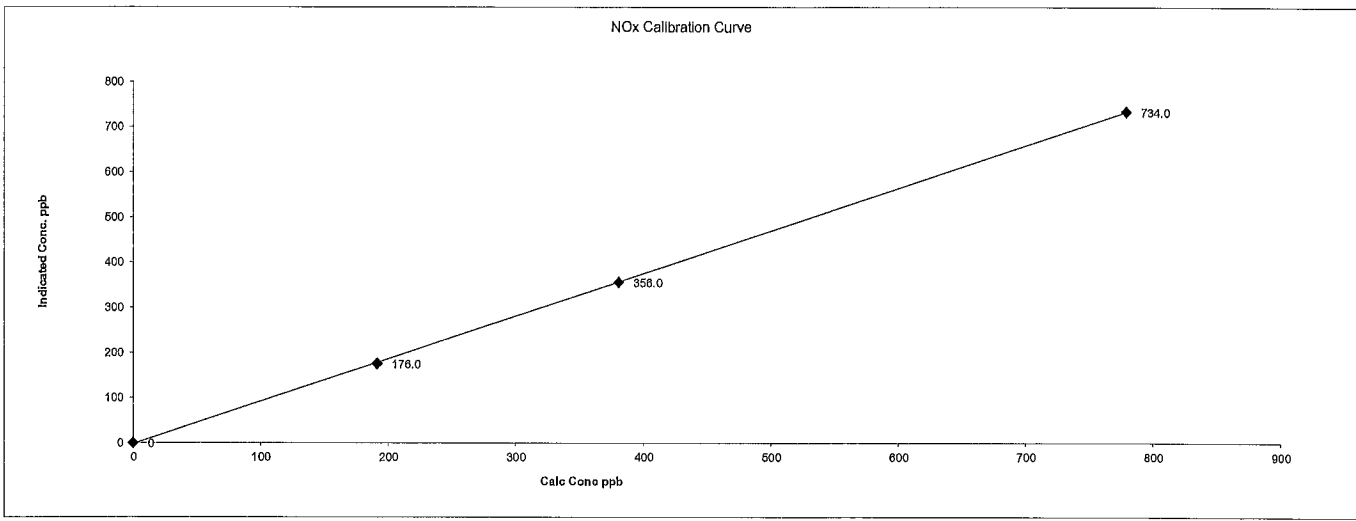
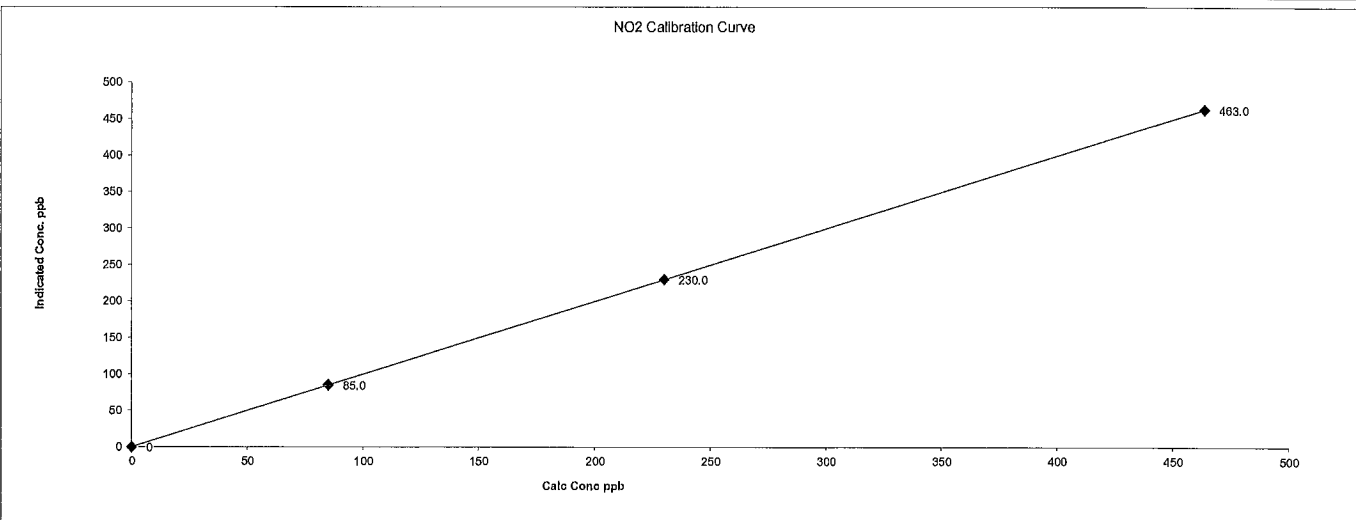
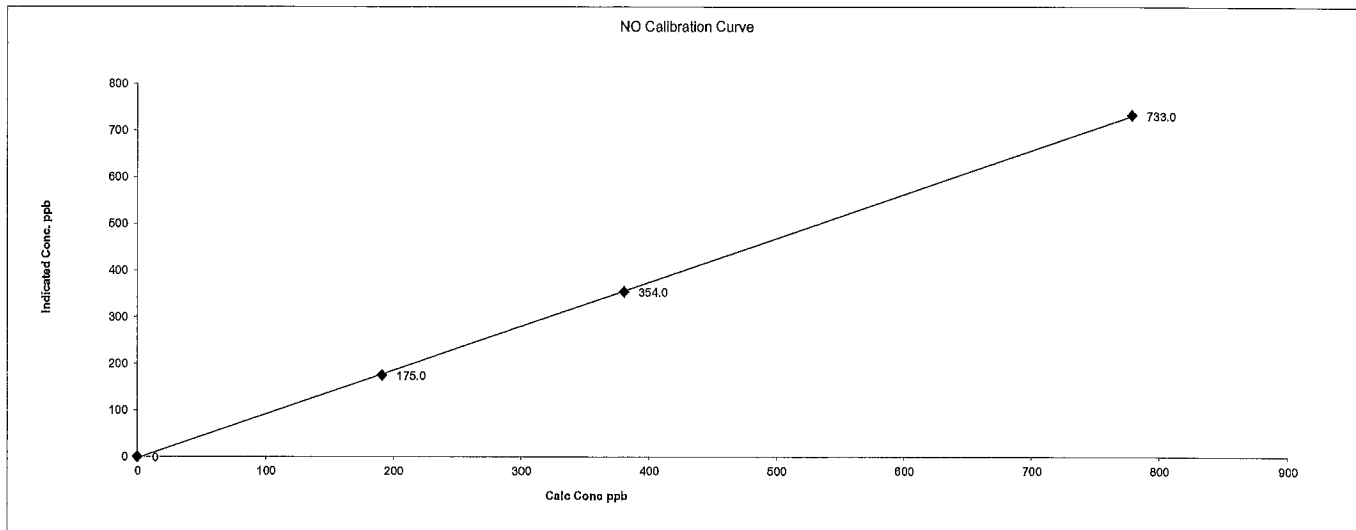
Comments:

This is a shutdown calibration prior to repair.

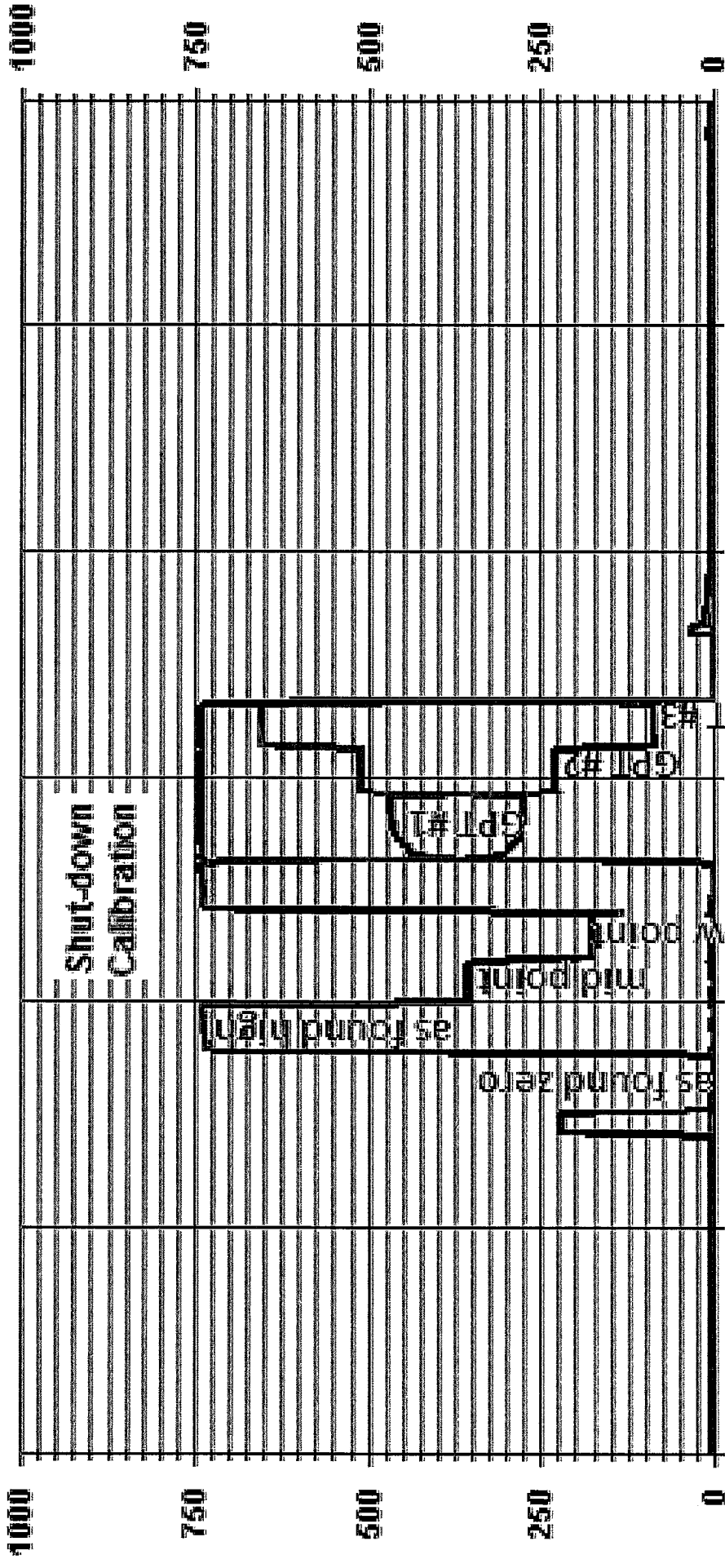
Date: 27-Aug-15
Company: LICA
Station Name/Location: Maskwa
Performed by: Chris Wesson

Start Time (mst): 15:41
End Time (mst): 19:09
Calibration Purpose: Shut-Down
Cal Gas Expiry Date: 15-Mar-18

API 200A NOx Analyzer Calibration

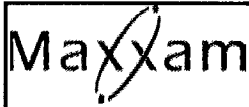


01 Minute Averages



08/27/15 12:30 08/27/15 14:30 08/27/15 16:30 08/27/15 18:30 08/27/15 20:30 08/27/15 22:30

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



API 200A NOx Analyzer Calibration

Date: 28-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Chris Wesson

Start Time (mst): 8:20
 End Time (mst): 13:56
 Calibration Purpose: Post-Repair
 Cal Gas Expiry Date: 15-Mar-18

Analyzer Serial Number: 1899
 Last Calibration Date: 14-Aug-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= N/A NO= 1.001
 NOx= N/A NOx= 1.001
 NO₂= N/A NO₂= 1.000

As found:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 NOx STB: NA
 SAMP FLW: NA
 OZONE FL: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 DCPS: NA
 RCELL: NA
 BOX TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

As left:
 NOx SLOPE: 0.975
 NOx OFFS: -0.7
 NO SLOPE: 0.985
 NO OFFS: -1.2
 NOx STB: 0.5
 SAMP FLW: 449
 OZONE FL: 78
 NORM PMT: -1.4
 AZERO: 24.0
 HVPS: 670
 DCPS: 2567
 RCELL: 50.3
 BOX TEMP: 27.2
 IZS TEMP: PMT=7.1; IZS=40.1
 MOLY TEMP: 316.0
 RCEL: 6.0
 SAMP: 25.5
 Internal Span: NOX:246,NO:3.4,NO2:243

Calibrator Flow Targets:

Make & Model: Sabio 2010
 Serial #: 17100415
 Cal Gas Cylinder I.D. #: BR004108M400
 NO Cylinder Conc. (ppm): 49.7
 NOx Cylinder Conc. (ppm): 49.7

point	diluent (cc/min)	cal gas (cc/min)	O ₃ setting (v or ppb)	total (cc/min)
zero	5000	0	0	5000
high	4920	80	520.00	5000
mid	4960	40	280.00	5000
low	4980	20	100.00	5000

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)		
adjusted zero	5015	0.0	5015	0	0	0.0	0.0	NA	NA
adjusted high	4939	78.70	5018	779.5	779.5	780	780	0.999	0.999
mid	4977	38.50	5016	381.5	381.5	376	375	1.015	1.017
low	4995	19.30	5014	191.3	191.3	186	186	1.028	1.028
calibrator zero	5015	0.00	5015	0	0	0.0	0.0	NA	NA
Average C.F.=								1.014	1.015

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	4940	78.70	5019	0.0	780.0	779.0	0.0	0.0	0.0	
adjusted NO ₂	4940	78.70	5019	520.0	263.0	780.0	517.0	517.0	517.0	1.000
gpt mid	4940	78.70	5019	280.0	509.0	781.0	273.0	271.0	273.0	0.993
gpt low	4940	78.70	5019	100.0	687.0	782.0	96.0	93.0	96.0	0.969
Average NO ₂ C.F.=									0.987	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.002	1.002	0.998	0.85-1.15
b (Intercept as % of full scale)=	-0.33%	-0.35%	0.16%	± 3% F.S.
% change in C.F. from last cal=	#VALUE!	#VALUE!	#VALUE!	+/-15%
NO ₂ converter efficiency			101.3%	>85%

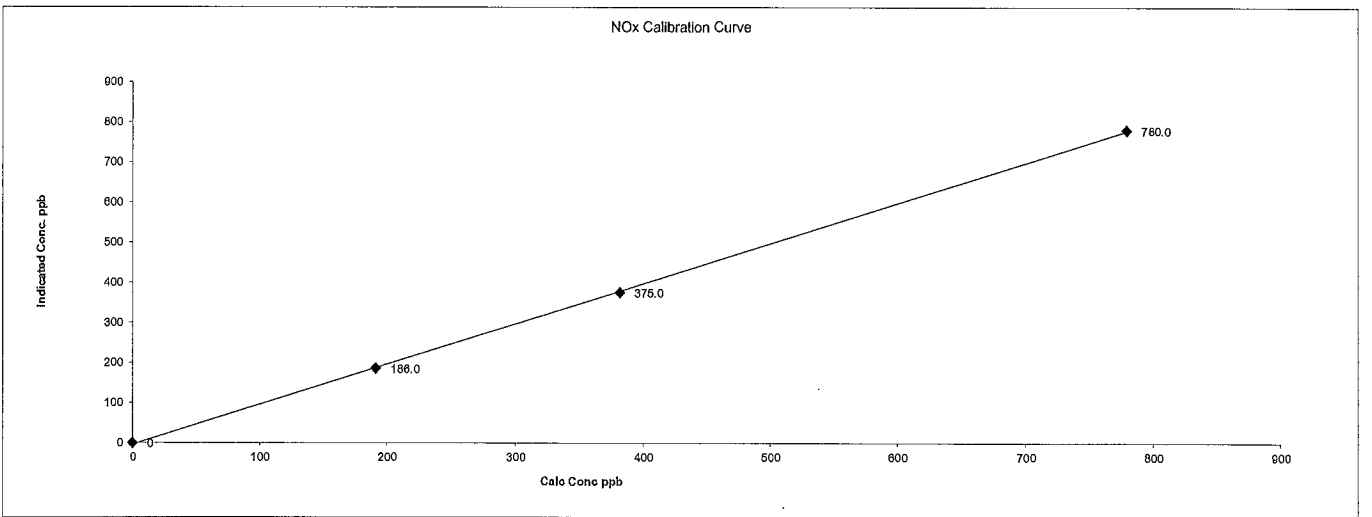
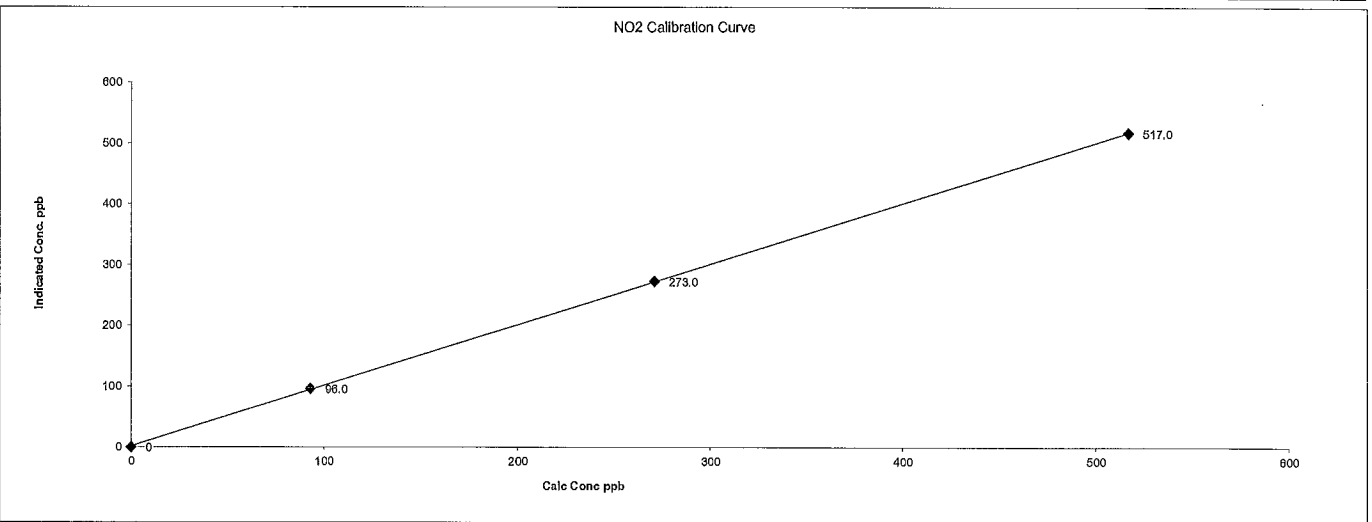
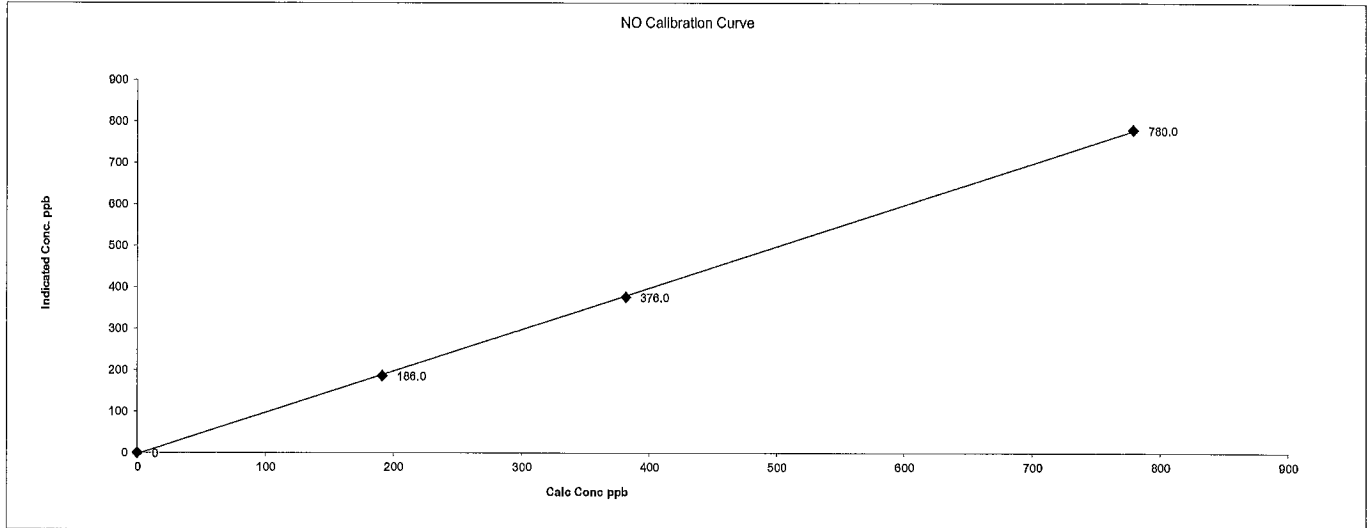
Comments:

Post-repair following sample pump rebuild.

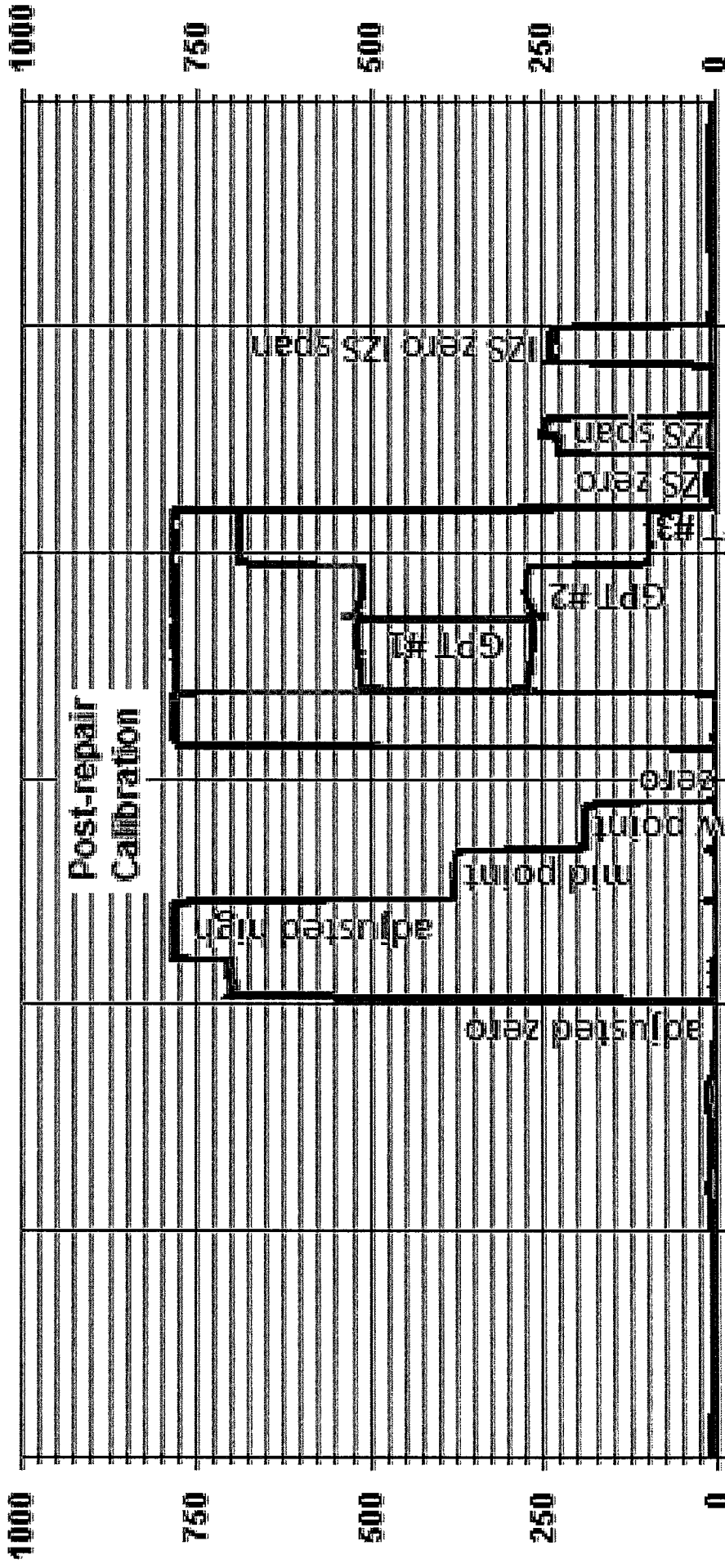
Date: 28-Aug-15
 Company: LICA
 Station Name/Location: Maskwa
 Performed by: Chris Wesson

Start Time (mst): 8:20
 End Time (mst): 13:56
 Calibration Purpose: Post-Repair
 Cal Gas Expiry Date: 15-Mar-18

API 200A NOx Analyzer Calibration



01 Minute Averages



08/28/15 04:40 08/28/15 06:40 08/28/15 08:40 08/28/15 10:40 08/28/15 12:40 08/28/15 14:40

— LICA30 NOX_ 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 Paul

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 Inspection by: Byron Paulson

Date: 3/10/14

CALIBRATORS

Company: Maxxam **Operator:** Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010D</u>	Make/Model	<u>N/A</u>
Serial Number	<u>11900613</u>	Serial Number	<u>N/A</u>
Oven Temperature	<u>N/A</u>	Temperature (°C)	<u>N/A</u>
Last Verification Date	<u>N/A</u>	Barometric Pressure	<u>N/A</u>

Flow Measurements

Pt. No. 1 5000 Pt. No. 2 5000 Pt. No. 3 5000


Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
5013	0.000	0.001		
5013	0.400	0.407	1%	± 10%
5013	0.200	0.204	1%	± 10%
5014	0.100	0.101	0%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

O_3		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0163	0.90-1.10
b (Intercept % of FS)=	0.0800	± 3% F.S.

AENV Standards		Ozone Analyzer	
Audit Calibrator		Make/Model	<u>Teco 49i</u>
Make/Model	<u>Teco 49i PS</u>	Serial/AMU Number	<u>AMU 1843</u>
Serial/AMU Number	<u>AMU 1808</u>	Last Calibration Date	<u>May 21, 2015</u>
Ozone Standard	<u>Primary</u>	Full Scale (ppm)	<u>0.5</u>

COMMENTS: _____

Auditor: Al Clark Date: May 21, 2015
 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)

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

Operator Signature: _____

Date: December 16, 2014

Location: McIntyre Center Edmonton

Company Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sablo 2010</u>	Make/Model	<u>N/A</u>
Serial Number	<u>17100415</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>New</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>BLM0027561</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>50.7/50.7</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>

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5016	79.1	0.800	0.800	0.811	-0.011	0.800	1%	0%
5016	39.7	0.401	0.401	0.405	-0.005	0.400	1%	0%
5015	19.9	0.201	0.201	0.203	-0.003	0.200	1%	0%
Absolute Average Percent Difference							1%	0%

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)=	1.0139	0.90-1.10		m (Slope)=	1.0003
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.		b (Intercept % of FS)=	#DIV/0!

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
5016	0.000	0.000	0.809	-0.013	0.796	NO ₂	% Diff. Limit
5016	0.500	0.484	0.325	0.469	0.794	0	± 10%
5016	0.300	0.278	0.531	0.263	0.794	0	± 10%
5016	0.100	0.090	0.719	0.076	0.765	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)=	0.9960	0.90-1.10	
b (Intercept % of FS)=	#DIV/0!	± 3% F.S.	

AENV Standards Audit Calibrator		NO _x Analyzer	
Make/Model	<u>Teco 1461</u>	Make/Model	<u>Teco 421</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>May 21, 2015</u>
		Full Scale (ppm)	

COMMENTS: Contains 49.9 ppm SO2

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: May 21, 2015
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: Bios 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	0.000	0.000	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: Lirmin 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 (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	0.0000	0.0000
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.
 8501-34th Street
 Edmonton, AB T6B 2X8
 Tel: 780-440-0778
 Fax: 780-440-5302

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
Methania	800.0ppm	801.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: Mettler-Toledo Analytical Balance-ID2ex/USA--
 Hewlett-Packard (Agilent)-6890--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: 03/26/2017

Analyst: Todd Hryniv

The gas calibration cylinder standard prepared by Praxair Canada, Inc. is considered a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard is certified against Praxair Canada, Inc. Reference Materials which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada or by using NIST Standard Reference Materials where available.

Flow rate measurements for concentrations in g / m³ or ppm are for gas phase, by volume (g / ppm) unless otherwise noted.

- | | | | |
|------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------|
| A. Flame Ionization with Methanizer | H. Gas Chromatography with Charge Transfer Detector | C. Gas Chromatography with Carbonylic Conductivity Detector | X. Gas Chromatography with FID and Thermal Detector |
| B. Gas Chromatography with Flame Ionization Detector | F. Gas Chromatography with Hydrogen Ionization Detector | G. Gas Chromatography with Methanolic Carbonylic | I. Gas Chromatography with Photoacoustic Detector |
| I. Gas Chromatography with Reduced Gas System | J. Gas Chromatography with Thermal Conductivity Detector | K. Beam Gas Analyzer with Thermal Conductivity Detector | L. Infrared - FTIR or QMIR |
| M. Laser Ramanometry - Mid or DCIR | N. By Difference of Typical Analytes | O. Paramagnetic | P. Winkler Water Analyser |
| Q. Total Hydrocarbon Analyser | V. Wet Chemical | S. Detector Tube | T. TSP |
| U. Oxidation Catalyst | W. Gas Chromatography with Chemiluminescence Detector | | |

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 and is correct to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is provided with the understanding that any use of the information is at the sole discretion and risk of the user. It is further the liability of Praxair Canada, Inc. arising out of the use of the information contained herein should the use be considered for providing such information.



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



Calibration Gas Audit

NO Cylinder Gas

File No. 2014-253CGA

Company: Maxxam Operators name: Limin Li
 Cylinder #: BR418M400 Conc (PPM) 49.7/49.7 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 (scom)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	NO	NOX			NO	NOX
5000	0.0	0.000	0.000	XXXXXX	XXXXXX	XXXXXX	XXXXXX
4983	82.8	0.831	0.830	0.01662	60.181	50.0	50.0
4998	40.9	0.415	0.414	0.00818	122.200	50.7	50.6
4981	20.3	0.206	0.205	0.00408	245.369	50.5	50.3
Average Cylinder Concentration:						50.4	50.3

NO	NOx
Previous Stated Concentration PPM: <u>49.7</u>	<u>49.7</u>
Percent variance from Stated: <u>1.5</u>	<u>1.2</u>

Cylinder gas tolerances based on NO only

Meets Manufacturer Tolerance. Use manufacturers stated concentration COMMENTS: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration Contains 50.7 ppm of SO2.
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

Auditor: Al Clark Date: December 16, 2014
 Operator Signature: *Al Clark* Location: Molntyre 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>2833-2015-08-30- C</u>
Site: <u>Maskwa Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete	<u>msclmha</u>	Date	<u>16 - Sept - 2015</u>
QA Check Review	<u>msclmha</u>	Date	<u>16 - Sept - 2015</u>
Report Complete	<u>msclmha</u>	Date	<u>17 - Sept - 2015</u>
Report Reviewed	<u>E. Tangang</u>	Date	<u>21 - Sep - 15</u>
Report Shipped	_____	Date	_____

Notes

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

JOB #:2833-2015-08-31- C

AUGUST 2015

Prepared for:

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

Attention: MIKE BISAGA

DATE: **September 22, 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 AUGUST 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.

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, except PM2.5 (81.7%).

All Parameters: Hourly maximum data collected on August 3 at hour 22 and August 31 at hour 12 were invalidated as the analyzers and wind system were recovering from small power outages.

PM 2.5: 130 hours of data were discarded due to the switching valve failure and hourly readings below -3 ug/m3. Operational uptime was 81.7%. AE Reference number: 303701.

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 St. Lina Site						MAXIMUM VALUES							OPERATIONAL TIME (%)
						OBJECTIVES				EXCEEDENCES		MONTHLY AVERAGE	
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY		
SO2 (PPB)	172	48	0	0	0	2	23, 27	VAR	VAR	VAR	0.7	23	100.0
H2S (PPB)	10	3	0	0	1	4	31	7	7	SW	1.9	29	100.0
THC (PPM)	-	-	-	-	1.8	2.5	3, 24	VAR	VAR	VAR	2.1	24	99.7
NO2 (PPB)	159	-	0	-	1.2	10.5	26	5	6	NNE	3.4	26	100.0
NO (PPB)	-	-	-	-	0.1	1.5	17	7	3.4	SSW	0.3	6	100.0
NOX (PPB)	-	-	-	-	1.3	10.5	26	5	6	NNE	3.5	26	100.0
O3 (PPB)	82	-	0	-	28	60	13	18	5.3	NW	42.5	10	100.0
PM2.5 (UG/M3)	-	30	-	0	3.2	118.0	3	13	17.3	SE	18.1	3	81.7
RELATIVE HUMIDITY (%)	-	-	-	-	63.6	92	6, 7	VAR	VAR	VAR	88.9	5	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	930	939	16, 26	VAR	VAR	VAR	937	16	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	17.3	30.9	13	16	6.2	WNW	24.0	13	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	2.8	4	9	9.7	E	0.7	4	100.0
VECTOR WS (KPH)	-	-	-	-	7.6	17.3	3	13	-	SE	11.0	3	100.0
VECTOR WD (DEG)	-	-	-	-	WSW	-	-	-	-	-	-	-	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

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, O₃, PM_{2.5}, WS, WD, RH, BP, Precipitation and Ambient 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.

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on August 5. Hourly maximum data collected on August 3 at hour 22 and August 31 at hour 12 were invalidated as the analyzer was recovering from small power outages.

HYDROGEN SULPHIDE (H₂S)

The analyzer was working well throughout the month. The routine monthly calibration was performed on August 5. Hourly maximum data collected on August 3 at hour 22 and August 31 at hour 12 were invalidated as the analyzer was recovering from small power outages.

TOTAL HYDROCARBONS (THC)

The analyzer was working well throughout the month. The routine monthly calibration was performed on August 4. A leak check was performed and the gas cylinders were replaced on August 17. Hourly maximum data collected on August 3 at hour 22 and August 31 at hour 12 were invalidated as the analyzer was recovering from small power outages.

NITROGEN DIOXIDE (NO₂)

The analyzer was working well throughout the month. The routine monthly calibration was performed on August 5. Hourly maximum data collected on August 3 at hour 22 and August 31 at hour 12 were invalidated as the analyzer was recovering from small power outages.

OZONE (O₃)

The analyzer was working well throughout the month. The routine monthly calibration was performed on August 4. Hourly maximum data collected on August 3 at hour 22 and August 31 at hour 12 were invalidated as the analyzer was recovering from small power outages.

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

The switching valve started functioning incorrectly following a power outage on August 3. A Teom check was performed on August 4. It was determined that the switching valve required to be replaced. The valve was replaced on August 6. The Teom unit was allowed time to stabilize and a post-repair audit was completed on August 7. 74 hours of data were invalid due to this event. The unit started recording many negative readings towards the middle of the month. The switching valve was replaced again on August 24 followed by another post-repair audit. As the negative readings issue remained, another audit was performed on August 27. The sample pump was checked on August 31 to confirm its functionality following a shut-down audit. The flow check results were within the acceptable range. An audit was performed after the flow checks. The sample pump would be replaced when a replacement is available next month. 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. 62 hours of data were invalidated as the data were below -3 ug/m³ this month. The operational uptime was 81.7%. AE Reference number: 303701.

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 August 3 at hour 22 and August 31 at hour 12 were invalidated as the wind system was recovering from small power outages.

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

The rain gauge system was 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 consisted of 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 was above the 90% requirement, except PM 2.5 (81.7%).

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

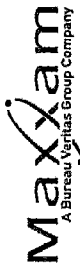
There were no deviations from the prescribed methods.

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

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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-HOUR 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	0.0	0.0	0.0	0.0	0.0	0.0

STATUS FLAG CODES

C - CALIBRATION
 Y - MAINTENANCE
 S - DAILY ZERO/Span CHECK
 P - POWER FAILURE
 G - OUT FOR REPAIR

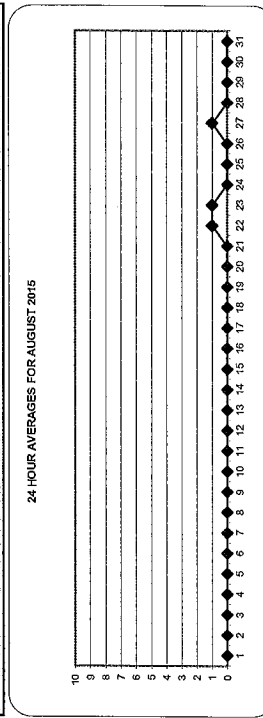
Q - QUALITY ASSURANCE
 R - RECOVERY
 X - MACHINE/MALEFUNCTION
 O - OPERATOR ERROR
 K - COLLECTION ERROR

OBJECTIVE LIMIT:

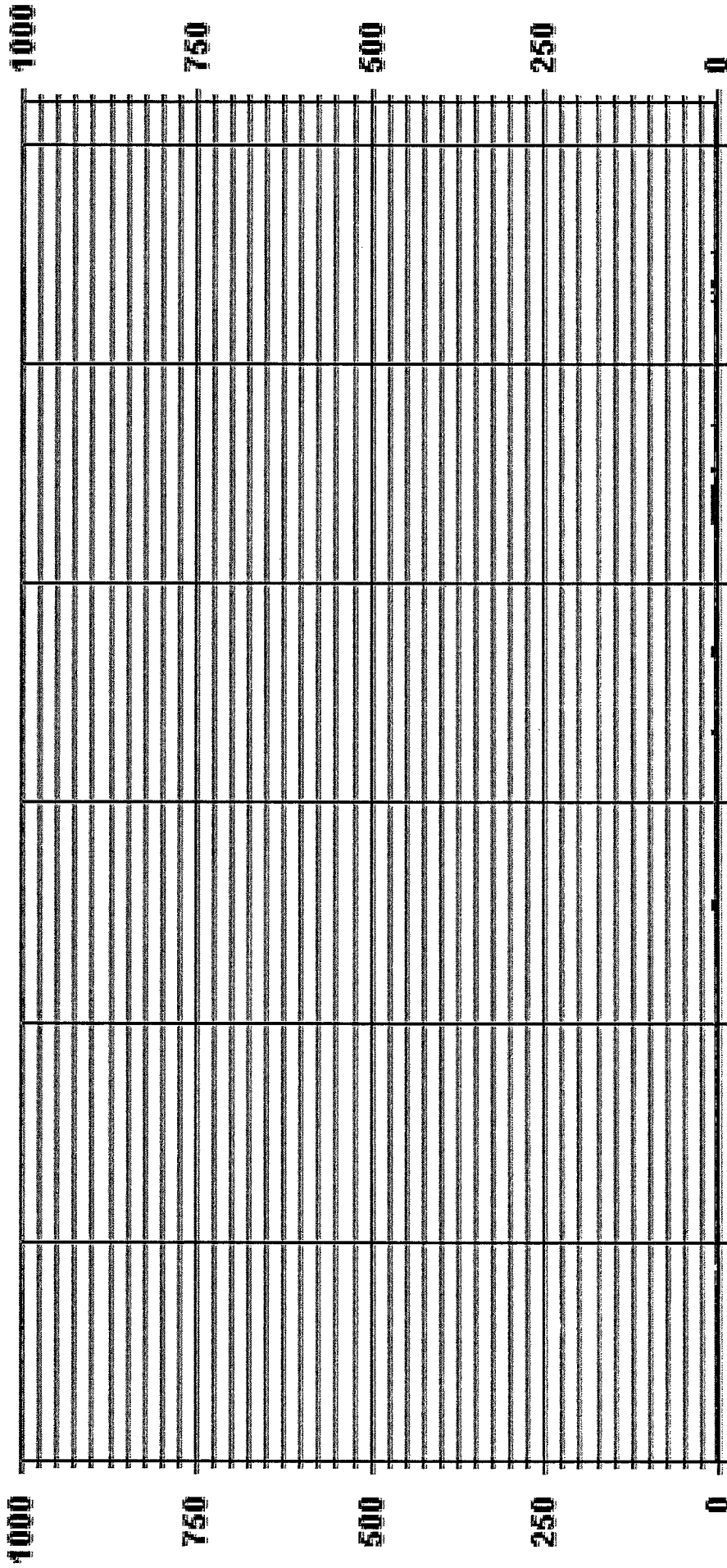
ALBERTA ENVIRONMENT: EFR: 172 PPB; Z4EHR: 48 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0
NUMBER OF 24-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS:	54
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S)
MAXIMUM 24-HR AVERAGE:	0.7 PPB VAR
12S CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.29
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
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	DAILY MAX	24-HOUR AVG	RDGS.
1	1	1	1	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	1	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	1	1	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	1	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	1	1	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	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	
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	
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	
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	
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	
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	
13	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	1	
14	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	1	
15	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	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	0	0	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
29	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	
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	
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	
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	
HOURLY AVG	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.6	0.8	0.8	0.7	0.8	0.6	0.6	0.7	0.7	0.7	0.6	0.5	0.6	0.6	0.6	

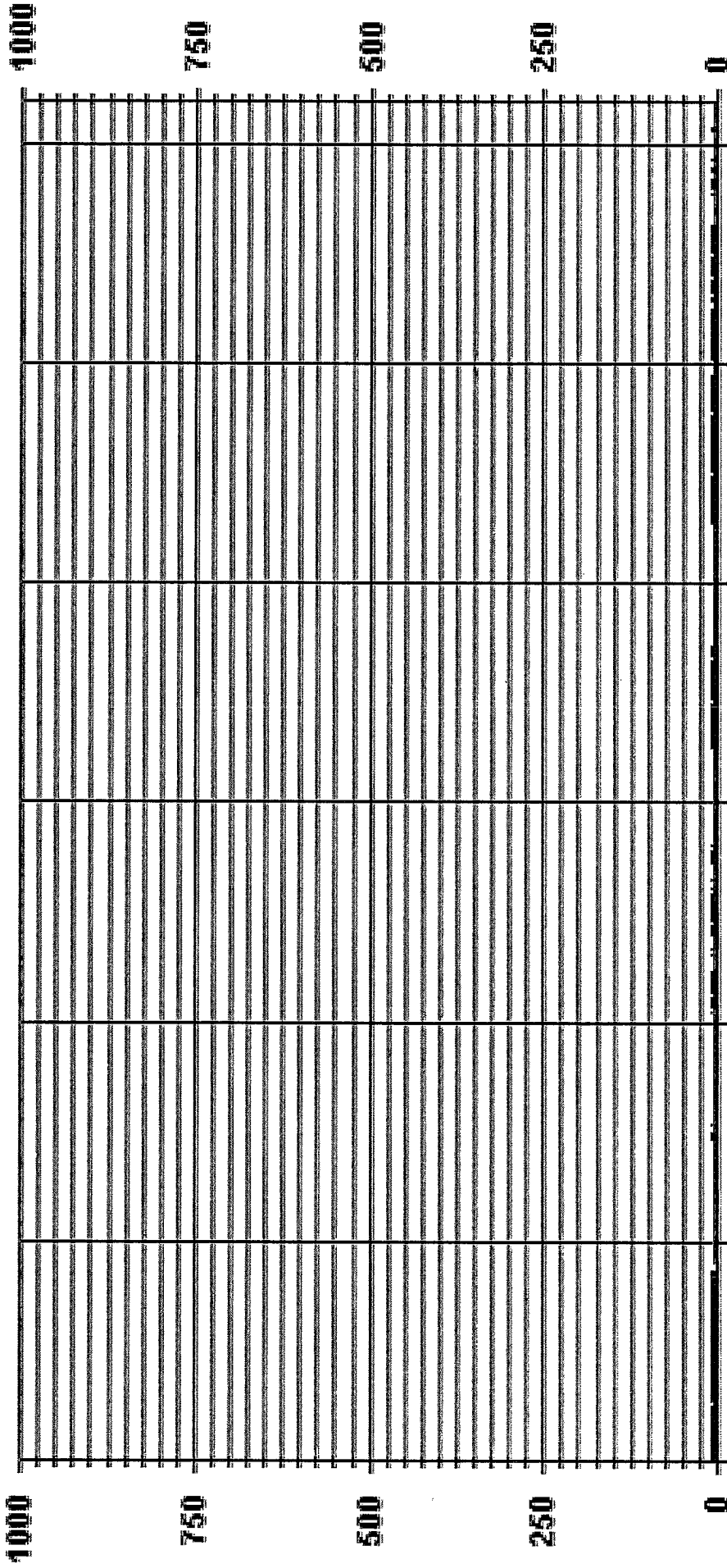
STATUS FLAG CODES

C	CALIBRATION
M	MAINTENANCE
D	DAZEZERO/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:	383
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 9, 11 ON DAY(S) 23, 27
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.66
OPERATIONAL TIME:	VAR-VARIOUS
	742 HRS

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 SO2MAX PPB

SO2_ / WDR Joint Frequency Distribution (Percent)

LICA31

August 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : SO2
 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
< 20	3.39	5.23	4.95	4.52	5.09	4.95	4.66	6.50	7.92	7.49	7.21	7.49	6.64	12.02	8.91	2.97	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.39	5.23	4.95	4.52	5.09	4.95	4.66	6.50	7.92	7.49	7.21	7.49	6.64	12.02	8.91	2.97	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Direction

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	24	37	35	32	36	35	33	46	56	53	51	53	47	85	63	21	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	24	37	35	32	36	35	33	46	56	53	51	53	47	85	63	21	

Calm : .00 %

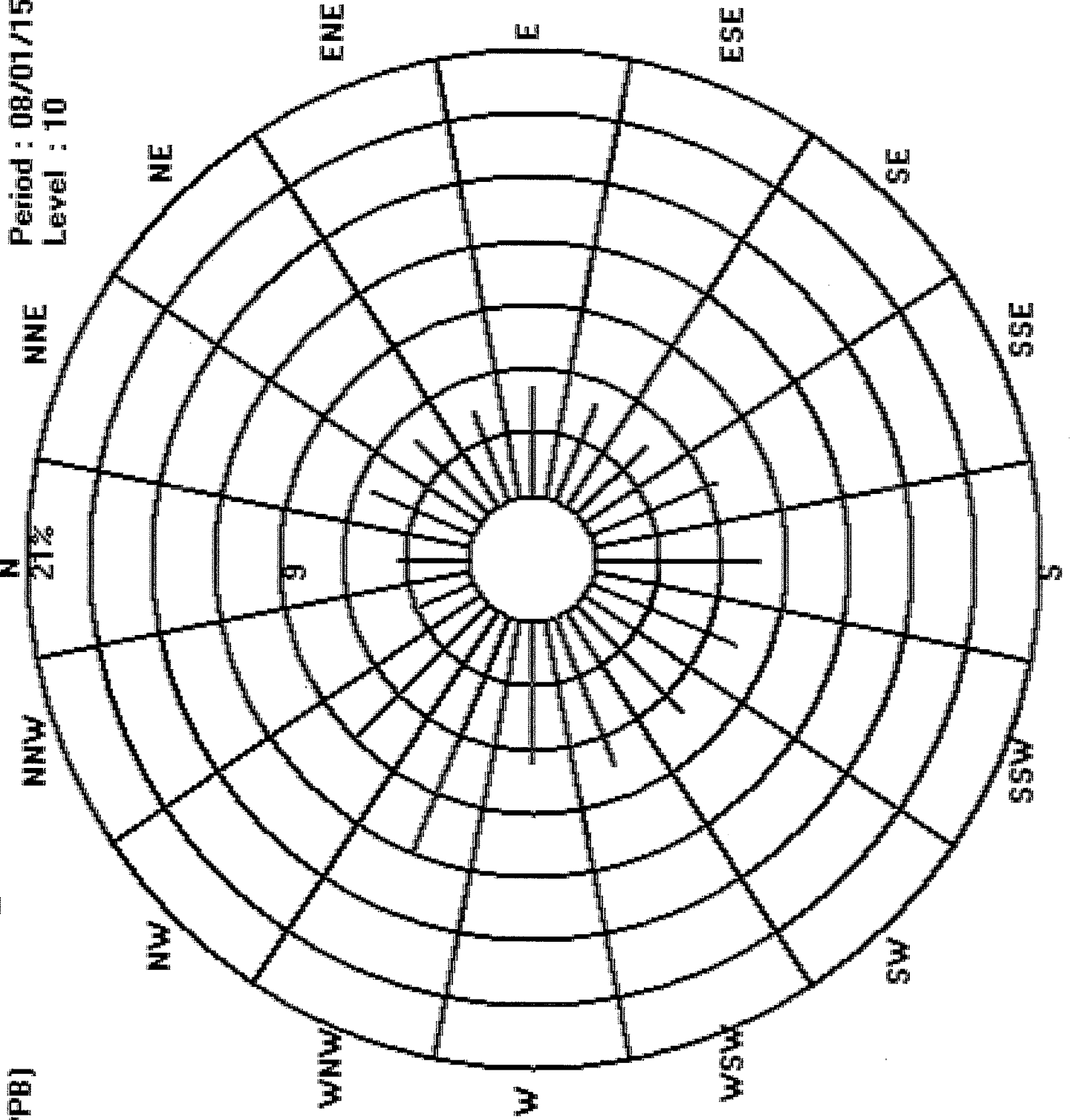
Total # Operational Hours : 707

Logger : 31 Parameter : SO2_

Site : LICA31

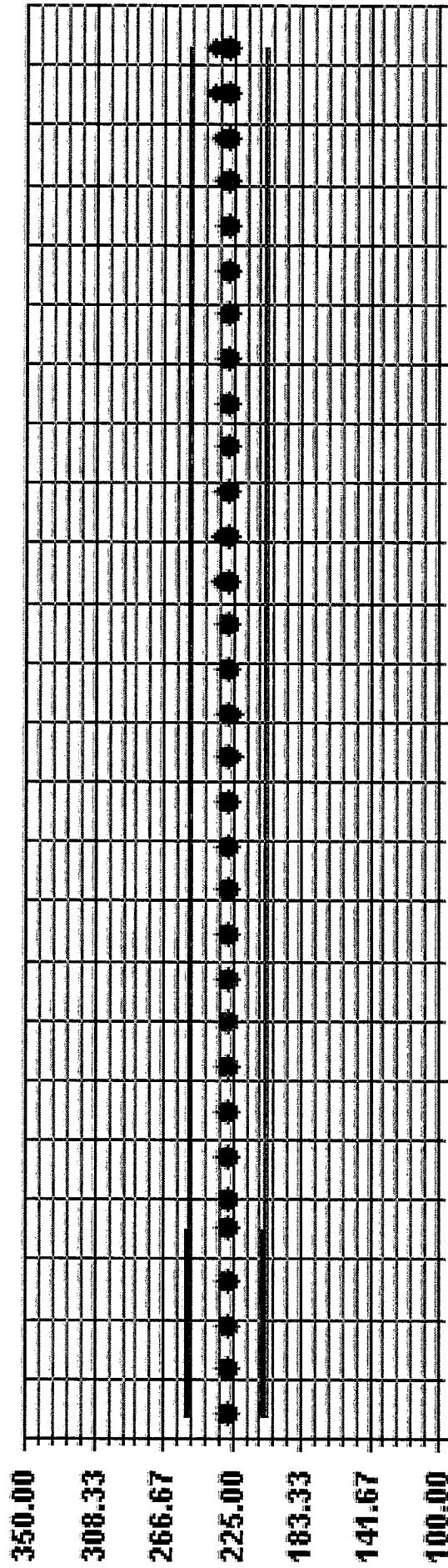
Period : 08/01/15-08/31/15

Level : 10



Class	Limit (PPB)
>=	340
<	340
<	170
<	110
<	60
<	20

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



HYDROGEN SULPHIDE



HYDROGEN SULPHIDE (H2S) hourly averages in ppb

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	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24		
2	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	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	0.7	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	0.7	24	
5	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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	1.1	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	1.1	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	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	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	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	1.1	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	1.0	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	1.0	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	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	1.0	24	
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
28	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	1.4	24	
29	2	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	1.6	24	
30	2	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	1.9	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	1.4	24	
HOURLY MAX	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	1.5	24
HOURLY AVG	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.4	1.5	1.4	1.3	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1

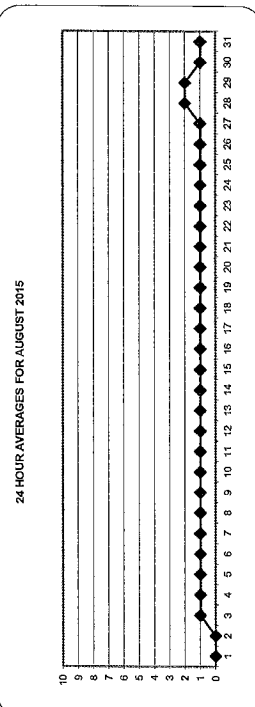
STATUS FLAG CODES

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

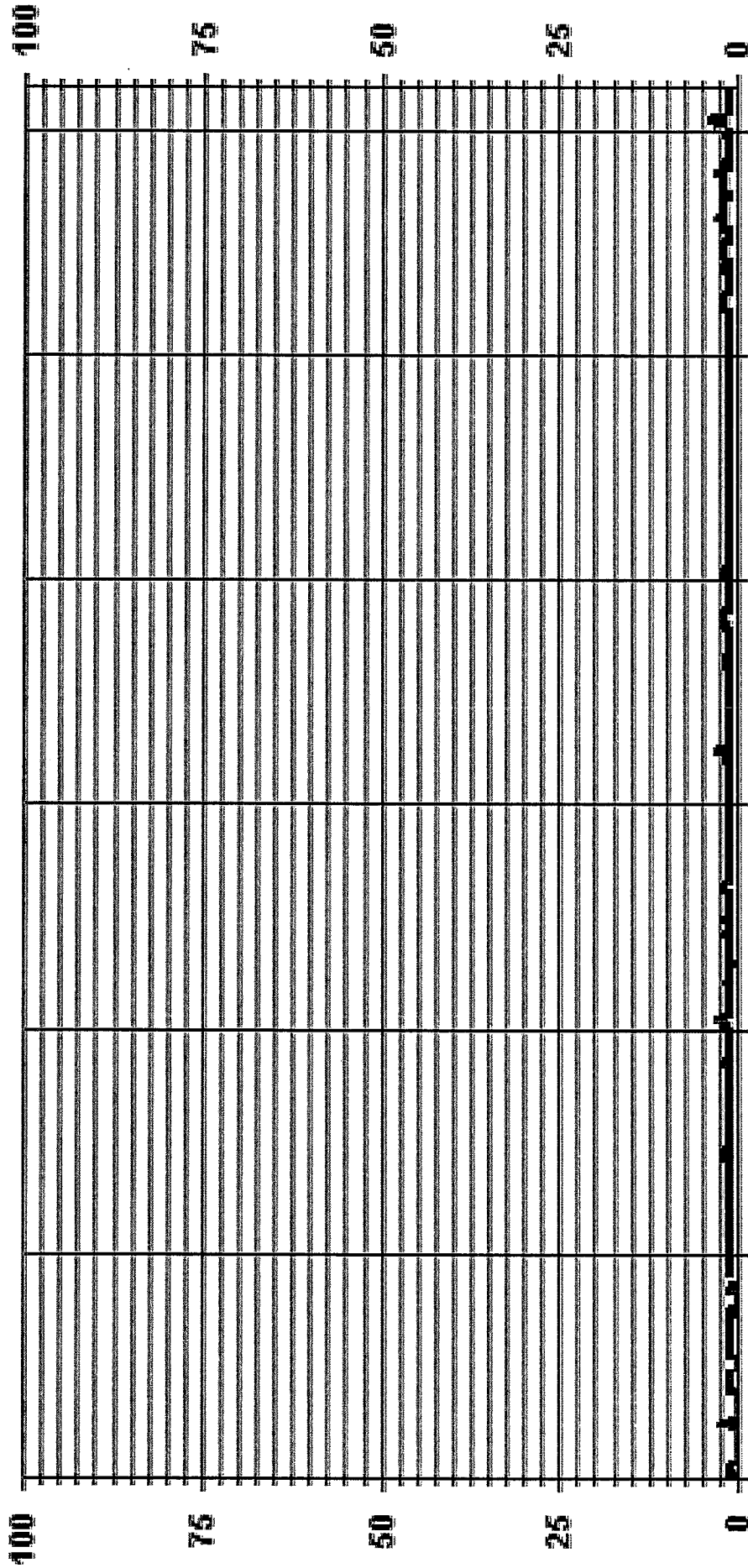
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 10 PPB 24-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES	0	NUMBER OF 24-HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS	652	ON DAY(S)	31
MAXIMUM 1-HR AVERAGE	4 PPB	ON DAY(S)	29
MAXIMUM 24-HR AVERAGE	1.9 PPB	VAR- VARIOUS	
1ZS CALIBRATION TIME	31 HRS	OPERATIONAL TIME	744 HRS
MONTHLY CALIBRATION TIME	5 HRS	AMD OPERATION UPTIME	100.0 %
STANDARD DEVIATION	0.51	MONTHLY AVERAGE	1 PPB

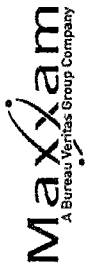


01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 H2S_ PPB



HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST

DAY	HOURS																								DAILY MAX	24-HOUR AVG	ROGS
	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	1	1	1	1	1	2	1	2	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	2	0.7	
2	0	0	0	0	2	3	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	3	0.6	
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	1.0	
4	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	
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	
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	1.0	
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	1.0	
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	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	1.4	
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	
11	2	2	2	2	2	3	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	
12	2	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.6	
13	1	2	1	4	3	2	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.2	
14	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.7	
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	1.0	
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	1.0	
17	2	3	2	1	1	2	5	4	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.7	
18	2	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	
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.6	
20	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.5	
21	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	1.3	
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	
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	1.0	
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	1.0	
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	
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	1.0	
27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.8	
28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.9	
29	2	4	4	3	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.3	
30	3	2	4	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.6	
31	1	2	5	3	3	2	3	5	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.8	
HOURLY MAX	3	4	4	4	3	3	5	5	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.8	
HOURLY AVG	1.4	1.5	1.6	1.6	1.4	1.6	1.8	1.8	1.4	1.3	1.2	1.1	1.1	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.3		

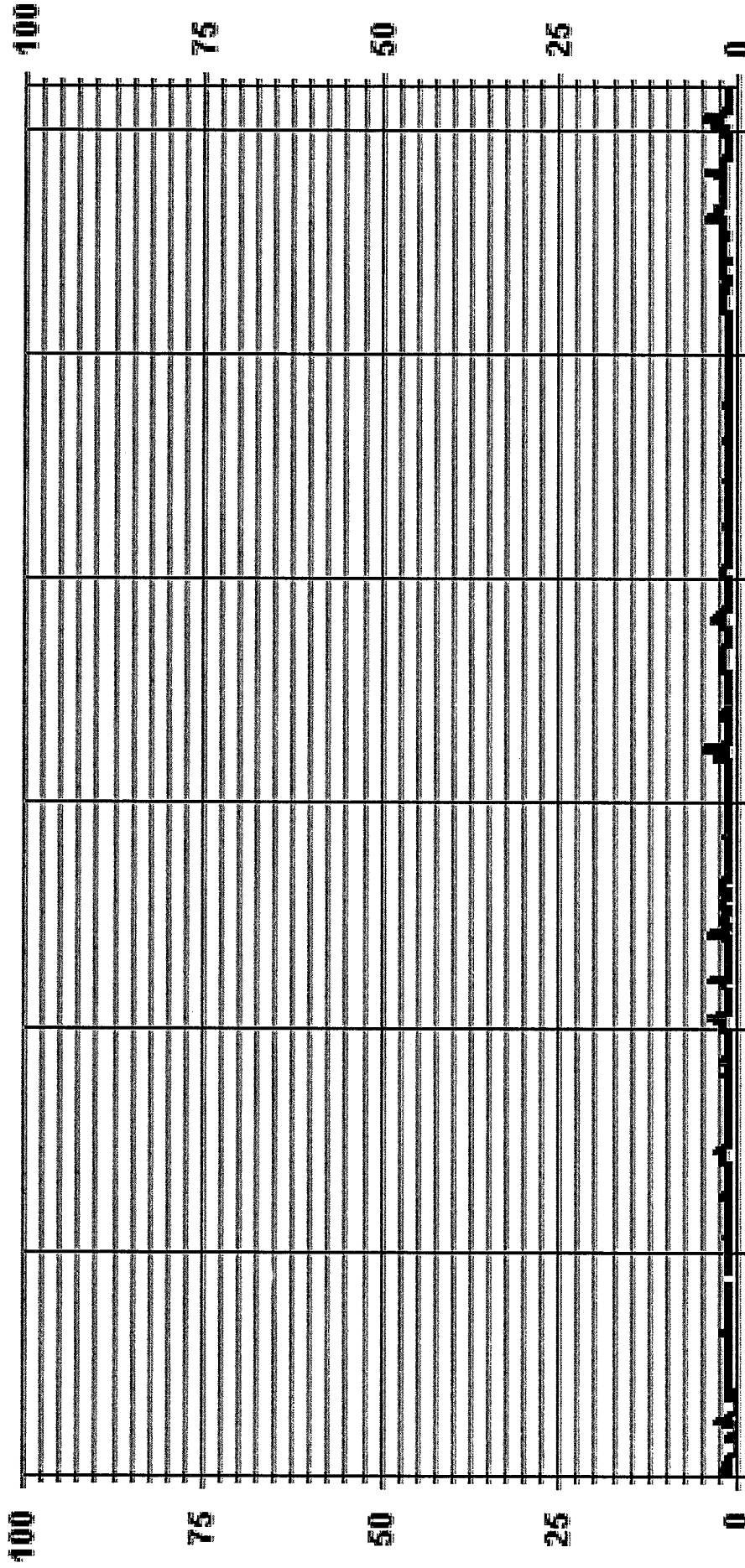
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	682
MAXIMUM INSTANTANEOUS VALUE:	5 PPB @ HOUR(S) 6, 7 ON DAY(S) 17, 31
OPS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.65
OPERATIONAL TIME:	742 HRS
VAR- VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 H2SMAX PPB

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : H2S
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
< 3	3.38	5.22	5.08	4.51	5.08	4.94	4.66	6.49	7.76	7.20	6.63	7.48	6.49	12.00	8.89	2.96	98.87
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.14	.28	.56	.00	.14	.00	.00	.00	1.12
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.38	5.22	5.08	4.51	5.08	4.94	4.66	6.49	7.90	7.48	7.20	7.48	6.63	12.00	8.89	2.96	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

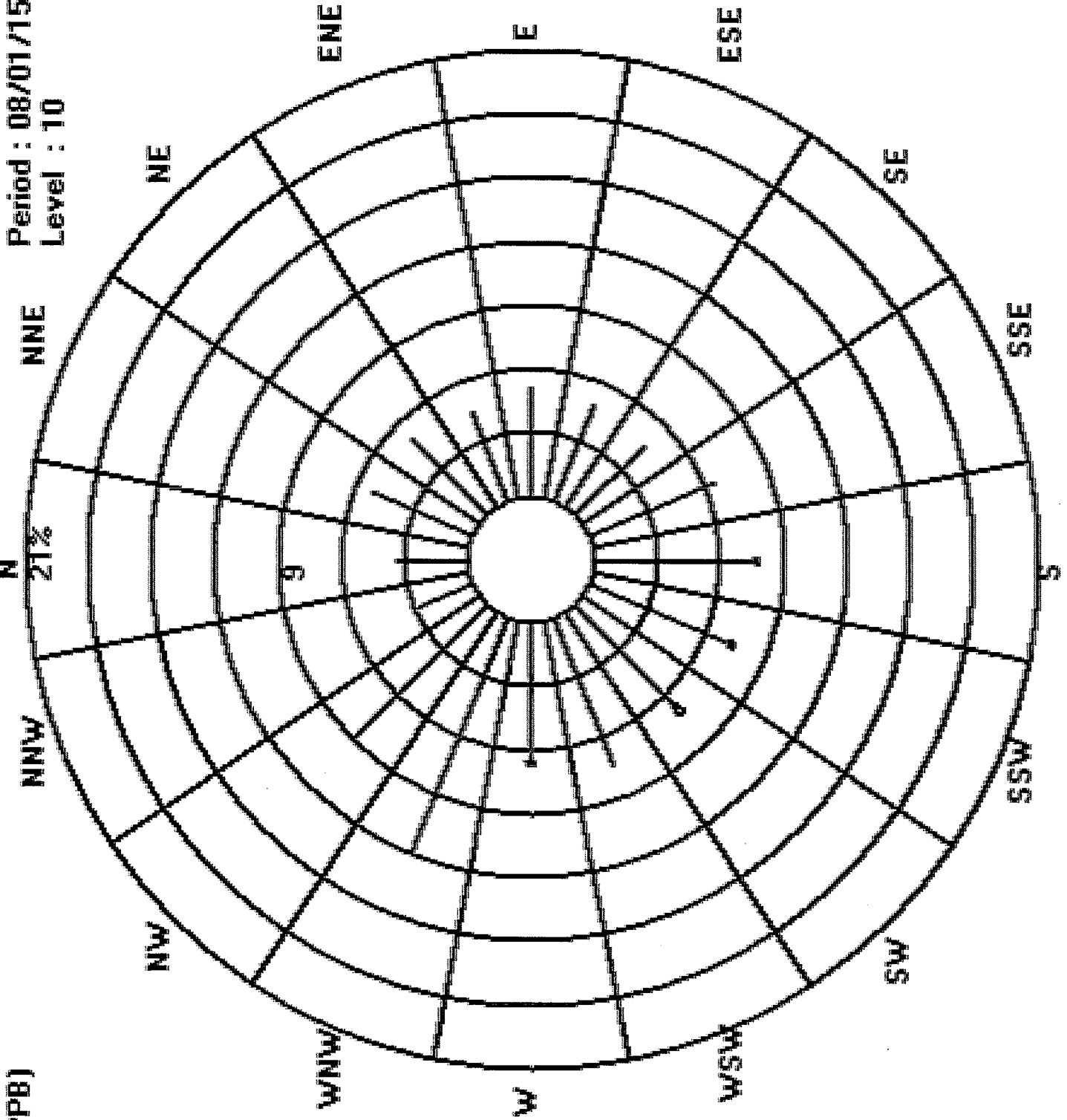
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	24	37	36	32	36	35	33	46	55	51	47	53	46	85	63	21	700
< 10									1	2	4		1				8
< 50																	
>= 50																	
Totals	24	37	36	32	36	35	33	46	56	53	51	53	47	85	63	21	

Calm : .00 %

Total # Operational Hours : 708

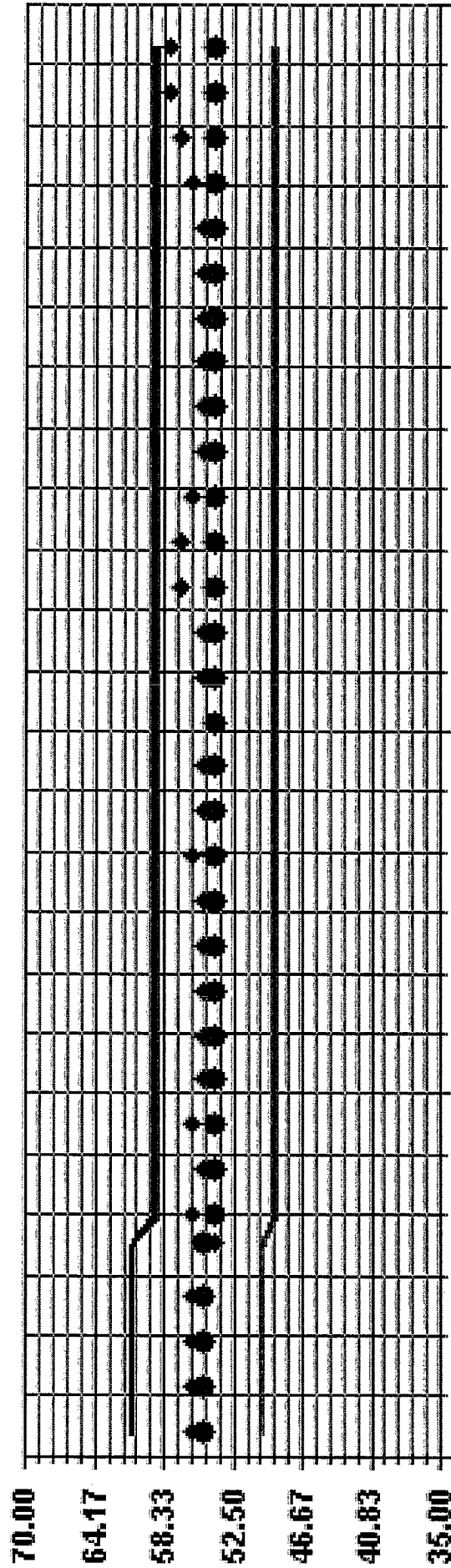
Logger : 31 Parameter : H2S_

Site : LICA31
Period : 08/01/15-08/31/15
Level : 10



>= 50
< 50
< 10
< 3

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



8/1/15 8/8/15 8/16/15 8/24/15 9/1/15
Cal Value Exp Value Exp Value +10% Exp Value -10%

TOTAL HYDROCARBON

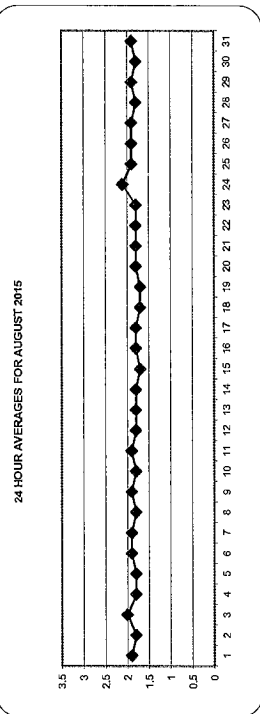


TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	1.9	1.9	2.2	2.1	2.1	2.1	2.0	2.1	1.9	1.9	1.8	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.9
2	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.1	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
3	2.0	2.1	2.0	2.0	2.0	2.2	2.2	2.3	2.5	2.5	2.3	S	S	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
4	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	1.8	1.8	1.8	1.8	1.8	1.8	1.8
5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
6	1.9	2.1	2.1	2.0	S	2.1	2.1	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
7	2.1	1.9	1.9	S	2.3	2.0	2.0	2.0	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
8	1.8	1.8	S	1.9	2.0	2.0	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	1.7	1.7	1.7	1.7	1.7
9	1.8	S	1.8	1.8	1.8	1.8	1.9	1.9	2.0	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
10	S	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	1.8	1.8	1.8	1.8	1.8	1.8
11	1.9	1.9	1.8	1.8	2.1	1.9	1.9	1.9	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	1.8
12	1.9	1.9	1.9	1.8	1.8	1.8	1.9	1.9	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	1.8
13	1.7	1.7	1.8	1.7	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	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
14	1.8	1.8	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	1.8	1.8	1.8	1.8	1.8	1.8	1.8
15	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
16	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	1.8	1.8	1.8	1.8	1.8	1.8	1.8
17	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.9	1.9	1.9	Y	Y	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
18	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
19	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	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
20	1.8	1.8	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	1.8	1.8	1.8	1.8	1.8	1.8	1.8
21	1.9	1.9	1.9	2.0	1.9	2.0	1.9	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	1.8
22	1.9	1.9	1.9	1.9	1.9	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	1.8	1.8	1.8	1.8
23	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
24	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
25	2.1	2.1	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.0	S	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
26	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.1	S	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
27	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	S	2.1	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
28	1.9	1.7	1.6	1.6	1.7	S	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	1.8
29	1.9	1.9	1.9	1.9	2.0	S	1.9	1.9	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	1.8
30	1.8	1.7	1.7	S	1.9	1.8	1.9	1.9	1.9	1.9	1.9	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
31	1.9	2.0	S	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	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
HOURLY MAX	2.1	2.2	2.2	2.1	2.3	2.2	2.2	2.2	2.3	2.5	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
HOURLY AVG	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	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	1.8

STATUS FLAG CODES

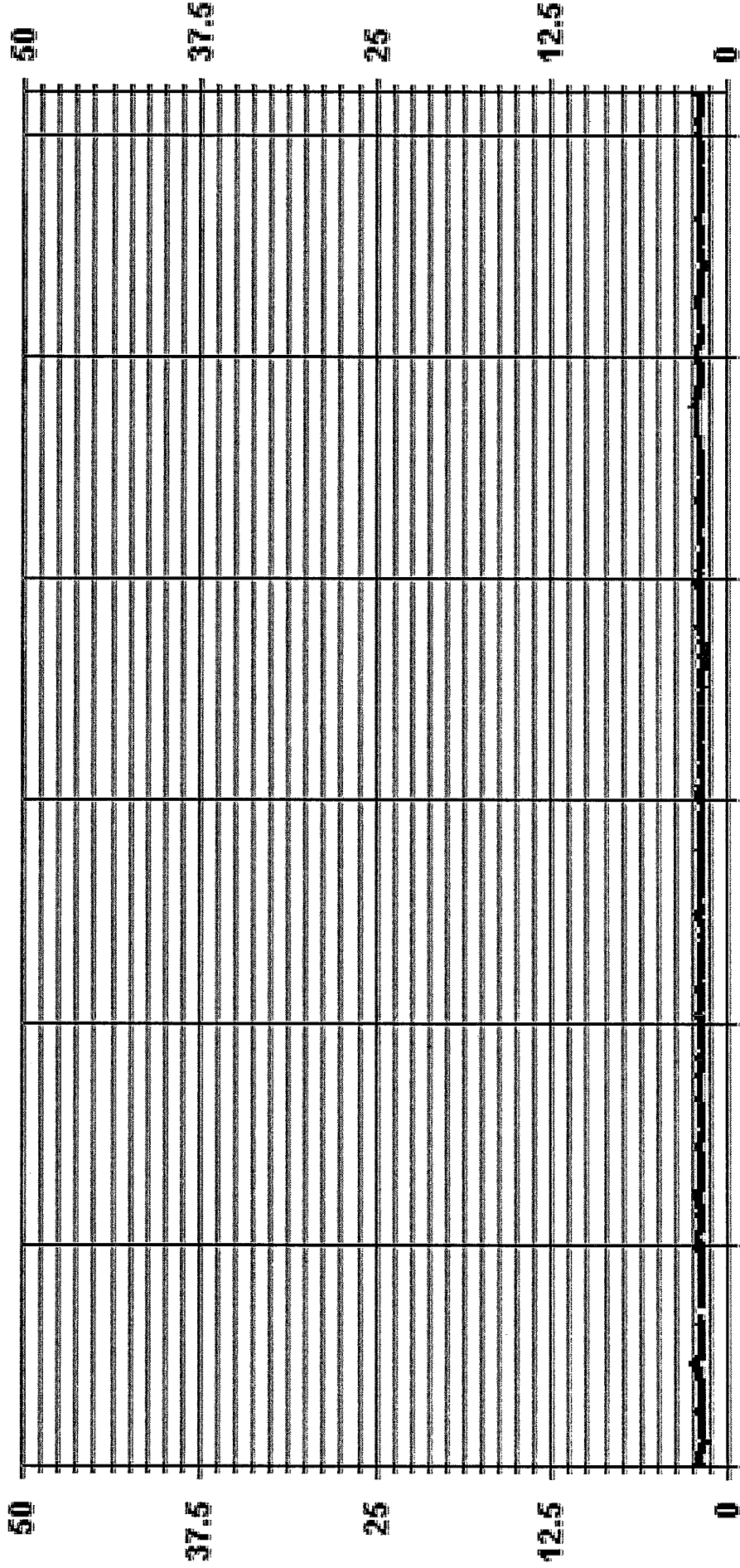
C	CALIBRATION	O	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT FOR REPAIR	K	COLLECTION ERROR



MONTHLY SUMMARY

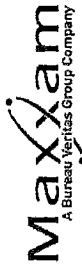
NUMBER OF NON-ZERO READINGS:	706
MAXIMUM 1-HR AVERAGE:	2.5
MAXIMUM 24-HR AVERAGE:	2.1
OPS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.13
OPERATIONAL TIME:	742 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	1.8 PPM
ON DAY(S)	3, 24
VAR	24
VAR-VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 - - - - THC PPM



TOTAL HYDROCARBONS MAX instantaneous maximum 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	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.0	2.1	2.0	2.1	2.3	2.8	2.0	2.1	1.8	2.1	1.8	1.9	2.0	2.0	2.4	
2	2.0	1.9	2.6	1.9	2.0	2.2	2.2	2.1	2.0	1.9	1.8	1.8	1.8	1.8	1.9	1.9	2.2	2.9	1.8	2.1	1.9	2.0	1.8	1.9	2.0	2.2	
3	2.1	2.1	2.0	2.1	2.3	2.3	2.6	2.6	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	
4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	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	
5	1.8	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	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
6	2.0	8.1	2.3	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	
7	3.4	3.7	3.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	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	
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	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
10	5	1.9	2.1	2.5	2.2	5.0	3.1	2.1	2.1	2.1	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		
11	1.9	1.9	1.9	2.0	5.8	2.0	2.0	2.0	1.9	3.4	2.1	2.2	2.4	2.1	2.3	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
12	2.5	2.4	2.1	2.1	1.9	2.0	2.2	2.9	2.0	2.1	1.9	2.0	2.1	2.4	2.2	1.8	1.7	2.2	2.0	3.0	3.4	3.5	2.4	1.8	1.8	3.5	
13	1.7	1.9	1.9	1.9	1.7	1.9	1.8	1.9	2.1	2.0	2.1	2.4	2.2	1.8	1.7	2.2	2.0	2.0	3.0	3.4	3.5	2.4	1.8	1.8	3.5	2.1	
14	2.3	2.6	4.1	2.3	2.2	2.1	2.1	2.1	2.1	2.0	2.2	2.1	1.9	1.9	2.0	2.4	2.3	2.2	2.3	3.0	2.3	3.0	2.3	3.4	1.8	1.7	4.1
15	1.7	1.7	2.6	2.5	1.7	1.9	1.8	3.1	1.7	1.8	2.1	2.3	2.2	2.3	2.8	2.1	2.2	2.3	2.2	2.3	2.3	2.3	2.3	3.4	1.8	1.7	4.1
16	2.4	2.3	2.3	2.1	3.0	2.9	2.2	2.1	3.5	3.0	2.3	1.9	2.8	1.9	2.2	2.8	2.5	2.5	2.3	4.1	1.7	1.7	2.4	1.7	4.1	2.4	
17	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
18	1.8	1.9	1.8	1.8	1.8	1.9	2.0	2.0	1.9	Y	Y	Y	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	
19	1.7	1.7	1.7	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	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
20	2.2	1.8	1.9	1.9	2.1	1.8	1.8	1.8	1.8	2.2	2.1	2.0	2.0	2.3	1.9	2.6	2.0	2.0	1.9	1.9	1.9	1.8	4.4	2.8	5.9	2.3	
21	3.1	4.8	3.4	2.5	2.6	2.7	2.4	2.3	2.4	2.2	2.0	2.1	2.0	2.1	1.9	2.0	2.0	2.0	2.5	2.0	2.2	2.1	2.5	2.9	4.8	2.5	
22	2.2	2.3	2.2	2.2	2.4	2.2	2.1	2.2	2.0	2.0	2.1	2.0	2.0	2.1	2.0	1.9	2.0	1.9	2.0	3.4	4.9	2.6	1.7	1.7	4.9	2.2	
23	1.7	1.7	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	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
24	1.9	1.9	1.9	2.0	2.5	2.0	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
25	2.2	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	1.9	1.9	2.0	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	
26	2.2	2.2	2.3	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	
27	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
28	4.2	1.9	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
29	1.9	2.0	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	2.2	2.2	2.2	
30	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	
31	2.5	2.3	2.3	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	2.0	2.0	2.0	
HOURLY MAX	4.2	8.1	4.1	2.5	5.8	5.0	6.6	3.1	3.5	3.4	2.4	2.4	2.8	2.3	2.8	2.8	4.0	4.3	3.4	6.5	6.3	4.6	10.1	12.3	2.7		
HOURLY AVG	2.2	2.4	2.2	2.0	2.3	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.7	

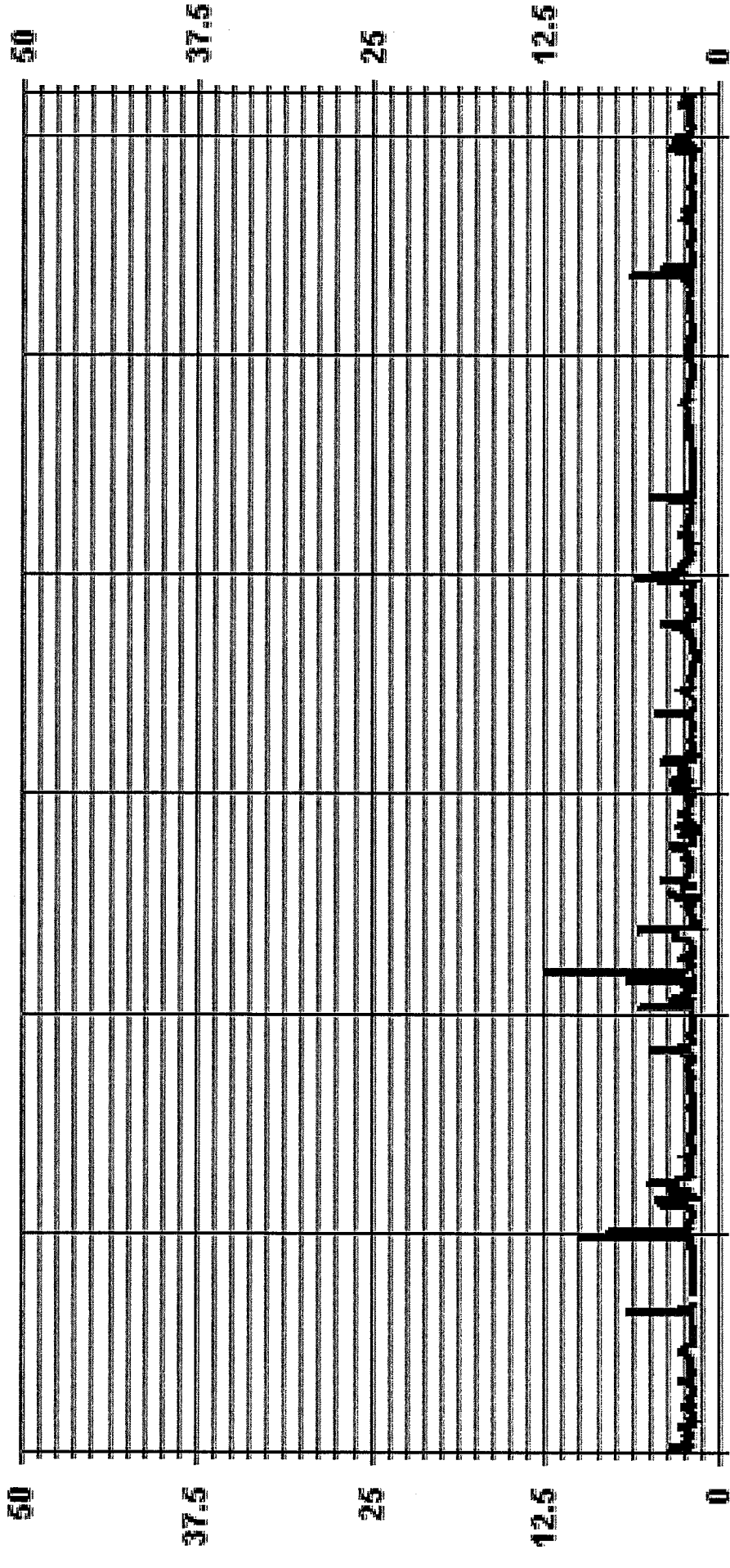
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	12.3 PPM
OPERATIONAL TIME:	740 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.82
ON DAY(S)	23
ON DAY(S)	11
VARIOUS	VARIOUS

01 Hour Averages



— LICA31 THC MAX PPM

LICAS1
 THC / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICAS1
 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	3.39	5.24	4.81	4.53	5.09	4.95	4.81	6.51	7.93	7.50	7.08	7.50	6.65	12.03	8.92	2.97	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	3.39	5.24	4.81	4.53	5.09	4.95	4.81	6.51	7.93	7.50	7.08	7.50	6.65	12.03	8.92	2.97	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

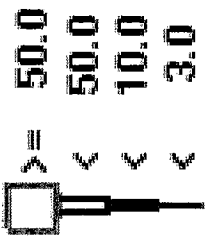
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	24	37	34	32	36	35	34	46	56	53	50	53	47	85	63	21	706
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	24	37	34	32	36	35	34	46	56	53	50	53	47	85	63	21	

Calm : .00 %

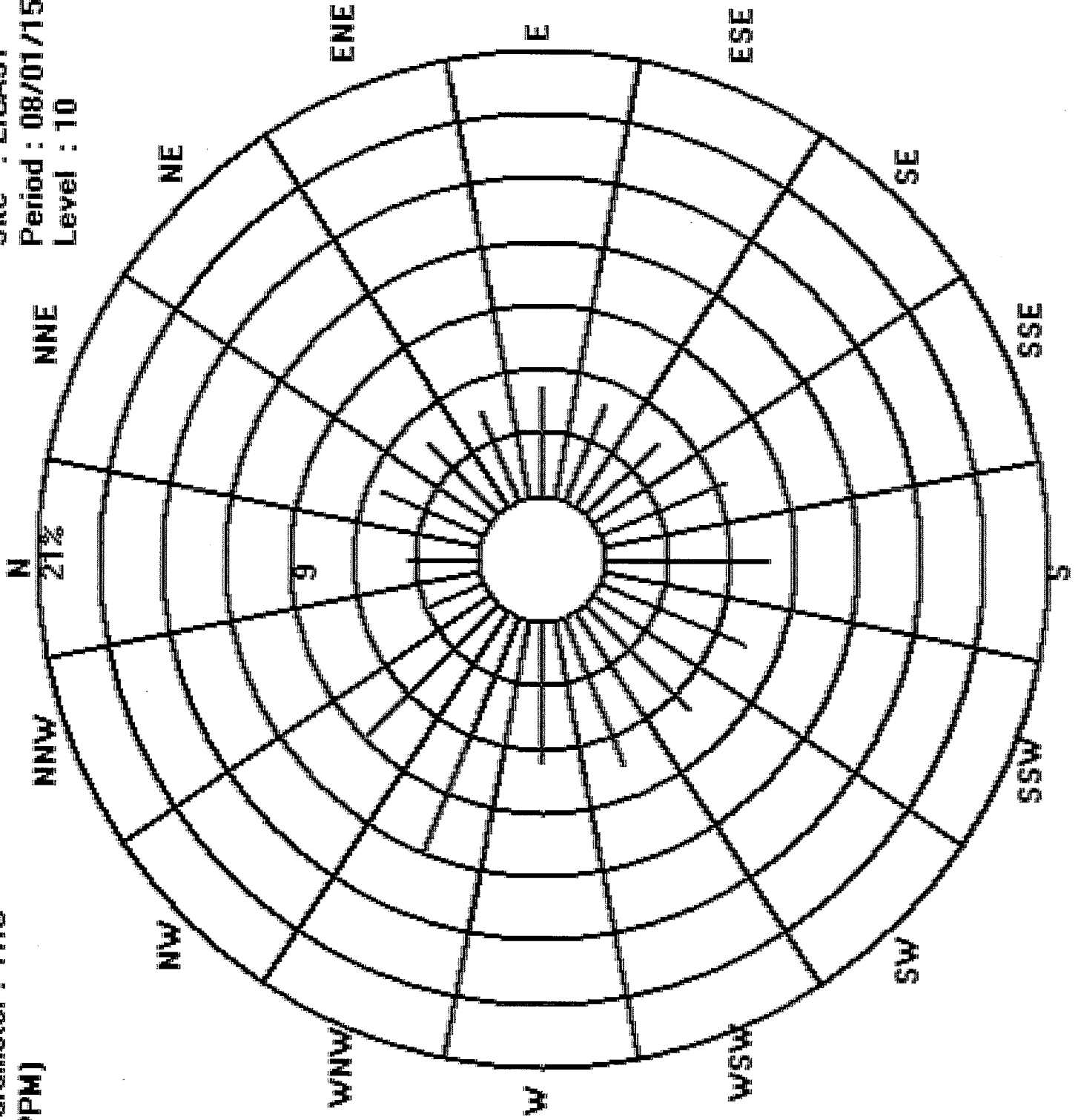
Total # Operational Hours : 706

Logger : 31 Parameter : THC

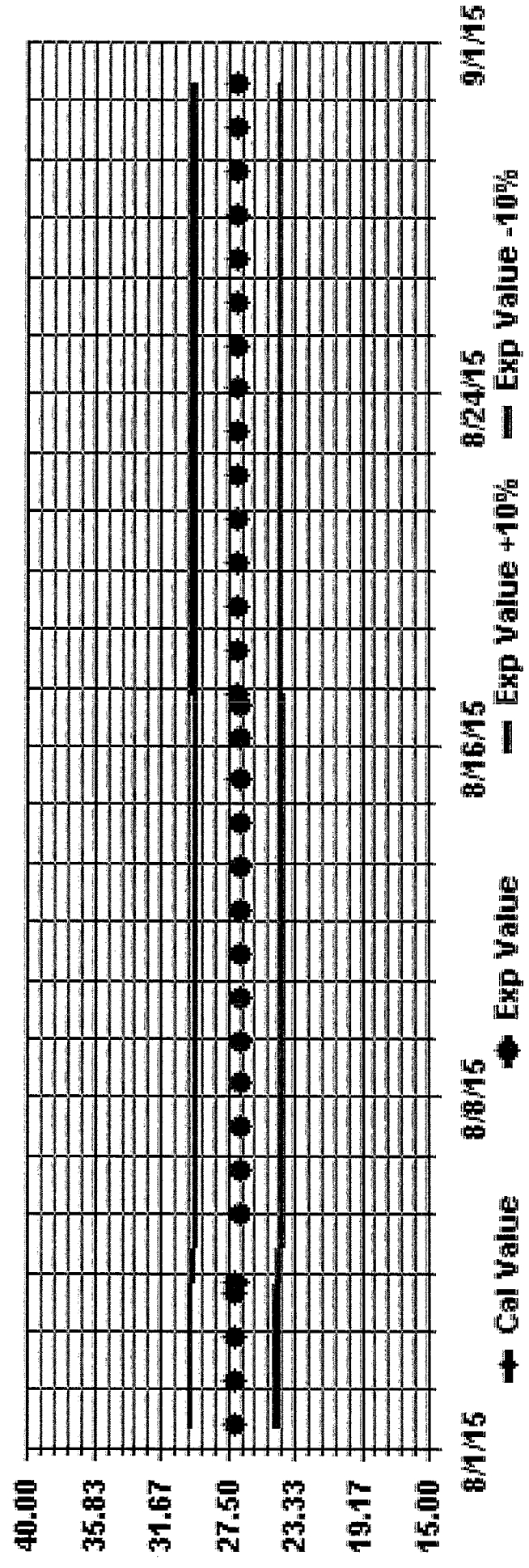
Class Limits (PPM)



Site : LICA31
Period : 08/01/15-08/31/15
Level : 10



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



OXIDES OF NITROGEN



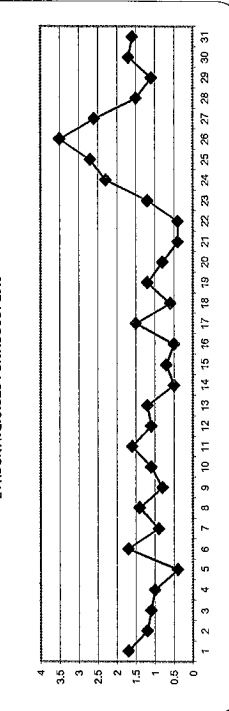
OXIDES OF NITROGEN (NOx) hourly averages in ppb

DAY	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				24:00	
1	2.4	6.4	6.4	5.0	4.3	3.7	2.7	1.9	0.9	0.4	0.3	0.2	0.1	\$	0.2	0.3	0.4	0.4	0.3	0.2	0.5	0.2	0.1	0.2	1.1	6.4	1.7	24	
2	3.0	1.6	1.3	2.8	4.3	3.6	2.4	1.5	0.7	0.7	0.3	0.4	\$	0.3	0.3	0.6	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.6	1.3	4.3	1.2	24	
3	2.1	2.3	2.0	1.4	1.2	1.8	2.0	2.5	3.1	2.7	2.2	\$	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.0	0.3	3.1	1.1	24		
4	0.4	0.5	0.8	0.9	0.7	0.6	\$	\$	1.5	2.3	\$	1.9	1.3	C	0.9	0.7	1.0	1.3	2.2	1.6	0.7	0.5	0.7	0.6	0.4	2.3	1.0	24	
5	0.3	0.0	0.2	0.1	0.1	0.0	0.3	0.3	0.2	C	C	C	C	C	0.1	0.0	0.3	0.0	0.4	0.5	0.2	0.8	0.8	0.3	3.0	0.4	24		
6	0.6	0.7	1.1	0.9	\$	2.2	2.4	2.2	1.2	1.2	1.2	1.0	1.1	1.2	1.4	1.9	2.0	1.8	1.5	1.8	2.3	4.3	4.3	1.7	24	1.7	24		
7	3.2	1.7	1.9	\$	0.9	1.2	1.4	1.5	1.3	1.1	0.7	0.6	0.7	0.3	0.3	0.4	0.3	0.3	0.9	0.2	0.8	0.6	0.7	0.8	3.2	0.9	24		
8	1.4	1.2	\$	1.9	2.0	2.1	1.8	1.9	1.8	1.4	1.6	1.0	1.3	1.3	1.2	0.9	1.1	1.2	1.0	0.7	0.9	1.3	1.4	1.7	2.1	1.4	24		
9	\$	1.0	1.3	1.4	1.5	2.8	1.6	1.9	1.4	1.1	0.5	1.1	0.9	0.8	0.1	0.0	0.5	0.4	0.4	0.4	0.6	0.6	1.1	0.7	\$	2.8	1.1	24	
10	1.8	1.4	2.1	1.9	1.7	3.1	3.0	2.8	3.6	2.7	1.9	1.1	0.9	0.8	0.1	0.0	0.5	0.4	0.4	0.4	0.5	1.7	0.7	1.3	\$	1.8	3.6	1.6	24
11	0.5	0.4	0.6	0.5	0.6	0.7	0.6	0.6	0.4	0.7	0.5	0.0	0.2	0.2	0.1	0.2	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.7	\$	2.8	1.1	24
12	1.9	1.3	1.4	0.8	1.4	1.9	1.9	2.6	2.6	2.1	0.7	0.6	0.5	0.3	0.6	0.6	0.7	0.4	0.7	1.0	0.7	\$	0.5	0.4	2.6	1.1	24		
13	0.3	0.7	1.3	1.1	0.5	0.5	0.7	0.9	1.7	1.5	1.3	1.9	1.8	1.5	2.1	2.0	1.5	1.8	1.5	1.7	\$	1.3	0.6	0.5	2.1	1.2	24		
14	0.5	0.4	0.6	0.5	0.6	0.7	0.6	0.6	0.4	0.7	0.5	0.0	0.2	0.2	0.1	0.2	0.4	0.4	0.4	0.4	1.1	\$	0.8	1.0	0.9	1.1	0.5	24	
15	0.7	0.4	0.3	0.4	0.6	1.0	2.0	1.3	0.9	0.6	0.9	1.0	0.8	0.7	0.6	0.7	0.9	0.3	\$	0.7	0.5	0.5	0.5	0.5	2.0	0.7	24		
16	0.5	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.7	0.4	0.2	0.5	0.5	0.1	0.4	0.6	0.4	\$	0.7	0.7	0.5	0.6	0.8	1.1	1.1	0.5	24		
17	1.3	2.3	1.8	0.8	1.8	2.1	2.5	2.8	2.6	2.5	1.8	1.7	1.3	1.0	1.1	1.0	\$	1.0	0.9	1.0	0.6	0.7	0.9	1.5	2.8	1.5	24		
18	1.0	0.9	0.9	0.9	0.7	1.1	0.8	0.5	0.3	0.1	0.4	0.4	0.4	0.1	0.2	\$	0.2	0.2	0.3	0.3	0.9	0.9	1.3	1.6	1.6	0.6	24		
19	1.7	1.4	1.2	1.0	0.7	0.9	1.1	1.5	1.7	2.6	2.2	1.7	1.7	1.6	\$	0.6	0.6	0.6	0.5	1.1	0.9	0.9	1.0	1.1	2.6	1.2	24		
20	0.9	1.9	1.6	1.8	1.3	1.4	1.3	1.3	1.9	0.7	0.5	0.3	0.4	\$	0.0	0.1	0.0	0.3	0.0	0.6	0.3	0.1	0.6	0.5	1.9	0.8	24		
21	0.7	0.3	0.5	0.8	0.8	0.5	0.4	0.2	0.4	0.2	0.4	0.2	\$	0.3	0.1	0.2	0.6	0.4	0.1	0.2	0.3	0.2	0.3	0.3	0.4	0.8	0.4	24	
22	0.5	0.4	0.6	0.6	0.4	0.8	0.6	0.6	0.6	0.0	0.2	0.3	\$	0.4	0.3	0.4	0.3	0.2	0.0	0.3	0.4	0.2	0.5	0.4	0.6	0.4	24		
23	0.6	0.9	0.4	0.8	0.7	0.9	1.5	1.6	1.6	3.6	\$	1.5	1.4	0.9	0.8	0.8	0.8	0.8	0.7	0.9	0.9	1.5	2.0	1.7	3.6	1.2	24		
24	1.6	1.4	1.4	1.4	1.4	1.2	1.7	2.6	3.1	\$	1.8	2.0	1.7	1.5	1.6	1.3	1.7	1.6	1.7	2.5	2.9	7.6	6.6	7.6	2.3	24			
25	2.5	2.0	4.8	3.1	2.8	4.4	3.2	3.1	\$	2.6	3.9	2.6	1.7	1.5	1.5	1.6	1.4	1.1	1.5	1.5	1.0	3.1	5.1	5.8	5.8	2.7	24		
26	6.6	7.8	9.9	8.0	9.7	10.5	7.9	\$	2.7	2.7	1.2	1.2	0.9	0.6	0.4	0.5	0.9	1.1	1.2	1.5	1.4	1.4	1.4	1.4	10.5	3.5	24		
27	2.2	1.8	2.3	2.4	2.0	4.8	\$	4.0	2.5	2.1	1.8	1.9	1.9	1.7	1.5	1.3	1.7	2.3	2.5	4.0	3.4	3.8	4.2	3.3	4.8	2.6	24		
28	2.9	2.0	1.2	1.4	1.1	\$	2.3	2.3	2.1	1.5	1.6	1.5	1.2	1.5	1.2	0.7	0.5	0.9	1.2	1.2	1.6	1.8	2.2	2.9	1.5	24			
29	2.3	2.6	2.1	1.0	\$	0.8	0.9	1.0	0.7	0.6	0.6	0.5	0.4	0.3	0.2	0.5	0.8	1.1	1.3	1.4	1.5	1.9	1.8	2.6	1.1	24			
30	2.0	3.0	2.6	\$	3.0	3.3	2.9	2.3	2.7	2.6	2.9	2.8	1.2	0.4	0.3	0.5	0.4	1.0	0.7	0.4	0.7	0.8	1.0	0.6	3.3	1.7	24		
31	0.5	0.4	\$	1.8	1.8	1.8	2.9	2.4	2.6	5.4	4.3	2.7	0.5	0.2	0.1	0.2	0.5	0.6	0.6	0.7	0.8	0.7	1.6	4.2	5.4	1.6	24		
HOURLY MAX	6.6	7.8	9.9	8.0	9.7	10.5	7.9	4.0	5.4	4.3	3.9	2.8	1.9	1.7	2.1	2.0	1.9	2.3	3.0	4.0	3.4	3.8	7.6	6.6					
HOURLY AVG	1.6	1.6	1.8	1.6	1.7	2.1	1.9	1.7	1.8	1.6	1.2	1.1	0.9	0.8	0.6	0.7	0.7	0.8	0.9	0.9	1.1	1.5	1.5	1.7					

STATUS FLAG CODES

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

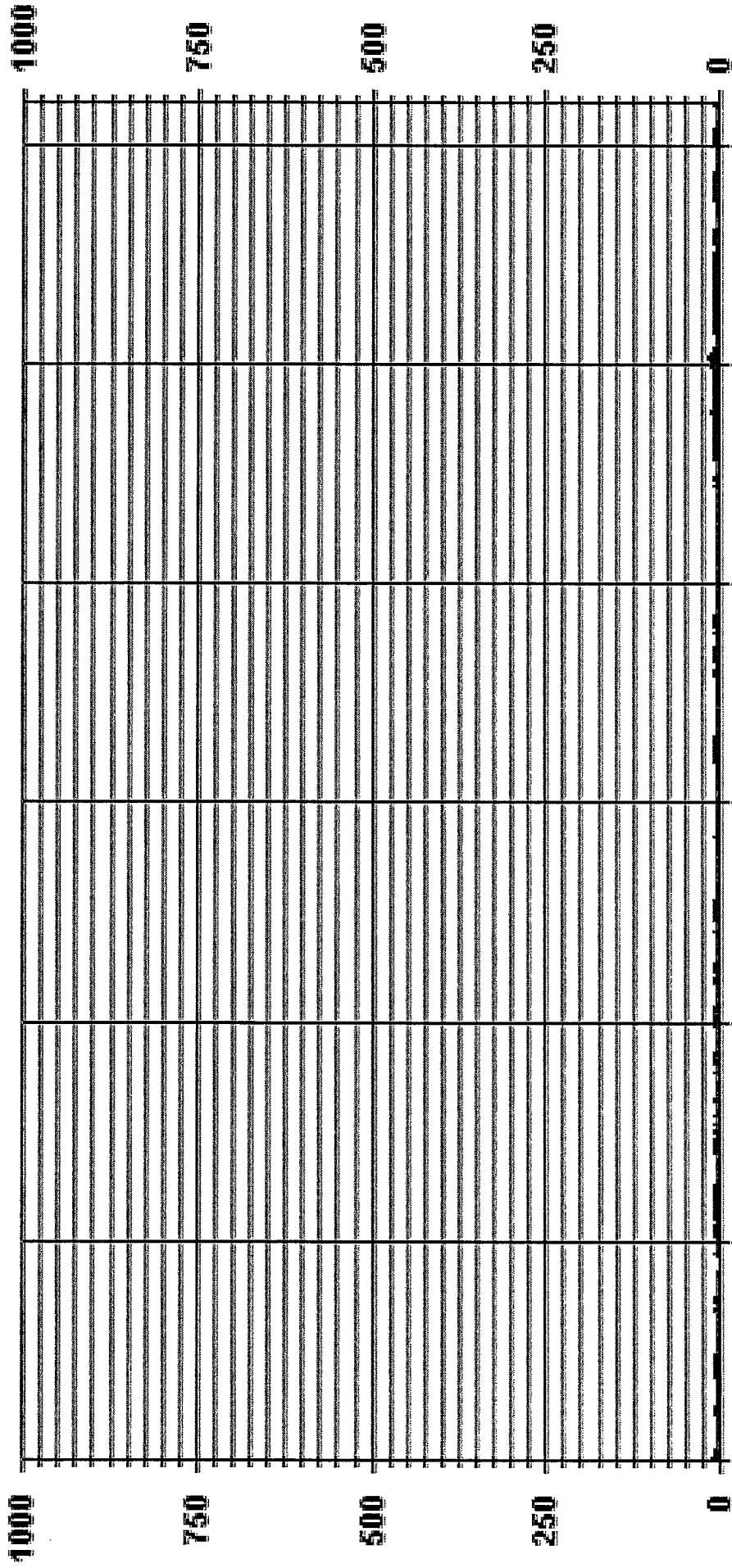
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	686
MAXIMUM 1-HR AVERAGE:	10.5 PPB
MAXIMUM 24-HR AVERAGE:	3.5 PPB
725 CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	1.28
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	1.3 PPB
ON DAY(S)	5
ON DAY(S) VAR-VARIOUS	26

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 HOX_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
St. Lina Site - AUGUST 2015
JOB # 2833-2015-08-31- C

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

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	DAILY	24-HOUR	RDSS
HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG	
DAY																											
1	5.6	7.4	7.1	6.7	5.2	4.8	3.8	2.8	2.7	2.8	1.1	0.9	1.3	S	0.8	1.1	1.4	1.7	0.8	2.4	1	0.9	0.9	2.6	7.4	2.9	24
2	4.4	2.8	2.3	5.4	7.8	6	6.7	2.8	1.4	2.3	1.1	1.2	S	1.3	1.1	2.2	1.8	1	0.8	1	1	1	1.6	2.2	7.8	2.6	24
3	2.9	3.4	2.8	2.2	1.9	2.7	2.7	3.6	3.6	4.2	3.1	S	0.5	0.7	0.4	0.6	0.3	0.5	1	1	0.8	R	1	4.2	1.9	23	
4	1	1.2	1.5	1.6	1.4	1.4	S	2.4	3.2	S	2.8	2.2	1.5	1.7	2	3	2.2	1.4	1.1	1.3	1.2	1.1	3.2	1.1	3.2	1.7	24
5	1.1	0.5	0.8	0.7	0.8	0.5	1.3	1	0.7	C	C	C	C	C	C	C	C	1.1	33.2	0.7	1	1	0.7	2.7	33.2	3.0	24
6	1.5	1.5	2.6	1.5	S	3	3.1	2.9	2.6	1.9	1.8	1.7	1.5	1.9	1.8	2	3.6	5.5	2.7	2.3	2.8	2.8	6.1	5.3	6.1	2.7	24
7	4.7	2.5	2.8	S	1.5	2.3	2.2	2.6	2.6	2.9	1.5	1.5	2.6	0.9	1.2	1.1	0.9	1.4	1.9	0.9	1.4	1.3	1.4	1.4	4.7	1.9	24
8	2.1	1.9	S	2.7	2.7	2.7	2.6	3.2	2.8	2	3.9	1.7	2	2	2.4	1.9	2.3	1.5	1.4	2	2.2	2.3	3.9	2.2	2.2	2.2	24
9	1.7	S	1.3	1.3	1.3	1.6	1.8	2.4	3.2	2.3	1.2	1.3	1.2	1.1	0.8	0.8	0.9	1.2	1.1	1.1	2.4	1.7	1.4	3.2	1.5	2.4	24
10	S	1.9	1.8	2	2.5	4.1	2.5	4.3	3.5	13.1	1.3	2.7	2.1	4.9	3.6	1.3	1.5	2	1.2	1.1	1.3	1.6	1.3	S	13.1	2.8	24
11	2.4	2.1	3.2	3.2	2.4	8.1	8	3.8	4.3	3.7	4.9	3.8	1.8	1.8	0.7	0.7	2.8	2.2	1.2	5.8	1.8	2.6	S	2.3	9.8	3.5	24
12	2.6	2.3	2.5	1.3	2	2.6	2.9	11.9	6.3	39.5	2.7	2.1	2.5	1	1.4	1.6	2.5	1	1.6	3.2	1.9	S	1.2	1	39.5	4.2	24
13	1	1.9	2.2	2.5	1.3	1.2	1.3	1.5	3	2.2	1.9	3	6.4	3.7	23.3	27	3.7	7.1	2.1	3	S	2.7	1.6	1.1	27	4.6	24
14	1.1	1.1	1.3	1.2	1.2	2.7	1.5	1.1	1.1	2.2	3.4	0.8	1.1	1.4	0.9	1.2	1.4	1.1	4.7	S	1.6	2.6	2.9	1.5	4.7	1.7	24
15	1.4	1	1	0.9	1.3	2.7	3.2	2.4	1.6	1.7	2	1.7	2.3	1.6	1.4	1.5	16.2	0.8	S	1.4	1.4	2.2	1.3	1.3	16.2	2.3	24
16	1.1	1.4	1.1	1.1	1.3	1.4	1.1	1.1	1.2	1.1	0.9	1.2	1.7	0.7	1.5	1.7	1.3	S	2	2.6	1.1	1.6	1.4	1.8	2.6	1.4	24
17	2.2	3.9	2.7	1.4	3	3	5.5	5	5.6	5.3	2.6	4.7	3.2	2	1.8	2.2	S	2.1	1.6	3.9	3.3	1.5	6	6.7	6.7	3.4	24
18	1.5	1.5	1.4	1.4	1.4	2.5	2	1.9	1.2	1	2	1.8	26.4	0.9	1.7	S	2.3	1.3	1.7	1.3	1.5	1.5	2	2	26.4	2.7	24
19	2.4	2.2	1.9	1.6	1.3	1.7	1.8	2.4	3	6.7	2.9	2.4	3.8	2.1	S	1.5	2.4	1.7	1.2	2.3	1.7	4.2	2.8	1.8	6.7	2.4	24
20	1.5	3.4	2.1	2.6	2.2	2.2	3.9	2	4.2	1.5	1.4	0.9	1.7	S	0.7	1.5	0.9	1.4	0.7	3.6	1.5	0.8	1.7	1.2	4.2	1.9	24
21	1.4	1	1.4	1.4	1.4	1.1	1.1	1.7	1.7	1.2	3.1	0.9	S	1	1.1	1	3.3	1.2	0.8	1.5	0.9	1.2	1.2	1.2	3.3	1.4	24
22	1.3	1.1	1	1.3	1	1.5	1.4	1.7	0.8	0.8	1.2	S	1.4	1.8	1.4	1.1	1	0.7	2.8	1.3	0.8	1.7	1.5	1.4	2.8	1.3	24
23	1.2	1.4	1.3	1.5	1.3	1.4	3.5	2.2	2.3	5.8	S	2.1	2.6	2.9	1.8	1.5	1.3	1.3	1.6	1.6	1.6	2.5	2.8	2.4	5.8	2.1	24
24	2.3	2.1	2	2.1	2.1	2.1	2.7	3.4	4	S	2.4	2.6	2.7	2.3	2.2	2.2	2	2.3	2.5	2.5	3.7	5.6	10.2	8.2	10.2	3.2	24
25	4.3	3.1	6.2	5.4	4.5	5.3	4.2	3.7	S	3.6	5	3.3	2.5	2.2	2.2	2.2	4.4	4.2	1.6	5.8	6	7.3	7.3	4.0	4.0	24	
26	7.6	8.5	12.5	9	13.1	13	9	S	4.2	4.6	2.1	3.8	1.8	2.3	1.2	1.1	1.2	1.7	2	2	2.3	2.2	2.1	2.2	13.1	4.8	24
27	3.1	2.8	3.1	3.1	2.8	10.4	S	7.8	3.8	5.5	3.7	3.1	3.1	2.9	2.1	3.4	3.4	4	3.7	8.1	4.3	4.5	4.9	4.2	10.4	4.3	24
28	3.6	3.7	1.9	2.1	1.9	S	33.6	5.4	3.7	2.5	2.2	2.4	2.2	2.2	2.2	1.3	1.5	3.9	2.7	1.9	2.1	2.2	2.7	2.9	33.6	3.9	24
29	3.2	3.4	3.2	1.7	S	1.5	2.3	1.8	2	1.3	1.5	1.3	1.1	0.9	1	1.2	1.2	1.4	1.8	2	2	2.3	2.6	2.3	3.4	1.9	24
30	3.2	3.7	3.3	S	3.7	4	3.7	3.1	7.7	4	4.1	4.1	2.1	1	1.1	2.3	1.3	2.3	1.6	1.3	3.8	2.4	4.5	1.6	7.7	3.0	24
31	1.4	1.4	S	2.8	3.2	4.3	4	5.1	6.2	6.3	4.4	1.9	R	1	1	1.1	4	3.6	1.4	1.3	1.4	3	6.7	6.7	3.0	23	
HOURLY MAX	7.6	8.5	12.5	9	13.1	13	33.6	11.9	7.7	39.5	5	9.8	26.4	4.9	23.3	27	16.2	7.1	38.2	8.1	4.3	5.8	10.2	8.2	8.2	8.2	
HOURLY AVG	2.5	2.5	2.7	2.5	2.7	3.4	4.3	3.3	3.1	4.7	2.5	2.4	3.1	4.8	2.2	2.4	2.4	2.1	2.9	2.3	1.8	2.2	2.7	2.7	2.7	2.7	

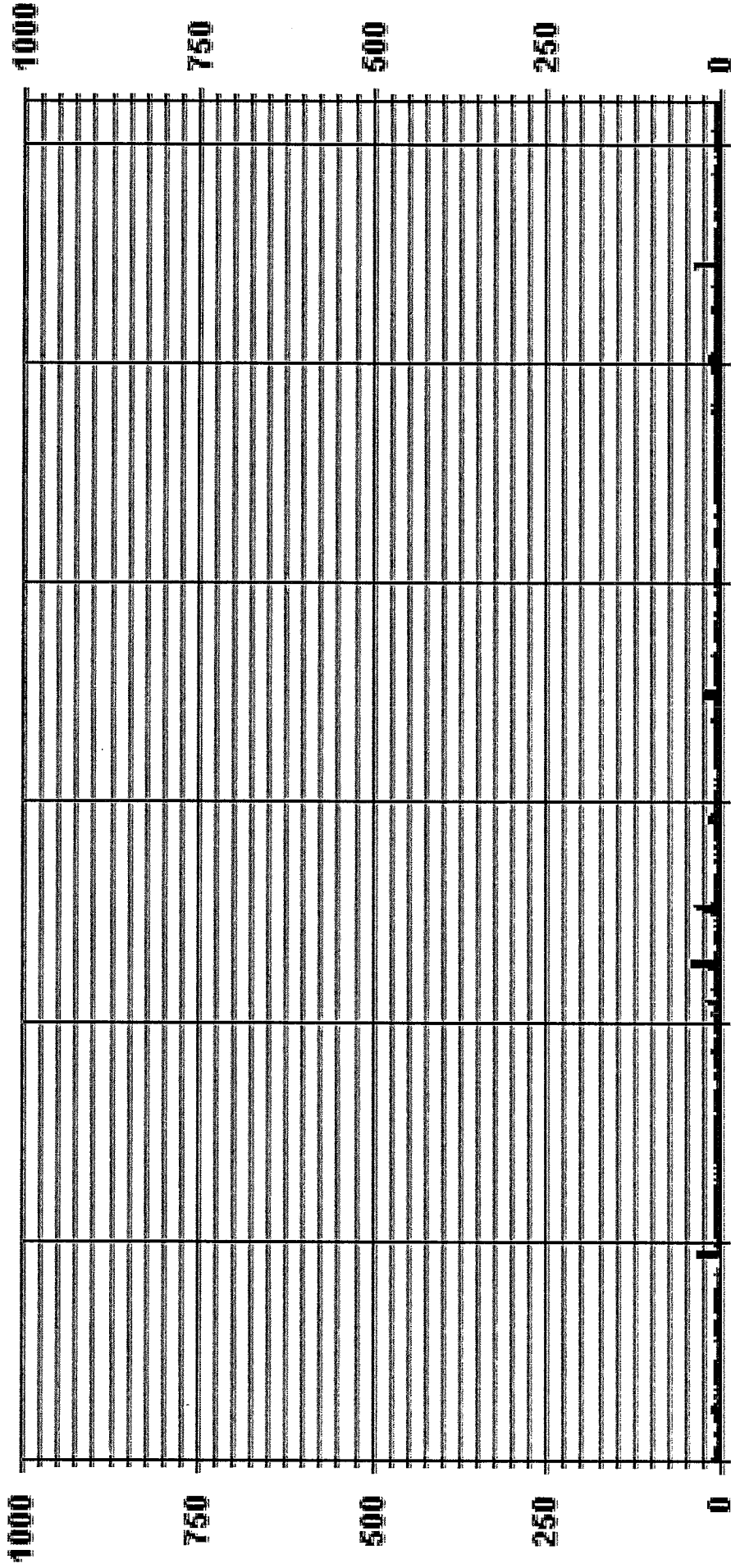
STATUS FLAG CODES

C	QUALITY ASSURANCE
Q	CALIBRATION
M	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:	701
MAXIMUM INSTANTANEOUS VALUE:	39.5 PPB @ HOUR(S) 9 ON DAY(S) 12
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	3.23
OPERATIONAL TIME:	VAR-VARIOUS 742 HRS

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 NOXMAX PPB

LICA31
NOX_ / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NOX
Units : PPS

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	3.41	5.26	4.97	4.40	5.12	4.83	4.69	6.54	7.96	7.53	7.11	7.39	6.68	12.09	8.96	2.98	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	3.41	5.26	4.97	4.40	5.12	4.83	4.69	6.54	7.96	7.53	7.11	7.39	6.68	12.09	8.96	2.98	2.98

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50.0	24	37	35	31	36	34	33	46	56	53	50	52	47	85	63	21	703
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	24	37	35	31	36	34	33	46	56	53	50	52	47	85	63	21	703

Calm : .00 %

Total # Operational Hours : 703

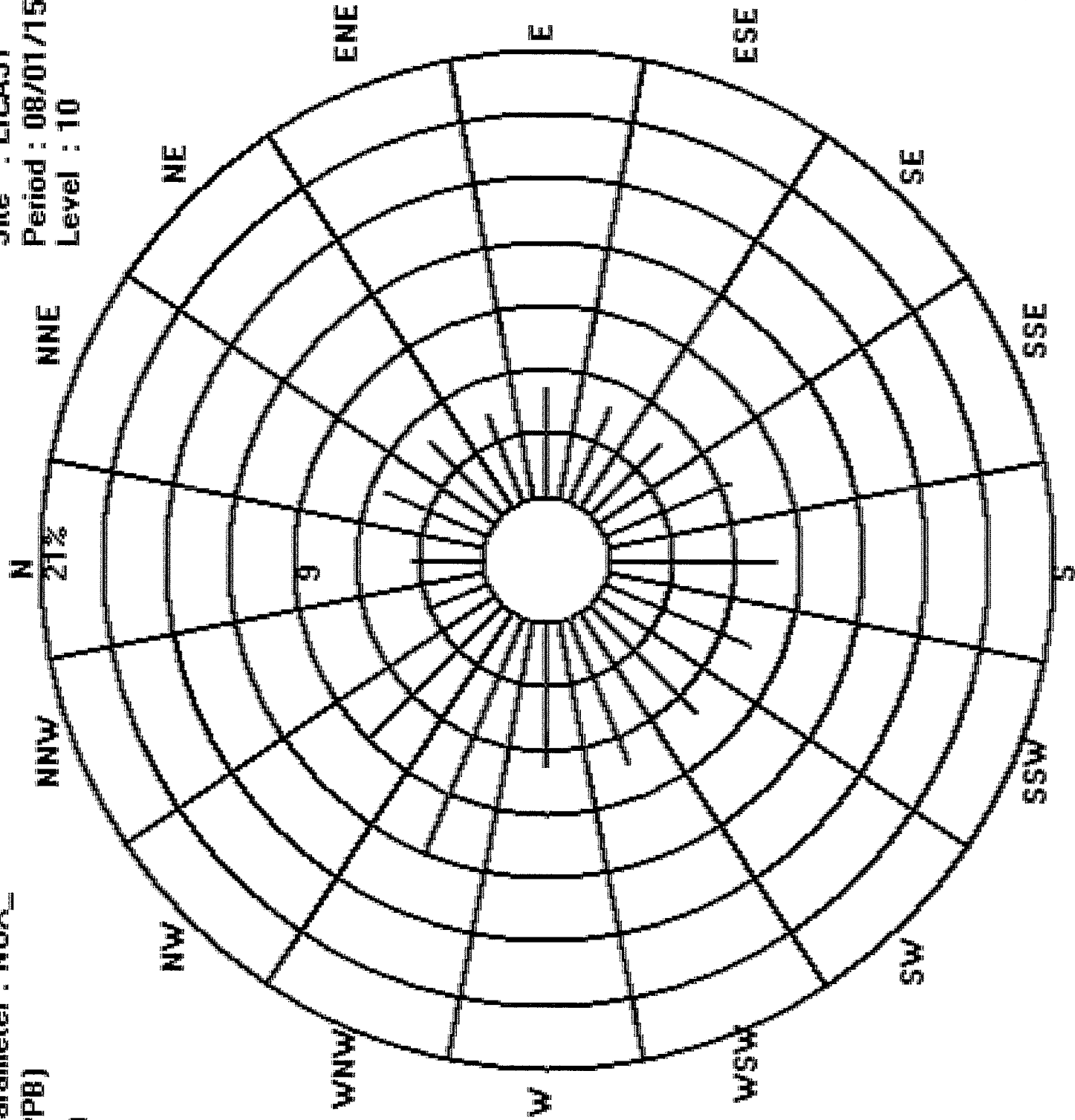
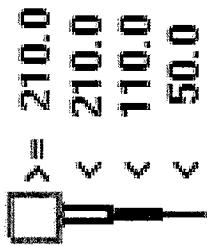
Logger : 31 Parameter : NOX_

Site : LICA31

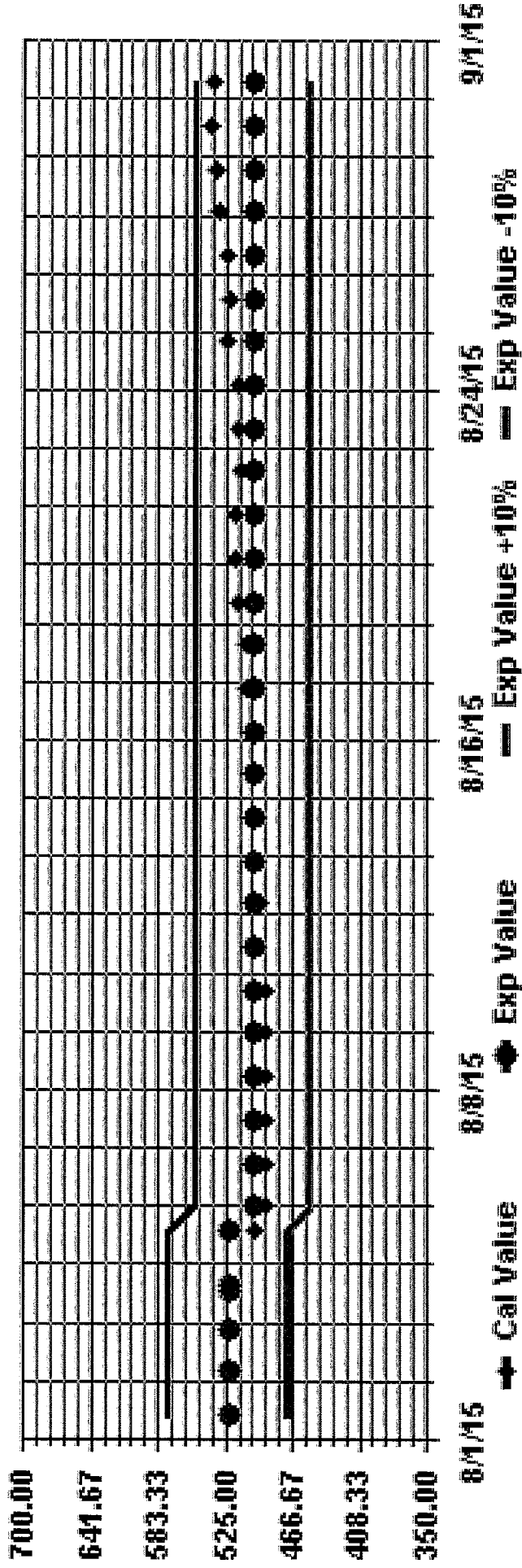
Class Limits (PPB)

Period : 08/01/15-08/31/15

Level : 10



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



NITRIC OXIDES



NITRIC OXIDE (NO) hourly averages in ppb

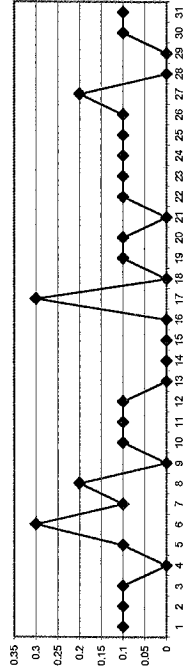
MST

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	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	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	0.0	0.0	0.0	0.0	0.0
DAILY MAX	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	0.0	0.0	0.0	0.0
DAILY 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
24-HOUR AVG	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	0.1	0.1	0.1	0.1	0.1
RDGS.	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
M	—	MAINTENANCE	R	—	RECOVERY
S	—	DAILY ZERO/SRAN CHECK	X	—	MACHINE MALFUNCTION
P	—	POWER FAILURE	O	—	OPERATOR ERROR
G	—	OUT FOR REPAIR	K	—	COLLECTION ERROR

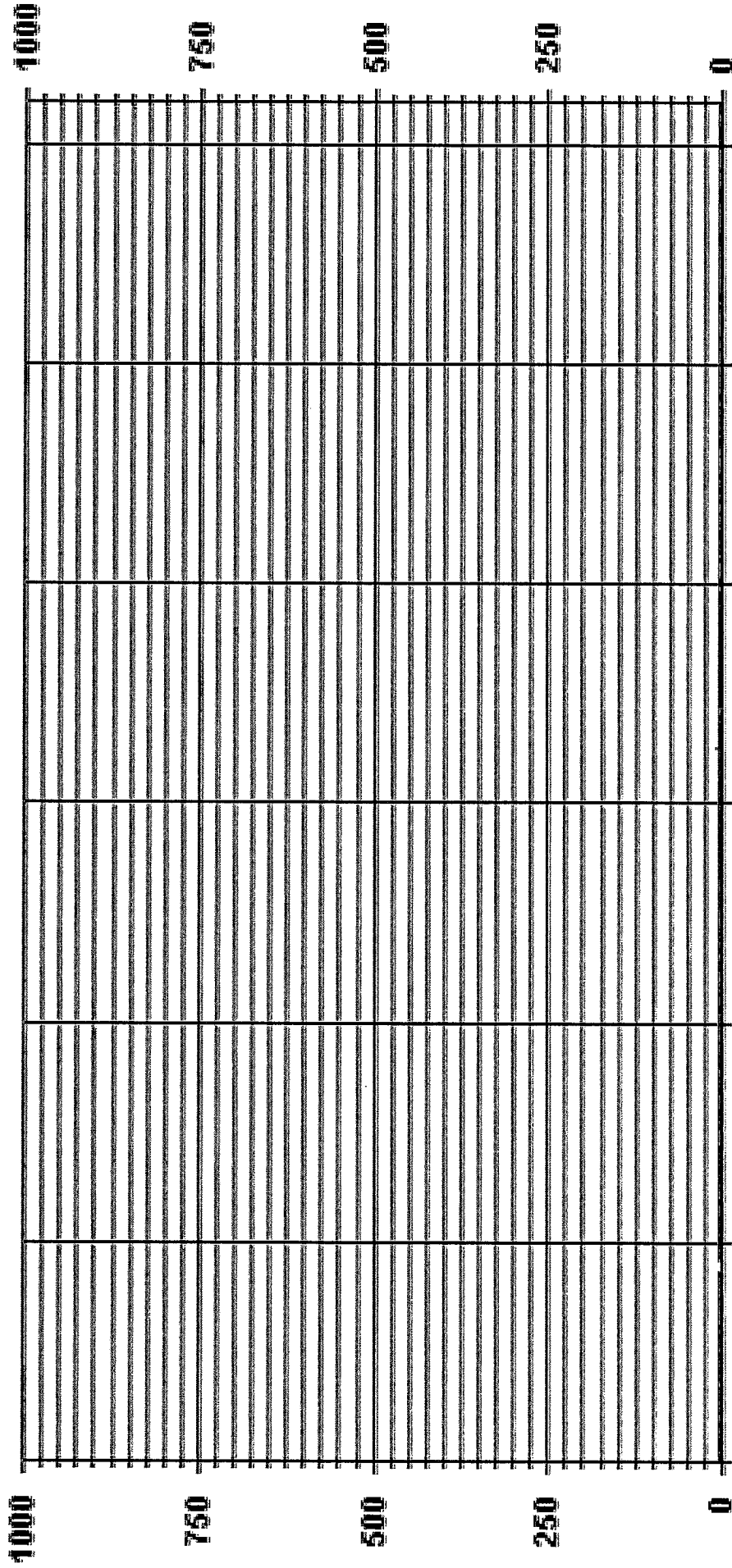
24-HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	190	PPB @ HOUR(S)	7	ON DAY(S)	17
MAXIMUM 1-HR AVERAGE:	1.5	PPB	6, 17	ON DAY(S)	VAR-VARIOUS
MAXIMUM 24-HR AVERAGE:	0.3	PPB			
1/2 CALIBRATION TIME:	33	HRS		OPERATIONAL TIME:	744
MONTHLY CALIBRATION TIME:	8	HRS		AMD OPERATION UPTIME:	100.0
STANDARD DEVIATION:	0.18			MONTHLY AVERAGE:	0.1

01 Hour Averages



— LICA31 NO_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 St. Lina Site - AUGUST 2015
 JOB # 2833-2015-08-31-C

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

DAY	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	24:00	25:00	26:00	27:00	28:00	29:00	30:00	31:00	DAILY MAX.	DAILY AVG.	RDGS.
1	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.8	1.6	1.9	0.7	0.4	0.8	0.5	0.4	0.7	0.7	0.7	0.9	1.2	0.5	0.7	0.7	0.7	0.4	1.9	0.8	24						
2	0.5	0.4	0.7	0.7	0.7	0.7	0.7	0.7	1.1	1.3	0.9	0.9	0.8	0.4	0.3	0.4	0.3	0.1	0	0.3	0.4	0.1	0.1	R	0.1	3.9	0.8	24						
3	0.8	0.7	0.7	0.4	0.5	0.3	0.4	1.1	1.1	1.3	0.9	S	0.4	0.3	0.4	0.3	0.1	0	0.3	0.4	0.1	0.1	0.1	R	0.1	1.3	0.5	23						
4	0.3	0.4	0.4	0.6	0.1	0.5	S	0.7	0.7	S	0.6	0.4	0.2	0.1	0.2	0.6	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0	0.7	0.3	24							
5	0.3	0	0.1	0	0	0	0	0	0	C	C	C	C	C	C	C	C	C	0.2	20.6	0	0.1	0	0	0.8	20.6	1.4	24						
6	0.1	0	0.3	0	S	1.4	1.7	1.4	1.4	1.1	1.2	0.8	0.8	0.8	0.8	0.9	1.5	2.6	0.8	0.8	0.8	0.8	1.1	0.7	2.6	0.9	24							
7	0.8	1	1	S	0.5	0.7	1	1.2	1.7	0.9	1.4	0.4	0.4	0.4	0.6	0.2	0.4	0.6	0	0.4	0.2	0.1	0.4	1.7	0.7	24								
8	0.4	0.4	S	0.9	0.7	0.8	1	1.3	1.3	0.8	1.5	0.8	1	0.7	1.1	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.6	1.5	0.9	24							
9	0.6	S	0.3	0	0	0.2	0.5	1.3	0.5	0.3	0.5	0.3	0	0.1	0	0.1	0.3	0.2	0.1	0.4	0.2	0.5	0.3	1.3	0.3	24								
10	S	0.6	0.5	0.9	0.5	0.7	1	1.4	1.6	7.1	0.4	1	1	2.4	1.8	0.5	0.5	0.5	0.5	0.3	0.4	0.7	S	7.1	1.1	24								
11	0.6	0.5	0.6	0.6	0.4	2.6	2.9	1	0.8	0.7	2	5.9	0.7	0.9	0.5	0.4	1.5	0.4	0.3	0.6	0.2	0	S	0.7	5.9	1.1	24							
12	0.5	0.6	0.8	0.6	0.6	0.8	0.3	9.3	2.2	28.6	1.1	1	1.6	0.4	0.7	1	1.3	0.4	0.6	0.5	0.4	S	0.6	0.3	28.6	2.4	24							
13	0.3	0.2	0.3	0.3	0.3	0	0.3	0.3	0.5	0.3	0.5	0.3	1.3	0.5	4.9	7.3	1	1.3	0.3	0.3	S	0.4	0.3	0.1	7.3	0.9	24							
14	0.2	0	0.3	0.4	0.3	1.1	0.3	0.6	0.3	1.4	1	0.1	0.4	0.5	0.4	0.4	0.4	0.3	1.8	S	0.4	1.4	1.7	0.4	1.8	0.6	24							
15	0.4	0.4	0.5	0.4	0.6	0.7	0.6	0.7	0.7	0.6	0.8	1	1.4	0.5	0.6	0.8	11.6	0.2	S	0.9	0.5	0.9	0.4	0.4	11.6	1.1	24							
16	0.6	0.4	0.4	0.1	0.3	0.4	0.4	0.5	0.7	0.4	0.5	0.8	0.9	0.2	0.4	0.7	0.7	S	1.2	1.1	0.7	0.8	0.7	0.7	1.2	0.6	24							
17	0.7	0.4	0.9	0.7	1	0.9	2.2	3.1	3.3	3.2	1.1	1.8	1.5	0.7	0.7	0.7	S	0.8	0.6	1	0.9	0.6	1.7	1.8	3.3	1.3	24							
18	0.4	0.4	0.6	0.6	0.6	0.6	0.6	1.4	1.3	0.6	0.6	1.3	0.8	21.5	0.9	1	S	0.8	0.6	0.3	0.2	0.4	0.3	0.1	0.3	21.5	1.5	24						
19	0.4	0.3	0.3	0.3	0	0.3	0.3	0.7	0.8	3.4	0.8	0.5	1	0.6	S	1	1.2	0.7	0.7	0.7	0.8	1.4	0.9	0.8	3.4	0.8	24							
20	0.7	0.6	0.6	0.6	0.6	0.7	1.6	1	1.6	1.2	0.9	0.7	1.4	S	0.5	1	0.4	0.6	0.3	0.6	0.4	0.2	0.4	0.4	1.6	0.7	24							
21	0.6	0.2	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	24						
22	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.9	1	0.4	0.9	1	0.8	1.8	S	1	1.1	0.9	0.5	0.5	0.8	0.7	0.7	0.6	1.1	0.8	1.1	0.7	24					
23	0.7	0.5	0.5	0.9	0.5	0.6	1.3	1	0.8	1.8	S	1	1.1	0.9	0.5	0.5	0.5	0.5	0.8	0.7	0.7	0.6	0.7	0.4	0.8	1.1	0.7	24						
24	0.7	0.8	0.6	0.3	0.9	0.6	0.8	0.9	1.8	S	0.8	1	0.6	0.4	0.4	0.4	0.4	0.1	0.4	0.2	0.4	0.2	0.4	0.4	1.8	0.6	24							
25	0.4	0.2	0.4	0.2	0.6	0.4	0.4	0.8	S	1.2	1.7	0.9	0.5	0.5	0.6	0.6	0.6	0.5	0.6	1	0.6	0.6	0.6	0.5	1.7	0.6	24							
26	0.6	0.8	0.8	0.6	0.8	1.7	S	1.3	1.7	0.4	1.3	0.6	0.7	0.4	0.5	0.1	0.4	0.4	0.3	0.3	0.2	0.3	0	1.7	0.6	24								
27	0.6	0.4	0.5	0.3	0.6	3.7	S	3.8	1.2	1.8	1.3	0.9	0.8	0.8	0.6	3.1	1	0.8	0.6	1	0.5	0.4	0.7	0.5	3.8	1.1	24							
28	0.5	0.7	0.4	0.7	0.6	S	18.1	1.9	1.3	0.8	0.6	0.5	0.1	0.4	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0	0.3	0.2	18.1	1.2	24							
29	0	0.2	0.1	0.2	S	0.5	0.3	0.8	0.6	0.4	0.4	0.4	0.3	0.3	0.1	0.4	0.1	0.5	0.3	0	0.2	0.3	0.6	0.5	0.8	0.3	24							
30	0.3	0.3	0.3	S	0.3	0.3	S	0.3	0.5	0.8	0.9	4.1	1.1	1	0.9	0.4	0.4	0.4	0.2	0.6	0.3	0.2	1.9	0.9	4.1	0.7	24							
31	0.3	0.5	S	0.2	0	0.2	1	1	1.9	1.2	1.7	0.5	R	0.1	0.4	0.6	1.4	1.2	0.1	0	0.1	0	0	0	1.9	0.6	23							
HOURLY MAX	0.8	1	1	0.9	1	3.7	18.1	9.3	4.1	28.6	2	5.9	21.5	2.4	4.9	7.3	11.6	2.6	20.6	1.2	1.9	1.4	1.7	1.8										
HOURLY AVG	0.5	0.4	0.5	0.4	0.5	0.7	1.6	1.4	1.2	2.3	0.9	1.0	1.6	0.6	0.7	0.9	1.1	0.6	1.2	0.5	0.5	0.5	0.6	0.6										

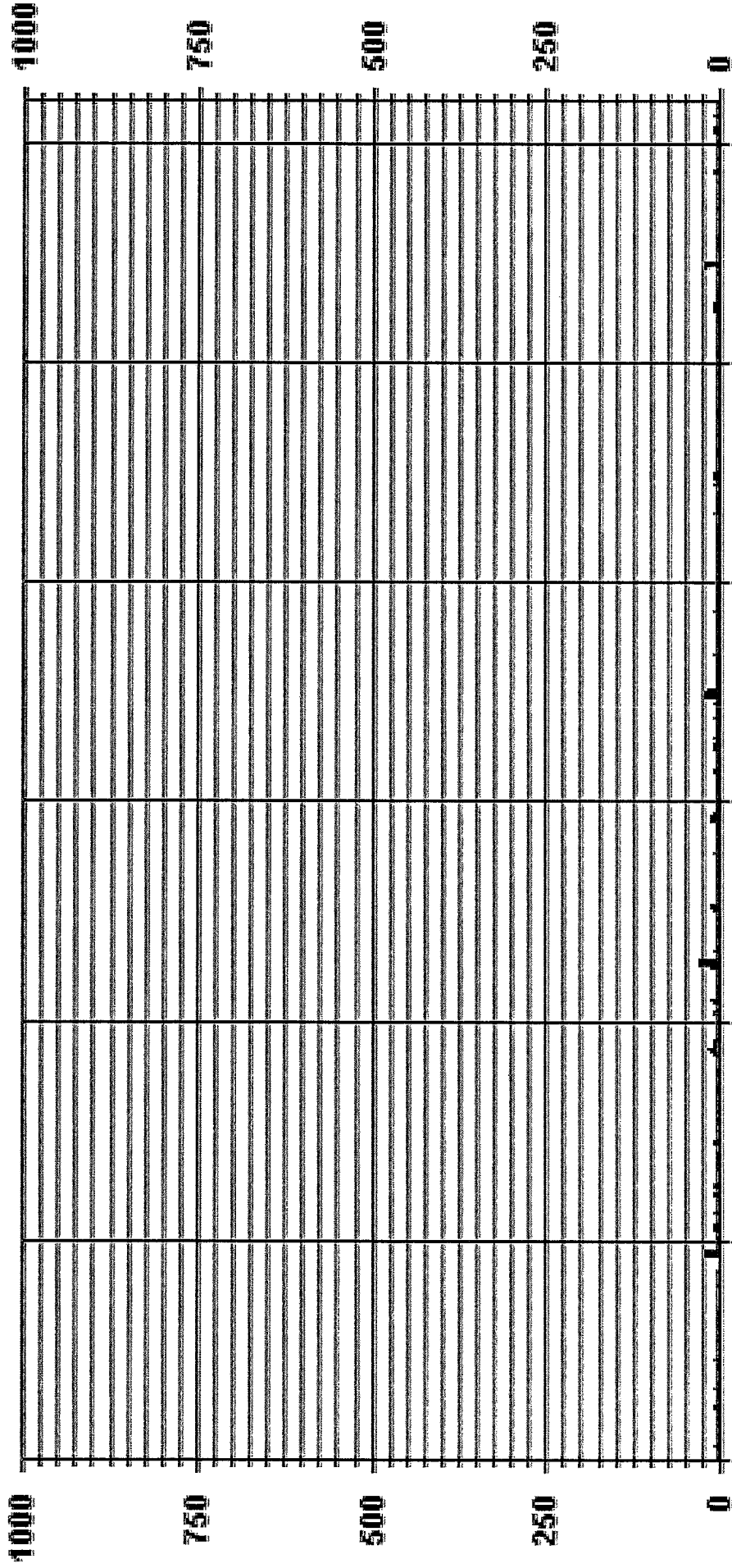
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	668
MAXIMUM INSTANTANEOUS VALUE:	28.6
PPB @ HOUR(S)	9
ON DAY(S)	12
OPERATIONAL TIME:	742 HRS
STANDARD DEVIATION:	1.86
VARIABLES:	VAR-VARIOUS

01 Hour Averages



— LICA31 NOMAX PPB

LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 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	3.41	5.26	4.97	4.40	5.12	4.83	4.69	6.54	7.96	7.53	7.11	7.39	6.68	12.09	8.96	2.98	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	3.41	5.26	4.97	4.40	5.12	4.83	4.69	6.54	7.96	7.53	7.11	7.39	6.68	12.09	8.96	2.98	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

Direction

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	24	37	35	31	36	34	33	46	56	53	50	52	47	85	63	21	703
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	24	37	35	31	36	34	33	46	56	53	50	52	47	85	63	21	

Calm : .00 %

Total # Operational Hours : 703

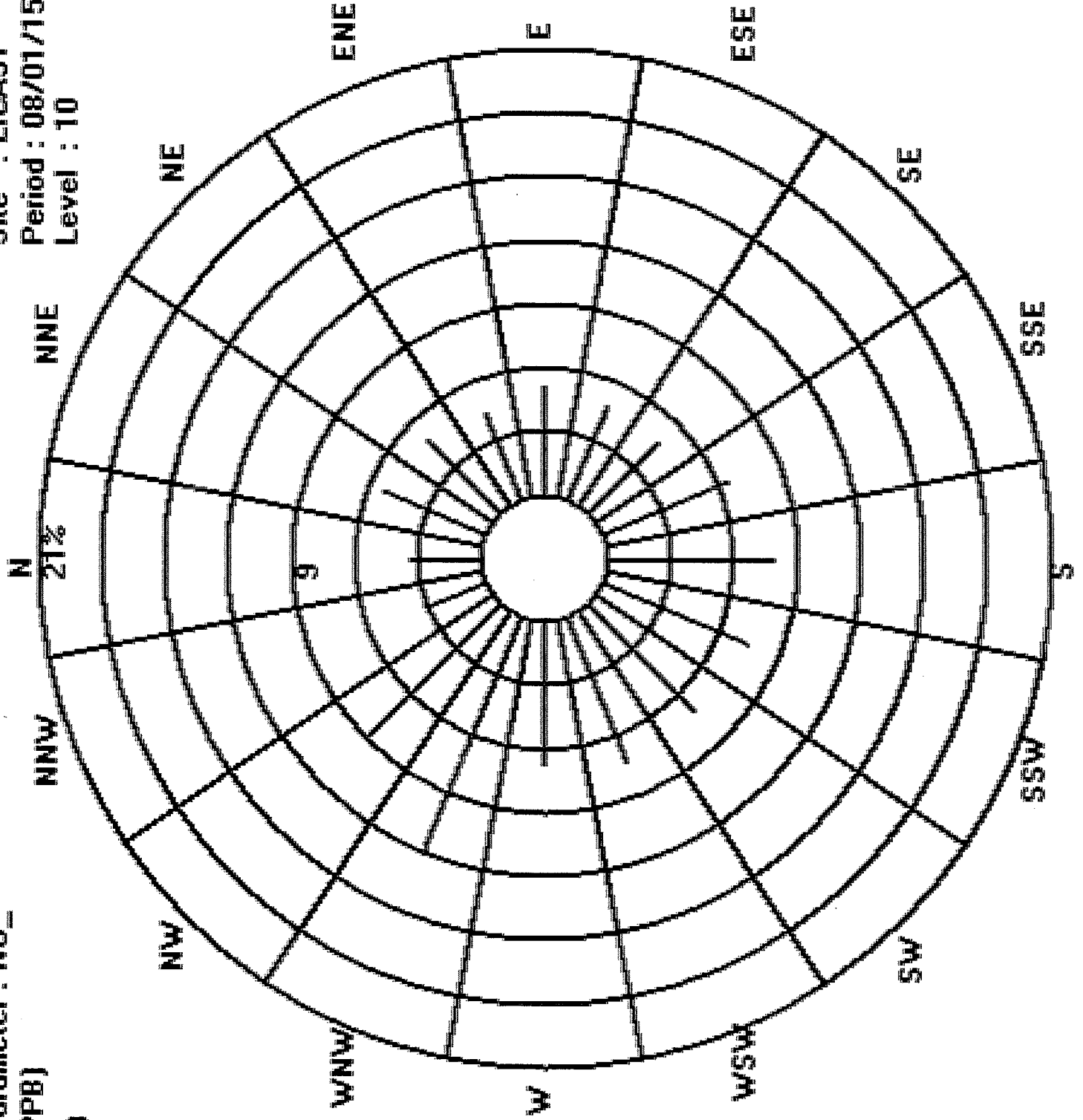
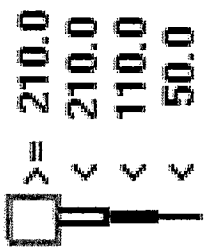
Logger : 31 Parameter : NO_

Site : LICA31

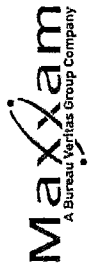
Class Limits (PPB)

Period : 08/01/15-08/31/15

Level : 10



NITROGEN DIOXIDE



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 St. Lina Site - AUGUST 2015
 JOB # 2833-2015-08-31-C

NITROGEN DIOXIDE (NO2) 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	RDGS		
DAY																														
1	2.4	3.0	6.4	4.9	4.2	3.6	2.5	1.7	0.9	0.4	0.3	0.2	0.1	\$	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.1	0.2	1.1	6.4	1.6	24			
2	3.0	1.6	1.3	2.7	4.3	3.5	1.4	1.1	0.6	0.4	0.3	0.4	\$	0.3	0.3	0.4	0.3	0.1	0.2	0.3	0.2	0.3	0.1	0.2	0.6	1.3	4.3	1.1	24	
3	2.1	2.3	2.0	1.4	1.2	1.8	2.0	2.1	2.5	2.4	1.9	\$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.0	0.3	2.5	1.0	24	
4	0.4	0.5	0.8	0.9	0.7	0.6	\$	1.5	2.2	\$	1.9	1.3	0.9	0.7	1.0	1.3	2.2	1.6	0.7	0.6	0.4	2.2	1.0	2.4	2.2	1.0	2.4	1.0	24	
5	0.3	0.0	0.2	0.1	0.1	0.0	0.3	0.3	0.3	C	C	C	C	C	C	C	C	0.3	0.2	0.1	0.4	0.5	0.2	0.8	2.2	0.4	2.4	1.4	24	
6	0.6	0.7	1.1	0.9	\$	1.6	1.3	1.3	1.1	0.7	0.7	0.8	0.7	1.0	1.0	1.1	1.6	1.5	1.4	1.4	1.6	2.0	3.9	4.3	4.3	1.4	2.4	1.4	24	
7	3.1	1.6	1.7	\$	0.9	1.2	1.0	1.2	1.1	0.9	0.7	0.6	0.7	0.3	0.3	0.3	0.3	0.9	0.8	0.6	0.7	1.1	1.2	1.6	1.9	1.2	2.4	1.2	24	
8	1.4	1.2	\$	1.7	1.8	1.9	1.4	1.3	1.3	1.1	1.2	0.9	1.0	1.2	1.1	0.8	0.9	1.0	0.6	0.6	0.7	1.1	1.2	1.6	1.9	1.2	2.4	1.2	24	
9	1.2	\$	0.9	0.7	0.7	1.0	1.1	1.5	2.0	1.3	0.5	0.7	0.6	0.4	0.1	0.2	0.3	0.4	0.5	0.6	0.5	1.5	1.1	0.9	2.0	0.8	2.4	0.8	24	
10	\$	1.0	1.2	1.2	1.5	2.8	1.5	1.7	1.2	1.0	0.5	1.1	0.5	0.5	0.4	0.4	0.6	0.6	0.6	0.6	0.6	1.1	0.7	\$	2.8	1.0	2.4	1.0	24	
11	1.8	1.4	2.1	1.9	1.7	3.0	2.5	3.3	2.5	3.3	2.5	1.8	1.1	0.9	0.7	0.1	0.0	0.5	0.4	0.5	1.7	0.7	1.3	\$	1.8	3.3	1.5	2.4	1.0	24
12	1.9	1.3	1.4	0.8	1.4	1.8	1.9	2.1	2.2	1.5	0.5	0.5	0.5	0.5	0.3	0.6	0.6	0.6	0.4	0.7	1.0	0.7	\$	0.5	0.4	2.2	1.0	2.4	1.0	24
13	0.3	0.7	1.3	1.1	0.5	0.5	0.7	0.9	1.7	1.5	1.3	1.9	1.8	1.5	2.1	2.0	1.5	1.8	1.5	1.7	\$	1.3	0.6	0.5	2.1	1.2	2.4	1.2	24	
14	0.5	0.4	0.6	0.5	0.6	0.7	0.6	0.6	0.4	0.7	0.5	0.0	0.2	0.2	0.1	0.2	0.4	1.1	\$	0.7	0.8	1.0	0.9	1.1	0.5	2.4	1.0	2.4	1.2	24
15	0.7	0.4	0.3	0.4	0.6	1.0	1.9	1.2	0.9	0.6	0.9	0.9	0.7	0.7	0.6	0.7	0.9	0.3	\$	0.6	0.5	0.5	0.5	0.5	1.9	0.7	2.4	0.7	24	
16	0.5	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.7	0.4	0.2	0.5	0.5	0.1	0.4	0.6	0.4	\$	0.3	0.5	0.4	0.6	0.7	0.7	0.9	0.9	0.5	2.4	0.5	24
17	1.3	2.3	1.7	0.8	1.6	1.8	1.7	1.3	1.4	1.5	1.3	1.1	1.1	0.9	1.1	0.9	\$	1.0	0.9	1.0	0.6	0.7	0.9	1.5	2.3	1.2	2.4	1.0	24	
18	1.0	0.9	0.9	0.9	0.7	1.1	0.8	0.5	0.3	0.1	0.4	0.4	0.4	0.1	0.2	\$	0.2	0.2	0.3	0.3	0.9	0.9	1.3	1.6	1.6	0.6	2.4	1.0	24	
19	1.7	1.4	1.2	1.0	0.7	0.9	1.1	1.5	1.7	2.2	2.0	1.7	1.7	1.6	\$	0.4	0.5	0.5	0.4	0.9	0.6	0.7	0.9	1.0	2.2	1.1	2.4	1.0	24	
20	0.8	1.9	1.6	1.8	1.3	1.4	1.1	1.0	1.3	0.4	0.3	0.2	0.2	\$	0.0	0.0	0.3	0.0	0.6	0.3	0.1	0.6	0.5	1.9	0.7	2.4	1.0	24	1.0	24
21	0.7	0.3	0.5	0.8	0.8	0.5	0.4	0.2	0.4	0.2	0.4	0.2	\$	0.2	0.1	0.2	0.6	0.4	0.1	0.4	0.2	0.3	0.3	0.4	0.8	0.4	2.4	1.0	24	
22	0.5	0.4	0.6	0.6	0.4	0.8	0.6	0.5	0.0	0.2	0.3	\$	0.2	0.2	0.1	0.1	0.0	0.2	0.2	0.2	0.5	0.4	0.6	0.8	0.3	2.4	1.0	24	1.0	24
23	0.6	1.4	1.4	1.4	1.4	1.2	1.7	2.3	2.2	\$	1.6	1.7	1.5	1.5	1.6	1.5	1.3	1.7	1.6	1.7	1.6	1.7	2.5	2.9	7.6	6.6	2.2	2.4	1.0	24
24	2.5	2.0	4.8	3.1	2.8	4.4	3.2	3.0	\$	2.1	3.0	2.3	1.7	1.5	1.5	1.6	1.4	1.1	1.5	1.5	1.5	1.0	3.1	5.1	5.8	2.6	2.4	1.0	24	
25	6.6	7.7	9.8	8.0	9.6	10.5	7.3	\$	2.2	2.1	1.2	1.2	0.9	0.6	0.4	0.4	0.5	0.9	1.1	1.2	1.5	1.4	1.4	1.4	10.5	5.8	2.6	2.4	1.0	24
26	2.2	1.8	2.3	2.4	2.0	4.0	\$	2.8	2.0	1.6	1.4	1.6	1.7	1.5	1.5	1.1	1.6	2.2	2.5	3.9	3.4	3.8	4.0	3.3	4.0	2.4	2.4	1.0	24	
27	2.9	1.9	1.2	1.4	1.0	\$	2.1	1.9	2.0	1.5	1.6	1.5	1.2	1.5	1.2	0.5	0.9	1.2	1.2	1.5	1.6	1.8	2.2	2.9	1.5	2.4	1.0	24	1.0	24
28	2.3	2.6	2.1	1.0	\$	0.8	0.9	1.0	0.7	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.6	0.5	0.8	1.1	1.3	1.4	1.5	1.9	1.8	1.1	2.4	1.0	24	
29	3.0	3.0	2.6	5	3.0	3.3	2.9	2.1	2.2	2.3	2.7	2.7	1.2	0.4	0.3	0.5	0.4	1.0	0.7	0.4	0.7	0.8	1.0	0.6	3.3	1.6	2.4	1.0	24	
30	0.5	0.4	\$	1.8	1.8	2.9	2.4	2.6	4.4	4.0	2.4	0.7	0.5	0.2	0.1	0.2	0.5	0.6	0.6	0.7	0.8	0.7	1.6	4.2	4.4	1.5	2.4	1.0	24	
31	6.6	7.7	9.8	8.0	9.6	10.5	7.3	3.0	4.4	4.0	3.0	2.7	1.8	1.6	2.1	2.0	1.6	2.2	2.5	3.9	3.4	3.8	7.6	6.6	6.6	1.5	2.4	1.0	24	
HOURLY MAX																														
HOURLY AVG	2	2	2	2	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	

STATUS FLAG CODES

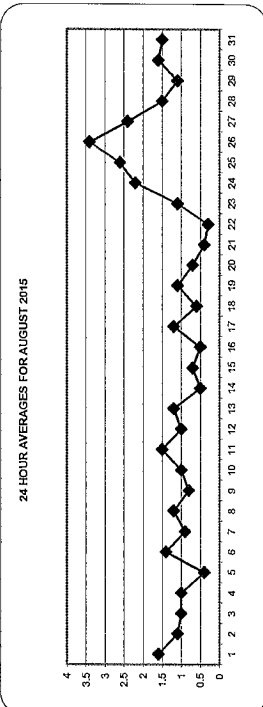
C - CALIBRATION
 V - MAINTENANCE
 S - DAILY ZERO/SKAN CHECK
 P - POWER FAILURE
 G - OUT FOR REPAIR
 Q - QUALITY ASSURANCE
 R - RECOVERY
 X - MACHINEMAL FUNCTION
 O - OPERATOR ERROR
 K - COLLECTION ERROR

OBJECTIVE LIMIT:

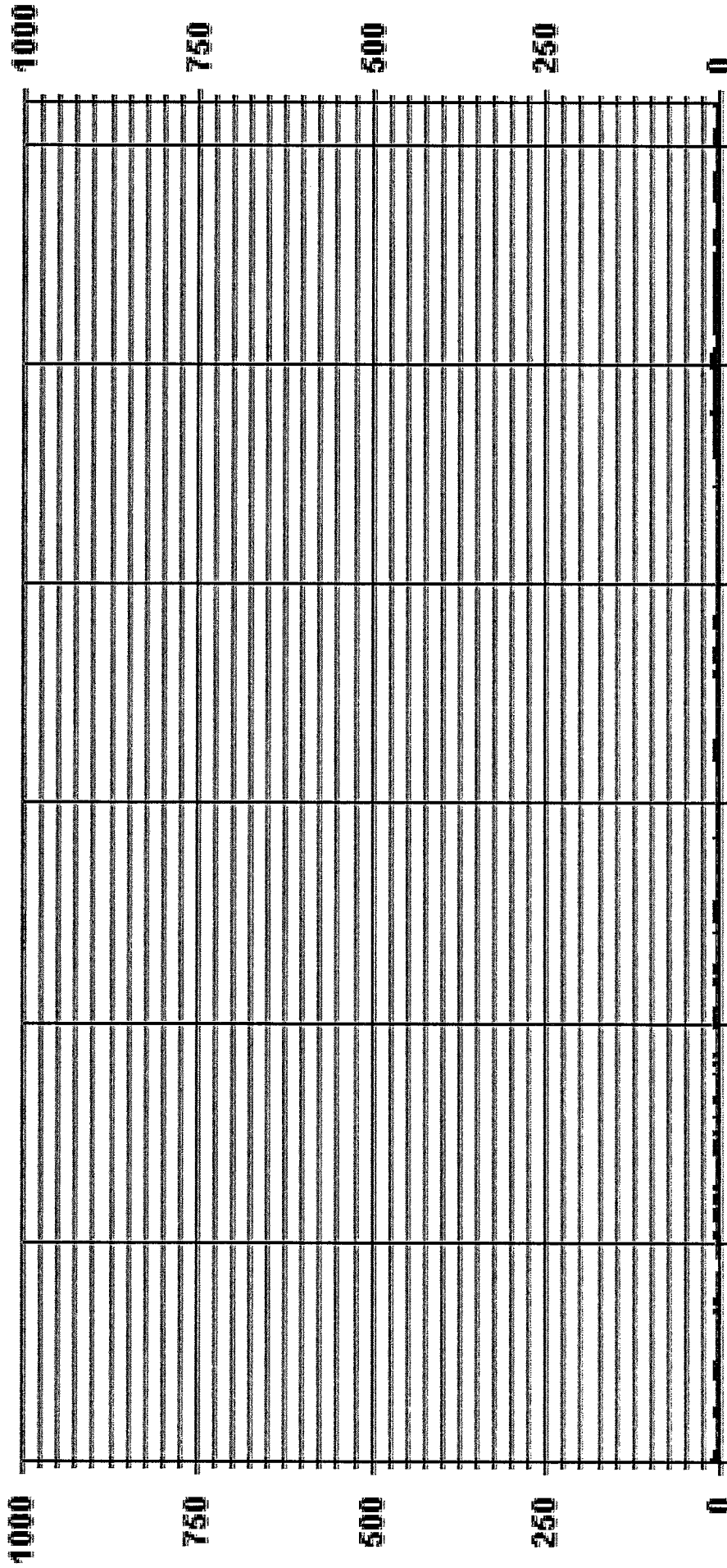
ALBERTA ENVIRONMENT: 159 PPB

MONTHLY SUMMARY

NUMBER OF 15HR EXCEEDENCES	0
NUMBER OF NON-ZERO READINGS:	686
MAXIMUM 1-HR AVERAGE:	10.5 PPB
MAXIMUM 24-HR AVERAGE:	3.4 PPB
12S CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	1.23
OPERATIONAL TIME:	744 HRS
AMD OPERATIONAL UPTIME:	100.0 %
MONTHLY AVERAGE:	1.2 PPB
ON DAY(S)	26
ON DAY(S) VAR-VARIOUS	26



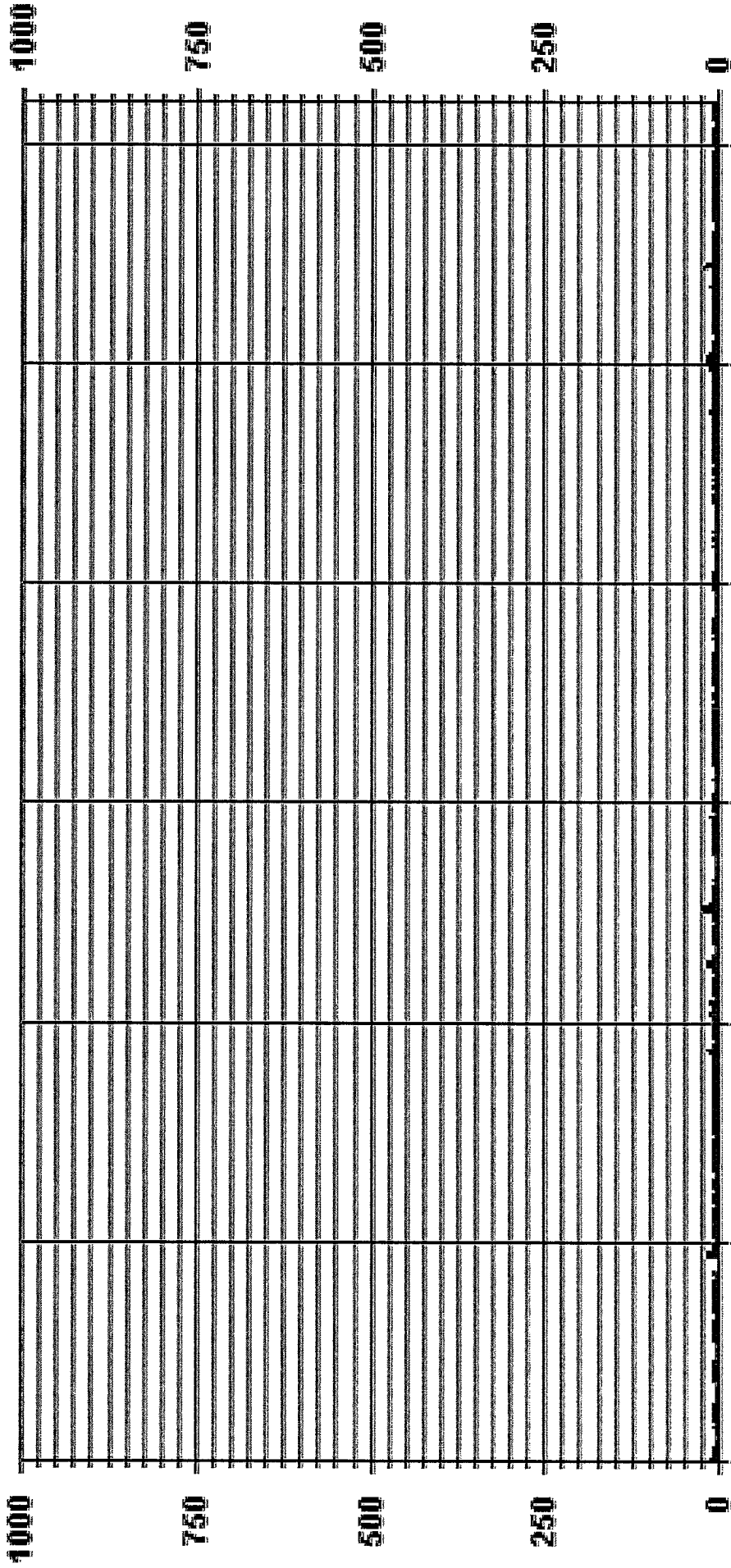
01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 NO2_ PPB

01 Hour Averages



08/01/15 00:00:08/06/15 00:00:08/11/15 00:00:08/16/15 00:00:08/21/15 00:00:08/26/15 00:00:08/31/15 00:00

— LICA31 NO2MAX PPB

LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : NO2
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	3.41	5.26	4.97	4.40	5.12	4.83	4.69	6.54	7.96	7.53	7.11	7.39	6.68	12.09	8.96	2.98	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	3.41	5.26	4.97	4.40	5.12	4.83	4.69	6.54	7.96	7.53	7.11	7.39	6.68	12.09	8.96	2.98	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	24	37	35	31	36	34	33	46	56	53	50	52	47	85	63	21	703
< 110.0																	
< 210.0																	
>= 210.0																	
Totals	24	37	35	31	36	34	33	46	56	53	50	52	47	85	63	21	

Calm : .00 %

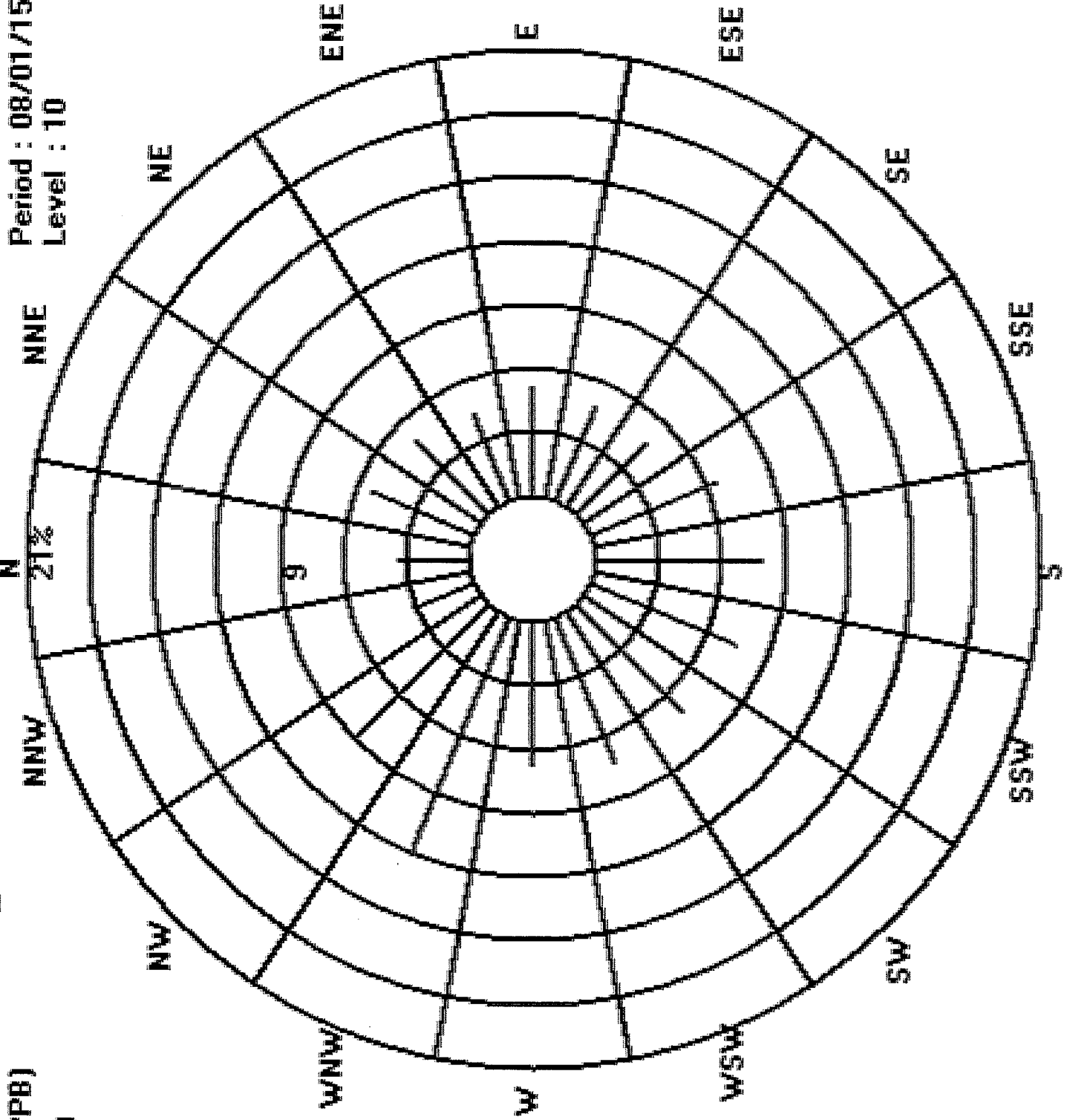
Total # Operational Hours : 703

Logger : 31 Parameter : NO2_

Site : LICA31

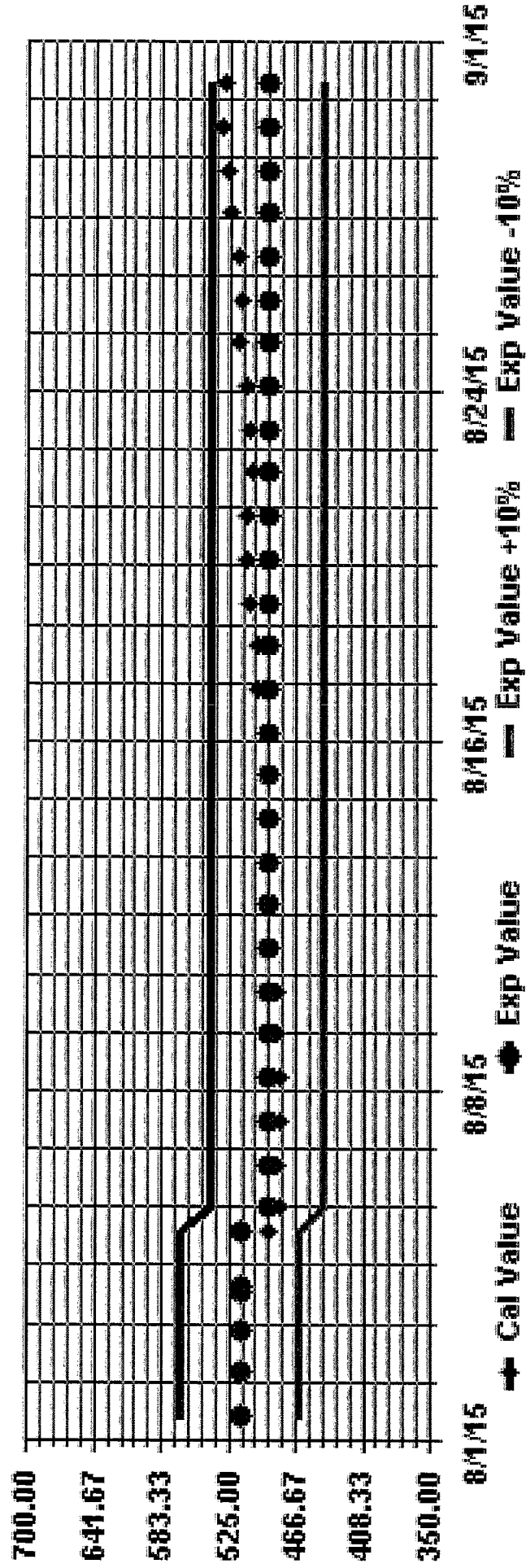
Period : 08/01/15-08/31/15

Level : 10



>= 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	HOURLY AVERAGE																								24-HOUR AVG.	ROSG.		
	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	27	16	15	16	16	17	21	19	22	22	24	24	26	27	28	26	29	27	26	25	26	25	24	29	23.0	24		
2	23	24	23	22	22	18	10	17	20	27	30	30	31	32	33	34	33	29	29	31	30	29	34	29	26.3	24		
3	3	27	25	27	26	22	21	18	17	18	24	24	39	41	42	42	42	41	39	36	34	32	31	29	42	30.3	24	
4	29	29	28	27	26	26	25	21	21	21	S	18	C	C	C	C	C	C	18	19	23	22	21	21	29	23.2	24	
5	22	23	23	24	25	26	23	23	21	19	18	17	15	S	15	17	17	18	20	16	10	11	14	10	26	18.6	24	
6	12	10	5	5	5	6	8	10	15	17	19	24	28	32	33	30	28	24	20	19	14	11	9	33	16.7	24		
7	7	7	7	5	6	7	5	5	9	10	14	19	20	24	23	25	29	29	24	20	18	20	19	20	29	16.0	24	
8	17	17	S	16	14	14	14	14	21	27	33	31	36	36	34	32	32	29	33	32	33	20	22	36	25.3	24		
9	29	S	29	30	29	27	26	24	22	25	29	34	37	37	39	39	42	40	35	31	30	27	25	24	42	30.9	24	
10	S	38	40	40	40	41	38	37	38	44	46	46	47	46	46	47	45	44	44	42	44	41	42	S	47	42.5	24	
11	36	34	33	34	32	26	22	22	28	33	35	35	35	36	36	37	39	38	35	36	39	40	S	33	40	33.7	24	
12	40	28	22	23	24	25	25	21	23	30	33	33	32	33	34	34	34	33	33	31	30	32	S	31	32	40	29.7	24
13	30	27	28	29	31	30	29	30	33	40	49	58	54	51	59	56	59	58	60	52	S	33	25	29	60	41.0	24	
14	34	37	37	36	31	26	24	25	26	27	27	33	34	35	34	32	30	27	S	23	22	22	20	37	29.4	24		
15	20	16	16	16	13	10	12	12	12	13	13	13	11	11	12	12	14	16	S	14	15	18	16	14	20	13.8	24	
16	14	13	13	12	11	10	10	11	13	15	19	22	22	24	26	27	24	S	22	19	18	18	18	17	27	17.3	24	
17	12	8	14	19	14	13	8	9	14	19	25	30	33	37	39	39	S	34	30	28	34	28	26	28	39	23.5	24	
18	24	25	22	21	20	17	16	17	16	22	24	26	26	26	27	31	31	S	34	33	33	31	29	27	34	25.9	24	
19	28	28	26	25	25	24	25	24	24	24	26	30	33	34	S	30	31	33	35	31	28	30	29	23	35	28.1	24	
20	28	19	14	18	22	19	19	18	19	23	23	23	23	S	26	26	25	25	23	21	22	22	22	23	28	21.9	24	
21	22	19	17	15	13	12	11	12	11	12	11	11	11	11	12	12	14	16	S	14	15	18	16	14	20	18.4	24	
22	16	15	15	15	15	16	20	23	24	S	27	28	28	30	31	31	31	30	30	31	30	31	30	29	25	31	23.4	24
23	23	24	25	24	23	23	22	24	29	33	S	39	41	40	41	42	43	40	38	37	34	33	33	31	43	32.3	24	
24	30	29	28	28	28	27	22	21	23	S	29	32	35	39	41	44	47	45	41	39	37	37	31	29	47	33.1	24	
25	28	18	17	14	15	13	12	14	S	23	28	34	39	41	42	40	38	34	32	29	26	23	21	19	42	27.0	24	
26	18	17	14	15	13	12	14	S	22	24	29	30	33	34	34	35	36	36	35	33	33	31	28	27	25	36	25.9	24
27	24	23	23	22	21	18	S	15	20	25	33	38	41	47	50	52	59	57	57	55	53	50	45	59	38.4	40.5	24	
28	44	41	36	39	42	S	21	26	27	31	39	45	49	53	56	52	48	46	45	41	38	38	36	56	40.5	24		
29	35	32	31	29	S	27	24	22	23	28	31	32	36	39	41	40	41	41	40	38	37	39	37	34	41	33.8	24	
30	30	27	28	S	22	20	17	20	25	29	35	44	43	45	42	40	40	40	36	34	34	34	27	30	45	32.4	24	
31	31	S	18	19	23	19	16	22	25	33	38	38	38	37	37	36	36	36	36	43	41	39	35	29	43	31.3	24	
HOURLY MAX	44	41	40	40	42	41	38	37	38	44	49	58	54	53	56	59	58	60	55	55	53	50	45					
HOURLY AVG	25.3	23.6	22.6	22.9	22.1	19.9	18.7	18.8	21.4	24.5	28.0	30.8	33.3	35.5	35.1	35.4	35.1	33.4	31.1	29.7	28.6	26.8	25.3					

STATUS FLAG CODES

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

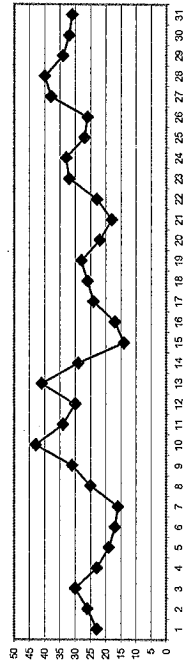
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 60 PPB

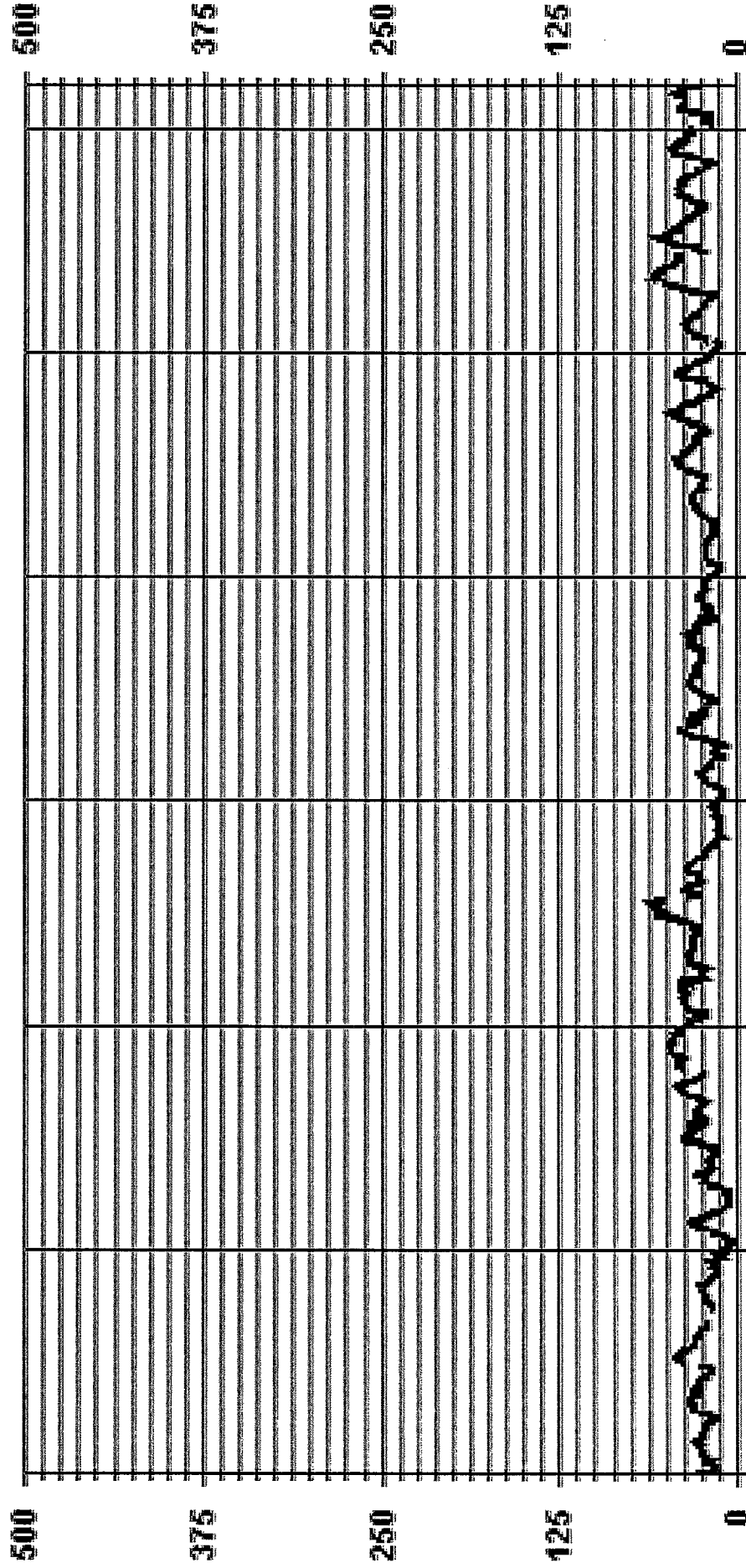
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706	ON DAY(S)	13
MAXIMUM 1-HR AVERAGE:	60 PPB	ON DAY(S)	10
MAXIMUM 24-HR AVERAGE:	42.5 PPB	VAR-VARIOUS	
1ZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	6 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	10.36	MONTHLY AVERAGE:	28 PPB

24 HOUR AVERAGES FOR AUGUST 2015



01 Hour Averages



08:01:15 00:00:08:06:15 00:00:08:11:15 00:00:08:16:15 00:00:08:21:15 00:00:08:26:15 00:00:08:31:15 00:00:00

— LICA31 03_ PPB



OZONE 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	ROSS		
1	36	18	17	18	17	21	23	22	23	25	25	26	27	5	29	30	30	30	28	27	28	28	27	26	26	36	25.3	
2	25	25	24	24	24	20	21	24	32	32	32	32	32	33	34	35	36	35	34	30	32	31	31	31	31	31	36	
3	28	26	26	28	28	24	23	23	20	19	32	5	41	42	43	43	43	42	42	42	37	36	33	R	31	43		
4	29	30	29	28	27	26	27	22	23	23	23	21	C	C	C	C	C	C	C	C	22	24	24	23	22	30		
5	24	25	25	28	28	28	26	25	23	21	20	18	16	5	19	19	22	24	21	13	13	13	17	15	28	25.0		
6	16	14	8	7	5	5	7	10	13	17	21	24	25	32	35	36	33	32	27	26	21	18	14	10	36	19.6		
7	9	9	9	5	8	10	8	9	12	13	20	21	24	27	25	28	31	31	31	22	20	21	21	20	31	18.7		
8	19	18	5	17	15	16	17	18	25	33	36	34	38	39	38	35	36	33	36	30	34	31	27	29	40	28.7		
9	30	5	32	31	31	28	28	26	25	28	34	38	39	42	43	44	44	44	38	34	31	30	26	25	44	33.3		
10	5	40	43	44	42	43	40	40	45	48	49	49	49	49	48	49	48	48	48	44	45	43	43	5	49	45.3		
11	37	35	35	35	35	31	24	26	33	35	38	37	38	38	37	39	40	40	39	42	42	41	41	41	42	44	36.4	
12	44	34	25	25	25	26	27	27	30	33	34	34	34	34	34	37	36	35	35	33	34	34	34	34	33	44	32.3	
13	31	31	30	31	33	32	30	32	37	45	55	61	58	54	56	60	63	63	64	58	5	40	29	34	64	44.7		
14	36	40	39	38	35	28	25	26	27	28	31	35	35	37	36	34	31	29	5	24	23	23	22	40	31.2	24		
15	23	18	18	18	15	13	16	16	13	15	14	14	12	12	12	13	16	17	5	15	19	19	17	15	23	15.7	24	
16	14	14	14	13	12	11	10	13	16	19	22	24	24	26	28	28	28	28	5	25	22	20	20	18	18	28	19.1	
17	17	11	17	20	18	16	13	14	17	23	28	33	36	39	41	41	5	37	33	32	41	41	41	32	41	27.3	24	
18	29	27	24	23	23	23	18	18	21	24	26	28	32	32	33	33	36	35	35	33	32	30	28	29	36	27.7	24	
19	30	29	29	26	26	25	26	26	25	25	29	33	35	38	38	38	37	37	37	36	30	31	31	29	38	30.3	24	
20	31	26	15	22	24	22	23	21	23	24	25	24	24	5	27	27	26	26	24	24	23	23	23	24	37	24.3	24	
21	24	21	18	15	15	13	11	14	19	23	22	22	22	5	21	22	22	22	22	23	22	20	19	19	24	19.7	24	
22	17	16	15	16	16	15	15	18	23	25	26	26	5	41	43	42	44	45	41	40	38	36	34	34	33	45	34.0	24
23	25	24	26	24	24	24	24	26	22	26	5	31	33	37	41	43	47	48	47	45	41	40	39	36	30	48	35.3	24
24	31	30	29	29	30	26	22	23	5	17	25	30	36	42	43	50	52	57	62	63	60	59	57	55	47	63	41.3	24
25	31	27	22	21	20	16	17	19	5	27	33	38	42	43	44	44	40	38	35	31	27	26	22	21	44	29.7	24	
26	19	18	16	16	15	14	15	14	15	24	28	30	32	35	35	36	37	37	38	36	34	32	29	28	26	38	27.4	24
27	26	24	24	23	22	23	5	17	25	30	36	42	43	50	52	57	62	63	60	59	57	55	54	47	63	41.3	24	
28	47	46	39	41	43	5	26	28	29	37	42	49	52	56	58	55	51	48	46	43	39	38	39	39	58	43.1	24	
29	37	36	34	31	5	29	26	23	26	33	33	36	38	42	42	41	43	43	41	39	38	41	40	36	43	36.0	24	
30	32	29	30	5	26	22	21	22	29	32	40	45	46	45	47	43	44	44	37	35	37	36	33	34	47	35.1	24	
31	33	34	5	21	23	26	26	18	29	28	38	40	R	39	38	38	38	38	39	46	42	41	38	35	46	34.0	23	
HOURLY MAX	47	46	43	44	43	43	40	40	45	48	55	61	58	56	58	60	63	63	64	59	57	55	54	47				
HOURLY AVG	27.7	25.8	24.6	24.5	24.1	22.0	21.1	21.4	24.6	27.6	31.1	35.2	35.3	37.6	37.7	37.9	37.7	37.7	36.6	33.7	31.8	31.0	28.8	27.9				

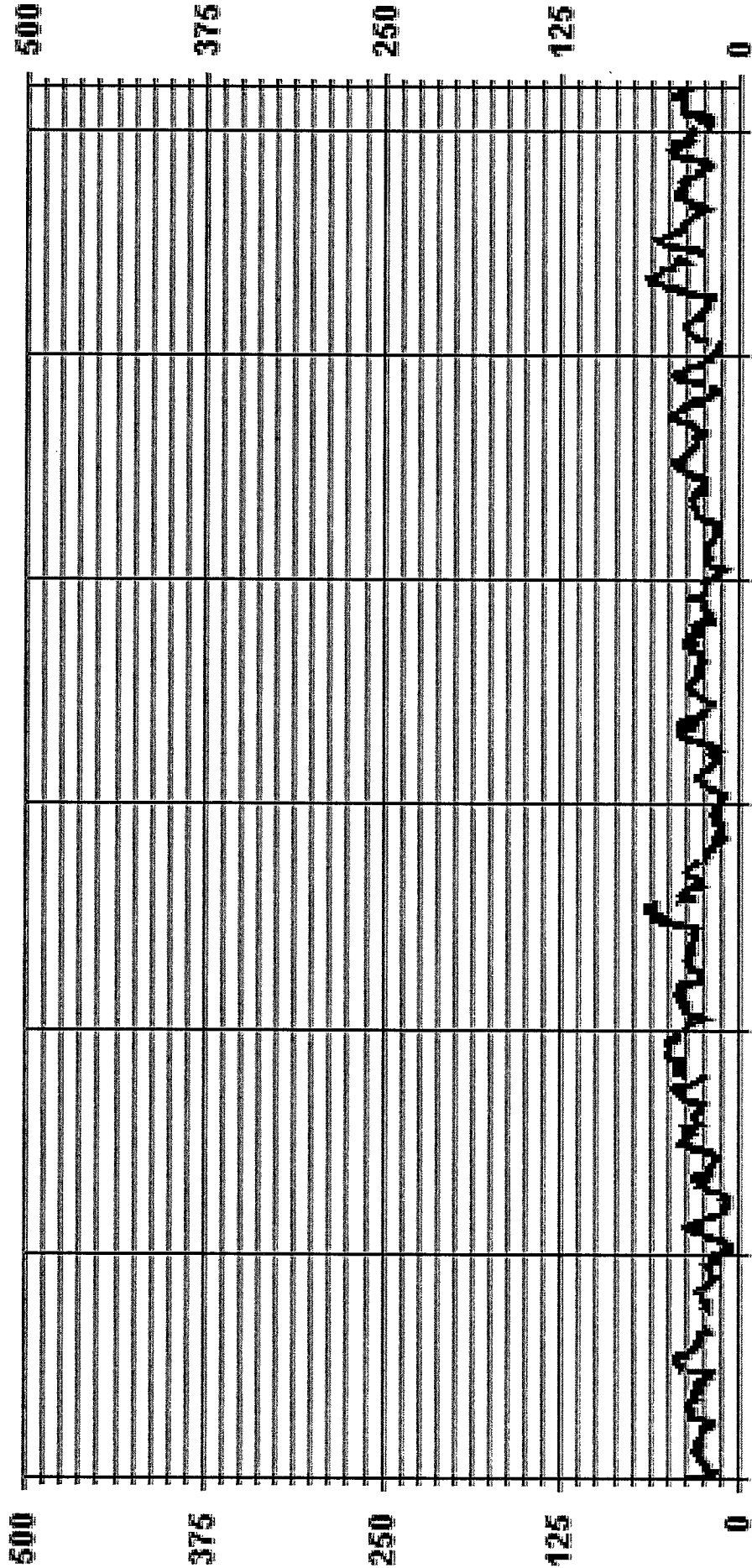
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	702
MAXIMUM INSTANTANEOUS VALUE:	64
PPB @ HOUR(S)	18
ON DAY(S)	13
VAR-VARIOUS	
OPERATIONAL TIME:	742
HRS	
OPERATIONAL TIME:	742
HRS	
MONTHLY CALIBRATION TIME:	7
HRS	
STANDARD DEVIATION:	10.61

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 03MAX PPB

LICA31
 03_ / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : 03
 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
< 50	3.39	5.24	4.67	4.39	5.09	4.81	4.67	6.37	7.79	6.79	6.94	6.94	6.51	11.89	8.49	2.97	97.02
< 110	.00	.00	.00	.14	.00	.14	.00	.14	.14	.70	.42	.56	.14	.14	.42	.00	2.97
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.39	5.24	4.67	4.53	5.09	4.95	4.67	6.51	7.93	7.50	7.36	7.50	6.65	12.03	8.92	2.97	

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	24	37	33	31	36	34	33	45	55	48	49	49	46	84	60	21	685
< 110				1		1		1	1	5	3	4	1	1	3		21
< 210																	
>= 210																	
Totals	24	37	33	32	36	35	33	46	56	53	52	53	47	85	63	21	

Calm : .00 %

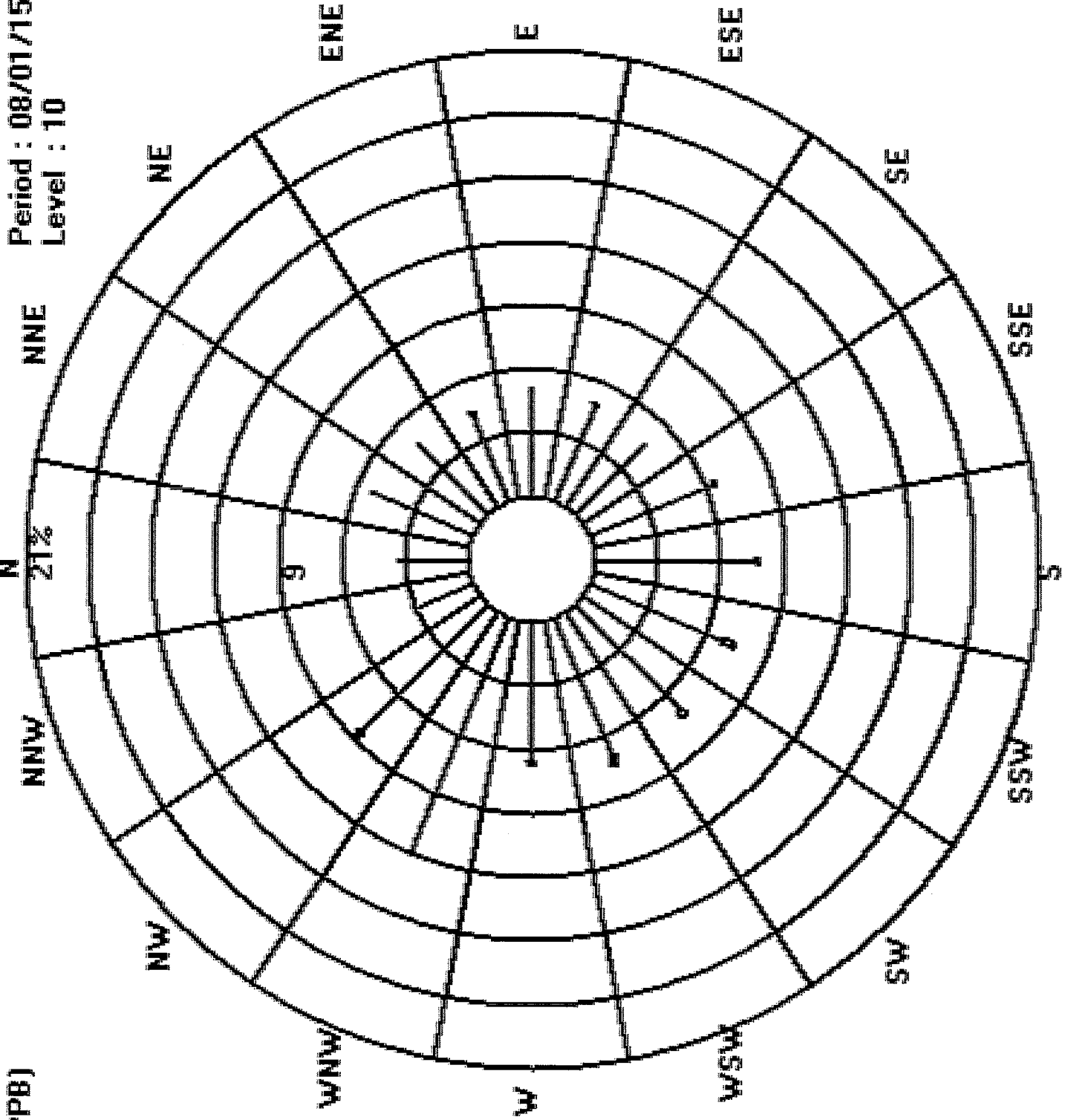
Total # Operational Hours : 706

Logger : 31 Parameter : O3_

Site : LICA31

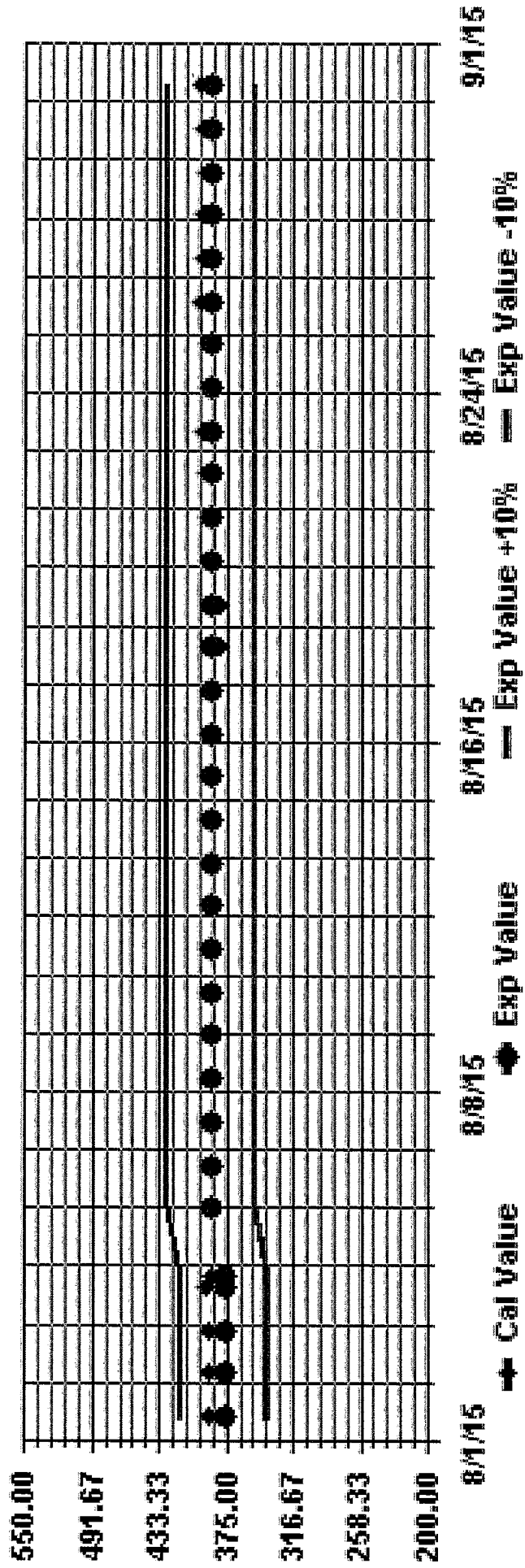
Period : 08/01/15-08/31/15

Level : 10

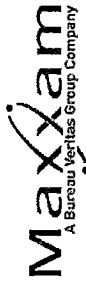


>= 210
< 210
< 110
< 50

Calibration Graph for Site: LICA31 Parameter: O3_ Sequence: 03 Phase: SPAN



PARTICULATE MATTER 2.5



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

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	11	8	8	7	7	5	11	10	19	11	13	13	118	105	45	50	56	16	16	21	28	11	11	9								
HOURLY AVG	1.9	2.4	1.9	1.8	1.4	1.9	1.3	2.2	2.8	2.6	2.0	2.6	2.3	7.3	10.7	5.0	4.8	5.0	3.0	4.0	3.3	2.4	2.6	1.7								
DAILY MAX	5	6	4	5	4	5	4	3	5	2	1	1	0	1	0	0	1	2	7	3	2	0	3	4	4	4	4	4	4	4	4	4
DAILY AVG	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	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	

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

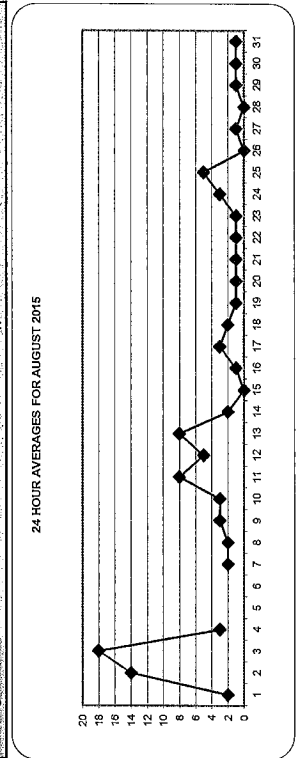
OBJECTIVE LIMIT: 24-HR: 30 ug/m3

ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3

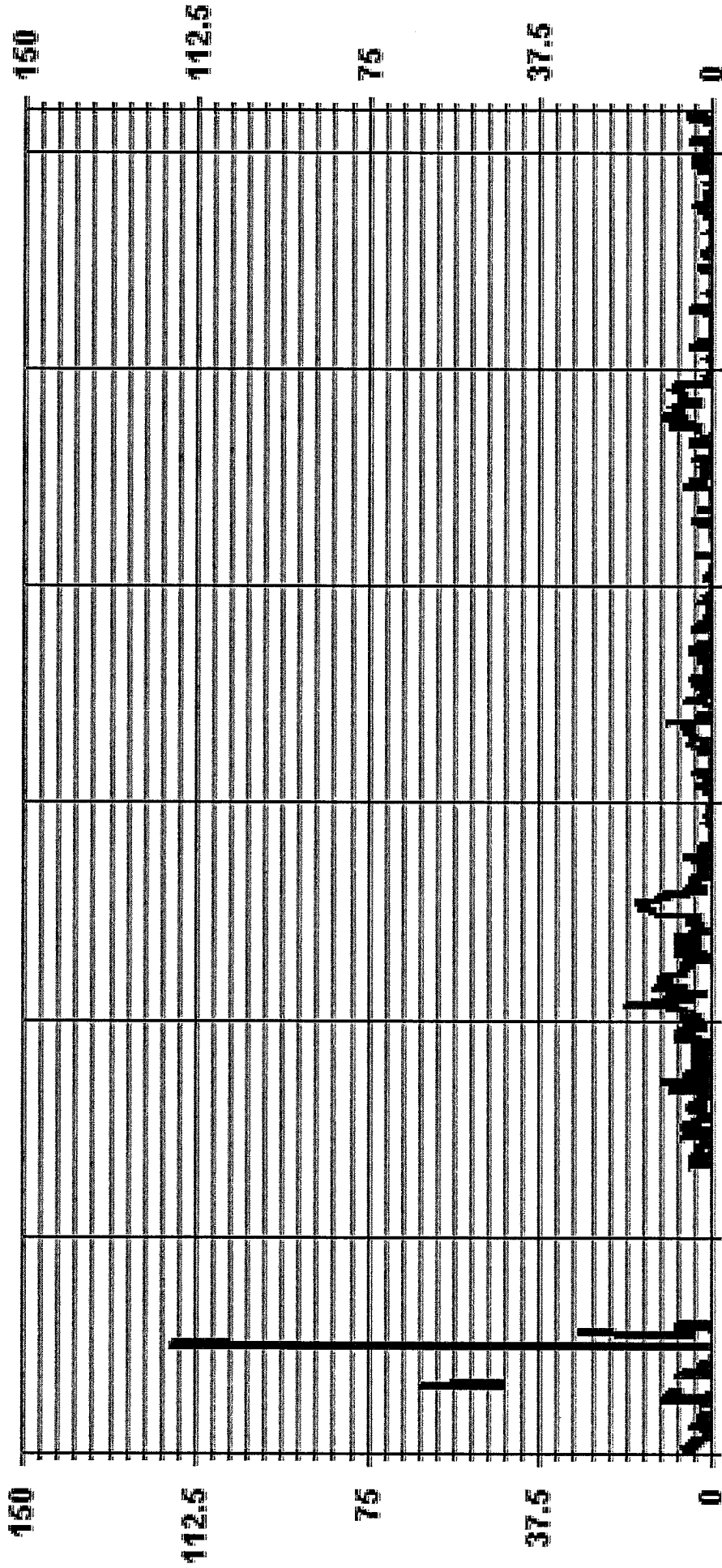
MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	337
MAXIMUM 1-HR AVERAGE:	118 ug/m3
MAXIMUM 24-HR AVERAGE:	18.1 ug/m3
MONTHLY CALIBRATION TIME:	10 HRS
STANDARD DEVIATION:	8.30
OPERATIONAL TIME:	608 HRS
AMID OPERATION UPTIME:	81.7 %
MONTHLY AVERAGE:	3.2 ug/m3
ON DAY(S)	3
ON DAY(S) VAR-VARIOUS	3

24 HOUR AVERAGES FOR AUGUST 2015



01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 PM2 UGM3 UGM3

LIC431
 PM2 / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
 Site Name : LIC431
 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	3.01	5.51	2.84	3.01	4.68	4.01	5.18	7.35	8.52	9.03	8.02	7.69	7.52	11.37	8.52	2.67	98.99
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.16	.00	.16	.00	.50
< 80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00	.16
< 120	.00	.00	.00	.00	.00	.16	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.33
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.01	5.51	2.84	3.01	4.68	4.18	5.35	7.35	8.69	9.03	8.02	7.85	7.69	11.37	8.69	2.67	

Calm : .00 %

Total # Operational Hours : 598

Distribution By Samples

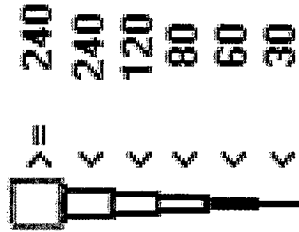
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30	18	33	17	18	28	24	31	44	51	54	48	46	45	68	51	16	592
< 60									1				1		1		3
< 80												1					1
< 120						1	1										2
< 240																	
>= 240																	
Totals	18	33	17	18	28	25	32	44	52	54	48	47	46	68	52	16	

Calm : .00 %

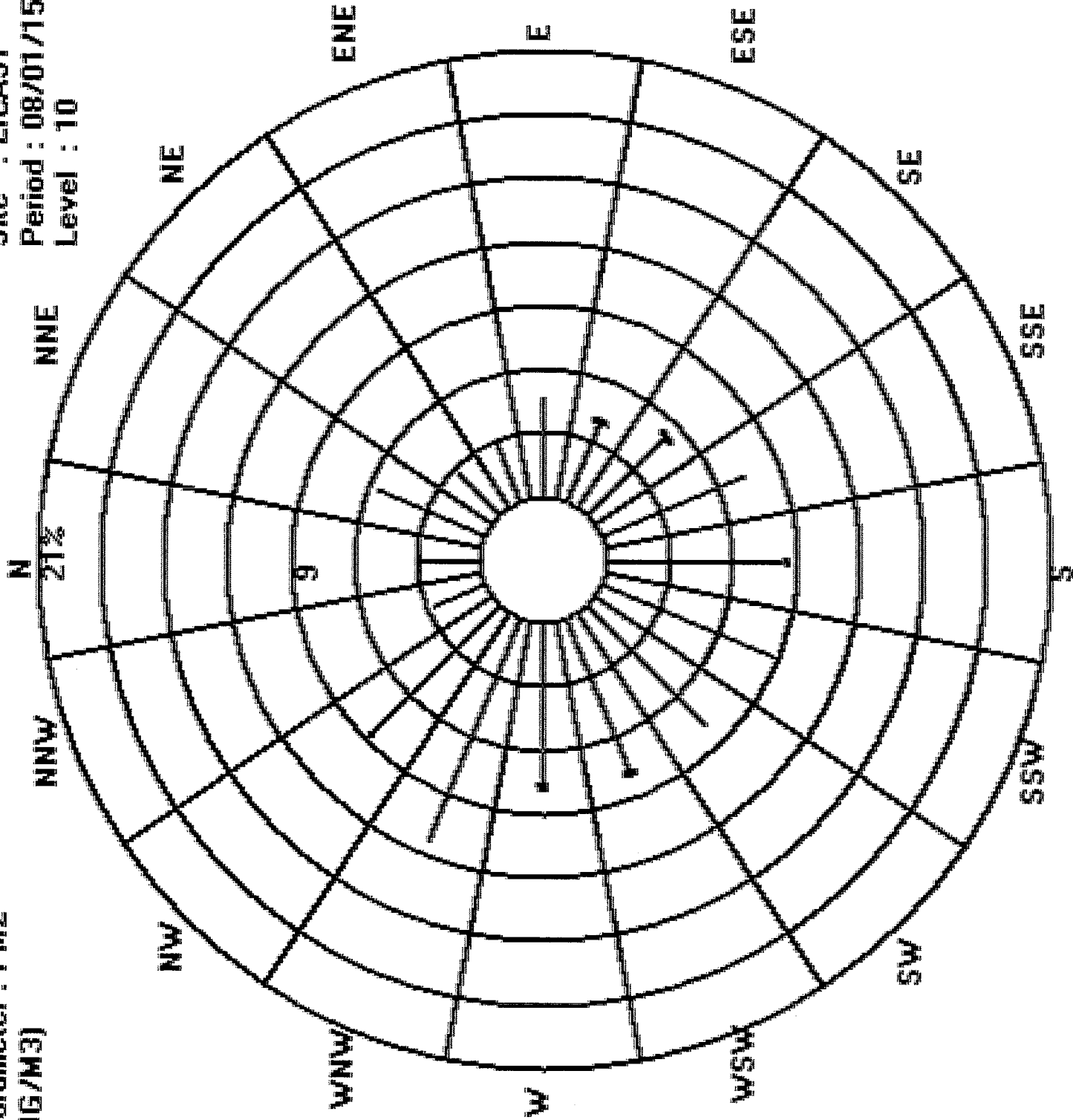
Total # Operational Hours : 598

Logger : 31 Parameter : PM2

Class Limits (UG/M3)

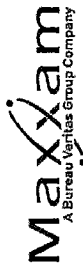


Site : LICA31
Period : 08/01/15-08/31/15
Level : 10



Site : LICA31
Period : 08/01/15-08/31/15
Level : 10

WIND SPEED



WIND SPEED (WS) hourly averages in km/hr

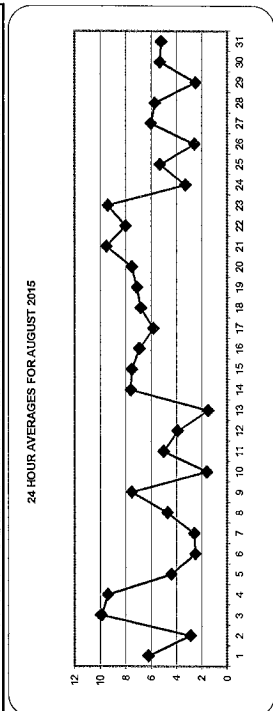
MST

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	24-HOUR AVG	RDGS		
1	6.9	7.3	7.2	7.1	9.9	8.4	9.8	4.8	7.3	7.9	11.9	13.3	12.5	13.0	12.0	10.6	9.0	8.0	6.3	4.7	4.7	4.2	4.7	4.2	4.7	13.3	8.3	24	
2	3.3	3.2	4.8	5.1	5.0	5.4	3.8	4.0	4.1	4.9	4.7	4.9	4.7	4.9	4.7	4.9	3.0	2.6	1.9	3.6	5.6	7.6	10.2	9.8	8.7	10.2	5.0	24	
3	8.7	9.9	9.3	8.3	8.6	7.7	7.9	4.1	4.6	3.3	6.2	10.8	15.9	17.3	16.9	15.9	15.6	14.7	12.2	13.0	13.2	13.9	13.5	13.2	17.3	11.0	11.0	24	
4	14.1	15.2	17.2	16.2	13.1	12.6	1.7	4.9	6.6	9.7	6.6	6.1	8.1	11.2	11.4	11.9	13.1	12.2	12.1	11.3	10.0	10.4	10.6	17.2	10.7	24	10.7	24	
5	11.0	10.7	9.5	9.8	10.3	9.3	7.8	9.1	9.2	9.2	7.8	4.4	4.6	4.1	3.6	2.8	3.0	2.1	1.5	3.1	4.8	3.9	1.5	1.7	11.0	6.0	24	24	
6	4.2	1.3	2.3	4.3	5.2	5.2	5.1	5.0	12.8	4.9	4.2	4.2	4.5	3.9	2.8	2.9	4.7	3.7	4.1	3.1	4.6	3.4	4.7	4.9	12.8	4.4	24	24	
7	4.7	4.0	4.6	3.7	3.4	3.7	2.5	3.4	3.7	5.1	5.6	5.1	5.6	5.2	4.3	3.3	5.8	4.2	4.8	5.1	6.2	6.1	6.2	6.1	8.4	5.3	24	24	
8	6.3	6.9	7.3	6.8	6.0	4.6	3.5	4.4	3.2	5.1	5.6	5.2	4.3	5.5	5.0	1.7	2.5	7.7	7.6	4.1	4.7	6.3	9.2	8.9	9.2	5.5	24	24	
9	9.7	8.9	9.8	9.7	8.9	6.9	7.2	6.1	7.1	6.9	8.0	9.5	9.8	8.8	7.6	8.3	8.3	7.0	6.5	7.8	9.3	10.2	11.3	6.4	11.3	8.3	8.3	24	24
10	11.0	13.5	7.8	5.7	5.5	4.1	5.2	6.7	8.6	8.4	8.8	7.0	7.7	3.8	3.8	4.2	6.6	3.7	4.4	6.4	7.5	9.0	8.4	8.3	13.5	6.9	24	24	
11	9.6	8.2	8.2	6.3	6.0	6.2	6.1	6.0	9.1	7.2	4.2	5.2	3.1	5.7	6.3	7.9	12.5	8.2	2.9	3.1	6.8	7.6	9.0	5.5	12.5	6.7	24	24	
12	7.7	3.3	2.9	6.1	5.5	5.2	2.0	1.7	3.1	4.3	6.5	6.1	8.0	14.1	12.3	11.3	8.8	5.8	4.7	4.8	3.7	5.6	3.7	4.2	14.1	5.9	24	24	
13	1.4	3.2	6.5	7.2	7.9	7.1	8.4	8.7	7.5	10.6	10.4	10.0	10.8	10.1	11.1	6.4	6.2	4.9	5.3	7.3	5.8	6.4	11.1	13.6	13.6	7.7	24	24	
14	6.7	5.5	5.0	9.1	10.6	7.8	10.5	12.7	11.7	9.2	7.5	11.4	10.9	9.2	9.1	9.0	7.7	5.7	3.4	5.7	6.4	6.0	7.6	7.7	12.7	8.2	24	24	
15	12.6	9.9	7.3	4.0	4.1	6.4	5.7	5.2	6.0	8.1	9.8	9.9	10.3	9.8	10.8	11.7	11.2	11.9	10.3	9.4	10.1	9.2	8.4	8.7	12.6	8.8	24	24	
16	8.5	6.8	7.4	7.5	8.0	7.3	7.1	5.7	6.5	8.1	7.6	12.7	9.6	9.4	9.8	6.0	7.9	6.0	5.6	4.4	5.3	5.9	4.4	5.2	12.7	7.2	24	24	
17	4.9	6.0	6.3	7.8	6.6	6.1	4.8	3.4	2.9	7.1	7.7	8.8	9.1	9.7	7.9	7.7	5.8	9.0	11.4	5.6	4.3	5.1	4.9	5.8	11.4	6.6	24	24	
18	7.7	11.0	10.3	8.0	8.6	9.5	9.5	8.8	8.1	8.8	10.3	10.5	12.8	10.7	9.7	8.7	9.6	8.5	6.4	3.2	5.7	7.5	8.4	8.7	12.8	8.8	24	24	
19	7.8	8.4	9.4	10.7	11.5	12.3	11.5	14.0	12.6	12.8	11.9	10.1	12.5	9.9	11.7	10.6	12.8	11.8	7.6	6.9	5.1	6.2	4.2	5.8	14.0	9.9	24	24	
20	5.5	6.1	5.7	7.0	9.8	8.8	6.3	3.7	8.0	10.0	11.7	13.9	16.3	16.2	13.7	12.9	11.4	7.2	5.9	6.8	4.4	5.2	5.2	16.3	9.1	24	24		
21	5.0	4.9	6.9	8.1	8.4	7.7	5.2	5.2	7.2	9.4	12.3	14.0	13.1	13.3	14.4	13.9	11.3	9.3	10.9	10.8	9.5	10.5	10.0	10.0	14.4	9.6	24	24	
22	9.9	8.8	8.3	10.3	9.9	10.3	9.5	9.4	11.2	12.8	12.7	11.3	10.8	12.2	13.5	12.2	10.3	10.0	5.5	3.8	2.5	3.8	6.6	6.8	13.5	9.3	24	24	
23	6.8	6.9	8.9	8.7	8.5	8.0	7.0	7.8	8.3	9.9	9.0	11.0	11.7	11.8	10.8	12.4	11.8	9.2	9.7	10.2	11.2	12.0	10.8	12.4	9.7	24	24		
24	11.7	12.4	12.7	14.7	2.3	5.1	6.4	6.5	4.8	2.9	4.1	4.0	3.8	3.8	4.7	3.5	3.1	4.4	4.0	5.1	5.0	5.8	6.2	5.7	14.7	5.9	24	24	
25	5.6	5.0	5.6	5.3	5.6	5.6	4.4	5.1	5.5	4.2	6.8	6.4	6.7	6.1	5.5	5.3	4.8	3.5	3.7	5.7	5.3	4.9	6.6	7.5	7.5	5.4	24	24	
26	7.4	8.2	7.5	7.0	5.4	6.0	6.7	3.2	1.3	0.9	2.6	3.6	1.3	3.5	3.6	6.6	5.8	5.1	6.1	6.8	7.8	8.3	8.0	6.6	8.3	5.4	24	24	
27	6.7	5.1	5.2	5.8	5.3	5.3	5.6	2.7	3.3	3.7	5.0	8.3	8.6	11.5	12.6	12.3	9.6	4.9	3.6	5.1	5.9	6.0	6.2	6.9	12.6	6.5	24	24	
28	5.6	15.8	9.5	8.0	4.5	7.3	7.1	7.8	8.6	6.0	5.4	2.1	2.2	3.9	3.2	5.5	10.3	6.1	6.8	8.3	8.8	8.6	7.1	15.8	7.0	24	24		
29	5.6	9.1	10.5	11.9	10.1	10.2	9.6	7.3	3.8	1.3	3.3	3.4	2.6	5.5	7.7	10.6	12.0	12.3	12.7	14.0	14.5	16.2	12.5	10.9	16.2	9.1	24	24	
30	9.4	14.6	11.8	9.1	7.0	7.2	6.0	6.1	6.7	7.5	7.9	6.5	5.5	7.0	4.8	5.6	6.9	8.0	7.7	5.7	4.9	7.8	5.4	5.6	14.6	7.3	24	24	
31	8.8	8.4	6.3	6.3	6.7	6.1	3.5	7.0	6.7	7.1	5.1	10.7	15.3	13.6	15.3	13.6	11.2	10.0	9.0	5.4	9.0	7.6	8.0	8.5	15.3	8.7	24	24	
HOURLY MAX	14.1	15.8	17.2	16.2	13.1	12.6	11.5	14.0	12.8	12.8	12.7	14.0	16.3	17.3	16.9	15.9	15.6	14.7	12.7	14.0	14.5	16.2	13.5	13.6	17.4	13.6	13.6	13.6	13.6
HOURLY AVG	7.6	8.0	7.8	7.8	7.3	7.3	6.3	6.3	6.8	7.0	7.4	8.1	8.5	9.0	8.9	8.4	8.6	7.7	6.7	6.5	7.0	7.5	7.6	7.6	7.4	7.4	7.4	7.4	

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

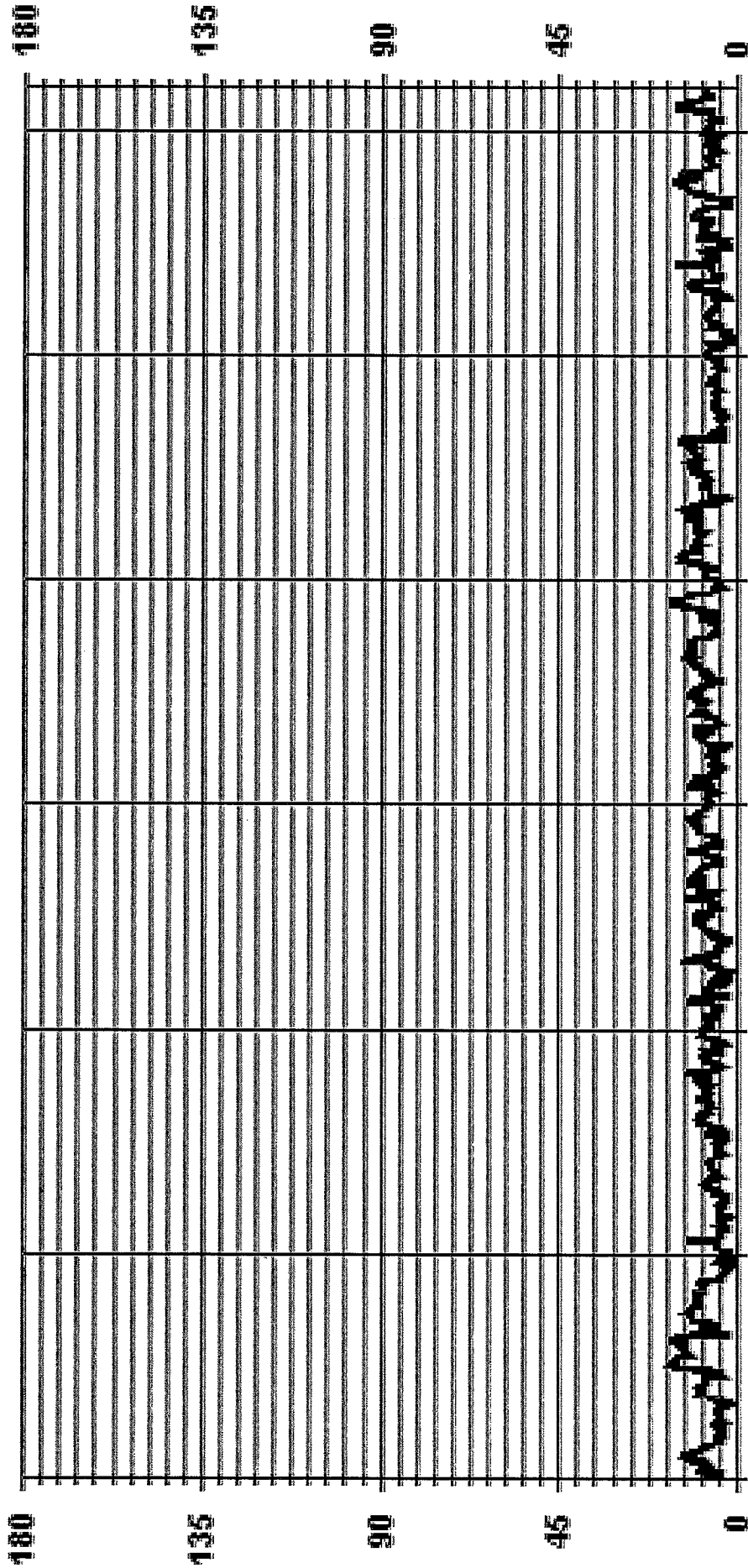
LAST CALIBRATION: August 28, 2014
 DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST



MONTHLY SUMMARY

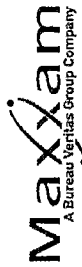
NUMBER OF NON-ZERO READINGS:	744
MAXIMUM 1-HR AVERAGE:	17.3 KPH
MAXIMUM 24-HR AVERAGE:	11.0 KPH
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION:	3.20
OPERATIONAL TIME:	744 HRS
AMTD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	7.6 KPH

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 WSP KPH



VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	DAILY MAX.	24-HOUR AVG.	RDS.
1	16.7	16.3	14.3	14.5	12.3	15.3	19.3	26.0	20.3	21.0	34.2	36.9	31.8	34.5	32.5	31.8	24.9	25.7	25.4	19.9	11.4	9.8	8.3	7.5	36.9	21.3	24								
2	5.9	6.0	7.4	7.0	7.3	7.5	12.1	12.4	17.0	17.1	19.1	19.1	22.0	22.0	16.5	17.0	9.1	10.6	7.7	11.1	15.2	18.0	21.1	19.3	22.0	13.0	24								
3	16.0	16.2	15.6	16.2	14.1	13.8	16.2	12.5	13.8	9.9	19.8	39.1	37.5	41.0	41.0	39.3	38.8	39.9	32.3	43.0	39.2	37.5	R	93.8	43.0	27.2	23								
4	35.5	43.2	37.3	45.4	33.3	29.6	22.1	15.1	18.6	25.8	17.3	20.8	25.6	25.9	29.2	32.7	33.3	34.2	31.5	35.5	32.0	27.0	28.7	30.0	45.4	29.6	24								
5	32.2	32.0	31.2	28.1	34.6	29.6	25.6	33.8	30.2	29.6	21.4	21.6	16.7	17.6	15.9	9.3	9.5	9.5	11.9	11.9	10.2	5.6	7.1	34.6	20.2	24									
6	7.9	5.5	11.0	7.3	11.0	15.8	13.6	13.9	33.9	33.8	16.5	14.9	15.0	15.0	13.9	13.9	12.8	11.0	17.4	11.1	13.4	9.4	9.5	11.3	33.9	14.1	24								
7	12.8	9.9	10.1	9.1	9.7	14.5	14.2	15.8	18.7	16.0	15.6	19.4	23.1	27.4	19.4	24.9	22.0	19.9	13.5	10.7	8.4	10.4	9.5	10.2	27.4	15.2	24								
8	9.3	11.3	13.0	13.2	10.6	8.0	9.1	13.5	13.5	19.5	14.4	22.9	20.3	22.1	20.5	13.9	14.8	23.5	24.4	14.3	9.5	13.6	23.5	15.6	24.4	15.6	24								
9	20.5	19.0	21.1	20.9	16.5	13.0	17.2	16.6	17.7	17.5	24.9	23.6	29.5	29.8	24.0	22.7	19.0	19.5	15.5	15.9	17.8	21.4	22.9	36.6	21.0	24									
10	32.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	34.1	38.4	18.5	24							
11	19.2	13.4	15.2	11.9	9.9	11.9	14.9	11.9	21.6	16.1	14.9	14.7	18.3	28.6	21.8	30.0	28.8	20.0	9.4	6.9	10.9	15.9	15.2	15.4	30.0	16.5	24								
12	15.0	16.6	22.6	16.5	11.3	9.5	6.1	4.7	7.8	14.9	18.0	23.2	27.3	34.1	29.7	27.0	22.9	14.8	9.1	9.1	7.5	10.2	8.4	10.0	34.1	15.7	24								
13	5.5	10.0	9.8	9.8	12.8	12.6	18.3	19.8	20.7	26.7	31.0	35.2	28.7	28.6	30.2	17.5	18.4	15.3	14.2	20.6	21.8	23.5	37.3	52.2	52.2	21.6	24								
14	26.0	18.1	14.8	24.8	24.4	18.2	25.7	31.9	32.5	26.6	20.1	30.8	27.2	31.9	31.7	25.1	30.1	15.4	9.1	14.4	14.7	13.5	26.1	28.3	32.5	23.4	24								
15	36.4	35.6	20.2	20.2	13.0	22.9	21.1	18.0	15.8	22.0	30.0	28.6	28.2	30.4	27.6	29.8	28.9	29.4	24.0	20.8	28.0	19.1	20.4	22.2	36.4	24.7	24								
16	19.8	17.6	17.0	17.6	17.8	17.2	15.6	14.1	15.6	19.3	22.2	46.0	30.5	34.4	30.1	14.3	19.5	18.9	17.1	8.6	9.0	11.4	8.0	6.9	46.0	18.7	24								
17	6.9	9.1	8.2	14.5	11.0	7.5	6.4	6.8	11.3	16.5	25.0	29.1	29.9	32.4	27.5	22.0	17.5	45.2	16.4	12.5	11.6	9.5	10.6	45.2	17.7	24									
18	15.0	20.6	22.4	16.9	16.3	24.3	21.7	22.0	20.9	26.4	29.1	36.2	32.1	35.8	28.3	24.9	24.6	21.8	20.0	7.4	9.1	13.9	13.9	15.7	36.2	21.6	24								
19	18.5	21.3	21.6	22.4	27.7	30.5	32.3	38.5	37.7	38.2	32.3	28.6	32.3	22.4	31.2	33.2	35.8	44.7	22.8	19.1	16.3	16.0	14.9	13.6	44.7	27.2	24								
20	11.9	9.7	9.0	10.1	19.8	16.9	13.6	11.0	22.9	30.8	33.4	35.6	41.7	41.0	48.3	32.3	32.5	32.7	22.2	18.4	19.7	10.6	11.4	14.7	48.3	22.9	24								
21	11.7	11.6	15.4	16.4	17.1	17.5	16.2	16.9	21.9	28.1	31.8	34.9	39.0	41.4	38.8	41.4	29.8	28.3	32.4	34.8	22.8	26.9	23.2	41.4	25.9	24									
22	25.6	21.5	22.3	24.5	24.7	23.8	24.3	22.0	32.9	36.6	33.6	34.9	32.0	31.1	29.7	40.0	30.8	30.8	17.6	6.6	4.9	7.5	9.1	15.0	40.0	24.2	24								
23	13.9	13.6	14.7	14.5	15.2	14.1	15.0	18.7	25.5	30.8	28.2	35.2	34.1	33.9	35.6	30.4	34.3	31.9	23.5	21.1	21.5	27.9	29.2	27.2	35.6	24.5	24								
24	25.7	31.4	30.9	30.3	25.7	14.1	13.2	14.6	13.5	12.4	12.8	14.6	12.9	15.7	20.5	14.4	12.1	12.4	10.0	11.1	11.3	12.9	13.9	13.7	31.4	16.7	24								
25	15.4	13.2	12.3	13.0	14.7	16.9	11.9	17.8	18.2	15.7	21.8	24.9	28.4	22.1	19.2	15.2	21.8	10.1	8.9	12.6	14.1	12.2	13.3	12.6	28.4	16.1	24								
26	12.6	12.6	12.6	12.4	12.1	11.9	11.5	9.5	6.3	7.6	11.6	11.6	13.5	14.1	15.9	20.5	21.8	16.6	12.8	12.1	12.1	14.4	13.9	14.2	21.8	13.2	24								
27	12.4	9.9	6.7	8.4	8.0	8.0	7.7	7.3	7.6	12.8	18.3	26.0	23.6	31.5	45.0	35.2	29.9	12.9	10.0	13.0	15.4	12.6	14.6	15.7	45.0	16.4	24								
28	19.4	55.7	17.6	12.2	9.1	13.4	13.7	18.8	21.4	16.6	18.8	14.2	12.7	15.1	12.2	32.8	40.9	22.5	16.2	13.7	15.5	15.6	13.5	13.3	55.7	19.0	24								
29	11.9	18.5	24.6	29.4	22.2	24.4	22.9	20.4	13.3	11.1	13.3	12.5	15.7	21.4	26.2	26.4	35.6	25.1	34.7	33.8	46.5	46.9	35.4	36.4	46.9	25.4	24								
30	33.2	34.5	25.9	19.2	14.3	11.5	10.2	15.9	20.2	19.4	25.3	21.8	24.3	30.0	19.7	24.4	25.0	41.2	23.7	15.1	13.8	15.0	11.9	9.1	41.2	21.0	24								
31	19.6	16.5	15.8	11.9	13.7	10.3	8.5	13.9	13.3	13.1	15.9	40.0	R	34.2	39.9	41.9	41.3	23.8	26.6	26.7	18.2	14.8	16.8	41.9	21.6	23									
HOURLY MAX	36.4	55.7	37.3	45.4	34.6	30.5	32.3	38.5	37.7	36.2	34.2	46.0	41.7	41.4	48.3	41.9	41.3	45.2	37.0	43.0	46.5	46.9	37.3	52.2											
HOURLY AVG	18.2	19.6	17.9	17.2	16.3	15.9	15.8	17.0	19.2	21.0	22.1	26.3	25.8	27.9	27.2	26.0	25.2	23.1	19.1	17.0	16.8	17.0	16.8	18.5											

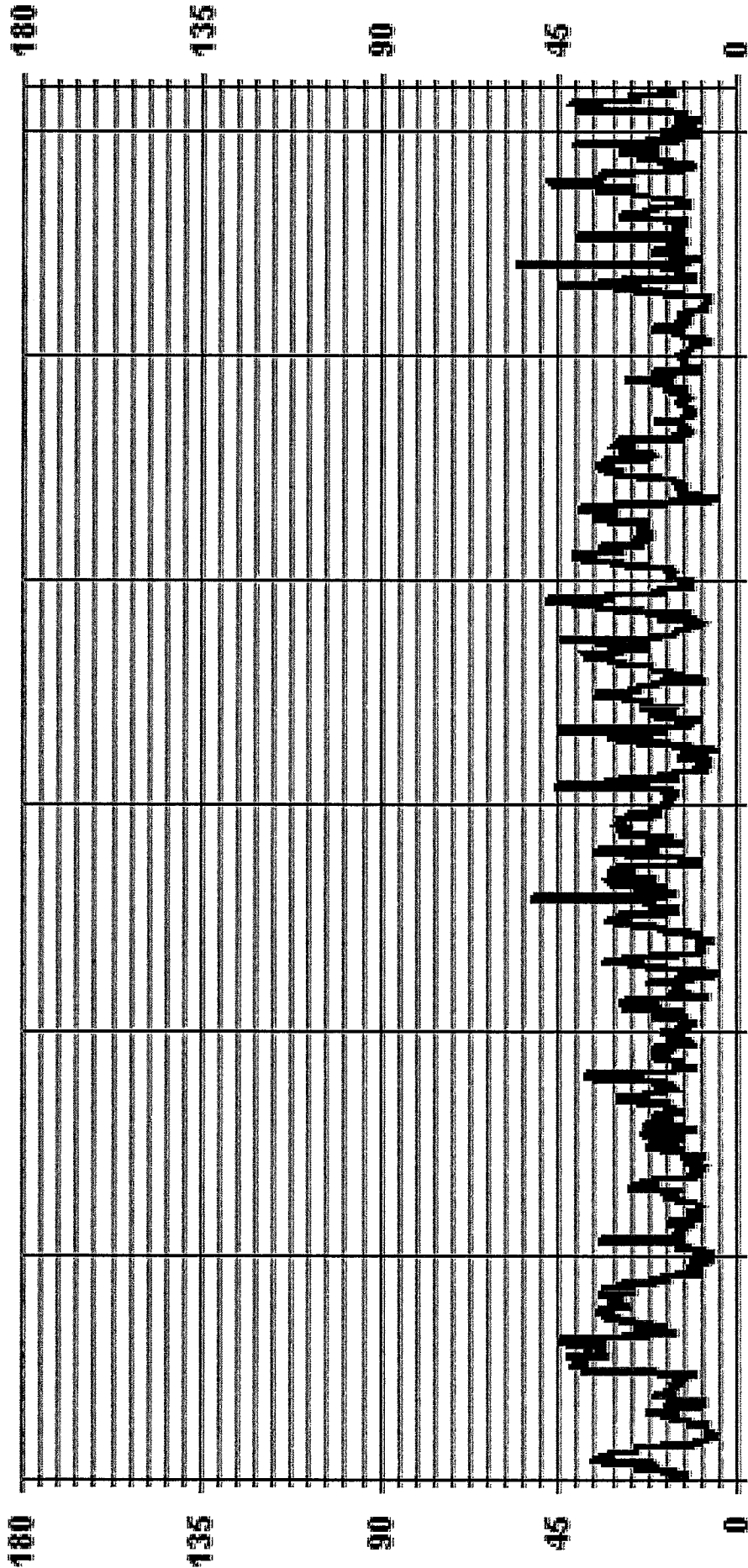
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	55.7	KPH	@	HOURLY(S)	1	ON DAY(S)	28
OPERATIONAL TIME:	742	HRS	VAR-VARIOUS				

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 WSMAX KPH

LIC31
WSP / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 31
Site Name : LIC31
Parameter : WSP
Units : KPH

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
< 6.0	2.28	3.76	1.74	2.15	1.34	1.47	1.61	1.34	1.74	4.16	3.22	2.55	1.34	1.88	2.95	1.61	35.21
< 12.0	.80	1.07	2.95	2.41	2.15	2.55	2.41	4.16	5.77	3.22	3.76	3.49	4.70	8.60	4.97	1.20	54.30
< 20.0	.26	.13	.40	.00	1.47	1.34	.53	.94	.26	.13	.26	1.34	.53	1.61	1.07	.13	10.48
< 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	3.36	4.97	5.10	4.56	4.97	5.37	4.56	6.45	7.79	7.52	7.25	7.39	6.58	12.09	9.00	2.95	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

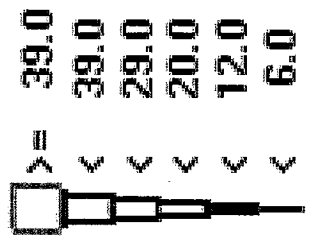
Limit	Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	17	28	13	16	10	11	12	10	13	31	24	19	10	14	22	12	262
< 12.0	6	8	22	18	16	19	18	31	43	24	28	26	35	64	37	9	404
< 20.0	2	1	3	11	10	4	7	2	1	2	10	4	4	12	8	1	78
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	25	37	38	34	37	40	34	48	58	56	54	55	49	90	67	22	

Calm : .00 %

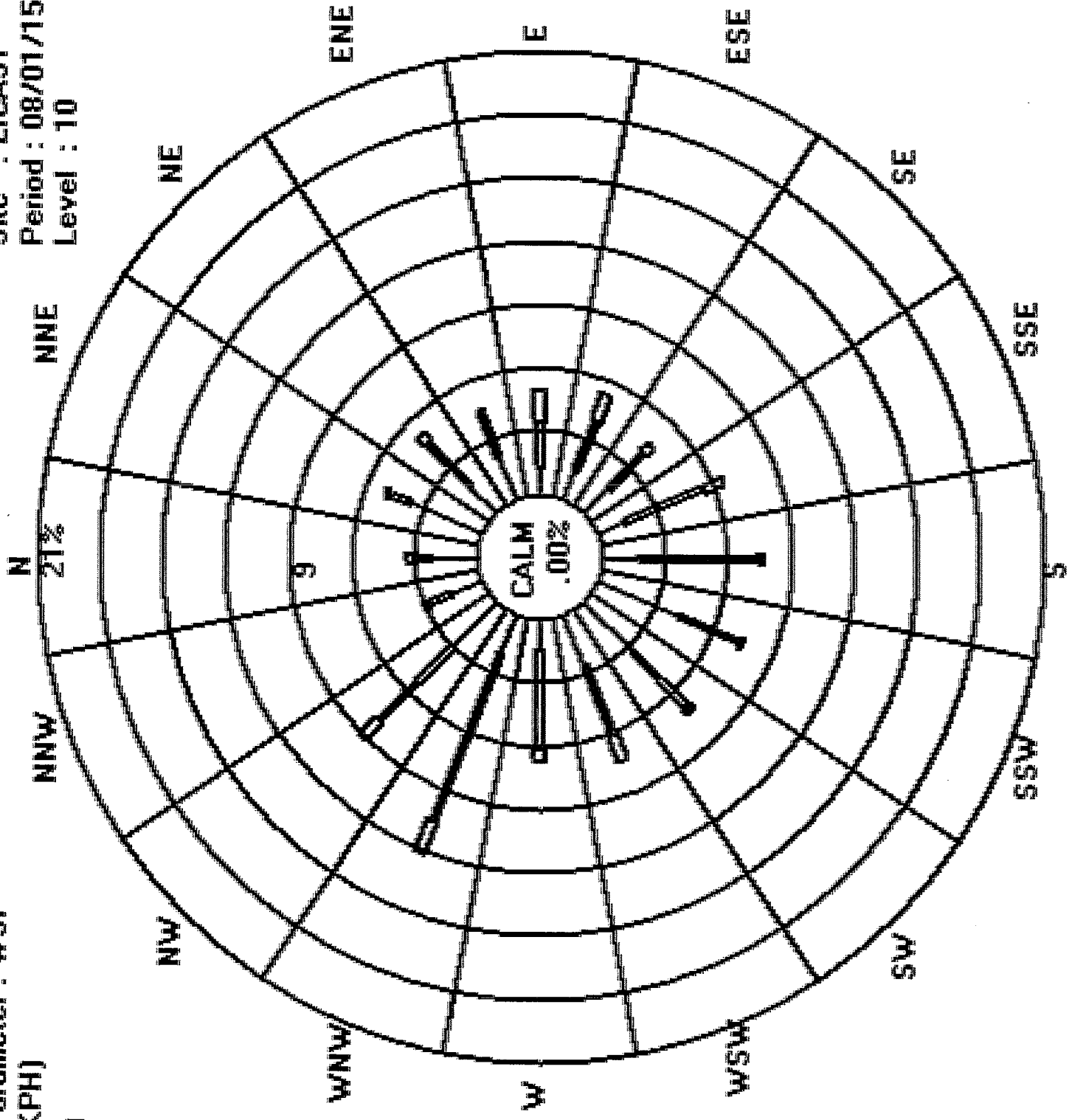
Total # Operational Hours : 744

Logger : 31 Parameter : WSP

Class Limits (KPH)



Site : LICA31
Period : 08/01/15-08/31/15
Level : 10



WIND DIRECTION



WIND DIRECTION (WD) hourly averages

MST

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

24-HOUR AVG
 QUADRANT
 RDS

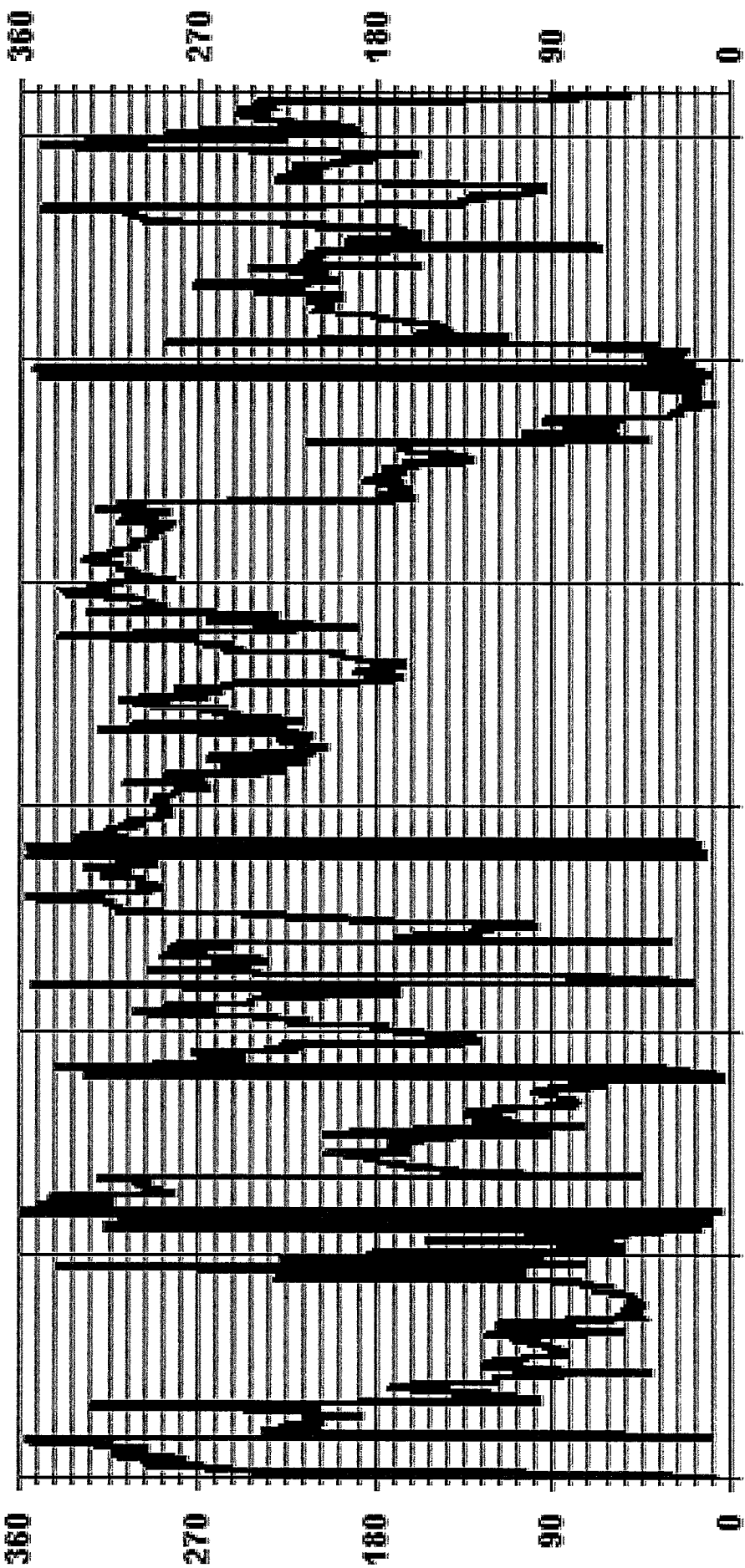
STATUS FLAG CODES

C	CALIBRATION
V	MAINTENANCE
S	DAILY ZERO/SPAN CHECK
P	POWER FAILURE
G	OUT-OF-REPAIR
Q	QUALIFY ASSURANCE
R	RECOVERY
X	MACHINE MALFUNCTION
O	OPERATOR ERROR
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:	96.08		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	WSW	

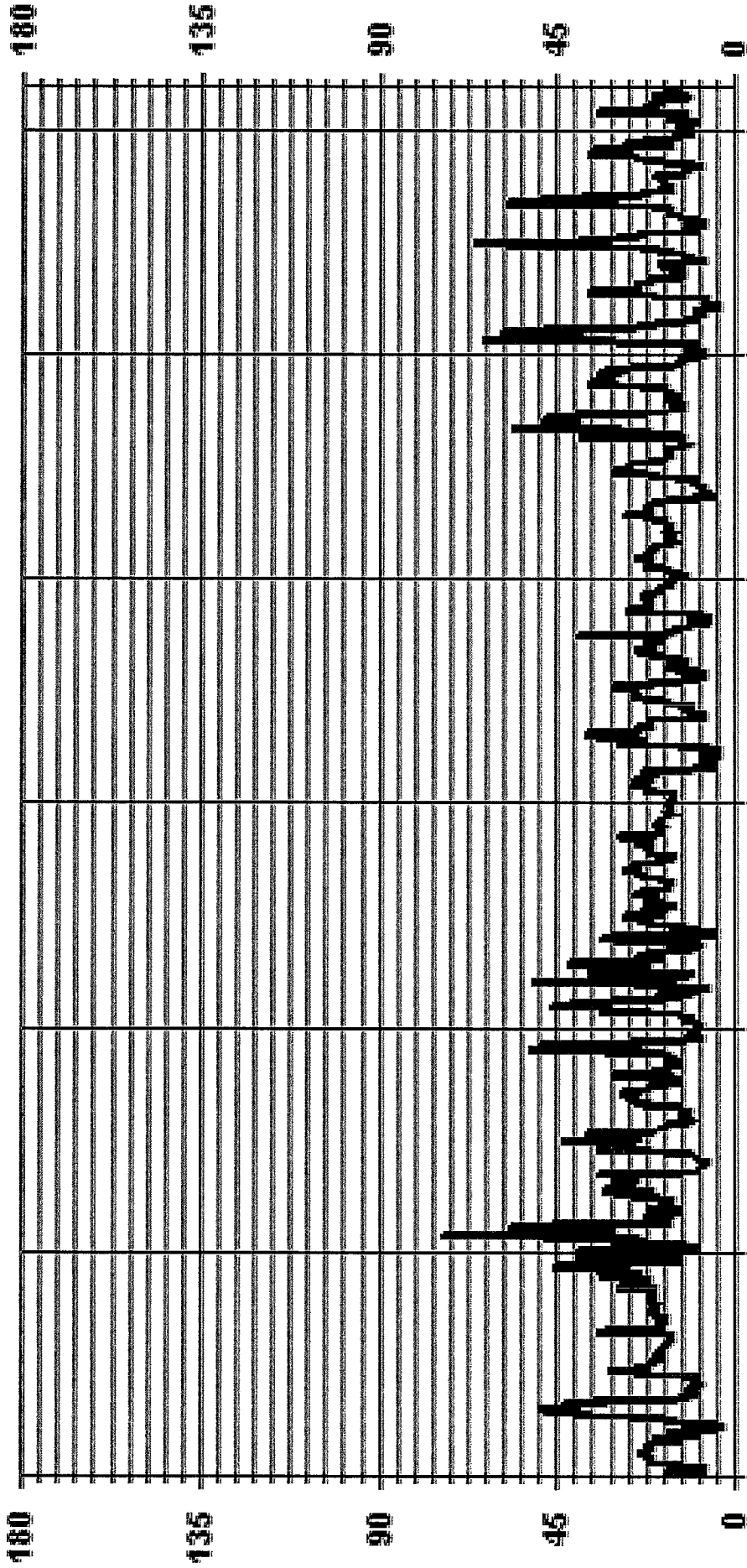
01 Hour Averages



— LICA31 WDR DEG

STANDARD DEVIATION WIND DIRECTION

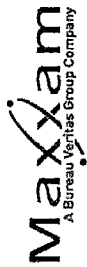
01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 STOWDIR DEG

RELATIVE HUMIDITY



RELATIVE HUMIDITY (RH) hourly averages in %

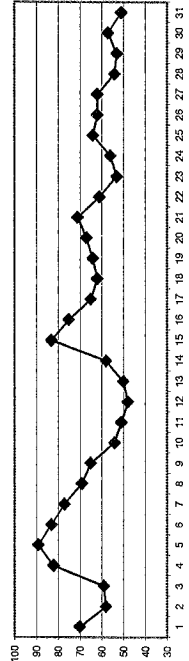
MST

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	AVG	RDGS
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	82	87	87	84	83	90	84	81	75	72	67	59	51	48	46	47	56	49	55	59	70	72	78	79	90	69.7	24	
2	76	79	84	84	83	84	77	66	61	53	43	42	37	34	35	32	37	37	49	55	58	54	55	60	84	57.6	24	
3	65	71	72	69	71	73	71	71	70	66	54	42	39	37	37	44	45	48	55	61	62	63	65	73	91	59.4	24	
4	65	64	65	65	67	69	73	77	85	90	89	87	88	88	89	89	90	91	91	91	91	91	91	91	91	91	82.3	24
5	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	88.9	24
6	92	92	91	92	92	92	92	92	91	86	80	72	68	60	57	55	57	55	48	51	65	72	82	83	85	92	82.7	24
7	90	91	91	91	91	92	91	91	89	85	75	66	62	55	57	55	48	51	65	72	82	83	85	84	92	76.8	24	
8	87	87	87	88	89	88	75	70	66	60	54	53	49	53	55	54	59	61	61	59	59	79	79	74	89	68.6	24	
9	72	73	77	76	76	77	70	67	67	65	63	58	55	53	49	47	45	51	61	69	72	73	74	77	77	65.3	24	
10	75	71	75	80	79	80	71	64	59	52	46	41	37	34	33	32	33	36	41	49	52	54	54	80	54.2	24		
11	60	66	69	70	77	81	73	70	60	55	46	40	37	29	24	25	26	30	37	43	44	49	52	59	81	50.9	24	
12	57	65	73	69	67	65	56	54	56	41	34	32	31	30	32	34	33	37	42	47	49	47	52	53	73	48.2	24	
13	57	60	61	61	58	57	52	49	50	47	40	38	37	36	36	31	30	38	47	55	64	68	66	63	68	50.0	24	
14	65	68	71	71	74	76	70	62	57	56	55	43	40	36	37	41	44	49	53	58	60	62	63	70	76	57.5	24	
15	62	64	68	73	85	88	88	88	88	87	86	87	86	86	86	87	86	83	87	87	87	86	87	88	88	83.3	24	
16	88	88	88	88	89	89	88	83	80	76	63	60	66	56	58	55	61	60	63	73	77	77	77	81	85	89	74.7	24
17	87	89	89	83	86	90	78	71	64	53	47	41	37	35	33	37	39	48	68	74	71	74	82	83	90	65.0	24	
18	83	82	84	85	87	88	80	73	63	56	51	48	42	37	38	40	37	42	47	54	59	66	69	73	88	61.8	24	
19	73	72	71	73	76	77	73	71	69	65	59	54	47	44	40	39	42	61	69	69	70	70	72	83	83	64.1	24	
20	79	85	89	90	86	87	77	74	70	57	54	54	52	49	49	48	46	51	58	66	67	72	76	76	90	67.2	24	
21	75	78	82	85	87	87	84	78	76	69	63	58	57	54	57	60	59	59	60	67	74	80	81	82	87	71.3	24	
22	83	84	86	86	87	87	79	72	64	58	55	49	46	41	38	37	39	44	53	55	56	59	68	87	61.4	24		
23	71	70	69	70	72	73	68	63	56	48	41	37	34	33	31	32	32	35	42	50	55	59	63	73	52.6	24		
24	65	62	63	63	64	67	70	62	55	48	45	43	40	38	40	37	40	44	53	61	66	67	66	73	73	55.5	24	
25	78	83	84	85	85	86	83	75	69	60	52	48	44	41	42	42	43	47	54	61	68	70	71	72	86	64.3	24	
26	74	75	76	76	76	78	73	66	59	52	52	51	48	44	42	44	47	52	58	63	67	71	73	77	78	62.3	24	
27	79	84	87	88	89	89	87	77	65	62	59	51	52	46	38	32	33	42	47	50	56	59	60	62	89	62.0	24	
28	65	71	73	60	53	78	76	64	60	56	50	48	46	45	42	31	23	28	37	45	50	56	61	68	78	53.6	24	
29	71	76	73	66	66	70	72	65	60	55	51	47	39	30	30	30	34	38	42	49	53	52	51	56	76	53.2	24	
30	63	69	71	78	83	89	81	69	61	57	52	41	31	23	25	26	30	50	51	56	60	62	72	71	89	57.1	24	
31	64	66	70	87	85	84	75	69	55	55	40	28	25	25	24	22	25	27	34	42	49	49	57	87	50.6	24		
HOURLY MAX	92	92	91	92	92	92	92	91	91	91	91	91	90	90	88	89	89	90	91	91	91	91	91	91	91	91		
HOURLY AVG	74.0	76.2	78.0	78.4	79.4	81.4	76.7	71.8	67.5	62.6	57.2	52.6	49.2	46.1	44.9	44.5	45.5	49.5	55.3	61.0	65.1	67.6	69.9	72.5				

STATUS FLAG CODES

C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN/HECK	X	MACHINE/VALVE/UNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	SHUT-FOR REPAIR	K	COLLECTION ERROR

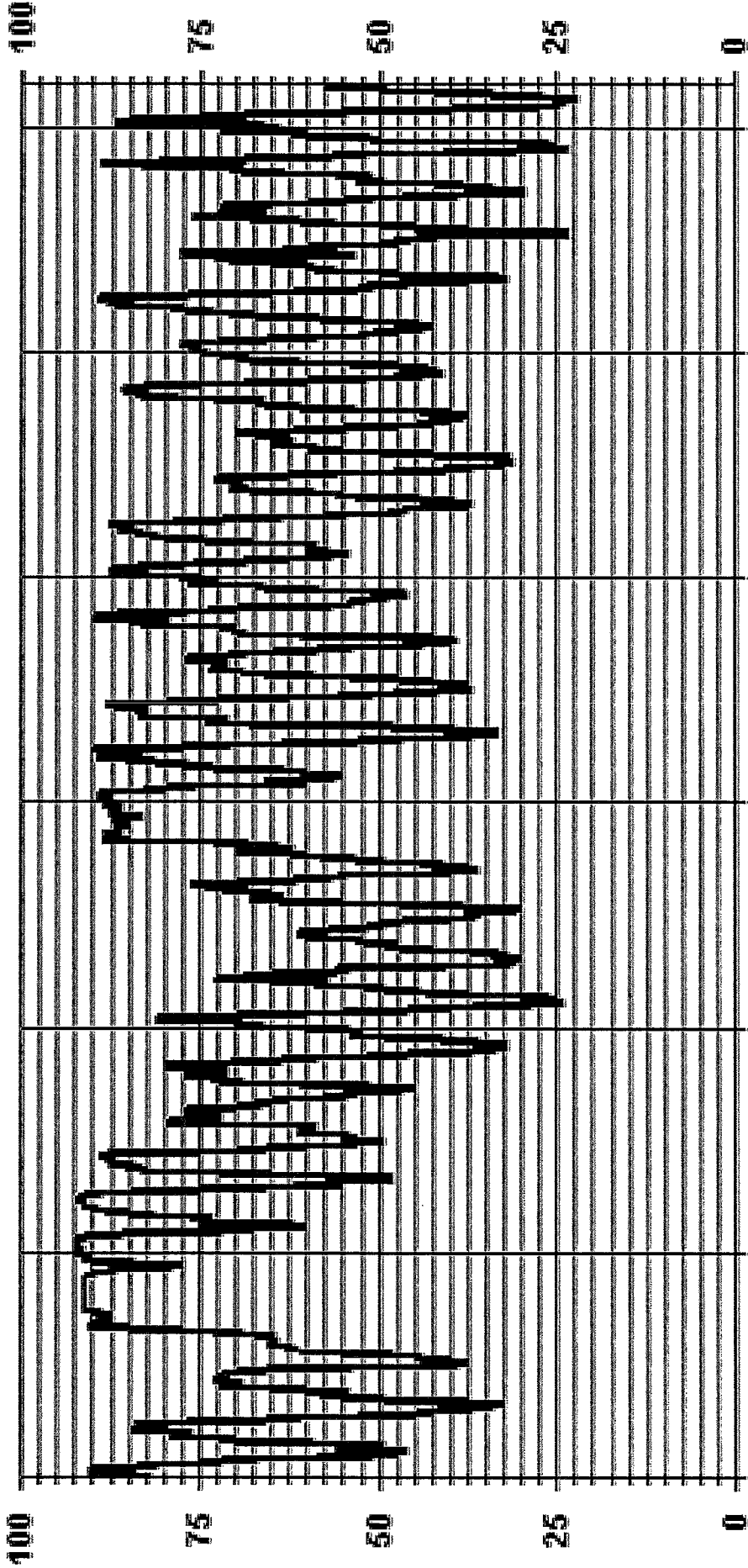
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	92	%	@ HOURS(S)	VAR	ON DAY(S)	6, 7
MAXIMUM 24-HR AVERAGE:	88.9	%			ON DAY(S)	5
STANDARD DEVIATION:	17.99				VAR-VARIOUS	
			OPERATIONAL TIME:			744 HRS
			AMD OPERATION UPTIME:			100.0 %
			MONTHLY AVERAGE:			64 %

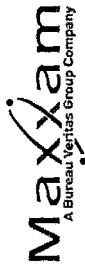
01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA31 RH %FS

BAROMETRIC PRESSURE



BAROMETRIC PRESSURE (BP) hourly averages in millibar

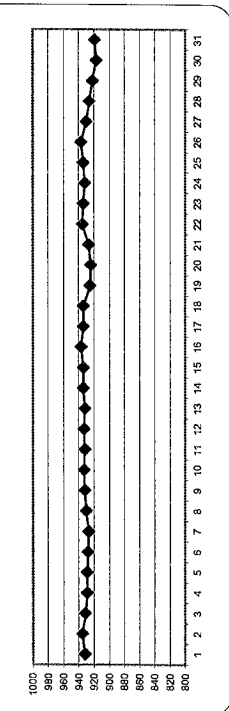
MST

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 START	00:00	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	25:00	26:00	27:00	28:00	29:00	30:00	31:00
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	25:00	26:00	27:00	28:00	29:00	30:00	31:00	
DAILY MAX	932	931	930	930	931	931	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932
DAILY AVG	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932
24-HOUR AVG	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932
RDGS	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	24

STATUS FLAG CODES

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

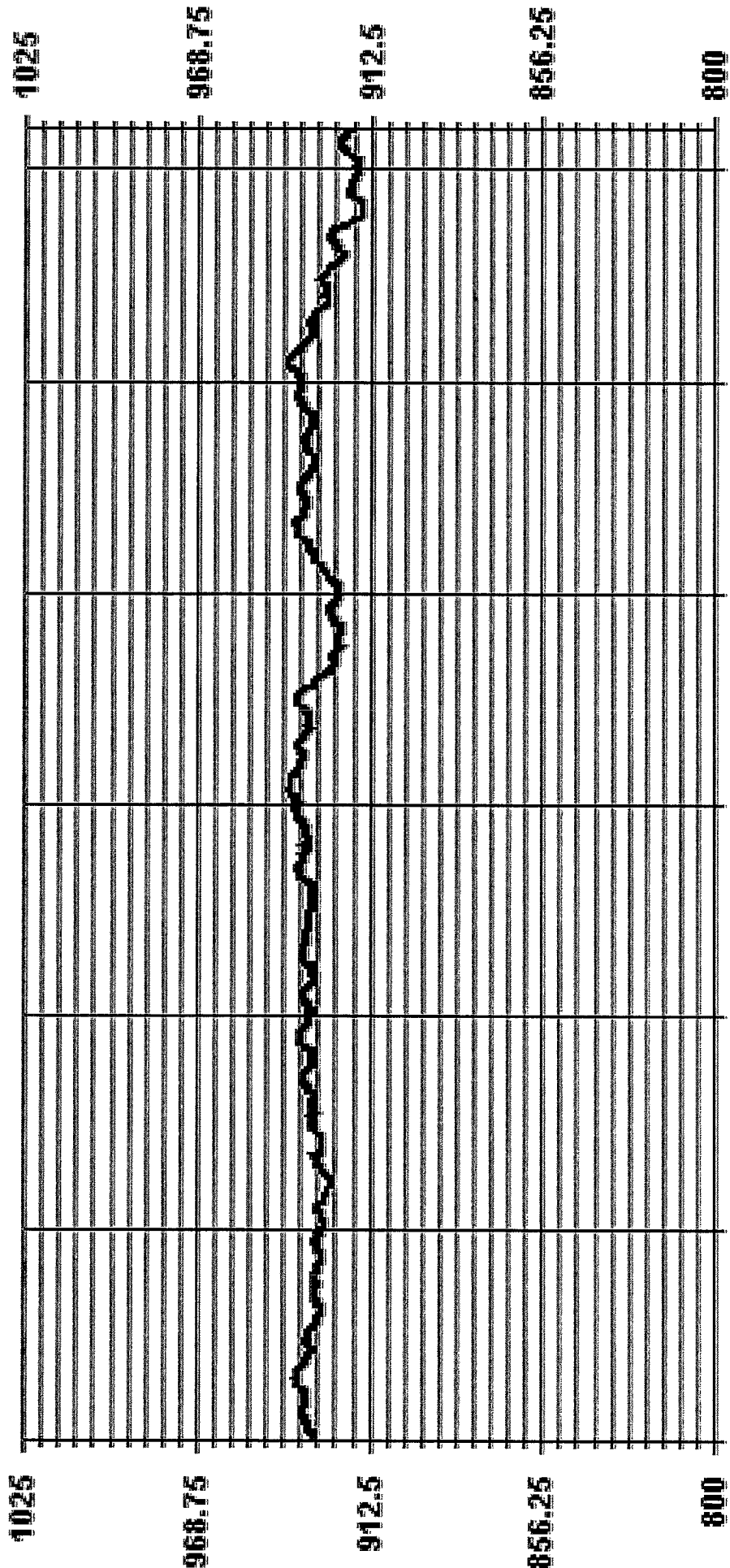
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

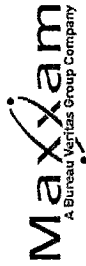
MAXIMUM 1-HR AVERAGE:	939	MB	@ HOUR(S)	VAR	ON DAY(S)	16, 26
MAXIMUM 24-HR AVERAGE:	937	MB			ON DAY(S)	16, 26
STANDARD DEVIATION:	5.09				VAR-VARIOUS	
OPERATIONAL TIME:	744	HRS				
AMD OPERATION UPTIME:	100.0	%				
MONTHLY AVERAGE:	930	MB				

01 Hour Averages



— LICA31 BP MB

AMBIENT TEMPERATURE



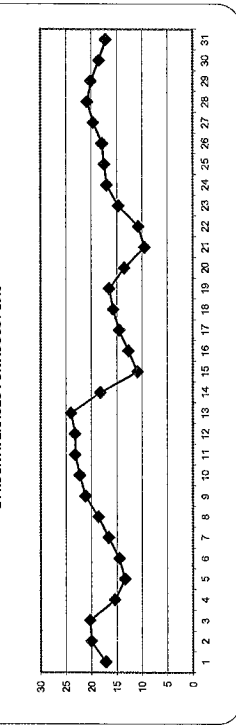
AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

DAY	HOUR																								DAILY		
	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.
1	14.8	13.5	13.3	12.7	12.0	12.9	14.5	14.7	16.0	17.0	18.8	21.0	21.7	22.1	23.2	22.2	21.1	21.7	20.5	19.1	16.1	15.2	14.2	13.7	23.2	17.2	24
2	14.5	13.8	12.8	12.8	12.8	12.9	15.2	19.3	21.2	22.3	24.0	24.7	25.7	26.2	26.9	26.2	26.2	25.1	22.5	21.0	18.9	19.2	18.8	17.9	26.9	20.0	24
3	16.9	15.7	15.2	15.2	14.7	14.5	15.5	16.8	18.2	19.2	20.9	24.3	26.1	26.7	26.9	26.8	25.6	25.0	24.1	22.2	20.3	19.3	18.6	17.8	26.9	20.3	24
4	17.6	18.1	17.9	17.9	17.7	17.4	17.3	16.9	16.1	15.5	15.4	15.6	15.7	15.4	14.6	13.8	13.4	13.4	13.4	12.8	12.9	12.9	13.0	18.1	15.4	24	
5	12.7	12.3	12.0	11.9	11.8	11.7	12.0	12.1	12.4	12.6	12.8	13.2	13.7	13.9	14.5	15.1	16.1	16.8	15.1	13.4	12.8	12.7	12.3	17.3	13.4	24	
6	12.2	11.5	10.6	9.5	9.0	9.9	11.0	12.4	13.2	13.9	15.3	15.7	17.4	18.6	20.0	21.7	21.8	23.4	21.7	19.8	17.9	15.6	15.4	15.1	14.6	16.6	24
7	13.0	12.7	12.6	12.2	12.0	11.9	12.1	13.2	15.5	15.6	18.2	20.0	20.7	21.1	21.8	23.4	21.2	19.3	19.7	18.9	15.9	15.7	15.7	16.3	24.1	18.6	24
8	14.2	13.9	13.6	13.0	12.3	12.9	16.6	19.1	20.4	22.1	22.9	25.5	24.1	23.5	22.9	23.1	23.2	21.2	19.3	19.7	18.9	15.9	15.7	16.3	24.1	18.6	24
9	16.3	16.1	15.3	15.0	14.8	14.6	17.5	19.7	21.1	22.6	23.9	24.8	25.8	26.6	27.1	27.5	27.1	26.3	24.0	22.0	20.8	20.1	19.9	19.2	27.5	21.2	24
10	18.1	16.8	15.6	14.1	14.3	14.1	17.1	19.7	22.3	24.3	26.4	27.4	27.7	28.7	28.9	29.3	28.7	27.9	25.8	23.7	22.3	21.4	21.2	20.5	29.3	22.3	24
11	19.8	18.7	18.0	17.6	15.9	15.1	18.0	19.0	22.7	23.3	26.3	27.8	28.7	29.7	30.4	30.8	30.0	28.8	27.0	24.4	23.3	21.5	20.6	19.1	30.8	23.2	24
12	19.8	18.2	17.0	16.9	16.8	16.9	20.2	23.5	23.6	25.9	27.1	27.9	28.4	29.5	28.8	27.8	27.8	26.5	24.9	23.3	21.9	21.9	20.9	20.5	29.5	23.2	24
13	19.5	19.1	18.3	17.9	18.1	18.0	20.4	22.7	24.7	25.7	27.8	28.9	30.0	29.5	29.7	30.6	30.9	28.4	26.6	24.3	22.4	21.4	20.9	19.1	30.9	24.0	24
14	17.6	16.7	15.9	16.1	15.7	15.1	16.0	17.8	18.8	19.0	19.3	21.7	22.2	22.9	22.7	21.3	21.2	19.4	18.9	17.7	16.9	16.1	15.2	13.3	22.9	18.2	24
15	13.8	12.8	12.5	11.7	10.2	9.7	9.4	9.5	9.7	10.0	10.4	10.2	10.9	10.8	10.8	10.7	11.5	11.9	11.4	11.3	11.0	10.6	10.5	10.7	13.8	10.9	24
16	10.7	10.5	10.4	10.2	10.1	10.0	10.4	12.1	12.8	13.9	16.8	16.2	14.6	16.4	15.0	15.7	15.6	15.7	14.9	12.3	10.5	10.4	10.1	9.1	16.8	12.7	24
17	9.0	8.7	7.9	8.6	7.4	7.0	10.2	13.1	16.0	18.9	19.3	21.1	21.5	21.7	22.5	20.9	21.4	19.4	14.5	13.2	12.6	12.2	10.2	9.8	22.5	14.5	24
18	9.6	10.2	10.1	9.9	8.8	8.8	10.7	13.1	16.1	18.1	19.6	20.7	21.3	21.8	22.1	21.3	21.7	20.7	18.9	17.1	15.9	14.4	12.9	12.2	22.1	15.7	24
19	12.2	12.7	12.8	12.5	12.3	12.3	13.1	14.0	14.9	16.8	19.4	21.4	23.2	23.7	24.9	24.3	23.7	18.6	16.3	15.8	14.1	13.4	12.2	10.6	24.9	16.5	24
20	11.4	10.3	9.0	8.7	9.7	9.3	12.2	13.8	15.4	17.4	18.3	18.5	18.7	18.1	18.0	17.9	17.9	16.2	14.0	12.2	11.2	9.3	8.1	7.7	18.7	13.5	24
21	8.3	8.0	7.1	6.8	6.0	6.1	7.3	9.7	10.0	10.9	11.7	12.7	12.9	13.3	12.0	11.1	11.5	11.4	10.0	8.6	7.6	7.3	6.8	13.3	9.5	24	
22	6.2	5.5	4.9	4.7	4.4	4.4	6.5	9.3	12.7	12.9	14.2	13.9	14.1	15.8	16.4	16.7	15.9	14.5	11.8	10.9	10.7	9.9	8.0	16.7	10.7	24	
23	7.6	7.2	6.9	6.5	6.1	5.9	7.6	9.9	13.1	15.9	18.7	19.9	21.0	21.6	22.2	21.9	22.2	21.5	19.9	17.6	16.0	15.1	14.7	13.4	22.2	14.7	24
24	12.5	12.4	12.1	11.6	11.0	10.2	10.2	13.2	15.8	18.0	19.8	20.9	22.1	23.4	23.8	24.0	23.8	22.9	20.6	17.7	16.0	15.5	15.3	14.1	24.0	17.0	24
25	13.0	12.0	11.8	11.2	10.6	10.1	10.7	13.6	16.0	19.4	21.8	23.4	24.3	25.0	24.5	24.4	24.3	23.1	21.1	18.5	16.1	15.1	14.7	14.1	25.0	17.5	24
26	14.3	12.9	12.3	12.1	11.6	11.0	12.2	15.5	18.8	21.7	22.4	23.2	23.9	24.0	24.5	23.7	22.5	21.9	20.3	18.6	17.4	16.3	15.7	14.8	24.5	17.9	24
27	14.3	13.2	12.6	12.3	12.0	12.0	12.9	15.7	20.0	21.3	24.0	24.4	24.3	26.2	27.7	28.1	26.3	24.7	23.0	21.7	19.5	18.5	17.8	17.6	28.1	19.6	24
28	16.6	16.0	15.0	16.1	16.5	13.3	14.1	18.1	20.2	22.2	23.9	24.7	26.0	27.2	28.1	27.0	27.0	24.5	21.7	20.1	18.9	18.0	16.6	28.1	20.8	24	
29	15.9	14.9	15.1	15.6	15.3	14.5	14.7	17.4	19.4	21.2	22.5	23.2	25.1	25.9	25.3	25.7	24.6	23.5	22.3	20.9	19.9	19.9	19.9	20.1	24		
30	17.1	15.9	15.4	13.4	11.9	10.5	13.1	17.0	20.0	21.7	22.8	24.1	26.0	26.6	26.1	25.8	24.8	20.0	19.3	16.5	14.8	15.0	13.2	13.3	26.6	18.5	24
31	14.6	13.7	12.2	9.7	9.4	9.2	12.0	14.2	18.1	17.7	21.5	23.7	24.0	24.4	24.0	24.4	24.0	24.8	23.7	22.8	19.8	17.4	15.2	14.7	12.9	13.0	24
HOURLY MAX	19.8	19.1	18.3	17.9	18.1	18.0	20.4	23.5	24.7	25.9	27.8	28.9	30.0	29.7	30.4	30.8	30.9	28.8	27.0	24.4	23.3	21.9	21.2	20.5			
HOURLY AVG	14.0	13.4	12.8	12.4	12.0	11.7	13.2	15.4	17.2	18.6	20.2	21.2	22.0	22.6	22.8	22.5	22.4	21.2	19.6	17.9	16.4	15.6	15.0	14.2			

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

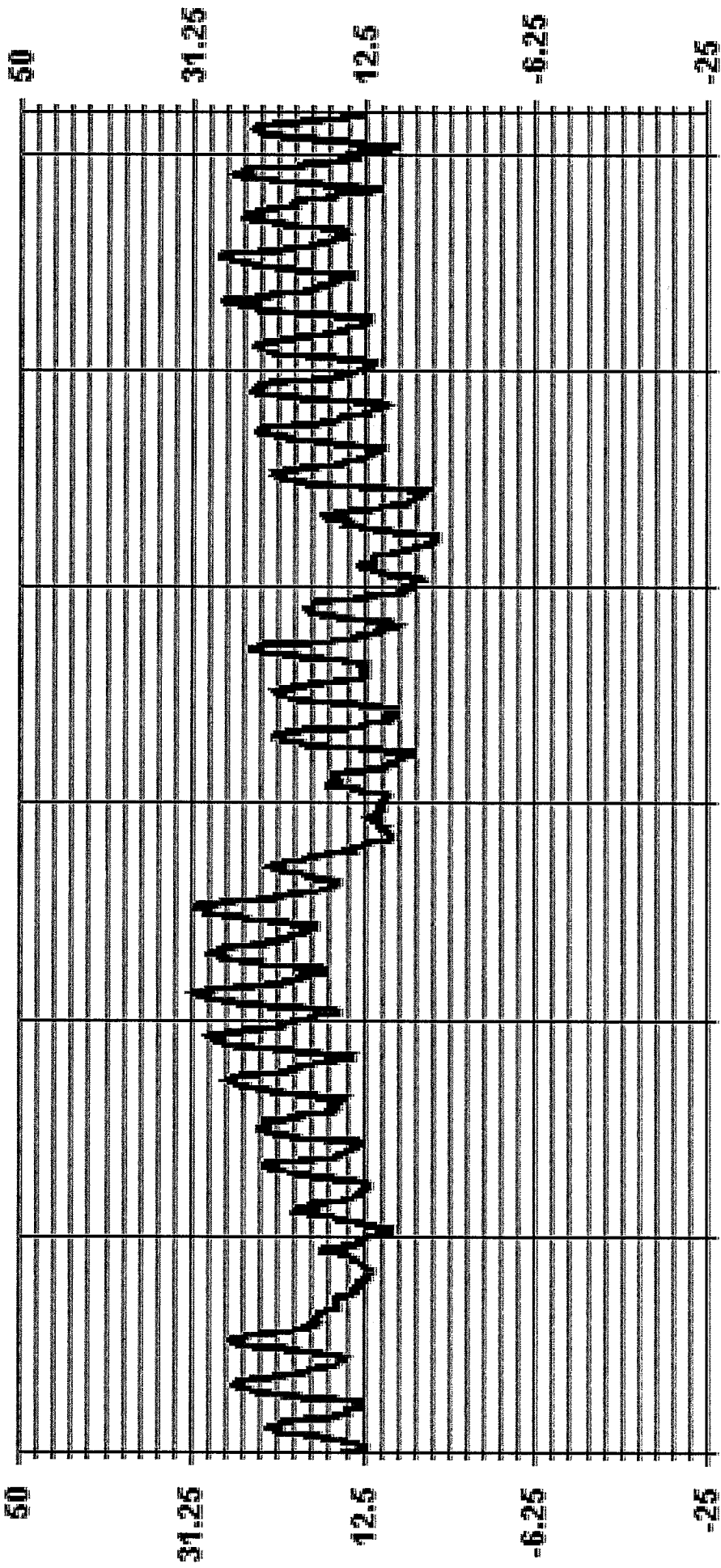
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

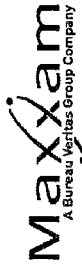
MINIMUM 1-HR AVERAGE:	4.4 °C	@ HOUR(S)	4, 5	ON DAY(S)	22, 22
MAXIMUM 1-HR AVERAGE:	30.9 °C	@ HOUR(S)	16	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	24.0 °C			ON DAY(S)	13
				VAR- VARIOUS	
OPERATIONAL TIME:					744 HRS
AMD OPERATION UPTIME:					100.0 %
MONTHLY AVERAGE:	5.64				17.3 °C
STANDARD DEVIATION:					

01 Hour Averages



— LICA31 TPX DGC

PRECIPITATION



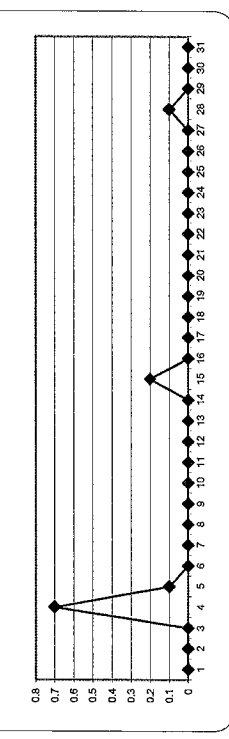
PRECIPITATION hourly averages (mm)

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	0.1	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
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	1.7	2.8	1.8	1.3	1.2	1.7	0.3	0.0	0.3	1.6	1.4	0.3	0.0	0.0	0.5	0.6	0.5	2.8	0.7
5	0.2	0.1	0.2	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.2	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
6	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	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	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	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	0.2	2.5	0.2	0.3	1.3	1.0	1.5	0.6	1.7	2.8	1.8	1.3	1.2	1.7	0.3	0.3	1.6	1.4	0.3	0.0	0.0	0.0	0.5	0.6	0.5	0.0
HOURLY AVG	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	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	0.0	0.0

STATUS FLAG CODES

C	QUALITY ASSURANCE
O	RECOVERY
R	RECOVERY
S	MAINTENANCE
X	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

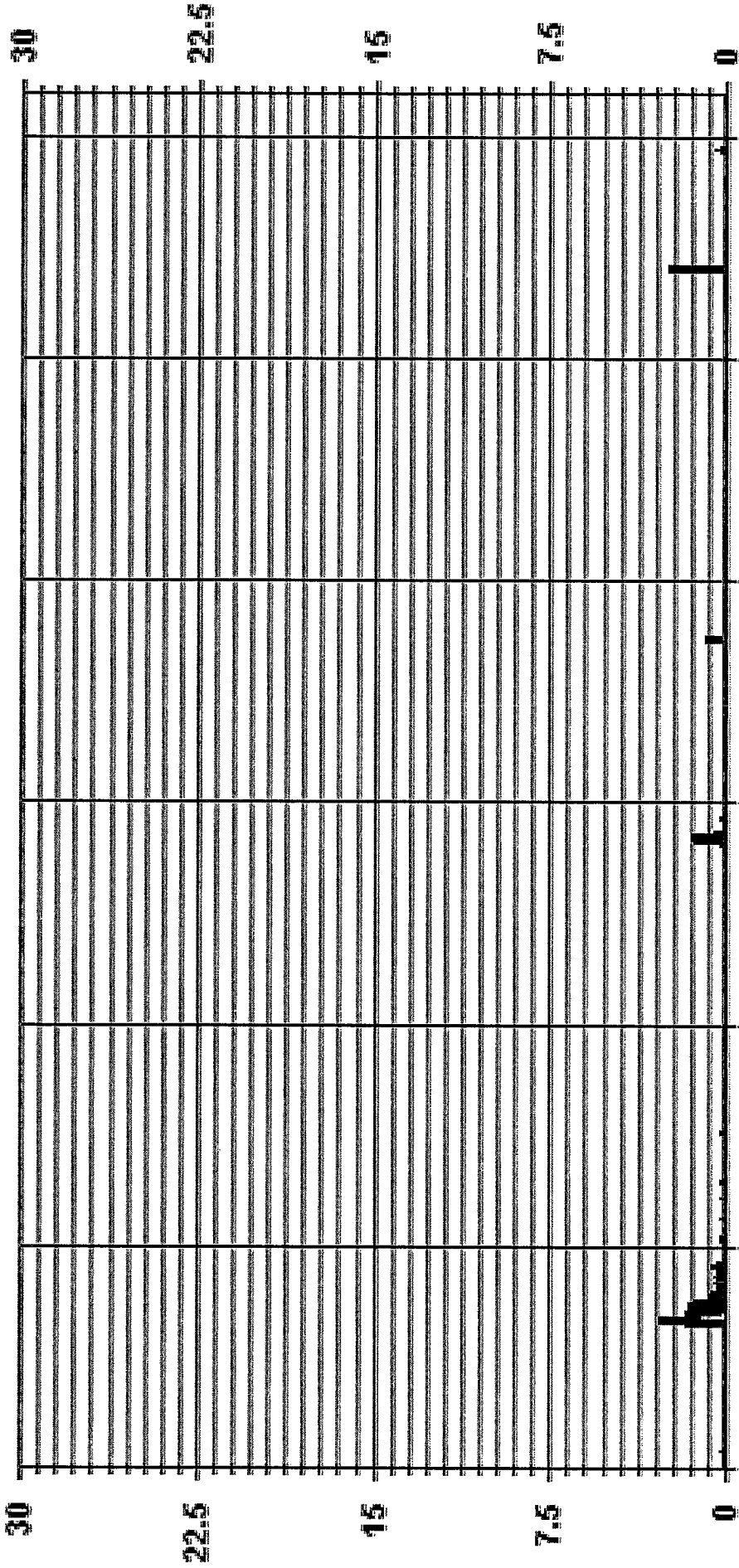
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	2.8	MM	@ HOUR(S)	9	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	0.7	MM			ON DAY(S)	4
MONTHLY TOTAL	28.5	MM			VAR-VARIOUS	
STANDARD DEVIATION:	0.23					
OPERATIONAL TIME:	744	HRS				
AMD OPERATION UPTIME:	100.0	%				
MONTHLY AVERAGE:	0.0	MM				

01 Hour Averages



— LICA31 PRECIP MM

APPENDIX II
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE

Maxxam

API 100E SO2 Analyzer Calibration

Date: 5-Aug-15

Company: LICA

Station Name/Location: St.Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO2

Start/End Time (mst): 9:20 - 14:02

Calibration Purpose: Monthly Calibration

Converter Make & Model: NA

Converter Serial #: NA

Cal Gas Expiry Date: 12-Mar-19

Analyzer:

Serial Number: 468

Last Calibration Date: 20-Jul-15

Previous Cal High Point C.F.: 1.000

Range ppb: 1000

As Found C.F.: 0.999

New C.F.: 1.001

As found:

SLOPE: 0.919

OFFSET: 74.4

HVPS: 532

RCELL TEMP: 50.0

BOX TEMP: 26.8

PMT TEMP: 7.8

IZS TEMP: 40.0

TEST: NA

STABIL: 0.0

PRES: 24.0

SAMP FL: 580

PMT: 64.3

NORM PMT: 76.6

UV LAMP: 1941.9

LAMP RATIO: 78.5

STR. LGT: 34.2

DRK PMT: 16.4

DRK LMP: 3.6

Internal Span: 228.3

As left:

SLOPE: 0.916

OFFSET: 76.4

HVPS: 532

RCELL TEMP: 50.0

BOX TEMP: 26.2

PMT TEMP: 7.8

IZS TEMP: 40.0

TEST: NA

STABIL: 0.0

PRES: 24.0

SAMP FL: 581

PMT: 65.5

NORM PMT: 77.0

UV LAMP: 1939.2

LAMP RATIO: 78.5

STR. LGT: 35.0

DRK PMT: 16.3

DRK LMP: 3.6

Internal Span: 227.2

Calibrator:

Flow Meter ID's: NA

Make & Model: SABIO 2010 D

Serial #: 11900613

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	5013	0	5013
high	4938	77	5015
mid	4976	38	5014
low	4994	19	5013

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	5013	0.0	5013	0	2.0	NA
adjusted zero	5013	0.0	5013	0	1.0	NA
as found high	4938	77.20	5015	762.0	764.0	0.999
adjusted high	4938	77.20	5015	762.0	762.0	1.001
mid	4976	37.70	5014	372.2	374.0	0.998
low	4994	18.90	5013	186.6	187.0	1.003
calibrator zero	5013	0.00	5013	0	1.0	NA
Average C.F. =						1.001

Linear Regression/Calibration Results:

Correlation Coefficient = <u>1.000</u>	LIMITS	Pass/Fail ?
Slope = <u>1.001</u>	> or = 0.995	PASS
b (Intercept as % of full scale) = <u>-0.11%</u>	0.85-1.15	PASS
% change In C.F. from last cal = <u>0.14%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

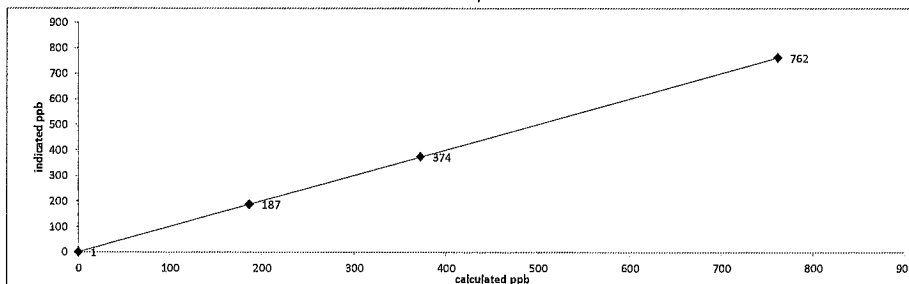
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

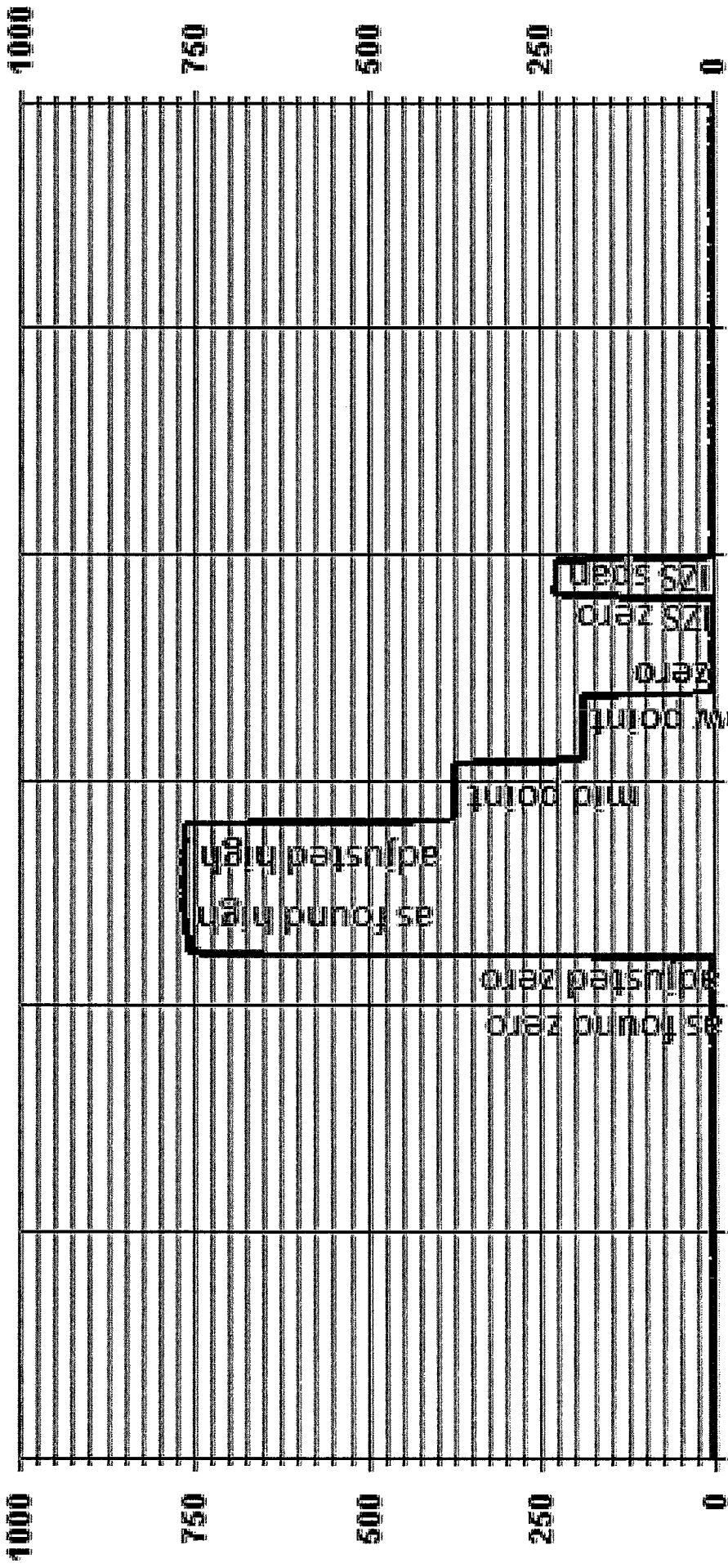
Comments:

Sample filter changed.

API 100E SO2 Analyzer Calibration



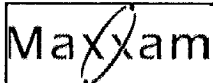
01 Minute Averages



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

— LICA31 SO2_ PPB

HYDROGEN SULPHIDE



API 101E H2S Analyzer Calibration

Date: 5-Aug-15

Company: LICA

Station Name/Location: St.Lina

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 9:20 - 14:03

Calibration Purpose: Monthly Calibration

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

Analyzer:

Serial Number: 509

Last Calibration Date: 20-Jul-15

Previous Cal High Point C.F.: 1.000

Range ppb: 100

As Found C.F.: 0.990

New C.F.: 1.002

As found:

SLOPE: 1.112

OFFSET: 33.8

HVPS: 488

RCELL TEMP: 50.0

BOX TEMP: 28.7

PMT TEMP: 7.9

IZS TEMP: 48.0

TEST: NA

STABIL: 0.0

PRES: 19.7

SAMP FL: 532

PMT: 29.9

NORM PMT: 35.2

UV LAMP: 3090.0

LAMP RATIO: 93.2

STR. LGT: 18.8

DRK PMT: 8.3

DRK LMP: 0.7

Internal Span: 55.07

As left:

SLOPE: 1.105

OFFSET: 34.9

HVPS: 488

RCELL TEMP: 50.0

BOX TEMP: 28.3

PMT TEMP: 7.9

IZS TEMP: 48.0

TEST: NA

STABIL: 0.0

PRES: 19.9

SAMP FL: 536

PMT: 30.6

NORM PMT: 35.0

UV LAMP: 3096.2

LAMP RATIO: 93.3

STR. LGT: 19.3

DRK PMT: 8.3

DRK LMP: 0.7

Internal Span: 54

Calibrator:

Flow Meter ID's: NA

Make & Model: API

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	7500	0	7500
high	7440	59	7499
mid	7471	29	7500
low	7486	14	7500

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppb)	Indicated Concentration (ppb)	Correction Factors
	Diluent	Cal Gas	Total			
as found zero	7497	0.0	7497	0	1.0	NA
adjusted zero	7497	0.0	7497	0	0.2	NA
as found high	7440	58.50	7499	78.0	79.0	0.990
adjusted high	7440	58.50	7499	78.0	78.1	1.002
mid	7471	28.50	7500	38.0	38.2	1.000
low	7486	14.30	7500	19.1	19.2	1.004
calibrator zero	7497	0.00	7497	0	0.3	NA
Average C.F.=						1.002

Linear Regression/Calibration Results:

Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.001</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>1.00%</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: 20 ppb Time gas run (mst): 10:21 - 10:26

Zero corrected analyzer response: 0.1 ppb

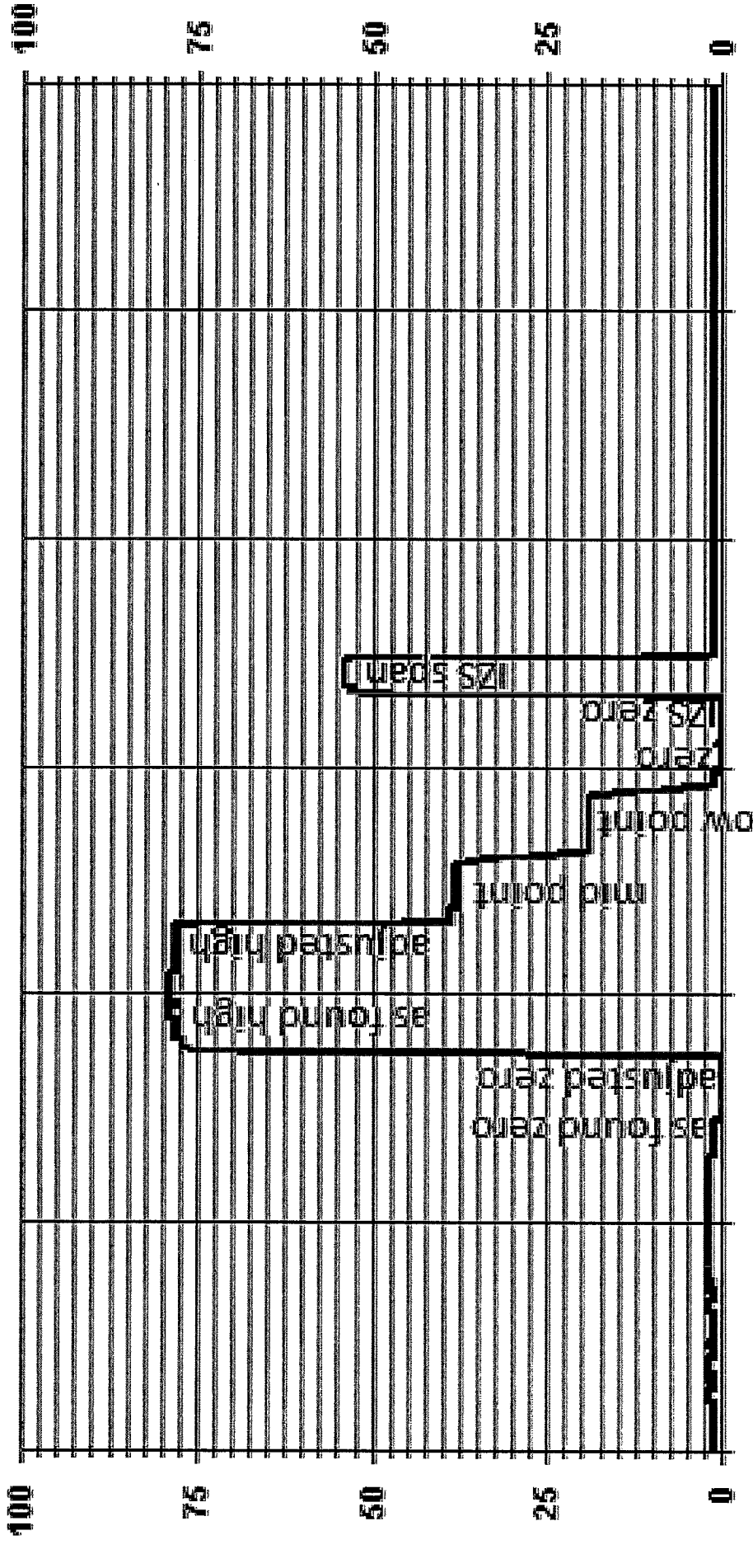
Comments:

Sample filter changed.

API 101E H2S Analyzer Calibration

Calculated Concentration (ppb)	Indicated Concentration (ppb)
0	0.2
19.2	19.2
38.2	38.2
78.1	78.1

01 Minute Averages



— LICAS1 H2S_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 51C THC Analyzer Calibration

Date: 4-Aug-15 Start Time (mst): 12:01
 Company: LICA End Time (mst): 16:15
 Station Name/Location: St. Lina Calibration Purpose: Monthly
 Performed by: Alex Yakupov Cal Gas Expiry Date: 12-Aug-17

Analyzer: 51CLT-77021-384 Range ppm: 50
 Serial Number: 17-Jul-15 As Found C.F.: 0.996
 Last Calibration Date: 1.002 New C.F.: 1.002
 Previous Cal High Point C.F.:

	As found:		As left:
H ₂ cylinder (psi):	<u>1500</u>	H ₂ cylinder (psi):	<u>1500</u>
H ₂ cylinder reg set (psi):	<u>30</u>	H ₂ cylinder reg set (psi):	<u>30</u>
Span Cylinder (psi):	<u>1100</u>	Span Cylinder (psi):	<u>1100</u>
Span Cylinder Reg Set (psi):	<u>35</u>	Span Cylinder Reg Set (psi):	<u>35</u>
Zero Air Gen Pressure:	<u>42</u>	Zero Air Gen Pressure:	<u>42</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>1714</u>	FID status:	cnt: <u>1703</u>
	rng: <u>1</u>		rng: <u>1</u>
	try: <u>0</u>		try: <u>0</u>
	flm: <u>187.0</u>		flm: <u>186.0</u>
	det: <u>125.2</u>		det: <u>125.7</u>
Oven Readings:	Flame: <u>187</u>	Oven Readings:	Flame: <u>187</u>
	Filter: <u>125</u>		Filter: <u>125</u>
	Base: <u>125</u>		Base: <u>125</u>
	Pump: <u>06.91</u>		Pump: <u>06.93</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>-14.9</u>		-15 <u>-14.9</u>
	Internal Span: <u>27.1</u>		Internal Span: <u>26.8</u>

Calibrator: Flow Meter ID's: NA
 Make & Model: API 700
 Serial #: 830
 Cal Gas Cylinder I.D. #: LL33674
 CH₄/C₃H₈ Cylinder Conc. (ppm): 601.4 202.0
 CH₄ as propane/total CH₄ equivalents (ppm): 555.5 1156.9

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:

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	0.20	NA
adjusted zero	1999	0.00	1999	0	0.00	NA
as found high	1932	65.00	1997	37.66	37.80	0.996
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	1999	0.00	1999	0	0.00	NA
Average C.F.=						1.002

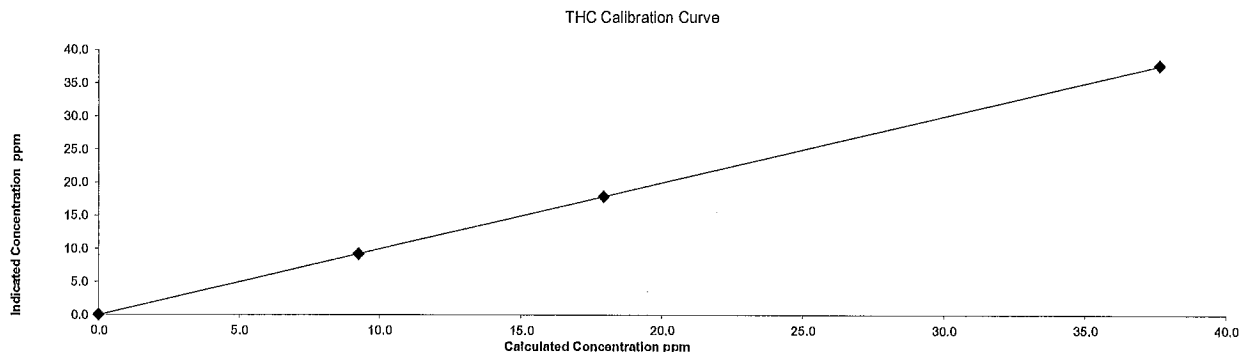
Linear Regression/Calibration Results:

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>0.58%</u>	± 3% F.S.	PASS
		± 15%	PASS

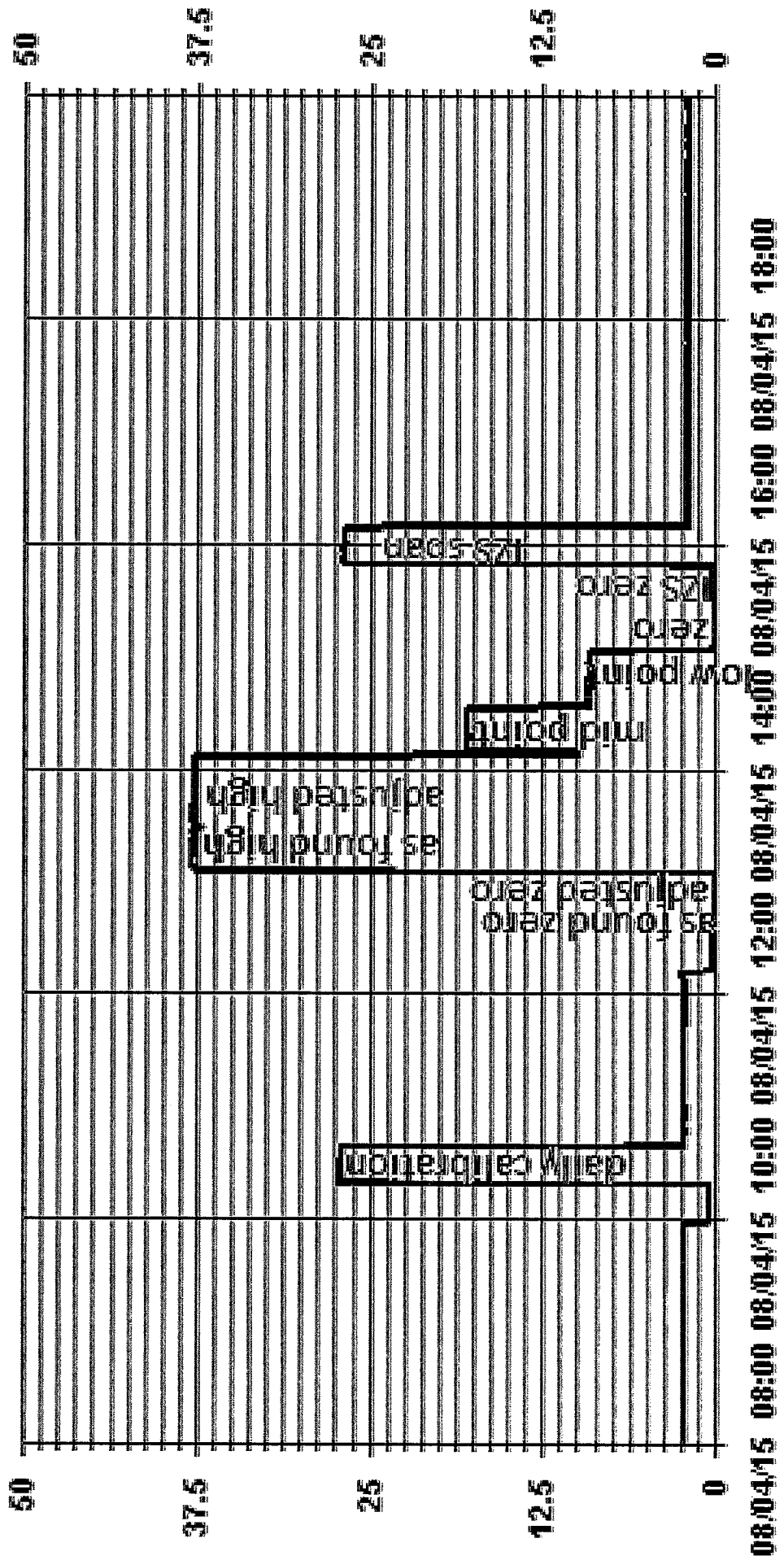
Comments:

Filter changed.

Thermo 51C THC Analyzer Calibration



01 Minute Averages



— LICA31 THC PPM

NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 5-Aug-15
 Company: LICA
 Station Name/Location: St.Lina
 Performed by: Alex Yakupov

Start Time (mst): 9:20
 End Time (mst): 16:20
 Calibration Purpose: Monthly calibration
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 594
 Last Calibration Date: 20-Jul-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 0.992 NO= 0.999
 NOx= 0.987 NOx= 1.001
 NO₂= 1.000 NO₂= 1.004

As found:
 NOx SLOPE: 0.948
 NOx OFFS: 2.7
 NO SLOPE: 0.944
 NO OFFS: 0.1
 TEST: NA
 SAMP FLW: 452
 OZONE FL: 78
 PMT: 14.5
 NORM PMT: 7.2
 AZERO: 16.4
 HVPS: 771
 RCELL TEMP: 50.0
 BOX TEMP: 27.3
 PMT TEMP: 6.6
 IZS TEMP: 45.0
 MOLY TEMP: 315.4
 RCEL: 6.8
 SAMP: 26.7
 Internal Span: 522.1/7.3/514.6

As left:
 NOx SLOPE: 0.937
 NOx OFFS: 1.9
 NO SLOPE: 0.938
 NO OFFS: 0.6
 TEST: NA
 SAMP FLW: 452
 OZONE FL: 78
 PMT: 15.4
 NORM PMT: 1.2
 AZERO: 16.2
 HVPS: 771
 RCELL TEMP: 50.0
 BOX TEMP: 26.6
 PMT TEMP: 6.6
 IZS TEMP: 45.0
 MOLY TEMP: 315.9
 RCEL: 6.8
 SAMP: 26.7
 Internal Span: 500.1/9.1/491.1

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
low	4994	19	100.00	5013

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	5013	0.0	5013	0	0	0.0	4.0	NA	NA
adjusted zero	5013	0.0	5013	0	0	0.0	0.0	NA	NA
as found high	4938	77.20	5015	778.9	778.9	785	789	0.992	0.987
adjusted high	4938	77.20	5015	778.9	778.9	781	781	0.997	0.997
mid	4976	37.70	5014	380.5	380.5	384	382	0.991	0.996
low	4994	18.90	5013	190.8	190.8	192	192	0.994	0.994
calibrator zero	5013	0.00	5013	0	0	0.0	1.0	NA	NA
Average C.F.=								0.994	0.996

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	4938	77.20	5015	0.0	779.0	778.0	-2.0	0.0	0.0	
as found NO ₂	4938	77.20	5015	500.0	300.0	778.0	477.0	479.0	479.0	1.000
gpt mid	4938	77.20	5015	280.0	505.0	778.0	272.0	274.0	274.0	1.000
gpt low	4938	77.20	5015	100.0	679.0	778.0	98.0	100.0	100.0	1.000
Average NO ₂ C.F.=									1.000	

Linear Regression/Calibration Results:

	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.003	1.002	1.000	0.85-1.15
b (Intercept as % of full scale) =	0.08%	0.04%	0.00%	± 3% F.S.
% change in C.F. from last cal =	0.68%	1.38%	0.40%	+/-15%
NO2 converter efficiency			100.0%	>85%

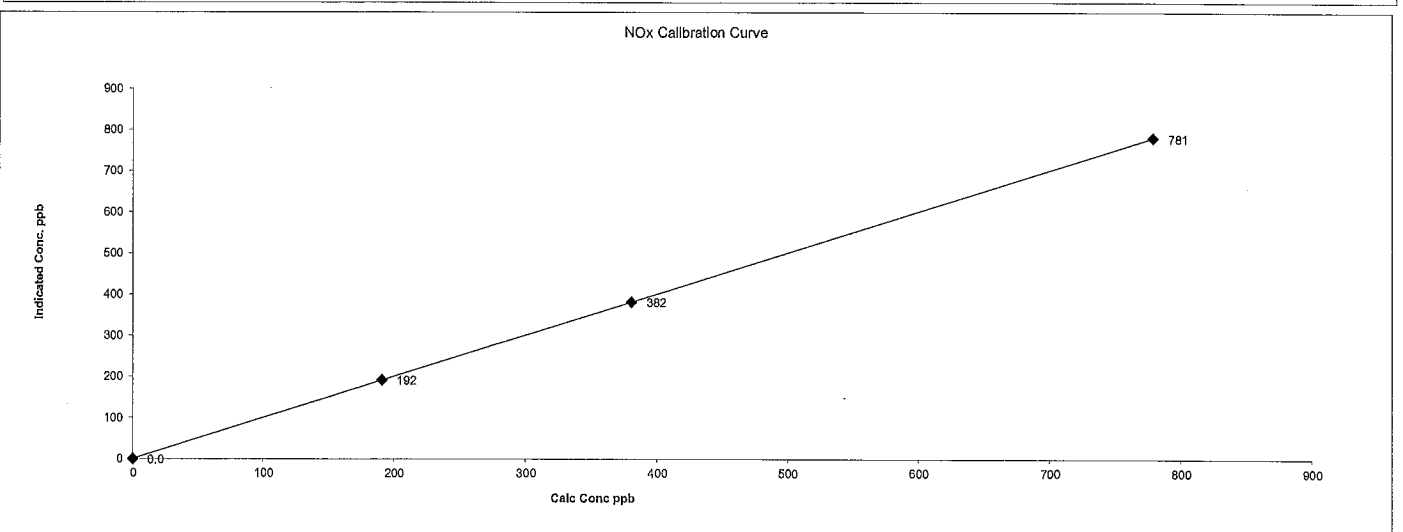
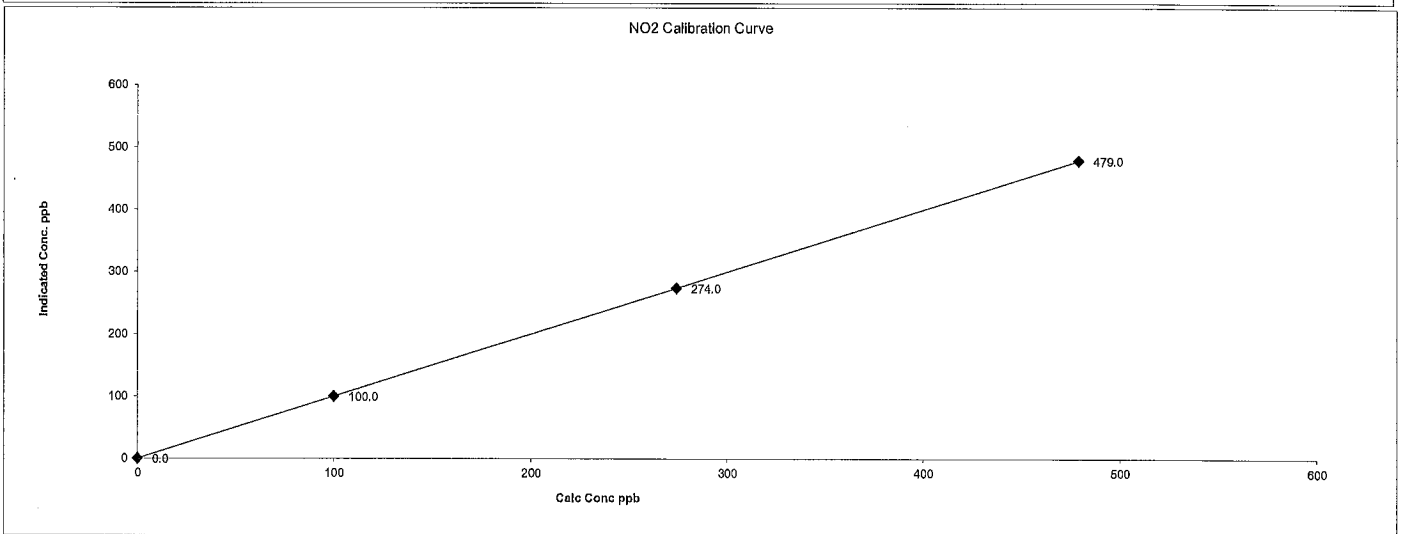
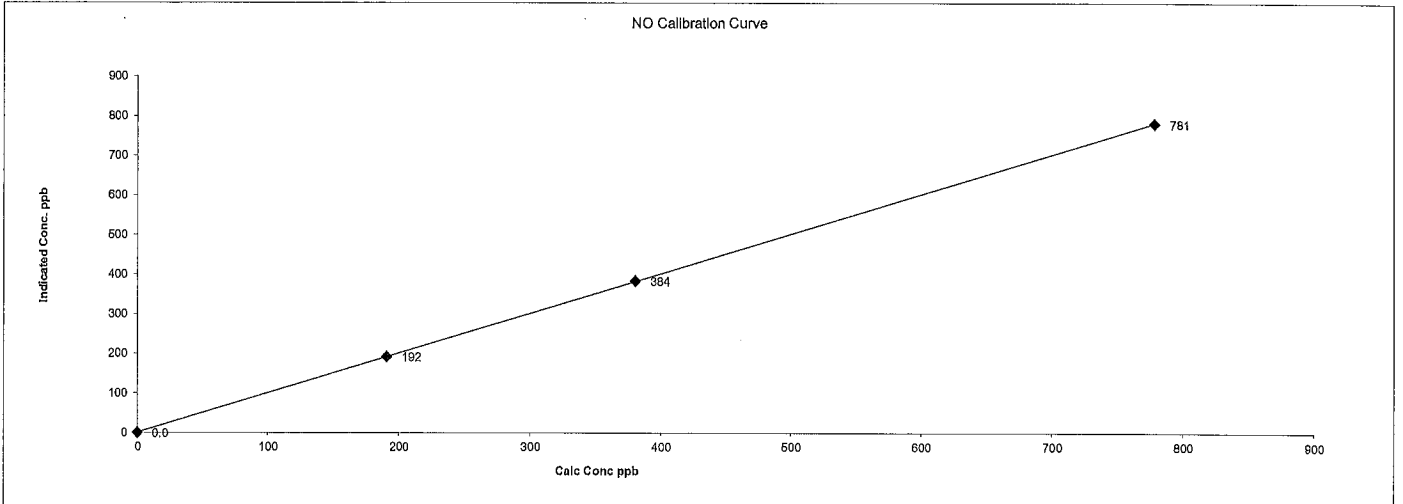
Comments:

No adjustments made for NO2. Sample Filter changed. Zero Air filter rebuilt.

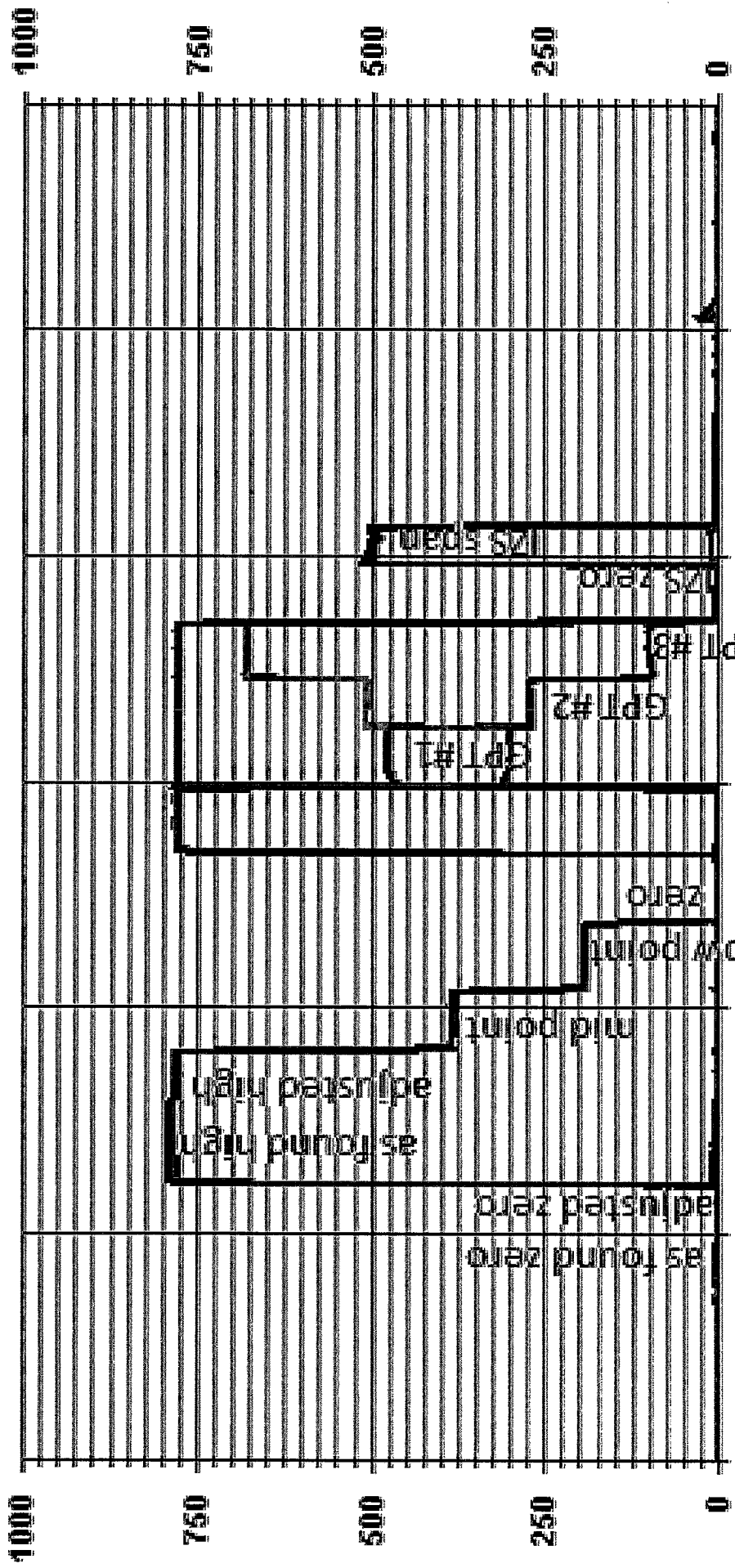
Date: 5-Aug-15
Company: LICA
Station Name/Location: St.Lina
Performed by: Alex Yakupov

Start Time (mst): 9:20
End Time (mst): 16:20
Calibration Purpose: Monthly calibration
Cal Gas Expiry Date: 12-Mar-19

API 200E NOx Analyzer Calibration



01 Minute Averages



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

— LICA31 NOX_ PPB — LICA31 NO_ PPB — LICA31 NO2_ PPB

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: 4-Aug-15 Start Time (mst): 12:01
 Company: LICA End Time (mst): 16:35
 Station Name/Location: St.Lina Calibration Purpose: Monthly Calibration
 Performed by: Alex Yakupov G.P.T. Date: NA

Analyzer:
 Serial Number: 1002240371 Range ppm: 500
 Last Calibration Date: 17-Jul-15 As Found C.F.: 0.979
 Previous Cal High Point C.F.: 1.000 New C.F.: 0.998

	As found:	As left:
O ₃ Bkg:	-0.0	-0.8
O ₃ Coef:	0.994	0.973
Motherboard:		
	3.3 3.3	3.3 3.3
	15.0 14.8	15.0 14.8
	24.0 23.8	24.0 23.8
	-3.3 -3.2	-3.3 -3.2
Interface Board:		
	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
	24.0 23.4	24.0 23.4
O ₃ Lamp:	8.3	8.3
Bench:	26.8	26.6
Bench Lamp:	53.6	53.6
O ₃ Lamp:	67.7	67.8
Pressure:	676.7	675.8
Cell A lpm:	0.726	0.727
Cell B lpm:	0.722	0.721
O ₃ ppb:	-4.8	0.6
Cell A ppb:	-4.0	6.4
Cell B ppb:	-5.5	-5.1
Cell A Int:	59544	59590
Cell B Int:	71792	71837
Internal Span:	376.9	388.5

Calibrator:	Make & Model: <u>SABIO 2010 D</u>	Serial #: <u>11900613</u>	NOx Gas Cylinder I.D. #: <u>BLM002073</u>	NOx Cylinder Conc. (ppm): <u>50.6</u>	Calibrator Flow Targets:		
					point	total flow (cc/min)	O ₃ setting (v or ppb)
					5013	0	
					5013	380	
					5013	180	
					5013	90	

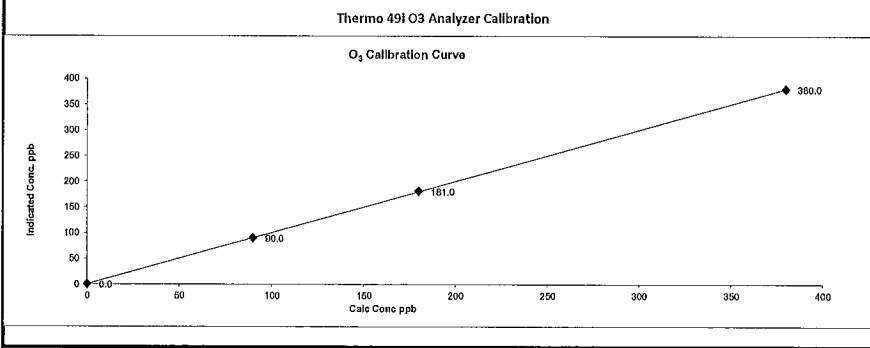
Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:	
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)		
as found zero	5013	0.0	5013	0.0	-1.0	NA	
adjusted zero	5013	0.0	5013	0.0	0.0	NA	
as found high	5013	0.00	5013	380.0	388.0	0.979	
adjusted high	5013	0.00	5013	380.0	380.0	1.000	
mid	5013	0.00	5013	180.0	181.0	0.994	
low	5013	0.00	5013	90.0	90.0	1.000	
calibrator zero	5013	0.00	5013	0.0	1.0	NA	
copy and paste flows and NO decrease from NOx cal in to calculated concentration						Average C.F.=	0.998

Linear Regression/Calibration Results:

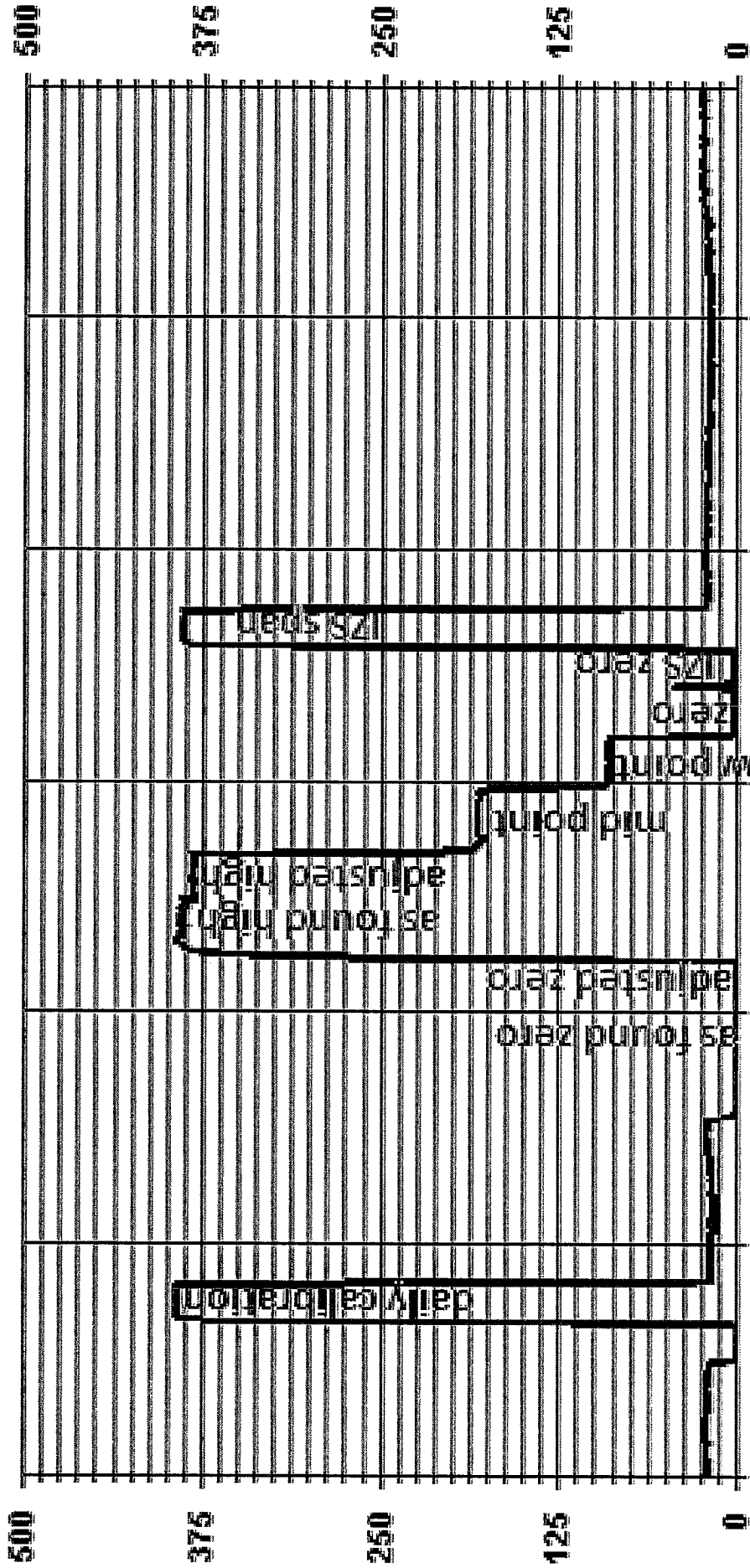
Correlation Coefficient =	<u>1.000</u>	LIMITS	Pass/Fail ?
Slope =	<u>1.000</u>	> or = 0.995	PASS
b (Intercept as % of full scale) =	<u>0.043%</u>	0.85-1.15	PASS
% change in C.F. from last cal	<u>2%</u>	± 3% F.S.	PASS
		± 15%	PASS

Comments:

Sample Filter changed.



01 Minute Averages



08/04/15 09:00 08/04/15 11:00 08/04/15 13:00 08/04/15 15:00 08/04/15 17:00 08/04/15 19:00

— LICA31 03_ PPB

PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 7-Aug-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 6-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 12:18 - 13:36
 Calibration Purpose: Audit#1

1400A Information and Status:

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>24.10</u>
Ko Factor:	<u>13125.0</u>	As Left Filter Loading %:	<u>20.63</u>
Ambient Temperature °C:	<u>19.6</u>	As Found Noise:	<u>0.015</u>
Ambient Pressure atm:	<u>0.918</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>13.66</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	-0.15	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>19.6</u>	1405F pressure atm:	<u>0.918</u>
reference temperature °C:	<u>19.9</u>	reference pressure:	<u>0.918</u>
difference °C:	<u>0.3</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>19.9</u>	1405F pressure atm:	<u>0.918</u>
reference temperature °C:	<u>19.9</u>	reference pressure:	<u>0.918</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>3.17</u>	reference total/aux flow lpm:	<u>17.29</u>
difference lpm:	<u>0.17</u>	difference lpm:	<u>0.62</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>3.12</u>	reference total/aux flow lpm:	<u>17.26</u>
difference lpm:	<u>0.12</u>	difference lpm:	<u>0.59</u>

Ko Audit:

Last Ko audit date: 17-Jul-15
 1405F Ko factor: 13125.0
 Measured Ko factor: 13184.8000
 % difference: 0.46

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 17-Aug-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 7-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 10:10 - 11:07
 Calibration Purpose: Audit#2

1400A Information and Status:

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>23.28</u>
Ko Factor:	<u>13125.0</u>	As Left Filter Loading %:	<u>20.01</u>
Ambient Temperature °C:	<u>17.87</u>	As Found Noise:	<u>0.031</u>
Ambient Pressure atm:	<u>0.925</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.38</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	-0.09	0.00	-0.09
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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	-0.09	0.00	-0.09
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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>18.7</u>	1405F pressure atm:	<u>0.926</u>
reference temperature °C:	<u>17.5</u>	reference pressure:	<u>0.926</u>
difference °C:	<u>-1.2</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>17.5</u>	1405F pressure atm:	<u>0.926</u>
reference temperature °C:	<u>17.5</u>	reference pressure:	<u>0.926</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>3.08</u>	reference total/aux flow lpm:	<u>17.18</u>
difference lpm:	<u>0.08</u>	difference lpm:	<u>0.51</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>3.05</u>	reference total/aux flow lpm:	<u>17.02</u>
difference lpm:	<u>0.05</u>	difference lpm:	<u>0.35</u>

K_o Audit:

Last K_o audit date: 17-Jul-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13184.8000
 % difference: 0.46

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 24-Aug-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 17-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 13:51 - 16:02
 Calibration Purpose: Post-repair

1400A Information and Status:

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>22.46</u>
Ko Factor:	<u>13125.0</u>	As Left Filter Loading %:	<u>21.03</u>
Ambient Temperature °C:	<u>20.62</u>	As Found Noise:	<u>0.014</u>
Ambient Pressure atm:	<u>0.922</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.38</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	-0.09	0.00	-0.09
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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	-0.09	0.00	-0.09
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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>21.5</u>	1405F pressure atm:	<u>0.922</u>
reference temperature °C:	<u>22.9</u>	reference pressure:	<u>0.922</u>
difference °C:	<u>1.4</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>24.7</u>	1405F pressure atm:	<u>0.922</u>
reference temperature °C:	<u>24.7</u>	reference pressure:	<u>0.922</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>3.17</u>	reference total/aux flow lpm: <u>17.55</u>
difference lpm: <u>0.17</u>	difference lpm: <u>0.88</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>3.03</u>	reference total/aux flow lpm: <u>17.14</u>
difference lpm: <u>0.03</u>	difference lpm: <u>0.47</u>

K_o Audit:

Last K_o audit date: 17-Jul-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13184.8000
 % difference: 0.46

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 27-Aug-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 24-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 14:15 - 15:17
 Calibration Purpose: Re-Audit

1400A Information and Status:

Serial Number:	<u>1405A208301003</u>	As Found Filter Loading %:	<u>24.71</u>
Ko Factor:	<u>13125.0</u>	As Left Filter Loading %:	<u>18.99</u>
Ambient Temperature °C:	<u>27.5</u>	As Found Noise:	<u>0.009</u>
Ambient Pressure atm:	<u>0.918</u>	As Left Noise:	<u>0.000</u>
Main Flow Reading lpm:	<u>3.00</u>	Pump Vacuum:	<u>0.40</u>
Aux Flow Reading lpm:	<u>13.67</u>	Warnings:	<u>Vacuum Pressure Warning</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	-0.09	0.00	-0.09
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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	-0.09	0.00	-0.09
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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>27.5</u>	1405F pressure atm:	<u>0.918</u>
reference temperature °C:	<u>26.5</u>	reference pressure:	<u>0.918</u>
difference °C:	<u>-1.0</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>26.5</u>	1405F pressure atm:	<u>0.918</u>
reference temperature °C:	<u>26.5</u>	reference pressure:	<u>0.918</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>17.29</u>
difference lpm:	<u>0.09</u>	difference lpm:	<u>0.62</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>3.09</u>	reference total/aux flow lpm:	<u>17.29</u>
difference lpm:	<u>0.09</u>	difference lpm:	<u>0.62</u>

K_o Audit:

Last K_o audit date: 17-Jul-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13184.8000
 % difference: 0.46

Comments:

Re-Audit was performed because of many negative readings. Vacuum pressure warning appears periodically for a short period of time (2-3 seconds). Vacuum pump pressure readings are fluctuating from 0.38 to 0.40 atm. Sampling pump requires maintenance. Leak check of the pump tubing performed. No leaks found. Fittings are tight.



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 31-Aug-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 27-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 12:54 - 13:41
 Calibration Purpose: Shutdown

1400A Information and Status:

Serial Number: 1405A208301003 As Found Filter Loading %: 24.71
 Ko Factor: 13125.0 As Left Filter Loading %: NA
 Ambient Temperature °C: 23.29 As Found Noise: 0.008
 Ambient Pressure atm: 0.910 As Left Noise: NA
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.39
 Aux Flow Reading lpm: 13.68 Warnings: Vacuum Pressure Warning

Reference Standards:

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

As found leak check:

		Base	Zero	Reference	Zero
PM 2.5 Flow	actual	0.00	-0.10	0.00	-0.10
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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	NA	NA	NA	NA
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	NA	NA	NA	NA
	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>23.6</u>	1405F pressure atm: <u>0.910</u>
reference temperature °C: <u>22.8</u>	reference pressure: <u>0.909</u>
difference °C: <u>-0.8</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>NA</u>	1405F pressure atm: <u>NA</u>
reference temperature °C: <u>NA</u>	reference pressure: <u>NA</u>
difference °C: <u>NA</u>	difference : <u>NA</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>3.14</u>	reference total/aux flow lpm: <u>17.35</u>
difference lpm: <u>0.14</u>	difference lpm: <u>0.68</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>NA</u>	1400A total/aux flow lpm: <u>NA</u>
reference main flow lpm: <u>NA</u>	reference total/aux flow lpm: <u>NA</u>
difference lpm: <u>NA</u>	difference lpm: <u>NA</u>

K_o Audit:

Last K_o audit date: 17-Jul-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13184.8000
 % difference: 0.46

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 31-Aug-15
 Company: LICA
 Station Name/Location: St Lina
 Previous Audit Date: 27-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 14:15 - 16:20
 Calibration Purpose: Post-Repair

1400A Information and Status:

Serial Number: 1405A208301003 As Found Filter Loading %: NA
 Ko Factor: 13125.0 As Left Filter Loading %: 20.42
 Ambient Temperature °C: 24.5 As Found Noise: NA
 Ambient Pressure atm: 0.911 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.39
 Aux Flow Reading lpm: 13.67 Warnings: None

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	NA	NA	NA	NA
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	NA	NA	NA	NA
	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	-0.09	0.00	-0.10
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-1.61	0.00	-1.61
	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>NA</u>	1405F pressure atm: <u>NA</u>
reference temperature °C: <u>NA</u>	reference pressure: <u>NA</u>
difference °C: <u>NA</u>	difference: <u>NA</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>24.5</u>	1405F pressure atm: <u>0.911</u>
reference temperature °C: <u>24.5</u>	reference pressure: <u>0.911</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>NA</u>	1400A total/aux flow lpm: <u>NA</u>
reference main flow lpm: <u>NA</u>	reference total/aux flow lpm: <u>NA</u>
difference lpm: <u>NA</u>	difference lpm: <u>NA</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>3.08</u>	reference total/aux flow lpm: <u>17.48</u>
difference lpm: <u>0.08</u>	difference lpm: <u>0.81</u>

K_o Audit:

Last K_o audit date: 17-Jul-15
 1405F K_o factor: 13125.0
 Measured K_o factor: 13184.8000
 % difference: 0.46

Comments:

Sampling pump was not changed. Switching valve was changed. Sampling filter changed.

WIND SYSTEM

Met One Instruments

3206 Main St., Suite 103
Regional Service Center
Rowlett, TX 75088

Wind Tunnel Calibration
Data Sheet

50.5-6100

NIST Cap Model No. 170.41

Serial No. 3309

NIST Sensor Model No. 50.1B

Serial No. 1263

Average wind speed (ft/min) 11.19

YTS Reading ft/min	YTS Output Volts	YTS Reading Degrees	YTS Error ± 1 Deg	YTS Standard Dev	YTS Output Volts	YTS Reading ft/min	YTS Error ± 0.24 MPS
10.0	0.22	28.8	0.1	11.21	0.224	11.19	-0.02
10.5	0.23	29.0	1.0	11.17	0.227	11.23	0.16
10.0	0.23	18.8	0.8	11.48	0.221	11.08	-0.02
11.0	0.23	15.5	1.0	11.29	0.222	11.11	-0.18
11.0	0.22	29.2	0.8	11.15	0.223	11.18	0.03
10.0	0.23	27.4	0.6	11.18	0.228	11.32	0.14
10.0	0.22	30.2	0.8	11.18	0.224	11.18	0.02
10.0	0.23	19.0	0.6	11.18	0.223	11.15	-0.03

Average wind speed (ft/min) 2.21

YTS Reading ft/min	YTS Output Volts	YTS Reading Degrees	YTS Error ± 1 Deg	YTS Standard Dev	YTS Output Volts	YTS Reading ft/min	YTS Error ± 0.20 MPS
2.0	0.02	28.5	0.2	2.18	0.012	2.08	0.10
2.0	0.03	28.5	0.2	2.20	0.013	2.14	-0.06
2.0	0.02	18.5	0.2	2.21	0.012	2.08	-0.13
2.0	0.02	18.5	0.2	2.22	0.012	2.07	-0.15
2.0	0.02	28.5	0.2	2.20	0.012	2.12	0.08
2.0	0.02	28.5	0.2	2.21	0.012	2.10	-0.11
2.0	0.02	28.5	0.2	2.22	0.013	2.18	0.04
2.0	0.02	18.5	0.2	2.21	0.013	2.17	0.04

Calibration performed on 12/21/01 at 11:40 AM

Serial No. 410371
Equipment by Met One
Calibrated by Met One
Valid until 12/21/02
Met One Instruments

Serial No. 11235
Equipment by Met One
Calibrated by Met One
Valid until 12/21/01

John D. ...

CALIBRATORS

Company: Maxxam Operator: Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010D</u>	Make/Model	<u>N/A</u>
Serial Number	<u>11900613</u>	Serial Number	<u>N/A</u>
Oven Temperature	<u>N/A</u>	Temperature (°C)	<u>N/A</u>
Last Verification Date	<u>N/A</u>	Barometric Pressure	<u>N/A</u>

Flow Measurements

Pt. No. 1 5000 Pt. No. 2 5000 Pt. No. 3 5000

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
5013	0.000	0.001		
5013	0.400	0.407	1%	± 10%
5013	0.200	0.204	1%	± 10%
5014	0.100	0.101	0%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

<u>O₃</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0163	0.90-1.10
b (Intercept % of FS)=	0.0800	± 3% F.S.

AENV Standards		Ozone Analyzer	
Audit Calibrator		Make/Model	<u>Teco 49i</u>
Make/Model	<u>Teco 49i PS</u>	Serial/AMU Number	<u>AMU 1843</u>
Serial/AMU Number	<u>AMU 1808</u>	Last Calibration Date	<u>May 21, 2015</u>
Ozone Standard	<u>Primary</u>	Full Scale (ppm)	<u>0.5</u>

COMMENTS: _____

Auditor: Al Clark Date: May 21, 2015
 Operator Signature: *Limin Li* 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)

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: Alr 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: Bios 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 (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	0.000	0.000	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:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: December 16, 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	10.0000	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.
 8801 34th Street
 Edmonton, AB T6B 2Z9
 Tel: 780-449-0779
 Fax: 780-449-3302

03/27/2014

MAXXAIR ANALYTICS INC (NA)
 8373 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	Regulated Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Methane	800.00ppm	801.40ppm	U	±1% rel
Propylene	200.00ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instrument: **Mettler Toledo Analytical Balance ID2x3USA**
 Manufacturer: **Mettler-Toledo (Ametek) 11350 - GC-FID**
 Calibration: **AC**
 Calibration Date: **2/10/14**
 Calibration Method: **210.43**
 Verification Connection: **GC-A1510**
 Certificate No: **0133874**
 Filling Method: **Gravimetric**
 Date of Fill: **03/25/2014**
 Expiration Date: **03/26/2017**

[Signature]
 Date: *[Signature]*

This certificate is prepared by Praxair Canada, Inc. in accordance with a standard method. It is provided by electronic, photographic, or printed means. The calibration standard used for this analysis is a Certified Reference Material which was either provided by Praxair Canada or the National Institute of Standards and Technology (NIST), Massachusetts, Canada.

- Gas Chromatography with Thermal Conductivity Detector
- Gas Chromatography with Electrode Conductivity Detector
- Gas Chromatography with Flame Ionization Detector
- Gas Chromatography with Photoacoustic Detector
- Moisture Analyzer with Thermal Conductivity Detector
- Moisture - FTIR analysis
- Moisture - Gravimetric
- Moisture - Karl Fischer
- Moisture - Loss on Drying
- Moisture - Membrane
- Moisture - Nuclear Magnetic Resonance
- Moisture - Other

This certificate is prepared by Praxair Canada, Inc. in accordance with a standard method. It is provided by electronic, photographic, or printed means. The calibration standard used for this analysis is a Certified Reference Material which was either provided by Praxair Canada or the National Institute of Standards and Technology (NIST), Massachusetts, Canada.



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

Callibrator Flows (scm)		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: *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>2833-2015-08-31- C</u>
Site: <u>St. Lina Site</u>	Contact: <u>Mike Bisaga</u>

QA Check Complete msclmha Date 18 - Sept - 2015

QA Check Review msclmha Date 18 - Sept - 2015

Report Complete msclmha Date 22 - Sept - 2015

Report Reviewed E. Tangang Date 23 - Sep - 15

Report Shipped _____ Date _____

Notes

AMBIENT AIR MONITORING MONTHLY DATA REPORT
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
ELK POINT AIRPORT SITE

JOB #:2833-2015-08-35- C

AUGUST 2015


Prepared for:

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

Attention: MIKE BISAGA

DATE: **September 28, 2015**

Prepared by:



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SUMMARY

In AUGUST 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.

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

P.M 2.5: Thirty-six hours of data were discarded due to a Teom unit malfunction and hourly readings below -3 ug/m3.

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 (%)
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	1-HOUR					24-HOUR		
	1-HR	24-HR	1-HR	24-HR		READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
SO2 (PPB)	172	48	0	0	0	1	19, 27	VAR	VAR	VAR	0.3	19, 27	100.0
H2S (PPB)	10	3	0	0	0	2	VAR	VAR	VAR	VAR	0.7	VAR	100.0
THC (PPM)	-	-	-	-	2.5	6.4	13	3	1.6	WSW	3.4	13	100.0
CH4 (PPM)	-	-	-	-	2.5	6.2	13	3	1.6	WSW	3.3	13, 23	100.0
NMHC (PPM)	-	-	-	-	0.02	0.30	13	4	1.5	ESE	0.10	13	100.0
NO2 (PPB)	159	-	0	-	6.9	31.8	14	7	15.4	WNW	12.8	18	100.0
NO (PPB)	-	-	-	-	2.6	65.8	14	7	15.4	WNW	10.6	2	100.0
NOX (PPB)	-	-	-	-	9.5	97.6	14	7	15.4	WNW	19.2	23	100.0
O3 (PPB)	82	-	0	-	17	48	13	16	10.9	W	26.1	28	100.0
PM2.5 (UG/M3)	-	30	-	0	6.5	78.0	29	3	10.8	W	23.5	29	95.2
VECTOR WS (KPH)	-	-	-	-	9.0	31.9	1	11	-	WNW	16.2	3	100.0
VECTOR WD (DEG)	-	-	-	-	WNW	-	-	-	-	-	-	-	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

No Exceedences Recorded During the Month

Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
AUGUST 4, 2015	3.70	ACETONE
AUGUST 10, 2015	5.70	ACETONE
AUGUST 16, 2015	4.80	ACETONE
AUGUST 22, 2015	2.30	ACETONE
AUGUST 28, 2015	5.90	ACETONE

Note: NA

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
AUGUST 4, 2015	0.16	PHENANTHRENE
AUGUST 10, 2015	0.08	PHENANTHRENE
AUGUST 16, 2015	0.12	PHENANTHRENE
AUGUST 22, 2015	0.20	PHENANTHRENE
AUGUST 28, 2015	0.20	PHENANTHRENE

Note: NA

Volatiles Organics (VOCs) Data Summary - NMHC Canister System

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
AUGUST 5, 2015	10.70	ACETONE
AUGUST 12, 2015	7.80	ACETONE

Note: NA

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Analytical Results

VOC Lab Results

PAH Lab Results

NMHC Canister Lab Results

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.

SULPHUR DIOXIDE (SO₂)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on August 18.

HYDROGEN SULPHIDE (H₂S)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on August 17.

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 August 18. The gas cylinders were replaced on August 26.

NITROGEN DIOXIDE (NO₂)

An as found points check was performed prior to replacing the pump on August 18. A post-repair calibration was completed afterwards. The expected span value was adjusted on August 23. The analyzer spanned high on August 27. An as found points check was performed on August 29. The check result was within acceptance limits. It was determined that the zero/span system was due for maintenance. The maintenance was performed in September to correct the unstable span issue.

OZONE (O₃)

The analyzer was working well throughout the month.
The routine monthly calibration was performed on August 17.

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

Two Teom audits were performed this month: one was completed on August 7, and the other audit was performed on August 26. Both the inlet filter and the FDMS filter were replaced on August 7. The Teom unit malfunctioned on August 25. Troubleshooting was performed by restarting the unit on August 26. A post-repair audit was performed afterwards. No further issues were identified. Twenty-seven hours of data are invalid due to this event. 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. Nine hours of data were invalidated as the data were below -3 ug/m³ this month.

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.

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 in ppb.

Samples were collected on August 4, 10, 16, 22 and 28. Analytical 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 in μg .

Samples were collected on August 4, 10, 16, 22 and 28. Analytical 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. Two canisters were collected this month: concentration of 0.30 ppm on both August 5 at 09:40 and August 12 at 23:25.

Analytical 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.

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 - API 101E UV Fluorescent Analyzer
- Total Hydrocarbons - Thermo 51i FID Analyzer
- Methane, Non-Methane Hydrocarbon - Thermo 51i 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	24:00	RODS	
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	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	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	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	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	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	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	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	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	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	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	24
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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	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	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	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	24
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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	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	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	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	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	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	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	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	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	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	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	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	24
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	24
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	24

STATUS FLAG CODES

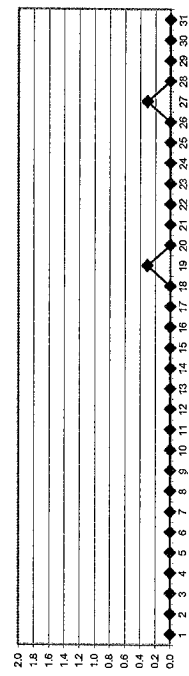
C	CALIBRATION	Q	QUALITY ASSURANCE
V	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SPAN CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF-REPAIR	K	COLLECTION ERROR

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

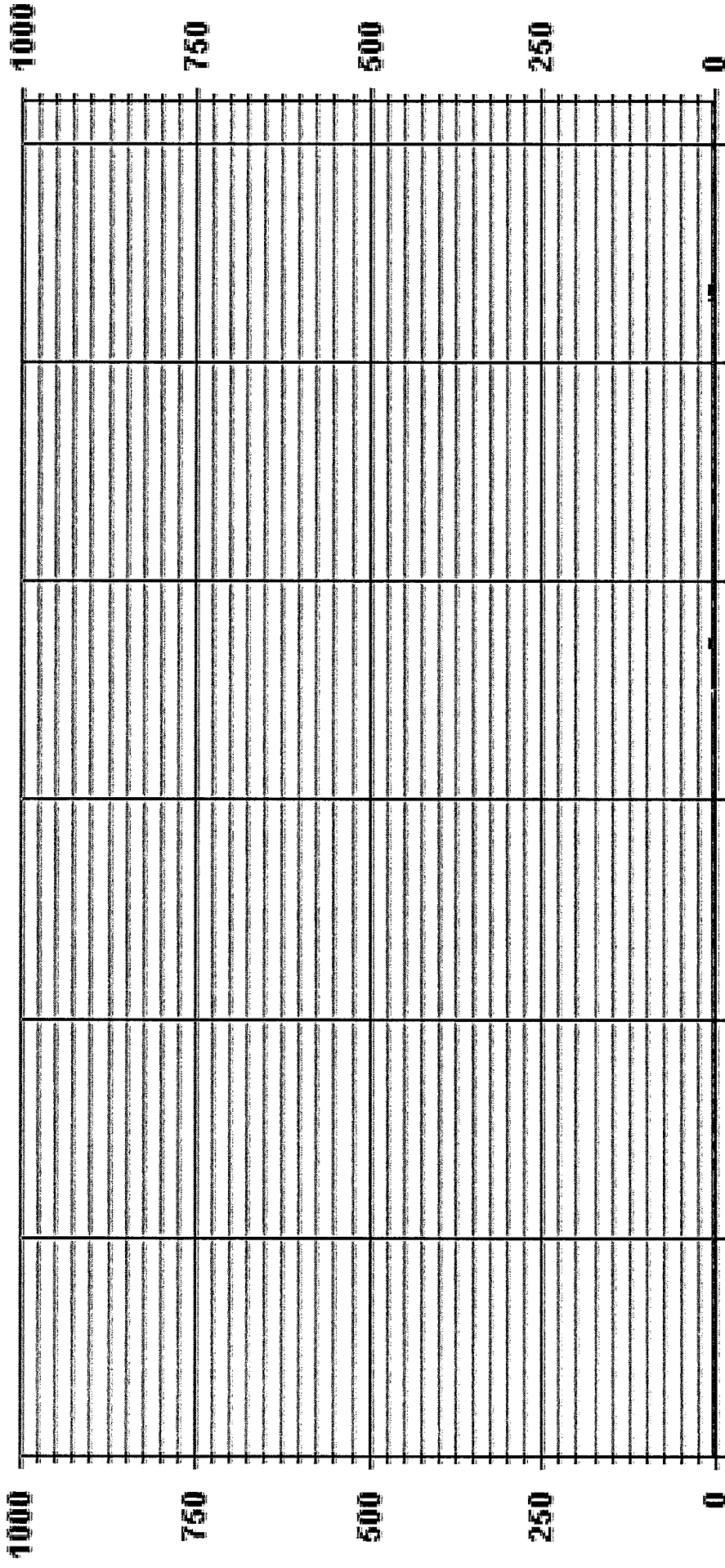
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	10
NUMBER OF NON-ZERO READINGS:	14
MAXIMUM 1-HR AVERAGE:	1 PPB
MAXIMUM 24-HR AVERAGE:	0.3 PPB
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.14
ON DAY(S)	19, 27
ON DAY(S)	19, 27
VAR-VARIOUS	
OPERATIONAL TIME:	744 HRS
AMTD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0 PPB

24 HOUR AVERAGES FOR AUGUST 2015



01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 SO2_ PPB



SULPHUR 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	0	0	0	0	0	0	0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 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	1	1	1	1	1
DAILY AVG	0.7	0.8	0.7	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	0.0
RDGS.	24	24	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

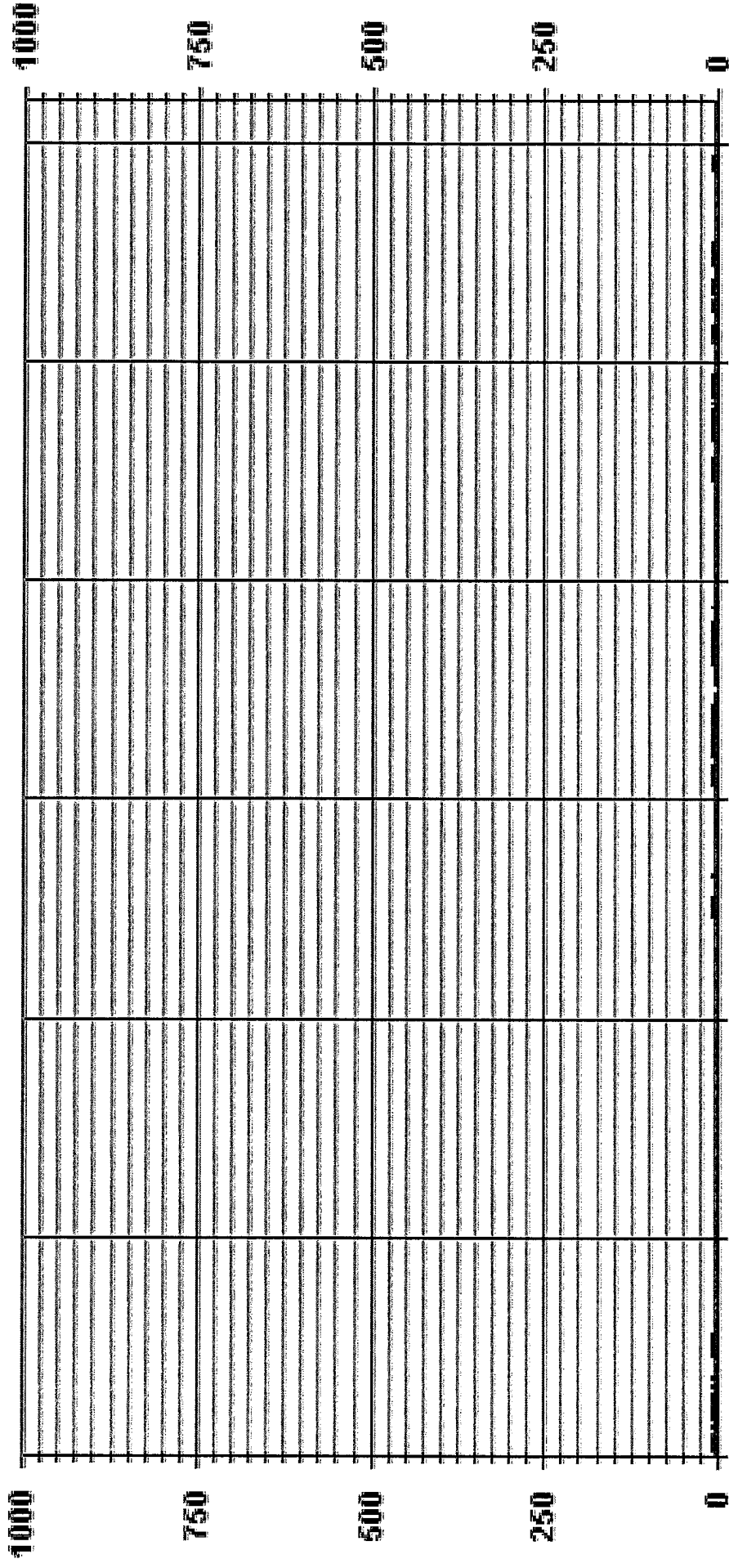
STATUS FLAG CODES

C	QUALITY ASSURANCE
M	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:	233
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 7 ON DAY(S) 14
12S CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.54
OPERATIONAL TIME:	744 HRS
VAR-VARIOUS	

01 Hour Averages



— LICA35 SO2MAX PPB

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

August 2015

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : SO2
 Units : PPB

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	
< 20	2.54	2.54	3.81	3.96	8.48	9.05	6.36	4.10	3.81	2.26	3.96	5.23	10.04	14.99	15.70	3.11	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	2.54	2.54	3.81	3.96	8.48	9.05	6.36	4.10	3.81	2.26	3.96	5.23	10.04	14.99	15.70	3.11	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

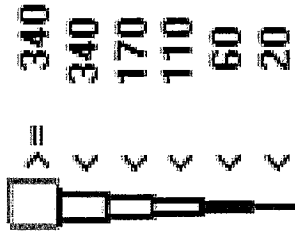
Limit	Direction																NNW Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	18	18	27	28	60	64	45	29	27	16	28	37	71	106	111	22	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	18	18	27	28	60	64	45	29	27	16	28	37	71	106	111	22	

Calm : .00 %

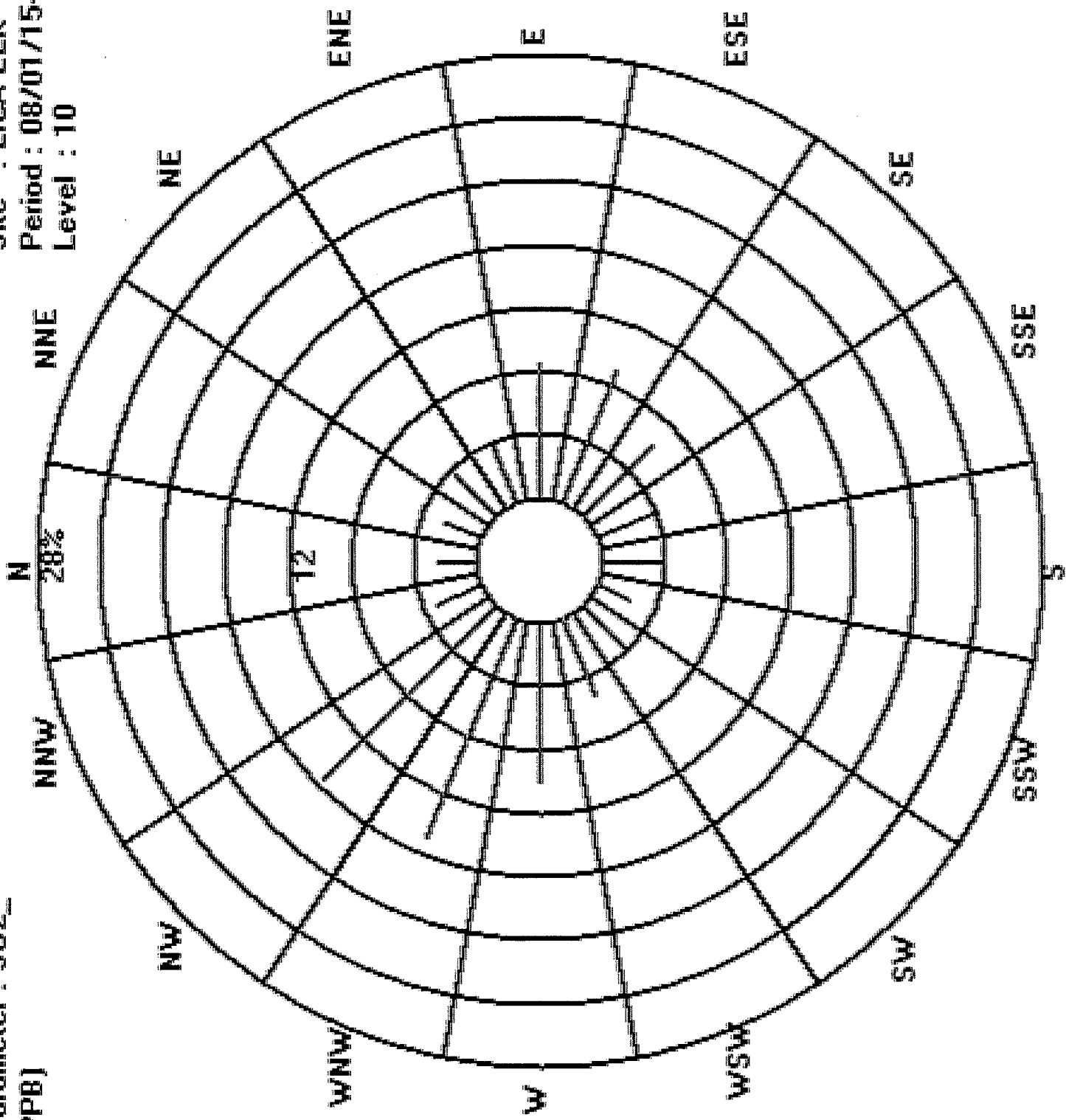
Total # Operational Hours : 707

Logger : 35 Parameter : SO2_

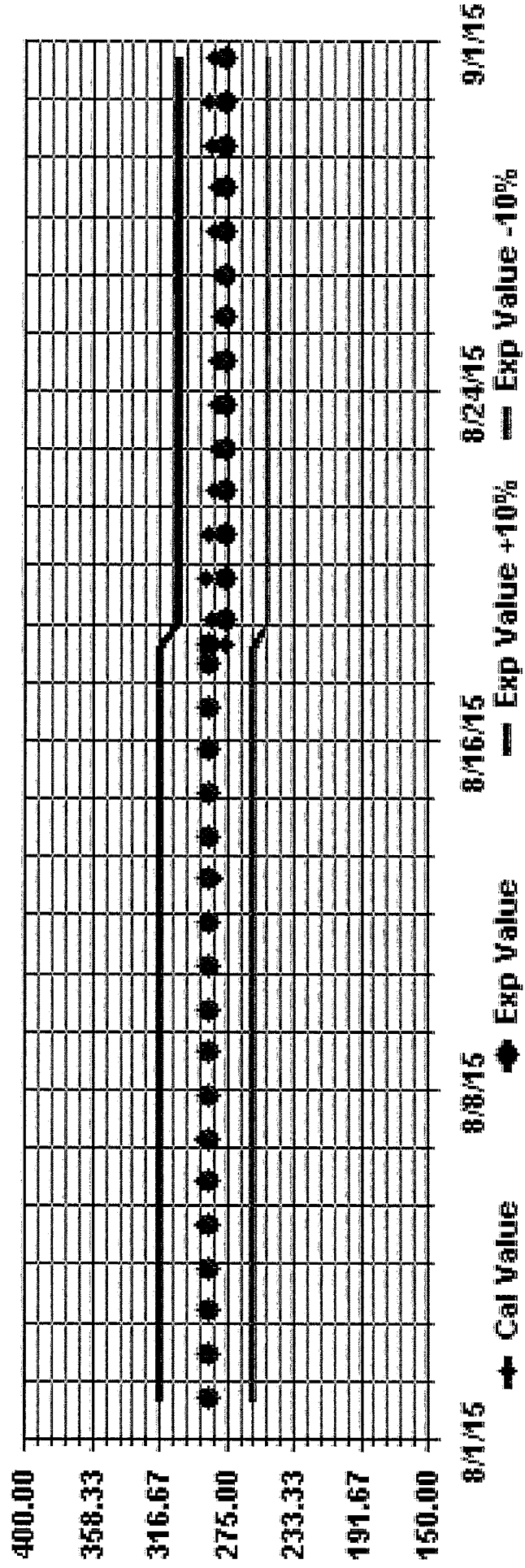
Class Limits (PPB)



Site : LICA-ELK
Period : 08/01/15-08/31/15
Level : 10



Calibration Graph for Site: LICA35 Parameter: SO2 Sequence: SO2 Phase: SPAN



HYDROGEN SULPHIDE

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

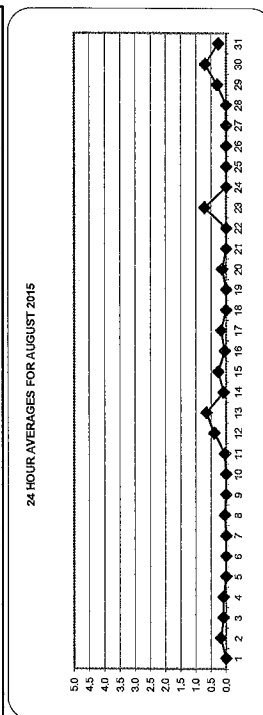
MST

DAY	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.	
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	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24
3	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	0.1	24
4	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	0.1	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	0.4	24
13	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0.7	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	0.1	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	0.3	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	0.2	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	0	0	0	0	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	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	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	0.7	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	0	0	0	0	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	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	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	0.7	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	0.3	24
HOURLY MAX	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 AVG	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	

STATUS FLAG CODES

C - CALIBRATION
 Y - MAINTENANCE
 S - DAILY ZERO/SKIP CHECK
 P - POWER FAILURE
 G - OUT FOR REPAIR

O - QUALITY ASSURANCE
 X - RECOVERY
 X - MACHINE MAINTENANCE
 O - OPERATOR ERROR
 K - COLLECTION ERROR



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

OBJECTIVE LIMIT:

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES: 0
 NUMBER OF 24-HR EXCEEDENCES: 0

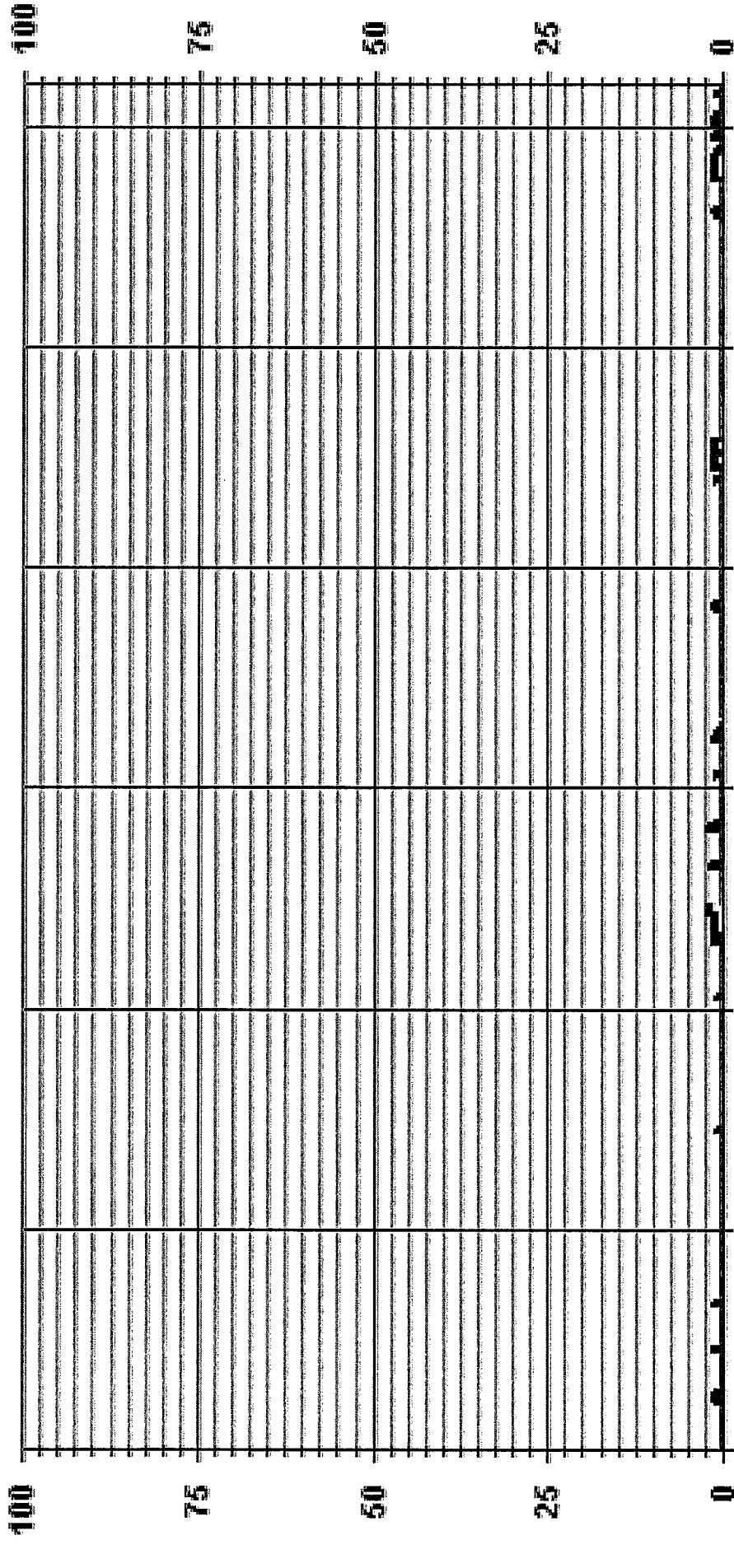
NUMBER OF NON-ZERO READINGS: 85

MAXIMUM 1-HR AVERAGE: 2 PPB
 MAXIMUM 24-HR AVERAGE: 0.7 PPB

IZS CALIBRATION TIME: 33 HRS
 MONTHLY CALIBRATION TIME: 5 HRS
 STANDARD DEVIATION: 0.37

OPERATIONAL TIME: 744 HRS
 AMD OPERATION UPTIME: 100.0 %
 MONTHLY AVERAGE: 0 PPB

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	24:00	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	0.2	24
2	0	0	0	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
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	0.3	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	0.3	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.1	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	0.3	24
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	0.4	24
12	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	0.5	24
13	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	0.7	24
14	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
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	0.4	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	0.3	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	0.1	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	0.4	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	0.5	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	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	24
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	1.1	24
24	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	0.5	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	0.2	24
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	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	0.2	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	0.2	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	0.6	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	1.0	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	0.8	24
HOURLY MAX	1	1	2	3	2	2	2	2	5	2	2	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	
HOURLY AVG	0.3	0.3	0.3	0.5	0.6	0.7	0.7	0.8	0.6	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	

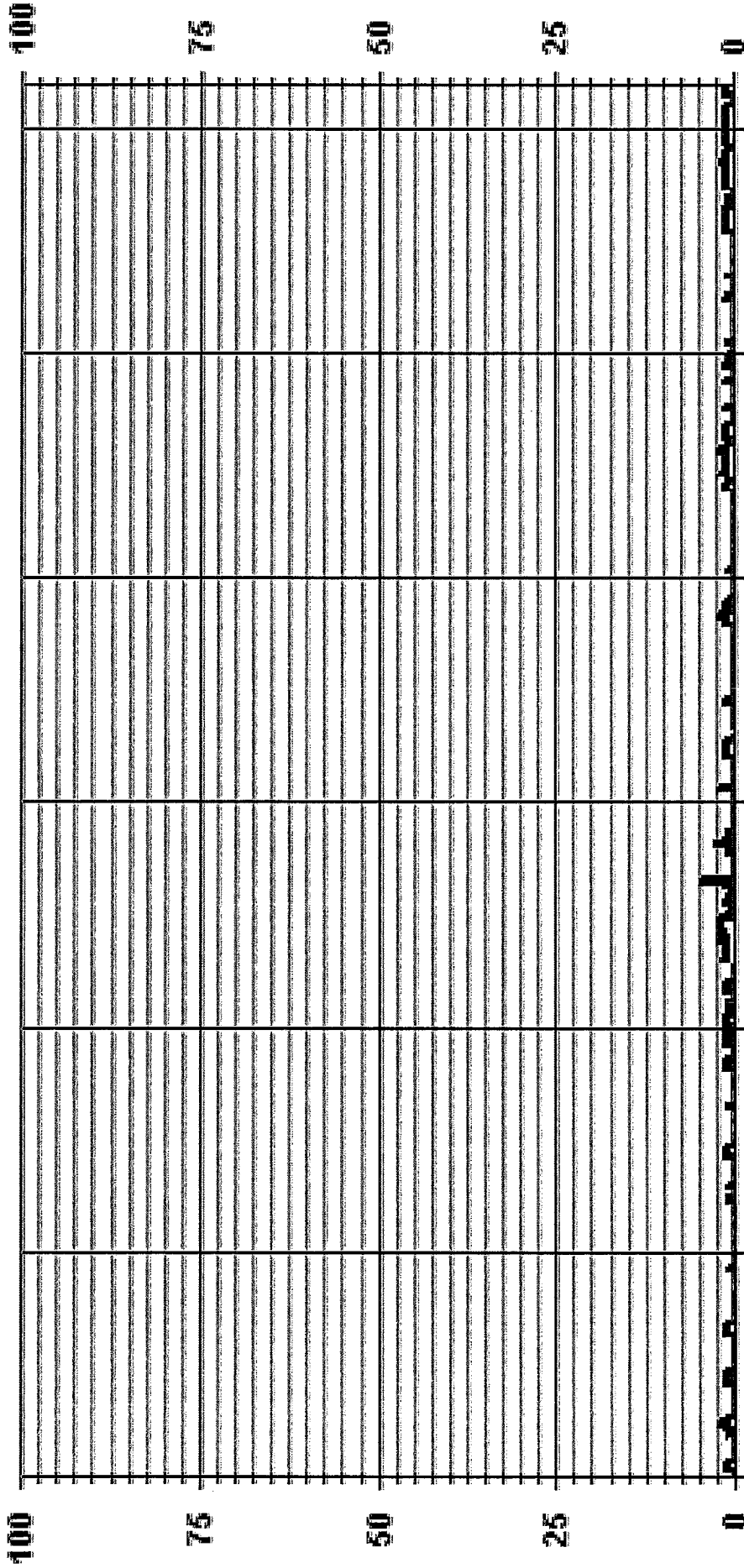
STATUS FLAG CODES

C	CALIBRATION	O	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:	216
MAXIMUM INSTANTANEOUS VALUE:	5 PPB @ HOUR(S) 7 ON DAY(S) 14
IZS CALIBRATION TIME:	34 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	0.57
VAR- VARIOUS	

01 Hour Averages



--- LICA35 H2SMAX PPB

H2S_ / WDR Joint Frequency Distribution (Percent)

LICA-ELK

August 2015

Distribution By % Of Samples

Logger Id : 95
 Site Name : LICA-ELK
 Parameter : H2S_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3	2.54	2.54	3.82	3.96	8.49	8.92	6.37	4.10	3.68	2.12	3.68	5.09	10.05	15.43	16.00	3.11	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	2.54	2.54	3.82	3.96	8.49	8.92	6.37	4.10	3.68	2.12	3.68	5.09	10.05	15.43	16.00	3.11	

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	18	18	27	28	60	63	45	29	26	15	26	36	71	109	113	22	706
< 10																	
< 50																	
>= 50																	
Totals	18	18	27	28	60	63	45	29	26	15	26	36	71	109	113	22	

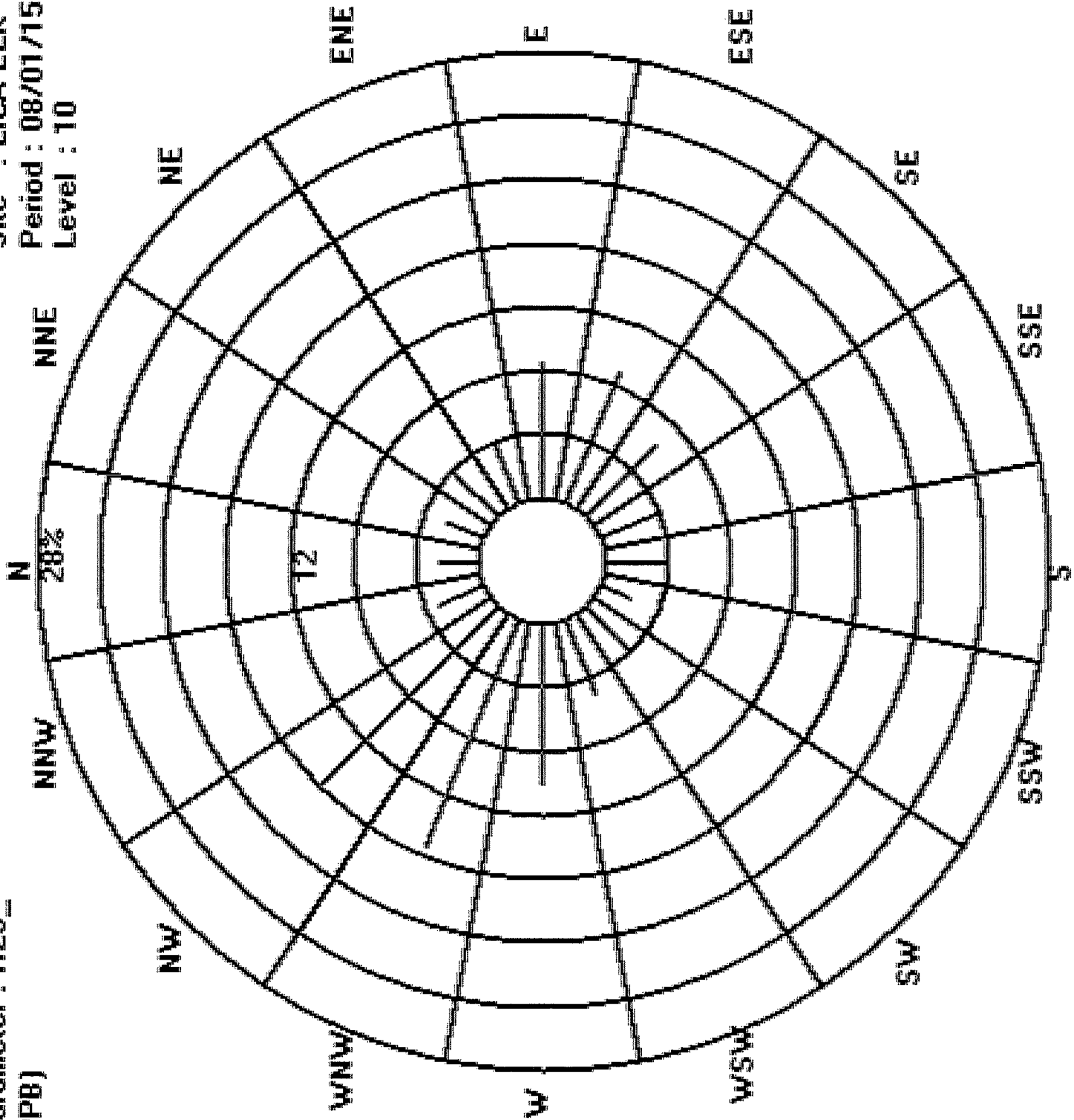
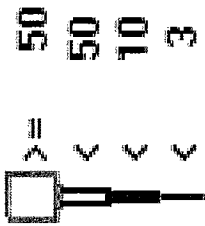
Calm : .00 %

Total # Operational Hours : 706

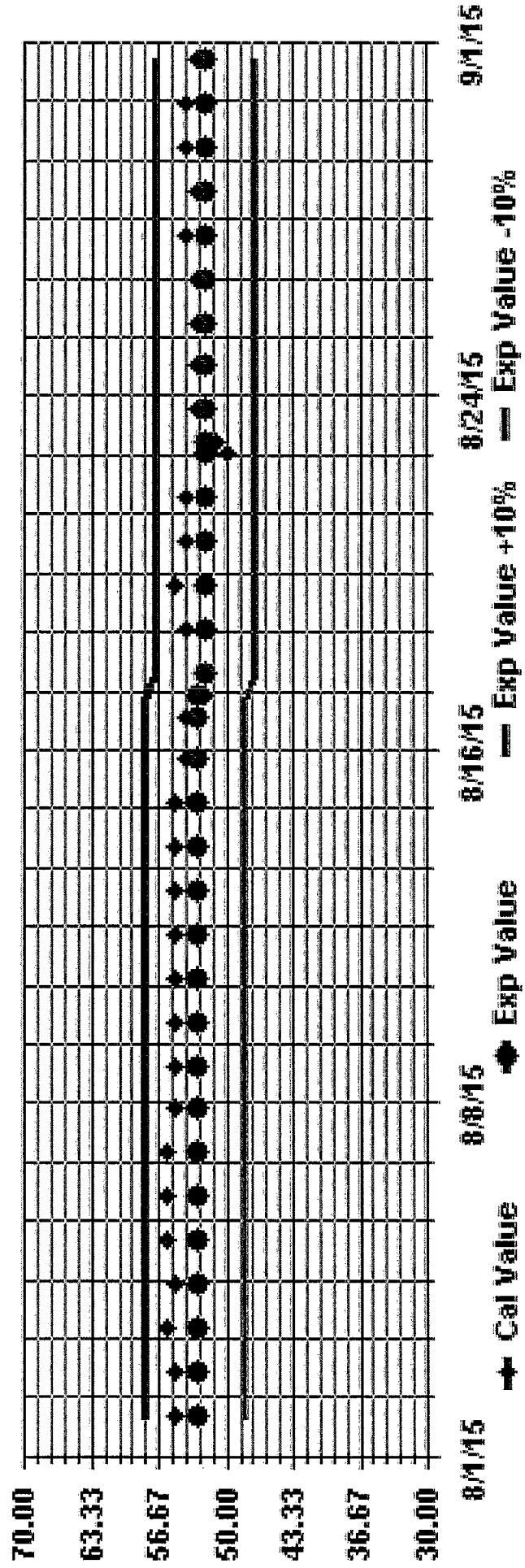
Site : LICA-ELK
Period : 08/01/15-08/31/15
Level : 10

Logger : 35 Parameter : H2S_

Class Limits (PPB)



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



TOTAL HYDROCARBON

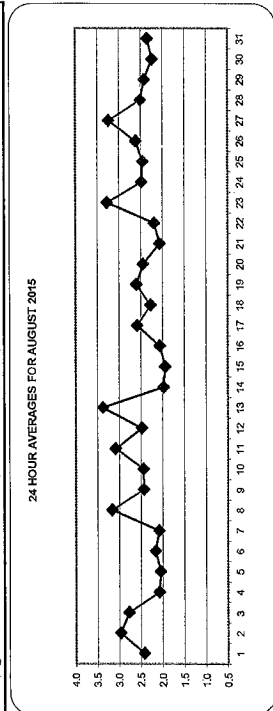


TOTAL HYDROCARBONS (THC) hourly averages in ppm

DAY	HOUR																								DAILY MAX	DAILY AVG	RDS.	
	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	2.3	2.7	2.4	3.1	3.7	3.9	4.2	3.3	2.3	2.1	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	\$	3.5	4.2	2.4	24	
2	3.7	4.5	5.2	4.1	4.1	3.8	4.5	3.3	2.4	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.4	\$	3.1	3.7	5.2	3.0	24	
3	3.8	3.9	3.7	3.8	4.1	3.9	3.9	3.4	2.7	2.3	2.1	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	\$	2.1	2.1	2.2	4.1	2.8	24	
4	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	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	1.9	2.2	2.1	24	
5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.2	2.2	2.3	2.4	2.0	24	
6	2.8	2.7	2.4	2.3	2.2	2.3	2.5	2.4	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.8	2.2	24	
7	2.0	2.1	2.1	2.3	2.3	2.1	2.0	2.2	2.1	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.4	2.6	2.1	24	
8	2.9	4.4	4.5	4.9	5.1	5.0	4.7	4.8	4.0	3.1	3.0	2.6	2.3	2.1	2.0	\$	2.1	2.0	1.9	1.9	2.2	2.2	2.6	2.3	3.5	3.2	24	
9	2.6	2.5	2.7	2.9	2.9	3.2	3.1	2.6	2.4	2.2	2.2	2.2	2.2	2.1	\$	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.8	3.0	3.2	2.4	24	
10	2.9	3.3	2.8	2.2	2.1	2.2	2.6	2.3	2.2	2.0	1.9	1.9	1.8	1.8	1.9	1.8	1.8	1.9	1.8	1.9	2.0	2.5	3.3	4.2	4.6	2.4	24	
11	5.1	4.4	3.8	3.9	4.0	4.9	4.5	4.3	3.1	2.6	2.0	1.9	\$	1.9	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.8	3.3	3.8	5.1	3.1	24	
12	4.0	4.0	3.7	2.2	2.4	2.8	3.3	2.7	2.2	2.0	1.9	\$	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.2	2.5	4.5	4.5	2.5	24	
13	4.5	4.9	6.1	6.4	5.7	5.4	5.0	4.2	3.8	3.5	\$	2.3	2.1	2.0	2.0	2.0	2.0	1.9	2.3	2.3	2.5	2.4	2.2	2.1	6.4	3.4	24	
14	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	2.0	2.0	2.1	1.9	2.0	2.0	24	
15	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	2.0	2.0	1.9	1.9	2.0	1.9	24	
16	2.0	1.9	2.0	2.0	2.0	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	2.0	2.0	2.2	2.6	2.5	2.9	2.1	24	
17	3.6	4.4	3.9	4.4	3.6	3.4	\$	2.5	2.5	2.2	2.0	1.9	2.0	2.0	1.9	2.0	2.0	2.4	2.4	1.9	2.0	2.2	2.3	4.4	2.6	2.4	24	
18	2.3	2.4	2.7	2.1	2.2	\$	2.1	2.0	2.0	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.8	2.9	3.2	2.3	24	
19	4.0	4.2	3.8	3.6	\$	3.4	3.1	2.7	2.5	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.5	2.4	3.0	2.9	2.6	24	
20	3.3	3.8	3.5	\$	4.9	3.8	2.9	2.3	2.2	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.4	4.9	2.4	2.4	24	
21	2.3	2.4	\$	2.9	2.3	2.2	2.2	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	2.0	2.0	2.0	2.1	2.9	2.1	24	
22	2.5	\$	2.1	2.2	2.7	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	2.2	2.2	2.6	3.1	3.6	2.2	24	
23	\$	4.6	4.9	4.6	4.8	5.0	5.1	4.9	4.5	3.7	2.3	2.0	2.0	1.9	2.0	2.0	2.2	2.8	3.3	3.0	2.5	\$	5.1	3.3	2.4	2.4	24	
24	2.8	2.7	2.7	2.9	2.9	2.9	3.0	2.7	2.5	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.4	2.6	\$	3.0	3.0	2.5	24
25	2.8	2.9	3.2	3.0	3.2	3.2	3.1	2.9	2.7	2.5	2.2	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.1	\$	2.2	2.4	3.2	2.5	24	
26	3.0	3.0	3.1	2.7	2.4	2.5	3.7	2.7	2.4	2.4	2.7	\$	2.0	2.0	2.1	2.1	2.0	2.0	2.3	2.8	\$	3.3	3.2	3.0	3.7	2.6	24	
27	3.1	3.3	3.3	3.4	3.7	3.9	5.2	5.6	5.7	4.2	4.3	2.9	2.1	2.1	2.0	1.9	2.0	2.1	\$	2.7	2.6	2.9	3.3	5.7	3.2	2.4	24	
28	2.8	3.2	2.2	1.9	2.3	2.4	3.9	3.6	2.7	2.6	2.3	2.1	2.1	2.0	1.9	2.0	2.3	\$	2.5	2.5	2.4	2.9	3.9	2.5	2.4	2.4	24	
29	3.3	3.8	4.4	3.8	2.4	2.1	2.2	2.1	2.0	2.0	2.1	2.0	2.0	1.9	1.9	\$	2.1	2.3	2.2	2.2	2.2	2.3	2.3	4.4	2.4	2.4	24	
30	2.1	2.0	2.2	2.1	2.6	2.8	2.9	3.0	2.3	2.2	2.1	2.0	2.0	1.9	1.9	\$	1.9	2.3	1.9	1.9	2.4	2.5	2.3	3.0	2.2	2.4	24	
31	2.6	2.7	2.5	2.3	2.5	3.3	2.2	2.2	2.0	1.9	1.9	1.9	1.8	1.8	\$	1.8	1.9	1.9	2.2	3.3	2.7	2.6	2.8	2.7	3.3	2.3	24	
HOURLY MAX	5.1	4.9	6.1	6.4	5.7	5.4	5.2	5.6	5.7	4.2	4.3	2.9	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	3.3	3.3	4.2	4.6			
HOURLY AVG	2.9	3.1	3.1	3.0	3.0	3.1	3.2	3.0	2.7	2.4	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.3	2.4	2.6	2.8			

STATUS FLAG CODES

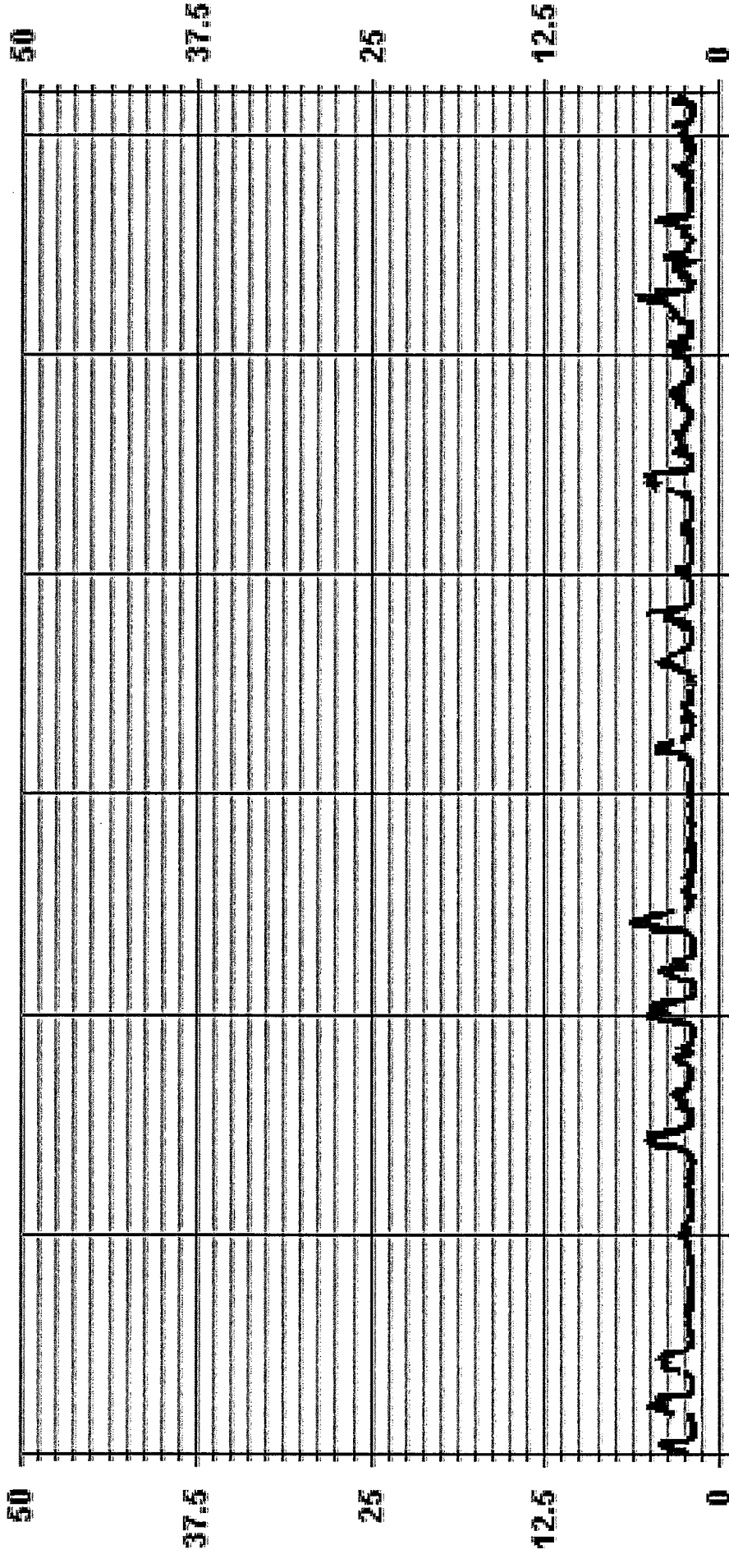
C	- CALIBRATION	O	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPIRAL CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	X	- COLLECTION ERROR



MONTHLY SUMMARY

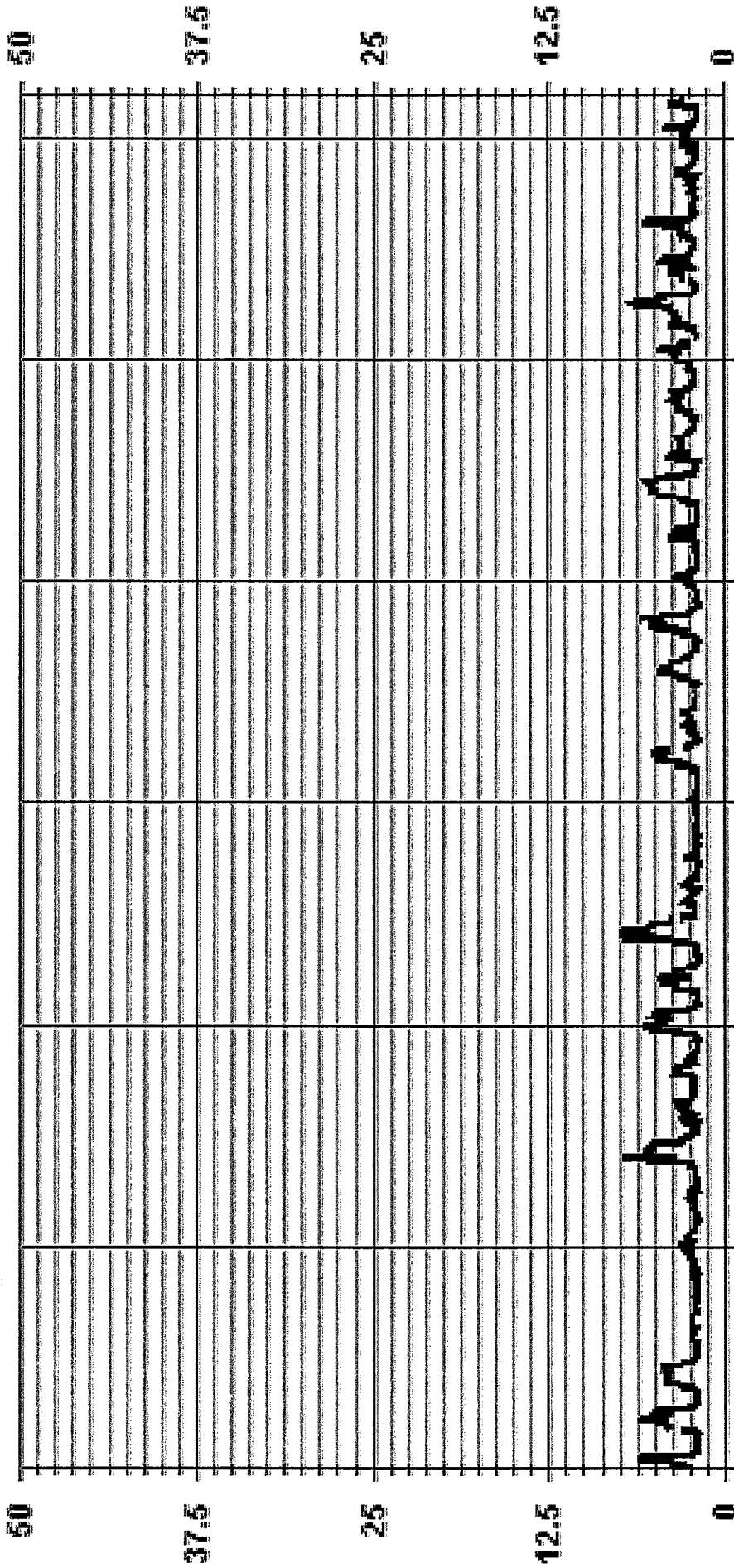
NUMBER OF NON-ZERO READINGS:	707	ON DAY(S)	13
MAXIMUM 1-HR AVERAGE:	6.4 PPM	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	3.4 PPM	VAR-VARIOUS	
1ZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMID OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.81	MONTHLY AVERAGE:	2.5 PPM

01 Hour Averages



— LICA35 - - - - - THC55 PPM

01 Hour Averages



— LICA35 THC55MAX PPM

LICA35
 THCS5 / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger id : 35
 Site Name : LICA35
 Parameter : THCS5
 Units : PPM

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	
< 3.0	2.54	2.40	3.11	3.11	4.80	6.36	4.66	3.11	3.39	2.12	3.53	4.38	7.63	11.73	14.42	3.11	80.48
< 10.0	.00	.14	.70	.84	3.53	2.68	1.69	.99	.42	.14	.42	.84	2.40	3.25	1.41	.00	19.51
< 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	2.54	2.54	3.81	3.96	8.34	9.05	6.36	4.10	3.81	2.26	3.96	5.23	10.04	14.99	15.84	3.11	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Limit	Direction																NNW Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	18	17	22	22	34	45	33	22	24	15	25	31	54	83	102	22	569
< 10.0	1	5	6	6	25	19	12	7	3	1	3	6	17	23	10		138
< 50.0																	
>= 50.0																	
Totals	18	18	27	28	59	64	45	29	27	16	28	37	71	106	112	22	

Calm : .00 %





Total # Operational Hours : 707

Logger : 35 Parameter : THC55

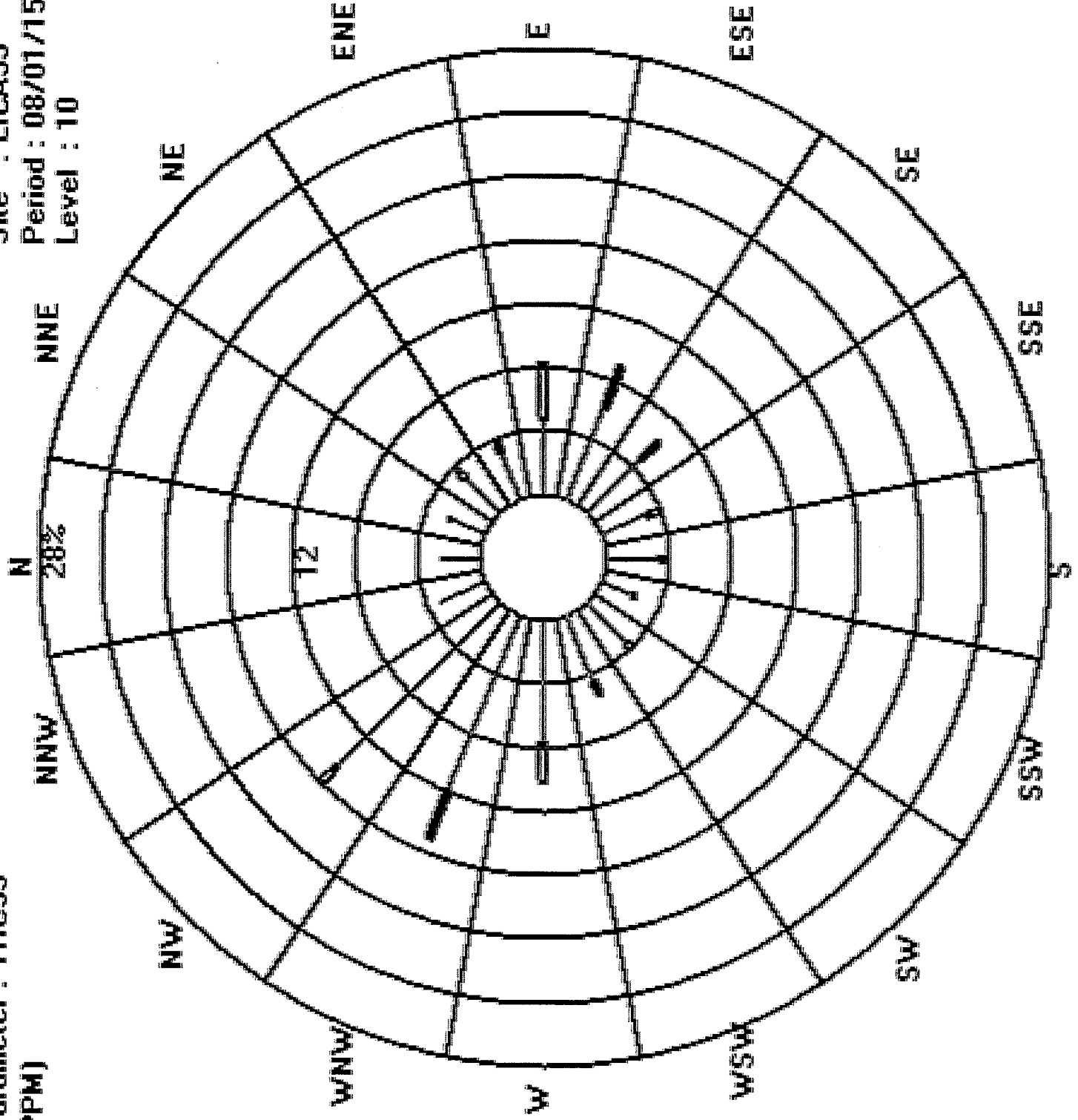
Site : LICA35

Class Limits (PPM)

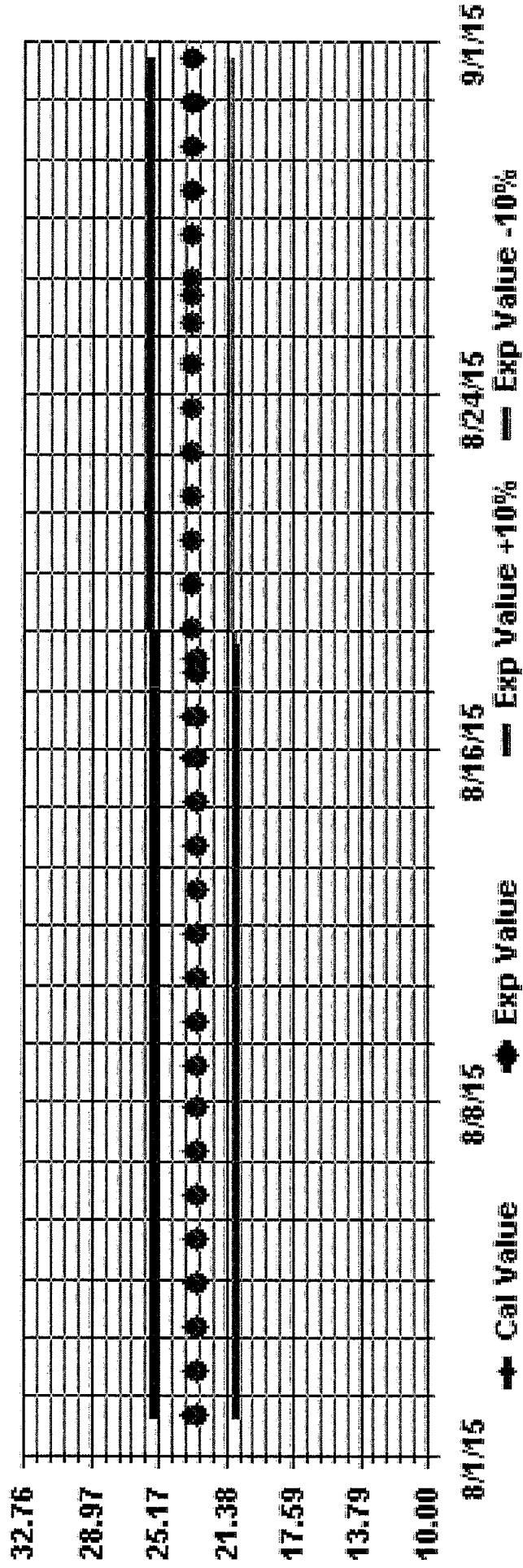
Period : 08/01/15-08/31/15

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

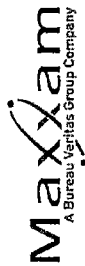
Level : 10



Calibration Graph for Site: LICA35 Parameter: THC55 Sequence: THC55 Phase: SPAN



METHANE



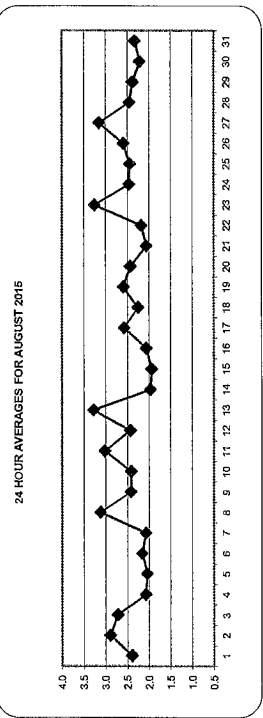
METHANE (CH4) hourly averages in ppm

MST

DAY	HOUR																								DAILY MAX	DAILY 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	2.3	2.3	2.4	3.1	3.6	3.7	4.1	5.3	2.3	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	2.2	3.5	4.1	2.4	24	
2	3.6	3.6	4.3	5.0	4.0	4.0	3.7	4.3	3.4	2.3	2.1	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.4	\$	3.0	3.6	5.0	2.9	24
3	3.8	3.7	3.8	3.6	3.8	4.0	3.8	3.8	3.4	2.6	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	\$	2.1	2.1	2.2	4.0	2.7	24
4	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	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	1.9	2.2	2.1	24
5	2.8	2.7	2.4	2.3	2.2	2.3	2.5	2.5	2.4	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	\$	2.2	2.2	2.3	2.4	2.0	24
6	2.8	2.7	2.4	2.3	2.2	2.3	2.5	2.5	2.4	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	1.9	1.9	2.0	2.1	2.1	24
7	2.0	2.1	2.1	2.3	2.3	2.1	2.2	2.1	2.1	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	\$	2.1	2.2	2.6	2.6	2.1	24
8	2.9	4.4	4.4	4.7	5.0	4.9	4.6	4.7	3.9	3.0	3.0	2.5	2.3	2.1	2.0	\$	2.1	2.0	1.9	1.9	2.0	2.1	2.1	2.2	2.3	5.0	3.1	24
9	2.6	2.5	2.7	2.9	2.9	3.2	3.0	2.6	2.4	2.2	2.2	2.2	2.2	2.1	\$	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.8	2.9	3.2	2.4	24
10	2.9	3.3	2.8	2.2	2.1	2.2	2.6	2.3	2.2	2.0	1.9	1.9	\$	1.8	1.8	1.9	1.8	1.9	1.9	1.9	2.4	3.2	4.0	4.5	4.5	2.4	24	
11	4.9	4.3	3.7	3.8	4.0	4.8	4.4	4.3	3.1	2.5	2.0	1.9	\$	1.9	1.8	1.8	1.8	1.8	1.9	2.0	2.7	3.1	3.2	3.6	4.9	3.0	24	
12	3.9	3.8	3.6	2.2	2.4	2.7	3.3	2.7	2.2	2.0	1.9	\$	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.9	2.0	2.1	2.4	4.3	4.3	2.4	24	
13	4.3	4.7	5.9	6.2	5.4	5.3	4.9	4.1	3.8	3.5	\$	2.2	2.0	2.0	1.9	1.9	2.2	2.2	2.2	2.2	2.4	2.3	2.2	2.1	6.2	3.9	24	
14	1.9	1.9	1.9	2.1	2.4	2.2	2.2	2.1	1.9	\$	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.1	2.2	2.1	1.9	2.0	2.4	2.0	24
15	2.0	2.0	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	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.0	2.0	2.4	2.0	24
16	2.0	1.9	2.0	2.0	2.0	2.1	2.0	\$	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.2	2.6	2.5	2.9	2.1	2.4	2.4	24
17	3.6	4.3	3.9	4.4	3.6	3.4	\$	2.5	2.5	2.2	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.3	2.4	1.9	2.0	2.2	2.3	4.4	2.6	24
18	2.3	2.4	2.6	2.1	2.2	\$	2.1	2.0	2.0	C	C	C	2.0	1.9	2.0	2.0	2.0	2.1	2.5	2.7	2.9	3.2	3.2	2.3	2.4	2.6	2.4	24
19	3.9	4.2	3.8	3.6	\$	3.4	3.0	2.7	2.5	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.5	2.4	3.0	2.9	4.2	2.6	2.4	2.4	2.4	24
20	3.2	3.8	3.5	\$	4.8	3.8	2.9	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	2.0	2.2	2.4	4.8	2.4	2.4	24
21	2.3	2.4	\$	2.9	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	24
22	2.5	\$	2.1	2.2	2.7	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	2.2	2.2	2.2	3.5	2.2	2.4	2.4	24
23	\$	4.5	4.8	4.6	4.8	5.0	5.0	4.9	4.5	3.7	2.3	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.8	3.3	3.0	2.5	\$	5.0	3.3	24
24	2.8	2.7	2.7	2.9	2.9	3.0	2.7	2.5	2.4	2.4	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	24
25	2.8	2.9	3.2	3.0	3.2	3.2	3.1	2.9	2.7	2.5	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.1	2.1	\$	2.2	2.4	3.2	2.4	2.4	24
26	2.9	3.0	3.1	2.7	2.4	2.5	3.6	2.7	2.4	2.4	2.7	\$	2.0	2.0	2.1	2.0	2.0	2.3	2.8	\$	3.2	3.1	2.9	3.6	2.6	2.4	24	
27	3.0	3.2	3.2	3.3	3.6	3.8	5.0	5.4	4.2	4.2	2.8	2.1	2.1	2.0	1.9	1.9	1.9	1.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
28	2.7	3.1	2.2	1.9	2.3	2.3	3.7	3.5	2.7	2.6	2.2	2.1	2.1	2.0	1.9	1.9	2.0	2.2	\$	2.5	2.5	2.4	2.8	3.7	2.5	2.4	24	
29	3.2	3.7	4.2	3.7	2.3	2.1	2.2	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.0	1.9	1.9	\$	2.1	2.3	2.2	2.2	2.2	2.2	4.2	2.4	2.4	24
30	2.1	2.0	2.2	2.1	2.5	2.7	2.9	3.0	2.3	2.2	2.0	2.0	2.0	2.0	2.0	1.9	1.9	\$	1.9	2.3	1.9	2.4	2.5	3.0	2.2	2.4	24	
31	2.6	2.7	2.5	2.3	2.3	2.5	3.3	2.2	2.2	2.0	1.9	1.9	1.8	1.8	\$	1.8	1.8	1.8	1.9	2.1	3.2	2.7	2.6	2.7	3.3	2.3	24	
HOURLY MAX	4.9	4.7	5.9	6.2	5.4	5.3	5.0	5.4	5.5	4.2	4.2	2.8	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.3	3.2	3.3	3.2	4.0	4.5			
HOURLY AVG	2.9	3.1	3.1	3.0	3.0	3.0	3.1	2.9	2.6	2.3	2.2	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.2	2.3	2.3	2.4	2.5	2.8			

STATUS FLAG CODES

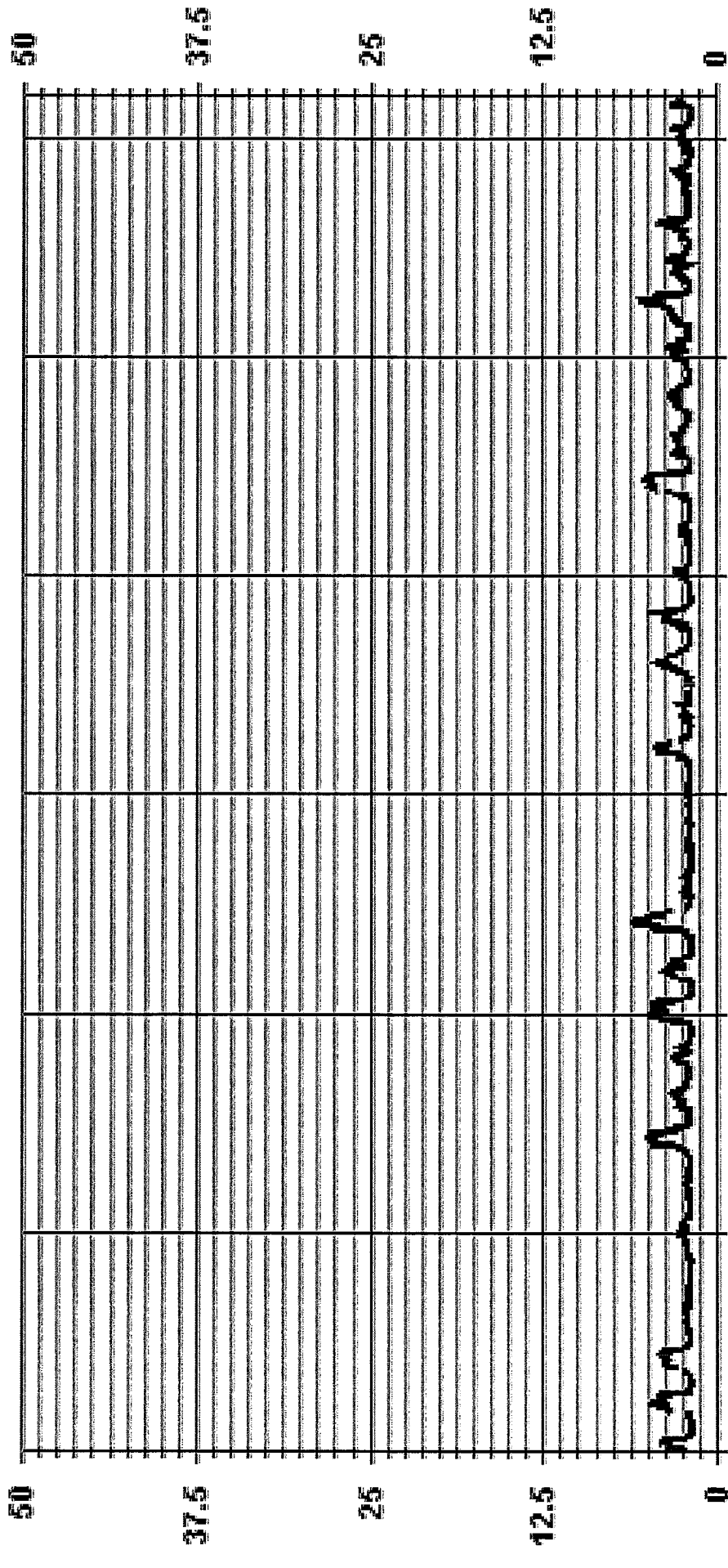
C	- CALIBRATION	Q	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE MALFUNCTION
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUT FOR REPAIR	K	- COLLECTION ERROR



MONTHLY SUMMARY

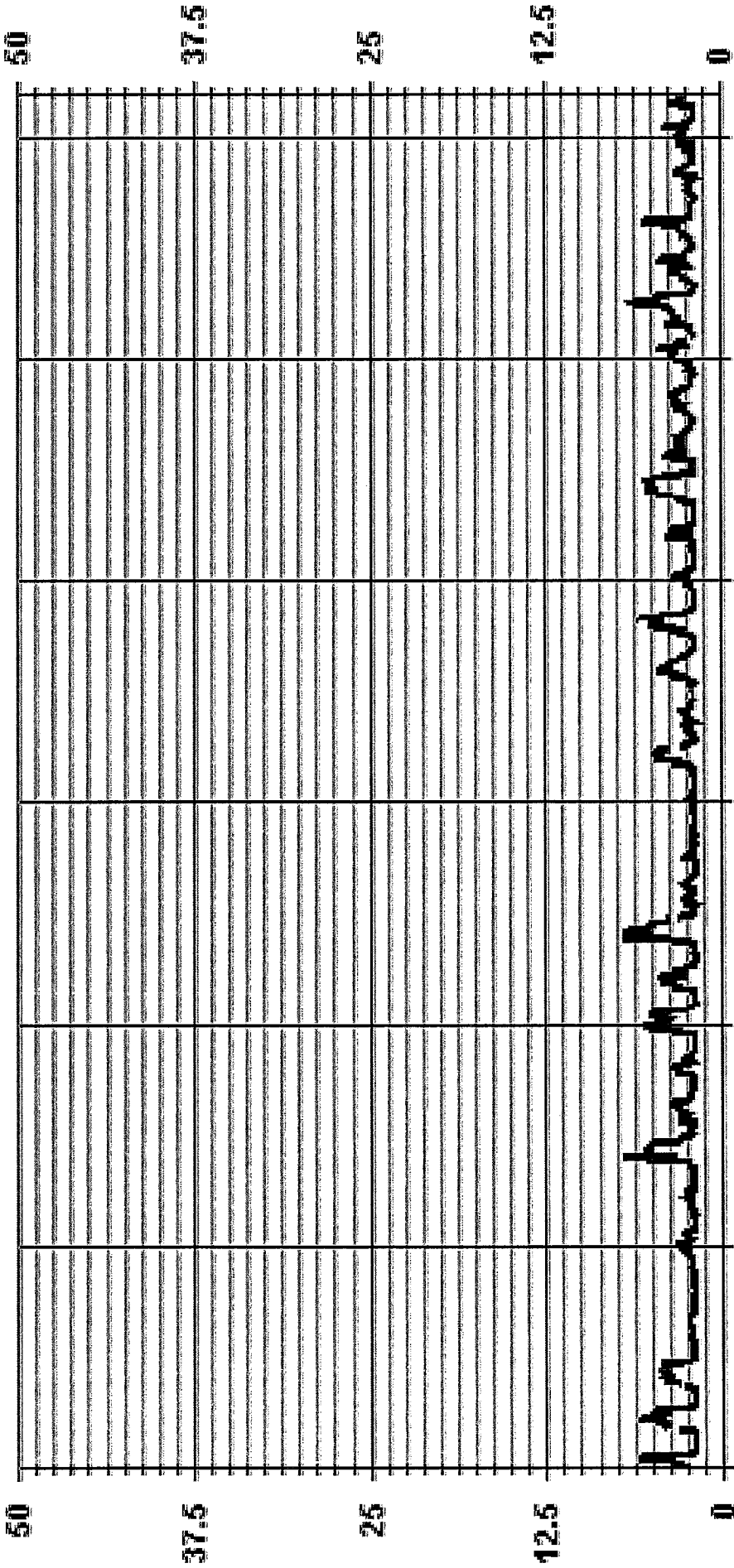
NUMBER OF NON-ZERO READINGS:	707				
MAXIMUM 1-HR AVERAGE:	6.2	PPM	@ HOUR(S)	3	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	3.3	PPM			13, 23
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:		744
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:		100.0
STANDARD DEVIATION:	0.78		MONTHLY AVERAGE:		2.5

01 Hour Averages



— LICA35 METHANE PPM

01 Hour Averages



— LICA35 MATHMAX PPM

LICA35
METHANE / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	2.54	2.40	3.11	3.25	4.95	6.36	4.66	3.11	3.39	2.12	3.53	4.38	7.63	11.88	14.56	3.11	81.04
< 10.0	.00	.14	.70	.70	3.39	2.68	1.69	.99	.42	.14	.42	.84	2.40	3.11	1.27	.00	18.95
< 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	2.54	2.54	3.81	3.96	8.34	9.05	6.36	4.10	3.81	2.26	3.96	5.23	10.04	14.99	15.84	3.11	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples





Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 3.0	18	17	22	23	35	45	33	22	24	15	25	31	54	84	103	22	573
< 10.0	1	5	5	5	24	19	12	7	3	1	3	6	17	22	9		134
< 50.0																	
>= 50.0																	
Totals	18	18	27	28	59	64	45	29	27	16	28	37	71	106	112	22	

Calm : .00 %

Total # Operational Hours : 707

Logger : 35 Parameter : METHANE

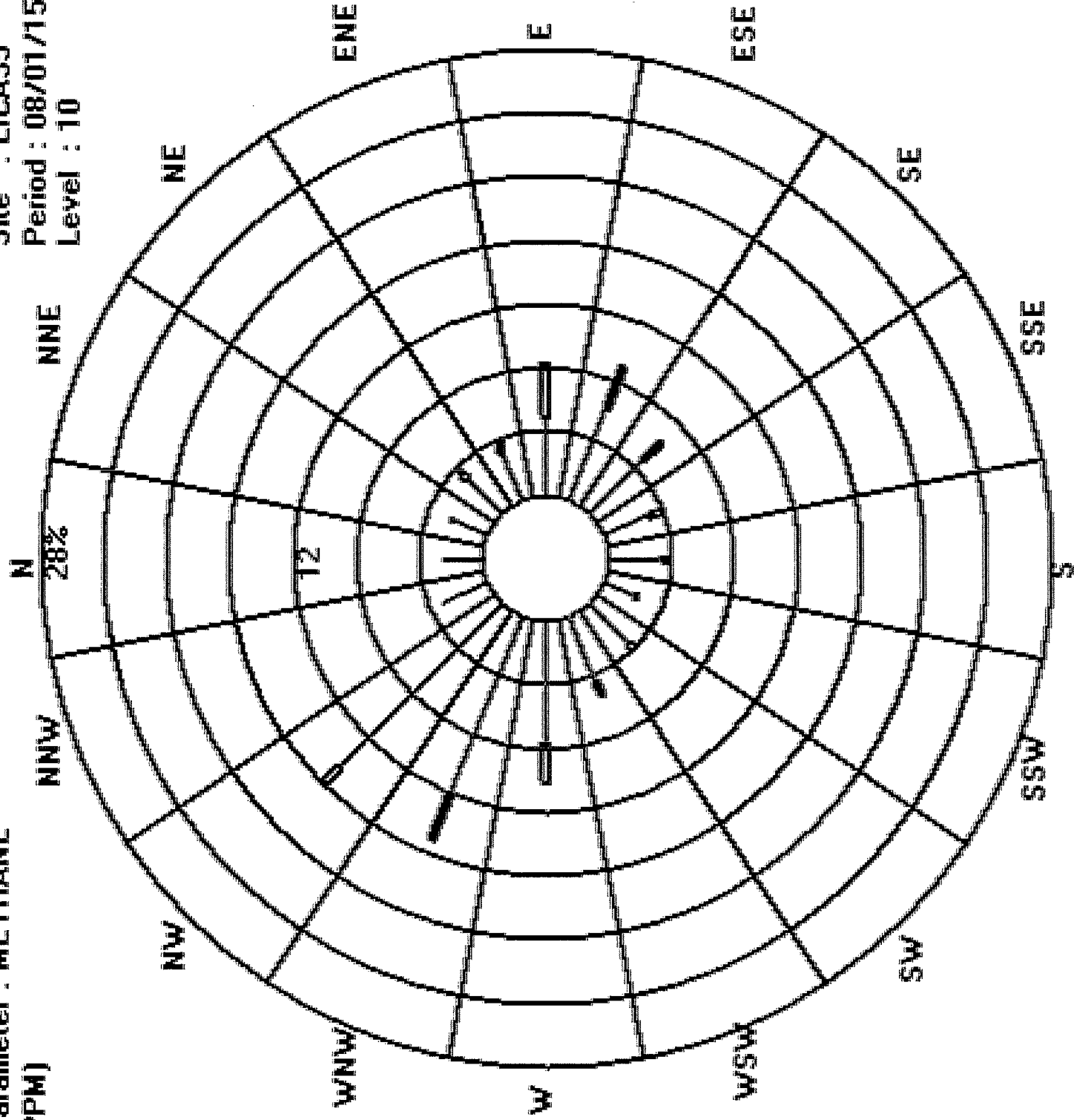
Class Limits (PPM)

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

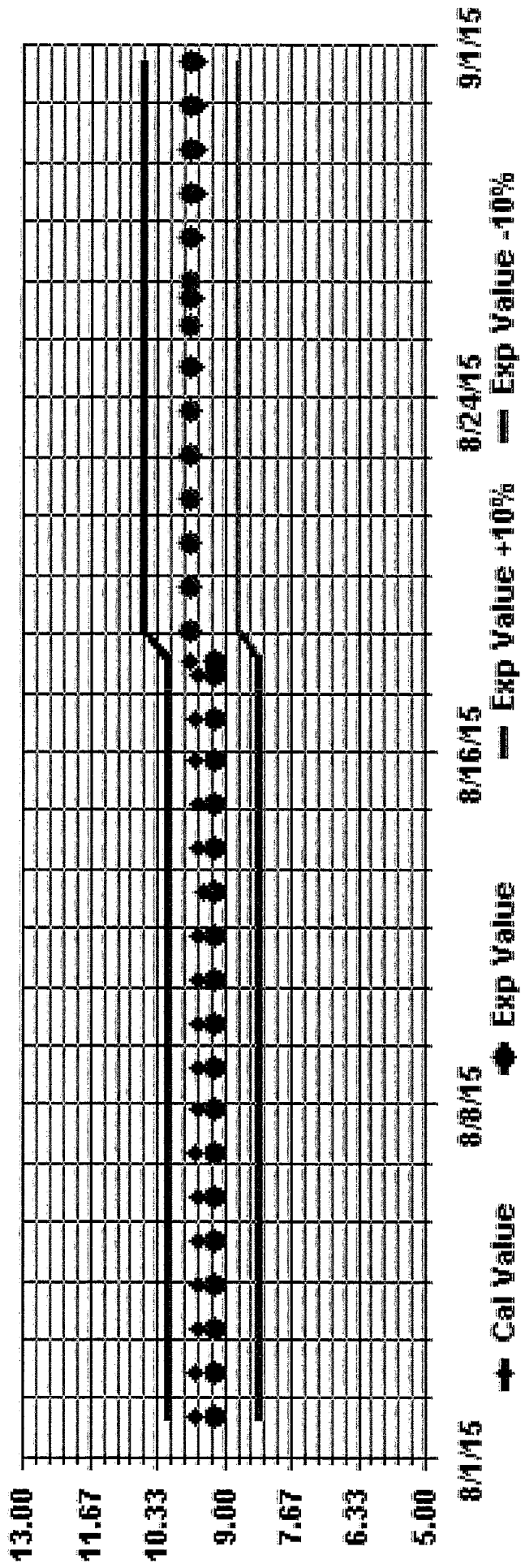
Site : LICA35

Period : 08/01/15-08/31/15

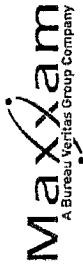
Level : 10



Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 Phase: SPAN



NON-METHANE HYDROCARBON

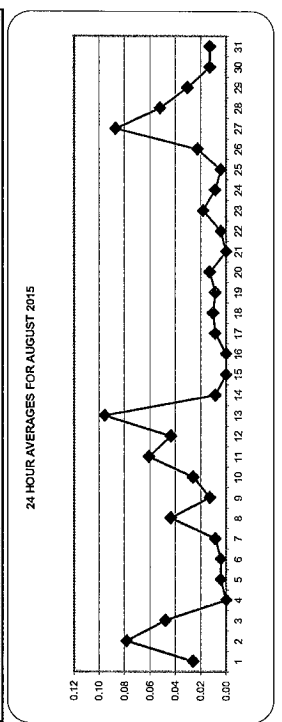


NON-METHANE HYDROCARBONS (NMHC) hourly averages in ppm

DAY	HOURS																								DAILY MAX.	24-HOUR AVG.	RODS.		
	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.03	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	0.08	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	0.05	24	
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	
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	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	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	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	0.01	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	0.04	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	0.01	24	
11	0.20	0.10	0.10	0.10	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	0.00	0.00	0.03	24	
12	0.10	0.20	0.10	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	0.00	0.00	0.06	24	
13	0.20	0.20	0.20	0.20	0.30	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	0.04	24	
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	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	24	
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.10	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	
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	24	
19	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	0.01	24	
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	0.01	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	0.01	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	24	
23	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	0.00	0.02	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	0.01	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	0.01	24	
26	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	0.02	24	
27	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20	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	0.01	24	
28	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	0.00	0.01	24	
29	0.10	0.10	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	0.05	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	0.03	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	0.01	24	
HOURLY MAX	0.20	0.20	0.20	0.20	0.30	0.20	0.20	0.20	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.01	24
HOURLY AVG	0.04	0.04	0.04	0.03	0.03	0.04	0.05	0.03	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	

STATUS FLAG CODES

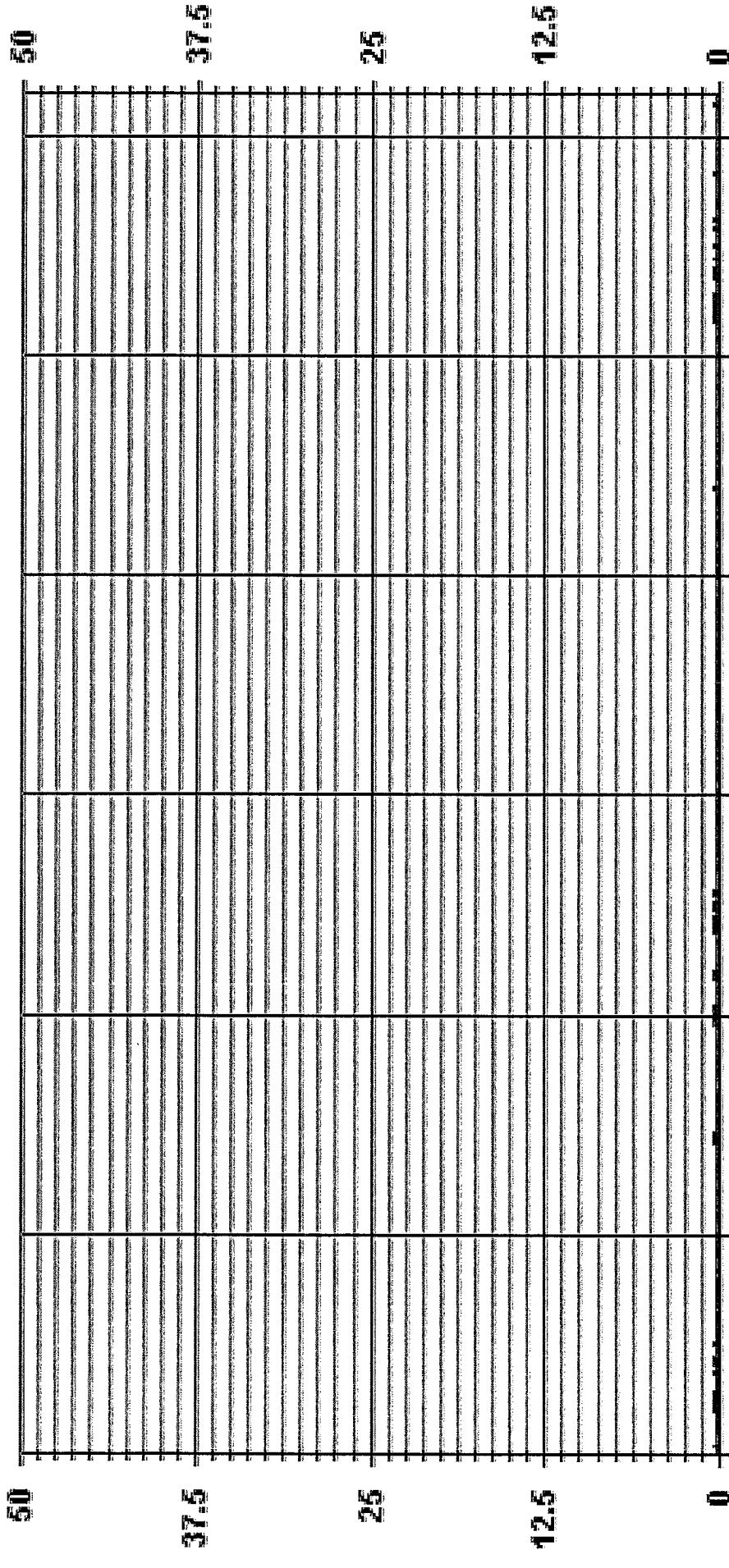
- C - CALIBRATION
- Y - MAINTENANCE
- S - DAILY ZERO/SPAN CHECK
- P - POWER FAILURE
- G - OUTFORREPAIR
- Q - QUALITY ASSURANCE
- R - RECOVERY
- X - MACHINE/MALFUNCTION
- O - OPERATOR ERROR
- K - COLLECTION ERROR



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	151	PPM	@ HOUR(S)	4	ON DAY(S)	13
MAXIMUM 1-HR AVERAGE:	0.30	PPM			ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	0.10	PPM			VAR/VARIOUS	
(Z)S CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:			744
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:			100.0
STANDARD DEVIATION:	0.05		MONTHLY AVERAGE:			0.02

01 Hour Averages



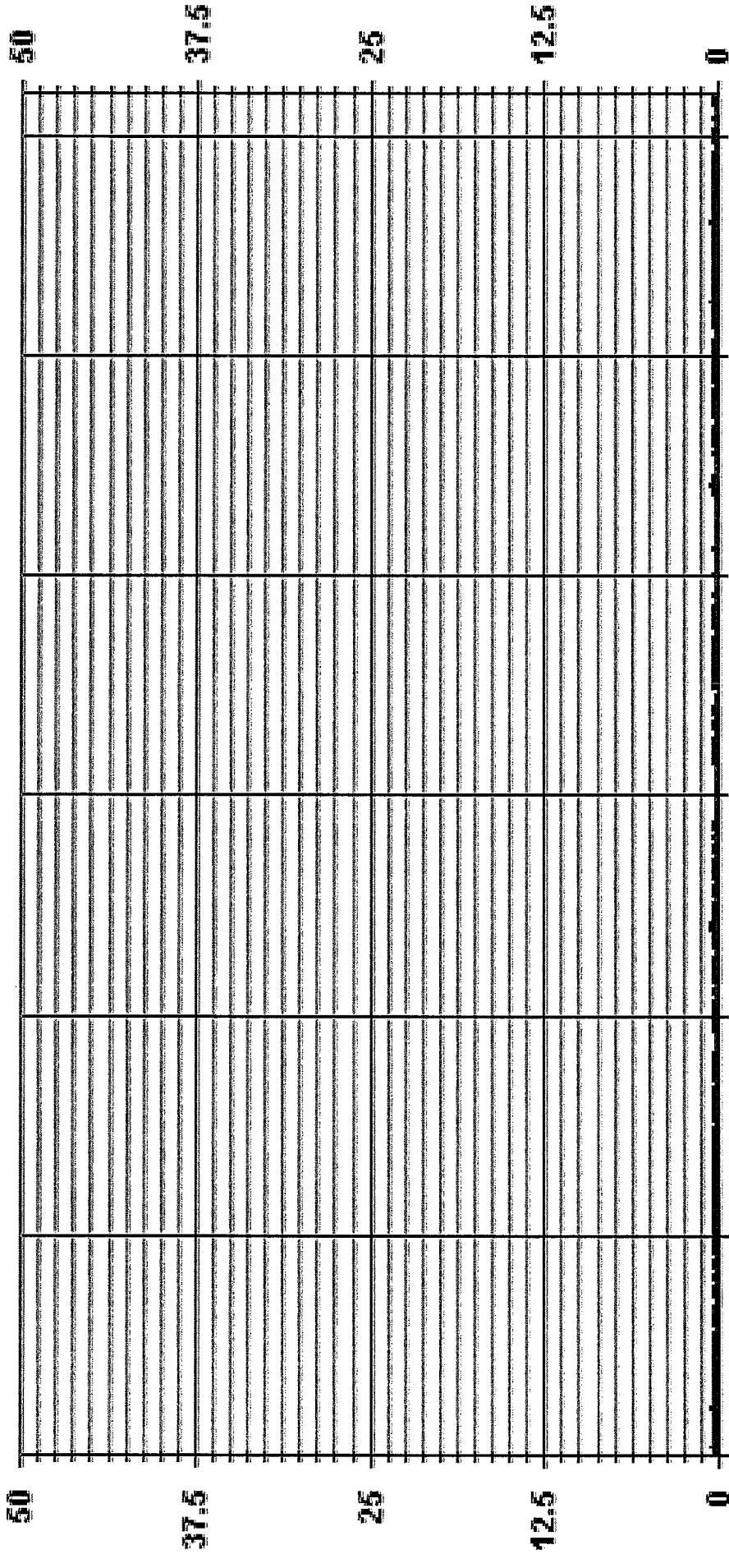
--- LICA35 NMHC PPM



NON-METHANE HYDROCARBONS MAX instantaneous maximum 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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.	HR	RDG.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
1	0:15	0.12	0:18	0.18	0:21	0.30	0:24	0.20	0:27	0.24	0:30	0.31	0:33	0.20	0:36	0.21	0:42	0.23	0:48	0.23	0:54	0.17	0:59	0.12	1:05	0.12	1:11	0.18	1:17	0.12	1:23	0.18	1:29	0.18	1:35	0.18	1:41	0.15	1:47	0.13	1:53	0.14	1:59	0.09	2:05	0.14	2:11	0.20	2:17	0.20	2:23	0.21	2:29	0.20	2:35	0.20	2:41	0.20	2:47	0.20	2:53	0.20	2:59	0.20	3:05	0.20	3:11	0.20	3:17	0.20	3:23	0.20	3:29	0.20	3:35	0.20	3:41	0.20	3:47	0.20	3:53	0.20	3:59	0.20	4:05	0.20	4:11	0.20	4:17	0.20	4:23	0.20	4:29	0.20	4:35	0.20	4:41	0.20	4:47	0.20	4:53	0.20	4:59	0.20	5:05	0.20	5:11	0.20	5:17	0.20	5:23	0.20	5:29	0.20	5:35	0.20	5:41	0.20	5:47	0.20	5:53	0.20	5:59	0.20	6:05	0.20	6:11	0.20	6:17	0.20	6:23	0.20	6:29	0.20	6:35	0.20	6:41	0.20	6:47	0.20	6:53	0.20	6:59	0.20	7:05	0.20	7:11	0.20	7:17	0.20	7:23	0.20	7:29	0.20	7:35	0.20	7:41	0.20	7:47	0.20	7:53	0.20	7:59	0.20	8:05	0.20	8:11	0.20	8:17	0.20	8:23	0.20	8:29	0.20	8:35	0.20	8:41	0.20	8:47	0.20	8:53	0.20	8:59	0.20	9:05	0.20	9:11	0.20	9:17	0.20	9:23	0.20	9:29	0.20	9:35	0.20	9:41	0.20	9:47	0.20	9:53	0.20	9:59	0.20	10:05	0.20	10:11	0.20	10:17	0.20	10:23	0.20	10:29	0.20	10:35	0.20	10:41	0.20	10:47	0.20	10:53	0.20	10:59	0.20	11:05	0.20	11:11	0.20	11:17	0.20	11:23	0.20	11:29	0.20	11:35	0.20	11:41	0.20	11:47	0.20	11:53	0.20	11:59	0.20	12:05	0.20	12:11	0.20	12:17	0.20	12:23	0.20	12:29	0.20	12:35	0.20	12:41	0.20	12:47	0.20	12:53	0.20	12:59	0.20	13:05	0.20	13:11	0.20	13:17	0.20	13:23	0.20	13:29	0.20	13:35	0.20	13:41	0.20	13:47	0.20	13:53	0.20	13:59	0.20	14:05	0.20	14:11	0.20	14:17	0.20	14:23	0.20	14:29	0.20	14:35	0.20	14:41	0.20	14:47	0.20	14:53	0.20	14:59	0.20	15:05	0.20	15:11	0.20	15:17	0.20	15:23	0.20	15:29	0.20	15:35	0.20	15:41	0.20	15:47	0.20	15:53	0.20	15:59	0.20	16:05	0.20	16:11	0.20	16:17	0.20	16:23	0.20	16:29	0.20	16:35	0.20	16:41	0.20	16:47	0.20	16:53	0.20	16:59	0.20	17:05	0.20	17:11	0.20	17:17	0.20	17:23	0.20	17:29	0.20	17:35	0.20	17:41	0.20	17:47	0.20	17:53	0.20	17:59	0.20	18:05	0.20	18:11	0.20	18:17	0.20	18:23	0.20	18:29	0.20	18:35	0.20	18:41	0.20	18:47	0.20	18:53	0.20	18:59	0.20	19:05	0.20	19:11	0.20	19:17	0.20	19:23	0.20	19:29	0.20	19:35	0.20	19:41	0.20	19:47	0.20	19:53	0.20	19:59	0.20	20:05	0.20	20:11	0.20	20:17	0.20	20:23	0.20	20:29	0.20	20:35	0.20	20:41	0.20	20:47	0.20	20:53	0.20	20:59	0.20	21:05	0.20	21:11	0.20	21:17	0.20	21:23	0.20	21:29	0.20	21:35	0.20	21:41	0.20	21:47	0.20	21:53	0.20	21:59	0.20	22:05	0.20	22:11	0.20	22:17	0.20	22:23	0.20	22:29	0.20	22:35	0.20	22:41	0.20	22:47	0.20	22:53	0.20	22:59	0.20	23:05	0.20	23:11	0.20	23:17	0.20	23:23	0.20	23:29	0.20	23:35	0.20	23:41	0.20	23:47	0.20	23:53	0.20	23:59	0.20	24:05	0.20	24:11	0.20	24:17	0.20	24:23	0.20	24:29	0.20	24:35	0.20	24:41	0.20	24:47	0.20	24:53	0.20	24:59	0.20	25:05	0.20	25:11	0.20	25:17	0.20	25:23	0.20	25:29	0.20	25:35	0.20	25:41	0.20	25:47	0.20	25:53	0.20	25:59	0.20	26:05	0.20	26:11	0.20	26:17	0.20	26:23	0.20	26:29	0.20	26:35	0.20	26:41	0.20	26:47	0.20	26:53	0.20	26:59	0.20	27:05	0.20	27:11	0.20	27:17	0.20	27:23	0.20	27:29	0.20	27:35	0.20	27:41	0.20	27:47	0.20	27:53	0.20	27:59	0.20	28:05	0.20	28:11	0.20	28:17	0.20	28:23	0.20	28:29	0.20	28:35	0.20	28:41	0.20	28:47	0.20	28:53	0.20	28:59	0.20	29:05	0.20	29:11	0.20	29:17	0.20	29:23	0.20	29:29	0.20	29:35	0.20	29:41	0.20	29:47	0.20	29:53	0.20	29:59	0.20	30:05	0.20	30:11	0.20	30:17	0.20	30:23	0.20	30:29	0.20	30:35	0.20	30:41	0.20	30:47	0.20	30:53	0.20	30:59	0.20	31:05	0.20	31:11	0.20	31:17	0.20	31:23	0.20	31:29	0.20	31:35	0.20	31:41	0.20	31:47	0.20	31:53	0.20	31:59	0.20	32:05	0.20	32:11	0.20	32:17	0.20	32:23	0.20	32:29	0.20	32:35	0.20	32:41	0.20	32:47	0.20	32:53	0.20	32:59	0.20	33:05	0.20	33:11	0.20	33:17	0.20	33:23	0.20	33:29	0.20	33:35	0.20	33:41	0.20	33:47	0.20	33:53	0.20	33:59	0.20	34:05	0.20	34:11	0.20	34:17	0.20	34:23	0.20	34:29	0.20	34:35	0.20	34:41	0.20	34:47	0.20	34:53	0.20	34:59	0.20	35:05	0.20	35:11	0.20	35:17	0.20	35:23	0.20	35:29	0.20	35:35	0.20	35:41	0.20	35:47	0.20	35:53	0.20	35:59	0.20	36:05	0.20	36:11	0.20	36:17	0.20	36:23	0.20	36:29	0.20	36:35	0.20	36:41	0.20	36:47	0.20	36:53	0.20	36:59	0.20	37:05	0.20	37:11	0.20	37:17	0.20	37:23	0.20	37:29	0.20	37:35	0.20	37:41	0.20	37:47	0.20	37:53	0.20	37:59	0.20	38:05	0.20	38:11	0.20	38:17	0.20	38:23	0.20	38:29	0.20	38:35	0.20	38:41	0.20	38:47	0.20	38:53	0.20	38:59	0.20	39:05	0.20	39:11	0.20	39:17	0.20	39:23	0.20	39:29	0.20	39:35	0.20	39:41	0.20	39:47	0.20	39:53	0.20	39:59	0.20	40:05	0.20	40:11	0.20	40:17	0.20	40:23	0.20	40:29	0.20	40:35	0.20	40:41	0.20	40:47	0.20	40:53	0.20	40:59	0.20	41:05	0.20	41:11	0.20	41:17	0.20	41:23	0.20	41:29	0.20	41:35	0.20	41:41	0.20	41:47	0.20	41:53	0.20	41:59	0.20	42:05	0.20	42:11	0.20	42:17	0.20	42:23	0.20	42:29	0.20	42:35	0.20	42:41	0.20	42:47	0.20	42:53	0.20	42:59	0.20	43:05	0.20	43:11	0.20	43:17	0.20	43:23	0.20	43:29	0.20	43:35	0.20	43:41	0.20	43:47	0.20	43:53	0.20	43:59	0.20	44:05	0.20	44:11	0.20	44:17	0.20	44:23	0.20	44:29	0.20	44:35	0.20	44:41	0.20	44:47	0.20	44:53	0.20	44:59	0.20	45:05	0.20	45:11	0.20	45:17	0.20	45:23	0.20	45:29	0.20	45:35	0.20	45:41	0.20	45:47	0.20	45:53	0.20	45:59	0.20	46:05	0.20	46:11	0.20	46:17	0.20	46:23	0.20	46:29	0.20	46:35	0.20	46:41	0.20	46:47	0.20	46:53	0.20	46:59	0.20	47:05	0.20	47:11	0.20	47:17	0.20	47:23	0.20	47:29	0.20	47:35	0.20	47:41	0.20	47:47	0.20	47:53	0.20	47:59	0.20	48:05	0.20	48:11	0.20	48:17	0.20	48:23	0.20	48:29	0.20	48:35	0.20	48:41	0.20	48:47	0.20	48:53	0.20	48:59	0.20	49:05	0.20	49:11	0.20	49:17	0.20	49:23	0.20	49:29	0.20	49:35	0.20	49:41	0.20	49:47	0.20	49:53	0.20	49:59	0.20	50:05	0.20	50:11	0.20	50:17	0.20	50:23	0.20	50:29	0.20	50:35	0.20	50:41	0.20	50:47	0.20	50:53	0.20	50:59	0.20	51:05	0.20	51:11	0.20	51:17	0.20	51:23	0.20	51:29	0.20	51:35	0.20	51:41	0.20	51:47	0.20	51:53	0.20	51:59	0.20	52:05	0.20	52:11	0.20	52:17	0.20	52:23	0.20	52:29	0.20	52:35	0.20	52:41	0.20	52:47	0.20	52:53	0.20	52:59	0.20	53:05	0.20	53:11	0.20	53:17	0.20	53:23	0.20	53:29	0.20	53:35	0.20	53:41	0.20	53:47	0.20	53:53	0.20	53:59	0.20	54:05	0.20	54:11	0.20	54:17	0.20	54:23	0.20	54:29	0.20	54:35	0.20	54:41	0.20	54:47	0.20	54:53	0.20	54:59	0.20	55:05	0.20	55:11	0.20	55:17	0.20	55:23	0.20	55:29	0.20	55:35	0.20	55:41	0.20	55:47	0.20	55:53	0.20	55:59	0.20	56:05	0.20	56:11	0.20	56:17	0.20	56:23	0.20	56:29	0.20	56:35	0.20	56:41	0.20	56:47	0.20	56:53	0.20	56:59	0.20	57:05	0.20	57:11	0.20	57:17	0.20	57:23	0.20	57:29	0.20	57:35	0.20	57:41	0.20	57:47	0.20	57:53	0.20	57:59	0.20	58:05	0.20	58:11	0.20	58:17	0.20	58:23	0.20	58:29	0.20	58:35	0.20	58:41	0.20	58:47	0.20	58:53	0.20	58:59	0.20	59:05	0.20	59:11	0.20	59:17	0.20	59:23	0.20	59:29	0.20	59:35	0.20	59:41	0.20	59:47	0.20	59:53	0.20	59:59	0.20	60:05	0.20	60:11	0.20	60:17	0.20	60:23	0.20

01 Hour Averages



— LICA35 NMHC MAX PPM

LJCA35
 NMEC / WDR Joint Frequency Distribution (Percent)

August 2015

Distribution By % Of Samples

Logger Id : 35
 Site Name : LJCA35
 Parameter : NMEC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< .2	2.54	2.54	3.81	3.96	8.34	8.91	6.36	4.10	3.81	2.26	3.96	5.23	10.04	14.99	15.84	3.11	99.85
< .5	.00	.00	.00	.00	.00	.14	.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	2.54	2.54	3.81	3.96	8.34	9.05	6.36	4.10	3.81	2.26	3.96	5.23	10.04	14.99	15.84	3.11	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< .2	18	18	27	28	59	63	45	29	27	16	28	37	71	106	112	22	706
< .5																	1
< 1.0																	
< 2.0																	
< 4.0																	
>= 4.0																	
Totals	18	18	27	28	59	64	45	29	27	16	28	37	71	106	112	22	

Calm : .00 %

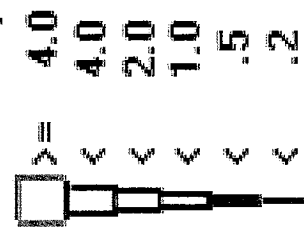
Total # Operational Hours : 707

Logger : 35 Parameter : NMHC

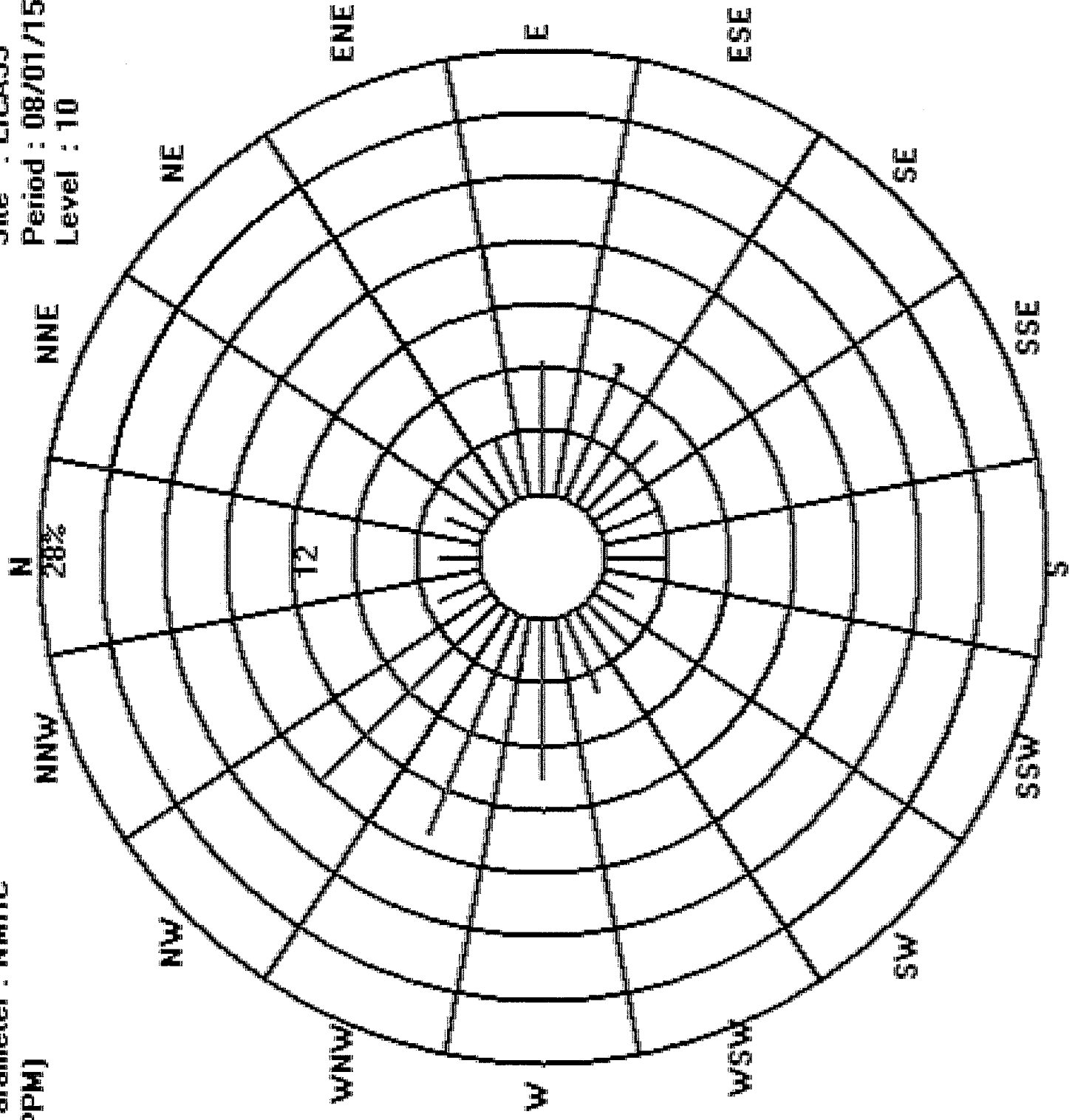
Site : LICA35

Class Limits (PPM)

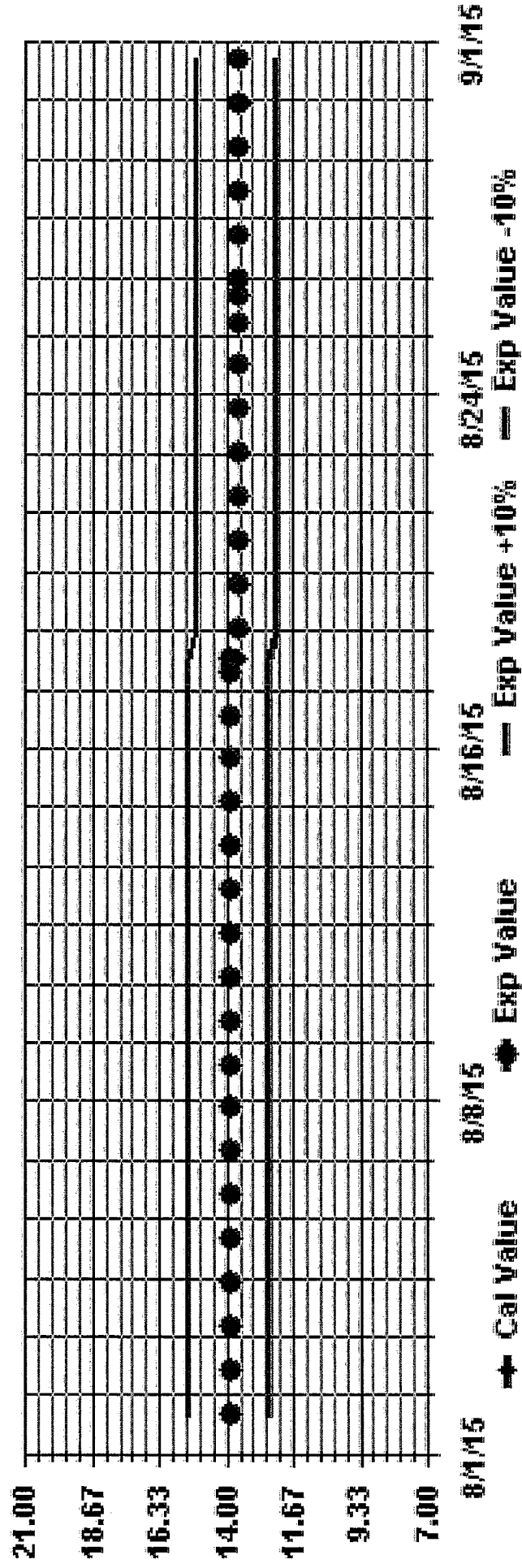
Period : 08/01/15-08/31/15



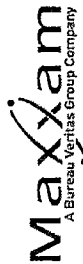
Level : 10



Calibration Graph for Site: LICA35 Parameter: NMHC Sequence: THC55 Phase: SPAN



OXIDES OF NITROGEN

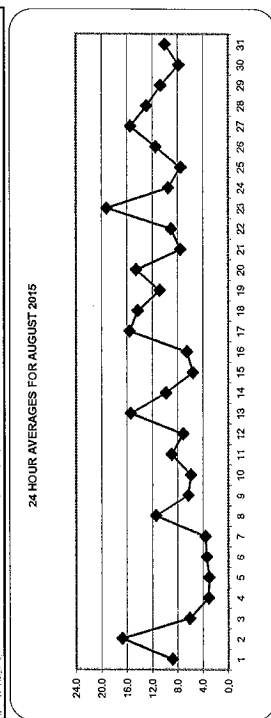


OXIDES OF NITROGEN (NOx) hourly averages in ppb

DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	DAILY MAX.	24-HOUR AVG.	RDS.	
1	4.1	3.6	4.5	16.2	24.5	24.4	37.4	20.0	6.4	3.2	1.8	1.8	1.6	1.7	1.6	1.5	1.5	1.1	1.4	1.6	2.1	6.0	\$	32.5	37.4	8.8	24		
2	36.3	32.2	43.6	58.6	41.8	36.7	32.3	36.6	18.0	5.6	3.4	2.1	1.7	1.6	1.2	1.2	1.0	1.1	1.1	1.1	1.8	6.5	\$	9.7	11.9	58.6	16.7	24	
3	10.2	12.6	11.4	10.7	11.4	15.0	11.7	9.1	8.0	4.9	3.3	2.6	2.4	2.0	2.3	2.1	2.5	2.6	2.4	2.1	\$	3.8	3.2	3.5	15.0	6.1	24		
4	2.9	3.4	3.1	2.7	3.5	5.3	5.4	5.5	5.0	4.9	5.4	2.8	2.3	2.4	2.0	1.6	1.8	1.4	2.3	\$	1.8	2.0	1.5	1.9	5.5	3.1	24		
5	1.7	1.4	1.3	1.3	1.8	1.9	1.9	2.0	2.1	1.9	2.8	2.8	2.4	5.4	4.2	5.2	2.8	3.3	\$	3.8	4.5	5.1	4.2	6.4	6.4	3.1	24		
6	7.2	6.7	5.7	4.3	3.2	4.2	5.7	6.0	4.6	2.4	2.3	2.2	2.2	2.0	2.0	3.5	2.3	\$	1.8	1.6	1.5	1.8	2.2	2.5	7.2	3.4	24		
7	5.5	2.7	2.4	5.2	3.2	3.2	2.6	4.4	3.5	1.5	1.7	2.1	2.1	1.9	1.6	1.6	\$	1.5	2.0	3.1	10.5	6.8	7.9	7.3	10.5	3.6	24		
8	7.9	14.8	17.2	27.9	36.3	29.0	22.9	21.3	14.6	8.2	8.2	5.1	3.2	2.8	3.6	\$	4.7	3.6	2.3	4.8	6.2	8.8	5.4	3.8	36.3	11.4	24		
9	8.1	8.3	9.8	12.4	15.2	17.9	11.5	8.2	5.6	3.8	3.1	2.8	2.7	2.4	\$	2.0	1.8	1.8	2.0	2.6	3.1	4.6	7.1	8.1	17.9	6.3	24		
10	7.9	12.8	7.9	3.1	3.3	6.4	12.7	7.1	6.3	3.7	2.3	1.8	1.5	\$	2.0	2.1	2.0	1.9	2.2	3.3	8.6	11.0	13.6	13.0	13.6	5.9	24		
11	13.2	14.3	11.2	11.2	11.1	19.1	16.0	18.7	13.3	7.7	3.8	2.9	\$	2.6	2.5	2.3	2.0	2.1	2.4	5.9	10.1	12.3	10.7	9.7	19.1	8.9	24		
12	10.9	11.1	11.7	4.1	4.8	9.4	17.0	9.2	4.5	4.1	2.3	\$	2.4	2.6	1.5	1.4	2.3	2.8	3.6	3.5	6.5	8.6	8.9	30.6	7.1	24			
13	36.8	40.0	41.7	34.3	33.2	26.5	19.0	15.8	14.0	9.7	\$	4.7	3.9	3.5	3.4	3.1	2.7	2.7	3.2	4.1	7.5	9.2	8.6	4.0	4.6	97.6	9.8	24	
14	5.7	4.6	4.9	8.6	12.5	12.4	9.7	97.6	5.1	\$	10.2	7.0	7.2	5.5	6.0	5.7	4.7	4.9	5.2	4.9	5.7	6.3	5.2	4.9	4.8	10.2	5.6	24	
15	6.6	6.8	5.0	5.0	4.8	4.1	3.8	4.1	3.8	4.1	\$	4.4	2.9	3.6	3.8	2.9	3.7	2.7	2.1	3.5	6.4	6.8	7.5	10.3	14.3	11.3	19.1	19.1	24
16	5.5	5.5	6.5	6.2	6.3	8.4	6.6	\$	13.5	12.1	7.3	4.5	2.8	3.0	3.0	6.0	5.9	5.8	11.1	14.6	14.6	8.1	11.7	15.8	12.3	51.6	15.5	24	
17	28.4	34.0	31.1	51.6	39.5	26.9	\$	15.1	7.2	5.7	C	C	C	C	C	C	C	C	C	7.3	\$	18.1	18.2	17.1	20.2	14.3	24		
18	16.3	17.5	20.2	14.4	14.3	\$	15.2	13.8	11.1	10.0	10.1	7.4	5.4	6.0	5.2	4.8	4.9	3.9	4.1	6.9	13.4	13.5	15.6	16.6	20.9	10.8	24		
19	20.9	17.7	16.8	15.5	\$	61.1	41.4	30.5	13.9	10.4	8.0	6.9	5.5	5.0	5.1	5.2	5.1	5.2	5.5	5.6	5.2	6.0	6.4	7.8	8.3	61.1	14.5	24	
20	20.9	34.9	30.6	\$	21.3	11.1	11.0	9.7	7.4	6.0	5.6	5.0	4.3	4.4	5.2	5.2	4.6	4.2	4.6	4.6	5.5	5.9	7.7	7.2	7.1	8.3	21.3	24	
21	9.1	12.7	\$	9.0	9.0	11.8	13.3	11.2	7.7	4.5	4.2	4.3	3.9	4.0	3.9	4.1	4.6	4.3	4.3	4.7	9.5	15.8	14.9	21.1	26.0	49.0	19.2	24	
22	10.8	\$	49.0	45.3	41.1	28.5	32.3	28.7	25.1	16.4	6.8	4.9	5.0	4.6	4.4	4.6	5.1	5.0	8.2	15.2	22.4	22.4	14.2	\$	49.0	19.2	24		
23	17.4	12.4	12.1	13.8	13.5	13.1	14.0	11.0	8.1	7.0	6.1	5.5	5.3	5.2	4.6	4.2	4.8	5.6	6.5	10.2	13.0	10.4	\$	13.8	17.4	9.5	24		
24	14.7	11.2	11.4	10.8	10.9	13.3	12.4	9.9	8.1	6.4	5.7	4.0	4.0	3.5	3.5	3.1	3.6	4.0	3.6	4.3	6.1	\$	8.0	10.5	14.7	7.5	24		
25	14.0	16.0	10.5	11.3	9.9	13.8	27.4	10.6	8.1	6.3	8.3	7.4	4.6	4.5	4.2	4.5	4.7	5.4	9.4	20.6	\$	23.0	21.9	17.4	27.4	11.5	24		
26	14.8	14.6	14.4	17.5	23.0	28.7	37.6	31.5	35.3	26.2	18.8	10.0	4.6	4.3	4.0	4.2	4.1	4.7	8.5	\$	11.2	12.9	11.5	13.5	13.5	37.6	15.5	24	
27	14.6	17.6	11.1	7.3	10.7	14.3	38.1	29.1	12.8	10.7	9.1	7.2	7.8	7.1	7.8	7.2	10.1	11.6	\$	4.6	4.9	6.0	4.6	5.7	8.1	28.4	10.7	24	
28	17.3	19.7	28.6	28.4	14.0	12.6	12.3	\$	7.0	8.0	8.8	4.3	C	C	C	2.4	\$	4.2	9.5	3.4	3.6	11.4	13.9	10.0	16.4	7.8	24		
29	5.6	6.1	7.7	7.5	12.6	11.6	16.4	12.6	10.3	8.3	5.3	4.9	3.7	3.3	3.2	4.1	\$	2.7	3.3	12.7	21.7	10.5	8.9	11.4	9.6	26.2	10.0	24	
30	10.9	14.7	15.7	9.8	10.5	18.1	26.2	\$	8.5	6.7	5.3	4.3	3.1	2.7	2.7	\$	2.7	3.3	12.7	21.7	10.5	8.9	11.4	9.6	26.2	10.0	24		
31	36.8	49.0	45.3	58.6	61.1	41.4	38.1	97.6	35.3	26.2	18.8	10.0	7.8	7.1	7.8	7.2	10.1	11.6	14.6	21.7	22.4	23.0	21.9	32.5	32.5	695	9.9	11.9	
HOURLY MAX	12.7	15.3	14.9	15.7	16.1	16.3	17.1	16.4	9.7	7.1	5.5	4.5	3.6	3.7	3.6	3.6	3.7	4.2	5.4	7.0	8.2	9.6	9.6	9.9	11.9				
HOURLY AVG																													

STATUS FLAG CODES

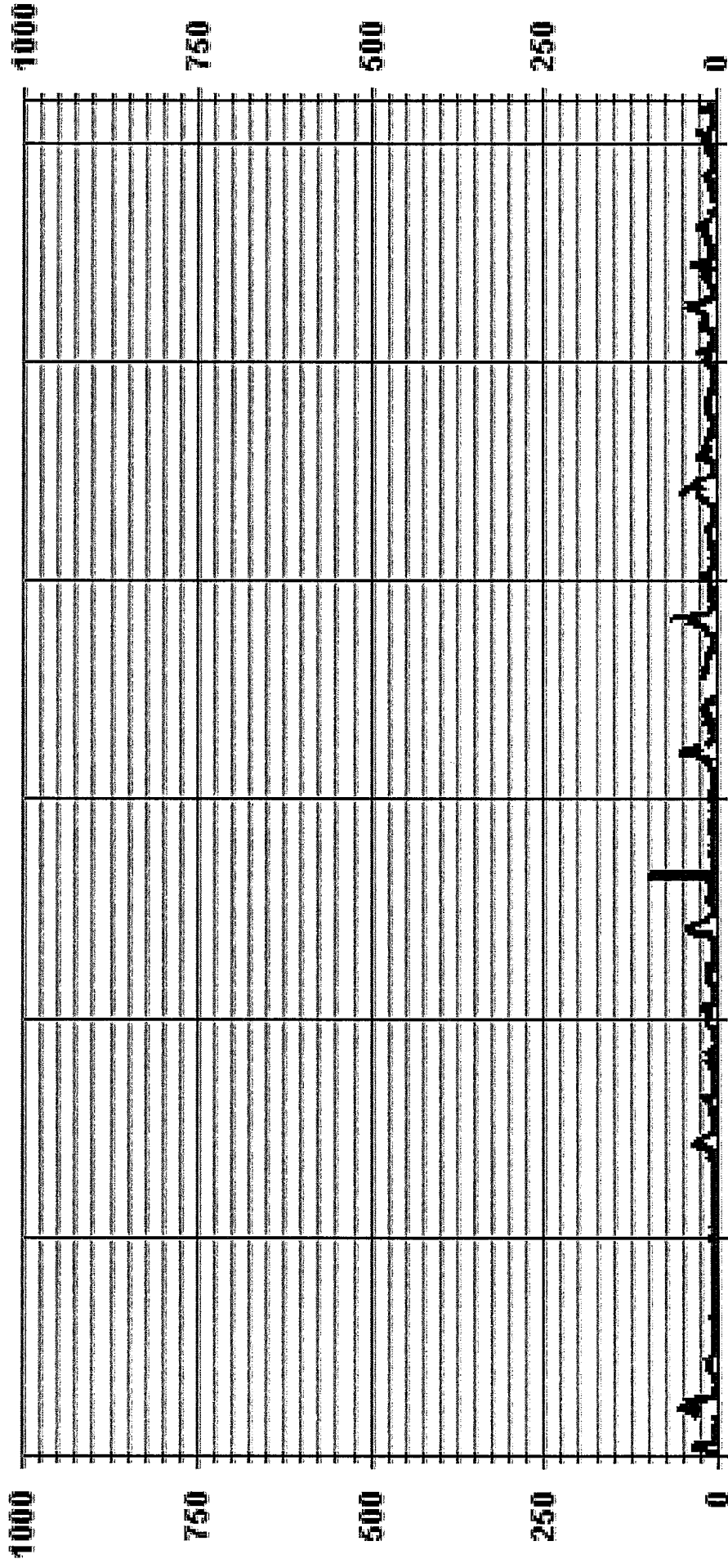
C	- CALIBRATION
Y	- QUALITY ASSURANCE
S	- RECOVERY
P	- MAINTENANCE
G	- DAILY ZERO/SPAN CHECK
X	- MACHINE MALFUNCTION
O	- OPERATOR ERROR
K	- POWER FAILURE
	- OUT FOR REPAIR
	- COLLECTION ERROR



MONTHLY SUMMARY

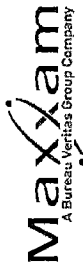
NUMBER OF NON-ZERO READINGS:	695
MAXIMUM 1-HR AVERAGE:	97.6 PPB
MAXIMUM 24-HR AVERAGE:	19.2 PPB
OPS CALIBRATION TIME:	37 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION:	9.48
ON DAY(S)	7
ON DAY(S) VAR-VARIOUS	14
OPERATIONAL TIME:	744 HRS
AMTD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	9.5 PPB

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 NOX_ PPB



OXIDES OF NITROGEN MAX instantaneous maximum 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	24:00			
1	5.4	5.2	9.8	21.7	28.8	62.1	62.5	32.7	9.2	4.3	2.5	2.6	2.4	2.5	2.4	2.3	2.1	2.2	2.1	2.3	4.6	7.7	\$	46.8	62.5	14.1	24	
2	54.5	52.9	51.3	84.3	68.9	51.9	36.6	40.8	32.4	8.4	5.1	3.2	2.6	2.4	2.1	2.0	1.8	1.5	1.8	5.9	8.9	\$	12.2	15.1	84.3	23.8	24	
3	12.0	17.7	12.6	12.4	13.5	19.9	18.1	10.4	9.6	7.0	4.2	3.7	3.4	2.8	3.2	2.9	3.3	3.5	3.3	2.8	\$	5.1	4.9	4.5	19.9	7.9	24	
4	3.6	4.2	4.6	3.8	4.7	8.8	7.1	7.5	7.3	8.1	8.8	3.6	3.1	3.3	2.7	2.4	2.5	2.3	3.2	\$	2.5	2.7	2.2	2.6	8.8	4.4	24	
5	2.3	2.0	2.1	1.9	2.4	2.6	2.6	2.7	2.8	2.6	4.9	4.3	4.6	9.1	6.4	10.7	3.7	4.0	\$	5.1	7.4	8.2	6.2	8.1	10.7	4.6	24	
6	8.2	8.4	6.9	6.0	3.8	5.5	6.6	6.7	5.9	3.6	3.1	3.2	3.0	2.9	2.7	4.6	3.2	\$	2.4	2.4	2.2	3.1	3.0	3.9	8.4	4.4	24	
7	3.5	3.9	3.6	8.2	8.0	4.3	3.7	6.0	5.4	2.5	2.6	2.7	2.9	2.7	2.2	2.5	\$	2.6	2.8	7.1	16.9	8.5	9.3	9.5	16.9	5.3	24	
8	9.5	24.0	21.2	35.1	42.8	38.4	29.5	24.1	23.1	9.7	9.2	8.1	4.1	3.3	4.7	\$	6.8	6.0	3.1	7.9	8.3	10.8	7.7	5.4	42.8	14.9	24	
9	10.0	10.9	12.1	15.5	18.1	22.8	15.6	10.7	7.4	4.4	4.2	3.8	3.5	3.2	\$	2.7	2.7	2.7	2.9	3.3	6.3	8.8	7.7	9.4	22.8	8.0	24	
10	10.3	15.5	11.9	4.4	5.8	7.5	16.7	10.5	7.4	6.0	2.9	2.6	2.1	\$	2.8	2.8	2.8	2.5	3.2	7.1	12.1	14.4	15.2	15.7	16.7	7.9	24	
11	16.1	16.5	12.4	12.3	12.3	26.7	25.0	26.6	19.0	10.1	5.3	3.7	\$	3.9	3.2	3.0	2.7	2.7	3.2	10.5	13.7	14.7	13.1	13.0	26.7	11.7	24	
12	11.9	12.5	17.3	5.6	5.7	18.7	20.4	13.2	6.1	7.8	3.0	\$	3.9	5.0	2.1	2.3	3.4	3.8	4.4	4.3	12.2	12.7	11.8	59.5	10.8	24		
13	46.0	48.4	48.4	39.2	36.8	30.2	25.8	30.2	18.2	15.5	11.7	\$	5.9	7.9	8.1	5.3	6.4	8.5	5.7	25.7	14.7	9.6	10.7	9.1	9.6	48.4	19.5	24
14	6.7	5.7	5.7	10.3	19.9	18.2	12.3	315.8	17.7	\$	5.8	4.9	4.1	4.1	4.1	3.9	3.6	3.4	4.6	5.0	13.6	13.9	11.3	4.8	6.7	315.8	21.8	24
15	7.4	8.2	6.4	6.3	5.6	5.1	4.7	4.8	\$	31.5	16.1	11.0	7.3	7.8	8.3	5.4	5.8	6.2	5.6	7.8	7.4	7.0	6.0	5.4	31.5	8.1	24	
16	6.8	6.7	7.5	8.1	8.8	10.0	8.3	\$	5.9	4.0	4.4	4.4	4.1	4.6	4.3	3.6	6.1	7.7	10.4	9.6	12.4	16.2	14.1	25.7	25.7	8.4	24	
17	33.5	35.6	35.1	59.8	48.0	33.3	\$	19.9	13.8	11.3	6.0	3.7	3.9	5.5	6.8	6.8	6.4	16.3	19.2	21.3	9.3	15.6	18.5	16.9	59.8	19.4	24	
18	23.0	21.2	22.2	19.1	15.4	\$	19.0	12.8	8.1	C	C	C	C	C	C	C	C	C	14.0	\$	22.1	20.1	19.4	23.0	18.0	24		
19	23.2	23.5	18.1	17.1	\$	20.5	16.0	14.5	11.0	13.7	13.4	8.5	6.6	8.2	7.1	5.8	6.0	5.0	10.6	19.8	19.1	18.9	18.7	23.5	13.5	24		
20	47.6	55.3	35.6	\$	79.4	51.5	47.4	18.3	12.6	11.2	9.9	6.4	5.8	5.9	6.2	6.1	5.9	6.1	6.2	6.5	7.1	8.0	8.5	9.3	79.4	19.9	24	
21	16.2	17.0	\$	26.9	13.3	13.7	13.5	9.7	6.8	6.6	5.9	5.0	5.4	11.0	9.5	5.3	5.0	5.7	6.5	7.1	11.8	8.1	8.2	10.7	26.9	10.0	24	
22	\$	55.3	50.1	44.4	32.4	41.1	38.9	32.5	27.6	20.8	12.5	6.1	5.6	5.5	5.8	6.2	6.0	11.8	19.3	27.5	31.8	17.5	\$	55.3	23.0	24		
23	20.4	14.8	13.5	15.6	15.6	15.9	17.3	12.3	9.7	8.1	7.5	6.5	5.9	6.1	5.6	4.8	5.8	7.1	9.2	13.5	16.0	12.6	\$	20.4	11.5	24		
24	22.6	14.0	12.4	12.5	14.8	16.6	14.6	12.4	9.4	7.7	7.2	4.9	4.9	4.5	4.0	3.9	4.5	5.0	4.5	6.2	7.9	\$	9.6	14.2	22.6	9.5	24	
25	18.9	19.8	12.0	15.6	13.3	18.1	45.4	21.3	11.5	7.8	9.5	9.1	6.6	7.3	5.0	5.4	6.1	7.3	11.1	33.4	\$	26.1	27.7	25.0	45.4	15.8	24	
26	16.0	16.1	15.4	20.1	27.0	37.3	42.8	45.1	41.0	35.0	21.7	18.0	5.4	5.2	5.0	5.1	5.1	6.8	11.4	\$	13.0	11.5	14.4	21.1	45.1	19.1	24	
27	21.0	22.0	26.2	11.2	13.7	23.8	47.9	47.9	15.1	12.0	10.6	8.6	8.6	8.1	9.6	9.3	12.9	13.8	\$	13.5	18.6	16.9	14.7	14.6	47.9	17.4	24	
28	21.0	22.4	33.5	38.3	16.5	14.7	13.9	\$	8.0	13.5	14.3	8.1	C	C	C	3.5	\$	5.4	5.6	10.3	5.4	8.1	11.5	36.3	14.1	24		
29	9.2	7.0	11.1	9.2	15.0	15.9	24.1	14.5	13.5	10.5	6.6	6.0	4.9	4.1	4.5	6.7	\$	6.2	15.9	5.9	5.0	21.2	22.3	14.8	24.1	11.0	24	
30	15.2	19.4	20.0	15.2	14.1	24.6	\$	10.3	7.9	6.5	5.7	4.4	3.7	3.5	\$	3.8	5.6	21.2	26.9	16.5	11.1	13.9	10.8	26.9	12.4	24		
31	54.5	55.3	51.3	84.3	79.4	62.1	62.5	315.8	41.0	35.0	21.7	18.0	8.6	11.0	9.6	10.7	12.9	16.3	25.7	33.4	27.5	31.8	27.7	59.5	16.5	24		
HOURLY AVG	17.2	19.5	18.3	19.7	20.7	22.5	22.4	28.7	12.8	9.9	7.5	6.0	4.8	5.2	4.8	4.7	4.8	5.5	7.8	10.3	11.4	12.6	12.3	16.5				

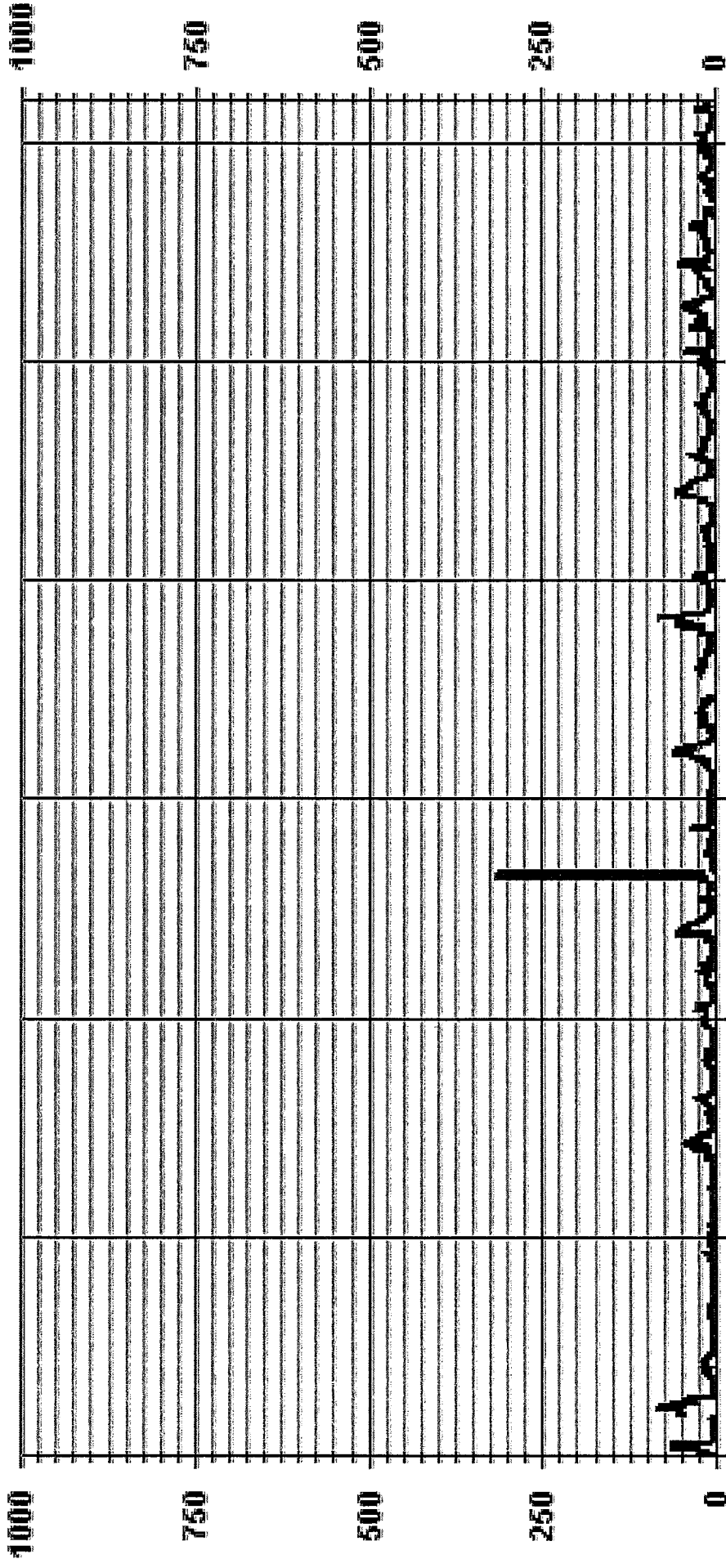
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	694
MAXIMUM INSTANTANEOUS VALUE:	315.8 PPB @ HOUR(S) 7 ON DAY(S) 14
IZS CALIBRATION TIME:	38 HRS
MONTHLY CALIBRATION TIME:	12 HRS
OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	16.50
VARIOUS	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 NOXMAX PPB

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

August 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : NOX_
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	2.58	2.58	3.88	4.02	8.63	9.20	6.18	4.02	3.88	2.30	4.02	5.03	9.92	14.10	15.82	3.16	99.42
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.43	.00	.00	.57
< 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	2.58	2.58	3.88	4.02	8.63	9.20	6.18	4.02	3.88	2.30	4.02	5.03	10.07	14.53	15.82	3.16	

Calm : .00 %

Total # Operational Hours : 695

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	18	18	27	28	60	64	43	28	27	16	28	35	69	98	110	22	691
< 110.0													1	3			4
< 210.0																	
>= 210.0																	
Totals	18	18	27	28	60	64	43	28	27	16	28	35	70	101	110	22	

Calm : .00 %

Total # Operational Hours : 695

Logger : 35 Parameter : NOX_

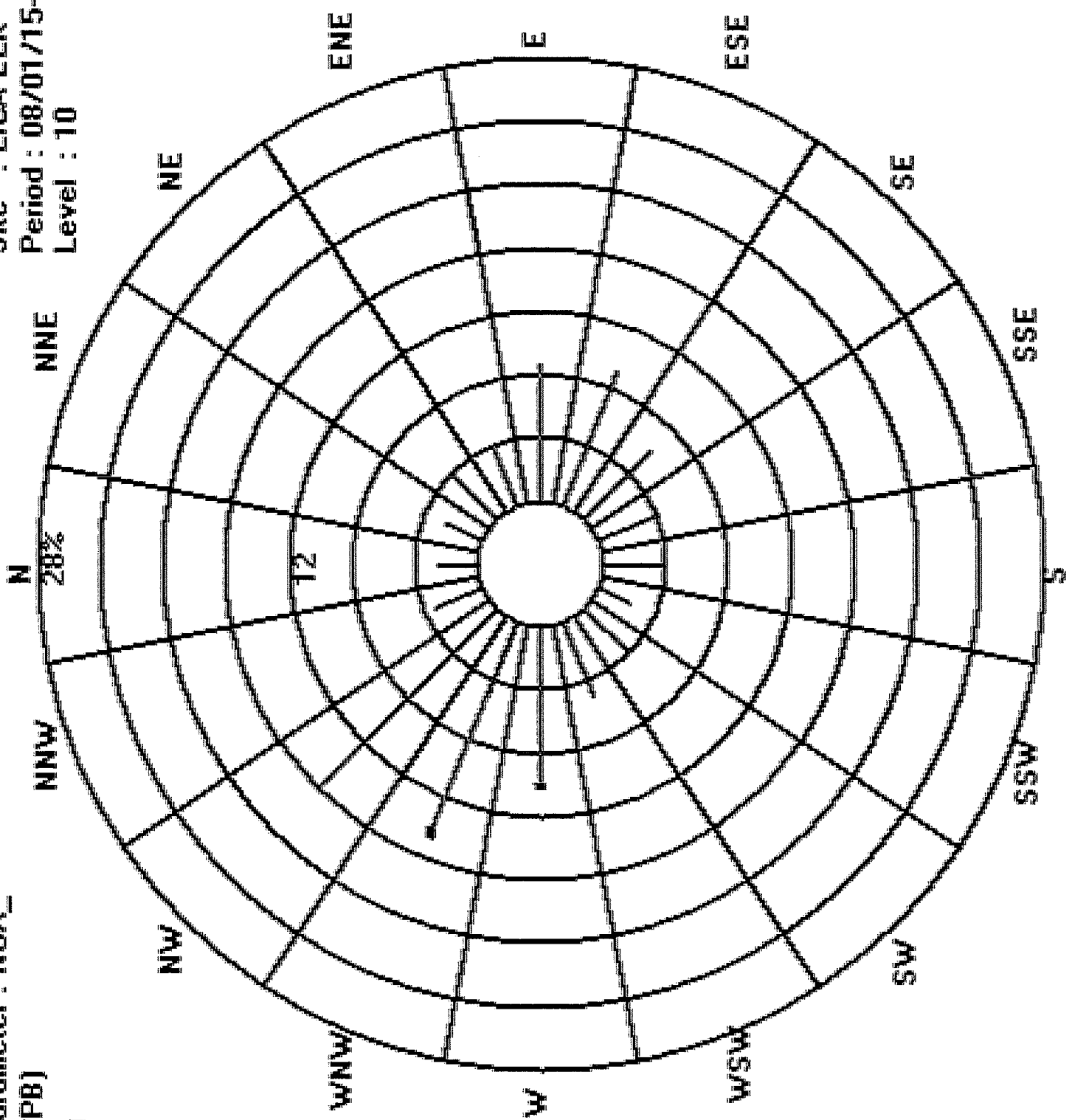
Site : LICA-ELK

Class Limits (PPB)

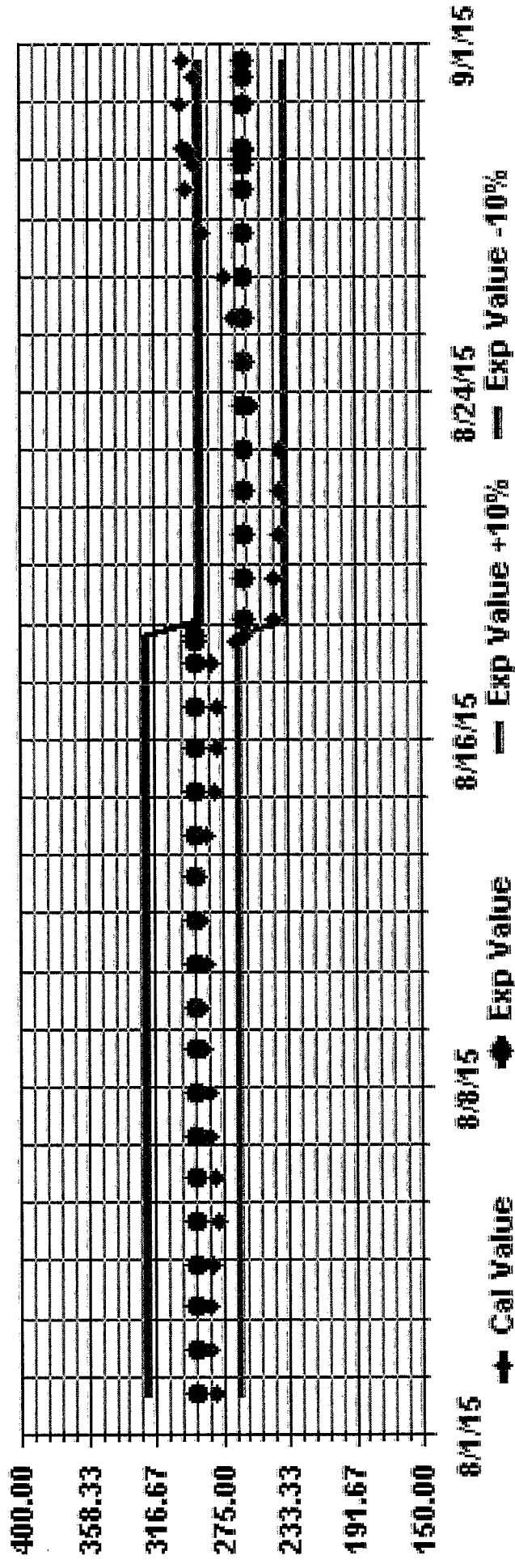
Period : 08/01/15-08/31/15

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

Level : 10



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



NITRIC OXIDES



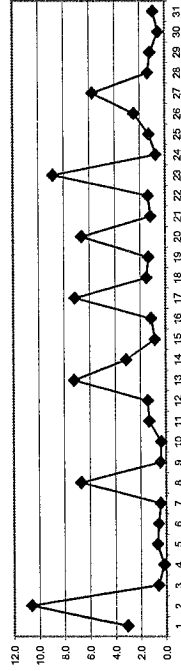
NITRIC OXIDE (NO) hourly averages in ppb

DAY	NITRIC OXIDE (NO) hourly averages in ppb																								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	0.4	0.1	0.3	2.7	8.5	11.0	21.1	7.7	0.5	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	17.2	21.1	3.1	24		
2	20.2	19.5	33.0	48.6	33.3	27.8	24.6	27.3	7.0	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	S	0.6	0.6	48.6	10.6	24		
3	0.1	0.8	0.4	0.3	1.0	5.4	3.2	1.4	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.2	0.0	0.0	5.4	0.6	24		
4	0.1	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.5	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.6	0.6	0.2	0.2	0.6	24		
5	0.3	0.2	0.1	0.1	0.3	0.3	0.4	0.6	0.7	1.3	0.4	1.8	0.9	1.7	0.6	0.6	S	0.8	1.1	1.0	1.0	1.7	1.8	0.7	1.8	0.7	24			
6	1.4	1.2	0.9	0.5	0.4	0.7	1.3	1.9	1.2	0.5	0.4	0.5	0.4	0.3	0.8	0.3	S	0.2	0.0	0.0	0.0	0.1	1.9	0.6	2.4	0.4	24			
7	0.1	0.1	0.0	0.8	0.3	0.2	0.2	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	0.1	0.1	0.1	2.5	0.8	1.7	2.1	2.5	0.4	24		
8	2.8	9.9	12.6	23.0	31.7	25.3	17.7	15.1	7.9	2.5	2.1	0.1	0.0	0.0	0.0	S	0.8	0.3	0.3	0.4	0.2	0.4	0.3	31.7	6.7	24	24	24		
9	0.5	0.5	0.4	0.3	1.2	2.7	1.5	1.0	0.6	0.4	0.2	0.2	0.3	0.1	S	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.7	0.4	24	24		
10	0.3	2.1	0.2	0.0	0.3	1.2	0.3	2.1	0.4	0.2	0.0	0.0	0.0	0.0	S	0.4	0.1	0.0	0.0	0.0	0.0	0.3	0.5	0.9	0.7	2.1	0.4	24		
11	0.6	0.9	0.6	0.8	1.5	8.5	6.1	7.0	1.3	0.3	0.2	0.1	S	0.1	0.2	0.1	0.0	0.1	0.0	0.2	0.4	0.4	0.2	1.0	8.5	1.3	24	24		
12	1.3	1.5	1.9	0.3	0.1	1.2	4.3	0.7	0.2	0.1	S	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.5	1.0	1.2	17.4	17.4	1.4	24	24		
13	23.6	26.9	29.1	24.2	23.5	18.5	10.7	4.3	2.4	1.1	S	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.5	0.1	0.2	0.0	0.0	0.1	29.1	7.2	24	24		
14	0.2	0.1	0.0	0.5	0.7	0.7	0.5	65.8	0.3	S	0.7	0.3	0.4	0.2	0.1	0.2	0.0	0.0	0.2	0.3	0.2	0.3	0.2	0.2	65.8	3.1	24	24		
15	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.3	S	3.9	1.5	1.3	0.7	0.9	1.2	0.8	1.0	0.9	0.8	1.1	1.1	0.7	0.6	0.5	3.9	0.8	24	24		
16	0.7	0.8	1.0	1.0	1.0	1.7	1.3	S	1.2	0.5	0.6	0.5	0.5	0.5	0.7	0.3	0.7	0.9	0.9	0.9	1.0	1.9	1.4	6.5	6.5	1.2	24	24		
17	16.5	23.8	22.2	42.6	23.8	18.2	S	5.6	3.9	1.1	0.2	0.1	0.1	0.1	0.3	0.1	0.2	0.7	1.1	1.0	0.3	0.5	1.1	0.7	42.6	7.1	24	24		
18	1.2	1.2	1.7	1.5	1.4	S	3.0	1.2	0.7	C	C	C	C	C	C	C	C	C	C	C	0.0	0.0	0.0	1.5	24	24	24	24		
19	6.4	5.4	1.4	0.6	S	2.2	2.2	1.3	0.9	0.9	1.0	0.6	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.7	0.8	1.6	2.5	3.0	1.5	24	24	
20	6.9	19.9	15.7	S	49.6	28.6	18.0	3.4	1.5	1.0	0.8	0.6	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.5	0.6	0.7	0.5	49.6	6.6	24	24	24	
21	0.9	1.1	S	5.7	1.5	1.6	2.0	1.2	1.0	0.9	0.7	0.6	0.9	0.7	0.6	0.8	0.9	0.9	1.1	0.9	1.1	0.9	1.1	5.7	1.2	1.2	1.2	24	24	
22	1.7	S	1.1	0.9	1.1	1.8	1.8	1.2	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.6	2.0	4.7	9.4	1.4	24	24	24	
23	S	33.5	30.9	28.4	17.1	21.6	20.9	17.6	13.1	4.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.6	2.4	3.6	0.1	S	33.5	8.8	24	24	24	
24	2.1	0.8	0.6	1.1	0.8	0.9	1.3	1.2	1.0	0.9	0.6	0.5	0.1	0.2	0.2	0.1	0.3	0.2	0.1	0.4	0.8	0.6	S	2.2	2.2	0.7	24	24	24	
25	2.8	1.5	1.7	1.3	1.6	3.5	4.2	3.1	2.0	1.2	0.7	0.4	0.4	0.3	0.5	0.3	0.3	0.5	0.4	0.3	0.5	0.4	0.3	0.5	4.2	1.3	24	24	24	
26	2.3	2.1	1.3	2.3	1.5	3.1	15.8	3.4	1.5	0.8	1.0	0.8	0.5	0.3	0.3	0.2	0.2	0.4	0.7	3.8	S	5.8	5.1	3.5	15.8	2.5	24	24	24	
27	2.8	2.9	3.0	5.8	11.0	16.0	25.1	20.1	23.3	10.4	5.1	1.7	0.6	0.6	0.5	0.4	0.1	0.5	0.4	0.7	S	0.4	0.2	0.6	25.1	5.7	24	24	24	
28	0.8	0.5	0.6	0.0	0.2	0.7	13.7	8.7	1.2	0.9	0.4	0.1	0.4	0.2	0.2	0.2	0.1	0.3	0.4	S	0.4	0.2	0.4	0.5	13.7	1.4	24	24	24	
29	1.6	2.0	3.6	7.3	0.7	0.5	0.8	S	5	0.7	1.0	0.9	0.5	C	C	C	C	C	0.0	S	0.5	0.2	0.3	0.2	0.1	0.3	7.3	1.2	24	24
30	0.0	0.1	0.2	0.1	0.3	0.8	4.3	2.4	1.2	0.6	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.1	S	0.3	0.4	0.0	0.2	0.3	0.5	0.1	4.3	0.5	24	24
31	0.3	0.8	0.8	0.2	0.3	2.7	9.1	S	1.1	0.4	0.3	0.2	0.2	0.1	0.1	0.1	S	0.3	0.3	0.8	1.3	0.4	0.3	0.4	0.2	9.1	0.9	24	24	
HOURLY MAX	23.6	33.5	33.0	48.6	49.6	28.6	25.1	65.8	23.3	10.4	5.1	1.7	0.7	1.8	1.2	1.7	1.0	0.9	1.1	3.8	2.5	5.8	5.1	17.4						
HOURLY AVG	3.3	5.4	5.5	6.7	7.2	6.9	7.3	7.3	2.7	1.2	0.7	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.9	0.9	2.5					

STATUS FLAG CODES

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

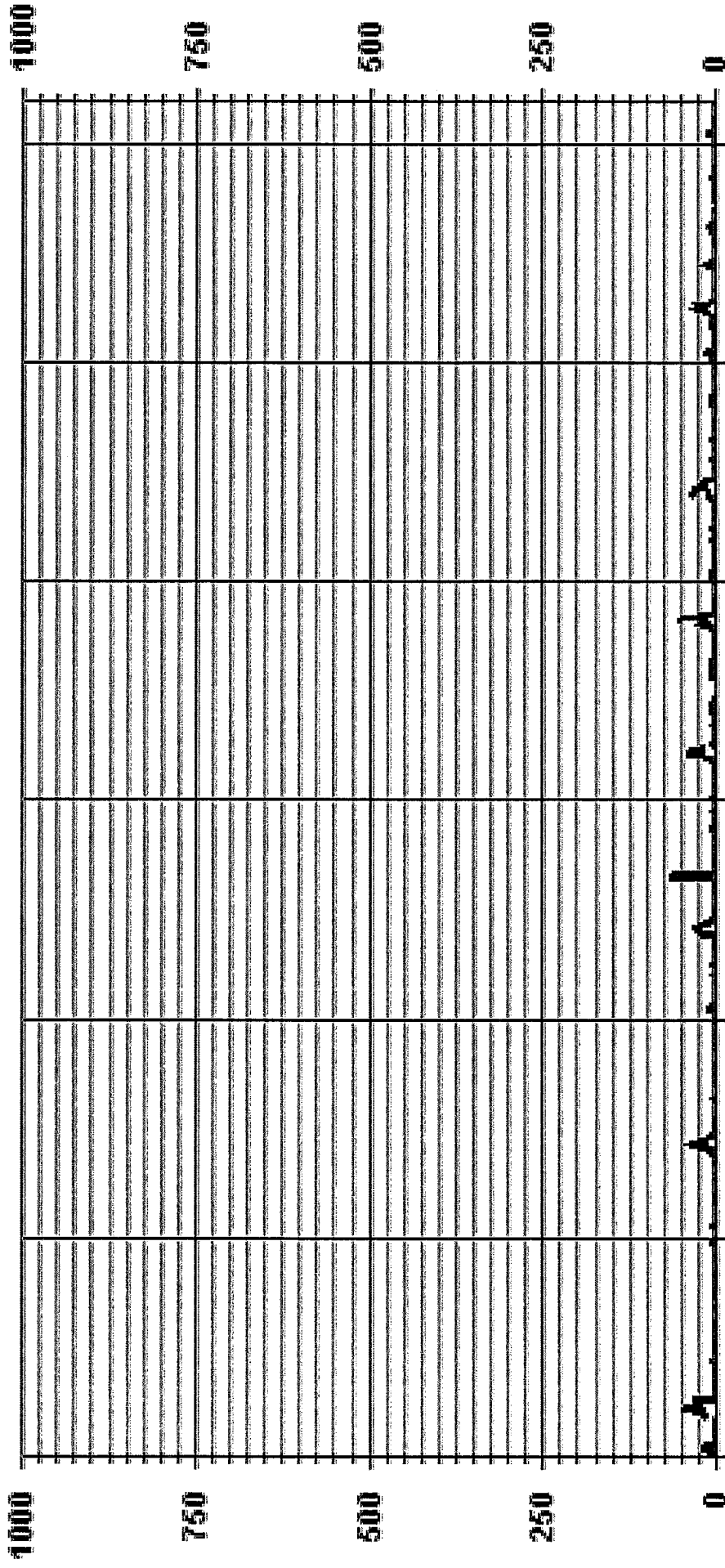
24 HOUR AVERAGES FOR AUGUST 2015



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	605	ON DAY(S)	14
MAXIMUM 1-HR AVERAGE:	65.8 PPB	@ HOUR(S)	7
MAXIMUM 24-HR AVERAGE:	10.6 PPB	ON DAY(S)	2
IZS CALIBRATION TIME:	37 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	12 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	6.78	MONTHLY AVERAGE:	2.6 PPB

01 Hour Averages



— LICA35 NO_x PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Elk Point Airport Site - AUGUST 2015
 JOB # 2833-2015-08-35-C

NITRIC OXIDE 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	RDGS.				
1	1.0	0.7	1.2	5.5	12.1	45.6	46.2	18.2	1.2	0.9	0.7	0.7	0.9	0.9	0.6	0.7	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	28.8	46.2	7.4	24	
2	38.7	37.9	41.9	75.3	60.0	35.1	28.2	33.1	21.5	1.2	1.0	1.1	0.8	1.0	0.8	1.0	0.4	0.9	0.5	0.7	1.0	1.0	1.0	1.0	1.0	1.8	75.3	16.8	24	
3	0.8	4.0	1.2	1.1	2.5	10.0	8.6	2.4	1.9	1.5	0.9	0.7	0.6	0.8	0.5	0.8	0.6	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6	10.0	1.9	24	
4	0.4	0.6	0.6	0.4	0.6	1.6	1.2	1.1	1.3	1.4	1.8	0.7	0.8	1.0	0.8	0.3	0.9	0.6	0.9	0.8	1.3	1.3	1.3	1.3	1.3	1.4	1.8	1.0	24	
5	0.9	0.8	0.9	0.8	0.9	0.9	0.9	1.1	0.9	1.1	1.7	1.5	1.3	4.6	1.8	4.6	1.1	1.2	1.0	1.8	2.4	2.7	2.2	3.1	4.6	1.7	24	24		
6	2.1	1.9	1.6	1.3	1.0	1.4	2.0	2.7	2.3	1.1	1.1	1.1	1.0	1.0	1.0	1.6	1.2	1.0	0.6	0.5	0.8	0.6	0.9	2.7	1.3	24	24	24		
7	0.8	0.7	0.4	2.5	2.1	1.0	0.8	1.7	1.7	0.6	0.4	0.7	0.8	0.8	0.5	0.5	0.7	0.7	1.4	5.3	2.0	2.5	3.8	5.3	1.4	24	24	24		
8	4.8	18.5	15.9	30.1	37.9	34.8	24.0	16.7	15.2	3.7	3.5	1.2	0.5	0.4	0.8	0.8	2.0	1.3	1.0	1.5	1.1	1.0	1.2	1.0	1.0	37.9	9.5	24	24	
9	1.3	1.2	1.1	0.8	2.6	5.3	2.6	2.2	1.3	1.0	1.1	0.9	1.1	0.8	0.8	0.8	0.9	0.6	0.5	0.3	0.7	0.3	0.9	0.5	0.8	5.3	1.3	24	24	
10	1.9	4.3	0.9	0.6	0.6	0.9	4.6	1.0	0.8	0.5	0.3	0.3	0.3	1.2	0.9	0.4	0.6	0.7	0.9	1.1	1.4	1.5	1.8	4.6	1.2	24	24	24		
11	1.8	1.7	1.2	1.8	3.1	15.4	12.3	13.6	4.6	1.2	1.0	0.7	0.7	0.9	0.7	0.8	0.6	0.7	0.8	1.5	1.4	1.4	0.7	2.8	15.4	3.1	24	24	24	
12	2.3	3.7	5.0	0.8	0.9	6.7	8.1	1.6	0.8	1.2	0.8	1.2	0.8	1.2	1.1	0.8	0.7	0.8	0.9	0.9	2.4	2.5	2.4	43.2	43.2	3.9	24	24	24	
13	30.5	34.4	34.4	28.7	29.0	21.1	17.9	7.0	3.2	2.2	2.2	1.1	0.9	0.8	0.7	0.5	0.9	0.6	1.8	0.9	0.5	0.5	0.6	0.9	34.4	9.5	24	24	24	
14	0.9	0.7	0.7	1.2	2.2	1.6	1.2	2.2	1.6	1.2	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.6	0.6	1.5	1.4	0.8	0.8	1.1	239.9	11.5	24	24	
15	0.9	1.1	1.1	1.2	1.0	1.0	1.1	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.7	1.7	1.4	1.8	1.6	1.5	1.2	1.1	17.5	2.4	24	24	24	
16	1.4	1.5	1.7	2.1	1.8	2.5	2.1	2.1	1.2	1.3	1.2	1.2	1.1	1.2	1.4	1.0	1.5	1.5	2.0	1.6	2.0	2.9	2.0	12.7	12.7	2.2	24	24	24	
17	22.4	25.6	26.5	50.3	40.2	25.8	5	11.3	5.1	3.0	0.8	0.6	0.7	0.8	0.9	0.7	0.8	1.7	2.2	2.3	1.0	1.0	2.1	1.8	50.3	9.9	24	24	24	
18	2.9	2.1	2.4	2.4	2.2	5	5.5	2.6	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	5.5	2.8	24	24	
19	9.3	10.6	3.1	1.3	5	5.1	3.4	2.5	1.5	2.2	2.0	1.3	1.0	1.1	0.8	0.9	0.9	0.9	0.9	1.0	1.9	1.6	2.7	4.4	10.6	2.6	24	24	24	
20	32.9	40.0	22.8	5	69.4	38.2	36.5	6.7	2.6	2.5	1.9	1.2	1.2	1.2	1.2	1.2	1.1	1.0	1.2	1.2	1.1	1.4	1.5	1.3	69.4	11.7	24	24	24	
21	2.3	2.6	5	10.1	2.4	2.3	3.4	2.1	1.6	1.5	1.4	1.3	1.5	1.7	1.5	1.5	1.3	1.4	1.4	1.7	2.1	1.7	1.5	2.0	10.1	2.2	24	24	24	
22	3.0	5	38.3	33.8	31.9	20.9	29.3	27.0	20.8	16.3	8.6	1.7	0.5	0.5	0.4	0.3	0.7	0.7	0.5	0.8	2.7	4.5	8.9	0.7	5	38.3	11.4	24	24	24
23	3.6	1.6	1.3	2.3	1.6	1.9	2.7	2.1	1.7	1.4	1.3	1.2	0.8	0.8	0.8	0.7	1.0	0.7	0.7	1.2	1.8	1.5	1.5	5.2	5.2	1.6	24	24	24	
24	7.7	3.2	2.4	2.3	4.2	6.0	5.8	4.7	3.0	1.8	1.7	1.0	1.0	1.1	1.1	0.9	1.1	1.3	1.1	0.9	1.2	1.0	1.0	1.0	7.7	2.5	24	24	24	
25	6.4	3.3	2.0	4.5	2.9	5.5	32.5	11.5	3.4	1.4	1.9	1.5	1.2	1.5	0.8	0.9	1.1	1.1	1.4	10.4	8.3	11.5	9.2	32.5	5.4	24	24	24		
26	4.4	3.8	3.7	8.7	14.2	24.4	31.1	31.8	26.9	18.3	7.3	4.7	1.2	1.2	1.2	1.0	1.3	1.1	1.5	1.5	1.2	0.6	0.9	1.2	31.8	8.3	24	24	24	
27	1.7	1.3	3.3	0.6	1.1	3.0	22.9	23.1	1.9	1.6	1.2	0.7	1.1	0.8	0.8	0.8	1.2	1.2	1.2	1.2	1.1	1.0	1.1	23.1	3.2	24	24	24		
28	2.9	3.9	11.4	13.8	1.6	1.0	1.5	5	1.4	2.5	2.3	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	13.8	2.8	24	24	24	
29	0.6	0.8	0.9	0.8	1.0	2.9	9.3	3.6	2.5	1.6	0.8	0.5	0.8	0.7	0.7	0.9	0.9	1.2	0.9	0.6	0.9	1.7	1.9	0.9	9.3	1.6	24	24	24	
30	1.0	1.7	2.0	0.8	1.5	5.4	5	2.2	1.1	1.0	0.8	1.1	0.9	0.6	0.6	0.6	1.0	0.8	2.3	2.5	1.1	1.0	1.0	1.0	5.4	1.5	24	24	24	
31	38.7	40.0	41.9	75.3	69.4	45.6	46.2	239.9	26.9	18.3	7.3	4.7	1.7	4.6	3.1	4.6	2.0	1.7	2.3	10.4	5.3	8.9	11.5	43.2	43.2	5.6	7.4	24	24	24
HOURLY MAX	6.4	8.4	7.6	9.5	10.8	11.3	11.9	16.7	4.6	2.9	1.7	1.2	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.6	1.7	2.0	2.0	2.0	2.0	5.6	7.4	24	24	24
HOURLY AVG	6.4	8.4	7.6	9.5	10.8	11.3	11.9	16.7	4.6	2.9	1.7	1.2	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.6	1.7	2.0	2.0	2.0	2.0	5.6	7.4	24	24	24

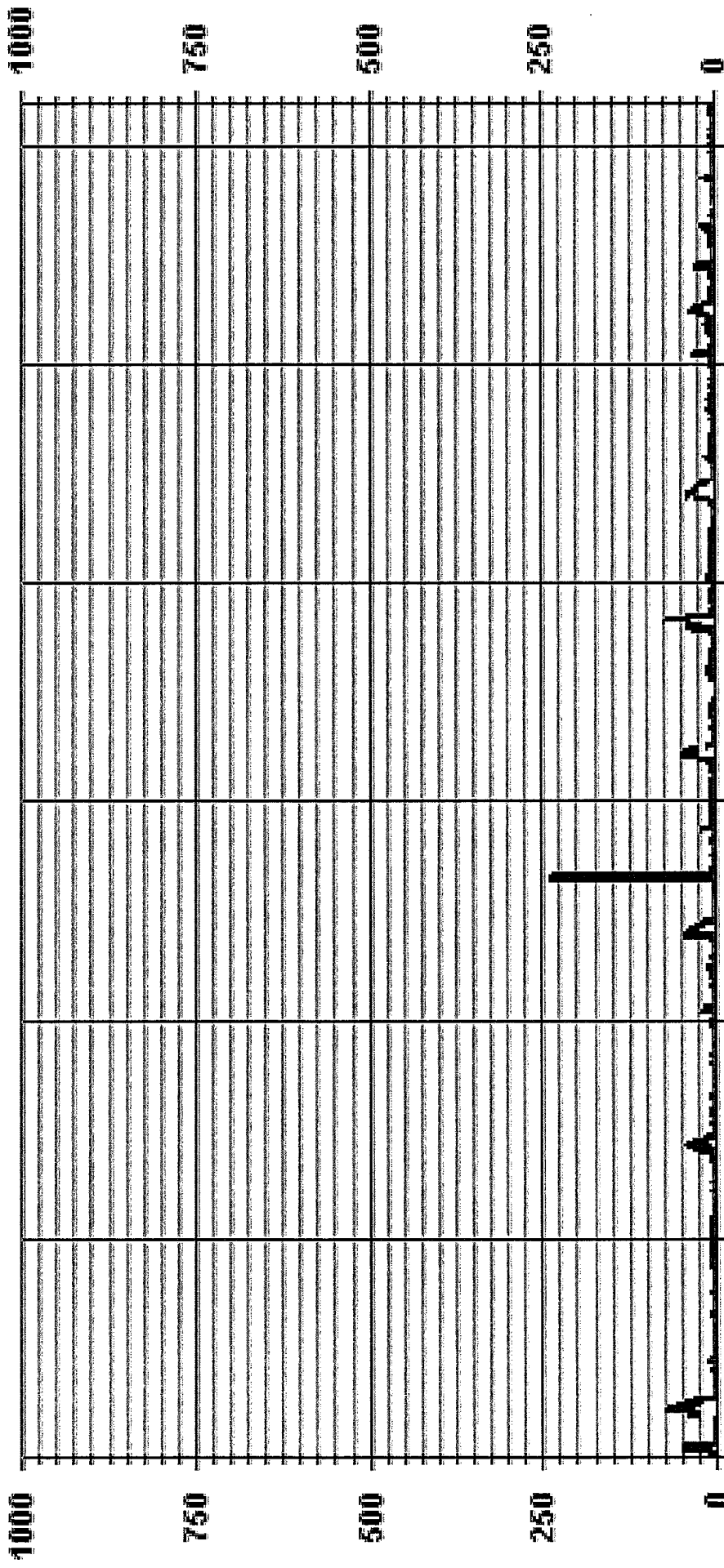
STATUS FLAG CODES

C	- CALIBRATION	O	- QUALITY ASSURANCE
Y	- MAINTENANCE	R	- RECOVERY
S	- DAILY ZERO/SPAN CHECK	X	- MACHINE/VALVE/NOCTON
P	- POWER FAILURE	O	- OPERATOR ERROR
G	- OUTFOR REPAIR	K	- COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	693
MAXIMUM INSTANTANEOUS VALUE:	239.9 PPB @ HOUR(S) 7 ON DAY(S) 14
12S CALIBRATION TIME:	38 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION:	12.78
OPERATIONAL TIME:	744 HRS
VAR-VARIOUS	

01 Hour Averages



— LICA35 NOMAX PPB

LICA-ELK
 NO_ / WDR Joint Frequency Distribution (Percent)
 August 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	2.58	2.58	3.88	4.02	8.63	9.20	6.18	4.02	3.88	2.30	4.02	5.03	10.07	14.38	15.82	3.16	99.85
< 110.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.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	2.58	2.58	3.88	4.02	8.63	9.20	6.18	4.02	3.88	2.30	4.02	5.03	10.07	14.53	15.82	3.16	

Calm : .00 %

Total # Operational Hours : 695

Distribution By Samples

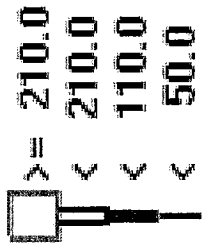
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50.0	18	18	27	28	60	64	43	28	27	16	28	35	70	100	110	22	694
< 110.0														1			1
< 210.0																	
>= 210.0																	
Totals	18	18	27	28	60	64	43	28	27	16	28	35	70	101	110	22	

Calm : .00 %

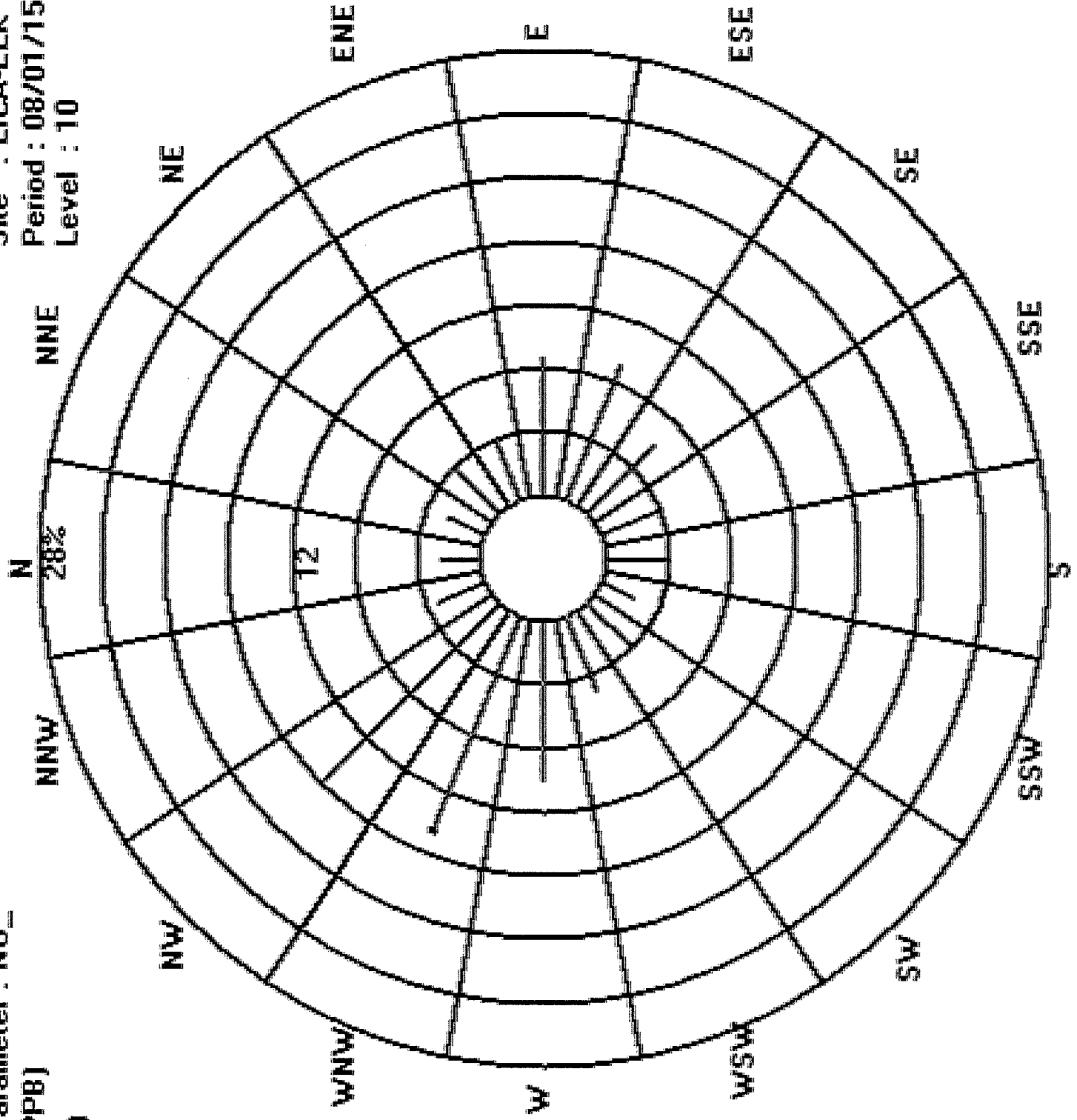
Total # Operational Hours : 695

Logger : 35 Parameter : NO_

Class Limits (PPB)



Site : LICA-ELK
Period : 08/01/15-08/31/15
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	DAILY MAX	24-HOUR AVG	ROGS	
1	3.7	3.5	5.2	13.5	16.0	13.4	16.3	12.3	5.9	3.0	1.8	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.6	2.1	6.0	\$	15.3	16.3	5.7	24	
2	15.1	12.7	10.6	10.0	8.5	8.9	7.7	9.3	11.0	5.1	3.2	1.9	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.8	6.2	\$	9.1	11.3	15.1	6.1	24	
3	10.1	11.8	11.0	10.4	10.4	9.6	8.5	7.7	7.1	4.6	3.3	2.6	2.4	2.0	2.3	2.1	2.5	2.6	2.4	2.1	\$	3.6	3.2	3.5	11.8	5.5	24	
4	2.9	3.3	3.1	2.7	3.5	5.2	5.2	5.2	4.7	4.5	4.9	2.7	2.3	2.2	2.0	1.6	1.8	1.4	2.3	\$	1.2	1.4	1.3	1.4	5.2	2.9	24	
5	1.4	1.2	1.2	1.2	1.5	1.6	1.5	1.5	1.5	2.2	2.1	2.0	3.6	3.3	3.5	2.2	2.7	\$	3.0	3.4	4.1	3.2	4.7	4.7	2.4	24		
6	5.8	5.5	4.8	3.8	2.8	3.5	4.4	4.1	3.4	1.9	1.8	1.7	1.6	1.7	1.6	1.7	2.0	\$	1.6	1.6	1.5	1.8	2.2	2.4	5.8	2.8	24	
7	2.5	2.6	2.4	4.4	4.7	3.0	2.4	3.7	3.0	1.5	1.7	2.1	1.9	1.6	1.6	1.6	1.6	\$	1.4	1.9	3.0	8.0	6.0	6.2	8.0	3.2	24	
8	5.1	4.9	4.6	4.9	4.6	3.7	5.2	6.2	6.7	5.7	6.1	5.0	3.2	2.8	3.6	\$	3.9	3.3	2.0	4.4	6.0	8.4	5.1	3.5	8.4	4.7	24	
9	7.6	7.8	9.4	12.1	14.0	15.2	10.0	7.2	5.0	3.4	2.9	2.6	2.4	2.3	\$	1.9	1.8	1.8	2.0	2.6	3.1	4.6	7.1	8.0	15.2	5.9	24	
10	7.6	10.7	7.7	3.1	3.3	6.1	10.6	6.7	6.1	3.7	2.3	1.8	1.5	\$	1.6	2.0	2.0	1.9	2.1	3.3	8.3	10.5	12.7	12.3	12.7	5.6	24	
11	12.6	13.4	10.6	10.4	9.6	10.6	9.9	11.7	12.0	7.4	3.6	2.8	\$	2.5	2.3	2.2	2.0	2.0	2.4	5.7	9.7	11.9	10.5	8.7	13.4	7.6	24	
12	9.6	9.6	9.8	3.8	4.7	8.2	12.7	8.5	4.3	3.9	2.2	\$	1.9	2.5	1.5	1.4	2.3	2.8	3.4	3.1	6.0	7.6	7.7	13.2	5.7	24		
13	13.2	13.1	12.6	10.1	9.7	8.0	8.3	11.5	11.6	8.6	\$	4.5	4.6	4.8	4.5	5.4	5.4	4.5	13.4	6.6	7.0	7.9	6.6	6.7	13.4	8.2	24	
14	5.5	4.5	4.9	8.1	11.8	11.7	9.2	31.8	4.8	\$	4.0	3.6	3.2	3.0	2.9	2.6	2.5	3.2	4.1	7.3	8.9	8.4	3.8	4.4	31.8	6.7	24	
15	6.3	6.4	4.6	4.7	4.5	3.9	3.5	3.8	\$	6.3	5.5	5.9	4.8	5.1	4.5	3.9	3.9	4.3	4.1	4.6	5.2	4.5	4.3	4.3	6.4	4.7	24	
16	4.8	4.7	5.5	5.2	5.3	6.7	5.3	\$	3.2	2.9	3.0	3.2	2.4	2.8	2.0	1.8	2.8	5.5	5.9	6.8	9.3	12.4	9.9	12.6	12.6	5.4	24	
17	11.9	10.2	8.9	9.0	9.7	8.7	\$	7.9	8.2	6.2	4.3	2.8	2.9	2.9	5.7	5.8	5.6	10.4	13.5	13.6	7.8	11.2	14.7	11.6	14.7	8.4	24	
18	15.1	16.3	18.5	12.9	12.9	\$	12.1	6.0	5.0	C	C	C	C	C	C	C	C	C	C	7.3	\$	16.3	16.2	14.6	18.5	12.8	24	
19	14.5	12.3	15.4	14.9	\$	13.0	11.6	9.8	9.1	9.2	9.1	6.8	5.1	5.6	4.9	4.6	4.6	3.6	3.8	6.5	12.7	12.7	14.0	14.1	15.4	9.5	24	
20	14.0	15.0	14.9	\$	11.5	12.8	12.5	10.5	8.9	7.0	6.1	4.9	4.6	4.7	4.8	4.7	4.8	5.0	5.0	4.7	5.5	5.8	7.1	7.8	15.0	7.9	24	
21	8.2	11.6	\$	15.6	9.6	9.4	7.7	6.2	5.0	4.7	4.3	3.7	3.7	3.7	4.6	4.3	3.9	3.6	4.0	4.7	5.0	6.8	6.1	6.2	7.2	15.6	6.4	24
22	9.1	\$	7.9	8.1	10.7	11.5	9.4	6.5	4.1	3.9	3.9	3.7	3.7	3.6	3.8	4.0	4.1	4.4	8.9	13.8	12.9	16.4	16.6	16.6	7.6	24		
23	15.5	14.4	12.7	11.4	10.9	11.4	11.1	12.0	12.1	6.6	4.9	5.0	4.6	4.4	4.6	5.0	5.0	8.0	14.6	20.0	18.8	14.1	\$	20.0	10.3	24		
24	15.3	11.6	11.5	12.7	12.2	12.7	9.8	7.1	6.1	5.5	5.0	5.2	5.0	4.4	4.1	4.5	5.4	6.4	9.8	12.2	9.8	\$	11.6	15.3	8.7	24		
25	11.9	9.7	9.7	9.5	9.3	9.8	8.2	6.8	6.1	5.2	5.0	3.6	3.6	3.2	3.0	2.8	3.1	3.5	3.2	4.0	5.6	\$	7.4	9.5	11.9	6.2	24	
26	11.7	13.9	9.2	9.0	8.4	10.7	11.6	7.2	6.6	5.5	7.3	6.6	4.1	4.2	3.9	4.3	4.5	5.0	8.7	16.8	\$	17.2	16.8	13.9	17.2	9.0	24	
27	12.0	11.7	11.4	11.7	12.0	12.7	12.5	11.4	12.0	15.8	13.7	8.3	4.0	3.7	3.5	3.8	3.6	4.3	7.8	\$	9.0	8.6	12.6	17.5	17.5	9.7	24	
28	15.8	17.1	10.5	7.3	10.5	13.6	24.4	20.4	11.6	9.8	8.7	7.1	7.4	6.9	7.1	9.8	11.2	\$	10.8	12.5	11.3	13.1	13.0	24.4	11.5	24		
29	15.7	17.7	20.0	21.1	13.3	12.1	11.5	\$	6.3	7.0	7.9	3.8	C	C	C	C	\$	4.1	4.7	5.7	4.4	5.6	7.8	21.1	9.5	24		
30	5.6	6.0	7.5	7.4	12.3	10.8	12.1	10.2	9.1	7.7	5.1	4.8	3.6	3.3	3.2	4.0	\$	3.9	9.1	3.4	3.4	11.1	13.4	9.9	13.4	7.3	24	
31	10.6	13.9	14.9	9.6	10.2	15.4	17.1	\$	7.4	6.3	5.0	4.1	2.9	2.6	2.6	\$	2.4	3.0	11.9	20.4	10.1	8.6	11.0	9.4	20.4	9.1	24	
HOURLY MAX	15.7	17.7	20.0	21.1	16.0	15.4	24.4	31.8	12.0	15.8	13.7	8.3	7.4	6.9	7.6	7.1	9.8	11.2	13.5	20.4	20.0	18.8	16.8	17.5				
HOURLY AVG	9	10	9	9	9	9	10	9	7	6	5	4	3	3	3	3	3	4	5	6	8	9	9	9				

ALBERTA ENVIRONMENT: 159-159-PPB

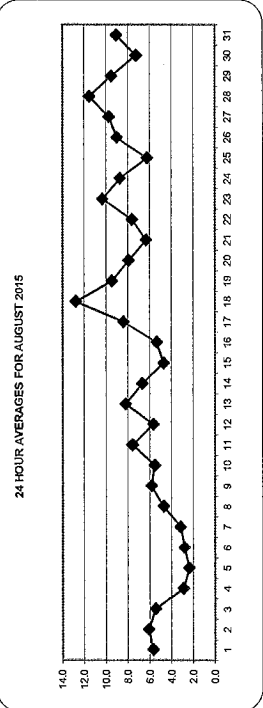
OBJECTIVE LIMIT:

STATUS FLAG CODES

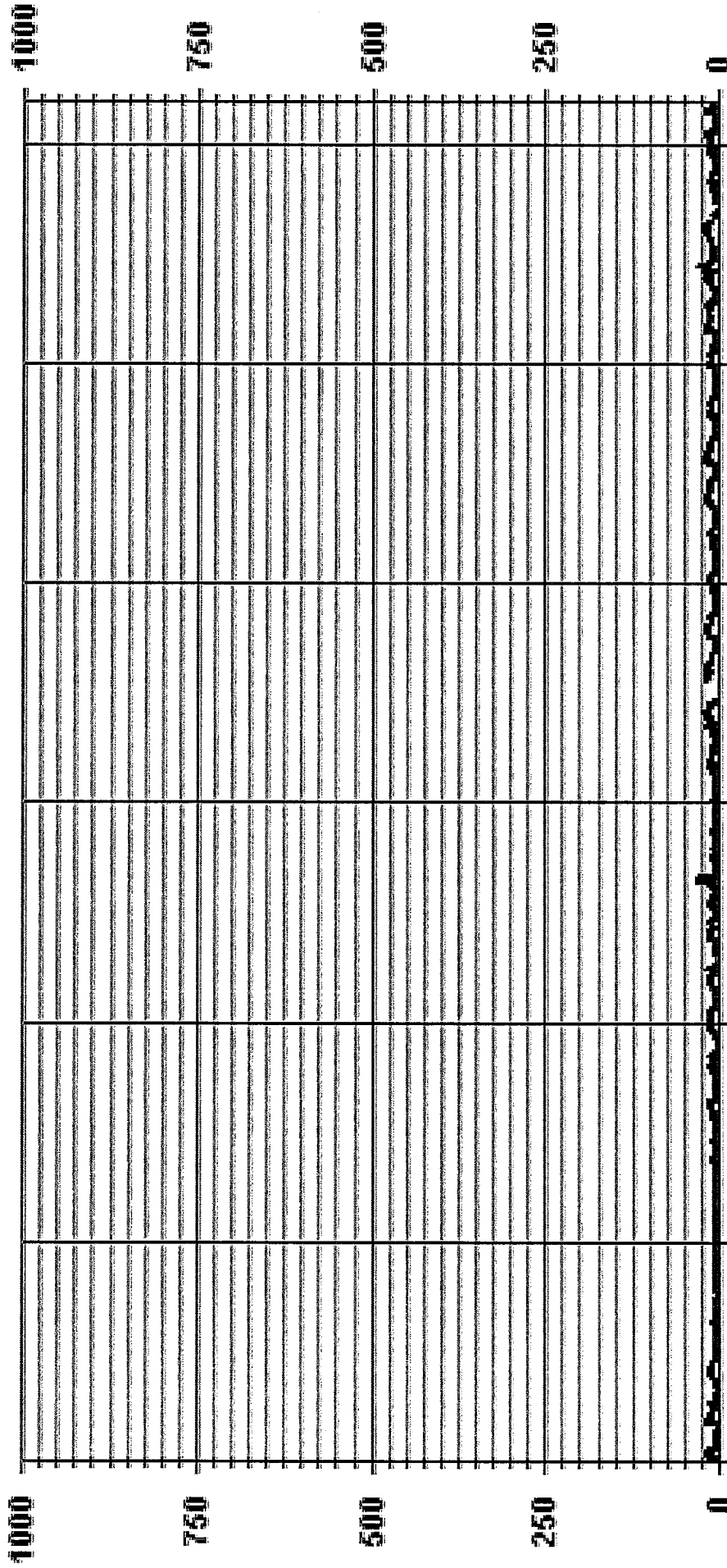
- C - CALIBRATION
- Y - MAINTENANCE
- S - DAILY ZERO/SPEAN CHECK
- P - POWER FAILURE
- G - OUT FOR REPAIR
- Q - QUALITY ASSURANCE
- R - RECOVERY
- X - MACHINE MALFUNCTION
- O - OPERATOR ERROR
- K - COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	695
MAXIMUM 1-HR AVERAGE:	31.8 PPB @ HOUR(5)
MAXIMUM 24-HR AVERAGE:	12.8 PPB
ONS CALIBRATION TIME:	37 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION:	4.44
OPERATIONAL TIME:	744 HRS
AMD OPERATIONAL UPTIME:	100.0 %
MONTHLY AVERAGE:	6.9 PPB
ON DAY(S)	14
VAR- VARIOUS	18

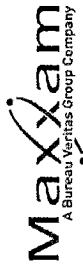


01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 NO2_ PPB



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Elk Point Airport Site - AUGUST 2015
 JOB # 2833-2015-08-35-C

NITROGEN DIOXIDE 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				24:00		
1	4.7	4.6	8.8	17.7	17.5	16.6	17.7	16.1	8.2	3.9	2.3	2.4	2.0	1.9	2.0	2.0	2.0	1.9	1.8	2.0	4.4	7.7	5	18.9	18.9	7.3	24			
2	16.4	15.5	12.2	12.1	10.5	17.7	9.6	11.5	14.0	7.8	5.2	3.2	2.6	2.4	2.0	2.0	1.8	1.8	1.7	2.0	5.7	8.7	\$	11.3	13.5	17.7	8.2	24		
3	11.5	14.4	11.4	11.4	11.1	11.1	9.5	8.3	8.4	6.0	4.1	3.2	2.9	2.4	3.1	2.8	3.1	3.8	3.6	2.5	\$	5.0	4.5	4.4	14.4	6.5	24	4.4		
4	3.9	4.2	4.5	3.8	4.6	7.5	6.3	6.9	6.2	7.1	7.4	3.3	3.1	2.8	2.6	2.5	2.4	2.1	3.0	\$	1.9	2.0	1.8	1.9	7.5	4.0	24	4.0		
5	2.2	1.6	1.7	1.6	2.2	2.1	2.0	2.2	2.3	2.1	3.5	3.1	3.3	3.1	3.3	5.7	5.0	6.3	2.8	\$	4.1	5.2	5.8	4.3	6.2	6.3	24	3.4		
6	6.8	6.8	5.6	5.0	3.5	4.3	5.1	4.8	4.1	2.7	2.3	2.6	2.4	2.2	2.2	3.5	2.6	\$	2.4	2.5	2.2	3.3	3.0	3.5	6.8	3.6	24	3.6		
7	3.4	3.5	3.5	3.5	6.8	6.3	4.0	3.3	5.2	4.3	2.3	2.5	2.8	3.0	2.7	2.5	2.6	5	2.0	2.2	5.7	11.5	7.5	7.3	6.0	11.5	4.4	24	4.4	
8	5.7	5.8	5.4	5.6	5.3	4.9	5.7	8.3	8.0	6.4	7.4	7.3	4.1	3.4	4.6	\$	5.9	5.3	2.7	7.3	8.0	10.4	7.3	5.0	10.4	6.1	24	6.1		
9	9.3	10.3	11.4	15.2	16.3	18.0	13.8	9.2	6.6	4.3	3.8	3.6	3.4	3.1	\$	2.5	2.7	2.5	2.7	3.6	4.2	6.4	8.6	9.3	18.0	7.4	24	7.4		
10	8.6	11.9	11.6	4.4	5.7	7.3	13.0	9.8	7.5	5.9	3.2	3.0	2.5	\$	2.0	2.4	2.5	2.4	2.5	6.7	11.5	13.5	14.2	14.2	14.2	14.2	7.2	24	7.2	
11	14.7	15.0	11.9	11.2	10.5	12.5	13.0	14.8	9.1	4.8	3.3	\$	3.2	3.0	2.8	2.8	2.6	3.2	9.2	12.9	14.3	12.8	10.4	15.6	9.3	24	9.3	24	9.3	
12	10.7	10.4	14.2	5.3	5.6	12.2	14.1	12.2	6.1	6.8	3.0	\$	5.3	7.1	7.2	4.8	6.2	7.7	5.2	24.1	13.8	8.7	10.3	9.0	8.8	24.1	10.6	24	10.6	
13	16.0	14.6	15.1	11.8	11.1	9.8	10.1	13.0	10.8	\$	5.3	7.1	7.2	4.8	6.2	7.7	5.2	24.1	13.8	8.7	10.3	9.0	8.8	24.1	10.6	24	10.6	24	10.6	
14	6.1	5.1	5.3	9.3	9.3	17.7	16.5	10.8	13.4	14.3	\$	4.8	4.2	3.6	3.7	3.5	3.2	3.1	4.3	4.6	12.2	13.2	10.7	4.4	5.7	13.4	12.9	24	12.9	
15	6.9	7.5	5.8	5.4	4.8	4.2	3.8	4.3	\$	14.4	10.6	7.3	5.9	6.2	5.5	4.4	4.7	5.0	4.7	6.2	6.0	5.6	5.3	5.0	14.4	6.1	24	6.1	24	
16	5.5	5.5	6.3	6.2	7.6	7.8	7.0	\$	4.1	3.1	3.8	3.9	3.5	4.2	3.7	3.4	5.2	6.8	8.7	8.4	11.4	13.8	12.8	14.5	14.5	6.8	24	6.8	24	
17	14.1	11.3	9.7	10.0	12.0	11.1	\$	9.7	9.3	8.7	5.8	3.7	4.0	5.5	6.6	6.7	6.5	15.1	17.4	19.7	8.9	14.9	16.8	15.6	19.7	10.6	24	10.6	24	
18	20.6	19.7	20.4	17.4	13.9	\$	13.9	10.4	6.9	8.7	5.8	3.7	4.0	5.5	6.6	6.7	6.5	15.1	17.4	19.7	8.9	14.9	16.8	15.6	19.7	10.6	24	10.6	24	
19	15.1	13.4	17.0	15.9	\$	15.7	13.5	12.4	10.1	12.1	11.8	7.8	6.2	8.0	6.8	6.2	5.7	5.1	4.9	10.1	18.4	17.8	16.8	15.7	18.4	11.6	24	11.6	24	
20	15.8	16.1	16.7	\$	14.2	14.3	14.1	12.3	10.8	9.1	9.1	6.2	5.5	5.5	5.5	5.6	5.3	5.3	5.6	5.6	6.1	6.3	7.1	7.8	8.6	16.7	9.3	24	9.3	
21	14.4	14.6	\$	17.7	11.8	12.5	10.9	8.7	5.9	5.8	5.4	5.0	4.7	10.9	9.0	5.1	4.8	5.4	6.1	6.6	10.2	7.2	7.5	9.4	17.7	8.7	24	8.7	24	
22	11.9	\$	9.1	9.3	12.9	14.1	11.4	8.6	5.7	5.0	4.9	4.8	4.9	4.8	4.6	4.8	5.4	5.3	6.0	12.2	16.2	15.7	18.3	20.6	20.6	9.4	24	9.4	24	
23	\$	17.0	16.7	14.3	12.4	12.9	12.8	12.7	13.9	13.9	11.1	6.2	5.9	5.7	5.9	6.3	6.2	6.3	11.6	17.2	23.5	23.3	17.1	\$	23.5	12.4	24	12.4	24	
24	17.5	13.4	13.1	14.2	14.4	14.6	15.2	10.7	8.9	7.3	7.0	6.0	5.9	6.0	5.6	5.0	5.4	6.7	9.0	12.8	15.0	11.5	\$	15.6	17.5	10.5	24	10.5	24	
25	15.3	11.4	10.6	11.0	10.6	11.3	9.4	8.2	7.2	6.4	6.8	4.5	4.6	4.1	3.7	3.5	4.0	4.3	4.3	5.5	7.3	\$	8.7	11.8	15.3	7.6	24	7.6	24	
26	15.8	16.9	10.6	11.5	10.7	12.8	13.6	10.1	8.6	6.9	8.5	8.3	6.0	6.4	4.8	5.2	5.5	6.6	10.2	23.9	\$	18.6	18.5	16.3	23.9	11.1	24	11.1	24	
27	13.1	12.6	12.4	13.2	13.2	13.6	13.7	14.0	16.9	17.7	15.4	13.8	5.2	5.0	4.8	4.9	4.6	6.6	10.7	\$	12.2	11.1	14.1	20.2	20.2	11.7	24	11.7	24	
28	19.9	20.9	23.0	10.8	12.7	20.9	25.2	25.1	13.5	10.9	10.0	8.4	8.1	8.0	8.8	8.9	11.8	13.2	\$	12.7	17.5	16.2	13.9	13.8	25.2	14.5	24	14.5	24	
29	18.8	19.7	22.1	26.1	15.4	13.8	12.9	\$	7.2	11.5	12.4	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
30	8.6	6.7	10.5	8.5	14.0	13.2	15.3	11.7	11.1	9.6	6.0	5.6	4.7	3.8	4.2	6.0	\$	5.4	15.2	5.5	4.3	19.7	20.6	14.1	20.6	9.8	24	9.8	24	
31	14.2	17.3	18.5	14.3	12.8	20.2	\$	8.7	7.3	5.8	5.1	3.7	3.2	3.5	3.4	5.3	19.0	24.5	15.7	10.2	12.9	10.5	24.5	11.2	24	11.2	24	11.2	24	
HOURLY MAX	20.6	20.9	23.0	26.1	17.7	20.9	25.2	131.4	16.9	17.7	15.4	13.8	8.1	10.9	9.0	8.9	11.8	15.1	24.1	24.5	23.5	23.3	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6
HOURLY AVG	11.6	11.6	11.5	10.9	10.7	11.9	11.3	14.7	9.0	7.6	6.5	5.4	4.5	4.7	4.4	4.3	4.5	5.1	7.3	9.1	10.2	11.2	10.9	11.5	11.5	11.5	11.5	11.5	11.5	11.5

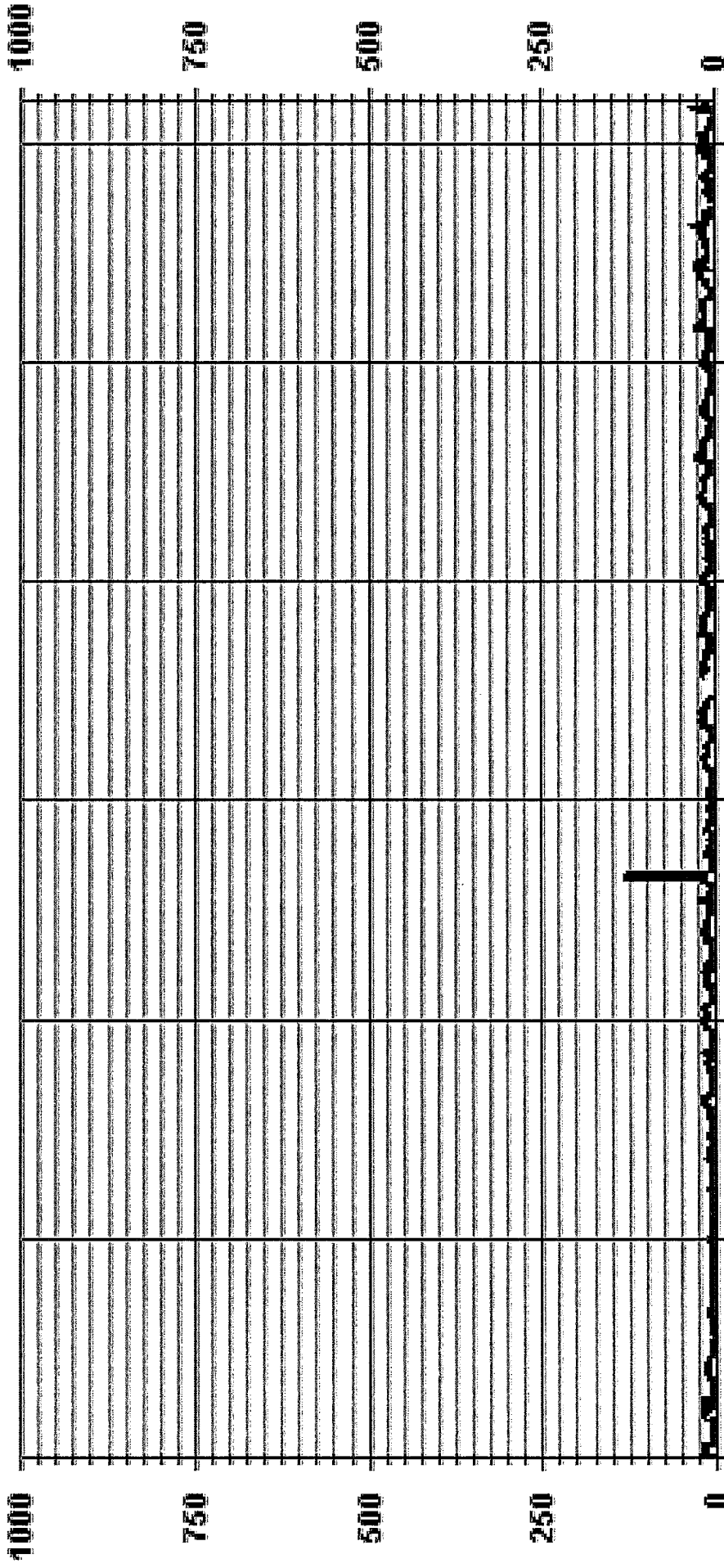
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	694
MAXIMUM INSTANTANEOUS VALUE:	131.4 PPB @ HOUR(S)
ON DAY(S)	7
OPERATIONAL TIME:	744 HRS
IZS CALIBRATION TIME:	38 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION:	6.95
VAR- VARIOUS	

01 Hour Averages



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

August 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																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 50.0	2.58	2.58	3.88	4.02	8.63	9.20	6.18	4.02	3.88	2.30	4.02	5.03	10.07	14.53	15.82	3.16	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	2.58	2.58	3.88	4.02	8.63	9.20	6.18	4.02	3.88	2.30	4.02	5.03	10.07	14.53	15.82	3.16		

Calm : .00 %

Total # Operational Hours : 695

Distribution By Samples

Limit	Direction																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 50.0	18	18	27	28	60	64	43	28	27	16	28	35	70	101	110	22	695	
< 110.0																		
< 210.0																		
>= 210.0																		
Totals	18	18	27	28	60	64	43	28	27	16	28	35	70	101	110	22		

Calm : .00 %

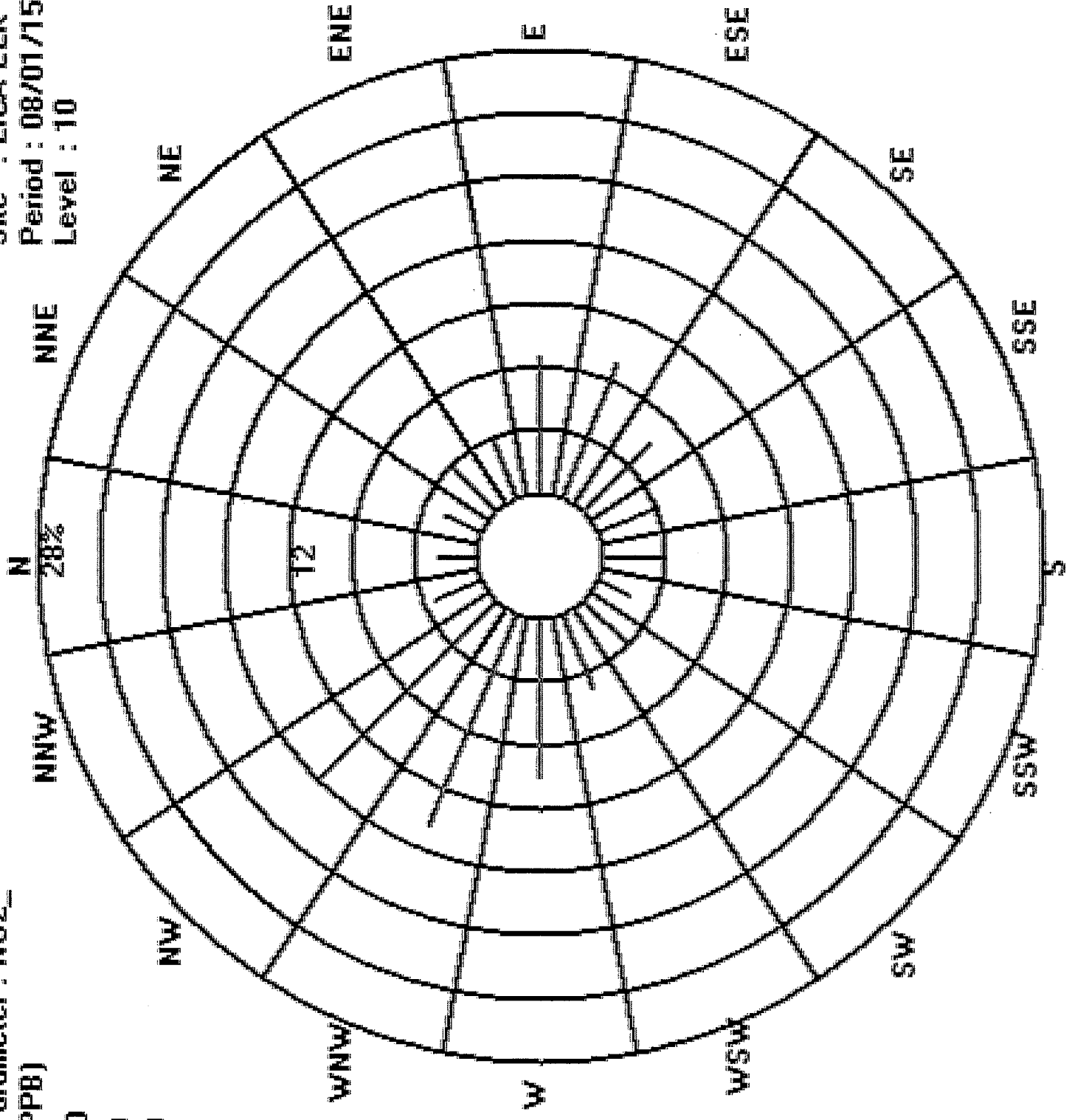
Total # Operational Hours : 695

Logger : 35 Parameter : NO2_

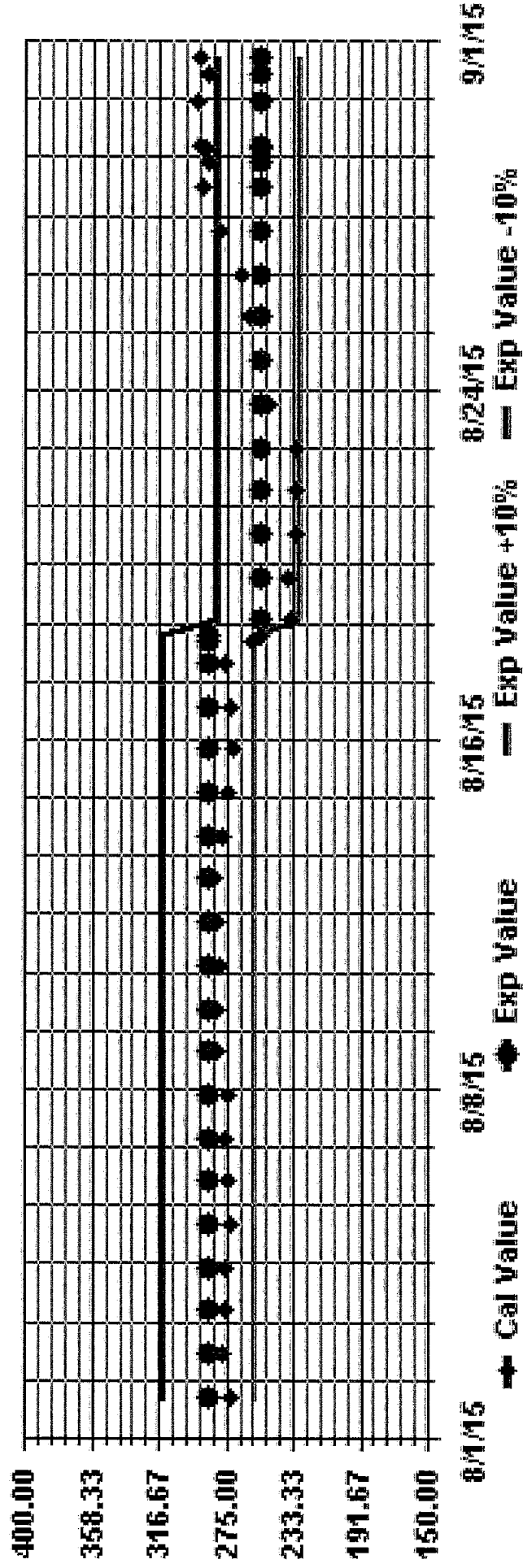
Class Limits (PPB)

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

Site : LICA-ELK
 Period : 08/01/15-08/31/15
 Level : 10



Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2_ Phase: SPAN



OZONE



OZONE (O3) 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	
HR 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	25:00	26:00	27:00	28:00	29:00	30:00	31:00
HR 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	25:00	26:00	27:00	28:00	29:00	30:00	31:00	
DAILY MAX	19	14	11	11	1	2	2	7	10	19	23	22	21	21	22	23	23	24	25	24	25	24	24	25	24	24	24	24	25	25	25	25
DAILY AVG	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4

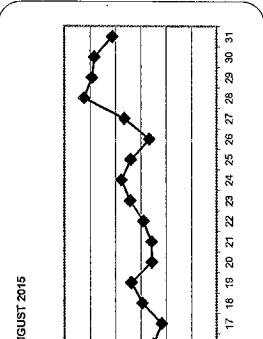
STATUS FLAG CODES

C	QUALITY ASSURANCE
Y	RECOVERY
S	MAINTENANCE
P	DAILY ZERO/SPIRAN CHECK
G	POWER FAILURE
	OUT-OF-REPAIR
	OPERATOR ERROR
	MACHINE MALFUNCTION
	COLLECTION ERROR

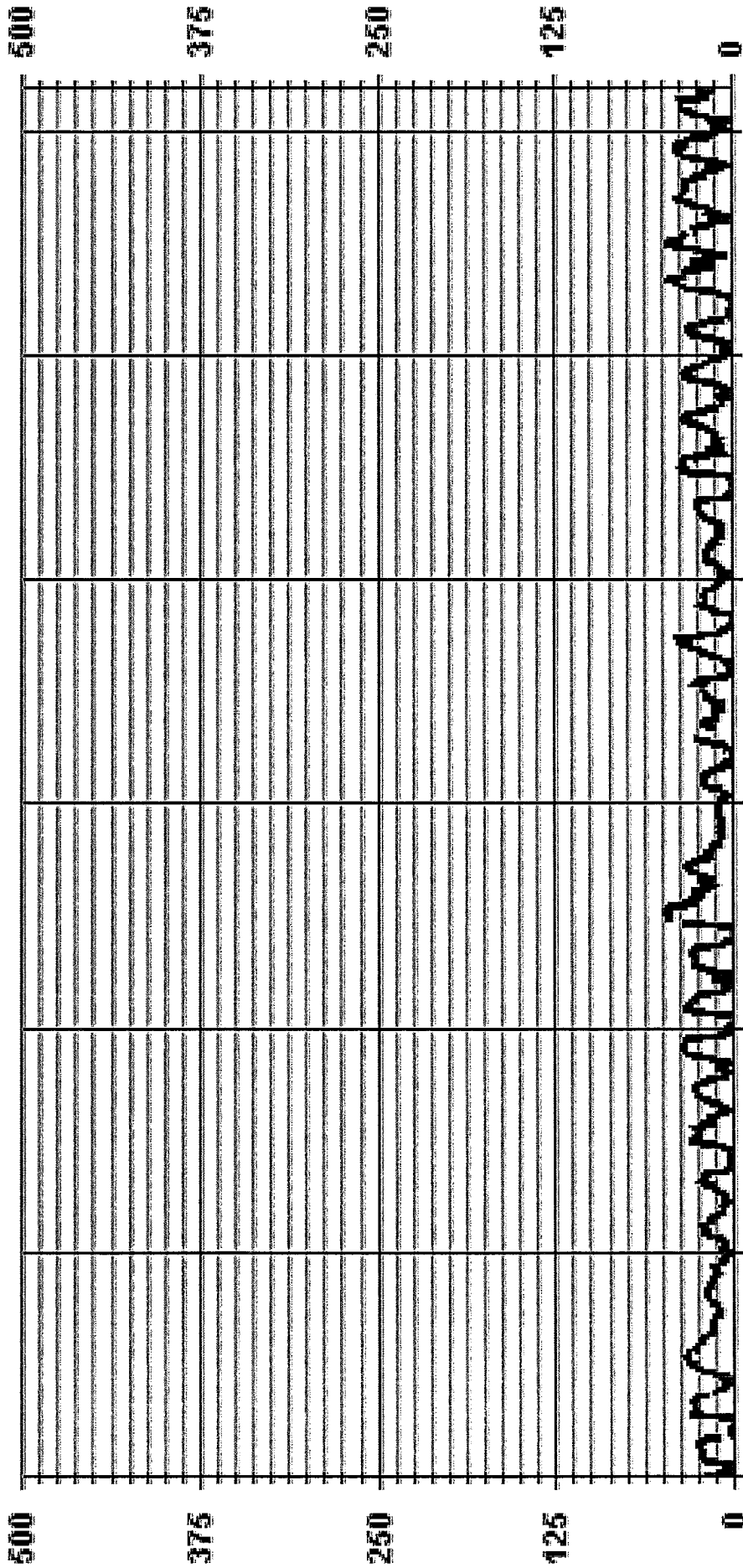
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR: 32 PPB

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681	ON DAYS:	13
MAXIMUM 1-HR AVERAGE:	48 PPB	ON DAYS:	28
MAXIMUM 24-HR AVERAGE:	26.1 PPB	VAR- VARIOUS	
ISZ CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	11.04	MONTHLY AVERAGE:	17 PPB

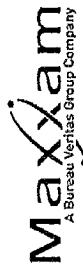


01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 03_ PPB



OZONE MAX instantaneous maximum in ppb

MST

DAY	OZONE MAX instantaneous maximum in ppb																								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	22	18	17	8	3	7	5	16	17	24	25	24	23	24	24	25	26	26	26	25	24	18	5	4	26	18.7	24			
2	3	3	2	1	1	3	2	5	23	29	35	35	32	32	31	31	32	32	32	31	23	5	18	10	35	19.4	24			
3	9	9	7	10	6	4	12	15	20	32	34	34	34	34	34	34	34	34	34	34	34	29	27	26	39	24.3	24			
4	26	24	23	23	22	20	16	15	16	16	15	12	12	12	11	11	11	11	11	11	14	14	16	17	26	16.6	24			
5	19	19	19	19	20	20	20	18	17	15	15	14	14	14	14	14	14	14	14	14	10	7	7	5	20	14.5	24			
6	6	8	7	9	9	10	7	9	17	20	21	21	23	22	26	23	20	20	20	20	17	19	15	14	8	26	14.8	24		
7	8	8	8	8	7	8	8	8	8	8	9	12	14	18	23	21	24	24	24	24	23	23	14	8	4	24	13.3	24		
8	2	1	1	2	1	2	2	4	4	9	21	32	37	37	32	32	26	27	27	27	26	18	16	22	37	17.0	24			
9	20	20	19	10	7	7	7	10	13	18	22	25	26	26	26	26	26	26	26	26	22	19	11	9	29	18.5	24			
10	8	4	11	12	12	6	9	16	19	25	31	33	35	35	35	35	35	35	35	35	29	16	10	5	6	36	20.1	24		
11	5	5	4	4	2	1	3	5	18	26	31	39	39	39	39	39	39	39	39	39	28	25	11	8	9	39	16.4	24		
12	2	2	2	17	19	12	7	9	16	23	27	29	29	29	29	29	29	29	29	29	26	17	12	9	32	20.0	24			
13	1	0	1	0	0	1	5	16	26	39	46	46	46	46	46	46	46	46	46	46	45	34	36	30	51	28.1	24			
14	24	31	30	24	19	23	21	20	23	23	22	26	31	33	33	33	33	33	33	33	29	26	20	19	20	19	33	25.7	24	
15	18	17	15	13	10	10	12	10	10	10	11	11	11	11	11	11	11	11	11	11	12	11	10	10	11	12	18	11.3	24	
16	11	10	9	8	6	7	5	16	20	22	23	23	23	22	22	22	22	22	22	22	18	19	17	10	3	23	14.6	24		
17	1	1	1	1	1	1	1	9	9	9	9	9	9	9	9	9	9	9	9	9	21	22	24	16	15	29	13.7	24		
18	17	15	11	13	11	11	9	17	18	21	21	21	21	21	21	21	21	21	21	21	29	24	16	9	7	31	17.9	24		
19	1	2	4	6	5	6	9	13	17	20	23	28	32	34	41	41	41	41	41	41	30	27	19	12	11	5	42	19.9	24	
20	4	1	1	1	1	1	5	16	15	21	25	27	24	21	20	21	21	21	21	21	20	17	15	13	11	27	14.9	24		
21	12	10	5	8	9	9	9	10	11	15	19	21	21	21	21	21	21	21	21	21	16	16	15	15	14	21	14.7	24		
22	10	5	10	10	9	8	10	15	18	20	22	23	23	23	24	26	25	26	25	26	22	22	11	6	3	1	26	16.2	24	
23	5	1	1	1	1	1	2	3	6	21	35	38	39	39	39	39	39	39	39	39	36	33	23	13	20	19	5	39	20.0	24
24	12	12	13	12	13	12	12	15	18	18	22	29	31	33	35	37	36	36	36	36	31	25	20	16	5	9	37	21.5	24	
25	10	11	7	8	5	4	5	12	17	25	28	32	34	35	36	37	32	28	26	18	5	18	15	37	19.5	24	24	24	24	24
26	12	8	9	9	9	7	3	6	17	18	19	25	29	31	33	32	31	29	20	17	5	4	4	5	33	16.4	24	24	24	24
27	4	2	2	2	1	1	1	2	4	10	15	30	37	37	39	42	47	48	40	5	35	35	26	20	48	20.9	24	24	24	24
28	29	20	37	33	26	25	6	20	24	30	39	43	47	46	44	38	40	36	5	31	31	31	21	19	47	31.1	24	24	24	24
29	9	7	2	14	18	20	19	22	26	31	35	41	45	43	41	37	36	5	35	33	34	34	30	27	45	27.8	24	24	24	24
30	26	25	24	22	18	10	9	11	22	29	37	42	43	43	43	41	40	5	41	38	34	33	26	19	43	28.3	24	24	24	24
31	17	10	12	18	16	11	9	20	24	31	37	35	37	36	38	38	39	39	36	22	27	24	21	20	39	25.2	24	24	24	24
HOURLY MAX	29	31	37	33	26	25	21	22	26	39	46	47	47	48	50	51	50	45	39	35	35	36	30							
HOURLY AVG	11.6	10.1	10.8	10.9	9.2	8.4	8.4	12.2	16.9	21.4	24.8	28.5	29.7	29.7	30.2	29.7	30.0	29.6	27.8	24.7	20.2	17.3	15.0	12.3						

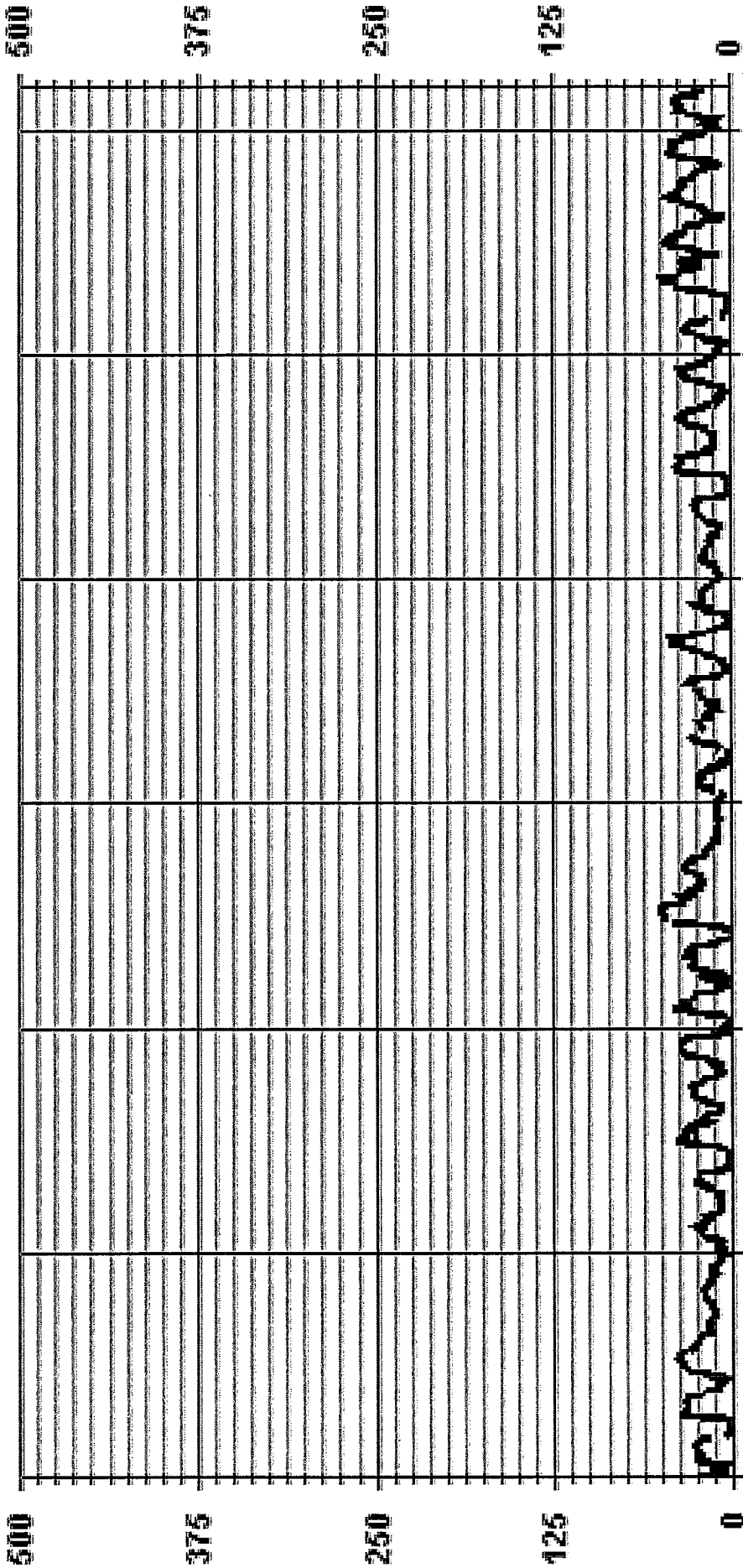
STATUS FLAG CODES

C	CALIBRATION	QUALITY ASSURANCE
Y	MAINTENANCE	RECOVERY
S	DATA ZERO/SF/AIR CHECK	MACHINE/MALFUNCTION
P	POWER FAILURE	OPERATOR ERROR
G	OUTFOR REPAIR	COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM INSTANTANEOUS VALUE:	51 PPB
OPERATIONAL TIME:	37 HRS
MONTHLY CALIBRATION TIME:	0 HRS
STANDARD DEVIATION:	11.56
ON DAY(S)	16
VAR-VARIOUS	VAR-VARIOUS
HRS	744

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 O3MAX PPB

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

August 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																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	2.54	2.54	3.81	3.96	8.48	9.05	6.36	4.10	3.67	2.12	3.67	5.09	10.04	15.41	15.98	3.11	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.54	2.54	3.81	3.96	8.48	9.05	6.36	4.10	3.67	2.12	3.67	5.09	10.04	15.41	15.98	3.11	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

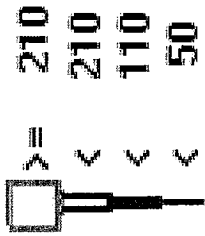
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 50	18	18	27	28	60	64	45	29	26	15	26	36	71	109	113	22	707
< 110																	
< 210																	
>= 210																	
Totals	18	18	27	28	60	64	45	29	26	15	26	36	71	109	113	22	

Calm : .00 %

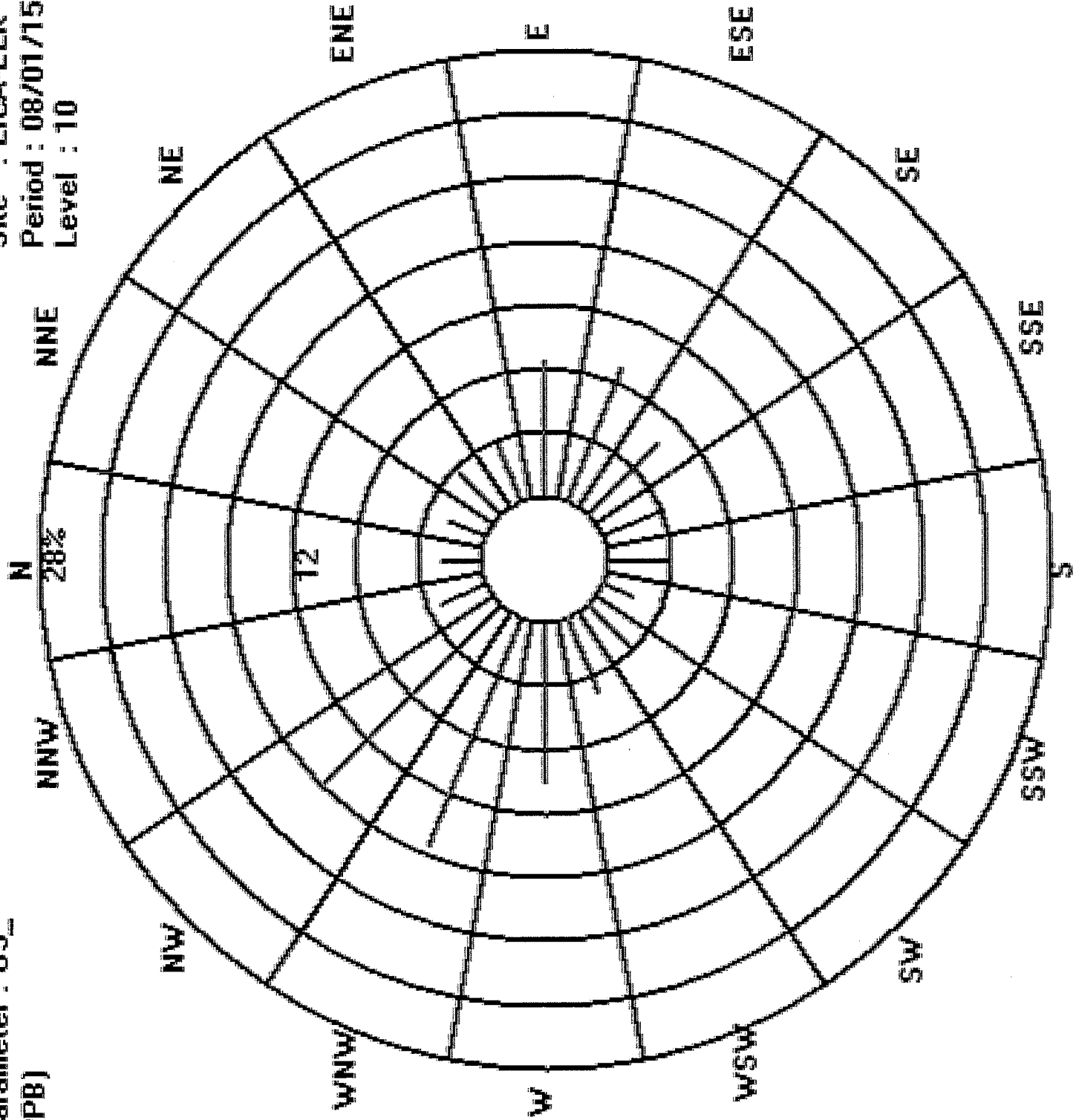
Total # Operational Hours : 707

Logger : 35 Parameter : 03_

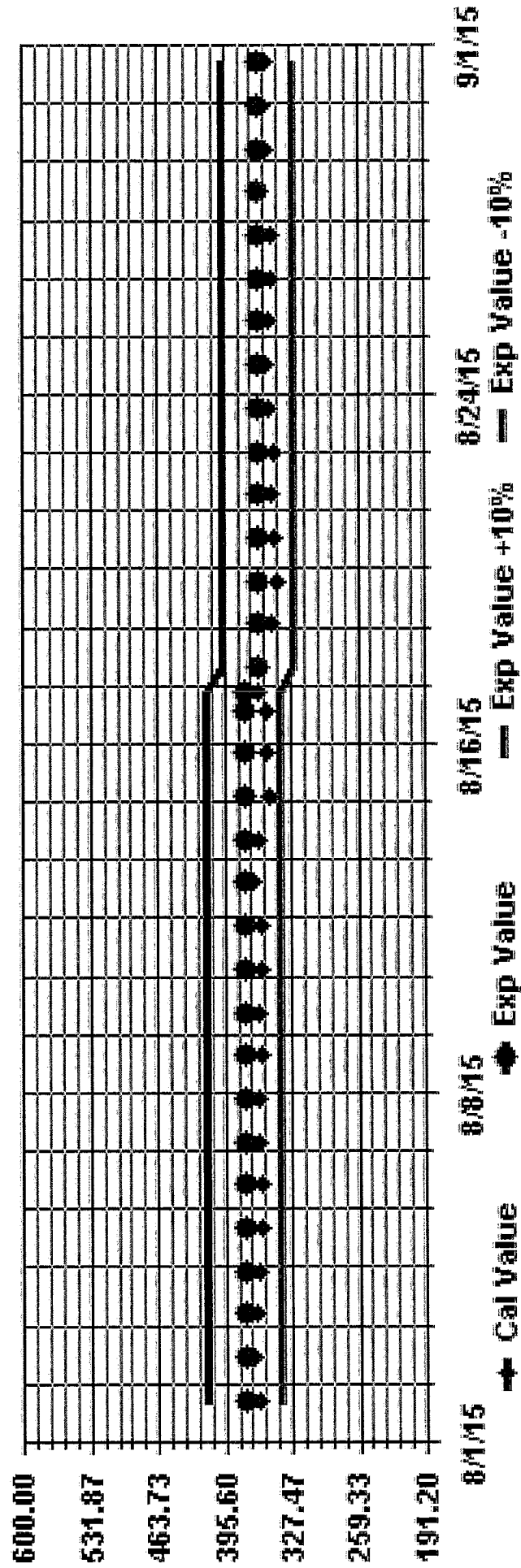
Class Limits (PPB)



Site : LICA-ELK
Period : 08/01/15-08/31/15
Level : 10



Calibration Graph for Site: LIC.A35 Parameter: 03_ Sequence: 03 Phase: SPAN



PARTICULATE MATTER 2.5



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

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	6	4	4	5	8	3	3	9	9	3	5	5	0	8	2	2	0	0	7	5	5	3	3	3	3	9	4.3	24
2	6	1	7	8	3	0	3	7	5	5	6	5	6	6	3	2	4	4	6	2	1	1	5	5	9	9	4.4	24
3	11	12	14	6	4	12	8	8	11	3	5	6	4	5	4	6	6	9	8	12	13	10	9	5	14	8.0	24	
4	9	2	8	8	5	8	3	11	3	4	7	3	6	5	5	4	8	5	3	3	8	4	3	7	11	5.5	24	
5	4	6	5	0	3	3	4	0	1	4	2	3	0	2	3	0	0	2	0	0	1	0	1	6	6	2.1	24	
6	1	3	X	0	1	0	6	1	2	3	7	0	3	3	0	7	3	3	3	0	4	5	7	2	3	7	2.8	23
7	3	0	2	6	2	2	2	2	3	1	3	5	4	0	6	C	0	6	0	2	4	4	3	2	6	2.7	24	
8	2	9	0	3	3	3	1	5	0	4	4	5	3	5	2	4	3	4	6	6	3	2	6	9	3.6	24		
9	3	4	5	0	3	3	1	5	8	2	4	6	5	6	5	5	4	4	9	4	9	4	2	1	0	9	4.0	24
10	7	0	3	9	8	7	3	5	9	3	7	6	0	1	5	7	3	5	2	5	6	8	7	9	9	5.0	24	
11	11	7	5	13	10	5	10	5	8	7	6	8	14	10	12	13	9	10	11	8	10	8	14	9	14	9.3	24	
12	6	10	6	9	9	6	8	6	2	5	1	15	5	3	4	6	0	3	5	11	5	3	2	5	15	5.6	24	
13	2	7	0	4	X	5	7	11	11	11	15	12	16	15	13	14	10	15	15	13	8	15	15	16	16	10.9	23	
14	4	0	6	8	1	2	4	6	4	6	2	8	3	3	0	6	1	2	9	1	5	0	1	1	9	3.5	24	
15	1	5	0	6	0	0	8	5	0	6	4	4	5	0	0	4	0	4	0	1	5	2	0	2	8	2.8	24	
16	1	5	3	0	1	0	4	6	2	5	5	0	2	5	2	5	2	2	3	3	2	1	0	3	6	2.5	24	
17	0	7	7	6	X	1	11	9	2	0	5	2	2	4	6	7	4	5	3	3	0	7	7	5	11	4.5	23	
18	5	6	4	2	7	3	6	2	4	1	1	4	2	7	3	3	5	3	4	5	1	3	0	1	7	3.4	24	
19	3	2	7	8	8	4	5	0	0	3	6	4	2	3	0	5	11	2	X	5	5	4	10	0	11	4.2	23	
20	7	0	3	4	4	11	2	4	3	5	4	4	4	0	4	0	1	0	3	2	6	0	2	0	8	11	3.2	24
21	4	2	6	0	3	5	0	2	2	0	3	2	1	2	4	4	1	2	0	8	0	8	0	X	0	8	2.3	23
22	3	8	3	4	12	13	X	X	1	1	2	2	0	2	3	2	0	1	1	2	10	2	17	12	17	4.6	22	
23	9	3	8	8	10	6	10	5	44	5	2	9	5	6	5	8	3	1	0	3	0	8	3	2	7	44	6.7	24
24	3	8	2	X	0	4	2	3	7	0	2	6	5	9	12	9	12	6	12	8	5	5	6	12	5.6	23		
25	8	7	6	8	13	3	X	X	Y	Y	C	X	X	X	X	X	X	X	X	X	X	X	X	X	13	7.5	6	
26	X	X	X	X	X	X	X	Y	Y	Y	C	0	6	8	6	8	3	8	9	7	11	18	10	9	12	18	8.2	15
27	4	4	3	10	5	4	13	9	9	6	13	12	12	13	18	16	18	20	21	16	28	28	23	29	29	13.9	24	
28	30	24	4	4	5	5	8	6	7	11	17	24	31	25	15	12	15	22	24	29	28	43	36	45	45	19.6	24	
29	51	49	50	78	60	30	17	6	14	18	16	13	8	9	11	8	12	21	11	17	14	13	16	21	78	23.5	24	
30	32	34	27	27	30	25	32	29	20	21	12	11	5	4	5	7	6	10	2	2	8	6	4	34	34	15.3	24	
31	5	1	X	0	2	12	6	9	10	8	6	0	4	1	0	0	5	2	0	6	5	7	2	2	12	4.0	23	
HOURLY MAX	51	49	50	78	60	30	32	44	20	21	17	24	31	25	18	16	18	22	24	29	28	43	36	45				
HOURLY AVG	8.1	7.7	7.1	8.4	7.9	6.1	6.8	7.9	5.1	5.1	6.0	5.9	5.9	4.9	5.2	5.7	5.4	5.9	6.0	6.6	7.4	7.0	7.0	7.9				

ALBERTA ENVIRONMENT: 24-HR: 30 ug/m3

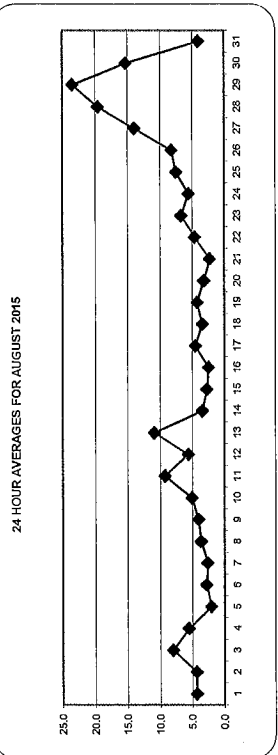
OBJECTIVE LIMIT:

STATUS FLAG CODES

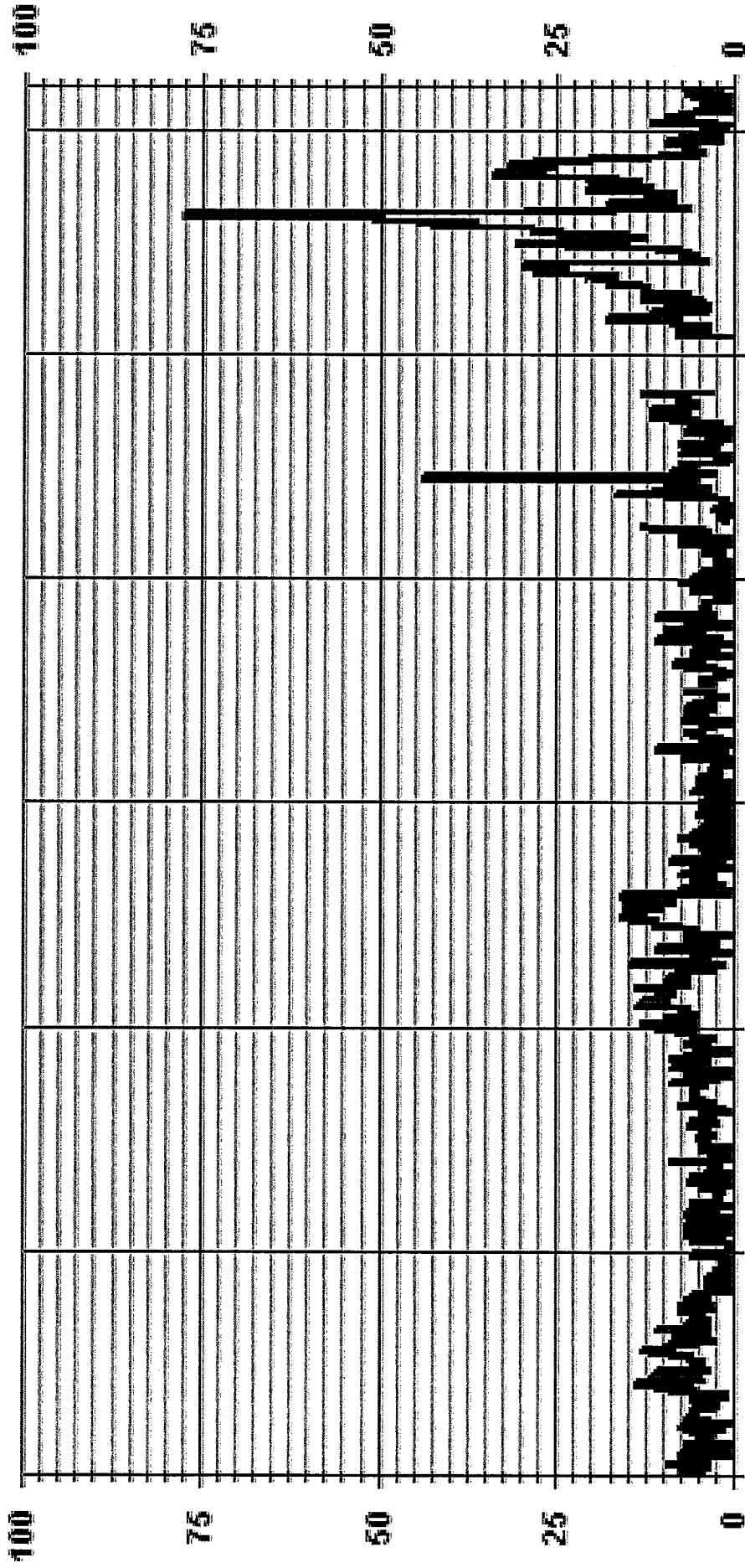
- C - CALIBRATION
- Y - MAINTENANCE
- S - DAILY ZERO/SPAN CHECK
- P - POWER FAILURE
- G - OUT FOR REPAIR
- Q - QUALITY ASSURANCE
- R - RECOVERY
- X - MACHINE MALFUNCTION
- O - OPERATOR ERROR
- K - COLLECTION ERROR

MONTHLY SUMMARY

NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	626
MAXIMUM 1-HR AVERAGE:	78 ug/m3 @ HOUR(S)
MAXIMUM 24-HR AVERAGE:	23.5 ug/m3
MONTHLY CALIBRATION TIME:	2 HRS
STANDARD DEVIATION:	7.71
ON DAY(S)	29
ON DAY(S) VAR-VARIOUS	29
OPERATIONAL TIME:	708 HRS
AMD OPERATION UPTIME:	95.2 %
MONTHLY AVERAGE:	6.5 ug/m3



01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 PM2 UG/M3

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

August 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																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 30	2.26	2.54	3.82	3.82	8.07	9.63	6.37	4.24	3.54	2.26	3.68	5.24	9.91	15.01	14.58	2.69	97.73	
< 60	.00	.00	.00	.00	.42	.00	.28	.00	.28	.14	.28	.00	.14	.14	.14	.14	1.98	
< 80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.14	.00	.00	.28	
< 120	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 240	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	2.26	2.54	3.82	3.82	8.49	9.63	6.65	4.24	3.82	2.40	3.96	5.24	10.19	15.29	14.73	2.83		

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

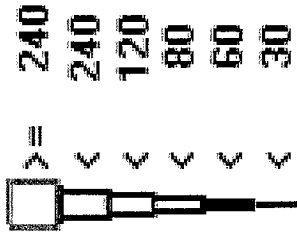
Limit	Direction																NNW	Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
< 30	16	18	27	27	57	68	45	30	25	16	26	37	70	106	103	19	690	
< 60					3	2	2	2	2	1	2		1	1	1	1	14	
< 80													1	1			2	
< 120																		
< 240																		
>= 240																		
Totals	16	18	27	27	60	68	47	30	27	17	28	37	72	108	104	20		

Calm : .00 %

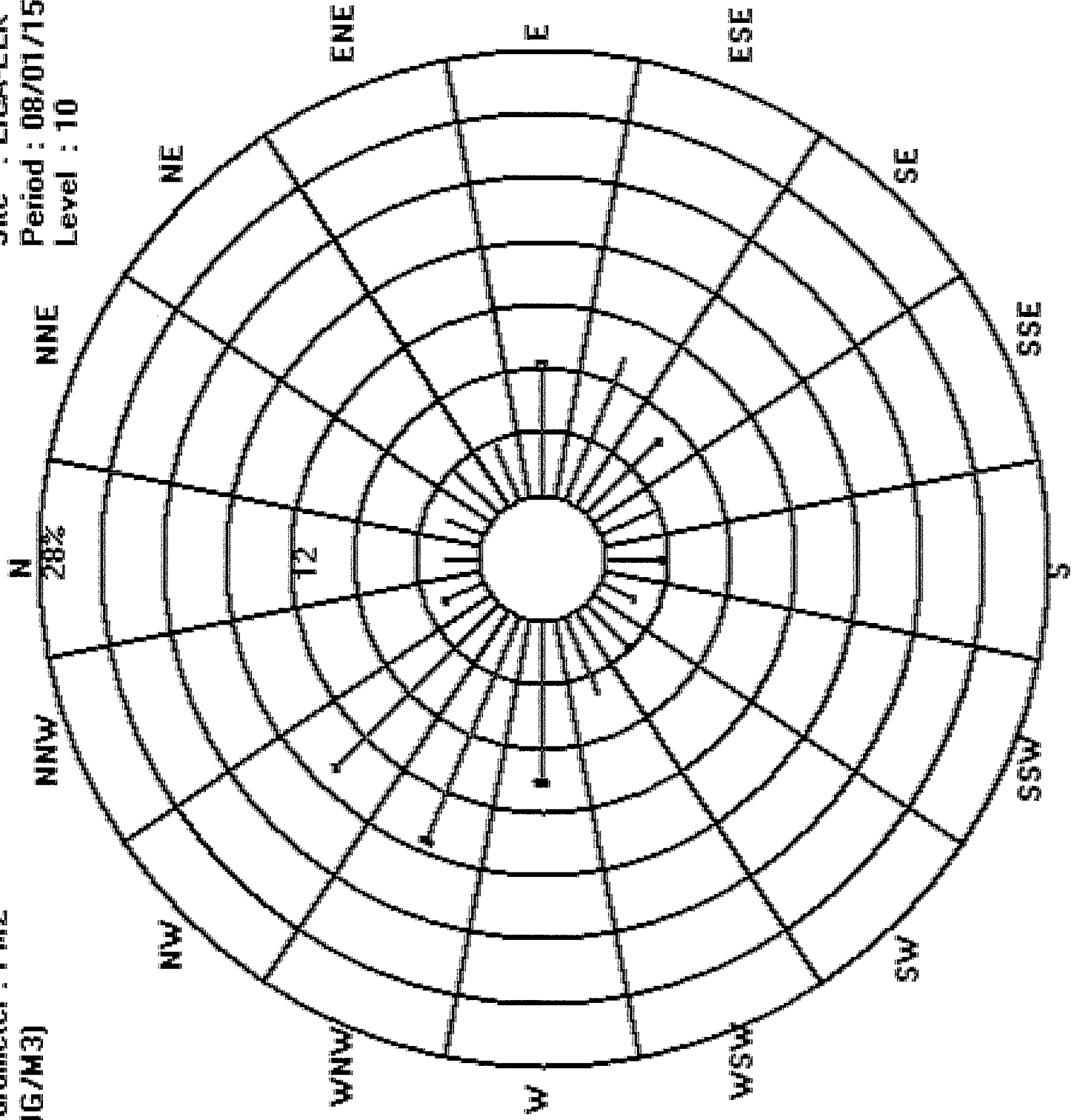
Total # Operational Hours : 706

Logger : 35 Parameter : PM2

Class Limits (UG/M3)

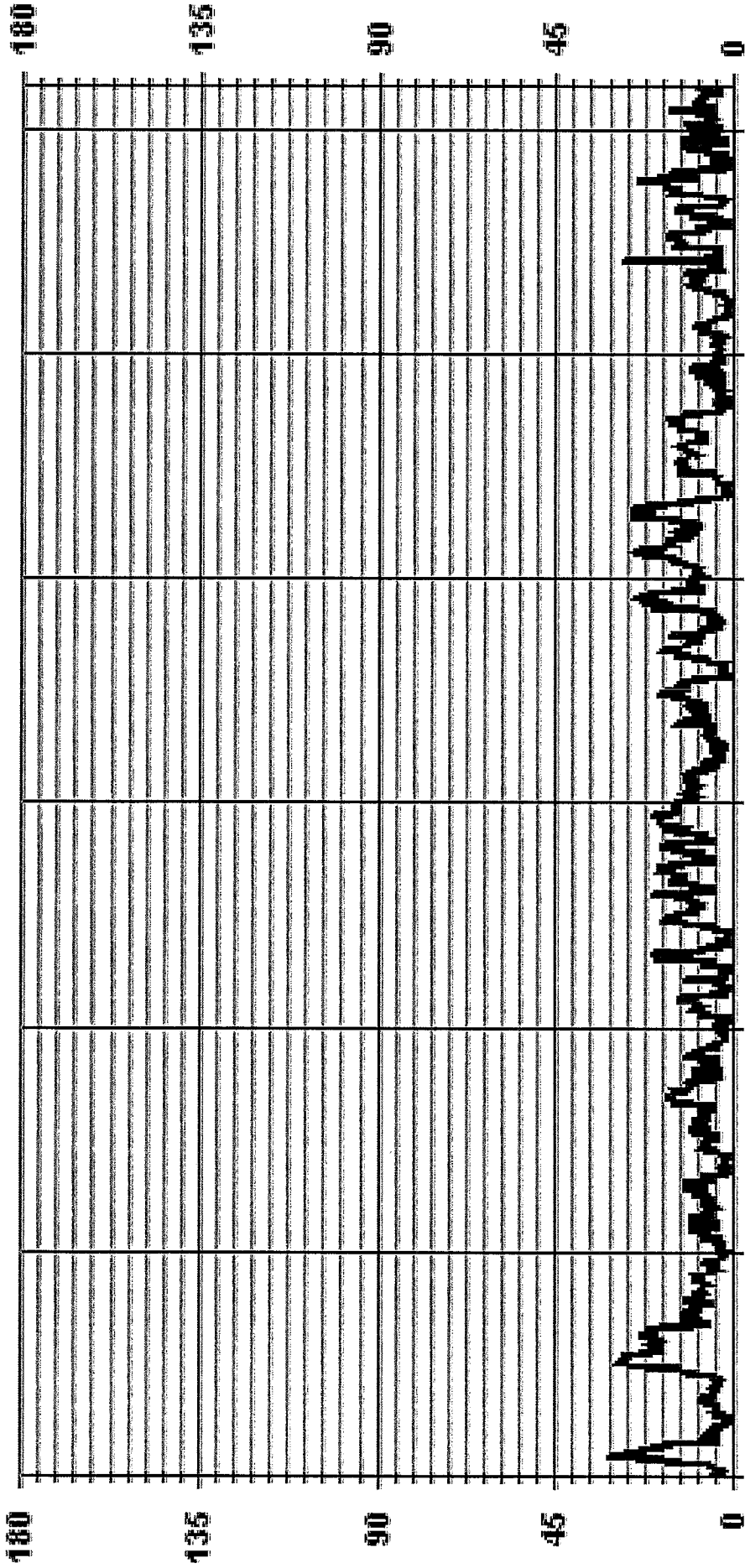


Site : LICA-ELK
Period : 08/01/15-08/31/15
Level : 10



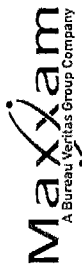
WIND SPEED

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 WSP KPH



VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MS2

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	9.6	6.2	7.2	5.1	5.6	11.0	10.0	19.7	10.0	34.8	43.3	49.4	44.2	45.9	41.0	38.9	42.7	32.3	27.3	18.1	14.4	6.8	9.7	9.0	49.4	23.3	
2	7.9	8.0	7.4	8.7	7.4	6.2	2.8	6.0	12.3	12.1	15.7	20.4	18.0	21.8	19.2	20.0	20.9	17.9	17.9	11.0	8.4	7.7	9.6	9.3	21.8	12.4	
3	7.4	8.0	9.0	9.1	6.5	10.2	10.2	14.7	19.0	24.8	29.9	39.9	44.1	47.4	49.9	45.7	47.8	45.9	41.2	38.8	29.3	27.9	29.5	38.5	49.9	27.8	
4	29.7	15.9	16.7	14.9	17.8	15.4	14.6	13.9	13.8	16.4	18.1	16.1	16.6	15.8	23.0	22.0	22.3	20.4	18.7	18.5	19.1	16.0	20.7	22.6	39.2	24.1	
5	10.5	11.6	7.7	8.5	6.6	9.6	10.2	10.1	15.9	15.6	17.8	17.3	18.7	24.3	53.6	10.6	15.0	16.7	22.5	22.7	16.6	11.1	12.4	11.3	53.6	15.7	
6	9.8	9.4	12.1	11.1	12.5	9.5	10.8	16.1	14.7	15.2	20.3	24.1	24.4	19.6	27.4	23.9	20.7	21.1	10.5	7.6	4.3	5.1	4.0	6.1	27.4	14.2	
7	6.2	5.7	5.7	5.2	7.4	9.5	10.6	13.2	12.3	15.1	17.8	20.5	37.2	16.5	19.7	20.5	35.2	47.1	45.8	18.8	13.3	15.6	17.3	47.1	17.6		
8	13.7	11.0	17.2	13.0	11.3	11.5	12.6	17.1	19.4	27.0	25.9	28.4	27.4	24.9	29.2	26.8	21.8	18.4	17.1	17.0	18.2	12.9	8.9	5.1	29.2	18.2	
9	7.6	20.4	18.1	18.5	10.1	12.0	12.5	9.0	15.9	19.4	18.9	23.1	19.9	22.5	23.7	14.8	14.0	8.4	8.6	6.3	4.6	4.6	7.4	7.5	23.7	13.7	
10	6.7	11.0	11.5	9.7	5.1	5.0	4.5	12.5	17.7	19.8	20.0	21.8	19.5	27.1	21.7	22.9	24.1	19.8	14.4	4.2	7.7	6.0	9.7	7.8	27.1	13.8	
11	7.0	27.8	35.9	14.2	7.9	8.4	5.1	11.2	6.7	10.4	23.8	23.9	15.3	25.6	34.7	34.7	38.6	27.1	17.7	11.0	6.9	2.2	5.7	7.5	38.6	17.1	
12	5.7	5.6	6.7	5.6	4.7	7.6	9.4	12.5	17.4	24.5	29.0	31.3	32.4	31.1	22.4	19.3	17.5	13.9	12.2	12.4	23.7	16.7	29.8	34.7	17.8	24	
13	39.7	28.8	13.8	9.0	17.3	17.4	17.6	24.7	29.5	26.5	24.1	27.8	29.8	36.6	32.9	29.9	22.4	19.7	10.5	10.1	15.7	14.4	14.8	29.9	39.7	22.6	
14	29.4	37.1	34.7	24.7	10.6	18.6	19.3	12.0	15.5	22.2	23.6	25.5	23.2	27.7	30.7	33.5	30.7	30.6	35.5	25.5	23.5	26.1	18.9	20.1	37.1	25.0	
15	23.8	20.5	18.5	16.7	15.0	15.8	18.0	18.1	18.9	22.4	22.8	21.2	30.7	31.8	27.5	19.7	29.4	25.1	20.7	13.9	9.4	11.1	11.9	8.5	31.8	19.6	
16	7.9	4.8	5.6	6.1	10.1	10.1	6.8	7.5	14.4	17.1	22.0	21.8	20.6	21.4	21.1	22.3	8.5	11.3	42.1	31.2	19.2	15.1	14.5	42.1	15.6	24	
17	15.6	18.5	20.0	16.6	13.7	14.1	15.5	21.3	21.9	28.7	34.1	32.0	31.2	28.7	25.0	29.6	25.2	18.3	10.2	9.7	5.6	4.5	5.7	34.1	19.5	24	
18	6.4	7.4	7.6	7.9	13.0	10.5	19.2	25.6	21.2	28.7	29.2	27.7	25.3	22.0	28.4	20.2	18.9	13.5	80.5	12.2	18.0	12.6	9.6	9.7	80.5	19.8	
19	10.4	14.3	11.9	13.2	13.2	16.4	15.5	17.6	18.8	20.8	25.5	28.4	29.9	30.3	34.6	41.3	39.3	37.2	31.9	28.5	29.1	29.6	24.3	30.8	30.1	21.8	
20	19.8	12.3	11.9	13.2	13.2	16.4	15.5	17.6	18.8	20.8	25.5	28.4	29.9	30.3	34.6	41.3	39.3	37.2	31.9	28.5	15.5	12.3	15.6	14.2	18.7	40.7	
21	15.5	21.9	20.9	21.6	15.3	17.3	16.2	25.5	34.0	39.8	42.8	38.5	38.5	37.9	48.5	44.1	34.4	29.7	17.9	11.8	5.1	4.6	10.0	10.4	48.5	25.1	
22	6.1	3.2	3.4	6.2	6.7	7.2	8.4	7.9	10.6	15.5	26.4	28.2	26.9	27.1	35.8	26.4	30.5	26.3	20.2	12.4	13.2	19.7	19.7	18.8	35.8	17.0	
23	16.6	15.3	13.7	13.1	11.9	11.4	10.9	17.2	19.6	22.1	22.9	23.4	27.4	27.3	28.5	24.7	24.1	15.9	9.2	9.6	6.1	4.9	5.5	7.9	28.5	16.2	
24	6.6	4.4	7.2	8.6	9.7	5.5	7.7	7.8	9.6	9.9	17.6	15.7	10.9	13.5	21.3	21.9	16.7	18.9	13.7	9.9	10.2	9.2	15.0	5.4	21.9	11.5	
25	8.4	7.7	7.2	6.4	6.4	7.5	11.0	7.4	8.6	9.1	8.4	8.9	15.4	19.0	16.0	24.1	17.1	12.7	10.3	8.9	5.4	4.6	3.8	5.1	24.1	10.0	
26	6.3	2.6	3.2	3.7	3.1	4.1	4.9	6.5	6.5	7.4	12.0	17.5	27.1	23.3	24.6	31.5	24.9	20.1	11.0	16.6	21.6	16.7	7.3	31.5	13.0	24	
27	17.5	30.6	67.2	28.0	16.9	14.2	11.3	11.5	11.9	14.8	26.5	25.4	24.5	29.1	30.3	27.3	32.0	26.4	18.6	15.0	25.2	20.3	7.4	9.1	67.2	22.5	
28	11.3	7.3	13.3	25.1	17.6	21.4	24.0	19.3	11.5	10.3	10.4	11.4	13.9	19.6	28.3	32.5	27.1	25.5	27.2	30.6	37.2	35.6	22.9	37.2	21.2	24	
29	29.0	27.6	23.0	19.8	10.0	4.7	4.1	5.8	12.7	11.3	11.0	11.5	18.9	23.7	24.4	28.1	24.5	22.1	35.0	27.5	16.2	15.6	26.0	15.8	35.0	18.7	
30	8.8	13.8	17.1	18.1	16.8	12.3	9.0	11.2	10.8	18.8	21.9	30.2	17.3	24.6	25.8	24.6	25.9	18.0	12.1	12.5	13.9	8.6	11.9	11.8	30.2	16.5	
31	39.7	37.1	67.2	35.3	39.2	33.3	32.6	33.0	34.0	39.8	43.3	49.4	44.2	47.4	53.6	45.7	47.8	45.9	80.5	45.8	31.2	37.2	35.6	34.7	37.2	13.6	
HOURLY MAX	13.5	14.4	15.6	13.3	11.6	11.6	12.3	14.3	16.6	19.5	22.3	24.4	24.9	27.0	29.0	26.6	26.0	22.2	21.7	17.2	15.5	13.4	13.7	13.6	34.7	13.6	
HOURLY AVG																											

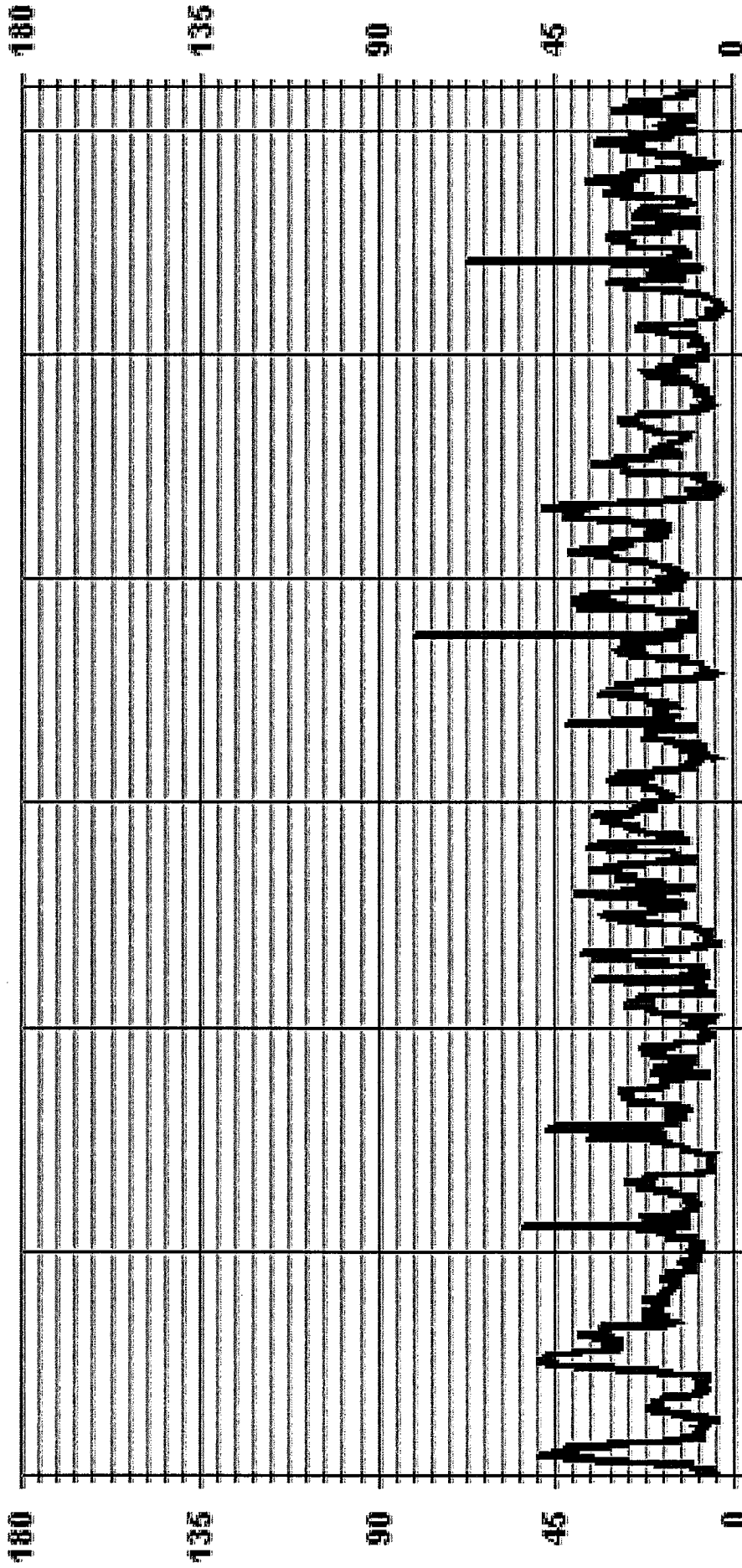
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	80.5	KPH	@ HOUR(S)	18	ON DAY(S)	19
VAR- VARIOUS						
OPERATIONAL TIME: 744 HRS						

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 WSMAX KPH

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

August 2015

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
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	.80	1.20	1.88	2.28	4.56	2.68	2.55	1.47	.94	1.20	1.74	1.88	4.30	4.83	3.22	1.20	36.82
< 12.0	1.07	1.20	1.74	1.47	3.09	1.74	2.01	1.47	.80	.53	1.74	3.36	5.37	4.16	5.64	1.07	36.55
< 20.0	.67	.26	.00	.13	.67	3.36	1.20	1.07	2.01	.53	.26	.00	.13	4.83	5.10	.67	20.96
< 29.0	.00	.00	.00	.00	.13	1.47	.53	.00	.00	.00	.00	.00	.13	1.20	1.88	.13	5.51
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.13
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.55	2.68	3.62	3.89	8.46	9.27	6.31	4.03	3.76	2.28	3.76	5.24	9.94	15.18	15.86	3.09	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

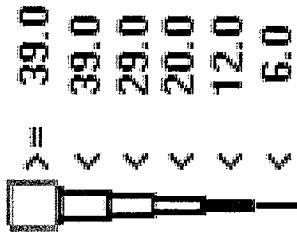
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	6	9	14	17	34	20	19	11	7	9	13	14	32	36	24	9	274
< 12.0	8	9	13	11	23	13	15	11	6	4	13	25	40	31	42	8	272
< 20.0	5	2		1	5	25	9	8	15	4	2		1	36	38	5	156
< 29.0					1	11	4						1	9	14	1	41
< 39.0														1			1
>= 39.0																	
Totals	19	20	27	29	63	69	47	30	28	17	28	39	74	113	118	23	

Calm : .00 %

Total # Operational Hours : 744

Logger : 35 Parameter : WSP

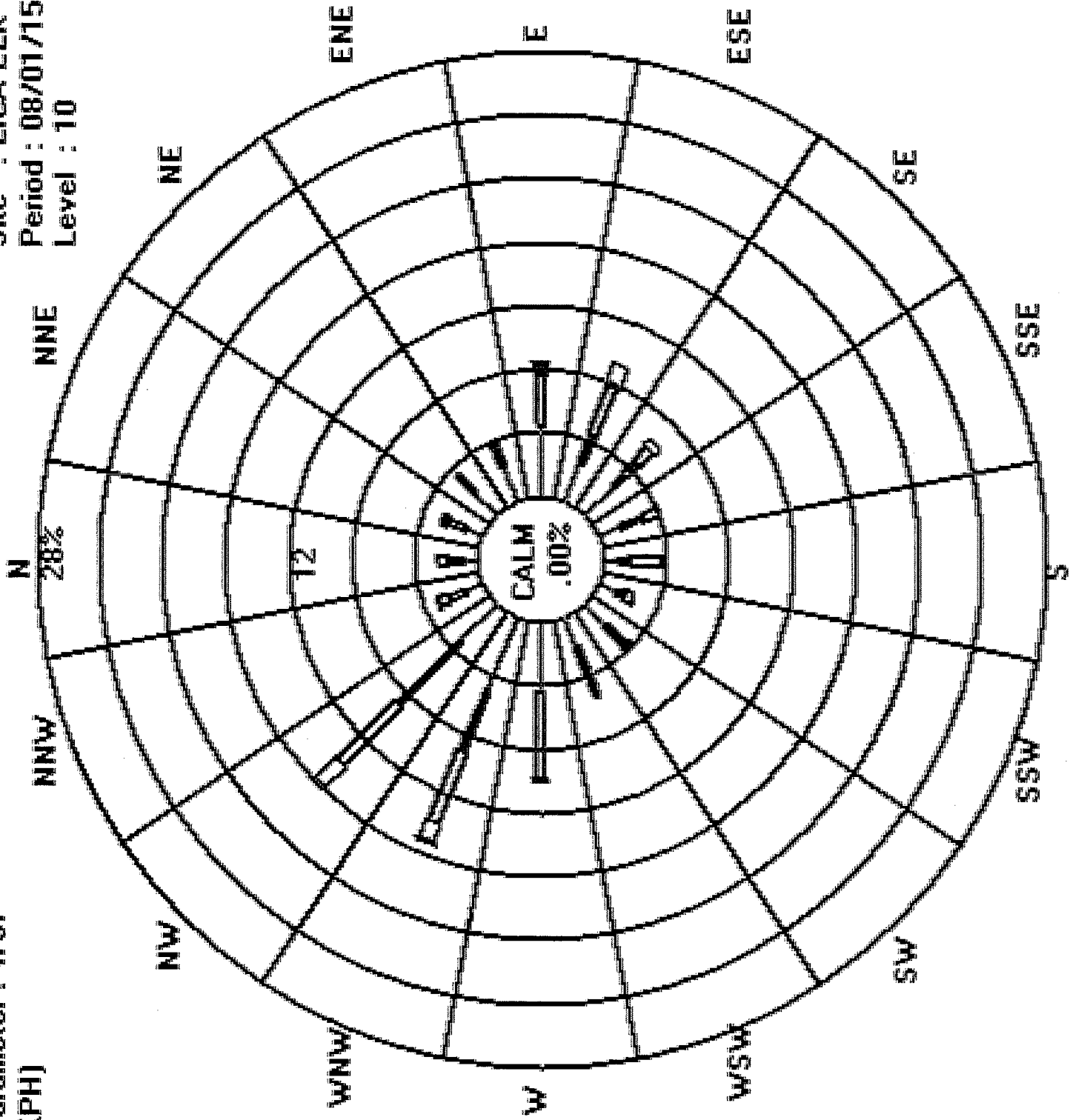
Class Limits (KPH)



Site : LICA-ELK

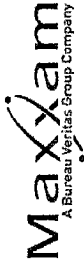
Period : 08/01/15-08/31/15

Level : 10



WIND DIRECTION

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
 Elk Point Airport Site - AUGUST 2015
 JOB # 2833-2015-08-35- C



WIND DIRECTION (WD) hourly averages

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

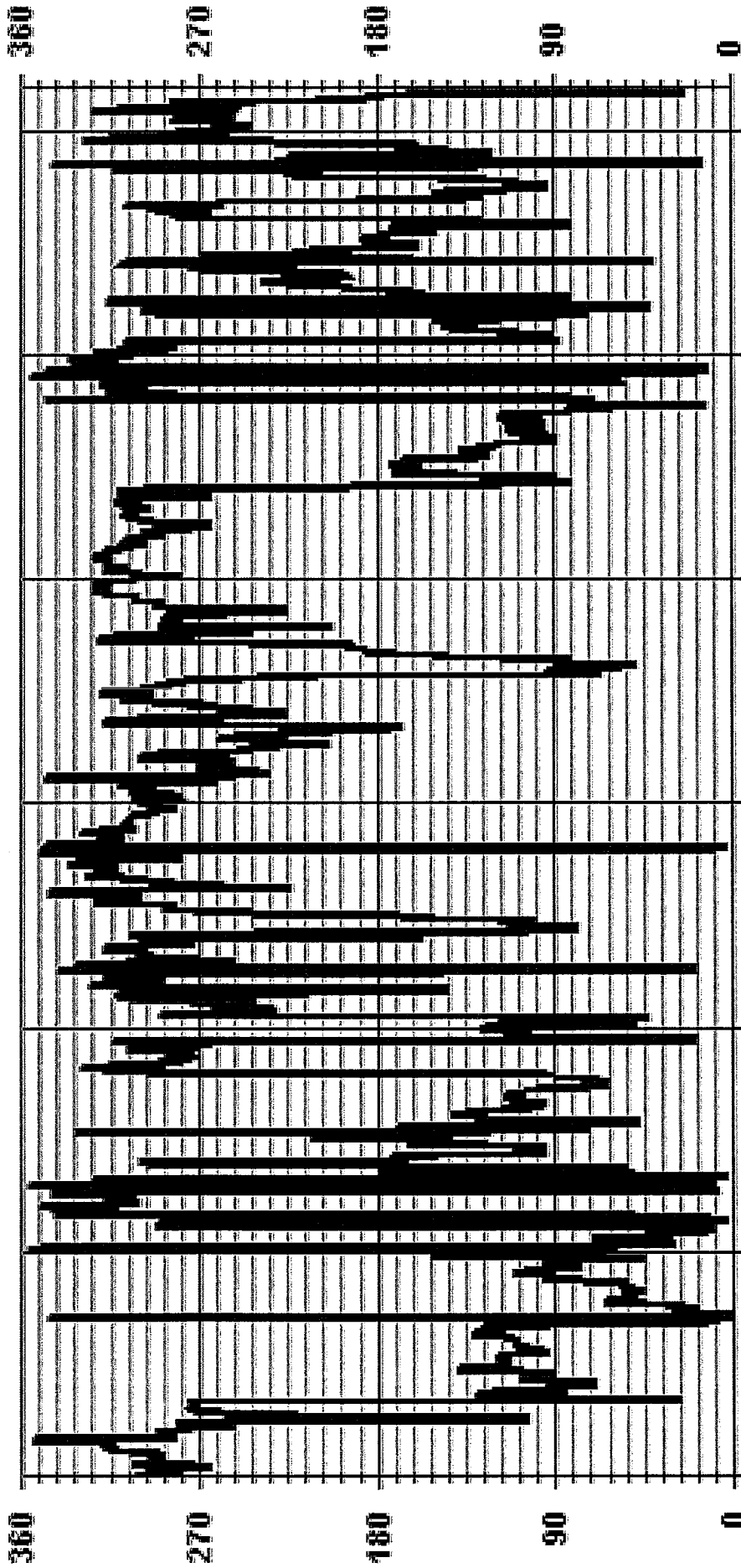
STATUS FLAG CODES

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: February 21, 2014
 DECLINATION: MAGNETIC DECLINATION 19 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	99.71		AMTD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	WNW	

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 WDR DEG

STANDARD DEVIATION WIND DIRECTION



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
8	20	19	7	6	11	19	18	10	10	10	10	10	13	13	13	13	12	10	10	14	18	6	5	6	18	10	14	18	6	5	6
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32	37	17	35	27	17	12	12	14	14	15	13	11	11	13	11	9	8	7	7	7	7	7	7	7	7	7	7	7	7	7	
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20	8	8	10	11	18	8	18	52	37	58	55	43	20	29	17	14	10	8	12	14	25	44	20	20	20	20	20	20	20	20	
27	23	32	39	15	18	27	17	25	17	43	23	23	26	17	24	23	19	12	6	8	19	15	13	13	13	13	13	13	13	13	
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30	11	11	9	10	45	44	56	48	17	28	36	66	33	45	21	20	18	12	30	15	19	12	11	12	12	12	12	12	12	12	
13	21	8	7	8	7	9	11	11	22	19	22	13	60	25	28	19	23	15	6	6	38	61	41	41	41	41	41	41	41	41	

STATUS FLAG CODES

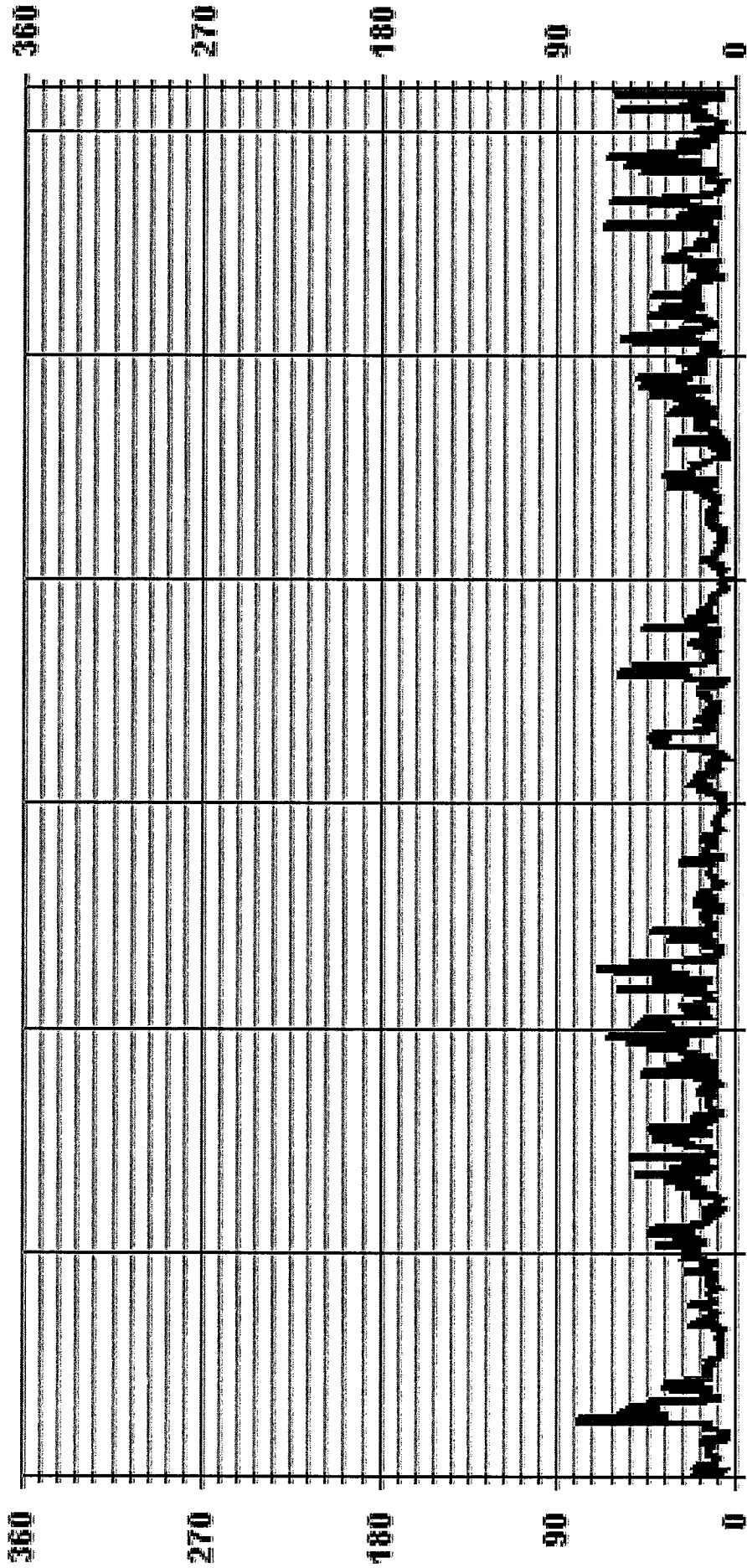
C	QUALITY ASSURANCE	G	QUALITY ASSURANCE
Y	MAINTENANCE	R	RECOVERY
S	DAILY ZERO/SRANGE CHECK	X	MACHINE MALFUNCTION
P	POWER FAILURE	O	OPERATOR ERROR
G	OUT-OF-REPAIR	K	COLLECTION ERROR

LAST CALIBRATION:

February 21, 2014

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



08/01/15 00:00 08/06/15 00:00 08/11/15 00:00 08/16/15 00:00 08/21/15 00:00 08/26/15 00:00 08/31/15 00:00

— LICA35 STOWDIR DEG

APPENDIX II
NON-CONTINUOUS MONITORING DATA RESULTS

VOC RESULTS

Sample ID: 15080137-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/EPI/August 4, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA

Location: Elk Point Airport

Station ID: LICA 35

Field Sample ID: LICA/VOC/EPI/August 4, 2015

Sampler S/N: 6200

Canister ID: H 2830

Canister Installation Date/Time: July 31, 2015 @ 14:43

Canister Removal Date/Time: August 7, 2015 @ 16:16

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
August 4, 2015	00:00	00:00
	August 4, 2015	August 5, 2015
		24.0

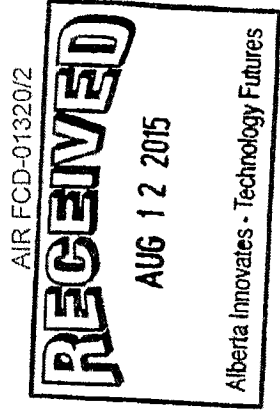
Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	4.94	24

Canister Information	
Initial Canister Vacuum (inHg)	19.7
Final Canister Pressure (psig)	20psi 3.8

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 Yankov
Sample out by Alex Yankov
 Date: August 7, 2015



Volatile Organics Data Results

Date: AUGUST 4, 2015
Canister ID: H2830

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	0.10
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	0.03
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	0.20
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	0.03
2,3-Dimethylbutane	0.15
2,3-Dimethylpentane	0.20
2,4-Dimethylpentane	0.12
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.06
3-Methylheptane	< 0.02
3-Methylhexane	< 0.02
3-Methylpentane	0.03
Acetone	3.7
Acrolein	< 0.3
Benzene	0.03
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.66
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	< 0.02
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	1.2
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.28

Volatile Organics Data Results

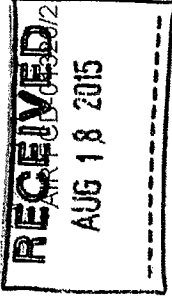
Date: AUGUST 4, 2015

Canister ID: H2830

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	0.34
Hexachloro-1,3-butadiene	< 0.50
Isobutane	< 0.02
Isopentane	0.72
Isoprene	0.34
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	0.06
Methylcyclopentane	< 0.02
Methylene chloride	< 0.3
n-Butane	< 0.03
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.05
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	0.03
o-Xylene	0.01
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.11
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: 15080281-003

Customer ID: LICA
LICAVOC/EP/August 10,
Cust Samp ID: 2015



Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 35
Field Sample ID: LICA/VOC/EP/August 10, 2015
Sampler S/N: 6200
Canister ID: 1135
Canister Installation Date/Time: August 7, 2015 @ 16:17
Canister Removal Date/Time: August 12, 2015 @ 13:43

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
August 10, 2015	00:00 August 10, 2015	00:00 August 11, 2015
		Elapsed Time (Hours) 24.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1.94	24

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
- 28.0	+ 20.0

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 Yankov
Sample out by Alex Yankov
Date: August 12, 2015

Volatile Organics Data Results

Date: AUGUST 10, 2015
Canister ID: 1135

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,1,2-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	0.02
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	0.11
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.15
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.16
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.10
3-Methylheptane	< 0.02
3-Methylhexane	0.03
3-Methylpentane	0.10
Acetone	5.7
Acrolein	< 0.3
Benzene	0.04
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.42
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.06
Cyclopentane	0.03
Dibromochloromethane	< 0.01
Ethanol	1.3
Ethyl acetate	< 0.4
Ethylbenzene	< 0.01
Freon-11	0.29

Volatile Organics Data Results

Date: AUGUST 10, 2015
Canister ID: 1135

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	0.67
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.31
Isopentane	0.88
Isoprene	3.12
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	0.7
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.08
Methylcyclopentane	0.13
Methylene chloride	< 0.3
n-Butane	0.85
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.48
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	0.12
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: 15080333-003

Customer ID: LICA

Cust Samp ID: LICAVOC/EP/August 16, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA

Location: Elk Point Airport

Station ID: LICA 35

Field Sample ID: LICA/VOC/EP/August 16, 2015

Sampler SIN: 6200

Canister ID: ~~1135~~ - A.K. JS5663

Canister Installation Date/Time: August 18, 2015 @ 13:44

Canister Removal Date/Time: August 20, 2015 @ 11:01

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 16, 2015	00:00	00:00	24.0
	August 16, 2015	August 17, 2015	

Canister Information	
Initial Canister Vacuum (inHg)	28.0
Final Canister Pressure (psig)	19.0

19psi
JSR

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 Yampov
Sample out - by Alex Yampov

Date: August 20, 2015

Volatile Organics Data Results

Date: AUGUST 16, 2015
Canister ID: S5663

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,1,2-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	0.05
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
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	0.22
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	0.04
3-Methylheptane	< 0.02
3-Methylhexane	0.02
3-Methylpentane	0.02
Acetone	4.8
Acrolein	< 0.3
Benzene	0.05
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	1.08
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.07
cis-2-Pentene	0.02
Cyclohexane	0.03
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	1.0
Ethyl acetate	< 0.4
Ethylbenzene	0.06
Freon-11	0.32

Volatile Organics Data Results

Date: AUGUST 16, 2015
Canister ID: S5663

PARAMETERS	CONCENTRATION:(PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	0.67
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.19
Isopentane	0.21
Isoprene	0.38
Isopropyl alcohol	0.5
Isopropylbenzene	< 0.01
m,p-Xylene	0.14
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	0.07
Methylcyclopentane	0.03
Methylene chloride	< 0.3
n-Butane	0.25
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	< 0.01
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	3.7
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	0.22
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.15
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15080449-003

Customer ID: LICA

Cust Samp ID: LICAVOC/EP/August 22, 2015

AIR FCD-01320/2

Maxxam

VOC Sample Collection Data Sheet

Client: LICA Sampler S/N: 6100
 Location: ELK POINT Airport Canister ID: S 5606
 Station ID: LICA 35 Canister Installation Date/Time: August 20, 2015 @ 11:02
 Field Sample ID: LICA/voc/EP/August 22, 2015 Canister Removal Date/Time: August 26, 2015 @ 11:34

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
August 22, 2015	00:00	00:00
August 22, 2015	August 23, 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	17.8

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 Yampor
Sample out - by Alex Yampor

Date: August 26, 2015

RECEIVED
 AUG 28 2015

Volatile Organics Data Results

Date: AUGUST 22, 2015
Canister ID: S5606

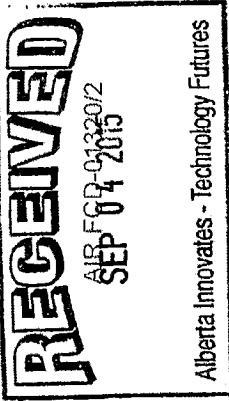
PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,1,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
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	0.03
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	0.06
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	0.01
2-Methylhexane	0.02
2-Methylpentane	0.05
3-Methylheptane	< 0.02
3-Methylhexane	0.02
3-Methylpentane	0.03
Acetone	2.3
Acrolein	< 0.3
Benzene	0.03
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.35
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.05
Cyclopentane	0.02
Dibromochloromethane	< 0.01
Ethanol	0.5
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.27

Volatile Organics Data Results

Date: AUGUST 22, 2015

Canister ID: S5606

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	0.62
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.27
Isopentane	0.17
Isoprene	0.11
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.06
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	0.09
Methylcyclopentane	0.04
Methylene chloride	< 0.3
n-Butane	0.28
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	0.03
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.08
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: 15090059-001
 Customer ID: LICA
 Cust Samp ID: LICAVOC/EP/August 28, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: Exx Point airport
 Station ID: LICA 35
 Field Sample ID: LICA/voc/EP/August 28, 2015

Sampler S/N: 6200
 Canister ID: 17122
 Canister Installation Date/Time: August 26, 2015 @ 11:35
 Canister Removal Date/Time: August 31, 2015 @ 18:00

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
August 28, 2015	00:00	00:00
	August 28, 2015	August 29, 2015
		Elapsed Time (Hours)
		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	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 Yavropou
Sample out by Alex Yavropou
 Date: August 31, 2015

Volatile Organics Data Results

Date: AUGUST 28, 2015
Canister ID: 17122

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,1,2-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	0.04
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.01
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	0.05
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	< 0.01
2,3-Dimethylbutane	0.10
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	0.03
2-Methylpentane	0.13
3-Methylheptane	< 0.02
3-Methylhexane	0.03
3-Methylpentane	0.07
Acetone	5.9
Acrolein	< 0.3
Benzene	0.17
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	0.04
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	< 0.02
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.07
Cyclopentane	0.04
Dibromochloromethane	< 0.01
Ethanol	1.2
Ethyl acetate	< 0.4
Ethylbenzene	0.06
Freon-11	0.32

Volatile Organics Data Results

Date: AUGUST 28, 2015
Canister ID: 17122

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	0.65
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.76
Isopentane	0.68
Isoprene	0.71
Isopropyl alcohol	0.7
Isopropylbenzene	< 0.01
m,p-Xylene	0.28
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	0.13
Methylcyclopentane	0.07
Methylene chloride	< 0.3
n-Butane	1.33
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.18
n-Nonane	< 0.01
n-Octane	< 0.02
n-Pentane	0.5
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	< 0.01
o-Xylene	0.05
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.14
trans-1,2-Dichloroethylene	< 0.01
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: 15080137-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/August 4, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Location: Elk Point Airport

Station ID: LICA 35

Field Sample ID: LICA/PUF/EP/August 4, 2015

Puf+ S/N: TE-09

Motor S/N: 1139

Installation Date/Time: July 31, 2015 @ 14:30

Removal Date/Time: August 7, 2015 @ 16:23

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 4, 2015	00:00	00:00	24.0
	August 4, 2015	August 5, 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)
706	229	15.8°
		Volume (Vstd m³)
		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

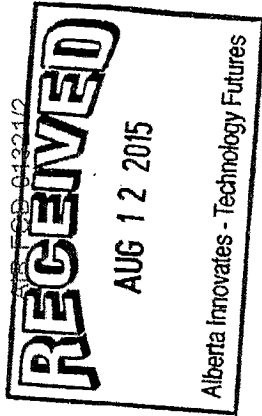
Comments:

Technician Signature:

Sample in - by Alex Yampov

Sample out - by Alex Yampov

Date: August 7, 2015



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 4, 2015
PUF S/N: TE09

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	< 0.01
2-Methylnaphthalene	0.06
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	0.03
Perylene	< 0.01
Phenanthrene	0.16
Pyrene	0.02
Retene	0.02

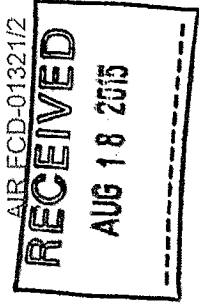
Sample ID: 15080281-004

Customer ID: LICA
LICA/PUF/EP/August 10,
Cust Samp ID: 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: Elk Point Airport
Station ID: LICA 95
Field Sample ID: LICA/PUF/EP/August 10, 2015
Puff+ SIN: TE-07
Motor SIN: 1139
Installation Date/Time: August 7, 2015 @ 16:24
Removal Date/Time: August 12, 2015 @ 15:53



Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 10, 2015	00:00	00:00	24.0
	August 19, 2015	August 11, 2015	

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: 22 - sept - 11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m³)
707	229	21.5 °	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: Data retrieved from internal memory log

Technician Signature: Sample in by Alex Yampson
Sample out by Alex Yampson

Date: August 12, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 10, 2015
PUF S/N: TE07

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	0.01
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	0.02
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.04
Perylene	< 0.01
Phenanthrene	0.08
Pyrene	0.03
Retene	0.03

Sample ID: 15080333-004

Customer ID: LICA
Cust Samp ID: LICA/PUF/EPI/August 16, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: TE-02
Location: Elk Point Airport Motor S/N: 1139
Station ID: LICA 35 Installation Date/Time: August 12, 2015 @ 15:54
Field Sample ID: LICA/PUF/EPI/August 16, 2015 Removal Date/Time: August 20, 2015 @ 11:08

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 16, 2015	00:00	00:00	R.H.O

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 (Nstd m ³)
712	229	12.7 ^o	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 Yampor
Sample out - by Alex Yampor

Date: August 20, 2015

Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 16, 2015

PUF S/N: TE02

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.03
2-Methylnaphthalene	0.01
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(a,h)anthracene	< 0.01
Fluoranthene	0.02
Fluorene	0.03
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.02
Perylene	< 0.01
Phenanthrene	0.12
Pyrene	0.01
Retene	0.01

Sample ID: 15080449-004

Customer ID: LICA

Cust Samp ID: LICAPUFEP/August 22, 2015

AIR FCD-01321/2

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
 Location: Elk Point Airport
 Station ID: LICA 35
 Field Sample ID: LICA/PUF/EP/August 22, 2015
 Puf+ S/N: TE-01
 Motor S/N: 1139
 Installation Date/Time: August 20, 2015 @ 11:09
 Removal Date/Time: August 26, 2015 @ 2:11:33 A.Y.

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
<u>August 22, 2015</u>	<u>00:00</u>	<u>00:00</u>	<u>24.0</u>

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

Set Flow Rate (slpm): 230

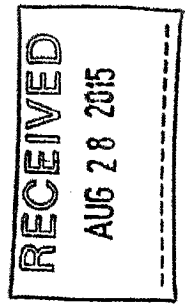
Date of Last Calibration: 22 Sept-11

Sampling Data		
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)
<u>710</u>	<u>229</u>	<u>9.1°</u>
		<u>330.18</u>

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 Yampov
Sample out - by Alex Yampov
 Date: August 26, 2015



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 22, 2015
PUF S/N: TE01

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.10
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	0.03
Acridine	< 0.01
Anthracene	0.02
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	0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.10
Fluorene	0.06
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.08
Perylene	< 0.01
Phenanthrene	0.20
Pyrene	0.07
Retene	0.02

Sample ID: 15090059-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/EP/August 28, 2015

Maxxam

Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA

Location: Elk Point airport

Station ID: LICA 35

Field Sample ID: LICA/PUF/EP/August 28, 2015

Puf+ SIN: 7E-11

Motor SIN: 1139

Installation Date/Time: August 26, 2015 @ 11:34

Removal Date/Time: August 31, 2015 @ 08:05

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
August 28, 2015	00:00	00:00	24.0
	August 28, 2015	August 29, 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)
703	229	20.1	330.11

Time set correctly prior to sampling? YES / NO

Timer set correctly prior to sampling? YES / NO

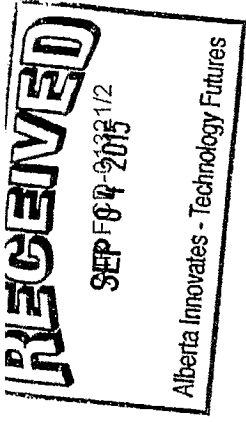
Sampling data saved to memory card after sampling? YES / NO

Comments:

Technician Signature:

Sample in - by Alex Yampor
Sample out - by Alex Yampor

Date: August 26, 2015 (sample in)
Date: August 31, 2015 (sample out)



Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: AUGUST 28, 2015
PUF S/N: TE11

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.04
2-Methylnaphthalene	0.06
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	0.03
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	0.07
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.06
Perylene	0.02
Phenanthrene	0.20
Pyrene	0.03
Retene	0.04

NMHC CANISTER RESULTS

Sample ID: 15080137-005

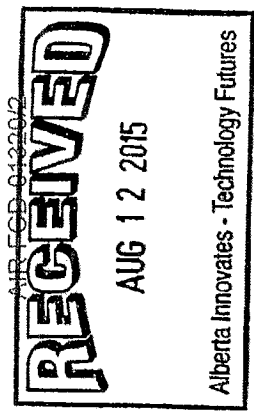
Customer ID: LICA

Cust Samp ID: LICAVOC/ELK/August 5, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: ELK Point Airport
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/ELK/August 5, 2015
 Sampler S/N: n/a
 Canister ID: 1517
 Canister Installation Date/Time: July 31, 2015 @ 14:21
 Canister Removal Date/Time: August 7, 2015 @ 16:43



Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
August 5, 2015	09:40	n/a

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
n/a	n/a	n/a

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
28.0	0.5

Ops!
JUR.

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

Comments: NMC - canister

Technician Signature: Sample in - by Alex Yampor
Sample out by Alex Yampor

Date: July 31, 2015 (installation)
 Date: August 7, 2015 (recovered)

Volatile Organics Data Results (NMHC Canister System)

Date: AUGUST 5, 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	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	2.91
2,2-Dimethylbutane	< 0.01
2,3,4-Trimethylpentane	0.56
2,3-Dimethylbutane	1.35
2,3-Dimethylpentane	2.91
2,4-Dimethylpentane	1.36
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.36
3-Methylheptane	< 0.02
3-Methylhexane	0.07
3-Methylpentane	0.14
Acetone	10.7
Acrolein	3.1
Benzene	0.05
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.55
Carbon tetrachloride	0.11
Chlorobenzene	< 0.02
Chloroethane	0.08
Chloroform	0.03
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.05
cis-2-Pentene	< 0.02
Cyclohexane	0.04
Cyclopentane	< 0.01
Dibromochloromethane	< 0.01
Ethanol	1.5
Ethyl acetate	< 0.4
Ethylbenzene	0.09
Freon-11	0.35

Volatile Organics Data Results (NMHC Canister System)

Date: AUGUST 5, 2015

Canister ID: 1517

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	0.02
Freon-12	0.65
Hexachloro-1,3-butadiene	< 0.53
Isobutane	1.62
Isopentane	9.93
Isoprene	0.60
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.08
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.53
Methyl ethyl ketone	0.9
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	8.65
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	< 0.01
n-Hexane	0.33
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	0.26
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	1.82
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: 15080333-005

Customer ID: LICA

Cust Samp ID: LICAVOC/ELK/August 12, 2015

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
 Location: Elk Point Airport
 Station ID: LICA 35
 Field Sample ID: LICA/VOC/ELK/August 12, 2015

Sampler S/N: N/A
 Canister ID: 1710
 Canister Installation Date/Time: August 7, 2015 @ 16:44
 Canister Removal Date/Time: August 17, 2015 @ 15:16

Date and Time Information		
Sample Date	Start Time (MST)	End Time (MST)
August 12, 2015	13:35	N/A
		Elapsed Time (Hours)
		N/A

Canister Information	
Initial Canister Vacuum (inHg)	0.0
Final Canister Pressure (psig)	0.0

0.0
 0.0

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
N/A	N/A	N/A

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

Comments: NMHC - canister

Technician Signature: Sample in - by Alex Yaxupov
Sample out - by Alex Yaxupov
 Date: August 17, 2015

Volatile Organics Data Results (NMHC Canister System)

Date: AUGUST 12, 2015

Canister ID: 1710

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	< 0.9
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	0.12
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.13
2,3,4-Trimethylpentane	0.12
2,3-Dimethylbutane	0.38
2,3-Dimethylpentane	< 0.02
2,4-Dimethylpentane	< 0.01
2-Methylheptane	< 0.01
2-Methylhexane	< 0.01
2-Methylpentane	0.27
3-Methylheptane	< 0.02
3-Methylhexane	0.10
3-Methylpentane	0.15
Acetone	7.8
Acrolein	< 0.3
Benzene	0.08
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.45
Carbon tetrachloride	0.09
Chlorobenzene	< 0.02
Chloroethane	0.03
Chloroform	0.03
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.04
cis-2-Pentene	< 0.02
Cyclohexane	0.25
Cyclopentane	0.10
Dibromochloromethane	< 0.01
Ethanol	2.4
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.29

Volatile Organics Data Results (NMHC Canister System)


Date: AUGUST 12, 2015

Canister ID: 1710

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	< 0.02
Hexachloro-1,3-butadiene	< 0.54
Isobutane	< 0.02
Isopentane	2.12
Isoprene	4.08
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.09
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.09
Methyl butyl ketone	< 0.54
Methyl ethyl ketone	0.9
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.08
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.49
Methylcyclopentane	0.22
Methylene chloride	< 0.3
n-Butane	1.76
n-Decane	< 0.07
n-Dodecane	< 0.4
n-Heptane	0.13
n-Hexane	0.38
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	< 0.08
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.54
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

APPENDIX III
ANALYZER CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100E SO2 Analyzer Calibration

Date: 18-Aug-15

Company: LICA

Station Name/Location: Elk Point

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: SO2

Start/End Time (mst): 11:35 - 15:25

Calibration Purpose: Monthly

Converter Make & Model: na

Converter Serial #: na

Cal Gas Expiry Date: 12-Mar-19

Analyzer:

Serial Number: <u>722</u>	Range ppb: <u>1000</u>
Last Calibration Date: <u>28-Jul-15</u>	As Found C.F.: <u>0.978</u>
Previous Cal High Point C.F.: <u>1.000</u>	New C.F.: <u>0.994</u>

As found:

SLOPE: 1.091

OFFSET: 112.5

HVPS: 512

RCELL TEMP: 50.0

BOX TEMP: 28.9

PMT TEMP: 8.1

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 24.8

SAMP FL: 626

PMT: 111.5

NORM PMT: 113.6

UV LAMP: 3118.2

LAMP RATIO: 103.7

STR. LGT: 61.4

DRK PMT: 14.0

DRK LMP: 2.9

Internal Span: 287.2

As left:

SLOPE: 1.067

OFFSET: 113.4

HVPS: 512

RCELL TEMP: 50.0

BOX TEMP: 31.9

PMT TEMP: 8.1

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 24.7

SAMP FL: 623

PMT: 110.8

NORM PMT: 113.5

UV LAMP: 3121.4

LAMP RATIO: 103.8

STR. LGT: 60.5

DRK PMT: 14.9

DRK LMP: 2.8

Internal Span: 276.2

Calibrator:

Flow Meter ID's: <u>NA</u>	Calibrator Flow Targets:			
Make & Model: <u>SABIO 2010 D</u>	point	diluent (cc/min)	cal gas (cc/min)	total (cc/min)
Serial #: <u>11900613</u>	zero	5013	0	5013
Cal Gas Cylinder I.D. #: <u>BLM002073</u>	high	4938	77	5015
Cal Gas Conc. (ppm): <u>49.5</u>	mid	4976	38	5014
	low	4994	19	5013

Calibration:

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors:
	Diluent	Cal Gas	Total			
as found zero	5013	0.0	5013	0	1.0	NA
adjusted zero	5013	0.0	5013	0	0.0	NA
as found high	4938	77.20	5015	762.0	779.0	0.978
adjusted high	4938	77.20	5015	762.0	763.0	0.999
mid	4976	37.70	5014	372.2	374.0	0.995
low	4994	18.90	5013	186.6	189.0	0.988
calibrator zero	5013	0.00	5013	0	0.0	NA
Average C.F. =						0.994

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>-0.11%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>2.19%</u>	± 3% F.S.	PASS
	± 15%	PASS

Converter Efficiency Check for H₂S/TRS application:

run converter efficiency test immediately following zero adjust

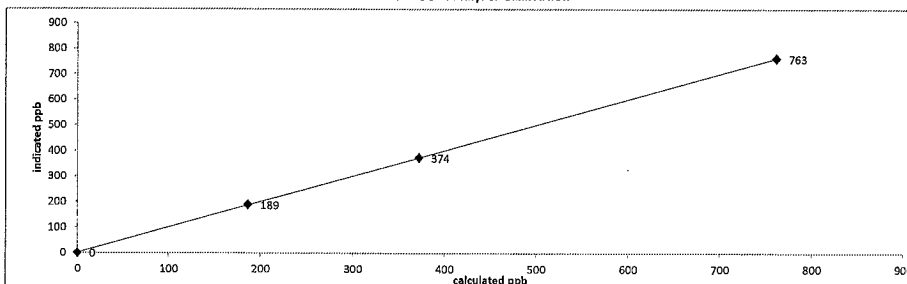
SO₂ High Point gas concentration: NA Time gas run (mst): NA

Zero corrected analyzer response: NA

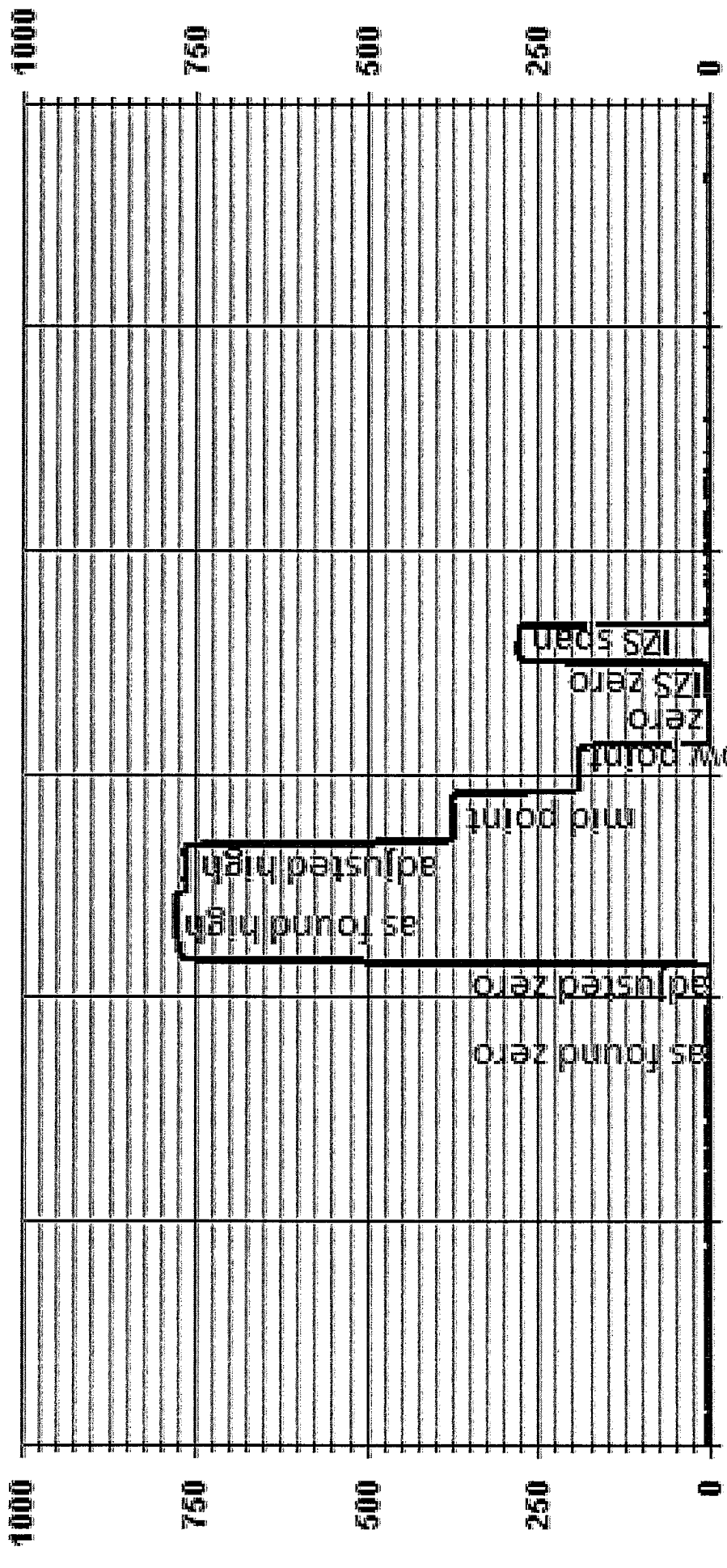
Comments:

Filter Changed.

API 100E SO2 Analyzer Calibration



01 Minute Averages



— LICA35 SO2_ PPB

HYDROGEN SULPHIDE

API 101E H2S Analyzer Calibration

Date: 17-Aug-15

Company: LICA

Station Name/Location: Elk Point

Performed by: Alex Yakupov

Application H₂S/TRS/SO₂: H2S

Start/End Time (mst): 13:27 - 17:35

Calibration Purpose: Monthly

Converter Make & Model: Internal

Converter Serial #: NA

Cal Gas Expiry Date: 15-Jul-17

Analyzer:

Serial Number: 510

Last Calibration Date: 6-Jul-15

Previous Cal High Point C.F.: 1.001

Range ppb: 100

As Found C.F.: 0.975

New C.F.: 1.003

As found:

SLOPE: 1.185

OFFSET: 26.5

HVPS: 526

RCELL TEMP: 50.0

BOX TEMP: 33.5

PMT TEMP: 8.3

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 22.2

SAMP FL: 575

PMT: 55.3

NORM PMT: 38.1

UV LAMP: 2999.4

LAMP RATIO: 94.6

STR. LGT: 15.7

DRK PMT: 35.4

DRK LMP: -1.7

Internal Span: 53.14

As left:

SLOPE: 1.152

OFFSET: 28.1

HVPS: 526

RCELL TEMP: 50.0

BOX TEMP: 33.0

PMT TEMP: 8.3

IZS TEMP: 45.0

TEST: NA

STABIL: 0.1

PRES: 22.1

SAMP FL: 575

PMT: 55.1

NORM PMT: 28.8

UV LAMP: 2999.3

LAMP RATIO: 94.6

STR. LGT: 16.2

DRK PMT: 35.3

DRK LMP: -1.8

Internal Span: 52

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	7500	0	7500
high	7442	59	7501
mld	7471	29	7500
low	7483	17	7500

Calibration:

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7496	0.0	7496	0	0.5	NA
adjusted zero	7496	0.0	7496	0	0.0	NA
as found high	7440	58.50	7499	78.0	80.0	0.975
adjusted high	7440	58.50	7499	78.0	78.0	1.000
mld	7471	28.50	7500	38.0	37.9	1.003
low	7482	16.50	7499	22.0	21.9	1.005
calibrator zero	7496	0.00	7496	0	0.0	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>0.06%</u>	0.85-1.15	PASS
% change in C.F. from last cal = <u>2.58%</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: 20 ppb Time gas run (mst): 14:25 - 14:30

Zero corrected analyzer response: 0.2 ppb

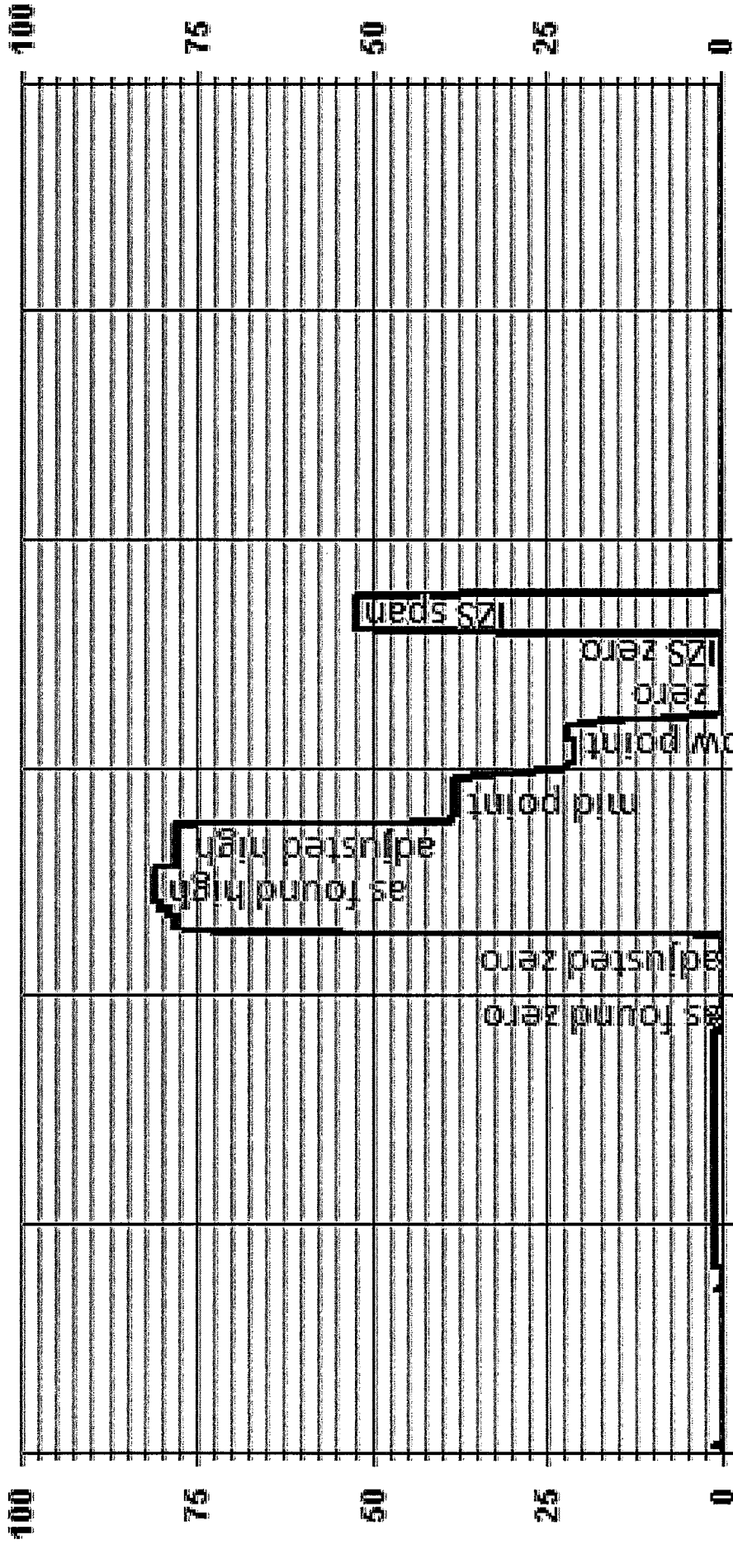
Comments:

Filter changed.

API 101E H2S Analyzer Calibration

Calculated Concentration (ppb)	Indicated Concentration (ppb)
0	0
21.0	21.0
37.0	37.0
78.0	78.0

01 Minute Averages



— LICA35 H2S_ PPB

TOTAL HYDROCARBON

Maxxam Thermo 55I Methane/Non-Methane Analyzer Calibration

Date: 18-Aug-15 **Start Time (mst):** 9:04
Company: LICA **End Time (mst):** 12:58
Station Name: Elk Point **Calibration Purpose:** monthly
Performed by: Alex Yakupov **Cal Gas Expiry Date:** 26-Mar-17

Analyzer & Diagnostics:

Serial Number: 1236656107 Last Calibration Date: 10-Jul-15	As found C.F. CH ₄ = 1.006 NMHC= 0.982 THC= 0.996	Previous Cal High Point C.F. CH ₄ = 1.000 NMHC= 0.999 THC= 0.999	Analyzer Range CH ₄ = 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: 24.0
 -15.0: -15.1

Temperatures:
 Blas Supply: -292.6
 Detector Oven: 175.0
 Filter: 175.0
 Column Oven: 75.0
 Flame: 380.4
 Internal: 29.7

Pressures cylinder/reg.:
 Carrier: 700 | 50
 Fuel: 500 | 50
 Air: 45 | 32.2

FID Status:
 Status: LIT
 Counts: 27001
 Flame: 380.8
 Det Base: 175.1

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

Callbration History>1:
 Time: July 10, 2015
 Type: SPAN
 Status: Good
 Check/Adjust: Adjust
 CH₄ Span Conc: 14.67

Run History>1:
 Date: August 18, 2015
 Time: 11:30
 CH₄ PK HT: 0
 CH₄ RT: 8.0
 CH₄ Baseline: 2327
 CH₄ LOD: 72
 CH₄ SD: 23
 CH₄ CONC: 0.00
 NM PK HT: 0
 NM Peak Area: 0
 NM CONC: 0
 NM Base Start: 2199
 NM Base End: 2212
 NM LOD: 8
 NM Start IDX: 21
 NM End IDX: 81
 NM Max Slope: 7.6e-01
 NM Min Slope: -3.1e-01
 NM PT Count: 0

Calibration History cnt'd>1:
 CH₄ SP Ratio: 0.000704
 CH₄ RT: 12.2
 CH₄ PK IDX: 21
 CH₄ PK HT: 20824
 NM Span Conc: 13.93
 NM SP Ratio: 0.000150
 NM Peak Area: 93089

Callbrator and Gas Information: Make & Model: API 700 Serial #: 830 Cal Gas Cylinder I.D. #: LL33674 CH ₄ Cylinder Conc.: 601.4 202.0 = C ₃ H ₈ Cylinder Conc. CH ₄ as C ₃ H ₈ : 555.5 1156.9 = total CH ₄ equivalent	Callbrator Flow Targets: (cc/min): <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>point</th> <th>diluent</th> <th>cal gas</th> <th>total flow</th> </tr> </thead> <tbody> <tr> <td>zero</td> <td>2000</td> <td>0</td> <td>2000</td> </tr> <tr> <td>high</td> <td>2000</td> <td>53</td> <td>2053</td> </tr> <tr> <td>mid</td> <td>2000</td> <td>25</td> <td>2025</td> </tr> <tr> <td>low</td> <td>2000</td> <td>12</td> <td>2012</td> </tr> </tbody> </table>	point	diluent	cal gas	total flow	zero	2000	0	2000	high	2000	53	2053	mid	2000	25	2025	low	2000	12	2012
point	diluent	cal gas	total flow																		
zero	2000	0	2000																		
high	2000	53	2053																		
mid	2000	25	2025																		
low	2000	12	2012																		

Calibration Data:

Callbrator 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	15.43	14.60	30.00	1.006	0.982	0.996
20 min adjusted high	2000	53.00	2053	15.53	14.34	29.87	15.58	14.26	30.00	0.997	1.006	0.996
20 min mid	2000	25.00	2025	7.42	6.86	14.28	7.60	6.96	15.00	0.977	0.985	0.952
20 min low	2000	12.00	2012	3.59	3.31	6.90	3.65	3.35	7.00	0.983	0.989	0.986
20 min callbrator zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA

Average C.F.= 0.985 0.993 0.978

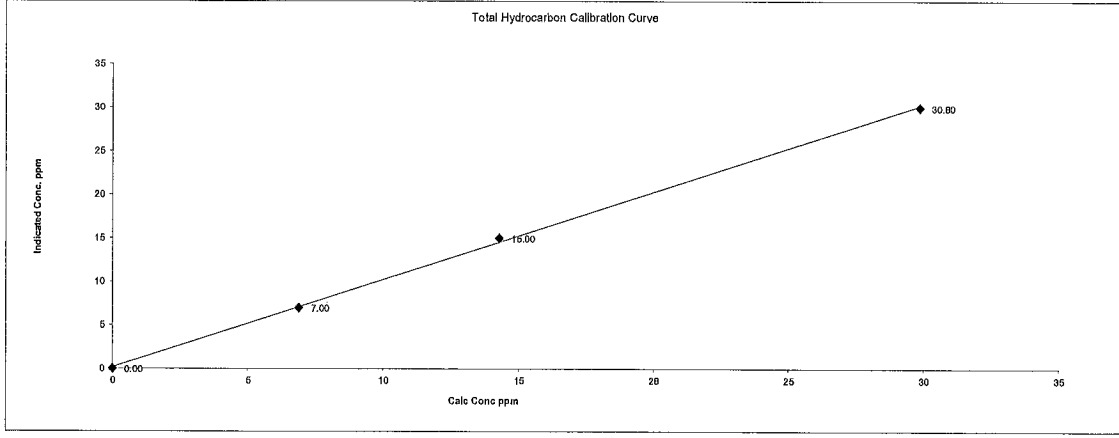
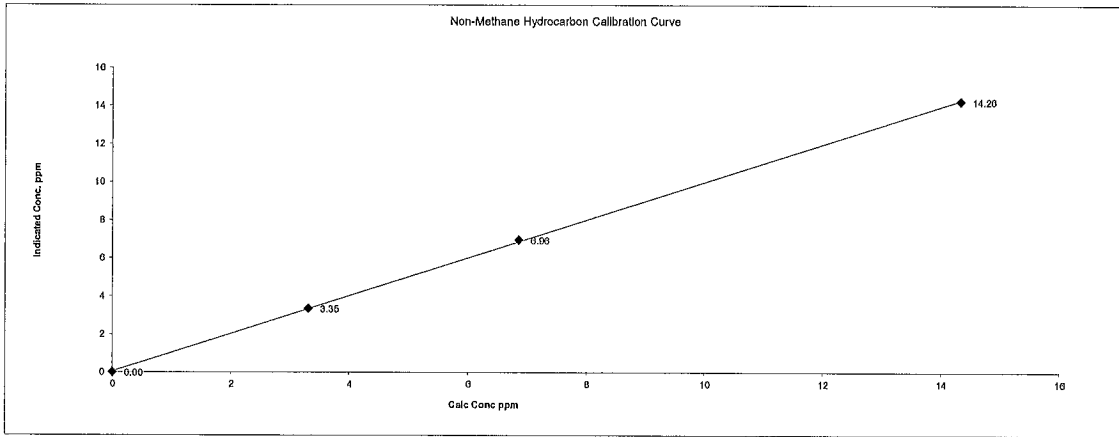
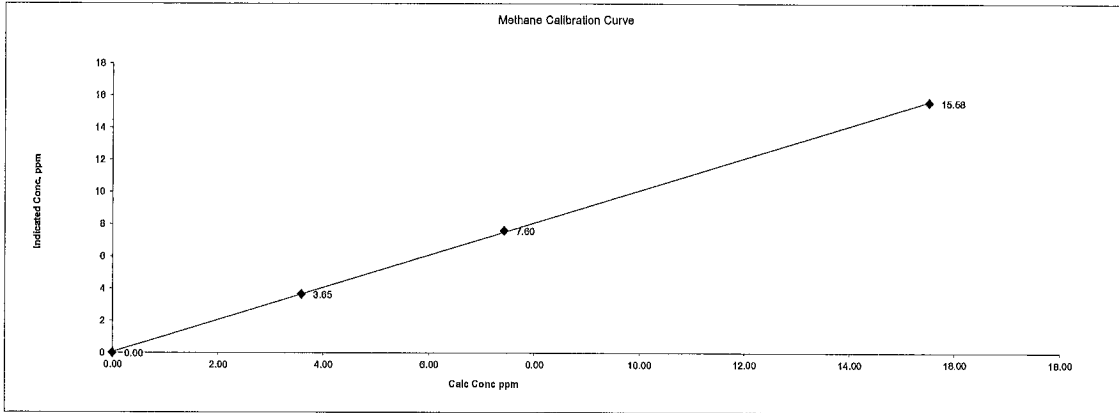
Linear Regression/Calibration Results:

Correlation Coefficient = Slope = b (Intercept as % of full scale)= % change in C.F. from last cal=	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>CH₄</th> <th>NMHC</th> <th>THC</th> </tr> </thead> <tbody> <tr> <td>1.000</td> <td>1.000</td> <td>1.000</td> </tr> <tr> <td>1.003</td> <td>0.994</td> <td>1.006</td> </tr> <tr> <td>0.26%</td> <td>0.26%</td> <td>0.41%</td> </tr> <tr> <td>-0.62%</td> <td>-1.71%</td> <td>-0.35%</td> </tr> </tbody> </table>	CH ₄	NMHC	THC	1.000	1.000	1.000	1.003	0.994	1.006	0.26%	0.26%	0.41%	-0.62%	-1.71%	-0.35%	LIMITS > or = 0.995 0.85-1.15 ± 3% F.S. +/-15%
CH ₄	NMHC	THC															
1.000	1.000	1.000															
1.003	0.994	1.006															
0.26%	0.26%	0.41%															
-0.62%	-1.71%	-0.35%															

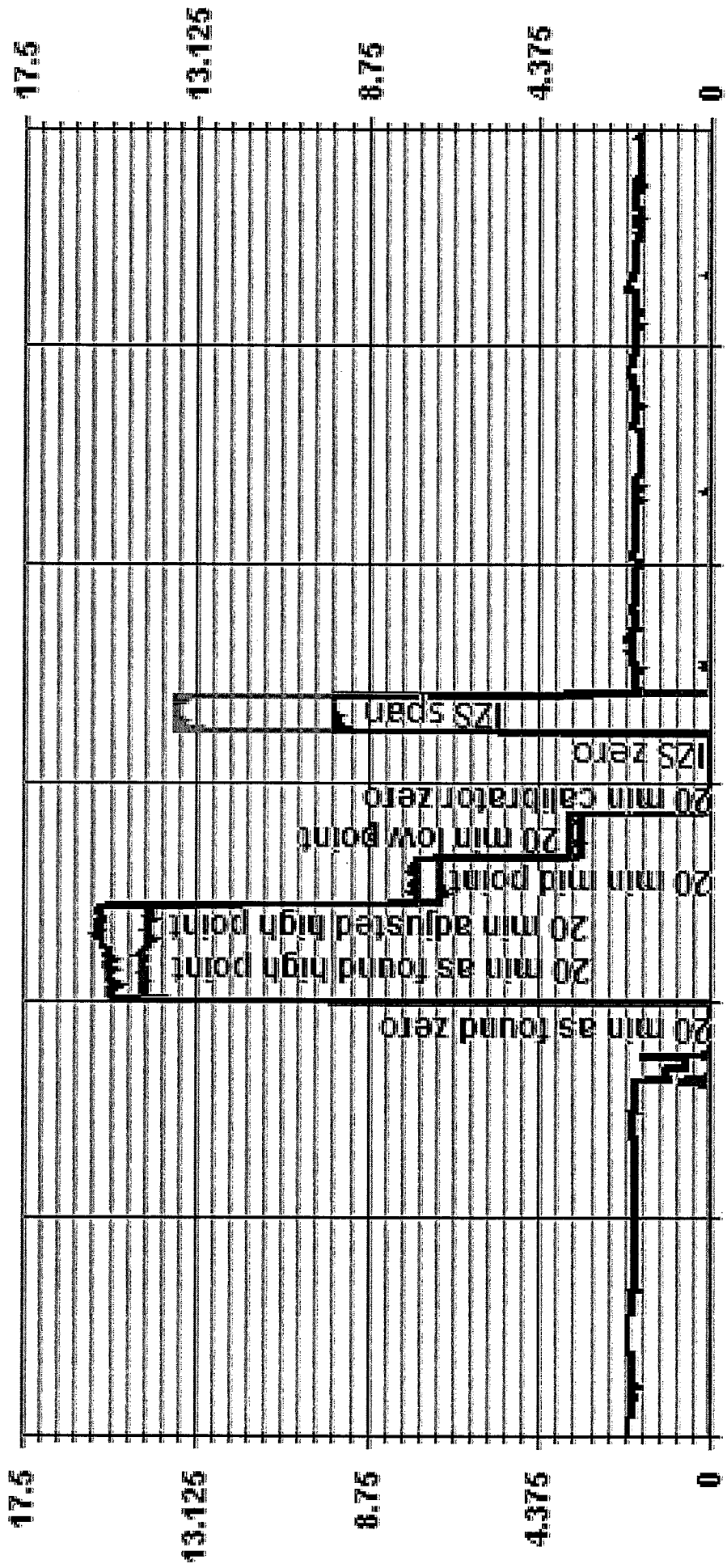
Comments:
Filter changed.

Date:	18-Aug-15	Start Time (mst):	9:04
Company:	LICA	End Time (mst):	12:58
Station Name:	Elk Point	Calibration Purpose:	monthly
Performed by:	Alex Yakupov	Cal Gas Expiry Date:	26-Mar-17

Thermo 55C Methane/Non-Methane Analyzer Calibration



01 Minute Averages



08/18/15 06:00 08/18/15 08:00 08/18/15 10:00 08/18/15 12:00 08/18/15 14:00 08/18/15 16:00

— LICA35 METHANE PPM - - - LICA35 NMHC PPM

NITROGEN DIOXIDE



API 200E NOx Analyzer Calibration

Date: 18-Aug-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Alex Yakupov

Start Time (mst): 9:04
 End Time (mst): 11:06
 Calibration Purpose: As Found
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 592
 Last Calibration Date: 6-Jul-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.076 NO= 0.999
 NOx= 1.068 NOx= 0.999
 NO₂= 0.993 NO₂= 0.998

As found:
 NOx SLOPE: 1.037
 NOx OFFS: 3.4
 NO SLOPE: 1.035
 NO OFFS: -0.2
 TEST: 127.5
 SAMP FLW: 486
 OZONE FL: 75
 PMT: 22.9
 NORM PMT: 0.8
 AZERO: 17.0
 HVPS: 637
 RCELL TEMP: 50.0
 BOX TEMP: 26.7
 PMT TEMP: 6.9
 IZS TEMP: 40.3
 MOLY TEMP: 315.7
 RCEL: 7.5
 SAMP: 26.8
 Internal Span: 292.3/7.6/285.7

As left:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 TEST: NA
 SAMP FLW: NA
 OZONE FL: NA
 PMT: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 RCELL TEMP: NA
 BOX TEMP: NA
 PMT TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
low	4994	19	100.00	5013

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	5013	0.0	5013	0	0	1.0	2.0	NA	NA
as found high	4938	77.20	5015	778.9	778.9	725	731	1.076	1.068
Average C.F.=								1.076	1.068

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	4938	77.20	5015	0.0	725.0	731.0	6.0	1.0	1.0	
as found NO ₂	4938	77.20	5015	500.0	280.0	734.0	454.0	445.0	448.0	0.993
Average NO ₂ C.F.=										NA

Linear Regression/Calibration Results:			LIMITS
NO	NOx	NO ₂	
Correlation Coefficient =	NA	NA	> or = 0.995
Slope =	NA	NA	0.85-1.15
b (Intercept as % of full scale)=	NA	NA	± 3% F.S.
% change in C.F. from last cal=	-7.69%	-6.95%	+/-15%
NO2 converter efficiency		NA	>85%

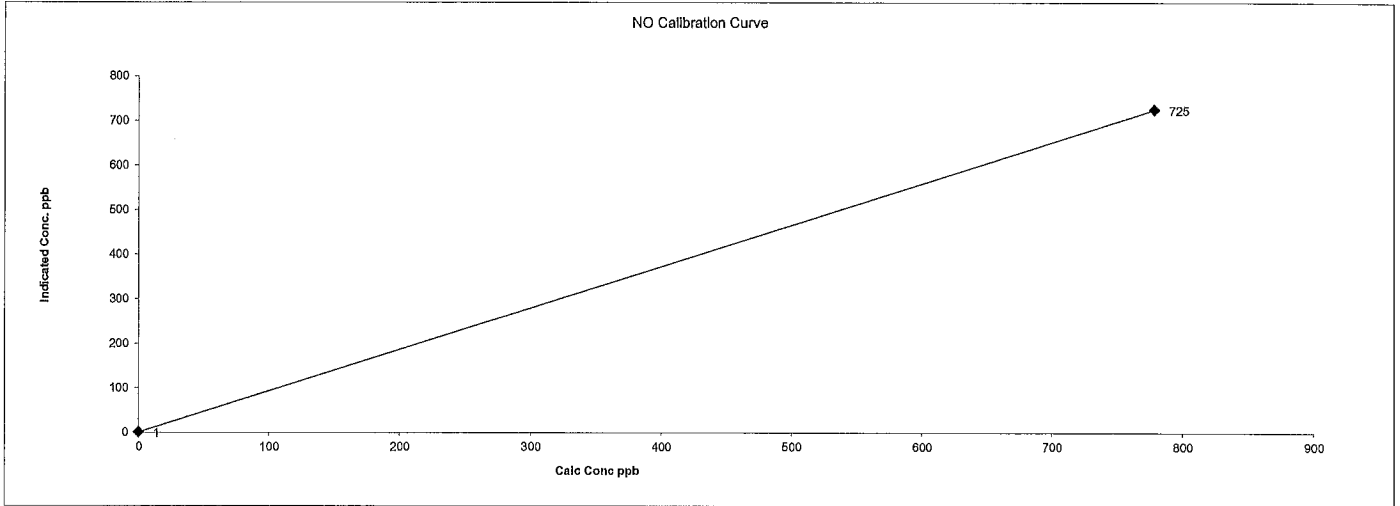
Comments:

No zero adjustment made. No High Point adjustment made. No NO₂ adjustment made. As Found calibration performed to replace a sampling pump.

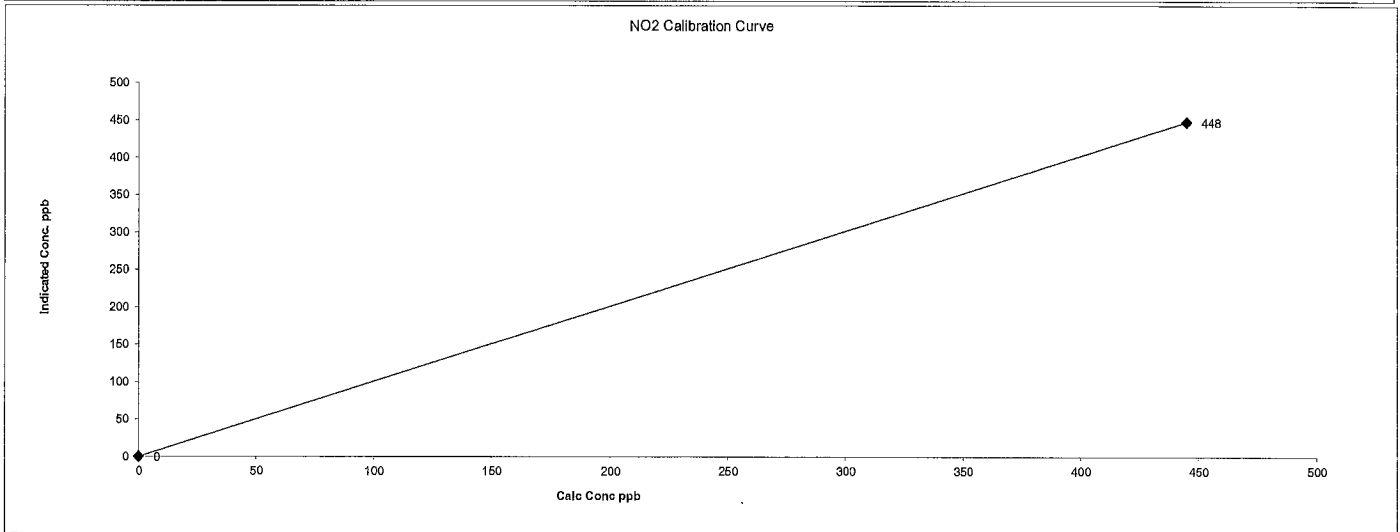
Date:	18-Aug-15	Start Time (mst):	9:04
Company:	LICA	End Time (mst):	11:06
Station Name/Location:	Elk Point	Calibration Purpose:	As Found
Performed by:	Alex Yakupov	Cal Gas Expiry Date:	12-Mar-19

API 200E NOx Analyzer Calibration

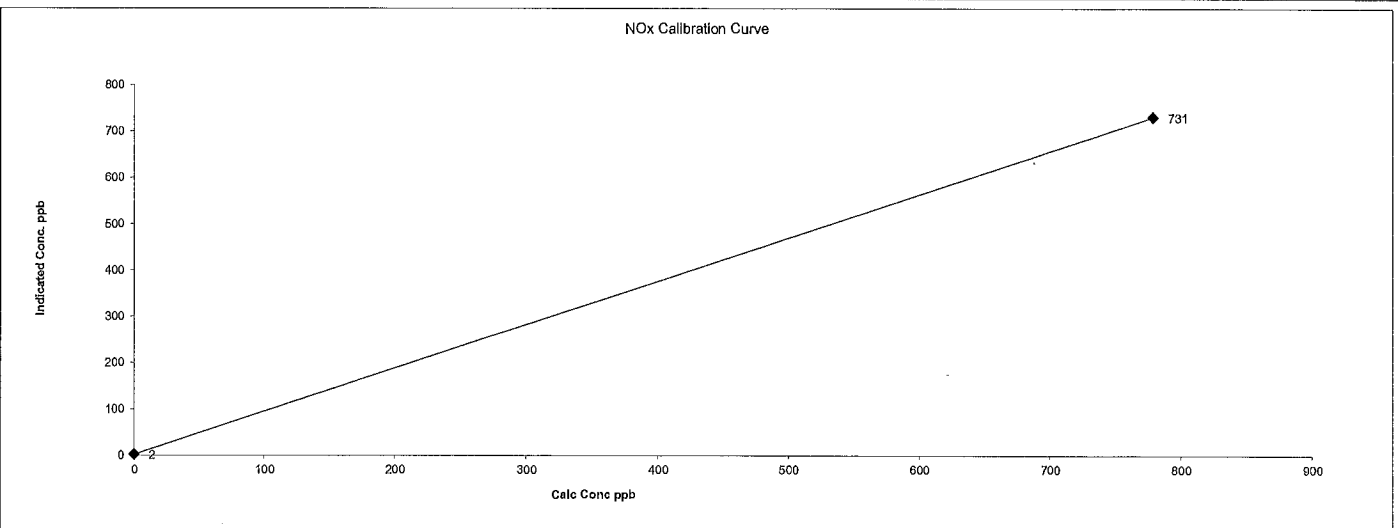
NO Calibration Curve



NO2 Calibration Curve



NOx Calibration Curve





API 200E NOx Analyzer Calibration

Date: 18-Aug-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Alex Yakupov

Start Time (mst): 11:35
 End Time (mst): 17:38
 Calibration Purpose: Post Repair
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 592
 Last Calibration Date: 6-Jul-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.000 NO= 0.999
 NOx= 1.000 NOx= 0.999
 NO₂= 1.000 NO₂= 0.998

As found:
 NOx SLOPE: NA
 NOx OFFS: NA
 NO SLOPE: NA
 NO OFFS: NA
 TEST: NA
 SAMP FLW: NA
 OZONE FL: NA
 PMT: NA
 NORM PMT: NA
 AZERO: NA
 HVPS: NA
 RCELL TEMP: NA
 BOX TEMP: NA
 PMT TEMP: NA
 IZS TEMP: NA
 MOLY TEMP: NA
 RCEL: NA
 SAMP: NA
 Internal Span: NA

As left:
 NOx SLOPE: 1.225
 NOx OFFS: 1.9
 NO SLOPE: 1.219
 NO OFFS: 0.4
 TEST: 127.5
 SAMP FLW: 485
 OZONE FL: 75
 PMT: 17.2
 NORM PMT: 2.3
 AZERO: 17.4
 HVPS: 637
 RCELL TEMP: 50.0
 BOX TEMP: 30.1
 PMT TEMP: 6.9
 IZS TEMP: 40.0
 MOLY TEMP: 314.1
 RCEL: 5.5
 SAMP: 27.3
 Internal Span: 261/7.6/254.4

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
low	4994	19	100.00	5013

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)		
adjusted zero	5013	0.0	5013	0	0	0.0	1.0	NA	NA
adjusted high	4938	77.20	5015	778.9	778.9	779	780	1.000	1.000
mid	4976	37.70	5014	380.5	380.5	384	385	0.991	0.991
low	4994	18.90	5013	190.8	190.8	195	195	0.978	0.983
calibrator zero	5013	0.00	5013	0	0	1.0	1.0	NA	NA
Average C.F.=								0.990	0.991

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	4938	77.20	5015	0.0	777.0	778.0	2.0	0.0	1.0	
as found NO ₂	4938	77.20	5015	500.0	299.0	778.0	480.0	478.0	478.0	1.000
gpt mid	4938	77.20	5015	280.0	506.0	781.0	276.0	271.0	274.0	0.989
gpt low	4938	77.20	5015	100.0	678.0	779.0	102.0	99.0	100.0	0.990
Average NO ₂ C.F.=										0.993

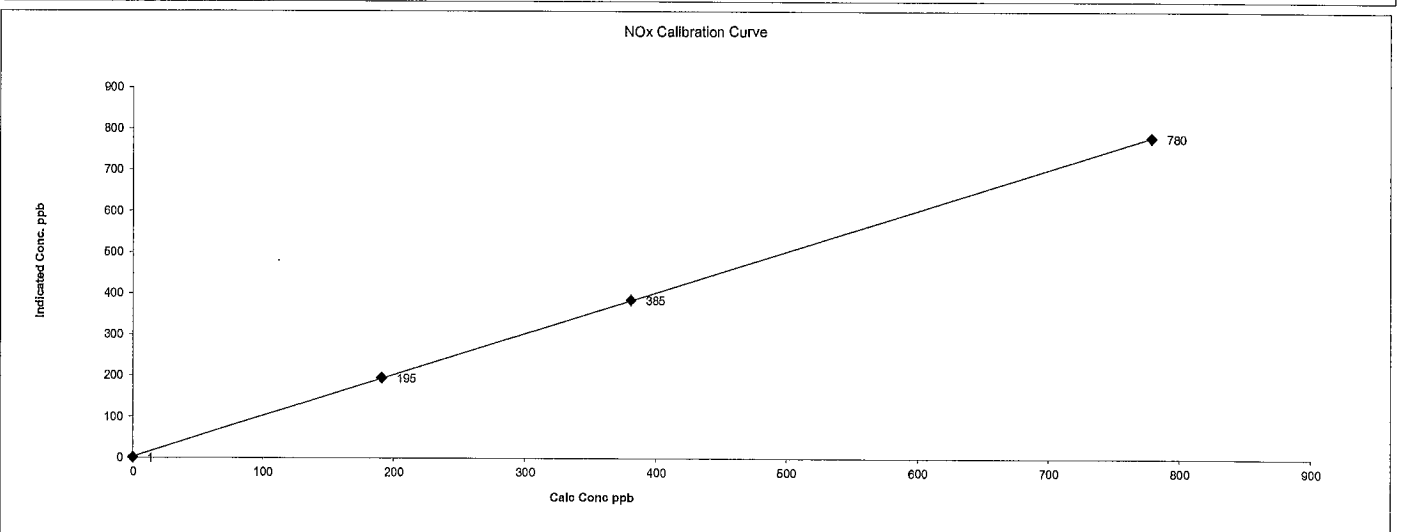
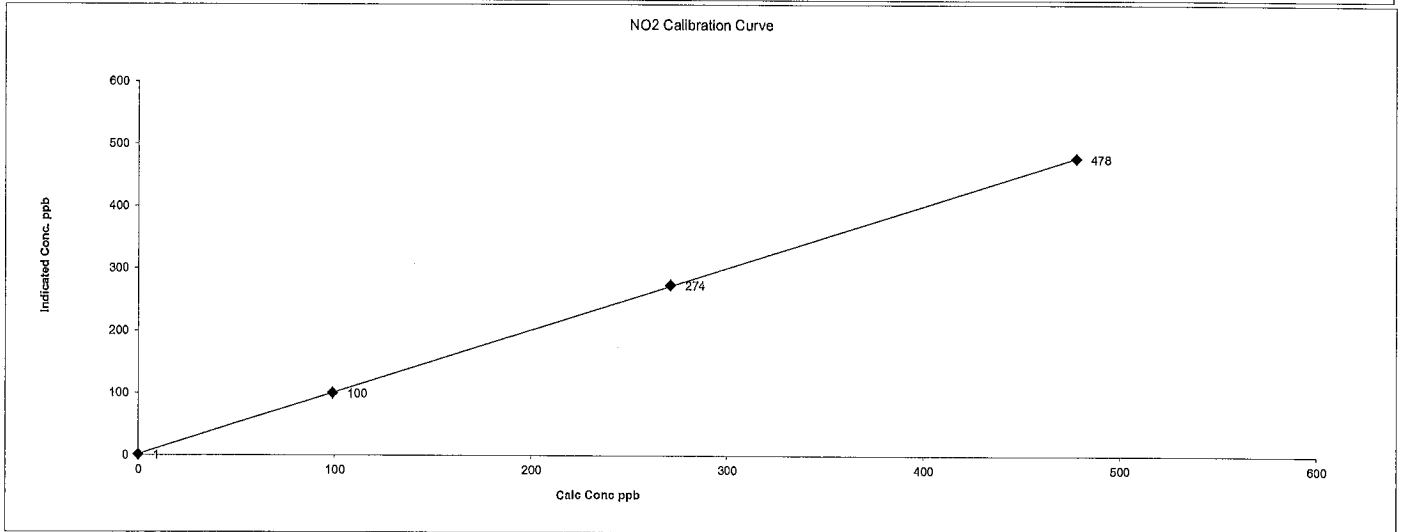
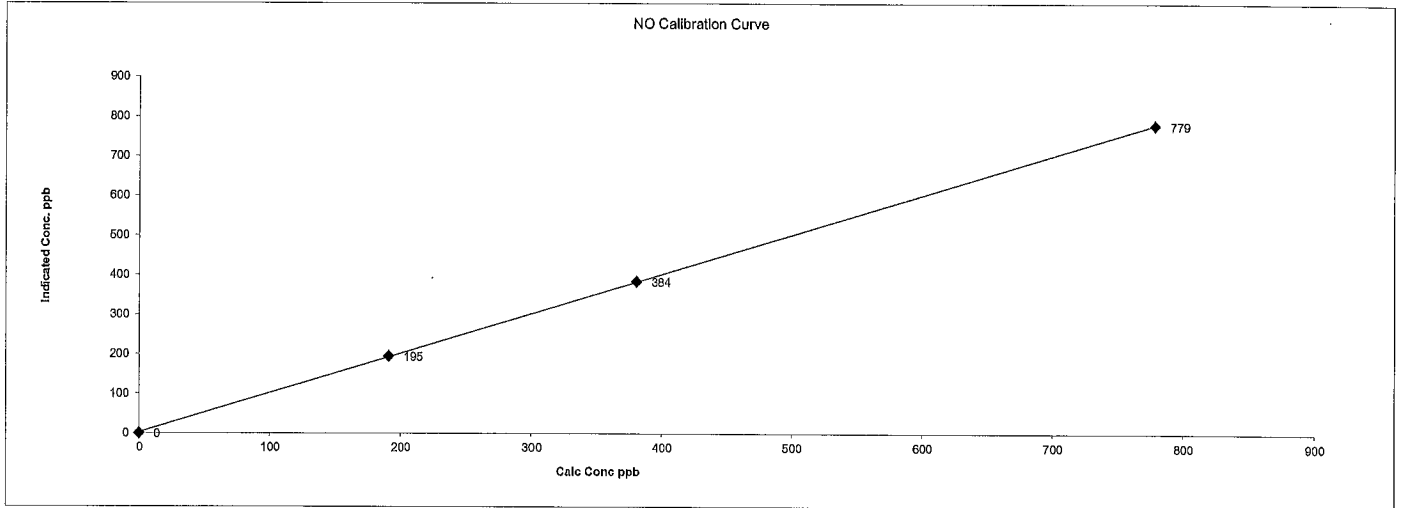
Linear Regression/Calibration Results:			LIMITS
NO	NOx	NO ₂	
Correlation Coefficient =	1.000	1.000	> or = 0.995
Slope =	0.999	0.999	0.85-1.15
b (Intercept as % of full scale)=	0.24%	0.30%	± 3% F.S.
% change in C.F. from last cal=	-0.09%	-0.09%	+/-15%
NO2 converter efficiency		100.7%	>85%

Comments:

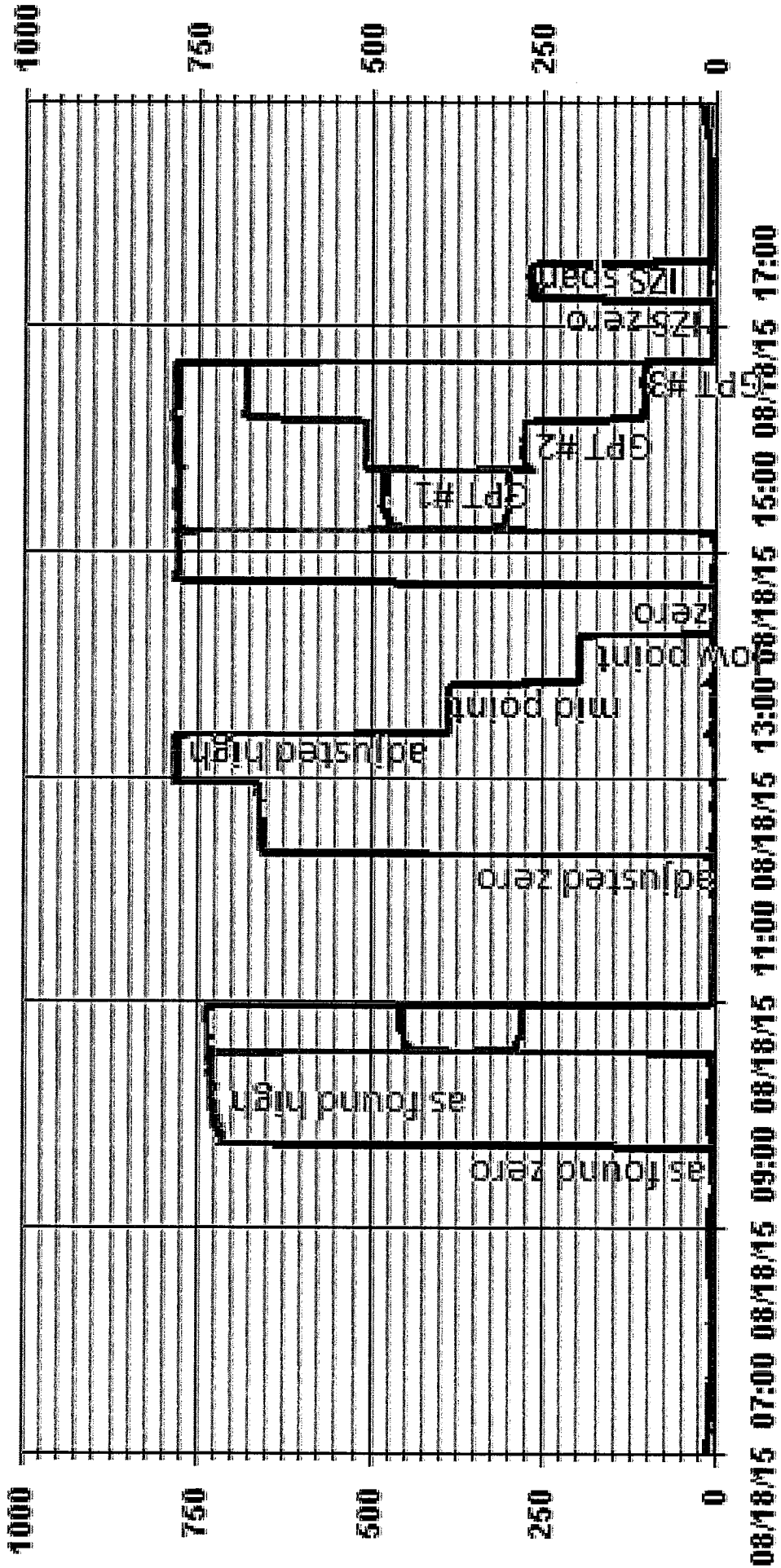
No NO2 adjustment made. New sampling pump installed. Sampling filter changed. Zero Air filter renewed.

Date:	18-Aug-15	Start Time (mst):	11:35
Company:	LICA	End Time (mst):	17:38
Station Name/Location:	Elk Point	Calibration Purpose:	Post Repair
Performed by:	Alex Yakupov	Cal Gas Expiry Date:	12-Mar-19

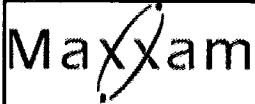
API 200E NOx Analyzer Calibration



01 Minute Averages



— LICA35 NOX_ PPB — LICA35 NO_ PPB — LICA35 NO2_ PPB



API 200E NOx Analyzer Calibration

Date: 29-Aug-15
 Company: LICA
 Station Name/Location: Elk Point
 Performed by: Alex Yakupov

Start Time (mst): 13:00
 End Time (mst): 15:55
 Calibration Purpose: As Found
 Cal Gas Expiry Date: 12-Mar-19

Analyzer Serial Number: 592
 Last Calibration Date: 18-Aug-15
 Range ppb: 1000

Correction Factors:
 As found C.F. Previous Cal High Point C.F.:
 NO= 1.022 NO= 1.000
 NOx= 1.019 NOx= 1.000
 NO₂= 1.000 NO₂= 1.000

As found:
 NOx SLOPE: 1.225
 NOx OFFS: 1.9
 NO SLOPE: 1.219
 NO OFFS: 0.4
 TEST: 127.5
 SAMP FLW: 480
 OZONE FL: 74
 PMT: 19.7
 NORM PMT: 3.9
 AZERO: 17.3
 HVPS: 637
 RCELL TEMP: 50.3
 BOX TEMP: 27.2
 PMT TEMP: 6.8
 IZS TEMP: 40.1
 MOLY TEMP: 313.7
 RCEL: 5.4
 SAMP: 27.0
 Internal Span: 261/7.6/254.4

As left:
 NOx SLOPE: 1.225
 NOx OFFS: 1.9
 NO SLOPE: 1.219
 NO OFFS: 0.4
 TEST: 127.5
 SAMP FLW: 479
 OZONE FL: 74
 PMT: 18.7
 NORM PMT: 2.9
 AZERO: 17.3
 HVPS: 637
 RCELL TEMP: 50.3
 BOX TEMP: 27.0
 PMT TEMP: 6.9
 IZS TEMP: 40.1
 MOLY TEMP: 315.5
 RCEL: 5.5
 SAMP: 27.0
 Internal Span: 261/7.6/254.4

Calibrator Flow Targets:

Make & Model: SABIO 2010 D
 Serial #: 11900613
 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	5013	0	0	5013
high	4938	77	500.00	5015
mid	4976	38	280.00	5014
low	4994	19	100.00	5013

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	5013	0.0	5013	0	0	0.0	3.5	NA	NA
as found high	4938	77.20	5015	778.9	778.9	762	768	1.022	1.019
Average C.F.=								N/A	N/A

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	4938	77.20	5015	0.0	762.0	768.0	7.0	0.0	3.5	
as found NO ₂	4938	77.20	5015	500.0	297.0	768.0	472.0	465.0	465.0	1.000
Average NO ₂ C.F.=										N/A

Linear Regression/Calibration Results:

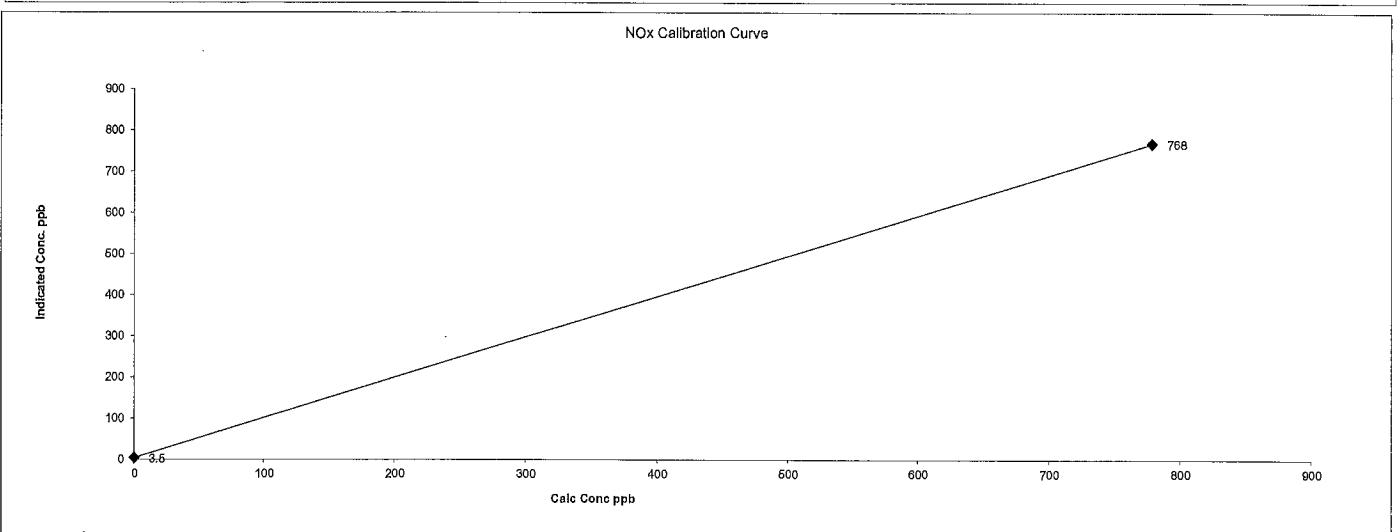
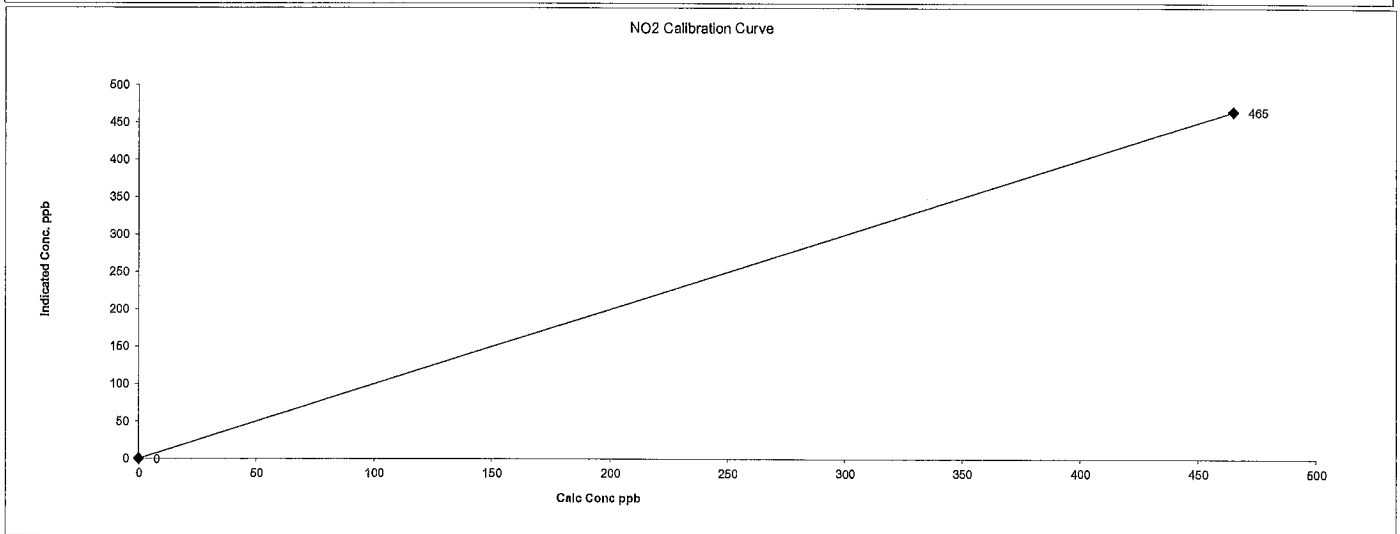
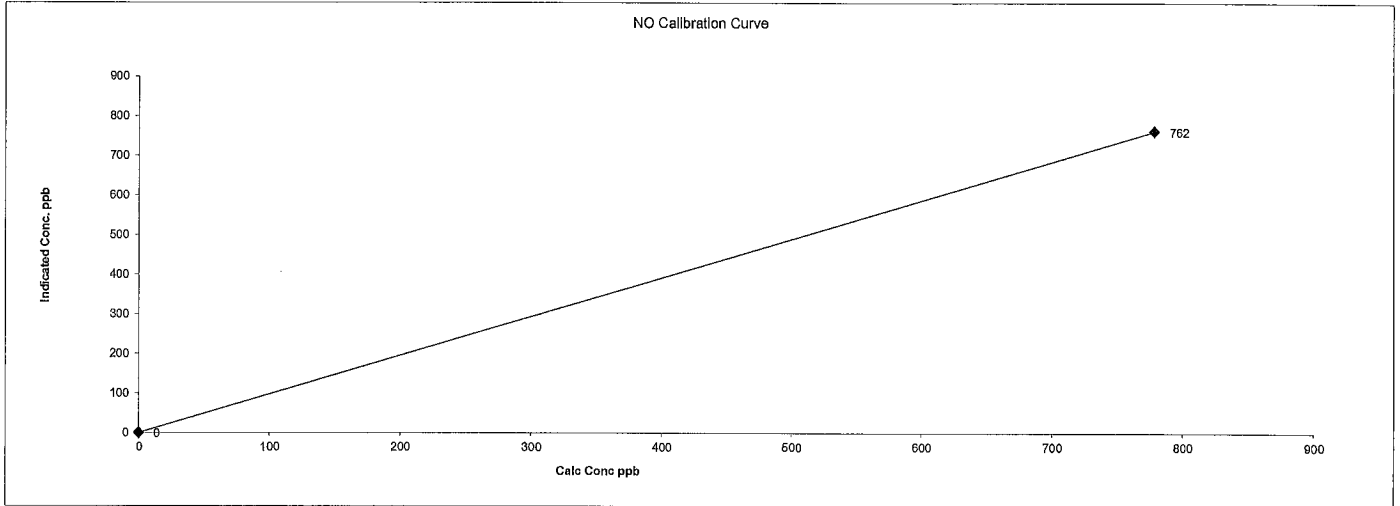
	NO	NOx	NO ₂	LIMITS
Correlation Coefficient =	N/A	N/A	N/A	> or = 0.995
Slope =	N/A	N/A	N/A	0.85-1.15
b (Intercept as % of full scale)=	N/A	N/A	N/A	± 3% F.S.
% change in C.F. from last cal=	-2.22%	-1.88%	0.00%	+/-15%
NO2 converter efficiency			N/A	>85%

Comments:

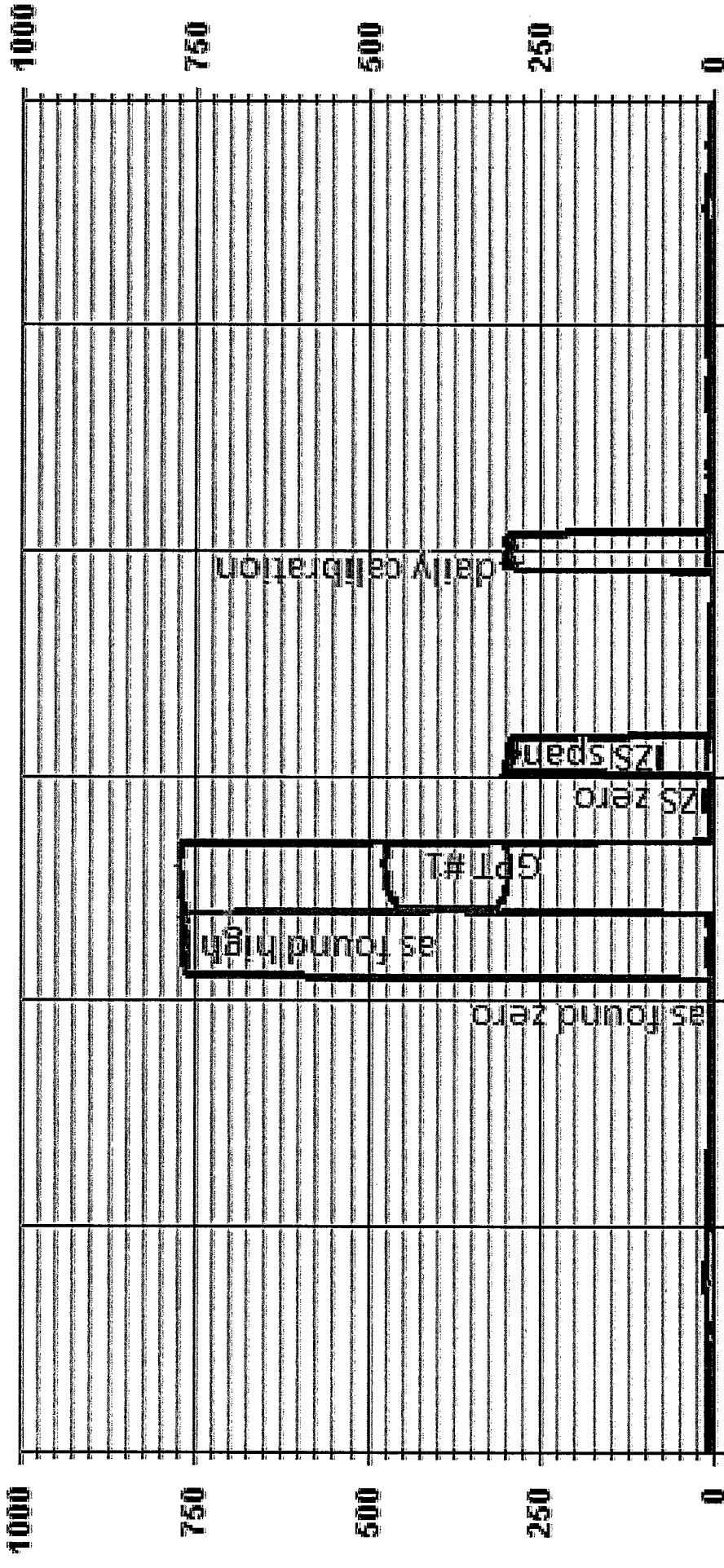
No zero adjustment made. No High Point adjustment made. No NO2 adjustment made. As Found calibration required because of SPAN drift was over 10% during daily ZS check.

Date:	29-Aug-15	Start Time (mst):	13:00
Company:	LICA	End Time (mst):	15:55
Station Name/Location:	Elk Point	Calibration Purpose:	As Found
Performed by:	Alex Yakupov	Cal Gas Expiry Date:	12-Mar-19

API 200E NOx Analyzer Calibration



01 Minute Averages



— LICA35 NOX_ PPB — LICA35 NO_ PPB — LICA35 NO2_ PPB

OZONE

Maxxam Thermo 49i O₃ Analyzer Calibration

Date: 17-Aug-15	Start Time (mst): 13:27	
Company: LICA	End Time (mst): 17:18	
Station Name/Location: Elk Point	Calibration Purpose: Monthly	
Performed by: Alex Yakupov	G.P.T. Date: NA	

Analyzer: Serial Number: 1002240372 Last Calibration Date: 7-Jul-15 Previous Cal High Point C.F.: 1.000	Range ppm: 500 As Found C.F.: 0.995 New C.F.: 1.000
-------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------

Motherboard: As found: O ₃ Bkg: 0.0 O ₃ Coef: 0.992 3.3 3.3 15.0 15.0 24.0 24.0 -3.3 -3.2	As left: O ₃ Bkg: -0.2 O ₃ Coef: 0.985 3.3 3.3 15.0 15.0 24.0 24.0 -3.3 -3.2
Interface Board: 3.3 3.3 5.0 5.0 15.0 14.9 -15.0 -15.1	3.3 3.3 5.0 5.0 15.0 14.9 -15.0 -15.1

Photo Lamp: 14.2 24.0 23.5 O ₃ Lamp: 9.4 Bench: 30.0 Bench Lamp: 54.1 O ₃ Lamp: 68.2 Pressure: 701.8 Cell A lpm: 0.754 Cell B lpm: 0.759 O ₃ ppb: -0.9 Cell A ppb: 5.4 Cell B ppb: -7.3 Cell A Int: 106067 Cell B Int: 103728 Internal Span: 374.4	Photo Lamp: 14.2 24.0 23.5 O ₃ Lamp: 9.4 Bench: 29.5 Bench Lamp: 54.1 O ₃ Lamp: 68.2 Pressure: 700.9 Cell A lpm: 0.754 Cell B lpm: 0.758 O ₃ ppb: 0.2 Cell A ppb: 1.8 Cell B ppb: -1.4 Cell A Int: 106025 Cell B Int: 103690 Internal Span: 359.6
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Calibrator: Make & Model: SABIO 2010 D Serial #: 11900613 NOx Gas Cylinder I.D. #: BLM002073 NOx Cylinder Conc. (ppm): 50.6	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>5013</td> <td>0</td> </tr> <tr> <td>high</td> <td>5013</td> <td>380</td> </tr> <tr> <td>mid</td> <td>5013</td> <td>180</td> </tr> <tr> <td>low</td> <td>5013</td> <td>90</td> </tr> </tbody> </table>	point	total flow (cc/min)	O ₃ setting (v or ppb)	zero	5013	0	high	5013	380	mid	5013	180	low	5013	90
point	total flow (cc/min)	O ₃ setting (v or ppb)														
zero	5013	0														
high	5013	380														
mid	5013	180														
low	5013	90														

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	5013	0.0	5013	0.0	-0.3	NA
adjusted zero	5013	0.0	5013	0.0	0.0	NA
as found high	5013	0.00	5013	380.0	382.0	0.995
adjusted high	5013	0.00	5013	380.0	380.0	1.000
mid	5013	0.00	5013	180.0	180.0	1.000
low	5013	0.00	5013	90.0	90.0	1.000
calibrator zero	5013	0.00	5013	0.0	0.3	NA

Average C.F.= 1.000

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

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000 Slope = 1.000 b (Intercept as % of full scale) = 0.000% % change in C.F. from last cal = 1%	<table border="0"> <tr> <td style="text-align: right;">LIMITS</td> <td style="text-align: left;">Pass/Fail ?</td> </tr> <tr> <td style="text-align: right;">> or = 0.995</td> <td>PASS</td> </tr> <tr> <td style="text-align: right;">0.85-1.15</td> <td>PASS</td> </tr> <tr> <td style="text-align: right;">± 3% F.S.</td> <td>PASS</td> </tr> <tr> <td style="text-align: right;">± 15%</td> <td>PASS</td> </tr> </table>	LIMITS	Pass/Fail ?	> or = 0.995	PASS	0.85-1.15	PASS	± 3% F.S.	PASS	± 15%	PASS
LIMITS	Pass/Fail ?										
> or = 0.995	PASS										
0.85-1.15	PASS										
± 3% F.S.	PASS										
± 15%	PASS										

Comments:

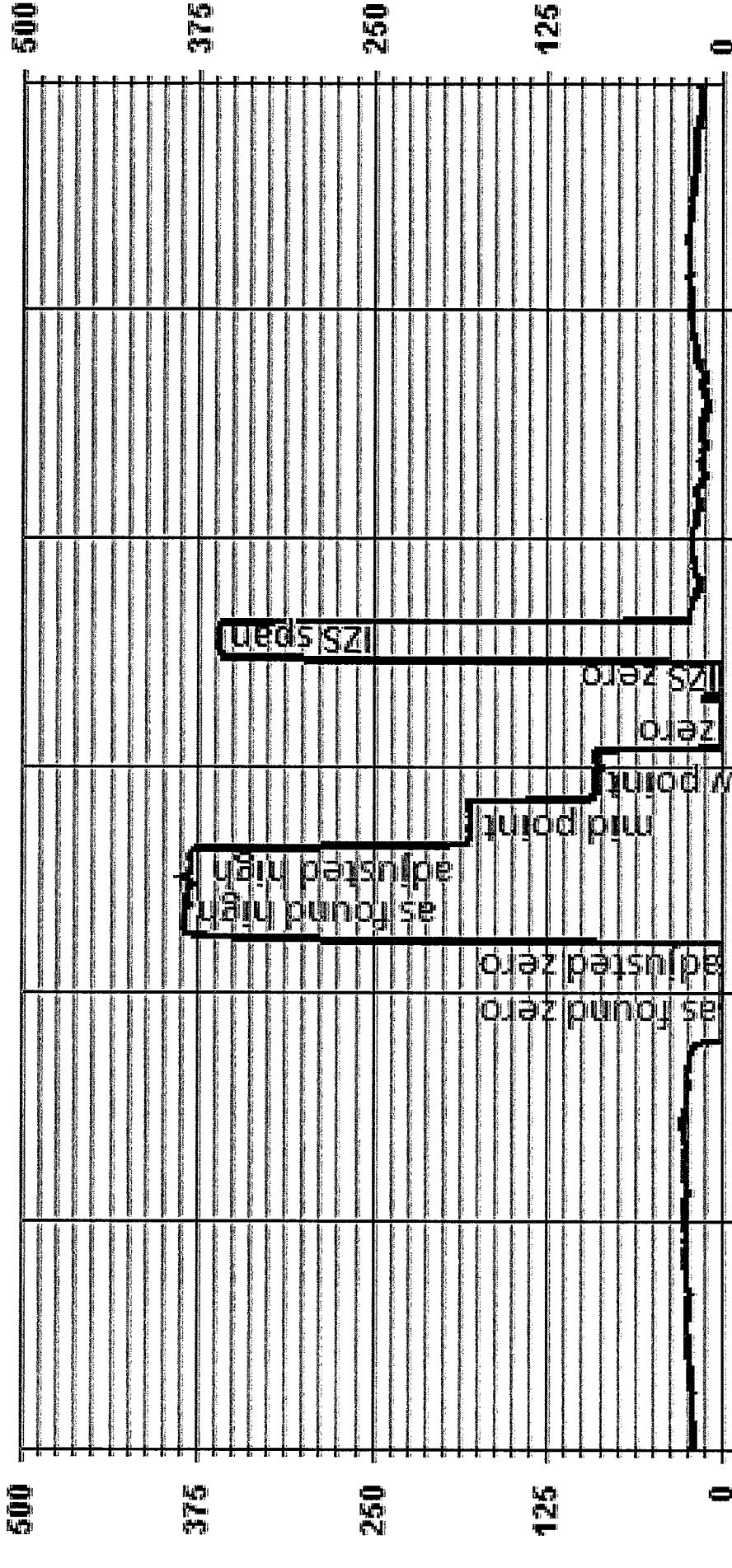
Filter changed.

Thermo 49i O₃ Analyzer Calibration

O₃ Calibration Curve

Calc Conc (ppb)	Indicated Conc (ppb)
0.0	0.0
90.0	90.0
180.0	180.0
380.0	380.0

01 Minute Averages



— LICA35 O3_ PPB

PARTICULATE MATTER



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 7-Aug-15
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: 16-Jul-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 16:01 - 16:41
 Calibration Purpose: Monthly Audit #1

1400A Information and Status:

Serial Number:	<u>1405A207691003</u>	As Found Filter Loading %:	<u>27.75</u>
Ko Factor:	<u>15634</u>	As Left Filter Loading %:	<u>20.22</u>
Ambient Temperature °C:	<u>21.12</u>	As Found Noise:	<u>0.003</u>
Ambient Pressure atm:	<u>0.925</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	-0.01	0.57	0.00	0.56
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.70	0.00	-0.70
	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	0.57	0.00	0.56
	limit	0.15	0.15	0.15	0.15
Bypass Flow	actual	0.00	-0.70	0.00	-0.70
	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>21.1</u>	1405F pressure atm:	<u>0.925</u>
reference temperature °C:	<u>20.9</u>	reference pressure:	<u>0.926</u>
difference °C:	<u>-0.2</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>20.9</u>	1405F pressure atm:	<u>0.926</u>
reference temperature °C:	<u>20.9</u>	reference pressure:	<u>0.926</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>3.12</u>	reference total/aux flow lpm: <u>17.22</u>
difference lpm: <u>0.12</u>	difference lpm: <u>0.55</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>3.09</u>	reference total/aux flow lpm: <u>17.20</u>
difference lpm: <u>0.09</u>	difference lpm: <u>0.53</u>

K_o Audit:

Last K_o audit date: 16-Jul-15
 1405F K_o factor: 15634
 Measured K_o factor: 15757.7000
 % difference: 0.79

Comments:



R & P 1405F TEOM PM 2.5 Analyzer Calibration

Date: 26-Aug-15
 Company: LICA
 Station Name/Location: Elk Point
 Previous Audit Date: 7-Aug-15

Parameter: PM 2.5
 Performed by: Alex Yakupov
 Start/End Time (mst): 09:21 - 10:13
 Calibration Purpose: Monthly Audit #2

1400A Information and Status:

Serial Number: 1405A207691003 As Found Filter Loading %: 24.51
 Ko Factor: 15634 As Left Filter Loading %: 24.91
 Ambient Temperature °C: 19.94 As Found Noise: 0.008
 Ambient Pressure atm: 0.935 As Left Noise: 0.000
 Main Flow Reading lpm: 3.00 Pump Vacuum: 0.37
 Aux Flow Reading lpm: 13.67 Warnings: None

Reference Standards:

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

As found leak check:

	Base	Zero	Reference	Zero
PM 2.5 Flow actual	-0.01	0.57	0.00	0.56
PM 2.5 Flow limit	0.15	0.15	0.15	0.15
Bypass Flow actual	0.00	-0.70	0.00	-0.70
Bypass Flow 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	0.57	0.00	0.56
PM 2.5 Flow limit	0.15	0.15	0.15	0.15
Bypass Flow actual	0.00	-0.70	0.00	-0.70
Bypass Flow 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>19.9</u>	1405F pressure atm: <u>0.935</u>
reference temperature °C: <u>20.7</u>	reference pressure: <u>0.937</u>
difference °C: <u>0.8</u>	difference: <u>-0.002</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>20.7</u>	1405F pressure atm: <u>0.937</u>
reference temperature °C: <u>20.7</u>	reference pressure: <u>0.937</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>17.02</u>
difference lpm: <u>0.04</u>	difference lpm: <u>0.35</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>3.03</u>	reference total/aux flow lpm: <u>16.80</u>
difference lpm: <u>0.03</u>	difference lpm: <u>0.13</u>

K_o Audit:

Last K_o audit date: 16-Jul-15
 1405F K_o factor: 15634
 Measured K_o factor: 15757.7000
 % difference: 0.79

Comments:

WIND SYSTEM



Meteorological Sensor Audit

Station Information

Company:	<u>LICA</u>	Performed By:	<u>Chris Wesson/Kevin Hope</u>
Location:	<u>Elk Point</u>	Reason:	<u>Bi-annual audit</u>
Audit Date:	<u>21-Feb-14</u>	Start Time (mst):	<u>15:10</u>
Previous Audit Date:	<u>24-Nov-11</u>	End Time (mst):	<u>15:40</u>

Wind Speed

Sensor make:	<u>RM Young</u>	Sensor height:	<u>10M</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>56589</u>
Calibrator:	<u>RM Young</u>	Variable speed motor:	<u>CA 03309</u>
Voltage range:	<u>0 - 1</u>	Output signal range:	<u>0 - 200 KPH</u>

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	35.54	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:	<u>RM Young</u>	Sensor height:	<u>10M</u>
Sensor model:	<u>5103VK</u>	Serial Number:	<u>56589</u>
Calibrator:	<u>RM Young</u>	Variable speed motor:	<u>CA03309</u>
Voltage range:	<u>0 - 1</u>	Output signal range:	<u>0 - 360</u>

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: Maxxam **Operator:** Limin Li

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010D</u>	Make/Model	<u>N/A</u>
Serial Number	<u>11900613</u>	Serial Number	<u>N/A</u>
Oven Temperature	<u>N/A</u>	Temperature (°C)	<u>N/A</u>
Last Verification Date	<u>N/A</u>	Barometric Pressure	<u>N/A</u>

Flow Measurements

Pt. No. 1 5000 **Pt. No. 2** 5000 **Pt. No. 3** 5000

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
5013	0.000	0.001		
5013	0.400	0.407	1%	± 10%
5013	0.200	0.204	1%	± 10%
5014	0.100	0.101	0%	± 10%
Absolute Average Percent Difference			1%	± 10%

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

O_3		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0163	0.90-1.10
b (Intercept % of FS)=	0.0800	± 3% F.S.

AENV Standards		Ozone Analyzer	
Audit Calibrator		Make/Model	<u>Teco 49i</u>
Make/Model	<u>Teco 49i PS</u>	Serial/AMU Number	<u>AMU 1843</u>
Serial/AMU Number	<u>AMU 1808</u>	Last Calibration Date	<u>May 21, 2015</u>
Ozone Standard	<u>Primary</u>	Full Scale (ppm)	<u>0.5</u>

COMMENTS: _____

Auditor: Al Clark Date: May 21, 2015
 Operator Signature: *Limin Li* 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)

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: Bios 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	0.000	0.000	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:

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 (scem)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	10.0	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	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: 780-449-0770
 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	500.0ppm	501.4ppm	U	±1% rel
Propane	200.0ppm	202ppm	U	±1% rel
Nitrogen	Balance	Balance		

Analytical Instruments: **Mettler-Toledo Analytical Balance-ID2ex/USA--**
Hewlett-Packard (Agilent)-6890--GC-FID

Cylinder Style: **AQ** Filling Method: **Gravimetric**
 Cylinder Pressure @70F: **2200 psig** Date of Fill: **03/26/2014**
 Cylinder Volume: **82.0 fl3** Expiration Date: **03/26/2017**
 Valve Outlet Connection: **CGA-350**
 Cylinder No(s): **LL33874**

Analyst: Todd Hryniv

The gas calibration cylinder standard prepared by Praxair Canada, Inc. is considered a certified standard. It is prepared by gravimetric, subvolume, or partial pressure techniques. The calibration standard provided is certified against Praxair Canada, Inc. Reference Materials which are either prepared by weight traceable to the National Institute of Standards and Technology (NIST), Measurement Canada, or to other NIST Standard Reference Materials where available.

Note: All specifications for concentrations (in g, % or ppm) are for gas phase, by volume (at 0 °C and 101.325 kPa), unless otherwise noted.

Key to Abbreviations:			
A: Flame Ionization with Methanizer	B: Gas Chromatography with Conductivity Detector	C: Gas Chromatography with Electrodeless Discharge	D: Gas Chromatography with Flame Ionization Detector
E: Gas Chromatography with Photoacoustic Cell	F: Gas Chromatography with Thermal Conductivity Detector	G: Gas Chromatography with Methanizer and Conductivity Detector	H: Gas Chromatography with Photoacoustic Cell
I: Gas Chromatography with Thermal Conductivity Detector	J: Gas Chromatography with Thermal Conductivity Detector	K: Gas Chromatography with Thermal Conductivity Detector	L: Gas Chromatography with Thermal Conductivity Detector
M: Gas Chromatography with Thermal Conductivity Detector	N: Gas Chromatography with Thermal Conductivity Detector	O: Gas Chromatography with Thermal Conductivity Detector	P: Gas Chromatography with Thermal Conductivity Detector
Q: Gas Chromatography with Thermal Conductivity Detector	R: Gas Chromatography with Thermal Conductivity Detector	S: Gas Chromatography with Thermal Conductivity Detector	T: Gas Chromatography with Thermal Conductivity Detector
U: Gas Chromatography with Thermal Conductivity Detector	V: Gas Chromatography with Thermal Conductivity Detector	W: Gas Chromatography with Thermal Conductivity Detector	X: Gas Chromatography with Thermal Conductivity Detector

IMPORTANT

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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 1859
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: [Signature] Location: McIntyre Center Edmonton

APPENDIX IV
ANALYTICAL RESULTS

VOC LAB RESULTS

<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: 15080137-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 4. 2015</p> <p>CANISTER ID: H2830</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-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-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	14-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	14-Aug-15
1,2,4-Trimethylbenzene	I	0.10 ppbv	0.03	AC-058	14-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	14-Aug-15
1,2-Dichloroethane	I	0.01 ppbv	0.01	AC-058	14-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
1,3,5-Trimethylbenzene	I	0.03 ppbv	0.02	AC-058	14-Aug-15
1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	14-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	14-Aug-15
1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	14-Aug-15
1-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1-Hexene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
2,2,4-Trimethylpentane	I	0.20 ppbv	0.01	AC-058	14-Aug-15
2,2-Dimethylbutane	I	0.02 ppbv	0.01	AC-058	14-Aug-15
2,3,4-Trimethylpentane	I	0.03 ppbv	0.01	AC-058	14-Aug-15
2,3-Dimethylbutane	I	0.15 ppbv	0.02	AC-058	14-Aug-15
2,3-Dimethylpentane	I	0.20 ppbv	0.02	AC-058	14-Aug-15
2,4-Dimethylpentane	I	0.12 ppbv	0.01	AC-058	14-Aug-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: 15080137-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 4. 2015</p> <p>CANISTER ID: H2830</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-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-Aug-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
2-Methylpentane	I	0.06	ppbv	0.01	AC-058	14-Aug-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
3-Methylpentane	I	0.03	ppbv	0.01	AC-058	14-Aug-15
Acetone		3.7	ppbv	0.4	AC-058	14-Aug-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Aug-15
Benzene	I	0.03	ppbv	0.01	AC-058	14-Aug-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
Carbon disulfide		0.66	ppbv	0.01	AC-058	14-Aug-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	14-Aug-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Chloroform	I	0.02	ppbv	0.02	AC-058	14-Aug-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Cyclohexane	I	0.04	ppbv	0.02	AC-058	14-Aug-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-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: 15080137-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 4, 2015</p> <p>CANISTER ID: H2830</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.2	ppbv	0.3	AC-058	14-Aug-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Ethylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
Freon-11	I	0.28	ppbv	0.02	AC-058	14-Aug-15
Freon-113	I	0.07	ppbv	0.01	AC-058	14-Aug-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Freon-12		0.34	ppbv	0.02	AC-058	14-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	14-Aug-15
Isobutane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Isopentane		0.72	ppbv	0.03	AC-058	14-Aug-15
Isoprene		0.34	ppbv	0.01	AC-058	14-Aug-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	14-Aug-15
m,p-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Aug-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Aug-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	14-Aug-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	14-Aug-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Aug-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	14-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Aug-15
Methylcyclohexane	I	0.06	ppbv	0.01	AC-058	14-Aug-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Aug-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Aug-15
n-Butane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Aug-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Aug-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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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4 ppbv	0.4	AC-058	14-Aug-15
n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
n-Hexane	I	0.05 ppbv	0.01	AC-058	14-Aug-15
n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
n-Pentane	K, T, U	< 0.1 ppbv	0.1	AC-058	14-Aug-15
n-Propylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	14-Aug-15
n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	14-Aug-15
Naphthalene	K, T, U	< 0.5 ppbv	0.5	AC-058	14-Aug-15
n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
o-Ethyltoluene	I	0.03 ppbv	0.01	AC-058	14-Aug-15
o-Xylene	I	0.01 ppbv	0.01	AC-058	14-Aug-15
p-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-Aug-15
p-Ethyltoluene	K, T, U	< 0.07 ppbv	0.07	AC-058	14-Aug-15
Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-Aug-15
Tetrachloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-Aug-15
Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	14-Aug-15
Toluene	I	0.11 ppbv	0.01	AC-058	14-Aug-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-Aug-15
trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	14-Aug-15
trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-15
Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	14-Aug-15
Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	14-Aug-15
Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	14-Aug-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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Certified By: Graham Knox, Team Lead
On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455
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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	22-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	22-Aug-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	22-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1-Butene	I	0.11	ppbv	0.02	AC-058	22-Aug-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,2,4-Trimethylpentane	I	0.15	ppbv	0.01	AC-058	22-Aug-15
2,2-Dimethylbutane	I	0.04	ppbv	0.01	AC-058	22-Aug-15
2,3,4-Trimethylpentane	I	0.02	ppbv	0.01	AC-058	22-Aug-15
2,3-Dimethylbutane	I	0.16	ppbv	0.02	AC-058	22-Aug-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
2-Methylheptane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
2-Methylhexane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
2-Methylpentane	I	0.10 ppbv	0.01	AC-058	22-Aug-15
3-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
3-Methylhexane	I	0.03 ppbv	0.02	AC-058	22-Aug-15
3-Methylpentane	I	0.10 ppbv	0.01	AC-058	22-Aug-15
Acetone		5.7 ppbv	0.4	AC-058	22-Aug-15
Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	22-Aug-15
Benzene	I	0.04 ppbv	0.01	AC-058	22-Aug-15
Benzyl chloride	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Bromodichloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Bromomethane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
Carbon disulfide		0.42 ppbv	0.01	AC-058	22-Aug-15
Carbon tetrachloride	I	0.09 ppbv	0.01	AC-058	22-Aug-15
Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Chloroform	I	0.02 ppbv	0.02	AC-058	22-Aug-15
Chloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
cis-2-Butene	I	0.02 ppbv	0.02	AC-058	22-Aug-15
cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Cyclohexane	I	0.06 ppbv	0.02	AC-058	22-Aug-15
Cyclopentane	I	0.03 ppbv	0.01	AC-058	22-Aug-15
Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-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: 15080281-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 10, 2015</p> <p>CANISTER ID: 1135</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 10-Aug-15 0:00</p> <p>DATE RECEIVED: 18-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
Ethyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Ethylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
Freon-11	I	0.29 ppbv	0.02	AC-058	22-Aug-15
Freon-113	I	0.07 ppbv	0.01	AC-058	22-Aug-15
Freon-114	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Freon-12		0.67 ppbv	0.02	AC-058	22-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50 ppbv	0.5	AC-058	22-Aug-15
Isobutane		0.31 ppbv	0.02	AC-058	22-Aug-15
Isopentane		0.88 ppbv	0.03	AC-058	22-Aug-15
Isoprene		3.12 ppbv	0.01	AC-058	22-Aug-15
Isopropyl alcohol	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Isopropylbenzene	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
m,p-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	22-Aug-15
m-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
m-Ethyltoluene	K, T, U	< 0.08 ppbv	0.08	AC-058	22-Aug-15
Methyl butyl ketone	K, T, U	< 0.50 ppbv	0.5	AC-058	22-Aug-15
Methyl ethyl ketone		0.7 ppbv	0.3	AC-058	22-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Methyl methacrylate	K, T, U	< 0.07 ppbv	0.07	AC-058	22-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	22-Aug-15
Methylcyclohexane	I	0.08 ppbv	0.01	AC-058	22-Aug-15
Methylcyclopentane	I	0.13 ppbv	0.02	AC-058	22-Aug-15
Methylene chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	22-Aug-15
n-Butane		0.85 ppbv	0.03	AC-058	22-Aug-15
n-Decane	K, T, U	< 0.06 ppbv	0.06	AC-058	22-Aug-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: 15080281-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 10, 2015</p> <p>CANISTER ID: 1135</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 10-Aug-15 0:00</p> <p>DATE RECEIVED: 18-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
n-Hexane		0.48 ppbv	0.01	AC-058	22-Aug-15
n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
n-Pentane	K, T, U	< 0.1 ppbv	0.1	AC-058	22-Aug-15
n-Propylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	22-Aug-15
n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	22-Aug-15
Naphthalene	K, T, U	< 0.5 ppbv	0.5	AC-058	22-Aug-15
n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
o-Ethyltoluene	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
o-Xylene	I	0.01 ppbv	0.01	AC-058	22-Aug-15
p-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
p-Ethyltoluene	K, T, U	< 0.07 ppbv	0.07	AC-058	22-Aug-15
Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
Tetrachloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Toluene	I	0.12 ppbv	0.01	AC-058	22-Aug-15
trans-1,2-Dichloroethylene	I	0.01 ppbv	0.01	AC-058	22-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-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: 15080333-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 16, 2015</p> <p>CANISTER ID: S5663</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	22-Aug-15
1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	22-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	22-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1-Butene	I	0.22	ppbv	0.02	AC-058	22-Aug-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,3-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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: 15080333-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 16, 2015</p> <p>CANISTER ID: S5663</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2-Methylpentane	I	0.04	ppbv	0.01	AC-058	22-Aug-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
3-Methylhexane	I	0.02	ppbv	0.02	AC-058	22-Aug-15
3-Methylpentane	I	0.02	ppbv	0.01	AC-058	22-Aug-15
Acetone		4.8	ppbv	0.4	AC-058	22-Aug-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
Benzene	I	0.05	ppbv	0.01	AC-058	22-Aug-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
Carbon disulfide		1.08	ppbv	0.01	AC-058	22-Aug-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	22-Aug-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Chloroform	I	0.02	ppbv	0.02	AC-058	22-Aug-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
cis-2-Butene	I	0.07	ppbv	0.02	AC-058	22-Aug-15
cis-2-Pentene	I	0.02	ppbv	0.02	AC-058	22-Aug-15
Cyclohexane	I	0.03	ppbv	0.02	AC-058	22-Aug-15
Cyclopentane	I	0.01	ppbv	0.01	AC-058	22-Aug-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.0	ppbv	0.3	AC-058	22-Aug-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Ethylbenzene	I	0.06	ppbv	0.01	AC-058	22-Aug-15
Freon-11		0.32	ppbv	0.02	AC-058	22-Aug-15
Freon-113	I	0.07	ppbv	0.01	AC-058	22-Aug-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Freon-12		0.67	ppbv	0.02	AC-058	22-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	22-Aug-15
Isobutane	I	0.19	ppbv	0.02	AC-058	22-Aug-15
Isopentane	I	0.21	ppbv	0.03	AC-058	22-Aug-15
Isoprene		0.38	ppbv	0.01	AC-058	22-Aug-15
Isopropyl alcohol		0.5	ppbv	0.4	AC-058	22-Aug-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
m,p-Xylene	I	0.14	ppbv	0.03	AC-058	22-Aug-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	22-Aug-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	22-Aug-15
Methyl ethyl ketone		0.7	ppbv	0.3	AC-058	22-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
Methylcyclohexane	I	0.07	ppbv	0.01	AC-058	22-Aug-15
Methylcyclopentane	I	0.03	ppbv	0.02	AC-058	22-Aug-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
n-Butane	I	0.25	ppbv	0.03	AC-058	22-Aug-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Aug-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: 15080333-003

MATRIX: Ambient Air

CLIENT SAMPLE ID: LICA/VOC/EP/August 16, 2015

CANISTER ID: S5663

DESCRIPTION: Elk Point Airport

DATE SAMPLED: 16-Aug-15 0:00

DATE RECEIVED: 21-Aug-15

REPORT CREATED: 03-Sep-15

REPORT VERSION: Version 01

Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
n-Hexane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
n-Pentane	K, T, U	< 0.1 ppbv	0.1	AC-058	22-Aug-15
n-Propylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	22-Aug-15
n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	22-Aug-15
Naphthalene		3.7 ppbv	0.5	AC-058	22-Aug-15
n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
o-Ethyltoluene	I	0.02 ppbv	0.01	AC-058	22-Aug-15
o-Xylene	I	0.05 ppbv	0.01	AC-058	22-Aug-15
p-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
p-Ethyltoluene	K, T, U	< 0.07 ppbv	0.07	AC-058	22-Aug-15
Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
Tetrachloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Toluene	I	0.22 ppbv	0.01	AC-058	22-Aug-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01 ppbv	0.01	AC-058	22-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
trans-2-Butene	I	0.15 ppbv	0.01	AC-058	22-Aug-15
trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-15
Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	22-Aug-15
Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	22-Aug-15
Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	22-Aug-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: 15080449-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 22, 2015</p> <p>CANISTER ID: S5606</p> <p>DESCRIPTION: ELK Point Airport</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-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	02-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	02-Sep-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-15
1,2-Dichloroethane	I	0.01	ppbv	0.01	AC-058	02-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
1-Butene	I	0.03	ppbv	0.02	AC-058	02-Sep-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2,2-Dimethylbutane	I	0.02	ppbv	0.01	AC-058	02-Sep-15
2,3,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
2,3-Dimethylbutane	I	0.06	ppbv	0.02	AC-058	02-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-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: 15080449-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 22, 2015</p> <p>CANISTER ID: S5606</p> <p>DESCRIPTION: ELK Point Airport</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-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	02-Sep-15
2-Methylhexane	I	0.02 ppbv	0.01	AC-058	02-Sep-15
2-Methylpentane	I	0.05 ppbv	0.01	AC-058	02-Sep-15
3-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
3-Methylhexane	I	0.02 ppbv	0.02	AC-058	02-Sep-15
3-Methylpentane	I	0.03 ppbv	0.01	AC-058	02-Sep-15
Acetone		2.3 ppbv	0.4	AC-058	02-Sep-15
Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	02-Sep-15
Benzene	I	0.03 ppbv	0.01	AC-058	02-Sep-15
Benzyl chloride	K, T, U	< 0.4 ppbv	0.4	AC-058	02-Sep-15
Bromodichloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
Bromomethane	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-15
Carbon disulfide		0.35 ppbv	0.01	AC-058	02-Sep-15
Carbon tetrachloride	I	0.09 ppbv	0.01	AC-058	02-Sep-15
Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
Chloroform	I	0.02 ppbv	0.02	AC-058	02-Sep-15
Chloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04 ppbv	0.04	AC-058	02-Sep-15
cis-2-Butene	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
Cyclohexane	I	0.05 ppbv	0.02	AC-058	02-Sep-15
Cyclopentane	I	0.02 ppbv	0.01	AC-058	02-Sep-15
Dibromochloromethane	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-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: 15080449-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 22, 2015</p> <p>CANISTER ID: S5606</p> <p>DESCRIPTION: ELK Point Airport</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		0.5	ppbv	0.3	AC-058	02-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Ethylbenzene	I	0.02	ppbv	0.01	AC-058	02-Sep-15
Freon-11	I	0.27	ppbv	0.02	AC-058	02-Sep-15
Freon-113	I	0.07	ppbv	0.01	AC-058	02-Sep-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-15
Freon-12		0.62	ppbv	0.02	AC-058	02-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Sep-15
Isobutane	I	0.27	ppbv	0.02	AC-058	02-Sep-15
Isopentane	I	0.17	ppbv	0.03	AC-058	02-Sep-15
Isoprene	I	0.11	ppbv	0.01	AC-058	02-Sep-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	02-Sep-15
m,p-Xylene	I	0.06	ppbv	0.03	AC-058	02-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	02-Sep-15
Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-15
Methylcyclohexane	I	0.09	ppbv	0.01	AC-058	02-Sep-15
Methylcyclopentane	I	0.04	ppbv	0.02	AC-058	02-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-15
n-Butane	I	0.28	ppbv	0.03	AC-058	02-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Sep-15

Qualifiers

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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: 15080449-003</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 22, 2015</p> <p>CANISTER ID: S5606</p> <p>DESCRIPTION: ELK Point Airport</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-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	02-Sep-15
n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-15
n-Hexane	I	0.07 ppbv	0.01	AC-058	02-Sep-15
n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
n-Pentane	K, T, U	< 0.1 ppbv	0.1	AC-058	02-Sep-15
n-Propylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	02-Sep-15
n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	02-Sep-15
Naphthalene	K, T, U	< 0.5 ppbv	0.5	AC-058	02-Sep-15
n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-15
o-Ethyltoluene	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-15
o-Xylene	I	0.03 ppbv	0.01	AC-058	02-Sep-15
p-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	02-Sep-15
p-Ethyltoluene	K, T, U	< 0.07 ppbv	0.07	AC-058	02-Sep-15
Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	02-Sep-15
Tetrachloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	02-Sep-15
Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	02-Sep-15
Toluene	I	0.08 ppbv	0.01	AC-058	02-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	02-Sep-15
trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	02-Sep-15
trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-15
Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	02-Sep-15
Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	02-Sep-15
Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	02-Sep-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: 15090059-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 28, 2015</p> <p>CANISTER ID: 17122</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 04-Sep-15</p> <p>REPORT CREATED: 25-Sep-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	12-Sep-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
1,1-Dichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	12-Sep-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	12-Sep-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8 ppbv	0.8	AC-058	12-Sep-15
1,2,4-Trimethylbenzene	I	0.04 ppbv	0.03	AC-058	12-Sep-15
1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Sep-15
1,2-Dichloroethane	I	0.01 ppbv	0.01	AC-058	12-Sep-15
1,2-Dichloropropane	K, T, U	< 0.01 ppbv	0.01	AC-058	12-Sep-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
1,3-Butadiene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
1,3-Dichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	12-Sep-15
1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Sep-15
1,4-Dioxane	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Sep-15
1-Butene	I	0.05 ppbv	0.02	AC-058	12-Sep-15
1-Hexene	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
1-Pentene	K, T, U	< 0.01 ppbv	0.01	AC-058	12-Sep-15
2,2,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	12-Sep-15
2,2-Dimethylbutane	I	0.04 ppbv	0.01	AC-058	12-Sep-15
2,3,4-Trimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	12-Sep-15
2,3-Dimethylbutane	I	0.10 ppbv	0.02	AC-058	12-Sep-15
2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Sep-15
2,4-Dimethylpentane	K, T, U	< 0.01 ppbv	0.01	AC-058	12-Sep-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: 15090059-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/EP/August 28, 2015 CANISTER ID: 17122 DESCRIPTION: Elk Point Airport DATE SAMPLED: 28-Aug-15 0:00 DATE RECEIVED: 04-Sep-15 REPORT CREATED: 25-Sep-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	12-Sep-15
2-Methylhexane	I	0.03	ppbv	0.01	AC-058	12-Sep-15
2-Methylpentane	I	0.13	ppbv	0.01	AC-058	12-Sep-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
3-Methylhexane	I	0.03	ppbv	0.02	AC-058	12-Sep-15
3-Methylpentane	I	0.07	ppbv	0.01	AC-058	12-Sep-15
Acetone		5.9	ppbv	0.4	AC-058	12-Sep-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Sep-15
Benzene	I	0.17	ppbv	0.01	AC-058	12-Sep-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Bromomethane	I	0.01	ppbv	0.01	AC-058	12-Sep-15
Carbon disulfide	I	0.04	ppbv	0.01	AC-058	12-Sep-15
Carbon tetrachloride	I	0.10	ppbv	0.01	AC-058	12-Sep-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
cis-2-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Cyclohexane	I	0.07	ppbv	0.02	AC-058	12-Sep-15
Cyclopentane	I	0.04	ppbv	0.01	AC-058	12-Sep-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-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: 15090059-001</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/EP/August 28, 2015</p> <p>CANISTER ID: 17122</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 04-Sep-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		1.2	ppbv	0.3	AC-058	12-Sep-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Ethylbenzene	I	0.06	ppbv	0.01	AC-058	12-Sep-15
Freon-11		0.32	ppbv	0.02	AC-058	12-Sep-15
Freon-113	I	0.07	ppbv	0.01	AC-058	12-Sep-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Freon-12		0.65	ppbv	0.02	AC-058	12-Sep-15
Hexachloro-1,3-butadiene	K, T, U	< 0.50	ppbv	0.5	AC-058	12-Sep-15
Isobutane		0.76	ppbv	0.02	AC-058	12-Sep-15
Isopentane		0.68	ppbv	0.03	AC-058	12-Sep-15
Isoprene		0.71	ppbv	0.01	AC-058	12-Sep-15
Isopropyl alcohol		0.7	ppbv	0.4	AC-058	12-Sep-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
m,p-Xylene	I	0.28	ppbv	0.03	AC-058	12-Sep-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Sep-15
Methyl butyl ketone	K, T, U	< 0.50	ppbv	0.5	AC-058	12-Sep-15
Methyl ethyl ketone		0.5	ppbv	0.3	AC-058	12-Sep-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Sep-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Sep-15
Methylcyclohexane	I	0.13	ppbv	0.01	AC-058	12-Sep-15
Methylcyclopentane	I	0.07	ppbv	0.02	AC-058	12-Sep-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Sep-15
n-Butane		1.33	ppbv	0.03	AC-058	12-Sep-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Sep-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: 15090059-001 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/EP/August 28, 2015 CANISTER ID: 17122 DESCRIPTION: Elk Point Airport DATE SAMPLED: 28-Aug-15 0:00 DATE RECEIVED: 04-Sep-15 REPORT CREATED: 25-Sep-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
n-Heptane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
n-Hexane	I	0.18	ppbv	0.01	AC-058	12-Sep-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
n-Pentane		0.5	ppbv	0.1	AC-058	12-Sep-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Sep-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Sep-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Sep-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
o-Xylene	I	0.05	ppbv	0.01	AC-058	12-Sep-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Sep-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Toluene	I	0.14	ppbv	0.01	AC-058	12-Sep-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	12-Sep-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Sep-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Sep-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Sep-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

PAH LAB RESULTS

<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: 15080137-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 4, 2015</p> <p>CANISTER ID: TE-09</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
2-Methylnaphthalene		0.06	ug/PUF	0.01	NA-017	28-Aug-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Acenaphthene		0.02	ug/PUF	0.01	NA-017	28-Aug-15
Acenaphthylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Acridine	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(b,j,k)fluoranthene		0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Chrysene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Fluoranthene		0.02	ug/PUF	0.01	NA-017	28-Aug-15
Fluorene		0.04	ug/PUF	0.01	NA-017	28-Aug-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Naphthalene		0.03	ug/PUF	0.01	NA-017	28-Aug-15
Perylene	K, T, U	< 0.01	ug/PUF	0.01	NA-017	28-Aug-15
Phenanthrene		0.16	ug/PUF	0.01	NA-017	28-Aug-15
Pyrene		0.02	ug/PUF	0.01	NA-017	28-Aug-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: 15080137-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 4. 2015</p> <p>CANISTER ID: TE-09</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 04-Aug-15 0:00</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.02 ug/PUF	0.01	NA-017	28-Aug-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

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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: 15080281-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 10, 2015</p> <p>CANISTER ID: TE-07</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 10-Aug-15 0:00</p> <p>DATE RECEIVED: 18-Aug-15</p> <p>REPORT CREATED: 03-Sep-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/PUF	0.01	NA-017	29-Aug-15
2-Methylnaphthalene		0.05 ug/PUF	0.01	NA-017	29-Aug-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acridine	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(b,j,k)fluoranthene		0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Chrysene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Fluoranthene		0.02 ug/PUF	0.01	NA-017	29-Aug-15
Fluorene		0.02 ug/PUF	0.01	NA-017	29-Aug-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Naphthalene		0.04 ug/PUF	0.01	NA-017	29-Aug-15
Perylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Phenanthrene		0.08 ug/PUF	0.01	NA-017	29-Aug-15
Pyrene		0.03 ug/PUF	0.01	NA-017	29-Aug-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: 15080281-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 10, 2015</p> <p>CANISTER ID: TE-07</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 10-Aug-15 0:00</p> <p>DATE RECEIVED: 18-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.03 ug/PUF	0.01	NA-017	29-Aug-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

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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: 15080333-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 16, 2015</p> <p>CANISTER ID: TE-02</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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/PUF	0.01	NA-017	29-Aug-15
2-Methylnaphthalene		0.01 ug/PUF	0.01	NA-017	29-Aug-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acenaphthylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Acridine	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(b,j,k)fluoranthene		0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Chrysene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Fluoranthene		0.02 ug/PUF	0.01	NA-017	29-Aug-15
Fluorene		0.03 ug/PUF	0.01	NA-017	29-Aug-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Naphthalene		0.02 ug/PUF	0.01	NA-017	29-Aug-15
Perylene	K, T, U	< 0.01 ug/PUF	0.01	NA-017	29-Aug-15
Phenanthrene		0.12 ug/PUF	0.01	NA-017	29-Aug-15
Pyrene		0.01 ug/PUF	0.01	NA-017	29-Aug-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: 15080333-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 16, 2015</p> <p>CANISTER ID: TE-02</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 16-Aug-15 0:00</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
Retene		0.01 ug/PUF	0.01	NA-017	29-Aug-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

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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: 15080449-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 22, 2015</p> <p>CANISTER ID: TE-01</p> <p>DESCRIPTION: ELK Point Airport</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-15</p> <p>REPORT VERSION: Version 01</p>
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.06	ug/Filter	0.01	NA-017	17-Sep-15
2-Methylnaphthalene		0.10	ug/Filter	0.01	NA-017	17-Sep-15
3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthene		0.03	ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthylene		0.03	ug/Filter	0.01	NA-017	17-Sep-15
Acridine	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Anthracene		0.02	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Chrysene		0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Fluoranthene		0.10	ug/Filter	0.01	NA-017	17-Sep-15
Fluorene		0.06	ug/Filter	0.01	NA-017	17-Sep-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Naphthalene		0.08	ug/Filter	0.01	NA-017	17-Sep-15
Perylene	K, T, U	< 0.01	ug/Filter	0.01	NA-017	17-Sep-15
Phenanthrene		0.20	ug/Filter	0.01	NA-017	17-Sep-15
Pyrene		0.07	ug/Filter	0.01	NA-017	17-Sep-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>

<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: 15080449-004</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 22, 2015</p> <p>CANISTER ID: TE-01</p> <p>DESCRIPTION: ELK Point Airport</p> <p>DATE SAMPLED: 22-Aug-15 0:00</p> <p>DATE RECEIVED: 28-Aug-15</p> <p>REPORT CREATED: 25-Sep-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	17-Sep-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

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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: 15090059-002 MATRIX: Air Filter CLIENT SAMPLE ID: LICA/PUF/EP/August 28, 2015 CANISTER ID: TE-11 DESCRIPTION: Elk Point Airport DATE SAMPLED: 28-Aug-15 0:00 DATE RECEIVED: 04-Sep-15 REPORT CREATED: 25-Sep-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
1-Methylnaphthalene		0.04 ug/Filter	0.01	NA-017	17-Sep-15
2-Methylnaphthalene		0.06 ug/Filter	0.01	NA-017	17-Sep-15
3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthene		0.02 ug/Filter	0.01	NA-017	17-Sep-15
Acenaphthylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Acridine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(b,j,k)fluoranthene		0.03 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Chrysene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Fluoranthene		0.03 ug/Filter	0.01	NA-017	17-Sep-15
Fluorene		0.07 ug/Filter	0.01	NA-017	17-Sep-15
Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	17-Sep-15
Naphthalene		0.06 ug/Filter	0.01	NA-017	17-Sep-15
Perylene		0.02 ug/Filter	0.01	NA-017	17-Sep-15
Phenanthrene		0.20 ug/Filter	0.01	NA-017	17-Sep-15
Pyrene		0.03 ug/Filter	0.01	NA-017	17-Sep-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: 15090059-002</p> <p>MATRIX: Air Filter</p> <p>CLIENT SAMPLE ID: LICA/PUF/EP/August 28, 2015</p> <p>CANISTER ID: TE-11</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 28-Aug-15 0:00</p> <p>DATE RECEIVED: 04-Sep-15</p> <p>REPORT CREATED: 25-Sep-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	17-Sep-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
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NMHC CANISTER LAB RESULTS

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: 15080137-005 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/ELK/August 5, 2015 CANISTER ID: 1517 DESCRIPTION: Elk Point Airport DATE SAMPLED: 05-Aug-15 9:40 DATE RECEIVED: 12-Aug-15 REPORT CREATED: 03-Sep-15 REPORT VERSION: Version 01
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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	15-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	15-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.8	ppbv	0.8	AC-058	15-Aug-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Aug-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	15-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Aug-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Aug-15
1-Butene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
2,2,4-Trimethylpentane		2.91	ppbv	0.01	AC-058	15-Aug-15
2,2-Dimethylbutane	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
2,3,4-Trimethylpentane		0.56	ppbv	0.01	AC-058	15-Aug-15
2,3-Dimethylbutane		1.35	ppbv	0.02	AC-058	15-Aug-15
2,3-Dimethylpentane		2.91	ppbv	0.02	AC-058	15-Aug-15
2,4-Dimethylpentane		1.36	ppbv	0.01	AC-058	15-Aug-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: 15080137-005</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/ELK/August 5, 2015</p> <p>CANISTER ID: 1517</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 05-Aug-15 9:40</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	15-Aug-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
2-Methylpentane		0.36	ppbv	0.01	AC-058	15-Aug-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
3-Methylhexane	I	0.07	ppbv	0.02	AC-058	15-Aug-15
3-Methylpentane	I	0.14	ppbv	0.01	AC-058	15-Aug-15
Acetone		10.7	ppbv	0.4	AC-058	15-Aug-15
Acrolein		3.1	ppbv	0.3	AC-058	15-Aug-15
Benzene	I	0.05	ppbv	0.01	AC-058	15-Aug-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Aug-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
Carbon disulfide		0.55	ppbv	0.01	AC-058	15-Aug-15
Carbon tetrachloride	I	0.11	ppbv	0.01	AC-058	15-Aug-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
Chloroethane	I	0.08	ppbv	0.02	AC-058	15-Aug-15
Chloroform	I	0.03	ppbv	0.02	AC-058	15-Aug-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Aug-15
cis-2-Butene	I	0.05	ppbv	0.02	AC-058	15-Aug-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
Cyclohexane	I	0.04	ppbv	0.02	AC-058	15-Aug-15
Cyclopentane	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-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: 15080137-005</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/ELK/August 5, 2015</p> <p>CANISTER ID: 1517</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 05-Aug-15 9:40</p> <p>DATE RECEIVED: 12-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	15-Aug-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Aug-15
Ethylbenzene	I	0.09	ppbv	0.01	AC-058	15-Aug-15
Freon-11		0.35	ppbv	0.02	AC-058	15-Aug-15
Freon-113	I	0.09	ppbv	0.01	AC-058	15-Aug-15
Freon-114	I	0.02	ppbv	0.02	AC-058	15-Aug-15
Freon-12		0.65	ppbv	0.02	AC-058	15-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.53	ppbv	0.5	AC-058	15-Aug-15
Isobutane		1.62	ppbv	0.02	AC-058	15-Aug-15
Isopentane		9.93	ppbv	0.03	AC-058	15-Aug-15
Isoprene		0.60	ppbv	0.01	AC-058	15-Aug-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Aug-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	15-Aug-15
m,p-Xylene	I	0.08	ppbv	0.03	AC-058	15-Aug-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Aug-15
m-Ethyltoluene	K, T, U	< 0.08	ppbv	0.08	AC-058	15-Aug-15
Methyl butyl ketone	K, T, U	< 0.53	ppbv	0.5	AC-058	15-Aug-15
Methyl ethyl ketone		0.9	ppbv	0.3	AC-058	15-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Aug-15
Methyl methacrylate	K, T, U	< 0.07	ppbv	0.07	AC-058	15-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Aug-15
Methylcyclohexane	I	0.06	ppbv	0.01	AC-058	15-Aug-15
Methylcyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Aug-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Aug-15
n-Butane		8.65	ppbv	0.03	AC-058	15-Aug-15
n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Aug-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: 15080137-005 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/ELK/August 5, 2015 CANISTER ID: 1517 DESCRIPTION: Elk Point Airport DATE SAMPLED: 05-Aug-15 9:40 DATE RECEIVED: 12-Aug-15 REPORT CREATED: 03-Sep-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4 ppbv	0.4	AC-058	15-Aug-15
n-Heptane	K, T, U	< 0.01 ppbv	0.01	AC-058	15-Aug-15
n-Hexane		0.33 ppbv	0.01	AC-058	15-Aug-15
n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	15-Aug-15
n-Pentane	K, T, U	< 0.1 ppbv	0.1	AC-058	15-Aug-15
n-Propylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	15-Aug-15
n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	15-Aug-15
Naphthalene	K, T, U	< 0.5 ppbv	0.5	AC-058	15-Aug-15
n-Nonane	K, T, U	< 0.01 ppbv	0.01	AC-058	15-Aug-15
o-Ethyltoluene	K, T, U	< 0.01 ppbv	0.01	AC-058	15-Aug-15
o-Xylene	I	0.02 ppbv	0.01	AC-058	15-Aug-15
p-Diethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	15-Aug-15
p-Ethyltoluene	K, T, U	< 0.07 ppbv	0.07	AC-058	15-Aug-15
Styrene	I	0.26 ppbv	0.04	AC-058	15-Aug-15
Tetrachloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	15-Aug-15
Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	15-Aug-15
Toluene		1.82 ppbv	0.01	AC-058	15-Aug-15
trans-1,2-Dichloroethylene	K, T, U	< 0.01 ppbv	0.01	AC-058	15-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04 ppbv	0.04	AC-058	15-Aug-15
trans-2-Butene	K, T, U	< 0.01 ppbv	0.01	AC-058	15-Aug-15
trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	15-Aug-15
Trichloroethylene	K, T, U	< 0.04 ppbv	0.04	AC-058	15-Aug-15
Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	15-Aug-15
Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	15-Aug-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: 15080333-005</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/ELK/August 12, 2015</p> <p>CANISTER ID: 1710</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 12-Aug-15 23:35</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,1-Dichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-15
1,2,4-Trichlorobenzene	K, T, U	< 0.9	ppbv	0.8	AC-058	22-Aug-15
1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
1,2-Dichloroethane	I	0.02	ppbv	0.01	AC-058	22-Aug-15
1,2-Dichloropropane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
1,3,5-Trimethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Butadiene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1,3-Dichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1,4-Dioxane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
1-Butene	I	0.12	ppbv	0.02	AC-058	22-Aug-15
1-Hexene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
1-Pentene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,2,4-Trimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2,2-Dimethylbutane	I	0.13	ppbv	0.01	AC-058	22-Aug-15
2,3,4-Trimethylpentane	I	0.12	ppbv	0.01	AC-058	22-Aug-15
2,3-Dimethylbutane		0.38	ppbv	0.02	AC-058	22-Aug-15
2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
2,4-Dimethylpentane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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, Team Lead 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: Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>LABORATORY SAMPLE ID: 15080333-005</p> <p>MATRIX: Ambient Air</p> <p>CLIENT SAMPLE ID: LICA/VOC/ELK/August 12, 2015</p> <p>CANISTER ID: 1710</p> <p>DESCRIPTION: Elk Point Airport</p> <p>DATE SAMPLED: 12-Aug-15 23:35</p> <p>DATE RECEIVED: 21-Aug-15</p> <p>REPORT CREATED: 03-Sep-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	22-Aug-15
2-Methylhexane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
2-Methylpentane	I	0.27	ppbv	0.01	AC-058	22-Aug-15
3-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
3-Methylhexane	I	0.10	ppbv	0.02	AC-058	22-Aug-15
3-Methylpentane	I	0.15	ppbv	0.01	AC-058	22-Aug-15
Acetone		7.8	ppbv	0.4	AC-058	22-Aug-15
Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
Benzene	I	0.08	ppbv	0.01	AC-058	22-Aug-15
Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Bromodichloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Bromomethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
Carbon disulfide		0.45	ppbv	0.01	AC-058	22-Aug-15
Carbon tetrachloride	I	0.09	ppbv	0.01	AC-058	22-Aug-15
Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Chloroethane	I	0.03	ppbv	0.02	AC-058	22-Aug-15
Chloroform	I	0.03	ppbv	0.02	AC-058	22-Aug-15
Chloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
cis-1,2-Dichloroethene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
cis-2-Butene	I	0.04	ppbv	0.02	AC-058	22-Aug-15
cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Cyclohexane	I	0.25	ppbv	0.02	AC-058	22-Aug-15
Cyclopentane	I	0.10	ppbv	0.01	AC-058	22-Aug-15
Dibromochloromethane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-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

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: 15080333-005 MATRIX: Ambient Air CLIENT SAMPLE ID: LICA/VOC/ELK/August 12, 2015 CANISTER ID: 1710 DESCRIPTION: Elk Point Airport DATE SAMPLED: 12-Aug-15 23:35 DATE RECEIVED: 21-Aug-15 REPORT CREATED: 03-Sep-15 REPORT VERSION: Version 01
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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
Ethanol		2.4	ppbv	0.3	AC-058	22-Aug-15
Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Ethylbenzene	I	0.04	ppbv	0.01	AC-058	22-Aug-15
Freon-11	I	0.29	ppbv	0.02	AC-058	22-Aug-15
Freon-113	I	0.07	ppbv	0.01	AC-058	22-Aug-15
Freon-114	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Freon-12	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Hexachloro-1,3-butadiene	K, T, U	< 0.54	ppbv	0.5	AC-058	22-Aug-15
Isobutane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Isopentane		2.12	ppbv	0.03	AC-058	22-Aug-15
Isoprene		4.08	ppbv	0.01	AC-058	22-Aug-15
Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Isopropylbenzene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
m,p-Xylene	I	0.09	ppbv	0.03	AC-058	22-Aug-15
m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
m-Ethyltoluene	K, T, U	< 0.09	ppbv	0.08	AC-058	22-Aug-15
Methyl butyl ketone	K, T, U	< 0.54	ppbv	0.5	AC-058	22-Aug-15
Methyl ethyl ketone		0.9	ppbv	0.3	AC-058	22-Aug-15
Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Methyl methacrylate	K, T, U	< 0.08	ppbv	0.07	AC-058	22-Aug-15
Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-15
Methylcyclohexane		0.49	ppbv	0.01	AC-058	22-Aug-15
Methylcyclopentane	I	0.22	ppbv	0.02	AC-058	22-Aug-15
Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-15
n-Butane		1.76	ppbv	0.03	AC-058	22-Aug-15
n-Decane	K, T, U	< 0.07	ppbv	0.06	AC-058	22-Aug-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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Parameter	Qualifier	Result	Units	MDL	Method	Analysis Date
n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
n-Heptane	I	0.13	ppbv	0.01	AC-058	22-Aug-15
n-Hexane		0.38	ppbv	0.01	AC-058	22-Aug-15
n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
n-Pentane	K, T, U	< 0.1	ppbv	0.1	AC-058	22-Aug-15
n-Propylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-15
n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-15
Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-15
n-Nonane	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
o-Ethyltoluene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
o-Xylene	I	0.03	ppbv	0.01	AC-058	22-Aug-15
p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
p-Ethyltoluene	K, T, U	< 0.08	ppbv	0.07	AC-058	22-Aug-15
Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Tetrachloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Toluene		0.54	ppbv	0.01	AC-058	22-Aug-15
trans-1,2-Dichloroethylene	I	0.01	ppbv	0.01	AC-058	22-Aug-15
trans-1,3-Dichloropropylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
trans-2-Butene	K, T, U	< 0.01	ppbv	0.01	AC-058	22-Aug-15
trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-15
Trichloroethylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-15
Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-15
Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-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

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On behalf of: PJ Pretorius, Portfolio Manager, EAS

Inquiries: (780) 632 8455

E-mail: EAS.Results@albertainnovates.ca

APPENDIX V
CHAIN OF CUSTODY



Maxxam Analytics - Air Services Group

Project Chain of Custody

Client: Lakeland Industry & Community Association
Site: Elk Point Airport Site

Project #: 2833-2015-08-35- C
Contact: Mike Bisaga

QA Check Complete	<u>msclmha</u>	Date	<u>23 - Sept - 2015</u>
QA Check Review	<u>msclmha</u>	Date	<u>23 - Sept - 2015</u>
Report Complete	<u>msclmha</u>	Date	<u>28 - Sept - 2015</u>
Report Reviewed	<u>E. Tangang</u>	Date	<u>29 - Sep - 2015</u>
Report Shipped	_____	Date	_____

Notes