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January 12, 2016

### **RE:** November 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,

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 #:2833-2015-11-01- C

**NOVEMBER 2015** 

Prepared for:

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

BOX 8237, 5107W - 50 STREET BONNYVILLE, ALBERTA T9N 2J5

Attention: MIKE BISAGA

DATE:

January 12, 2016

Prepared by:

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Reviewed by:

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### **SUMMARY**

In NOVEMBER 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 was above the 90% requirement, except PM 2.5 (88.2%).

PM 2.5: Eighty-three hours of data were invalidated as the data were below -3 ug/m3 this month. The operational uptime for the month is 88.2%. AE Reference number: 306982.

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 Indu	stry & C	ommun	ity Asso	ciation				N	IAXIMUM V	ALUES			
Cold Lake Sout	th Site					<del></del>		1-HOUR	,		24-H	OUR	OPERATIONAL TIME
PARAMETER	OBJE	CTIVES	EXCEE	DENCES	MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED	WIND DIRECTION	READING	DAY	(%)
	1-HR	24-HR	1-HR	24-HR	AVERAGE				(KPH)	(DEGREES)			
SO2 (PPB)	172	48	0	0	0	2	28	15	6.9	wsw	0.5	28	99,6
TRS (PPB)	-	-	1	1	0	0	ALL	ALL	VAR	VAR	0,0	ALL	100.0
THC (PPM)	-	-	-	-	2.2	3.2	30, 30	10, 11	1.3 3.9	wsw wsw	2.7	30	100.0
NO2 (PPB)	159	-	0	_	5.0	21.6	30	16	1.1	SSW	12.3	30	99.6
NO (PPB)	-	-	,	-	1.2	22.1	30	10	1.3	WSW	6.7		99.6
NOX (PPB)	-	-	-	-	6.2	35.4	30	10	1.3	wsw	18.9	30	99.6
O3 (PPB)	82	-	0	-	18	39	22	VAR	VAR	VAR	33.7	22	100.0
PM2.5 (UG/M3)	-	30	-	0	10.5	46.0	6	13	4.7	S	16.9	30	88.2
RELATIVE HUMIDITY (%)	-	-	-	-	75.6	99	3	VAR	VAR	VAR	94.5	3	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	ı	·	-3.0	7.6	7	14	2.5	w	2.7	7	100.0
VECTOR WS (KPH)	-	-	-	-	5.7	23.2	18	14	-	NW	14.4	18	100.0
VECTOR WD (DEG)	-	-	-	-	W	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS



### **Exceedence Summary Report**

SO<sub>2</sub> 1- Hour Exceedences

No Exceedences Recorded During the Month

SO<sub>2</sub> 24- Hour Exceedences
No Exceedences Recorded During the Month

NO<sub>2</sub> 1- Hour Exceedences

No Exceedences Recorded During the Month

PM2.5 24- Hour Exceedences
No Exceedences Recorded During the Month



### **Passive Sampler Summary**

	Sulphur Dioxide (in ppb)
Mean	0.3
Minimum	0.1
Maximum	1.4

Note:

There was no access to stations #12 and #25. Samples collected at stations #16, #17, #18 and #19 were not analyzed due to

a sampling error.

	Hydrogen Sulphide (in ppb)
Mean	0.17
Minimum	0.06
Maximum	0,75

Note:

There was no access to stations #12 and #25.

	Nitrogen Dioxide (in ppb)
Mean	2.7
Minimum	0.7
Maximum	7.1

Note:

There was no access to station #12.

	Ozone (in ppb)
Mean	20.60
Minimum	17.30
Maximum	26.30

Note:

There was no access to station #12.



### **Volatile Organics (VOCs) Data Summary**

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
NOVEMBER 2, 2015	3.8	NAPHTHALENE
NOVEMBER 8, 2015	3.8	N-DODECANE
NOVEMBER 14, 2015	2.33	N-BUTANE
NOVEMBER 20, 2015	1.0	ACETONE
NOVEMBER 26, 2015	1.44	N-BUTANE

Note: NA



### Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
NOVEMBER 2, 2015	1.65	PHENANTHRENE
NOVEMBER 8, 2015	0.47	PHENANTHRENE
NOVEMBER 14, 2015	1.28	1-METHYLNAPHTHALENE
NOVEMBER 20, 2015	0.21	2-METHYLNAPHTHALENE
NOVEMBER 26, 2015	0.43	NAPHTHALENE

Note: NA



### **Partisol Sampler Summary**

Sample Collected Date	Concentration (mg)
NOVEMBER 2, 2015	0.013
NOVEMBER 8, 2015	0.133
NOVEMBER 14, 2015	0.171
NOVEMBER 20, 2015	0.113
NOVEMBER 26, 2015	0.293

Note: NA



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	Standard Deviation Wind Direction Relative Humidity
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Appendix III	Partisol Results Analyzer Calibration Results Sulphur Dioxide Total Reduced Sulphur Total Hydrocarbon Nitrogen Dioxide Ozone Particulate Matter Wind System Partisol Sampler Calibrators Calibration Gases Audit Report



### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

Appendix IV	Analytical Results
	Passive Samples
	VOCs Samples
	PAHs Samples
	Partisol Samples
Appendix V	Chain of Custody





### 1.0 Discussion

This monthly report consists of data for parameters SO2, TRS, THC, CH4, NMHC, NOx, NO, NO2, O3, PM2.5, WS, WD, RH and Ambient Temperature. It also includes results for non-continuous parameters Passives, VOC, PAH and Partisol.

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

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

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

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

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

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

Hourly data is corrected using daily zero information.



### **SULPHUR DIOXIDE (SO2)**

The routine monthly calibration was performed on November 5. The routine annual internal quality audit was attempted on November 17. Due to issues from the calibrator, the audit was aborted. The audit was repeated on November 18 using a different calibrator. The result was good. The audit report is included in this report.

### **TOTAL REDUCED SULPHUR (TRS)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 5. The routine annual internal quality audit was completed on November 17. The audit report is included in this report.

### **TOTAL HYDROCARBONS (THC)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 5. The routine annual internal quality audit was completed on November 17. The audit report is included in this report.

### **NITROGEN DIOXIDE (NO2)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 5. The routine annual internal quality audit was completed on November 17. The audit report is included in this report. The analyzer was put into Maintenance mode for three hours on November 18 while the GPT reference points for the Ozone analyzer audit were being generated.

### OZONE (O3)

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 5. The routine annual internal quality audit was completed on November 18. The audit report is included in this report.

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

Two Teom audits were performed this month: one was completed on November 3, and the other audit was performed on November 23. Both the sample filter and the FDMS filter were replaced on November 3. The routine annual internal quality audit was completed on November 18. The audit report is included in this report. The Teom unit recorded many negative readings after the audit on November 18. The sample filter was replaced on November 19 to improve the unit's stability. No further issues were identified. 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 –3 ug/m3, the data was invalidated. Eighty-three hours of data were invalidated as the data were below –3 ug/m3 this month. The operational uptime for the month is 88.2%. AE Reference number: 306982.

### 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**

Samples were collected over the months of October and November. Samples were collected at all designated stations, except stations 12 and 25 as access documents were not provided by client. Analytical results are included in this report. Samples collected by the SO2 samplers at stations #16, #17, #18 and #19 were not analyzed due to a sampling error.

### **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 November 2, 8, 14, 20 and 26. 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 the unit of  $\mu g$ .

Samples were collected on November 2, 8, 14, 20 and 26. 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 the unit of mg.

Samples were collected on November 2, 8, 14, 20 and 26. Analytical results are included in this report.

A shut-down audit was performed on the sampler prior to rebuilding the pump on November 17. The post-repair audit was then completed. The routine annual internal quality audit was completed on November 18. The audit report is included in this report. The AEMERA-owned partisol sampler, S/N: 2000A204009710, was replaced with the Maxxam-supplied sampler, S/N: 2000B206140102 on November 24 following a shut-down audit. The installation audit was performed afterwards. The AEMERA-owned sampler was returned to AEMERA in December 2015.





### 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 Limin Li.

### 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 (88.2%).

### 4.0 Calculations and Results

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



### 5.0 Methods and Procedures

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

Maxxam AIR SOP-00208: RM Young Monitor Calibration

Maxxam AIR SOP-00210: Ambient TRS Monitoring

Maxxam AIR SOP-00211: Ambient SO2 Monitoring

Maxxam AIR SOP-00212: Ambient O3 Monitoring

Maxxam AIR SOP-00213: Ambient NO/NO2/NOx 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

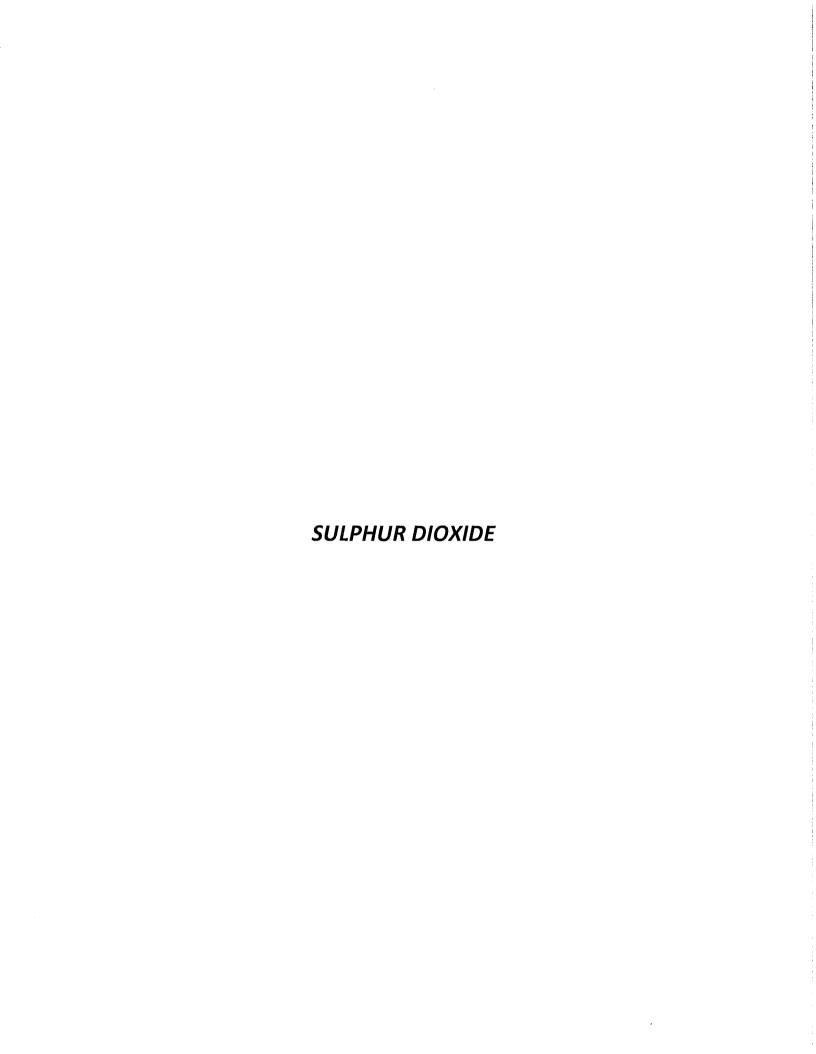
and Xontech

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - Thermo 43i UV Flourescent Analyzer
Total Reduced Sulphur - Thermo 450i UV Flourescent Analyzer
Total Hydrocarbons - Thermo 51C FID Analyzer
Oxides of Nitrogen - Thermo 42C Chemiluminescent Analyzer
Ozone - Thermo 49i Photometric Analyzer
Particulate Matter (PM2.5) - 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





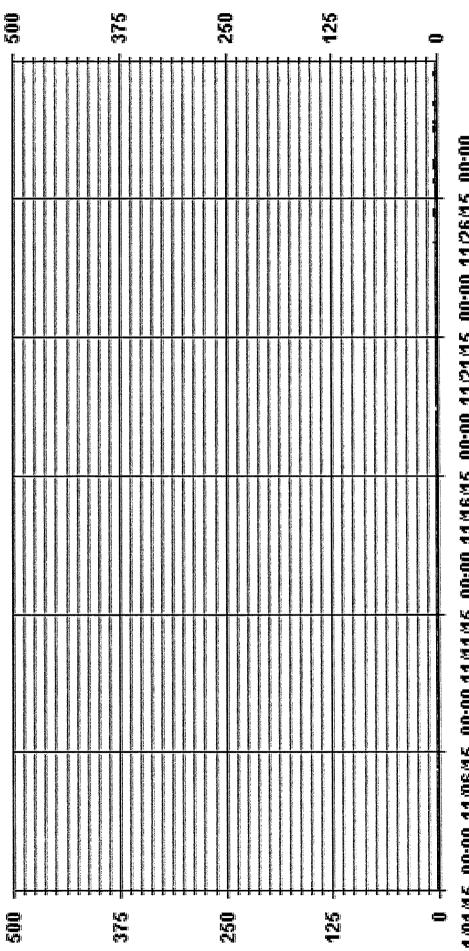
SULPHUR DIOXIDE (SO2) hourly averages in ppb

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			MO	MONTHLY SUMMARY		•			
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NUMBER OF NON-ZERO READINGS:			47						
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		2 0.5	PB BB	PPB @ HOUR(S) PPB	15	ON DAY(S) ON DAY(S) VAR-VARIOUS	8 8	78 78 78	
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Of Hour Averages



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502 



MST

### JOB # 2833-2015-11-01- C Cold Lake South Site - NOVEMBER 2015 LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

RDGS.	24	24	24	54	54	24	54	24	24	54	74	54	54	54	24	24	77	24	24	24	74	24	24	54	54	54	54	24	54	24		
24-HOUR AVG.	1.0	8.0	0.7	1.0	1.0	1.0	13	1.0	1.0	1.0	10	1.0	1.0	1.0	1.0	6.0	1.0	6.0	6.0	1.0	1.0	1.0	1.0	1.0	1.2	1.1	1.0	1.3	1.0	1.1		
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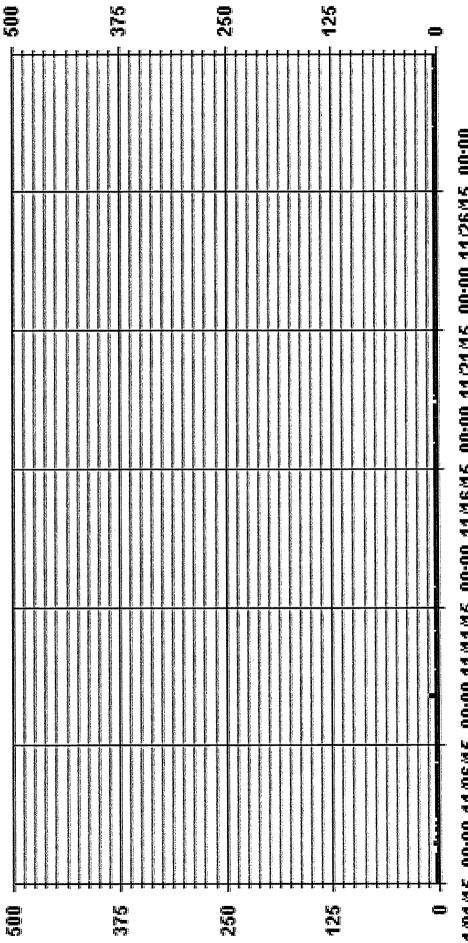
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STATUS FLAG CODES	R RECOVERY X - MACHINE MALFUNCTION O - OPERATOR ERROR K COLLECTION ERROR	
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### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			649							
MAXIMUM INSTANTANEOUS VALUE:	úi		œ	PPB	@ HOUR(S)	JR(S)	20	ON DAY(S)		
							VAR-VARIOUS	sions		
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Of Hour Averages



11/01/115 00:00 11/06/115 00:00 11/11/115 00:00 11/116/115 00:00 11/21/115 00:00 11/26/115 00:00

- LICA SOZMAX PPB

LICA SO2\_ / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 01 Site Name : LICA Parameter : SOZ\_ Units : PPB

Wind Parameter : WDR Instrument Height : 10 Meters

Direction

	Freq	100.00	00.	00.	00.	00.	00.		
	NNW	4.42	00.	00.	00	00.	%	4.42	
	MN	5.60	00.	00.	00.	00.	00.	5.60	
	WNW	6.04	00.	00.	00.	00.	00.	6.04	
	×	12.68	00.	00.	00.	00.	00.	12.68	
	WSW	22.56	00.	00.	00.	00.	00.	22.56	
	SW	11.06	00.	00.	00.	00.	00.	11.06	
	SSW	4.86	00.	00.	00.	00.	00.	4.86	
	w	2.94	00.	00.	00.	00.	00.	2.94	
	SSE	3.09	00.	00.	00.	00.	00.	3.09	
	SE	8.70	00.	00.	00.	00,	00.	8.70	
i	ESE	2.65	00.	00.	00.	00.	00.	2.65	
	ы	7.22	00.	00.	00.	00'	00.	7.22	
	ENE	3.53	00.	00.	00.	00.	00.	3,53	
	Ħ	2.80	00.	00.	00.	00.	00.	2.80	
	NAE	.73	00	00.	00.	00.	00.	.73	
	z	1.03	00.	00-	00.	00.	00.	1.03	
	Limit	20	09	110	170	340	340	Totals	
		٧	٧	٧	٧	٧	X		

Calm : .00 %

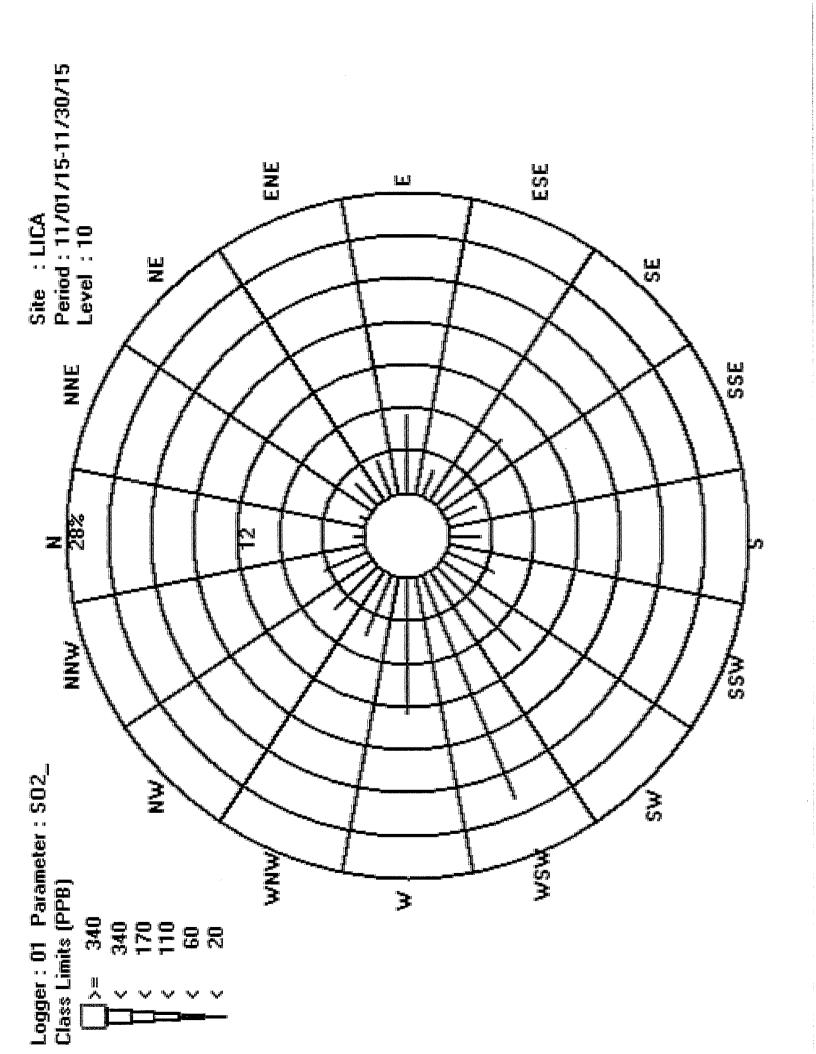
Total # Operational Hours : 678

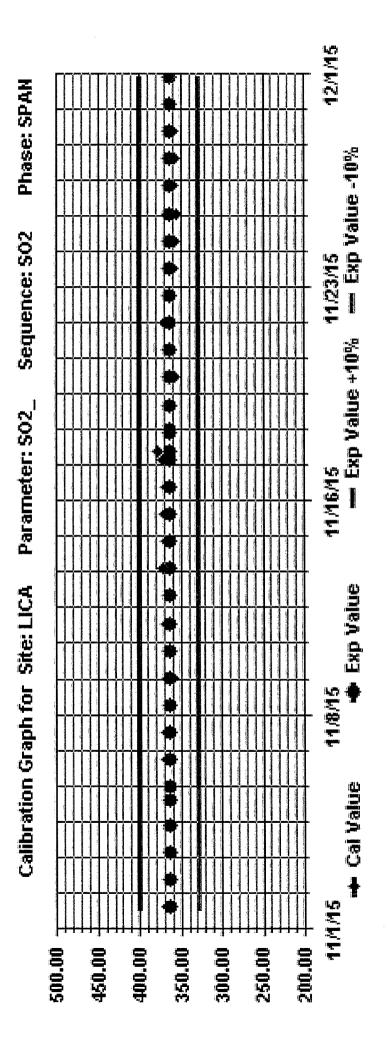
Distribution By Samples

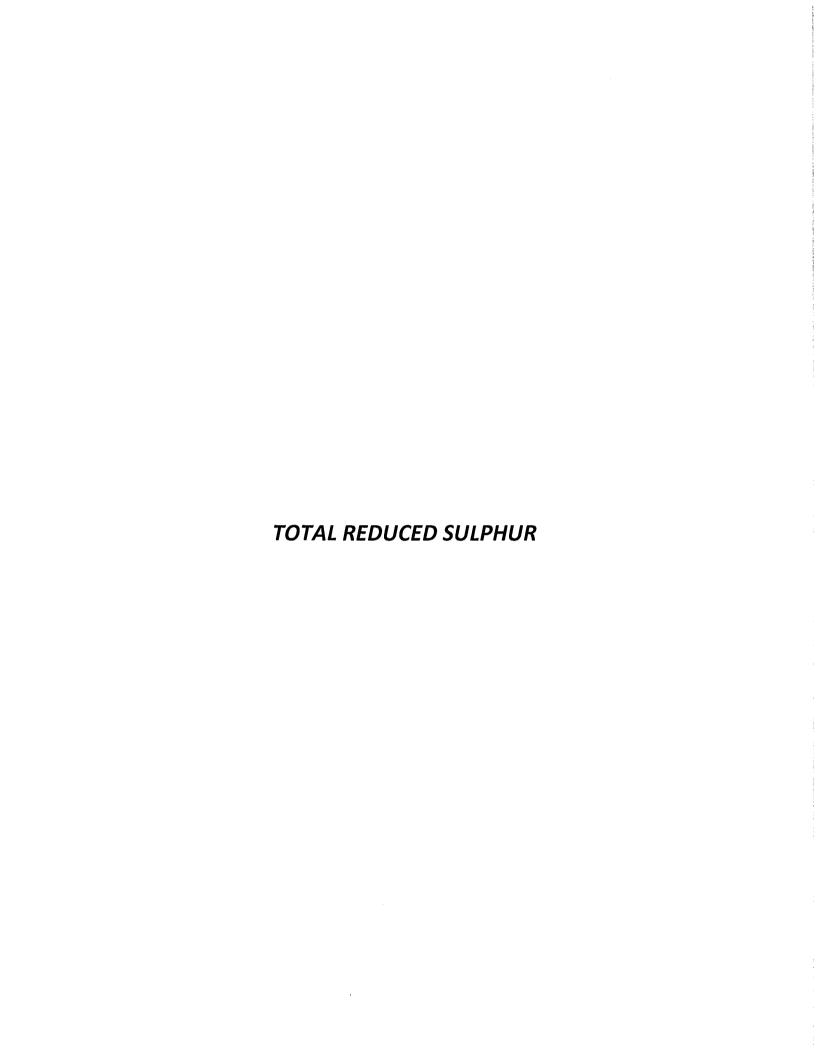
	Ď,	m							
	Fred	678							
	NNW	30						30	
	M	38						38	
	WNW	41						41	
	×	98						98	
	WSW	153						153	
	SW	75						75	
	SSW	33						33	
	w	20						20	
	SSE	21						21	
Direction	SE	59						59	
Dire	ESE	18						18	
	ы	49						49	
	ENE	24						24	
	Ä	19						19	
	NNE	Ŋ						ιΩ	
	z	7						7	
	Limit	20	09	110	170	340	340	Totals	
		٧	٧	٧	٧	٧	X	-	

Calm : .00 %

Total # Operational Hours : 678







JOB # 2833-2015-11-01- C



# dqq ni s

hourly averages
(TRS)
SULPHUR
. REDUCED
TOTAL

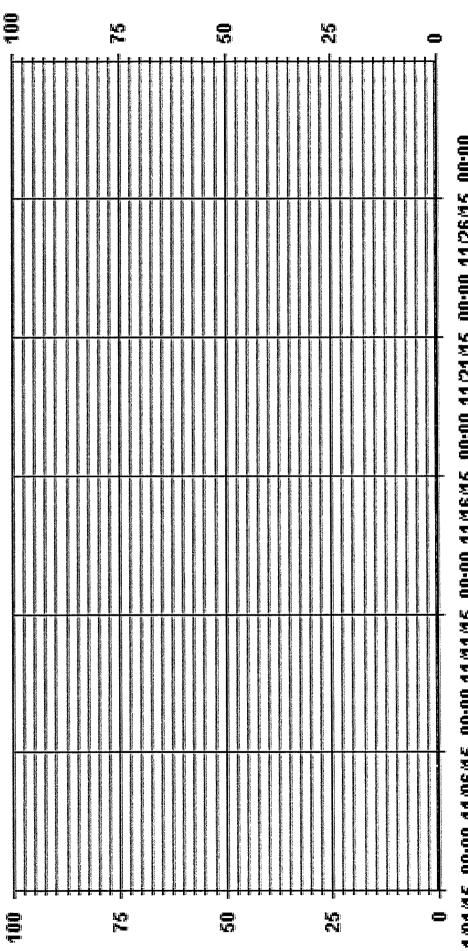
## STATUS FLAG CODES

MAINTENANCE DAIB/ZERO/SPANCHECK XMACHINE-MAETUNCHON POWER-AIUNE	24 HOUR AVERAGES FOR NOVEMBER 2015						5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 28 27 28 28 30
. V		10.0	0.8	6.0	4.0	2.0	0.0

# MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	έš		0					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		0.0	PPB PPB	@ HOUR(S)	ALL	ON DAY(S) ON DAY(S) VAR-VARIOUS	ALL AL	LL ALL
IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME:	31	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	: PTIME:		720 100.0	% HRS
STANDARD DEVIATION:	0.00			MONTHLY AVERAGE:			0	PPB

Of Hour Averages



41/01/45 00:00 11/06/45 00:00 11/41/45 00:00 11/46/45 00:00 11/21/45 00:00 11/26/45 00:00

TRS



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

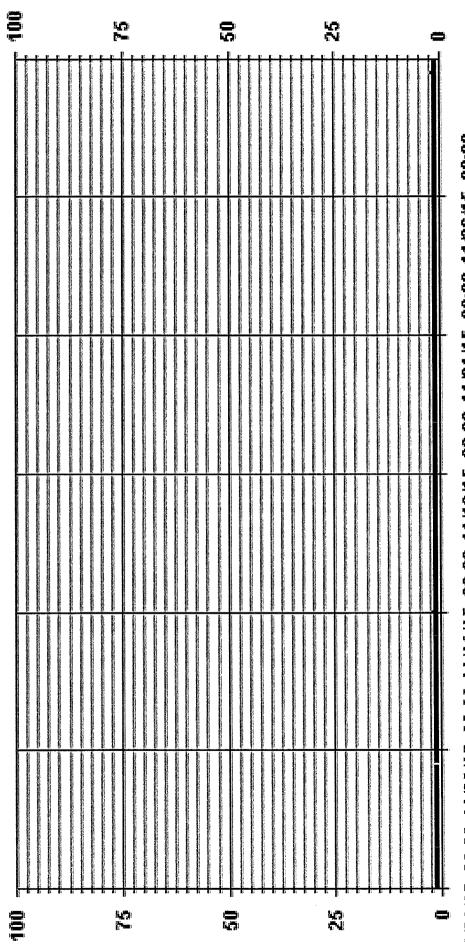
# TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

RDGS.	24	54	54	54	54	54	54	54	54	24	24	77	74	54	54	74	54	24	54	54	54	74	77	24	77	54	24	54		
24-HOUR AVG.	1.0	1.0	1.0	1.0	70	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		
DAILY	1	Н	1	1	1	1	1	1	1	1	7	1	1	1	1	1	1	1	7	7	1	7	1	1	1	Ţ	Ţ	ы		
0:00	н	1	₽	₽	s	₽	₽	H	7	7	ч	н	н	₽	₽	7	1	Н	ы	₽	7	Н	7	7	1	1	1	s	1	·
18:00 19:00 $20:00$ $2:00$ $22:00$ $25:00$ 19:00 $20:00$ $21:00$ $22:00$ $23:00$	1	Т	1	П	н	s	1	Ţ	7	ч	Н	н	н	н	H	Н	r-I	Н	₽	H	₽	ᆏ	Н	н	₽	₽	₽	П	τ ;	C
21:00 22:00	7	Н	7	Ţ	7	1	s	н	7	7	Н	Н	₽	Н	⊣	+	+	7	7	7	₽	7	₽	⊣	Н	₽	₽	1	τ !	,
21.00	н	Н	₽	ᆏ	н	т	1	s	1	1	1	1	1	Н	-	1	1	1	П	1	1	1	1	Н	1	1	Н	7	τ ;	,
1 20:00	1	7	Н	Н	Н	⊣	н	+	s	Н	н	н	7	₽	⊣	T	Ŧ	1	↔	н	+	Н	н	⊣	Н	Н	1	Н	∶	,
2000	s	Т	1	1	1	1	1	1	1	S	7	7	Н	П	Н	Н	+	Н	1	₽	H	7	Н	Н	₽	Н	Н	7		,
0 18:0	1	S	1	1	1	Т	П	т	1	1	S	1	1	Н	Н	7	ď	1	П	П	⊣	1	1	Н	1	1	Н	₽	1	•
1200 - 1200 -	1	1	S	1	1	1	7	1	1	1	1	S	Н	4	1	7	ď	1	1	1	1	Η.	1	1	1	1	1	Η.	П	
	1	-	1	S		1	1	-	1	1	1	1	S	. 1	1	1	1	1	1	1	-	1	1	1	1	1	1 1	1 1		
00 15	1	1	1	1	u	1	1	1	1	1 1	1 1	1	1	1 .	S	1	1	1	1	1	1	1	1	1	7	1	7	1	1	
3.00	7	τ.	1	1	J	7	7	₽	7	7	7	1	1	1	T.	S	1	1	1	1	1	1	1		1	1	1	1	2	
2:00 1	1	7	₽	₽	1	₽	₽	T.	7	7	1	1	1	₽	-1	1	s	7		н	4	1	1	4	1	1	4	4	€	
1.00	1	н	1	1	7	1	1	1	Н	H	7	1	7	1	7	₽	₽	s	1	Н	7	⊣	7	1	Н	1	₽	1	<b>~</b> -1	
10-00	1	7	₽	Н	₽	1	1	Ч	7	Н	1	Н	1	1	1	1	7	1	s	1	1	7	1	₽	ч	ч	⊣	₽	L	
00.6	1	1	1	۲-۱	Н	1	1	Н	Н	Н	Н	Н	Н	1	н	1	7	7	1	s	1	1	н	Н	ч	7	ч	Н	<b>~</b> 1	
8:00	1	1	Ţ	7	7	7	H	Н	7	7	7	7	1	1	1	7	7	Н	7	7	s	н	н	7	н	7	Н	н	-	
7.00	1	7	7	7	₽	₽	Н	н	₽	Н	Н	٦	٦	7	Н	1	Н	⊣	₽	Н	1	s	Т	1	Н	Н	Н	Н		
5:00 6:00	₽	₽	Н	н	Н	Н	Н	Н	Н	Н	Н	1	1	Н	7	1	1	1	7	1	1	1	s	1	Н	Н	П	П	1	
5:00	н	1	H	H	7	Н	7	н	Н	7	7	Н	7	Н	Н	7	Н	7	H	1	7	1	7	s	1	1	H	1	11	
3.00 4:00	Ţ	1	1	1	1	Н	Н	Н	1	1	1	1	1	Н	Н	Н	Н	7	1	1	1	7	₽	Н	s	₽	₽	H	1	
3:00	1	+	1	Ţ	Н	П	1	1	П	1	1	Н	н	Н	1	1	1	1	1	1	1	1	1	1	Н	s	Н	1	1	
2.00 2.00	1	H	7	7	Н	Н	7	Н	7	н	7	H	H	Н	H	1	H	H	1	1	1	1	1	1	1	1	s	1		
1:00	1	ri W	T.	1	-	1	1	-T	### ####	ਜ 	H ()	<b>H</b>	H P	Η	Η	<b>-</b> 1	<del>П</del>	ਜ <u>/</u> 1)	-	H 기기	+	<b>н</b>	H	H	<b>н</b>	ਜ ਤੁ	7	S	1	_
HOUREND 1:00 2:00 3:00 4:00 5:00 6	DAY	2	E.	4	5	9	7	8	O	9	T	12	13	71	15		17	Ţ8,	19	20	21	22	23	42	25		. 27	28	HOURLY MAX	

STATUS FLAG CODES	C

			MON	MONTHLY SUMMARY	MMARY					
NUMBER OF NON-ZERO READINGS:			683							
MAXIMUM INSTANTANEOUS VALUE:	نن		2	PPB	@ HOUR(S)	Н		ON DAY(S)		11
						>	VAR-VARIOUS	snoi		
IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME: STANDARD DEVIATION:	31 4 0.05	HRS	J	OPERATIC	OPERATIONAL TIME:				720	HRS
	I						ĺ			l

of Hour Averages



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

- LICA TRSMAX PPB

LICA TRS\_ / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 01 Site Name : LICA Parameter : TRS\_ Units : PPB

% 00, 00-NNW Freq 4.24 100.00 00. 00. 0. 4.24 6.14 00 6.14 ž % 00, 6.14 6.14 0, 00. 00. 12.59 80. 8. % 4.83 10.98 22.40 12.59 Wind Parameter : WDR Instrument Height : 10 Meters × 22.40 00. 00. 00. SW 10.98 00. 00. 0. 4.83 8 0. 8. 2.92 2.92 00. 00. 00. Ø 3.07 3.07 00. SSE 00. 00. Direction 8.63 S 8.63 00. 00. % 2.63 2.63 ESE 0. 00. 00. 7.17 7.17 00. 8 00. 3.66 3.66 ENE 00. 00. 00. 2.78 Ę 2.78 8, 00. 8 .73 NNE 8 00. 00. 1.02 1.02 00. % 00. z Totals Limit m 10 20 20

Total # Operational Hours :

Calm : .00 %

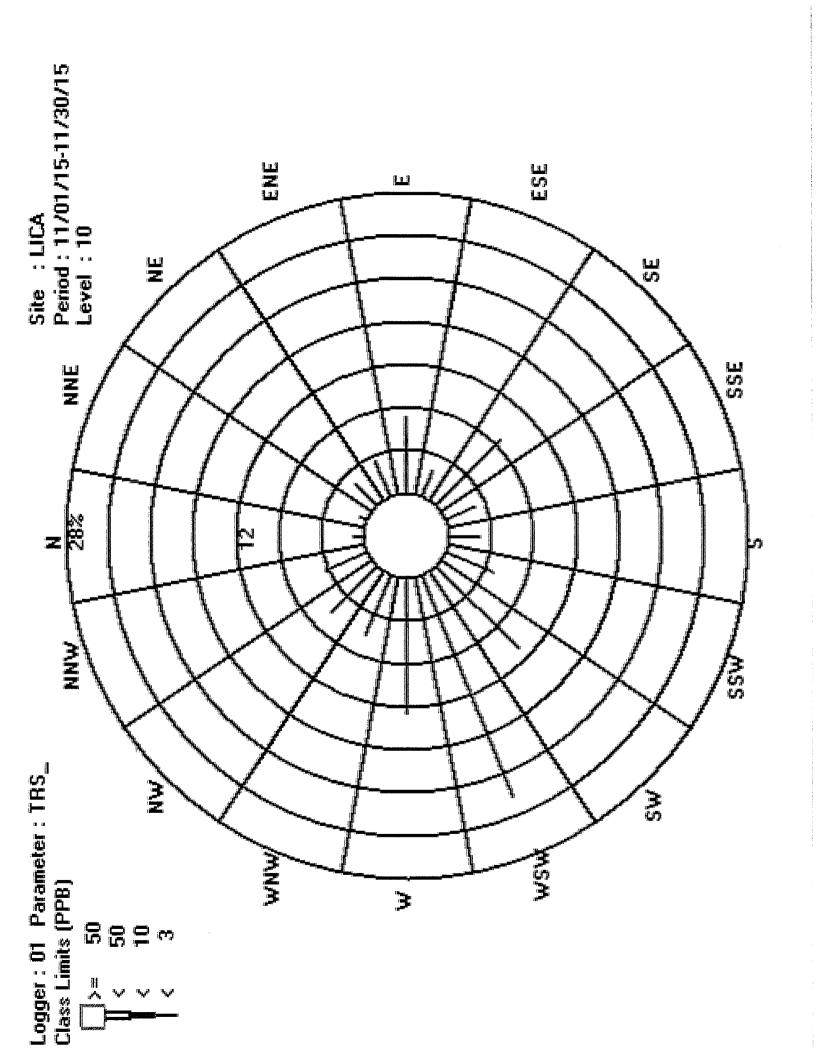
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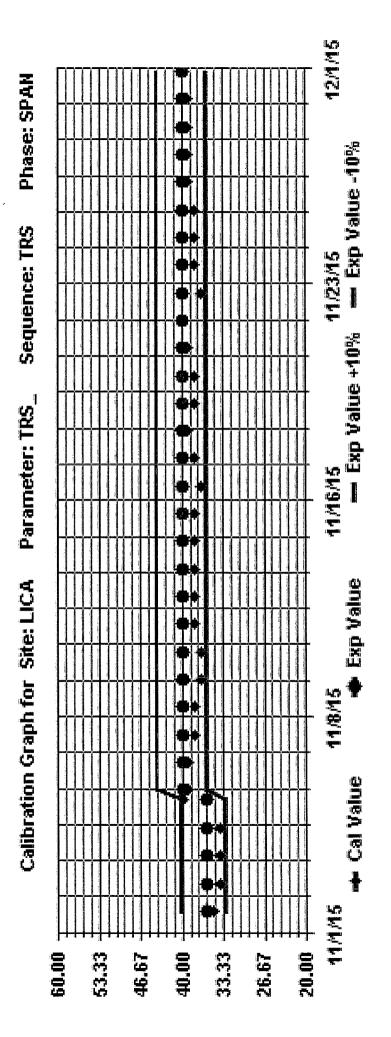
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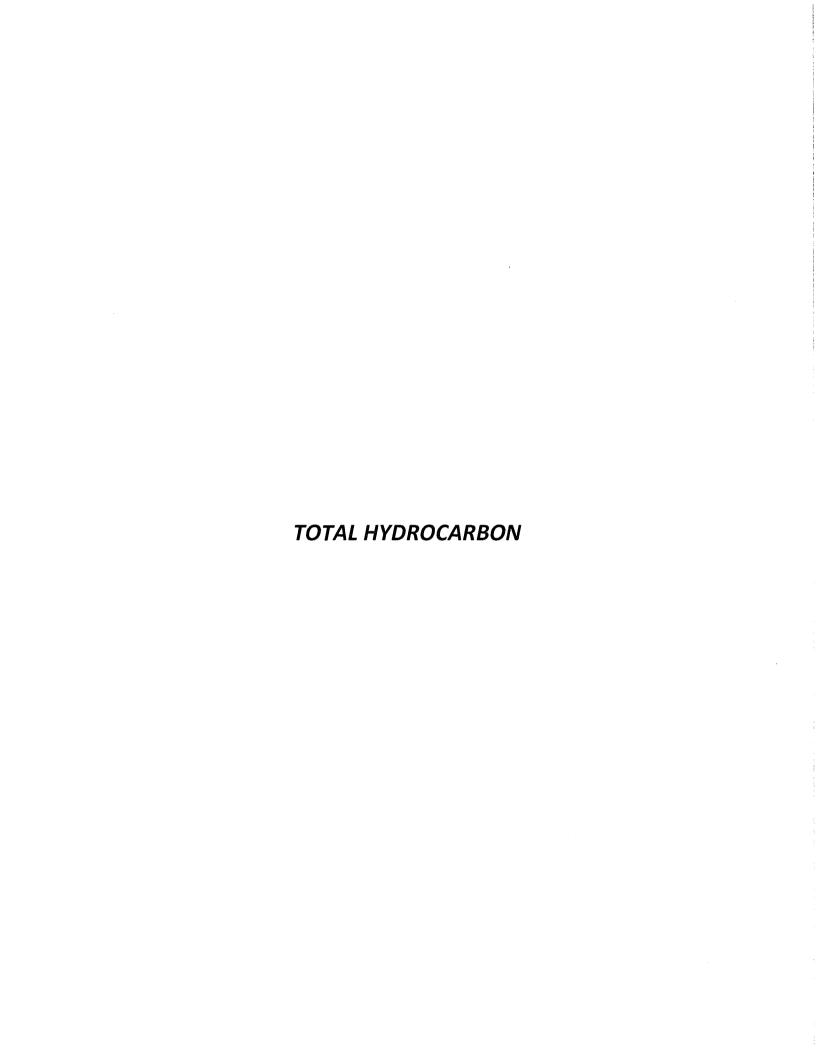
Distribution By Samples

Total # Operational Hours : 683

Calm : .00 %









# rly averages in ppm

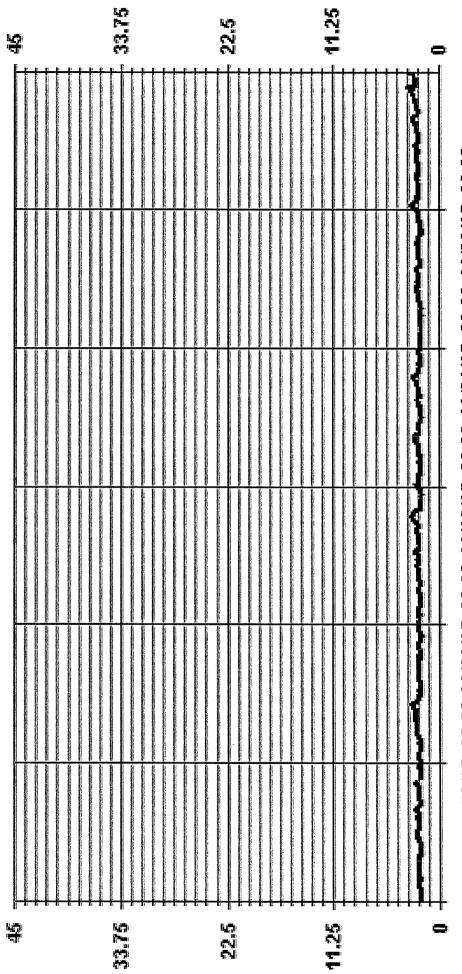
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CIRCULATION CONTRACTOR	1	
ì		•

	RDGS.	24	24	24	74	24	75	54	24	24	24	24	74	75	54	54	54	74	24	24	77	24	54	54	*	54	24	74	24	74	77		
	24-HOUR AVG.	2.0	2.1	2.2	2.2	2.1	2.1	2.5	2.3	2.2	2.1	2.1	2.1	2.2	2.4	2.2	2.1	2.2	2.1	2.3	2.2	2.0	2.0	2.3	2.2	2.1	2.4	2.3	2.3	2.5	2.7		
	DAILY MAX.	2.1	2.1	2.5	2.5	5.6	2.2	2.7	2.9	2.3	2.2	2.3	2.2	2.5	5.9	5.9	2.4	2.5	2.2	2.7	2.8	2.1	2.2	2.4	2.4	2.3	2.9	2.5	2.5	2.7	3.2		
	23:00	2.1	2.0	2.2	2.1	s	2.2	5.6	2.0	2.1	2.1	2.0	2.1	2.2	5.9	2.1	2.2	2.1	2.1	2.7	2.1	2.0	2.2	2.1	2.2	2.3	2.1	2.4	s	2.5	3.0	3.0	2.2
	22.00	2.1	2.0	2.3	2.1	2.1	s	2.7	2.0	2.1	2.1	2.1	2.2	2.1	5.9	2.1	2.1	2.5	2.0	5.6	2.1	2.0	2.1	2.4	2.3	2.2	2.1	2.5	2.3	s	2.7	2.9	2.2
	21:00	2.0	2.0	2.2	2.1	2.1	2.0	s	2.0	2.1	2.1	2.0	2.1	2.1	5.8	2.0	21	2.5	2.0	2.6	2.1	1.9	2.2	2.4	2.2	2.3	2.2	2.4	2.3	2.4	s	2.8	2.2
	20:00	2.1	2.0	2.2	2.1	2.0	2.1	2.6	s	20	2.2	2.0	2.1	2.2	2.7	2.0	2.0	2.5	2.0	2.5	2.1	1.9	2.2	2.4	2.4	2.2	2.1	2.5	2.3	2.4	2.7	2.7	2.2
	19:00	2.1	2.0	2.1	2.1	2.0	2.1	2.5	2.1	s	2.1	2.0	2.1	2.2	2.7	2.0	2.0	2.5	2.0	2.3	2.0	13	2.1	2.4	2.3	2.2	2.1	2.3	2.2	2.4	2.6	2.7	2.2
	18:00	s	2.0	2.1	2.1	2.0	2.2	2.5	2.0	2.2	S	2.0	2.1	2.3	2.5	1.9	2.0	ď	2.0	2.3	2.0	2.0	2.1	2.3	2.3	2.2	2.1	2.3	2.3	2.3	2.5	2.5	2.2
1	17:00	2.1	s	2.1	2.1	2.0	2.0	2.5	2.1	2.2	5.0	s	2.1	2.5	2.4			2.5						2.2	2.2			2.2				2.6	
nodily averages in ppin	0 16:00		2.1									•		2.5	2.3													2.2				2.6	
מאכוני	0 15:00 0 16:00	1	. 2.1											s											2.2			2.2		2.3		2.5	
6	14:00 15:00	l .	1 2.1					5 2.5						2 2.3		1.9																5 2.5	
	12:00 13:00 13:00 14:00		2.1 2.1				0 1.9									0 \$																9 2.5	
2	11:00: 12:00 12:00 13:00		2.1 2.				.1 2.0	.4 2.4			2.1 2.0		2.1 2.0	2.3 2.2		2.0 2.0				2.2 2.2									2.4 2.3	4 2.4		3.2 2.9	
(אווו) לאוסמאיביסטים ווו זעוס	10:00 11 11:00 12		2.1 2		.,									2.4 2					<b>S</b> 2										2.5 2			3.3	7 7
	9:00 IC		2.1 2																													2.9	2.2
2	8:00 9:00	''	2.1	2.3		2.6	2.1				2.1		2.1	2.2	2.3					2.1							2.6		2.5			3.0	
•	7:00	2.0	2.1	2.2	2.4	2.4	2.2	2.5	2.4	2.3	2.1	2.2	2.1	2.2	2.2	2.0	2.1	2.2	2.2	2.2	2.3	s	2.0	2.3	2.1	1.9	2.8	2.2	2.3	2.7	2.9	2.9	2.3
	6:00	2.0	2.1	2.2	2.3	2.3	2.1	2.4	2.5	2.2	2.2	2.1	2.1	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.1	s	2.2	2.1	2.0	2.8	2.3	2.3	2.7	2.8	2.8	2.2
	5:00	2.0	2.1	2.2	2.2	2.3	2.1	2.4	2.7	2.2	2.2	2.1	2.1	2.3	2.2	2.3	2.1	2.1	2.2	2.3	2.2	5.0	1.9	s	2.0	2.0	5.9	2.3	2.3	2.7	2.8	2.9	2.2
	4:00 5:00	2.0	2.1	2.1	2.2	2.2	2.1	2.4	5.9	2.1	2.2	2.1	5.0	2.3	2.2	5.6	2.2	2.1	2.2	2.4	2.2	5.0	5.0	2.3	s	9.5	2.9	2.3	2.2	5.6	2.7	5.9	2.3
	3:00	2.0	2.1	2.0	2.3	2.2	5.0	2.4	2.8	2.1	2.0	2.1	2.0	2.3	2.2	2.7	2.4	2.0	2.2	2.3	2.2	5.0	5.0	2.3	5.0	s	2.8	2.4	2.3	2.5	2.6	2.8	2.2
	2:00: 3:00	2.0	2.1	2.0	2.3	2.2	2.0	2.4	2.8	2.1	2.0	2.1	2.0	2.2	2.2	2.7	2.1	2.1	2.2	2.2	2.3	5.0	5.0	2.3	5.0	2.2	s	2.3	2.3	2.5	2.6	2.8	2,2
	1:00	2.0	2.1	2.0	2.3	2.1	2.0	2.3	2.7	2.1	5.0	2.1	2.0	2.1	2.2	2.7	2.1	2.0	2.1	2.1	5.6	2.0	2.0	2.2	2.0	2.3	2.5	S	2.3	2.4	2.6	2.7	2.2
	0:00	2.0	2.1	2.0	2.3	2.2	5.0	22	2.7	2.1	27	27	5.0	2.1	2.2	5.9	2.1	2.1			2.8		5.0		5.0	2.2			v	2.4	2.5	2.9	2.2
MST	HOURSTART 0.00 1.00 2.00 3.00 4.00 5.00 HOUREND 1.00 2.00 3.00 4.00 5.00 6.00	DAY.	7	m	4	'n	9	7	œ	O.	Я	Tr.	12	Ð	4	15	16	17	18	19	20	21	22	23	24	52	26	27	28	. 29	30	HOURLY MAX	HOURLY AVG

STATUS FLAG CODES  C. CALIBRATION QQUALITY ASSURANCE	Y MAINTEINAIGE R R RECOVERY SECONDARY SECONDAR	P - POWER PAILURE O - OPERATOR ERROR G - OUT POR REPAIR	HOUR AVERAGES FOR NOVEMBE		2,5 2,0 2,0 3,0 4,0 4,0 4,0 4,0 4,0 4,0 4,0 4,0 4,0 4	25	15.1	00
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NUMBER OF NON-ZERO READINGS:			684					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		3.2	Wdd Wdd	РРМ @ НОИК(S) РРМ	10,11	ON DAY(S) ON DAY(S) VAR-VARIOUS	₩ "'	30,30 30
 IZS CALIBRATION TIME: 31 MONTHLY CAUBRATION TIME: 4		HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	TIME:		720 100.0	HRS
STANDARD DEVIATION: 0.22	2			MONTHLY AVERAGE:			2.2	PPM

Of Hour Averages



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

- LICA THC PPM



MST

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

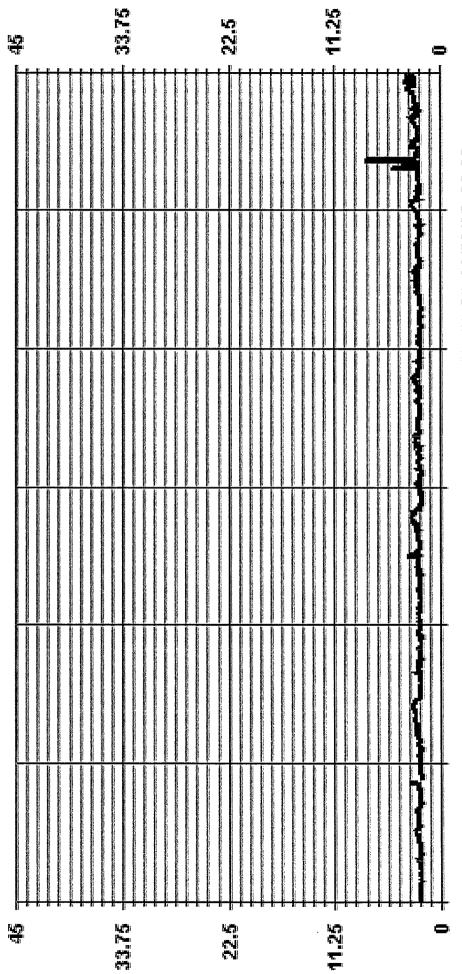
Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

RDGS.	24	24	24	24	24	24	24	24	54	24	24	24	24	24	24	54	24	54	54	54	54	54	24	54	24	24	24	24	54	54		
24-HOUR AVG.	2.1	2.2	2.4	2.3	2.2	2.2	5.6	2.4	2.3	2.2	2.3	2.2	2.4	5.6	2.3	2.2	2.4	2.2	2.4	2.3	2.1	2.1	2.5	2.3	2.3	5.6	2.9	2.5	2.7	3.0		
DAILY MAX.	2.2	2.5	2.8	5.6	3.2	2.4	2.8	3.0	5.6	2.3	2.4	2.3	3.5	3.1	3.0	2.5	2.8	2.4	5.9	5.9	2.5	2.3	2.8	2.5	2.4	3.1	8.0	3,3	3.1	3.9		
23:00	2.2	2.1	2.3	2.2	s	2.4	2.7	2.1	2.2	2.3	2.1	2.3	2.2	3.1	2.2	2.3	2.3	2.2	5.9	2.2	2.1	2.3	2.5	2.3	2.4	2.2	5.6	s	2.7	3.2	3.2	2.4
22.00	2.1	2.1	2.4	2.2	2.1	s	2.8	2.1	2.2	2.2	2.2	2.3	2.2	3.1	2.3	2.4	2.7	2.2	2.8	2.2	2.1	2.2	2.5	2.4	2.4	2.3	2.9	2.5	s	5.9	3.1	2.4
21:00 22:00	2.2	2.1	2.3	2.2	2.1	2.2	s	2.1	2.2	2.3	2.2	2.3	2.2	3.0	2.1	2.3	2.7	2.2	2.7	2.2	2.0	2.2	2.5	2.4	2.4	2.3	5.6	2.4	5.6	s	3.0	2.3
20:00	2.2	2.1	2.3	2.2	2.1	2.3	2.7	s	2.1	2.3	2.2	2.1	2.2	2.9	2.1	2.2	2.6	2.2	2.6	2.2	2.0	2.3	2.5	2.5	2.4	2.3	8.0	2.4	2.7	3.5	8.0	5.6
19 00	2.1	2.1	2.2	2.2	2.1	2.3	5.6	2.2	s	2.3	2.1	2.2	2.3	3.0	2.0	2.1	27	2.1	2.5	2.1	2.1	2.2	2.8	2.5	2.3	2.2	2.4	2.4	5.6	2.8	3.0	2.3
19:00	v	2.0	2.2	2.2	2.1	2.3	2.6	2.1	2.3	S	2.1	2.2	2.4	2.8	2.0	2.1	ď	2.1	2.5	2.2	2.1	2.2	2.4	2.5	2.3	2.2	4.0	2.5	2.4	2.7	4.0	2.4
17.00	2.2	s	2.4	2.2	2.1	2.3	2.7	2.2	2.4	2.2	s	2.2	2.6	2.5	2.2	2.2	ď	2.1	2.4	2.1	2.1	2.2	2.4	2.4	2.3	2.5	2.4	23	2.5	2.7	2.7	2.3
16:00	2.2	2.2	s	2.2	2.2	2.2	2.7	2.2	2.3	2.3	2.3	s	2.6	2.6	2.0	2.4	2.8	2.1	2.4	2.3	2.1	2.2	2.5	2.5	2.2	2.3	2.3	2.3	2.9	3.9	3.9	2.4
15.00	2.2	2.2	2.8	s	2.1	2.1	2.7	2.1	2.3	2.0	2.4	2.1	s	2.4	2.0	2.1	2.6	2.1	2.4	2.2	2.1	21	2.5	2.4	2.3	2.4	2.3	2.5	2.7	2.6	2.8	2.3
0 14:00 0 15:00	2.2	2.5	2.6	2.1	2.0	2.1	2.7		2.2	2.1	2.3	2.1	2.4		2.0	2.0					2.1		2.4	2.4	2.2	2.3	2.3	2.3	2.3	2.6	2.7	2.3
0 13:00 0 14:00	2.2	2.3		2.2	2.0	2.0			2.3	2.1	2.2			2.6							2.1		2.4		2.4	2.5	5.1	2.3	2.4		5.1	2.4
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10:00 11:00 11:00 12:00	2 2.	2 2.2	5 2.5	5 2.4		2 2.3	5 2.5	2 2.3	3 2.3	1 2.7	4 2.3	3 2.3	5 2.4	6 2.4		2 2.2				2 2.3		1 2.0	4 2.	5 2.3	1 2.4	3 2.9	4 2.3	6 2.6	8 2.6	5 3.6	5 3.6	2.7
	1 22	2 2.	4 2	2.6 2.		3 2	5 2.	4 2.	2 2.	1 2.	3 2.	2.3 2.	4 2.5	5 2.6	1 2.	2 2.2		2.4 S			1 2.	1 2.1	4 2.4	4 2.5	1 2.	8 2.	5 2.	2.6 2.	3.1 2.	2 3.	2 3.	4
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00 9	1. 2	2 2	3 2	5 2	3.3	.3 2	.7 2	7 2	.6 2	2 2	.4 2	2.3 2	2.4 2	2.4 2	2.1 2						<b>S</b> 2		26 2	.2 2	1.1 2	3.0	.4	3.	2 2	1.1	3.1 3	
.00 7 .00 8	2.1 2	2.1 2	2.3	2.6	2.4	2.2	2.6 2	2.7	2.3	2.3	2.3				2.2						2.5		2.4	2.2	2.1 2	3.0	2.4	2.4	2.9	2.9		
9 00:0	2.1	2.2	2.3	2.3	2.4	2.2	2.6	3.0	2.2	2.3	2.3	2.2	2.4	2.3	2.7	2.2	2.3	23	2.4	2.3	2.2	2.0	S	2.1	2.1	3.1	2.4	2.4		2.9		
5.00	2.1	2.1	2.2	2.3	2.3	2.2	2.5	3.0	2.2	2.3	2.2	2.1	2.5	2.3	2.8	2.5	2.2	2.3	2.5	2.3	2.2	2.1	2.4	s	20	3.1	2.4	2.4	2.8	2.8	3.1	2.4
3:00	2.1	2.2	2.1	2.4	2.3	2.1	2.6	2.9	2.2	2.2	2.2	2.2	2.5	2.3	3.0	2.5	2.2	2.3	2.5	2.3	2.2	2.1	2.5	2.1	s	2.9	2.5	2.5	5.6	2.7	3.0	2.4
2:00	2.1	2.2	2.1	2.4	2.2	2.1	5.6	3.0	2.2	2.1	2.3	2.1	2.4	2.3	2.8	2.3	2.3	2.3	2.3	2.4	2.1	2.1	2.5	2.1	2.3	s	2.4	2.5	5.6	2.7	3.0	2.3
1.00	2.1	2.2	2.1	2.4	2.2	2.1	2.4	5.9	2.2	2.1	2.3	21	2.3	2.2	5.9	23	2.1	2.2	23	5.8	2.1	2.1	5.4	2.1	2.4	2.7	s	5.6	5.6	2.7	2.9	2.3
0.00	2.1	2.2	2.1	2.4	2.2	2.1	2.5	2.8	2.2	2.2	2.2	2.1	2.2	2.2	3.0	2.2	2.3	2.2	2.2	5.9	2.2	2.1	2.4	2.1	24	5.6	2.3	s	2.5	2.7	3.0	2.3
HOWEND TOO 2:00 3:00 4:00 5:00 6:00 7.	DAY.	2	œ	4	'n	φ	7.5	œ	Ø	10	曹	12	13	7	1S	16	17	18	- 51	20	21	22	23	24	53	26	27.	28	10	8	HOURLY MAX	HOURLY AVG

			Ŏ.	MONTHLY SUMMARY	MMARY				
NUMBER OF NON-ZERO READINGS:	IGS:		683						
MAXIMUM INSTANTANEOUS VALUE:	ALUE:		8.0	PPM	@ HOUR(S)	70	ON DAY(S)		27
						VAR-VARIOUS	RIOUS		
IZS CALIBRATION TIME:	31	HRS		OPERATI	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	4	HRS							
STANDARD DEVIATION:	0.37								

of Hour Averages



11,01M5 00:00 11,06M5 00:00 11,M1M5 00:00 11,M6M5 00:00 11,21M5 00:00 11,26M5 00:00

- LICA THCMAX PPM

LICA THO Joint Frequency Distribution (Percent)

Distribution By % Of Samples

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

99.41 NNN 4.38 00 0. 00. 4.38 MN 5.99 00-00. 00. WNW 6.14 00. 6.14 00. 00. 12,57 12.42 Wind Parameter : WD Instrument Height : 10 Meters .14 00. 00. × 22.36 22.07 .29 00. 00. WSW 4.82 10.96 00. 4.82 10.96 00. 00. 00. SSW 00. 00. 2.92 2.92 00. 00. 00. 3.07 3.21 .14 SSE 00. 00. Direction SE 8.62 00. 8.62 00. 00. 2.63 2.63 ESE 00. 00. 00. 7.16 7.16 00. 00. 00. ы 3.50 3.50 00. 00. 00. ENE 2.77 2.77 爿 00. 00. 00. NA NA NA .87 00. 00. 00. .87 1.02 1.02 00. 00, 00. z Totals 3.0 Limit 10.0 50.0 >= 50.0 ٧

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Fred

.58

00. 00.

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

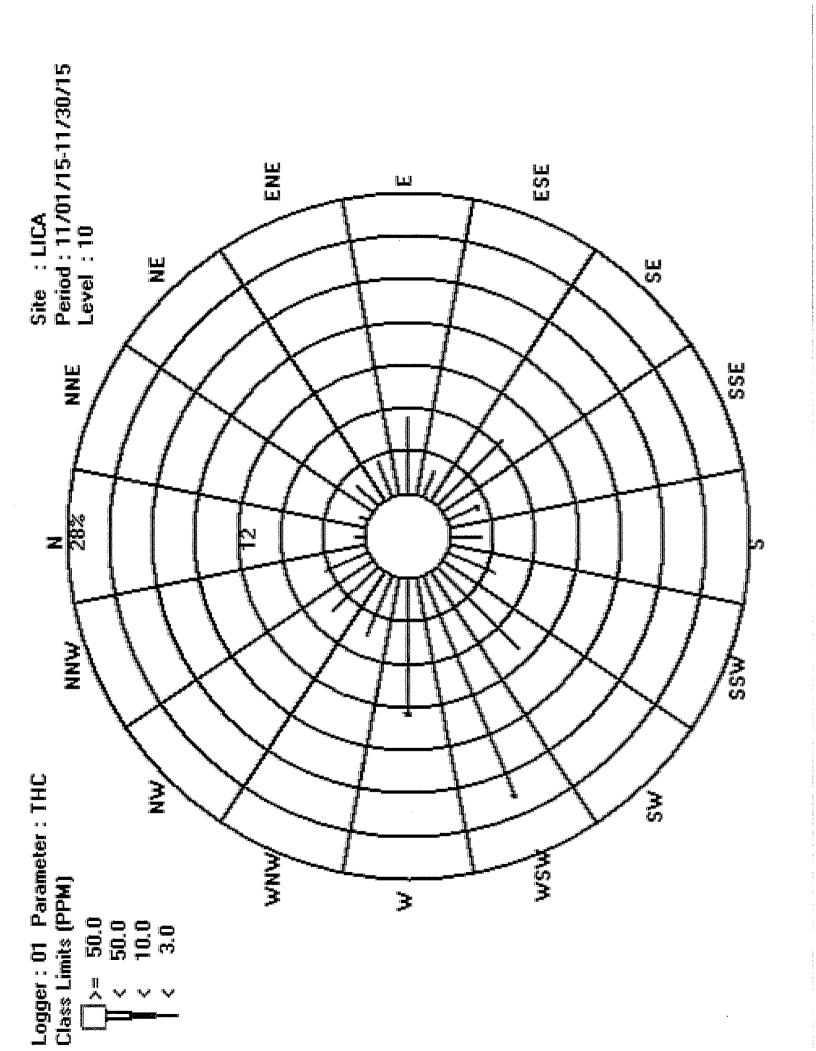
Direction

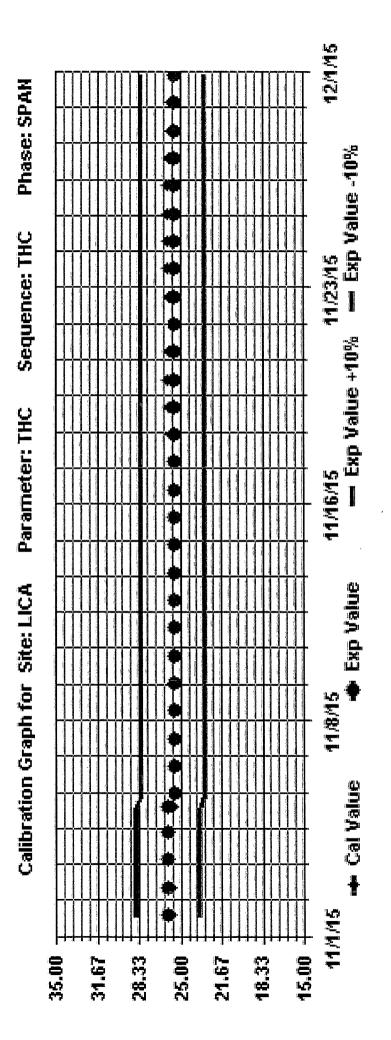
Freq 680 NNW 30 41 M 42 98 153 8 75 SW 33 SSW 33 20 20 22 SSE 21 SE 59 ESE 18 18 49 24 ENE 24 19 얼 NNE 9 7 z 3.0 10.0 50.0 50.0 Totals Limit X

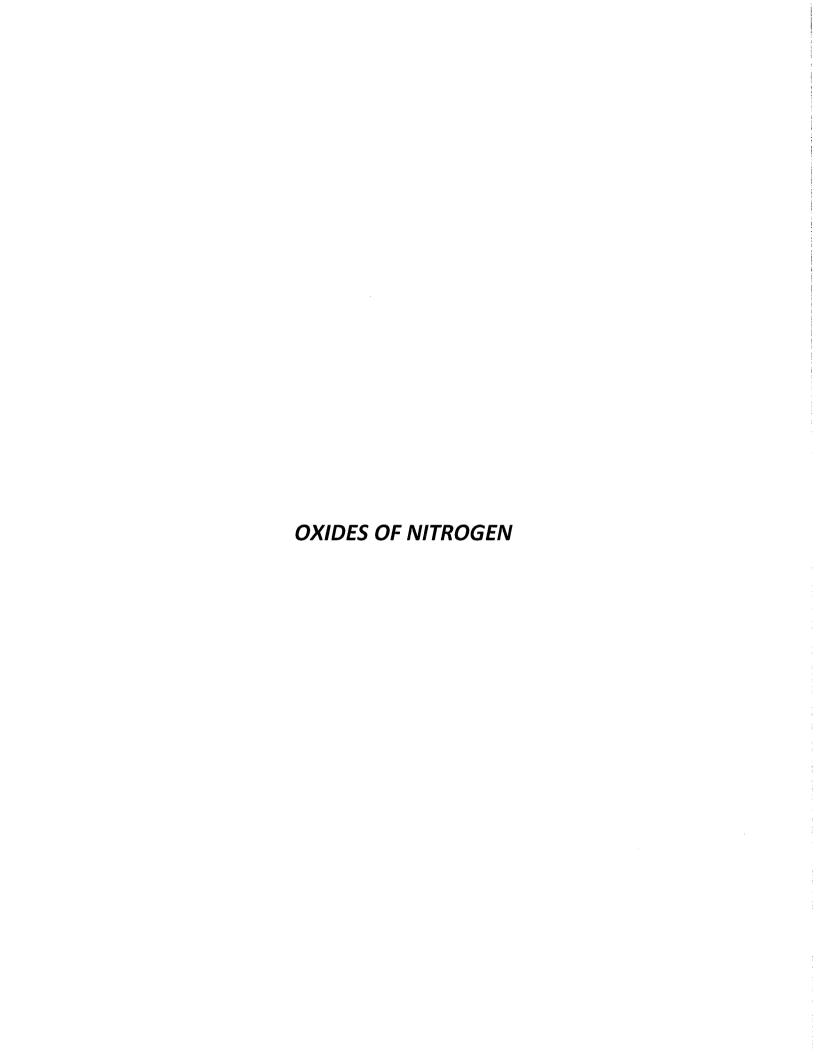
V ٧

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Calm : .00 %









# OXIDES OF NITROGEN (NOx) hourly averages in ppb

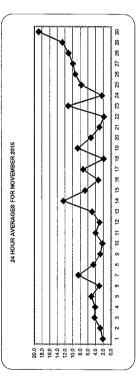
MST

Maxxam

24-HOUR AVG. RDGS.		2.8 24		4.2 24		3.1 24							1.9 24		5.8 24				8.7 24												
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11:00			7.1													1.2											6.1				l '
10:00	1		6.0																13.0								9.5	10.2	16.3	35.4	35.4
9:00 10:00	2.4	3.3	7.1	9.3	U	3.3	10.9	5.1	2.5	1.5	3.5	3.5	3.5	6.5	2.3	2.4	4.2	<b>&gt;</b>	S	2.9	2.9	15	18.3	2.8	2.0	11.9	8.3	25.0	19.7	30.8	30.8
8:00	2.7	4.8	5.4	11.2	18.0	4.2	9.3	4.4	3.8	1.9	4.1	7.3	4.8	7.6	2.2	3.4	4.8	1.2	9.5	s	3.8	1.5	30.2	2.1	2.4	13.4	8.8	17.0	19.7	28.6	30.2
2.00		3.2	3.0	9.3	13.8	7.4	11.5	4.4	2.9	1.7	2.9	4.6	5.6	6.5	2.3	2.8	4.2	1.1	10.8	5.4	S	1.7	22.2	2.4	2.9	18.3	8.6	14.9	14.7	18.4	22.2
5:00 6:00 6:00 7:00	2.5	2.7	4.1	5.3	10.7	4.1	4.5	6.4	2.1	1.8	2.9	4.0	3.4	5.6	3.6	1.5	2.8	0.7	8.0	5.6	3.8	s	8.6	1.4	1.9	10.8	8.6	6.3	10.1	10.5	10.8
5.00	6.2	3.3	4.8	3.5	8.1	2.5	3.4	10.1	0.8	2.5	5.3	2.7	3.0	4.1	8.2	2.2	2.4	9.0	10.4	4.7	4.3	1.5	s	0.9	2.2	8.5	9.0	3.4	11.9	8.6	11.9
4:00	2.4	1.9	2.3	2.5	6.8	1.4	3.5	8.9	9.0	2.3	3.5	2.5	2.4	3.4	14.7	5.6	2.0	6.0	9.3	6.9	4.3	1.7	3.1	S	2.4	10.5	7.9	7.4	11.1	6.5	14.7
3.00	1.8	1.8	1.5	3.1	5.9	1.8	4.8	10.4	0.5	1.0	2.3	1.9	2.2	4.2	15.3	8.2	2.3	1.8	6.5	7.8	3.9	1.9	3,3	1.0	s	10.7	8.2	7.1	9.6	7.2	15.3
2:00	2.1	2.2	1.6	5.6	4.8	1.7	5.5	8,9	0.5	0.5	1.9	2.1	3.1	3.6	15.5	4.4	5.4	1.6	6.8	11.1	3.1	2.2	3.1	1.1	0.7	s	8.4	11.9	8.3	7.5	15.5
1:00	2.3	1.2	2.0	5.9	4.5	2.5	4.4	8.3	0.4	9.0	2.3	2.5	2.1	3.2	18.3	4.6	5.9	4.0	3.6	13.5	2.9	2.8	2.4	1.4	0.8	9.5	s	18.8	10.1	8.1	18.8
0:00 1:00 2:00 3:00 4:00 1:00 2:00 3:00 4:00 5:00	2.0	1.3	2.4	2.8	4.5	2.0	3.4	9.4	9.0	1.3	5.9	2.4	2.0	3.0	21.8	2.8	5.8	3.2	2.5	14.0	3.6	2.7	4.9	1.4	1.4	8.4	6.8	s	10.2	11.8	21.8
HOUR START HOUR END	200000		8	4	5	Ø	7	<b>∞</b>	on.	10	1	12	13	14	15	16	17	18	19	20:	21	22	23	72	23	26	27	28	బ	æ	HOURLY MAX

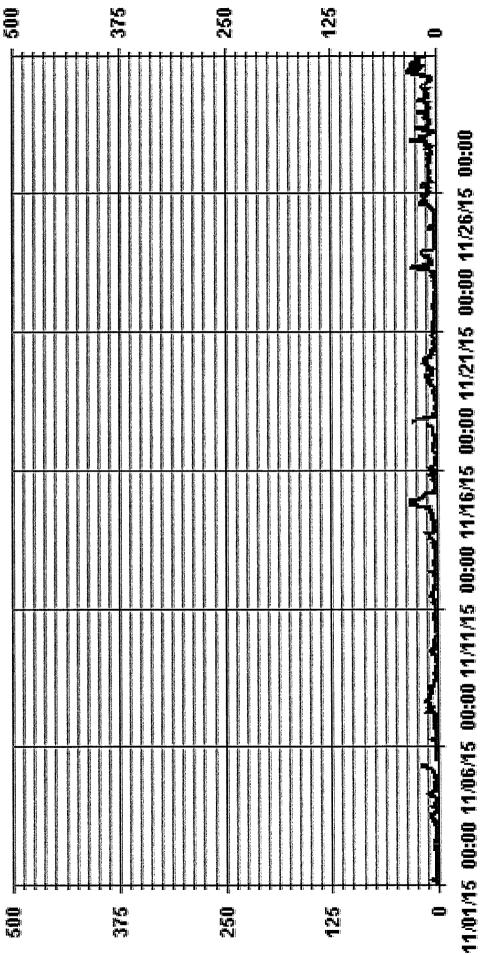
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	S - DAILY ZERO/SPAN CHECK P - POWER FAILURE G - OUT FOR REPAIR



NUMBER OF NON-ZERO READINGS:	es:		678					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		35.4 18.9	PPB	@ HOUR(S)	10	ON DAY(S) ON DAY(S) VAR-VARIOUS	m ''	90 30 30
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	9	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	: TIME:		717	HRS %
STANDARD DEVIATION:	5.82			MONTHLY AVERAGE:	a.		6.2	PPB

Of Hour Averages



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KOX



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

# OXIDES OF NITROGEN MAX instantaneous maximum in ppb

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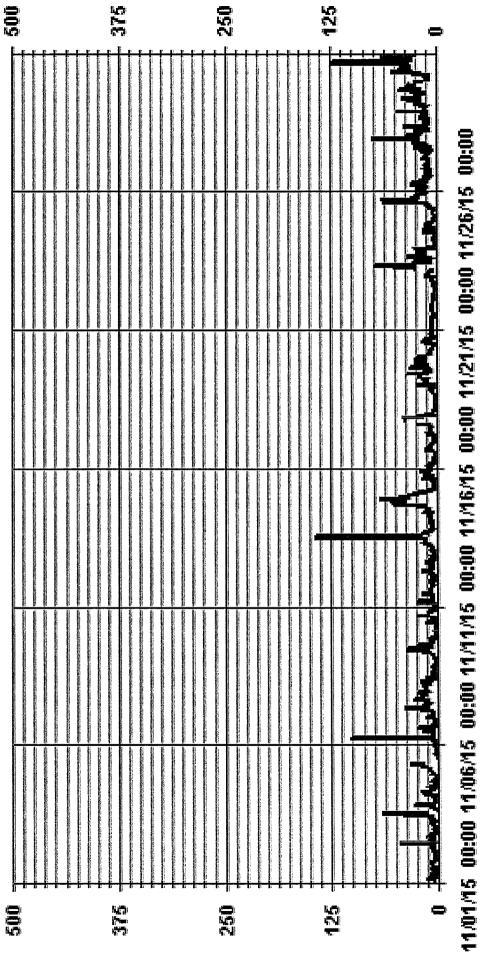
JR RDGS.	l		24																												2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
24-HOUR	1																														5.4 16.7 14.3 17.9 19.7 24.8	
MAX.	,												•																		13.9 13.9 13.9 13.5 13.5 14.9 124.5	1
23:00																																2.5 16.0 13.5 13.5 29.5 24.1 26.0 26.0
22:00																																5.0 20.5 11.0 76.9 44.9 <b>s</b> 33.1 76.9
21.00																																26.4 10.5 18.5 14.0 32.4 <b>s</b>
20:00	20,000																													19.0 13.0 25.9 11.5 33.9		
19:00	9.5	4.5	5.5	4.0	2.1	3.9	17.5	3.6	s	10.9	5.0	4.0	7.4	52.4	8.0	7.4	38.5	4.5	12.5	6.5	5.0	5.5	23.0	10.5		24.5	24.5 9.0	24.5 9.0 29.5	24.5 9.0 29.5 11.0	24.5 9.0 29.5 11.0 28.5	24.5 9.0 29.5 11.0 28.5 27.1	
18:00																															8.5 22.0 22.0 15.5 29.4 51.5	
17.0L 18:0C																														11.5 10.0 21.0 17.0		
16:00 17:00	5.1	7.0	s	4.0	2.0	25.4	28.0	9.9	4.9	8.0	7.9	s	12.5	24.4	19.4	8.4	ď	172	32.5	14.0	5.0	4.0	34.5	2.0	63.5		9.5	9.5	9.5 16.0 12.9	9.5 16.0 12.9 44.4	9.5 16.0 12.9 44.4 124.5	
15:00 16:00	3.6	9.0	15.5	s	1.5	8.4	13.9	7.0	25.4	3.5	6.8	12.1	s	16.5	9.0	2.9	21.6	1.5	10.5	15.0	4.5	4.5	10.5	13.9	63.0		11.0	11.0 25.9	11.0 25.9 11.0	11.0 25.9 11.0 30.5	11.0 25.9 11.0 30.5 45.6	11.0 25.9 11.0 30.5 45.6 63.0
15.00	9.1	6.9	65.4	6.0	U	2.9	15.0	3.6	4.4	2.5	8.4	3.6	20.4	s	3,5	6.0	8.6	1.0	8.5	5.0	3.0	20	7.5	13.9	12.5		11.5	11.5 8.0	11.5 8.0 12.4	11.5 8.0 12.4 22.5	11.5 8.0 12.4 22.5 32.5	
13.00													•																			
13.00	3.1	45.4	14.5	4.5	U	5.4	13.5	4.6	94.9	2.5	17.4	5.6	137.9	12.9	4.0	s	9.1	1.0	12.5	3.5	7.0	1.0	10.0	2.0	9.0	L	u U	6.0	6.0 11.0	5.0 6.0 11.0 18.9	5.0 6.0 11.0 18.9 29.6	5.5 6.0 11.0 18.9 29.6 137.9
12.00	2.1	7.5	11.5	6.5	U	5.4	8.5	4.1	34.9	14.0	6.0	5.1	10.4	14.4	29	2.9	s	>	10.5	4.5	3.0	1.0	26.5	2.5	11.5	120	14.0	7.5	7.5	7.5		
11.00	4.1	6.5	8.5	6.6	U	4.4	15.9	121	19.4	2.0	5.9	6.0	15.4	7.9	3,9	2.4	6.0	>	34.5	5.5	5.5	1.5	27.5	3.5	10.0	0	ö	16.0	16.0 12.4	16.0 12.4 29.5	29.5 29.5 44.5	16.0 12.4 29.5 44.5 44.5
10:00	9.1	6.0	9.0	6.6	U	4.9	38.4	11.6	8.9	1.5	6.0	6.0	10.9	8.9	9,0	4.9	6.0	>	s	5.5	4.5	2.0	24.0	3.5	3.0	20.5	3	14.0	14.0 37.9	14.0 37.9 40.5	14.0 37.9 40.5 39.6	14.0 37.9 40.5 39.6 40.5
9:00	5.6	8.5																												11.5 40.0 35.5		
8 8	3.6	7.0				٠.																						13.4				f'
9 Z		5.0	6.5	12.4	17.5	7.9	7.9	9.6	4.4	2.5	5.5	8.5	ტ ტ	7.9	6.9	3.4	6.8	2.0	13.5	9.0	6.0	s	28.5	2.5	4.0	14.5	!	13.5	13.5	13.5 19.0 16.0	13.5 19.0 16.0	13.5 19.0 16.0 16.6 28.5
3 8 6 9		5.5				6.9											9.9	2.5	15.5	5.5	6.5	2.5	s	2.0	4.0	13.4	1	17.5				1
3:00 4:00 4:00 5:00	4.6	3.5	5.0	2.9	10.5	2.9	5,5	15.6	1.4	3.0	6.0	4.6	5.0	6.9	24.4	10.4	2.9	3.0	14.5	10.5	5.5	2.5	5.0	s	3.5	25.0	i	10.0	10.0	10.0 27.5 18.5	10.0 27.5 18.5 7.6	10.0 27.5 18.5 7.6 27.5
- 10	4.1	3.5	5.0	5.5	8.5	4.4	9.4	14.1	2.4	1.5	3.9	3.0	4.9	10.4	28.9	11.9	2.9	3.5	13.0	13.0	5.0	3.5	5.0	3.0	s	19.0		10.5	10.5	10.5 20.0 18.5	10.5 20.0 18.5 13.5	10.5 20.0 18.5 13.5 28.9
3:00	4.1	4.5	3.5	3.4	8.5	5.5	10.0													•	4.0	4.0	11.0	4.0	2.0	ď		м				
5 6 7 8	4.1	3.5			7.0		11.5		1.0													4.0		4.0	3.0	15.5						
00.00 T. 00.00		2.0	5.5	4.9	7.0	24	9.0	14.6	13	2.5	4.4	5.6	4.4	4.9	31.4	4.9	4.0	9.9	4.5	17.0	4.0	4.0	14.5	3.0	3.5	13.0		11.0	11.0 S	11.0 S 14.0	11.0 S 14.0 16.6	11.0 S 14.0 16.6
HOUR START	DAY 2	2	m	7	5	Φ	7	œ	Ø	. 10	1	12	13	7.	15	16	17.	18	19	20	21	22	23	24	22	26		72	27.	27 28 29	27 28 30	27. 29. 30. HOURLY MAX

#### CTATHE ELABORED

SIAIOS FOAG CODES	.ccalibrationo -ouality assurance	Y RECOVERY	S - DAIEYZERO/SPANIGHECK** X - MACHINE MALFUNCTION	POWEREAILURE	G - OUT FOR REPAIR

NUMBER OF NON-ZERO READINGS:			677						
MAXIMUM INSTANTANEOUS VALUE:			144.9 PPB	PPB	@ HOUR(S)	13	ON DAY(S)	(s)	14
						۸۸	VAR-VARIOUS		
IZS CALIBRATION TIME:	8	HRS		OPERATIC	OPERATIONAL TIME:			716	716 HRS
MONTHLY CALIBRATION TIME:	9	HRS							
STANDARD DEVIATION: 1.	14.59								

Of Hour Averages



HOXMAX

5 1

LICA NOX\_ / WD Joint Frequency Distribution (Percent)

Distribution By % Of Samples

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

00. 00. NNW Freq 4.27 100.00 0. 00 4.27 % ž 5.75 0. 00. 00. 6.04 6.04 00, 00. % 12.68 00. 00. · 00 4.86 11.06 22.56 12.68 Wind Parameter : WD Instrument Height : 10 Meters 4.86 11.06 22.56 0, 00. 00. % 00. 00. 0. 0. 00. 2.94 2.94 00. % 00. S 3.09 3.09 % 00. SSE 00, Direction 8.70 8.70 SE % 00. 90. 2.65 2.65 ESE 00. 00. 00. 7.22 7.22 00. 00. 00. 3.53 3.53 00. 00. 00. 2.80 2.80 Έ 00. 00. 90. .73 00. 00. 00. ZZE 1.03 1.03 00. 0. 00. z Totals Limit 50.0 < 110.0 < 210.0 >= 210.0

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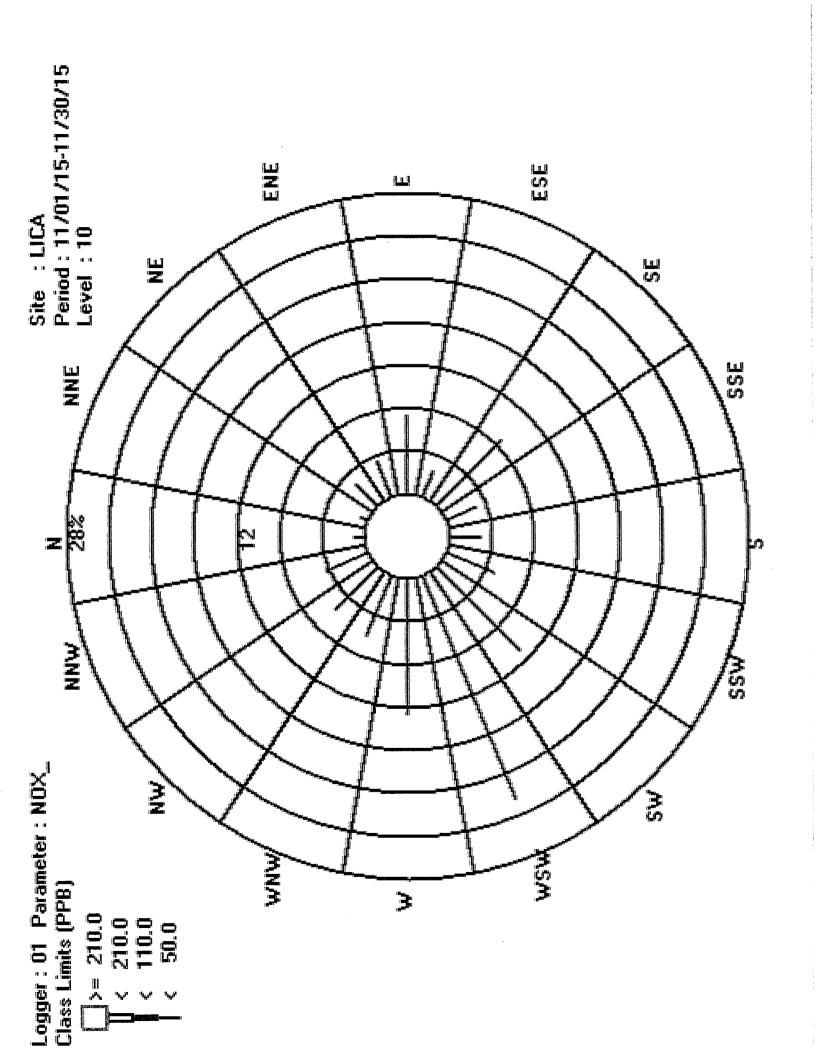
Total # Operational Hours : 678

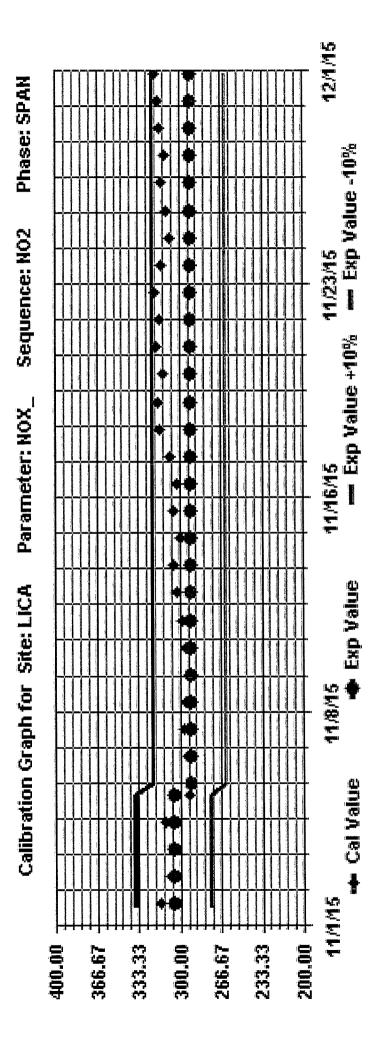
Calm : .00 %

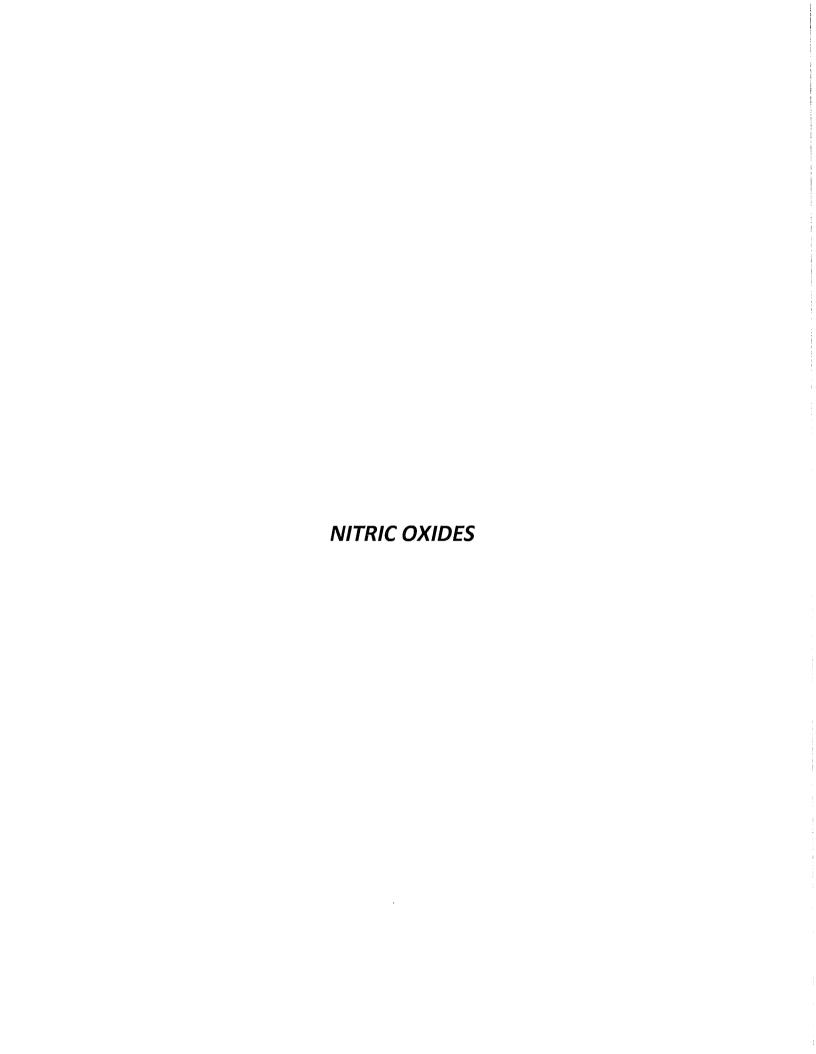
Distribution By Samples

Fred 678 MNN 29 MN 39 WNW 41 98 WSW 153 153 SW 75 SSW 33 33 20 S 20 SSE 21 21 Direction SE 29 59 ESE 18 49 24 24 19 걸 ស NA NA NA 7 Totals Limit 50.0 < 110.0 < 210.0 >= 210.0

Calm : .00 %









# NITRIC OXIDE (NO) hourly averages in ppb

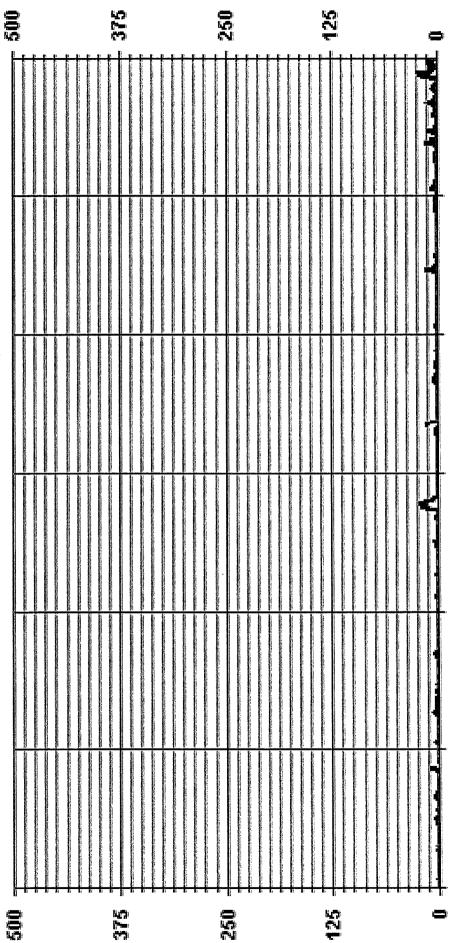
7.00	6:00	6:00	6:00	7.00	27 - Table	1000	_	10:00 10:00			T : 188	verage 14.00	es in ppu 15:00 16:	ppp 16:30 17:00	00 18:00	375935	20:00	Z1:00		23:00 DA		œ	
300 3:00 4:00 5:00	4:00 5:00	5:00	6	V.		8:00 9:00	000 10:00	Fit.	屬	-13:00 0.4	2498	15:00 D	99	00 18.	<b>37</b>		21:00	22:00	變	<u>^</u>			RDGS.
1 0.2 0.2 0.2		0.7		5.5	0.2	0.2 0.	.6 0.6	0.6	0.7	1.8	0.8	2.0	0.6 0.5	3 S	ء 1.0	0.3	0.2	0.4	0.3	0.1	1,8	0.5	5 7
0.1 0.3		0.1	_	5.3	0.4	0.4	.4 2.4	1.8	2.4	5.6	2.7						0.3	2.3	0.2				54
0.0 0.0		0.0	_	0.0	0.3	1.9 4.	.2 3.6	2.8	6.0	0.7	9.0	0.3		0.0			0.0	0.0	0.0	_			74
0.1		0.3	0	7	1.0	3.4 7.	.7 C	ပ	U	U							0.0	0.0	0.0			0.8	77
0.0 0.0		0.0	0	7.	0.2	2.8 0.	.4 0.5	0.2	0.4	0.2				4 0.2	2 0.0		0.0	0.0	s				42
0.2 0.2 0.0	0.0		0		0.1	2.5 2.		2.1	1.3	1.7		2.2					1.4	s	1.9				4
1.3 1.9 1.8	1.8		Н	1.3	0.3	0.1	0.5 0.8	0.7	0.1	0.2			0.1				s	0.2					4
0.0 0.0 0.0	0.0		0	0.0	0.1	0.2 0.		3.1	4.1	4.1	1.8						0.1	0.1					74
0.0 0.0 0.0	0.0		o	0.0				0.0	0.1	0.0			0.1 0.2	2 1.0			0.2	0.1					42
0.1 0.0 0.0	0.0		o	o,					1.0	2.4							0.1	0.1					22
0.2 0.0 0.1	0.1		0	_					0.5	0.4							0.0	0.0					42
0.0 0.0 0.0	0.0		0.7				8.0 8.0	2.3	1.6	1.8							0.1	0.1					77
0.1 0.0	0.0		0.0		0.1 (		1.9 1.4	1.4	1.9	2.1	1.6		1.5 2.4	4 9.1	1 13.5		12.7	17.9			21.6	5.4	74
5.1 5.1 3.7	3.7		0.8					0.4	0.3	0.7							0.8	0.1					72
0.2 0.3 0.3	0.3		0.1					0.0	0.1	s							0.2	0.1					74
0.0 0.0 0.0	0.0		0.0	_			•	1.3	s	1.3	8.0						10.5	3.2					24
0.0 0.0 0.0	0.0		9	_				>	>	0.0	0.0						0.5	0.5					겁
1.0 0.3 0.4	0.4		ö	ω			2 \$	4.5	2.2	5.6	1.9						0.8	13					≱
0.3 0.2 0.0	0.0		ö	_				0.6	0.7	9.0	1.2	9.0	0.4				0.0	0.0					4
0.0 0.0 0.2	0.2		0	m			.5 0.5	0.5	0.3	0.4							0.1	0.1					4
0.1 0.0 0.0	0.0		0	o,				0.0	0.0	0.0		0.0	0.0	0.1			0.1	0.0			0.2		4
0.2 0.0 0.2	0.2			S				6.4	3.1	1.3							1.3	1.7					4
0.1 0.1 S	s		0	0.				0.3	0.4	0.2	0.1						0.5	0.1					4
0.0 <b>s</b> 0.2	0.2		_	0.2			1.1 0.2	0.7	1.5	2.2	2.4						1.2	1.6					7
5 1.1 1.7	1.7			0.7			3.6	1.3	2.0	5.0							0.2	0.1					54
0.4 0.4		0.3		8.0				1.6	1.1	6.0							1.0	0.5					77
2.3 0.8		1.5		0.1					2.1	2.1	1.5	1.0					0.3	0.2					42
0.5 0.9		1.9		2.1					3.9	2.8	1.9	1.5	1.5 0.	9 0.3			3.6	6.1					42
0.6 0.5 0.4 0.1		0.1		0.4	1.1	7.2 17	17.2 21.4	``	12.0	7.2	5.1					5.5	9.8	s	9.4	3.8 22			4
5.1 5.1		3.7		2.1				22.1	12.0	7.2	5.1	3,4	3.5 9.6	6 9.1	1 13.5		12.7	17.9		15.8			
0.4 0.4		0.5		0.4					1.7	1.5	1.3						1.6	173		1.1			

CALIBRATION  Q - QUALIT ASSURANCE  NANCETANNEE  X - AMACHINE  O - OPERATION ERROR  - OUT FOR REPAIR  24 HOUR AVERAGES FOR NOVEMBER 2015	*	1	
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STATUS FLAG CODES

			Σ	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:			512					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		22.1	PPB PPB	PPB @ HOUR(S) PPB	9	ON DAY(S) ON DAY(S) VAR-VARIOUS	m	90
IZS CALÍBRATION TIME: MONTHY CALBRATION TIME:	გა	HRS H		OPERATIONAL TIME: AMD OPERATION UPTIME:	ae: Uptime:		717 99.6	HRS
STANDARD DEVIATION:	2.78			MONTHLY AVERAGE:	ä		1.2	PPB

Of Hour Averages



11,01,115 00:00 11,06,115 00:00 11,11115 00:00 11,116,115 00:00 11,21,115 00:00 11,26,115 00:00

- LICA NO\_ PPB



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

# NITRIC OXIDE MAX instantaneous maximum in ppb

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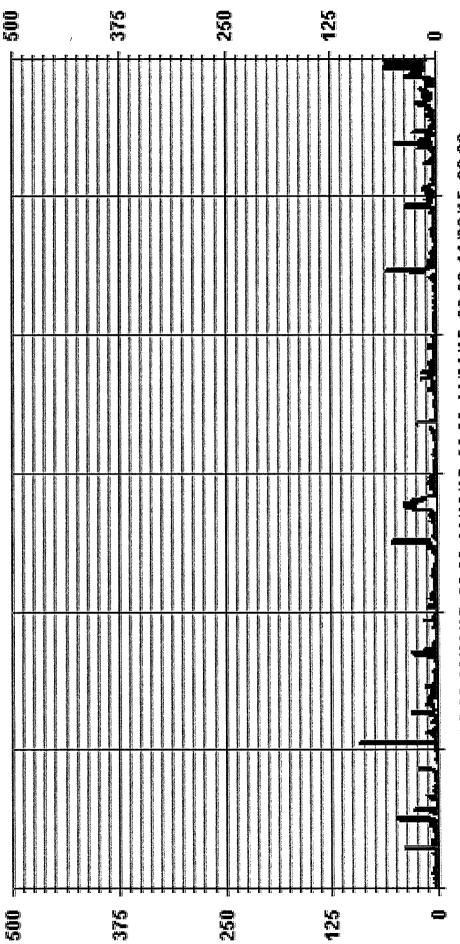
| 15 55 60 75 15 75 30 15 20 15 30 15 | 0 <b>S</b> 0.9 5.0 2.5 1.5 28.5 3.9 0.9 50.0 8.6  | 2.5 0.5 0.5 0.0 0.0 0.5 0.5 9.4                                 | 0.0 0.0 0.5 0.4 0.4 S 19.5       | 50.4 1.9 0.4 <b>S</b> 0.4 <b>92.4</b>                          | 2.0 S 4.0 1.5 0.5 14.5   | 2.4 3.9 1.4 0.0 26.4  | 3.9 1.4 0.4 0.4 14.4  | 1.4 1.9 0.4 12.4   | 0.4 0.4 6.5   | 1.9 1.4 53.4   | 38.5 32.5 38.5   | 1.9 24.0   | 0.4 3.4   
   | 1.0 23.5  | 1.5 2.0   
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  | 3.0 16.5   
   | 10.5 48.5   | \$ 25.0   | 10.5 25.5  | 12.4 62.5  
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| 15 55 50 75 15 75 75 15 75 75 15  | 6.5 5 6.0 2.5 L.5 2.5 2.0 L.5 S 6.9 5.0 2.5 1.5 28.5 3.9 0.9  | 2.5 0.5 0.5 0.0 0.0 0.5 0.5                                     | 0.0 0.0 0.5 0.4 0.4 S            | 0.4 1.9 0.4 <b>S</b> 0.4                                       | 2.0 S 4.0 1.5 0.5  | 2.4 3.9 1.4 0.0   | 3.9 1.4 0.4 0.4   | 1.4 1.9 0.4  | 0.4 0.4   | 1.9 1.4  | 38.5 32.5  | 1.9  | 0.4   
   | 1.0   | 1.5   
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  | 0.4  
   | 10.5  | S   | 10.5   | 12.4   
   |   |
| 15 65 60 75 15 25 70 15 20 15 20 15 20 15 20 20 20 20 20 20 20 20 20 20 20 20 20  | 6.5 <b>5</b> 6.0 2.5 1.5 2.5 2.0 <b>5</b> 0.9 5.0 2.5 1.5 28.5 3.9  | 2.5 0.5 0.5 0.0 0.0 0.5   | 0.0 0.0 0.5 0.4 0.4              | 0.4 1.9 0.4 S  | 2.0 \$ 4.0 1.5   | 2.4 3.9 1.4   | 3.9 1.4 0.4   | 1.4 1.9  | 0.4   | 1.9  | 38.5   |  |   
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| 15 55 60 35 15 35 15 35 15 35 15 35 35 35 35 35 35 35 35 35 35 35 35 35   | 6.5 S 6.0 2.5 L.5 2.5 S 6.0 S 6.0 S 7.0 S | 2.5 0.5 0.5 0.0 0.0   | 0.0 0.0 0.5 0.4                  | 0.4 1.9 0.4<br>FO 10F F  | 2.0 S 4.0  | 2.4 3.9   | 3.9 1.4   | 1.4  |   |  |  | 9  | 9   |   | _   
   
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| 15 5.0 1.5 5.4.5 3.0  | S 0.9 5.0 2.5 1.5 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5   | 2.5 0.5 0.5 0.0   | 0.0 0.0 0.5                      | 0.4 1.9  | 2.0 <b>S</b>   | 2.4   | 3.9   |  | ö   | <del>,</del> i   |  | 0  |   
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|   | 7 7   | s   | 0.4                              | 2.9  | 10<br>10   | 16.9  | 6.0   | 6.9  | 3.5   | s  | 5.6  | 4.0  | 1.4   
   | 7.4   | 0.5   
  | 4.0  
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  | 5.0  | 5.4   
  | 34.5<br>J. 7   
   | 4.5   | 1.0   | 12.9   | 14.9   
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| , u   | 50.0  | 2.5   | υ                                | 6,0  | 10 G   | 6.0   | 6.0   | 2.9  | 0.5   | 8.9  | s  | 1.5  | 0.0   
   | 4.0   | 0.5   
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  | 1.0  | 0.5   
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| 7.0   | 45.0  | 4.0   | υ į                              | ი ი<br>ი   | 1.0  | 16.9  | 9.4   | 3.9  | 6.5   | 53.4   | 2.4  | s  | 6.0   
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| 200   | 5.5   | 2.4   | υŢ                               | 1.4  | 1 1  | 26.4  | 0.4   | 6.9  | 1.9   | 20.9   | 7.9  | 9.9  | s   
   | 3.0   | 0.5   
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   | 15  | 5.0   | 11.5   | 18.9   
   | 39.0  |
| T.0   | 6.0   | 2.0   | υ į                              | 13   | 0.5  | 24.4  | 6.4   | 2.4  | 1.4   | 4.9  | 6.9  | 1.0  | 6.0   
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  2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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</th></th></th></th></th></th></th> | 1.0         1.5         1.0         1.5         1.5         1.0 <th>10.         11.         12.<th>2.0         1.5         2.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0<th>2.0         1.5         2.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0<th>15 10 15 15 15 20 40 10 30 10 10 10 10 10 10 10 10 10 10 10 10 10</th><th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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</th></th></th></th></th></th> | 10.         11.         12. <th>2.0         1.5         2.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0
        1.0         1.0<th>2.0         1.5         2.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0<th>15 10 15 15 15 20 40 10 30 10 10 10 10 10 10 10 10 10 10 10 10 10</th><th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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</th></th></th></th></th> | 2.0         1.5         2.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0 <th>2.0         1.5         2.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0<th>15 10 15 15 15 20 40 10 30 10 10 10 10 10 10 10 10 10 10 10 10 10</th><th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         1.0   
     1.0         1.0<th>2.0         1.5         1.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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</th></th></th></th> | 2.0         1.5         2.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0 <th>15 10 15 15 15 20 40 10 30 10 10 10 10 10 10 10 10 10 10 10 10 10</th> <th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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</th></th></th> | 15 10 15 15 15 20 40 10 30 10 10 10 10 10 10 10 10 10 10 10 10 10 | 2.0         1.5         1.0         1.5         1.5         1.0 <th>2.0         1.5         1.0         1.5         1.5         1.0<th>2.0         1.5         1.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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</th></th> | 2.0         1.5         1.0         1.5         1.5         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0        
1.0         1.0 <th>2.0         1.5         1.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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</th> | 2.0         1.5         1.0         1.5         1.5         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         2.0         2.0         1.0         1.0         1.0         2.0         1.0         1.0         2.0         2.0         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 |

#### STATUS FLAG COD

SIA US FEAG CODES	IBRATION
	C CALIBRATION  Y WANTENANCE  S DAILY ZERO/SPAN  P POWER FAILURE  G OUT FOR REPAIR

NUMBER OF NON-ZERO READINGS:			655			į				
MAXIMUM INSTANTANEOUS VALUE:			92.4	92.4 PPB	@ HOUR(S)	UR(S)	7	ON DAY(S)		9
							VAR-VARIOUS	SIOUS		
IZS CALIBRATION TIME:	_ 8	HRS		OPERATIONAL TIME:	NALTI	ME			716	HRS
MONTHLY CAUBRATION TIME:	9	X								
STANDARD DEVIATION: 8.	8.89									

of Hour Averages



11,01,115 00:00 11,06,115 00:00 11,11,115 00:00 11,116,115 00:00 11,21,115 00:00 11,26,115 00:00

- LICA NOMAX PPB

LICA NO \_ / WD Joint Frequency Distribution (Percent)

Distribution By % Of Samples

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

Wind Parameter : WD Instrument Height : 10 Meters

NNW Freq 4.27 100.00 00. 00. 4.27 8 ¥ 5.75 0. 00. 0. 6.04 6.04 MNM 00. 00. 00. 12.68 12.68 00. 00. 00. 4.86 11.06 22.56 22.56 00. 0. WSM 00. 11.06 00. 00. S 0. 4.86 00. 00. SSW % 2.94 2.94 8 0. 0. Ø 3.09 SSE 3.09 8. 00. 00. Direction 8.70 8.70 00. S 00. 0. 2.65 ESE 2.65 8. 00. 0. 7.22 7.22 00. 00. 00. 3.53 3.53 00. ENE % 00. 2.80 띩 2.80 % 00. 00. .73 .73 00. 00. 8 Ä 1.03 1.03 8 00. 00. z Totals Limit 50.0 < 110.0 < 210.0 >= 210.0 ٧

00. 00. 00.

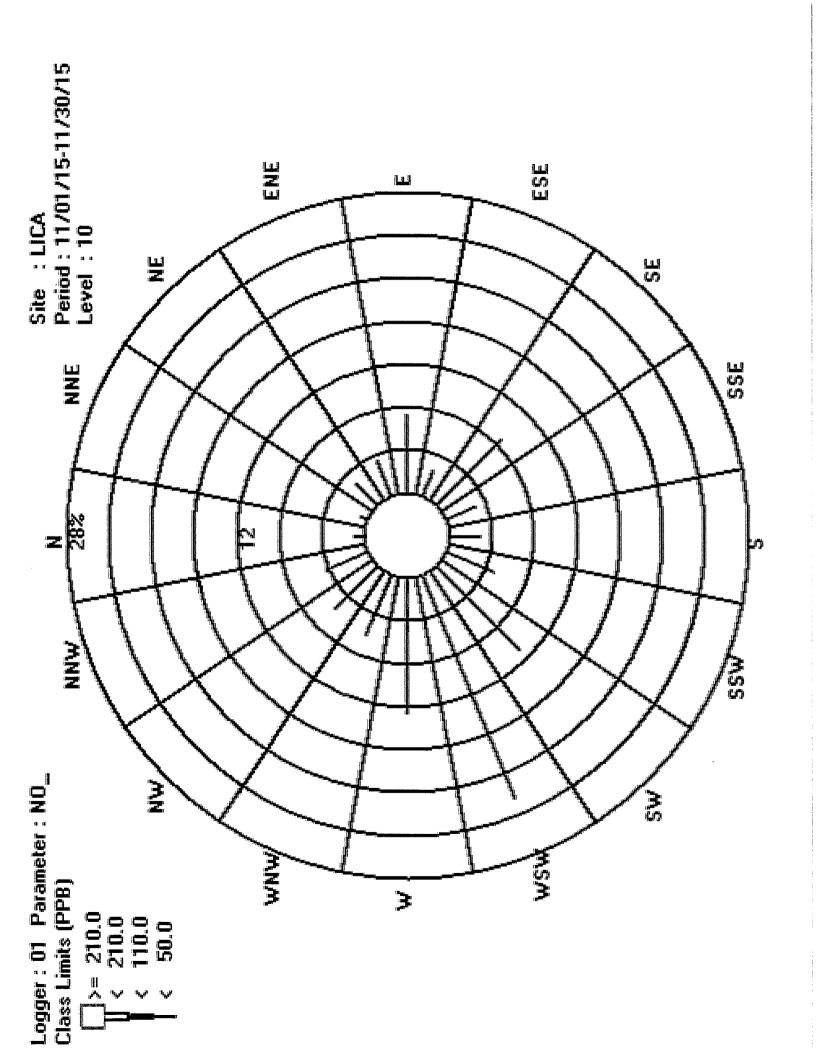
Calm : .00 %

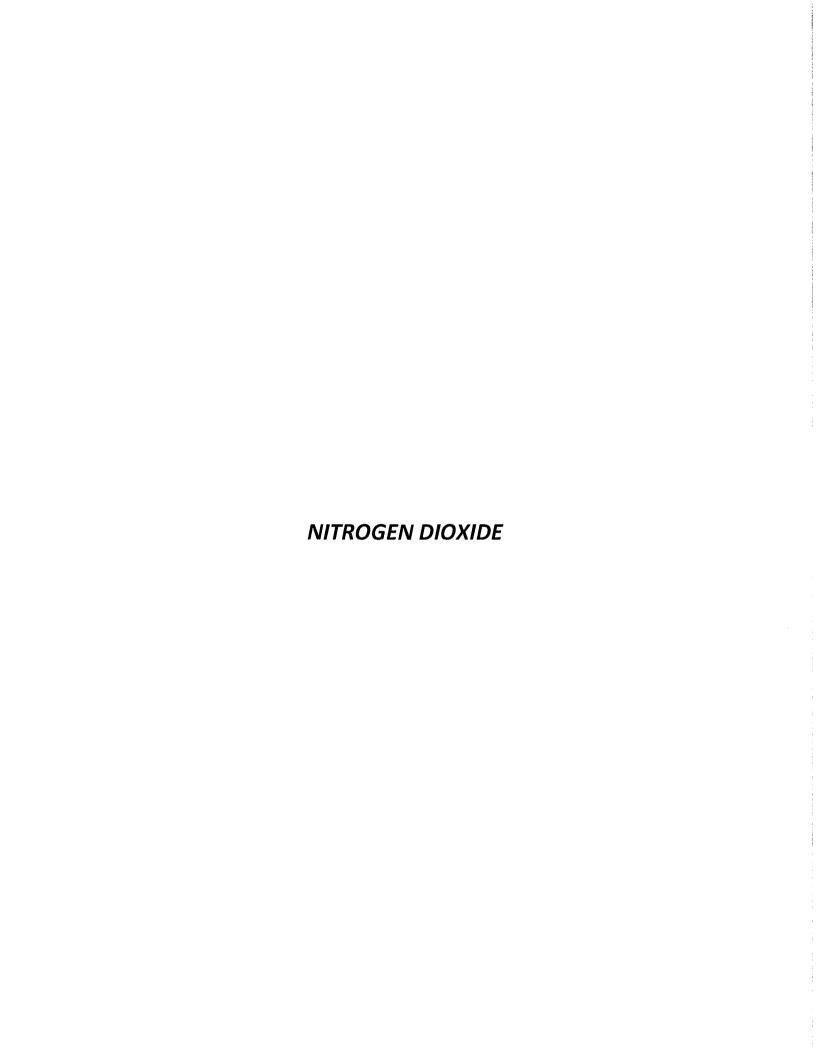
Total # Operational Hours : 678

Distribution By Samples

Fred 678 NNW 29 29 MN 39 33 41 86 WSW 153 153 75 SH 33 SSW 33 20 20 SSE 21 21 SE Direction 29 59 ESE 18 18 49 ы 49 24 ENE 24 13 13 S ß 7 z Totals 50.0 Limit < 110.0 < 210.0 >= 210.0 ٧

Calm : .00 %



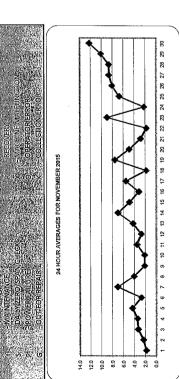


JOB # 2833-2015-11-01- C



NITROGEN DIOXIDE (NO2) hourly averages in ppb

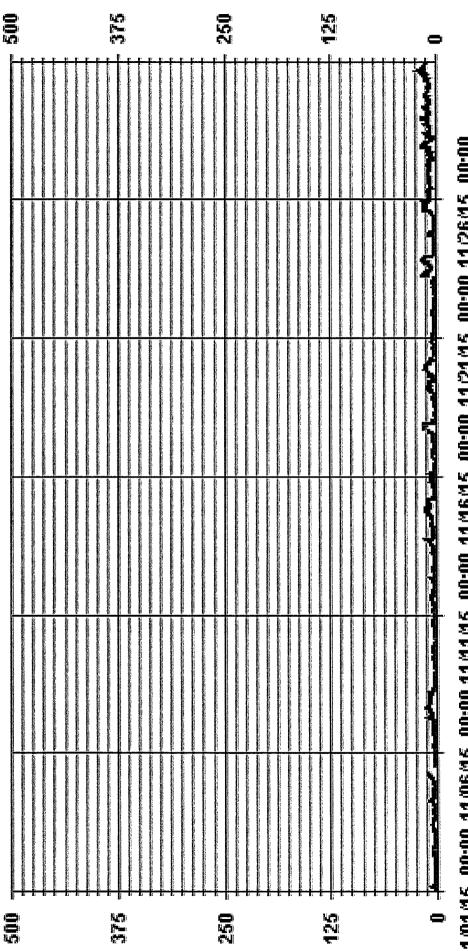




# ALBERTA ENVIRONMENT:

			MO	MONTHLY SUMMARY				
MUMBER OF JHREKEEDBINGES.			0					
NUMBER OF NON-ZERO READINGS:			678					
MAXIMUM 1-HR AVERAGE:		21.6		PPB @ HOUR(S)	16	ON DAY(S)	8	
MAXIMUM 24-HR AVERAGE:		12.3	PPB			ON DAY(S) VAR-VARIOUS	m	30
IZS CALIBRATION TIME:	99	HRS		OPERATIONAL TIME:	ü		717	RS
MONTHLY CALIBRATION TIME:	9	HRS		AMD OPERATION UPTIME:	JPTIME:		99.6	%
STANDARD DEVIATION:	3.80			MONTHLY AVERAGE:	Ë		5.0 PPB	PPB

Of Hour Averages



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

KO2 



## JOB # 2833-2015-11-01- C Cold Lake South Site - NOVEMBER 2015 LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

# NITROGEN DIOXIDE MAX instantaneous maximum in ppb

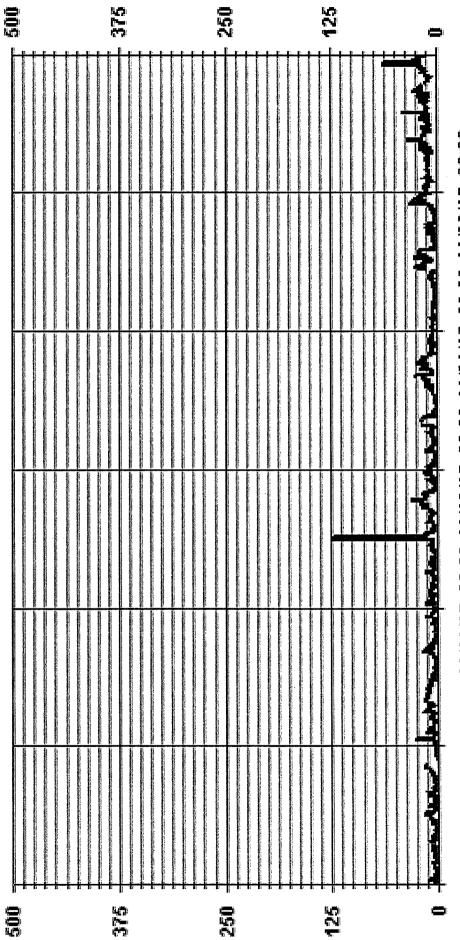
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RDGS.	24	24	24	24	24	24	24	24	24	24	54	24	24	24	24	24	54	20	24	24	54	24	54	24	54	24	54	54	24	54		
24-HOUR AVG.	3.9	4.3	6.0	4.8	5.9	5.8	10.0	6.4	5.7	3.7	5.6	5.1	16.7	11.4	8.0	2.7	7.9	3.2	12.5	7.2	4.2	3.0	14.0	4.5	11.2	10.4	13.1	13.5	16.1	18.7		
DAILY MAX.	11.7	7.4	16.0	10.9	13.8	27.0	14.5	11.0	15.5	12.5	14.8	15.0	124.4	30.4	15.4	13.0	19.5	6.9	24.0	16.5	5.6	5.5	26.9	12.9	29.5	14.0	35.5	37.8	28.4	64.1		
23:00	3.0	2.5	2.9	9,6	s	3.5	12.0	1.6	2.5	4.3	4.0	5.9	3.9	14.9	12.5	5.5	5.6	4.0	19.4	5.1	4.6	5.5	10.0	2.5	15.5	10.5	19.4	s	13.6	14.0	19.4	
22:00	2.4	2.5	4.9	5.9	1.5	s	13.4	3.1	4.0	3.3	6.5	2.4	5.4	30.4	14.0	4.5	14.5	4.0	14.4	6.1	5.1	4.5	20.5	3.5	16.6	10.1	35.5	37.8	s	17.1	37.8	,
21.00	25	4.0	12.5	5.9	1.5	5.0	s	4.1	5.5	6.3	65	2.9	5.4	18.9	9.1	7.5	18.1	6.9	24.0	6.1	4.1	5.5	20.5	5.0	22.1	10.1	15.4	12.8	18.0	s	24.0	č
20:00	3.5	2.5	4.5	3.4	1.6	4.5	11.6	s	5.0	6.3	5.5	5.0	3.9	17.4	10.6	8.5	19.5	5.0	16.9	5.5	5.1	5.5	19.9	10.9	15.6	11.6	19.9	10.4	19.4	23.2	23.2	1
19:00	6.0	3.0	3.9	3.9	2.1	4.0	12.1	3.0	s	6.3	3.5	3.5	5.9	20.9	6.1	6.0	18.1	4.5	11.0	5.1	4.1	4.5	20.5	0.6	21.0	8.6	15.9	6.6	18.9	17.2	21.0	0
18:00	s	6.4	4.4	3.4	5.6	4.0	14.0	4.0	4.5	s	0.9	4.0	8.5	15.4	5.1	7.0	ď	3.5	10.5	4.6	4.1	3.0	18.9	10.9	18.6	8.6	17.4	13.8	20.9	26.6	26.6	Ó
17.00	5.2	s	3.5	3.9	2.5	5.5	14.5	3.5	6.5	12.5	s	7.9	16.0	17.4	4.1	13.0	ø	2.5	11.0	7.0	4.1	3.0	11.9	5.0	26.5	9.5	9.0	19.8	15.4	25.6	26.5	0
16:00	4.1	4.5	s	3.4	2.0	11.5	14.0	2.0	3.5	6.5	6.8	s	110	16.9	9.1	7.5	ø	1.5	19.9	10.6	4.1	3.0	25.9	1.9	28.5	9.1	14.9	12.8	28.4	64.1	64.1	123
15:00	2.7	7.4	7.9	s	1.5	5.5	11.6	0.9	13.0	3.0	8.9	8.5	s	11.5	6.5	2.5	15.5	1.5	9.0	5.1	3.6	3.5	10.0	9.4	29.5	9.6	21.5	6.6	21.5	31.6	31.6	ò
14:00 15:00	3.2	4.5	16.0	4.0	U	2.5	10.1	2.5	3.5	2.0	6.3	3.1	12.9	s	3.1	1.0	6.1	1.0	5.5	3.6	2.1	1.5	6.9	12.9	9.5	10.1	6.9	10.4	18.0	20.6	20.6	0
13:00	2.6	4.5	12.9	5.5	U	13.5	7.6	3.5	13.5	2.0	6.3	55	124.4	7.9	s	1.5	4.6	1.0	5.0	6.1	2.5	1.0	7.9	1.5	8.1	13.0	6.4	11.9	9.0	20.1	124.4	7
12:00	2.2	6.4	9.4	3.5	ပ	4.0	9.5	3.5	14.0	1.5	10.8	4.0	117.4	6.9	3.5	s	6.1	1.0	5.4	2.6	5.6	1.0	7.4	1.5	6.1	7.6	5.0	7.9	9.4	16.6	117.4	0
17.00	1.7	5.0	7.9	4.5	U	3.5	6.5	3.5	15.5	7.5	4.3	3.5	6.4	8.4	2.4	2.0	s	>	6.5	3.1	2.6	1.0	17.0	2.0	7.0	8.1	5.9	7.8	11.5	19.6	19.6	u
10:00	4.2	5.0	6.4	5.9	U	4.0	9.0	7.9	10.5	2.0	4.8	4.5	5.4	5.4	3.4	2.0	4.5	>	23.5	5.1	4.1	1.5	1B.0	3.0	6.1	6.1	12.9	6.8	19.4	17.7	23.5	1
9:00	5.2	4.5	6.0	5.9	U	4.0	0.6	8.5	6.0	1.5	4.9	4.5	5.9	6.9	2.9	4.0	4.5	>	s	5.1	4.1	2.0	12.9	3.5	5.6	11.6	11.5	16.3	17.5	14.1	17.5	ď
00:8	4.1	6.9	5.5	10.9	13.8	5.0	11.5	7.4	5.5	3.0	4.8	15.0	7.4	8.4	5.9	4.0	9.0	<b>&gt;</b>	16.5	s	4.1	2.0	26.9	3.0	4.1	13.0	10.0	16.9	16.9	16.6	26.9	6
7.00	2.7	6.0	3.0	9.4	13.3	27.0	14.0	7.4	4.5	2.0	4.8	9.0	9.4	9.4	3.4	4.0	6.0	1.5	15.4	6.9	s	2.5	21.5	4.0	5.1	14.0	12.0	14.3	19.9	13.6	27.0	0
6:00.7	6.2	3.5	6.0	9.4	13.3	6.0	8.0	9.0	4.0	2.5	4.3	7.5	6.4	7.4	5.9	3.0	6.5	2.0	11.5	8.0	4.6	s	13.9	2.4	3.1	11.1	11.5	10.4	13.9	13.1	13.9	1,1
5:00	11.7	4.5	6.0	6.4	10.3	4.5	4.5	11.0	2.5	3.0	14.8	4.5	5.4	7.4	10.9	4.0	3.5	5.0	12.4	2.0	5.6	2.1	s	1.5	3.6	10.1	11.5	5.8	15.9	10.7	15.9	9
3:00 4:00 5:00 4:00 5:00 6:00	3.7	2.5	3.0	5.9	8.4	2.5	5.5	9,5	1.5	3.0	8.8	4.0	4.4	6.9	15.4	9.0	3.0	3.0	11.5	9.0	5.1	2.6	4.0	s	3.1	13.5	9.0	15.9	13.4	7.7	15.9	ų
3:00	3.2	3.0	2.0	4.4	8.8	3.5	7.5	11.0	1.5	13	3.3	2.5	3,9	9.4	15.4	11.5	3.0	3.5	9.5	11.5	4.6	3.1	4.5	2.0	s	12.1	9.4	13.3	12.4	9.5	15.4	ų
3.00	3.2	3.5	2.5	3.4	7.3	3.0	9.1	11.0	1.0	7	2.8	4.5	5.9	4.9	12.9	9.5	3.0	3.5	9.5	12.9	4.1	3.6	7.0	3.0	15	s	9.5	13.3	11.0	9.2	13.3	7
1:00	3.1	2.0	3.0	3.4	5.4	3.5	8.5	9.5	1.0	1.0	2.8	3,5	3.9	4.4	13.9	9.0	3.5	5.1	14.5	16.5	3.6	4.1	6.5	2.5	1.9	11.6	s	16.8	13.4	5.7	16.8	u u
0.00	3.7	4.5	3.5	3.9	2.8	2.5	5.6	11.0	1.6	2.5	3.8	4.0	3.9	3.9	10.4	5.0	4.0	6.5	4.5	15.0	4.1	3.6	10.0	2.5	2.5	10.1	10.1	s	12.4	13.1	15.0	c
HOUR, START 0:00 1:00 HOUR END 1:00 2:00	DAY 1	2	m	4	'n	9	7	œ	on.	ឧ	Ţ	12	. 13	7	<b>1</b>	16	17	18	a	50	Ŋ	2	23	24	25	26	22	28	52	30	HOURLY MAX	No. of the last

STATUS FLAG CODES	C - COLIBRATION

NUMBER OF NON-ZERO READINGS:			2/2							
MAXIMUM INSTANTANEOUS VALUE:			124.4	PPB	PPB @ HOUR(S)	R(S)	13	ON DAY(S)		£3
							VAR-VARIOUS	snons		
IZS CALIBRATION TIME:	30	HRS	J	DPERATIC	OPERATIONAL TIME:	ü			716	HRS
MONTHLY CAUBRATION TIME:	9	HRS								
STANDARD DEVIATION: 8.	8.76									

Of Hour Averages



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

NO2MAX

- LCA

LICA NO2\_ / WD Joint Frequency Distribution (Percent)

Distribution By % Of Samples

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

Wind Parameter : WD Instrument Height : 10 Meters

Fred

4.27 100.00 00 00. 00. 4.27

00. 0. 00.

5.75 ĕ 00. 00. 00. 5.75 6.04 6.04 00. 8. 00. 00, 12.68 00. 00. 4.86 11.06 22.56 12.68 00. 8 00. 4.86 11.06 22.56 WSW % 8. SF 00. 00. 00. 0. 2.94 2.94 00. 00. % Ø 3.09 00. 00. 00. 3.09 Direction 8.70 8.70 SE 00. 00. 00. 00. 2.65 0. 2.65 ESE % 7.22 7.22 00. 00. 00-3.53 3,53 % 8 00. 2.80 2.80 뛾 00 00. 00. .73 8. 00. SE 00. 1.03 00. 00. 1.03 00. z Totals 50.0 Limit < 110.0 < 210.0 

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Total # Operational Hours : 678

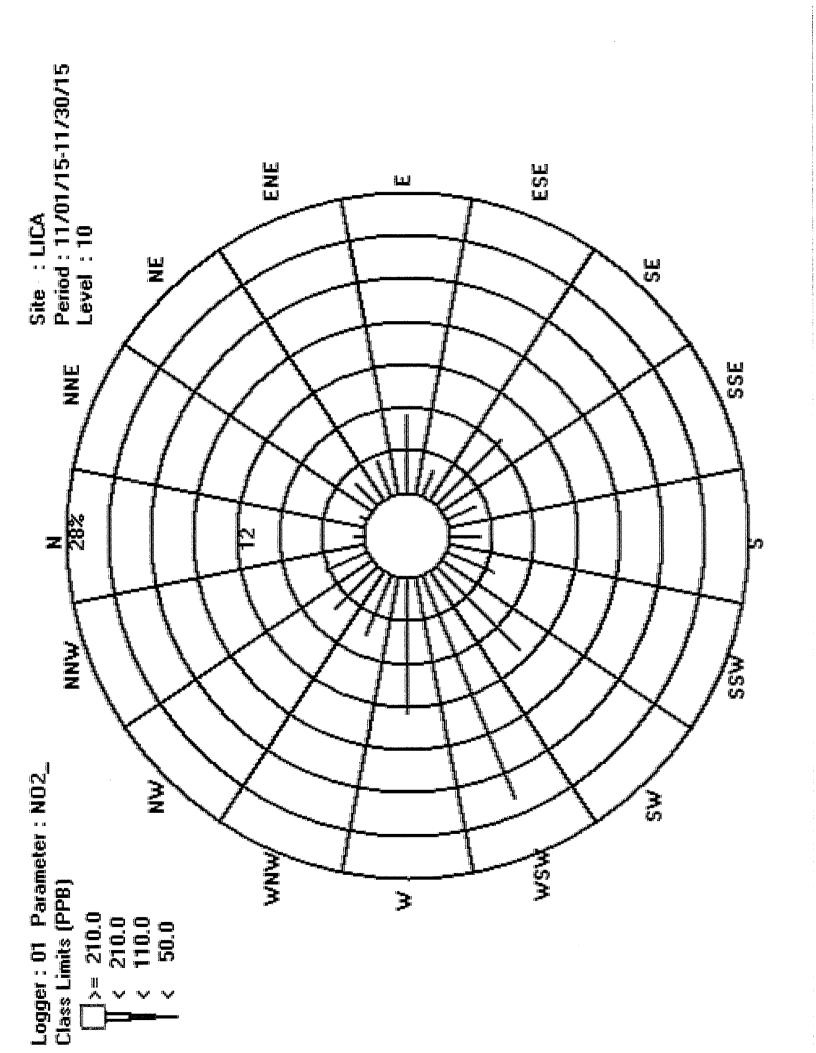
Calm : .00 %

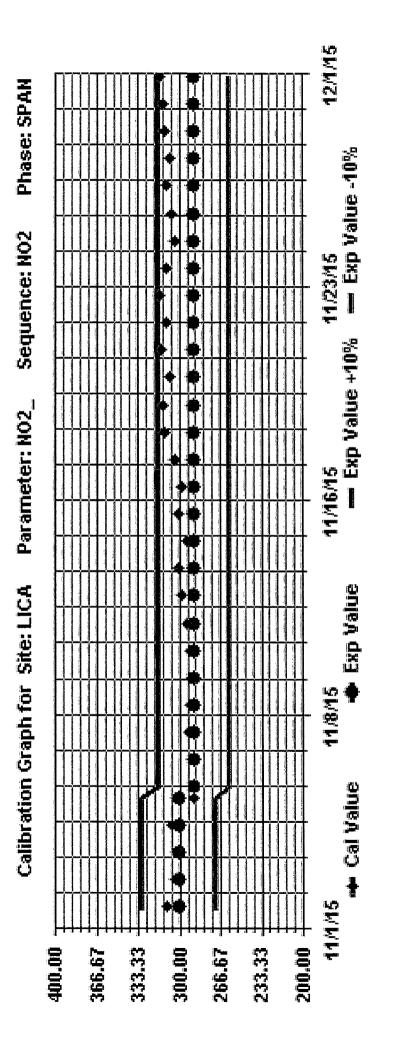
Distribution By Samples

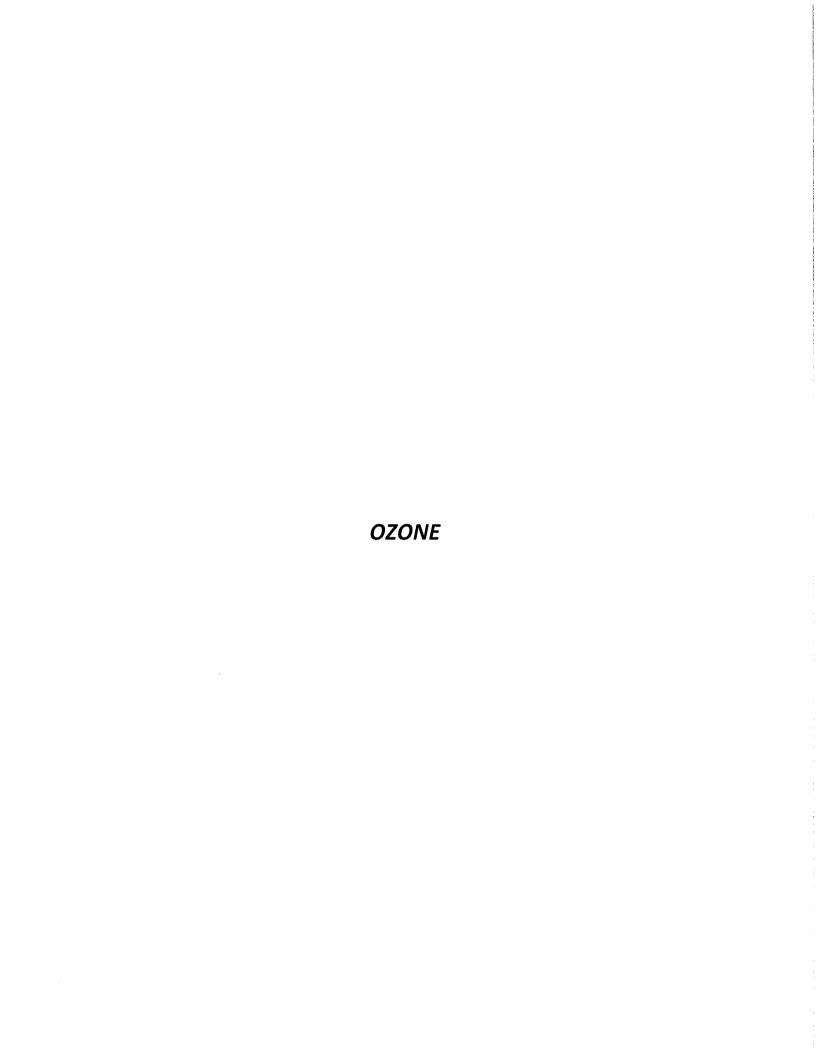
Direction

Freq	678				
WIN	53				29
WM	39				39
WNW	41				41
×	86				98
WSW	153				153
SW	75				75
SSW	33				33
Ø	20				20
SSE	21				21
SE	59				59
ESE	18				18
Ħ	49				4
ENE	24				24
Ä	19				19
NNE	ĸ				ເດ
z	7				7
Limit	50.0	110.0	210.0	210.0	Totals
	٧	٧	٧	X	

Calm : .00 %







JOB # 2833-2015-11-01- C



# OZONE (O3) hourly averages in ppb

!	22:00 23:00 DAILY 24-HOUR 3:00 0:00 MAX AVG. RDGS.	22 27 20.7	14 13 23 19.3 24	12 14 7.6	21 30 18.3	<b>S</b> 29 17.9	19 27 20.9	2 18 7.7	20 32 17.9	16 23 18.5	19 29 24.6	22 23 18.0	26 31 26.7	25 25 18.4	0 25 11.7	6 31 17.9	23 32 20.5	26 26 15.9	21 32 26.7	1 24 14.2	23 28 20.9	31 35 29.6	24 <b>39 33.7</b>	24 29 15.3	25 31 26.6	8 29 19.1	22 28 17.2	33 21.3	14.2	1 24 9.6	20 5.2	31 31	•
	0 20:00 21:00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21	17 16	9	25	27	18	2	s	14	20	53	30	22	н	17	20	H	27	9	52	30	53	4	13	5	26	14	119	m		30	16.3
	00 17:00 18:00 19:0 00 18:00 19:00 20:0	23 \$	S 18 17	14 11	27 25	C 26	21 21	2 3	28 30	15 13	21 \$	\$ 23	30 29	6 15	1 0	24 23	26 26	3 1	30 29	17 12	23 24	33 33	35	19 13	27 19	14 14	27 28	27 20	14 19	10	3	35 34	19.3 18.6
nodily averages in ppu	0 14:00 15:00 16:0 0 15:00 16:00 17:0	24 27	20 18 19	6 7	30 8	ပ ပ	27 25	13 9	30 32	19 18	27 26	15 17	31 27	16 S	\$ 15	27 26	31 32	18 13	32 32	24 22	27 27	35 34	39 37	27 25	29 31	21 18	28 26	31 26	28 28	23 19	18 13	33	786 676
1	11:00 12:00 13:0 12:00 13:00 14:0	22	22 22 21	7	56	56	22	Ħ	56	17	27	13	93	18	18	27	s	21	ď	77	78	33	33	78	29	77	24	33	56	23	<b>1</b> 3	33	72.5
OZONE (OZ)	.00 9:00 10:00 .00 10:00 11:00	20	19 20 21			18	19		50	18	56	51	52	16	16	78	20	19	ď	s	52	78	35	9	52	56	11	24	4	2 5 13	2	34 35 36	175
-	6.00 7.00 8 7.00 8.00 8	19 18	23 22	5	5		17 14		10 11														£						5 2			34	170
	00 4:00 5:00 00 5:00 6:00	19	20 19 20	9	17	თ	77	7	0	23	22	17	74	19	14	m	14	54	54	11	18	74	X	24	s	56	m	21	φ	4	m	34	77.0
	1.00 2.00 3 2.00 3.00 4	17	21 19 2	6	11	14	23	13	Н	23	58	50	26	21	22	П	12	22	53	14	13	27	33	14	29	53	s	21	4	9	m		17.5
MST	HOURSTART 0:00	DAY 16	2 22	3 12	12	5 18	6 25	7 18	ε 80	To a		13. 13.					 13.		190 -(1)			4.V	22 32	**: 5.7				27 22	28 S	29 14	30	HOURLY MAX 32	17.8

## OBJECTIVE LIMIT:

Q QUALITY ASSURANCE
R RECOVERY
X. - "MACHINE MALFUNCTION"
O - OPERATOR ERROR

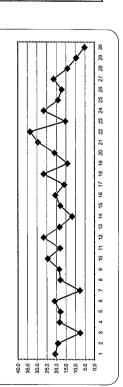
MAUNTENANCE
DAILN ZERO SPANCHECK
-POWERTAILURE
-OUT FOR REPAIR

STATUS FLAG CODES

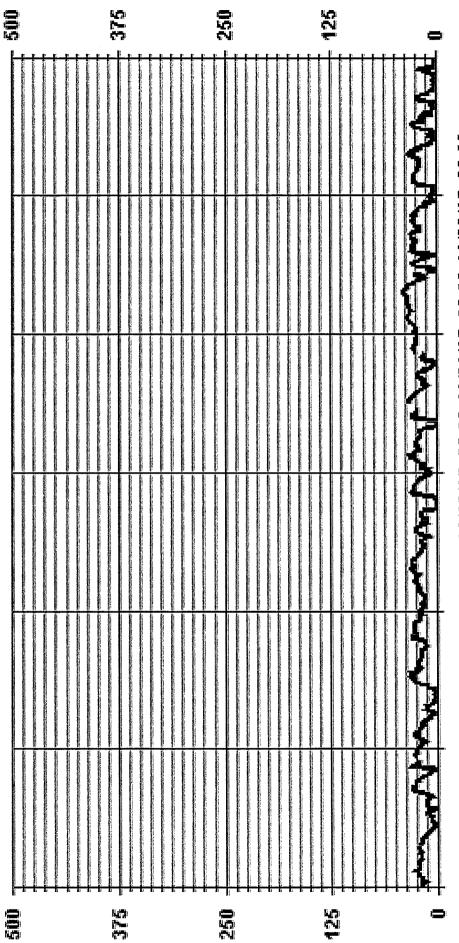
24 HOUR AVERAGES FOR NOVEMBER 2015

ALBERTA ENVIRONMENT: 515HR

NUMBER OF 1-HR EXCEEDENCES:			Ö.					
NUMBER OF NON-ZERO READINGS:	SS:		673					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		39 33.7	PPB PPB	PPB @ HOUR(S) PPB	VAR	ON DAY(S) ON DAY(S)	22	22 22
IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME:	30	HRS HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	IME: N UPTIME:	VAR-VARIOUS	720	HRS %
STANDARD DEVIATION:	9.22			MONTHLY AVERAGE:	AGE:		18	PPB



Of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

- LICA 03\_ PPB



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

# OZONE MAX instantaneous maximum in ppb

MST

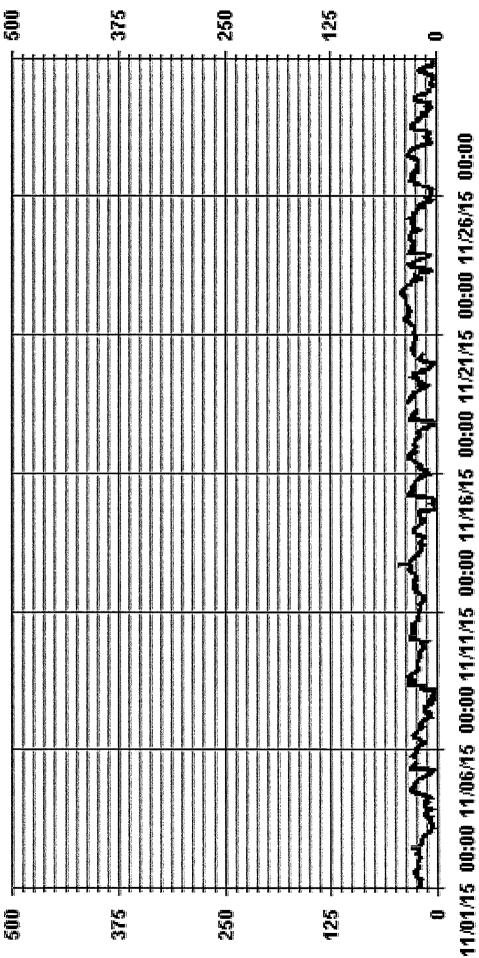
	RDGS.	24	74	77	54	54	54	74	74	24	54	54	24	24	24	24	24	24	24	54	54	54	54	77	24	74	75	24	54	54	54		
24-HOUR	AVG.	22.2	21.0	9.4	20.2	20.1	22.5	10.8	21.5	20.4	26.6	19.9	29.0	20.5	14.1	20.5	23.2	18.5	28.6	17.5	22.7	30.7	35.2	19.8	28.1	21.3	19.2	23.9	18.0	13.5	7.5		
DAILY	MAX.	78	30	51	32	30	78	20	35	24	31	28	43	56	56	32	发	31	33	27	30	37	40	32	31	32	30	32	30	56	77		•
23:00	0.00	23	14	14	23	s	20	4	22	70	21	23	27	56	7	œ	22	31	77	7	24	32	53	32	56	11	23	7	s	ιΩ	m	32	18.6
22:00	23:00	23	16	13	53	53	s	7	24	15	22	23	78	56	Ŋ	14	27	91	27	Ŋ	54	32	53	#	56	თ	53	œ	12	s	7	32	18.4
21:00	22:00	23	17	œ	56	78	17	s	56	18	77	78	31	56	7	17	27	4	56	Ŋ	23	32	53	g	22	9	54	14	17	7	s	32	19.2
20:00	21:00	22	18	11	56	28	20	Ŋ	s	17	77	54	31	54	m	21	56	m	28	œ	23	31	31	10	54	00	78	13	20	7	4	31	18.7
19:00	20:00	22	18	13	56	30	21	6	ଯ	s	23	54	31	23	7	23	23	7	78	10	23	33	32	13	21	13	8	77	22	7	m	35	20.0
18:00	19:00	s	91	17	27	27	22	თ	31	15	s	54	똤	18	7	54	53	m	똤	15	56	첧	32	13	23	17	53	56	21	12	4	35	20.9
17:00	18:00	25	s	13	53	J	23	9	30	17	77	s	43	11	7	53	78	თ	31	গ্ৰ	26	发	37	21	30	9	83	ଯ	22	16	9	43	22.3
16:00	17:00	27	13	s	30	U	52	7	31	13	56	23	s	16	∞	55	33	12	33	18	56	33	37	53	31	13	27	ଯ	56	13	13	37	23.3
15.00	16:00	28	50	13	s	U	26	12	33	20	27	13	30	s	70	27	发	17	33	27	28	37	83	78	31	8	78	31	53	23	17	33	25.9
14:00	15:00	27	77	œ	32	U	28	15	发	20	78	16	33	18	s	78	33	20	33	56	53	37	4	78	31	22	8	32	8	25	21	40	26.6
13.00	14.00	24	77	8	83	22	28	14	31	8	ଯ	51	33	20	20	S	8	23	σ	74	8	8	40	32	30	23	30	34	30	56	21	40	26.0
12.00	13:00	24	8	00	27	27	27	14	78	70	8	11	32	20	20	78	s	23	σ	54	82	发	40	8	8	23	56	35	23	22	13	40	25.5
11.00	12:00	24	24	œ	23	78	53	12	8	70	78	Ħ	ଚ୍ଚ	5	91	78	26	s	σ	27	78	34	33	ଯ	30	52	23	33	56	77	13	89	24.7
10:00	11:00	ន	23	œ	13	8	21	14	ᄷ	70	78	16	78	16	13	78	22	70	σ	23	27	31	38	14	59	56	74	30	53	16	თ	88	22.9
9:00	10:00	23	22	9	12	30	77	00	74	21	78	17	56	13	13	30	22	70	σ	s	78	30	32	13	78	27	17	56	11	11	m	33	20.5
8:00	9:00	19	77	Ŋ	∞	00	18	7	18	21	27	17	53	18	14	32	70	21	o	77	S	27	32	4	27	27	თ	23	თ	ın	7	35	17.5
7:00	8:00	70	24	9	7	4	16	7	13	23	78	21	24	18	14	32	13	77	24	19	17	s	32	œ	26	27	7	21	ın	Ħ	7	35	17.4
9.00	7:00	21	23	φ	12	7	13	10	18	£2 .	8	13	56	13	51	32	21	24	26	21	18	52	s	51	59	ଯ	Ŋ	21	9	17	4	32	18.9
5.00	9:00	8	22	Ŋ	14	00	77	00	16	24	26	9	52	70	20	<b>13</b>	13	23	22	77	13	22	33	S	59	32	9	21	11	7	4	35	19.0
4:00	.5:00	8	8	7	14	10	33	11	⊣	23	27	19	56	77	13	13	17	53	26	13	13	53	32	ĸ	s	27	Ŋ	22	11	∞	4	35	17.8
3:00	4.00	20	21	∞	7	14	23	16	1	23	8	20	27	22	22	4	13	52	29	15	77	26	32	23	53	s	Ŋ	22	13	∞	Ŋ	35	18.4
2:00	3:00	19	77	10	14	16	52	17	2	24	31	70	27	77	23	4	14	26	30	17	15	78	35	70	8	8	s	22	Ħ	9	ın	35	19.6
1:00	2:00	18	22	11	14	18	24	19	Ŋ	23	8	21	27	53	26	7	11	56	53	50	10	27	33	16	30	53	9	S	00	12	ın	33	
1	1:00	17	23	13	17	13	79	20	Φ	23	31	77	52	 26	56	7	σ 	56	저	77	7	26	33	7	. T	8	σ	23	S	17	m	33	19.8
HOURSTART	HOUREND	DAY. 1	2	e.	4	'n	ω	7	<b>∞</b>	ത	10	П	12	13	14	15	16	17	18	19	20	21	22	23	. 24	52	26		28	29	30	HOURLY MAX	HOURLY AVG

### STATUS FLAG CODES

C CALIBRATION. OC. QUALITY ASSURANCE  A MAINTENANCE. R RECOVERY  S -DAILY ZEROSPAN CHECK X "ANACHINE MACHORICATION  P -POWER FAILURE O -OPPRATOR ERROR  G -OUT POR REPAIR K -COLLECTION FRROR
---

NUMBER OF NON-ZERO READINGS:			089							i
MAXIMUM INSTANTANEOUS VALUE:			43	PPB	@ HOUR(S)	(s)	17	ON DAY(S)		12
							VAR-VARIOUS	RIOUS		
IZS CALIBRATION TIME:	30	HRS		OPERATIONAL TIME:	NALTIME	úi			720	HRS
MONTHLY CALIBRATION TIME:	4	HRS								
STANDARD DEVIATION:	8.79									

Of Hour Averages



<u>ت</u> م م

O3MAX

LICA  $03\_$  / WD Joint Frequency Distribution (Percent)

Distribution By % Of Samples

Logger Id : 01 Site Name : LICA Parameter : 03 Units : PPB

Wind Parameter : WD Instrument Height : 10 Meters

Direction

00. 3.96 100.00 00, 00. NNW Freq 00. 00. 00. 3.96 MN 6.02 00. 00. 6.02 00. 6.02 6.02 WNW 00. 00. 0. 12.62 00. 00. 00. 4.84 11.01 22.46 12.62 × 22.46 00. 00. 00. WSW SW 4.84 11.01 00. 00. 00. 00. 00. 00. 2.93 2.93 00. 00. 00. Ø 3.23 3.23 SSE 00. 00. 00. 8.66 R 8.66 00. 00. 00. ESE 2.64 2.64 00 00. 00. 7.19 7.19 00 00. 00. 3.67 3.67 00. 00 00' 2.79 Ä 2.79 00. 00. 00. .88 00. 00. 0. 1.02 1.02 00. 00. 00. z Limit Totals 20 110 210 210

Calm : .00 %

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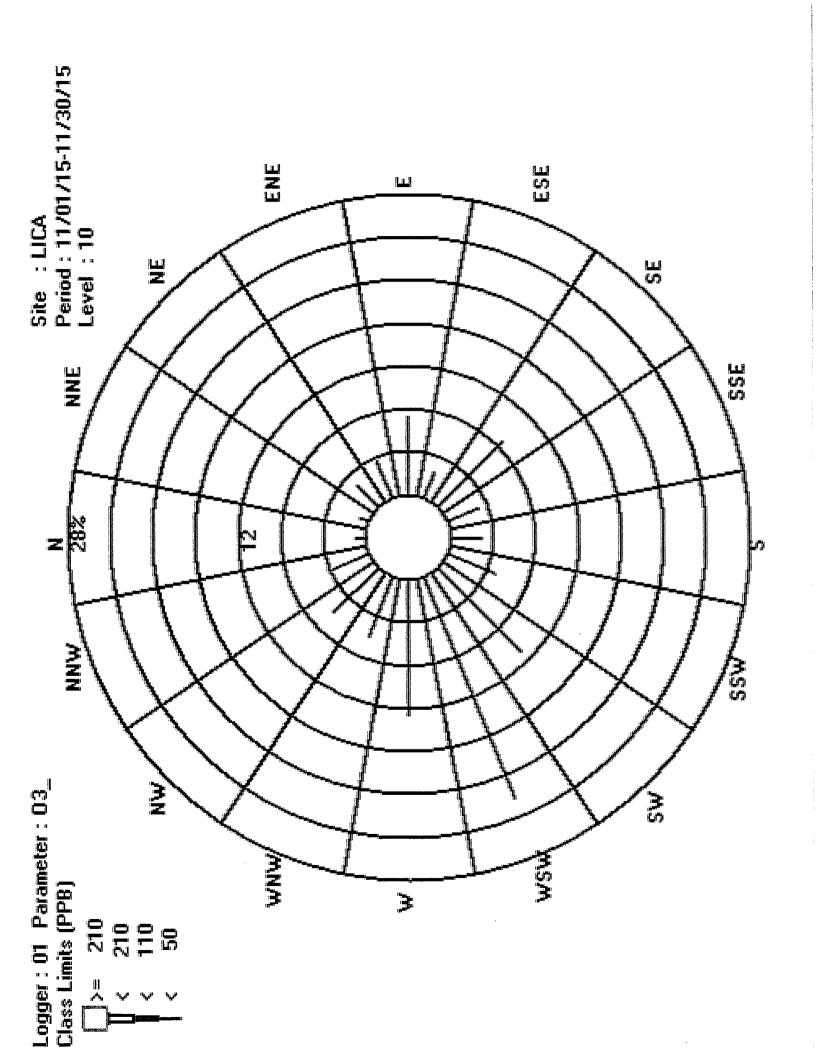
Total # Operational Hours : 681

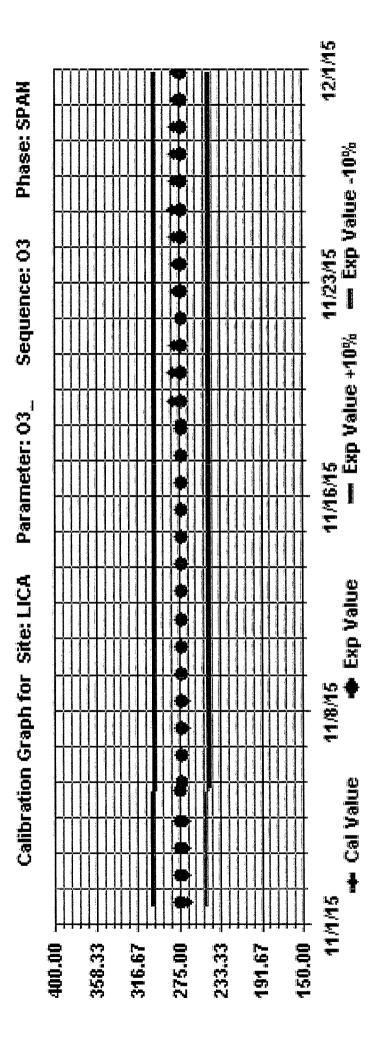
Distribution By Samples

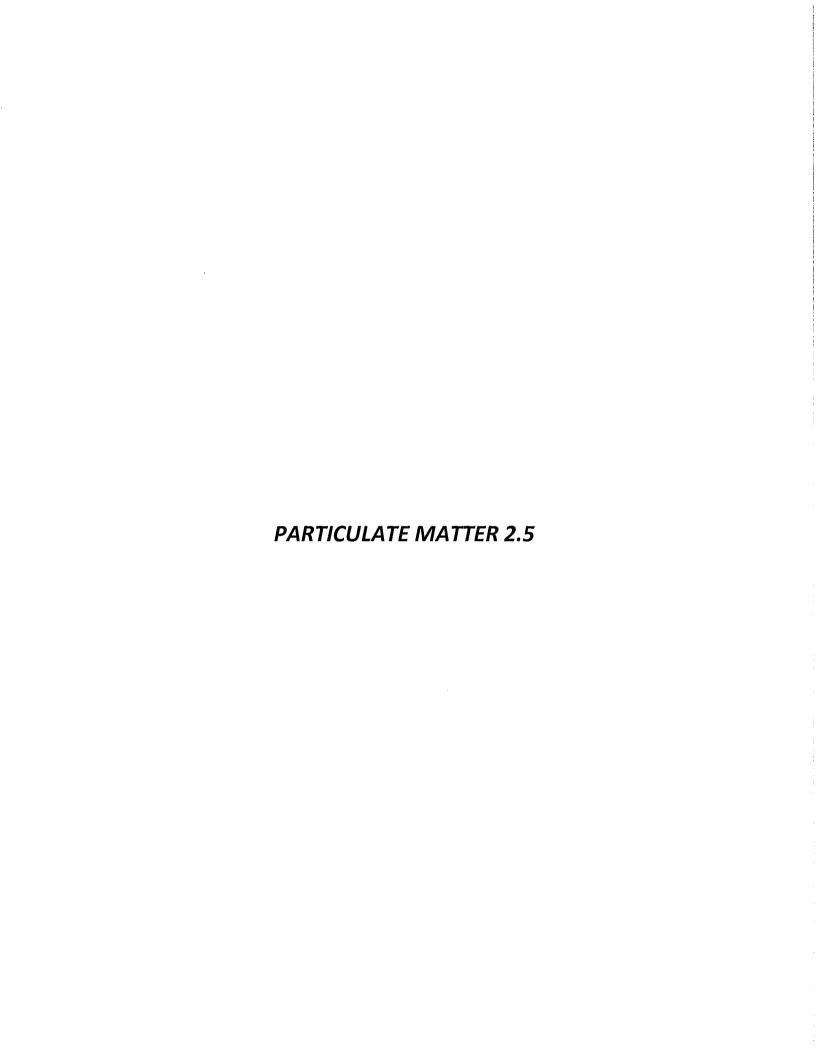
Direction

Freq	681				
NNW	27 (				27
W	41				41
WNW	41				41
Ħ	98				98
WSW	153				153
SW	75				7.5
SSW	33				33
Ø	20				20
SSE	22				22
SE	59				59
ESE	18				18
ы	49				49
ENE	25				25
R	19				19
NNE	ø				ø
×	7				7
Limi t	50	110	210	210	Totals
17	٧	٧	٧	ļ.	To

Calm : .00 %







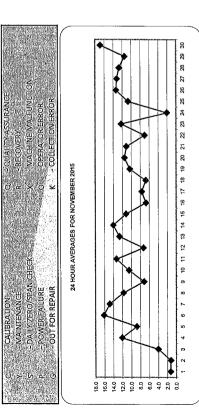
JOB # 2833-2015-11-01- C



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

MST

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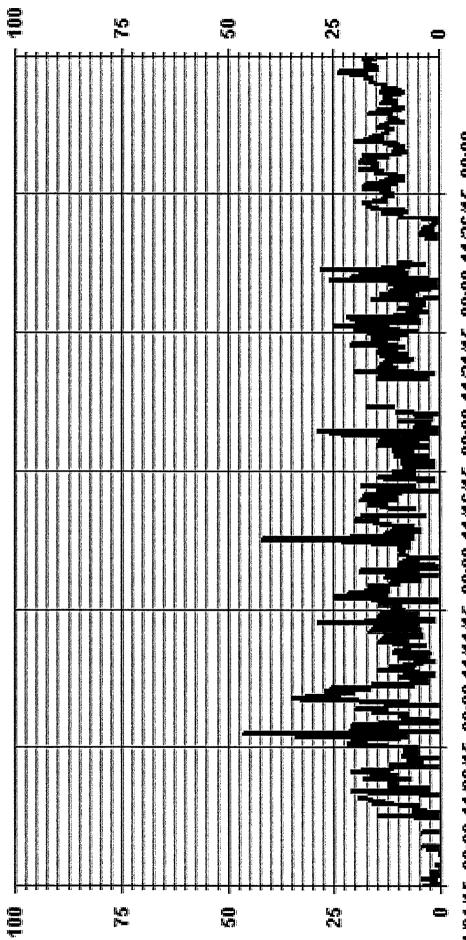


#### OBJECTIVE LIMIT:

### ALBERTA ENVIRONMENT: 24-HR 30 0 0g/m3

'NUMBER OF 24-HR EXCEEDENC	<u>s</u>		0					
NUMBER OF NON-ZERO READINGS:	GS:		290					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		46 16.9	46 ug/m3 16.9 ug/m3	46 ug/m3 @ HOUR(S) 16.9 ug/m3	13	ON DAY(S) ON DAY(S) VAR-VARIOUS	<b>.</b> ,	30
MONTHLY CALIBRATION TIME:	2	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	:: PTIME:		635 88.2	635 HRS 88.2 %
STANDARD DEVIATION:	6.76			MONTHLY AVERAGE:	úi		10.5	10.5 ug/m3

of Hour Averages



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

- LICA PM2 UG/M3

LICA PMZ / WD Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

Wind Parameter : WD Instrument Height : 10 Meters

98.89 1.10

4.43 00. 00. 00.

4.43

00. 00.

0. 00. 00. 00.

M 5.37 5.37 00. 00. 00. 00. 00. WNW 5.85 00. 5.85 00. 00. 00. 80. 12.34 .15 00. 00. 00. 00. 5.06 11.70 24.36 12.50 × 4.58 11.70 24.20 00. .15 00. 00. 00. WSW SM 00. 00. 00. 00. 00. SSW .47 00. 00. 00. 00. 3.16 3.00 .15 00 00. 00. % 3.79 3.79 00. 00. SSE 00. 00. 00. Direction 18.6 96.6 SE .15 00. 00. 8. 00. 1.58 1.58 ESE 00. 00. 00. 00. 00. 5.69 5.69 00. 00. 00. 00. 00 ы 2.84 2.84 00. 00. ENE % 00. 00. 2.21 2.21 爿 00. 00. 00. 00. 00. 00 00. 00. 00. 94 .94 00. % 00. 00. 00. % 47 Totals 240 Limit 30 80 240 9 120 ٧ ٧

Calm : .00 %

Total # Operational Hours : 632

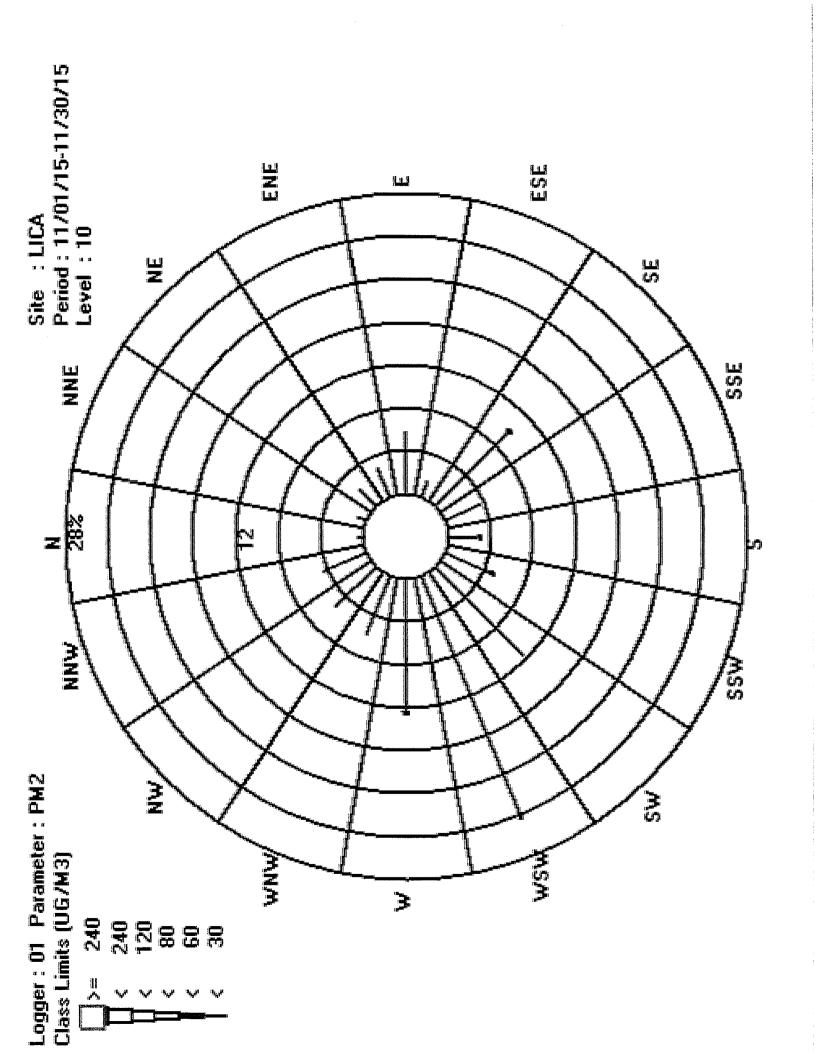
Distribution By Samples

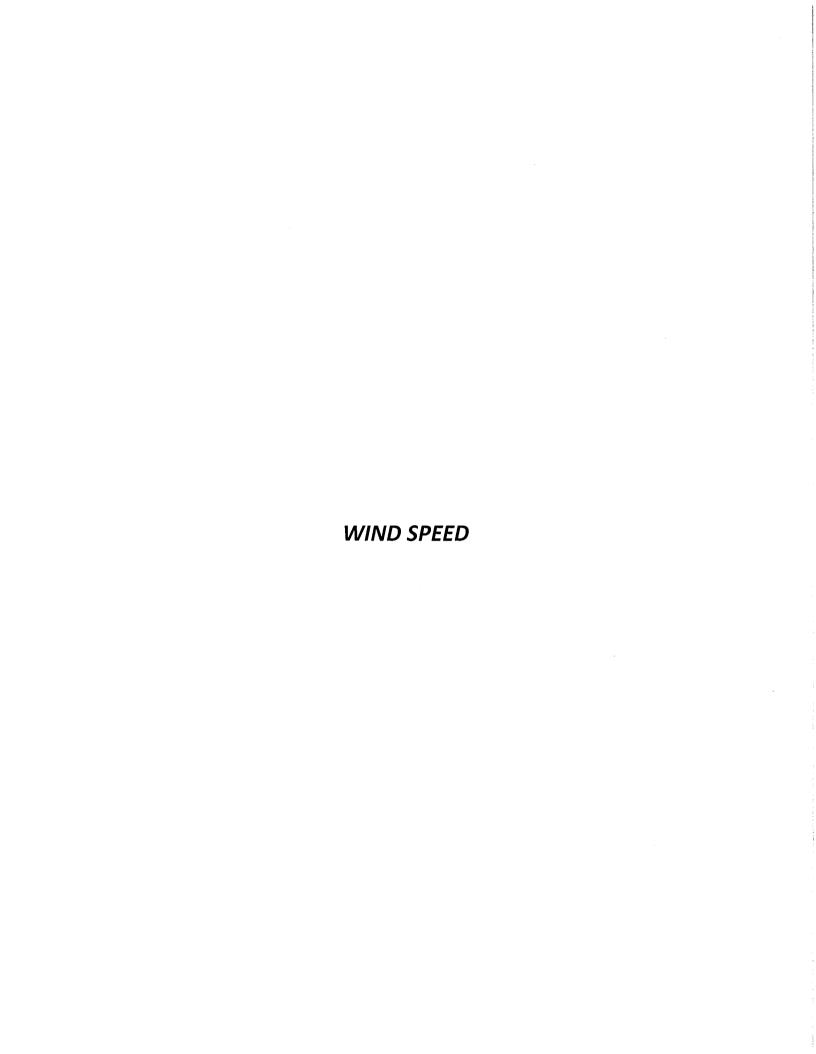
Direction

	Fred	625	7					
	NNW	28						28
	WN	34						34
	WNW	37						37
	×	78	н					42
	WSW	153	т					154
	SW	74						74
	SSW	59	т					32
	w	19	н					20
	SSE	24						24
	SE	62	П					63
1	ESE	10						10
	ш	36						36
	ENE	18						18
	Ħ	14						14
	NNE	9						9
	z	ю						m
	Limit	30	09	80	120	240	240	Totals
	-	٧	٧	<b>v</b>	<b>v</b>	<b>v</b>	Ķ	

Calm : .00 %

Total # Operational Hours : 632







### WIND SPEED (WS) hourly averages in km/hr

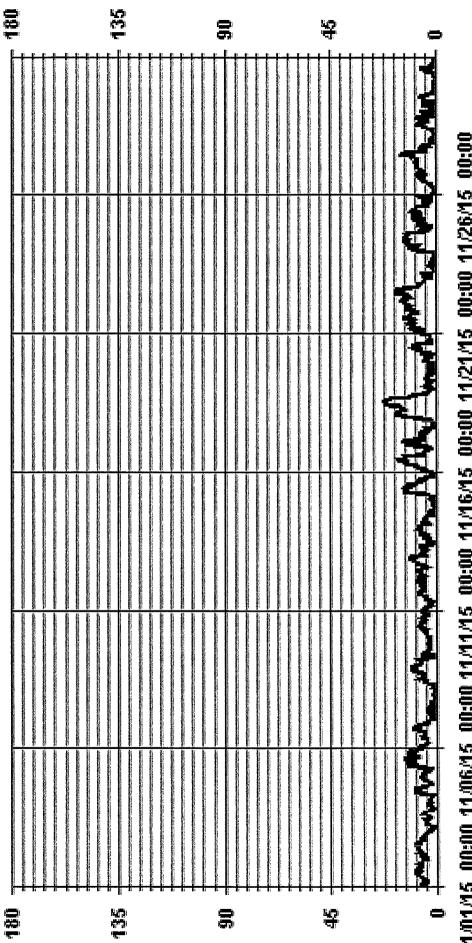
HOURSTART 0.500 1.60 2.60 3.50 4.00 5.00 6.00 7.00 8.00 9.00 HOUREND. 0.50 1.50 2.59 8.59 8.59 8.59												
6.59 7.59 8.59	10:00 = 11:00	(A)	14:00 1	15:00 16:00	17:00	430000	2002-07		2.00 23.00		24-HOUR	
	10:59 11:59	12.59 13:59	14:59 T		16:59 17:59	18:59 15	19:59: 20:59	21:59; 22:59		MAX.	AVG.	RDGS.
3.5 5.4 5.6 5.8					7.7			7.6		6.9	6.8	24
5.1 7.6 6.9 7.3 7.5	7.9 8.1	8.4 7.8	9.3	7.9 7.0	5.8	6.2	6.7 6.4	5.9	5.6 4.4	9.3	9.9	24
1.4 2.8 3.3 4.3					5.1			1.9		6.0	3.4	54
2.2 1.7					3.9			5.3		9.6	4.6	54
3.5 2.7 2.4 4.0	11.9 12.2		12.1	10.6 13.9	7.3					13.9	8.3	54
4.3 3.7 3.8 3.9					7.6	9.4				9.4	5.9	24
1.6 2.5 0.4 0.7	1.6 4.3			2.6 1.0	0.7			0.5		4.6	1.6	24
1.4					6.5	7.5 7				10.8	4.8	24
7.5 5.4 3.8 1.6					2.9					9.4	4.5	24
4.5 5.5 5.8 4.6	7.4 6.8				5.5					7.4	5.2	24
2.1 1.4				5.4 7.7	5.8		.0 5.3			7.7	5.0	24
7.2 7.1 5.3 5.9	8.3				8.2					11.9	7.5	54
5.7 5.9 3.5 7.3	1.9				2.5					8.2	5.0	54
5.5 5.0 4.5				1.9 1.3	0.5	0.9	.1 1.1			7.5	3.1	54
4.0 8.5 13.0 12.5	12.3				8.2					13.6	6.8	24
7.8 9.3 13.0 13.6					5.2					16.4	8.1	54
5.9 6.3 5.0 5.2	7.0				1.0					14.4	5.5	54
16.3 13.6 13.8 14.6	19.6				12.2					23.2	14.4	54
3.6 3.1 2.3 4.6	4.2				3.4					4.6	2.8	54
2.0 1.1 1.8 6.0	8.4				2.2					6.7	4.6	24
7.5 8.3 10.0 11.2	10.2				10.6					13.7	6.6	54
14.8 12.5 10.4 10.8				14.6 10.5	7.9	7.5 7				17.4	11.6	74
2.1 0.8 1.1 0.6	2.0				1.2					5.7	1.9	54
11.3 12.4 12.1 13.6	12.4				4.6					14.1	9.3	24
10.4 5.6 7.3					5.5					10.4	6.7	24
0.7 0.8 1.3 1.5	7.8			3.9 7.0	7.6					9.5	3.8	24
9.6 6.9 8.1 8.8	10.8				7.1					15.3	7.1	24
0.3 1.4	3.2			6.9 5.9	2.5					8.7	3.3	24
2.6 6.1 1.5 0.4	4.8				0.8		.6 0.4			7.2	2.3	24
0.3 0.6 0.4 0.9	1.3				1.0					6.3	1.6	54
15.1 16.3 13.6 13.8 14.6 15.2			23.2 2	20.7 19.1	12.2	11.0 1.	11.0 11.3	13.1	11.9 11.9			
5.2 5.4 5.0 5.6	7.4				5.0							

68
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April 1, 2013	MAGNETIC DECLINATION 19 DEGREE EAST	
LASI CALIBRATION:	ECLINATION:	

			ξ	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:	3S:		719					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		23.2	A H	@ HOUR(S)	14	ON DAY(S) ON DAY(S) VAR-VARIOUS	18 13	18
MONTHLY CALIBRATION TIME:	0	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	(E: UPTIME:		720 100.0	% HRS
STANDARD DEVIATION:	4.04			MONTHLY AVERAGE:	ü		5.7	КРН

Of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

KPH

**USP** 

- CA



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

## VECTOR WIND SPEED MAX instantaneous maximum in km/hr

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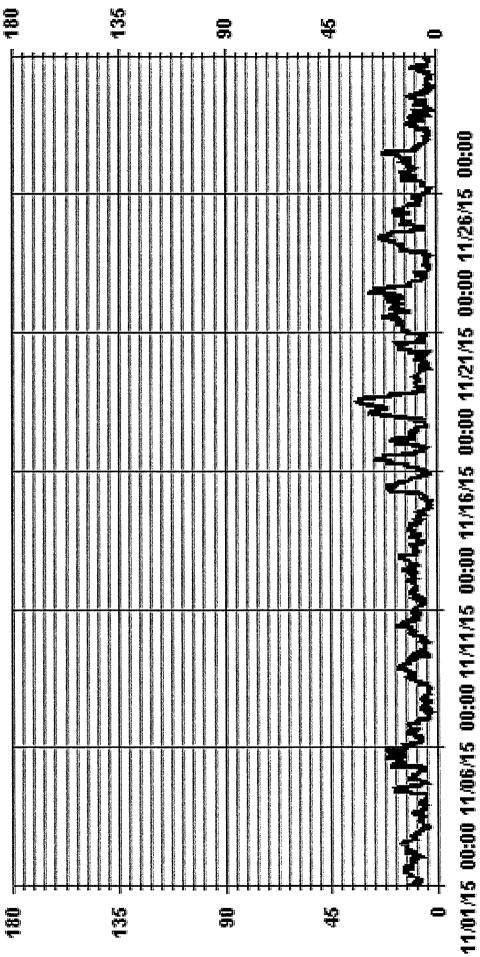
	RDGS.	24	54	74	24	24	24	54	24	54	54	54	54	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	54	24	24		
24-HOUR	AVG.	11.2	11.1	9.9	9.1	13.5	10.1	4.7	8.8	7.9	10.4	8.6	11.6	8.9	6.3	11.2	13.0	10.2	22.6	8.9	9.6	15.6	16.9	4.6	15.2	11.6	7.9	11.5	6.5	5.6	4.4		
DAILY	MAX.	14.9	15.4	10.8	18.8	22.6	13.6	9.0	17.2	15.3	17.8	10.9	16.5	12.3	11.4	20.9	26.9	19.6	33.4	9.5	16.5	23.1	28.6	10.9	24.1	18.4	14.6	23.3	13.2	11.4	6.6		
23:00	00.00	9.4	9.2	4.8	10.5	14.1	8.0	3.1	13.7	5.2	10.0	9.4	15.2	10.1	4.6	3.0	10.3	17.4	6.2	5.7	5.2	17.9	6.2	10.9	14.4	7.9	10.7	3.8	7.5	4.1	2.9	17.9	8.7
22:00	23:00	10.4	9.5	5.9	12.1	14.2	6.9	3.9	17.2	4.6	10.8	9.5	16.5	12.3	3.0	5.9	6.7	12.0	5.1	2.9	4.5	14.9	6.7	3.1	14.6	10.2	9.3	4.4	3.2	2.1	4.6	17.2	8.1
21:00	22 00	11.7	89	4.9	9.7	20.9	11.3	6.7	15.1	5.5	6.1	9.1	14.0	10.8	3.7	4.2	5.1	5.0	8.4	4.1	4.8	20.0	6.7	4.2	8.3	8.7	10.3	5.0	2.7	3.0	3.9	20.9	8.1
20:00	21:00	10.0	10.6	4.9	7.1	20.5	12.4	3.2	13.6	6.5	8.4	9.6	13.9	8.1	3.1	7.2	6.0	9.6	10.7	7.5	9.9	17.3	10.5	3,9	9.4	5.8	12.7	4.0	10.0	2.0	2.5	20.5	8.6
19:00	20:00	11.6	10.2	6.2	6.0	16.7	11.7	7.5	11.8	4.4	9.0	8.8	13.5	10.1	27	8.4	5.0	4.6	14.7	3.9	7.2	13.1	11.3	2.8	5.2	6.7	9.5	9.9	11.7	3.2	5.6	16.7	8.2
18:00	19:00	13.4	10.0	6.2	5.1	15.8	11.0	4.0	12.1	5.2	9.7	9.5	11.7	10.0	3.9	10.6	7.6	4.4	19.9	3.3	5.1	10.7	10.4	4.3	5.4	7.5	14.4	7.6	9.1	4.5	3.4	19.9	8.5
17:00	18:00	14.9	9.4	8.4	6.8	13.1	10.8	2.0	11.2	5.2	8.2	10.6	11.1	6.4	3.5	11.1	8.4	4.3	20.0	7.4	5.2	17.2	13.2	3.5	9.4	8.5	14.0	9.4	4.9	3.1	3.7	20.0	8.8
16:00	-17.00	9.6	11.3	10.8	7.9	22.6	8.9	5.3	8.4	5.0	7.0	10.9	10.9	10.2	3.0	12.3	10.2	3.3	25.9	4.5	7.6	17.1	17.2	4.4	12.0	5.9	11.9	7.8	10.6	3.8	2.7	25.9	9.6
15:00	16:00	14.5	13.9	6.7	12.4	16.7	9.6	4.7	11.6	5.5	9.5	8.6	7.3	11.5	5.1	13.9	15.3	6.1	31.6	8.9	11.9	20.6	21.4	3.8	18.4	12.7	7.4	8.7	10.5	5.7	8.5	31.6	11.5
14:00	15:00	13.4	15.4	7.1	15.5	17.4	12.1	5.3	10.6	5.2	13.9	10.5	9.1	7.0	6.4	16.7	22.3	8.8	32.7	7.0	16.5	23.1	25.9	3.6	19.3	11.6	11.4	11.2	10.6	6 8 8	6.6	32.7	13.0
13:00	14:00	13.7	12.3	6.0	17.6	16.0	12.1	5.1	12.0	5.9	15.6	8.6	11.9	7.9	7.4	17.5	22.1	7.0	32.4	7.7	15.9	19.4	25.7	4.7	20.3	13.4	14.6	21.1	13.2	11.4	6.6	32.4	13.6
12.00	13:00	13.7	14.3	6.3	17.0	15.1	8.6	4.4	10.7	7.9	13.6	7.5	12.0	7.5	5.6	16.5	22.7	6.3	33.4	8.4	14.0	14.8	25.3	4.3	19.5	14.4	10.3	21.7	10.8	10.5	8.0	33.4	13.0
11:00	12:00	12.1	13.4	7.7	18.8	15.6	6.6	7.2	9.2	9.0	11.7	8.8	14.5	5.2	5.0	20.9	23.7	6.9	32.5	8.6	15.9	15.8	28.6	5.6	24.1	14.9	6.4	23.3	7.7	8.8	6.9	32.5	13.4
10:00	11:00	11.5	13.2	7.5	11.9	17.0	8.2	4.8	9.1	9.7	17.8	10.0	12.4	6.3	6.9	20.6	26.9	11.8	29.5	9.5	15.7	15.2	22.1	3.4	20.0	18.4	5.6	16.8	7.2	8.3	4.7	29.5	12.7
00.6	10:00	12.0	12.5	8.0	11.2	19.8	8.7	2.5	7.2	3.8	11.8	8.7	8.8	9.2	8.4	20.0	18.8	9.4	25.9	8.1	10.1	13.4	16.7	3.8	22.6	12.8	4.0	15.1	2.4	5.8	3.3	25.9	10.8
8:00	-00:6	9.7	12.0	9.9	4.7	6.4	6.5	3.8	7.4	3.6	10.0	4.0	8.5	10.6	8.1	18.5	21.6	10.3	21.6	8.4	12.2	16.8	14.6	2.8	19.8	10.8	. 6.1	14.4	8.7	2.9	3.7	21.6	8.6
7:00	8:00	8.2	10.9	0.9	4.5	4.2	6.8	2.8	3.4	8.0	11.7	5.7	9.3	9.8	6.9	20.2	18.2	8.7	20.7	5.8	4.0	14.6	14.4	2.5	16.4	12.1	5.9	11.4	2.9	8.4	2.2	20.7	დ დ
00:9	7:00	8.0	13.7	0.9	4.6	5.8	7.0	4.3	4.6	11.6	10.8	5.2	10.9	9.1	8.2	13.1	14.2	10.2	23.7	9.8	4.5	14.3	18.1	3.2	17.6	17.7	4.0	6.6	2.6	8.7	2.9	23.7	9.4
5.00	6:00	5.9	8.8	4.7	6,4	5.8	8.7	3.3	4.2	12.3	8.6	6.2	10.6	8.5	6.9	7.1	11.4	9.3	26.1	9.0	4.7	14.0	20.8	4.0	16.4	14.4	2.2	13.8	3.7	5.4	2.4	26.1	8.8
3:00 4:00 5:00	5:00	7.6	10.8	3.7	5.5	7.6	12.0	3.1	3.0	11.4	10.8	7.7	10.8	8.1	7.3	5.4	12.3	18.3	23.9	8.5	5.1	14.2	20.4	9.0	13.0	13.9	3.0	14.6	2.5	4.2	2.3	23.9	9.3
3:00	4:00	10.4	8.2	4.2	5.3	9.8	9.4	3.3	3.5	13.0	9.7	8.5	9.7	7.9	8.8	4.6	9.1	19.6	28.7	8.3	7.9	13.9	19.4	8.7	13.9	13.6	3.5	11.3	5.6	4.4	89. 89.	28.7	9.5
2:00	3:00	10.5	7.3	6.1	5.2	9.4	13.6	3.9	3.3	10.7	6.6	9.0	11.1	9.6	11.4	4.4	6.9	17.1	26.9	9.6	7.6	12.8	17.0	5.9	14.5	13.7	5.0	11.3	3.7	3.1	3.4	26.9	9.3
1:00	2:00	13.2	8.8	7.9	8.4	10.2	12.9	8.6	3.4	14.0	6.7	9.3	12.8	9.2	11.1	5.7	4.7	17.0	23.7	5.7	9.3	11.9	15.9	3.2	14.4	13.1	4.6	10.8	2.3	2.4	3.2	23.7	9.5
000	1:00	12.3	11.7	8.2	5.4	9.6	13.5	0.6	3.8	15.3	7.0	10.1	10.9	8.1	11.2	4.9	3.6	11.7	19.0	6.0	5.8	11.7	17.6	5.2	15.7	9.5	6.2	12.5	5.3	8.2	3.6	19.0	9.4
HOURSTART	HOUR END	1	2	. 3	4	5	9	Z.,	00	6	10	#	12	13	7.	13	16	17	18	91	70	77	22	- 23	24	25	26	27	28	53	93	HOURLY MAX	HOURLY AVG

#### STATUS FLAG CODES

URANCE	KLFUNCTION.	ROR	ERROR
- QUALITY ASS -RECOVERY	- MACHINE M	- OPERATOR ERROR	- COLLECTION
O W	×	0	¥
	ICHECK		
IBRATION: INTENANCE:	LY ZERO/SPAN	NER FAILURE	T FOR REPAIR
C - CAL	S -DAI	Ю	ეი- უ
, M			

		1 III 30	MOINTEL SOMIMAN				
MAXIMUM INSTANTANEOUS VALUE:	33.4	КРН	33.4 KPH @ HOUR(S)	13	ON DAY(S)		18
				VAR-V	VAR-VARIOUS		
		OPERATIC	OPERATIONAL TIME:			720 HRS	HRS

Of Hour Averages



I **LEGILLA**X 

LICA WD Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

MNIN 1.52 1.25 1.66 4.44 2.22 2.22 6.25 ž 1,11 00. 00. 69. 2.63 5.97 WNW 1.25 2.08 00-% % 6.80 1.66 3.75 00. 00. 00 4.30 10.55 22.08 12.22 Wind Parameter : WD Instrument Height : 10 Meters Œ WSW 8.19 00. 00. 7.63 13.61 .27 00. 2.91 S. 00. 00. 00. 00. SSW 3.88 .41 00. 00. 00. 00. 2.50 2.36 .13 00. 00. 00. 00. Ø 3.19 3.33 SSE .13 00. 00-00. 00. Direction SE 5.41 3.19 00. 9.02 .41 00-00. 1.80 ESE 2.63 .83 00. 00. 9. 00. 7.08 2.08 4.30 69 00-00. 00. ы 3.19 1.38 1.80 HZH 0. 00. 00. 0. 2.63 Ħ 1.11 1.52 00. 00. 00. 00. Ä .41 .27 00-00. 00. 8. 69 .41 .13 1.11 .55 00. 00. 00. z 12.0 Totals Limit 0-9 20.0 29.0 39.0 39.0

32.63 8.05

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Calm : 1.94 %

X V

V V ٧

Total # Operational Bours : 720

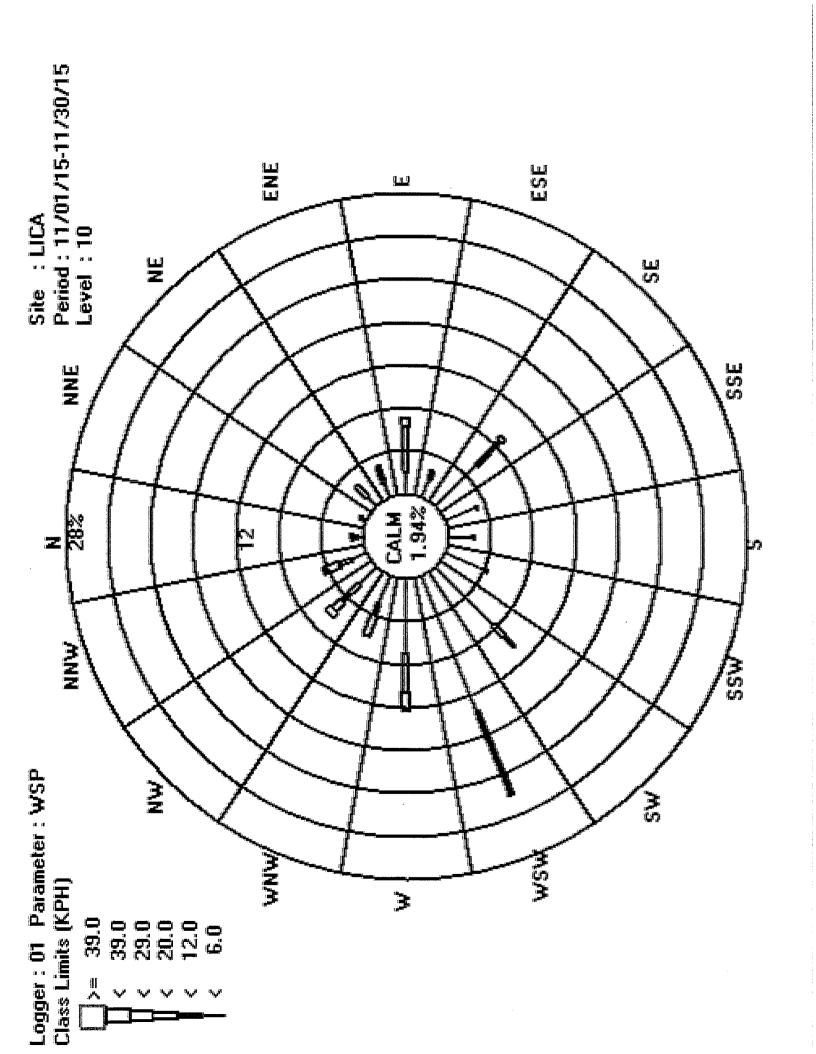
Distribution By Samples

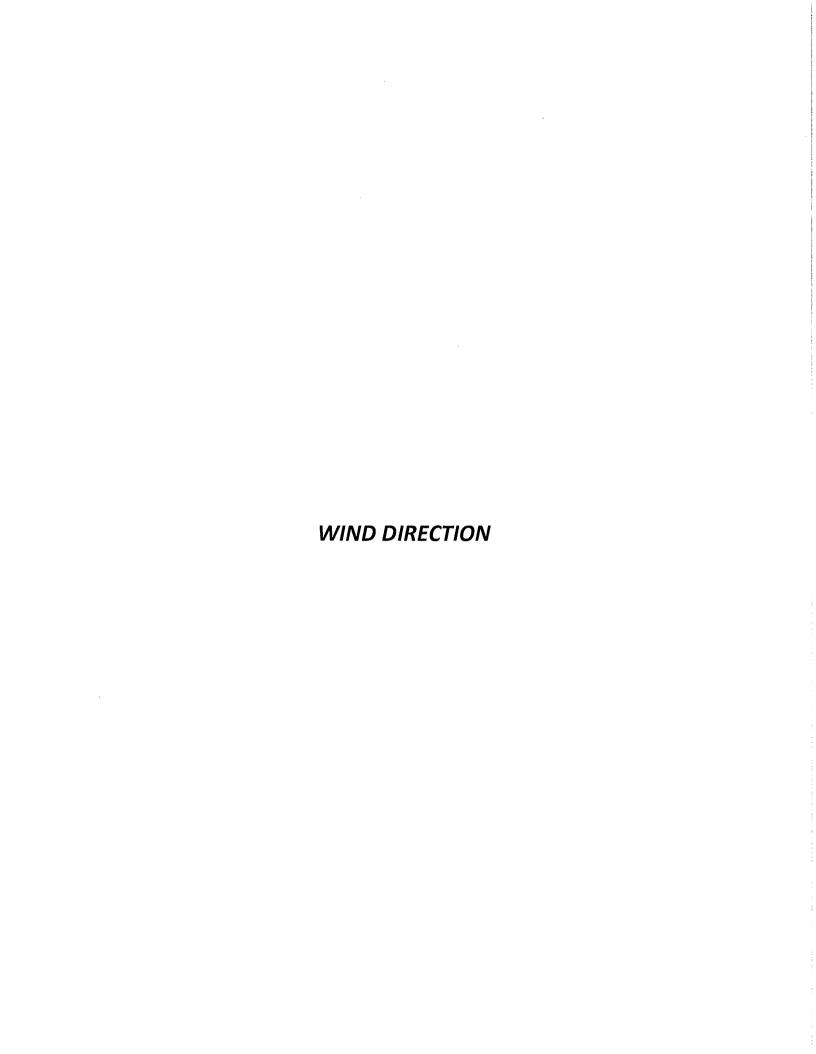
Direction

Freq	408	235	58	Ŋ			
NINW	11	o	12				32
MM	16	16	ω	Ŋ			45
WNW	19	o	15				43
×	49	27	12				88
WSW	8	59	N				159
WS	55	21					76
SSW	28	m					31
Ø	17	н					18
SSE	23	г					24
SE	39	23	m				65
ESE	13	9					19
ы	15	31	ß				51
ENE	10	13					23
뜅	ω	11					61
NNE	т	01					Ŋ
×	4	ю	1				ω
Limit		12.0		29.0	39.0	39.0	Totals
	<b>v</b>	٧	٧	٧	٧	X	

Calm : 1.94 %

Total # Operational Hours : 720







### WIND DIRECTION (WD) hourly averages

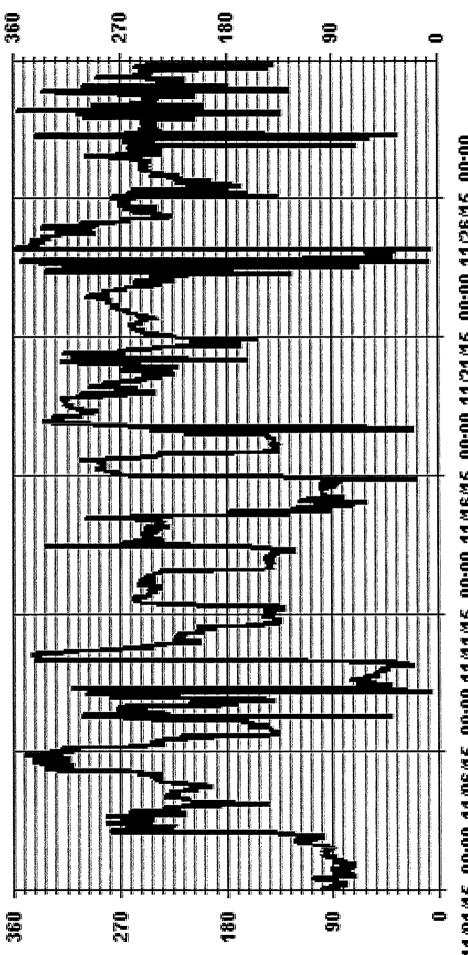
MST															<u> </u>	) 0									
HOUR START HOUR END	0:00	1.00 2.00 2:00 3:00	2:00	3:00 4:00 4:00 5:00	9 00	5.00 6.00 6.00 7.00	35	7:00 8 8:00 9	8.00.8 9:00	9:00 10 10:00 11	10:00 11 11:00 12	1±00 12:00 12:00 13:00	00 13 00 14	00 - 14 00 00 - 15 00	14:00 15:00 15:00 16:00	00 16:00 00 17:00	0 17:00 0 18:00	18:00	19:00	20:00	21.00	22.00	23:00	24-HOUR AVG QUADRANT	RDGS.
DAY 1	_ u			l		ш	ı								l				<u> </u>	ш		ENE	ENE	ш	77
2	ш																		ESE	ESE		ESE	ш	ш	24
£	ESE	ESE	SE	×	× ×	WSW		N WS	WSW	>	×	w w		wsw wsw	wsw w	γ «	≯	SW	SSW	WSW	≯	SW	SW	WSW	24
4	SW																		SSW	SSW		SW	SW	SW	24
S	SW	Ī																	ΝN	ΝM		z	NNW	MN	24
9	MNN								-										SS	SS		SSE	SSE	SSW	24
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œ	≯		_	www w															뮏	R		Ä	쀨	R	24
6	R																		WSW	WSW		SW	SW	z	24
q	SSW																		SE	SE		SSE	SE	s	24
ដ	S																	-	SW	WSW		WSW	SW	SW	24
12	SW	Ī							_	-									SE	S		S	SE	SSW	24
13	SE																	-	WSW	WSW		WSW	WSW	SSW	24
41	WSW									-									SE	ESE		ENE	ENE	SW	24
.15	ENE																		ш	ш		ш	SE	ш	24
16	≯																		WSW	S		SE	SE	≯	24
17	SE																		≯	WNW	-	ΜN	NNW	SE	24
18	Š						-		_										ΝM	ΜN	-	≯	WNW	ΜN	24
13	WSW				-														WSW	≩		SW	WSW	8	24
8	WSW	_																	S	SSW		SSE	SSW	≽	24
21	SW								wsw w										WSW	WSW		≷	>	WSW	24
22	≥									_		NW WNW	-	_					≯	WSW	WSW	SW	WSW	≽	24
23	WSW																		Ä	ESE	ENE	岁	Ä	≽	24
24	ENE							_										_	WNW	ΝM	Ν	×	NNN	MNW	24
25	WNW	-	_						Sw			wsw wsw		WSW WSI					WSW	≯	WSW	≯	*	WSW	24
26	WSW																		SW	WSW	SW	WSW	WSW	SW	24
27	WSW	Ċ			_			_	_				-	_					WSW	≯	SW	ENE	WSW	WSW	24
78	WSW											sw ws	_	wsw wsw	_	_	_		WSW	WSW	SSW	WNW	WSW	WSW	24
ଷ	WSW	ΜN	SE	SSW	z	_		N S	SSW W			_	_	_	_	w ssw		WSW	≯	ΝN	NNN N	SE	WSW	WSW	24
င္က	SSW	WNW				SW	SW S				wsw w	wsw ws	wsw w	wsw wsw	WSW W			$^{-1}$	s	SE	MSS	WSW	SSE	SW	24

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	80.62		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	>	



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

- LCA





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Cold Lake South Site - NOVEMBER 2015 JOB # 2833-2015-11-01- C

# STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

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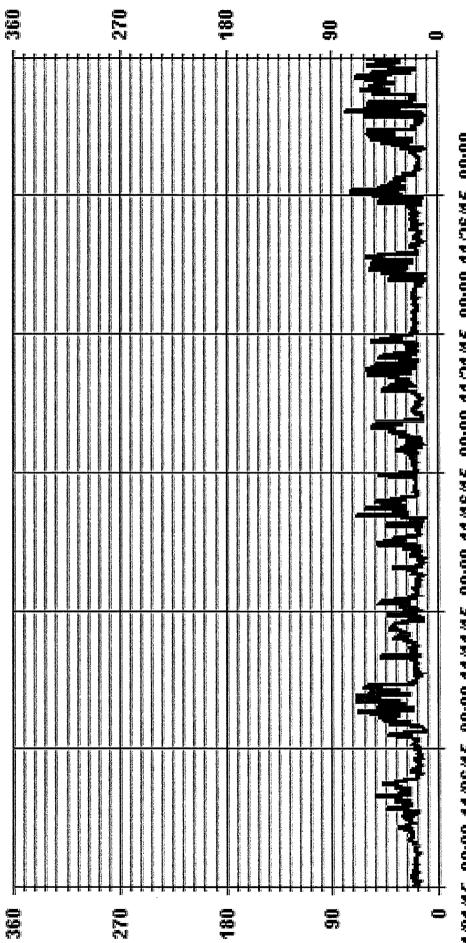
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April 1, 2015	
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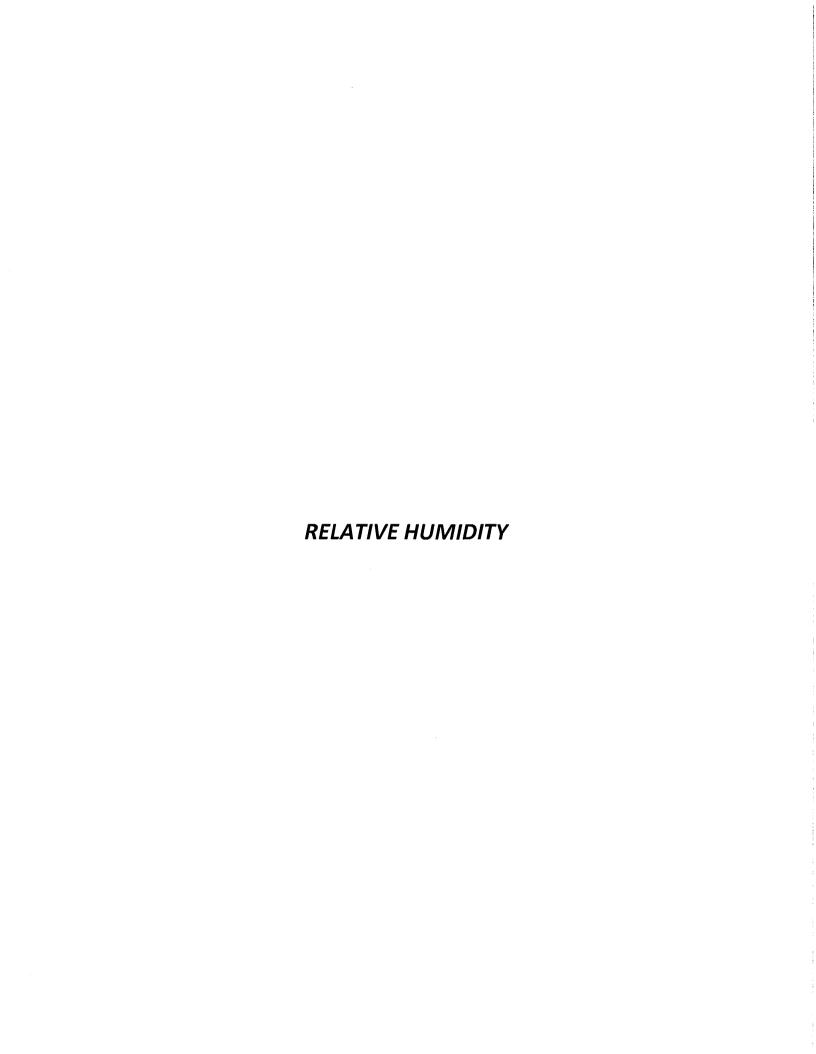
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Of Hour Averages



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- LICA STOWDIR DEG



JOB # 2833-2015-11-01- C

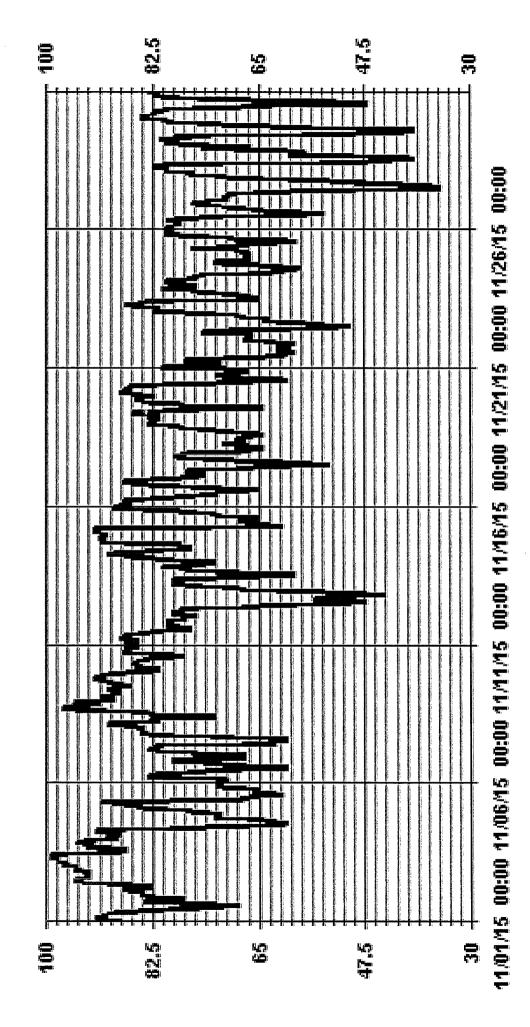


### RELATIVE HUMIDITY (RH) hourly averages in %

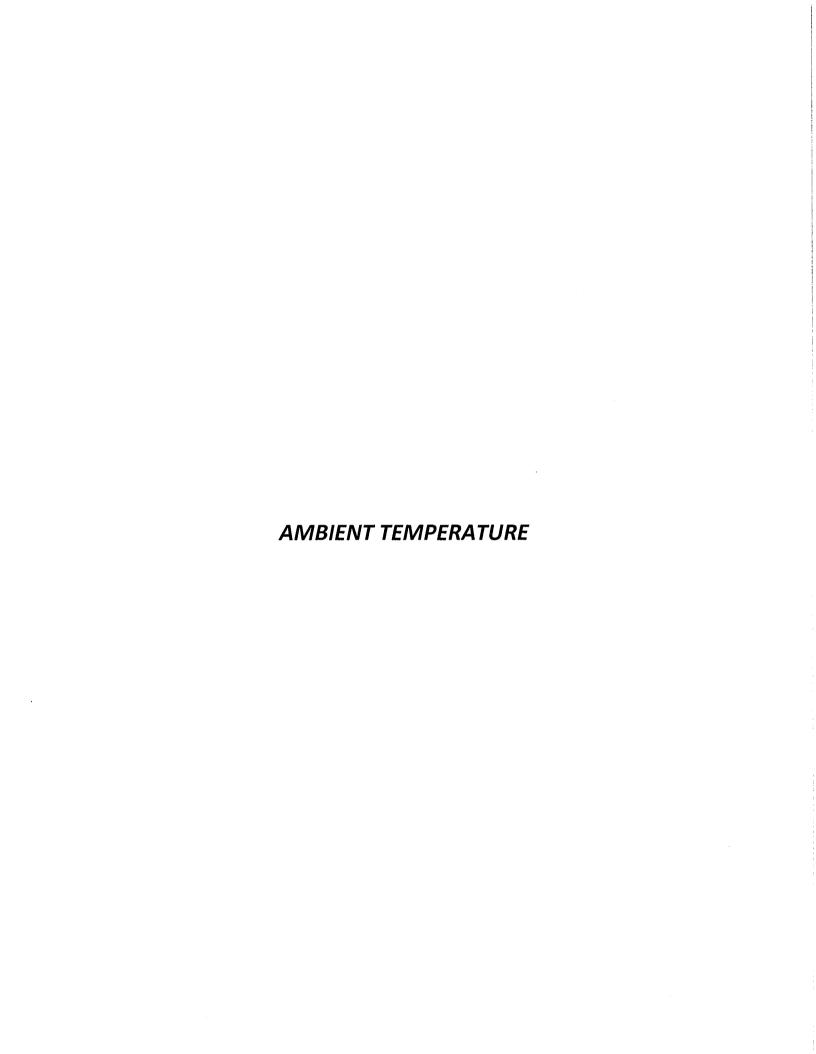
#### STATUS FLAG CODES

CALIBRATION:  O QUALITY ASSURANCE  R. RECOVERA  DAUGEROSSENICHECK  X -MACHINE MALFUNCTION  POWER-RAILURE  O COPERATOR FROR  K - COLLECTION ERROR  K - COLLECTION ERROR	24 HOUR AVERAGES FOR NOVEMBER 2015			
C. CALIBRAT  Y MANUTEN  S DAILYZER  P POWERFY  GGT OUT FOR I	!	90.0	60.0	90.0

MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:	6 A	99 % 94.5 %	@ HOUR(S)	VAR	ON DAY(S) ON DAY(S) VAR-VARIOUS		m @
			OPERATIONAL TIME: AMD OPERATION UPTIME:	IME: N UPTIME:		720 100.0	HRS %
STANDARD DEVIATION:	11.98		MONTHLY AVERAGE:	AGE:		76 %	%



- LICA RH %FS



JOB # 2833-2015-11-01- C



## AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

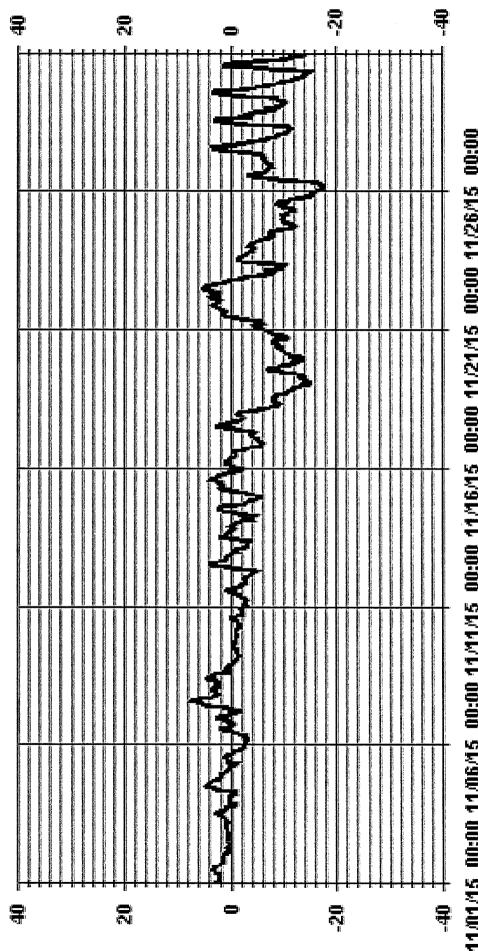
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	15.00	3.4	0.3	2.7	4.6	1.0	5.0	9.7	5.9	-0.3	0.1	6.0	4.0	1.5	2.1	3.7	9.0	1.4	-8.2	6.8	8.1	1.8	4.9	-1.5	-8.3	-8.6	-3.1	3.4	2.7	3.3	1.1	7.6	0.3
	14.00	3.3	0.5	2.7	4.8	1.1	1.4	6.5	3.2	4.0	-0.4	0.5	3.6	2.0	2.1	2.7	-1.0	2.3	-7.9	-7.3	-8.1	1.0	5.2	-1.7	-7.6	8.5	4.5	3.3	2.7	5.9	1.1	6.5	0.2
	12:00 13:00	3.3	0.2	2.3	4.5	0.7	-0.1	5.5	3.8	6.0-	-11	-0.3	2.3	6.0	2.2	2.2	Ţ	5.9	-8.1	ę. 5.5	9.8	9.0	5.3	-1.7	-7.6	-9.2	-5.6	2.2	1.7	2.1	-1.3	5.5	0.4
123	C 100 100	2.9	0.2	1.8	3.5	0.4	9.0	4.8	4.0	-1.2	-1.3	-1.2	1.0	0.1	1.3	1.6	-1.1	1.0	-8.2	-10.2	89 89	-0.5	5.0	-2.3	-7.6	6.6 6.6	-7.2	0.2	6.0	-0.1	4.4	5.0	-1.3
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	10:00	2.4	0,5	1.0	1.7	0.3	-2.2	1.5	4.2	11	-1.4	-2.1	-2.1	-3.4	-1.4	1.4	0.1	-2.3	89 6)	-13.0	ල 0.6	-3.7	2.9	9.6	-7.7	-11.7	-12.8	4.5	-8.1	-7.3	-12.6	4.2	-3.6
	9:00 00:6	1.9	0.7	8.0	0.1	6.0	3.0	0.3	2.8	-1.3	-1.5	-2.4	4.1	-3.2	-3.5	1.9	0.2	4.	-9.5	-13.8	9.5	4.0	2.2	-10.1	-7.2	-12.6	-15.4	6.5	-11.1	-9.3	-15.1	2.8	4.6
1	8:00		8.0	0.7	-1.4	9.0	-3.1	-0.7	5.6	-1.5	-1.6	-2.7	4 8	-3.0	4.5	2.1	0.5	4.5	-8.7	-14.4	8. 6.	5.9	2.4	တု တိ	-6.3	-11.9	-16.8	-6.2	-11.4	8.8	-14.9	2.6	4.7
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		2.0	0.2	0.5	-0.2	0.2	-3.1	-1.9	2.5	-1.5	-1.2	-2.7	4.3	-3.3	-3.9	0.0	0.7	-3.8	-7.3	-14.0	-10.2	.5.3	9.6	8.0	-5.1	-10.7	-17.8	6.1	-10.9	-10.3	-14.0	3.9	4.5
	4:00 -5:00	2.0	0.2	0.7	0.2	0.3	-2.8	-1.1	178	-1.4	-1.1	-2.5	-3.8	-2.7	4.1	-1.8	0.7	4.0	-6.4	-14.7	-10.5	4.5	3.5	-6.5	4.5	-10.3	-17.8	-6.4	-10.6	-10.1	-13.7	3.5	4.4
0000	3:00 4:00 4:90 5:00	2.2	8.0	8.0	0.0	9.0	-2.9	<del>0</del> .1	2.4	-1.1	-10	-2.6	-3.3	-2.0	-2.0	-2.7	0.1	4.6	4.9	-15.1	-111	4 8	3.3	-7.5	4.2	8.6-	-17.3	6.3	-10.3	-9.8	-13.3	3.3	4.5
100 C		2.6	1.3	8.0	0.0	6.0	-2.7	0.7	5.8	-1.0	-1.1	-2.9	-2.7	-1.2	-1.7	-3.4	-0.2	<b>4</b> .9	-3.1	-15.0	-11.3	-5.1	2.8	8.3 3.3	-3.7	-10.0	-17.0	9.9	-10.1	6.9	-12.7	2.8	4
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	1:00	2.9	1.4	8.0	0.2	1.4	-2.5	5.6	3.3	9.0	-1.2	-2.1	-3.1	-1.1	-0.7	-5.7	-1.8	-5.5	-1.5	-13.3	-14.3	-6.5	2.5	-6.6	-3.2	-9.7	-16.1	-7.0	9.6	-6.5	-117	3.3	-3.8
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#### STATUS FLAG CODES

	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
OR NOVEMBER 2015	24 HOUR AVERAGES FOR NOVEMBER 2015
O - OPERATOR ERROR Κ COLLECTION ERROR	P. POWER FAILURE. G - OUT FOR REPAIR
X MACHINE WALFONGTION	S - DAILY ZERO/SPAN CHECK
. Q QUALITY ASSURANCE.  R FRECOVERY	C Calibration γ Maintenange

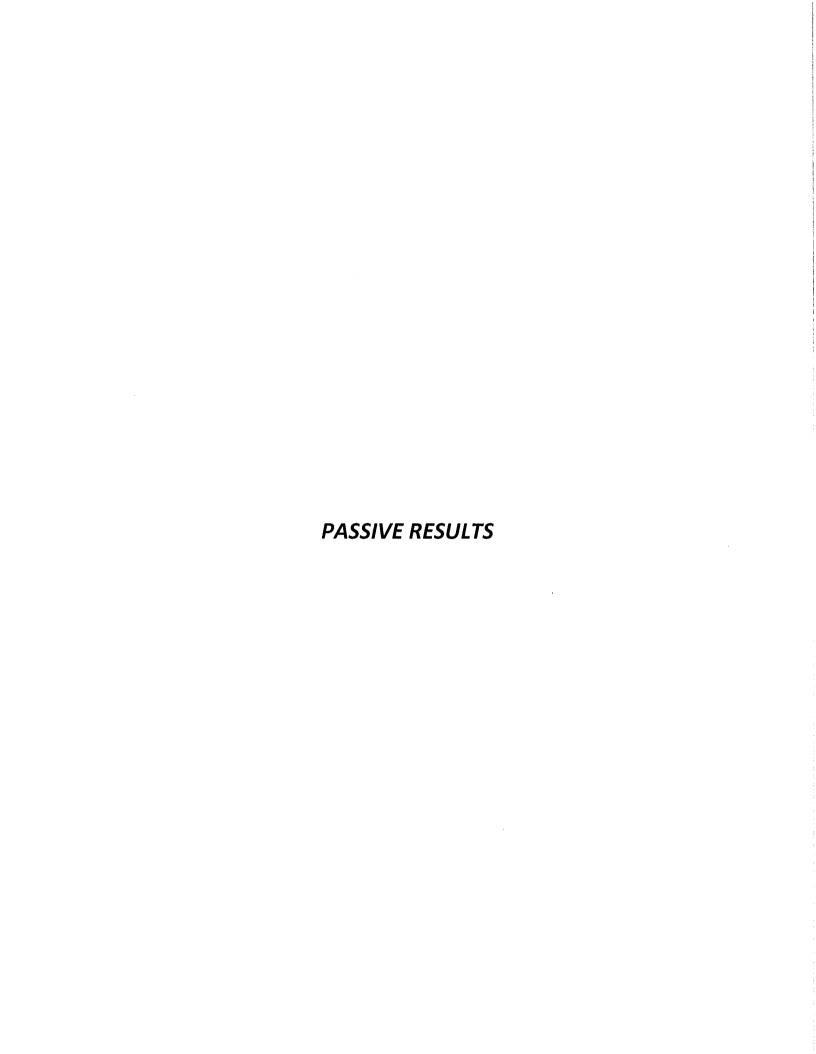
MINIMUM 1-HR AVERAGE:	7	-17.8	ပ	°C @ HOUR(5)	4 2,	ON DAY(S)	56	26,26
MAXIMUM 1-HR AVERAGE:	1	7.6	ပူ	@ HOUR(5)	14	ON DAY(S)	7	
MAXIMUM 24-HR AVERAGE:		2.7	ပူ			ON DAY(S)	7	
						VAR-VARIOUS		
				TANE TANOETA GEORGE			002	<u> </u>
				OFERALIONAL HIVE			27	2
				AMD OPERATION UPTIME:	TIME		100.0	%
STANDARD DEVIATION:	5.17			MONTHLY AVERAGE:			J. 0.E-	°C
			l					



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

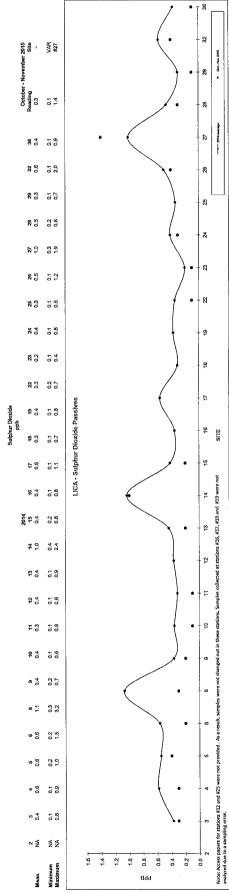
T X

#### APPENDIX II NON-CONTINUOUS MONITORING DATA RESULTS



Passive Summary Results for October - November 2015

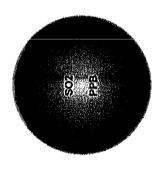
Lakeland Industry & Community Association



## Lakeland Industry & Community Association SO<sub>2</sub> Passive Bubble Map

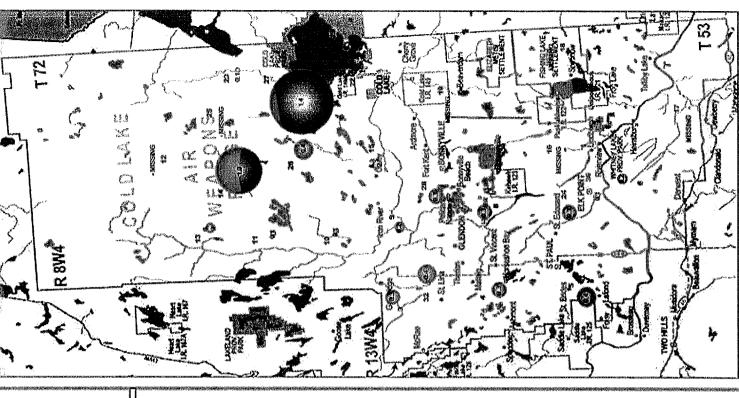
## OCTOBER - NOVEMBER 2015

	DUPLICATE	MA	ZZ	Ź	42	42	AN AN	Z,	Z,	Z		ă	NA	<b>%</b>	MA	NA NA	NA NA	MA	SZ.	AM	C.	AN	Z	77	AN AN	4M	AN A
<b>LATIONS</b>		0.3 PPB	0.3 PPB	0.4 PPB	0.2 PPB	0.3 PPB	0.2 PPB	0.1 PPB	0.1 PPB	MISSING	0.2 PPB	1.0 PPB	0.2 PPB	MISSIMO	MISSING	MISSING	RISSENG	0.1 PPB	0.1 PPS	0.3 PPB	MISSING	0.4 PPB	1.4 PPB	0.3 PPB	0.1 PPS	0.4 PPB	0.1 PPB
PASSIVE STATIONS		3-Therien	4 - Flat Lake	5 – Lake Eliza	6 - Telegraph Creek	8 - Muriel-Kehewin	9 - Dupre	10 - La Corey	11 - Wolf Lake	12 - Foster Creek	13 – Primrose	14 Maskwa	15 - Ardmore	16 - Frog Lake	17 - Clear Range	18 - Fishing Lake	19 - Beaverdam	22 - Cold Lake South	23 - Medley-Martineau	24 - Fort George	25 - Burnt Lake	26 – Mahikan	27 - Mahkeses	28 - Town of Bonnyville	29 - Cold Lake South 2	32 - St. Lina	36 – EIK Point

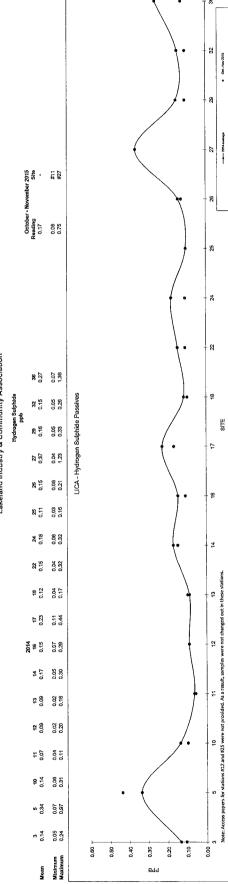


#### Summary

Maximum: 1.4 PPB – Mahkeses Average: 0.3 PPB 'Includes Duplicates Minimum: 0.1 PPB - Various Stations

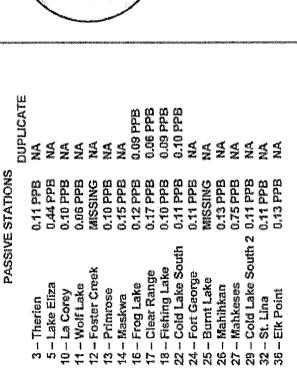


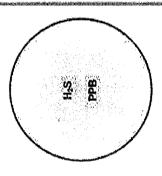
Passive Summary Results for October - November 2015
Lakeland Industry & Community Association



## Lakeland Industry & Community Association H<sub>2</sub>S Passive Bubble Map

## OCTOBER - NOVEMBER 2015







#### Summary

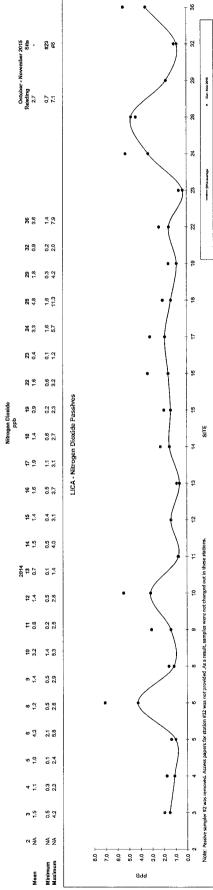
Minimum: 0.06 PPB - Wolf Lake

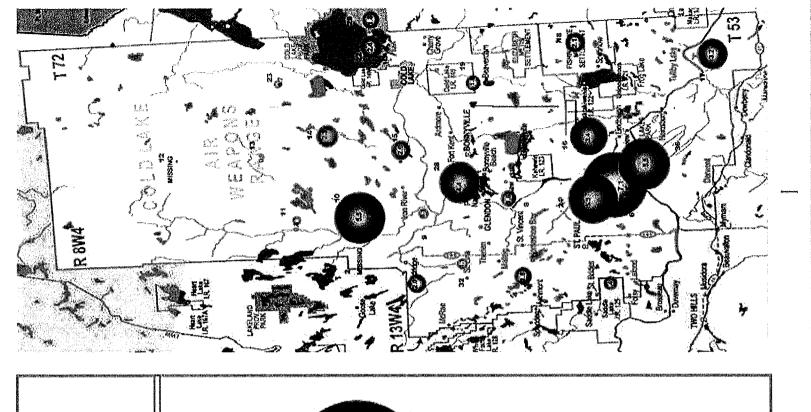
Maximum: 0.75 PPB - Mahkeses

Average: 0.17 PPB (Includes Duplicates)



Passive Summary Results for October - November 2015
Lakeland Industry & Community Association





#### 1.9 PPB 2.4 PPB **444**

0.7 PPB 5.3 PPB 4.4 PPB

22 - Cold Lake South

17 – Clear Range 18 – Fishing Lake 19 – Beaverdam

29 – Cold Lake South 2 32 – St. Lina 36 – Elk Point

28 - Town of Bonnyville 23 – Medley-Martineau 24 – Fort George

5.5 PPB 0.8 PPB 0.9 PPB 2.2 PPB 2.1 PPB 3.2 PPB 3.2 PPB 2.1 PPB 1.6 PPB 1.6 PPB

12 – Foster Creek 13 – Primrose 14 – Maskwa 15 – Ardmore 16 – Frog Lake

Lakeland Industry & Community Association

NO2 Passive Bubble Map

OCTOBER - NOVEMBER 2015

DUPLICATE

PASSIVE STATIONS

1.6 PPB 3.1 PPB

1.4 PPB 7.1 PPB

5 – Lake Eliza 6 – Telegraph Creek

4 - Flat Lake 3 - Therien

3 - Muriei-Kehewin

9 - Dupre

10 – La Corey 11 – Wolf Lake

#### Summary

Minimum: 0.7 PPB - Medley-Martineau Maximum: 7.1 PPB - Telegraph Creek

Average: 2.7 PPB Includes Duplicates

October - November 2015 Roading Site 20.60 17.30 #10 28.33 #8 35 ผู 8 - 22 - 83 36 27.3 13.1 34.2 В 32 31.3 40.6 <u>Ф</u> 24.8 15.4 36.7 28 24.5 18.2 31.3 18 24 25.9 17.8 39.0 4 25 44 8 39 44 8 36 24.7 16.4 32.4 19 29.1 20.3 40.7 15 LICA - Ozone Passives STE 18 24.0 14.9 33.6 4 28.8 19.9 38.0 ŭ 16 28.7 18.1 43.7 Note: Passive sampler #2 was removed. Access papers for station #12 was not provided. As a result, samples were not changed out in these stations. 15 26.0 16.5 36.8 ᄗ 7 2014 13 27.8 18.6 40.2 9 . 12 25.5 16.4 35.2 11 26.8 13.9 51.2 10 24.3 14.5 37.6 9 27.1 17.8 42.3 28.6 20.1 41.5 6 25.6 17.0 37.9 5 28.2 19.9 38.0 20.0 20.0 45.6 3 27.3 18.7 40.5 n \$ \$ \$ 0.00 849 8 0.00 8,0 50.0 40.0 Mean Minimum Maximum

Passive Summary Results for October - November 2015 Lakeland Industry & Community Association

### Lakeland Industry & Community Association O<sub>3</sub> Passive Bubble Map

## OCTOBER - NOVEMBER 2015

#### PASSIVE STATIONS

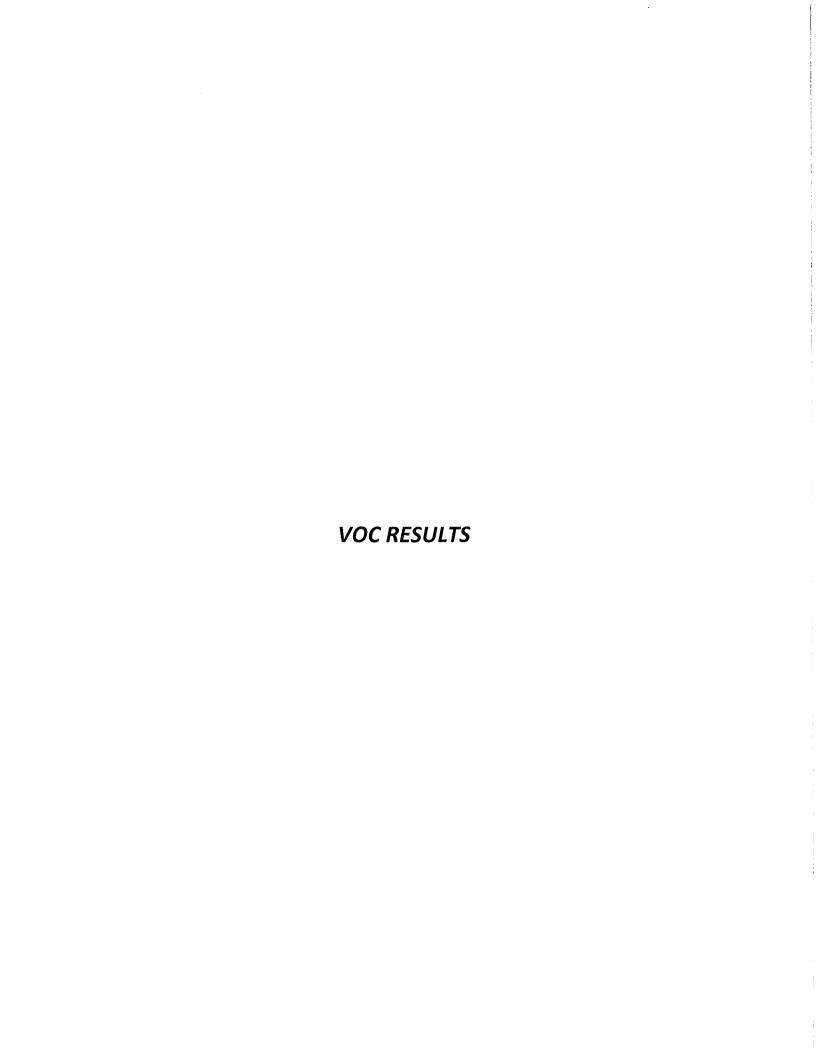
21.06 PPB 25.89 PPB 20.53 PPB 17.84 PPB 26.33 PPB 17.30 PPB 17.58 PPB 22.15 PPB 22.63 PPB 18.15 PPB	17.68 PPB 18.95 PPB 24.44 PPB 18.63 PPB	
3 - Therien 21.06 4 - Flat Lake 25.89 5 - Lake Eliza 20.53 6 - Telegraph Creek 17.84 8 - Muriel-Kehewin 26.33 9 - Dupre 21.49 1 - Wolf Lake 17.30 1 - Wolf Lake 17.58 2 - Froster Creek 17.58 3 - Prinnose 22.15 4 - Maskwa 24.83 5 - Ardmore 22.63 7 - Clear Range 19.91 8 - Frshing Lake 20.63 9 - Beaverdam 24.64 2 - Cold Lake South 18.75 3 - Medley-Martineau 18.96 4 - Fort George 17.62	myville outh 2	

#### Summary

Minimum : 17.30 PPB - La Corey Maximum: 26.33 PPB - Murfel-Kehewin Average: 20.60 PPB \*Includes Duplicates

Passive Sampler Data Sheet for LICA October-November

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Sample ID: 15110054-001

Customer ID: LICA

Cust Samp ID: LICANOCICLSINOV 2, 2015 priority. Normal

## Maxxam

VOC Sample Collection Data Sheet

2,919	1530	(b) SION ST 200	NOV 6, 20 65 @
Sampler S/N:	Canister ID:	Canister Installation Date/Time: $\mathscr{O}_{\mathcal{E}} \not=$	Canister Removal Date/Time: 1001 6
LICA	pold Lake South	LICA 0/	LICA ( VOC/ CLS/ NOV 2, 2015
Client:	Location:	Station ID:	Field Sample ID: 2

Elapsed Time

End Time (NIST)

Start Time (INST)

Sample Date

Date and Time Information

24.0 (Hours)

00:00

00:00 Nov 2, 2015

2015

Nov 2,

	Flow Settings	S
 Meter Reading   Pot Set Pt	Pot Set Pt	Pump Pressure
 (sccm)		Setting (psig)
0:01	6.52	48

formation	Final Canister	Pressure (psig)	75.0
Canister Information	Initial Canister	Vacuum (inHg)	27.0
<u></u>		<b></b>	LANGUAGO SAN

Canister valve open prior to sampling?: (YES) Canister valve closed prior to disconnection? Timer set to 0.00 minutes prior to sampling?

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rapor	Yaunpar
Alex Yakujoov	Hex
By H	20
in - ui	out -
Sample ,	Sample
Technician Signiture:	

Date: now 6, 2015



Date: NOVEMBER 2,2015

Canister ID: 1530

PARAMETERS	concentration (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	0,04
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	0.05
·	0.03
1,2-Dichloroethane	< 0.01
1,2-Dichloropropane	
1,3,5-Trimethylbenzene	0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	0.9
1-Butene	< 0.02
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	0.02
2-Methylheptane	0.01
2-Methylhexane	0.03
2-Methylpentane	0.08
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.04
Acetone	1.5
Acrolein	< 0.3
Benzene	0.13
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.91
Carbon tetrachloride	0.11
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.52
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	< 0.02
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	2.1
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.28



Date: NOVEMBER 2,2015

Canister ID: 1530

PARAMETERS	CONGENTRATION (PPB)
Freon-113	0.08
Freon-114	0.02
Freon-12	0.58
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.21
Isopentane	0.28
Isoprene	0.01
Isopropyl alcohol	0.5
Isopropylbenzene	< 0.01
m,p-Xylene	0.11
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	1.40
Methyl ethyl ketone	0.5
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.03
Methylcyclopentane	0.04
Methylene chloride	< 0.3
n-Butane	0.55
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.04
n-Hexane	0.05
n-Nonane	0.02
n-Octane	< 0.02
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	3.8
o-Ethyltoluene	0.01 0.04
o-Xylene	< 0.04
p-Diethylbenzene	< 0.04
p-Ethyltoluene	0.07
Styrene	< 0.04
Tetrachloroethylene Tetrahydrofuran	< 0.4
Toluene	0.15
trans-1,2-Dichloroethylene	< 0.01
trans-1,2-Dichloropropylene	< 0.04
trans-1,3-Dictioropropylene trans-2-Butene	< 0.04
trans-2-Buterie trans-2-Pentene	0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02
vinyi cilionae	~ U.UZ

Sample ID: 15110089-001

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 8,

Priority: Normal

### Maxxam

RECEIVED NOV 16 2015

AIR FCD-01320/2

VOC Sample Collection Data Sheet

Z Sampler S/N: Canister Installation Date/Time: Canister ID: South Ó LICA LICA Location: Client: Station ID:

4			
	Elapsed Time	(Hours)	24.0
nformation	End Time	(MST)	401 6, 2015 46V 9, 2015
Date and Time Information	Start Time	(MST)	ı i
	Sample Date		NOV 8, 2015

	Flow Settings	S
Meter Reading	Pot Set Pt.	Meter Reading   Pot Set Pt.   Pump Pressure
(sccm)		Setting (psig)
0.0	6.52	24

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2015 20K

101

2015 Canister Removal Date/Time:

100

15701

Field Sample ID: LLCA/VOC/

£919 5677

Canister Information	Unitation
Initial Canister	Final Canister
Vacuum (inHg)	Pressure (psig)
Fy.	23,5

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

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		Sample in - by Alex Yakeyou	Her Yauuper
		by Alex	20
		in	ceet-
		Sample	Sample ceet-
		Technician Signiture:	

Date: Now 10, 2005



Date: NOVEMBER 8 , 2015

Canister ID: \$5677

PARAMETERS	CONCENTRATION (PPE)
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	0.07
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	0.07
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.05
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	0.01
2,3-Dimethylbutane	0.08
2,3-Dimethylpentane	0.05
2,4-Dimethylpentane	0.04
2-Methylheptane	0.02
2-Methylhexane	< 0.01
2-Methylpentane	0.13
3-Methylheptane	< 0.02
3-Methylhexane	0.07
3-Methylpentane	0.09
Acetone	2,4
Acrolein	< 0.3
Benzene	0.22
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.02
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.57
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Buterie	
Cyclohexane	< 0.02 0.15
·	
Cyclopentane Dibromochloromethane	0.04
	< 0.01
Ethanol  Ethyl acetate	1.1
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.29



Date: NOVEMBER 8 , 2015

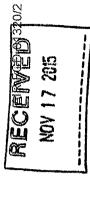
Canister ID: \$5677

PARAMETERS.	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.59
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.51
Isopentane	0.51
Isoprene	0.02
Isopropyl alcohol	0,6
Isopropylbenzene	< 0.01
m,p-Xylene	0.15
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	0.18
Methylcyclopentane	0.14
Methylene chloride	< 0.3
n-Butane	0.99
n-Decane	< 0.06
n-Dodecane	3.8
n-Heptane	0.07
n-Hexane	0.21
n-Nonane	0.04
n-Octane	0.03
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	1.6
o-Ethyltoluene	0.02
o-Xylene	0.05
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran Teluana	< 0.4
Toluene	0.44
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene trans-2-Butene	< 0.04 < 0.01
trans-2-Butene trans-2-Pentene	
	< 0.02 < 0.04
Trichloroethylene Vinyl acetate	< 0.04 < 0.4
•	< 0.4 < 0.02
Vinyl chloride	₹ 0.02

Sample ID: 15110105-003

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 14, 2014



## Maxxam

## VOC Sample Collection Data Sheet

@ 6 7919 2643 ADIS 2015 0 101 Canister Removal Date/Time: Canister Installation Date/Time: Sampler S/N: Canister ID: Field Sample ID: LICH VOC/ LLS / NOV 14, 2015 Soie Ch LICA Location: \_\_ Station ID: \_\_ Client:

Flow Settings	Meter Reading Pot Set Pt. Pump Pressure	Semily (pag)	
Flow	Meter Reading Pot S	-	-

Sample Date	Start Time	End Time	Elapsed Time
	(MST)	(MST)	(Hours)
1.00	00.00	00:00	;
NOV 14, 2015	NOV 14, 2015	12 15, 201 34.C	ングン
a distanta de la formación de			

Date and Time Information

22.0 23.9

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

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Alex Yampoor	by Hix Yaumpor
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Sample in	Sample
Technician Signiture:	

Date: NOV 16, 2045



Date: NOV

Freon-11

NOVEMBER 14 , 2015

Canister ID: 2643

1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.05
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dloxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.11
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	0.03
2,3-Dimethylbutane	0.09
2,3-Dimethylpentane	0.08
2,4-Dimethylpentane	0.06
2-Methylheptane	0.04
2-Methylhexane	0.11
2-Methylpentane	0.31
3-Methylheptane	0.02
3-Methylhexane	0.12
3-Methylpentane	0.18
Acetone	< 0.4
Acrolein	< 0.3
Benzene	0.28
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.07
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.56
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	0.02
Cyclohexane	0.15
Cyclopentane	0.06
Dibromochloromethane	< 0.01
Ethanol	1.9

0.35



Date: NOVEMBER 14, 2015

Canister ID: 2643

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	0.02
Freon-12	0.63
Hexachloro-1,3-butadiene	< 0.50
Isobutane	1.19
Isopentane	1.31
Isoprene	0.03
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.21
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	0.19
Methylcyclopentane	0.18
Methylene chloride	< 0.3
n-Butane	2.33
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.11
n-Hexane	0.29
n-Nonane	0.02
n-Octane	0.05
n-Pentane	0.9
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.02
o-Xylene	0.07
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.39
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	0.04
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Cust Samp ID: LICA/VOC/CLS/NOV 20, 2015

Customer ID: LICA

AIR FCD-01320/2

Maxxam

VOC Sample Collection Data Sheet

Sampler S/N: Canister Installation Date/Time: Canister ID: Bosch Cold Lake Location: Client: Station ID:

614 Alberta Innovaies - Technology Futures

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NOV 27 2015

101 CS, 101 1101 CLS/ NOV 20, 2015 Canister Removal Date/Time:

Field Sample ID: Luc# | VOC+

	Time	(S.	ć	$\overline{\ }$
	Elapsed Time	(Hours)		x7.0
nformation	End Time	(MST)	00:00	WON 20, 2015 LEN 21, 2015
Date and Time Information	Start Time	(MST)	80:00	110x 20, 2015
	Sample Date		0100	MON ANI ANI

	Flow Settings	S
Meter Reading   Pot Set Pt.	Pot Set Pt	Pump Pressure
(sccm)		Setting (psig)
10.0	6.52	48

formation	Final Canister	Pressure (psig)	24.0
Canister Information	Initial Canister	Vacuum (inHg)	6.3%

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

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Sample in - by Alle Gauges Technician Signifure:

Date; NOV 23, 2015



Date: NOVEMBER 20 , 2015

Canister ID: S5673

PARAMÉTERS	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	0.04
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	0.04
2,3-Dimethylpentane	0.02
2,4-Dimethylpentane	0.02
2-Methylheptane	0.02
2-Methylhexane	0.04
2-Methylpentane	0.09
3-Methylheptane	< 0.02
3-Methylhexane	0.04
3-Methylpentane	0.05
Acetone	1.0
Acrolein	< 0.3
Benzene	0.15
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.03
Carbon tetrachloride	0.11
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.56
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.09
Cyclopentane	0.03
Dibromochloromethane	< 0.01
Ethanol	0.5
Ethyl acetate	< 0.4
Ethylbenzene	0.02
Freon-11	0.34



Date: NOVEMBER 20 , 2015

Canister ID: \$5673

PARAMETERS	®®€CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.59
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.33
Isopentane	0.33
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.04
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	0.12
Methylcyclopentane	0.07
Methylene chloride	< 0.3
n-Butane	0.65
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.04
n-Hexane	0.10
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	0.10
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	< 0.01
trans-2-Pentene	< 0.02
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15110237-001

Customer ID: LICA

LICAVOC/ELK/NOV 26, 2015 Cust Samp ID:

## Maxxam

AIR FCD-01320/2

NOV 3.0 2015

## VOC Sample Collection Data Sheet

Alberta Innovates - Technology Futures 7919 S 56 42 707 Sampler S/N: Canister Installation Date/Time: Nev 26, 2015 Canister Removal Date/Time: Canister ID: JCA Ø South ると Field Sample ID: 1/64/ Location: Client: Station ID:

	Date and Time Information	nformation	
Sample Date	Start Time	End Time	Elapsed Time
	(MST)	(MST)	(Hours)
	00:00	00:00	0110
NOV 26, 2015	NOV 26 4015	1104 27 201	£ ×7.0

7	riow semings	S
Meter Reading	Pot Set Pt.	Meter Reading   Pot Set Pt.   Pump Pressure
(sccm)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Setting (psig)
0.01	6.52	44

オンジの

ormation	Final Canister	Pressure (psig)	23.3
Canister Information	Initial Canister	Vacuum (inHg)	22.0

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

Comments:

Sample in - by Alex Yourspoor Technician Signiture:

Date, Nov 27, 2015



Date: NOVEMBER 26,2015

Canister ID: \$5672

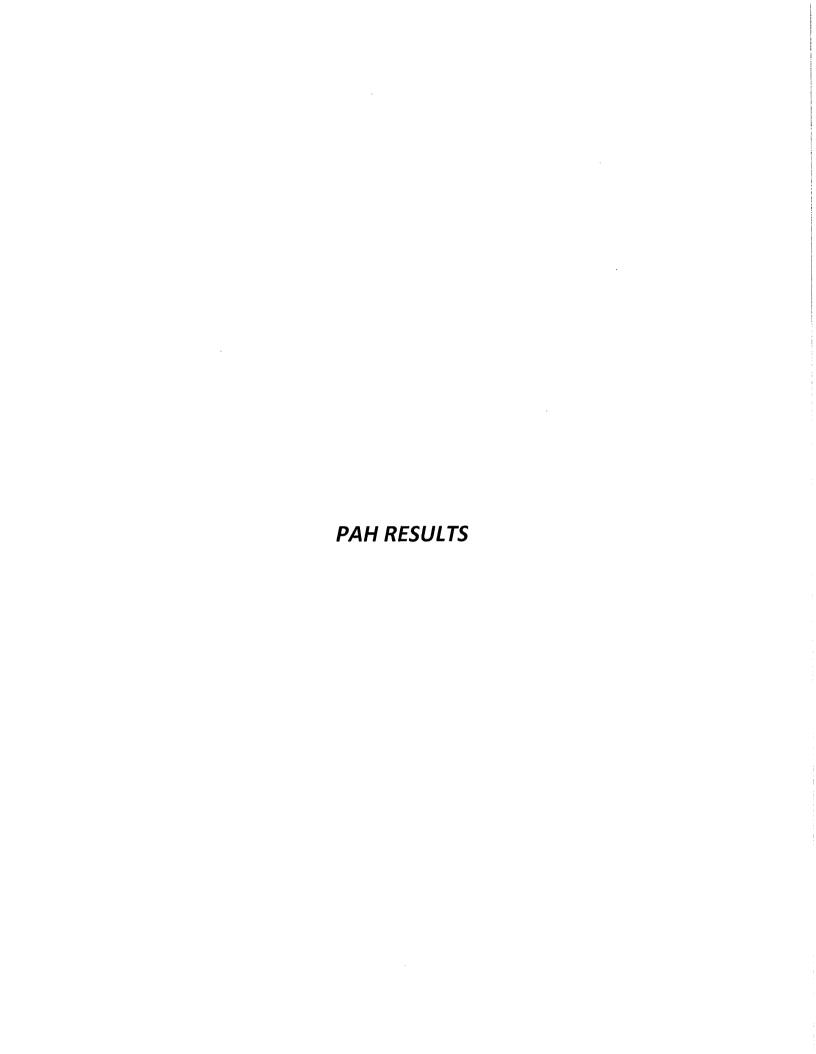
PARAMETERS	CONCENTRATION (PPI
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	< 0.03
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 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	0.06
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.03
2,3,4-Trimethylpentane	0.02
2,3-Dimethylbutane	0.09
2,3-Dimethylpentane	0.06
2,4-Dimethylpentane	0.05
2-Methylpentane	0.04
2-Methylhexane	0.08
2-Methylpentane	0.20
3-Methylheptane	0.02
3-Methylhexane	0.08
3-Methylpentane	0.11
Acetone	1.0
Acrolein	< 0.3
Benzene	0.27
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0,11
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.47
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.24
Cyclopentane	0.07
Dibromochloromethane	< 0.01
Ethanol	< 0.3
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.33



Date: NOVEMBER 26,2015

Canister ID: \$5672

Freon-113	0.06
Freon-114	0.02
Freon-12	0.52
Hexachloro-1,3-butadlene	< 0.50
Isobutane	0.79
Isopentane	0.59
Isoprene	< 0.01
Isopropyi alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene m-Diethylbenzene	0.07 < 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	0.31
Methylcyclopentane	0.18
Methylene chloride	< 0.3
n-Butane	1.44
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.09
n-Hexane	0.21
n-Nonane	0.02
n-Octane	0.05
n-Pentane	0.5
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	< 0.5
o-Ethyltoluene	0.01
o-Xylene	0.03 < 0.04
p-Diethylbenzene p-Ethyltoluene	< 0.04
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.19
rans-1,2-Dichloroethylene	< 0.01
ans-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



Customer ID: LICA
Cust Samp ID: LICAPUF/CLS/Nov 2, 2015

Priority: Normal

### Maxxam

# Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Puf+ S/N: Location:  $\frac{\mathcal{Lo}\mathcal{A}}{\mathcal{Lo}\mathcal{A}} \frac{\mathcal{Loc}\mathcal{A}}{\mathcal{Loc}\mathcal{A}} \frac{\mathcal{Location}}{\mathcal{LICA}} \frac{\mathsf{Puf+S/N:}}{\mathcal{LICA}} \frac{\mathsf{Motor S/N:}}{\mathcal{LICA}}$  Station ID:  $\frac{\mathsf{LICA}}{\mathcal{Location}} \frac{\mathcal{Location}}{\mathcal{Location}} \frac{\mathsf{Location}}{\mathcal{Location}} \frac{\mathsf{Notor S/N:}}{\mathcal{Location}}$  Field Sample ID:  $\frac{\mathcal{Location}}{\mathcal{Location}} \frac{\mathcal{Location}}{\mathcal{Location}} \frac{\mathsf{Notor S/N:}}{\mathcal{Location}} \frac{\mathsf{Notor S/N:}}{\mathcal{Location}}$ 

Puf+ S/N: 7E-06Motor S/N: 7/3P / 900-7020on Date/Time: 9ct/3P/205al Date/Time: 80ct/6/205

Sample Date and Time Information
Sample Date Start Time End Time Elapsed Time (MST) (MST) (Hours)

ADV 2, 2015 DOV 2, 2015 ADV 3, 2015 ADV 3, 2015

	OFF Prep	Date	ng
Information	Puf Expiration	Date	5/0
PUF and QFF Information	Date	Shipped	pļa
PU	Data Dagainad	Date Necelyed	1/9

Set Flow Rate (slpm):	230	
•		Avera
Date of Last Calibration: 05 - May -	05- Hay - 10	Pressure(
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Sampling DataAverageAverageFlowAverageVolumePressure(mmHg)(Ostd slpm)Tempurature ( C)(Vstd m³)7 (Ostd slpm)7,2 Ostd m³)

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

	and the second s	

ALLA Yaunper Sample out Technician Signiture:

Date: Nov 6, 40 WS



### Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 2 , 2015

PUF S/N: TE06

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.09
2-Methylnaphthalene	0.16
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a) anthracene	< 0.01
Acenaphthene	0.08
Acenaphthylene	0.41
Acridine	< 0.01
Anthracene	0.25
Benzo(a)anthracene	0.04
Benzo(a)pyrene	0.01
Benzo(b,j,k)fluoranthene	0.15
Benzo(c)phenanthrene	0.06
Benzo(e)pyrene	0.04
Benzo(ghi)perylene	0.05
Chrysene	0.12
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.49
Fluorene	0.38
Indeno(1,2,3-cd)pyrene	0.04
Naphthalene	0.17
Perylene	0.04
Phenanthrene	1.65
Pyrene	0.41
Retene	0.19

Sample ID: 15110089-002

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Nov 8, 2015

priority: Normal

## Maxxam

RECEIVED NOV 1'6 2015

AIR FCD-01321/2

Hi-Vol PUF+ Sample Collection Data Sheet

Installation Date/Time: Removal Date/Time: NOV 6, 2015 South (572 LICA La 40 Field Sample ID: 4/04 Location: Station ID: Client:

6.20 @ 03:06 @ 07: 43 D 13-01 107 - 001 かな Puf+ S/N: Motor S/N:

2018 18

Elapsed Time 8. V.O. (Hours) (MST) 00:00 00:00 00:00 End Time Date and Time Information 100 8, 2015 Start Time (MST) NOV 8, 2015 Sample Date

QFF Prep 10 Date Puf Expiration **PUF and QFF Information** 0/11 Shipped Date 0/4 Date Received 0/0

> 05 - May - 10 480 Date of Last Calibration: Set Flow Rate (slpm):

	Sampling Data	ig Data	
Average	AverageFlow	Average	Volume
Pressure(mmHg)	(Qstd slpm)	Pressure(mmHg)  (Qstd slpm)  Tempurature ( C)  (Vstd m³)	(Vstd m³)
801	229	3.30	330.20

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

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Sample	Sample	
Technician Signiture:		



### Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 8 , 2015

PUF S/N: P1301

PARAMETERS	concentration (UG)
1-Methylnaphthalene	0.06
2-Methylnaphthalene	0.09
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.04
Acenaphthylene	0.07
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	0.01
Benzo(b,j,k)fluoranthene	0.09
Benzo(c)phenanthrene	0.03
Benzo(e)pyrene	0.04
Benzo(ghi)perylene	0.04
Chrysene	0.05
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,I)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.11
Fluorene	0.29
Indeno(1,2,3-cd)pyrene	0.03
Naphthalene	0.12
Perylene	0.04
Phenanthrene	0.47
Pyrene	0.09
Retene	0.11

400-cururia.

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Nov 14, 2014

## Maxxam

RECEIVED

NOV 17 2015

Hi-Vol PUF+ Sample Collection Data Sheet

Client:

LICA Location: Station ID:

Field Sample ID: LICH / PULF / CLS | NOV 14, 2015 LICA

Elapsed Time

End Time

(MST)

(MST)

NOV 14, 2015

Date and Time Information

Start Time

Sample Date

250 (Hours)

114/15, 2015

12 1/ ray

00:00

んりゃ Puf+ S/N: Motor S/N: Installation Date/Time: Removal Date/Time:

(3) 80-2015 1500

かんこせの 8:50 20.5

QFF Prep Date 0/0 Puf Expiration PUF and QFF Information Date 0/0 Shipped Date 2/4 Date Received 2/9

	Volume	(Vstd m³)	330,20
J Data	Average	empurature (C)	-1.10
Sampling Data	AverageFlow (Ostd class)	(Illidia man)	
,	Average ressure(mmH <sub>0</sub> )	706 33 april) Tempurature (C) (Vstd m <sup>3</sup> )	

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

05 - May -

Date of Last Calibration:

280

Set Flow Rate (slpm):

Comments:

by Alex Yakupou by Mex Yareyou Sumple out-Sample in-Technician Signiture:

Date! Nov 16, 2015



### Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 14,2015

PUF S/N: TE08

1-Methylnaphthalene	0.84
2-Methylnaphthalene	1.28
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.10
Acenaphthylene	0.34
Acridine	< 0.01
Anthracene	0.04
Benzo(a)anthracene	0.03
Benzo(a)pyrene	0.01
Benzo(b,j,k)fluoranthene	0.11
Benzo(c)phenanthrene	0.03
Benzo(e)pyrene	0.04
Benzo(ghi)perylene	0.05
Chrysene	0.07
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.14
Fluorene	0.33
Indeno(1,2,3-cd)pyrene	0.03
Naphthalene	1.10
Perylene	0.04
Phenanthrene	0.52
Pyrene	0.11

Sample ID: 15110230-001

Customer ID: LICA

Cust Samp ID: LICAVOC/CLS/NOV 20, 2015

## Maxxam

AIR FCD-01321/2

72-0/ Alberta Innovates - Technology Futures Hi-Vol PUF+ Sample Collection Data Sheet

16 B

2045

Installation Date/Time:

100 - 1020 Motor S/N: Puf+ S/N: South LICA 1010 Client: Location:

Removal Date/Time: Station ID:  $\frac{\text{LICA} \ \emptyset 4}{\text{LIC4} \ / \text{PUF}/\text{CLS}/\text{Nov } 20} \text{ RDIS}$  Field Sample ID:  $\frac{\text{LIC4}/\text{PUF}/\text{CLS}/\text{Nov } 20}{\text{ADIS}} \text{ RDIS}$ 

Date and Time Information	e Date Start Time End Time Elapsed Time (MST) (MST) (Hours)	101
	Sample Date	NOV 20, 2015

05. Date of Last Calibration: Set Flow Rate (slpm):

	PUF and QFF Information	Information	
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
nla	υlq	1/9	nle

	Sampling Data	ig Data	
Average	AverageFlow	Average	Volume
Pressure(mmHg)	(Ostd slpm)	Pressure(mmHg)  (Qstd slpm)  Tempurature ( C)  (Vstd m³)	(Vstd m³)
215	229	· 6.8 -	330.19

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

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Sample in - by Alex Yauripor	Sample out. by Alex Vailaged
* Technician Signiture:	V

Date: NOV 23, 2015



### Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 20 , 2015

PUF S/N: TEO

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.15
2-Methylnaphthalene	0.21
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.06
Acenaphthylene	0.03
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	0.02
Chrysene	< 0.01
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	0.02
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.04
Fluorene	0.12
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.19
Perylene	< 0.01
Phenanthrene	0.18
Pyrene	0.03
Retene	0.06

Sample ID: 15110237-001

Customer ID: LICA

Cust Samp ID: LICAVOC/ELK/NOV 26, 2015

## Maxxam

# Hi-Vol PUF+ Sample Collection Data Sheet

Puf+ S/N: Motor S/N: South LICA Lake Field Sample ID: ことを Pロドー Location: Pold Client: Station ID:

100-1020

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REGENTED NOV 3.0 2015	Alberta Innovates - Technology Futures

14:52	60:42	,	Information	Puf Expiration	Date		ηά
6) 230K	2015		PUF and QFF Information	Date	Shipped		Ja
Nov '23.	NOV 27, 2015 D) 60:42				Date Received		2 2
Installation Date/Time: New '23, ADLS (2)	LICA / P は F / c L S / ハロン 26, 20 い Removal Date/Time:						
Insta	26, 2015 Re			Elapsed Time	(Hours)		24.0
LICA O'	c281 NOV.		nformation	End Time	(MST)	00:00	NOV 26, 2015 NOV 27,2015
Ĭ	1124/ PUF		Date and Time Information	Start Time	(MST)	00:00	NOV 26, 2015
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QFF Prep Date 1/2

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Ver 27,2015	٠	130
NOV 26, 2015 Nov 27, 2015		Set Flow Rate (slpm):
Nov 26, 2015		Set

Sample Date

	Sampling Data	g Data	
Average	AverageFlow	Average	Volume
Pressure(mmHg)	(Ostd slpm)	Pressure(mmHg) (Ostd slpm)   Tempurature ( C)   (Vstd m³)	(Vstd m³)
722	223	-10.0°	330.17

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Son May

Date of Last Calibration:

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

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	Technician Signiture:	

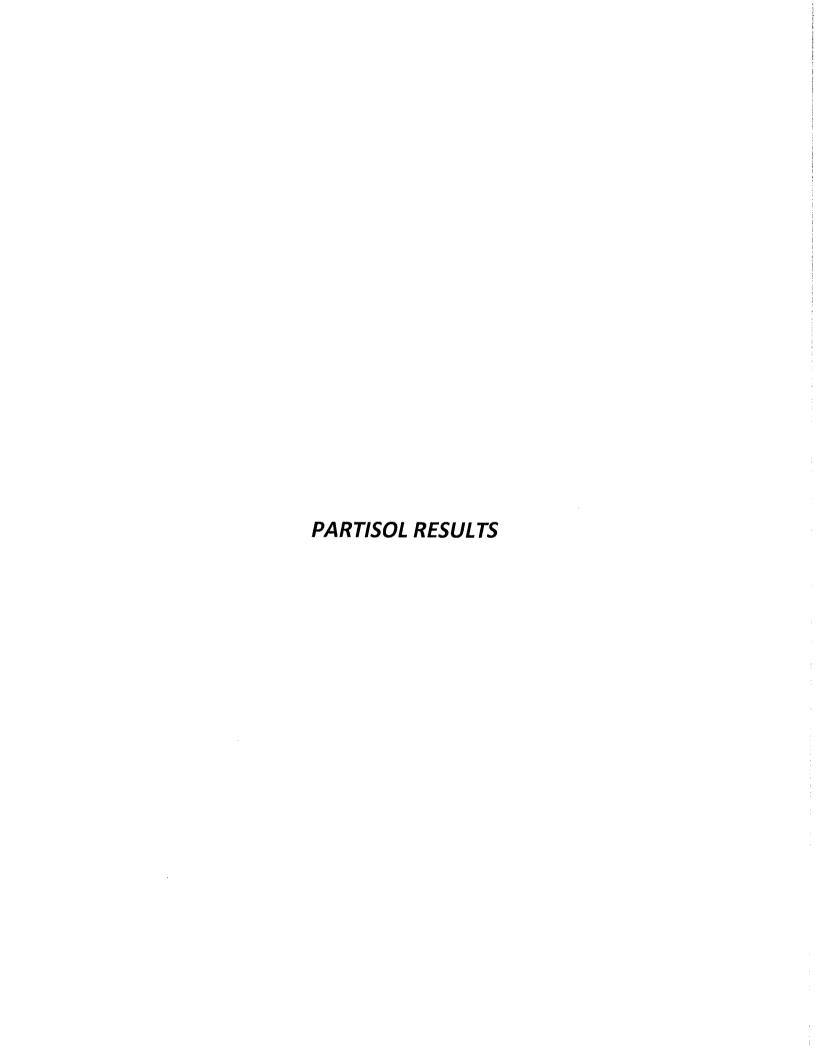


### Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 26 , 2015

PUF S/N: TE07

1-Methylnaphthalene	0.25
2-Methylnaphthalene	0.36
3-Methylcholanthrene	< 0.01
,12-Dimethylbenz(a)anthracene	0.01
Acenaphthene	0.12
Acenaphthylene	0.05
Acridine	< 0.01
Anthracene	0.02
Benzo(a)anthracene	0.02
Benzo(a)pyrene	0.03
Benzo(b,),k)fluoranthene	0.09
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	0.03
Benzo(ghi)perylene	0.05
Chrysene	0.05
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	0.04
Dibenzo(ah)anthracene	0.01
Fluoranthene	0.13
Fluorene	0.27
Indeno(1,2,3-cd)pyrene	0.03
Naphthalene	0.43
Perylene	< 0.01
Phenanthrene	0.37
Pyrene	0.09
Retene	0.38



Sample ID: 15110053-001

Customer ID: LICA

Cust Samp ID: LICA P5011870

### Partisol Sample Data Sheet

Priority: Normal				NOV 0 9 201
Date Sampled:	Nov 2, 201	5		
Location:	Colel Lake	South		
Parameter:	TSP	PM10	PM2.5	
Filter #:	11CA P50 11	870		
	٠			
Start Time	00:00 NOV .	2, 2015		
End Time	00:00 NOV			
Status	OK	···		
Std Vol	24.435	m		
Valid Time	24:00	-		
Total Time	24.0	<u></u>		
Comments: We	ather Conditions,	etc.		
	Market and the second s			And the second s
***************************************				
Technician Sigi	nature:	Alex Ya	kiepov	6,2015
		Date	· Nov	6,2015
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

Note: Beginning & End Date should be same date

7) "Stop/Run"

Sample ID: 15110086-001

Customer ID: LICA

Cust Samp ID: LICA P5011867

Priority: Normal

### Partisol Sample Data Sheet

AIR FCD-01318/2

RECEIVED NOV 1 6 2015

Date Sampled: Nov 8, 2015 Location: Cold Lake Sece-of Parameter: TSP PM10 PM2.5 Filter #: LICA PSO 11 867 **Start Time** 00:00 NOV 8, 2015 **End Time** 00:00 NOV 9, 2015 **Status** OK Std Vol 24.241 24:00 **Valid Time Total Time** 24.0 Comments: Weather Conditions, etc.

Programming

1) Make sure system is in "Stop Mode"

Technician Signature:

- 2) "ESC" to Time Screen then "Program"
- 3) Enter Beg 1

0:00

4) Enter Dur

24:00:00 dd-Aug

5) Enter Beg D 6) Enter End D

Note: Beginning & End

dd-Aug

Date should be same date

Date: Nov 10, 2015

7) "Stop/Run"

Sample ID: 15110104-001

Customer ID: LICA

Cust Samp ID: LICA P50011868

### Partisol Sample Data Sheet

Priority: Normal

Alberta	Innovates -	Technology	<b>Futures</b>
---------	-------------	------------	----------------

Date Sampled:	NOV 14, 2015	ana	Alberta Innovates - Techno
Location:	Cold Lake So	ree th	<del></del>
Parameter:	TSP	PM10	(PM2.5)
Filter #:	LICA PSO OL	1 8 68	
Start Time	00:00 NOV 1	14, 2015	
End Time	00:00 NOV 1	15, 2015	
Status	ok	_	
Std Vol	24.14/	_	
Valid Time	23:42		
Total Time	24.0	-	
Comments: We	ather Conditions,	etc.	
			1900/1904 1904 1906 1906 1906 1906 1906 1906 1906 1906
Technician Sigi	nature:	Alex Yan	
		Date	: Nov 16, 2015
Programming 1) Make sure system 2) "ESC" to Time So	n is in "Stop Mode" reen 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"

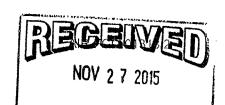
Note: Beginning & End Date should be same date Sample ID: 15110229-001

Customer ID: LICA

Cust Samp ID: LICA 5011869

Priority: Normal

### Partisol Sample Data Sheet



es - Technology Futures

Date Sampled:	NOV 20	, 2015	•			Alberta Innovate
Location:	Cold La	ke Soc	eth			
Parameter:	TS	SP.	PM10		PM2.	5
Filter #:	LICA	50 11	£69			
Start Time	na:00	100	מות	<b>₹</b>		
	00:00		<del>-</del>			
Status		K				
Std Vol	25.	794	•			
Valid Time	2	4:00	<u>.</u>			
Total Time	24	4.0				
Comments: We	ather Cor	iditions,	etc.			
MANAGAM WALIO AND A SINGLE AND	**************************************	of Artifle and Bod springer comment and the above and account of	ayangan pajah-an karibi mawalaha bilan karayen pag	TOTOMOROUS MANAGEMENT AND	**************************************	##formsforlingshippings.cophologics secretaristic uses the quality spig-
	<del>lander a stat les gardins juis reine</del> n sans année par le sans année par le sans année par le sans année par le s		THE THE STREET COMMENTS AND RECORDS AND RE		ah ay a ah an fari a an a an	
				***************************************		the section of the se
Technician Sig	nature:			Alex }	(ακωρι	3V
			Z	ate:	Nov	23, 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 6) Enter End D dd-Aug

Note: Beginning & End Date should be same date

7) "Stop/Run"

dd-Aug

Customer ID: LICA

Cust Samp ID: LICA # P5012875

### **Partisol Sample Data Sheet**

Priority: Normal

Date Sampled:	NOV	26,	2015
---------------	-----	-----	------

Location:

Cold take South

Parameter:

TSP

PM10

Filter #:

LICA PSO12775

**Start Time** 

00:00 NOV 26, 2015

**End Time** 

CO: 00 NOV 24, 2015

**Status** 

 $\mathcal{O}\mathcal{K}$ 

Std Vol

25.736

Valid Time

24:00

**Total Time** 

24.0



	Comments:	Weather	Conditions,	etc.
--	-----------	---------	-------------	------

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### **Technician Signature:**

PM2.5

Alex Yaxupor Pate: Nov 27, 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 6) Enter End D dd-Aug

dd-Aug

Note: Beginning & End Date should be same date

7) "Stop/Run"

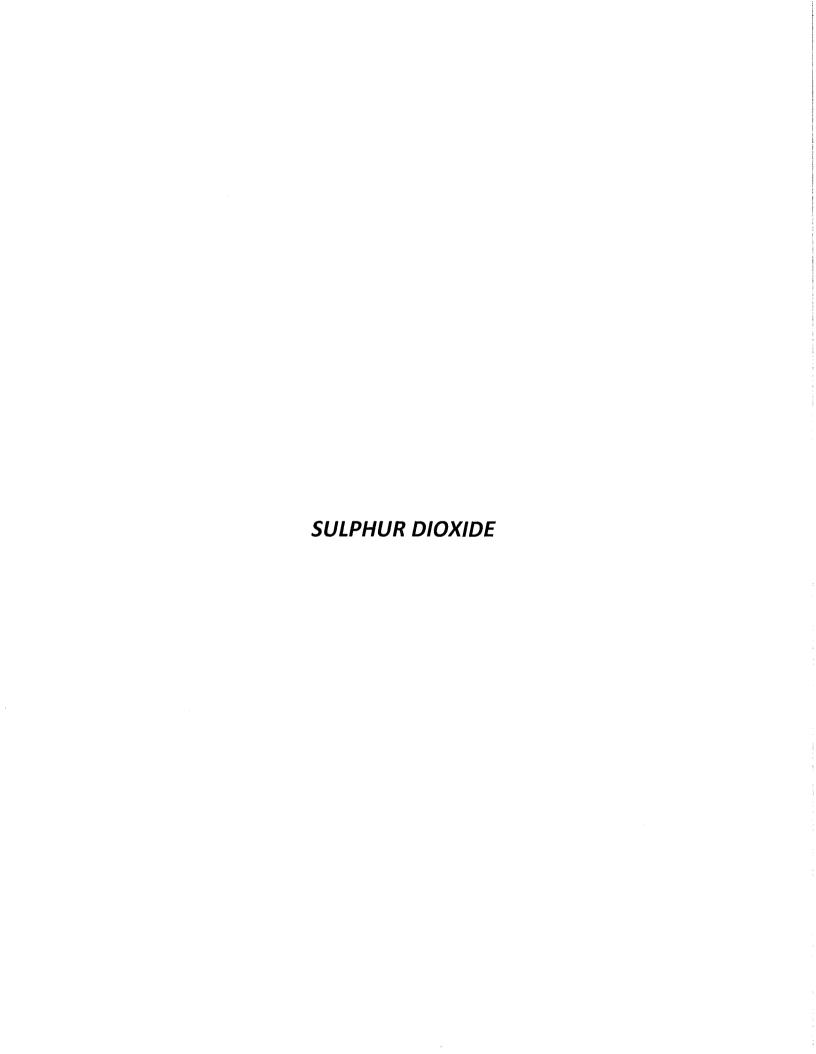
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### **Partisol Sampler Results**

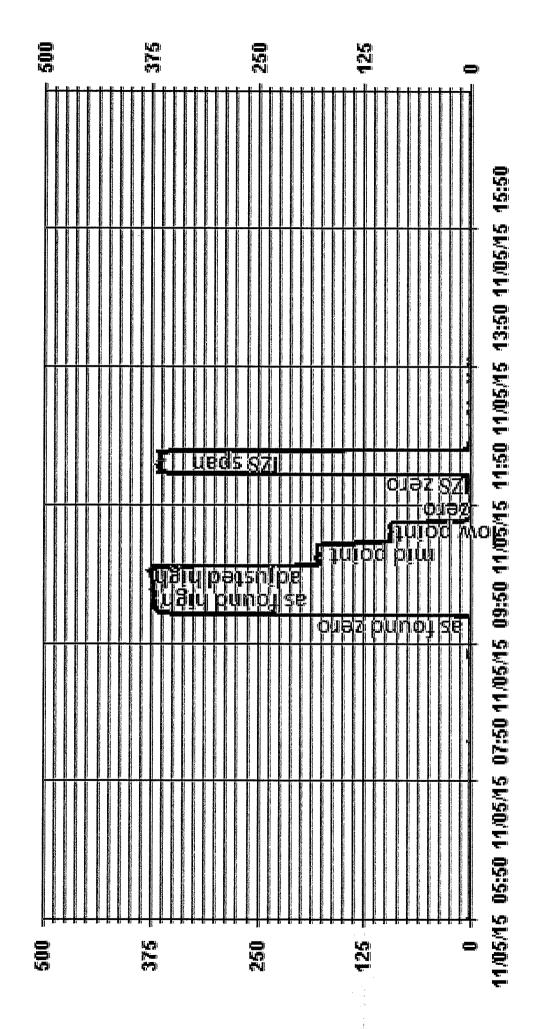
Date	*1	Filter NO:	Concentration (mg)
NOVEMBER	2	P5011870	0.013
NOVEMBER	8	P5011867	0.133
NOVEMBER	14	P50011868	0.171
NOVEMBER	20	P5011869	0.113
NOVEMBER	26	P5012875	0.293

### APPENDIX III ANALYZER CALIBRATION RESULTS

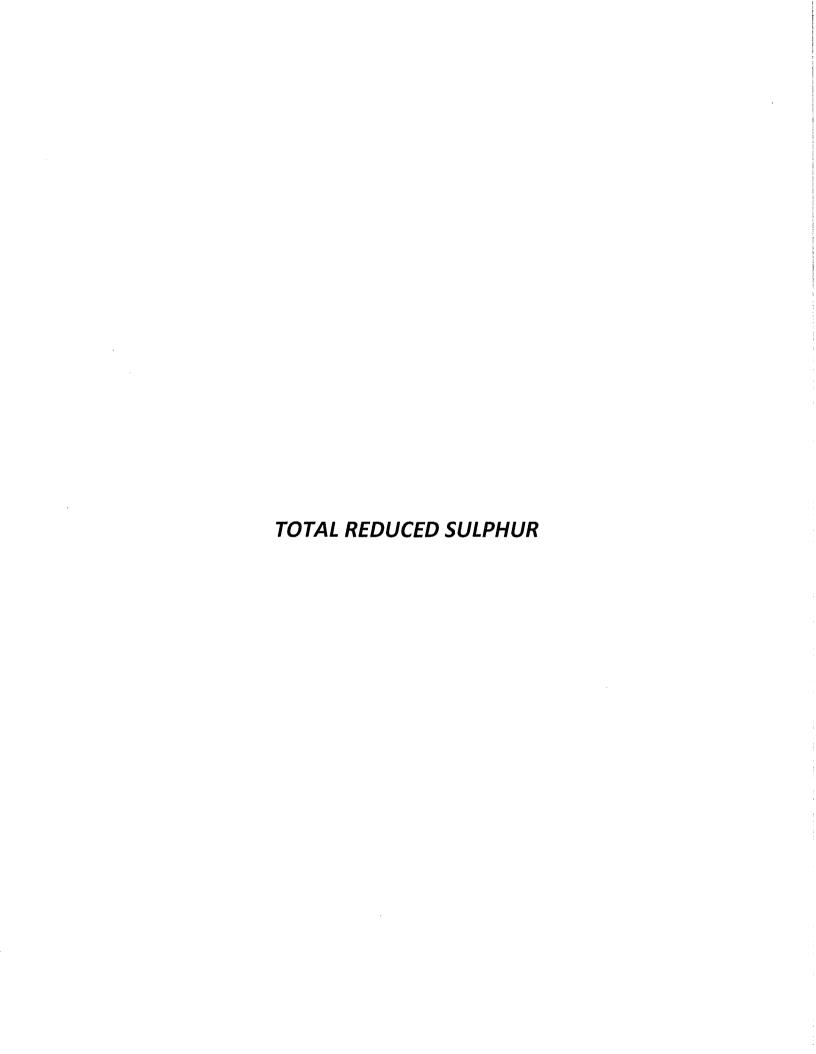


Dat	e: Novembe	r 5, 2015		E	Sarometric Pressure:	0,939 atm
Company/Airshe			-		lon Temperature °C:	22
cation/Station Name		e South	_		Weather Conditions:	Mainly cloudy with sunny breaks
Paramete		Dioxide			Calibration Purpose:	routine monthly
tart Time 24 hr. (mst End Time 24 hr. (mst	'	36 41	_		ormed By/Reviewer:/ Cal Gas Expiry Date:	Mex Yakupov Trina Whitsitt March 12, 2019
Calibration Method	·		_		& s/n (if applicable):	n/a
lyzer:				·	**	<del></del> ,
Serial Numbe Last Calibration Date			_	Range ppb: _ As Found C.F.:		_
Previous C.F			_	New C.F.:		<del>-</del> -
brator:				Standard Co	alibration Points for Ranges	
Flow Meter ID		'a	_ [	Point	Sulphur Dioxide Standard	Calibration Points
Make & Mode			_  -	High	380	
Serial i			-  -	Mid	180	
al Gas Cylinder I.D. # Cal Gas Conc. (ppm	_		_ L	Low	90	
	·	ALL POINTS		UTES OF STABILITY AS OF SE		
	brator Flow Rates (co			Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point as found zero	Diluent 5012	Cal Gas 0.00	Total 5012	(dqq) 0.0	(ppb) 0.0	N/A
as found zero	4976	37.70	5014	372.2	370,0	1.006
adjusted high	4976	37.70	5014	372.2	372.0	1,001
mld	4997	17.90	5015	176.7	179.0	0.987
low	5004 5012	9.00	5013 5012	88.9	93.0	0.956
calibrator zero	5012	1 0,00	3012	0,0	Average C.F.	n/a = 0,981
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	hange in C.F. fror		-0.50% ulphur Dioxide Analyzer Cali	± 10% bration	
400 ] 350 · 300 · 20 250 ·						→ 372.0
indicated to the state of the s				179.0		
100 - 50 -		93,0				
0 0.0	50	100	150	200 calculated ppb	250 300	350 400
		As fou			As left:	
		(G: 7.0 EF: 1.08		BKG:	7.0 1.083	<del>-</del>
	CO Ph	AT: -632		COEF: _ PMT:	-632.0	_
	FLA	SH: 70S		FLASH:	707	_
	INTERN			INTERNAL:	28.4	_
	CHAMB PERM OVEN G			CHAMBER:	45.0 45.0	-
	PERM OVEN G PERM OVEN HEAT			PERM OVEN GAS: _ PERM OVEN HEATER:	45.0 44.20	
	PRESSU	-		PRESSURE:	678.0	<del>-</del>
	SAMPLE FLO	W: 0.47		SAMPLE FLOW:	0.475	<del>-</del>
	LAMP INTENSI			LAMP INTENSITY:	77	_
	CONVERTER			CONVERTER:	n/a	-
	CONVERTER S			CONVERTER SET: _ Internal Span:	n/a 364	_
	Internal Cn					
	Internal Sp	an;				<del></del>

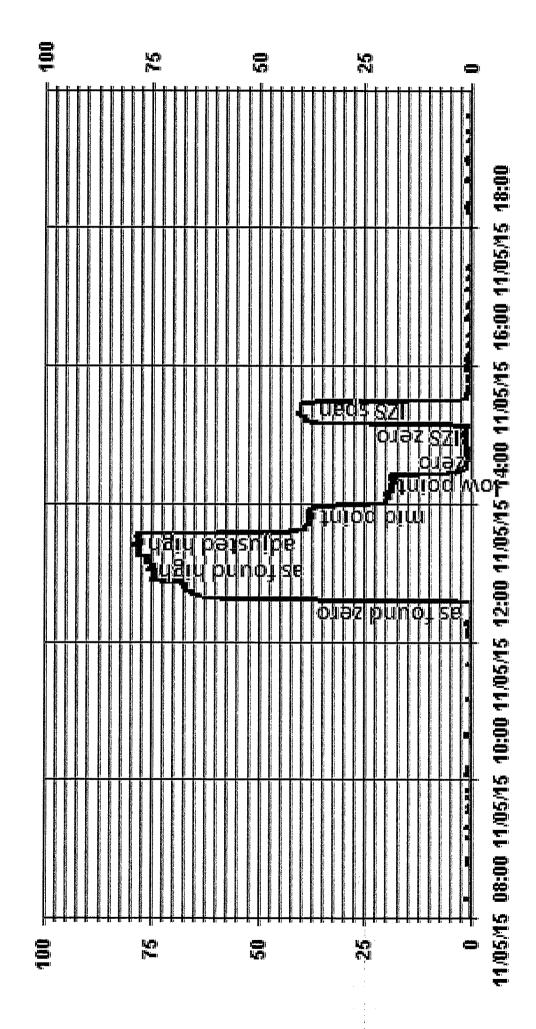
of Minute Averages



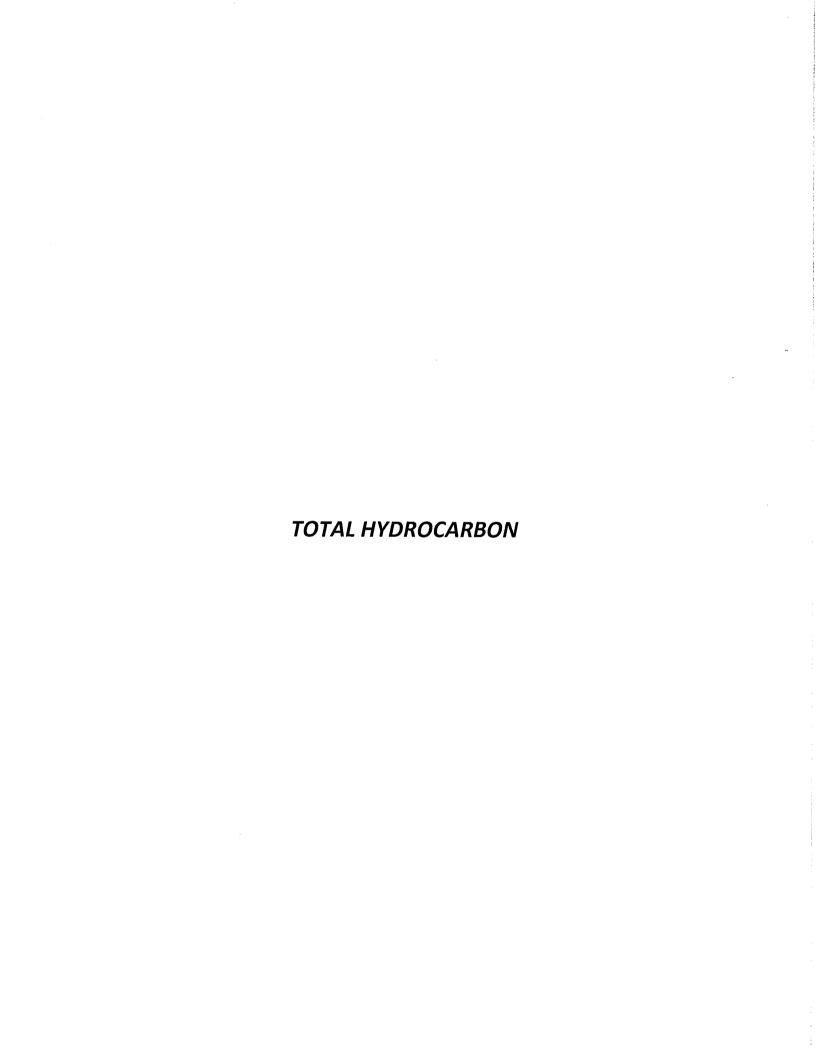
- LICA SO2\_ PPB



	November 5,	2015			Barometric Pressure:	0,939 atm
Company/Airshed			_	Stat	tion Temperature °C:	22
ocation/Station Name	-		_		Weather Conditions:	Mainly cloudy with sunny breaks
Parameter (Start Time 24 hr. (mst		suipnur	-		Calibration Purpose: ormed By/Reviewer: Ale	routine monthly x Yakupov Trina Whits
End Time 24 hr. (mst)	· <del></del>		-		Cal Gas Expiry Date:	July 15, 2017
Calibration Method	: Gas Dilutio	oh	_	Converter Model	& s/n (if applicable):	CDNova CDN-101 #501
alyzer: Serial Number	: 81272856	0		Range ppb:	100	
Last Calibration Date		015	_	As Found C.F.:	1.054	
Previous C.F.	0.999		_	New C.F.:	1,000	
ibrator:				Standard C	alibration Points for Ranges	
Flow Meter ID's	: n/a			Point	Total Reduced Sulphur Standard (	Calibration Points
Make & Model			_	High	78	·
Serial #			_	Mid	38	
Cal Gas Cylinder I.D. #			_ 1	Low	19	
Cal Gas Conc. (ppm)	: 10.0	ALL POINTS	ARE 15 MI	NUTES OF STABILITY AS OF SE	PTFMRFR 23, 2015	· · · · · · · · · · · · · · · · · · ·
Calib	orator Flow Rates (cc/mi		12 23 1411	Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(dqq)	(ppb)	
as found zero	7496	0.00	7496	0,0	0.0	N/A
as found high	7441	58.50	7500	78.0	74.0	1,054
adjusted high mid	7441 7472	58.50 28.50	7500 7501	78.0 38.0	78.0 38.1	1.000 0.998
low	7486	14.30	7500	19.1	19,2	0.996
calibrator zero	7496	0.00	7496	0.0	0.0	n/a
					Average C.F.=	0.998
	% chan	ge in C.F. fron Therr		-5.52% tal Reduced Sulphur Analyzer	± 10%  Calibration	
indicated pp 20 - 20 - 20 - 20 - 20 - 20 - 20 - 2				→ 38,1		78.0
80 · 70 ·		9.2	150	38.1	250 300	78.0
80 - 70 - 6 60 - 60 - 60 - 60 - 60 - 60 -		100			250 300	
80 - 70 - 40 - 10 - 10 - 10 - 10 - 10 - 10 - 1	50	100 As fou	nd:	200 calculated ppb	As left:	
80 - 70 - 60 - 60 - 60 - 60 - 60 - 60 - 6	50 BKG:	100 As fou 13.1	nd:	200 calculated ppb BKG:	As left: 14.5	
80 - 70 - 6 60 - 60 - 60 - 60 - 60 - 60 -	50	As fou 13.1 0,99 -650.	nd;	200 calculated ppb	As left:	
80 - 70 - 40 - 10 - 10 - 10 - 10 - 10 - 10 - 1	50  BKG: COEF: PMT: FLASH:	As fou 13.1 0.99 -650. 741	nd; 3 8	200 calculated ppb BKG: COEF: PMT: FLASH:	As left: 14.5 1.037 -650,8 741	
80 - 70 - 40 - 10 - 10 - 10 - 10 - 10 - 10 - 1	50  BKG: COEF: PMT: FLASH: INTERNAL:	As fou 13.1 0.99 -650, 741	nd; 3 8	200 calculated ppb  BKG: COEF: PMT: F1ASH: INTERNAL:	As left: 14.5 1.037 -650.8 741 32.4	
80 - 70 - 60 - 60 - 60 - 60 - 60 - 60 - 6	BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER:	As fou 13.1 0.99 -650. 741	nd; 3 8	200 calculated ppb  BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER:	As left: 14.5 1.037 -650,8 741	
80 - 70 - 6 60 - 60 - 60 - 60 - 60 - 60 -	50  BKG: COEF: PMT: FLASH: INTERNAL:	As fou 13.1 0.99 -650. 741 33.0 45.0 324.	nd: 3 8	200 calculated ppb  BKG: COEF: PMT: FIASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET:	As left: 14,5 1.037 -650.8 741 32,4 45,2	
80 - 70 - 6 60 - 60 - 60 - 60 - 60 - 60 -	BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SEMP: PERM OVEN GAS:	As fou 13.1 0.99 -650. 741 33.0 45.0 324. 325.	nd; 3 8 8	200 calculated ppb  BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET: PERM OVEN GAS:	As left: 14.5 1.037 -650.8 741 32.4 45.2 324.9 325.0 45.0	
80 - 70 - 6 60 - 60 - 60 - 60 - 60 - 60 -	BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET: PERM OVEN GAS: PERM OVEN HTR:	As fou 13.1 0,99 -650. 741 33.0 45.0 324. 325. 45.0	7 3 3 8	200 calculated ppb  BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET: PERM OVEN BGS: PERM OVEN HTR:	As left: 14,5 1.037 -650.8 741 32,4 45,2 324,9 325,0 45,0 44,37	
80 - 70 - 60 60 0 - 60 60	BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP! CONVERTER SET: PERM OVEN GAS: PERM OVEN HTR: PRESSURE:	As fou 13.1 0.999 -550, 744 33.4 45.6 324, 325, 45.6 651.	nd; 3 8 8	ZOO calculated ppb  BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET: PERM OVEN HTR: PRESSURE:	As left: 14.5 1.037 -650.8 741 32.4 45.2 324.9 325.0 45.0 44.37 654.4	
80 - 70 - 60 - 60 - 60 - 60 - 60 - 60 - 6	BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET: PERM OVEN GAS: PERM OVEN HTR:	As fou 13.1 0.99 -650, 741 33.2, 45.0 324, 45.0 44.3 651. 0.5050 92	77 33 37 77 33	200 calculated ppb  BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET: PERM OVEN BGS: PERM OVEN HTR:	As left: 14,5 1.037 -650.8 741 32,4 45,2 324,9 325,0 45,0 44,37	
80 - 70 - 60 60 0 - 60 60	BKG: COEF: PMT: FLASH: INTERNAL: CHAMBER: CONVERTER TEMP! CONVERTER SET: PERM OVEN GAS: PERM OVEN HTR: PRESSURE: SAMPLE FLOW:	As fou 13.1 13.1 13.1 13.1 13.1 13.1 13.1 13.	77 33 37 77 33	200 calculated ppb  BKG: COEF: PMT: FIASH: INTERNAL: CHAMBER: CONVERTER TEMP: CONVERTER SET: PERM OVEN HTR: PRESSURE: SAMPLE FLOW:	As left: 14.5 1.037 -650.8 741 32.4 45.2 324.9 325.0 45.0 44.37 654.4 0.510	

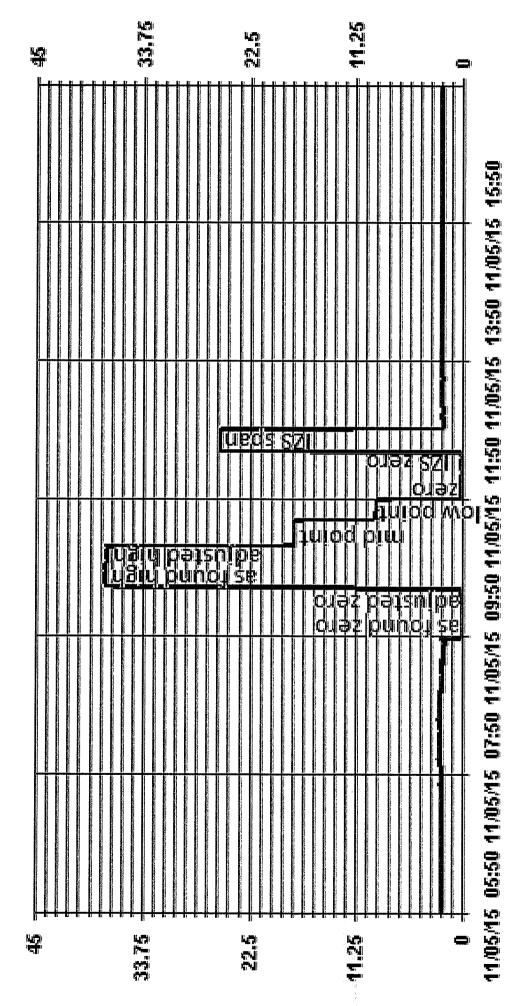


- LICA TRS\_ PPB

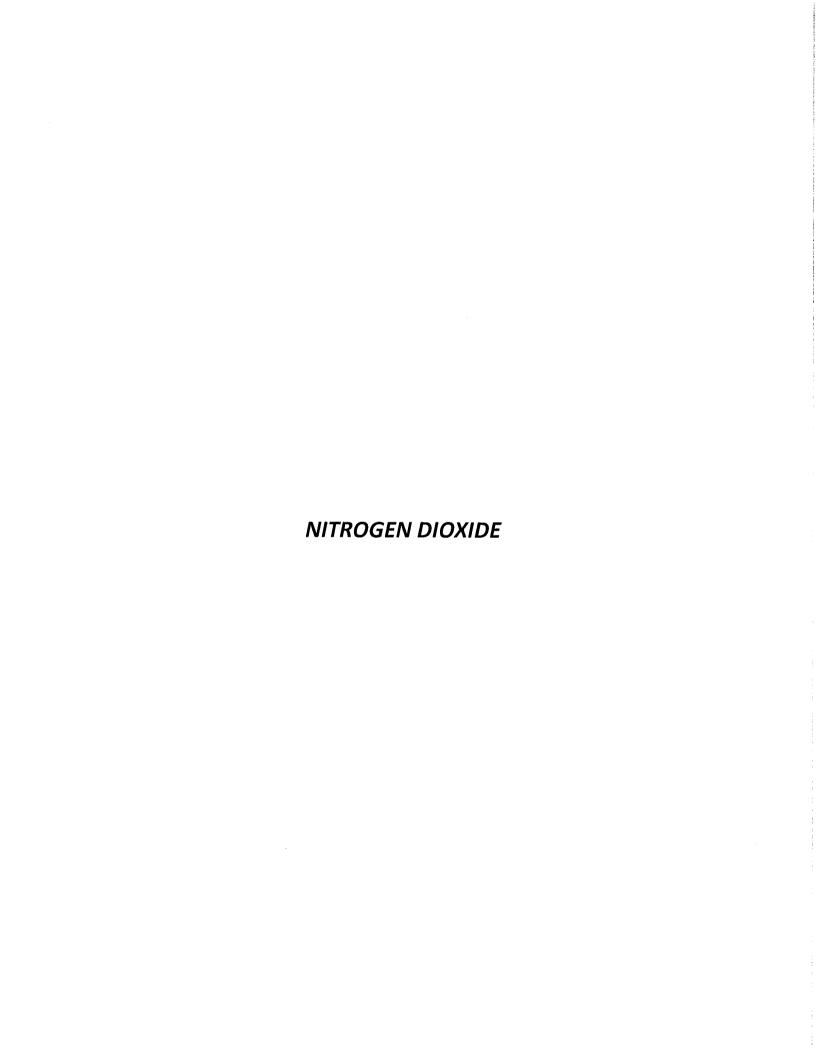


Date:	November 5	, 2015	_		metric Pressure:		0,939 atm
Company/Airshed: _ Location/Station Name:	Cold Lake S	outh	-		Temperature °C; _ ther Conditions:	Mainly clo	22 udy with sunny breaks
Parameter:	Total Hydrod		_	Calli	bration Purpose:	ro	utine monthly
Start/End Time 24 hr. (mst): _ Calibration Method:	9:36 / 12: Gas Diluti		-		ed By/Reviewer: _ Gas Expiry Date:	Alex Yakupo Au	v Trina White Igust 12, 2017
lyzer:		***************************************					
Serial Number: _ Last Calibration Date:	4274087 October 5,		_	Range ppm: As Found C.F.:			
Previous Cal High Point C.F.:	1,004		_	New C.F.:		01	
brator: Flow Meter ID's:	n/a						
Make & Model: _ Serial #:	API 700 830	)	_	Standard Calibratio	on Points for a Range	e of: 5 Target ppn	60 ppm
Cal Gas Cylinder I.D. #:	LL3367/		_	Hig		38	
H <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> Cylinder Conc. (ppm): CH <sub>4</sub> as propane/total CH <sub>4</sub>	601.4	202.0	_	M		18	
equivilants (ppm):	555.5	1156.9		Lo		9	
Calibrato	ALL POI. r Flow Rates (cc/min)	NTS ARE 15 MI	NUTES OF	STABILITY AS OF S Calculated	EPTEMBER 23, 201	·	
				Concentration:	Indicated Co		Correction Factors:
Point	Diluent 1999	Cal Gas 0,00	Total	(ppm)	(pp -0.		n/-
as found zero as found high	1999	65.00	1999	0.0 37.66	37.		n/a 0.994
adjusted zero	1999	0.00	1999	0,00	0.0		n/a
adjusted high	1932	65,00	1997	37.66	37.	60	1.001
mid	1969	31.00	2000	17.93	17.		1,006
low	1984	16,00	2000	9.26	9,2		1.006
calibrator zero	1999	0.00	1999	0,0	0.0	Average C.F.≃	n/a 1.004
		Lines	r Boarosel	on/Calibration Res	ulter	_	
		Lilica	i negressi	ony cambiation nes	LIMITS		
	(	Correlation Co			> or = 0.995		
	h fluta		= Slope		.98-1.05		
		ercept as % of f inge in C.F. from			± 3% F.S. ± 10%		
		Inermo 51C	lotal Hydr	ocarbon Analyzer (	Calibration		
40 35 30 40 25 42 20				17.83			37.60
35 30 25 25 20 - 20 - 21 15 -	9.20			17.83			37.60
35 30 825 420 20 - 15 10		15			25	70	
35 30 30 40 25 40 40 40 40 40 40 40 40 40 40 40 40 40	10	15		17.83 20 calculated ppm	25	30	37.60
35 30 10 10 10 5	10 As f	ound:		20	H2 cylinder	As left:	
35 30 25 25 20 20 10 5 0 0	10 As f H2 cylinder (psi):	ound: 850		20		As left: 850	
35 30 25 25 20 20 10 5 0 0	As f H2 cylinder (psi): cylinder reg set (psi):	850 22		20	H2 cylinder (psl): H2 cylinder reg set (osl):	As left: 850	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder (psi):	ound: 850		20	H2 cylinder {psl}: H2 cylinder reg	As left: 850	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): 5pan Cylinder (psi): 5pan Cylinder Reg Set	850 22	-	20	H2 cylinder (psl): H2 cylinder reg set (osl): Span Cylinder (psl): Span Cylinder	As left: 850	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder (psi):	850 22 1800 22	-	20	H2 cylinder (psl): H2 cylinder reg set (psl): Span Cylinder (psl): Span Cylinder Reg Set (psl):	As left: 850 22 1800 22	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure:	est ound:  850 22 1800	-	20	H2 cylinder (psl): H2 cylinder reg set (osl): Span Cylinder (psl): Span Cylinder Reg Set (psl): Zero Alr Gen Pressure:	As left: 850 22 1800	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): 5pan Cylinder Reg Set (psi): Zero Air Gen	850 22 1800 22	-	20	H2 cylinder (psl): H2 cylinder reg set (osl): Span Cylinder (psl): Span Cylinder Reg Set (psl): Zero Air Gen	As left: 850 22 1800 22	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement	850 22 1800 22 34	-	20	H2 cylinder (psl): H2 cylinder reg set (osl): Span Cylinder (psl): Span Cylinder Reg Set (psl): Zero Air Gen Pressure: measurement	As left: 850 22 1800 22 34	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms:	850 22 1800 22 34 None	-	20	H2 cylinder (psi): H2 cylinder reg set fosit: Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms:	As left: 850 22 1800 22 34 None	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms:	850 22 1800 22 34 None None	-	20	H2 cylinder (psi): H2 cylinder reg set fosit: Span Cylinder (psi): Span Cylinder Reg Set fosit: Zero Air Gen Pressure: measurement alarms: service alarms:	As left:  850  22  1800  22  34  None  None  1376	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try:	850 22 1800 22 34 None None 1353	-	20	H2 cylinder (psi): H2 cylinder reg set fosit: Span Cylinder (psi): Span Cylinder Reg Set fosit: Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try:	As left:  850  22  1800  22  34  None  None  1376  1 0	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rag: try: fim:	850 22 1800 22 34 None None 1353 1 0 182.9		20	H2 cylinder (psi): H2 cylinder reg set (osi): Span Cylinder (psi): Span Cylinder (psi): Span Cylinder Reg Set (si): Zero Air Gen Pressure: measurement alarms: service alarms: try: fim:	As left:  850 22 1800 22 34 None None 1376 1 0 183.2	
35 30 25 25 20 20 20 10 5	As f  H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gome Pressure: measurement alarms: service alarms: cnt: rng: try: fim: det:	850 22 1800 22 34 None None 1353 1 0 182,9 125,5		20	H2 cylinder (psi): H2 cylinder reg set fosil: Span Cylinder (psi): Span Cylinder Reg Set fosil: Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: tty: fim: det:	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125.4	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rag: try: fim:	850 22 1800 22 34 None None 1353 1 0 182.9		20	H2 cylinder (psi): H2 cylinder reg set (osi): Span Cylinder (psi): Span Cylinder (psi): Span Cylinder Reg Set (si): Zero Air Gen Pressure: measurement alarms: service alarms: try: fim:	As left:  850 22 1800 22 34 None None 1376 1 0 183.2	
35 30 25 25 20 20 20 10 5	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gom Pressure: measurement alarms: service alarms: cnt: ring: try: flm: det: Flame: Filter: Base:	850 22 1800 22 34 None None 1353 1 0 182.9 125.5 182 125		20	H2 cylinder (psi): H2 cylinder reg set fosit: Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: nng: try: film: det: Flame:	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125,4 183 125 125	
35 30 30 30 30 30 30 30 30 30 30	As f H2 cylinder (psi):  cylinder reg set (psi):  5pan Cylinder Reg Set (psi):  Zero Air Gen Pressure: measurement alarms: cnt: rng: try: flm: dett. Flame: Filter: Base: Sample psi:	850 22 1800 22 34 None None 1353 1 0 182.9 125. 125 125 125 125		20	H2 cylinder (psi): H2 cylinder reg set fosit: Span Cylinder (psi): Span Cylinder Reg Set fosit: Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Flame: Flitter: Basee: Sample psi:	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125.4 183 125 125 16.51	
35 30 25 30 30 30 30 30 30 30 30 30 30	As f H2 cylinder (psi):  cylinder reg set (psi):  5pan Cylinder Reg Set (psi):  Zero Air Gen Pressure: measurement alarms:  cnt: rng: try: fim: dett: Flame: Filter: Base: Sample psi: internal Air Pressure:	850 22 1800 22 34 None None 1353 1 0 182.9 125.5 182 125 20		20	H2 cylinder (psi): H2 cylinder reg set fosil: Span Cylinder (psi): Span Cylinder (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Flame: Filter: Base: Sample psi: Internal Air	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125.4 183 125 06.51 20	
35 30 25 30 30 30 30 30 30 30 30 30 30	As f H2 cylinder (psi):  cylinder reg set (psi):  5pan Cylinder Reg Set (psi):  Zero Air Gen Pressure: measurement alarms: cnt: rng: try: flm: dett. Flame: Filter: Base: Sample psi:	850 22 1800 22 34 None None 1353 1 0 182.9 125. 125 125 125 125		20	H2 cylinder (psi): H2 cylinder reg set fosit: Span Cylinder (psi): Span Cylinder Reg Set fosit: Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Flame: Flitter: Basee: Sample psi:	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125.4 183 125 125 16.51	
35 35 30 40 25 40 40 40 40 40 40 40 40 40 40 40 40 40	As f H2 cylinder (psi):  cylinder reg set (psi):  5pan Cylinder Reg Set (psi):  Zero Air Gen Pressure: measurement alarms:  cnt: rng: try: fim: dett: Flame: Filter: Base: Sample psi: internal Air Pressure:	850 22 1800 22 34 None None 1353 1 0 182.9 125.5 182 125 20		20 pm	H2 cylinder (psi): H2 cylinder reg set fosil: Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: finm: det: Flame: Filter: Sample psi: Internal Air	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125.4 183 125 06.51 20	
35 35 30 40 25 40 40 40 40 40 40 40 40 40 40 40 40 40	As f H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rng: try: film: det: Flame: Filter: Base: Sample psi: internal Air Pressure:	None None 1353 1 0 1825 1825 125 06.52 20 14		20 pm	H2 cylinder (psi): H2 cylinder reg set (osit: Span Cylinder (psi): Span Cylinder Reg Set (spi): Zero Air Gen Pressure: measurement alarms: service alarms: service alarms: filter: Base: Sample psi: Internal Air Internal Fuel Pressure: Internal Fuel	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125.4 183 125 06.51 20 14	
35 35 30 40 25 40 40 40 40 40 40 40 40 40 40 40 40 40	As f H2 cylinder (psi):  cylinder reg set (psi):  Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rag: try: film: dett Flame: Filter: Base: Sample psi: internal Air Pressure: ternal Fuel Pressure:	None None 1353 1 0 182.9 125.5 182 22 14 26		20 pm	H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: cnt: film: det: Flame: Fliter: Base: Sample psi: Internal Air Internal Air Internal Fuel Pressure: Intenal Pressure Gauge psi:	As left:  850  22  1800  22  34  None  None  1376  1 0 183.2 125.4 183 125 125 125 20 14	

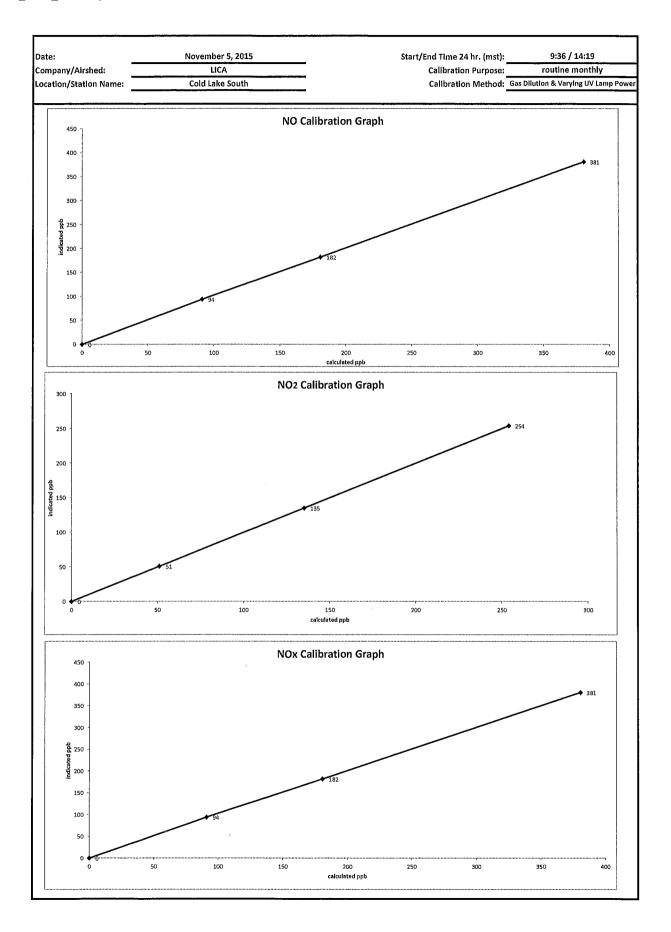
in Minute Averages



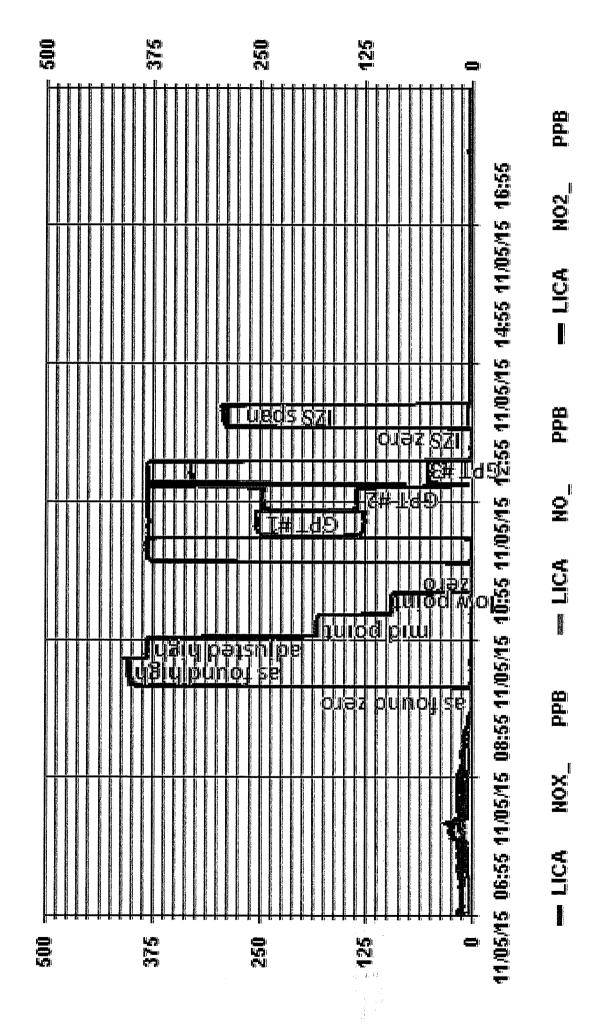
- LICA THC PPM

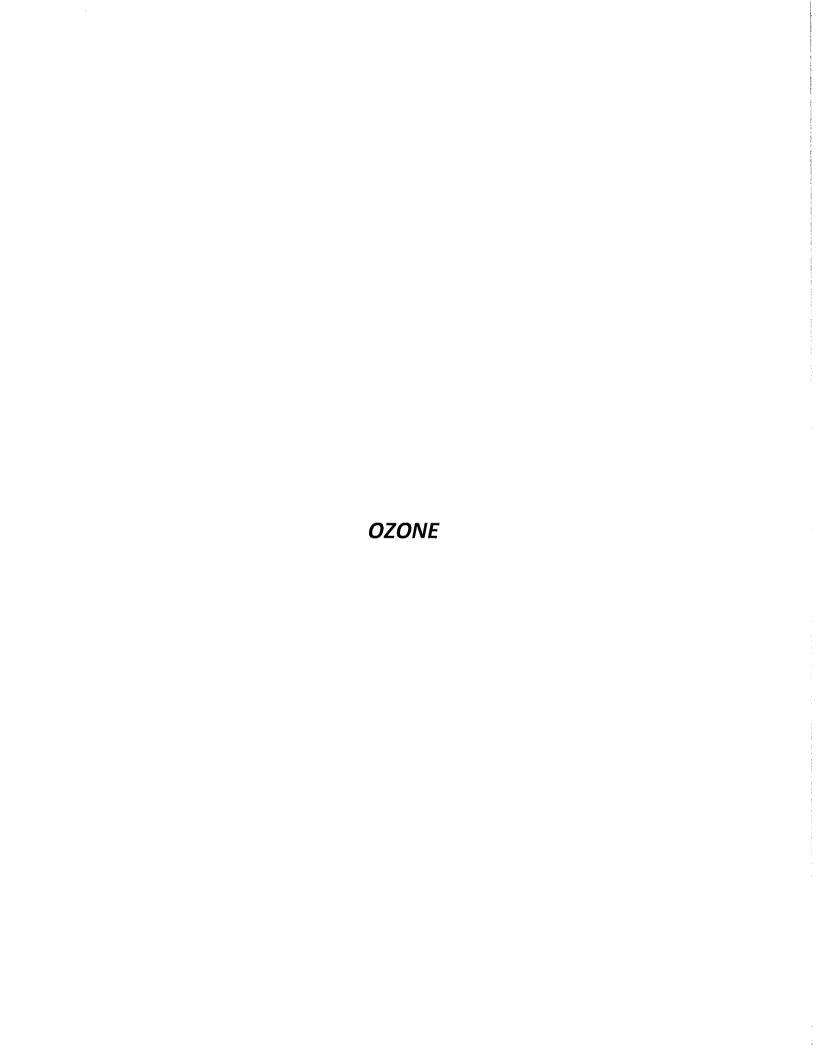


Date:	No	vember 5, 2	2015			-	Barometric Pressure:		0.939 a	ıtm
Company/Airshed:		LICA				Sta	tion Temperature °C:		22	
Location/Station Name:		old Lake So		•			Weather Conditions:	Ma	inly cloudy with	
Start/End Time 24 hr. (mst): S.P.T. to be used for Ozone?		9:36 / 14:1 No	9			Par	Calibration Purpose: formed By/Reviewer:	Alex V	routine m akupov	onthiy Trina Whits
Calibration Method:			/ Lamp Power				Cal Gas Expiry Date:	Allex	March 12	
nalyzer:						Cor	rection Factors:			
						Previous C.F.:	As Found C.F.:		/ C.F.:	
Serial Number:		427408710 ctober 5, 20		•	NO =	0.999 1.000	0.946 1.000		999	
Last Calibration Date: Range ppb:		500	J13		NO <sub>2</sub> = NOx =	0,999	0.946		999	
alibrator:										
Flow Meter ID's:					Sta	ndard Calibration Po	ints for a Range of:	500 ppb		
Make & Model:							Target NO (ppb)		NO <sub>2</sub> (ppb)	Cc Ozone
Serial #:		000613 High 002073 Mid					380		150	n/a
Cal Gas Cylinder I.D. #: NO/NOx Gas Conc. (ppm):		50,6				ow .	180 90		45 50	n/a n/a
Horiton das conc. (ppm):	50,0		•			oint #1	n/a		va	n/a
					Extra F	oint #2	n/a		<b>ป</b> ล	n/a
		7	ALLF	OINTS ARE 15 MINUT						
Calibrator Flo			r-a-l ri	Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.	
Point as found zero	Diluent 5012	Cal Gas 0.0	Total Flow 5012	(ppb) 0	(ppb) 0	(ppb) 0,0	(ppb) 0.0	n/a	n/a	
as found high	4976	37.7	5014	380,5	380.5	402.0	402.0	0.946	0.946	
adjusted high	4976	37.70	5014	380.5	380.5	381.0	381,0	0.999	0.999	
mld	4997	17,90	5015	180.6	180.6	182.0	182.0	0.992	0.992	
low calibrator zero	5004 5012	9.00	5013 5012	90.8	90.8	94.0	94.0 0.0	0.966 n/a	0.966 n/a	
COMPTON DETO	5011						Average C.F.=	0.986	0.986	
			<u>ALL P</u>	OINTS ARE 15 MINUT						
Calibrator Flo				Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> gain	NO <sub>2</sub> C.F.
Point NOx reference	Diluent 4976	Cal Gas 37.70	Total Flow 5014	volts or ppb 0.0	(ppb) 381.0	(ppb) 381.0	(dqq) 0.0	(ppb) 0.0	(ppb) 0.0	(ppb)
as found high NO2	4976	37.70	5014	260.0	127.0	381.0	254.0	254.0	254.0	1.000
gpt mid	4976	37.70	5014	135.0	246.0	381,0	135.0	135.0	135.0	1,000
gpt low	4976	37,70	5014	50.0	330.0	381,0	51.0	51,0	51.0	1.000
				Linear Rea	gression/Calibration	Results:		Averag	e NO <sub>2</sub> C.F.=	1.000
				NO	NOx	NO <sub>2</sub>	LIMITS			
	Cor	relation Cr	peffecient =	1.000	1.000	1.000	> or = 0.995			
			Slope <b>=</b>	1.001	1.001	1.000	.95-1.05			
		-	full scale)=	0.29%	0.29%	0.00%	± 3% F.S.			
			om last cal= r effeciency	5.26%	5.26%	0.00% 1.00	± 10% 0.96 to 1.04			
			ound:				As left:			
	IO Bkg ppb:		5.5			NO Bkg ppb:	S.2			
N			5.7			NOx Bkg ppb:	5.4			
	Ox Bkg ppb:		100			NO Coef:	1,040			
	NO Coef:	-	014				1.012			
	NO Coef: NOx Coef:	1.	014			NOx Coef; NO2 Coef:				
	NO Coef:	1.	014 003 850			NO2 Coef: PMT:	1.003			
	NO Coef: NOx Coef: NO2 Coef:	1. 1. -8	003 850 3.2			NO2 Coef:	1.003	•		
	NO Coef: NOx Coef: NO2 Coef: PMT: Battery: Internal:	1. 1. -8 3	003 350 3.2 7.3			NO2 Coef: PMT: Battery: Internal:	1,003 -850 3,2 27,7	•		
	NO Coef: NOx Coef: NO2 Coef: PMT: Battery: Internal: Chamber:	1. 1. -8 5 2	003 350 3.2 7.3 9.9			NO2 Coef: PMT: Battery: Internal: Chamber:	1,003 -850 3,2 27.7 49.6	· · · ·		
NC	NO Coef: NOx Coef: NO2 Coef: PMT: Battery: Internal: Chamber: Cooler:	1. 1. -8 3 2 4	003 350 3.2 7.3			NO2 Coef: PMT: Battery: Internal: Chamber: Cooler:	1.003 -850 3.2 27.7 49.6 -2.5			
NC	NO Coef: NOx Coef: NO2 Coef: PMT: Battery: Internal: Chamber:	1. 1. -8 2 2 4 -:	003 350 3.2 7.3 9.9			NO2 Coef: PMT: Battery: Internal: Chamber:	1,003 -850 3,2 27.7 49.6			
NC	NO Coef: NOx Coef: NO2 Coef: PMT: Battery: Internal: Chamber: Cooler:	1. 1. 2 2 4 -: 3 3	003 350 3.2 7.3 9.9 2.5 118 119			NO2 Coef: PMT: Battery: Internal: Chamber: Cooler: Converter:	1.003 -850 3.2 27.7 49.6 -2.5			
NC Cor Sa	NO Coefs NOx Coefs NO2 Coefs PMT: Battery: Internals Chamber: Cooler: Converter: converter: enverter Sets Pressure: Imple Flow:	1. 1. 2 2 4 -: 3 3 20 0	003 350 3.2 7.3 9.9 2.5 118 119 02.5 496			NO2 Coef: PMT: Battery: Internal: Chamber: Cooler: Converter: Converter 5et: Pressure: Sample Flow:	1.003 -850 3.2 27.7 49.6 -2.5 318 319 202.2 0.498			
Cor Sa Ozo	NO Coefs NOx Coefs NO2 Coefs PMT: Battery: Internal: Chambers Cooler: Converter: Converter: Terssure: Imple Flows nator Flows	1. 1. -8 2 2 4  3 3 20 0.	003 3.50 3.2 7.3 9.9 2.5 118 119 02.5 496			NO2 Coef. PMT: Battery: Internal: Chamber: Cooler: Converter; Converter 5et: Pressure: Sample Flow: Ozonator Flow:	1.003 -850 3.2 27.7 49.6 -2.5 318 319 202.2 0.498 OK			
Cor Sa Ozo Interna	NO Coef: NOx Coef: NO2 Coef: PMT: Battery: Internal: Chamber: Cooler: Converter: rest: Pressure: Imple Flow: nator Flow: al Span NO:	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	003 350 3.2 7.3 9.9 2.5 118 119 02.5 496			NO2 Coef. PMT: Battery: Internal: Chamber: Cooler: Converter: Converter Satr: Pressure: Sample Flow: Ozonator Flow: Internal Span NO:	1.003 -850 3.2 27.7 49.6 -2.5 318 319 202.2 0.498 OK			
Cor Sa Ozo Interna Interna	NO Coefs NOx Coefs NO2 Coefs PMT: Battery: Internal: Chambers Cooler: Converter: Converter: Terssure: Imple Flows nator Flows	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	003 350 3.2 7.3 9.9 2.5 118 119 02.5 496 0K			NO2 Coef. PMT: Battery: Internal: Chamber: Cooler: Converter; Converter 5et: Pressure: Sample Flow: Ozonator Flow:	1.003 -850 3.2 27.7 49.6 -2.5 318 319 202.2 0.498 OK			

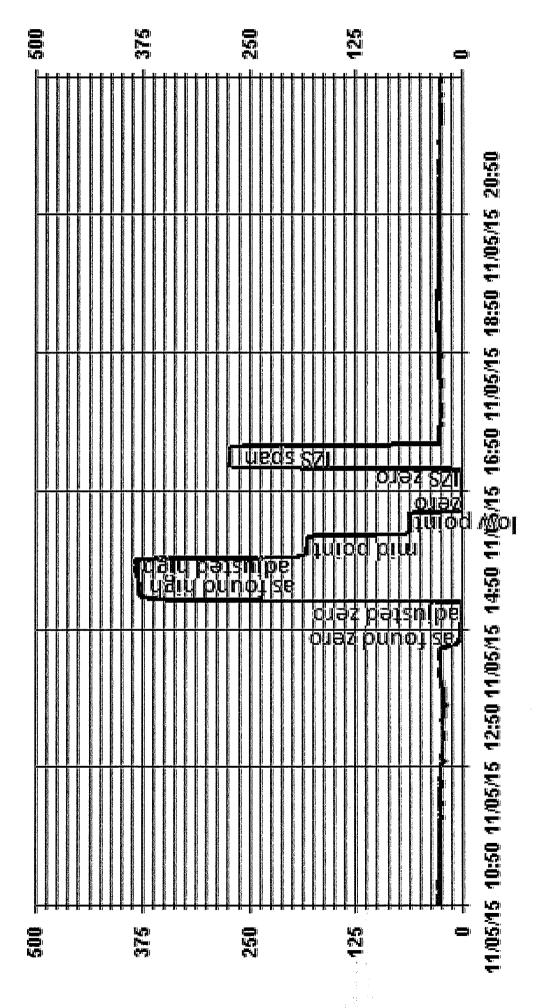


of Minute Averages

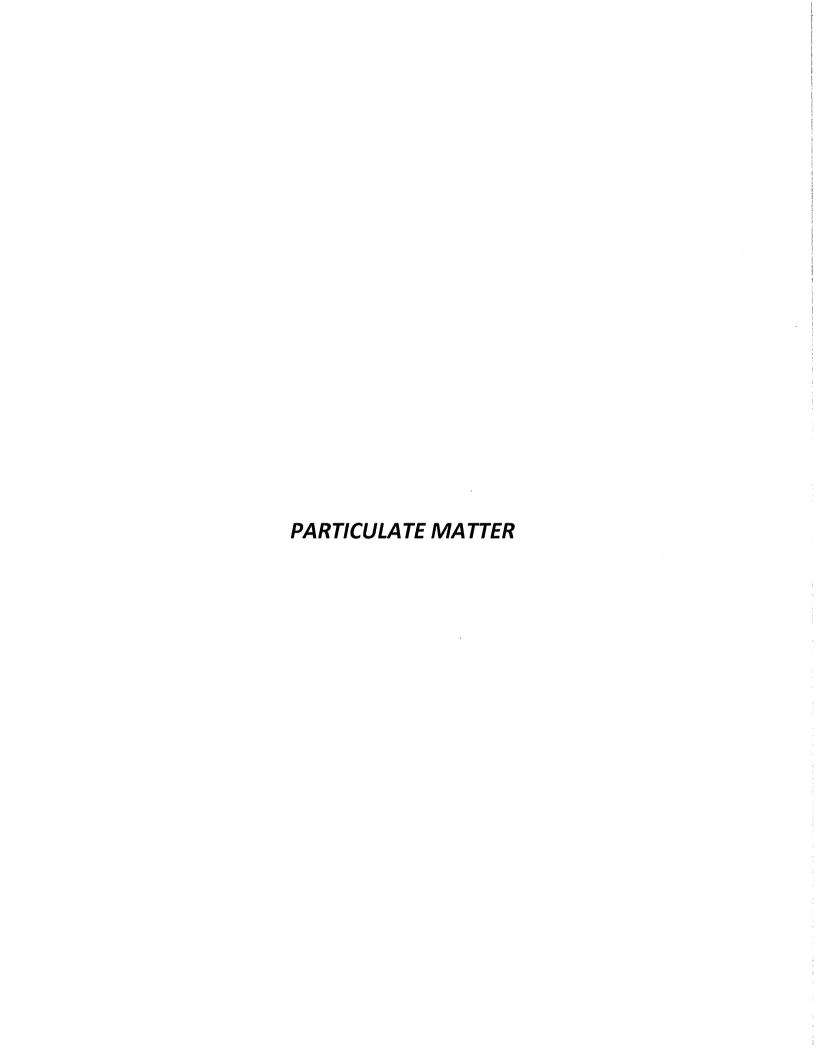




Dat	e: November	5, 2015		Barometric Pressure:		0.939 atm
Company/Airshe	d: LIC	A	s s	tation Temperature °C:		22
Location/Station Name				Weather Conditions:		cloudy with sunny breaks
art/End Time 24 hr. (mst zone Calibration Metho			Da	Calibration Purpose: erformed By/Reviewer:		outine monthly  Trina Whitsitt
	e: n/a-done by Varyin			Cal Gas Expiry Date:		n/a
lyzer: Serial Numbe	r: 700419	9951	Ozone Range ppb:	500		
Last Calibration Date	e: October	5, 2015	As Found C.F.:	1,008	3	
evious Cal High Point C.F	.: 1.00	00	New C.F.:	1.000	)	
brator: Flow Meter ID	s: n/a	1		Point	AMD Required Ra	nge of Ozone Calibration Poli
Make & Mode	I: 5ABIO 2		•	High		300-400 ppb
Serial :	#: <u>11900</u>			Mld		150-200 ppb
Cal Gas Cylinder I.D. #	: n/a	1		Low		50-75 ppb
	AL	L POINTS ARE 15 N	MINUTES OF STABILITY	AS OF SEPTEMBER 23,	2015	
	Calibrator Flow	Rate (cc/mln)	Calculated Concentration:	Corrected Calculated Conentration:	Indicated Concentration:	Correction Factors:
Point	Total Flow @ Point Start	Total Flow @ Point Finish	(ppb)	(ppb)	(ppb)	
as found zero	5013	5013	0.0	n/a	1.0	n/a
as found high adjusted zero	5013 5013	5013 5013	380.0 0.0	380.0 0.0	378.0 0.0	1,008 n/a
adjusted high	5013	5013	380,0	380.0	380.0	1.000
mid	5013	5013	180,0	180,0	181.0	0.994
low	5013	5013	60.0	60.0	61,0	0.984
calibrator zero	5013	5013	0.0	n/a	0.0 Average C.F.=	n/a 0.993
		Ther	mo 49i Ozone Analyze	r Calibration		
350						380.0
300						
dg 250 -						
<u>is</u> ii 150			181.0			
100 · 50 ·	61,0					
0 0.0						
0	50 10	As found:	50 200 calculated	250 ppb	300 As left:	350 4
	O3 Bkg:	-0.2	_	O3 Bkg:	0.2	
	O3 Coef:	1.007	- •	O3 Coef:	1.011	
	Photo Lamp	8.7	-	Photo Lamp	8.7	
	O3 Lamp Bench:	9.0		O3 Lamp Bench:	9.0	
	Bench Lamp:	53.4	• •	Bench Lamp:	53.5	
	O3 Lamp:	67.4	_	O3 Lamp:	67.3	
	Pressure:	699.2		Pressure:	700.2	
	Cell A lpm: _ Cell B lpm:	0,712 0,750	•	Cell A Ipm: Cell B Ipm:	0.712 0.750	
	O3 ppb:	0.7	<del>.</del>	O3 pp <b>b</b> :	0.8	
	Cell A ppb:	0,7	- -	Cell A ppb:	-7.8	
	Cell B ppb:	0.7 57750		Cell B ppb:	9.5	
				Cell A Int:	57742 56320	
	Cell A int:		-	Cell B into		
		56314 274	•	Cell B int: Internal Span:	272	
nments:	Cell A int: Cell B int:	56314	•			



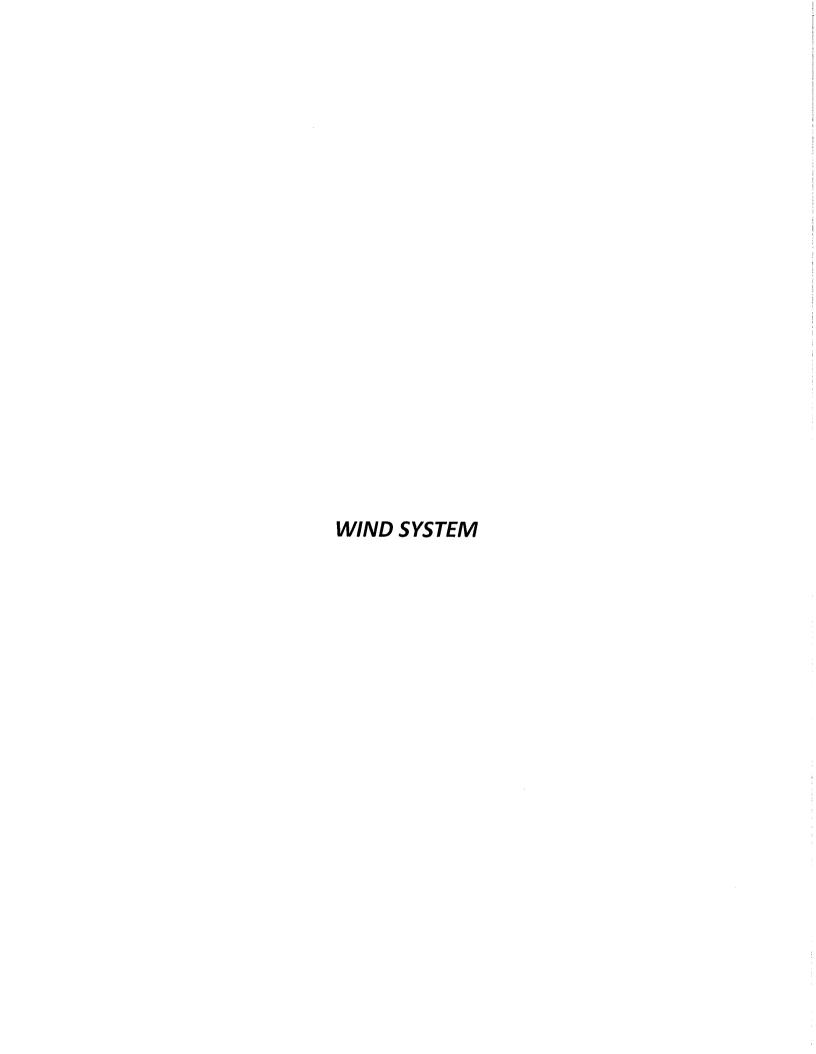
■ LICA 03\_ PPB



**TEOM 1405F\_1103\_Bi-Monthly#1** 

37				_		
Date:		ber 3, 2015	<b>-</b>	Perfor	med By/Reviewer:	Alex Yakupov Trina Wh
Company:	· · · · · · · · · · · · · · · · · · ·	-ICA			Start Time (mst):	11:03
Station Name/Location:		ake South er 26, 2015			End Time (mst):	12:19
Previous Audit Date: Parameter:		M 2.5			alibration Purpose: _ eather Conditions:	Bi-monthly #1 Fog
100A Information and Status:		AI 512		vv	eather Conditions:	rog
Serial Number:	1405A2	201620804	As Found F	ilter Loading %:	24,:	30
Ko Factor:		4578		ilter Loading %:	21.8	
Ambient Temperature °C:		1,14		As Found Noise:	0.00	<del></del>
Ambient Pressure atm:	0	.936	_	As Left Noise:	0.00	00
Main Flow Reading Ipm:		3.00	<del></del>	Pump Vacuum:	0.3	11
	Aux Flow Reading Ipm: 1			Warnings:	Nor	ne
eference Standards:	ence Standards:			,		
		low:	1	sure:	Temper	
Make:		wyer Mark III	Fish		Fish	
Model:		Mark III		291 58457	FB 13	
Serial Number: Calibration Date:		n/a n/a		ar-15	13016 18-Ma	
s found leak check:		пуа	19-141	al-13	10-1419	11-13
, round round orrotti		Base	Zero	Reference	Zero	
PM 2.5 Flow	actual	0.03	0.15	0.02	0.16	
	limit	0.15	<b>&gt;</b>	0.15	><	
Bypass Flow	actual	0.08	-0.09	0.06	-0.10	
2,622	limit	0.60	<b>&gt;</b>	0.60	> <	
s left leak check (same as above if as	found passes):			•		
		Base	Zero	Reference	Zero	
PM 2.5 Flow	actual	0.03	0.15	0.02	0.16	
	limit	0.15	$\sim$	0.15	><	
Bypass Flow	actual	0.08	-0.09	0.06	-0.10	
	limit	0.60	$\mathbb{X}$	0.60	$\geq$	
s found temperature and pressure:						
tolerance +	•			tolerance	+/- 0.01 atm	
1405F temperature °C:	4.1	-		F pressure atm: _	0.936	
reference temperature °C:	3.0	_	refe	rence pressure: _	0.938	
difference <sup>o</sup> C: s left temperature and pressure (sam	-1.1	found adoquate).		difference :	-0.002	
tolerance +		round adequate).		tolerance	+/- 0.01 atm	
1405F temperature °C:	3.0		1405	F pressure atm:	0.938	
reference temperature °C:	3.0	_		rence pressure:	0.938	
difference °C:	0.0			difference :	0.000	
s found flows:	0.001					
main flow tolerance 3.00 lpm +/	•					7/13.67 lpm +/- 1.00 lpm/+/- 7%
1405F main flow ipm: reference main flow ipm:	3.00	_			otal/aux flow lpm: otal/aux flow lpm:	16.67 16.76
difference lpm:	0.00	<del>-</del>		reference (	difference lpm:	0.09
s left flows (same as above if as foun	d adequate):					
main flow tolerance 3.00 lpm +/	•					7/13.67 lpm +/- 1.00 lpm/+/- 7%
1405F main flow lpm:	3.00	_			otal/aux flow lpm:	
reference main flow lpm: difference lpm:	3.00 0.00	_		reference t	otal/aux flow lpm: difference lpm:	16.76 0.09
, Audit:	0,00				anterence ipm:	
Last K <sub>a</sub> audit date:	3-Nov-15					
1405F K <sub>o</sub> factor:	14578	<b>-</b>				
Measured K <sub>o</sub> factor:	14764.1000	_				
% difference:	1.28	_				

Date:	Novembe	er 23, 2015		Perfo	rmed By/Reviewer:	Alex Yakupov Trina Whitsi	
Company:		CA		1 6110	Start Time (mst):	15:30	
Station Name/Location:		ke South			End Time (mst):	16:17	
Previous Audit Date:	Novemb	er 3, 2015	<u> </u>	c	Calibration Purpose:	Bi-monthly #2	
Parameter:	PIV	2.5		v	Veather Conditions:	A few clouds	
400A Information and Status:							
Serial Number:	1405A20	01620804	As Found	Filter Loading %:	23.48		
Ko Factor:	14	578	 As Left	Filter Loading %:	23.52		
Ambient Temperature °C:	-1	.03		As Found Noise:	0.004		
Ambient Pressure atm:		931		As Left Noise:	0.000		
Main Flow Reading Ipm:		00	<u>_</u>	Pump Vacuum:	0.32		
Aux Flow Reading Ipm:	16	.66		Warnings:	None		
eference Standards:	ri.		Duna		T		
Make:		ow: 'yer	1	sure: her	<b>Temperatu</b> Fisher	re:	
Model:		lark III		1291	FB 1291		
Serial Number:	····	/a		68457	13016845	7	
Calibration Date:	n	/a	18-N	lar-15	18-Mar-1!		
s found leak check:							
		Base	Zero	Reference	Zero		
PM 2.5 Flow	actual	0.02	0.16	0,02	0.16		
	limit	0.15		0.15			
Bypass Flow	actual	0.08	-0.09	0.05	-0.09		
s left leak check (same as above if as	limit	0.60		0.60			
s lett leak check (same as above it as	iouna passes):	Base	Zero	Reference	Zero		
PM 2.5 Flow	actual	0.02	0.16	0.02	0.16		
1111 213 11011	limit	0,15		0.15			
Bypass Flow	actual	0.08	-0.09	0.05	-0.09		
	limit	0.60		0.60	$>\!\!<$		
s found temperature and pressure:							
tolerance ·	•			tolerance	+/- 0.01 atm		
1405F temperature °C:				iF pressure atm: _	0.931 0.932		
reference temperature °C: difference °C:	-1.7		refe	reference pressure:			
s left temperature and pressure (san	-0.7	ound adoquately		difference :	-0.001		
tolerance -		ound adequate).		tolerance	+/- 0.01 atm		
1405F temperature °C:	-1.7		1405	F pressure atm:	0.932		
reference temperature °C:	-1.7			erence pressure:	0.932		
difference °C:	0.0			difference :	0.000		
s found flows:	/ 0.00 la						
main flow tolerance 3.00 lpm +, 1405F main flow lpm:	3.00				ix flow tolerance 16.67/13 total/aux flow lpm:	.67 lpm +/- 1.00 lpm/+/- 7% 16.66	
reference main flow lpm:	2.99				total/aux flow lpm:	16.62	
difference lpm:	-0.01				difference lpm:	-0.04	
s left flows (same as above if as four							
main flow tolerance 3.00 lpm +, 140SF main flow lpm:	3.00				x flow tolerance 16.67/13 total/aux flow lpm:	.67 lpm +/- 1.00 lpm/+/- 7% 16.66	
reference main flow lpm:	2.99				otal/aux flow lpm:	16.62	
difference lpm:	-0.01			******	difference lpm:	-0.04	
Audit:	0 N 4=						
Last K <sub>o</sub> audit date:	3-Nov-15						
1405F K <sub>o</sub> factor: Measured K <sub>o</sub> factor:	14578 14764.1000						
% difference:	1.28						
omments:	4,40						





Met One Instruments 1600 NW Washington Bivd. Grants Pass, Oregon 97526 Telephone 541-471-7111 Paesimile 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

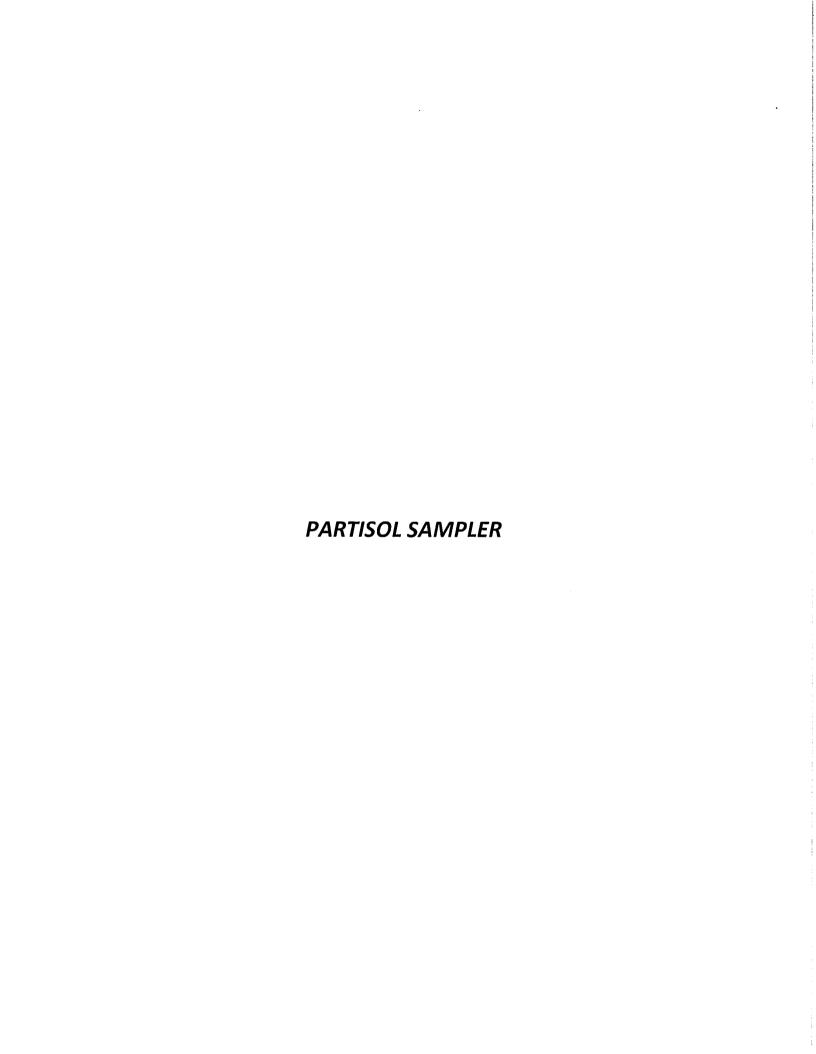
Common:	Mandal At		50.5H Sonic				Ç.	mente C	erial No:	F1644
	Model N			************	D 4	D. No:	se		eriai ivo: Sales Ordei	
Custom		. Th	Y.7				~		Saics Oruci ion Date:	04-01-15
	alibratio			evin I		district the property of the second s	C			
Quality	Control	Inspected	Ву:		3	the transfer of the last of th		Inspec	ction Date:	APR 0 3 2015
New Ur	it[	Repai	ir/Adjust 🔀		R	e-Calibrat	ion [	X ]	As Foun	•
Unit W	ithin Tol	erance as		Calib	ratio	n Equipme		Withi	n Tolerance	as Left X
E	juipmen	t I	Manufacture	er		Model No.		5	erial No.	Cal. Due
	Multimet		Agilent/HP	Ī		34401A		M	Y41039534	4/11/2015
Digital	igital Multimeter 2 Agilent/H					34401A		U:	S36094551	8/26/2015
	equency Counter Agilent/H					53131A		M	Y40009285	5/22/2015
Standar	ndard Sensor MOI 010C-1 P22383				P22383	7/11/2017				
Temper	mperature Probe MOI 920005/PC8340 E3402				9/03/2015					
Test 1: A	verage Wh	nd Tunnel S	pced:	3.08		Meters p	er Sec	ad Fi	rmwareVersio	n: 3194-01 R2.62
WD	WD	avz	WD	l w	s l	WS	,	WS	ws	
Setting		Indication		Stand		Output		cation	Error	Output Type:
(Deg)	(Volts)	(Deg)	(+/- 3 Deg)	(10/		(Volts)		u/s)	(+/20 m/s)	,
30	.084	30.3	.3	3.0		.059		.96	1	0 to 1 volt X
60	.165	59.3	7				2.9413 2.9414		0 to 2.5 volt	
120	.334	120.2	.2				14 13	0 to 5 volt RS-232 X		
150	.415 .583	149.5 210	5 0	3.0		.059	2.94 2.95		13 12	SDI-12
210 240	.668	240.3	.3	3.0		.06	2.95 2.98		14	RS-422
300	.834	300.4	.3 .4	3.0		.06		2.901 3.0204		RS-485
330	.916	329.8	2	3.0		.059		.97	12	
Test 2: A	vernge Wi	nd Tunnet S	peed:	11.85	;	Meters				tange: 0-50 m/s
WD	WD	WD	WD	l w	/S	l ws	,	vs	ws	ı
Setting	Output	Indication		Stan		Output		cation	Error	Test Items:
(Deg)	(Volts)	(Deg)	(+/- 3 Deg)		/s)	(Volts)	*************	n/s)	(+/24 m/s)	1 .
30	.081	29.3	7	11.		.235		1.76	04	Array Alignment
. 60	.165	59.5	5	#	.85	.237		.87	.01	Jumper Config
120	.331	119,1	9	28	.85	.236		1.81	03	Firmware Config
150	.415	149.3	7		.88	.236		1.8	08	Zero Calibration
210	.582	209.5	5	11.		.236		1.79	02	Low Speed Test OK
240	.666	239.9	1		.88	.235		1.73	16	High Speed Test OK
300	.833 .915	299.7	3 4	11. 11.	.87	.235 .238		1.73 1.9	13 .06	Sensor Function Physical Inspection
330		329.6								These standards are
amanaru Pertangan	traceable	to NIST to	the extent allow	ved by	the in	stitute's cali	bratio	n facilit	v. Unless othe	rwise stated hereon, al
										complies with MIL-

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

Document 50.5-6101

Sonic Tunnel Calibration Certificate

Rev. D

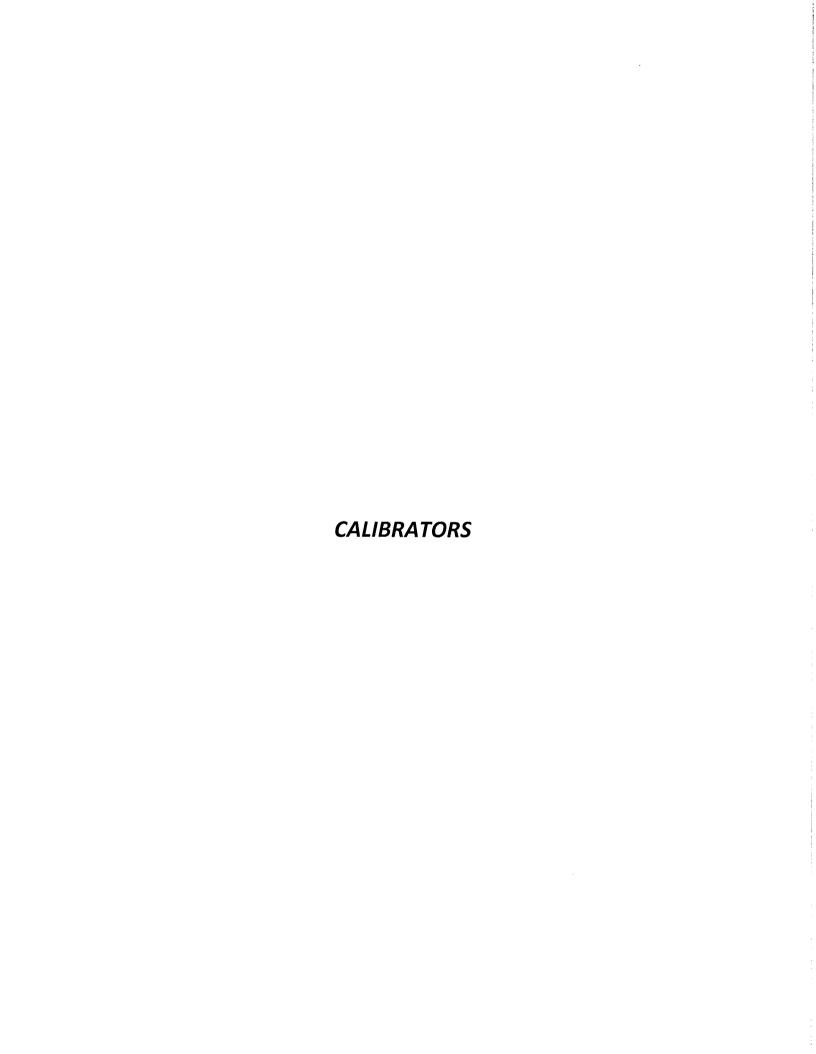


			PAR	TISOL 2000	)				
Date:	Nov	ember 17, 2	015	Referen	nce Standard:	St	reamline F	TS / 091001	
Company:		LICA		Reference S	Standard s/n:	Ī	B61291 / 1	30168457	
Station:	Co	old Lake Sou	th	 Weathe	er Conditions:		Cle	ar	
Parameter:	-	PM 2.5		Start/End	d Time (mst):		10:50/	11:20	
Calibration Purpose:		shut down		Performed By	y/Reviewer:	Alex Y	Alex Yakupov Trina Whitsitt		
	Sampler				In	strument [	Data	· <del>-</del>	
	lake/Model:	R	& P	Tem	perature (°C)		4.3	3	
	Unit#		1517	***	essure (ATM)		0.92		
• •	S/N:		04009710		t Flow (I/min)		16.		
	57.11	20007121		ration Constants			10.		
				culated	Offse	o†	h	Span	
lt.	em em		Initial	Final	Initial	Final	Initial	Final	
Anala	~ lass								
	g Input		0.001	NA	0.0008	NA	0.9915	NA	
· · · · · · · · · · · · · · · · · · ·	erature		4.3	NA	$\ll$	25	1.0055	NA	
	ssure		0.918	NA		<b>×</b>	0.9939	NA	
Fl	ow		-0.10	NA	-0.0436	NA NA	0.9989	NA	
				e Board Calibrati					
ltem			eptable		Pre Calib	ration	Pos	t Calibration	
R21		6.000 VD	C (±0.05 V)		NA			NA	
R44		10.000 VE	OC (±0.002 V	/)	NA		NA		
			Analog	Input Calibratio	n				
Item	•	Acce	eptable		Pre Calib	ration	Pos	t Calibration	
"AO" Offset	0		VDC ( ±0.00	05 V)	NA			NA	
"AO" Span			VDC ( ±0.00		NA NA			NA NA	
710 00011	<u></u>			e/Pressure Calib				1071	
D - (			Cinperatur	4.7			0.4	4	
Reference Temp					Δ°C		<del></del>		
Reference Press	ure: ( ±0.02 A	(TIVI)	0.919 <b>Δ ATM</b>				0.00	01	
				Leak Check					
Unit	Flow Contro Closed (V		-	ve Closed after s. (V2) in Hg	VL=1/2*V	1 in Hg	Leakage Calculation (V2 VL) After 10 Secs in Hg		
Hub	14	.0		13.5	7			6.75	
			Flo	w Calibration					
Item			Acceptab	le	Calcula	ited		Actual	
"Zero" Offse	et	0.	.1 lpm to -0.	.1 lpm	0.0			0.1	
"Flow" Spai	1	±7.0	0 % Adjust t	o 16.7 L	16.7	7		16.72	
		<u></u>	Ot	ther Checks:					
	Condition		Condition		Condition		Condition		
Rubber Seals:	ОК	inlet:	OK	Inline Filter:	ОК	Status:	ОК		
Comments:		Shutdown <i>I</i>	Audit perfor	med to rebuild a					
Ca	libration Per	formed By		Alex Yakı	unov				

			PART	ISOL 2000	)				
Date:	Nov	ember 17, 2	.015	Refere	nce Standard:	St	reamlin <b>e</b> F	TS / 091001	
Company:		LICA		Reference :	Standard s/n:		B61291 / 1	L30168457	
Station:	Cc	old Lake Sou	th		er Conditions:		Cle		
Parameter:		PM 2.5			d Time (mst):		12:15/	12:55	
Calibration Purpose:		post repair		Performed B			akupov	Trina Whitsitt	
	Sampler				In	strument	)ata		
V	/lake/Model:		& P	•	perature (°C)		6.4		
	Unit #		.517		essure (ATM)		0.9		
	S/N:	2000A20	04009710		t Flow (I/min)		16	.7	
				ation Constants					
l lt	em		Calculated Offset				<b>.</b>	Span	
			Initial	Final	Initial	Final	Initial	Final	
	g Input		0.001	NA	0.0008	NA	0.9915	NA	
	erature		6.4	NA	$\geq \leq$	≥<	1.0055	NA	
	ssure	····	0.918	NA	><	<b>&gt;</b> <	0.9939	NA	
FI	ow		-0.10	NA	-0.0436	NA	0.9989	NA	
	·			Board Calibrat		· · · · · · · · · · · · · · · · · · ·			
Item			eptable		Pre Calib		Pos	t Calibration	
R21	<b></b>		OC (±0.05 V)	, , , , , , , , , , , , , , , , , , , ,	NA		1	NA	
R44		10.000 V	OC (±0.002 V		NA NA			NA	
				Input Calibratio					
ltem			eptable	- · · · · · · · · · · · · · · · · · · ·	Pre Calib		Post Calibration		
"AO" Offset			VDC ( ±0.00		NA		NA		
"AO" Span	4		VDC ( ±0.00		NA		NA		
				Pressure Calil					
Reference Tem				6.7	Δ°C		0.3		
Reference Press	ure: ( ±0.02 A	TM)		.919	Δ ΑΤΜ		0.0	01	
			L	eak Check					
Unit	Flow Contro	*	•	e Closed after	VL=1/2*V	1 in Hø	Leakage Calculation (V2		
J	Closed (\	′1) in Hg	10 Secs.	(V2) in Hg	VL-1/2 V	± 111 116	VL) After 10 Secs in Hg		
Hub	16	.0	1	L5.0	8		7.5		
		•	Flov	v Calibration					
ltem			Acceptabl	е	Calcula	ited		Actual	
"Zero" Offse	et	Ö	.1 lpm to -0.:	1 lpm	0.0			0.1	
"Flow" Spa	n	±7.	0 % Adjust to	16.7 L	16.7	7		16.60	
			Ot	her Checks:					
	Condition		Condition		Condition		Condition		
Rubber Seals:	OK	Inlet:	OK	Inline Filter:	OK	Status:	OK		
Comments:		Postrepair	· Audit: reasc	on - sampling pu	ump was rebu	ilt.			
Ca	alibration Per	formed By:		Alex Yak	kupov				

			PART	risol 2000	)			<u> </u>	
Date:	Nov	ember 24, 2	2015	Refere	nce Standard:	S	treamline F	TS / 091001	
Company:		LICA		. Reference :	Standard s/n:		FB61291 / 1		
Station:	Co	old Lake Sou	ith	_	er Conditions:		lainly cloud	y with snow	
Parameter:		PM 2.5		Start/En	d Time (mst):		09:26 /	10:17	
Calibration Purpose:		shut down		Performed B	y/Reviewer:	Alex Y	'akupov	Trina Whitsitt	
	Sampler				In	Instrument Data			
N	/lake/Model:	R	& P	Tem	perature (°C)		-9.4		
	Unit #	# 1	1517	Pre	essure (ATM)		0.9	)5	
	S/N:	2000A20	04009710	Set	t Flow (I/min)		16	.7	
			Calibra	ation Constants	5				
I+	em		Calc	culated	Offse	et		Span	
10	em		Initial	Final	Initial	Final	Initial	Final	
Analo	g Input		0.001	NA	0.0008	NA	0.9915	NA	
Temp	erature		-9.4	NA		$\overline{\mathbf{x}}$	0.9946	NA	
Pre	ssure		0.945	NA		$\mathbf{>}$	0.9939	NA	
FI	ow		-0.10	NA	-0.0436	NA	0.9989	NA	
<u> </u>			Interface	<b>Board Calibrat</b>	ion		·*	<u></u>	
ltem		Acc	eptable		Pre Calib	ration	Pos	t Calibration	
R21		6.000 VE	OC ( ±0.05 V)		NA			NA	
R44		10.000 VE	OC (±0.002 V)	)	NA		<u> </u>	NA	
	<u> </u>		Analog	Input Calibratio	on		<u> </u>		
Item		Acc	eptable		Pre Calib	ration	Pos	t Calibration	
"AO" Offset	0		VDC ( ±0.00	5 V)	NA			NA	
"AO" Span			VDC (±0.00		NA NA		NA NA		
7.0 0 5 5 5 5 5				e/Pressure Calik					
Reference Temp	ooraturo: ( +5			-8.8	Δ°C		0,	6	
Reference Press				.946	Δ ΑΤΜ		0.001		
Reference F1ess	ure. ( ±0.02 A	(1101)	<u> </u>	eak Check	ΔΑΠΝΙ		0.0	J1	
	r			eak Check					
	Flow Contro	oller Valve	Pump Valve	e Closed after	VL=1/2*V1 in Hg		Leakage Calculation (\		
Unit	Closed (V	/1) in Hg	10 Secs.	. (V2) in Hg	VL=1/2*V	1 in Hg	VL) After 10 Secs in Hg		
Hub	16	.0		15.0	8		7.5		
				w Calibration					
ltem			Acceptable		Calcula	ited		Actual	
"Zero" Offse			.1 lpm to -0.1		0.0			0.1	
"Flow" Spar	ก	±7.0	0 % Adjust to		16.7	7		16.73	
				her Checks:					
	Condition		Condition		Condition		Condition		
Rubber Seals:	OK	Inlet:	OK	Inline Filter:	ОК	Status:	OK		
Comments:				<u></u>	,.				
Shutdown	າ audit perfor	med to repl	ace the AEM	IERA Partisol sa	mpler with a N	√axxam's	Partisol san	npler.	
C:	alibration Per	formed By		Alex Yak	runov.				
Ca	mpration Per	torinea by:		Alex Yak	lupov				

			PART	ISOL 2000	•				
Date:	Nov	ember 24, 2	.015	Referer	nce Standard:	St	reamline F1	S / 091001	
Company:		LICA		Reference S	Standard s/n:		B61291 / 1	30168457	
Station:		ld Lake Sou	th	Weathe	r Conditions:	М	ainly cloudy	with snow	
Parameter:		PM 2.5		Start/End	d Time (mst):				
Calibration Purpose:		installation		Performed By	y/Reviewer:	Alex Y	akupov	Trina Whitsitt	
	Sampler				ln:	strument l			
/	/lake/Model:	R	& P	Tem	perature (°C)	,	-9.7		
	Unit#	# 2	873		essure (ATM)		0.94		
	S/N:	2000B20	06140102		Flow (I/min)		16.		
·	· · · · · · · · · · · · · · · · · · ·		Calibra	tion Constants					
······································				ulated	Offse	et		Span	
lt	em		Initial	Final	Initial	Final	Initial	Final	
Analo	g input		0,000	NA	-0.0019	NA	0.9987	NA	
	erature		-9.7	NA	0.0013		0.9967	NA NA	
	ssure	···········	0.941	NA NA		$\Leftrightarrow$	0.9993	NA NA	
	ow		0.10	NA NA	-0.0098	NA	1.0028	NA NA	
	OW			Board Calibrati		INA	1,0028	IVA	
ltem		Acc	eptable	Dourd Calibrati	Pre Calib	ration	Pos	t Calibration	
R21			C ( ±0.05 V)		NA	1)*		NA	
R44			OC (±0.002 V)		NA			NA	
	R44 10.000 VD						l		
Item	1	Acce	eptable	nput Calibratio	Pre Calib	ration	Pos	t Calibration	
"AO" Offset	0.		VDC (±0.00	5 V)	NA		NA		
"AO" Span			VDC (±0.00)		NA				
AO Spail				/Pressure Calib			NA NA		
5.6				9.7			0.0		
Reference Tem	•				Δ°C		0.0		
Reference Press	ure: ( ±0.02 A	1101)		.941	Δ ΑΤΜ		0.00	JU	
			L.C	eak Check	<u> </u>		T		
	Flow Contro	oller Valve	Pump Valve	e Closed after			Leakage	Calculation (V2 >	
Unit	Closed (V	1	•	(V2) in Hg	VL=1/2*V	1 in Hg	VL) After 10 Secs in Hg		
			L				VL) After 10 Secs in fig		
Hub	23	5		3.5	11.7	5	11.75		
			Flov	v Calibration					
Item			Acceptable	e	Calcula	ted		Actual	
"Zero" Offse	et	0.	.1 lpm to -0.1	l lpm	0.0			0.1	
"Flow" Spa	n	±7.0	0 % Adjust to	16.7 L	16.7	7		16.64	
			Otl	her Checks:			·		
	Condition		Condition		Condition		Condition		
Rubber Seals:	OK	Inlet:	OK	Inline Filter:	OK	Status:	OK		
Comments:									
	Inst	allation per	formed to r <b>e</b>	place the AEM	ERA Partisol sa	ampler.			
						•			
						****	•		
	alibration Per			Alex Yak					





### Calibrator Performance Audit OZONE

File No. 2015-030A

Company:	Ма	xxam		Operator	r: Limi	n Li			
	ibrato				Measurement	Device:			
Make/Mod			2010D	-	te/Model	<del></del>	/A		
Serial Num		<del></del>	00613	-	l Number		/A		
Oven Temper		· · · · · · · · · · · · · · · · · · ·	√A	- 1 -	rature (°C)	<del></del>	/A		
Last Verificatio	n Date	<u> </u>	1/A	- Baromet	tric Pressure	N,	<u>/A</u>		
Flow M	easure	ments		<b>I</b>					
Pt. No. 1 5	000	Pt. No. 2	5000	Pt. No. 3	5000	-			
Calibrator Flo	)W	Calc	ulated	Inc	licated	% Dif	Faranaa		
i	(sccm) Concentration (ppm			I I	ration (ppm)	% Difference vs Audit Gas % Diff. Lir			
	5013 0.000				).001	Was Addit Gas			
	5013 0.400		***		0.407	1%	± 10%		
	5013 0.200				).204	1%	± 10%		
5014			<del>                                    </del>	),101	0%	± 10%			
				e Average Percent Difference 1% ± 10%					
		LINE	CAR REGRE						
	03		LIMITS	rix+b (wnere x=o	alculated concentra	tion, y=indicated	concentration)		
_	 lation=	1.0000	≥ 0.995						
m (S	lope)=	1.0163	0.90-1.10						
b (Intercept %		0.080.0	± 3% F.S.						
I	AENV	Standards			Ozone Ar	nalvzer			
Audit Calibra	ator			Mak	e/Model	Teco	49i		
Make/Mode	el	Teco	49i PS		MU Number	AMU			
Serial/AMU Nu	mber	AMU	1808	Last Cali	bration Date	May 21	, 2015		
Ozone Standa	ard	Prir	nary	Full So	cale (ppm)	0.			
COMMENT	rs:								
A Operator Sign	uditor: nature:	Al C	Clark	Date Location					
	,	Al C	lark Imb-		e: May 21 a: McIntyre Cent				



# Calibrator Performance Audit Sulphur Dioxide (by Cylinder Dilution)

File No. 2014-258A

Company: Max	cxam	-	Operator:	Llmi	n Li	
Calibrator	•		Flow Me	easurement l	Device:	
Make/Model		I 700	Make/l		N/	/A
Serial Number		30	Serial N		N <sub>i</sub>	
Last Verification Date		2013	f in its	Temperature (°C)		/A
SO <sub>2</sub> Cylinder Conc.		0.3	Barometri	` '	N.	
SO <sub>2</sub> Cylinder S/N	. LL4	2475				
Flow Measurer	nents					
Pt. No. 1 79.5	Pt. No. 2	39.8	Pt. No. 3	19.9		
Calibrator Flow	Cala	ulated	Indic	ata d	0/ D:4	Y
		•	Concentrat			ference % Diff. Limit
(sccm) Zero Air		ation (ppm)			vs Audit Gas	% Diff. Limit
		000	0.0			. 400/
4918		800	0,798		0%	± 10%
4960	· · · · · · · · · · · · · · · · · · ·	400	0.3	•	-1%	± 10%
4977	0.	Absolute	0,2 Average Percer	<del></del>	0% 0%	± 10% ± 10%
					070	1070
	LIN		SSION ANAL mx+b (where x=ca		ation vaindicated	t concentration)
$\underline{SO_2}$		LIMITS	mix in [whole x-cal	iculated collectific	alion, y-indicalec	i concentration)
Correlation=	1,0000	$\geq 0.995$				
Correlation=	1,0000 0.9971	≥ 0.995				
-	1.0000 0.9971 0.0000					
Correlation= m (Slope)= b (Intercept % of FS)=	0.9971	$\geq 0.995$ $0.90-1.10$		SO <sub>2</sub> An	alyzer	
Correlation= m (Slope)= b (Intercept % of FS)=	0.9971 0.0000	$\geq 0.995$ $0.90-1.10$	Make/	_	·	43C
Correlation= m (Slope)= b (Intercept % of FS)=  AENV	0.9971 0.0000 Standards	$\geq 0.995$ $0.90-1.10$	Make/ Serial/AM	Model	Tecc	9 43C 1623
Correlation= m (Slope)= b (Intercept % of FS)=  AENV  Audit Calibrator	0.9971 0.0000 Standards R&R M	≥ 0.995 0.90-1.10 ± 3% F.S.		Model U Number	Tecc AMU	
Correlation= m (Slope)= b (Intercept % of FS)=  AENV Audit Calibrator Make/Model	0.9971 0.0000 Standards R&R M	≥ 0.995 0.90-1.10 ± 3% F.S.	Serial/AM	Model U Number ration Date	Tecc AMU Dec	1623
Correlation= m (Slope)= b (Intercept % of FS)=  AENV Audit Calibrator Make/Model Serial/AMU Number  COMMENTS:	0.9971 0.0000 <b>Standards</b> R&R M AML	≥ 0.995 0.90-1.10 ± 3% F.S.	Serial/AM Last Calibr Full Scal	Model U Number ration Date le (ppm)	Tecc AMU Dec	1623 15/14 .0
Correlation= m (Slope)= b (Intercept % of FS)=  AENV Audit Calibrator Make/Model Serial/AMU Number  COMMENTS:	0.9971 0.0000 <b>Standards</b> R&R M AML	≥ 0.995 0.90-1.10 ± 3% F.S. MFC 201 1 1690	Serial/AM Last Calibr Full Scal	Model U Number ration Date le (ppm)	Tecc AMU Dec	1623 15/14 .0
Correlation= m (Slope)= b (Intercept % of FS)=  AENV Audit Calibrator Make/Model Serial/AMU Number  COMMENTS:	0.9971 0.0000 <b>Standards</b> R&R M AML	≥ 0.995 0.90-1.10 ± 3% F.S. MFC 201 1 1690 slow to move the control of the con	Serial/AM Last Calibr Full Scal	Model U Number ration Date le (ppm)	Tecc AMU Dec 1	1623 15/14 .0



### Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2015-001A

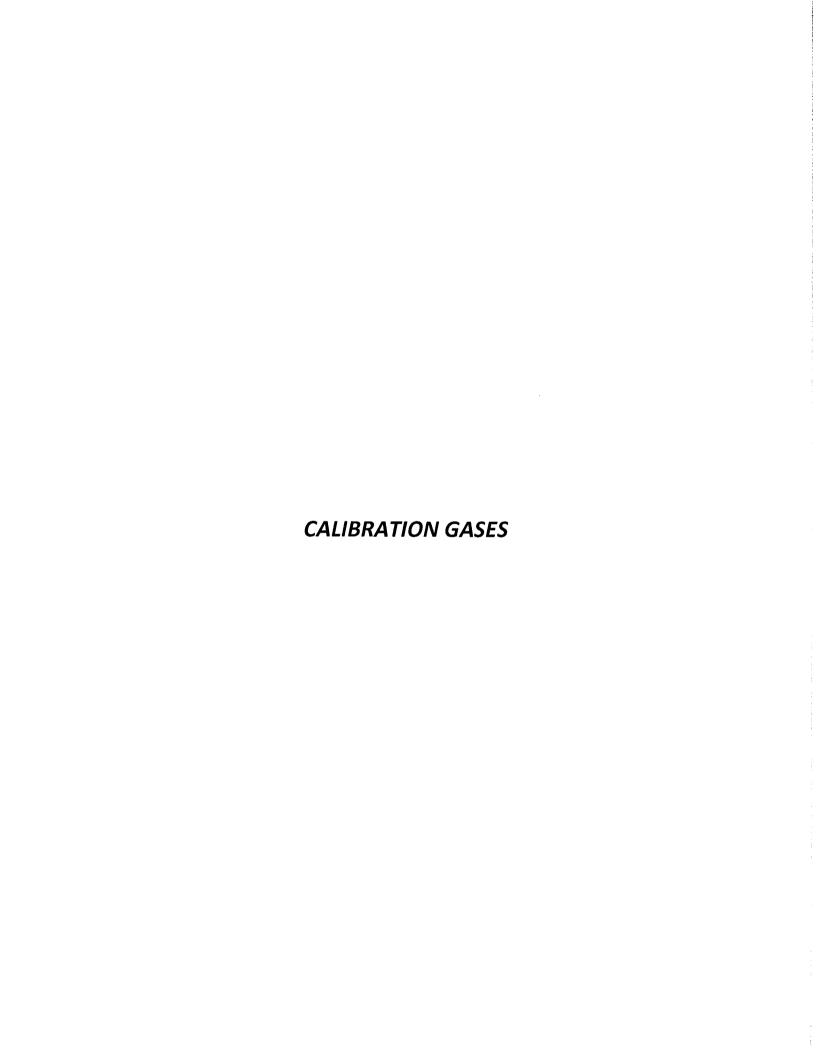
Company	Max	xam			Operator:	Lim	in Li	
	Calibrator				l	leasurement	Device:	<u> </u>
	/Model	API '	***************************************	•	l	Make/Model		<u>/A</u>
	Number	62		•	Serial Number			<u>/A</u>
	ication Date	<del>, , , , ,</del>		-		ture (°C) c Pressure		/A
NO/NOX Co	inder S/N	BLM00 50.8/			Barometri	c Pressure	N/A	
			00.0	•				
	ution Flow (s		5000	D4 410	5000			
Pt. #1	5000 Jas Flow (sco		5000	Pt. #3	5000			
Pt. #1		Pt. #2	40	Pt. #3	20			
2 01 11 2						·		
Calibrator I	Flow (seem)	Calculated (	Conc.(ppm)	Indi	cated Conc.(†	opm)	% Difference	vs Audit Gas
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5000	0.0	0.000	0,000	0.000	0.001	0.001	Limit	± 10%
4999	78.7	0.800	0.800	0.851	-0.016	0.835	6%	4%
5000	39.4	0.400	0,400	0.423	-0.008	0.416	6%	4%
5001	19.7	0.200	0,200	0.211	-0.003	0.208	5%	3%
				Absolute A	verage Perce	nt Difference	6%	4%
LINEAR	REGRESSI	ON ANALYS	SIS	<i>γ</i> :	=mx+b (where x=	calculated concen	tration, v=Indicate	ed concentration
	***				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
4	<u>NO</u>	4.0000		<u>IITS</u>		NOx		
(	Correlation=	1.0000		.990		Correlation=	1.0000	
la (Yestawa)	m (Slope)=	1.0641		-1.10	1. (Y., t	m (Slope)=		
o (mierce	ept % of FS)=	-0.1200	±37	6 F.S.	b (interc	ept % of FS)=	0.0000	
Flow	O <sub>3</sub> Conc	NO De	crease	NO	NO2	NOX	% Diff V	s Audit gas
4999	0.000	0.00		0.841	-0.015	0,831	NO <sub>2</sub>	% Diff. Limi
4999	0.520	0.56		0.279	0.518	0.797	-5%	± 10%
4999	0.280	0.30		0,533	0.286	0.818	-2%	± 10%
4999	0.100	0.10	08	0.733	0.095	0.828	2%	± 10%
	\ <u>\</u>			Absolute A	verage Perce	nt Difference	2%	± 10%
LINEAR	REGRESSI	ON ANALYS	SIS	<i>y</i> :	=mx+b (where x=	calculated concen	tration, y≃indicat	ed concentration
	$NO_2$		LIM	<u>IITS</u>				·
(	Correlation=	0.9998		.995				
	m (Slope)=	0.9458		-1.10				
b (Interce	ept % of FS)=	-1.0258	± 3%	6 F.S.				
							····	·
		standards				NO <sub>X</sub> A	nalyzer	
	Audit Ca					Make/Model		o 42i
	Make/Model	Teco		•		AMU Number		1868
Serial/A	MU Number	AMU <sup>*</sup>	1808			llibration Date		1, 2015
	***************************************			·	FU	ll Scale (ppm)		.0
CC	DMMENTS:	Cylinder conta	ins 49.7 ppm	SO2. Syster	n shows NOx o	lrop when O3	added. Also r	noisy
	-	during GPT ph						
	Auditor:	Al Cl			Date:	April 1	, 2015	
Operato	or Signature:	Par Os	1 Chal	·		McIntyre Cent		-
4	J	ما العسود الم	-Comme	z. 1	_ = = = = = = = = = = = = = = = = = = =			_



### Calibrator Performance Audit Oxides Of Nitrogen

File No. 2015-032A

	ernment			Oxides Of				Z010-03ZA
Company	/ Max	xam			Operator:	Lim	in Li	
	Calibrator	:			Flow M	leasuroment	Device:	
Mak	e/Model	Sabio	2010	1	Make/	Model	N/	Ά
Serial	Number	1720	0415		Serial 1	Number	N/	'A
Last Veri	fication Date	Ne	ew .	•	Tempera	ture (°C)	N/	'A
NO Cy	linder S/N	BLMO	27561	•		c Pressure	N/	'A .
NO/NOX C	oncentration	50.7	/50.7	_		•		
Di	lution Flow (s	seem)		<del></del>	***			
Pt. #1	5000	Pt. #2	5000	Pt. #3	5000			
(	Gas Flow (sec	m)		•		,		
<b>Pt.</b> #1	80	Pt. #2	40	Pt. #3	20			
Calibrator	Flow (scom)	Calculated	Conc (npm)	Indi	cated Conc.(r	nm)	% Difference	va Andit Goa
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	
	<del></del>		······					NOx
5010	0.0	0.000	0.000	0.000	0.000	0.000	Limit :	
5033	79.1	0.797	0.797	0.790	-0.011	0.779	-1%	-2%
5030	39.7	0.400	0.400	0.395	-0.005	0.390	-1%	-3%
5029	20.0	0.202	0.202	0.198	-0.003	0.195	-2%	-3%
				Absolute A	verage Percei	nt Difference	1%	3%
LINEAR	REGRESSI	ON ANALY	SIS	<i>y</i> =	mx+b (where x=	calculated concen	tration, y≖Indicate	d concentration
	<u>NO</u>		LIN	<u>IITS</u>		. NOx		
	Correlation=	1.0000		,990		Correlation=	1.0000	
	m (Slope)=	0.9920		-1.10		m (Slope)=	0.9783	
b (Interc	ept % of FS)=	#DIV/01		6 F.S.	h (Interc	ept % of FS)=	#DIV/0!	
0 (2111010	-p. , v o. 1 . 5)	<i>,,</i> = 1, 1, 0, 1	_5,	0 1 4,54	o (micoro	орт 70 от г а)	mbivio:	
Flow	O <sub>3</sub> Conc	NO De	crease	NO	NO2	NOX	% Diff. Vs	Audit gas
5033	0.000	0,0		0.787	-0.011	0.776	$NO_2$	% Diff, Limi
5033	0.520	0.4	90	0.297	0.475	0.772	0	± 10%
5033	0.280	0,2		0.526	0.249	0.774	0	± 10%
5033	0.100	0.0	89	0.698	0.078	0.775	0	± 10%
				Absolute A	verage Percei	nt Difference	0	± 10%
LINEAR	REGRESSIC	ON ANALY	SIS	. <i>y</i> =	mx+b (where x=	calculated concen	tration, y=Indicate	d concentration
	$\underline{NO_2}$		LIM	<u>IITS</u>				
	Correlation=	1.0000		.995				
	m (Slope)=	0.9916	0.90	-1.10				
b (Interc	ept % of FS)=	#DIV/01	±3%	6 F.S.				
	A TENTAL C	tandards		· · · · · · · · · · · · · · · · · · ·		NO. A.		
	Audit Ca					NO <sub>X</sub> Aı	•	401
	Make/Model	Teco	146		Saula1/	Make/Model		
Serial/A	MU Number	AMU	<del></del>	•		AMU Number dibration Date		
Soligit	TITE THEITOU	, ,	1000			ll Scale (ppm)	· · · · · · · · · · · · · · · · · · ·	, 2010
C	OMMENTS:	Contains 40 0	nnm SO2					
	Auditor:	Al C			Data	May 2	1 2015	
Onatich	or Signature:	- /) /)	On lo	,			- ''	•
Operation	n orginature:	11000	Kilm In		Location:	McIntyre Cent	er Eamonton	



Form No. Version No. F-GAS-002



Company:	Max	xam	Operator's Name: Limin Li					
Cylinder#:	BLM002073	Concentration PPM:	49.5	Tolerance(%)	2	Certified By:	Air Liquide	
Reference (	Calibrator a	nd Gas:		Flow Meas	urement	Device:		
Make/Model: R&F		R&R MFC 201		Mak	æ/Model:	Blos [	OC2	
Ser	ial Number: ַ	AMU 1690		Serial	Number:	AMU <sup>^</sup>	1659	
Last Verifi	cation Date:	March 31, 2015			Гетр.°С:	22.5	С	
	Gas Type:	SO2 Conc.	98.57			690 m		
Cylin	der Number:	CAL016720						
teference A	•	Teco 43C	Serial/A	AMU Number:	1623			
nstrument S		Zero: 7.9		1.028		- 1.0		
ast Calibra		Date: Mar 31/15		1.000		•	ark	
Calibrator Flo	ows (seem) Gas	Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentrat Factor		Cylin Concen		
5000	0.0	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,		
Duovious S	Italiad Canaan	tration PPM: 49.5	Avera	ge Cylinder Conc	entration;	48.	0	
Pe	cent variance	from Stated: 3.0						
Meets Man	ufacturer Toler	ance, Use manufacturers stated	d concentration	COMMENTS:				
<=5% Outsid	e Manufacture	Tolerance. Use manufacturer:	s concentration X					
> 5% C	utside Manufac	cturer Tolerance. <u>DO NOT US</u>	E this cylinder					
				-				
	Auditor:	Al Clark		Date:	March	31, 2015		

Form No. Version No. F-GAS-002 1.1



Company: _	Махх	am	Operator's Name: Limin Li				
Cylinder#: <u>l</u>	BLM002756T	Concentration PPM:	49.9	Tolerance(%)	2	Certified By:	Air Liquid
Reference C	Calibrator a	nd Gas:		Flow Mea	surement	Device:	
M	ake/Model:	R&R MFC 201		Mai	ke/Model:	Bios I	OC2
Seri	al Number: _	AMU 1690		Seria	l Number:	AMU 1	1659
Last Verific	cation Date:	March 31, 2015				22.5	
	Gas Type:	SO2 Conc.	98.57			690 m	
Cylin	_	CAL016720					
Reference A	•				A CONTRACTOR OF THE CONTRACTOR		
		Teco 43C				•	
Instrument S	_	Zero: 7.9	-	1.028			
Last Calibra	tion:	Date: <u>Mar 31/15</u>	C.F.	1.000	Done By:	Al Cl	ark
Calibrator Flo	ws (sccm) Gas	Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentra Factor		Cylin Concent	
5000	0.0	0,000					
4976	82.6	0,821	0.01660	60,242		49.	5
4993	41.0	0.410	0.00821	121.780		49,	
4977	20.2	0.202	0.00406	246.386 age Cylinder Cond		49. <b>49</b> .	
Per	tated Concent		1 concentration X	]comments:			
		Tolerance, Use manufacturers	<del></del>	] COMMENTS:			
		Tolerance, Use manufacturer turer Tolerance, <b>DO NOT US</b>	I				
~ J/6 U			E uns cylinder	- ·			
	Auditor: _	Al Clark		Date:	March	31, 2015	
<u> </u>	Signature:	(2 12. P) 1				nter Edmonton	

Form No. Version No.

F-GAS-002



Company: _	Max	xam	Operator's Name: Limin Li				
Cylinder#:_	BLM002508	Concentration PPM;	10.2	Tolerance(%)	2	Certified By:	Air Liquid
Reference C	Calibrator a	nd Gas:	Maradan da	Flow Measu	ırement	Device:	
M	ake/Model:	R&R MFC 201		Make	e/Model:	Blos I	OC2
Seri	al Number:	AMU1690		Serial 1	Number:	AMU <sup>2</sup>	1659
Last Verific	ation Date:	March 31, 2015				23.0	
	Gas Type:	H2S Conc.	20.43			689 m	
Cylino		CAL015106					
Reference A	*	Too 450	Caula1/A	MIINIMA	4000	T. Vanis de la companya de la compa	
Instrument S		Teco 450i Zero: 14.5					
instrument S	eungs:	Zero: 14.5	Span:	1.035			
			_				
		Date: Mar 31/15	_			Al CI	ark
Last Calibrat	tion:	Date: Mar 31/15  Indicated	C.F.  Gas Flow/		Done By:	Al CI	der
Last Calibrat  Calibrator Flo  Dilution	ws (scem) Gas	Date: Mar 31/15  Indicated Concentration (PPM)	C.F.	1.000 E	Done By:	Al CI	der
Calibrator Flor Dilution 5000	ws (scem) Gas 0.0	Date: Mar 31/15  Indicated Concentration (PPM) 0.0000	C.F.  Gas Flow/ Dilution Flow	1.000 E Concentrati Factor	Done By:	Cylin Concen	der tration
Calibrator Flo Dilution 5000 5080	ws (sccm) Gas 0.0 38.2	Indicated Concentration (PPM) 0.0000 0.0725	C.F.  Gas Flow/ Dilution Flow  0.00752	Concentrati Factor	Done By:	Cylin Concent	der tration
Calibrator Flo Dilution 5000 5080 5078	ws (sccm) Gas 0.0 38.2 17.9	Indicated Concentration (PPM) 0.0000 0.0725 0.0340	Gas Flow/ Dilution Flow  0.00752 0.00353	1.000 E  Concentrati Factor  132,984 283,687	Done By:	Cylin Concent	der tration
Calibrator Flo Dilution 5000 5080	ws (sccm) Gas 0.0 38.2	Indicated Concentration (PPM) 0.0000 0.0725	C.F.  Gas Flow/ Dilution Flow  0.00752	Concentrati Factor	Done By:	Cylin Concent	der tration
Calibrator Flor Dilution 5000 5080 5078 5066  Previous S	ws (sccm) Gas 0.0 38.2 17.9 9.1	Indicated Concentration (PPM)  0.0000  0.0725  0.0340  0.0170  tration PPM: 10.2	C.F.  Gas Flow/ Dilution Flow  0.00752 0.00353 0.00180	Concentrati Factor	Done By:	Cylin Concent	der tration
Calibrator Flo Dilution 5000 5080 5078 5066  Previous S	ws (sccm) Gas 0.0 38.2 17.9 9.1 tated Concentrated variance	Indicated Concentration (PPM)  0.0000  0.0725  0.0340  0.0170  tration PPM: 10.2	Gas Flow/ Dilution Flow  0.00752 0.00353 0.00180 Average	1.000 E  Concentrati Factor  132.984 283.687 556.703	Done By:	Cylin Concent	der tration
Calibrator Flor Dilution   5000   5080   5078   5066   Previous S Per Meets Manuary	ws (seem) Gas 0.0 38.2 17.9 9.1 tated Concentrated variance	Date:   Mar 31/15	Gas Flow/ Dilution Flow  0.00752 0.00353 0.00180 Averaged	Concentrati Factor 132,984 283,687 556,703 ge Cylinder Conce	Done By:	Cylin Concent	der tration
Calibrator Flor Dilution  5000  5080  5078  5066  Previous S  Per  Meets Manu	ws (sccm) Gas 0,0 38.2 17.9 9.1 tated Concentrated Variance	Indicated Concentration (PPM) 0.0000 0.0725 0.0340 0.0170  tration PPM: 10.2  from Stated: 6.0  ance. Use manufacturers stated	Gas Flow/ Dilution Flow  0.00752 0.00353 0.00180 Averaged concentration s concentration X	Concentrati Factor 132,984 283,687 556,703 ge Cylinder Conce	Done By:	Cylin Concent	der tration
Calibrator Flor Dilution 5000 5080 5078 5066  Previous S Per Meets Manu	ws (sccm) Gas 0,0 38.2 17.9 9.1 tated Concentrated Variance	Indicated Concentration (PPM)  0.0000 0.0725 0.0340 0.0170  tration PPM: 10.2  from Stated: 6.0  ance. Use manufacturers stated: Tolerance, Use manufacturer eturer Tolerance. DO NOT US	Gas Flow/ Dilution Flow  0.00752 0.00353 0.00180 Averaged concentration s concentration X	Concentrati Factor 132,984 283,687 556,703 ge Cylinder Conce	one By:	Cylin Concent	der tration



Company: _	Maxx	am	Operator's Name: Limin Li				
Cylinder #: _	LL36837	Concentration PPM;	10.0	Tolerance(%) 2	Certified By: Air Liquide		
Reference C	Calibrator a	nd Gas:		Flow Measurement	Device:		
M	ake/Model:	R&R MFC 201		Make/Model:	Bios DC2		
	Serial Number: AMU 1690		•	Serial Number:	AMŲ 1659		
		December 15, 2014	•	Temp.°C:	23.0 C		
	-	H2S Conc.	20,43	B.P.	702 mmhg		
Cylin	_	CAL015106	-				
Reference A		Teco 45C	Serial/	AMU Number: 1624			
Instrument S	-	Zero: 6.4	-	1.160 Range:	_		
Last Calibra	-	Date: Dec15/14	<del>-</del>	1.000 Done By:			
Calibrator Flo	ows (scem)	Indicated	Gas Flow/	Concentration	Cylinder		
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration		
5000	0.0	0.0000			10.0		
5099	38,5	0.0754	0.00755	132.442	10.0		
5092	18.0 9,2	0.0349 0.0178	0.00353	282.889 550.652	9,8		
5066	5,2	0.0170		age Cylinder Concentration			
Pe	ercent variance	ntration PPM: 10.0  e from Stated: 1.1  rance, Use manufacturers stat		COMMENTS:			
		rance, Ose manulacturers stat or Tolerance, Use manufacture	=	COMMENTS			
2 - EN O							
	O			1			
		acturer Tolerance. <u>DO NOT (</u>	2912 tills 05 till doi:		40.0044		
> 5%	Outside Manufi Auditor: or Signature:	Al Clark	- oyundor	Date: Decemb	per 16, 2014		

Alberta=

Gove	rnment			B Cylinder (	945	File No.	2015-027CGA
Company:		Maxxam		Operators na	me: Li	min Li	
Cylinder#:	LL83638	Conc CH4 (PPM)	582/203	Tolerance (%)	2 Certified By	/: Prax	air
Reference	Calibrator :	and Gas:	************		Flow Measure	ment Device:	AUC.
Make	/Model	R&R MFC 2	01		Make/Model	Bios D	OC2
Serial I	Number	AMU 1691		,	Serial Number	AMU 1	650
Last Verifi		May 21, 201		•	Temp.°C	24.0	
	Туре	CH4		999.2	B.P.	703 mi	
		D751932					
•		C3H8		246.5			
	' Number	XF0037998					
Make/ Instrument ! Last Calibra	_		N/A May 21/15		Serial/AN pan: N/A C.F. 1.000	-	20
		,	·		<b>-</b> 4	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Calibrator Fl		Indicated Conc.		Gas Flow/	Concentration	Cylinder Cor	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
2600 2569	0.0 51.5	0.00	0.00 11,08	0.02005	40.003	505	
3549	22.3	3.76	3,49	0.02008	49.883 159.148	595 598	201 202
3523	10.4	1.76	1.66	0.00295	338.750	596	204
,,					der Concentration		202
			<u>CH4</u>		<u>C3H8</u>		
Pre	evious Stated	Concentration PPM:	582		203	<del></del>	
	Percent v	variance from Stated: _	2.5		0.3		
Me	eets Manufactu	s tolerances based of the Tolerance, Use manus nufacturer Tolerance, Use	facturers sta	ted concentration	COMMENTS	S:	WWW. SACKED Managery &
	> 5% Outside	Manufacturer Tolerance	e. <u>DO NOT I</u>	USE this cylinder		. ,,,, 40	
				L	· · · · · · · · · · · · · · · · · · ·		
	Auditor:	Al Clark	b	D	ate: May	21, 2015	



Proxes Canada, Inc. 9501-34th Strent Edministra AH TEB 2X6 Tel: 780-440-0778 Fax 780-448-5302

03/27/2014

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

> Work Order No. 20248656 Customer Reference No

Product LovBatch No. Z582 4 085 02 Product Part No. NI ME600P2P-AQ

#### CERTIFICATE OF ANALYSIS Primary Standard

Component Methana Propane Nitrogen

Requested Concertration mqq0,008 200.0ppm Balance

Certified Concentration 601,4ppm 202ppm Balance

Analytical Principle

Analytical **Accuracy** ±1% rel ±1% rel

Analytical Instruments:

Mettler-Toledo Analytical Balance-ID2ex/USA--Hewlett-Packard (Agilant)+6890---GC-FID

Cylinder Style: Cylinder Pressure @70F Cylinder Volume Valve Outlet Connection Cylinder Nots).

AQ 2200 palg 82.0 ft3 CGA-350 LL33874

Filling Method: Date of Fill Expiration Date:

Gravimetric 03/28/2014 03/26/2017

California Contact property by Prener Caresta, be: a scriptoral entited entitled in property typecontes, expenses, or party pressure betreasing the consistent members of property from Caresta for Press Caresta for Press Caresta Annual Associated and Pastrology (NIST), Manual and Caresta for RIST Statement Harman Research Caresta for RIST Statement Harman Research From the Caresta for RIST Statement Harman Research From the Caresta for RIST Statement Harman RIST Statement RIST STATEMENT

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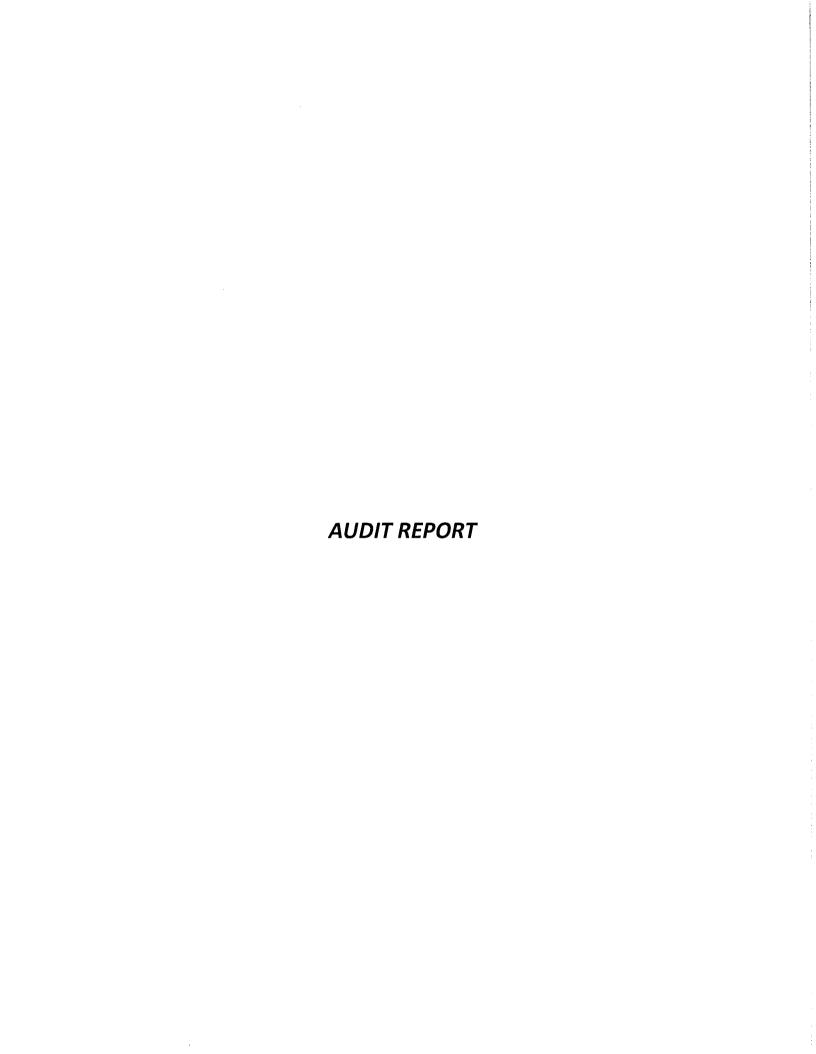
### Calibration Gas Audit

Gover						<del></del>		
Company:	Max	(xam		Operators nar	me:_	Limir	ı Li	
Cylinder#:	BLM002756T	Conc (PPM)	50.7/50.7	Tolerance (%)	2 (	Certified By: _	Air Liq	ulde
Reference (	Calibrator s	ınd Gas:			Flov	v Measureme	ent Device:	
Make/	Model	Teco 1	l46i	_	Ma	ake/Model	Bios D	C2
Serial 1	Number	AMU 1	809		Seri	ial Number	AMU 1	659
Last Verifi	cation Date	March 31		.	Г	Temp.°C	22.5	С
		NO		48.79		-	690 mr	
		CAL018		-				
Reference A	<u> </u>	Teco .	42i			Serial/AMU	J Number:	1868
Instrument S	,		4.2	Sn	nan!	1,008	-	
Last Calibra	-	-	Mar 31/15				Done By:	
Calibrator Flo	ows (scem) Gas	Indicated Co	nc. (ppm) NOX	Gas Flow/ Dilution Flow		ncentration Factor	Cylinder Cor	ncentration NOX
5000	0.0	0.000	0.000					
4976	82.6	0.842	0.822	0.01660		60.242	50.7	49.5
4993	41.0	0.420	0,410	0.00821		121.780	51.1	49.9
4977	20,2	0.208	0.205	0.00406		246.386	51.2	50.5
				Average Cyline	der C	oncentration:	51.0	50.0
			<u>NO</u>			<u>NOx</u>		
Previous	Stated Conce	ntration PPM:	50.7			50,7		
Pe	ercent varianc	e from Stated:	0.7			1.4		
Meets Ma	nufacturer Tole		ıfacturers sta	ted concentration	X	COMMENTS:		
<=5% Outsi	de Manufactur	er Tolerance. Us	e manufactui	ers concentration	<u> </u> c	Contains 49.9 ppr	n SO2 in cylinder	<u>r</u>
> 5% (	Outside Manuf	acturer Tolerance	e. <u>DO NOT</u>	<u>USE</u> this cylinder				
	Auditor:	Al Cla	ark	D:	ate:	March 3	1 2015	
					<u> </u>	TOTAL OF LO	1, 2010	

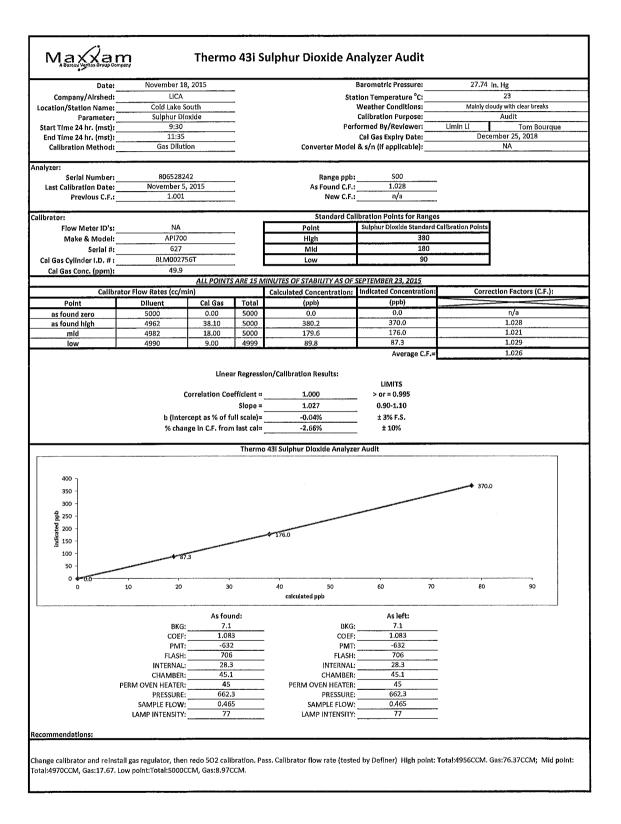


### Calibration Gas Audit

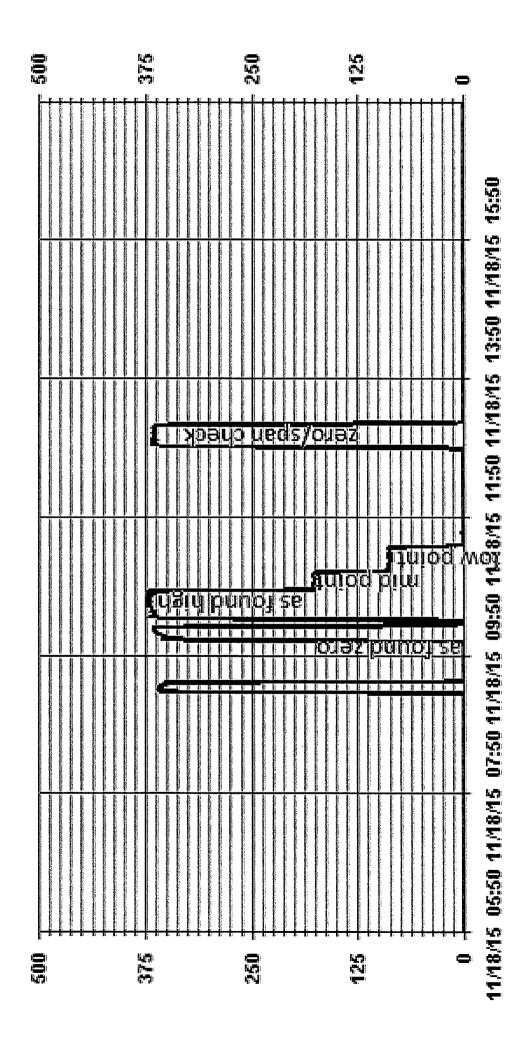
~								,
		cxam		Operators na				
Cylinder#:	BLM002073	Conc (PPM)	50.6/50.6	Tolerance (%)_	2	Certified By:	Air Liqu	ulde
Reference (	Calibrator a	ınd Gas:			Flo	ow Measureme	ent Device:	
Make/	Model	Teco 1	1461		M	fake/Model	Bios D	C2
	•	AMU 1				rial Number		
Last Verifi	•	March 31		·		-	22.5	
		NO		48.79			690 mr	
	• •	. CAL018		10110		21.1	0001111	9
0,111.0.01				.				
Dofowanaa	A u a lucanu							
Reference A Make/	•	Teco	42i			Serial/AMU	J Number:	1868
Instrument S		Zero:		Sp	oan:	1,008	-	
Last Calibra	•	•	Mar 31/15			1.000		
		-						
Calibrator Fl	ows (sccm)	Indicated Con	nc. (ppm)	Gas Flow/		Concentration	Cylinder Con	centration
Dilution	Gas	NO	NOX	Dilution Flow		Factor	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 Cylin	der C	Concentration:	52.0	51.3
			<u>NO</u>			<u>NOx</u>		
Previous	Stated Concer	ntration PPM:	50.6			50.6		
<b>T</b>					-			
Pe	rcent variance	e from Stated:	2.8		-	1.4		
	linder gas to	olerances bas	sed on NO	only				
Cy	nufacturer Tole	rance. Use manu	facturers sta	ted concentration		COMMENTS:		
-		er Tolerance. Use	e manufactur	ers concentration	X	Contains 49,5 ppr	n SO2 in cylinder	
Meets Ma	de Manufacture			_				
Meets Mai			e. <u>DO NOT I</u>	<u>USE</u> this cylinder				
Meets Mar				L-	ate:	March 3	1, 2015	



COMPANY:	LICA		PLANT:		CLS		DATE:	November 18, 2015
Station Location:	UTM Coordinates: 5	4.41409N	/110.23291V	V				
	Elevation (m): 5		·		-			
	Declination: 1	.3° 9'			_			
	CENEDAL		.,					
	GENERAL		Yes	No	n/a		Commen	ts:
Has site locat	ion changed from previou	us audit? e secure?	Vas	No				
Aro stati	ווא sili on operating conditions a		Yes Yes					
	month's of calibrations a	-	Yes		-			
	plicable SOP's available in		100	No	-			
	Site documentation up	to date?	Yes					
	·	•		<u> </u>	·* · · · · · · · · · · · · · · · · · ·			
DA	TA ACQUISITION		Yes	No	n/a		Commen	ts:
	Are strip char			No				
	Is a digital data logge			No	-			
is a telemetry	system for data acquisitio	n in use?	Yes		<u> </u>		-	
TRAI	LER COMPONENTS		Yes	No	n/a		Commen	ts:
s a glass sampling m	anifold installed?		Yes					
	clean and free of chips ar	d						
cracks?			Yes					
s a trap in place?	. 10		Yes		ļ			
Are spare manifold p			Yes					
manifold pump properly installed and operative? norizontal, is the manifold mounted at a slight		tiver	Yes		-			
norizontal, is the manifold mounted at a slight oward angle to prevent moisture from getting in to								
pward angle to prevent moisture from getting in to ne lines?					n/a			
Do sample lines exte	e iines? o sample lines extend halfway into manifold?		Yes		, , , , , , , , , , , , , , , , , , , ,			
are monitor sampling lines connected to manifold?  Are sampling lines clean?			Yes					
				No				
	y mounted and secure?		Yes					
	y exhausted from room o		.,					
Are zero and span sy	inlet scrubbed and dated	)r	Yes Yes			<del></del>		
are zero ariu spari sy	sterns operationari		163					
ı	/leteorological	_	Yes	No	n/a		Commen	ts:
Is w	ind equipment properly o	riented?	Yes					
Is the win	d equipment functioning	properly?	Yes					
	Г				T			
		111	1 24 - 1	Audit	%	O - I DISS		
Indica			Value:	Difference	Scalar Difference:			
	Station Temperature °C		1.76	24.2	-2.31	-0.56		
	Barometric Pressure Wind Speed (kph)		na 18	na 16	n/a	#VALUEI n/a		
			320	NW	n/a n/a	n/a		
· · · · · · · · · · · · · · · · · · ·		67	49	n/a	n/a			
Δ	mbient Temperature °C		3.14	-8.2	0.73	-0.06		
,	Solar Radiation kW/m <sup>2</sup>		NA AV	NA	n/a	n/a		
Precipitati	on (Tipping Bucket mm)		VA AV	NA NA	n/a	n/a		
Precipitation (Tipping Bucket mm)					,	, , , , , , , , , , , , , , , , , , , ,		
Recommendations								
					· · · · · · · · · · · · · · · · · · ·			

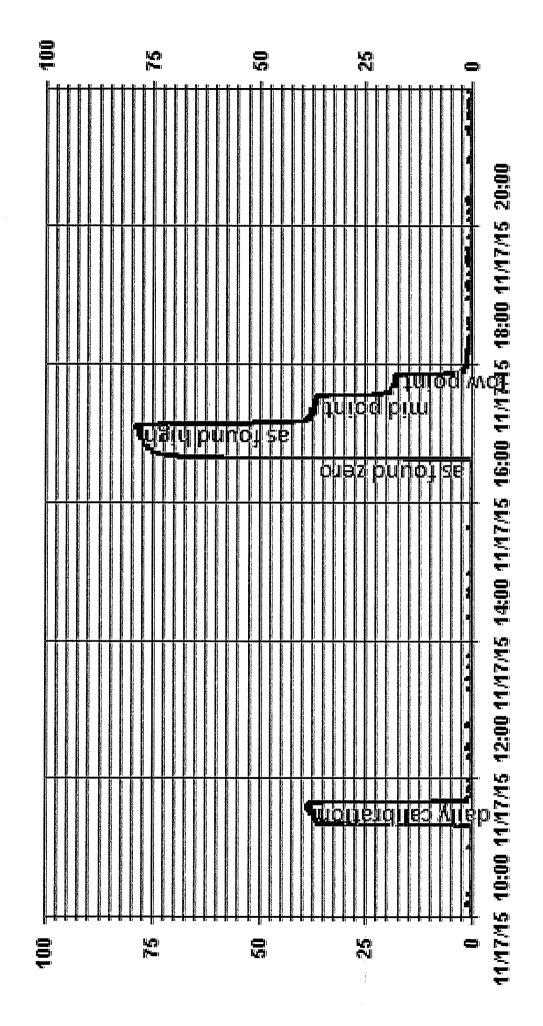


Of Winde Averages

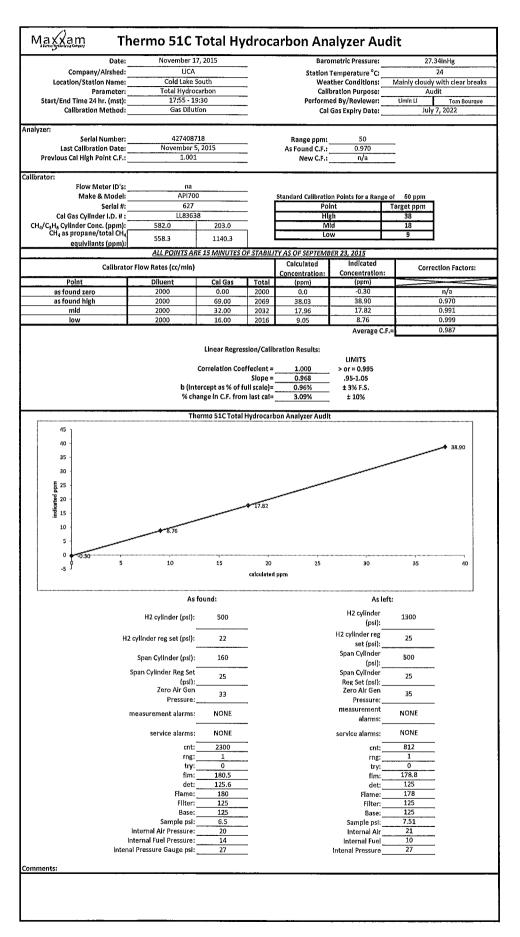


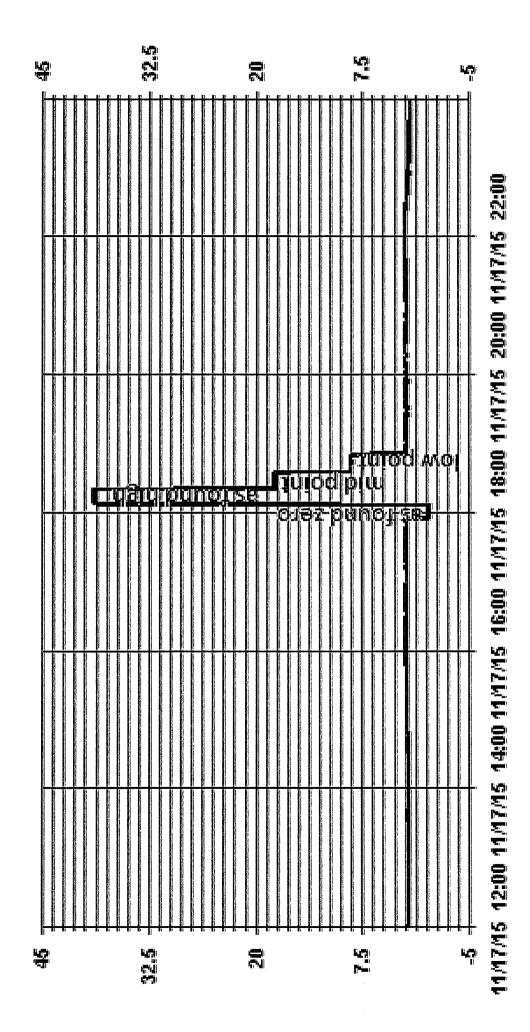
- LICA SO2\_ PPB

Date:	November	17, 2015		The state of the s	Barometric Pressure:	27.34 j	n. Hg
Company/Airshed:	LIC	A	-	Stat	tion Temperature °C:		24
ocation/Station Name:	Cold Lak		_		Weather Conditions:		udy with clear breaks
Parameter:	Total Reduc		_		Calibration Purpose: ormed By/Reviewer:	Limin Li	Audit Tom Bourque
Start Time 24 hr. (mst): End Time 24 hr. (mst):	17:		<del>-</del>	rein	Cal Gas Expiry Date:		uary 6, 2018
Calibration Method:	Gas Dil		<del>-</del> -	Converter Model	& s/n (if applicable):		Internal
alyzer:					<del></del>		
Serial Number:			_	Range ppb:			
Last Calibration Date: Previous C.F.:	November 1.00		-	As Found C.F.: New C.F.:			
Flevious C.F	1.00		-				
Ibrator:	NI/				Ibration Points for Ranges Total Reduced Sulphur Co		
Flow Meter ID's: Make & Model:	N/ API7		-	Point High	78	andration Points	
Serial #:	62		-	Mid	38		
Cal Gas Cylinder I.D. #:	BLM00		_	Low	19		
Cal Gas Conc. (ppm):	10.						
Calibi	ator Flow Rates (cc		S ARE 15 IV	TINUTES OF STABILITY AS OF S Calculated Concentration:	SEPTEMBER 23, 2015 Indicated Concentration:	Correc	ction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)		
as found zero	7598	0.00	7598	0,0	0.1		n/a
as found high	7446	57.40	7503	78.0	78.4		0.997
mid low	7473 7489	27,90 14.00	7501 7503	37.9 19.0	37.0 18,2		1.028
iow	7409	14.00	/303	15.0	Average C.F.=		1,025
90 - 80 - 70 - 42 60 -					·	78.4	
indicated on - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1		18.2		37.0			
0 0.1	10 2	D 30	)	40 50 calculated ppb	60 70	80	90
		As fou	nd:		As left:		
	ВК			BKG:			
	COL			COEF:	1.037 -650.8		
	PM FLAS			PMT: FLASH:	741		
	INTERNA	d.: 32		INTERNAL:	32		
	CHAMBE	R: 44.9		CHAMBER:	44.9		
	CONVERTER SE			CONVERTER SET:	810		
	PERM OVEN GA PERM OVEN HI			PERM OVEN GAS: PERM OVEN HTR:	44.99		
	PRESSUE			PRESSURE:			
	SAMPLE FLO			SAMPLE FLOW:	0.499		
	LAMP INTENSIT			LAMP INTENSITY:	91		



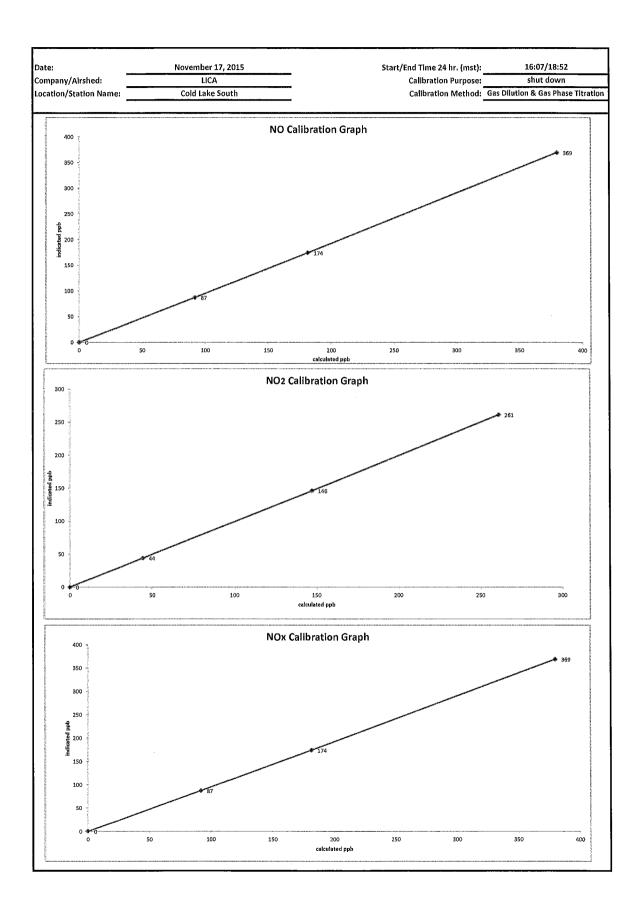
- LICA TRS\_ PPB



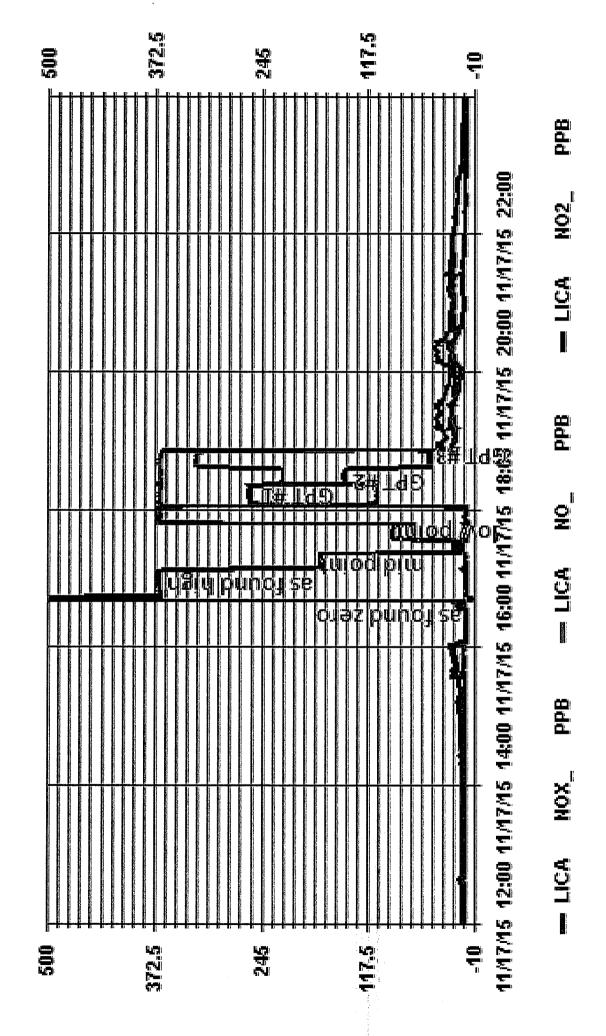


- LICA THC PPM

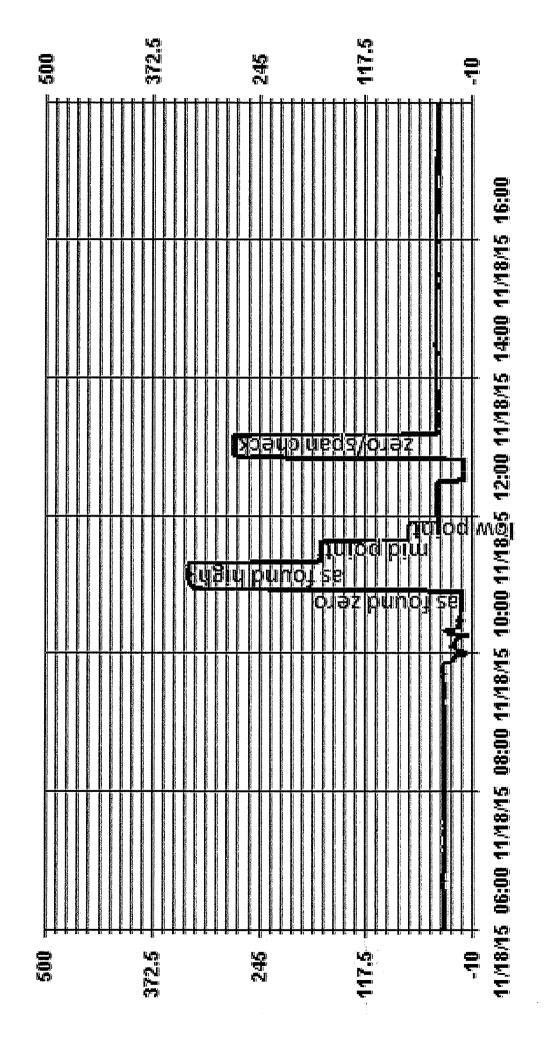
Contamps/Altrhetho   Contam	Date		lovembe	r 17, 2015				Barometric Pressure:		27.34	In Ha
Coalibration Name   Coa					• .		Sta				
Performed by/Reviews   Calibration According   Calibration Methods   Calibration Date   Cali		-	Cold Lak	re South			-		М		
Calibration Method:   Calibration A Sea Planes Translam   Calibration Calibration Date	. , ,						_	•			
Serial Number:   427408715   NO   0.599   1.090   1.001   1.001   1.074   1.002   1.003   1.							Per	• • • • • • • • • • • • • • • • • • • •			Tom Bourg
Serial Number	Campration Method	- Gas DI	IGLION & GO	s rilase ritration	=			cai Gas Expiry Date:	,	December	25, 2018
Serial Number:   0.27409715   NO =   NO =   0.999   1.030   1.030   1.03   Range ppb:   500   NO =   NO =   0.999   1.030   1.030   1.03   Range ppb:   500   NO =   0.999   1.030   1.030   1.030   Range ppb:   500   NO =   0.999   1.030   1.030   1.030   Range ppb:   500   NO =   0.999   1.030   1.030   1.030   Range ppb:   500   NO =   0.999   1.030   1.030   1.030   Range ppb:   MA	alyzer:						Cor	rection Factors:			
Ilbrator:   Range ppb:   S00								As Found C.F.:	Nev	v C.F.:	
					-						
Bibrator:   Flow Meter ID's:   SARIU 2010   Flow   Standard Calibration Points for a Range of;   S00 ppb   Point   Target NO (ppb)   Target NO (ppb)   C.C.					-						
Flow Make & Mode   Serial   1   1   2   2   4   4   4   4   4   4   4   4		-			•		0,000	1,000	· · · · · ·	,	
Make & Models   SaliD   2010   Serial H;   17290415											
Sorial High   17200415   18100727571   18100727575   18					1						
Mid   180   248   180   248   180   248   180   248   180   180   248   180											Cc Ozone i
NO/NOX Gas Conc. (ppm):   50.7   50.0   50.0   50.7   50.7   50.7   50.7   50.7   50.7   50.7   50.7   50.0   50.0   50.7   50.7   50.7   50.7   50.0   50.0   50.7   50.7   50.7   50.7   50.0   50.0   50.7   50.7   50.7   50.7   50.0   50.0   50.7   50.7   50.7   50.7   50.0   50.0   50.7   50.7   50.7   50.0   50.0   50.7   50.7   50.7   50.7   50.0   50.0   50.7   50.0   50.7   50.7   50.7   50.0   50.0   50.7   50.0   50.0   50.7   50.0   50				•							<high ozor<br="">n/a</high>
Extra Point #12	•			•							<mld ozon<="" td=""></mld>
Calibrator Flow Rates (ct/mln)								n/a	1	133	n/a
Calibrator Flow Rates   Common   Calibrator Flow   Calibrator Fl				414	DOMETIC ARE AR A COMM					53	<low ozon<="" td=""></low>
Point   Diluent Cal Gas   Total Flow   (ppb)   (ppb	Calibrator Fig	w Rates	(cc/min)	ALL					NOCE	NOVCE	
as found zero 5029 0.0 5029 0 0 0 0 0.0 0.0 0.0 0.0 0.0 1/a 1/a as found high 4991 37.7 5029 380.1 380.1 360.0 360.0 369.0 1.030 1.0				Total Flow			-				
mild         5010         18.00         5028         181.5         118.5         174.0         174.0         1.043         1.043           Iow         5019         9.10         5028         91.8         91.8         87.0         87.0         1.055         1.055           ALF POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015           Calibrator Flow Rates (cc/min)         Calibrator Setting         Indicated NO         Indicated NOx         Indicated NO         NO drop         NO drop         NO           Point         Diluent         Gal Gas         Total Flow         volts or ppb         (ppb)									n/a	n/a	
Indicate   Solid   S									1.030	1.030	
All Polints Are 15 MiNUTES OF STABILITY AS OF SEPTEMBER 23, 2015   Calibrator Flow Rates (cc/mln)   Calibrator Setting   Indicated NO   Indicated NO   (ppb)											
Calibrator   Forman   Calibrator   Calibr	low	5019	9,10	5028	91.8	91.8	87.0		·		
Point   Diluent   Cal Gas   Total Flow   Volts or ppb   (ppb)   (ppb				ALL	POINTS ARE 15 MINU	TES OF STABILITY AS	OF SEPTEMBER 23, 2		1,043	1.045	
NOx reference   4991   37.70   5029   0.0   367.3   367.3   0.0   0.0   0.0   0.0   0.0   as found high NO2   4991   37.70   5029   270.0   106.0   367.0   261.0   261.3   261.0   1   261.0   261.3   261.0   1   261.0   261.3   261.0   1   261.0   261.3   261.0   1   261.0   261.3   261.0	Calibrator Flo	w Rates (	(cc/min)		Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO₂	NO drop	NO <sub>2</sub> gain	NO₂ C.F.
as found high NO2			_		volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
gpt mid 4991 37.70 5029 150.0 220.0 366.0 146.0 147.3 146.0 1 gpt low 4991 37.70 5029 50.0 323.0 366.0 44.0 44.3 44.0 1  Average NO₂ CF.F. 1  By Correlation Coefficient = Slope = 1.029 1.029 1.002 1.000 0.90-1.10  By Correlation Fill scale   1.029 1.029 1.002 0.90-1.10  Average NO₂ Converter efficiency = 1.01% AMD tolerance = 96%-104%  Absolute NO₂ converter efficiency = 1.003 AMD tolerance = 96%-104%  NO Bkg ppb: 5.2 NOx SLOPE: NO Bkg ppb: 5.2  NOX Bkg ppb: 5.4 NOx OFFs: NOx Bkg ppb: 5.4  NOX Coef: 1.04 NO SLOPE: NO Coef: 1.04  NOX Coef: 1.012 NO OFFs: NOx Coef: 1.012  NOX Coef: 1.003 SAMP FLW: NO2 Coef: 1.003  PMT: -850 OZONE FL: PMT: -850  Battery: 3.2 PMT: Battery: 3.2  Internal: 27.8  NORM PMT: Internal: 27.8  Cooler: 49.5  AVEROW. AMO SLOPE: Cooler: 49.5  Battery: 3.2  NORM PMT: Internal: 27.8  NORM PMT: Internal: 27.8  NORM PMT: Internal: 27.8  NORM PMT: Cooler: 49.5  Cooler: -2.5  HVPS: Cooler: -2.5						-					
Section   Sec											1,001
Correlation Coefficient											1.009
NO											1,006
Correlation Coefficient							Results:			-	
Slope											
b (Intercept as % of full scale)= % change in C.F. from last cale Average NO2 converter efficiency = Absolute NO2 converter efficiency =  As found:  NO Bkg ppb: 5.2 NOx Bkg ppb: 5.4 NO Coef: NO Coef: NO Coef: NO Coef: NO Coef: NOX COEF:		'	Correlati								
% change In C.F. from last cal=       -3.11%       -3.11%       -0.11%       ± 10%         Average NO2 converter efficiency =       101%       AMD tolerance = 96%-104%         As found:       As found:       As left:         NO Bkg ppb:       5.2       NOx SLOPE:       NO Bkg ppb:       5.2         NOX Bkg ppb:       5.4       NOX OFFS:       NOX Bkg ppb:       5.4         NO Coef:       1.04       NO SLOPE:       NOX Coef:       1.04         NOX Coef:       1.012       NO OFFS:       NOX Coef:       1.012         NO2 Coef:       1.003       SAMP FLW:       NO2 Coef:       1.003         PMT:       -850       OZONE FL:       PMT:       -850         Battery:       3.2       PMT:       -850         Battery:       3.2       PMT:       -850         Chamber:       49.5       AZERO:       Chamber:       49.5         Cooler:       -2.5       HVPS:       Cooler:       -2.5		b (Inte	rcept as								
Average NO2 converter efficiency = 101% AMD tolerance = 96%-104% Absolute NO2 converter efficiency = 1.003 AMD tolerance = 96%-104%  As found:  NO Bkg ppb: 5.2 NOx SLOPE: NO Bkg ppb: 5.2 NOx Bkg ppb: 5.4 NOx OFFS: NOx Bkg ppb: 5.4 NO Coef: 1.04 NO SLOPE: NO Coef: 1.04 NOX Coef: 1.012 NO OFFS: NOX Coef: 1.012 NO2 Coef: 1.003 SAMP FLW: NO2 Coef: 1.003 PMT: -850 OZONE FL: PMT: -850 Battery: 3.2 PMT: Battery: 3.2 Internal: 27.8 Chamber: 49.5 AZERO: Chamber: 49.5 Cooler: -2.5											
As found:   As left:	A		-								
NO Bkg ppb;         5.2         NOx SLOPE;         NO Bkg ppb;         5.2           NOx Bkg ppb;         5.4         NOx OFFS;         NOx Bkg ppb;         5.4           NO Coef:         1.04         NO SLOPE;         NO Coef;         1.04           NOX Coef:         1.012         NO OFFS;         NOX Coef;         1.012           NOZ Coef:         1.003         SAMP FLW;         NOZ Coef;         1.003           PMT:         -850         OZONE FL:         PMT;         -850           Battery:         3.2         PMT;         Battery;         3.2           Internal:         27.8         NORM PMT;         Internal:         27.8           Chamber:         49.5         AZERO;         Chamber:         49.5           Cooler:         -2.5         HVPS;         Cooler:         -2.5	Ab	solute NO	02 conve	rter efficiency =	1.003	AMD tolerand	e = 96%-104%				
NO Bkg ppb:         5.2         NOx SLOPE:         NO Bkg ppb:         5.2           NOx Bkg ppb:         5.4         NOx OFFS:         NOx Bkg ppb:         5.4           NO Coef:         1.04         NO SLOPE:         NO Coef:         1.04           NOX Coef:         1.012         NO OFFS:         NOX Coef:         1.012           NO2 Coef:         1.003         SAMP FLW:         NO2 Coef:         1.003           PMT:         -850         OZONE FL:         PMT:         -850           Battery:         3.2         PMT!         Battery:         3.2           Internal:         27.8         NORM PMT:         Internal:         27.8           Chamber:         49.5         AZERC:         Chamber:         49.5           Cooler:         -2.5         HVPS:         Cooler:         -2.5				e found	<del></del>		·	4 - 1 - 6 -			
NOx 8kg ppb:         5.4         NOx OFFS:         NOx 8kg ppb:         5.4           NO Coef:         1.04         NO SLOPE:         NO Coef:         1.04           NOx Coef:         1.012         NO OFFS:         NOx Coef:         1.012           NO2 Coef:         1.003         SAMP FLW:         NO2 Coef:         1.003           PMT:         -850         OZONE FL:         PMT:         -850           Battery:         3.2         PMT:         Battery:         3.2           Internal:         27.8         NORM PMT:         Internal:         27.8           Chamber:         49.5         AZERO:         Chamber:         49.5           Cooler:         -2.5         HVPS:         Cooler:         -2.5	NO	Rka nnh	,		NOv SLOPE:		NO Rha nnh:				
NO Coef:         1.04         NO SLOPE:         NO Coef:         1.04           NOX Coef:         1.012         NO OFFS:         NOX Coef:         1.012           NO2 Coef:         1.003         SAMP FLW:         NO2 Coef:         1.003           PMT:         -850         OZONE FL:         PMT:         -850           Battery:         3.2         PMT:         Battery:         3.2           Internal:         27.8         NORM PMT:         Internal:         27.8           Chamber:         49.5         AZERC:         Chamber:         49.5           Cooler:         -2.5         HVPS:         Cooler:         -2.5								***			
NO2 Coef:         1.003         SAMP FLW:         NO2 Coef:         1.003           PMT:         -850         OZONE FL:         PMT:         -850           Battery:         3.2         PMT:         Battery:         3.2           Internal:         27.8         NORM PMT:         Internal:         27.8           Chamber:         49.5         AZERC:         Chamber:         49.5           Cooler:         -2.5         HVPS:         Cooler:         -2.5											
PMT:         -850         OZONE FL:         PMT:         -850           Battery:         3.2         PMT:         Battery:         3.2           Internal:         27.8         NORM PMT:         Internal:         27.8           Chamber:         49.5         AZERO:         Chamber:         49.5           Cooler:         -2.5         HVPS:         Cooler:         -2.5											
Battery:         3.2         PMT:         Battery:         3.2           Internal:         27.8         NORM PMT:         Internal:         27.8           Chamber:         49.5         AZERO:         Chamber:         49.5           Cooler:         -2.5         HVPS:         Cooler:         -2.5	N						-				
Internal:         27.8         NORM PMT:         Internal:         27.8           Chamber:         49.5         AZERO:         Chamber:         49.5           Cooler:         -2.5         HVP5:         Cooler:         -2.5											
Chamber:         49.5         AZERO:         Chamber:         49.5           Cooler:         -2.5         HVP5:         Cooler:         -2.5											
			·				-				
							-				
Converter:         317         RCELL TEMP:         Converter:         317           Converter 5et:         320         BOX TEMP:         Converter 5et:         320							-				
Converter 5et:         320         BOX TEMP:         Converter 5et:         320           Pressure:         197.4         PMT TEMP:         Pressure:         197.4		-					-				
Ozonator Flow: OK MOLY TEMP: Ozonator Flow: OK							-				
ecommendations:		•									



Of Minute Averages



Cal Cas Explry Date:   December 18, 2015   Cal Cas Explry Date:   December 25, 2018	Date:	November	18, 2015		Barometric Pressure:		27.74inHg
Author   A	Company/Airshed:			S	tation Temperature °C:		23
Performed by Reviews						Mainly c	
April   November 18, 2015   Call Gas Explry Date				n.		16-6-11	
				PE			Tom Bourque tember 25, 2018
Serial Number   700419591					cut ous expiry buter		
Last Calibration Date:   November 5, 2015   New C.F.;   1,016	•	700419	951	Ozone Range nnh	500		
Director:   1,000   New C.F.;   n/s				As Found C.F.:		i	
Point   AMIO Required Range of Corone Calibratin   High   300-400 ppb	evious Cal High Point C.F.:	1.00	0	New C.F.:	n/a		
Make & Model:   SABID 2010	brator:						
Serial aff.   17200415   SIMO02756T   SIMO							
Calibrator Flow Rate (cc/min)   Calculated Concentration:   Corrected Calculated Concentration:   Correcte							
Calibrator Flow Rate (cc/min)   Calculated Concentration:   Corrected Calculated Concentration:   Correction Facto Concentration:   Correction Factor Fac							
Calibrator Flow Rate (cc/min)   Calculated Corrected Calculated Concentration:   Correction Factor Concentration:   Concentra	Cal Gas Cylinder I.D. # :	BLM002	./561		Low		50-75 ppb
Point   Total Flow @ Point   Start   Point   Fotal Flow @ Point Flish   Point   Start   Point   Fotal Flow @ Point Flish   Poi		ALI	POINTS ARE 15 N	INUTES OF STABILITY	AS OF SEPTEMBER 23,	<u>2015</u>	
## Point   Start   Point Finish   (PPB)   (PPB		Calibrator Flow	Rate (cc/mln)				Correction Factors:
Second high   S029   S029   333.0   333.0   329.0   1.016   mild   S029   S029   175.0   175.0   171.5   1.028   1.028	Point	- 1		(ppb)	(ppb)	(dqq)	
Second high   S029   S029   333.0   333.0   329.0   1.016   mild   S029   S029   175.0   175.0   171.5   1.028   1.028	as found zero	5029	5029	0.0	n/a	1,2	n/a
Linear Regression/Calibration Results:   Limits   Limit							
Linear Regression/Calibration Results:   Limits						171.5	
Linear Regression/Calibration Results:   LIMITS	low	5029	5029	71.0	71.0		
As found:   As found:   As felt:   O.3 Bkg:   O.4   O.3 Coef:   1.011	120 120 120 120 120 120 120 120 120 120				71.5		329.0
As found:   As feft:		66.3			the second second		
O3 Bkg:     0.4     O3 Bkg:     0.4       O3 Coef:     1.011     O3 Coef:     1.011       Photo Lamp     8.7     Photo Lamp     8.7       O3 Lamp     9     O3 Lamp     9       Bench:     29.6     Bench:     29.6       Bench Lamp:     53.5     Bench Lamp:     53.5       O3 Lamp:     67.4     O3 Lamp:     67.4       Pressure:     357.6     Pressure:     700.5       Cell A Ipm:     0.424     Cell A Ipm:     0.713       Cell B Ipm:     0.449     Cell B Ipm:     0.751	0	50	100		200 ppb	250	300
O3 Coef: 1.011 O3 Coef: 1.011 Photo Lamp 8.7 Photo Lamp 8.7 O3 Lamp 9 O3 Lamp 9 Bench: 29.6 Bench 29.6 Bench Lamp: 53.5 Bench Lamp: 53.5 O3 Lamp: 67.4 O3 Lamp: 67.4 Pressure: 357.6 Pressure: 700.5 Cell A lpm: 0.424 Cell A lpm: 0.713 Cell B lpm: 0.449 Cell B lpm: 0.751		O2 Bb			Oa Bloo		
Photo Lamp         8.7         Photo Lamp         8.7           O3 Lamp         9         O3 Lamp         9           Bench:         29.6         Bench:         29.6           Bench Lamp:         53.5         Bench Lamp:         53.5           O3 Lamp:         67.4         O3 Lamp:         67.4           Pressure:         357.6         Pressure:         700.5           Cell A lpm:         0.424         Cell A lpm:         0.713           Cell B lpm:         0.449         Cell B lpm:         0.751							
O3 Lamp     9     O3 Lamp     9       Bench:     29.6     Bench:     29.6       Bench Lamp:     53.5     Bench Lamp:     53.5       O3 Lamp:     67.4     O3 Lamp:     67.4       Pressure:     357.6     Pressure:     700.5       Cell A lpm:     0.424     Cell A lpm:     0.713       Cell B lpm:     0.449     Cell B lpm:     0.751							
Bench Lamp:     53,5     Bench Lamp:     53,5       O3 Lamp:     67,4     O3 Lamp:     67,4       Pressure:     357,6     Pressure:     700,5       Cell A lpm:     0.424     Cell A lpm:     0.713       Cell B lpm:     0.449     Cell B lpm:     0.751		O3 Lamp					
O3 Lamp: 67.4 O3 Lamp: 67.4  Pressure: 357.6 Pressure: 700.5  Cell A lpm: 0.424 Cell A lpm: 0.713  Cell B lpm: 0.449 Cell B lpm: 0.751							
Pressure:         357.6         Pressure:         700.5           Cell A lpm:         0.424         Cell A lpm:         0.713           Cell B lpm:         0.449         Cell B lpm:         0.751							
Cell A lpm:         0.424         Cell A lpm:         0.713           Cell B lpm:         0.449         Cell B lpm:         0.751				•			
Cell B lpm: 0.449 Cell B lpm: 0.751							
O3 ppp: U.1 O3 ppp: U.1		O3 ppb:	0.1	•	O3 ppb:	0.1	
Cell A ppb: 11 Cell A ppb: 11							
Cell B ppb: -10.9 Cell B ppb: -10.9		Cell B ppb:	-10.9				
Cell A int: 57795 Cell A int: 57795					Cell A int:		
Cell B Int: 56427 Cell B Int: S6427		Cell B int:	56427		Cell B Int:	S6427	
nments:	ıments:						



■ LICA 03\_ PPB

### R & P 1405F TEOM PM 2.5 Analyzer Audit

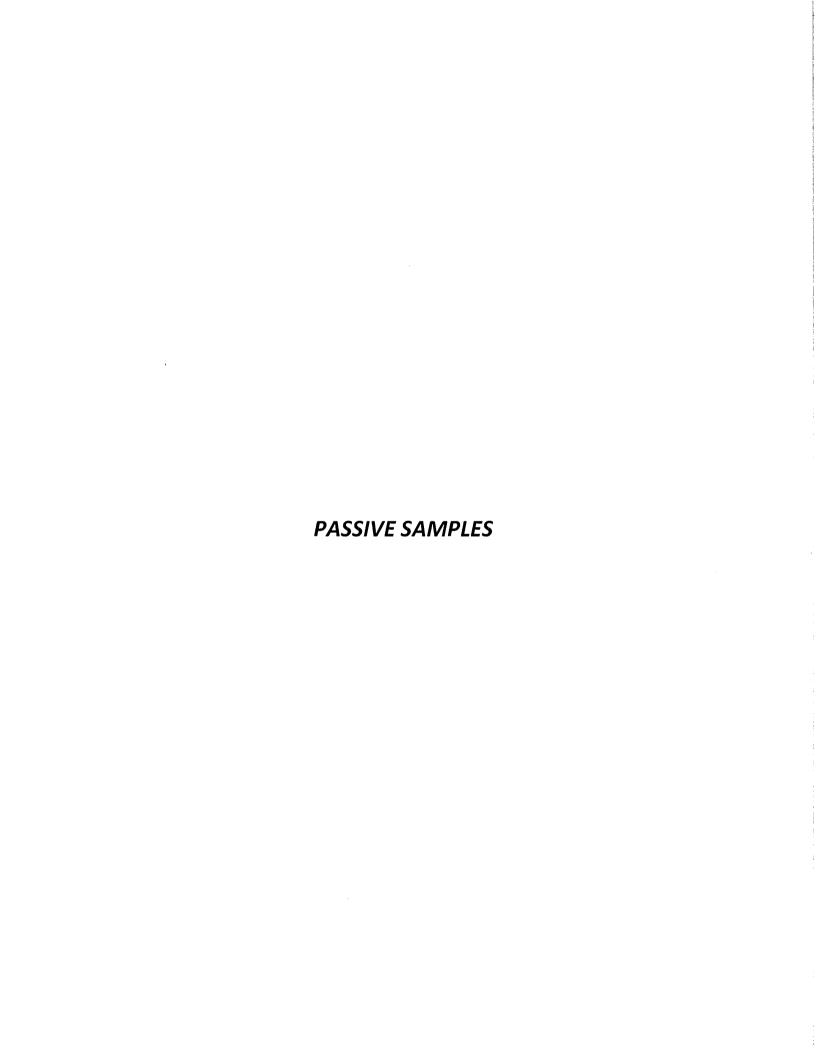
Date:	Novembe	er 18, 2015		Performed I	By/Reviewer:	Limin Li Tom Bourqu
Company:	LI	CA	_	Star	t Time (mst):	11:30
Station Name/Location:	Cold La	ke South		End	d Time (mst):	12:02
Previous Audit Date:	Novemb	er 3, 2015	<del></del>	Calibra	tion Purpose:	Audit
Parameter:	ΡÍV	2.5	<del></del>	Weathe	r Conditions:	Mainly cloudy with snow
1400A Information and Status	s:					
Serial Number:	1405A20	01620804	As Found Fi	Iter Loading %:	25.0	00
Ko Factor:	14	 578	<del></del>	lter Loading %:	27.	12
Ambient Temperature °C:	-8	3.2	_	s Found Noise:	0.0	06
Ambient Pressure atm:	0.9	929		As Left Noise:	N/	4
Main Flow Reading Ipm:	3,	00	<del></del>	Pump Vacuum: -	0.3	3
Aux Flow Reading Ipm:	16	.67	_	Warnings:	nor	 ne
Reference Standards:		· · · · · · · · · · · · · · · · · · ·				
	Fle	ow:	Pro	ssure:	Temper	aturo.
Make:		yer	1	INTON	Flui	
Model:		1ark III		n/a	1551	
Serial Number:		368		n/a	2329	
Calibration Date:		/a		ov-15	2-Nov	
As found leak check:				01 25	2 110	
As round leak cheek.		Base	Zero	Reference	Zero	
PM 2.5 Flow	actual	0.03	0.15	0.02	0.15	
PIVI 2.5 FIUW	limit	0.15	0.15	0.02	<u> </u>	
Bypass Flow	actual	0.06	-0.09	0.04	-0.09	
bypass riow	limit	0.60	0.03	0.60	-0.05	
As found temperature and pre		0.00		0.00		
+ tolerance +				tolerance +/	/ 0.01 atm	
1405F temperature °C:	-7.1		14055	pressure atm:	0.935	
reference temperature °C:	-8.2	•		ence pressure:	0.929	
difference °C:	-1,1	•	16161	difference :	0.006	
As found flows:	-1,1			unierence.	0.000	
main flow tolerance 3.00 lpm	+/- 0.20 lpm			total/aux flow to	olerance 16.67/	13.67 lpm +/- 1.00 lpm/+/-
1405F main flow lpm:	n/a			1400A total/a		16.65
reference main flow lpm:	n/a	•	r	eference total/a		17.28
difference lpm:	n/a			di	fference lpm:	0.63
く <sub>o</sub> Audit:						
Last K <sub>o</sub> audit date:	n/a	,				
1405F K $_{\rm o}$ factor:	14578					
	n/a					
Measured K <sub>o</sub> factor: % difference:	11/ 4					

### AIR FCD -00055/1

### Partisol 1118

			<b>PARTIS</b>	OL 2000 A	udit			
Date:	Nove	mber 18, 2	2015	Reference	Standard s/n:		475 Mark III,	/SN:1868
Company:		LICA			r Conditions:		Cloud	dy
Station:	Col	d Lake Sou	th	Star	t Time (mst):		10:5	0
Parameter:		PM 2.5		En	d Time (mst):		11:2	0
Reference Standard:		Audit		Performed B	y/Reviewer:	Lin	nin Li	Tom Bourque
	Sampler				In	strument	Data	
N	/lake/Model:	R	& P	Tem	perature (°C)		-8.2	
	Unit#	#1	517	Pr	essure (ATM)		0.92	9
	s/N:	2000A20	04009710	Set	Flow (I/min)		16.7	7
			Temperature	e/Pressure Calik	oration			
Reference Tem	perature: (±2 °	°C)		-9.9	Δ°C		-1.7	
Reference Press	ure: ( ±0.02 AT	M)	C	).928	Δ ΑΤΜ		-0.00	)1
			L	.eak Check			*****	-
Unit	Flow Control Closed (V1		•	ve Closed after . (V2) in Hg	VL=1/2*V	1 in Hg		Calculation (V2 : er 10 Secs in Hg
Hub	17.0	)		17,0	8,5			8,5
			F	low Audit	***************************************			
Partiso	ol Flow:			16.6	% Differ	00001		4.0
Referer	ice Flow:			17.3	% Diller	ence:		4.0
			Ot	ther Checks:				
	Condition		Condition	•	Condition		Condition	
		Inlet:	ok	Inline Filter:	ok	Status:	ok	

### APPENDIX IV ANALYTICAL RESULTS





Your Project #: 2015/09/29 - 2015/11/30

Site Location: LICA

### **Attention: MICHAEL BISAGA**

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

Report Date: 2015/12/14

Report #: R2096218 Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B5A8522** Received: 2015/12/07, 10:36

Sample Matrix: Air # Samples Received: 33

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis (1)	24	2015/12/14	2015/12/14	PTC SOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	17	2015/12/11	2015/12/14	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis (1)	8	2015/12/12	2015/12/14	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis (1)	25	2015/12/11	2015/12/14	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	22	2015/12/09	2015/12/14	PTC SOP-00149	Tang Passive SO2 in

<sup>\*</sup> RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

**Encryption Key** 

Levi

Levi Manchak

Manchak 16 Dec 2015 08:22:27 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service Email: LManchak@maxxam.ca Phone# (780) 378-8500

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

<sup>(1)</sup> The detection limit is based on a 30 day sampling period.



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Client Project #: 2015/09/29 - 2015/11/30

Site Location: LICA Sampler Initials: WA

### **RESULTS OF CHEMICAL ANALYSES OF AIR**

			ESULIS OF	CHEMICAL	ANALISE	JOI AIII				
Maxxam ID		NU1839	NU1840	NU1841	NU1842	NU1843	NU1844	NU1845		
Sampling Date		2015/09/29	2015/09/29	2015/09/30	2015/09/3	0 2015/09/30	2015/09/29	2015/09/29		
		15:03	10:24	11:12	12:50	09:20	17:10	14:00		
ea yet Me	UNITS	3	4	5	6	8	9	10	RDL	QC Batcl
Passive Monitoring										
Calculated H2S	ppb	0.11		0,44				0.10	0.02	8143558
Calculated NO2	ppb	2.0	1.8	1.4	7.1	1.6	3.1	5.5	0.1	8140963
Calculated O3	ppb	21.06	25.89	20.53	17.84	26.33	21.49	17.30	0.1	8141537
Calculated SO2	ppb	0.3	0.3	0.4	0.2	0.3	0.2	0.1	0.1	8138643
RDL = Reportable Detection L	imit				,					
Maxxam ID		NU1846	NU1847	NU1848	NU1849	NU1850	NU1851	NU1852	Τ	
Sampling Date		2015/09/29		2015/09/29	2015/09/2	29 2015/09/2	9 2015/09/30	2015/09/30		
		13:06		11:17	10:12	17:49	16:36	13:56		
	UNITS	11	12	13	14	15	16	17	RDL	QC Bate
Passive Monitoring										
Calculated H2S	ppb	0.06	MISSING	0.10	0.15		0.12	0.17	0.02	814355
Calculated NO2	ppb	0.8	MISSING	0.9	2.2	2.1	3.4	3.2	0.1	814096
Calculated O3	ppb	17.58	MISSING	22.15	24.83	19.91	22.63	20.63	0.1	814153
Calculated SO2	ppb	0.1	MISSING	0.2	1.0	0.2			0.1	813864
RDL = Reportable Detection Li	mit									
Maxxam ID		NU1853	NU1854	NU1855	T T	NU1856	NU1857	NU1858		<del></del>
Sampling Date		2015/09/30 15:31	2015/09/30 17:14	2015/09/29 18:37		2015/09/29 2 08:34	2015/09/30 12:14			
<b>V</b>	UNITS	18	19	22	QC Batch	23	24	25	RDL	QC Batch
Passive Monitoring		· · · · · · · · · · · · · · · · · · ·								
Calculated H2S	ppb	0.10	0.13	0.11	8143558		0.11	MISSING	0.02	8143558
Calculated NO2	ppb	2.1	1.6	2.4	8140963	0.7	5.3		0.1	8142426
Calculated O3	ppb	18.15	24.64	18.72	8141537	18.96	17.62		0.1	8141551
Calculated SO2	ppb			0.1	8138643	0.1	0.3	MISSING	0.1	8138643
RDL = Reportable Detection I	imit									
Maxxam ID		NU1859	NU1860	NU1861	NU1862	NU1863	NU1864	NU1867		
Sampling Date		2015/09/29 10:42	2015/09/29 09:49	2015/09/29 16:48	2015/09/2 18:37	9 2015/09/29 15:44	2015/09/30 12:02	2015/09/29 10:12		
200 M 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2	UNITS	26	27	28	29	32	36	14 DUP	RDL	QC Batcl
Passive Monitoring										
Calculated H2S	ppb	0.13	0.75		0.11	0.11	0.13		0.02	8143558
Calculated NO2	ppb			4.4	1.8	1.1	5.5	2.4	0.1	814242
Calculated O3	ppb			17.68	18.95	24.44	18.63	20.98	0.1	8141551
Calculated SO2	ppb	0.4	1.4	0.3	0.1	0.4	0.1		0.1	8138643
RDL = Reportable Detection L			·i	L				·		



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Client Project #: 2015/09/29 - 2015/11/30

Site Location: LICA Sampler Initials: WA

### **RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		NU1868	NU1869	NU1871	NU1872	NU1923	NU1924		
Sampling Date		2015/09/29	2015/09/30	2015/09/30	2015/09/30	2015/09/29	2015/09/30		
Jamping Date		17:49	16:36	13:56	15:31	18:37	12:14		
	UNITS	15 DUP	16 DUP	17 DUP	18 DUP	22 DUP	24 DUP	RDL	QC Batch
Passive Monitoring		,							
Calculated H2S	ppb		0.09	0.16	0.09	0.10	0.11	0.02	8143558
Calculated NO2	ppb	1.9						0.1	8142426
Calculated O3	ppb	19.24						0.1	8141551
RDL = Reportable Detection L	imit								



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Client Project #: 2015/09/29 - 2015/11/30

Site Location: LICA Sampler Initials: WA

### **GENERAL COMMENTS**

Sample NU1847-01 : No Access to Site.	
Sample NU1858-01 : No Access to Site.	
Results relate only to the items tested.	



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Client Project #: 2015/09/29 - 2015/11/30

Site Location: LICA Sampler Initials: WA

### **QUALITY ASSURANCE REPORT**

QA/QC				Date				
Batch	Init	QC Type	Parameter	Analyzed	Value	Recovery	UNITS	QC Limits
8138643	YL6	Spiked Blank	Calculated SO2	2015/12/09		99	%	90 - 110
8138643	YL6	Method Blank	Calculated SO2	2015/12/09	< 0.1		ppb	
8140963	SS6	Spiked Blank	Calculated NO2	2015/12/11		99	%	90 - 110
8140963	SS6	Method Blank	Calculated NO2	2015/12/11	< 0.1		ppb	
8141537	ΟZ	Spiked Blank	Calculated O3	2015/12/11		98.4	%	90 - 110
8141537	ΟZ	Method Blank	Calculated O3	2015/12/11	< 0.1		ppb	
8141551	ΟZ	Spiked Blank	Calculated O3	2015/12/11		101.2	%	90 - 110
8141551	ΟZ	Method Blank	Calculated O3	2015/12/11	< 0.1		ppb	
8142426	SS6	Spiked Blank	Calculated NO2	2015/12/12		99	%	90 - 110
8142426	SS6	Method Blank	Calculated NO2	2015/12/12	< 0.1		ppb	
8143558	LCH	Spiked Blank	Calculated H2S	2015/12/14		100	%	N/A

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

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



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION

Client Project #: 2015/09/29 - 2015/11/30

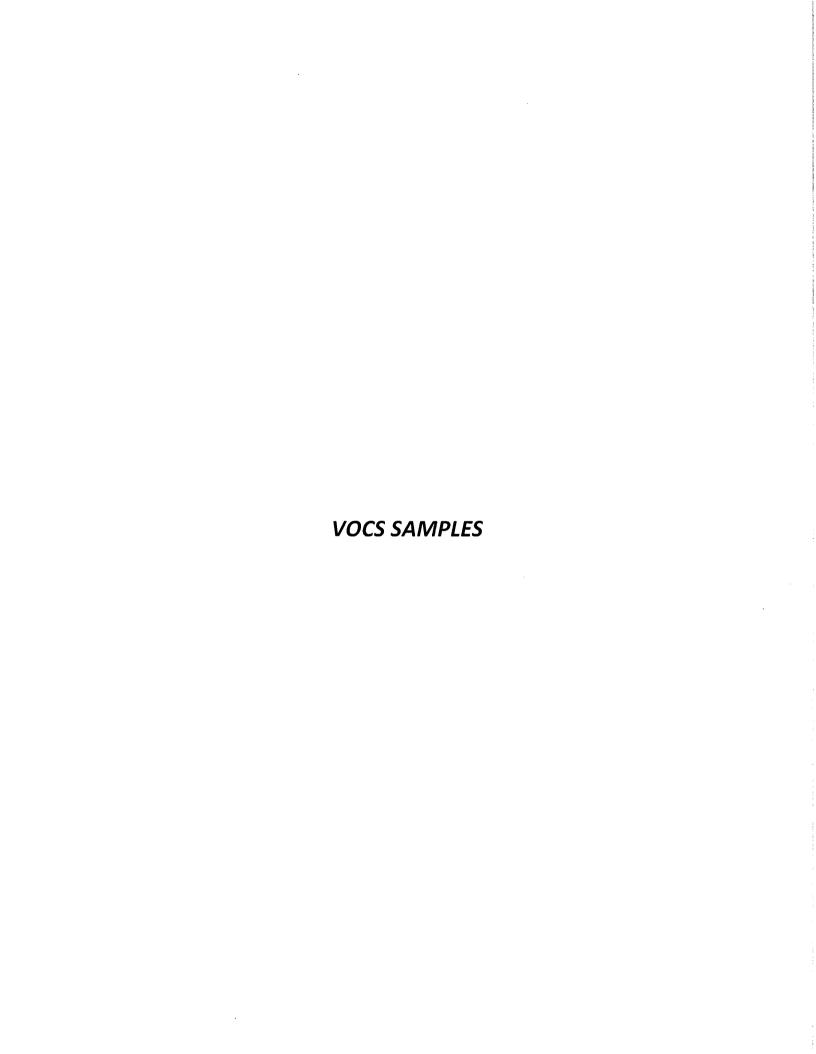
Site Location: LICA Sampler Initials: WA

### **VALIDATION SIGNATURE PAGE**

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

Linda Lin, Supervisor, Centre for Passive Sampling Technology

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

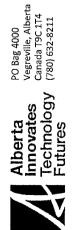




**TEST REPORT** 

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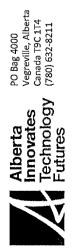
**Analysis Date** 17-Nov-15 17-Nov-15 7-Nov-15 L7-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 7-Nov-15 L7-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.8 0.3 0.4 0.04 0.05 0.03 0.02 0.03 0.02 0.02 0.02 5.02 0.02 0.02 0.01 0.01 0.02 0.4 0.01 0.01 0.01 0.01 0.02 0.02 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 02-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv vdqq **Result Units** ppbv ppbv vdqq ppbv ppbv ppbv vddd ppbv ppbv ppbv ppbv ppbv ppbv vdqq ppbv ppbv ppbv vdqq vada ppbv < 0.02 ppbv < 0.01 ppbv < 0.02 < 0.4 0.04 < 0.02 < 0.04 < 0.05 < 0.8 0.05 < 0.02 0.05 0.02 < 0.01 0.02 < 0.02 < 0.3 6.0 < 0.02 < 0.02 < 0.01 0.03 0.01 < 0.02 0.02 05-Jan-16 Qualifier К, Т, U K, T, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U K, T, U Κ, Τ, U K, T, U K, ⊥, ∪ K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U \_ Ambient Air Matrix REPORT CREATED: **CANISTER ID** 1530 1,1,2,2-Tetrachloroethane 1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane 1,2,4-Trichlorobenzene 1,1,1-Trichloroethane Graham Knox, Team Lead L,1,2-Trichloroethane 1,1-Dichloroethylene 2,3-Dimethylpentane 1,2-Dichlorobenzene 1,2-Dichloropropane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2,2-Dimethylbutane 2,3-Dimethylbutane 1,2-Dibromoethane Cold Lake South L,1-Dichloroethane .,2-Dichloroethane 1,3-Butadiene 15110054 LICA/VOC/CLS/Nov 2, 2015 .,4-Dioxane Parameter 1-Pentene I-Hexene 1-Butene **CLIENT SAMPLE ID** REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110054-001



TEST REPORT

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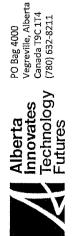
**Analysis Date** 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 .7-Nov-15 .7-Nov-15 17-Nov-15 .7-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.3 0.4 0.02 0.02 0.01 0.01 0.01 0.02 0.02 0.4 0.01 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.01 0.04 0.01 0.01 0.02 0.02 0.02 Inquiries: (780) 632 8455 00:0 DATE SAMPLED 02-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv Result Units ppbv < 0.02 ppbv ppbv 0.02 ppbv 0.01 ppbv 0.08 ppbv 1.5 ppbv < 0.3 ppbv 0.91 ppbv 0.11 ppbv < 0.02 ppbv < 0.01 ppbv < 0.02 ppbv < 0.02 ppbv < 0.02 ppbv 0.03 0.04 < 0.4 < 0.02 0.52 < 0.04 < 0.02 0.04 < 0.02 0.13 < 0.01 0.02 05-Jan-16 K, T, U K, T, U Κ, Τ, U K, T, U K, T, ∪ K, T, U Κ, Τ, U Qualifier Κ, Τ, U Κ, Τ, U K, T, U K, T, U Κ, Τ, U K, T, ∪ **Ambient Air** Matrix REPORT CREATED: **CANISTER ID** 1530 Bromodichloromethane cis-1,3-Dichloropropene cis-1,2-Dichloroethene Graham Knox, Team Lead 2,4-Dimethylpentane Carbon tetrachloride Cold Lake South 2-Methylheptane 2-Methylpentane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide **Bromomethane** Chloromethane Benzyl chloride Chlorobenzene 15110054 Chloroethane cis-2-Pentene LICA/VOC/CLS/Nov 2, 2015 cis-2-Butene Cyclohexane Chloroform Bromoform Parameter **CLIENT SAMPLE ID** Acetone Benzene Acrolein REPORT NUMBER: Date: January 5, 2016 Report certified by: **DESCRIPTION:** 15110054-001 Lab ID



TEST REPORT

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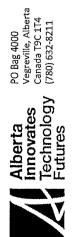
**Analysis Date** 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 L7-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.01 0.01 0.02 0.01 0.02 0.02 0.50 0.02 0.03 0.01 0.4 0.01 0.03 0.04 0.08 0.50 0.3 0.07 0.03 0.01 0.01 0.02 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 02-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv vdqq ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv pbbv ppbv ppbv ppbv ppbv ppbv vddd Result Units : 0.03 ppbv ppbv < 0.50 0.01 < 0.01 < 0.4 0.08 0.58 0.21 0.01 0.5 0.11 < 0.04 < 0.08 0.5 < 0.4 < 0.07 0.03 0.04 0.28 0.02 0.28 < 0.01 1.40 0.04 05-Jan-16 Qualifier K, T, U K, T, U K, T, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** 1530 Hexachloro-1,3-butadiene **Dibromochloromethane** Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Methyl methacrylate Methyl ethyl ketone Methyl butyl ketone Methylcyclopentane Cold Lake South Methylcyclohexane n-Diethylbenzene sopropylbenzene sopropyl alcohol m-Ethyltoluene 15110054 Cyclopentane **Ethylbenzene** LICA/VOC/CLS/Nov 2, 2015 Ethyl acetate n,p-Xylene sopentane Parameter -reon-113 Freon-114 sobutane Freon-11 Freon-12 soprene **CLIENT SAMPLE ID** Ethanol REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110054-001 Lab ID



TEST REPORT

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**Analysis Date** 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 7-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 7-Nov-15 L7-Nov-15 .7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Viethod AC-058 0.5 90.0 0.1 0.05 0.5 0.04 0.04 0.04 0.03 0.4 0.01 0.01 0.02 0.01 0.01 0.01 0.07 0.4 0.01 0.01 0.04 0.01 0.02 0.04 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 02-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv vdqq vddd ppbv ppbv ppbv ppbv vddd vddd ppbv : 0.07 ppbv pbbv ppbv Result Units < 0.3 ppbv 0.55 ppbv < 0.04 ppbv 90.0 < 0.4 0.05 0.02 < 0.1 < 0.5 3.8 0.02 0.01 0.04 < 0.04 0.07 < 0.04 < 0.4 0.15 < 0.04 : 0.01 0.02 0.04 0.05 < 0.01 05-Jan-16 Qualifier K, T, U К, Т, U K, T, U K, T, U K, T, U К, Т, U Κ, Τ, U К, Т, ∪ K, T, U Κ, Τ, U K, T, U K, T, U K, Τ, U Κ, Τ, U ----**Ambient Air** Matrix REPORT CREATED: **CANISTER ID** trans-1,3-Dichloropropylene 1530 rans-1,2-Dichloroethylene Graham Knox, Team Lead **Tetrachloroethylene** Methylene chloride Cold Lake South p-Diethylbenzene **Frichloroethylene** 1-Propylbenzene **Tetrahydrofuran** trans-2-Pentene rans-2-Butene o-Ethyltoluene o-Ethyltoluene 15110054 LICA/VOC/CLS/Nov 2, 2015 **Japhthalene** n-Dodecane n-Undecane n-Pentane Parameter n-Heptane Nonane-רn-Decane ր-Hexane 1-Octane n-Butane o-Xylene **CLIENT SAMPLE ID** oluene styrene REPORT NUMBER: Date: January 5, 2016 Report certified by: **DESCRIPTION:** 15110054-001 Lab ID



**TEST REPORT** 

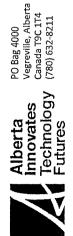
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VERSION:
07-Nov-15
mbient Air 05-Jan-16
1530 REPORT CREATEI
SCRIPTION: Cold Lake South PORT NUMBER: 15110054

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: January 5, 2016



TEST REPORT

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**Analysis Date** 17-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 [7-Nov-15 17-Nov-15 7-Nov-15 [7-Nov-15] 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 [7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 [7-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.05 0.03 0.3 0.4 0.02 0.02 0.02 0.02 0.04 0.8 0.02 0.03 0.01 0.01 0.02 0.02 0.4 0.02 0.02 0.01 0.01 0.01 0.01 0.02 0.02 Inquiries: (780) 632 8455 00:0 DATE SAMPLED 08-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services vdqq ppbv vddd vddd ppbv vddd vddd vddd Result Units vddd vdqq vdqq pbbv ppbv vddd ρbbν vdqq ppbv vddd < 0.4 ppbv ppbv ppbv ppbv vddd vddd ppbv < 0.02 < 0.05 < 0.8 < 0.02 < 0.03 0.02 < 0.01 < 0.02 < 0.02 < 0.3 < 0.4 0.07 < 0.02 < 0.01 0.01 < 0.02 < 0.02 < 0.02 < 0.04 0.07 0.05 0.02 0.08 05-Jan-16 K, T, U Κ, Τ, U K, T, U Κ, Τ, υ K, T, U K, T, U K, T, U Κ, Τ, U K, ⊤, ∪ Qualifier K, T, U K, ⊤, ∪ K, T, ∪ K, T, ∪ Κ, Τ, U \_ **Ambient Air** Matrix REPORT CREATED: CANISTER ID S5677 1,1,2,2-Tetrachloroethane 1,2,3-Trimethylbenzene 1,3,5-Trimethylbenzene 1,2,4-Trimethylbenzene 1,2,4-Trichlorobenzene 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane 1,1,1-Trichloroethane Graham Knox, Team Lead 1,1,2-Trichloroethane 1,1-Dichloroethylene 1,2-Dichlorobenzene L,2-Dichloropropane 2,3-Dimethylpentane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2,2-Dimethylbutane 1,2-Dibromoethane 2,3-Dimethylbutane 1,1-Dichloroethane Cold Lake South 1,2-Dichloroethane 1,3-Butadiene 15110089 LICA/VOC/CLS/Nov 8, 2015 1,4-Dioxane 1-Pentene Parameter 1-Hexene **I-Butene CLIENT SAMPLE ID** REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110089-001 Lab ID



TEST REPORT

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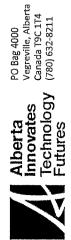
**Analysis Date** 17-Nov-15 .7-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 7-Nov-15 17-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.4 0.3 0.4 0.02 0.02 0.02 0.04 0.01 0.02 0.02 0.01 0.02 0.01 0.01 0.01 0.02 0.02 0.01 0.02 0.02 0.01 0.01 0.01 0.01 0.02 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 08-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv Result Units ppbv ppbv ppbv ppbv ppbv ppbv ppbv < 0.4 ppbv ppbv < 0.02 ppbv ppbv 0.10 ppbv < 0.02 ppbv ppbv 0.57 ppbv : 0.01 ppbv 0.04 ppbv 0.02 ppbv < 0.04 ppbv < 0.02 ppbv : 0.02 ppbv 0.15 ppbv : 0.01 0.13 0.09 2.4 < 0.3 < 0.02 0.02 < 0.02 < 0.02 0.07 < 0.01 0.03 0.22 05-Jan-16 Qualifier Κ, Τ, U K, T, U K, T, ∪ Κ, Τ, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** S5677 Bromodichloromethane cis-1,3-Dichloropropene is-1,2-Dichloroethene Graham Knox, Team Lead 2,4-Dimethylpentane Carbon tetrachloride Cold Lake South 2-Methylheptane 2-Methylpentane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide Chloromethane **Bromomethane** Benzyl chloride Chlorobenzene 15110089 Chloroethane cis-2-Pentene LICA/VOC/CLS/Nov 8, 2015 cis-2-Butene Cyclohexane Bromoform Chloroform Parameter **CLIENT SAMPLE ID** Benzene Acetone Acrolein REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110089-001 Lab ID



TEST REPORT

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**Analysis Date** 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 L7-Nov-15 [7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 .7-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 4C-058 4C-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 0.02 0.02 0.50 0.03 0.01 0.4 0.03 0.04 0.08 0.50 0.01 0.01 0.02 0.01 0.02 0.01 0.3 0.4 0.07 0.03 2.02 0.01 0.01 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 08-Nov-15 On hehalf of: PJ Pretorius, Manager, Analysis and Testing Services vddd ppbv ppbv vddd vddd vddd vddd vddd vddd vddd vddd Result Units vddd vddd < 0.01 ppbv</p> < 0.04 ppbv vdqq 70.0 > ppbv 0.04 ppbv : 0.01 ppbv < 0.50 ppbv 0.51 ppbv 0.15 ppbv < 0.3 ppbv : 0.03 ppbv 0.18 ppbv 0.59 0.02 < 0.4 0.29 0.07 0.02 0.51 9.0 < 0.08 < 0.50 < 0.4 0.04 05-Jan-16 K, T, U K, T, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U Qualifier Ambient Air Matrix REPORT CREATED: **CANISTER ID** S5677 Hexachloro-1,3-butadiene **Dibromochloromethane** Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Methyl methacrylate Methyl butyl ketone Methyl ethyl ketone Methylcyclopentane Methylcyclohexane Cold Lake South m-Diethylbenzene sopropylbenzene sopropyl alcohol m-Ethyltoluene 15110089 Cyclopentane **Ethylbenzene** LICA/VOC/CLS/Nov 8, 2015 Ethyl acetate n,p-Xylene sopentane Parameter -reon-113 -reon-114 sobutane Freon-11 Freon-12 soprene **CLIENT SAMPLE ID** Ethanol REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110089-001 Lab ID



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**Analysis Date** 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 L7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 Method AC-058 4C-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 0.5 0.03 90.0 0.4 0.01 0.01 0.02 0.05 0.5 0.01 0.01 0.01 0.04 0.07 0.04 0.04 0.4 0.01 0.04 0.1 0.01 0.01 0.02 0.04 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 08-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv ppbv ppbv ppbv ppbv vdqq ppbv ppbv vddd Result Units < 0.3 ppbv ppbv < 0.07 ppbv < 0.01 ppbv vddd < 0.04 ppbv 0.99 0.06 3. 8. 0.03 < 0.1 < 0.05 < 0.5 1.6 0.04 0.05 < 0.04 < 0.04 < 0.4 0.44 0.01 < 0.04 0.07 0.02 < 0.04 < 0.02 0.21 Κ, Τ, U K, T, U Κ, Τ, U Κ, Τ, U 05-Jan-16 Qualifier К, Т, ∪ K, ⊥, ∪ К, Т, ∪ к, т, ∪ K, Τ, U К, Т, ∪ Κ, **T**, U K, T, U Κ, Τ, ∪ К, Т, О Ambient Air Matrix REPORT CREATED: **CANISTER ID** trans-1,3-Dichloropropylene S5677 rans-1,2-Dichloroethylene Graham Knox, Team Lead **Tetrachloroethylene** Methylene chloride Cold Lake South p-Diethylbenzene **Frichloroethylene** 1-Propylbenzene etrahydrofuran trans-2-Pentene o-Ethyltoluene p-Ethyltoluene rans-2-Butene 15110089 LICA/VOC/CLS/Nov 8, 2015 **Naphthalene** n-Dodecane n-Undecane Parameter n-Heptane 1-Pentane ר-Nonane -1-Decane n-Hexane -Octane 1-Butane o-Xylene **CLIENT SAMPLE ID** oluene\_ styrene REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110089-001 Lab ID



TEST REPORT

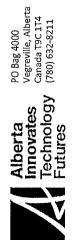
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CLIENT SAMPLE ID	MPIFID	CANISTED ID	Matrix	į,	O JAME CANABLED	ADIEN		
LICA/VOC/CLS	LICA/VOC/CLS/Nov 8, 2015	CAINISTEN ID S5677	Ambient Air	t Air	08-Nov-15	0:00		
DESCRIPTION:	Cold Lake South							
REPORT NUMBER:	R: 15110089	REPORT CREATED:	ATED:	05-Jan-16			VERSION:	: Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	L Method	d Analysis Date
15110089-001	Vinyl acetate			K, T, U	< 0.4 ppbv	0.4		
15110089-001	Vinyl chloride			K, T, U	< 0.02 ppbv	0.02		
Report certified by:	Graham Knox, Team Lead		n behalf of: PJP	retorius, Manager, Analy	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services			

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

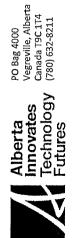
Date: January 5, 2016



**TEST REPORT** 

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CLIENT S	CLIENT SAMPLE ID CANIS	CANISTER ID ME	Matrix	DATE SAMPLED			
LICA/VOC/CL	2014		Ambient Air	14-Nov-15 0:00	Q		
DESCRIPTION:	_						
REPORT NUMBER:	<b>ER:</b> 15110105	REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter	- The state of the	Qualifier	Result Units	RDL	Method	Analysis Date
15110105-003	1,1,1-Trichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1,1,2,2-Tetrachloroethane	ne	K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1,1,2-Trichloroethane		Κ <b>, Τ,</b> U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1,1-Dichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1,1-Dichloroethylene		K, T, U	< 0.04 ppbv	0.04	AC-058	17-Nov-15
15110105-003	1,2,3-Trimethylbenzene		K, T, U	< 0.05 ppbv	0.05	AC-058	17-Nov-15
15110105-003	1,2,4-Trichlorobenzene		K, T, U	< 0.8 ppbv	0.8	AC-058	17-Nov-15
15110105-003	1,2,4-Trimethylbenzene			0.05 ppbv	0.03	AC-058	17-Nov-15
15110105-003	1,2-Dibromoethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1,2-Dichlorobenzene		K, T, U	< 0.03 ppbv	0.03	AC-058	17-Nov-15
15110105-003	1,2-Dichloroethane		fixed	0.02 ppbv	0.01	AC-058	17-Nov-15
15110105-003	1,2-Dichloropropane		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-003	1,3,5-Trimethylbenzene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1,3-Butadiene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1,3-Dichlorobenzene		K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
15110105-003	1,4-Dichlorobenzene		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-003	1,4-Dioxane		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-003	1-Butene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1-Hexene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-003	1-Pentene		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-003	2,2,4-Trimethylpentane		Manage	0.11 ppbv	0.01	AC-058	17-Nov-15
15110105-003	2,2-Dimethylbutane		_	0.04 ppbv	0.01	AC-058	17-Nov-15
15110105-003	2,3,4-Trimethylpentane		••••	0.03 ppbv	0.01	AC-058	17-Nov-15
15110105-003	2,3-Dimethylbutane		_	0.09 vddd 0.00	0.02	AC-058	17-Nov-15
15110105-003	2,3-Dimethylpentane		-	0.08 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	Graham Knox, Team Lead	On behalf of: P	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: January 5, 2016	2016			Inquiries: (780) 632 8455		E-mail: EAS Results@albertainnoyates.ca	innovates.ca
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**Analysis Date** 17-Nov-15 L7-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 L7-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 .7-Nov-15 .7-Nov-15 L7-Nov-15 17-Nov-15 Version 01 VERSION: Method AC-058 4C-058 AC-058 0.02 0.02 0.02 0.02 0.02 0.02 0.04 0.01 0.01 0.01 0.01 0.02 0.02 0.01 0.4 0.3 0.01 0.4 0.01 0.01 0.01 0.01 0.02 0.02 0.02 0:00 DATE SAMPLED 14-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv vdqq Result Units ppbv ppbv ppbv ppbv vddd ppbv < 0.3 ppbv ppbv < 0.4 ppbv < 0.02 ppbv vdqq 0.10 ppbv < 0.02 ppbv < 0.02 ppbv vddd 0.56 ppbv < 0.04 ppbv : 0.02 ppbv : 0.01 ppbv : 0.02 ppbv 0.02 ppbv 0.15 ppbv 0.06 0.04 0.31 < 0.4 0.07 0.03 0.12 0.18 0.28 < 0.01 0.11 0.02 Κ, Τ, U 05-Jan-16 Qualifier Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U K, Τ, U K, T, U Κ, Τ, U K, T, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** 2643 **Bromodichloromethane** cis-1,3-Dichloropropene cis-1,2-Dichloroethene Graham Knox, Team Lead 2,4-Dimethylpentane Sarbon tetrachloride Cold Lake South 2-Methylheptane 2-Methylpentane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide **Bromomethane** Chloromethane 3enzyl chloride Chlorobenzene 15110105 Chloroethane LICA/VOC/CLS/Nov 14, 2014 cis-2-Pentene Cyclohexane cis-2-Butene Chloroform **3romoform** Parameter **CLIENT SAMPLE ID** Senzene Acrolein Acetone REPORT NUMBER: Report certified by: DESCRIPTION: 15110105-003 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

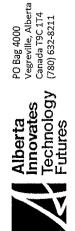
Date: January 5, 2016



**TEST REPORT** 

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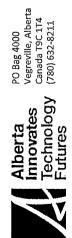
**Analysis Date** 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 L7-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 L7-Nov-15 .7-Nov-15 L7-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.02 0.50 0.4 0.03 0.08 0.50 0.3 0.01 0.01 0.02 0.01 0.02 0.02 0.03 0.01 0.01 0.04 0.03 0.07 0.02 0.01 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 14-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services vddd ppbv vdqq Result Units ppbv < 0.01 ppbv ppbv ppbv ppbv vddd vddd vdqq < 0.4 ppbv vddd 0.21 ppbv < 0.04 ppbv vdqq 80.0 x vddd vddd < 0.50 ppbv 1.31 ppbv : 0.50 ppbv < 0.3 ppbv < 0.4 ppbv : 0.07 ppbv : 0.03 ppbv 90.0 < 0.4 90.0 0.08 0.02 0.63 1.19 0.03 0.35 < 0.01 0.19 0.18 K, T, U 05-Jan-16 Κ, Τ, U K, T, U Κ, Τ, U Qualifier K, T, ∪ K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** 2643 Hexachloro-1,3-butadiene **Dibromochloromethane** Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Wethyl methacrylate Methyl butyl ketone Methyl ethyl ketone Methylcyclopentane Cold Lake South Methylcyclohexane m-Diethylbenzene sopropylbenzene sopropyl alcohol m-Ethyltoluene 15110105 Cyclopentane LICA/VOC/CLS/Nov 14, 2014 Ethylbenzene thyl acetate n,p-Xylene sopentane Parameter reon-113 -reon-114 sobutane Freon-11 -reon-12 soprene **CLIENT SAMPLE ID** thanol REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110105-003 Lab ID



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**Analysis Date** 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 7-Nov-15 [7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 7-Nov-15 L7-Nov-15 .7-Nov-15 L7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 [7-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.5 0.03 90.0 0.1 0.05 0.04 0.04 0.04 0.4 0.01 0.01 0.02 0.5 0.01 0.01 0.01 0.07 0.4 0.01 0.01 0.04 0.01 0.02 0.04 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 14-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv yddd ppbv ppbv ppbv ppbv ppbv vdqq vddd vddd ppbv ppbv ppbv ppbv ppbv ppbv ppbv vdqq ppbv Result Units < 0.07 ppbv ppbv ppbv < 0.3 ppbv < 0.06 < 0.4 0.11 0.29 0.05 0.9 < 0.05 < 0.5 < 0.5 0.02 0.02 < 0.04 < 0.04 < 0.04 < 0.4 0.39 : 0.01 < 0.04 < 0.01 0.04 < 0.04 0.07 05-Jan-16 Qualifier K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U Ambient Air Matrix REPORT CREATED: CANISTER ID trans-1,3-Dichloropropylene 2643 trans-1,2-Dichloroethylene Graham Knox, Team Lead **Tetrachloroethylene** Methylene chloride Cold Lake South a-Diethylbenzene **Frichloroethylene** n-Propylbenzene **Tetrahydrofuran** trans-2-Pentene rans-2-Butene o-Ethyltoluene o-Ethyltoluene LICA/VOC/CLS/Nov 14, 2014 15110105 **Naphthalene** n-Undecane n-Dodecane n-Heptane n-Pentane Parameter -Nonane n-Decane n-Hexane n-Butane η-Octane o-Xylene **CLIENT SAMPLE ID Foluene** Styrene REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110105-003 Lab ID



**TEST REPORT** 

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CLIENT SAMPLE ID	PLE ID	CANISTER ID		Matrix	DATE SAMPLED	N ED		
LICA/VOC/CLS/Nov 14, 2014	v 14, 2014	2643		Ambient Air	14-Nov-15	0:00		
DESCRIPTION: REPORT NUMBER:	Cold Lake South 15110105		REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID Par	Parameter			Qualifier	Result Units	RDL	Method	Analysis Date
15110105-003 Vir	Vinyl acetate			K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-003 Vir	Vinyl chloride			К, Т, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	Graham Knox, Team Lead	m Lead	On behalf of: P.	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

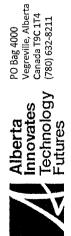
Date: January 5, 2016



**TEST REPORT** 

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**Analysis Date** 03-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 )3-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 )3-Dec-15 03-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 33-Dec-15 3-Dec-15 )3-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 Method AC-058 0.8 0.3 0.4 0.4 0.02 0.02 0.04 0.05 0.03 0.02 0.03 0.01 0.01 0.02 0.02 0.02 0.02 0.01 0.01 0.01 0.01 0.02 0.02 Inquiries: (780) 632 8455 00:00 DATE SAMPLED 20-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv vdqq ppbv ppbv ppbv Result Units ppbv ppbv ppbv ppbv ppbv ppbv ppbv < 0.02 ppbv : 0.02 ppbv < 0.02 ppbv ppbv ppbv ppbv < 0.3 ppbv < 0.4 ppbv < 0.4 ppbv < 0.02 ppbv < 0.01 ppbv 0.04 ppbv < 0.02 < 0.02 0.02 < 0.01 0.04 < 0.01 < 0.01 < 0.8 < 0.03 < 0.02 < 0.04 < 0.05 < 0.03 < 0.02 0.02 0.02 38-Jan-16 Qualifier K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, ⊤, ∪ К, Т, О Κ, Τ, U К, Т, О K, T, U Κ, Τ, U K, T, U K, T, U Κ, Τ, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U K, T, U \_ \_\_ Ambient Air Matrix REPORT CREATED: **CANISTER ID S**5673 1,1,2,2-Tetrachloroethane 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene 2,2,4-Trimethylpentane 1,2,3-Trimethylbenzene 2,3,4-Trimethylpentane L, 2, 4-Trichlorobenzene Graham Knox, Team Lead 1,1,1-Trichloroethane 1,1,2-Trichloroethane .,1-Dichloroethylene 2,3-Dimethylpentane 1,2-Dichloropropane 1,2-Dichlorobenzene L,3-Dichlorobenzene 1,4-Dichlorobenzene 2,2-Dimethylbutane 2,3-Dimethylbutane L,2-Dibromoethane L,1-Dichloroethane .,2-Dichloroethane Cold Lake South 1,3-Butadiene LICA/VOC/CLS/NOV 20, 2015 15110230 L,4-Dioxane L-Pentene Parameter L-Hexene -Butene **CLIENT SAMPLE ID** Date: Friday, January 08, 2016 REPORT NUMBER: Report certified by: DESCRIPTION: 15110230-001 Lab ID



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**Analysis Date** 33-Dec-15 03-Dec-15 33-Dec-15 03-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 3-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 Version 01 VERSION: AC-058 Method AC-058 0.4 0.3 0.01 0.01 0.01 0.02 0.02 0.01 0.01 0.4 0.02 0.02 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.01 0.04 0.02 0.02 0.02 0.01 00:00 DATE SAMPLED 20-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services vddd ppbv vddd ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv ppbv Result Units 0.02 ppbv : 0.02 ppbv .0.02 ppbv ppbv 0.02 0.09 0.04 1.0 0.15 < 0.4 < 0.02 < 0.01 < 0.04 < 0.02 0.05 < 0.3 0.03 0.56 0.04 < 0.02 < 0.01 < 0.02 0.11 < 0.02 0.03 0.09 K, T, U 08-Jan-16 Qualifier K, T, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U K, T, U Ambient Air Matrix REPORT CREATED: CANISTER ID 55673 **3romodichloromethane** cis-1,3-Dichloropropene cis-1,2-Dichloroethene Graham Knox, Team Lead 2,4-Dimethylpentane Carbon tetrachloride Cold Lake South 2-Methylpentane 2-Methylheptane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide Chloromethane **3romomethane** 3enzyl chloride Chlorobenzene LICA/VOC/CLS/NOV 20, 2015 15110230 Chloroethane cis-2-Pentene cis-2-Butene Cyclohexane **3romoform** Chloroform Parameter **CLIENT SAMPLE ID 3enzene** Acetone Acrolein REPORT NUMBER: Report certified by: DESCRIPTION: 15110230-001 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016



TEST REPORT

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CLIENT SAMPLE ID		CANISTER ID Ma	Matrix	DATE SAMPLED	LED		
LICA/VOC/CLS/NOV 20, 2015		S5673 Ambie	Ambient Air	20-Nov-15	00:00		
DESCRIPTION:	_						
REPORT NUMBER:	R: 15110230	REPORT CREATED:	08-Jan-16			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110230-001	Cyclopentane		_	0.03 ppbv	0.01	AC-058	03-Dec-15
15110230-001	Dibromochloromethane		K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110230-001	Ethanol			0.5 ppbv	0.3	AC-058	03-Dec-15
15110230-001	Ethyl acetate		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110230-001	Ethylbenzene		_	0.02 ppbv	0.01	AC-058	03-Dec-15
15110230-001	Freon-11			0.34 ppbv	0.02	AC-058	03-Dec-15
15110230-001	Freon-113		_	0.07 ppbv	0.01	AC-058	03-Dec-15
15110230-001	Freon-114		_	0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-001	Freon-12			0.59 ppbv	0.02	AC-058	03-Dec-15
15110230-001	Hexachloro-1,3-butadiene	ne	K, T, U	< 0.50 ppbv	0.50	AC-058	03-Dec-15
15110230-001	Isobutane			0.33 ppbv	0.02	AC-058	03-Dec-15
15110230-001	Isopentane			0.33 ppbv	0.03	AC-058	03-Dec-15
15110230-001	Isoprene		K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110230-001	Isopropyl alcohol		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110230-001	Isopropylbenzene		K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110230-001	m,p-Xylene		_	0.04 ppbv	0.03	AC-058	03-Dec-15
15110230-001	m-Diethylbenzene		K, T, U	< 0.04 ppbv	0.04	AC-058	03-Dec-15
15110230-001	m-Ethyltoluene		K, T, U	< 0.08 ppbv	0.08	AC-058	03-Dec-15
15110230-001	Methyl butyl ketone		K, T, U	< 0.50 ppbv	0.50	AC-058	03-Dec-15
15110230-001	Methyl ethyl ketone		K, T, U	< 0.3 ppbv	0.3	AC-058	03-Dec-15
15110230-001	Methyl isobutyl ketone		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110230-001	Methyl methacrylate		K, T, U	< 0.07 ppbv	0.07	AC-058	03-Dec-15
15110230-001	Methyl tert butyl ether		K, T, U	< 0.03 ppbv	0.03	AC-058	03-Dec-15
15110230-001	Methylcyclohexane		_	0.12 ppbv	0.01	AC-058	03-Dec-15
15110230-001	Methylcyclopentane		_	0.07 ppbv	0.02	AC-058	03-Dec-15
Report certified by:	Graham Knox, Team Lead	On behalf of: P	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: Friday, January 08, 2016	ry 08, 2016			Inquiries	Inquiries: (780) 632 8455 E-1	E-mail: EAS.Results@albertainnovates.ca	ainnovates.ca



#### **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

Page 6 of 18

**Analysis Date** 03-Dec-15 33-Dec-15 33-Dec-15 03-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 )3-Dec-15 )3-Dec-15 )3-Dec-15 )3-Dec-15 33-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.5 0.03 90.0 0.02 0.1 0.05 0.5 0.07 0.04 0.04 0.4 0.01 0.01 0.01 0.01 0.04 0.01 0.01 0.04 0.4 0.01 0.01 0.02 Inquiries: (780) 632 8455 00:00 DATE SAMPLED 20-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services hpbv < 0.3 ppbv vddd ppbv ppbv vddd Result Units 0.65 ppbv < 0.06 ppbv ppbv < 0.1 ppbv < 0.05 ppbv < 0.5 ppbv : 0.02 ppbv 0.10 ppbv < 0.04 ppbv < 0.4 0.04 0.02 < 0.5 0.01 < 0.01 0.02 0.04 < 0.07 < 0.04 < 0.04 < 0.4 0.10 < 0.01 < 0.04 < 0.01 38-Jan-16 K, T, U K, T, U Qualifier K, T, U K, T, U K, T, U K, T, U Κ, Τ, U Κ, Τ, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** trans-1,3-Dichloropropylene **S**5673 trans-1,2-Dichloroethylene Graham Knox, Team Lead -etrachloroethylene Cold Lake South Methylene chloride p-Diethylbenzene **Trichloroethylene** n-Propylbenzene **etrahydrofuran** trans-2-Pentene trans-2-Butene o-Ethyltoluene p-Ethyltoluene LICA/VOC/CLS/NOV 20, 2015 15110230 **Naphthalene** n-Undecane n-Dodecane n-Heptane n-Pentane Parameter n-Nonane n-Decane n-Hexane n-Octane ր-Butane o-Xylene **CLIENT SAMPLE ID** oluene\_ Date: Friday, January 08, 2016 Styrene REPORT NUMBER: Report certified by: **DESCRIPTION:** 15110230-001 Lab ID



**TEST REPORT** 

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		S S ate	
	Version 01	Analysis Date 03-Dec-15 03-Dec-15	
	VERSION:	Method AC-058 AC-058	1. O. J. GOAT !!
0		8DL 0.02 0.02	
<b>DATE SAMPLED</b> 20-Nov-15 00:00		Result Units < 0.4 ppbv < 0.02 ppbv	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services
<b>Matrix</b> Ambient Air	08-Jan-16	Qualifier K, T, U K, T, U	J Pretorius, Manager, An
CANISTER ID Ma S5673 Ambie	REPORT CREATED:		
	Cold Lake South 15110230	Vinyl acetate Vinyl chloride	Graham Knox, Team Lead
CLIENT SAMPLE ID LICA/VOC/CLS/NOV 20, 2015	DESCRIPTION: REPORT NUMBER:	Lab iD P 15110230-001 V 15110230-001 V	Report certified by: Grahar



TEST REPORT

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**Analysis Date** 03-Dec-15 33-Dec-15 03-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 33-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 AC-058 AC-058 AC-058 AC-058 4C-058 AC-058 0.8 0.4 0.4 0.05 0.03 0.02 0.03 0.02 0.02 0.3 0.02 0.02 0.04 0.01 0.01 0.02 0.02 0.01 0.01 0.01 0.01 0.02 Inquiries: (780) 632 8455 80:00 DATE SAMPLED 26-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv pbbv ppbv ppbv ppbv ppbv Result Units < 0.02 ppbv vddd ppbv ppbv ppbv ppbv vadd ppbv < 0.3 ppbv < 0.02 ppbv < 0.01 ppbv 0.02 ppbv ppbv < 0.4 ppbv < 0.02 < 0.02 < 0.02 < 0.04 < 0.05 < 0.8 < 0.03 < 0.02 < 0.03 0.02 < 0.01 < 0.02 < 0.02 < 0.4 0.06 < 0.01 0.03 0.09 90.0 38-Jan-16 K, T, U Κ, Τ, U K, T, ∪ K, T, U Qualifier **Ambient Air** Matrix REPORT CREATED: **CANISTER ID S5672** Julius Pretorius, Portfolio Manager 1,1,2,2-Tetrachloroethane 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene 1,2,3-Trimethylbenzene 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane 1,2,4-Trichlorobenzene 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethylene 2,3-Dimethylpentane 1,2-Dichlorobenzene 1,2-Dichloropropane 1,3-Dichlorobenzene ,4-Dichlorobenzene 1,2-Dibromoethane 2,2-Dimethylbutane 2,3-Dimethylbutane 1,1-Dichloroethane ,2-Dichloroethane Cold Lake South 1,3-Butadiene LICA/VOC/CLS/NOV 26, 2015 15110237 1,4-Dioxane Parameter 1-Pentene 1-Hexene 1-Butene **CLIENT SAMPLE ID** Date: Friday, January 08, 2016 REPORT NUMBER: Report certified by: **DESCRIPTION:** 15110237-003 Lab ID



Vegreville, Alberta Canada T9C 1T4 (780) 632-8211 PO Bag 4000

#### **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

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**Analysis Date** 33-Dec-15 33-Dec-15 3-Dec-15 03-Dec-15 3-Dec-15 3-Dec-15 )3-Dec-15 3-Dec-15 3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 33-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 Version 01 VERSION: Method AC-058 0.4 0.3 0.4 0.02 0.01 0.02 0.02 0.02 0.02 0.01 0.02 0.02 0.01 0.01 0.02 0.01 0.01 0.01 0.01 0.01 00:00 DATE SAMPLED 26-Nov-15 ppbv **Result Units** 0.05 ppbv ppbv ppbv ppbv ppbv vddd vddd < 0.02 ppbv ppbv ppbv < 0.02 ppbv ppbv 0.03 ppbv ppbv ppbv 3.04 ppbv 0.08 ppbv < 0.4 ppbv < 0.02 ppbv : 0.01 ppbv 0.20 0.02 0.08 0.11 1.0 < 0.3 0.27 < 0.01 0.11 < 0.02 0.47 < 0.01 08-Jan-16 Qualifier K, T, U K, T, U Κ, T, U K, T, ∪ K, T, U Κ, Τ, U K, T, U K, T, U Κ, Τ, U \_ Ambient Air Matrix REPORT CREATED: **CANISTER ID** 55672 **Bromodichloromethane** cis-1,2-Dichloroethene 2,4-Dimethylpentane Carbon tetrachloride Cold Lake South 2-Methylheptane 2-Methylpentane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide Bromomethane Chloromethane Benzyl chloride Chlorobenzene LICA/VOC/CLS/NOV 26, 2015 Chloroethane 15110237 Chloroform Bromoform Parameter **CLIENT SAMPLE ID** Acetone Benzene Acrolein REPORT NUMBER: DESCRIPTION: 15110237-003 Lab ID

Inquiries: (780) 632 8455

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Julius Pretorius, Portfolio Manager

Date: Friday. January 08, 2016

Report certified by:

0.24

E-mail: EAS.Results@albertainnovates.ca

3-Dec-15

3-Dec-15

AC-058

33-Dec-15 33-Dec-15

AC-058 AC-058 AC-058

0.04 0.02

< 0.04 ppbv < 0.02 ppbv 0.02 ppbv

K, T, U K, T, U Κ, Τ, U

cis-1,3-Dichloropropene

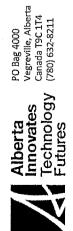
cis-2-Pentene cis-2-Butene

15110237-003 15110237-003

15110237-003 15110237-003

Cyclohexane

0.02



**TEST REPORT** 

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CLIENTS	CLIENT SAMPLE ID	CANISTER ID	Matrix	×	DATE SAMPLED			
LICA/VOC/CLE	LICA/VOC/CLS/NOV 26, 2015	S5672	Ambient Air	t Air	26-Nov-15 00:00	00		
DESCRIPTION:	Cold Lake South	outh						
REPORT NUMBER:	ER: 15110237	REPORT CREATED:	EATED:	08-Jan-16			VERSION:	Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	Method	Analysis Date
15110237-003	Cyclopentane			-	0.07 ppbv	0.01	AC-058	03-Dec-15
15110237-003	Dibromochloromethane	nethane		K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110237-003	Ethanol			K, T, U	< 0.3 ppbv	0.3	AC-058	03-Dec-15
15110237-003	Ethyl acetate			K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110237-003	Ethylbenzene			_	0.04 ppbv	0.01	AC-058	03-Dec-15
15110237-003	Freon-11				0.33 ppbv	0.02	AC-058	03-Dec-15
15110237-003	Freon-113			_	0.06 ppbv	0.01	AC-058	03-Dec-15
15110237-003	Freon-114				0.02 ppbv	0.02	AC-058	03-Dec-15
15110237-003	Freon-12				0.52 ppbv	0.02	AC-058	03-Dec-15
15110237-003	Hexachloro-1,3-butadiene	butadiene		K, T, U	< 0.50 ppbv	0.50	AC-058	03-Dec-15
15110237-003	Isobutane				0.79 vdqq	0.02	AC-058	03-Dec-15
15110237-003	Isopentane				0.59 ppbv	0.03	AC-058	03-Dec-15
15110237-003	Isoprene			K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110237-003	Isopropyl alcohol	_		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110237-003	Isopropylbenzene	Je		K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110237-003	m,p-Xylene			_	0.07 ppbv	0.03	AC-058	03-Dec-15
15110237-003	m-Diethylbenzene	ne		K, T, U	< 0.04 ppbv	0.04	AC-058	03-Dec-15
15110237-003	m-Ethyltoluene			K, T, U	< 0.08 ppbv	0.08	AC-058	03-Dec-15
15110237-003	Methyl butyl ketone	tone		K, T, U	< 0.50 ppbv	0.50	AC-058	03-Dec-15
15110237-003	Methyl ethyl ketone	tone		K, T, U	< 0.3 ppbv	0.3	AC-058	03-Dec-15
15110237-003	Methyl isobutyl ketone	ketone		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110237-003	Methyl methacrylate	ylate		K, T, U	< 0.07 ppbv	0.07	AC-058	03-Dec-15
15110237-003	Methyl tert butyl ether	/l ether		K, T, U	< 0.03 ppbv	0.03	AC-058	03-Dec-15
15110237-003	Methylcyclohexane	ane			0.31 ppbv	0.01	AC-058	03-Dec-15
15110237-003	Methylcyclopentane	tane		_	0.18 ppbv	0.02	AC-058	03-Dec-15
Report certified by:	Julius Pretorius, Portfolio Manager		In behalf of: PJ Pr	etorius, Manager, Analy	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services			

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016

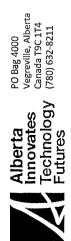


#### **ENVIRONMENTAL ANALYTICAL SERVICES**

**TEST REPORT** 

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**Analysis Date** 03-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 )3-Dec-15 03-Dec-15 33-Dec-15 3-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: AC-058 AC-058 AC-058 AC-058 Method AC-058 4C-058 AC-058 AC-058 4C-058 AC-058 4C-058 0.03 90.0 0.4 0.1 0.05 0.5 0.5 0.01 0.01 0.01 0.04 0.07 0.04 0.04 0.4 0.01 0.04 0.01 0.01 0.02 0.01 0.01 0.02 0.04 Inquiries: (780) 632 8455 00:00 DATE SAMPLED 26-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services Result Units < 0.3 ppbv ppbv ppbv yddd ppv 0.5 ppbv ppbv < 0.5 ppbv ppbv **p**bbv ppbv vddd vdqq 70.0 > < 0.04 ppbv **v**qdd ppbv vddd ppbv ppbv 1.44 ppbv : 0.06 ppbv < 0.05 ppbv < 0.04 ppbv < 0.02 ppbv < 0.04 ppbv 0.05 < 0.4 0.09 0.21 < 0.5 0.02 0.01 0.03 < 0.04 < 0.04 < 0.4 0.19 < 0.01 < 0.01 38-Jan-16 Κ, Τ, U Qualifier K, T, U K, T, U K, T, U Κ, T, U K, T, ∪ K, T, U Κ, Τ, U K, T, U X, T, U Ambient Air Matrix REPORT CREATED: CANISTER ID trans-1,3-Dichloropropylene Julius Pretorius, Portfolio Manager **SS672** :rans-1,2-Dichloroethylene **Tetrachloroethylene** Cold Lake South Methylene chloride p-Diethylbenzene **Trichloroethylene** n-Propylbenzene **Tetrahydrofuran** trans-2-Pentene trans-2-Butene p-Ethyltoluene o-Ethyltoluene LICA/VOC/CLS/NOV 26, 2015 15110237 Naphthalene n-Dodecane n-Undecane n-Heptane n-Pentane Parameter n-Nonane n-Decane n-Hexane n-Octane n-Butane o-Xylene **CLIENT SAMPLE ID** oluene Styrene Date: Friday, January 08, 2016 REPORT NUMBER: Report certified by: **DESCRIPTION:** 15110237-003 Lab ID



**TEST REPORT** 

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_				<b>,</b> ,,,,,,,			
			Version 01	Analysis Date	03-Dec-15	03-Dec-15	
			VERSION:	Method	AC-058	AC-058	
				RDL	0.4	0.02	
MPLED	00:00						
DATE SAMPLED	26-Nov-15			Result Units	< 0.4 ppbv	< 0.02 ppbv	
Matrix	Ambient Air		08-Jan-16	Qualifier	K, T, U	K, T, U	
			REPORT CREATED:				
CANISTER ID	S5672	uth	R				
MPLE ID	VOV 26, 2015	Cold Lake South	15110237	Parameter	Vinyl acetate	Vinyl chloride	
CLIENT SAMPLE ID	LICA/VOC/CLS/NOV 26, 2015	DESCRIPTION:	REPORT NUMBER:	Lab ID P		15110237-003 V	

E-mail: EAS.Results@albertainnovates.ca

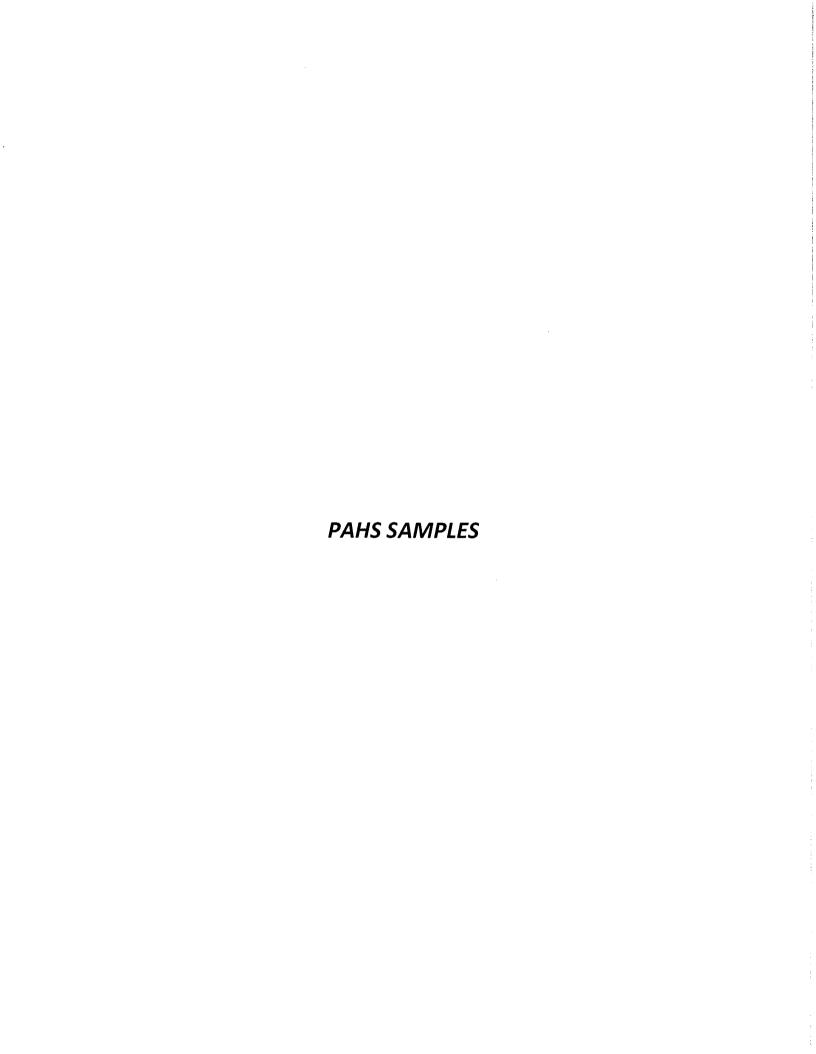
Inquiries: (780) 632 8455

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Julius Pretorius, Portfolio Manager

Report certified by:

Date: Friday, January 08, 2016





# **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

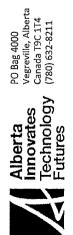
Page 1 of 25

NVOICE   Characine Code   780 812-2182   PATE SAMPLED   O2-Nov-15	Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE	CLIENT SAMPLE ID LICA/PUF/CLS/Nov 2, 2015		<b>CANISTER ID</b> TE-06	<b>Matrix</b> Air Filter	<b>Priority</b> Normal
Parameter         Agualifier         Report CREATED:         05-Ji-Ji-Ji-Ji-Ji-Ji-Ji-Ji-Ji-Ji-Ji-Ji-Ji-	T7F 6P8	DESCRIPTION:	Cold Lake South			
Parameter         AUDITION STATE         REPORT CREATED:         05-3-3-4-4-10-2-10-2-10-2-10-2-10-2-10-2-10-2-	5	DATE SAMPLED:		0:00 DAT	DATE RECEIVED: 09-	09-Nov-15
Aboundville         TSN 2J5         Result           Parameter         0.09           1-Methylnaphthalene         0.16           2-Methylnaphthalene         K, T, U         <0.01		REPORT CREATED		REP(	REPORT NUMBER: 151	15110054
Parameter         Qualifier         Result           1-Methylnaphthalene         0.09           2-Methylnaphthalene         0.16           3-Methylnaphthalene         K, T, U         0.01           7,12-Dimethylbenz(a)anthracene         K, T, U         <0.01	50 St Ile			VER	VERSION: Vel	Version 01
Parameter         Qualifier         Result           1-Methylnaphthalene         0.09           2-Methylnaphthalene         0.16           3-Methylcholanthrene         K, T, U         < 0.01	·					
1-Methylnaphthalene       0.09         2-Methylnaphthalene       0.16         3-Methylcholanthrene       K, T, U       < 0.01	ameter	Qualifier	Result Units	RDL	Method	Analysis Date
2-Methylnaphthalene       0.16         3-Methylcholanthrene       (K, T, U)       < 0.01	1ethylnaphthalene		0.09 ug/Filter	0.01	NA-017	08-Dec-15
3-Methylcholanthrene       K, T, U       < 0.01	1ethylnaphthalene		0.16 ug/Filter	0.01	NA-017	08-Dec-15
7,12-Dimethylbenz(a)anthracene       K, T, U       < 0.01	1ethylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
Acenaphthene       0.08         Acenaphthylene       0.41         Acenaphthylene       0.41         Acenaphthylene       0.25         Anthracene       0.25         Benzo(a)anthracene       0.04         Benzo(b)j,k)fluoranthene       0.01         Benzo(b)j,k)fluoranthrane       0.05         Benzo(b)jpyrene       0.04         Benzo(ghi)perylene       0.05         Chrysene       0.12         Dibenzo(a,h)pyrene       K, T, U       < 0.01	2-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
Acridine       K, T, U       < 0.01	naphthene		0.08 ug/Filter	0.01	NA-017	08-Dec-15
Acridine       K, T, U       < 0.01	naphthylene		0.41 ug/Filter	0.01	NA-017	08-Dec-15
Anthracene       0.25         Benzo(a)anthracene       0.04         Benzo(b,j,k)fluoranthene       0.01         Benzo(c)phenanthrene       0.05         Benzo(e)pyrene       0.06         Benzo(ghi)perylene       0.05         Chrysene       0.12         Dibenzo(a,h)pyrene       K, T, U       < 0.01	idine	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
Benzo(a)anthracene0.04Benzo(a)pyrene0.01Benzo(bj,k)fluoranthene0.15Benzo(c)phenanthrene0.06Benzo(ghi)perylene0.04Benzo(ghi)perylene0.05Chrysene0.05Dibenzo(a,h)pyreneK, T, UDibenzo(a,j)pyreneK, T, U	hracene		0.25 ug/Filter	0.01	NA-017	08-Dec-15
Benzo(a)pyrene0.01Benzo(b,j,k)fluoranthene0.15Benzo(c)phenanthrene0.06Benzo(ghi)perylene0.04Chrysene0.05Dibenzo(a,h)pyreneK, T, UDibenzo(a,j)pyreneK, T, U	izo(a)anthracene		0.04 ug/Filter	0.01	NA-017	08-Dec-15
Benzo(b,j,k)fluoranthene0.15Benzo(c)phenanthrene0.06Benzo(e)pyrene0.04Benzo(ghi)perylene0.05Chrysene0.12Dibenzo(a,h)pyreneK, T, UDibenzo(a,j)pyreneK, T, U	izo(a)pyrene		0.01 ug/Filter	0.01	NA-017	08-Dec-15
Benzo(c)phenanthrene0.06Benzo(ghi)perylene0.04Benzo(ghi)perylene0.05ChryseneK, T, UDibenzo(a,h)pyreneK, T, UDibenzo(a,i)pyreneK, T, U	ızo(b,j,k)fluoranthene		0.15 ug/Filter	0.01	NA-017	08-Dec-15
Benzo(e)pyrene       0.04         Benzo(ghi)perylene       0.05         Chrysene       K, T, U       < 0.01	izo(c)phenanthrene		0.06 ug/Filter	0.01	NA-017	08-Dec-15
Benzo(ghi)perylene       0.05         Chrysene       0.12         Dibenzo(a,h)pyrene       K, T, U       < 0.01	izo(e)pyrene		0.04 ug/Filter	0.01	NA-017	08-Dec-15
Chrysene 0.12 Dibenzo(a,h)pyrene K, T, U < 0.01 Dibenzo(a,i)pyrene K, T, U < 0.01	ızo(ghi)perylene		0.05 ug/Filter	0.01	NA-017	08-Dec-15
Dibenzo(a,h)pyrene         K, T, U         < 0.01           Dibenzo(a,i)pyrene         K, T, U         < 0.01	ysene		0.12 ug/Filter	0.01	NA-017	08-Dec-15
Dibenzo(a,i)pyrene K, T, U < 0.01	enzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
_	enzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002 Dibenzo(a,l)pyrene K, T, U < 0.01 ug/Filt	enzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: January 5, 2016



TEST REPORT

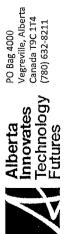
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CLIENTS	CLIENT SAMPLE ID CAN	CANISTER ID	Matrix	DATE SAMPLED			
LICA/PUF/CL	LICA/PUF/CLS/Nov 2, 2015	TE-06	Air Filter	02-Nov-15 0:00			
DESCRIPTION:	Cold Lake South						**
REPORT NUMBER:	ER: 15110054	REPORT CREATED:	i: 05-Jan-16			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110054-002	Dibenzo(ah)anthracene	Эе	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Fluoranthene			0.49 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Fluorene			0.38 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Indeno(1,2,3-cd)pyrene	Je	-	0.04 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Naphthalene			0.17 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Perylene			0.04 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Phenanthrene			1.65 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Pyrene			0.41 ug/Filter	0.01	NA-017	08-Dec-15
15110054-002	Retene			0.19 ug/Filter	0.01	NA-017	08-Dec-15
Report certified by:	Graham Knox, Team Lead		On behalf of: PI Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: January 5, 2016



TEST REPORT

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RESULTS: Ad	Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE	CLIENT SAMPLE ID LICA/PUF/CLS/Nov 8, 2015		CANISTER ID P13-01	<b>Matrix</b> Air Filter		<b>Priority</b> Normal
Cal	Calgary AB T2E 6P8	DESCRIPTION:	Col				
INVOICE: Chā PO 510 Bo	Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnyville T9N 2J5	DATE SAMPLED: REPORT CREATED:	08-Nov-15 <b>D:</b> 05-Jan-16	00:0	DATE RECEIVED: REPORT NUMBER: VERSION:	16-Nov-15 : 15110089 Version 01	v-15 1089 nn 01
Lab ID	Parameter	Qualifier	Result Units		RDL M	Method	Analysis Date
15110089-002	1-Methylnaphthalene		0.06 ug/Filter			NA-017	08-Dec-15
15110089-002	2-Methylnaphthalene		0.09 ug/Filter		0.01 N	NA-017	08-Dec-15
15110089-002	3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	•	0.01 N	NA-017	08-Dec-15
15110089-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	08-Dec-15
15110089-002	Acenaphthene		0.04 ug/Filter		0.01 N.	NA-017	08-Dec-15
15110089-002	Acenaphthylene		0.07 ug/Filter		0.01 N	NA-017	08-Dec-15
15110089-002	Acridine	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	08-Dec-15
15110089-002	Anthracene		0.02 ug/Filter		0.01 N.	NA-017	08-Dec-15
15110089-002	Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter			NA-017	08-Dec-15
15110089-002	Benzo(a)pyrene		0.01 ug/Filter		0.01 N	NA-017	08-Dec-15
15110089-002	Benzo(b,j,k)fluoranthene		0.09 ug/Filter			NA-017	08-Dec-15
15110089-002	Benzo(c)phenanthrene		0.03 ug/Filter		0.01 N	NA-017	08-Dec-15
15110089-002	Benzo(e)pyrene		0.04 ug/Filter	•	0.01 N	NA-017	08-Dec-15
15110089-002	Benzo(ghi)perylene		0.04 ug/Filter	•	0.01 N	NA-017	08-Dec-15
15110089-002	Chrysene		0.05 ug/Filter		0.01 N	NA-017	08-Dec-15
15110089-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter			NA-017	08-Dec-15
15110089-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	J	0.01 N	NA-017	08-Dec-15
15110089-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	08-Dec-15
Report certified by:	: Graham Knox, Team Lead	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	sis and Testing Services			ı	
Date: January 5, 2016	2016		Inquiri	Inquiries: (780) 632 8455	55 E-mail: EAS.Results@albertainnovates.ca	lts@albertair	movates.ca
							_



# **ENVIRONMENTAL ANALYTICAL SERVICES**

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				ı r										
			Version 01	Analysis Date	08-Dec-15	08-Dec-15	08-Dec-15	08-Dec-15	08-Dec-15	08-Dec-15	08-Dec-15	08-Dec-15	08-Dec-15	
			VERSION:	Method	NA-017	NA-017	NA-017	NA-017	NA-017	NA-017	NA-017	NA-017	NA-017	
				RDL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
DATE SAMPLED	08-Nov-15 0:00			Result Units	< 0.01 ug/Filter	0.11 ug/Filter	0.29 ug/Filter	0.03 ug/Filter	0.12 ug/Filter	0.04 ug/Filter	0.47 ug/Filter	0.09 ug/Filter	0.11 ug/Filter	
Matrix	Air Filter		05-Jan-16	Qualifier	К, Т, U									
			REPORT CREATED:											
CANISTER ID	015 P13-01	Cold Lake South	9089	it	Dibenzo(ah)anthracene	iene		Indeno(1,2,3-cd)pyrene	ene		rene			
CLIENT SAMPLE ID	LICA/PUF/CLS/Nov 8, 2015		BER: 15110089	Parameter	Dibenzo(a	Fluoranthene	Fluorene		Naphthalene	Perylene	Phenanthrene	Pyrene	Retene	
CLIENT	LICA/PUF/	DESCRIPTION:	REPORT NUMBER:	Lab ID	15110089-002	15110089-002	15110089-002	15110089-002	15110089-002	15110089-002	15110089-002	15110089-002	15110089-002	

E-mail: EAS.Results@albertainnovates.ca

**Inquiries:** (780) 632 8455

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Graham Knox, Team Lead

Report certified by:

Date: January 5, 2016



**TEST REPORT** 

Page 1 of 20

**Analysis Date** 08-Dec-15 38-Dec-15 08-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 Priority Vormal E-mail: EAS.Results@albertainnovates.ca 17-Nov-15 Version 01 15110105 Method NA-017 **IA-017** NA-017 REPORT NUMBER: DATE RECEIVED: Air Filter Matrix VERSION: 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 0.01 0.01 0.01 0.01 Inquiries: (780) 632 8455 **CANISTER ID** TE-08 0:00 0.84 ug/Filter 1.28 ug/Filter c 0.01 ug/Filter :0.01 ug/Filter 0.10 ug/Filter 0.34 ug/Filter : 0.01 ug/Filter 0.04 ug/Filter 0.03 ug/Filter 0.01 ug/Filter 0.11 ug/Filter 0.03 ug/Filter 0.04 ug/Filter 0.05 ug/Filter 0.07 ug/Filter < 0.01 ug/Filter < 0.01 ug/Filter < 0.01 ug/Filter Cold Lake South On behalf of: PJ Pretorius, Manager, Analysis and Testing Services 14-Nov-15 05-Jan-16 Result Units LICA/PUF/CLS/Nov 14, 2014 **CLIENT SAMPLE ID** REPORT CREATED: DATE SAMPLED: **DESCRIPTION:** Κ, **T**, U K, T, U K, T, ∪ Κ, Τ, U Qualifier K, T, U K, T, U 780 812-2182 Lakeland Industry and Community Assn 7,12-Dimethylbenz(a)anthracene Benzo(b,j,k)fluoranthene T2E 6P8 19N 2J5 3-Methylcholanthrene 3enzo(c)phenanthrene 1-Methylnaphthalene 2-Methylnaphthalene Graham Knox, Team Lead 3enzo(a)anthracene Dibenzo(a,h)pyrene Adewunmi Adekanmbi 3enzo(ghi)perylene Dibenzo(a,i)pyrene Dibenzo(a,l)pyrene Acenaphthylene Benzo(a)pyrene Benzo(e)pyrene Acenaphthene Charmaine Code Anthracene Parameter Chrysene 4000, 19 St NE 5107W-50 St Acridine PO Box 8237 Bonnyville Calgary Date: January 5, 2016 AB Report certified by: 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 15110105-004 RESULTS: **INVOICE:** Lab ID



# **ENVIRONMENTAL ANALYTICAL SERVICES**

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CLIENTS	CLIENT SAMPLE ID	CANISTER ID		Matrix	DATE SAMPLED			
LICA/PUF/CL	LICA/PUF/CLS/Nov 14, 2014	TE-08		Air Filter	14-Nov-15 0:00			
DESCRIPTION:	Cold Lake South	uth						
REPORT NUMBER:	ER: 15110105		REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	Method	Analysis Date
15110105-004	Dibenzo(ah)anthracene	racene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Fluoranthene				0.14 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Fluorene				0.33 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Indeno(1,2,3-cd)pyrene	pyrene			0.03 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Naphthalene				1.10 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Perylene				0.04 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Phenanthrene				0.52 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Pyrene				0.11 ug/Filter	0.01	NA-017	08-Dec-15
15110105-004	Retene				0.08 ug/Filter	0.01	NA-017	08-Dec-15
Report certified by:	Graham Knox, Team Lead	ım Lead	On behalf of: PJ	of: PJ Pretorius, Manager, Analysis and Testing Services	sis and Testing Services			
*		;		·				_

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: January 5, 2016



**TEST REPORT** 

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	Lakeland Industry and Community Assn 4000, 19 St NE	LICA/PUF/CLS/NOV 20, 2015	JV 20, 2015	TE-01	Air Filter		Normal
Calgary AB INVOICE: Charma PO Box 5107W- Bonnyvi AB	Calgary  AB  Charmaine Code  PO Box 8237  5107W-50 St  Bonnyville  AB  T2E 6P8  780 812-2182  780 812-2182	DESCRIPTION: DATE SAMPLED: REPORT CREATED:	Cold Lake South 20-Nov-15 : 08-Jan-16	00:00	DATE RECEIVED: REPORT NUMBER: VERSION:	27-Nov-15 R: 15110230 Version 01	v-15 230 in 01
Lab ID	Parameter	Qualifier	Result Units		RDL N	Method	Analysis Date
15110230-002	1-Methylnaphthalene		0.15 ug/Filter		0.01	NA-017	19-Dec-15
15110230-002	2-Methylnaphthalene		0.21 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Acenaphthene		0.06 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Acenaphthylene		0.03 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Acridine	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Anthracene		0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Benzo(a)pyrene		0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Benzo(b,j,k)fluoranthene		0.03 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Benzo(ghi)perylene		0.02 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Chrysene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter		0.01 N	NA-017	19-Dec-15
15110230-002	Dibenzo(a,l)pyrene		0.02 ug/Filter		0.01	NA-017	19-Dec-15

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016



### **ENVIRONMENTAL ANALYTICAL SERVICES**

**TEST REPORT** 

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CLIENTS	CLIENT SAMPLE ID	CANISTER ID		Matrix	DATE SAMPLED	IPLED		
LICA/PUF/CL5	LICA/PUF/CLS/NOV 20, 2015	TE-01	Air	Air Filter	20-Nov-15	00:00		
DESCRIPTION:	Cold Lake South	outh						
REPORT NUMBI	REPORT NUMBER: 15110230		REPORT CREATED:	08-Jan-16			VERSION:	VERSION: Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	Method	Analysis Date
15110230-002	Dibenzo(ah)anthracene	hracene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Fluoranthene				0.04 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Fluorene				0.12 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Indeno(1,2,3-cd)pyrene	)pyrene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Naphthalene				0.19 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Perylene			K, T, U	< 0.01 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Phenanthrene				0.18 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Pyrene				0.03 ug/Filter	0.01	NA-017	19-Dec-15
15110230-002	Retene				0.06 ug/Filter	0.01	NA-017	19-Dec-15

Julius Pretorius, Portfolio Manager On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: Friday, January 08, 2016

Report certified by:

**Inquiries:** (780) 632 8455

632 8455 E-mail: EAS.Results@albertainnovates.ca



**TEST REPORT** 

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RESULTS: A	Adewunmi Adekanmbi Lakeland Industry and Community Assn	CLIENT SAMPLE ID LICA/PUF/CLS/NOV 26, 2015		CANISTER ID	Matrix Air Filter		Priority
· 4	4000, 19 St NE			S .			
J 4	Calgary T2E 6P8	DESCRIPTION:	Cold Lake South				
INIVOICE	) ; !	DATE SAMPLED:	26-Nev-15	00:00	DATE RECEIVED:	30-Nov-15	-15
	Cidinalie Code 700 o12-2102 PO Box 8237	o2 REPORT CREATED:	<b>D:</b> 08-Jan-16		REPORT NUMBER:	15110237	237
υ, <u>α</u>	5107W-50 St Bonnyville				VERSION:	Version 01	n 01
	AB T9N 2J5						
Lab ID	Parameter	Qualifier	Result Units	<u>.</u>	RDL Met	Method	Analysis Date
15110237-004	1-Methylnaphthalene		0.25 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	2-Methylnaphthalene		0.36 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	3-Methylcholanthrene	K, T, U	<0.01 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	7,12-Dimethylbenz(a)anthracene		0.01 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Acenaphthene		0.12 ug/Filter	0		NA-017	19-Dec-15
15110237-004	Acenaphthylene		0.05 ug/Filter	0		NA-017	19-Dec-15
15110237-004	Acridine	K, T, U	< 0.01 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Anthracene		0.02 ug/Filter	0		NA-017	19-Dec-15
15110237-004	Benzo(a)anthracene		0.02 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Benzo(a)pyrene		0.03 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Benzo(b,j,k)fluoranthene		0.09 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Benzo(e)pyrene		0.03 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Benzo(ghi)perylene		0.05 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Chrysene		0.05 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0		NA-017	19-Dec-15
15110237-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
15110237-004	Dibenzo(a,l)pyrene		0.04 ug/Filter	0	0.01 NA-	NA-017	19-Dec-15
Report certified by:	by: Julius Pretorius, Portfolio Manager	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	sis and Testing Services				

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016



TEST REPORT

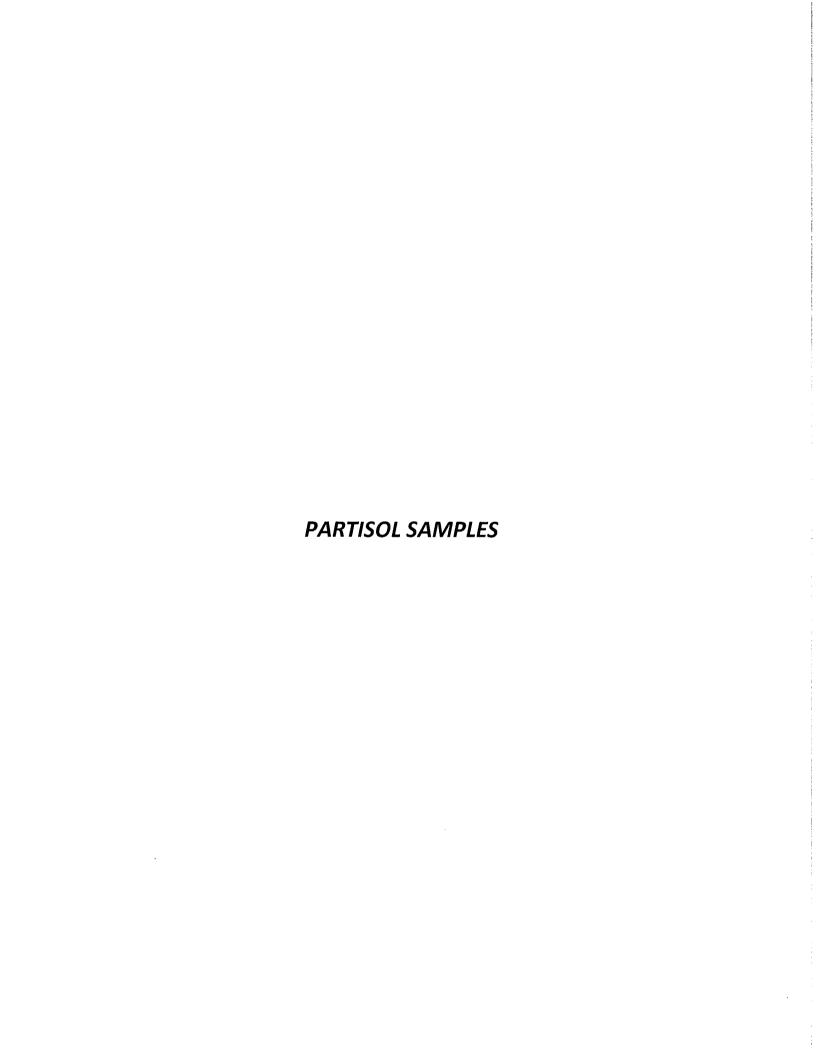
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CLIENTS	CLIENT SAMPLE ID	CANISTER ID	DI S	Matrix		DATE SAMPLED	API FD			
LICA/PUF/CLS	2015	TE-07		Air Filter		26-Nov-15	00:00			
DESCRIPTION:	Cold Lake South	th								
REPORT NUMBER:	ER: 15110237		REPORT CREATED:		08-Jan-16			-	VERSION:	Version 01
Lab ID	Parameter				Qualifier	Result Units	RDL	<b>-</b>	Method	Analysis Date
15110237-004	Dibenzo(ah)anthracene	acene				0.01 ug/Filter	0.01	Ħ	NA-017	19-Dec-15
15110237-004	Fluoranthene					0.13 ug/Filter	0.01	Ę	NA-017	19-Dec-15
15110237-004	Fluorene					0.27 ug/Filter	0.01	ਜੁ	NA-017	19-Dec-15
15110237-004	Indeno(1,2,3-cd)pyrene	yrene				0.03 ug/Filter	0.01	ਜੁ	NA-017	19-Dec-15
15110237-004	Naphthalene					0.43 ug/Filter	0.01	ਜੁ	NA-017	19-Dec-15
15110237-004	Perylene				K, T, U	< 0.01 ug/Filter	0.01	ਜੁ	NA-017	19-Dec-15
15110237-004	Phenanthrene					0.37 ug/Filter	0.01	ਜੁ	NA-017	19-Dec-15
15110237-004	Pyrene					0.09 ug/Filter		ਜੁ	NA-017	19-Dec-15
15110237-004	Retene					0.38 ug/Filter	0.01	덪	NA-017	19-Dec-15
Report certified by:	Julius Pretorius, Portfolio Manager	tfolio Manage	On behalf	of: PJ Pre	torius, Manager, Ana.	of: PJ Pretorius, Manager, Analysis and Testing Services				

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016





# **ENVIRONMENTAL ANALYTICAL SERVICES**

**TEST REPORT** 

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E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Thursday, December 03, 2015



# **ENVIRONMENTAL ANALYTICAL SERVICES**

**TEST REPORT** 

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INVOICE:	Lakeland Industry and Community Assn 4000, 19 St NE Calgary AB Charmaine Code PO Box 8237 5107W-50 St Bonnyville	DESCRIPTION: Cold L DATE SAMPLED: 08 REPORT CREATED: 03	.867 Cold Lake South 08-Nov-15 0:00 03-Dec-15		Air Filter DATE RECEIVED: REPORT NUMBER: VERSION:	Normal 16-Nov-15 15110086 Version 01	
<b>Lab ID</b> 15110086-001	Particulate Weight	Qualifier R	0.133 mg	RDL 0.004	Method AC-029	hod Analysis Date	
Report certified by:	Graham Knox, Team Lead	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	d Testing Services				

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Thursday, December 03, 2015

Date:



TEST REPORT

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RESULTS:	Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE	CLIENT SAMPLE ID LICA P50011868		CANISTER ID	<b>Matrix</b> Air Filter		<b>Priority</b> Normal
INVOICE:	Calgary AB T2E 6P8 Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	DESCRIPTION:  DATE SAMPLED:  REPORT CREATED:	Cold Lake South 14-Nov-15 : 03-Dec-15	0:00	DATE RECEIVED: REPORT NUMBER: VERSION:	17-Nov-15 15110104 Version 01	-15 .04
<b>Lab ID</b> 15110104-001	Particulate Weight	Qualifier	Result Units 0.171 mg	Ö	<b>RDL M</b> 0.004 AC	Method AC-029	Analysis Date 23-Nov-15
Report certified by:	Graham Knox, Team Lead	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	and Testing Services				

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Thursday, December 03, 2015



# **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

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RESULTS:	Adewunmi Adekanmbi Lakeland Industry and Co 4000, 19 St NE Calgary AB T2E of Charmaine Code PO Box 8237 5107W-50 St Bonnwille	Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE Calgary AB T2E 6P8 Charmaine Code 780 812-2182 PO Box 8237 5107W-50 St Bonnvville	CLIENT SAMPLE ID LICA 5011869 LICA 5011869 DESCRIPTION: Cold Lak DATE SAMPLED: 20-N REPORT CREATED: 03-D	869 Cold Lake South 20-Nov-15 0.00 : 03-Dec-15	Matrix Air Filter DATE RECEIVED: REPORT NUMBER: VERSION:	Priority  Normal  27-Nov-15  15110229  Version 01	
	AB	T9N 2J5					
<b>Lab ID</b> 15110229-001	Parameter 01 Particulate Weight	eight	Qualifier Result Units 0.113 mg		8DL M6	Method Analysis Date AC-029 01-Dec-15	<b>Date</b> -15
Report certified by:	ed by: Graham Knox, Team Lead		On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	g Services			

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Thursday, December 03, 2015



**TEST REPORT** 

Page 1 of 7

RESULTS:	Adewunmi Adekanmbi Lakeland Industry and Community Assn 4000, 19 St NE	CLIENT SAMPLE ID CANISTER ID LICA # P5012875	ID Matrix Air Filter	<b>Priority</b> Normal
INVOICE:	Calgary  AB  T2E 6P8  Charmaine Code  P0 Box 8237  5107W-50 St  Bonnyville  AB  T9N 2J5	DESCRIPTION: Cold Lake South DATE SAMPLED: 26-Nov-15 0:00 REPORT CREATED: 05-Jan-16	DATE RECEIVED: REPORT NUMBER: VERSION:	30-Nov-15 t: 15110238 Version 01
<b>Lab ID</b> 15110238-001	Particulate Weight	Qualifier Result Units 0.293 mg	0.004 A	Method Analysis Date AC-029 03-Dec-12
Report certified by:	Graham Knox, Team Lead	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services		

E-mail: EAS.Results@albertainnovates.ca

**Inquiries:** (780) 632 8455

Date: January 5, 2016 Report certified by:

#### APPENDIX V CHAIN OF CUSTODY



Client: Lakeland Industry & Community Association

Site: Cold Lake South Site

#### Maxxam Analytics - Air Services Group Project Chain of Custody

**Project #:** 2833-2015-11-01- C

Contact: Mike Bisaga

QA Check Complete	madmha	Date	22 - Dec - 2015
QA Check Review	nadmba	Date	22 - Dec - 2015
Report Complete	modntes	Date	12 - Jan - 2016
Report Reviewed	-holyle-	Date	13-Jan -16
Report Shipped		Date	
Notes			



#### AMBIENT AIR MONITORING MONTHLY DATA REPORT

#### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION ELK POINT AIRPORT SITE

JOB #:2833-2015-11-35- C

**NOVEMBER 2015** 

Prepared for:

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

BOX 8237, 5107W - 50 STREET BONNYVILLE, ALBERTA T9N 2J5

Attention: MIKE BISAGA

DATE:

January 11, 2016

Prepared by:

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Reviewed by:

Lily Lin, B.Sc

Senior Project Manager, Air Services, Maxxam Analytics



#### **SUMMARY**

In NOVEMBER 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.

PM 2.5: Five hours of data were invalidated this month as the data were below -3 ug/m3.

Wind System: The LICA-owned RM Young, S/N: 56589, unit was replaced with the Maxxam-supplied RM Young, S/N: 110980, unit on November 26 for maintenance purposes.

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 Indu	stry & C	ommun	ity Asso	ociation				N	1AXIMUM V	ALUES			
Elk Point Airpo	ort Site						<b>#</b> 11.1	1-HOUR			24-H0	OUR	OPERATIONAL TIME
PARAMETER	OBJE	CTIVES	EXCEE	DENCES	MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED	WIND DIRECTION	READING	DAY	(%)
	1-HR	24-HR	1-HR	24-HR	AVERAGE				(KPH)	(DEGREES)			
SO2 (PPB)	172	48	0	0	0	2	7	23	5.4	w	0.5	13, 30	100.0
H2S (PPB)	10	3	0	0	0	2	7, 9	23, 20	5.4 3.1	ww	1.0	29	100.0
THC (PPM)	-	-	-	-	2.6	8.5	7	23	5.4	w	5.5	30	100.0
CH4 (PPM)	-	-	-	-	2.6	8.4	7	23	5.4	w	5.4	30	100.0
NMHC (PPM)	-	-	-	-	0.01	0.30	19, 30	17, 23	2.8 1.4	W ESE	0.10	30	100.0
NO2 (PPB)	159	_	0	-	9.1	27.9	28	21	8.9	NW	20.7	28	100.0
NO (PPB)	-	-	-	-	3.9	87.8	7	23	5.4	w	39.2	30	100.0
NOX (PPB)	-	-	-	_	13.0	103.3	7	23	5.4	w	58.8	30	100.0
O3 (PPB)	82	-	0	-	13	32	22	VAR	VAR	<b>V</b> AR	24.5	22	100.0
PM2.5 (UG/M3)	-	30	-	0	6.1	25.0	25	17	11.9	w	15.3	30	99.3
VECTOR WS (KPH)	-	-	-	-	10.2	39.7	18	12		WNW	28.3	18	99.6
VECTOR WD (DEG)	-	-	-	-	w	-	-	-		-	-	-	99.6

NA-NOT AVAILABLE VAR-VARIOUS



### **Exceedence Summary Report**

SO<sub>2</sub> 1- Hour Exceedences

No Exceedences Recorded During the Month

SO<sub>2</sub> 24- Hour Exceedences

No Exceedences Recorded During the Month

H<sub>2</sub>S 1- Hour Exceedences
No Exceedences Recorded During the Month

H<sub>2</sub>S 24- Hour Exceedences No Exceedences Recorded During the Month

NO<sub>2</sub> 1- Hour Exceedences

No Exceedences Recorded During the Month

PM2.5 24- Hour Exceedences
No Exceedences Recorded During the Month



### Volatile Organics (VOCs) Data Summary

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
NOVEMBER 2, 2015	1.3	ACETONE
NOVEMBER 8, 2015	1,9	METHYLENE CHLORIDE
NOVEMBER 14, 2015	1.67	N-BUTANE
NOVEMBER 20, 2015	14.7	N-BUTANE
NOVEMBER 26, 2015	2.39	N-BUTANE

Note: NA



### Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

Sample Collected Date	Maximum reading (ug)	Semi-Volatile Organic
NOVEMBER 2, 2015	0.18	2-METHYNAPHTHALENE
NOVEMBER 8, 2015	0.27	PHENANTHRENE
NOVEMBER 14, 2015	0.42	2-METHYNAPHTHALENE
NOVEMBER 26, 2015	0.99	PHENANTHRENE

Note: Sampling schedule for Nov 20 was cancelled as the filter was used to calibrate the PUF sampler.



### Volatile Organics (VOCs) Data Summary - NMHC Canister System

Sample Collected Date	Maximum reading (PPB)	Volatile Organic Compound
NOVEMBER 19, 2015	2.9	ACETONE AND ETHANOL
NOVEMBER 30, 2015	8.14	N-BUTANE

Note: NA



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	PAH Results
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	Hydrogen Sulphide
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	Ozone
	Particulate Matter
	Wind System
	Calibrators
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	PUF Sampler
	Audit Report



### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Elk Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

Appendix IV	Analytical Results
	VOCs Samples
	PAHs Samples
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### 1.0 Discussion

This monthly report consists of data for parameters SO2, H2S, THC, CH4, NMHC, NOx, NO, NO2, O3, PM2.5, 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.

A portable heater was installed in the trailer on November 25 in order to achieve temperature stability.



### **SULPHUR DIOXIDE (SO2)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 10. The routine annual internal quality audit was completed on November 19. The audit report is included in this report.

### **HYDROGEN SULPHIDE (H2S)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 10. The routine annual internal quality audit was completed on November 19. The audit report is included in this report.

### 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 November 10. The Hydrogen gas cylinder was replaced on November 10. The routine annual internal quality audit was completed on November 19. The audit report is included in this report.

### NITROGEN DIOXIDE (NO2)

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 10. The routine annual internal quality audit was completed on November 19. The audit report is included in this report.

### OZONE (O3)

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 10. The routine annual internal quality audit was completed on November 19. The audit report is included in this report.

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

The Teom unit was working well throughout the month. Two routine audits were performed this month: one was completed on November 6, and the other audit was performed on November 23. The routine annual internal quality audit was completed on November 19. The audit report is included in this report. 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 -3 ug/m3, the data was invalidated. 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 annual audit was completed on November 19. The LICA-owned RM Young, S/N: 56589, unit was replaced with the Maxxam-supplied RM Young, S/N: 110980, unit on November 26 for maintenance purposes. The replacement was calibrated at Maxxam shop on November 23 before it was installed on site. The RM Young, S/N: 56589 was brought back to Maxxam shop for maintenance and it will be installed back on site when maintenance is completed.





### **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 November 2, 8, 14, 20 and 26. 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 the unit of  $\mu g$ .

Samples were collected on November 2, 8, 14 and 26. Analytical results are included in this report. The sampling schedule for November 20 was cancelled as the sample filter was needed for the calibration of the PUF sampler which was completed on November 25.

### NMHC CANISTER SAMPLES

The sampler was programmed to be triggered when the 5-minute average concentration of NMHC is above 0.3 ppm. Two canister events were recorded this month: concentrations of 2.0 ppm on November 19 at 17:05 and 0.3 ppm on November 30 at 19:35. 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 team consisted of Alexander Yakupov and Limin Li.

### 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/NOx Monitoring

Maxxam AIR SOP-00215: Teom Operation

Maxxam AIR SOP-00225: The Collection of VOCs in Ambient Air Using Canister

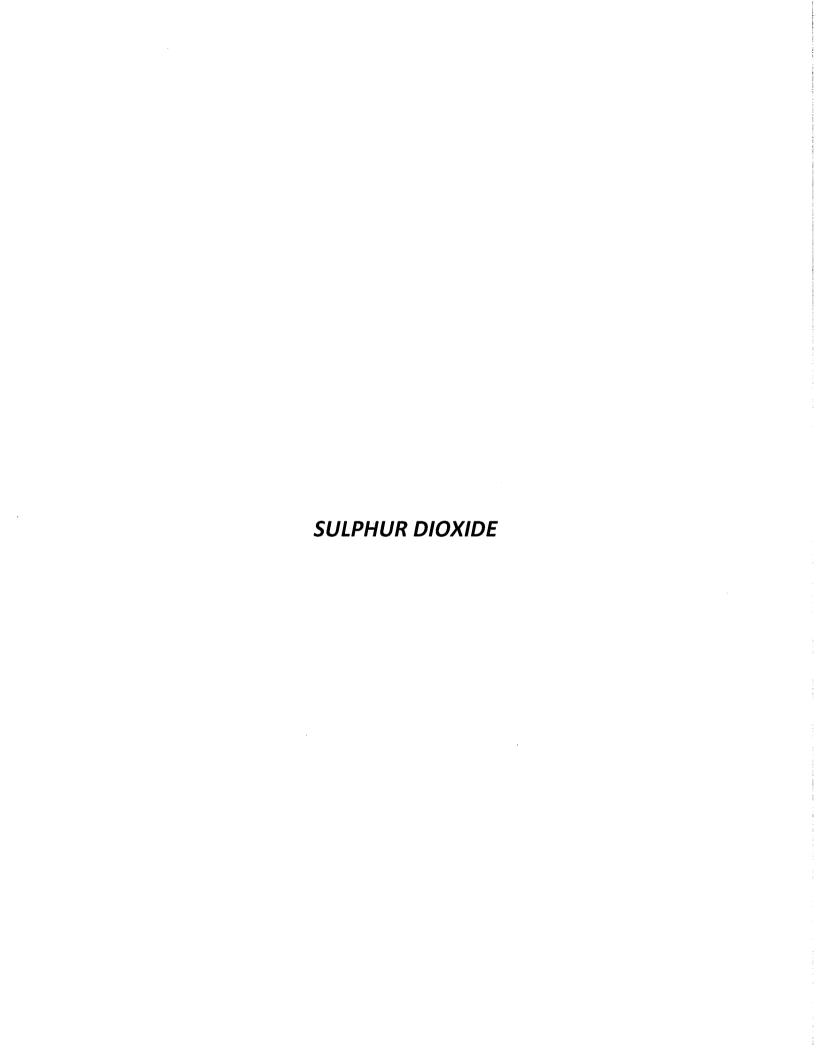
and Xontech

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - API 100E UV Flourescent Analyzer
Hydrogen Sulphide - API 101E UV Flourescent Analyzer
Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
Oxides of Nitrogen - API 200E Chemiluminescent Analyzer
Ozone - Thermo 49i Photometric Analyzer
Particulate Matter (PM2.5) - R&P 1405F Teom Unit
Wind System - RM Young Unit
Datalogger - ESC 8832

### APPENDIX I CONTINUOUS MONITORING DATA RESULTS





SULPHUR DIOXIDE (SO2) hourly averages in ppb

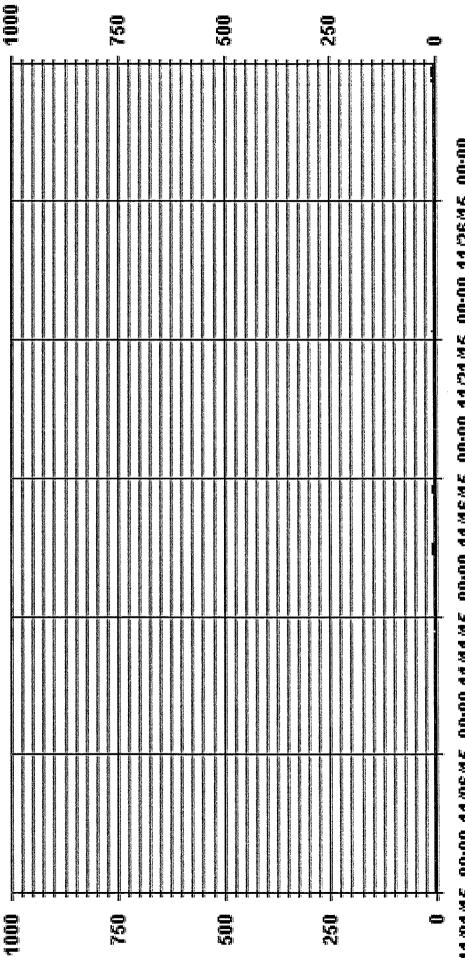
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502



## Elk Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

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2         2         2         2         3         2         2         2         2         2         2         1         3         20           2         2         2         2         3         2         2         2         2         3         3         20           10         0.9         1.0         1.0         0.8         0.9         0.9         0.9         0.9         1.0         0.8         0.9         0.8         0.9 <td< td=""><td>1 1 5 1 1 2 2</td><td>1 1 5 1 1 2 2</td><td>1 S 1 1 2 2</td><td>S 1 1 2 2</td><td>1 1 2 2</td><td>2</td><td>2</td><td>2</td><td></td><td>Н</td><td></td><td>1</td><td></td><td>2 2</td><td>7</td><td>7</td><td>7</td><td>н</td><td>1</td><td>7</td><td>2</td><td></td><td></td><td>7</td><td>1.5</td><td>54</td></td<>	1 1 5 1 1 2 2	1 1 5 1 1 2 2	1 S 1 1 2 2	S 1 1 2 2	1 1 2 2	2	2	2		Н		1		2 2	7	7	7	н	1	7	2			7	1.5	54
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	0.9 0.8 0.9 0.9 1.0	0.9 0.9 0.8 0.9 0.9 1.0 1.1	0.9 0.8 0.9 0.9 1.0 1.1	0.8 0.9 0.9 1.0 1.1	0.9 0.9 1.0 1.1	0.9 1.0 1.1	1.0 1.1	1.1		0.9		•	_		•	0.8	6.0	6.0	6.0	6.0	_	_				

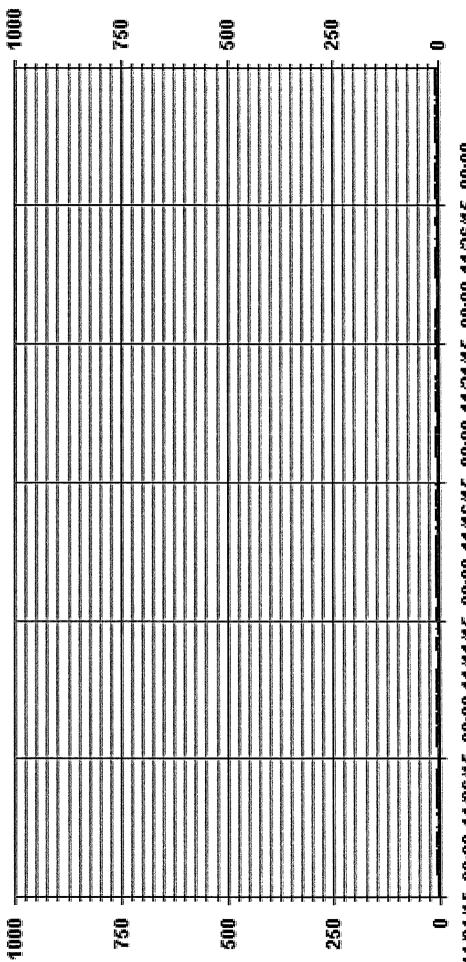
## STATUS FLAG CODES

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### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			488							
MAXIMUM INSTANTANEOUS VALUE:			m	PPB	@ HOUR(5)	(2)	VAR	ON DAY(S)		VAR
							VAR-VARIOUS	irous		
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME: STANDARD DEVIATION: 0	30 6 0.70	HRS HRS		OPERATIONAL TIME:	NAL TIME	úi			720	HRS

of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

- LICA35 SO2MAX

LICA-EIK SO2\_ / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

00. 00. 00. 00. 00. 3.39 100.00 00. 00. 00. 00. 00. 3.39 8.55 8.55 Š 0. 0. 00. 00. 00. 4.27 4.57 13.86 13.71 12.83 WNW 4.57 13.86 13.71 12.83 0. 00. 00. 00. 00. 00. % 00. 00. ĸ 00. 00. 00 00. 00. 00. 00. 00 00. 00. 4.27 00. 0. 00. 00. 00. 3.83 3.83 00. 00. 00. 00. % 1.91 1.91 SSE 00. 00. 8. 00. 00. 8.25 4.57 Direction 4.57 SE 00. 00. 00. 0. 00. ESE 8.25 00. % % 00. 7.22 7.22 00. 00. 00, 00. 00. 5.16 5.16 00. 00. 00. 00. 00. 1.91 1.91 벌 00. 00. 00. 00. 00. 3.98 3.98 ZZ 00. 00. 00. 00 00. 1.91 Totals 1.91 00. 00. 00. 00. 00. z 20 Limit 9

Calm : .00 %
Total # Operational Hours : 678

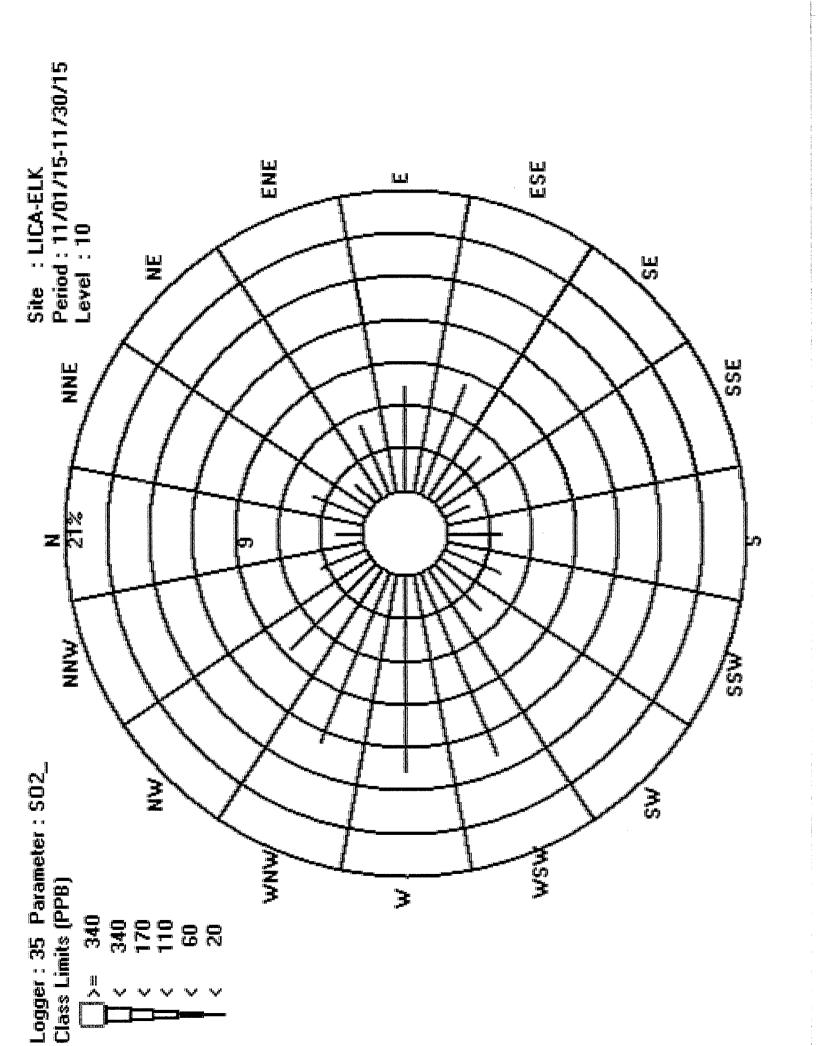
Distribution By Samples

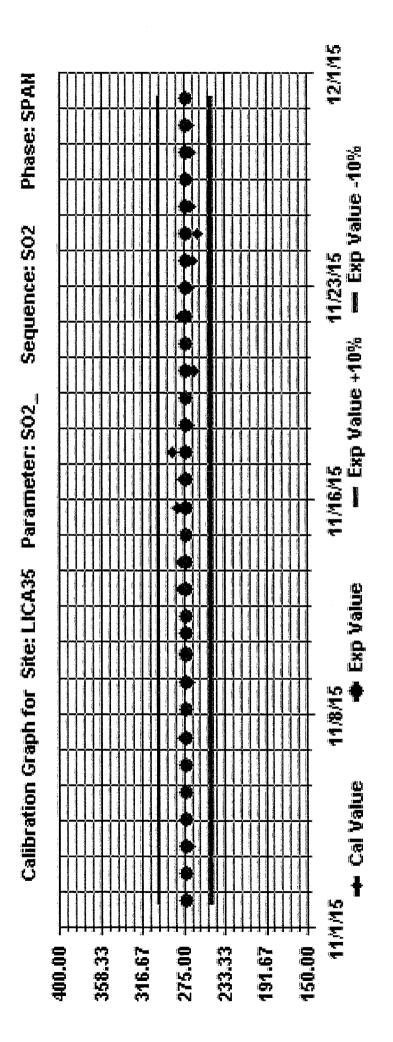
Direction

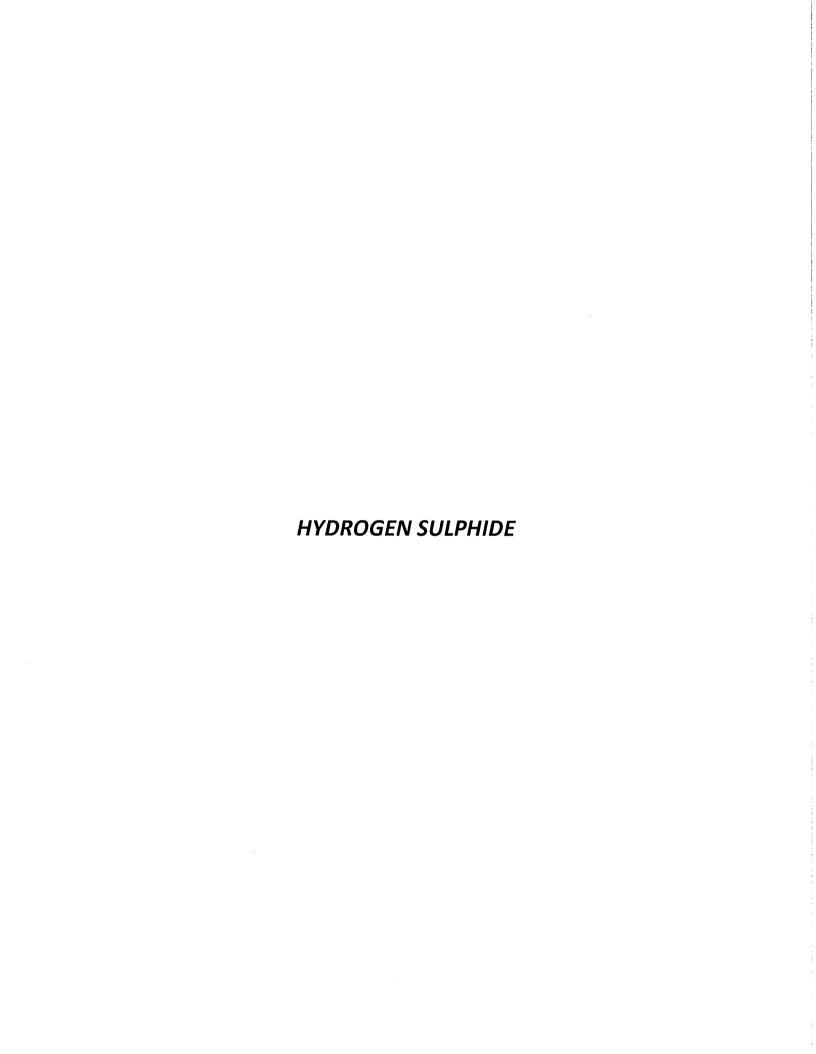
Freq	819						
NNW	23						23
M	28						28
WNW	87						87
×	66						66
WSW	94						94
SW	31						31
SSW	29						29
w	56						26
SSE	13						13
SE	31						31
ESE	56						56
ы	49						49
ENE	35						35
Ä	13						13
NNE	27						27
z	13						13
Limi t	20	09	110	170	340	340	Totals
	٧	٧	٧	٧	٧	X	

Calm : .00 %

Total # Operational Hours : 678









## HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST											- i )	1	Î	,	0 }		2									
HOUR START	7 0:00 1:00 2:00 3:00 4:00 5:00	1:00	2:00	3:00	4:00	5.00	6:00	7.00	8:00	9:00 TO	10:00 11	11:00 12:00	.00 13:00		0 15:00	16:00		18:00	. 00:EI	20:00	21.00 2	22:00:22	23:00 D	DAILY 2-	24-HOUR	
HOUR EN	T:00	2:00	3:00	4:00	5:00	00:9	7:00	8:00	9.00 T(	10.00	11:00 12:00	2:00 13	13:00 14:00	15:00	3 16:00	-17.00	18:00	19:00	20:00	1.00	22.00 - 2			MAX	AVG.	RDGS.
. Day	0	0	0	0	0	0	0	0	0	0	0		0		0	0	0	0	0	0	0	s	0	0	0.0	24
-2	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	s	0	0	0	0.0	24
ĸ	н	0	0	0	-	0	0	0	0	0		0	0 0		0	0	0	0	0	s	0	0	0	₽	0.1	54
4	0	0	0	0	0	Ţ	0	0	7	⊣	0	0	0 0	0	0	0	0	0	s	0	0	0	0	1	0.1	54
S	0	0	0	0	0	0	0	+	0	0	0	0	0 0		0	0	0	s	0	0	0	0	0	1	0.0	54
9	0	0	0	0	0	0	0	0	0	0	0	0			0	0	s	0	1	0	0	0	0	1	0.0	54
7	0	0	7	0	0	0	1	0	1	0	1	1 0			7	s	Ţ	1	1	0	0	Н	7	7	0.5	54
80	-	⊣	н	н	7	1	1	н	1	1	0	0		0	s	0	0	0	0	0	0	0	0	1	0.4	54
Ø	0	0	0	0	0	0	0	0	0	0					0	0	0	0	1	2	0	₽	0	7	0.2	54
10	0	0	0	0	0	-	0	0	0	0		0			U	7	0	0	0	0	0	7	1	7	0.2	7
Ħ	н	0	н	<del>, 1</del>	7	1	1	Н	0	1	1	1	1 0	1	Н	Н	н	Ţ	H	0	0	S	0	7	0.7	54
12	0	1	1	0	0	0	0	0	0						0	Н	Н	7	7	<b>-</b>	s	0	0	1	0.3	54
13	0	0	0	0	0	0	0	0	0			0			0	0	0	0	0	s	0	0	0	0	0.0	54
14	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	s	0	0	0	0	0	0.0	77
<b>1</b> 5	0	0	0	0	0	0	0	0	0	0					0	0	0	s	0	0	0	0	0	0	0.0	74
16	0	0	0	0	0	0	0	0	0	0	0	0	0 0		0	0	s	0	0	0	0	0	0	0	0.0	7
17	0	0	0	0	0	0	0	0	0	0	0	0	0 0		0	s	0	0	0	0	0	0	0	0	0.0	54
18	0	0	0	0	0	0	0	0	0			0	0 0		s	0	0	0	0	0	0	0	0	0	0.0	54
19	0	0	0	0	0	0	0	0	0	0	1	o	0		7	0	Н	0	1	1	0	1	0	4	0.3	54
20	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0	77
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	75
22	0	0	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0.0	54
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	24
24	0	0	0	0	0	0	0	0	0	s	0	0	0		0	0	0	0	0	0	0	0	0	0	0.0	<b>54</b>
25	0	0	0	0	0	0	0	0	s	0	1		1 0		0	0	0	1	Н	0	0	0	0	1	0.3	<b>54</b>
26	0	0	0	0	0	0	1	s	1	1	1	0	0 0		0	0	0	0	0	0	0	7	0	1	0.2	54
27	0	0	1	1	Η.	Н	s	0	₽	0	0		1 0	0	0	0	0	П	н	0	0	0	0	1	0.4	77
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OBJECTIVE LIMIT:		∢	LBERTA	ENVIRONMENT:	HR 10	ALBERTA ENVIRONMENT: 3.HR TO RPB 24-HR BE BER BER	3.2	. PPB
			MO	MONTHLY SUMMARY				
NUMBER OF 1-HR EXCEEDENCES: NUMBER OF 24-HR EXCEEDENCES:			0 0					
NUMBER OF NON-ZERO READINGS:			138					•
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		1.0	PPB PPB	@ HOUR(S)	23,20	ON DAY(S) ON DAY(S) VAR-VARIOUS	7, 82	7 ,9
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	82 e	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	TIME		720 100.0	HRS
STANDARD DEVIATION:	0.41			MONTHLY AVERAGE:			0 PPB	PPB

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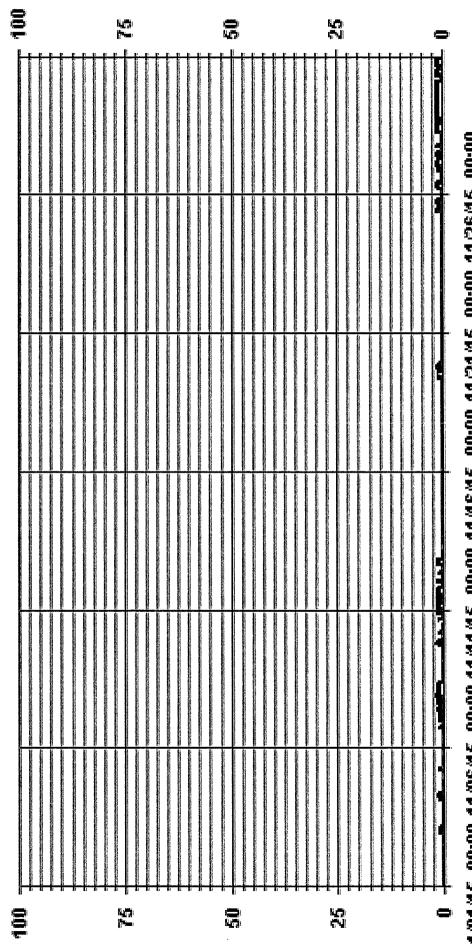
1 0.2

0.1

1 0.2

HOURLY MAX HOURLY AVG

of Hour Averages



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

- LICA35 H2S\_ PPB



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Elk Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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;	RDGS.	24	24	24	24	24	54	24	24	54	54	54	54	54	54	54	54	54	54	54	54	24	74	74	54	54	54	24	24	54	54		
24-HOUR	AVG.	9.0	0.3	9.0	0.8	0.4	0.5	1.2	6.0	0.4	6.0	1.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.3	0.0	0.0	0.0	0.1	0.7	0.8	1.0	1.0	70	6.0		
DAILY	MAX.	Н	H	Н	7	Н	Н	æ	7	co.	7	H	⊣	⊣	0	⊣	ᆏ	0	0	7	7	0	0	린	+	7	-	7	7	-	2		
23:00	00:00	0	Н	0	Н	0	0	m	0	⊣	Н	Н	0	0	0	н	0	0	0	Н	0	0	0	0	0	н	⊣	0	⊣	Н	0	æ	C
22:00	23.00	S	Н	0	Н	0	1	7	0	7	Н	s	0	0	0	0	0	0	0	Т	0	0	0	0	0	1	1	7	Н	1	1	2	0
21:00	22.00	0	s	Н	Н	0	1	Н	0	Ŧ	1	-	s	0	0	0	0	0	0	Н	0	0	0	0	0	0	Н	7	т	1	1	1	C
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18:00	19:00	0	0	0	0	S	H	Н	0	0	7	Н	⊣	0	0	s	0	0	0	H	0	0	0	0	0	⊣	Н	Н	Н		Н	2	
0.77.00	18:00	↔	Н	0	Н	0	S	7	Н	0	Н	Н	₽	0	0	0	S	0	0	7	0	0	0	0	0	ч	ч	ч	ч	Н	7	2	0
0 16:0	0 17.00	₽	₽	0	0	0	Н	s	Н	0	ပ	Н	⊣	⊣	0	0	0	s	0	H	0	0	0	0	0	+	H	H	+	H	Н	1	
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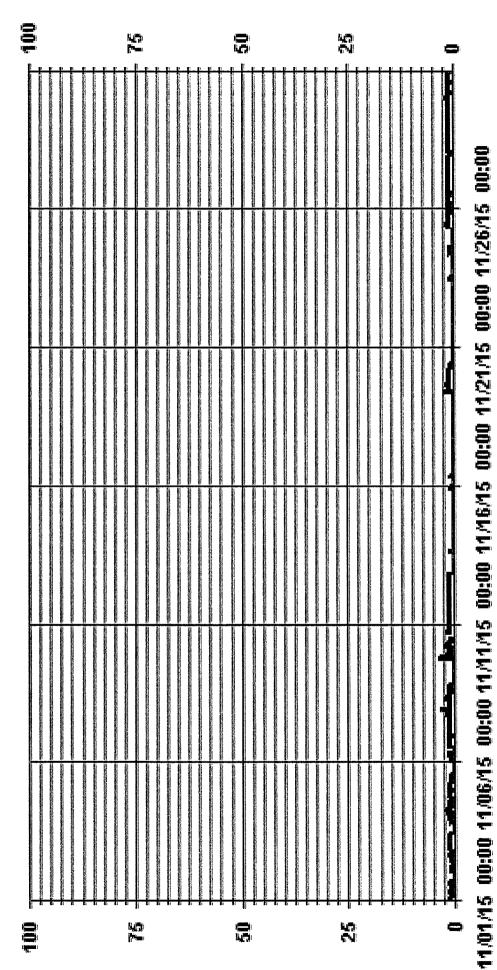
## STATUS FLAG CODE

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	RANCE FUINC ROR ROR
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	QUALITY 455URA RECOVERY MACHINE MALE OPERATOR ERROF COLLECTION ERROR
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STATUS FLAG CODES	QKXOK
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	CALIBRATION MAINIENANCE DAILY ZERO/SPAN POWER FAILURE OUT FOR REPAIR
	CALIB MAIN DAILY POWE
	OPSKO

## MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	,,,		318						
MAXIMUM INSTANTANEOUS VALUE:	ني		m	PPB	@ HOUR(S)	VAR	ON DAY(S)		6,7
						VAR-V	VAR-VARIOUS		
IZS CALIBRATION TIME:	83	HRS		OPERATIC	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	Ŋ	HRS							
STANDARD DEVIATION:	0.57								

of Hour Averages



- LICA35 H2SMAX

LICA-EIK HZS / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 35 Site Name : LICA-ELK Parameter : H2S\_ Units : PPB\_

3.37 100.00 MNW 90. 8. 00. 3.37 00. 8.51 M 8.51 00. 00. WNW 4.55 13.80 13.65 12.77 00. 00. 4.55 13.80 13.65 12.77 00. Wind Parameter : WDR Instrument Height : 10 Meters 00. 00. 00. 00. WSW 9 8. SW 00. 00. 00. 4.25 4.25 00. 00. 00. 4.11 4.11 9. 00. 00. Ø 1.90 1.90 SSE % 00. 00. Direction 4.55 SE 4.55 00. 00. 00. 8.22 ESE 8.22 8. 9 00. 7.19 7.19 00. 00. 00. 5.28 5.28 00. 9. 00. 1.90 1.90 ل 00. 00. 00. 3.96 3.96 0 00. 00. 1.90 1.90 00. 00. 00. z Totals Limit 10 20 20 X

Fred

00. 00. 00.

Calm : .00 %

Total # Operational Hours : 681

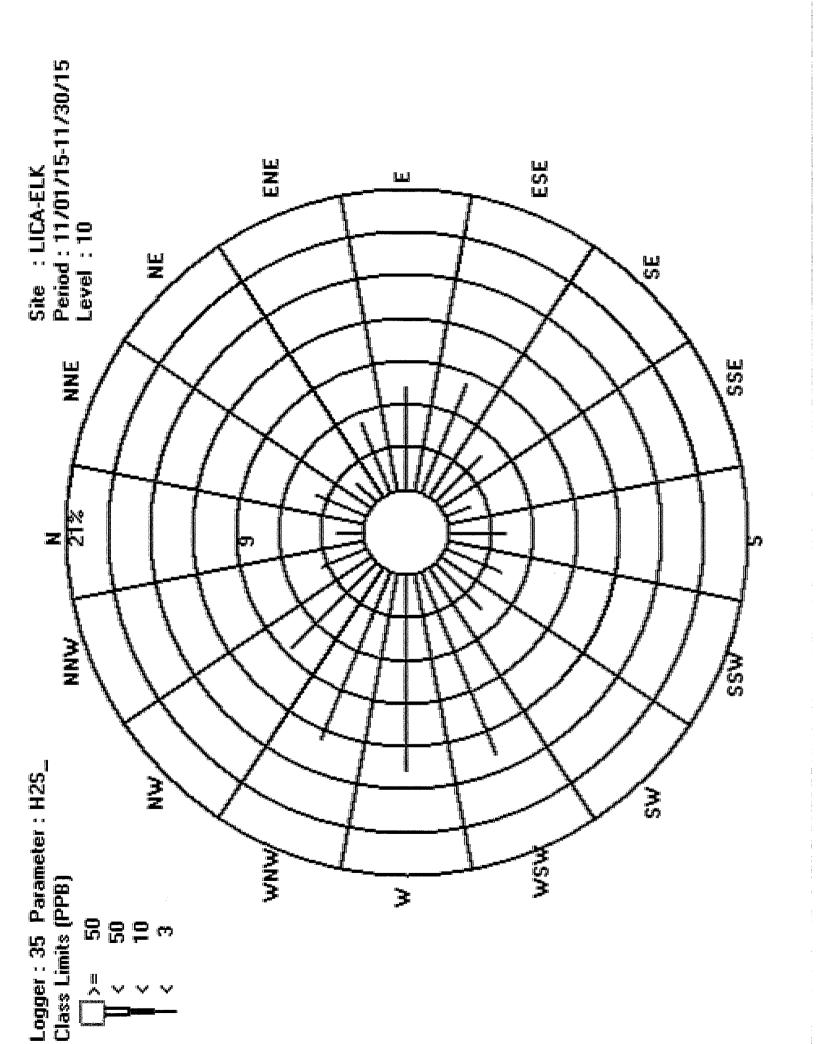
Distribution By Samples

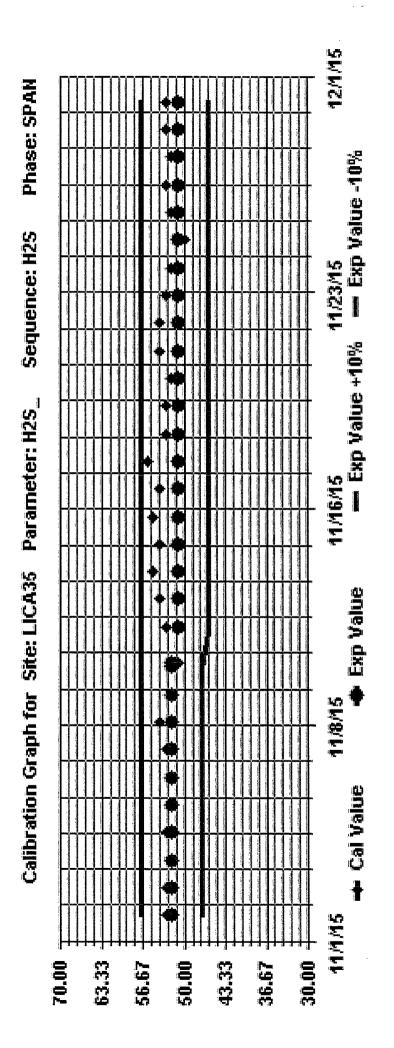
Direction

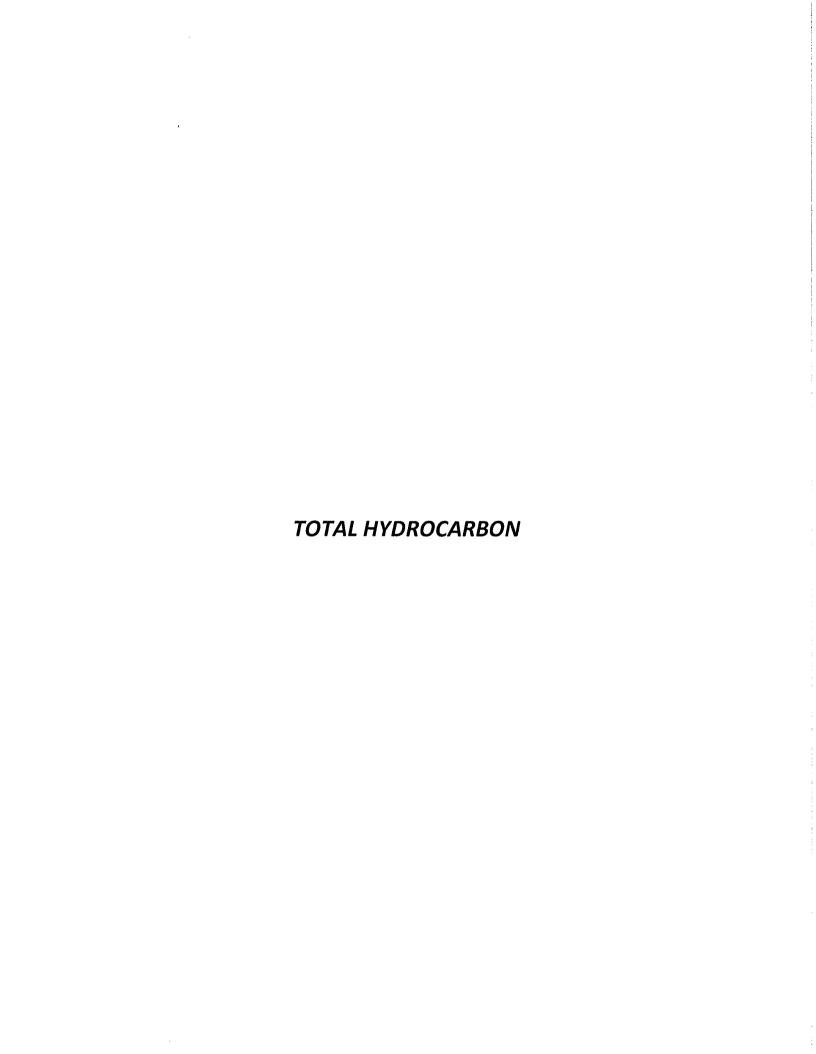
Freq	681				
WNW	23				23
MA	28				28
WNW	87				87
Z	66				66
WSW	94				94
SW	31				31
SSW	29				29
Ø	28				28
SSE	13				13
SE	31				31
ESE	56				56
PA	49				49
ENE	36				36
뛾	13				13
NINE	27				27
z	13				13
Limit	М	10	50	50	Totals

Calm : .00 %

Total # Operational Hours : 681









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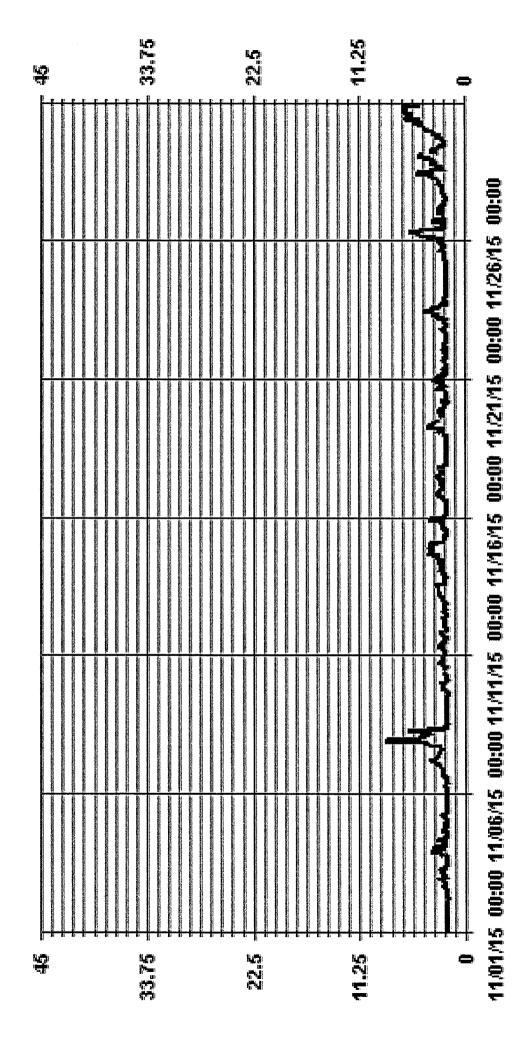
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	24-HOUR	j K	1.9	2.1	2.3	2.4	2.0	2.1	3.4	3.1	2.0	2.3	2.3	2.1	2.5	3.0	2.5	2.3	2.6	2.0	2.8	2.3	2.3	2.1	2.7	2.0	2.2	3.1	2.4	3.3	3.1	5.5		
	DAILY	Miles	2.1	2.7	3.7	3.2	2.5	2.5	8.5	6.1	2.4	2.8	2.8	2.4	3.0	4.1	3.9	3.3	3.1	2.1	4.0	3.1	3.1	24	4.5	2.1	2.7	5.8	2.8	5.1	5.0	6.7		
	23:00	200	1.9	2.7	3.7	2.2	1,9	2.5	8.5	1.9	2.4	2.3	2.1	2.3	2.1	3.8	3.9	5.9	2.2	2.0	5.6	3.1	2.0	2.1	2.1	2.0	2.5	2.4	2.3	3.4	3.4	5.0	8.5	2.8
	22:00	20.00	s	2.5	2.7	2.0	1,9	2.4	5.2	13	2.4	2.3	s	2.1	2.2	3.9	2.8	3.0	2.1	2.0	2.7	2.8	2.1	2.1	2.1	2.0	2.7	2.3	2.3	3.3	3,3	4.8	5.2	2.6
	20:00 21:00	22.00	1.9	s	2.6	2.1	1.9	2.3	4.2	1.9	2.3	2.3	2.5	s	2.1	3.8	2.5	3.0	2.4	2.1	2.8	2.4	2.0	2.2	2.1	13	2.5	2.3	2.4	3.2	3.3	6.2	6.2	2.6
	\$1759 W	8	1.9	2.2	s	2.2	1.9	2.4	4.2	1.9	2.3	5.6	2.5	2.1	s	3.6	2.5	2.8	2.8	2.0	2.8	2.2	2.0	2.4	5.0	1.9	2.2	2.2	2.5	3.6	2.8	6.4	6.4	2.6
	18:00 19:00	000	1.9	2.2	2.1	s	1.9	2.3	3.8	1.9	2.1	2.8	2.4	2.1	2.1	s	24	24	2.7	2.0	2.5	2.1	2.2	2.1	2.0	2.0	2.3	2.3	2.4	3.0	2.9	6.4	6.4	2.5
	25/20/20	10	1.9	2.3	2.0	2.3	s	2.3	2.6	1.9	2.0	7.8	2.2	2.2	2.1	3.7	s	2.5	2.6	2.0	2.6	2.3	2.3	2.1	5.0	2.1	2.3	3.6	2.4	2.9	3.0	6.7	6.7	2.6
<u>.</u>	17.00		1.9	2.3	2.1	2.6	1.9	s	2.6	1.9	1.9	2.5	2.0	2.3	2.1	4.1	2.3	s	2.5	2.0	2.5	2.7	2.2	2.1	5.6	2.0	2.4	2.5	2.3	2.7	2.6	6.0	0.9	2.5
E C D D	16:00	00000	1.9	2.2	2.0	2.1	1.9	2.2	s	1.9	2.0	2.3	2.1	2.1	2.1	3.5	2.3	2.0	s	2.0	s	2.9	2.4	2.0	2.6	2.0	2.6	2.3	2.2	2.8	2.3	6.3	6.3	2.4
ชั้ มี <b>ว</b>	15:00		1.9	2.2	2.0	1.9	1.9	2.2	2.5	s	19	2.1	2.1	2.3	2.2	2.9	2.1	20	2.5	s	ď	2.1	2.2	2.1	2.9	2.0	2.2	2.4	2.2	2.6	2.2	6.3	6.3	2.4
	14:00	2	1.9	2.1	2.0	1.9	1.9	1.9	2.7	1.9	S	2.2	2.1	2.1	3,0	2.9	2.1	2.0	2.8	2.0	ď	2.0	2.1	2.0	3.5	2.0	2.1	2.3	2.0	3.3	2.2	5.4	5.4	2.4
- -	13:00	T. Handle	1.9	2.0	2.0	1.9	2.0	1.9	2.7	2.1	1.9	U	2.2	5.0	2.9	3.0	2.0	2.0	2.9	2.0	ď	s	2.0	2.0	3.6	2.0	2.1	2.2	2.1	3.9	2.3	5.8	5.8	2.4
<u> </u>	11:00 12:00		1.9	2.0	2.0	1.9	2.0	2.0	2.8	2.0	1.9	J	2.5	2.0	2.8	2.8	2.0	2.0	3.1					2.0				2.4	2.2				6.1	
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	00.6	ă	1.9	2.0		2.9	1.9	2.1	3.1	4.3				2.4	2.8	2.8	2.1						23			s				3.6	3.0		5.2	
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	20. 4:0	5	9	9 2.0		4 2.2																					0 2.0			8 2.7				5 2.5
	30	ŕ	9 1.9	1.9 1.9	2.2 2.3	2 2.4	2.0 2.1	1.9 2.0						2.2 2.1					2.4 2.3									2.5 3.1			5.0 4.6			.6 2.5
	2 2		.0 T	1.9 1.		3.2 3.2		1.9 1.						2.1 2.		2.4 2.		2.2 2.1									1.9 2.			2.7 2.	4.4 5.	.2 4.	5.1 5.	7
	90	3	2.1 2	1.9	2.2 2.		2.3 2.1	1.9																	2.0 2.1	2.1 2	1.9	2.4 2.	2.8 2		3.6 4.	3.8 4.		2.5 2.
<b></b>	ART 0			-	7	<b>m</b>	rN.	<b>다</b> 전략	N	4	 : 기기 : ),	(N	(7			N . j	m)	m)	7	7	7	7	7	2	16.0	۲۷	ਜ 	(7	(4	(1	m	m	L	
MST	HOUR START 0:00 4:00 2:00 3:00 4:00 5:00 HOURSEND 1:00 3:00 3:00 4:00 5:00	DAY	Ĥ	2	m	4	S	9	7	œ	on.	Ъ	ੜ	17	3	7.	15	19	17	<b>F</b>	13	20	21		23	24	25	56	27	82	53	8	HOURLY MAX	HOURLY AVG

STATUS FLAG CODES	CALIBRATION (Q OUALITY ASSURANCE WAINTENANCE X RECCIONEN DALIV ZERO/SPAN CHECK X MACHINE MALENICTION POWER FAILURE OUT FOR REPAIR COLIECTION ERROR COLIECTION ERROR	APPROLITIONS OF A STATE AND A
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24 HOUR AVERAGES FOR NOVEMBER 2015	1     17	1   7
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			Ω	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:	:S:		684					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		5.5	MP4 MP4	PPM @ HOUR(S) PPM	23	ON DAY(S) ON DAY(S) VAR-VARIOUS	,	30
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	29	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	VE:   UPTIME:		720 100.0	%
CHANGO GO GO CHANGE	0			MONTH! X AVERAGE:	ij		9	Mad 9 C

Of Hour Averages



- LICA35 THC55 PPM



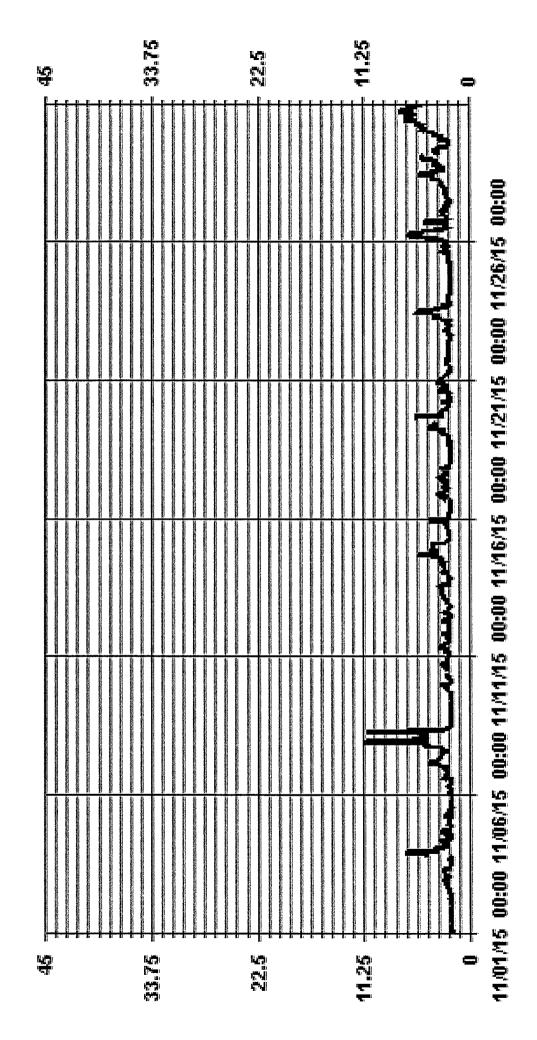
# TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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.0:00: 1:00	3 2	8 8	3:00 4:00	4:00 5:00	5:00	6:00 7:00	-7:00 8:00	8:00 9:00	9:00 10:00	10:00	11:00 1. 12:00 1.	12:00 13 13:00 14	13:00 I4 14:00 IS	14.00 15.00 15.00 16.00		16:00 17:00 17:00 18:00	00 18:00 00 19:00	30 19:00 30 20:00	0. 20.00 0. 21.00	21.00 22.00	3 22.00 3 23.00	) 23:00 ) 0:00	DAILY	24-HOUR AVG.	RDGS.
2.0	٠,	0.2	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9										1.9			2.2	2.0	24
1.9	•	2.0	2.0	2.1	2.0	2.1	2.2	2.1	2.0	2.1	2.0	2.1 2	2.1 2.	2.2 2.2		2.3 2.	2.3 2.3	3 2.3	2.3	S	2.7	2.8	2.8	2.2	54
	,,,	2.3	5.6	2.7	5.6	5.6	2.8	2.8	2.2	2.2										4.6			6.8	2.7	24
		3.9	5.9	2.3	2.3	2.3	2.9	3.0	3.1	2.7										2.2			3.9	5.6	24
2.2		2.1	2.2	2.3	2.2	2.8	2.5	2.5	2.0	1.9				.9 2.0		1.9 1.		2.0	1.9	1.9	1.9	2.0	2.8	2.1	54
1.9		2.0	2.1	2.1	2.0	2.1	2.2	2.4	2.2	2.0				7.2 2.7				5 2.5	2.5	2.4	2.4	2.7	2.7	2.2	54
2.7		3.1	3.2	3.7	4.4	3.9	3.4	3.3	3.3	3.1							3.0 3.1	1 4.8	4.6	5.0			11.2	დ ტ	54
6.2		4.7	4.7	4.4	5.3	4.6	4.4	11.0	6.9	2.8	2.3			o.:		1.9		9 1.9		1.9	1.9	1.9	11.0	3.7	54
1.9		1.9	13	1.9	1.9	1.9	1.9	1.9	1.9	1.9		1.9		S 2.0				1 2.2	2.3	2.3			2.8	2.0	54
3.2		2.2	2.1	2.0	2.1	2.1	2.1	2.3	2.3	U				2.3 2.3		2.6 2.		3.0	2.7	2.4	2.3		3.2	2.4	24
2.4		2.4	2.3	2.2	2.5	2.5	2.4	2.5	3.1	3.1	2.8	2.7 2		2.1 2.1				1 2.5	2.7	2.7	s	2.1	3.1	2.5	54
2.2		2.2	2.2	2.2	2.2	2.2	2.2	2.7	2.7	2.3	2.1	2.1 2	2.0 2.	2.3 2.6		2.3 2.4		3 2.2	2.1	s	2.2		2.7	2.3	24
2.5		2.4	5.6	2.7	2.7	2.8	2.8	3.0	2.9	5.9		2.9 3		3.0		2.2 2.		2 2.3		2.1	2.3		3.2	5.6	24
2.7		5.6	5.9	2.8	5.6	5.6	5.6	2.8	2.9	3.0		3.1 3	3.1 3.	3.0 3.			5.6 3.9			4.1	4.1	ტ წ	5.6	3.2	24
3.9		3.8	3.8	2.7	2.4	2.3	2.1	2.1	2.1	2.2	2.1			1.1 2.2		2.3 2.				2.5	3.3	4.3	4.3	2.7	24
2.5		2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0								5 2.5		3.2	3.3	3.0	3.9	2.4	54
2.7		2.5	2.3	2.4	2.7	2.7	5.6	5.8	5.8	5.6						2.5			2.9	2.7	2.2	2.2	3.3	2.7	54
2.1		5.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0								1 2.0		2.1			2.2	2.0	24
2.4		2.8	3.0	5.6	5.6	3.0	3.7	4.4	4.0	3.6					٠					2.9			5.6	3.2	24
2.4		2.2	2.2	2.2	2.1	3.0	2.5	2.1	5.0	2.1										2.6			3.3	2.5	54
3.3		3.2	5.9	2.6	5.6	2.5	2.2	2.1	2.3	2.2										2.1			3.3	2.4	24
2.2		2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2		2.1 2		2.2			2.2 2.3	2 2.2	2.8	2.3	2.2	2.2	2.8	2.2	54
2.3		2.4	2.3	2.2	2.9	3.0	3.7	3.7	3.2	s										2.2			5.6	3.0	54
2.1		2.1	2.1	2.1	2.0	2.0	2.0	5.0	s	2.0										2.0			2.2	2.0	24
1.9		2.0	2.1	2.0	2.0	2.0	2.2	s	2.3	2.2		2.2 2		2.6						2.7			3.0	2.3	54
5.6		2.8	3.2	4.6	6.3	6.5	s	6.2	5.1	4.8		2.8 2							2.3	2.5			6.5	3.5	24
2.9		2.7	5.9	2.9	2.8	s	2.4	2.5	2.2	2.1	2.4	2.3 2.								2.6			3.0	2.5	24
2.8		3.0	3.1	3.0	s	3.2	3.8	3.8	3.8	5.0		4.6 4	4.2 3.	1.6 2.8				3.1	3.9	3.5			5.4	3.5	24
4.9		5.1	2.0	s	3.4	3.6	3.8	3.7	3.2	3.2	2.4	2.3 2						2 3.1	3.0	9.6	3.5		5.1	33	54
2.0		4.8	s	5.1	5.3	5.1	5.6	5.6	5.7	6.9	6.5	6.3 6	6.3 6.	.1 6.9			6.3 7.4		6.7	6.6			7.4	o,	24
6.2		5.1	5.0	5.1	6.3	6.5	5.6	11.0	6.9	6.9	6.5	6.3 6	6.3 6.	6.1 6.9		6.4 6.	6.3 7.4	9.9 t	6.7	6.6	6.2	11.2			
2.8		2.7	5.6	5.6	2.8	2.8	2.7	3.2	2.9	2.8										2.9		3.1			

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			MO	MONTHLY SUMMARY	MMARY				
NUMBER OF NON-ZERO READINGS:			683						
MAXIMUM INSTANTANEOUS VALUE:	44		11.2	PPM	PPM @ HOUR(S)	23	ON DAY(S)		7
						VAR-V	VAR-VARIOUS		
IZS CALIBRATION TIME:	2	HRS		OPERATIC	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	4	HRS							
STANDARD DEVIATION:	1.10								

of Hour Averages



- LICA35 THC55MAX PPM

LICA35 THC55 / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

Freq

00 17.37

00.

2.94 82.62 NNW -44 00. 00. 3.38 6.77 1.76 00. 8.54 M 00. WNW 2.35 00. 4.71 13.84 13.54 12.66 00. 4.12 12.37 11.63 10.30 1.91 00. 0. Ħ 1.47 WSW 00. % 00. SW .58 00. 3.82 4.27 SSW .44 00. 00. 3.24 3.97 .73 0. 00. Ø 1.17 SSE 1.91 .73 00. 00. Direction SE 1.03 4.56 6.77 3.53 00. 00. ESE 1.47 8.24 0, 00. 5.00 2.20 00. 0. 7.21 ы 4.27 1.03 5.30 ENE 00. 00. 1.76 .14 1.91 빑 00. 00. NA 3.24 .73 00. 3.97 00. 1.62 1.91 00. .29 00. 3.0 Totals Limit 10.0 < 50.0 >= 50.0

Calm : .00 %

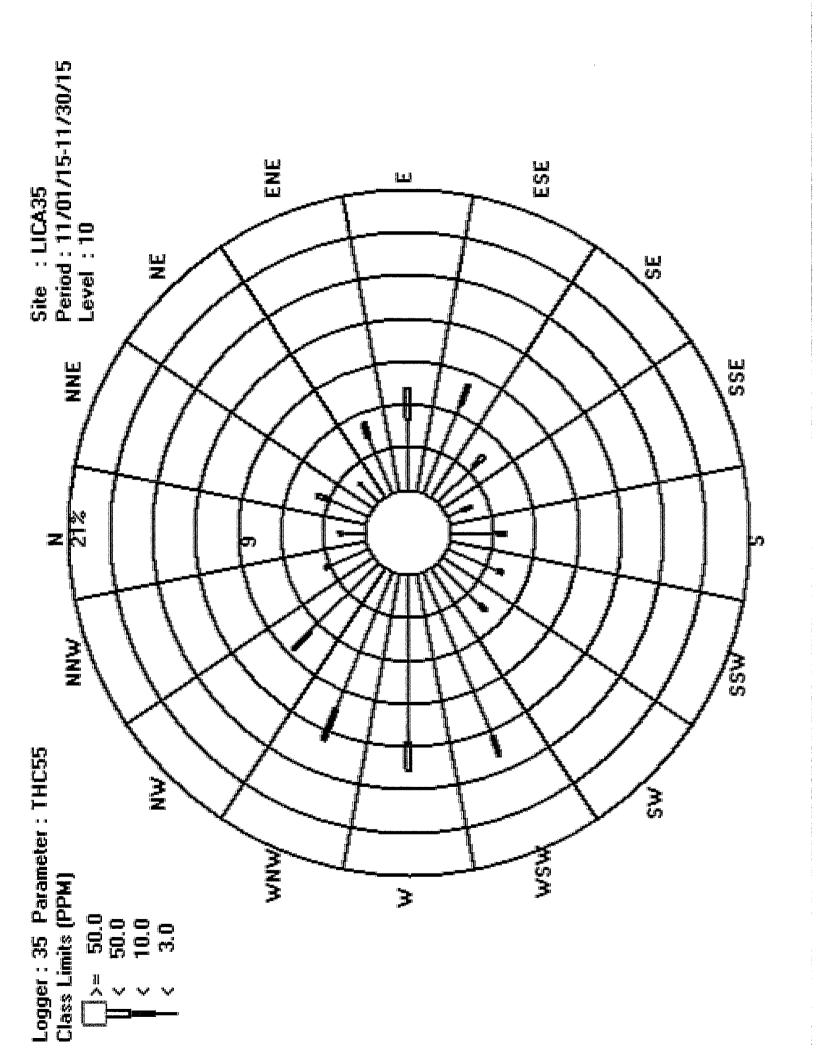
Total # Operational Hours : 679

Distribution By Samples

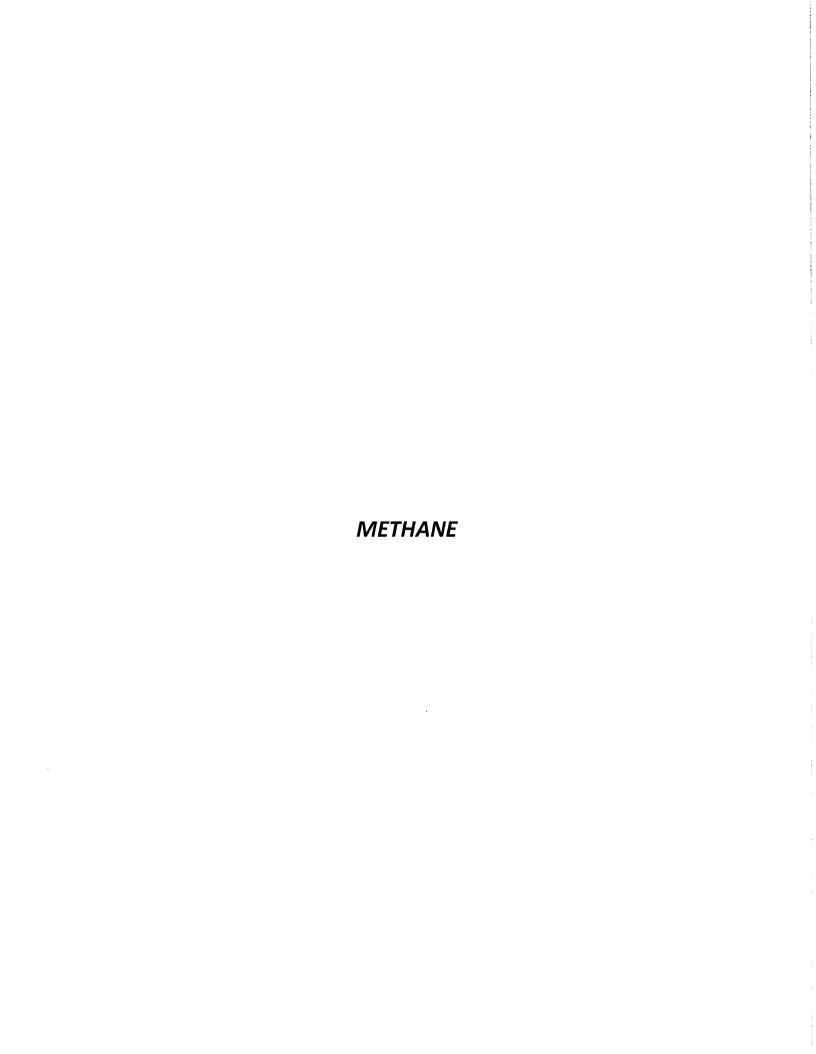
	Freq	561	118			
	NNW	20	m			23
	MN	46	12			28
	WNW	70	16			98
	м	42	13			92
	WSW	84	10			94
	SW	28	4			32
	SSW	26	m			29
	w	22	ιΩ			27
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Calm : .00 %

Total # Operational Hours : 679



12mm5 Phase: SPAN 11/23/15 — Exp Value -10% Sequence: THC55 11/16/15 — Exp Value +10% Calibration Graph for Site: LICA35 Parameter: THC55 💠 Exp Value 41.00.45 + Cal Value 27.33 12,00 23.50 19.67 15.83 35.0031.17





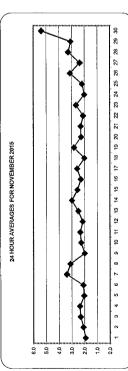
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1	, <sub>r</sub> -1	2.1	2.0	1.9	1.9	2.0	2.0	2.0	2.0	1.9			1.9				•	1.9		1.9	1.9	1.9	S	1.9	2.1	1.9	54
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26         26<	**************************************	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.2									2.3	2.3	2.4	2.3	2.4	2.5	2.5	2.1	77
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14. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15		4.7	5.1		4.5	3.8	4.7	4.0	4.2	6.0	4.3						1.9		1.9	1.9	1.9	1.9	1.9	1.9	6.0	3.1	74
24         25         21         20<		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	2.3	2.3	2.4	2.4	2.4	5.0	77
23         24         25         24         25<	9	2.4	2.5	2.1	5.0	1.9	2.0	2.0	2.0	2.1	2.1						2.3		2.8	2.8	2.6	2.3	2.3	2.3	2.8	2.3	74
20         21         22         22         22         22         22         22<		2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.3	2.4	2.8							2.0		2.4	2.5	2.5	s	2.1	2.8	2.3	75
24         24         25         26         27         28         28         28         29         30         22         21         51         51         51         52         26         28         28         29         30         22         21         21         28         28         29         30         29         35         45         31         29         30         30         29         30         40         30         20<		2.0	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.3	2.4							2.3		2.1	2.1	s	2.1	2.3	2.4	2.1	73
2.         2.<	( ) ( ) ( ) ( ) ( ) ( )	2.4	2.4	24	2.5	5.6	2.7	2.7	2.7	2.8	2.8							2.1		2.1	s	2.1	2.2	2.1	3.0	2.5	77
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28         26         24         23         23         25         26<		3.3	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0							s		2.4	2.8	3.0	3.0	5.9	3.3	2.3	54
21         20<		2.8	2.6	2.4	2.3	2.3	2.5	5.6	2.5	2.6	2.6							2.5		2.7	2.8	2.4	2.1	2.2	3.1	5.6	24
21         23         24         28         24         28         24         28         24         28         24         29         33         40         37         33         30         q         q         q         5         26         26         28         28         28         28         28         29         29         31         28           24         22         21         21         20         26         20         20         20         20         20         21         29         21         20         20         21         29         21         20		2.1	2.0	2.0	2.0	5.0	2.0	2.0	2.0	2.0								2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	24
24         2.2         2.1	975 34	2.1	2.3	2.4	2.8	2.5	2.4	5.9	3.3	4.0								2.2	5.6	2.5	2.8	2.8	2.7	5.6	4.0	2.8	24
29         31         30         25         23         26         24         21         20         23         21         20         21         20         21         20         21         22         24         21         21         20         20         21         22         24         21         21         20         20         20         21         21         21         21         21         20<		2.4	2.2	2.1	2.1	2.1	5.0	2.5	2.1	2.0								2.7	2.3	2.1	2.2	2.4	2.8	3.1	3.1	2.3	24
21         21         23         21         20         21         20<		2.9	3.1	3.0	2.5	2.3	5.6	2.4	2.1	2.0	2.3							2.2	2.3	2.2	2.0	2.0	2.1	2.0	3.1	2.3	24
20         21         23         22         21         24         29         31         35         29         5         37         45         36         35         29         20 </td <th></th> <td>2.1</td> <td>2.1</td> <td>2.3</td> <td>2.1</td> <td>2.0</td> <td>2.1</td> <td>2.1</td> <td>2.1</td> <td>2.1</td> <td>2.1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2.1</td> <td>2.1</td> <td>2.1</td> <td>2.4</td> <td>2.2</td> <td>2.1</td> <td>2.1</td> <td>2.4</td> <td>2.1</td> <td>24</td>		2.1	2.1	2.3	2.1	2.0	2.1	2.1	2.1	2.1	2.1							2.1	2.1	2.1	2.4	2.2	2.1	2.1	2.4	2.1	24
1.1 2.1 2.0 2.1 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	God E. J	2.0	2.1	2.3	2.2	2.1	2.4	2.9	3.1	3.5	2.9							2.6	2.0	2.0	2.0	2.1	2.1	2.1	4.5	2.7	54
19         10         20<		2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	S							2.0	2.1	2.0	1.9	1.9	2.0	5.0	2.1	2.0	24
24         25         25         31         40         47         50         8         49         44         34         24         22         23         25         36         23         24         25         36         23         24         25         24         25         36         43         24         34         34         44         34         24         24         25         36         24         25         24         25         24         25         24         25         24         24         25         25         25         25         25         25         25         25         25         25         25         25         25         25 </td <th>76.7 (+)</th> <td>1.9</td> <td>1.9</td> <td>2.0</td> <td>2.0</td> <td>2.0</td> <td>2.0</td> <td>2.0</td> <td>2.1</td> <td>s</td> <td>2.2</td> <td></td> <td></td> <td></td> <td></td> <td>2.2</td> <td>5.6</td> <td>2.4</td> <td>2.3</td> <td>2.3</td> <td>2.2</td> <td>2.5</td> <td>2.7</td> <td>2.5</td> <td>2.7</td> <td>2.2</td> <td>24</td>	76.7 (+)	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	s	2.2					2.2	5.6	2.4	2.3	2.3	2.2	2.5	2.7	2.5	2.7	2.2	24
28 27 26 27 28 28 27 28 28 2 23 24 21 21 22 22 21 20 22 22 23 24 24 25 24 25 23 24 23 23 28 24 24 25 24 25 25 25 25 25 25 25 25 25 25 25 25 25		2.4	2.5	2.5	3.1	4.0	4.7	5.0	s	5.8	4.9							2.5	3.6	2.3	2.2	2.3	2.3	2.4	5.8	3.1	24
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35 43 49 45 5 3.1 3.3 3.6 3.1 3.0 2.8 2.3 2.2 2.3 2.2 2.3 2.6 3.0 2.8 2.8 3.3 3.3 3.4 4.9 3.1 3.1 3.0 2.8 2.8 3.3 3.4 4.9 3.1 3.1 3.1 4.2 4.2 5 4.6 4.2 5.0 4.6 4.8 5.2 5.1 6.2 6.2 6.0 5.8 5.3 6.3 6.2 5.9 6.6 6.2 6.2 6.0 4.7 4.7 6.6 5.4 4.7 5.1 4.9 4.5 4.6 4.9 5.0 4.8 6.0 5.1 6.2 6.2 5.0 5.8 5.3 6.3 6.2 5.9 6.6 6.2 6.2 6.0 5.1 8.4 5.5 2.6 2.6 2.8 2.8 2.8 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9	1	2.3	2.7	5.9	2.8	2.7	s	3.1	3.4	3.6	3.6	·						2.7	2.9	3.0	3.5	3.2	3.3	3.4	5.1	3.3	74
3.7 4.2 4.2 5 4.6 4.9 4.6 4.8 5.2 5.1 6.2 6.0 5.8 5.3 6.3 6.2 5.9 6.6 6.2 6.2 6.0 4.7 4.7 6.6 5.4 4.7 5.1 4.9 4.5 4.6 4.9 5.0 4.8 6.0 5.1 6.2 6.2 6.0 5.8 5.3 6.3 6.2 5.9 6.6 6.2 6.2 6.0 5.1 8.4 5.5 2.5 2.6 2.5 2.5 2.6 2.5 2.6 2.5 2.6 2.5 2.6 2.5 2.8 5.3 5.4 2.4 2.4 2.4 2.4 2.5 2.6 2.5 2.6 2.5 2.6 2.5 2.8 5.8 5.9 5.9 5.9 5.9 5.9 5.9 5.9 5.9 5.9 5.9		3.5	4.3	6.4	4.5	s	3.1	3.3	3.6	3.1	3.0							2.6		2.8	2.8	3.3	3.3	3.4	4.9	3.1	24
4.7 5.1 4.9 4.5 4.6 4.9 5.0 4.8 6.0 5.1 6.2 6.0 5.8 5.3 6.3 6.2 5.9 6.6 6.2 6.2 6.0 5.1 2.5 2.6 2.6 2.6 2.6 2.5 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6		3.7	4.2	4,2	s	4.6	4.9	4.6	4.8	5.2	5.1							5.9		6.2	6.2	6.0	4.7	4.7	9.9	5.4	24
2.5 2.6 2.6 2.5 2.5 2.6 2.6 2.6 2.8 2.7 2.6 2.5 2.4 2.4 2.4 2.4 2.5 2.6 2.5 2.6 2.6 2.6 2.6	MAX	4.7	5.1		4.5	4.6	4.9	5.0	4.8	6.0	5.1							5.9		6.2	6.2	6.0	5.1	8.4			
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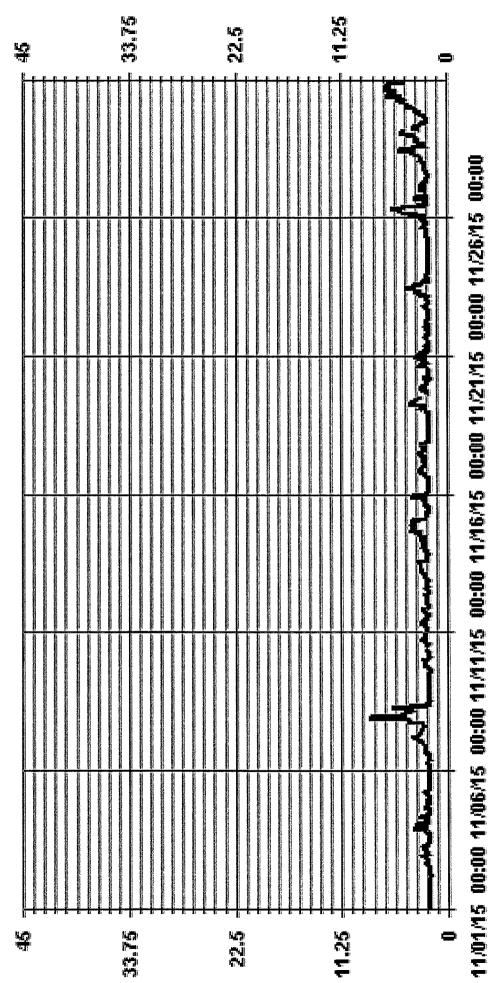
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ALBRATION. RANTENANCE. ANI VETEO / SPAN CHECK OWNER FAILURE UTFOR REPAIR	
Calibration Maintenance Dailyzero/spanci Power-Pailure Out-for repair	
Calibration Maintenance Dailyzero/spanci Power-Pailure Out-for repair	
-CALIBRATION MAINTENANCE DAULYZERO/SPANCHECK -POWEREAJIUME -OUTFOR REPAIR	
Calibration Maintenance Dailyzero/spanci Power-Pailure Out-for repair	
Calibration Maintenance Dailyzero/spanci Power-Pailure Out-for repair	
Calibration Maintenance Dailyzero/spanci Power-Pailure Out-for repair	
Calibration Maintenance Dailyzero/spanci Power-Pailure Out-for-repair	



NUMBER OF NON-ZERO READINGS:	35:		684					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		8.4 5.4	Mdd PPM	PPM @ HOUR(S) PPM	23	ON DAY(5) ON DAY(5) VAR-VARIOUS	15 m	30
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	29	HR <b>S</b>		OPERATIONAL TIME: AMD OPERATION UPTIME:	E: IPTIME:		720	HRS %
STANDARD DEVIATION:	0.86			MONTHLY AVERAGE:	نن		2.6	2.6 PPM

Of Hour Averages



METHAME



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION EIK Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

## METHANE MAX instantaneous maximum in ppm

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<u>v</u>
5

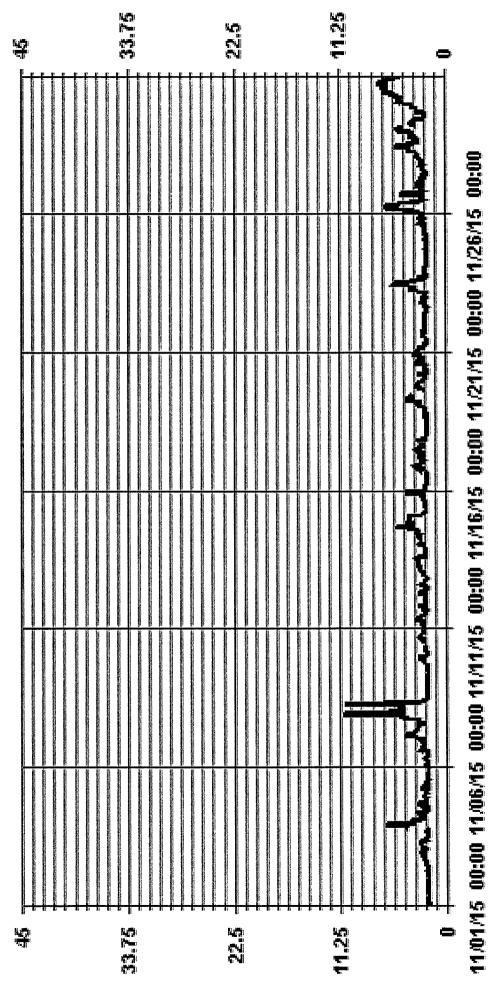
i G	ADGS.	24	24	24	24	24	54	54	24	54	24	54	24	24	24	24	24	24	24	24	54	24	24	24	24	24	24	54	24	24	24		
24-HOUR	9	2.0	2.2	2.7	2.6	2.1	2.2	3.8	3.6	2.0	2.4	2.5	2.3	5.6	3.2	2.7	2.4	2.7	2.0	3.0	2.5	2.4	2.2	3.0	2.0	2.3	3.5	2.5	3.5	3.3	5.8		
DAILY	WHAT	2.2	2.8	6.5	3.9	2.8	2.7	11.0	10.8	2.7	3.0	3.1	2.7	3.2	5.3	4.3	3.9	3.3	2.2	4.3	3.3	3.3	2.8	5.6	2.2	5.9	6.4	3.0	5,4	5.1	7.2		
23:00	200	9.5	2.8	6.5	2.3	2.0	2.7	110	1.9	2.7	2.4	2.1	2.3	2.2	3.9	4.3	3.1	2.2	2.1	2.7	3.3	2.1	2.2	2.1	2.0	5.6	5.6	2.5	3.5	3.5	5.0	11.0	3.1
22.00	20,00	s	2.7	4.3	2.1	1.9	2.4	6.1	1.9	2.5	2.4	s	2.2	2.3	4.1	3.3	3.4	2.2	2.1	5.9	3.3	2.1	2.2	2.1	5.0	2.7	2.5	2.5	3.6	3.4	5.5	6.1	5.9
21.00	72.00	1.9	s	4.4	2.3	1.9	2.4	5.0	1.9	2.3	2.4	2.7	s	2.2	4.1	2.5	3.2	2.7	2.1	5.9	5.6	2.1	2.3	2.2	2.0	2.7	2.5	2.6	3.5	3.7	6.5	6.5	2.8
20:00	ZT.00	1.9	2.3	s	2.2	1.9	2.5	4.5	1.9	2.3	2.7	2.7	2.1	s	3.7	5.6	3.0	2.9	2.1	3.3	2.4	2.1	2.8	2.1	2.0	2.3	2.3	5.6	8. 8.	3.0	6.5	6.5	2.7
19:00	00.02	1.9	2.3	2.1	s	2.0	2.5	4.7	1.9	2.2	2.9	2.5	2.2	2.3	s	2.5	2.5	2.8	2.0	2.8	2.1	2.4	2.2	2.0	2.1	2.4	2.7	2.4	3,1	3.0	6.4	6.4	2.6
18:00	On CT	2.0	2.3	2.2	2.5	s	2.5	2.7	1.9	2.1	3.0	2.4	2.3	2.2	3.9	s	2.6	2.7	2.1	2.8	5.9	2.5	2.2	2.2	2.1	2.3	4.8	5.6	3.0	3.1	7.2	7.2	2.8
17.00	TO TO	2.1	2.3	2.2	3.1	0.1 0.1	s	3.0	1.9	2.0	2.8	2.1	2.4	2.2	5.3	2.4	s	2.5	2.1	2.5	5.9	2.3	2.2	2.8	20	2.8	2.7	2.4	2.8	3.0	6.1	6.1	2.7
16:00	00.74	1.9	2.3	2.1	2.7	1.9	2.5	s	1.9	2.0	5.6	2.2	2.3	2.2	4.0	2.3	2.1	s	2.0	s	3.3	2.5	5.0	2.7	2.0	2.9	2.4	2.3	5.8	2.4	6.3	6.3	2.5
15:00	10.00	1.9	2.2	2.0	2.0	2.0	2.7	2.6	s	2.0	2.3	2.1	2.6	3,0	3.2	2.2	2.0	2.8	s	ø	2.2	2.4	2.2	3.2	2.0	2.6	2.5	2.3	2.8	2.2	6.8	8.9	2.5
14:00	OCT.	1.9	2.2	2.0	1.9	1.9	2.0	3.0	2.0	s	2.3	2.2	2.3	3.2	3.0	2.2	2.0	3.0	2.0	ø	2.1	2.2	2.0	3.9	2.0	2.2	2.5	2.2	3.6	2.2	6.1	6.1	2.5
13:00	00.47	1.9	2.1	2.0	1.9	2.2	5.0	2.9	2.1	1.9	U	2.3	2.0	3.0	3.1	2.1	2.0	3.1	2.0	ø	s	2.1	2.0	5.5	2.0	2.2	2.3	2.1	4.2	2.3	6.1	6.1	2.6
12:00	70.CT	1.9	2.1	2.1	2.0	2.2	2.0	3.0	2.1	1.9	U	2.7	2.1	2.9	3.1	2.1	2.0	3.3	2.0	ø	2.1	s	2.1	5.6	2.0	2.2	2.8	2.3	4.6	2.3	6.1	6.1	2.7
11.00	1000		2.0						2.3				2.1									2.1								2.4		6.4	2.7
10:01	7					1.9			2.8																							6.7	
9.00		2.0		2.2	3.1				3 6.9													2.3						2.2		3.2		8 6.9	
8:00			2.1		3.0	2.5	2.4	3.3	10.8	_												2.1					6.2		3.8	3.7		3 10.8	
7.00					3 2.9		2.2	3.7			2.2					3 2.1						5 2.2			0.7						5.6		
0 60		7.	2.3	5 2.6	3 2.3	2.2	0 2.3	3.5	2 4.6	9.1.9	1 2.3	5 2.5	2.2	7 2.5	5 2.6		1 2.3			m m	1 3.0	7 2.5	1 2.3	9.0	0.7	2.0	2 6.4	8	,		2 5.0		
0 5.0	2	2.0	0 2.0	7 2.6	3 2.3	3 2.2	1 2.0	7 4.	4 5.3	9 1.9	0 2:	3 2 5	2 2.	7 2.	8 2.6	7 2.4	1 2.3	4 2.8	0 2.0	6 2.6	2 2.	6 2.7	1 2:	2 2.9	1 2.0	0.2.0	5	9 2.8	s 0	3.3	0 5.2	0 6.2	5.2
00.	2	9	0 2.0	6 2.	9 2	2 2	1 2.	2 3.	7 4.	9 1.9	1 2.	3 2.	2 2	6 2.	9 2.8	8 2.7	1 2.	3 2.4	0 2.0	0 2.6	2 2.	9 2.6	2 2.	3 2.	1 2.	1 2.0	2 4.5	9 2.9	1 3.0	8	5.0		7
90	2	0. 1.9	.0	3 2.6	3.9 2.9	.1 2.2	.0	.1 3.2	7 4.7	1.9 1.	2 2.1	.4	2 2.2	4 2.6	2.6 2.9	3.8 3.8	.1 2.	2.5 2.3	.0 2.0	2.8 3.0	.2 2.2	2 2	3 2.2	.4	.1 2.	.1 2	2.8 3.	.7 2.	1.	.1 4.8	.7 S	.1 4.8	2.7 2.
200	1.C. C.	0 2.0	9 2.0	4.	ις κί	3 2.1	.9	.7 3.	6.2 4.	1.9	3.0 2.	4 2.4	2.2 2.2	5 2.4	2.7 2.	3.9 3.	2.5 2.	2.7 2.	1 2.0	4.	4 2	κi κi	2 2	4 2.4	1 2.	1.9 2.	.6	2.8 2.	, 3	e) e)	4.9 4.7	6.2 5.1	
00	200	7.7	.9	2.5 2	3.5	2.3 2.	1.9	2.8.2	5.5	1.9 1	2.7 3	2.4	2.1. 2	2.4 2	2.3 2	3.8	3.9 2	2.8 2	2.2	2.2 2.2	2.6 2	3.1 3	2.3 2.	2.1 2	2.2 2.	1.9	2.5 2	3.0 2	2.6 2	3.7 4	1.4 4	5.5 6	
HOURSTART 0:00 I:00 2:00 3:00 4:00 5:00 6		7	H	rv.	m	7	- 	IN	5	  -  -	(1	7	14	7	7	m	m	7	2	N Sin	N .	m	(N	13	7	-	7	m Sec	N	(f)	4	L	
HOURST	DAY	۲	2	6	4	Ŋ	Φ	7	∞	<b>o</b>	9	T	17	<b>E</b>	77	15	19	17	18	13	20	21	22	23	77	25	26	27.	28	29	ନ	HOURLY MAX	HOURLY AVG

### STATUS FLAG CODES

100				28
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ATION.	NAN	ERO/S	FAILL	<b>JUT FOR REPAIR</b>
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NUMBER OF NON-ZERO READINGS:			683							
MAXIMUM INSTANTANEOUS VALUE:	43		11.0	PPM	@ HOUR(S)	23	ON DAY(S)			$\overline{}$
						VAR-V	VAR-VARIOUS			
IZS CALIBRATION TIME:	ଯ	SE SE		OPERATIC	OPERATIONAL TIME:			720	HRS	
MONTHLY CALIBRATION TIME:	4	HRS								_
STANDARD DEVIATION:	1.07									

of hour Averages



MA THWAX

LICA35
METHANE / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

Fred

00 00.

2.94 82.62 17.37 NNW .44 00. 00. 6.77 00. 1.76 8.54 ¥ 00 2.35 WNW 8. 00. 12.66 4.12 12.37 11.63 10.30 00. 4.71 13.84 13.54 1.91 Wind Parameter : WDR Instrument Height : 10 Meters 00. Z 1.47 % WSW 00. SW .58 00. 00. 3.82 4.27 SSW 00. 44 00. 3.24 3.97 .73 00. 00. 1.17 1.91 SSE .73 00. 00. Direction 3.53 1.03 4.56 SE 00-00. 6.77 ESE 1.47 8.24 00. 00. 5.00 2.20 00. 00. 7.21 ы 4.27 5.30 1.03 ENE 00. 00. 1.76 1.91 .14 Ħ 00. 00. NAE 3.24 3.97 73 00. 00. 1.91 1.62 00. 00. z Totals 3.0 Limit 10.0 50.0 >= 50.0

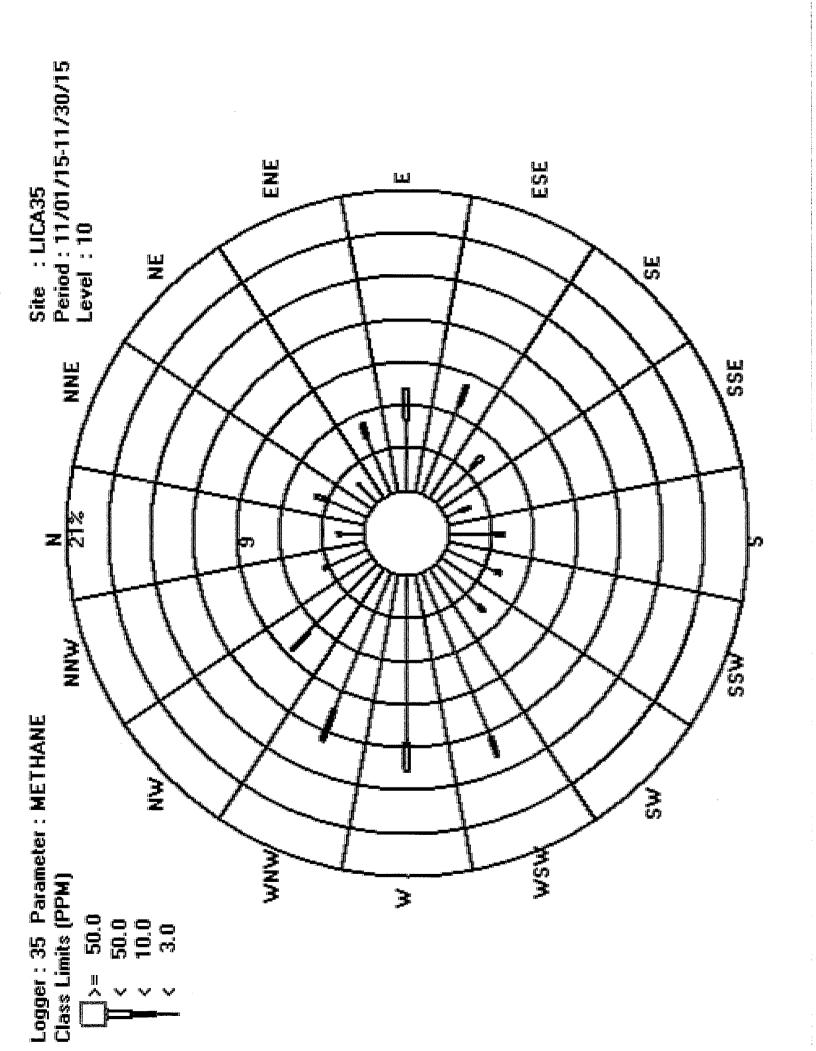
Calm : .00 %

Total # Operational Hours : 679

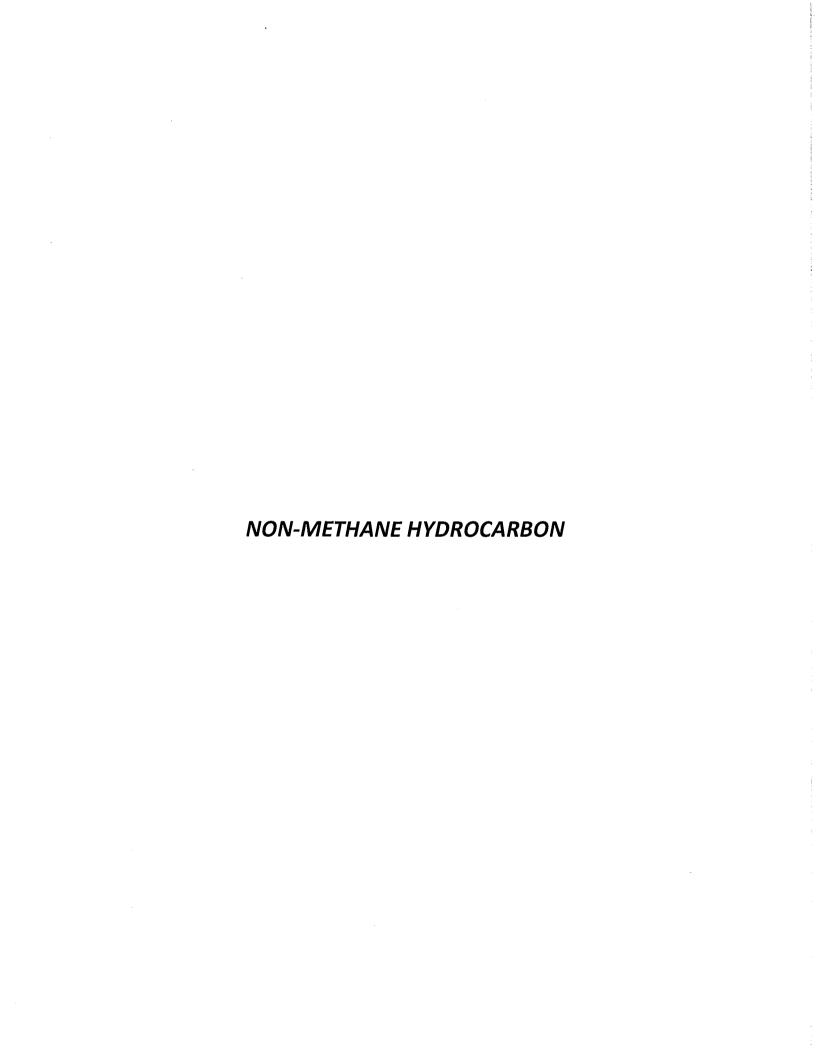
Distribution By Samples

Calm : .00 %

Total # Operational Hours : 679



**12MM5** Phase: SPAN - Exp Value -10% Calibration Graph for Site: LICA35 Parameter: METHANE Sequence: THC55 11/23/15 = Exp Value +10% 11/16/15 🛨 Exp Value 118/15 🖛 Cal Value THAS 5.00 13,33 11.67 10.00 8.33 6.67 15.00





# in ppm

	ouriv averages II
(0)	
0.4000	KOCAKBORS
	HANE HYD

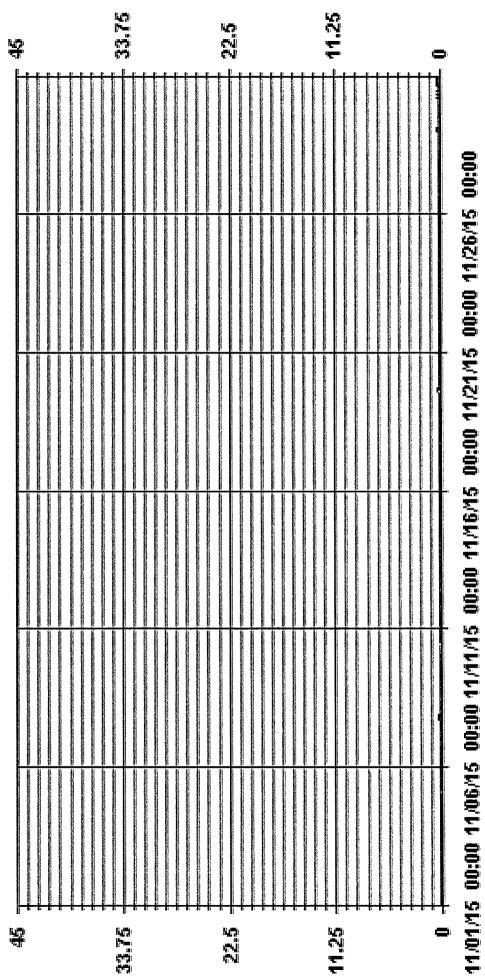
	90	24	24	54	24	24	54	54	24	54	54	24	54	24	54	54	24	24	24	24	54	24	54	24	57	24	54	54	24	54	24		
	24-HOUR		0.00	9.	00.	90.	o:	.02	0.01	9.	8.	00.	9.	9.	90.	00.	.00	00:	9.	.02	00.	0.	00.	00.	8.	0.	9.	90.	9.	.02	10		
																															_		
	DAILY		0.0	0.1	0.0	0.0	0.0	0.1	0.10	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0			0.0	_	0.10	٠,	ı	
	23:00		0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.30	0.01
	22:00	ş	0.00	0.00	0.00	0.00	0.00	0.10	0.00		0.00				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.10	
	21:00	000	s	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.01
	20:00	0.00	00'0	s	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.20	0.20	0.01
	19:00		0.00	0.00	s	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.20	0.20	0.01
1	18:00	XI.	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
≣ 8	17.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	v	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.30	0.02
nomiy averages in ppi	16:00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
, in	15.00	00.0	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	ď	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	14:00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ď	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
	13:00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ပ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ď	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ပ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
	11.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	U	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
	10:00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	U	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	00.6	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	s	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00
1	8:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.10	0.10	0.01
	7:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00	0.00	0.00	0.00
	6:00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	s	0.00	0.00	0.10	0.10	0.01
	5.00 6	000	00.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.10	0.10	0.01
	4:00	000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	s	0.00	0.00	0.00
	000	8	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	S	0.10	0.01
	2:00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.01
	2:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	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	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.01
MST	HOUR START	DAY	7	m	. 4	'n	9	7	œ	m	a	Ħ	12	Ĥ	17	15	16	17	13	19	20	21	22	23	24	25	26	27	28	29	30	HOURLY MAX	HOURLY AVG

C CALLBRATION O CUALITY ASSURANCE.  N. MAINTENANCE R RECOUERY  S DAILY ZERO/SPANCHECK X MACHINEMALFUNCTION.  P POWER PAILURE O OPERATIOR ERROR  S OUIT FOR REPAIR K COLLECTION FROR		100000000000000000000000000000000000000
	0.08 0.09 0.09 0.00 0.00 0.00 0.00 0.00	

STATUS FLAG CODES

	17 , 23 ON DAY(S) 19 , 30 ON DAY(S) 30 VAR-VARIOUS	720 HRS ME: 100.0 %	
	@ но∪ռ(s)	OPERATIONAL TIME: AMD OPERATION UPTIME:	
*	0.30 PPM 0.10 PPM	HRS HRS	
	0.5	29 H H	
NUMBER OF NON-ZERO READINGS:	MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:	IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	

of Hour Averages



MAHC

- LICA35



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION EIK Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

# NON-METHANE HYDROCARBONS MAX instantaneous maximum in ppm

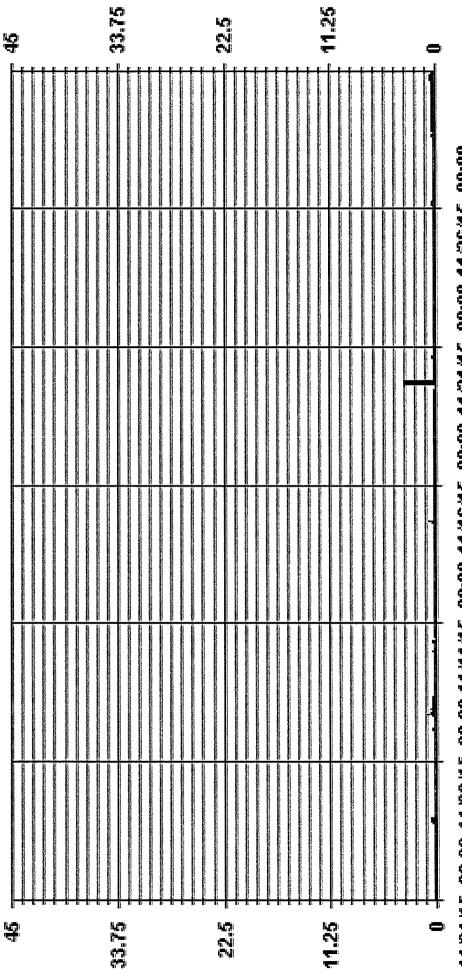
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0.03 0.02

	OUGHTY ASSURANCE -RECOVERY -MACHINE WALFBNCTION -OPERATOR ERROR -COLLECTION ERROR
STATUS FLAG CODES	X
	CCALIBRATION MAINTENANCE DALLYZERO/SPANCHE POWEREFAIUNE OUT FOR REPAIR
	O ≯ S * € C

NUMBER OF NON-ZERO READINGS:			100							
MAXIMUM INSTANTANEOUS VALUE:			3.20	PPM	@ HOUR(S)	(S)	17	ON DAY(S)		19
							VAR-VARIOUS	RIOUS		
IZS CALIBRATION TIME:	59	HRS		OPERATIC	OPERATIONAL TIME:	ıt:			720	HRS
MONTHLY CALIBRATION TIME:	4	HRS								
STANDARD DEVIATION:	0.14		ļ							

Of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

MMHCMAX

LICA35 NMHC / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

Direction

Freq	99.70	.29	00.	00.	00.	00.	
NNM	3.38	00.	00.	00.	00.	00.	3.38
MN	8.54	00.	00.	00.	00.	00.	8.54
WNW	12.66	00.	00.	00.	%	00.	12.66
¤	13.40	.14	00.	00.	00.	00.	13.54
WSW	13.84	.00	00.	.00	00.	00.	13.84
NS.	4.71	00.	.00	.00	00.	00.	4.71
SSW	4.27	00.	00.	00.	.00	00.	4.27
w	3.97	00.	00.	00.	%	.00	3.97
SSE	1.91	00.	00.	00.	00.	00.	1.91
SE	4.56	00.	00.	00.	00.	00.	4.56
ESE	8.10	.14	00.	00.	00.	00.	8.24
ы	7.21	00.	00.	00.	00.	00.	7.21
ENE	5.30	00.	00.	00.	00.	00.	5.30
R	1.91	00.	00.	00.	00.	00.	1.91
NNE	3.97	00.	00.	00.	00.	00.	3.97
z	1.91	00	00.	00.	00.	00.	1.91
Limit	ς.	ις.	1.0	2.0	4.0	4.0	Totals
	٧	٧	٧	٧	٧	X	

Calm : .00 %

Total # Operational Hours : 679

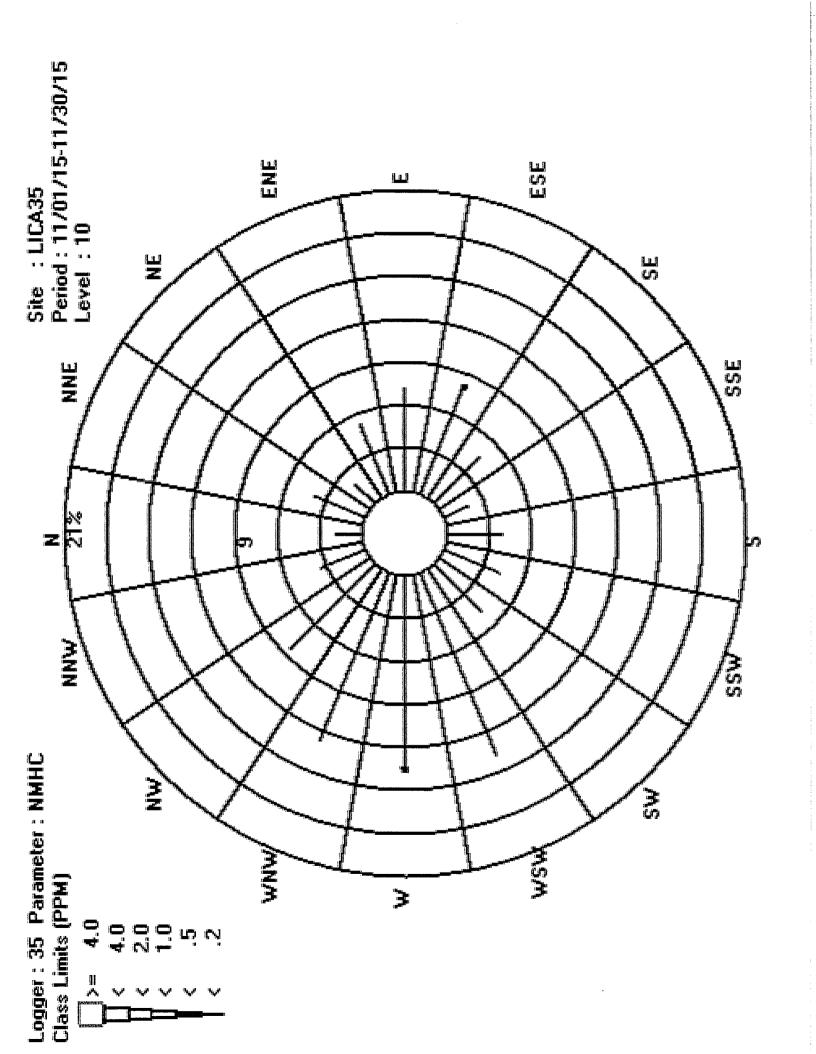
Distribution By Samples

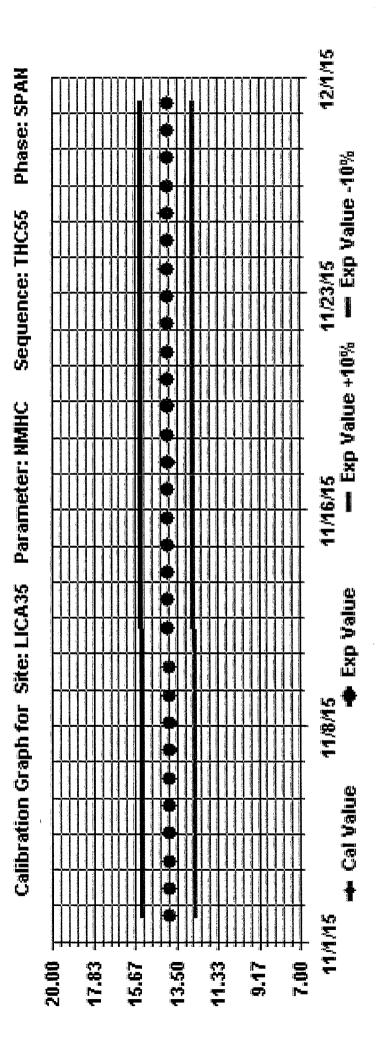
Direction

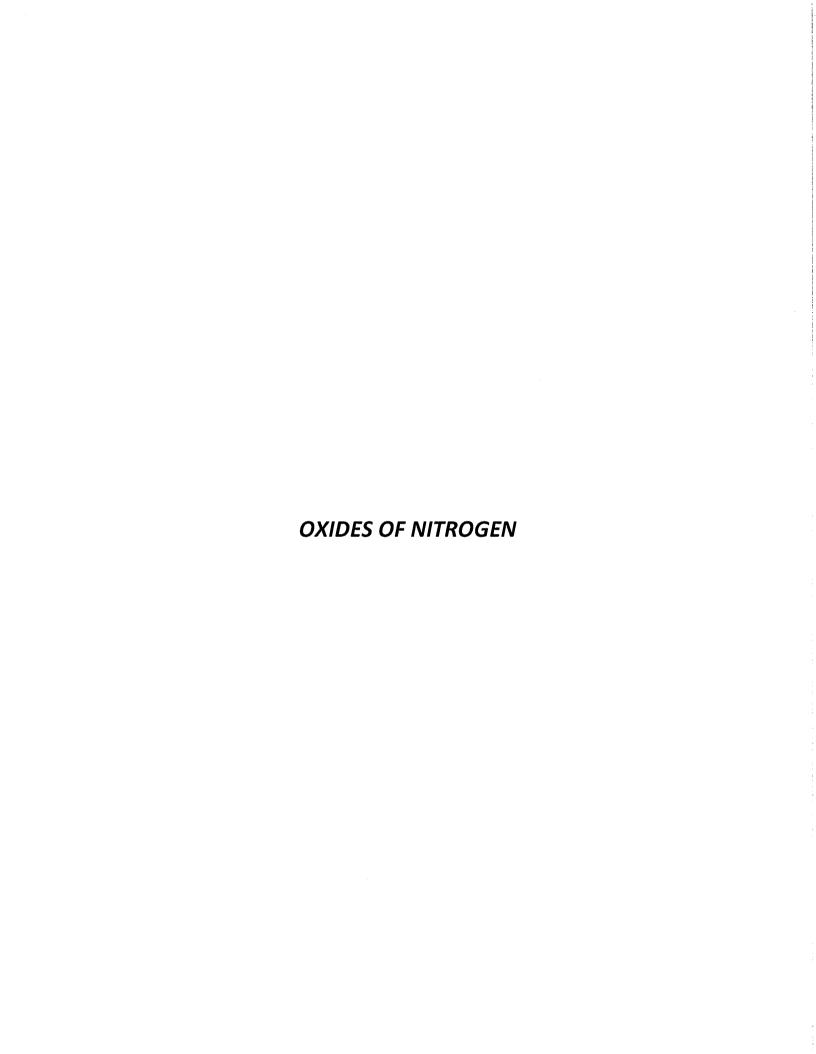
Freq	677	7					
MNN	23						23
NW	28						28
WNW	98						98
¥	16	н					92
WSW	94						94
SW	32						32
SSW	29						29
Ø	27						27
SSE	13						13
SE	31						31
asa a	55	Н					26
μ	49						49
ENE	36						36
Ä	13						13
NNE	27						27
z	13						13
Limit	?	r.	1.0	2.0	4.0	4.0	Totals
	٧	٧	٧	٧	٧	X	

Calm : .00 %

Total # Operational Hours : 679









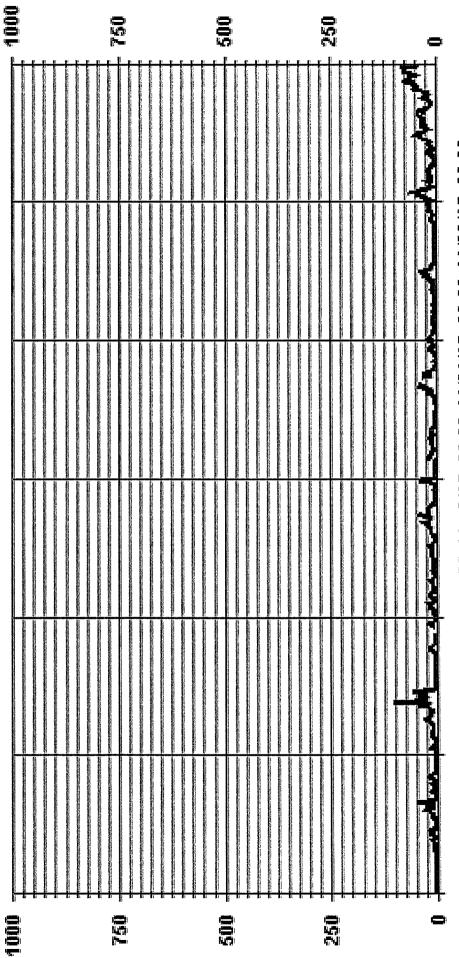
## OXIDES OF NITROGEN (NOx) hourly averages in ppb

MST								•	ONIDES OF MINOGEN (NOX) HOURS AVEINGES IN PUR	5			9 ∕v	u y a	ב פ ב	dd III o	2								
HOUR START 0:00 1:00	0.00	1 22	2:00 3:00 4:00 5:00	00	.00	9 00	10.0		10590			1 50	4230372	14:00	3.45	430.00	6 . 33	200	00 20	00. 21.	0 22.00			24-HOUR	
HOUREND	- T-00	38	3:00 4	.00	9 00:	7 00	7:00	8:00:8	9:00 - 10:00	0:-11:00	3 12.00	13.00	14:00	15.00	T6:00	17.00	18:00 I	T9:00: Z0	20:00 21	00 22	30 23:00	00.0	MAX.	AVG.	RDGS.
1	5.6	4.5	4.0	1.1	1.5 5	5.0 5							3.2	3.1	3.4								5.6	3.9	24
2	2.4	2.2	2.9	2.5 2	2.8 2	2.3 2	2.3 2	2.5 2.	2.7 2.4	2.3	2.2	2.6	3.9	6.1	6.4	6.9	8.0	8.8	7.6 5.4	4 S	10.8		14.0	4.8	24
œ	7.5	8.6			16.6 15	15.9 13	•						4.6	4.4	4.4								17.8	9.3	54
4	19.9	28.9					• •	•					3.8	3.5	4.3								47.6	13.4	24
2	13.5	7.7	8.8	8.8		15.1 19							2.1	2.4	3.0								19.6	6.8	74
9	3.1	3.1											4.0	4.2	8 6.8								16.5	7.7	77
7	8.5	9.1	11.0		13.2 16			24.4 27	27.1 19.4			17.2	14.6	16.5	11.0							•	103.3	23.2	54
∞	58.3	36.1		26.8 28									2.0	3.7	s								58.3	19.3	24
o,	2.3	2.5				2.5 2			1.9 2.3				5.6	S	3.0								17.5	5.4	74
10	10.8	9.6											ပ	U	ပ								18.9	7.5	74
#	5.1	9.9											6.9	5.7	2.8								19.4	10.1	24
12	6.4	9.0						•					3.9	4.3	9.0								19.6	8.6	54
13	8.0	7.1											12.9	16.9	9.4								16.9	9.5	24
14	8.4	11.8				14.8 14							17.0	15.1	16.3								41.4	20.4	24
15	15.6	13.9											3.2	4.2	5.9								45.6	8.5	77
16	23.0	9.9											1.4	1.7	2.2								23.5	7.0	54
17	10.4	8.5											13.1	11.9	9.1								16.2	10.0	24
18	3.9	2.8											2.1	1.7	s								3.9	25	24
10	6.1	9.4						•					ď	ď	ø								43.3	20.7	24
20	7.3	5.9											s	4.5	8.8								16.6	6.1	54
- 21	14.1	19.4				12.6 10							5.7	6.1	8.1								19.4	9.0	24
22	5.8	6.4							6.7 5.8				1.7	1.7	4.1								11.3	5.3	24
23	5.4	7.7		10.1		12.1	•						21.3	14.0	11.6								35.1	13.3	24
24	4.9	4.7	3.7 4	1.2 3									1.8	1.2	13								4.9	2.5	54
25	1.8	1.6	2.7	3.0 2									7.9	8.8	8.5								19.6	10.1	24
26	14.9	15.9		16.8 26				•					9.5	15.8	15.2								60.0	21.7	54
27	15.9	16.6	16.3 19			15.6		•					2.0	4.3	5.7	6.1			17,8 18.6				20.2	12.1	54
	11.2	13.5			13.9								29.4	24.0	17.2	22.5							49.0	27.9	24
. 29	30.2	35.8	39.5 43	13.9		30.8 33	-			5 20.4			11.7	10.3	12.6	15.8	20.6	29.3 24	19.9				45.0	24.9	54
80	31.4	49.6	53.3		44.1 48	48.8 52		•	70.0 72.6				57.9	48.8	53.8	66.2							76.6	58.8	54
HOURLY MAX	58.3	49.6	ľ	43.9 44	44.1 48		52.0 5		ľ	9.69		67.9	57.9	48.8	53.8	66.2	73.2 7	74.4 73	73.7 76	7.69 9.7	-		,		
HOURLY AVG	12.1	12.1	11.8 10			12.1		•					9.6	9.1	9.6	11.3			•						

C CALIBRATION C REPAIR COLORS  S - DALIY ZENO/SPANI/CHECK X - MACHINE MALFUNCTION  P - POWER FAILUNE C C - COLLECTION ERROR  G OUT FOR REPAIR K - COLLECTION ERROR  24 HOUR AVERAGES FOR NOVEMBER 2015	20.0 20.0
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			S S	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:	35:		8/9					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		103.3 58.8	844 844	@ HOUR(S)	23	ON DAY(S) ON DAY(S) VAR-VARIOUS	IX (6)	30
IZS CAUBRATION TIME: MONTHLY CAUBRATION TIME:	29 7	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	ЛE: UPTIME:		720	% HRS
STANDARD DEVIATION:	13.79			MONTHLY AVERAGE:	GE:		13.0	PPB

of Hour Averages



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

NOX

**—** LICA35



### JOB # 2833-2015-11-35- C Elk Point Airport Site - NOVEMBER 2015 LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

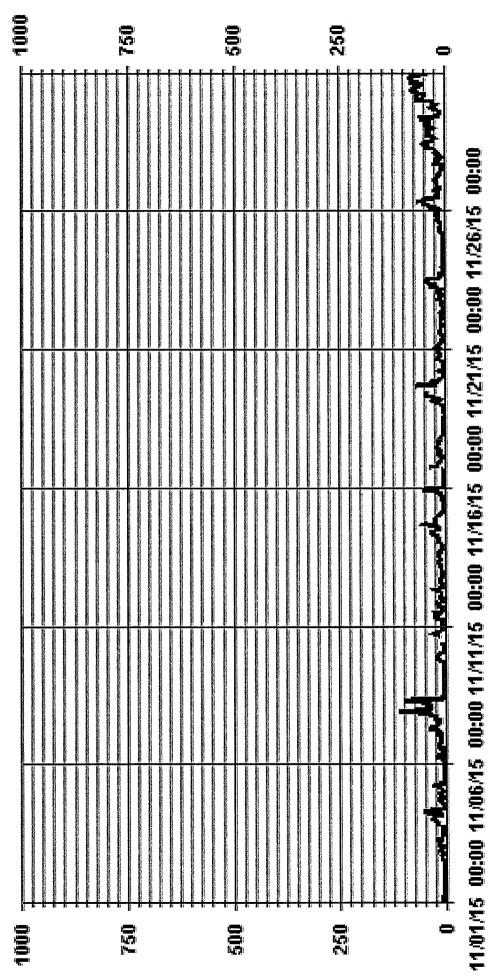
# OXIDES OF NITROGEN MAX instantaneous maximum in ppb

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	RDGS.	4	4:	24	74	4	7	4:	4:	4:	4:	4:	4:	4.	7.	4	4	4.	7.	<b>7</b> .	7.	4:	4.	7.4	4	4.	4:	4:	4:	4:	74		
	24-HOUR AVG.	5.6	6.2	12.1	18.	8.8	50.	28.	26.	7.1	10.	5,	Ħ	12.	24.	ਜ਼ੋ	3.6	17	3.6	27.	80	11.	7.8	17.	3.6	77	53	14.	33.	ଷ୍ଠ	.99		
	DAILY MAX.	6.9	15.8	20.8	51.5	25.9	19.6	111.3	98.3	19.9	31.6	24.4	27.2	19.1	51.1	51.0	40.9	19.7	5.2	64.1	19.6	23.4	19.8	48.9	5.9	23.3	63.8	24.4	52.6	56.2	820		
The second	23:00	4.4	15.8	20.8	11.6	3.9	11.8	111.3	3,9	19.3	6.7	7.8	7.4	7,9	22.2	51.0	11.8	7.5	3.9	12.9	18.0	7.4	7.1	4.2	3.3	20.1	16.9	6.6	39.6	25.5	45.4	111.3	18.0
	22:00	v	15.2	18.7	7.9	3.8	10.9	67.4	3.7	19.7	7.3	s	7.0	<u>ნ</u>	23.8	34.2	15.9	5.8	4.6	16.0	16.3	9.9	8.3	4.4	3.2	20.6	16.1	12.5	41.2	25.8	60.3	67.4	17.4
	21:00	4.8	v	18.7	6.4	3.3	10.2	37.9	3,3	19.1	7.6	20.9	s	7.4	24.2	23.3	17.4	8.6	5.0	26.7	12.8	6.7	8.6	5.7	3.7	19.0	14.2	16.4	36.8	28.7	80.1	80.1	17.1
Sec. Sec.	20:00 21:00	4.8	8.2	s	7.1	3.7	12.0	35.6	2.5	19.9	14.1	21.1	7.3	s	23.5	12.6	20.4	10.8	4.0	32.3	9.0	8.3	19.8	4.7	2.2	15.7	11.5	22.3	37.3	21.8	82.0	82.0	16.9
No. of the Control of	19:00	5.8	8.8	8.4	s	3.8	16.4	41.0	5.8	14.9	27.9	17.7	7.5	7.1	s	14.9	22.9	12.2	2.5	23.0	9.5	8.4	6.6	3,8	3.7	18.1	16.3	21.0	28.7	27.8	79.6	79.6	16.6
Section 1	17:00 18:00 18:00 19:00	4.4	12.2	8.9	16.3	s	15.7	23.2	5.9	10.0	31.6	17.5	11.5	13.6	47.2	s	34.7	11.1	4.7	24.9	14.9	11.0	7.9	5.2	3.7	19.1	29.6	24.0	44.6	32.3	79.9	79.9	20.1
		4.2	6.6	8.2	17.6	2.8	s	24.2	3.3	4.3	19.4	9.7	13.1	16.1	51.1	6.8	s	17.4	4.6	64.1	19.6	10.8	5.7	14.5	1.8	22.3	16.4	24.4	32.4	25.7	78.7	78.7	18.9
3	14:00 15:00 16:00 15:00 16:00 17:00	5.1	8.0	5.5	12.2	2.8	16.0	s	4.3	4.8	U	12.0	11.2	12.7	38.9	9.1	9.9	s	2.6	ď	19.4	10.9	5.8	13.6	2.0	23.3	15.6	7.4	26.2	19.9	78.1	78.1	14.4
- 80	15.00 16.00	4.3	8.0	5.6	6.2	3.9	13.2	13.9	s	4.1	U	6.7	10.2	15.9	18.7	9.3	3.8	14.9	s	ď	11.9	10.9	7.3	12.4	1.9	11.4	18.8	8.0	21.8	15.7	58.9	58.9	12.2
80 G		4.1	7.3	5.3	4.6	3.3	5.4	20.6	4.7	s	U	7.1	7.8	19.1	16.9	7.1	5.6	16.3	2.7	ď	5.6	8.0	2.9	15.3	1.9	10.2	21.0	9.9	26.8	11.7	55.7	55.7	11.1
100	14.00	3.9	4.7	5.6	4.8	3.0	6.1	17.0	6.0	4.3	U	14.9	5.9	17.3	19.0	4.1	2.5	17.4	2.7	ď	s	6.5	2.9	38.1	3.8	9.1	10.4	5.8	32.7	12.8	63.7	63.7	12.0
0.0000000000000000000000000000000000000	12:00	4.5	3.6	7.2	5.5	3.1	6.0	21.0	5.7	4.3	U	23.7	6.1	12.8	20.7	4.6	2.5	19.7	2.7	ď	3.3	s	4.9	48.9	4.9	10.0	18.3	8.6	38.3	12.8	62.9	62.9	13.7
	10.00 - 11.00 $12.00 - 12.00$	4.5	3.1	9.5	7.1	2.5	6.0	21.8	7.1	2.9	U	18.1	7.9	11.9	26.3	4.3	3.1	15.8	2.6	ď	2.6	7.3	s	38.3	3.1	10.5	27.0	9.3	50.3	13.6	63.3	63.3	14.1
\$	- 33	4.7	3.5	9.3	12.8	2.8	7.7	20.9	11.9	3.2	U	24.4	13.0	11.0	37.1	4.9	5.8	11.7	2.6	45.7	1.7	8.7	7.9	s	2.9	12.2	50.0	9.0	52.6	25.1	74.4	74.4	16.9
9	10:00	5.0	3.4	9.1	41.4	5.4	13.2	21.2	85.8	3.2	5.9	s	20.5	16.4	30.4	3.8	2.8	11.3	2.8	39.4	1.8	10.6	9.4	24.3	s	14.0	50.0	12.0	44.5	27.2	78.4	82.8	21.2
21	00:8 00:6																															98.3	
51	8:00	1																										12.0	46.4	54.8	9.69	9.69	21.1
	0 6:00	6.1		15.0																								Ś	27	쫬		29	16.6
	3:00 4:00 5:00 4:00 5:00 6:00	6.0	3.4	17.5	10.9	16.7	6.1	19.5	50.4	3.2	4.3	8.3	<u>ნ</u>	10.0	17.4	5.1	3.2	15.9	2.7	14.8	1.8	14.3	7.6	17.2	4.0	3.6	41.5	17.5	v	34.6	51.2	51.2	14.4
	5:00			18.7																					4.7	4.1		22.7			49.5	49.5	
2		5.1	3.4	16.7																					5.1	4.0	18.6		17.5		S	48.0	
A CONTRACTOR OF THE PARTY OF TH	2.00 3: 3.00 4:	5.1	3.6	8,3	33.1	8.9	5.1	20.0	34.1	3.1	4.9	7.2	12.0	9.0	14.0	12.4	5.3	8.4	3.6	20.8	3.2	19.8	8.5	15.4	4.5	3.9	15.5	17.5	21.6	41.5		66.2	
	0:00 1:00 2:00 1:00 2:00 3:00	5.3		9																							20.8		15.5	,		71.5	
-		10.7	3.6	10.6	28.1	15.4	3.9	9.5	76.5	3.6	13.8	7.0	7.7	9.1	11.0	18.1	40.9	11.6	5.2	8.8	8.6	15.3	8.0	9.9	5.9	2.4	16.7	17.6	14.8	32.5	45.2	76.5	15.5
_  }	HOUR END	DAY 1	7	m	4	'n	ω	7	œ	o	9	Ħ	17	13	14	15	16	17	18	13	50	Ŋ	77	. 23	. 24	22	. 26	12	82	62	ဓ္ဓ	HOURLY MAX	HOURLY AVG
- 1000	<b>3</b> , =	25.71 34.50	r julija Rijan	151   Ser						4			ia.v					Sali Lysa						i il	4770 681	e j	G.	19 <b>(</b> 3) 2.24		5.6		Ĭ	Í

NUMBER OF NON-ZERO READING5:	22						
MAXIMUM INSTANTANEOUS VALUE:	111.3	PPB	@ HOUR(S)	23	ON DAY(S)		7
				VAR-V	VAR-VARIOUS		
IZS CALIBRATION TIME: 30 HRS		OPERATIO	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME: 7 HRS							
STANDARD DEVIATION: 16.32							

Of Hour Averages



HOYMAX

I LICA35

LICA-FIK NOX\_ / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

v

Wind Parameter : WDR Instrument Height : 10 Meters

ß WSW Š Ø SSE Direction SE ESE ы 뜅 NNE z

2.97 00. 00. 3.26 97.02 NNM 3.41 .14 00. 8.46 MN 8.02 .44 00. 00. WNW 00. 12.63 4.60 13.96 13.37 12.33 .29 00. 4.60 13.96 13.67 .29 00. 00. 00. 00. 00. 00. 00. 00. 4.16 4.30 . 14 00. % 3.86 3.86 00. 00. 00. 1.78 1.78 00. 00. 00. 4.16 4.45 .29 80. 00. 8.02 8.32 .29 00. 00. 7.28 6.68 .59 00. 00, 5.34 5.20 00. . 14 00. 1.93 1.93 % 00, 00. 4.01 3.71 .29 00. 00. 1.93 1.93 00. 00. 00. Totals Limit 50.0 < 110.0 < 210.0 >= 210.0

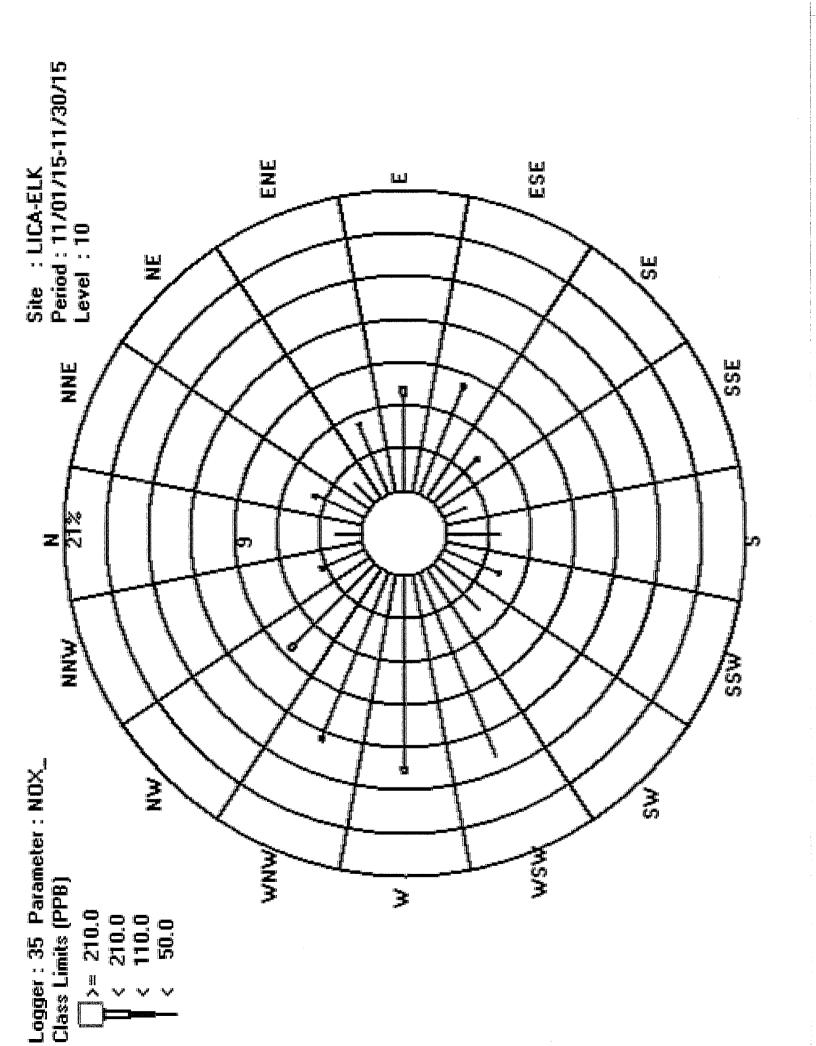
Total # Operational Hours : 673 Calm : .00 %

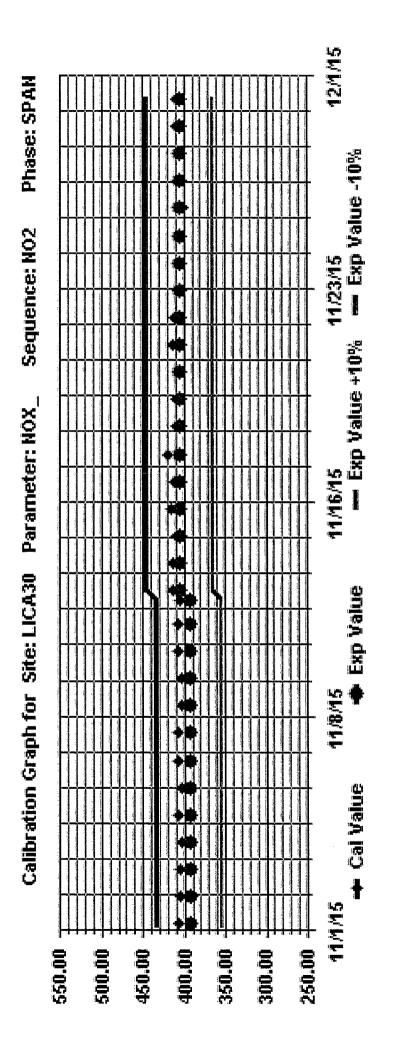
Distribution By Samples

Freq 653 20 MNN 23 22 57 Ę 85 92 WSW 94 94 SW 31 29 28 56 Ø 12 SSE 12 Direction SE 30 28 ESE 26 24 49 45 36 35 뉟 13 27 SE 8 25 13 133 Totals 50.0 Limit >= 210.0 < 110.0 < 210.0 v

Calm : .00 %

Total # Operational Hours : 673





**NITRIC OXIDES** 

JOB # 2833-2015-11-35- C

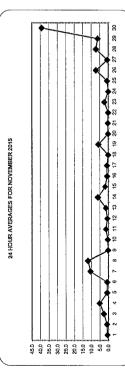


## NITRIC OXIDE (NO) hourly averages in ppb

	24-HOUR	MAX. AVG. K	0.5 0.0 3.5 0.0 L.2 0.0 24 0.6 S 3.5 5.9 5.9 0.8 24	2.2 1.3 2.6 10.5 2.7	0.0 0.0 0.2 37.6 5.1	0.1 0.2 0.0 4.6 0.8	0.6 0.7 0.5 2.3 0.7	10.7 32.7 87.8 87.8 10.5	0.0 0.0 0.0 47.6 11.9	1.1 0.8 0.6 1.1 0.2	0.0 0.0 0.0 3.1 0.3	1.0 S 0.5 6.5 1.4	S 0.9 0.7 3.3 0.5	0.6 0.5 0.6 3.9 1.4	7.5 5.3 5.5 22.6 6.1	3.9 5.4 27.5 27.5 1.9	0.7 0.4 0.2 10.6 0.7	0.3 0.0 0.2 3.3 0.8	0.1 0.0 0.0 0.4 0.1	0.0 0.0 0.0 26.5 5.8	0.2 0.4 0.6 0.9 0.2	0.0 0.0 0.0 2.0 0.3	0.1 0.1 0.0 0.4 0.0	0.0 0.0 0.0 15.5 2.3	0.0 0.0 0.0 0.3 0.0	1.0 1.3 1.3 2.0 0.7	0.3 0.3 0.3 42.1 7.1	0.1 0.4 0.2 1.1 0.5	4.8 9.8 10.8 25.5 7.2	1.8 2.1 3.8 24.3 6.2	50.5 27.2 25.0 55.9 39.2	
_	00 17.00 18:00 19	TO CO	1 1.4 2.4 1.7	0.1 0.2	0.8 0.5	0.0	\$ 1.3	4.2 5.4	0.0 0.0	0.0	0.4 3.1	0.8 1.1	0.3 0.4	6.0 8.0	22.0 22.6	0.0	\$ 2.5	2.1 0.5	0.0 0.0	0.0 8.6	0.8 0.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0	1.1 0.8	0.4 1.6	6.0 8.0	1.6 11.6	0.4 2.7	52.8 55.7	
nount averages in ppu	15:00	On Term	0.7 0.7 1.1	0.0	0.2	0.0	1.1	4.4 1.4	0.4 \$	<b>S</b> 0.4	U	0.6 0.8	0.0 0.3	3.9 1.0	2.7 2.8	0.0 0.0	0.0 0.0	0.8 0.2	0.1 S	o o	0.4 0.3	0.0 0.0	0.0 0.0	0.5 0.0	0.0 0.0	0.6 0.2	1.1 0.9	0.0	2.6 0.6	0.3 0.1	25.7 31.4	
	11:00 12:00 13:00	00.51	0.1 0.2 0.2	0.7	0.1	0.0	0.5	5.9		0.0	Ų	6.3	0.4	3.0	4.1	0.0	0.0	3.3	0.3	ď	0.0	S	0.4	15.5	0.0	1.2	11	0.4	10.6	0.5	40.6	
MITNIC OXIDE (NO)	8:00 9:00 10:00	ON:OT	0.2 0.0 0.1	2.3	17.3	0.0	0.5	6.0	19.3	0.0	0.0	s	15	5.0	12.0	0.0	0.0	9.0	0.1	17.6	0.0	0.4	0.0	3.4	S	1.8	30.3	0.7	14.9	4.1	55.3	
	.00 6:00 7:00	00.7	0.0 0.1 0.0					8. 6.	26.7	0.0	0.0		0.2	1.4	0.8	0.0	0.0	0.8	0.1	5.1	0.0	0.3	0.0	1.0	0.0	0.0	27.4	s	2.1	8.5	34.4	ĺ
	2:00 3:00 4:00 5:00	2 5	1 0.0 0.0	2.6	1.6	0.4	0.1	1.8 1.2	14.6 16.4	0.0 0.0	0.0	0.0 0.0	0.1 0.2	0.6 0.5	0.7 0.5	0.0 0.0	0.0	0.1 0.0	0.0	5.8 1.2	0.0 0.0	0.5 0.3	0.0 0.0	0.3 0.4	0.0 0.0	0.0 0.0	1.4 9.1	1.1 1.0	0.5 0.5	24.3 \$	\$ 28.5	
	F 0:00 1:00 2:00	200	0.3 0.0 0.1	2.3	14.6	0.1	0.2	0.4 0.4 1.0	23.9	0:0	0.2	0.0	0.1	9.0	0.8	1.5	0.3	0.0	0.0	0.1	0.0	2.0	0.0	0.2	0.0	0.0	9.0	9.0		17.2	29.3	
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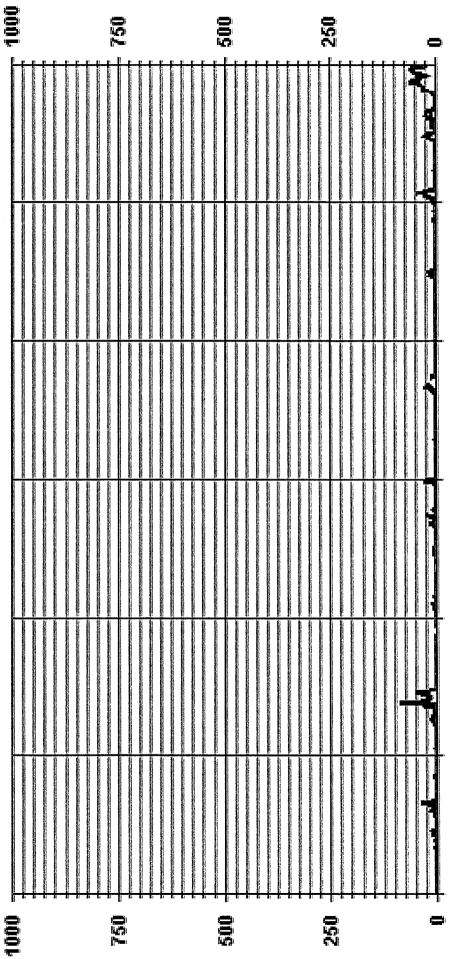
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C. CALIBRATION.  MAINTENANCE  5 -DAIT/ZERG/SPANCHECK  POWER FAILURE  G -OUTFOR REPAIR	



NUMBER OF NON-ZERO READINGS:	3 <b>S</b> :		481					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		87.8 39.2	PPB PPB	PPB @ HOUR(S) PPB	83	ON DAY(S) ON DAY(S) VAR-VARIOUS	30	0
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	29	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	E: IPTIME:		720 100.0	HRS
STANDARD DEVIATION:	9.73			MONTHLY AVERAGE:	ü		3.9	PPB

Of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

- LICA35 NO\_ PPB



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Elk Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

## NITRIC OXIDE MAX instantaneous maximum in ppb

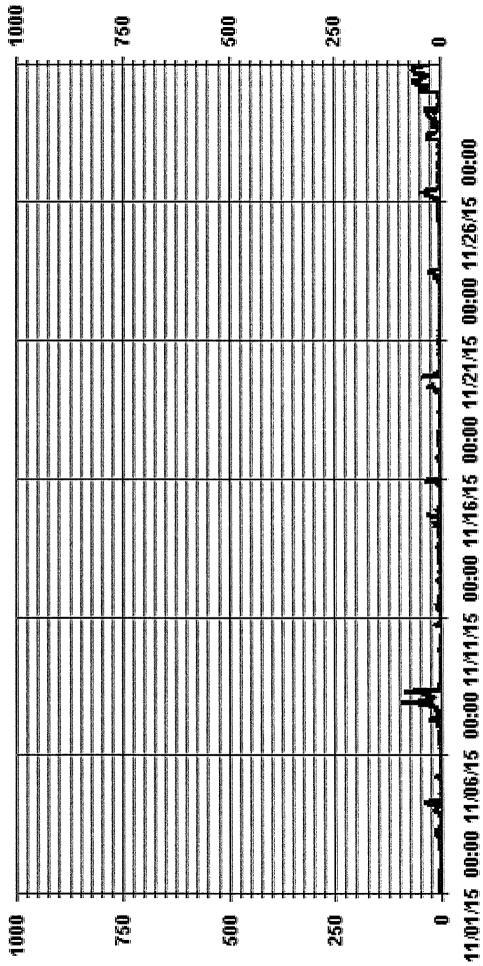
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	24-HOUR AVG.	1.3	1.8	4.4	8.4	1.9	1.7	15.5	18.7	0.8	1.8	2.4	1.6	2.6	9.1	3.9	2.2	1.8	0.7	8.6	0.5	6.0	0.5	4.7	0.5	1.6	9.6	1,4	11.3	9.6	47.1		
	DAILY	2:0	7.7	12.8	40.8	9.4	4.4	96.1	86.3	2.2	12.3	8.6	7.1	6.0	31.1	36.0	26.2	5.5	1.1	40.6	1.9	4.5	1.3	29.6	1.2	5.2	46.2	3.0	29.1	35.2	63.2		
Same Manager	23.00	1.8	7.7	5.1	1.0	0.7	1.4	96.1	0.5	1,4	0.0	1.8	1.3	1.3	9.9	36.0	0.7	0.8	0.5	0.0	1.3	0.1	9.0	0.4	0.4	2.1	1.2	8.0	16.4	5.2	27.1	96.1	7.3
Sir Carried Sir	22.00	s	8.9	3.4	0.8	0.8	<del>1</del> 3	54.3	0.4	1.5	0.0	s	2.4	10	7.7	18.7	1.1	0.7	9.0	0.0	11	0.2	0.7	0.4	0.8	2.5	1.1	1.0	17.2	5.1	42.8	54.3	6.2
00000000000000000000000000000000000000	21.00 22.00	1.2	s	3.4	0.7	0.7	13	21.1	0.7	2.2	0.0	1.8	s	1.6	12.1	11.1	1.6	0.8	0.7	2.0	1.1	0.3	8.0	9.0	8.0	2.0	1.3	0.8	8.1	3.4	60.5	60.5	5.1
Service to the service of	20:00	1.1	1.8	s	1.6	8.0	1.4	19.3	0.3	1.6	0.0	2.6	0.7	s	7.6	1.8	2.4	1.1	0.4	7.3	0.7	0.1	1.2	0.5	0.3	1.1	1.1	1.9	9.3	175	61.4	61.4	4.7
d vector this state and a	19:00 20:00	1,0	2.4	0.7	S	15	4.4	26.3	0.4	1.1	8.4	1.9	0.7	1.2	S	2.9	1.6	13	0.5	2.2	1.1	0.5	0.5	0.5	9.0	1.6	1.4	1.7	4.6	2.3	60.4	60.4	4.8
Aller Carling Carlot and	18:00 19:00	11	5.2	0.8	1.2	s	2.8	9.4	0.5	9.0	12.3	2.2	1.2	2.7	31.1	s	7.6	1.2	0.5	2.0	6.0	0.7	0.7	0.1	9.0	1.6	4.9	2.7	17.7	3.9	63.2	63.2	6.4
Oppinstante - 2007	17.00	1.0	2.6	0.7	1.7	0.4	v	9.4	0.7	0.7	3.3	1.6	1.0	2.0	30.0	0.4	S	5.2	0.7	40.6	1.8	0.2	0.7	9.0	9.0	2.4	11	3.0	8.5	1.5	58.3	58.3	6.5
destruit de sis espe	16:00	1.3	2.1	9.0	23	0.5	1.9	s	13	0.7	U	1.4	1.0	1.9	21.9	1.0	0.3	s	6.0	ø	1.9	0.7	6.0	9.0	9.0	5.2	1.1	8.0	3.6	11	57.2	57.2	4.3
The second second	15:00	1.2	1.6	8.0	6.0	0.4	2.1	2.8	s	1.2	U	1.6	1.0	2.7	4.2	8.0	0.5	1.3	s	ø	1:1	0.5	0.7	9.0	0.5	6.0	3.0	6.0	12	8.0	36.2	36.2	2.7
Chinast videocessos	14:00	1.3	1.8	0.8	6.0	0.5	1.2	7.3	1.2	s	U	1.4	0.5	6.0	4.2	1.2	0.5	2.3	0.7	ď	1.5	9.0	0.4	1,4	0.4	1.4	1.9	0.7	4,4	1.1	32.3	32.3	2.9
ini p Ti a Sand Bullion into	13.00	1.1	6.0	10	6.0	0.3	1.1	6.0	1.3	0.5	U	3.9	0.8	5.7	4.3	9.0	0.5	3.4	1.0	ď	s	1.3	9.0	15.0	0.5	1.7	1.4	8.0	0.6	1.2	40.2	40.2	3.9
Train all has problem	12:00	1.3	0.7	1.5	0.9	0.4	1.4	8.8	1.3	0.5	U	8.6	1.1	4.9	5.9	0.7	9.0	5.5	1.0	ď	0.0	S	1.3	29.6	1.1	2.0	2.6	1.2	14.9	1.3	43.8	43.8	5.3
and the second second	12:00	1.3	0.7	2.4	1.1	0.1	1.7	9.6	1.1	0.3	U	5.3	1.6	3.0	8.5	0.5	0.7	3.2	1.0	ď	0.0	6.0	s	18.8	0.7	2.1	8.9	1.3	28.0	1.5	41.4	41.4	5.4
The state of the s	11.00	1.3	8.0	2.7	3.5	0.2	1.2	7.6	1.3	0.8	U	9.2	2.5	2.4	18.0	0.5	0.7	2.0	1.0	20.3	0.0	1.0	0.3	s	1.2	3.0	31.6	1.1	29.1	6.1	54.0	54.0	7.3
Pharmach Sales	9:00 10:00	1.3	0.7	3.2	31.3	0.7	1.3	6.9	71.0	9.0	0.7	S	3.4	4.4	14.6	0.3	0.7	1.4	0.7	21.8	0.0	1.1	0.2	5.4	s	2.6	32.1	1.3	20.3	9.9	62.1	71.0	10.6
automobile automobile	8 8 8 8 8	1.2	1.0	12.6	40.8	6.2	3.7	22.6	86.3	0.5	0.5	S	7.1	4.9	14.2	0.5	0.3	2.2	6.0	33.5	0.0	6.0	0.2	13.2	0.1	s	46.2	1.6	27.2	35.2	60.5	86.3	15.1
The Saudie of The Co.	7.00 8:00	1.2	0.7	12.8	33.7	9.3	3.9	23.0	39.1	0.7	6.0	5.2	3.7	4.4	8.2	9.0	0.2	1.2	11	17.1	0.0	0.8	0.2	12.3	0.4	1.1	s	1.6	26.8	34.1	55.0	55.0	10.3
Part of the second seco	6:00. 7:00	1.2	8.0	7.6	5.8	9.4	1.3	5.3	35.0	0.5	0.7	0.0	0.8	2.0	2.2	0.3	0.4	1.8	0.8	9.4	0.0	1.0	0.3	2.2	0.4	9.0	33.1	s	6.9	11.5	41.0	41.0	6.3
Walter Street Control	5:00 6:00 7	1.3	0.7	10.2	1.9	2.4	1.0	5.2	37.7	0.5	0.7	0.0	0.7	1.5	1.2	0.4	0.7	2.5	8.0	1.7	0.0	1.1	0.2	1.4	9.0	0.5	24.0	1.8	s	13.4	33.6	37.7	5.1
Santa Wald (Bath)	3:00 4:00 4:00 5:00	1.2	9.0	12.6	1.4	4.1	0.8	2.0	23.1	0.2	9.0	0.0	6.0	1.2	1.2	0.3	0.8	9.0	0.8	4.2	0.0	10	0.3	1.1	0.4	9.0	16.0	2.2	1.1	s	34.5	34.5	3.9
100424 C. C.	3.00	1.2	9.0	10.8	11.7	1.2	0.8	6.4	19.1	0.3	0.5	0.0	0.8	1.2	1.4	0.7	9.0	9.0	0.5	8.5	0.0	1.5	0.2	1.1	0.5	0.7	2.8	2.0	1.3	28.9	s	28.9	3.7
- 2	2:00 3:00		0.7	1.8	17.4	0.8	0.6	6.1	22.7	0.5	0.7	0.0	1.3	1.4	1.2	0.8	0.7	0.7	0.4	3.7	0.0	1.7	0.3	1.1	0.2	0.7	6.0	1.6	2.0	22.2	43.6	43.6	4.6
- 8	1.00	1		3.3																													
CAN ESSET CAN	0:00	2.0	17	3.1	13.4	1.5	0.8	1.0	56.6	0.4	ដ	8	1.0	1.4	1.2	5.2	26.2	0.9	0.7	9.0	0.0	7	0.3	0.8	0.5	0.7	1.7	1.2	10	13.6	23.9	56.6	5.4
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### STATUS FLAG CODES

NUMBER OF NON-ZERO READINGS:			651							
MAXIMUM INSTANTANEOUS VALUE:			96.1	96.1 PPB	@ H	@ HOUR(S)	23	ON DAY(S)		7
							VAR-VARIOUS	RIOUS		
IZS CALIBRATION TIME:  MONTHLY CAUBRATION TIME:  STANDARD DEVIATION:  12.	30 I 7 I 12.36	HRS		OPERATIONAL TIME:	NAL T	IME:			720	HRS

Of Hour Averages



- LICA35 NOMAX PPB

LICA-EIK NO\_ / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 35 Site Name : LICA-ELK Parameter : NO\_ Units : PPB

3.26 98.81 NNW 00. 3.41 .14 % 8.32 8.46 图 .14 00. 00. WNW 4.60 13.96 13.67 12.63 4.60 13.96 13.37 12.48 .14 00. 00. Wind Parameter : WDR Instrument Height : 10 Meters .29 00. 00. × WSW 00. 00. 00. 00. Š 00. 00. 4.30 00. 4.30 00. 00. 3.86 3.86 00. 00. 00. Ø 1.78 1.78 SSE 00. 00. 0. Direction S 4.45 4.45 % 00. 00. ESE 8.32 00. 8.32 00. 00. 6.98 7.28 .29 00. 00. ы 5.34 ENE 5.34 00. 00. 00. 1.93 1.93 Ӈ 00. 00. 00. 3.86 4.01 ZZ .14 00. 00. 1.93 1.93 00. 00. 00. z Totals < 50.0 Limit >= 210.0 < 110.0 < 210.0

00.

1.18 0.

Freq

Calm : .00 %

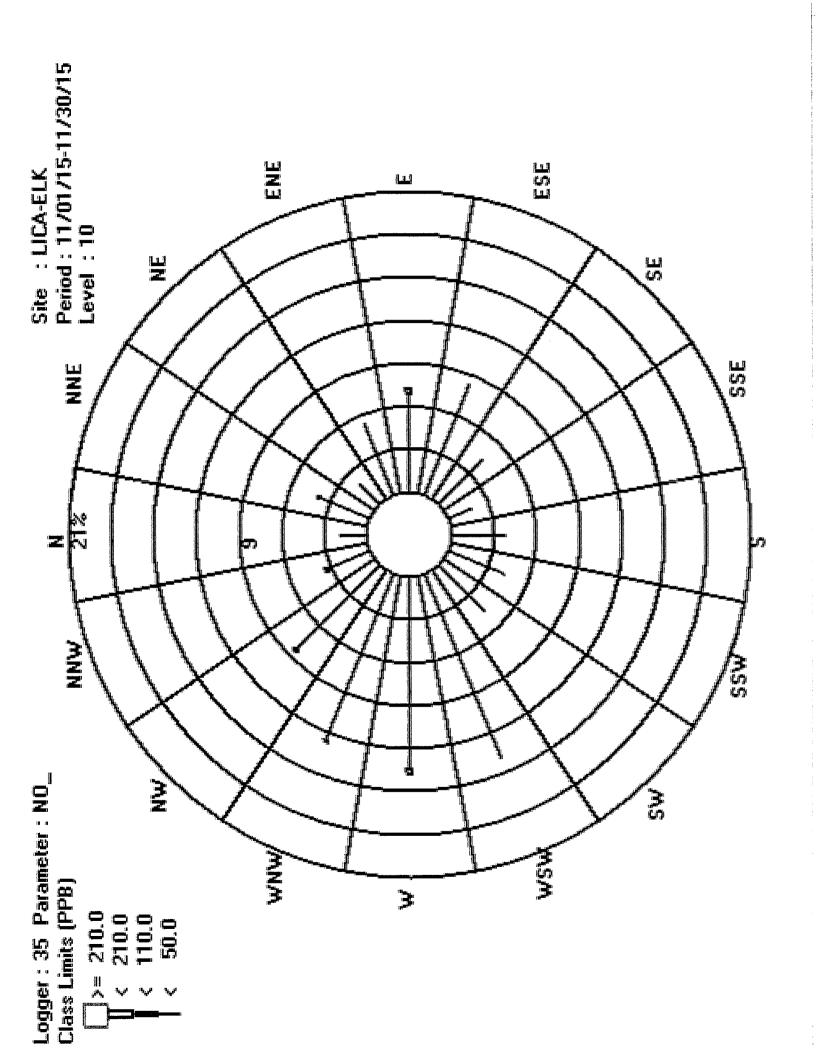
Total # Operational Hours : 673

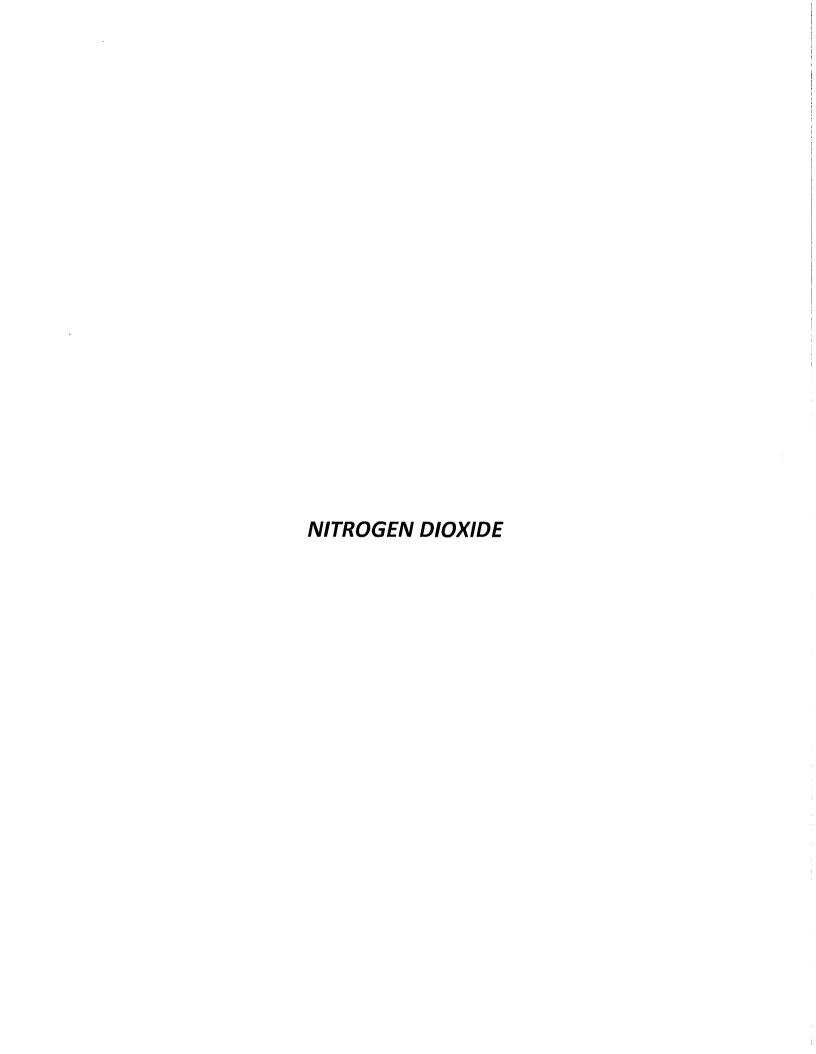
Distribution By Samples

	Freq	665	œ			
	MNIN	22	н			23
	MN	56	1			57
	WNW	84	н			82
	×	90	61			92
	WSW	94				94
	S	31				31
	SSW	59				59
	Ø	56				56
	SSE	12				12
Direction	S	30				30
Dir	ESE	56				92
	щ	47	8			49
	ENE	36				36
	吳	13				13
	NNE	26	н			27
	z	13				13
	Limit	< 50.0	110.0		210.0	Totals
		<b>v</b>	٧	٧	X	

Calm : .00 %

Total # Operational Hours : 673





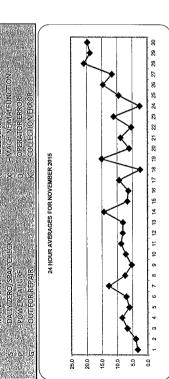
JOB # 2833-2015-11-35- C



NITROGEN DIOXIDE (NO2) hourly averages in ppb

3.9.         3.1.         3.0.         1.0. <th< th=""><th>3-00-6</th><th>įč</th><th>Ç</th><th>, de</th><th></th><th>00.2</th><th>00.8</th><th>0.00</th><th>00.00</th><th></th><th>2-00-43</th><th>-00-14-</th><th>2.00</th><th>16-0</th><th>0.770</th><th>18-0</th><th>00-01</th><th>00.00</th><th>21.00</th><th>00.00</th><th>2500</th><th>&gt;1</th><th>24-HOLIR</th><th></th></th<>	3-00-6	įč	Ç	, de		00.2	00.8	0.00	00.00		2-00-43	-00-14-	2.00	16-0	0.770	18-0	00-01	00.00	21.00	00.00	2500	>1	24-HOLIR	
35         33         31         30         29         27         27         26         28         31         39         35         4         37         34         44         37         28         64         59         48         5         73         81         33         43         44         47         71         36         64         59         48         5         73         81         33         43         44         71         124         59         52         126         135         134         134         141         110         89         5         126         135         134         141	3.00 4.00 5.00 6.00	5:00 6:00			7.00	8-00	00:6	10:00	11.00	2.00	3:00. 14	.00 15	00 16.0	0 170	18:0	19:00	20:00	21.00	22:00	23:00	0:00		AVG.	RDGS.
25         24         25         24         25         24         25         24         25         24         24         25         24         25         24         25         24         24         24         44         47         25         64         55         45         25         25         45         25         25         45         25         25         45         25         25         45         25         25         25         45         25         25         25         45         25<	3.4 3.8 4.3	3.8 4.3	4.3	,	4.4	3.9	3.3	3.1	3.0								3.7	3.3	3.2	s	2.3	4.4	3.3	24
7.3         6.6         5.3         5.4         4.3         4.4         4.7         5.8         7.1         6.6         5.0         1.0         11.0		2.8 2.3	2.3		7	2.5	2.5	2.4	2.2								5.9	8.4	s	7.3	8.1	8.1	3,9	54
103         100         110         8.5         5.0         4.1         3.4         4.1         7.1         1.24         8.5         4.9         5.1         4.9         5.1         4.9         5.1         4.9         5.1         4.9         5.0         4.1         3.6         4.1         7.1         1.24         8.5         4.6         4.1         3.6         3.1         7.8         3.9         4.2         5.0         4.0         8.0         8.0         9.0 </td <td>6.0 6.5 7.3</td> <td>6.5 7.3</td> <td>7.3</td> <td></td> <td>ŋ</td> <td>7.3</td> <td>8.9</td> <td>5.3</td> <td>5.8</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>9.9</td> <td>s</td> <td>12.6</td> <td>10.5</td> <td>12.3</td> <td>12.6</td> <td>9.9</td> <td>54</td>	6.0 6.5 7.3	6.5 7.3	7.3		ŋ	7.3	8.9	5.3	5.8								9.9	s	12.6	10.5	12.3	12.6	9.9	54
15.0         11.1         3.2         1.9         1.8         2.0         2.1         2.4         3.0         2.1         2.4         3.0         2.1         2.4         3.0         2.1         2.4         3.0         2.1         2.4         3.0         2.1         2.4         3.0         3.9         7.8         3.0 </td <td>9.6 9.1 8.8</td> <td>9.1 8.8</td> <td>8.8</td> <td></td> <td>∞.</td> <td>10.3</td> <td>10.0</td> <td>11.0</td> <td>8.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>s</td> <td>5.5</td> <td>6.4</td> <td>5.1</td> <td>9.5</td> <td>14.3</td> <td>8.3</td> <td>54</td>	9.6 9.1 8.8	9.1 8.8	8.8		∞.	10.3	10.0	11.0	8.5								s	5.5	6.4	5.1	9.5	14.3	8.3	54
146         124         146         141         36         439         440         440         441         36         441         36         442         441         36         441         36         442         142         144         144         144         144         144         144         144         144         144         144         144         144         144         144         144         144         144         144         145         145         145         145         145         145         144         144         144         144         144         144         144         144         144         144         144         145         145         145         145         145         144	8.4 13.4 13.8	13.4 13.8	13.8		0	15.0	11.1	3.2	1.9								2.3	2.7	2.6	5.6	3.2	15.0	6.0	54
136         13.4         13.4         13.4         11.3         10.4         11.3         10.4         11.3         10.4         11.4         11.4         11.4         11.4         11.4         11.4         11.4         11.5         11.5         11.4         11.5         11.4         11.4         11.5	4.4 4.3 3.7	4.3 3.7	3.7		0	14.6	12.4	7.6	5.1								10.8	10.0	8.9	9.5	9.3	14.6	7.0	54
10.5         11.6         12.6         12.6         12.9         12.6         12.9         12.6         12.9         12.6         12.9         12.6         12.9         12.6         12.9         12.6 <th< td=""><td>13.1 12.0 13.2</td><td>12.0 13.2</td><td>13.2</td><td></td><td>m</td><td>13.6</td><td>14.2</td><td>13.4</td><td>13.3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>14.9</td><td>15.4</td><td>15.1</td><td>14.6</td><td>15.5</td><td>15.5</td><td>12.7</td><td>54</td></th<>	13.1 12.0 13.2	12.0 13.2	13.2		m	13.6	14.2	13.4	13.3								14.9	15.4	15.1	14.6	15.5	15.5	12.7	54
23         1.9         2.3         2.5         2.6         3.8         3.5         6.0         10.3         14.5         15.1         15.0         2.6         3.8         3.5         6.0         10.3         14.5         15.1         15.7         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.2         15.0         15.0         15.2         15.2         15.0         15.2         15.2         15.0         15.2	12.2 12.4 11.8	12.4 11.8	11.8		7	10.5	10.3	15.6	7.9								1.9	1.6	2.2	5.6	2.9	17.7	7.4	54
41         46         45         C	2.4 2.4 2.5	2.4 2.5	2.5		7	2.3	1.9	2.3	2.5								10.3	14.5	15.1	16.7	13.7	16.7	5.2	54
8.9         9.3         5         13.5         11.5         11.3         8.0         5.1         6.0         6.1         4.5         6.5         5.5         5.9         6.0         6.1         5.5         5.5         5.9         8.7         11.4         11.5	3.1 2.8 3.3	2.8 3.3	3.3		ιζ	4.1	4.6	4.5	U								17.5	10.3	5.2	5.0	5.7	17.5	7.2	54
14.5         16.3         12.4         9.4         6.2         4.8         8.7         6.1         10.3         7.9         6.0         6.1         8.4         6.0         11.5         11.5         11.4         10.7         9.2         12.4         13.4         13.4         11.5         11.6         13.4         13.5         13.4         13.5         13.2         13.5         13.5         13.6         13.4         13.6         13.4         13.6         13.4         14.6         14.7         13.1         16.1         14.6         13.7         16.2         14.7         13.1         16.1         14.9         14.9         14.9         14.0         14.1         14.1         12.2         14.2	5.2 4.0 6.2	4.0 6.2	6.2		_	8.9	9.3	s	13.5								14.5	16.3	13.3	s	5.9	16.3	8.7	54
114         107         9.2         7.9         7.8         9.5         130         8.4         9.0         7.9         7.2         4.6         5         4.8         6.6         5.7         130         8.1           15.3         15.1         13.6         13.6         13.6         13.4         17.4         5         4.6         5         4.8         6.6         5.7         130         13.4         14.9         13.4         13.4         13.6         13.6         13.4         13.4         13.1         13.6         13.6         13.6         13.7         14.0         13.1         13.1         13.6         13.6         13.7         14.0         13.1         13.6	7.7 8.3 8.8	8.3 8.8	8.8		10	14.5	16.3	12.4	9.4								6.0	6.1	s	4.5	6.0	16.3	8.1	54
15.3         15.1         15.3         18.1         13.6         13.6         19.4         17.4         S         44.7         18.1         14.6         14.6         14.6         17.4         S         14.7         18.1         18.1         13.2         13.2         13.2         13.2         13.2         13.2         13.2         14.2         15.2         15.2         15.2         13.2         13.2         14.2         15.2         15.2         14.2         14.2         14.2         15.2         14.2         14.2         14.2         15.2         14.2         15.2         14.2         14.2         14.2         15.2         14.2<	6.9 7.9 8.2	7.9 8.2	8.2			11.4	10.7	9.5	7.9								4.6	s	4.8	9.9	5.7	13.0	8.1	54
31         27         27         37         31         32         42         59         67         56         7         101         109         151         151         151         66           27         22         20         20         21         24         18         42         5         40         157         164         116         104         116         120         16         16         18         14         117         22         42         5         10         156         16         16         16         18         14         117         22         42         5         10         16	13.2 12.3 14.1	12.3 14.1	14.1		0	15.3	15.1	15.7	18.1								s	14.7	13.1	16.1	14.6	19.4	14.3	74
27         2.2         2.0         2.1         2.4         1.4         1.7         2.2         4.2         5         2.10         1.4         1.7         2.2         4.2         5         2.10         1.5         1.6         1.0         1.0         2.1         1.6         1.7         1.2         2.1         1.1	8.3 4.8 4.1	4.8 4.1	4.1		_	3.1	2.7	2.7	3.7								7.2	9.0	10.1	10.9	15.1	15.1	9.9	24
108         113         9.5         9.5         114         11.1         8.9         5         9.9         10.5         9.6         7.4         4.5         6.1         12.9         9.9         9.9         10.5         9.6         7.4         4.5         6.1         12.9         9.3         9.1         10.5         9.9         9.1         10.5         9.8         3.0         1.4         1.1         1.2         1.4         11.0         8.0         1.4         1.2         1.5         1.9         1.6         1.2         1.6         1.8         3.0         2.1         1.6         1.8         3.0         2.1         1.6         1.2         1.6         1.6         1.4         1.7         1.4         1.5         1.4         1.7         1.4         1.5         1.4         1.7         1.4         1.5         1.4         1.7         1.4         1.7         1.4         1.5         1.4         1.7         1.4         1.7         1.4         1.7         1.4         1.7         1.4         1.7         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	2.6 2.6 2.3	2.6 2.3	2.3		m	2.7	2.2	2.0	2.1								15.7	16.4	14.0	11.6	10.4	21.0	6.2	24
19         23         20         16         18         19         16         2         19         16         2         31         16         28         31         16         28         31         16         28         31         16         28         31         16         28         31         16         28         31         16         31         41         40         41         42         42         31         31         41         40         41         42         31         41         41         40         48         55         60         111         73         52         41         110         41         40         48         55         60         111         73         74         74         48         48         55         60         111         73         74         48         73         74         48         73         74         48         73         74         74         4	5.7 7.1 8.7	7.1 8.7	8.7		7	10.8	11.9	9.5	9.5								10.5	9.6	7.4	4.5	6.1	12.9	9.3	54
15.2         16.8         17.3         20.8         Q         <	2.5 2.0 2.0	2.0 2.0	2.0		7	1.9	2.3	2.0	1.6								1.6	2.8	3.8	3.6	3.1	3.9	2.4	54
29         1.3         0.8         0.9         1.4         1.7         S         4.1         8.5         14.9         9.1         8.0         7.7         10.4         11.4         15.0         15.0         5.9           5.4         8.3         8.3         7.5         8.3         7.5         1.1         8.1         9.3         8.4         9.3         6.8         5.7         5.2         5.2         4.7         17.4         8.8           5.0         5.5         3.5         5.7         6.1         8.1         9.4         4.8         5.7         5.2         5.2         4.7         17.4         8.8           2.0         5.5         1.8         1.3         1.1         1.7         4.1         4.0         4.8         5.7         6.2         5.2         4.7         17.4         8.8           2.0         5.1         8.2         1.8         1.1         1.1         1.1         4.1         4.0         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8         4.8	17.5 14.1 12.2	14.1 12.2	12.2		1-1	15.2	16.8	17.3	20.8								16.7	21,4	18.9	13.2	8.6	21.4	15.0	54
7.0         5.7         8.3         7.4         5.9         5.0         6.1         8.1         9.3         8.4         9.3         6.8         5.7         5.2         4.7         17.4         8.8           5.4         6.7         5.8         6.7         5.8         5.9         5         5.0         1.1         1.7         1.7         4.0         4.8         5.5         6.0         1.1         5.2         5.2         4.7         1.1         8.8           2.9         5.2         3.1         1.7         1.7         1.7         4.0         4.8         5.5         6.0         1.1         7.2         5.2         4.7         1.1         5.3         1.1         5.1         1.1         4.0         4.8         5.5         6.0         1.1         4.7         4.7         4.7         4.0         4.0         4.0         4.2         5.2         6.0         1.1         4.7         4.7         4.0         4.0         4.2         5.2         6.1         1.1         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0         4.0	1.6 2.0 0.9	2.0 0.9	6.0		00	2.9	1.3	8.0	6.0								8.0	7.7	10.4	11.4	16.0	16.0	5.9	75
54         6.7         5.8         3.9         5         3.1         1.7         4.1         4.0         4.8         5.5         6.0         11.1         7.3         5.2         5.3         11.1         5.3           20.5         20.7         17.5         5         18.0         13.5         11.6         10.8         10.9         3.4         2.8         3.4         4.4         3.7         3.7         3.2         3.2         3.2         1.2<	12.6 12.1 12.1	12.1 12.1	12.1		0	7.0	2.7	8.3	7.4								6.8	5.7	5.2	5.2	4.7	17.4	8.8	54
20.5         20.7         17.5         \$         18.9         18.6         11.0         11.0         3.4         2.8         3.4         4.4         3.5         3.5         3.2         3.2         3.4         3.	5.0 4.0 5.3	4.0 5.3	5.3		0	5.4	6.7	5.8	3.9								6.0	111	7.3	5.2	5.3	11.1	5.3	54
29         28         5         18         21         26         18         12         13         12         12         19         23         16         22         21         23         49         25           8         5         108         9         73         75         70         82         83         148         185         153         153         165         173         117 <t< td=""><td>9.8 8.2 11.7</td><td>8.2 11.7</td><td>11.7</td><td></td><td>5</td><td>20.5</td><td>20.7</td><td>17.5</td><td>s</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2.8</td><td>3.4</td><td>4.4</td><td>3.4</td><td>3.4</td><td>20.7</td><td>11.0</td><td>24</td></t<>	9.8 8.2 11.7	8.2 11.7	11.7		5	20.5	20.7	17.5	s								2.8	3.4	4.4	3.4	3.4	20.7	11.0	24
8.8         5         10.8         9.0         7.3         7.5         7.0         8.2         8.3         14.8         18.5         15.3         13.9         16.5         17.8         17.3         18.5         9.4           5         17.9         17.3         18.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         14.7         17.7	4.2 3.5 3.0	3.5 3.0	3.0		4	2.9	7.8	s	1.8								2.3	16	2.2	2.1	2.3	4.9	2.5	75
\$         17.3         18.7         17.7         12.5         8.7         14.7         14.3         13.1         14.4         19.3         11.5         9.9         11.5         10.9         14.2         14.3         14.4         19.3         11.5         9.9         11.5         10.9         14.2         14.3         14.5           9.0         12.1         8.2         7.4         7.7         5.7         4.8         4.3         5.6         6.1         13.9         19.3         17.0         17.7         11.7         9.1         7.5         13.3         11.5           20.2         20.4         21.0         23.5         22.3         23.4         15.7         20.2         25.4         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.7         23.5         23.5         23.5         23.5         23.5         23.5         23.5	3.0 2.9 2.6	2.9 2.6	2.6		6	8.8	s	10.8	9.0								15.3	13.9	16.5	17.8	17.3	18.5	9.4	54
9.0 12.1 8.2 7.4 7.7 5.7 4.8 4.3 5.6 6.1 13.9 19.3 17.0 17.7 11.7 9.1 7.5 19.3 115 20.2 20.4 21.0 23.5 22.7 23.3 23.0 21.4 16.6 20.9 20.2 25.4 23.8 26.9 27.9 25.2 23.2 27.9 20.7 22.6 21.9 20.5 17.4 12.3 11.4 11.2 10.0 12.5 15.7 20.2 26.6 23.0 19.5 23.5 20.9 17.8 26.6 18.8 22.6 11.9 11.0 23.5 22.7 23.3 23.2 23.1 22.4 20.7 20.4 26.6 23.8 26.9 27.9 25.2 23.2 22.7 10.0 9.5 8.8 80 7.7 7.2 7.4 7.9 86 10.5 11.5 10.3 10.8 10.5 9.8 9.6	15.4 17.7 16.5	17.7 16.5	16.5		6.8	s	17.9	17.3	18.7								11.5	6.6	11.5	10.9	14.2	19.3	14.5	74
202 20.4 21.0 23.5 22.7 23.3 23.0 21.4 16.6 20.9 20.2 25.4 23.8 26.9 27.9 25.2 23.2 27.9 20.7 20.7 22.6 21.9 20.7 21.4 12.3 11.4 11.2 10.0 12.5 15.7 20.2 26.6 23.0 19.5 23.5 20.9 17.8 26.6 18.8 22.6 11.9 21.0 23.5 22.7 23.3 23.1 22.4 20.7 20.4 26.6 23.8 26.9 27.9 29.2 19.0 17.2 23.2 23.2 23.1 22.4 20.9 20.4 26.6 23.8 26.9 27.9 25.2 23.2 19.6 22.6 21.9 21.0 23.5 22.7 23.3 23.2 23.1 22.4 20.9 20.4 26.6 23.8 26.9 27.9 23.5 23.2 23.2 23.2 23.2 23.2 23.2 23.2	18.5 18.2 14.8	18.2 14.8	14.8		s	9.0	12.1	8.2	7.4								17.0	17.7	11.7	9.1	7.5	19.3	11.5	54
22.6         21.9         20.5         17.4         12.3         11.4         11.2         10.0         12.5         15.7         20.6         28.6         23.5         23.5         23.5         17.8         26.6         18.8           14.9         14.9         17.3         20.9         21.4         22.3         23.1         22.4         20.7         20.4         18.7         21.4         20.7         19.2         19.0         17.2         23.2         19.6           22.6         21.9         21.0         23.5         23.1         22.4         20.9         20.4         26.7         20.9         17.9         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         29.7         25.2         23.2         19.6         19.6         19.6         19.6         27.9         25.7         23.2         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6         19.6<	17.7 15.4 13.4 S 2	13.4		7	9.0	20.2	20.4	21.0	23.5								23.8	26.9	27.9	25.2	23.2	27.9	20.7	24
14.9         14.9         17.3         20.9         21.4         22.3         23.1         22.4         20.7         20.4         18.7         21.4         20.7         19.2         19.0         17.2         23.2         19.6           22.6         21.9         21.0         23.5         22.7         23.3         23.1         22.4         20.9         20.4         26.6         23.8         26.9         27.9         25.2         23.2           9.7         10.0         9.5         8.8         8.0         7.7         7.4         7.9         8.6         10.5         11.5         10.3         10.8         10.5         9.8         9.6	19.6 S	s			22.8	22.6	21.9	20.5	17.4								23.0	19.5	23.5	20.9	17.8	26.6	18.8	54
22.6 21.9 21.0 23.5 22.7 23.3 23.2 23.1 22.4 20.9 20.4 26.6 23.8 26.9 27.9 25.2 9.7 10.0 9.5 8.8 8.0 7.7 7.2 7.4 7.9 8.6 10.5 11.5 10.3 10.8 10.5 9.8	22.8 <b>S</b> 15.6 17.8	15.6			17.6	14.9	14.9	17.3	20.9								21.4	20.7	19.2	19.0	17.2	23.2	19.6	54
9.7 10.0 9.5 8.8 8.0 7.7 7.2 7.4 7.9 8.6 10.5 11.5 10.3 10.8 10.5 9.8	19.6 18.2	18.2		l	22.8	22.6	21.9	21.0	23.5								23.8	26.9	27.9	25.2	23.2			
	8.8 8.3 7.9 8.4	3.3 7.9 8.4	8.4	-	6	9.7	10.0	9.5	8.8								10.3	10.8	10.5	8.6	9.6			

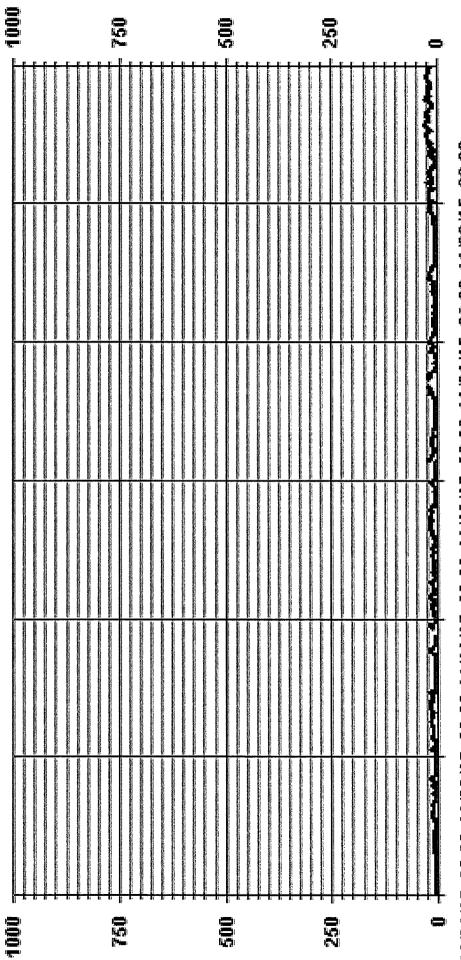




## ALBERTA ENVIRONMENT: TEHR 7.159 PPB

NUMBER OF NON-ZERO READINGS:	iŞ:		678						
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR <b>AVE</b> RAGE:		27.9	PPB PPB	PPB @ HOUR(S) PPB	21	ON DAY(5) ON DAY(S) VAR-VARIOUS	78	88	
IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME:	7	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	TIME		720	HRS %	
STANDARD DEVIATION:	6.06			MONTHLY AVERAGE:			9.1 PPB	PPB	

Of Hour Averages



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

NO2

- LCA35



## EIK Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

# NITROGEN DIOXIDE MAX instantaneous maximum in ppb

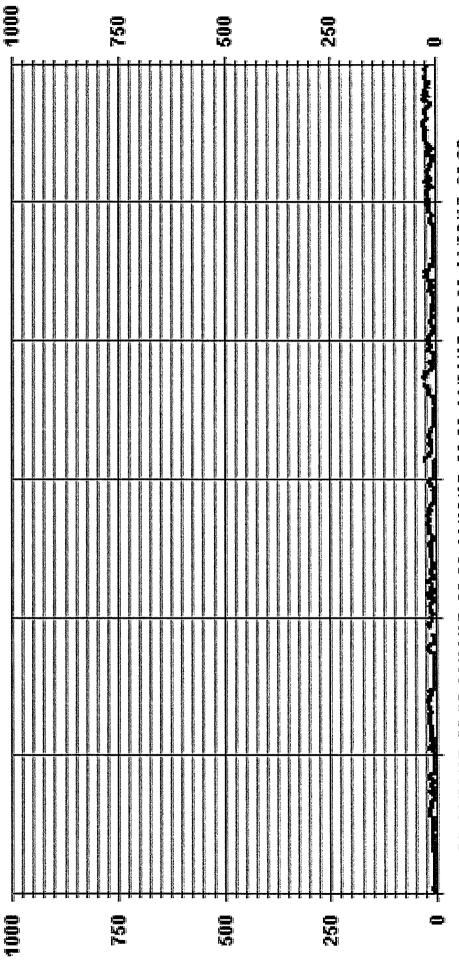
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	000	00.4	-	200	0000		10000		0000	000	1000	00	0000			0000000		STATE STATE	000000	00,000	200	000000	00000	2		
HOURSTAN	00.1	P.00	700.0	5.00 4.00 7.00		) (	20 CO	00.0	3			12:00		17.00	151 UN		10.7		00.00	20.00	27.00	00.27		DAILY	Z4-HOUR	Spud
DAY	200	2	3	3		3	3	000		il.				13 15	9	7			20,00	ZT.	77	000000000000000000000000000000000000000	3	2000	į	- COON
H	6.4	5.4	5.1	4. 6.	5.3	5.6	0.0	5,6	2. 0.	4.5	6.4								5.4	8.4	4 0	S	3.1	6.4	4 ق	24
2	3.2	5.9	3.4	3.4	3.9	3.2	3.1	3.2	3.2	3.3	3.0								7.2	9.9	s	8.5	8.6	8.6	4.9	74
m	7.5	6.9	6.5	9.9	7.1	8.1	7.9	8.3	8.4	6.2	6.8							8.3	8.1	s	15.8	15.5	16.1	16.1	8.1	74
4	15.7	16.4	16.5	15.1	10.1	9.6	10.7	11.3	11.0	12.7	8.6								s	6.5	6.0	7.5	11.5	16.5	10.5	74
S	14.3	12.3	8.4	9.6	15.2	14.7	16.7	17.0	15.4	8.4	2.8								3.2	3.1	3.2	3.0	3.6	17.0	7.3	24
ø	3.7	3.8	4.5	5.1	5.5	5.2	9.6	16.4	15.6	11.9	6.9	5.7	5.5 5.			4 14.2	2 S	-	13.1	10.9	8.6	10.3	10.9	16.4	9.0	24
7	9.4	9.5	14.0	15.7	13.5	15.2	14.7	15.5	16.0	15.3								1 14.7	17.4	16.8	17.1	` '	19.5	19.5	14.8	24
∞	20.4	14.9	14.9	14.8	14.0	13.5	13.7	12.3	14.9	18.6								2.8	2.9	2.5	3.0		3.8	20.4	9.1	24
o	3.2	3.2	3.0	3.6	3.5	3.2	2.9	5.9	2.9	3.3										18.9	17.8	•	18.5	18.9	6.8	24
10	13.2	13.8	4.9	4.0	3.7	4.4	4.4	5.3	6.1	5.8								9 20.5	20.1	15.7	10.2		9.1	20.5	6.6	24
7	9.4	10.0	8.6	9.0	7.9	10.7	10.1	14.9	s	s									16.7	19.7	19.6		7.4	19.7	11.9	24
23	7.4	10.5	11.2	6.6	9.1	8.6	11.4	19.2	20.5	17.6								2 11.4	7.4	7.1	s		7.0	20.5	10.3	74
ግ	8.4	7.6	7.9	8.1	8.9	8.9	11.1	13.5	12.6	12.1										s	6.8		7.6	14.9	10.2	24
47	10.5	15.2	13.4	15.3	14.5	16.8	16.6	16.6	16.1	18.8										15.9	14.0		16.4	22.2	16.5	24
45	13.9	13.1	11.9	11.8	6.0	5.2	4.4	4.0	3.4	4.0										11.4	13.2		16.5	16.5	8.4	24
16	15.3	8,3	5.0	3.5	3.4	3.1	3.1	3.7	3.0	2.9										19.0	16.7		11.7	27.7	8.1	54
17	11.6	9.5	8,3	7.9	8.4	13.9	13.1	13.7	13.9	10.9		13.6 1	15.4 14	14.8 14.4	4 14.1	1 S	12.6	5 10.6		10.5	9.5	5.3	7.3	15.4	11.4	24
18	5.2	3.8	3.8	3.3	2.9	2.7	2.5	2.8	3.1	3.0										4.0	4.8		3.9	5.2	3.4	74
13	9.0	10.4	17.5	19.1	15.9	14.0	15.7	16.6	19.1	18.7								9 23.5		26.6	25.1		14.9	27.9	18.8	24
20	12.1	9.1	6.1	5.6	6.7	4.6	14.1	9.1	5.6	4.7										9.4	12.5		17.6	18.6	8.6	24
21.	15.2	20.0	18.8	16.5	14.3	13.7	12.1	8.0	7.1	10.2										8.3	6.7		7.7	20.0	10.7	24
22	8.3	8.4	8.3	7.6	2.0	7.6	7.5	8.3	9.6	9.3										19.2	8.8		7.1	19.2	7.7	54
23	6.5	11.9	15.0	12.6	5.7	16.3	19.1	23.1	22.9	19.9										4.6	5.5	4.4	4.3	23.1	13.3	54
24	5.7	5.5	4.5	8.4	4.7	3.6	3.1	3.7	3.8	s								3.6	3.5	2.5	3.9		3.4	5.7	3.5	54
25-	2.4	2.4	4.0	4.2	4.0	3.7	8.4	11.6	s	11.9			8.2 7.			3 18.9	3 20.2	2 18.0		14.6	17.6	18.8	18.8	20.2	10.9	74
79	15.1	18.5	14.4	15.9	18.3	19.0	18.1	s	18.8	18.6				٠.			•	2 25.7		11.2	13.8	٠.	16.2	25.7	16.8	74
Z	17.1	17.4	16.9	21.5	21.1	16.8	s	11.5	14.7	11.5	8.5	9.5	7.8 5.			5 7.3		3 22.0	19.6	21.3	16.4	•	9.7	22.0	14.1	24
28	14.9	15.6	20.2	16.8	19.5	s	24.1	22.5	21.8	24.5	25.3		24.4 24	1.7 23.5	.5 20.2	2 23.2	2 24.3	3 27.7	26.6	29.1	29.0	27.5	24.9	29.1	23.2	24
ଅ	22.9	19.7	21.3		s	25.1	24.0	24.3	23.1	22.3	20.1		12.3 12	`		6 19.4	•	4 28.8	26.0	21.2	25.7	22.2	20.7	28.8	20.8	54
8	22.0	22.8	23.7	s	17.8	19.8	19.2	17.7	16.3	20.1	21.7	22.6 2	23.4 24	1.0 23.8	.8 23.6	6 21.9	•			22.5	20.7			24.4	21.3	24
HOURLY MAX	22.9	22.8	23.7	23.4	21.1	25.1	24.1	24.3	23.1	24.5	25.8	23.9 2	24.4 24	24.7 23.8	.8 23.6	6 23.2	2 27.9	9 28.8	26.6	29.1	29.0	27.5	24.9			
HOURLY AVG	11.0	11.0	10.8	10.3	2.6	10.3	11.3	11.8	11.9	11.7							•			13.0	12.8	•				

AG CODES	Q - QUALITYASSURANCE- R RECOVERN X - MACHINE MALFUNCTION O - OPERATOR ERROR	K COLLECTION ERROR
STATUS FLA	C CRIBRATION  Y MAINTENANCE  S - DAILY ZERO/SERW.CHECK  P - POWER FAILURE	G -OUT FOR REPAIR

NUMBER OF NON-ZERO READINGS:		677						
MAXIMUM INSTANTANEOUS VALUE:		29.1	PPB	@ HOUR(S)	20	ON DAY(S)		78
					VAR-V	VAR-VARIOUS		
IZS CALIBRATION TIME: 30	HRS		OPERATI	OPERATIONAL TIME:			720	HRS
MONTHLY CAUBRATION TIME: 7	HRS							
STANDARD DEVIATION: 6.61								

of Hour Averages



44/04/M5 00:00 14/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

- LICA35 NO2MAX PPB

LICA-EIK NO2 / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 35 Site Name : LICA-ELK Parameter : NO2\_ Units : PPB\_

Wind Parameter : WDR Instrument Height : 10 Meters

3.41 100.00 3.41 8 00. 00. 8.46 8.46 ž 00. % 00. 12.63 12.63 80. 8. 00. 13.67 4.60 13.96 13.67 % 00. % Œ 13.96 WSW 00. 0. 0. 4.60 00. S 0. 00. 4.30 4.30 SSW 00. 00. 8 3.86 3.86 00. % 90. Ø 1.78 1.78 00, SSE 00. 00. Direction 4.45 4.45 SE 00. 00. 00. 8.32 00. 8.32 ΞSΞ 8. 00. 7.28 7.28 0. % 00. 5.34 5.34 8. ENE 8 00. 1.93 90. 1.93 Ħ 8 00. 4.01 00. 4.01 NA EN 00. 00. 1.93 00. 1.93 8. 00. z Totals Limit 50.0 110.0 × 210.0 < 210.0 ٧ ٧

8 00.

%

Calm : .00 %

Total # Operational Hours : 673

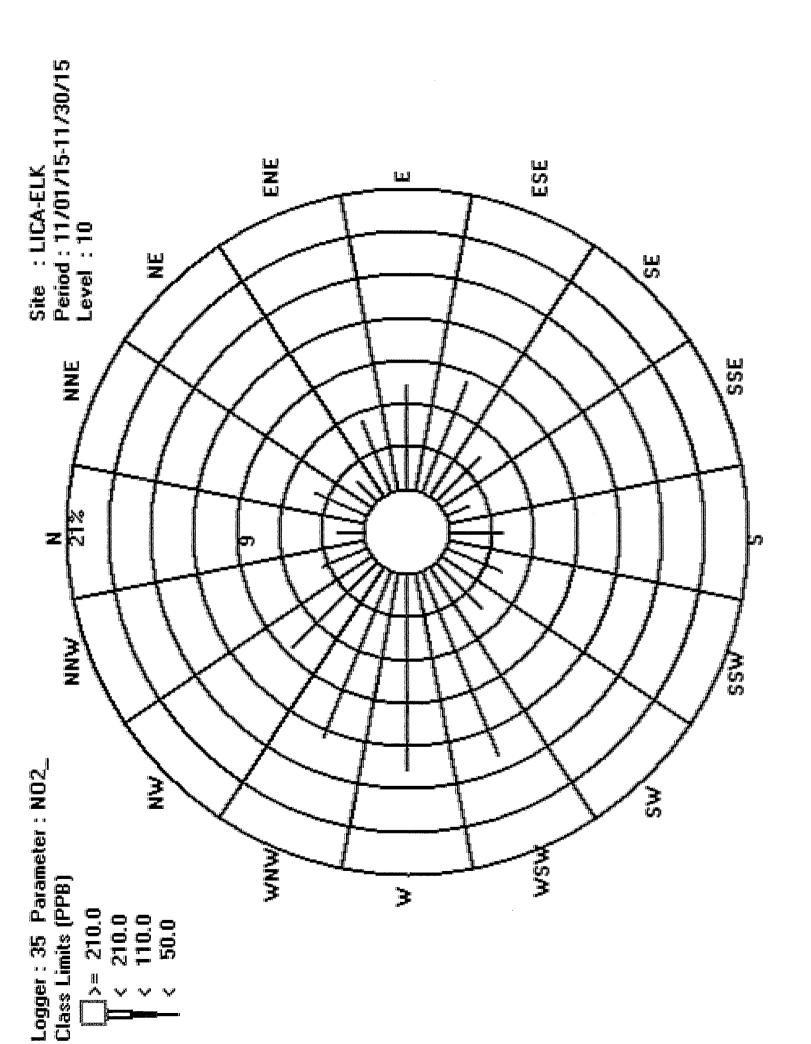
Distribution By Samples

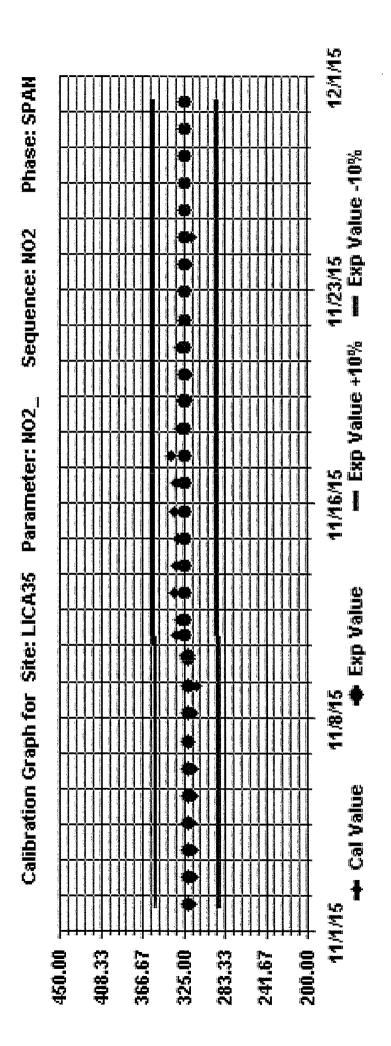
Freq 673 NAM 23 23 Ę 57 57 85 92 94 WSW 94 ß 31 SST 59 29 56 Ø 26 SSE 17 72 Direction SE 30 30 ESE 26 26 49 ы 36 ENE Ä 13 27 REE 27 13 13 Totals 50.0 Limit < 110.0 < 210.0 × 210.0

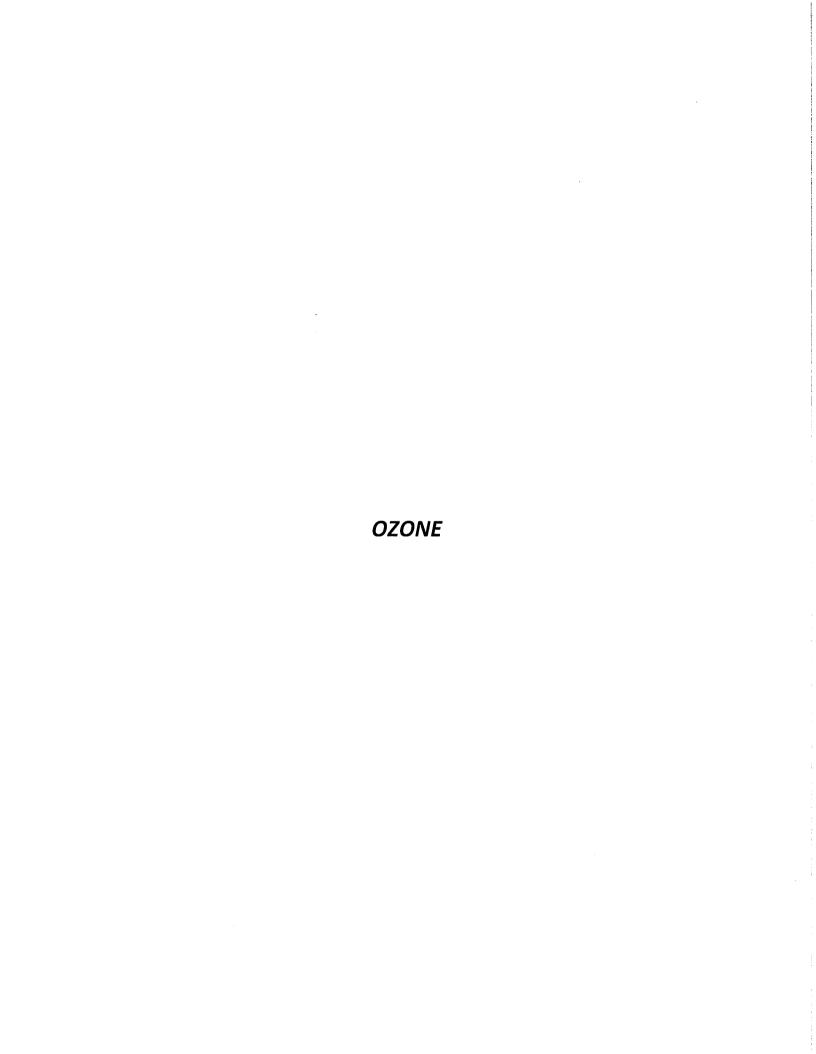
v

Calm : .00 %

Total # Operational Hours : 673





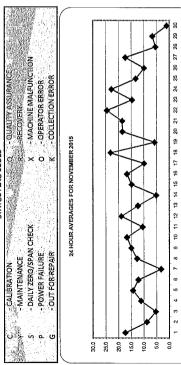




# OZONE (03) hourly averages in ppb

	RDGS.	24	24	54	54	24	54	54	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	54	24	24	54	54	24		
	24-HOUR AVG.	17.3	8,8	5.3	11.1	14.3	12.2	3.2	12.7	15.0	16.7	10.5	18.9	12.3	5.1	14.9	16.7	6.6	23.1	5.7	18.4	18.5	24.5	14.7	22.7	13.2	6.6	17.3	5.4	6.6	1.0		
	DAILY	21	16	ដ	56	22	20	13	27	23	54	13	30	23	16	54	78	21	78	51	78	56	32	82	56	52	20	53	18	13	Н		
	23:00	51	0	4	σι	20	5	0	18	ø	11	51	14	23	ч	Т	10	21	19	14	ω	56	24	53	ន	9	17	77	⊣	Н	н	26	11.8
	22:00	s	-	7	13	21	S	0	20	7	17	s	19	7	ч	7	12	21	13	σ	თ	52	23	52	22	Ŋ	17	77	⊣	7	ч	25	12.1
	24.00	17	S	Ŋ	17	70	Ŋ	7	73	4	13	9	s	23	ч	4	œ	11	13	9	17	23	21	54	77	Ŋ	17	19	Н	4	н	22	12.0
	20:00	16	4	s	17	20	4	1	56	Ŋ	œ	×	77	s	7	œ	7	9	21	7	12	23	18	56	21	œ	18	13	Н	7	Н	26	11.6
	19:00	16	m	17	s	19	4	0	25	თ	U	Ħ	22	23	s	17	17	œ	23	7	17	22	24	78	77	7	18	12	4	Q	н	78	13.7
	19.00	18	m	11	17	s	7	1	77	14	U	14	77	75	Н	s	7	œ	22	σι	17	z	52	77	22	7	10	77	,—1	m	н	27	13.0
	17.00	19	m	12	13	21	s	4	24	17	U	13	13	54	н	15	s	5	54	00	9	83	53	16	54	15	51	16	5	6	1	22	13.9
,	17:00	19	4	13	18	22	11	s	22	20	ပ	17	83	8	Н	16	24	s	27	ď	œ	22	27	<del>1</del>	24	7	17	24	9	13	1	27	16.2
<u> </u>	15:00	61	73	11	23	20	17	Ħ	s	23	18	Ð	23	5	φ	18	27	10	s	ď	16	23	78	14	52	17	53	26	13	16	1	28	16.9
5	15:00	8	ιΛ	#	26	77	70	σ	18	s	17	18	30	ω	თ	8	78	თ	78	s	8	54	32	Ħ	26	13	16	53	19	13	1	32	17.8
	13:00	07	×	11	52	22	20	σ	16	33	13	13	30	∞	7	ឧ	55	7	76	σι	s	74	33	∞	26	10	20	78	9	18	1	32	16.9
	12:00	21	9	œ	24	22	17	9	8	13	17	Ŋ	26	∞	60	23	70	'n	53	4	17	s	32	7	53	10	16	23	m	16	1	32	14.9
(65)	11.00	20	11	7	21	77	18	m	74	77	13	ø	77	00	9	23	24	9	54	7	16	ឧ	s	7	54	19	ιΩ	20	7	13	1	24	13.8
	10.00																														1		
	9:00	13	12	2	2	17	11	7	4	17	17	4	13	'n	7	23	22	6	77	H	25	13	23	4	s	12	7	21	ч	4	1	22	10.8
	00.8	16	12	₽	0	5	S	H	S	18	8	m	9	4	7	23	77	9	77	Н	56	8	8	₽	22	s	Н	16	Н	m	1	26	6.6
	7.00																														1		
	6.9	1																													1		
	3:00: 4:00: 5:00: 4:00 5:00 6:00	1																													1	ŀ	
	4:00		Ħ	0	Ŋ	Н	51	7	0	<del>1</del>	24	10	17	7	11	8	16	Ħ	22	Ŋ	26	ដ	23	16	21	23	Н	7			1		
		1	14	Н	9	7		4																			2	5			S		
	2.00		14	Н	0	60																									1		
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	न 1:00	77.3	16	-	7	'n	2	ı.	0	18	∞	=	13	1	16	П	m	Ħ	25	ħ	<del>1</del> 2	7	23	22	ຄ	24	∞	6	18	T	1		
MST	HOUR START HOUR END	DAY	7	m	7	M	9	7	œ	O	19	디	17	Ħ	14.	15	16	17	138	19	8	77	22	23	24	52	56	22	- 82	53	30	HOURLY MAX	HOURLY AVG

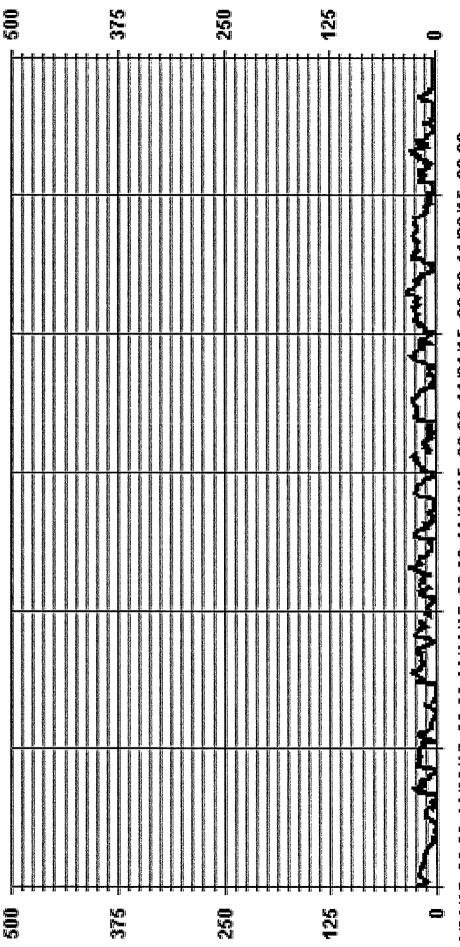
# OBJECTIVE LIMIT: STATUS FLAG CODES



# 

			Σ	MONTHLY SUMMARY	<b>.</b>			
NUMBER OF 1-HR EXCEEDENCES			o'					
NUMBER OF NON-ZERO READINGS:	<b>.</b>		663					
MAXIMUM 1-HR AVERAGE:		32	PPB	PPB @ HOUR(S)	VAR	ON DAY(S)	22	
MAXIMUM 24-HR AVERAGE:		24.5	PPB			ON DAY(S) VAR-VARIOUS	7	21
IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME:	30	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	ME: I UPTIME:		720 100.0	HRS
STANDARD DEVIATION:	8.47			MONTHLY AVERAGE:	AGE:		13	PPB

of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

**S** 

- LICA35



### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION EIK Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

OZONE MAX instantaneous maximum in ppb

MST	CONTRACTOR OF THE
	3

j	KDGS.	24	24	24	54	24	24	24	24	74	24	24	54	24	77	54	24	24	24	24	24	24	24	24	24	24	54	24	24	24	24		
24-HOUR	Ave.	19.9	10.9	7.2	14.7	16.4	14.9	5.4	16.8	18.3	20.6	13.8	22.4	15.0	7.3	18.0	20.2	12.0	24.3	7.9	21.1	21.1	27.1	17.0	23.7	15.1	12.0	20.1	7.6	8.2	1.2		
DAILY	MAX.	24	18	16	28	54	23	14	31	53	78	24	33	30	17	82	33	52	53	13	83	53	33	52	27	22	77	32	73	77	7		
23:00	00.0	18	Н	10	13	77	9	Н	22	Ħ	13	77	13	54	ч	Н	17	52	50	17	7	83	78	56	24	თ	13	23	1	н	ч	29	13.9
22:00	Z2:00:	s	7	σι	20	77	7	1	54	S	12	s	77	54	Н	9	17	23	20	11	13	28	78	56	23	9	18	23	7	4	7	28	14.3
21:00	~ZZ:00	13	s	თ	20	21	9	4	52	œ	51	13	S	អ	⊣	11	17	77	17	œ	35	82	77	23	2	7	18	77	7	Ŋ	Н	78	14.5
20:00	מה מכ	18	2	s	77	77	5	m	30	11	11	10	23	s	П	12	11	7	23	Ŋ	18	56	52	27	77	σι	19	15	7	σι	τ.	30	13.9
19:00	20.00	18	4	15	s	21	œ	1	30	13	v	16	23	8	s	16	55	σ	23	8	ឡ	22	53	83	73	O	70	17	Ŋ	∞	1	30	16.0
18:00	Tann	17	S	15	21	s	10	4	31	8	ပ	13	អ	78	+	s	17	10	23	14	13	54	22	ମ	23	œ	17	14	4	4	7	31	15.9
17.00	To:On	22	4	16	18	23	s	თ	31	20	ပ	54	걺	30	7	19	s	7	53	ø	17	56	78	23	54	7	18	52	9	#	н	31	17.5
16:00	- LZ:DO	22	φ	16	23	24	16	s	56	23	ပ	77	82	23	S	18	83	s	27	ø	13	23	30	16	22	13	19	22	σι	18	Н	30	19.2
15:00	יים מוני	77	7	17	56	77	70	14	s	56	ပ	77	56	56	17	21	30	#	s	ď	ឡ	72	33	15	56	51	18	30	16	19	Н	33	19.8
14.00	DOI:CT	22	თ	13	28	23	22	13	22	s	20	20	32	σι	17	23	31	11	53	s	77	27	34	14	27	25	13	32	55	21	7	34	20.2
13:00	14.00	22	13	13	28	54	23	12	13	53	s	ध	33	12	თ	54	33	თ	78	13	s	23	%	13	27	25	21	30	11	20	2	34	19.9
12:00	TS:OO	24	17	12	28	23	21	თ	88	77	51	თ	83	#	#	22	56	7	22	7	77	s	34	Ŋ	56	9	20	28	4	18	7	34	17.8
11:00	TZIOO	23	13	თ	52	23	20	Ŋ	53	54	19	10	27	11	11	52	8	00	22	4	23	23	s	4	23	12	12	56	m	16	2	30	16.8
10:00	OCTO:	22	14	4	22	24	70	4	16	20	13	φ	23	유	S	54	54	თ	54	7	<b>5</b> 6	72	31	s	56	13	m	23	7	14	H	31	15.6
00.6	OO:OI	21	15	m	11	22	11	4	12	19	23	00	19	7	7	23	23	10	23	m	56	20	54	Ŋ	s	13	Н	23	7	φ	Н	26	13.2
8:00	200.6	20	15	7	7	13	თ	m	s	20	54	7	25	Ŋ	m	56	23	თ	22	1	78	21	2	m	23	s	Н	18	7	4	H	28	12.2
7.00	8:00	18	14	0	7	m	00	1	s	20	23	17	16	Ŋ	4	27	20	σ	23	Н	56	20	23	ø	22	18	s	20	₽	7	1	27	12.3
6:00	00:7%	15	12	0	7	9	12	7	7	13	56	თ	17	φ	∞	28	20	ø	77	7	27	18	23	11	23	23	1	s	7	7	1	28	12.4
5:00	000	13	16	0	Ŋ	m	19	m	0	9	27	9	17	7	თ	53	61	14	23	7	ଯ	14	27	14	22	54	7	13	s	m	7	53	13.2
4:00	0000	15	12	0	9	m	16	4	m	18	27	Ħ	70	თ	14	23	18	14	23	9	27	16	23	19	22	54	7	14	13	s	7	27	14.1
3.00		19	16	7	თ	ø	18	9	0	18	78	17	75	9	9	ð	18	16	22	m	27	16	27	18	77	23	4	7	14	1	s	28	14.3
2.00 3.00 4.00 5.00	00:5	22	17	7	m	11	51	7	H	18	27	17	18	9	11	7	16	13	27	17	56	17	21	17	23	23	#	#	17	₽	H	27	13.9
1:00	2.00	2	18	1	0	17	21	7	0	5	54	10	13	13	15	9	13	13	28	13	52	7	52	77	22	52	თ	12	18	Н	Н	28	14.0
0.00	T	77	18	1	∞	7	21	7	7	8	9	17	23	13	77	7	얹	12	28	13	18	00	56	24	54	22	55	Ħ	75	Н	Ч	28	14.2
HOURSTART 0.00	DAY	H	7	<u>~</u>	4	5	φ		<b>∞</b>	6	10	Į.	12	T7	41	15	16	17	18	19	20	21	22	- 73	.24	50	26	27	28	8	30	HOURLY MAX	HOURLY AVG

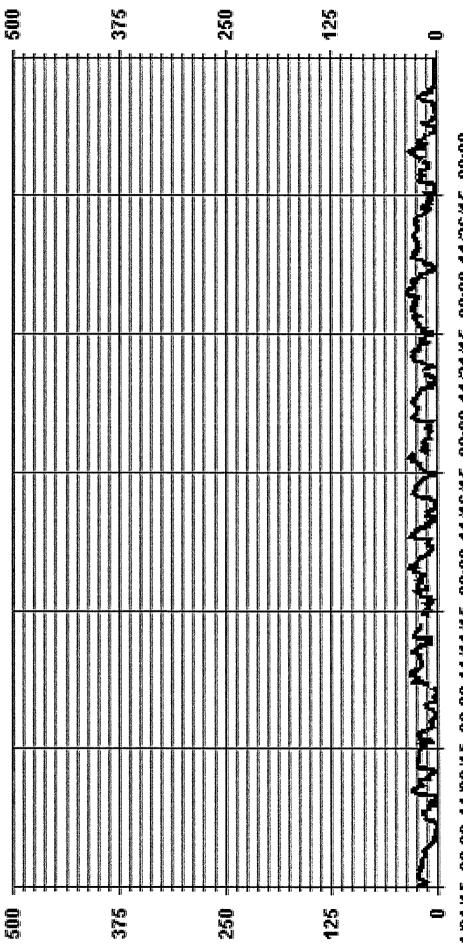
### STATUS FLAG CODES

CHOOL DO LEGIVIE	O - QUALITY ASSURANCE  R. RECOXEN  - MACHINE MALEUNCTOIN  O - OPERATION ERROR  X - COLLECTION BROR
No icoluic	CCLIBRATION. Y. MAINTENENDO. SSALIPZERO/SPANCHECK. PPOWERFALIURE GOUT FOR REPAIR

### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	VGS:		672						
MAXIMUM INSTANTANEOUS VALUE:	ALUE:		8	PPB	@ HOUR(S)	VAR	ON DAY(S)		23
						VAR-V	VAR-VARIOUS		
IZS CALIBRATION TIME:	32	HRS.		OPERATIC	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	5	HRS							
STANDARD DEVIATION:	8.90								

of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

O3MAX

LICA-ELK
03\_ / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 35 Site Name : LICA-ELK Parameter : 03 Units : PPE

Wind Parameter : WDR Instrument Height : 10 Meters

	Freq	100.00	00.	00.	00.	
	NNW	3.38 10	00.	00.	00.	3.38
	WM	8.54	00.	00.	00.	8.54
	WNW	12.66	00.	00.	00.	12.66
	¥	13.54 12.66	00.	00.	00.	13.54
	WSW	13.84	00.	00.	00.	13.84
	SW	4.71	00.	00.	00.	4.71
	SSW	4.27	00.	00.	00.	4.27
	Ø	4.41	00.	00.	00.	4.41
	SSE	2.06	00.	.00	00.	2.06
Direction	SE	4.12	00.	00.	00.	4.12
Di	ESE	8.10	00.	00.	00.	8.10
	ជ	7.21	00.	00.	00.	7.21
	ENE	5.30	00.	00.	00.	5.30
	吳	1.91	00.	00.	00-	1.91
	NINE	3.97	00.	00.	00.	3.97
	z	1.91	00.	00.	00.	1.91
	Limit	20	110	210	210	Totals
		٧	٧	٧	X.	

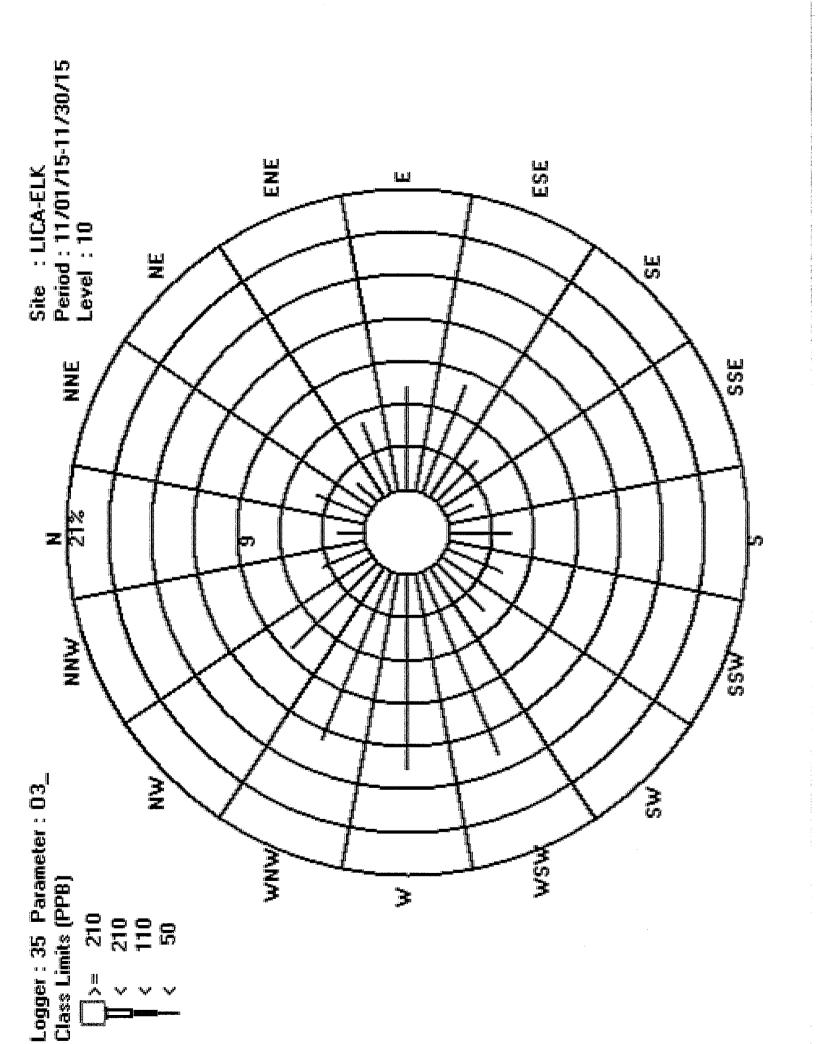
Total # Operational Hours: 679 Calm : .00 %

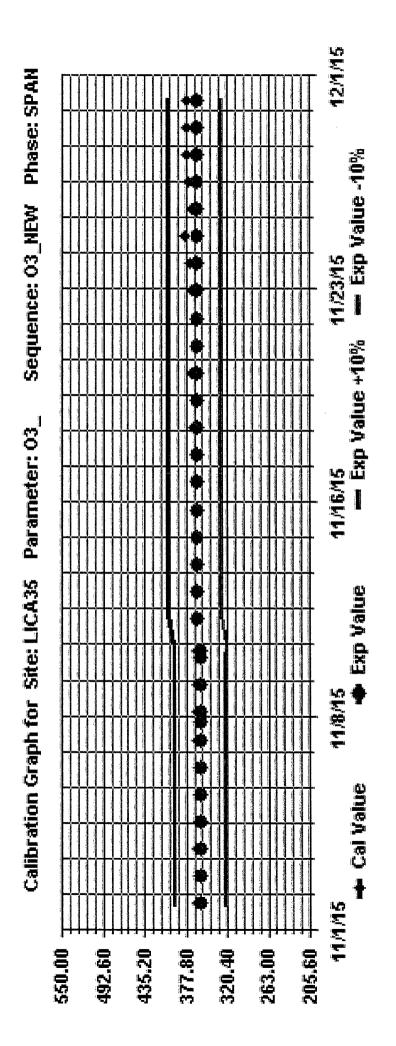
Distribution By Samples

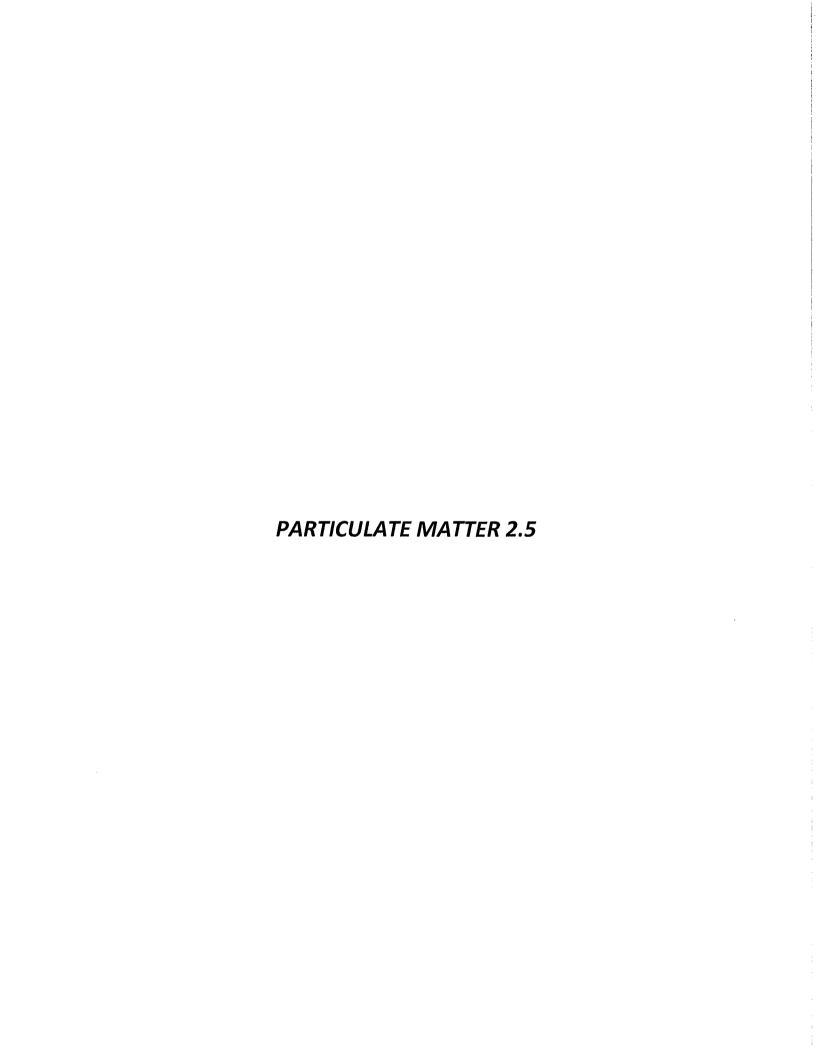
NNW Freq 619 23 ĕ 28 WINW 86 95 94 WSW SW 32 SSW 29 29 30 Ø 39 SSE 14 Direction SE 28 ESE 55 49 ENE 36 36 걸 13 NNE 27 27 13 13 Totals 210 210 20 110 Limit X

Calm : .00 %

Total # Operational Hours : 679







JOB # 2833-2015-11-35- C



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

MST

RDGS.	24	23	24	24	24	24	24	22	24	24	24	24	24	24	24	24	23	24	24	24	24	24	23	24	24	24	24	24	24	24		
24-HOUR AVG.	m	1	7	10	œ	12	9	S	7	4	Ŋ	m	4	4	4	m	m	m	7	7	Ŋ	m	m	7	9	13	Ф	9	17	15		
DAILY MAX.	∞	9	14	18	15	24	11	11	∞	∞	10	10	œ	6	თ	თ	10	∞	12	12	Ħ	9	9	9	52	70	19	22	19	22		
23:00	∞	9	9	10	10	7	7	9	0	4	4	9	m	7	0	1	4	1	9	S	7	9	×	7.	Ħ	12	9	14	11	22	22	9.9
22:00		1	4	13	∞	∞	m	0	н	9	0	н	4	S	9	7	н	S	11	m	7	н	П	н	13	18	2	12	13	18	18	2.6
21:00 22:00	2	Н	9	4	9	13	10	н	0	Ŋ	7	7	1	4	4	0	4	4	15	m	11	m	4	0	14	20	œ	14	9	19	20	6.2
20:00	н	н	0	9	7	10	9	0	7	7	9	0	0	н	0	0	Ŋ	7	11	Ŋ	4	0	0	7	00	∞	00	11	თ	13	13	4.6
19-00	9	m	9	m	ø	12	9	0	4	4	7	0	0	0	9	0	Ŋ	н	11	Ŋ	7	4	7	m	17	ø	9	7	7	17	17	5.6
18:00 19:00	2	4	m	œ	6	24	Ŋ	н	0	m	9	7	7	Ŋ	0	0	Ŋ	н	7	m	ო	7	m	н	19	11	S	10	7	17	24	5.6
17:00	н	0	12	7	Ŋ	12	∞	4	9	9	4	Ŋ	0	4	₽	0	4	7	00	17	Ŋ	4	0	m	22	15	7	9	7	19	25	6.3
16:00	e	4	9	11	4	13	m	7	ო	4	0	0	7	ω	7	m	00	0	4	S	Ŋ	7	m	0	14	13	4	∞	σ	21	21	5.7
15:00	ю	Н	σ	12	ø	14	m	×	Ŋ	7	1	0	7	Ŋ	ო	7	0	0	П	4	0	7	П	7	#	14	9	13	13	10	12	5.4
14.00	9	×	Ŋ	16	9	9	2	4	0	7	10	0	5	7	2	4	7	0	7	9	m	4	4	4	17	10	œ	11	6	14	17	6.0
13:00	4	0	თ	9	9	0	D	4	m	9	σ	0	9	σ	Ŋ	Ŋ	7	9	0	7	m	4	4	П	日	∞	<b>∞</b>	77	15	13	22	6.5
12.00	0	0	2	11	m	U	5	11	5	9	O)	0	9	Ŋ	4	4	m	2	ď	12	2	н	0	н	10	∞	7	19	12	18	19	6.0
0 11:00					9																										14	
0. 10.0																														14		
9.00																														20		
0.8.0	0	4	14	14	∞	18	7	10	1	Ţ	7	7	9	2	0	m	0	4	00	. 12	S	4	S	4	00	14	6	15	19	15	19	7.5
7:0	2	2	71	3 13	1 11	4 13	4	00	П	m			2	0	4	4	00	0	σ.	11	7	4	9	П	00	2 15	#	4	2 15	2 9	1 15	5
00 6-0																											13 9			8 12		
4:00 5:00 5:00 6:00					9 10																										18 18	_
00 4:1					13																										18 1	
00 3					10 1																										17 1	
00 2																														10		
00 1					12 1																										17	_
ART 0												:: :::0											114								L.	
HOUR ST HOUR EI	DAY	2	m	4	5	9	7	œ	O	10	H	12	13	4	IJ	19	17	8	ብ	70	73	2	23	24	25	78	27	28	29	8	HOURLY MAX	HOURLY AVG

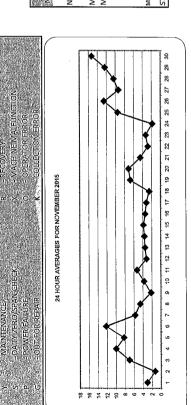
STATUS FLAG CODES

OBJECTIVE LIMIT:

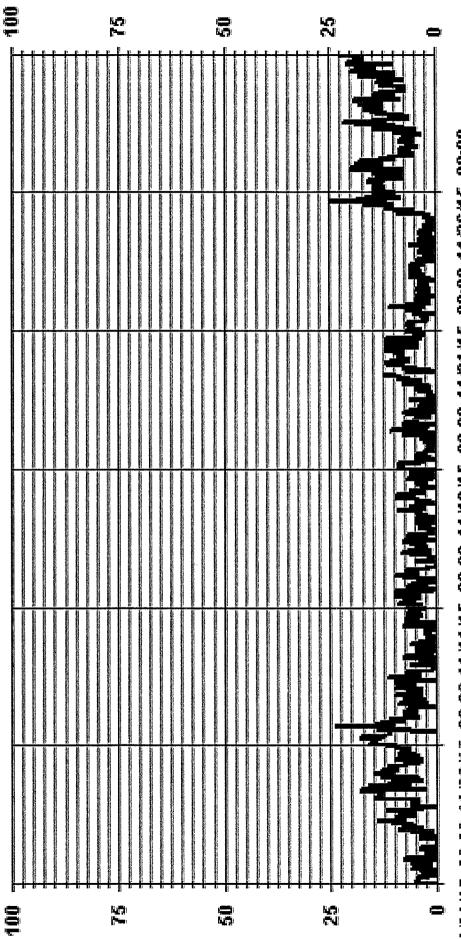
ALBERTA ENVIRONMENT: 24 HR 303

MONTHLY SUMMAR

NUMBER OF 24-HR EXCEEDENCES			0					
NUMBER OF NON-ZERO READINGS:			622					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		25 15.3	25 ug/m3 @ HOUR(S) 15.3 ug/m3	ıUR(S)	17	ON DAY(S) ON DAY(S) VAR-VARIOUS	50	30
MONTHLY CALIBRATION TIME:	7	HRS	OPER. AMD	OPERATIONAL TIME: AMD OPERATION UPTIME:	IIME:		715 99.3	715 HRS 99.3 %
STANDARD DEVIATION:	4.94		MON	MONTHLY AVERAGE:			6.1	6.1 ug/m3



Of Hour Averages



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

Z

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

November 2015

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

Direction

Freq	100.00	00.	00.	.00	00.	00.	
NNW	3.68	00.	00.	00.	00.	00.	3,68
WM	8.49	00.	00.	00.	00.	00.	8.49
WNW	12.60	00.	00.	00.	00.	00.	12.60
Ħ	13.45	00.	%	00.	00.	00.	13.45
WSW	14.02	00.	00.	00.	00.	00.	14.02
SW	4.39	00.	00.	00.	00.	00.	4.39
SSW	4.24	00.	00.	00.	00.	00.	4.24
W	4.53	00.	00.	00.	00.	00.	4.53
SSE	1.98	00.	00.	00.	00.	00.	1.98
SE	4.81	00.	00.	00.	00.	00.	4.81
ESE	7.93	00.	00.	00.	00.	00.	7.93
ы	7.08	00.	00.	00	00.	00.	7.08
ENE	5.24	00.	00.	00.	00.	00.	5.24
Ä	1.98	.00	00.	00.	00.	00.	1.98
NNE	3.68	00.	00.	00.	00.	00.	3.68
z	1.84	00.	00.	00.	00.	00.	1.84
Limit	30	09	80	120	240	240	Totals
	٧	٧	٧	٧	٧	X	

Calm : .00 %

Total # Operational Hours : 706

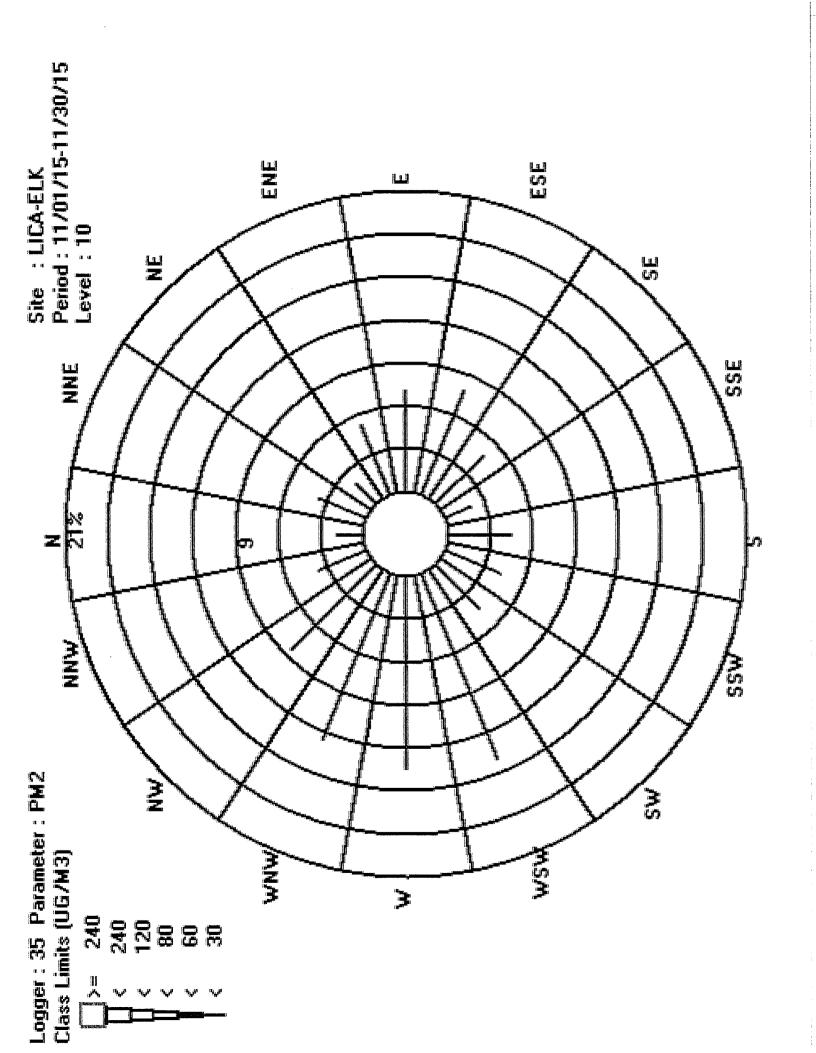
Distribution By Samples

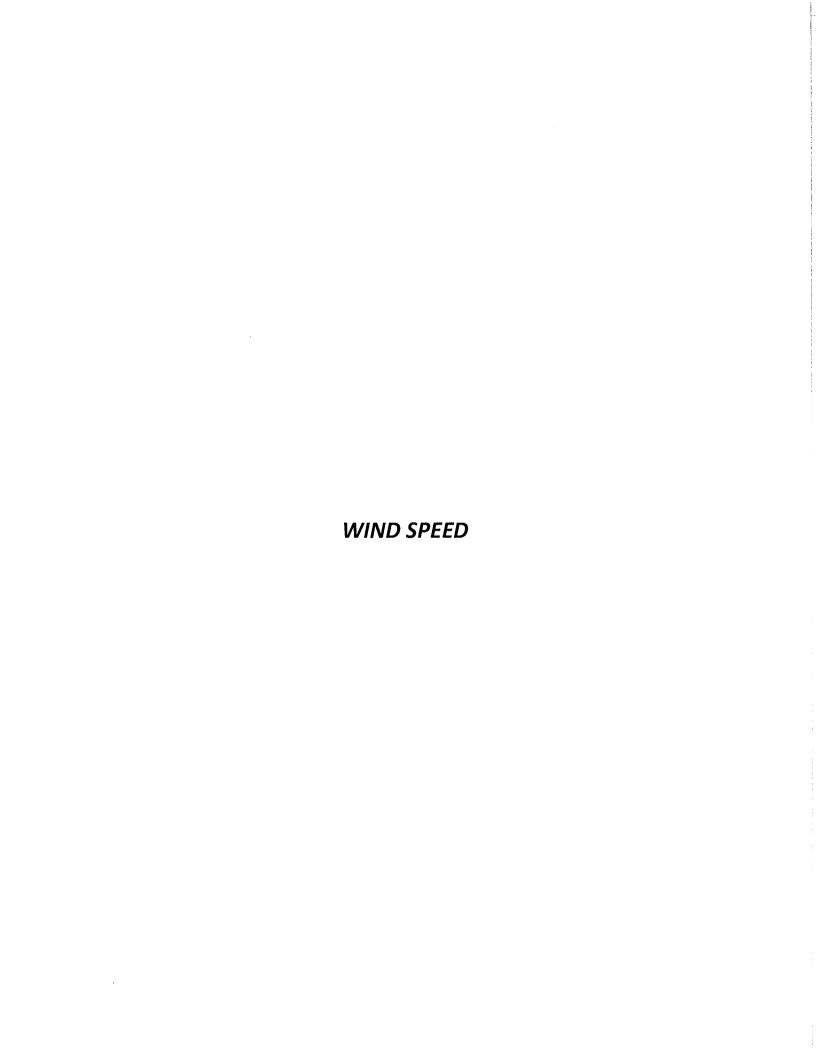
Direction

	Freq	706						
	NINW	26						56
	MN	9						09
	WNW	68						68
	×	95						95
	WSW	66						66
	SW	31						31
	SSW	30						30
	w	32						32
	SSE	14						14
	SE	34						34
1	ESE	56						26
	ſщ	20						50
	ENE	37						37
	Ä	14						14
	NE	56						56
	z	13						13
	Limit	30	99	80	120	240	240	Totals
	Н	٧	٧	٧	<b>v</b>	٧	X	н

Calm : .00 %

Total # Operational Hours : 706





JOB # 2833-2015-11-35- C

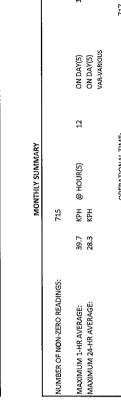


WIND SPEED (WS) hourly averages in km/hr

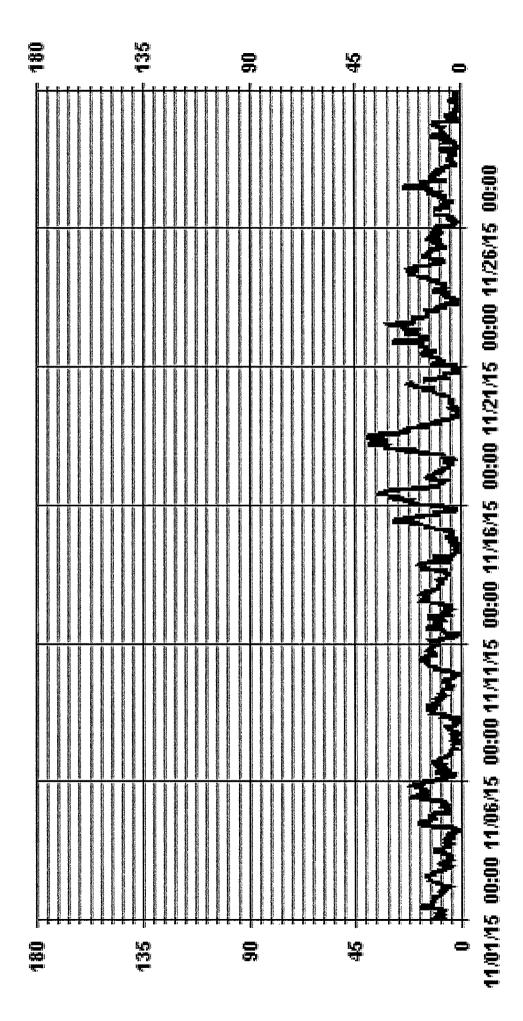
MST

RDGS.	24	24	24	24	54	24	25	25	77	24	54	24	24	24	75	54	74	24	24	24	74	24	24	24	24	77	54	24	24	24		
24-HOUR AVG.	10.9	9.7	8.9	8.8	13.5	8.5	3.1	7.8	6.2	12.9	9.2	10.8	10.4	3.9	13.1	20.5	9.1	28.3	4.0	10.0	13.1	19.5	6.8	14.5	11.0	5.5	12.1	5.2	6.9	2.1		
DAILY MAX.	17.5	14.9	12.1	18.2	21.9	16.9	5.4	14.5	10.9	17.4	14.0	17.8	18.0	12.1	28.8	34.6	23.4	39.7	10.7	21.9	29.0	30.3	14.5	21.9	16.5	11.1	23.8	11.0	12.8	6.3		
23.00	9.0	4.8	6.5	2.8	14.8	6.3	5.4	9.3	2.2	12.0	13.6	11.6	15.0	3.8	6.7	13.3	23.4	13.1	6.1	0.4	23.6	14.0	7.3	12.2	11.2	2.7	10.0	13	0.4	1.4	23.6	6.8
22.00 22.59	10.0	5.4	7.2	6.1	19.8	7.6	4.2	10.2	9.0	11.3	11.7	12.7	17.5	2.0	5.9	5.7	17.9	16.6	5.1	3.3	29.0	13.9	7.7	13.3	8.6	7.1	11.6	1.5	1.4	3.0	29.0	9.5
21.59	10.6	7.0	6.5	12.8	20.8	9.5	3.7	11.1	2.5	12.9	7.7	16.4	18.0	6.4	1.0	6.7	12.9	13.9	4.4	2.3	23.8	14.1	8.1	8.9	10.6	7.5	13.0	8.9	6.7	9.0	23.8	9.6
20-00	11.8	8.5	5.1	11.2	19.1	7.7	5.9	9.1	3.1	13.7	7.2	17.4	15.9	3.6	2.7	7.5	7.9	19.0	3.8	0.5	15.5	12.8	6.9	7.3	8.8	4.7	10.3	8.2	10.9	0.7	19.1	8.8
19:00 19:59	11.6	10.7	6.3	13.8	17.6	11.1	3.6	10.5	3.5	14.3	11.8	17.8	16.7	5.2	8.1	8.6	7.3	22.1	4.0	2.8	17.1	15.4	8.5	6.2	9.3	6.3	11.5	7.6	11.1	0.3	22.1	10.1
18:00	12.0	11.4	5.1	12.8	16.4	12.5	0.2	13.0	5.3	11.6	10.5	15.8	15.5	0.7	11.5	8.3	7.6	23.0	2.0	6.9	17.9	20.2	12.1	8.4	13.3	4.3	10.8	2.9	11.5	2.8	23.0	10.3
17.00	10.6	12.4	6.7	11.0	17.4	9.7	1.8	12.4	8.4	13.0	5.7	14.4	16.7	5.5	9.3	10.2	3.6	21.0	2.8	9.9	14.0	20.1	8.6	12.6	11.9	8.1	5.5	1.2	10.3	1.4	21.0	6.6
16:00	13.0	12.0	6.4	10.9	15.0	7.9	4.5	14.5	6.1	11.0	7.5	13.9	5.5	2.0	12.8	13.9	3.1	22.9	4.6	6.4	14.9	19.9	4.4	14.1	12.1	10.5	17.2	4.5	9.5	7.0	22.9	10.1
15.00	11.5	14.7	8.7	12.7	15.2	6.8	2.4	13.4	6.1	10.0	11.1	13.9	11.2	1.4	15.9	21.7	5.7	26.3	3.1	6.2	13.7	20.5	7.0	18.8	14.5	>-	13.8	4.4	7.7	4.9	26.3	11.2
14:00	13.5	14.9	11.0	15.6	15.7	10.3	2.7	11.6	6.7	14.9	14.0	16.3	7.6	4.5	20.2	26.0	7.2	33.9	3.1	10.3	10.1	27.8	7.5	20.8	12.4	>	15.4	4.6	8.7	4.1	33.9	12.8
13:00 13:59	15.8	13.7	12.1	18.2	15.3	9.7	3.4	12.2	5.1	15.9	14.0	16.8	4.9	23	25.1	30.9	4.0	33.6	2.2	15.1	14.1	30.3	6.5	21.7	8.8	>	18.0	2.4	8.0	1.5	33.6	13.2
12:00	17.5	13.2	7.2	17.1	20.0	7.9	1.1	12.7	6.7	16.1	7.8	12.6	3.8	1.8	26.2	32.8	3.8	39.7	4.3	U	17.0	29.4	4.3	19.9	9.1	10.1	23.6	5.2	8.1	1.3	39.7	13.1
11.00	15.4	13.8	7.1	16.5	21.9	5.7	1.4	8.9	4.1	17.4	7.5	9.6	6.0	2.5	28.8	34.2	6.1	37.4	3.5	ပ	16.0	25.2	1.7	19.5	8.5	4.5	23.8	5.0	8.3	0.7	37.4	12.4
10:00	8.6	12.4	8.6	12.5	17.8	5.4	5.9	6.5	4.5	15.4	6.9	7.1	6.5	0.8	26.1	34.6	5.0	38.8	1.0	21.2	13.2	23.9	9.0	21.9	9.7	5.5	14.6	4.3	6.2	1.2	38.8	11.5
9.00	8.0	10.7	5.5	3.3	13.4	11.3	3.7	7.4	5.7	16.1	6.3	4.2	6.5	2.9	20.0	30.6	5.3	33.8	1.1	21.9	11.8	22.7	11	21.5	8.1	3.0	12.4	1.6	5.8	0.3	33.8	10.2
65.8	8.4	9.0	5.6	1.7	7.9	5.1	3.1	4.8	8.6	14.5	1.6	4.1	8.0	1.5	20.4	30.2	7.2	31.6	0.4	19.7	10.4	18.5	5.8	21.3	5.5	2.4	12.4	4.0	12.8	1.2	31.6	9.5
7.00 7.59	8.3	7.8	3.3	1.0	9.9	1.8	3.0	0.5	7.1	14.4	2.2	6.0	9.5	2.6	15.8	27.1	8.7	35.3	0.8	16.9	9.0	18.9	2.2	18.6	9.5	2.0	12.9	6.0	6.3	0.1	35.3	8.6
6.59	9.7	6.2	4.4	2.7	6.3	3.3	2.8	1.0	8.8	14.0	3.6	4.5	8.7	3.6	15.0	27.6	8.1	39.2	1.1	10.5	8.3	18.5	7.6	17.1	8.5	3.1	9.4	4.8	8.7	1.8	39.2	9.0
5.00	8.4	4.9	3.8	1.9	8.4	5.3	2.2	1.5	7.3	13.5	7.4	5.6	8.5	4.4	13.0	24.0	8.7	36.2	3.8	16.1	6.2	23.6	9.1	12.5	12.4	1.9	10.1	8.9	7.3	1.3	36.2	9.2
4:59	9.2	6.0	4.8	4.7	7.2	6.2	4.7	3.2	8.6	11.9	10.3	7.7	8.1	12.1	10.7	21.5	11.4	31.2	3.6	11.8	8.5	17.5	5.2	13.5	12.2	3.4	6.8	7.7	5.5	2.5	31.2	9.3
3:00	6.6	8.4	6.4	6.7	7.9	9.2	3.1	0.7	7.5	10.9	13.3	8.2	9.5	7.8	7.4	22.3	11.7	31.8	5.3	11.7	12.7	17.3	11.0	12.2	14.2	2.0	9.9	6.8	6.1	6.0	31.8	9.7
2.00	11.4	9.1	8.4	5.6	5.8	11.4	4.8	2.7	8.9	12.0	12.7	2.0	9.6	3.1	2.8	20.1	13.6	31.7	8.5	11.4	3.7	13.3	9.1	9.6	14.3	5.6	7.8	11.0	1.4	6.0	31.7	9.3
1.00	10.3	7.6	9.0	3.3	5.9	12.3	2.9	5.8	10.0	8.7	10.8	4.8	9.3	5.9	5.4	17.6	13.4	27.7	10.7	10.2	1.2	13.3	9.3	9.5	13.9	10.7	6.5	7.8	2.2	6.3	7.72	9.0
0:00	7.0	83 4	7.8	3.5	7.3	16.9	4.9	6.0	10.9	4.1	11.4	13.7	10.1	4.7	2.7	12.2	14.2	18.4	7.6	8.8	3.5	17.2	14.5	6.9	16.5	11.1	6.0	10.5	1.8	5.1	18.4	9.1
HOURSTAKE 0:00 LT0 Z:00 3:00 4:00 S:00 EF HOUREND 0:50 L59 Z:59 3:59 4:50 S:59 E	DAY 1	2	ε,	4	5	φ	7	∞	O	10	#	12	13	71	51	16	17	18	Ð	20	ĸ	22	23	24	52	26	22	78	82	93	HOURLY MAX	HOURLY AVG

LAST CALIBRATION:	November 23, 2015 MAGNETIC DECTINATION 19 DEGREF FAST
DECEMBER ON .	







- LICA35 WSP KPH



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Elk Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

# VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

	RDGS.	24	24	24	24	74	74	24	77	24	24	24	24	74	77	24	74	24	24	24	24	24	74	24	24	77	77	74	24	24	24		
24-HOUR	AVG.	19.2	15.9	12.8	17.4	24.3	16.2	8.1	16.2	12.6	23.3	17.4	19.9	17.9	8.6	22.2	33.4	17.0	47.5	8.8	18.0	24.1	30.8	13.2	26.5	19.4	12.4	19.7	10.2	12.5	5.7		
711411	MAX	26.2	24.2	17.7	33.2	37.1	30.1	14.9	29.2	26.0	30.4	31.9	32.2	30.2	21.5	45.5	54.1	37.8	64.3	18.7	35.2	42.3	50.1	23.4	42.3	26.4	20.8	33.7	18.1	17.4	6.6		
23:00	0.00	17.6	10.5	11.9	17.9	27.4	11.4	12.2	20.6	5.3	23.6	22.7	17.1	26.1	7.6	10.9	19.5	37.8	24.9	10.1	4.7	38.2	24.4	16.7	20.3	16.0	9.0	20.0	8.0	29	4.0	38.2	16.6
OD-66	23.00	16.4	9.3	10.4	15.3	36.2	15.0	14.9	21.0	6.0	26.1	19.7	25.0	25.7	8.7	17.7	25.4	32.7	31.1	8.8	6.6	42.3	22.6	15.8	25.5	15.2	12.9	17.4	5.5	7.8	8.8	423	18.2
24:00	22:00	18.9	10.3	9.4	23.8	32.3	13.4	7.4	23.0	6.0	27.2	15.1	28.0	28.6	10.3	5.2	18.1	28.4	25.3	8.7	9.0	39.7	21.9	13.4	21.9	18.0	15.7	20.6	12.9	15.7	6.2	39.7	17.8
טטיטכ	21-00	19.8	13.5	10.2	23.1	34.3	12.2	8.4	18.1	5.5	23.6	13.7	31.7	24.8	7.2	8.8	14.2	11.4	32.4	5.7	6.3	31.7	17.3	11.4	16.0	15.7	13.6	14.6	10.8	15.9	3.0	34.3	16.0
10.00	20:00	21.9	17.6	14.4	23.7	27.9	18.3	7.6	22.1	7.2	20.0	16.8	32.2	30.2	8.4	12.4	14.5	13.3	32.4	9.6	10.4	28.6	23.1	15.1	11.5	17.0	12.3	16.9	10.1	16.8	3.1	32.4	17.2
18,00	19:00	23.1	18.8	10.0	23.0	26.8	21.0	4.3	26.7	10.1	18,9	15.4	32.0	26.5	9.9	18.3	15.3	13.0	34.8	8.3	18.5	29.7	30.9	23.0	13.4	20.5	15.7	14.9	7.8	15.7	6.2	34.8	18.3
17.00	18:00	18.7	19.5	14.0	17.5	32.8	19.1	8.1	27.2	14.7	17.2	18.2	25.1	26.6	8.6	14.8	14.7	9.2	31.6	5.1	14.8	26.4	30.4	23.4	25.7	17.9	13.8	13.6	6.1	16.3	4.2	32.8	17.8
00-31	17.00	23.4	17.7	14.6	20.4	27.2	14.1	8.5	29.2	15.0	19.2	15.4	23.3	20.0	7.3	20.1	28.2	9.3	39.5	7.3	10.2	22.5	37.1	7.1	25.2	19.0	20.8	22.2	10.2	14.1	3.1	39.5	18.4
15.00	16.00.	20.3	24.2	16.6	23.6	26.2	19.6	8.8	25.4	10.5	20.8	21.0	25.0	27.3	5.6	28.2	33.4	12.0	46.8	7.1	14.2	22.9	34.3	8.6	31.2	24.6	>	18.1	9.0	13.1	8.6	46.8	20.3
עעישט	15.00	22.6	22.5	15.8	28.5	26.9	19.6	7.5	23.6	12.4	27.3	23.3	30.7	17.9	8.4	35.5	41.1	17.9	609	7.7	18.3	17.6	46.2	11.1	34.2	25.2	>	25.8	9.7	16.2	9.1	6.09	22.9
13.00	14:00	25.6	21.8	17.4	31.8	28.7	19.1	8.8	25.4	10.8	27.2	23.9	27.4	10.5	8.3	37.1	49.1	16.5	57.1	6.2	25.7	27.4	50.1	11.0	33.9	14.6	<b>&gt;</b>	26.6	11.1	16.2	4.6	57.1	23.2
12.00	13:00	26.2	23.4	17.7	33.2	33.3	16.8	7.4	24.1	12.3	30.1	16.6	21.3	9.7	6.9	43.4	49.4	9.5	61.5	9.4	U	26.9	44.0	8 7	34.6	17.8	19.9	33.4	9.2	13.5	4.9	61.5	22.9
11.00	12.00	24.3	21.1	14.0	29.6	37.1	16.1	8.3	17.6	12.4	29.2	13.4	15.9	10.9	15.8	45.5	54.1	10.8	64.3	9.8	ပ	28.9	36.7	4.7	34.5	16.6	16.4	33.7	10.4	14.7	4.5	64.3	22.5
00.01	11:00	21.3	17.5	17.5	25.4	31.9	13.8	6.9	13.2	11.6	30.4	16.5	15.4	10.9	11.9	43.0	51.9	12.8	60.5	5.3	31.7	24.8	35.8	4.9	42.3	17.0	12.3	26.9	124	14.0	3.9	60.5	21.5
00.0	10-00	14.8	15.3	11.0	11.0	25.1	20.2	6.7	12.1	12.9	29.3	12.9	8.8	14.1	6.9	31.0	47.2	12.2	53.7	4.2	31.3	20.7	33.3	5.2	39.7	16.3	6.9	23.0	7.0	15.0	2.9	53.7	18.4
OU-8	00.6	15.4	15.0	12.2	6.2	19.4	17.2	6.5	8.6	13.7	25.4	5.0	7.6	14.2	8.1	32.6	45.0	11.9	54.2	2.9	35.2	23.7	29.2	8.4	41.9	14.2	8.5	22.9	7.1	17.4	5.0	54.2	17.9
00.7	8:00	12.7	10.5	9.3	3.6	13.7	4.4	7.8	4.9	12.4	26.1	6.3	9.1	12.7		25.4	45.0	14.0	56.1	3.7	28.1	17.9	25.8	11.2	30.5	17.2	8.3	20.6	7.3	-		۳,	
	7.00	17.6	9.3	8.6	5.6	12.3	8.8	6.3	6.1	15.9	22.9	7.1	9.0	12.9	7.0	24.6	43.3	10.9	60.1	3.9	16.3	20.1	30.9				5.3	18.5	8.9	11.6	4.7	60.1	15.7
00.5	3:00 4:00 5:00 6:00			8.0	5.9	14.0				15.5					9.3	21.7	39.0					18.1			27.0		7.6	19.4	11.5		6.1	62.8	17.0
עיטיע	5:00			8.9	7.7	12.4																18.5					6.3	14.1			9.9		
00.8	4:00	19.0		10.5						•						16.6						19.8						11.6	11.7	10.5	5.3	54.3	
00.6	3.00			15.3	9.9																						15.1	10.7	18.1		9.7	56.2	
0	2:00			3 17.0	7.4		24.5															6.8							14.5		9.8	1 49.8	
0.0	1.00	13.2	17.5	13.6	10.5	18.7	30.1	10.4	10.3	26.0	9.4	25.3	26.3	15.3	15.3	6.9	23.4	19.8	35.0	18.7	15.0	9.4	24.9	21.5	15.6	26.2	15.8	10.1	15.4	4.8	9.9	35.0	17.1
Z S	HOUREND	DAY 1	2	8	4	5	9	2	8	6	10	Ħ	12	13	74	15		17	18	Ð	20	됬	22	23	24		26	27	28	29	S	HOURLY MAX	HOURLY AVG

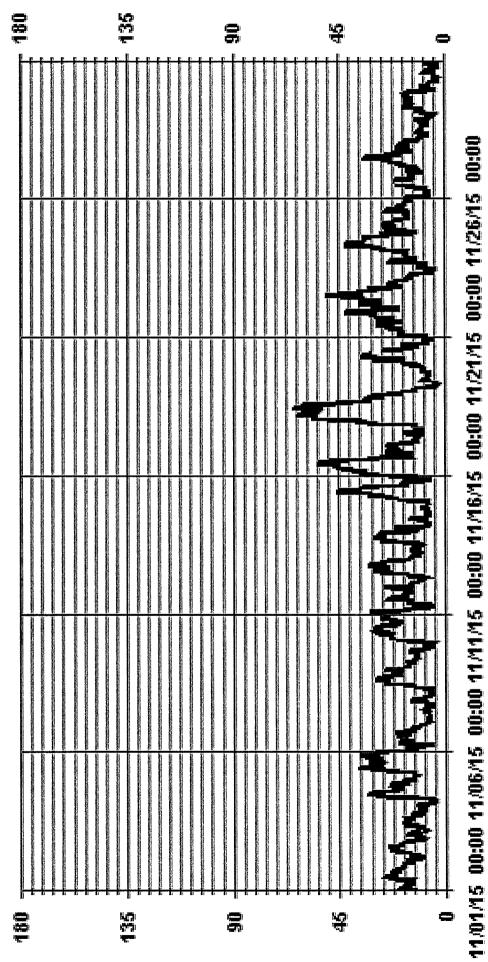
#### STATUS FLAG CODES

S
CALLISPATION
NAINTENANCE
DAILY ZERO/SPANCHECK
POWER FAILURE
-OUT FOR REPAIR

### MONTHLY SUMMARY

	O.	20	MONITURE SOMMINANT				
MAXIMUM INSTANTANEOUS VALUE:	64.3	КРН	64.3 KPH @ HOUR(S)	11	11 ON DAY(S)		18
				VAR-V	VAR-VARIOUS		
		OPERATI	OPERATIONAL TIME:			717 HRS	HRS

Of Hour Averages



KPI KTMSA - LICASS

# LICA-ELK WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 35 Site Name : LICA-ELK Parameter : WSP

	Freq	29.79	37.48	23.49	6.15	2.79	.27	
	MNN	1.25	69.	.97	69.	00.	00.	3.63
	W	1.67	2.37	3.07	. 83	. 55	00.	8.53
	WNW	3.21	2.09	2.09	2.65	2.09	.27	12.44
	≱	3.07	5.59	3.63	.83	.13	00.	13.28
	WSW	3.91	6.57	3.35	00.	00.	00.	13.84
	SW	2.23	2.09	.27	00.	00.	00.	4.61
	SSW	1.53	1.53	1.11	00.	00.	00.	4.19
	ß	1.25	1.39	1.81	00.	00.	00.	4.47
	SSE	.83	.41	69.	00.	00.	00.	1.95
ection	SE	1.53	1.53	1.67	00.	00,	00.	4.75
Dir	ESE	2.09	4.05	1.25	69.	00.	00.	8.11
	ы	3.07	2.51	1.25	.27	00.	00	7.13
	ENE	1.95	2.37	.83	00.	00.	00.	5.17
	Z.	.55	1.39	.13	00.	00.	00.	2.09
	NNE	.83	2.23	.83	00.	00.	00.	3.91
	z	69.	. 55	.41	.13	00.	00.	1.81
	Limit	6.0	12.0	20.0	29.0	39.0	39.0	Totals
	Direction	Direction N NNE NE ENE E ESE SE SSE S SSW WSW W WNW NW NNW	Direction  N NNE NE ENE E ESE SE S SSR SW W W WNW NW NNW .69 .83 .55 1.95 3.07 2.09 1.53 .83 1.25 1.53 2.23 3.91 3.07 3.21 1.67 1.25 2	Direction  N NNE NE ENE E ESE SE SSF SW WSW W WNW NW NNW  .69 .83 .55 1.95 3.07 2.09 1.53 .83 1.25 1.53 2.23 3.91 3.07 3.21 1.67 1.25 2  .55 2.23 1.39 2.37 2.51 4.05 1.53 .41 1.39 1.53 2.09 6.57 5.59 2.09 2.37 .69 3	N NNE NE ENE E SSE S SSW NSW W WNW NW NWW NWW NWW NWW NWW	N NNE NE ENE E SS SS SS SS SS NS NS NS NS NS NS NS NS	N NNE NE ENE ENE ES SE SE SE SE SE SE NE NEW NEW NEW NEW NEW NEW NEW NEW NEW	N NNE NNE SE ENE ES ES SE SE SE SS NSW NSW NSW NNW NNW NNW NNW NNW NNW

v v v v & X

Calm : .00 %

Total # Operational Hours : 715

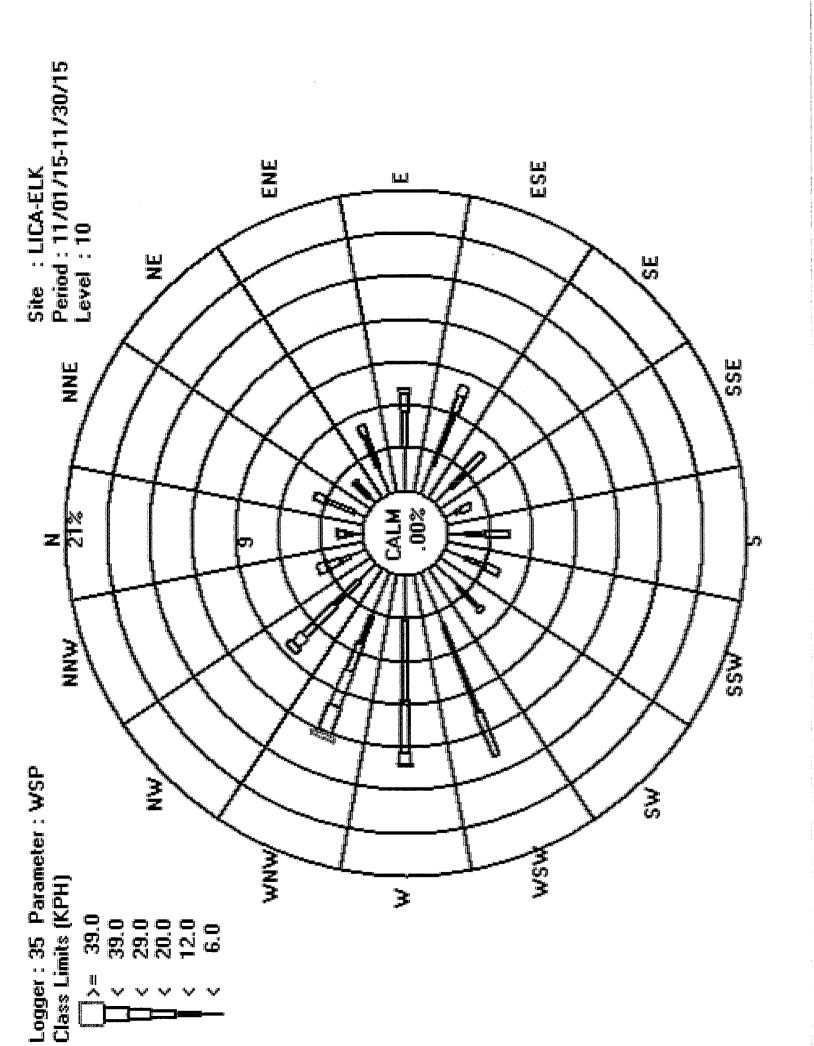
Distribution By Samples

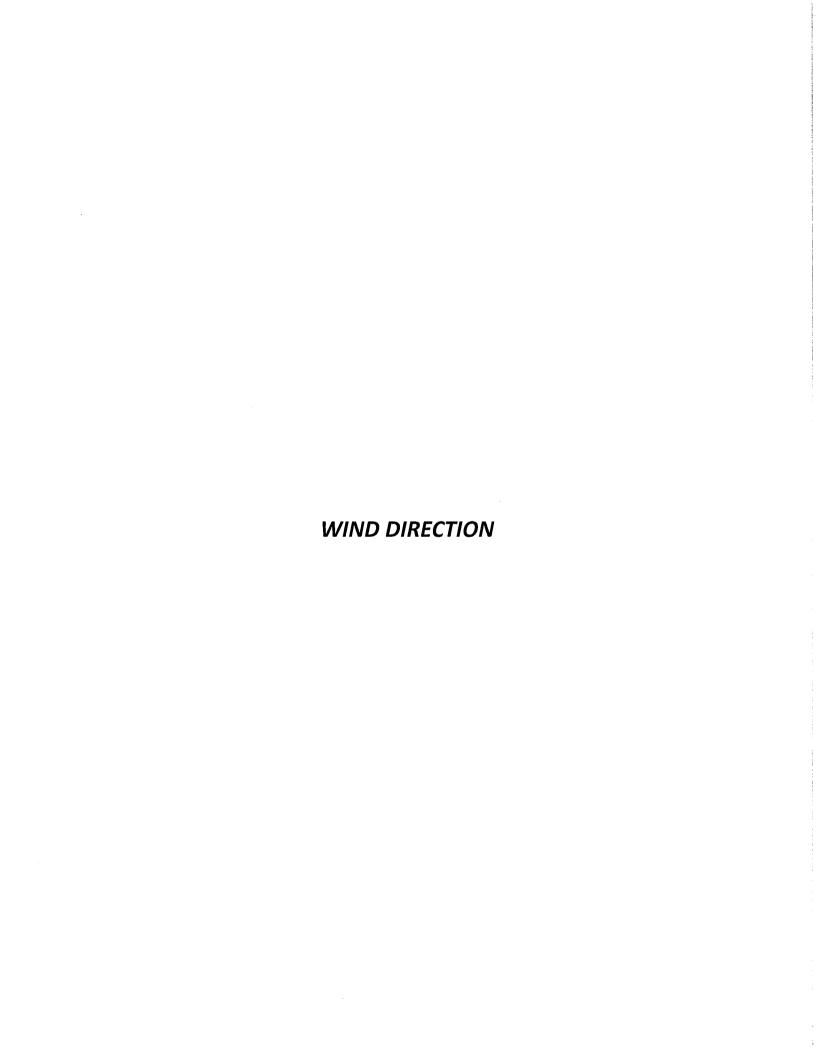
Direction

Freq	213	268	168	44	20	7	
WININ	6	ស	7	ហ			26
NW	12	17	22	ø	4		61
WINW	23	15	15	19	15	7	88
¥	22	40	26	9	1		95
WSW	28	47	24				66
SW	16	15	81				33
SSW	11	11	ω				30
ß	Ø	10	13				32
SSE	9	ო	Ŋ				14
SE	11	11	12				34
ESE	15	59	თ	гO			58
Œ	22	18	o	7			51
ENE	14	17	v				37
뛵	4	10	п				15
NNE	v	16	ø				28
z	ιΩ	4	m	п			13
Limit	6.0	12.0	20.0	29.0	39.0	39.0	Totals
	V	V	٧	٧	<b>v</b>	X	

Calm : .00 %

Total # Operational Hours : 715







# EIK Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

# WIND DIRECTION (WD) hourly averages

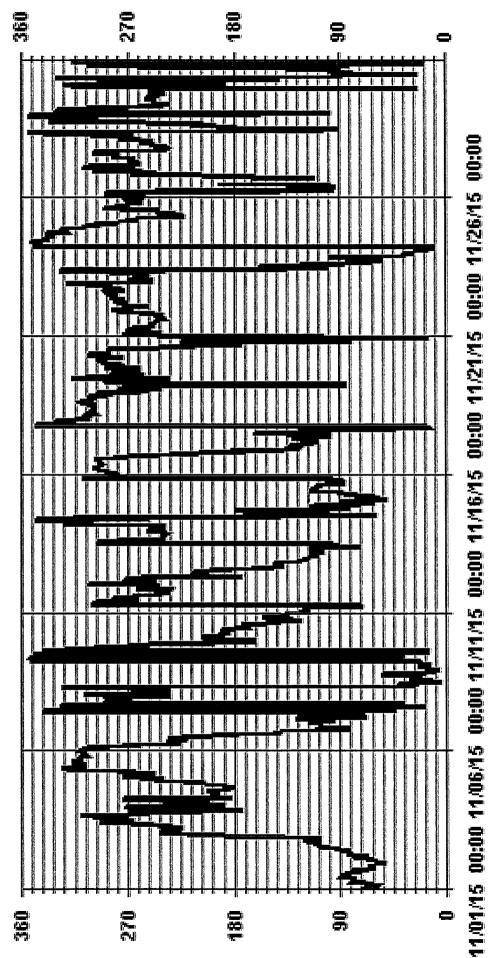
)			

1:00     2:00     3:00     4:00       2:00     3:00     4:00     5:00	3.00	0 4:00		5.00	6.00	7.00	8:00	9:00-	10:00	11:00 12 2:00 13	9 9	3:00 - 14. 4:00 - 15	90. 15.0 90 16.0	00 - 16:0 07:0	0 17:0 0 18:0	) 18.00 ) 19.00	19:00	20:00	22:00	22.00	23:00	24-HOUR AVG QUADRANT	RDGS.
ENE ENE	N.	ĺ	i i	ENE			ы	ENE		İ	İ							ENE	ENE	ENE	밀	ENE	24
ENE ENE ENE	ENË			ENE	ш	ш	ш	ш	ш	ш	Ш	E ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	s	ш	74
WSW WSW	WSW						WSW	WSW				_	_			-		SSW	S	s	SSW	WSW	74
S SSW	SSW						S	s										SSW	SSW	SW	WSW	SSW	24
wsw w	×		~				Ν	ΜN										WNW	WNW	Ν	ΜN	WNW	24
NW WN	WNW	-	-				ΝS	SW										ш	ш	ESE	ESE	SSW	24
ESE	ш						ш	ENE							-		_	≯	WNW	WNW	×	ENE	24
MSW MN	WSW						Ν	NNE										NNE	NR	NNE	z	NNE	24
NNE	NN						NNN	z									_	≷	WSW	SSW	SSW	z	54
S SSW	SSW						s	s										S	SSE	S	S	SSE	54
ESE ESE	ESE			ESE			WNW	WNW										SW	≩	WSW	WSW	SW	24
WSW WSW	WSW						s	SSW										SE	SE	ESE	ESE	s	24
ESE ESE	ESE			ESE			ESE	ENE								-		SW	WSW	SW	WSW	SSW	24
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November 23, 2015	MAGNETIC DECLINATION 19 DEGREE EAST	
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**—** LICA35





# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Elk Point Airport Site - NOVEMBER 2015 JOB # 2833-2015-11-35- C

# STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

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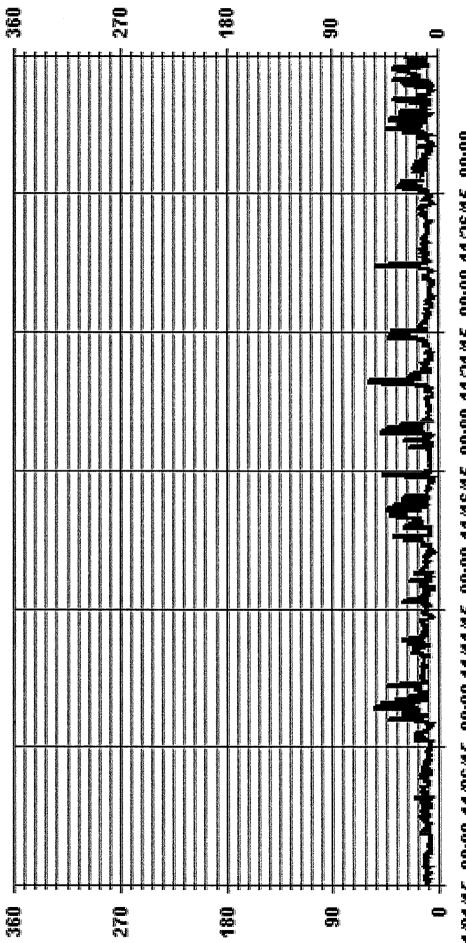
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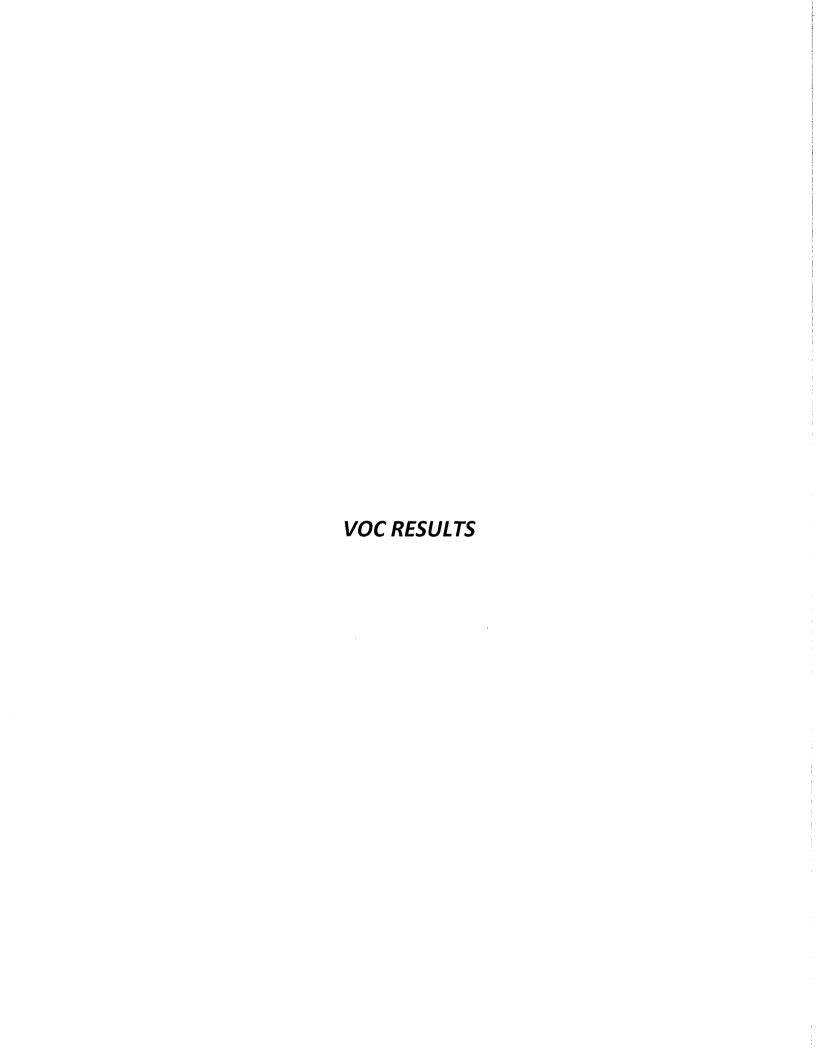
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# - LICA35 STDWDIR DEG

#### APPENDIX II NON-CONTINUOUS MONITORING DATA RESULTS



Sample ID: 15110054-003

Customer ID: LICA

Cust Samp ID: LICANOC/ELK/Nov 2, 2015

Priority: Normal

## Maxxam

VOC Sample Collection Data Sheet

6200	17121	Oct 23, 2015 (2) 09: 43	NOV 06, 20 W (Q) 11: 47	
Sampler S/N:	Canister ID:	Canister Installation Date/Time:	Canister Removal Date/Time:	57
LICA	Location: ELK Print Airport	LICA 25	WEAL VOCTELEY DET NOV2	4.7 2015
Client:	Location:	Station ID:	Field Sample ID: LICA/VOC/E	

	Date and Time Information	Information	
Sample Date	Start Time	End Time	Elapsed Time
	(MST)	(MST)	(Hours)
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Meter Reading	Pot Set Pt.	Pump Pressure
(sccm)		Setting (psig)
10.01	464	36

Canister Information	ormation
Initial Canister	Final Canister
Vacuum (inHg)	Pressure (psig)
22.0	H.7

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

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	Sample in - by Alex Yaurepor Sample out - by Alex Yaurepor Date: Nov 6, 2015
	Technician Signiture.



#### **Volatile Organics Data Results**

Date:

NOVEMBER 2,2015

Canister ID:

17121

PARAMETERS	CONGENTRATION (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-Butaulene 1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-buterie 1-Hexene	< 0.02
1-Pentene	< 0.02
	0.08
2,2,4-Trimethylpentane	
2,2-Dimethylbutane	0.02
2,3,4-Trimethylpentane	0.03
2,3-Dimethylbutane	0.08
2,3-Dimethylpentane	0.08
2,4-Dimethylpentane	0.04
2-Methylheptane	0.03
2-Methylhexane	0.03
2-Methylpentane	0.09
3-Methylheptane	< 0.02
3-Methylhexane	0.05
3-Methylpentane	0.05
Acetone	1.3
Acrolein	< 0.3
Benzene	0.13
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0,22
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	0.08
Cyclopentane	0.01
Dibromochloromethane	< 0.01
Ethanol	0.4
Ethyl acetate	< 0.4
Ethylbenzene	0.03
Freon-11	0.28



#### **Volatile Organics Data Results**

Date: NOV

NOVEMBER 2 , 2015

Canister ID: 17121

PARAMETERS,	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	< 0.02
Freon-12	0.56
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.26
Isopentane	0.29
Isoprene Isopropyl alcohol	< 0.01 < 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.09
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	0.16
Methylcyclopentane	0.08
Methylene chloride	< 0.3
n-Butane	0.52
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.05
n-Hexane	0.10
n-Nonane	0.03
n-Octane	0.03
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	0.9
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	0.13
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

Sample ID: 15110089-003

Cust Samp ID: LICANOC/ELK/Nov 8, 2015 Customer ID: LICA

Priority: Normal

## Maxxam

#### RECEIVED NOV 16 2015

VOC Sample Collection Data Sheet

6200

Sampler S/N: Canister ID: ANDORA LICA 35 LICA Location: Elk Point Client: Station ID:

2015 H 328 2065 100 707 Canister Installation Date/Time: Canister Removal Date/Time: Field Sample ID: LICA / VCC / ELK / NOV 8, 2015

	Meter Readi	(sccm)	7	40.0	
	Elapsed Time	(Hours)	1,5	なべる	
nformation	End Time	(MST)	00:00	100 9, 2015	
Date and Time Information	Start Time	(MST)	00:00	110x 8,2015	
	Sample Date		1, 1, 0	NOV 6, 2015	

	Flow Settings	S
Meter Reading	Pot Set Pt.	Meter Reading   Pot Set Pt.   Pump Pressure
(sccm)		Setting (psig)
0.00	4.34	26

Canister Information	ormation
Initial Canister	Final Canister
Vacuum (inHg)	Pressure (psig)
0.82	17.4

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

Comments:

Sample in - by ALLE YOUESPON Sample out -Technician Signiture:

Date: Nov 10, 2015



Date:

NOVEMBER 8,2015

Canister ID:

H3282

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	
1,2,4-Trichlorobenzene	< 0.05
	< 0.8 < 0.03
1,2,4-Trimethylbenzene 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-Butadlene	< 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	0.20
2,2-Dimethylbutane	0.10
2,3,4-Trimethylpentane	0.05
2,3-Dimethylbutane	0.33
2,3-Dimethylpentane	0.25
2,4-Dimethylpentane	0.17
2-Methylheptane	0.05
2-Methylhexane	0.05
2-Methylpentane	0.23
3-Methylheptane	0.02
3-Methylhexane	0.10
3-Methylpentane	0.14
Acetone	1.5
Acrolein	< 0.3
Benzene	0.17
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.06
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	0.28
Cyclopentane	0.05
Dibromochloromethane	< 0.01
Ethanol	0.8
Ethyl acetate	< 0.4
Ethylbenzene	0.03
Freon-11	0.29



Date:

NOVEMBER 8,2015

Canister ID:

H3282

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.09
Freon-114	< 0.02
Freon-12	0.58
Hexachloro-1,3-butadiene	< 0.50
Isobutane	0.99
Isopentane	1.02
Isoprene	0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.08
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.47
Methylcyclopentane	0.26
Methylene chloride	1.9
n-Butane	1.36
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.10
n-Hexane	0.27
n-Nonane	0.03
n-Octane	0.05
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	0.22
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: 15110105-001

Customer ID: LICA
Cust Samp ID: LICAVOC/ELK/Nov 14,
2014

AIR FCD-01320/2
RECEIVED
NOV 17 2015

# Maxxam

VOC Sample Collection Data Sheet

101 Nor Canister Removal Date/Time: Sampler S/N: Canister ID: Canister Installation Date/Time: Field Sample ID: LICH/VOC / ELK / NOV 14, 2015 LICA LICA Point ELK Location: Client: Station ID:

12945

6200

2015

6

	Flow Settings	sf
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure
10.0	194	
	,	

Elapsed Time

End Time

Start Time

Sample Date

Date and Time Information

(Hours)

NOV (5, 2018

SIER YILON

NOV 14,2015

(MST)

(MST)

,			
formation	Final Canister	Pressure (psig)	19.0
Canister Information	Initial Canister	Vacuum (inHg)	23.0

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

Comments:

Sample in - by Alex Yauwpor Sample out - by Hier Yawyoor Technician Signiture:

Date: NOV 16, 2015



Date:

NOVEMBER 14,2015

Canister ID: \$12945

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-Dlbromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	< 0.02
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
• • • • • • • • • • • • • • • • • • • •	
2,2-Dimethylbutane	0.09
2,3,4-Trimethylpentane	0.03
2,3-Dimethylbutane	0.24
2,3-Dimethylpentane	0,14
2,4-Dimethylpentane	0.10
2-Methylheptane	0.06
2-Methylhexane	0.11
2-Methylpentane	0.27
3-Methylheptane	0.03
3-Methylhexane	0.14
3-Methylpentane	0.15
Acetone	< 0.4
Acrolein	< 0.3
Benzene	0.17
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.01
Carbon tetrachloride	0.10
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
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	0.26
Cyclopentane	0.05
Dibromochloromethane	< 0.01
Ethanol	0.4
Ethyl acetate	< 0.4
Ethylbenzene Freon-11	0.04
LIGOU-TI	0.29



Date:

NOVEMBER 14,2015

Canister ID:

S12945

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	< 0.02
Freon-12	0.59
Hexachloro-1,3-butadiene	< 0.50
Isobutane	1.09
Isopentane	0.91
Isoprene	< 0.01
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.11
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	0.47
Methylcyclopentane	0.22
Methylene chloride	< 0.3
n-Butane	1.67
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.14
n-Hexane	0.30
n-Nonane	< 0.01
n-Octane	0.08
n-Pentane	0.6
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	0.22
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: 15110230-001

Customer ID: LICA

LICANOC/CLS/NOV 20, 2015 Cust Samp ID:

# Maxxam

AIR FCD-01320/2

VOC Sample Collection Data Sheet

Alberta Innovates - Technology Futures

6200

9 Sampler S/N: Canister Installation Date/Time: Canister Removal Date/Time: Canister ID: 20, 2015 LICA Field Sample ID: Licif Voc. Location: LUClient:

ELK/NOV

12:23 Meter Reading | Pot Set Pt. | Pump Pressure Setting (psig) 2,6 Flow Settings 4.34 2062 200 10.0 (sccm) 100

TOTAL PROPERTY OF THE PROPERTY	Elapsed Time	(Hours)	£ ./ ¢	24.0	
nformation	End Time	(MST)	00:00	NOV 21,2015	
Date and Time Information	Start Time	(MST)	00:00	100 20, 2015	
	Sample Date		3/00 00 10	Jos ac, ac.	

1			
formation	Final Canister	Pressure (psig)	79.0
Canister Information	Initial Canister	Vacuum (inHg)	22.0

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

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	Sample in . by Alex Yamussow
	flex
	4
	- 111
	Sample
	Technician Signiture:

by Alex Valupor

Sample out



Date:

NOVEMBER 20 , 2015

1060

Canister ID:

( PARAMETERS-ty)	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.04
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.02
1,2-Dichloropropane	< 0.01
1,3,5-Trimethylbenzene	< 0.02
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.4
1,4-Dioxane	< 0.4
1-Butene	0.12
1-Hexene	0.06
1-Pentene	0.14
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.04
2,3,4-Trimethylpentane	0.03
2,3-Dimethylbutane	0.19
2,3-Dimethylpentane	0.10
2,4-Dimethylpentane	0.08
2-Methylheptane	0.04
2-Methylhexane	0.17
2-Methylpentane	0.49
3-Methylheptane	0.03
3-Methylhexane	0.16
3-Methylpentane	0.27
Acetone	2.6
Acrolein	< 0.3
Benzene	0.29
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.22
Carbon tetrachloride	0.12
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.60
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	0.20
cis-2-Pentene	0.12
Cyclohexane	0.11
Cyclopentane	0.08
Dibromochloromethane	< 0.01
Ethanol	2.5
Ethyl acetate	< 0.4
Ethylbenzene	0.04
Freon-11	0.32



Date: NOVEN

NOVEMBER 20 ,2015

Canister ID: 1060

L + 4 PARAMETERS 1	CONCENTRATION (PPB)
Freon-113	0.08
Freon-114	< 0.02
Freon-12	0.67
Hexachloro-1,3-butadiene	< 0.50
Isobutane	9.65
Isopentane	3.23
Isoprene	0.12
Isopropyl alcohol	< 0.4
Isopropylbenzene	< 0.01
m,p-Xylene	0.08
m-Diethylbenzene	< 0.04
m-Ethyltoluene	< 0.08
Methyl butyl ketone	< 0.50
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone	< 0.4
Methyl methacrylate	< 0.07
Methyl tert butyl ether	< 0.03
Methylcyclohexane	0.20
Methylcyclopentane	0.19
Methylene chloride	< 0.3
n-Butane	14.7
n-Decane	< 0.06
n-Dodecane	< 0.4
n-Heptane	0.16
n-Hexane	0.29
n-Nonane	0.02
n-Octane	0.04
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	3.4
o-Ethyltoluene	0.01
o-Xylene	0.04
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran	< 0.4
Toluene	0.32
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.04
trans-2-Butene	0.24
trans-2-Pentene	0.23
Trichloroethylene	< 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02

Sample ID: 15110237-001

Customer ID: LICA

Cust Samp ID: LICANOC/ELK/NOV 26, 2015

# Maxxam

NOV 3.0 ZOIS

VOC Sample Collection Data Sheet

Alberia Innovates - Technology Futures

628	H 1.4 87	NOV 23, 2015 (4)	1 10 2102 77 VOV
Sampler S/N:	Canister ID:	Canister Installation Date/Time:	Canister Removal Date/Time:
LICA	ELK Point Airport	LICA 35	4/ VOC/ ELKINOV 16, 2013
Client:	Location: 5%	Station ID:	Field Sample ID: 2/2

	Date and Time information	inormation	
Sample Date	Start Time	End Time	Elapsed Time
	(MST)	(MST)	(Hours)
,	00:00	00:00	ı
NOV 26, 2013	Nov 26, 2015 Nov 27, 2015	Nev 27, 2015	7. Y. O

	·		
St	Meter Reading Pot Set Pt. Pump Pressure (sccm)	98	
Flow Settings	Pot Set Pt.	4611	
	Meter Reading (sccm)	0'01	

Canister Information	formation
Initial Canister	Final Canister
Vacuum (inHg)	Pressure (psig)
0.67	3.61

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 ) NC

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wre: Sample in - by the Yakeysor	Sumple out - by ther Yauspor
Technician Signiture:	

Fate; NOV 27, 2015



Date:

NOVEMBER 26 , 2015

Canister ID: H2834

PARAMETERS	CONCENTRATION (PPB)
1,1,1-Trichloroethane	< 0.02
1,1,2,2-Tetrachloroethane	< 0.02
1,1,2-Trichloroethane	< 0.02
1,1-Dichloroethane	< 0.02
1,1-Dichloroethylene	< 0.04
1,2,3-Trimethylbenzene	< 0.05
1,2,4-Trichlorobenzene	< 0.8
1,2,4-Trimethylbenzene	0.04
1,2-Dibromoethane	< 0.02
1,2-Dishlorobenzene	< 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
•	< 0.4
1,4-Dioxane 1-Butene	
	0.12
1-Hexene	< 0.02
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.08
2,3,4-Trimethylpentane	0.03
2,3-Dimethylbutane	0.20
2,3-Dimethylpentane	0.12
2,4-Dimethylpentane	0.09
2-Methylheptane	0.08
2-Methylhexane	0.12
2-Methylpentane	0.31
3-Methylheptane	0.04
3-Methylhexane	0.13
3-Methylpentane	0.17
Acetone	1.7
Acrolein	< 0.3
Benzene	0.31
Benzyl chloride	< 0.4
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.02
Carbon tetrachloride	0.11
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.02
Chloromethane	0.55
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.04
cis-2-Butene	< 0.02
cis-2-Pentene	< 0.02
Cyclohexane	0.26
Cyclopentane	0.08
Dibromochloromethane	< 0.01
Ethanol	0.6
Ethyl acetate	< 0.4
Ethylbenzene	0.05
Freon-11	0.41



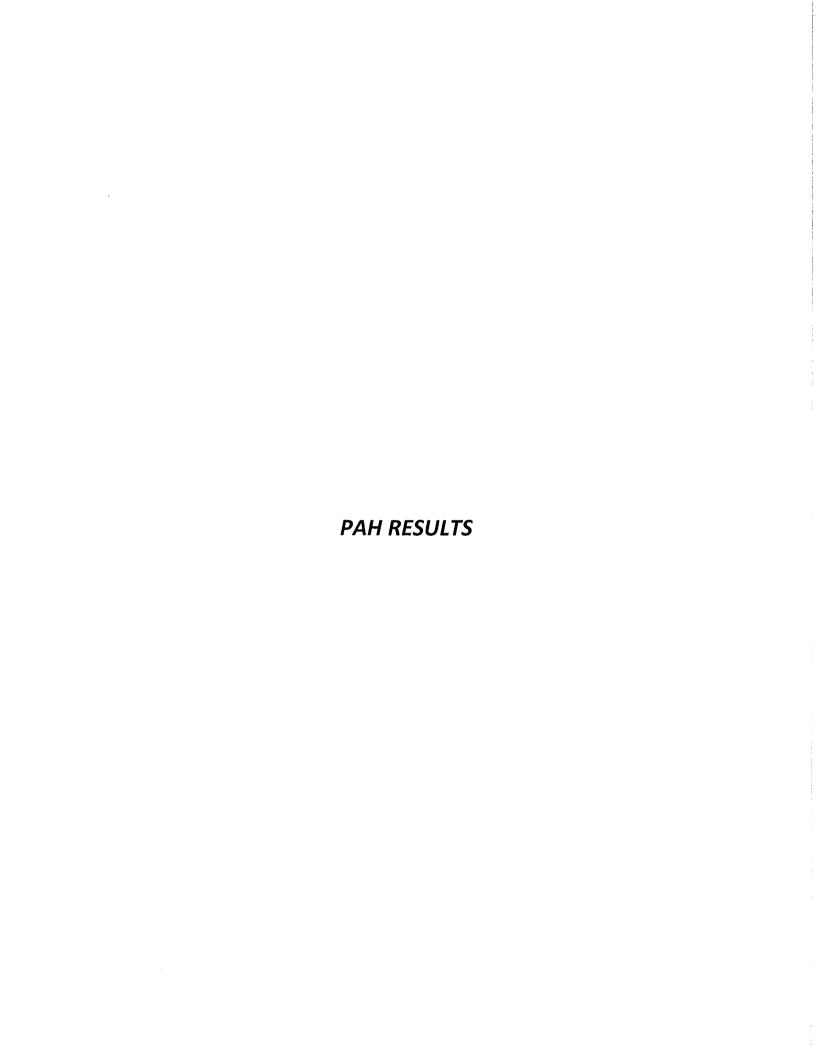
Date:

NOVEMBER 26 , 2015

H2834

Canister ID:

PARAMETERS # 7	CONCENTRATION (PPB)
Freon-113	0.07
Freon-114	0.02
Freon-12	0.59
Hexachloro-1,3-butadiene	< 0.50
Isobutane	1.43
Isopentane	1.03
Isoprene	0.05
Isopropyl alcohol	< 0.4
Isopropylbenzene	0.01
m,p-Xylene	0.11
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	0.51
Methylcyclopentane	0.22
Methylene chloride	< 0.3
n-Butane	2.39
n-Decane	0.10
n-Dodecane	0.7
n-Heptane	0.19
n-Hexane	0.35
n-Nonane	0.07
n-Octane	0.10
n-Pentane	< 0.1
n-Propylbenzene	< 0.05
n-Undecane	< 0.5
Naphthalene	1.9
o-Ethyltoluene	0.02
o-Xylene	0.04
p-Diethylbenzene	< 0.04
p-Ethyltoluene	< 0.07
Styrene	< 0.04
Tetrachloroethylene	< 0.04
Tetrahydrofuran Toluene	< 0.4
	0.44
trans-1,2-Dichloroethylene trans-1,3-Dichloropropylene	< 0.01 < 0.04
trans-1,3-Dictior opropylene trans-2-Butene	< 0.04 < 0.01
trans-2-Buterie	< 0.01
Trichloroethylene	< 0.02 < 0.04
Vinyl acetate	< 0.4
Vinyl chloride	< 0.02
vinyi cinoriue	~ V.V4



Sample ID: 15110054-004

Customer ID: LICA
Cust Samp ID: LICA/PUF/ELK/Nov 2, 2015

Priority: Normal

# Maxxam

			03:37	11.57
on Data Sheet	A 13-02	1139/ 100- 1015	Oct 29, 2015 @ 03:37	Nov
Hi-Vol PUF+ Sample Collection Data Sheet	Puf+ S/N:	Motor S/N: 4(33)	Installation Date/Time:	Removal Date/Time:
Hi-Vol F	LICA	Elk Point Airport	LICA 35	WANPUELELK NOV 2, 2015
	Client	Location: ZL	Station ID:	Field Sample ID: LICA / P

	FUF and GFF Information	тогтацоп	
Date Doorgood	Date	Puf Expiration	OFF Prep
המוב ווכרכוווכת	Shipped	Date	Date
nla	nla	ola	2/4

	Elapsed Time	(Hours)	6	œM-C
nformation	End Time	(MST)	83.53	1043, 2015
Date and Time Information	Start Time	(MST)	00:00	NOV 2, 2015
	Sample Date		2/80 9 /19/1	100 K, XUVS

	Volume	(Vstd m³)	330.17
Sampling Data	Average	Tempurature (C) (Vstd m³)	e07
	AverageFlow	(Ostd slpm)	223
	Average	Pressure(mmHg)	hot

2011

Sept 25,

Date of Last Calibration:

230

Set Flow Rate (slpm):

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

ments:	
Com	

Sample in by Hex Yakupor
Hex
h by
10-
Sample in-
Technician Signiture:

Date: Nov 6, 2015



# Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 2 , 2015

PUF S/N: A1302

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.12
2-Methylnaphthalene	0.18
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	0.12
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(ghj)perylene	< 0.01
Chrysene	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.05
Fluorene	0.09
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.12
Perylene	< 0.01
Phenanthrene	0.17
Pyrene	0.03
Retene	< 0.01

Sample ID: 15110089-004

Customer ID: LICA

Cust Samp ID: LICA/PUF/ELK/Nov 8, 2015

Priority: Normal

# Maxxam

RECEIVED NOV 1.6 2015

Hi-Vol PUF+ Sample Collection Data Sheet

Field Sample ID: LICA PULT ELK / NOV 9, ROIS FICK IN CA ECA E Point ELL Location: Client: Station ID:

100% 200 70±6 1133 10/2 10% Puf+ S/N: Installation Date/Time: Removal Date/Time: Motor S/N:

41.5B

<u></u>	UF and QFF	PUF and QFF Information	
Date Received	Date	Puf Expiration	QFF Prep
2000	Shipped	Date	Date
nla	n(a	» Ju	She

	nlα		
-		-	
6 11 0	0,70		
60:00	NOV 9, 2015		
80:00	16VB, 2015		
Ý	1		

230

Set Flow Rate (slpm):

Elapsed Time (Hours) 240

End Time

Start Time

Sample Date

(MST)

NOV 8, 2015

(MST)

Date and Time Information

	Volume	C) (Vstd m³)	330.18
ig Data	Average	(Ostd slpm)   Tempurature ( C)   (Vstd m³)	08.0
Sampling Data	AverageFlow	(Qstd slpm)	229
	Average	Pressure(mmHg)	703

204 B 2012 Date of Last Calibration:

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

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c	•
-	-
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-	•
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C	)
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•	١.

	Hes Yampor
	Somple in - by Alex Yaurpor Sample vest - by Alex Yaurpor
	Sample 111 - by A
	Somple
	Technician Signiture:

Date: Nov 10, 2015



# Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 8 , 2015

PUF S/N: 9702

PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.05
2-Methylnaphthalene	0.08
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.03
Acenaphthylene	0.04
Acridine	< 0.01
Anthracene	< 0.01
Benzo(a)anthracene	< 0.01
Benzo(a)pyrene	< 0.01
Benzo(b,j,k)fluoranthene	0.05
Benzo(c)phenanthrene	< 0.01
Benzo(e)pyrene	0.02
Benzo(ghi)perylene	0.03
Chrysene	0.04
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.07
Fluorene	0.20
Indeno(1,2,3-cd)pyrene	0.02
Naphthalene	0.11
Perylene	0.02
Phenanthrene	0.27
Pyrene	0.04
Retene	0.03

Sample ID: 15110105-002

Customer ID: LICA
Cust Samp ID: LICA/PUF/ELK/Nov 14,
2014

# Maxxam



Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA
Location: £Lk Point Ayrcort
Station ID: LICA 35

Station ID: LICA 3.5Field Sample ID: L(CA)/L(CK)/L(CK)/L(CK)/L(CK)

Puf+ S/N:
Motor S/N:
Installation Date/Time:

1139/100-1015 Nov 10, 2015 @ Nov 16, 2015 @

Q 11:21 Q 12:42

Sample Date Start Time End Time Elapsed Time (MST) (MST) (Hours)

Nov 14, 2015 (200 (2000) 24.0

PUF and QFF InformationDatePuf ExpirationQFF PrepShippedDateDate $\eta/q$  $\eta/q$  $\eta/q$ 

230

Set Flow Rate (slpm):

Date of Last Calibration: パャト タジ

100

Average AverageFlow Average Volume Pressure(mmHg) (Qstd slpm) Tempurature ( C) (Vstd m³) 702 330.20

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:

by Alex Yampor Alex Yandpor Sample out-Sample in -Technician Signiture:

Date: Now 16, 2065



# Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 14,2015

PUF S/N: TE02

PARAMETERS A STATE OF THE PARAMETERS	CONCENTRATION (UG)
1-Methylnaphthalene	0.26
2-Methylnaphthalene	0.42
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	< 0.01
Acenaphthene	0.06
Acenaphthylene	0.09
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	0.02
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,I)pyrene	< 0.01
Dibenzo(ah)anthracene	< 0.01
Fluoranthene	0.06
Fluorene	0.18
Indeno(1,2,3-cd)pyrene	< 0.01
Naphthalene	0.19
Perylene	< 0.01
Phenanthrene	0.20
Pyrene	0.03
Retene	0.02

Sample ID: 15110230-001

Cust Samp ID: LICANOC/CLS/NOV 20, 2015 Customer ID: LICA

# Maxxam

Data Sheet	11-21				
Hi-Vol PUF+ Sample Collection Data Sheet	Puf+ S/N:	Motor S/N:	Installation Date/Time:	Removal Date/Time:	
	LICA		LICA		
	Client:	Location:	Station ID:	Field Sample ID:	

Alberta Innovates - Technology Futures

NOV 27 2015

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

Elapsed Time (Hours)

End Time (MST)

Start Time (MST)

Sample Date

Date and Time Information

	Average
Set Flow Rate (slpm):	

Date of Last Calibration:

(Vstd m³) Volume (Qstd slpm) |Tempurature (C) Average Sampling Data AverageFlow Pressure(mmHg)

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

any 14313 apriles does Jay H Comments:

970 Samps こなて paral callbrant \$0 Ş usen 222

Thank

Technician Signiture:

Alex Yampou

Sample ID: 15110237-001

Customer ID: LICA

Cust Samp ID: LICAVOC/ELK/NOV 26, 2015

# Maxxam

# Hi-Vol PUF+ Sample Collection Data Sheet

Client: LICA Location:  $\frac{\mathcal{L}\iota_{\mathcal{L}} \ Point \ Hirport}{\text{LICA 3f}}$  Station ID:  $\frac{\text{LICA 3f}}{\text{LICA 16}} \ \text{Field Sample ID: } \frac{\mathcal{L}\iota_{\mathcal{L}} \ P\iota_{\mathcal{L}} \ P\iota_{\mathcal{L}} \ P\iota_{\mathcal{L}} \ \mathcal{L}\iota_{\mathcal{L}} \ \mathcal{L} \ \mathcal{L}\iota_{\mathcal{L}} \ \mathcal{L}\iota_{$ 

Puf+ S/N: 7E - 0  $\zeta$ Motor S/N: 1139 / 120 - 101Installation Date/Time: 1/30 / 35 / 301/5Removal Date/Time: 1/30 / 37 / 301/5

95:51

NOV 3.0 2015
Alberta Innovates - Technology Futures

	Elapsed Time	(Hours)	0110	7.70
nformation	End Time	(MST)	8,8	NOV 27,2065
Date and Time Information	Start Time	(MST)	00:00	16V 26,20XS
	Sample Date		1/01 3011	ותמי אבי ישיום

	PUF and QFF Information	Information	
Data Received	Date	Puf Expiration	QFF Prep
המנה ויפרפועפת	Shipped	Date	Date
nfa	5/11	Ma	1/9

		Sampling Data	ig Data	
	Average	AverageFlow	Average	Volume
leda	ressure(mmHg)	(Qstd slpm)	(Ostd slpm)   Tempurature (C)	(Vstd m <sup>3</sup> )
	405	22.9	-H.3°	330.16

Date of Last Calibration: ハレレ よろ,

Set Flow Rate (slpm):

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:

by Alex Yauripa by Alex Lawyour Technician Signiture:

Date: Nov 27, 2015

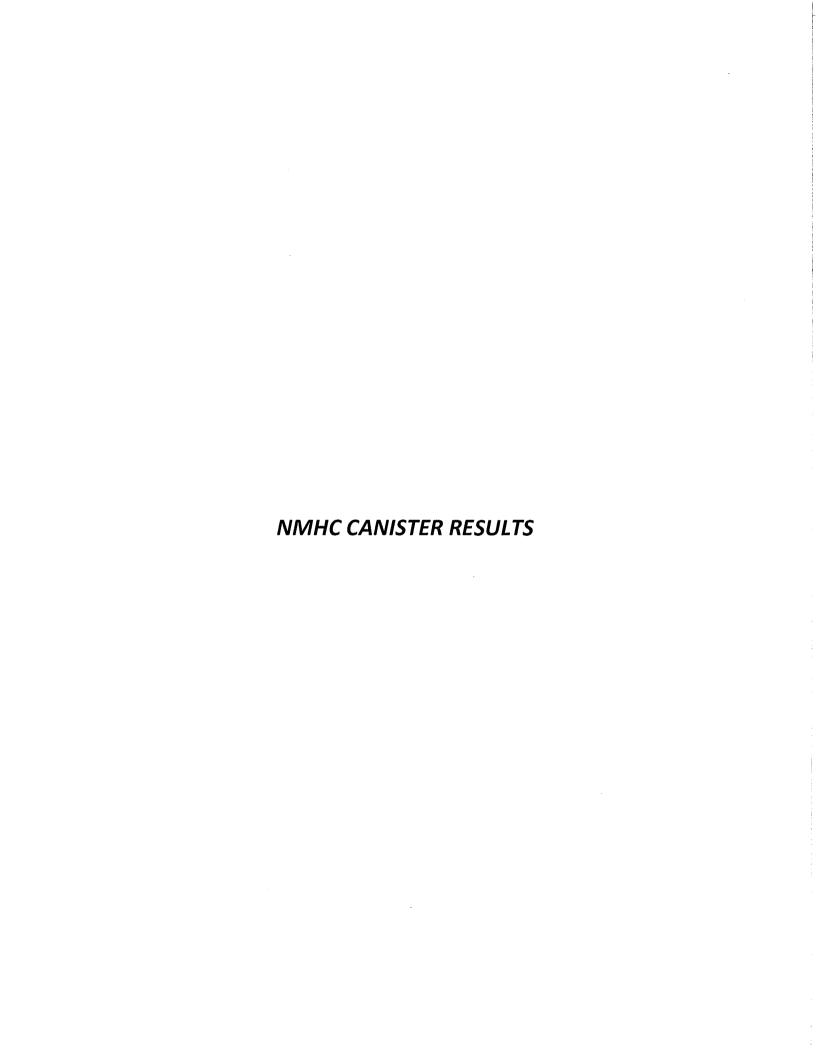


# Polycyclic Aromatic Hydrocarbons (PAHs) Data Results

Date: NOVEMBER 26 , 2015

PUF S/N: TE04

PARAMETERS	CONGENTRATION (UG)
1-Methylnaphthalene	0.39
2-Methylnaphthalene	0.55
3-Methylcholanthrene	< 0.01
7,12-Dimethylbenz(a)anthracene	0.01
Acenaphthene	0.18
Acenaphthylene	0.22
Acridine	< 0.01
Anthracene	0.08
Benzo(a)anthracene	0.05
Benzo(a)pyrene	0.05
Benzo(b,j,k)fluoranthene	0.13
Benzo(c)phenanthrene	0.02
Benzo(e)pyrene	0.05
Benzo(ghl)perylene	0.07
Chrysene	0.08
Dibenzo(a,h)pyrene	< 0.01
Dibenzo(a,i)pyrene	< 0.01
Dibenzo(a,l)pyrene	0.06
Dibenzo(ah)anthracene	0.02
Fluoranthene	0.32
Fluorene	0.52
Indeno(1,2,3-cd)pyrene	0.05
Naphthalene	0.53
Perylene	0.01
Phenanthrene	0.99
Pyrene	0.23
Retene	0.36





Sample ID: 15110198-001

Customer ID: LICA

Cust Samp ID: LICANOC/ELK/Nov 19, 2015

# Maxxam

Sheet
Data
Collection
OC Sample (
>

1.35 S 200 208 Ş Novembes JigweroN Field Sample ID: レーン・ファイン ロー・ Canister Removal Date/Time: Sampler S/N: Canister Installation Date/Time: Canister ID: ELK POINT AINDOFT LICA LICA Location: Station ID: Client:

	Date and Time Information	Information	
Sample Date	Start Time	End Time	Elapsed Time
	(MST)	(MST)	(Hours)
NOV 19, 2015	50:21	5/0	5/6
		*	

	Flow Settings	S
Meter Reading   Pot Set Pt	Pot Set Pt	Pump Pressure
(sccm)		Setting (psig)
ыв	0/10	pju

Canister Information	formation
Initial Canister	Final Canister
Vacuum (inHg)	Pressure (psig)
-28.0	0.1.

5/4 YES ) NO Timer set to 0.00 minutes prior to sampling? YES / NO Canister valve open prior to sampling?: (YES) / NO Canister valve closed prior to disconnection?:/

Comments:

- canister NEHIC

by Alex Yaumpor by Hex Yazupor Sample in-Technician Signiture:

Date: 1101 20, 2015



# **Volatile Organics Data Results (NMHC Canister System)**

Date:

NOVEMBER 19 , 2015

Canister ID:

1840

	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	< 0.05
1,2,3-Trimethylbenzene	0.26
1,2,4-Trichlorobenzene	< 1.0
1,2,4-Trimethylbenzene	0.94
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.04
1,2-Dichloroethane	0.03
1,2-Dichloropropane	
	0.01
1,3,5-Trimethylbenzene	0.32
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.4
1,4-Dichlorobenzene	< 0.5
1,4-Dioxane	< 0.5
1-Butene	1.45
1-Hexene	0.05
1-Pentene	< 0.01
2,2,4-Trimethylpentane	0.17
2,2-Dimethylbutane	0.05
2,3,4-Trimethylpentane	0.13
2,3-Dimethylbutane	< 0.02
2,3-Dimethylpentane	0.12
2,4-Dimethylpentane	0.10
2-Methylheptane	0.14
2-Methylhexane	0.20
2-Methylpentane	0.25
3-Methylheptane	0.13
3-Methylhexane	0.21
3-Methylpentane	0.22
Acetone	
Acrolein	2.9
	< 0.4
Benzene	1.50
Benzyl chloride	< 0.5
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	0.01
Carbon disulfide	< 0.01
Carbon tetrachloride	0.13
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.04
Chloromethane	< 0.02
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.05
cis-2-Butene	0.13
cis-2-Pentene	0.04
Cyclohexane	0.13
Cyclopentane	< 0.01
Dibromochloromethane	
Ethanol	< 0.01
	2.9
	< 0.5
Ethyl acetate Ethylbenzene	0.58



# **Volatile Organics Data Results (NMHC Canister System)**

Date:

NOVEMBER 19 , 2015

Canister ID:

1840

PARAMETERS	CONCENTRATION (PPB)
Freon-113	0.11
Freon-114	< 0.02
Freon-12	0.38
Hexachloro-1,3-butadiene	< 0.62
Isobutane	0.67
Isopentane	0.97
Isoprene	0.14
Isopropyl alcohol	< 0.5
Isopropylbenzene	< 0.01
m,p-Xylene	1.70
m-Diethylbenzene	< 0.05
m-Ethyltoluene	0.73
Methyl butyl ketone	< 0.62
Methyl ethyl ketone	< 0.4
Methyl isobutyl ketone	< 0.5
Methyl methacrylate	< 0.09
Methyl tert butyl ether	< 0.04
Methylcyclohexane	0.24
Methylcyclopentane	0.22
Methylene chloride	2.0
n-Butane	2.67
n-Decane	0.07
n-Dodecane	< 0.5
n-Heptane	0.20
n-Hexane	0.49
n-Nonane	0.16
n-Octane	0.17
n-Pentane	< 0.1
n-Propylbenzene	0.13
n-Undecane	< 0.6
Naphthalene	< 0.6
o-Ethyltoluene	0.24
o-Xylene	0.80
p-Diethylbenzene	< 0.05
p-Ethyltoluene	0.23
Styrene	0.24
Tetrachloroethylene	< 0.05
Tetrahydrofuran	< 0.5
Toluene	2.10
trans-1,2-Dichloroethylene	< 0.01
trans-1,3-Dichloropropylene	< 0.05
trans-2-Butene	0.19
trans-2-Pentene	0.07
Trichloroethylene	< 0.05
Vinyl acetate	< 0.5
Vinyl chloride	< 0.02

Sample ID: 15120089-006

Customer ID: LICA

Cust Samp ID: LICANOC/ELK/Nov 30, 2015

Maxxam

RECEIVED **DEC 0 9 2015** 

VOC Sample Collection Data Sheet

Field Sample ID: L1c4/VOC/ELK/Nov 30, 2015 LICA 35 Hirport LICA Location: Client: Station ID:

30, 05 5838 Desember 04, No springer Canister Removal Date/Time: Canister Installation Date/Time: Sampler S/N: Canister ID:

Meter Reading | Pot Set Pt. | Pump Pressure Setting (psig) 20 Flow Settings 0/0 (sccm) nla

> Elapsed Time (Hours)

> End Time (MST)

Start Time

Sample Date

Date and Time Information

10

14

19:35 (NST)

NOV 30, 2015

y		······································
formation	Final Canister Pressure (psig)	0.7-
Canister Information	Initial Canister Vacuum (inHg)	. 25.0

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

Comments:

carister - XHM Alex Yanupar Hex Yauxpor Sample out -Technician Signiture:

Date: December 1, 2015



# **Volatile Organics Data Results (NMHC Canister System)**

Date:

NOVEMBER 30 , 2015

Canister ID:

\$5635

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	< 0.05
1,2,3-Trimethylbenzene	< 0.06
1,2,4-Trichlorobenzene	< 0.9
1,2,4-Trimethylbenzene	0.10
1,2-Dibromoethane	< 0.02
1,2-Dichlorobenzene	< 0.03
1,2-Dichloroethane	0.03
1,2-Dichloropropane	0.01
1,3,5-Trimethylbenzene	0.06
1,3-Butadiene	< 0.02
1,3-Dichlorobenzene	< 0.3
1,4-Dichlorobenzene	< 0.5
1,4-Dioxane	< 0.5
1-Butene	1.83
1-Hexene	0.06
1-Pentene	< 0.01
2,2,4-Trimethylpentane	< 0.01
2,2-Dimethylbutane	0.40
2,3,4-Trimethylpentane	0.23
2,3-Dimethylbutane	1.19
2,3-Dimethylpentane	0.56
2,4-Dimethylpentane	0.46
2-Methylheptane	0.36
2-Methylhexane	0.58
2-Methylpentane	1.40
3-Methylheptane	0.22
3-Methylhexane	0.64
3-Methylpentane	1.31
Acetone	< 0.5
Acrolein	< 0.3
Benzene	0.59
Benzyl chloride	< 0.5
Bromodichloromethane	< 0.02
Bromoform	< 0.02
Bromomethane	< 0.01
Carbon disulfide	0.06
Carbon tetrachloride	0.13
Chlorobenzene	< 0.02
Chloroethane	< 0.02
Chloroform	0.03
Chloromethane	0.71
cis-1,2-Dichloroethene	< 0.01
cis-1,3-Dichloropropene	< 0.05
cis-2-Butene	0.04
cis-2-Buterie	< 0.02
Cyclohexane	1,43
Cyclopentane	0.41
Dibromochloromethane	< 0.41
Ethanol	< 0.01 1.6
Ethyl acetate	1.6 < 0.5
Ethylbenzene	
Freon-11	0.15
LIGOII-TI	0.52



# **Volatile Organics Data Results (NMHC Canister System)**

Date:

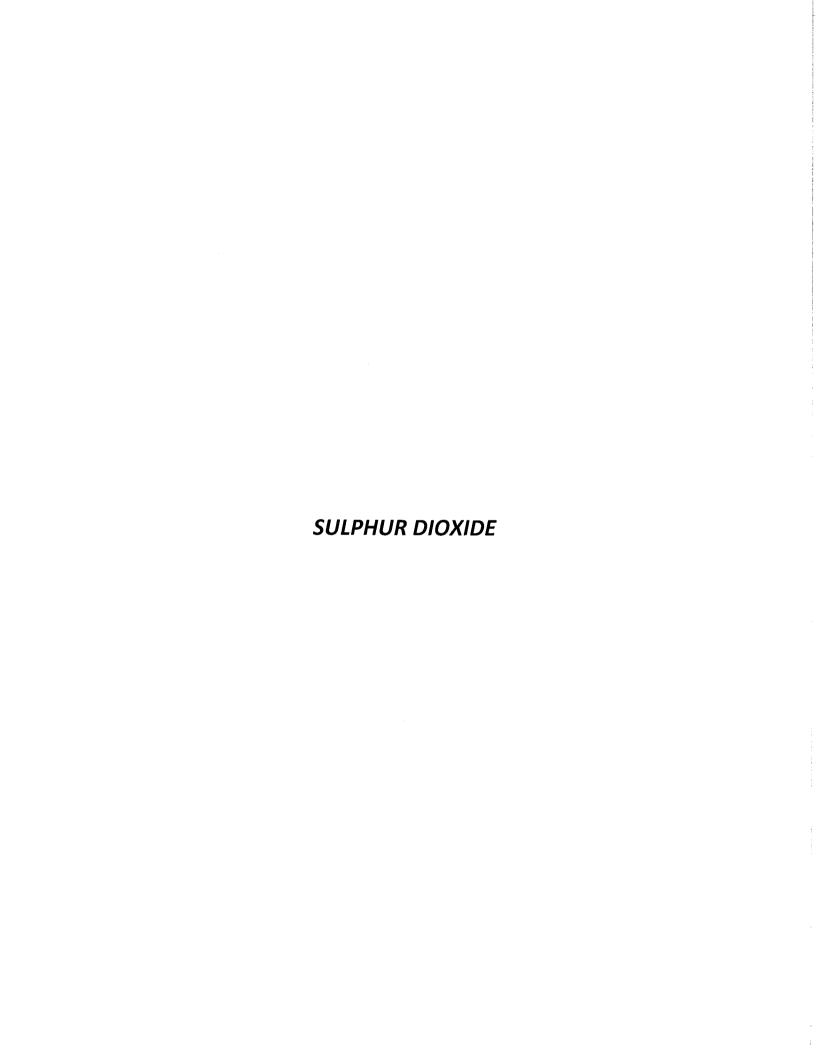
NOVEMBER 30,2015

Canister ID:

S5635

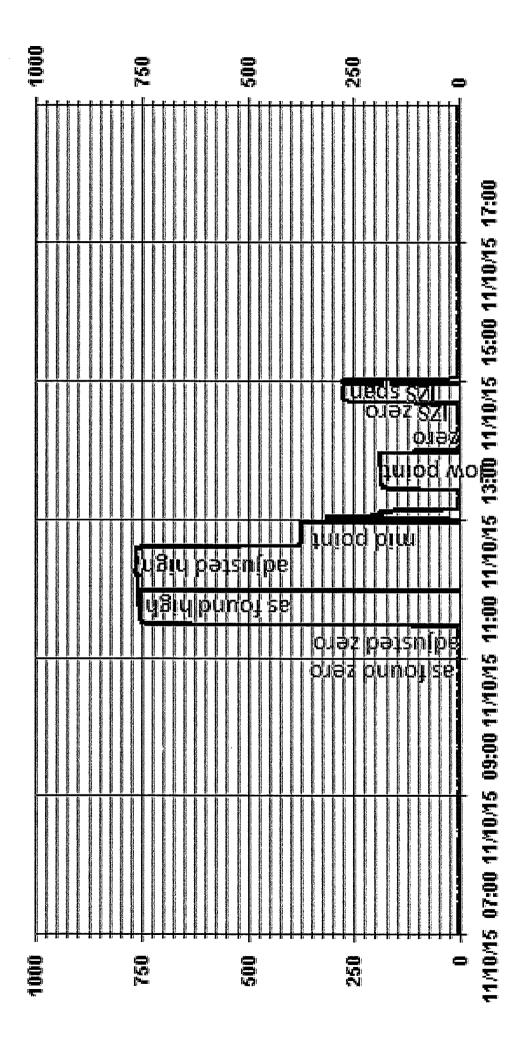
Freon-113	0.10
Freon-114	< 0.02
Freon-12	0.52
Hexachloro-1,3-butadiene	< 0.58
Isobutane	5.10
Isopentane	4.48
Isoprene	0.02
Isopropyl alcohol	< 0.5
Isopropylbenzene	0.03
m,p-Xylene	0.43
m-Diethylbenzene	< 0.05
m-Ethyltoluene	< 0.09
Methyl butyl ketone	< 0.58
Methyl ethyl ketone	< 0.3
Methyl isobutyl ketone Methyl methacrylate	< 0.5 < 0.08
Methyl tert butyl ether	< 0.08 < 0.03
Methylcyclohexane	2.51
Methylcyclopentane	1.63
Methylene chloride	0.4
n-Butane	8.14
n-Decane	0.07
n-Dodecane	0.9
n-Heptane	0.95
n-Hexane	4.47
n-Nonane	0.17
n-Octane	0.55
n-Pentane	< 0.1
n-Propylbenzene	< 0.06
n-Undecane	< 0.6
Naphthalene	1.8
o-Ethyltoluene	0.03
o-Xylene	0.15
p-Diethylbenzene	< 0.05
p-Ethyltoluene	< 0.08
Styrene	< 0.05
Tetrachloroethylene	< 0.05
Tetrahydrofuran	< 0.5
Toluene	0.99
rans-1,2-Dichloroethylene	< 0.01
ans-1,3-Dichloropropylene	< 0.05
trans-2-Butene	< 0.01
trans-2-Pentene Trichloroethylene	0.04 < 0.05
Vinyl acetate	< 0.05 < 0.5
Vinyl acetate Vinyl chloride	< 0.5 < 0.02
vinyi chioride	< U.U2

# APPENDIX III ANALYZER CALIBRATION RESULTS

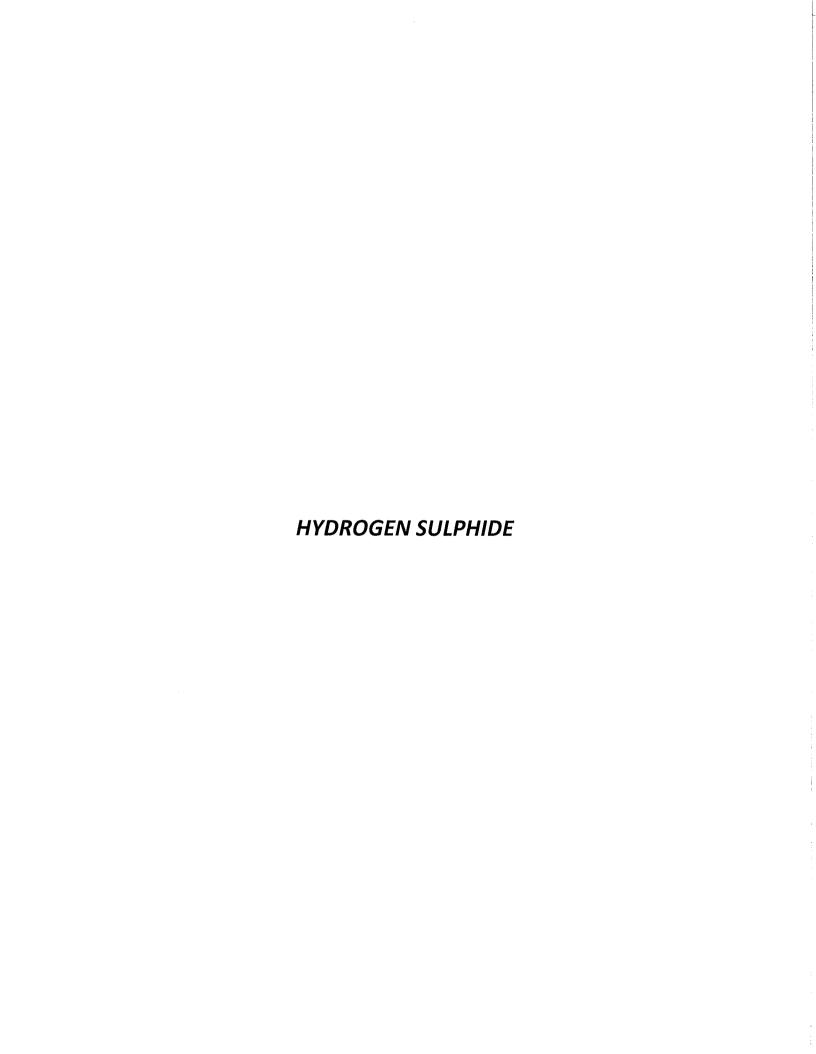


Date: Company/Airshed:	November 10,	2015		1	Barometric Pressure:	0.931 a	tm
	LICA		_		ion Temperature °C:	20	
cation/Station Name:	Elk Point		_		Weather Conditions:	Mix of sun an	d clouds
Parameter:	Sulphur Dio	xide	_		Calibration Purpose:	routine me	
tart Time 24 hr. (mst): _ End Time 24 hr. (mst):	10:05 15:07	***	_	Pert	ormed By/Reviewer: Al- Cal Gas Expiry Date:	ex Yakupov March 12,	Trina Whitsiti
Calibration Method:	Gas Dilutio	on	-	Converter Model	& s/n (if applicable):	n/a	
lyzer:						*****	
Serial Number:	467		_	Range ppb:			
Last Calibration Date: Previous C.F.:	October 7, 2 1.000	015	_	As Found C.F.: New C.F.:			
brator:		<del></del>		Standard C	alibration Points for Ranges		
Flow Meter ID's:	n/a		_	Point	Sulphur Dioxide Standard Ca	dibration Points	
Make & Model:	SABIO 2010		_	High	780		
Serlal #:	1190061		_	Mld	380		
al Gas Cylinder I.D. #:_	BLM00207	'3	_	Low	190		
Cal Gas Conc. (ppm):	49,5	ALL POINTS	ARE 15 MI	NUTES OF STABILITY AS OF SE	PTEMBER 23, 2015		
	tor Flow Rates (cc/mi	n)		Calculated Concentration:	Indicated Concentration:	Correction	Factors (C.F.):
Point	Diluent 5013	Cal Gas 0.00	Total	(ppb)	(ppb) 1,0		N/A
as found zero as found high	4938	77.20	5013 5015	0,0 762.0	757.0		.008
adjusted zero	5013	0.00	5013	0.0	0.0		n/a
adjusted high	4938	77.20	5015	762.0	762.0	1	.000
mid	4976	37.70	5014	372.2	373.0		.998
low	4994	18.90 0.00	5013	186.6	186.0 0.0		003
calibrator zero	5013	0.00	5013	0.0	Average C.F.=		n/a 000
					± 10%		
			API 100E S	ulphur Dioxide Analyzer Calib			
900 7 800 7 700 4 6 600 7 9 500 7 8 400 7			API 100E S			762.0	
800 - 700 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 -	180		API 100E S	iulphur Dioxide Analyzer Calib		762.0	
800 - 700 - 4 600 - 9 500 - 10 400 - 20 - 200 -	100 200	5.0	API 100E S			762.0	900
800 - 700 - 600 - 700 -	100 200	5.0 As fou	300	400 500 calculated ppb	600 700  As left:	762.0 800	900
800 - 700 - 600 - 700 -	100 200 SLOPE:	As for 1.05	300 300 ind:	400 500 calculated ppb	600 700  As left: 1.059	762.0	900
800 - 700 - 600 - 700 -	SLOPE: OFFSET:	As for 1.05		400 500 calculated ppb  SLOPE: OFFSET:	600 700  As left: 1.059 119.0	762.0	900
800 - 700 - 600 - 700 -	100 200 SLOPE:	As for 1.05		400 500 calculated ppb	600 700  As left: 1.059	762.0	900
800 - 700 - 600 - 700 -	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP:	As for 1.05 119 51: 50.0 29.	3000 ind: 44 .1 2 0	400 500 calculated ppb  5LOPE: OFFSET: H-VPS: RCELL TEMP: BOX TEMP:	As left: 1.059 119.0 512 50.0 29.5	762.0 800	900
800 - 700 - 600 - 700 -	SLOPE: OFFSET: HVPS; RCELL TEMP: BOX TEMP: PMT TEMP:	As for 1.05 119 51: 50. 29. 8.J.	3000 ind: :44.1.1 22.00	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP:	As left: 1.059 119.0 512 50.0 29.5 8.1	762.0 800	900
800 - 700 - 600 - 700 -	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP:	As fot 1.05 119 511. 50. 29, 8.1		400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP:	As left: 1.059 119.0 512 50.0 29.5 8.1 45.0	762.0 800	900
800 - 700 - 6 600 - 700	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PRES:	As for 1.05 119 51: 50.0 29. 8.1 45.4	3000 3000 3000 3000 3000 3000 6000	400 500 calculated ppb  SLOPE: OFFSET: HVP5: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PRES:	As left: 1.059 119.0 512 50.0 29.5 8.1 45.0 24.5	762.0 800	900
800 - 700 - 6 600 - 700	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP:	As fot 1.05 119 511. 50. 29, 8.1	3000 3100	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP:	As left: 1.059 119.0 512 50.0 29.5 8.1 45.0	762.0	900
800 - 700 - 600 - 700 -	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PRES: SAMP FL: NORM PMT: UV LAMP:	5.0 As for 1.05 119 51: 50. 29, 8.1 45. 24, 62: 1155 3097	3000 31 1 2 0 0 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PRES: 5AMP FL: NORM PMT: UV LAMP:	As left: 1,059 119,0 512 50,0 29,5 8.1 45,0 24,5 620 116,3 3098,0	762.0	900
800 - 700 - 600 - 700 -	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PRES: SAMP FL: NORM PMT: UV LAMP: LAMP RATIO:	As fou 1.00 119 51: 50. 29. 8.3. 45. 24. 62: 115 309;90 103	3000 3000 314 11 22 00 33 10 00 66 11 44 7.8	400 500 calculated ppb  SLOPE: OFFSET: HYPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PRES: SAMP FL: NORM PMT: UV LAMP: LAMP RATIO:	As left: 1.059 119.0 512 50.0 29.5 8.1 45.0 24.5 620 116.3 3098.0 103.0	800	900
800 - 700 - 6 600 - 700	SLOPE: OFFSET: HYPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: SAMP FL: NORM PMT: UV LAMP: LAMP RATIO: 5TR. LGT	5.0  As for 1.05 119 51: 50. 29, 8.1 45: 24, 62: 115 3097 1033 62.	3000 3100	400 500 calculated ppb  SLOPE: OFFSET: HVP5: RCELL TEMP: PMT TEMP: IZS TEMP: PRES: SAMP FL: NORM PMT: UV LAMP: LAMP RATICO: STR. LGT	As left: 1.059 119.0 512 50.0 29.5 8.1 45.0 24.5 620 116.3 3098.0 103.0 63.0	800	900
800 - 700 - 6 600 - 700	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PRES: SAMP FL: NORM PMT: UV LAMP: LAMP RATIO: 5TR. LGT DRK PMT.	5.0  As for 1.05 119 51:1 50. 29, 8.1 45:5 24, 62:5 3097 103 62. 13.	3000 3100 3100 3100 6114 47.88 1.1775	400 SCO calculated ppb  SLOPE: OFFSET: H-VPS: RCELL TEMP: BOX TEMP: PMT TEMP: PTS TEMP: VIS TEMP: VU LAMP: LAMP PATIC: STR. LGT DRK PMT: DRK PMT:	As left: 1.059 119.0 512 50.0 29.5 8.1 45.0 24.5 620 116.3 3098.0 103.0 63.0 13.5	800	900
800 - 700 - 6 600 - 700	SLOPE: OFFSET: HYPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: SAMP FL: NORM PMT: UV LAMP: LAMP RATIO: 5TR. LGT	5.0  As for 1.05 119 51: 50. 29, 8.1 45: 24, 62: 115 3097 1033 62.	3000  Ind:  i4  1.1  2  0  3  1  0  6  1  4.4  .8  .1  7	400 500 calculated ppb  SLOPE: OFFSET: HVP5: RCELL TEMP: PMT TEMP: IZS TEMP: PRES: SAMP FL: NORM PMT: UV LAMP: LAMP RATICO: STR. LGT	As left: 1.059 119.0 512 50.0 29.5 8.1 45.0 24.5 620 116.3 3098.0 103.0 63.0	800	900

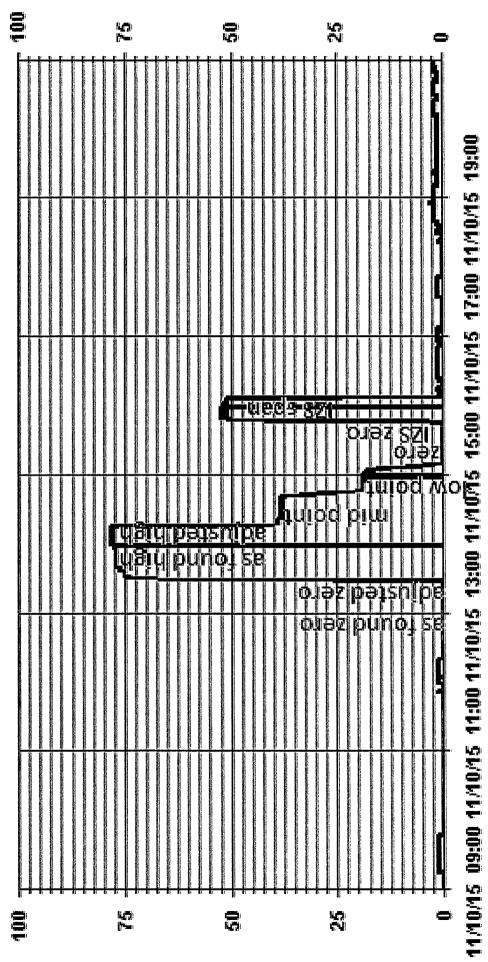
Of Winds Averages



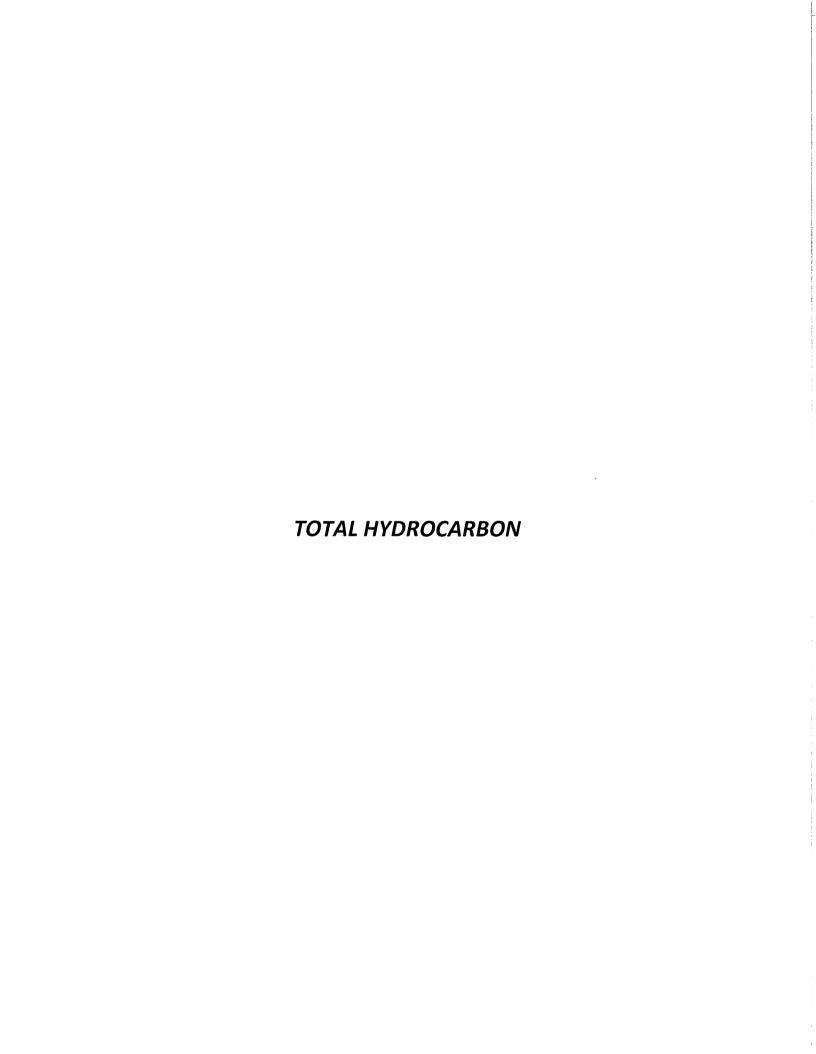
LICA35 SO2\_ PPB



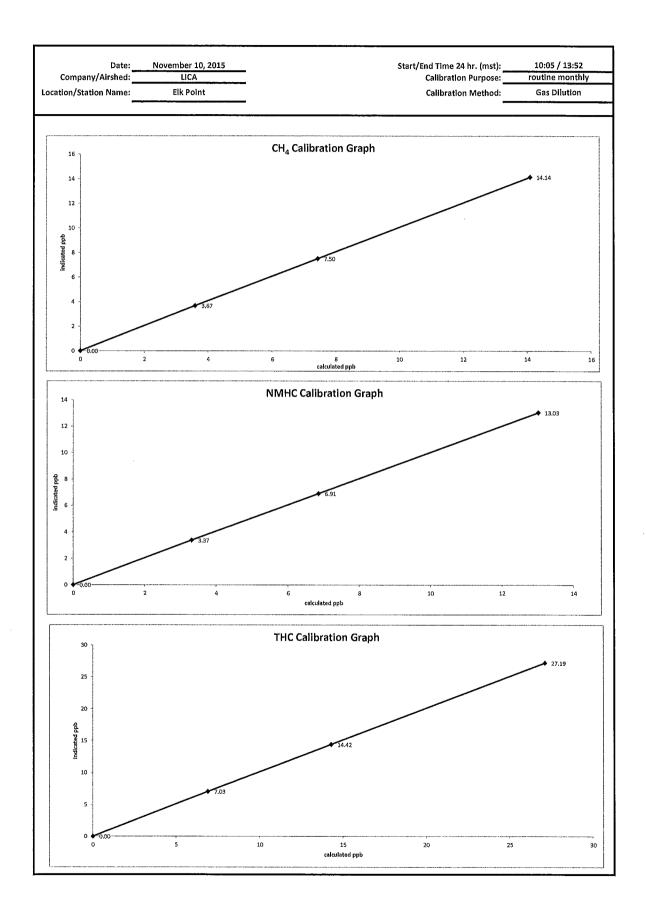
	November 10	, 2015			Barometric Pressure:	0,931	atm
Company/Airshed	l: LICA		_	Stat	tion Temperature °C:	2	0
cation/Station Name			_		Weather Conditions:		and clouds
Parameter		lphide	_		Calibration Purpose:	routine	
tart Time 24 hr. (mst) End Time 24 hr. (mst)			-	Perr	ormed By/Reviewer: Al Cal Gas Expiry Date:	ex Yakupov July 15	Trina Whitsitt
Calibration Method		on	-	Converter Model	& s/n (if applicable):	n,	
lyzer:		- · · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			
Serial Number Last Calibration Date	510 October 8,	2015	-	Range ppb: As Found C.F.:			
Previous C.F.	1.000		_	New C.F.:	1,000	•	
brator:	s: n/a				allbration Points for Ranges Hydrogen Sulphide Standard	Callbration Daluta	
Flow Meter ID's Make & Model			-	Point High	78	calibration Folits	
Serial #		·	-	Mid	38		
al Gas Cylinder I.D. #	·	,	-	Low	19		
Cal Gas Conc. (ppm)			_				•
Calii	brator Flow Rates (cc/m		ARE 15 MI	NUTES OF STABILITY AS OF SE Calculated Concentration:	PTEMBER 23, 2015 Indicated Concentration:	Correction	on Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	Correction	on ructors (Ciriji
as found zero	7496	0.00	7496	0.0	-0.5		N/A
as found high	7441	\$8.50	7500	78.0	77.2		1.004
adjusted zero	7496	0.00	7496	0,0	0.0		n/a
adjusted high	7441	58.50	7500	78,0	78.0		1,000
mid	7472	28.50	7501	38.0	38.0	ļ	1.000
low calibrator zero	7486 7496	14.30 0.00	7500 7496	19.1	18.6 0.0	<b>-</b>	n/a
Calibrator Zero	7430	0,00	7430	0.0	Average C.F.=	<del></del>	1,008
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ge in C.F. fron A		-0.39% drogen Sulphide Analyzer Cal	± 10%		
90 7 80 70 90 90 90 90 90 90 90 90 90 90 90 90 90						78.0	
80 70 90 90 90 90 90 90 90 90 90 90 90 90 90		.6		<b>→</b> 38.0		78.0	
20 - 100 min in	100 200				600 700	78.0	900
80 70 q 60 p 50 40 50 30 20 10	100 200	As fou	nd:	400 500 calculated ppb	600 700 As left:		900
80 70 q 60 p 50 40 50 30 20 10	100 200 SLOPE:	As fou 1.14	nd:	400 500 calculated ppb	600 700  As left: 1.130		900
80 70 q 60 p 50 40 50 30 20 10	100 200 SLOPE: OFFSET:	As fou 1.14 28.6	nd: 1	400 500 calculated ppb  SLOPE: OFFSET:	600 700  As left: 1.130 26.2		900
80 70 q 60 p 50 40 50 30 20 10	100 200 SLOPE: OFFSET: HVPS:	As fou 1.14	nd: 1	400 500 calculated ppb  SLOPE: OFFSET: HVPS:	600 700  As left: 1.130		900
80 70 q 60 p 50 40 50 30 20 10	100 200 SLOPE: OFFSET:	As fou 1.14 28.0 526	nd: 1 )	400 500 calculated ppb  SLOPE: OFFSET:	600 700  As left: 1.130 26.2 5.26		900
80 70 q 60 p 50 40 50 30 20 10	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP:	As fou 1.14 28.6 52.6 50.0 29.3	nd: 1 0 6	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP:	As left: 1.130 26.2 526 50.0 31.1 8.3		900
80 70 q 60 p 50 40 50 30 20 10	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP:	As fou 1.14 28.6 526 50.0 29.3 8.3	nd: 1 0 6 0 3	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0		900
80 70 q 60 p 50 40 50 30 20 10	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp:	As fou 1.14 28.6 526 50.0 29.3 8.3 45.0	nd: 1 0 6 0 3	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PM TEMP: IZS TEMP: LZS TEMP: Converter Temp:	600 700  As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9		900
80 70 q 60 p 50 40 50 30 20 10	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES:	As fou 1.14 28.6 52(2 50.0 29.3 8.3 45.6 315.	nd: 1 0 3 3 1	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: COnverter Temp: PRES:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9 21.7		900
80 70 q 60 p 50 40 50 30 20 10	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL:	As fou 1.14 28.6 526 50.0 29.3 8.3 45.6 315. 21.8	nd: 1 0 3 3	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9 21.7 567		900
80 70 q 60 p 50 40 50 30 20 10	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FLI. UV LAMP:	As fou 1.14 28.6 52(2 50.0 29.3 8.3 45.6 315.	nd: 1 0 6 0 1 3	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FLI. UV LAMP:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9 21.7 567 2862.3		900
80 70 960 9750 9750 9750 9750 9750 9750 9750 975	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL:	As fou 1.14 28.6 526 50.0 29.3 45.0 315. 21.6 569 2866	nd: 1 0 6 0 1 1 1 3 1 1 6 1 1 1 1 1 1 1 1 1 1 1 1 1	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9 21.7 567		900
80 70 960 9750 9750 9750 9750 9750 9750 9750 975	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: UV LAMP: LAMP RATIO:	As fou 1.14 28.6 526 50.0 29.3 8.3 45.6 315. 21.8 569 2866 90.4	nd: 1 1 0 6 7 7 8 7 1 1 8 7 1 8 8 8 8 8 8 8 8 8 8 8	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: UV LAMP: LAMP RATIO:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9 21.7 567 2862.3 90.2		900
80 70 960 9750 9750 9750 9750 9750 9750 9750 975	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: UV LAMP: LAMP RATIO: STR. LGT ORK PMT: DRK LMP:	As fou 1.14 28.6 55.0 29.3 8.3 45.6 315. 21.8 569 90.4 16.3 35.6 -1.5	nnd: 1 1 0 6 0 1 1 1 3 1 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	400 500 calculated ppb  SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FLI. UV LAMP: LAMP RATIO: STR. LGT DRK PMT: DRK LMP:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9 21.7 567 2862.3 90.2 16.4 37.5 -2.0		900
80 - 70 - 60 - 60 - 60 - 60 - 60 - 60 - 6	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: UV LAMP: LAMP RATIO: STR. LGT DRK PMT:	As fou 1.14 28.6 526 50.0 29.3 8.3 45.6 315. 21.8 569 2866 90.4	nnd: 1 1 0 6 0 1 1 1 3 1 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	SLOPE: OFFSET: HVPS: RCELL TEMP: BOX TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: UV LAMP: LAMP RATIO: STR. LGT DRK PMT:	As left: 1.130 26.2 526 50.0 31.1 8.3 45.0 314.9 21.7 567 2862.3 90.2 16.4 37.5		900



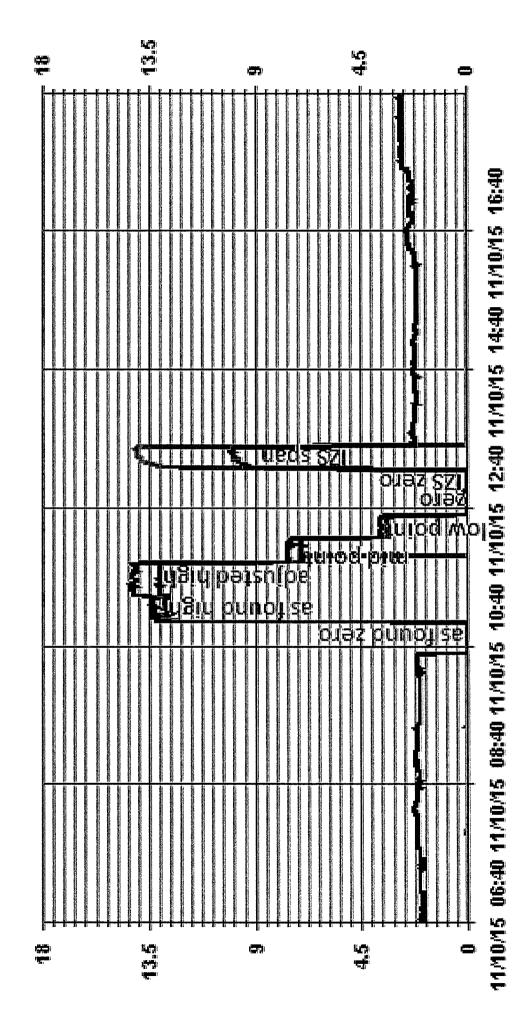
- LICA35 H2S\_ PPB



Date:			er 10, 2015				Baron	etric Pressure:		0.93	1 atm	
Company/Airshed:			ICA					emperature °C:			20	
Location/Station Name: Parameter:			Point MHC / THC					ner Conditions: ation Purpose:			and clouds monthly	•
Start/End Time 24 hr. (mst):	······································		/ 13:52					d By/Reviewer:	Alex Ya	Yakupov Trina Whitsi		
Calibration Method:		Gas D	ilution				Cal G	as Explry Date:		March	26, 2017	
									C	-M F		
Analyzer:								Previous C.F.:	As Four	ection Fact d C.F.:		v C.F.:
Serial Number:		1236656107	,				CH <sub>4</sub> =	1.003	1.0			,997
Last Calibration Date:		ctober 7, 20					NMHC =	1.002	1.0	1.009 0.999		
Range ppm:	20 CH4	/20 <b>N</b> MHC/	40 THC				THC =	1.004	1.0	31	0	.997
Calibrator:											·	
Flow Meter ID's:	n	/a					Standard Calib	ation Points fo	r Analyzer R	ange of 20/	'20/40 ppn	1
Make & Model:	API						Po		CH4	NMHC	THC	
Serial #:	83 LL33						Hi		13.00	13.00	26.00	
Cal Gas Cylinder I.D. #: CH4 Cylinder Conc.=	601.4		=C₃Ha Cyline	der Conc.			Lo		7.00 3.00	7.00 3.00	14.00 6.00	
CH <sub>4</sub> as C <sub>3</sub> H <sub>8</sub> =	555.5	1156.9	=total CH <sub>4</sub> e				<u></u>		5.00	5100	0.00	l
			ALL POINT	S ARE 15 MIN		ABILITY AS O	F SEPTEMBER 23	, 201 <u>5</u>				
Calibrator Flo				Calculated	Calculated NMHC	Calculated	Indicated CH₄	Indicated	Indicated	Co	rrection Fa	ctors:
Point	Diluent	Cal Gas	Total Flow	CH₄ (ppm)	(ppm)	THC (ppm)	(ppm)	NMHC (ppm)	THC (ppm)	CH₄	NMHC	TH
as found zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/
as found high	2000	48.00	2048	14.10	13.02	27.11	13.31	12.90	26,29	1.059	1.009	1.0
adjusted high mid	2000	48.00 25.00	2048 2025	14.10 7.42	13.02 6.86	27.11 14,28	14.14 7.50	13.03 6.91	27.19 14.42	0.997	0.999	0,9
low	2000	12.00	2025	3.59	3,31	6.90	3.67	3,37	7.03	0.990	0.992	0.9
calibrator zero	2000	0.00	2000	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/
								А	verage C.F.=	0.988	0.992	0,9
			1			Calibration R	7					
	_			CH <sub>4</sub>	NMHC	THC	LIMITS					
	Co	orrelation Co	= Slope	1.000	1.000	1.000 1.002	> or = 0.995					
	b (Inter	cept as % of		0.19%	0.15%	0.16%	.95-1.05 ± 3% F.S.					
	% chan	ge in C.F. fro	om last cal=	-5.58%	-0.73%	-2.73%	± 10%					
				ound:							left:	
nterface Board Voltages: Femperatures:		Bias Supply: ector Oven:		92,6 '5.0			Calibration Hist Crucial Settings	-	/I Peak Area: ethane Start:		719 /a	
iomparatares,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Filter:		5.0			Cracial Setting.		lethane End:		/a	
	Co	lumn Oven:	7.	5.0					Backflush:	n	/a	
		Internal:		0.S					NMHV Start:		/a	
Cylinder Pressures/reg.:		Carrier: Fuel:	2000	50			Run History>1:		NMHC End: Date:		/a r 10, 2015	
		Span Gas:	S00	22			Null History 21.		Time:		:31	
	Zero Air	Generator:	46	/34					CH <sub>4</sub> PK HT:		0	
nternal Pressures:		Carrier:		1.1					CH₄RT:		.0	
		Fuel:		0.3 2.4				(	CH <sub>4</sub> Baseline:		01	
FID Status:		Air: Status:		.IT					CH <sub>4</sub> LOD: CH <sub>4</sub> SD:		.6	
15 544401		Counts:		611	•				CH4 CONC:		00	
		Flame:	37	2.0					NM PK HT:		0	•
		Det Base:		5.0	•			NA	Л Peak Area:		0	
Flame and Power Stats:		Power On:		5, 2015 40					NM CONC:		.00	
		Flameouts: en at Start:		70,1					/I Base Start: M Base End:		163	
		en at Start:		4.5	•			IN.	NM LOD:		7	•
Calibration History:		Time:		07, 2015				N	M Start IDX:		57	
		Type:		AN					NM End IDX:		39	
	<u>~</u>	Status:		DOD HIST					1 Max Slope:		e-01	
		eck/Adjust: Span Conc:		JUST I.10							e-01 0	
		H <sub>4</sub> SP Ratio:		0745			Daily Zero/Spa		revious CH4:		.7S	•
		CH <sub>4</sub> RT:		2.2					vious NMHC		3.9	
		CH <sub>4</sub> PK IDX:		21				P	revious THC:		3.6	
	*** -	CH <sub>4</sub> PK HT:		3937	-				New CH4;		.9	
		Span Conc: M SP Ratio:		0152					New NMHC New THC:		24	
			0.00						INCW INC:		• •	



of Minute Averages

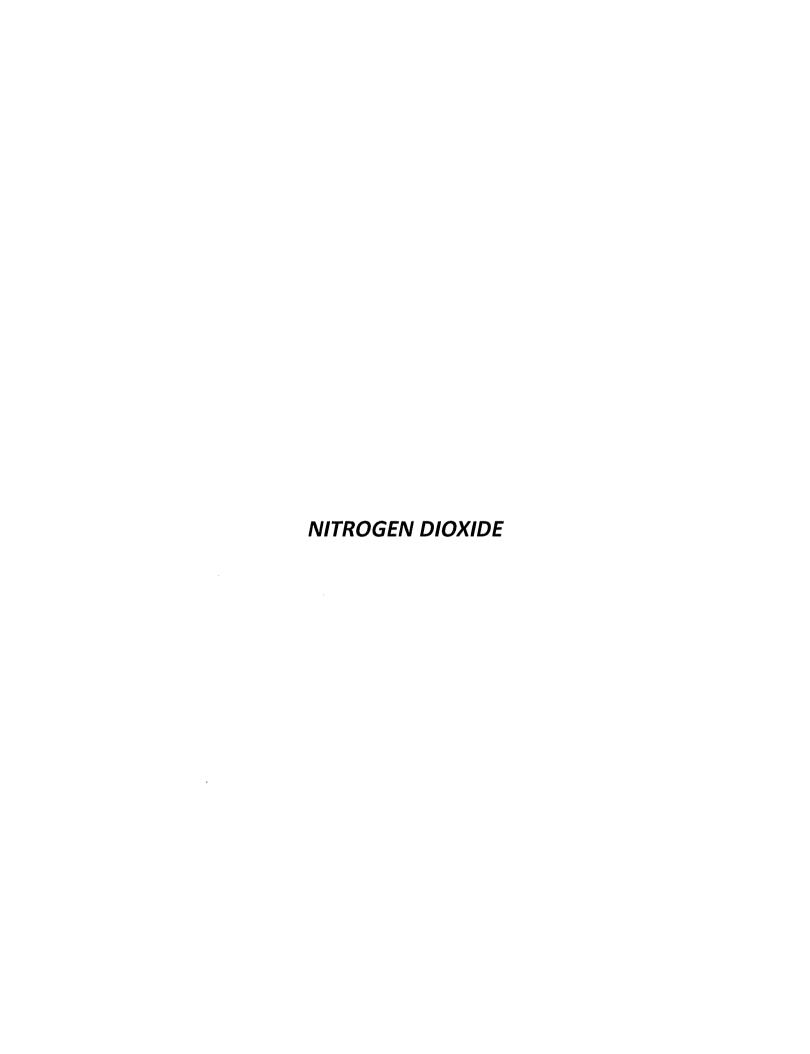


MAHC

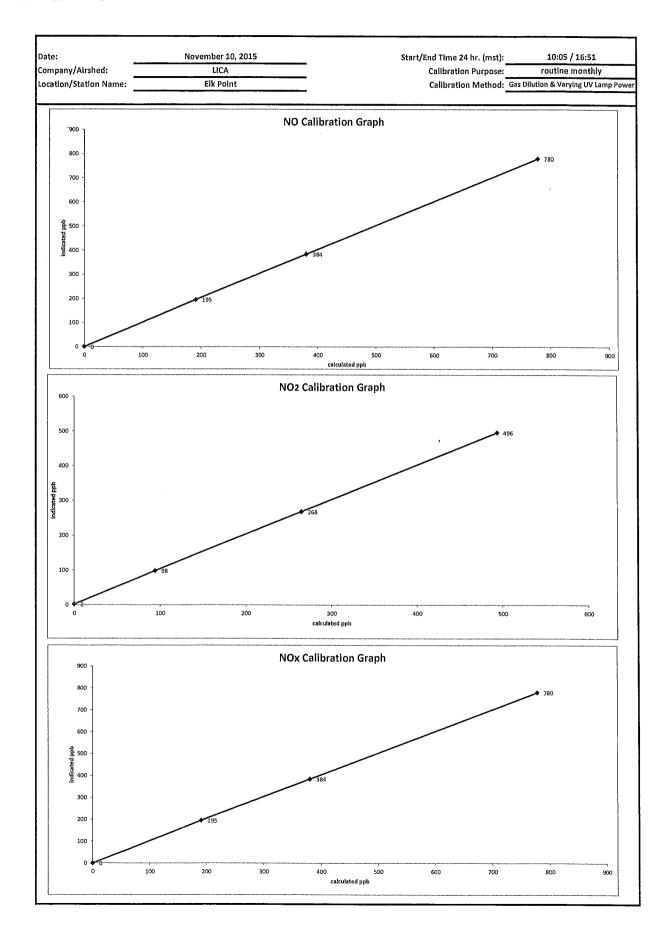
■ LICASS

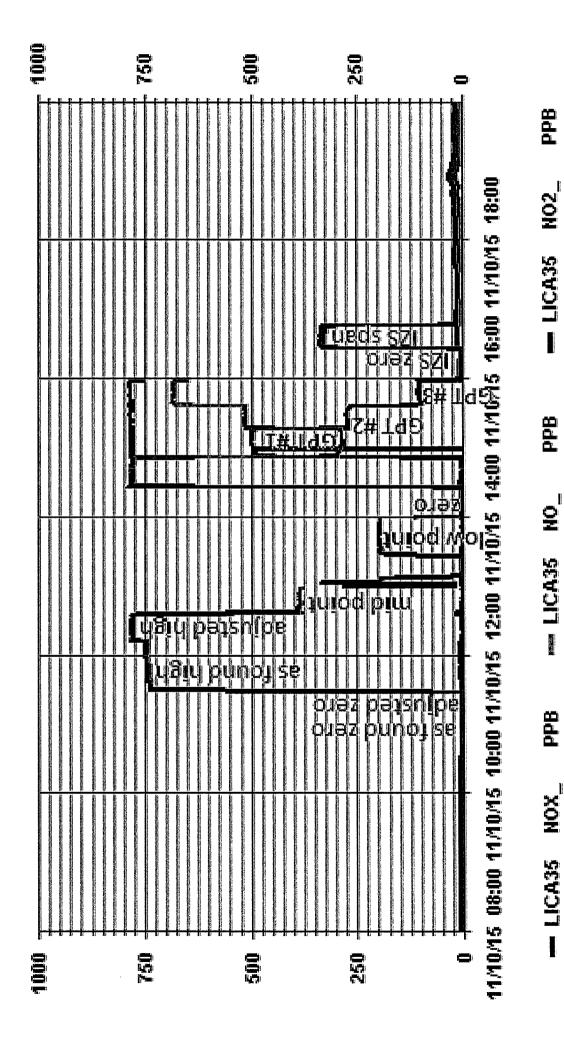
Ξ

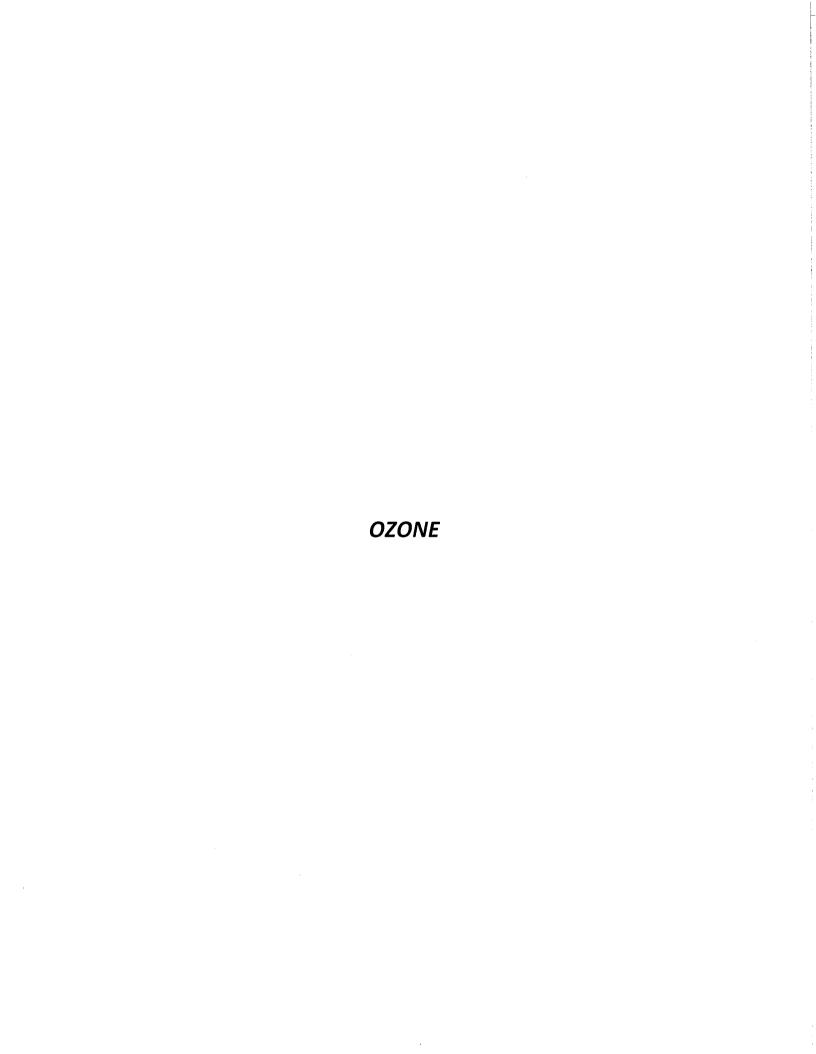
- LICA35

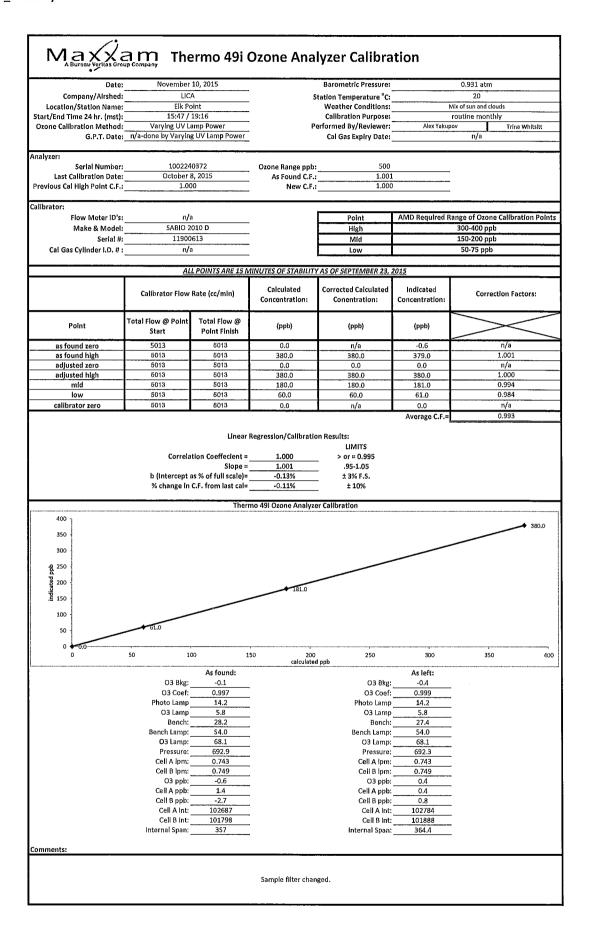


Date:		ember 10,	2015	-			Barometric Pressure:		0.931 a	tm
Company/Airshed: Location/Station Name:		LICA Elk Point		-		Sta	ation Temperature °C:		20	
rt/End Time 24 hr. (mst):		10:05 / 16:5		-			Weather Conditions: Calibration Purpose:		Mix of sun an routine m	
.T. to be used for Ozone?		No		-		Per	formed By/Reviewer:	Alex Y	akupov	Trina White
Calibration Method:	Gas Dilution	& Varying UV	/ Lamp Power	-			Cal Gas Expiry Date:		March 12	, 2019
lyzer:		<del></del>					rection Factors:			··
Serial Number:		592			ا. مبر	Previous C.F.:	As Found C.F.:		999	
Last Calibration Date:		ctober 7, 20	015	-	NO = NO <sub>2</sub> =	0,999 1,000	1.050 0.996		996	
Range ppb:		1000		<u>-</u> -	NOx =	0.999	1,050	0.	999	
orator:								··		
Flow Meter ID's: Make & Model:		/a 2010 D	-	ı		ndard Calibration Po int		1000 ppb	VO <sub>2</sub> (ppb)	
Serial #:						gh	Target NO (ppb) 780		00 (ppb)	Cc Ozone n/a
Cal Gas Cylinder I.D. #:		02073			IV.		380	2	76	n/a
NO/NOx Gas Conc. (ppm):	50.6	50.6			Low 190  Extra Point #1 n/a			00	n/a	
					Extra P		n/a n/a		√a √a	n/a n/a
			ALL	POINTS ARE 15 MINU		OF SEPTEMBER 23, 2	<u>015</u>			
Calibrator Flo			Total Flow	Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.	
Point as found zero	Diluent 5013	Cal Gas	5013	(ppb) 0	(ppb) 0	(ppb) 0,0	(ppb) 4.0	n/a	n/a	
as found high	4938	77.2	5015	778.9	778,9	742.0	746,0	1,050	1.050	
adjusted zero	5013	0.00	5013	0.0	0.0	0.0	0.0	n/a	n/a	
adjusted high	4938 4976	77.20 37.70	5015 5014	778.9 380.5	778.9 380.5	780.0	780.0	0.999	0.999	
mid low	4976	18.90	5014	190.8	190.8	384.0 195.0	384.0 195.0	0.991	0.991 0.978	
calibrator zero	5013	0.00	5013	0	0	0.0	0.0	n/a	n/a	
	·····	***************************************	Alli	POINTS ARE 15 MINU	TES OF STABILITY AS	OF SEPTEMBER 22 2	Average C.F.=	0.989	0.989	
Calibrator Flo	w Rates (co	/min)	ALLI	Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> gain	NO <sub>2</sub> 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	778.0	778.0	2.0	0.0	2.0	$\geq$
as found high NO2 gpt mid	4938 4938	77.20 77.20	5015 5015	520.0 275.0	284.0 513.0	781.0 781.0	498.0 270.0	494.0 265.0	496.0 268.0	0,996
gpt low	4938	77.20	5015	100.0	684.0	782.0	100.0	94.0	98.0	0.959
					l low w			Averag	e NO <sub>2</sub> C.F.=	0.981
				NO NO	gression/Calibration NOx		LIMITS			
	Cor	relation C	oeffecient =	1.000	1,000	NO <sub>2</sub>	> or = 0.995			
			Slope =	1.000	1.000	1,001	.95-1.05			
			full scale)=	0.22%	0.22%	0.30%	± 3% F.S.			
			om last cal≔ r effeciency	-5.08%	-5.08%	0.40%	± 10% 0.96 to 1.04			
			ound: 330			NOx 5LOPE:	As left: 1.396			
	NOX SLOPF		0.6	-		NOx OFFS:	3,4			
	NOx SLOPE: NOx OFF5:			-		NO SLOPE:	1.391			
i	NOx OFF5: NO 5LOPE;	1.	324	-		NO OFF5:	-0.2			
	NOx OFF5: NO 5LOPE: NO OFFS:	1.	).4			CANAD CI WA	V63			
	NOx OFF5: NO 5LOPE;	1.		-		SAMP FLW; OZONE FL:	483 74	-		
	NOx OFF5: NO 5LOPE; NO OFFS; SAMP FLW; OZONE FL; PMT;	1.	),4 184 74 7.3	- - -		OZONE FL: PMT:	74 16.1			
	NOx OFF5: NO 5LOPE; NO OFFS; SAMP FLW; OZONE FL; PMT; IORM PMT;	2	7.4 74 7.3	- - -		OZONE FL: PMT: NORM PMT;	74 16.1 1.9	• • •		
	NOx OFF5: NO 5LOPE; NO OFFS; SAMP FLW; OZONE FL; PMT;	1. (4	),4 184 74 7.3	- - - -		OZONE FL: PMT:	74 16.1	- - -		
r R	NOX OFFS: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: IORM PMT: AZERO: HVPS: CELL TEMP:	1. 4 2 2 1 6 S	0.4 184 74 7.3 1.9 6.2 337 0.0	- - - - -		OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP:	74 16.1 1.9 16.6 637 50.0	- - - -		
N R	NOx OFF5: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: IORM PMT: AZERO: HVPS: CELL TEMP: BOX TEMP:	1. (4) (4) (4) (4) (4) (4) (4) (5) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6	0.4 1884 774 77.3 1.9 66.2 637 0.0 6.5	-		OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP: BOX TEMP:	74 16.1 1.9 16.6 637 50.0 27.6	- - - - -		
N R	NOX OFFS: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: IORM PMT: AZERO: HVPS: CELL TEMP:	1. (4) 4 5 5 5 2 6	0.4 184 74 7.3 1.9 6.2 337 0.0	- - - - - -		OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP:	74 16.1 1.9 16.6 637 50.0 27.6 6.9	-		
N R	NOX OFFS: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: AZERO: HVPS: CELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP:	1. (4) 4 4 5 5 5 5 2 6 6 4 4 3 3 3	0.4 1884 774 7.3 1.9 6.2 637 0.0 6.5 5.9 0.2 13.8			OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP:	74 16.1 1.9 16.6 637 50.0 27.6	-		
N R	NOX OFFS: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: AZERO: HVPS: CELL TEMP: BOX TEMP: IZS TEMP: IZS TEMP: RCEL:	1. (4) 44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.4 1884 74 7.3 1.9 6.2 6.37 0.0 6.5 5.9 0.2			OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: MOLY TEMP: RCEL:	74 16.1 1.9 16.6 637 50.0 27.6 6.9 40.2 314.0 5.4	-		
R N	NOX OFFS: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: IORM PMT: AZERO: HVPS: CELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: RCEL: SAMP:	1. (4) 44 22 24 15 5 5 24 44 333 5 2 2	0.4 74 77 7.3 9.9 6.2 9.37 0.0 6.5 5.9 0.2 13.8 5.4 7.3			OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZ5 TEMP: MOLY TEMP: RCEL: SAMP:	74 16.1 1.9 16.6 637 50.0 27.6 6.9 40.2 314.0 5.4 26.7			
N N Intern	NOX OFFS: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: AZERO: HVPS: CELL TEMP: BOX TEMP: IZS TEMP: IZS TEMP: RCEL:	1. (c) 44	0.4 1884 74 7.3 1.9 6.2 6.37 0.0 6.5 5.9 0.2			OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: MOLY TEMP: RCEL:	74 16.1 1.9 16.6 637 50.0 27.6 6.9 40.2 314.0 5.4			
A N Intern Interna Interna	NOX OFFS: NO 5LOPE: NO OFFS: SAMP FLW: OZONE FL: PMT: IORM PMT: AZERO: CELL TEMP: BOX TEMP: IZS TEMP: IZS TEMP: RCEL: SAMP: al Span NO:	1. (4) 4 4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0.4 184 74 77,3 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9			OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZ5 TEMP: MOLY TEMP: RCEL: SAMP:	74 16.1 1.9 16.6 637 50.0 27.6 6.9 40.2 314.0 5.4 26.7			
A N Intern Interna	NOX OFFS: NO 5LOPE: NO 5LOPE: NO OFFS: SAMP FLUX OZONE FL: PMT: AZERO: HVPS: CELL TEMP: BOX TEMP: IZS TEMP: RCEL: SAMP: al Span NO2:	1. (4) 4 4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0.4 184 74 77 7.3 1.9 6.2 337 0.0 6.5 6.5 9 0.2 13.8 5.4 7.3 9.6 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9			OZONE FL: PMT: NORM PMT: AZERO: HVPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZ5 TEMP: MOLY TEMP: RCEL: SAMP: Internal Span NO2:	74 16.1 1.9 16.6 637 50.0 27.6 6.9 40.2 314.0 5.4 26.7 10			

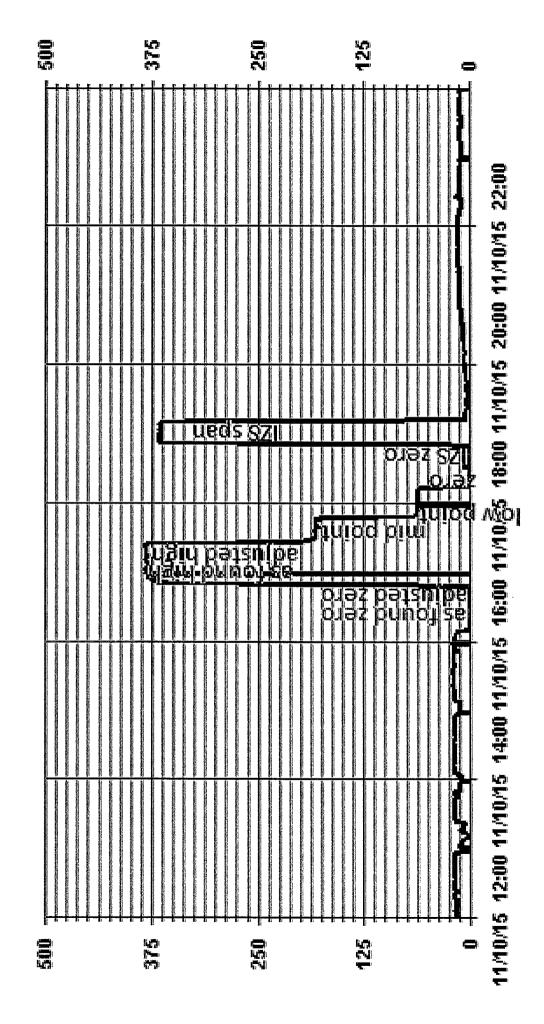




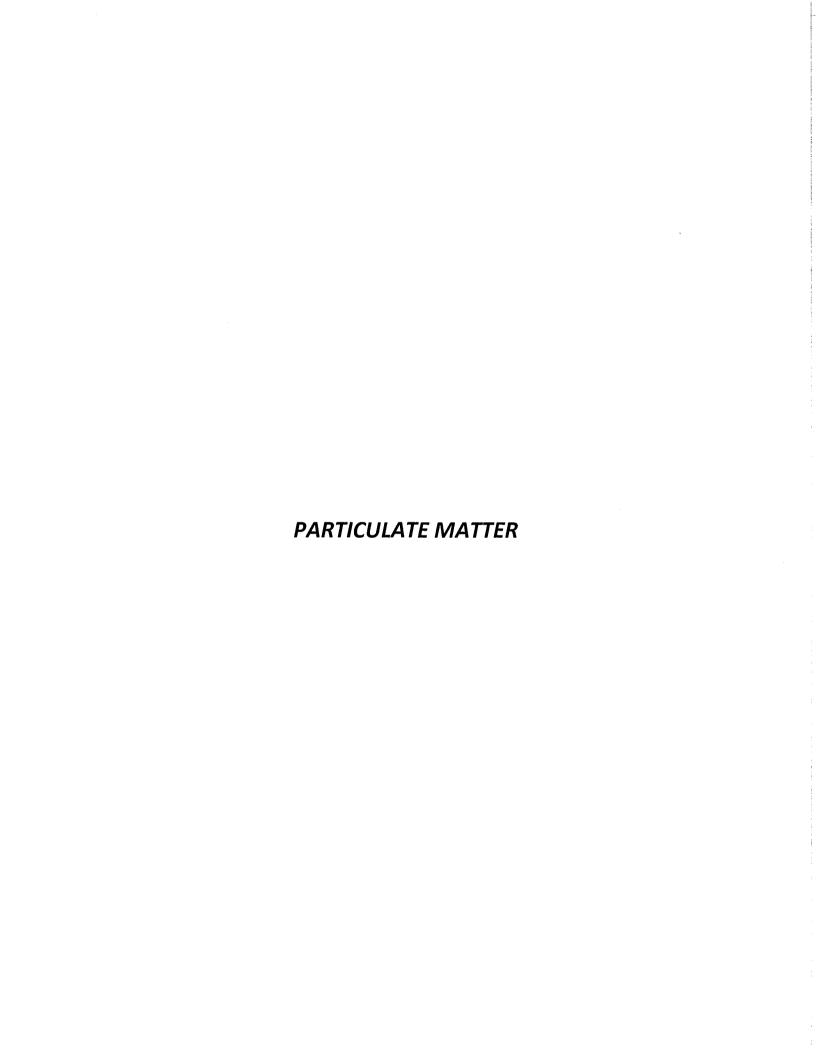




Of Minute Averages

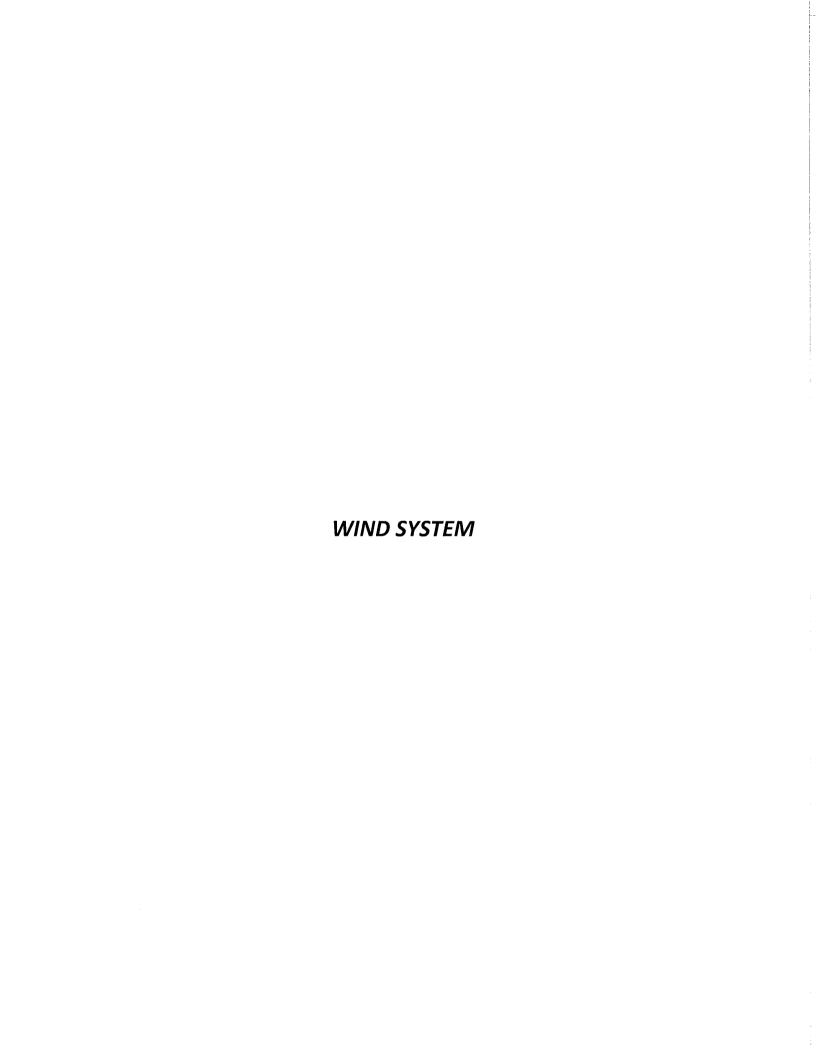


LICA35 03\_ PPB



Date:	Novemb	er 6, 2015		Perfori	med By/Reviewer: A	lex Yakupov Trina Whit
Company:	Ц	CA	<b>-</b> 		Start Time (mst):	12:21
Station Name/Location:	Elk l	oint	End Time (mst):			13;22
Previous Audit Date:	October	22, 2015	Calibration Purpose:			Bi-monthly #1
Parameter:	PM	2,5		We	eather Conditions:	Mainly clear
400A Information and Status:						
	4.405.406	7504000				
Serial Number:		7691003	As Found Filter Loading %: 21.			
Ko Factor:		635 12	_	ilter Loading %:	24.91 0.006	
Ambient Temperature °C: _ Ambient Pressure atm:		931	- ^	As Found Noise: As Left Noise:	0.000	
Main Flow Reading Ipm:		00	-	Pump Vacuum:	0.31	
Aux Flow Reading Ipm:		.67	-	Warnings:	None	
eference Standards:				ger		
	Flo	ow:	Press	ure:	Temperatur	e:
Make:		yer	Fish	1	Fisher	
Model:	475 N	1ark III	FB1:	291	FB 1291	
Serial Number:	n	<b>/</b> a	13016	8457	13016845	7
Calibration Date:	n	/a	18-M	ar-15	18-Mar-15	
s found leak check:						
		Base	Zero	Reference	Zero	
PM 2.5 Flow	actual	-0.01	0,58	0.01	0.56	
	limit	0.15		0.15		
Bypass Flow	actual limit	0.00	-0.72	0.00	-0.72	
s left leak check (same as above if a		0.00		0.60		
s left leak clieck (saille as above il a	s iouila passes).	Base	Zero	Reference	Zero	
PM 2.5 Flow	actual	-0.01	0.58	0.01	0.56	
110 110 110 11	limit	0.15	><	0.15		
Bypass Flow	actual	0.00	-0.72	0.00	-0.72	
	limit	0.60	$\gg$	0.60	><	
s found temperature and pressure:						· · · · · · · · · · · · · · · · · · ·
tolerance	+/- 2.0°C			tolerance +	-/- 0.01 atm	
1405F temperature °C: _	3.1			F pressure atm: _	0.931	
reference temperature °C:	3.8		refe	rence pressure:	0.932	
difference °C: s left temperature and pressure (sar	0.7	ound adaguately		difference :	-0.001	
tolerance		ound adequate).		tolerance +	-/- 0.01 atm	
1405F temperature °C:	3,8		1405	F pressure atm:	0.932	
reference temperature °C:	3.8			rence pressure:	0.932	
difference °C:	0.0			difference :	0.000	
s found flows:	/ 0.00 liv					
main flow tolerance 3.00 lpm + 1405F main flow lpm:	/- 0.20 lpm 3.00				(flow tolerance 16.67/13 otal/aux flow lpm:	.67 lpm +/- 1.00 lpm/+/- 7% 16.67
reference main flow lpm:	3.05				otal/aux flow lpm: otal/aux flow lpm:	16.81
difference lpm:	0.05				difference lpm:	0.14
s left flows (same as above if as fou	•				. Harristali.	culture of a contract of a con
main flow tolerance 3.00 lpm + 1405F main flow lpm:	/- 0.20 lpm 3.00				cflow tolerance 16.67/13 otal/aux flow lpm:	.67 lpm +/- 1.00 lpm/+/- 7% 16.67
reference main flow lpm:	3.00				otal/aux flow lpm:	16.70
difference lpm:	0.00			·	difference lpm:	0.03
, Audit:						
Last K <sub>o</sub> audit date:	16-Jul-15					
1405F K <sub>o</sub> factor:	15635					
Measured K <sub>o</sub> factor:	15757.7000					
% difference:	0.79					

Date:	Novembe	r 23, 2015		Perfor	med By/Reviewer: Al	ex Yakupov Trina Whits
Company:		CA	_		Start Time (mst):	11:44
Station Name/Location:	Elk I	oint	<del>_</del>	End Time (mst):		12:36
Previous Audit Date:	Novemb	er 6, 2015		Ca	libration Purpose:	Bi-monthly #2
Parameter:	PM	2.5		w	eather Conditions:	A few clouds
400A Information and Status:						
Serial Number:	1405A20	7691003	As Found	Filter Loading %:	28.39	
Ko Factor:	15	635	As Left	Filter Loading %:	28.53	
Ambient Temperature °C:	-3	.28	<del></del>	As Found Noise:	0.004	
Ambient Pressure atm:	0.9	932		As Left Noise:	0.000	
Main Flow Reading Ipm:	3.	00		Pump Vacuum:	0.31	· · · · · · · · · · · · · · · · · · ·
Aux Flow Reading lpm:	13	.68		Warnings:	None	
eference Standards:						
Make:		ow: <sub>'</sub> yer	1	sure:	Temperature Fisher	2:
Model:		nyer Nark III		1291	FB 1291	
Serial Number:		/a		68457	130168457	
Calibration Date:		/a /a		1ar-15	18-Mar-15	
s found leak check:						<b></b>
		Base	Zero	Reference	Zero	
PM 2.5 Flow	actual	0.01	0.53	0.01	0.53	
	limit	0.15	$>\!\!<$	0.15		
Bypass Flow	actual	0.00	-0.72	0.00	-0.72	
	limit	0.60	$\geq$	0.60	$\geq \leq$	
s left leak check (same as above if as	found passes):					
		Base	Zero	Reference	Zero	
PM 2.5 Flow	actual	0.01	0.53	0.01	0.53	
	limit	0.15		0.15		
Bypass Flow	actual limit	0.00	-0.72	0.00	-0.72	
	mac	0.00		0.00		<del> </del>
s found temperature and pressure: tolerance	±/- 2 0°C			tolerance	+/- 0.01 atm	
1405F temperature °C:	-3.3		140	5F pressure atm:	0.932	
reference temperature °C:	-3.0	•		erence pressure:	0.931	
difference °C:	0.3	•		difference :	0.001	
s left temperature and pressure (san	ne as above if as	found adequate):				
tolerance	+/- 2.0°C			tolerance	+/- 0.01 atm	
1405F temperature °C:	-3.0		140	5F pressure atm: _	0.931	
reference temperature °C:	-3.0		ref	erence pressure: _	0.931	
difference °C:	0.0			difference :	0.000	<del></del>
s found flows: main flow tolerance 3,00 lpm +	/- 0.20 lpm			total/au	v flow tolerance 16 67/13	67 lpm +/- 1.00 lpm/+/- 7%
1405F main flow lpm:	3.00				otal/aux flow lpm:	16.68
reference main flow Ipm:	2.90	•		reference t	otal/aux flow lpm:	15.96
difference lpm:	-0.10				difference lpm:	-0.72
s left flows (same as above if as four main flow tolerance 3.00 lpm +				<u> 1 /</u>	v flow tolerance 45 57/42	67 lnm +/ 1 00 lnm/-/ 70/
1405F main flow lpm:	3.00				x flow tolerance 16.67/13. otal/aux flow lpm:	67 lpm +/- 1.00 lpm/+/- 7% 16.68
reference main flow lpm:	2.97	•			otal/aux flow lpm:	16.45
difference lpm:	-0.03				difference lpm:	-0.23
, Audit:						
Last K <sub>o</sub> audit date:	16-Jul-15					
1405F K <sub>o</sub> factor:	15635	•				
Measured K <sub>o</sub> factor:	15757.7000					
% difference:	0.79					





### **Meteorological Sensor Audit**

		Station Info	ormation	•		
Company:	LICA		Performed	d By: Ch	ris Wesson/Kevin	Норе
Location:	Elk Point		Reason:	,	Bi-annual audi	t
Audit Date:	21-Feb-14		Start Time	(mst):	15:10	
Previous Audit Date:	24-Nov-11		End Time	(mst):	15:40	
Camananahan	DAA V	Wind S		1-1-4.	4084	
Sensor make:	RM Young		Sensor he		10M	
Sensor model:  Calibrator:	5103VK		Serial Nun	nper: peed motor:	56589	
_	RM Young 0 - 1			gnal range:	CA 03309 0 - 200 KPH	
Voltage range:	0.1		Output sig	gnai range:	0 - 200 KPH	
		Wind Speed	Audit Data	•		
RPM			cated WS - CW	Indicated WS-CC	W Correction	Facto
0	0.		0.02	0.03	-	
1000	17		17.79	17.75	0.99	
2000	35.		35.54	35.53	0.99	
3000	52.		53.29	53,31	0.99	
4000	70.		71.08	71.08	0.99	
5000	88		88.88	88.91	0.99	
6000	105		106.6	106.7	0.99	
7000	123		124.4	124.5	0.99	
8000	141		142.2	142.2	0.99	
9000	158		160	160.1	0.99	
10000	176	5.4	177.8	177.8	0.99	
		Wind Dir		erage Correction Fa	ictor: 0.99	9
Sensor make:	RM Young	Willu Dii	Sensor he	ight.	10M	
Sensor model:	5103VK	Serial Number:			56589	
Calibrator:	RM Young		Variable speed motor:		CA03309	
Voltage range:	0 - 1	-		nal range:	0 - 360	
_						
		Wind Direction				
Wind D	-		cated	Corre	ection Factor	
	)		55.0		NA	
	5		3.1		1.04	
	0		9.5		1.01	***************************************
	35		35.5		1.00	
	30		31.2		0.99	
	25		26.1		1.00	
	70 15		2.3		1.00	
	50		54.7		1.01	
	30	33	14.7		1.01	
1						

Remarks:

#### **Meteorological Sensor Audit** Station Information LICA Chris W / Alex Y Company: Performed By: Elk Point Location: Annual Calibration Reason: Audit Date: 20-Nov-15 Start Time (mst): 11:14 Previous Audit Date: Unknown End Time (mst): 12:00 **Wind Speed** Sensor height: Sensor make: RM Young 15 5103VK 56589 Sensor model: Serial Number: RM Young Calibrator: Variable speed motor: CA 03309 0-1 Voltage range: Output signal range: 0-200 kph Wind Speed Audit Data RPM Wind Speed Actual | Indicated WS - CW Indicated WS-CCW Correction Factor 0 0.0 0.01 0.03 17.81 1000 17.6 17,73 0.99 2000 35.28 35.53 35.54 0.99 0.99 3000 52.92 53.27 53.32 4000 70.56 71.08 71.1 0.99 5000 88.2 88.86 88.88 0.99 6000 105.84 106.6 106.7 0.99 7000 123.48 124.4 124.4 0.99 8000 141.12 142.2 142.2 0.99 9000 158.76 160 160 0.99 10000 176.4 177.8 177.8 0.99 Average Correction Factor: 0.99 **Wind Direction** Sensor make: **RM Young** Sensor height: 15 Sensor model: 5103VK Serial Number: 92412 Calibrator: **RM Young** Variable speed motor: NΑ Voltage range: 0-1 Output signal range: 0-360 Wind Direction Audit Data Wind Direction Indicated **Correction Factor** 355.1 0 NΑ 45 44.1 1.02 90 90.5 0.99 135 136.7 0.99 180 182.1 0.99 225 226.2 0.99 270 269,9 1.00

		NA NA
		Average Correction Factor: 1.0
Remarks:	Declination 13Deg 19'	

Chris W / Alex Y

313.1

354.6

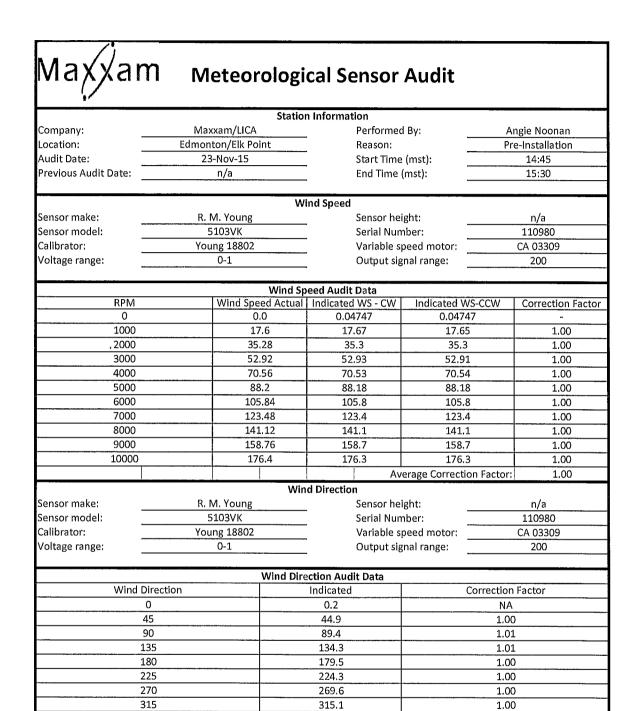
1.01

1.02

315

360

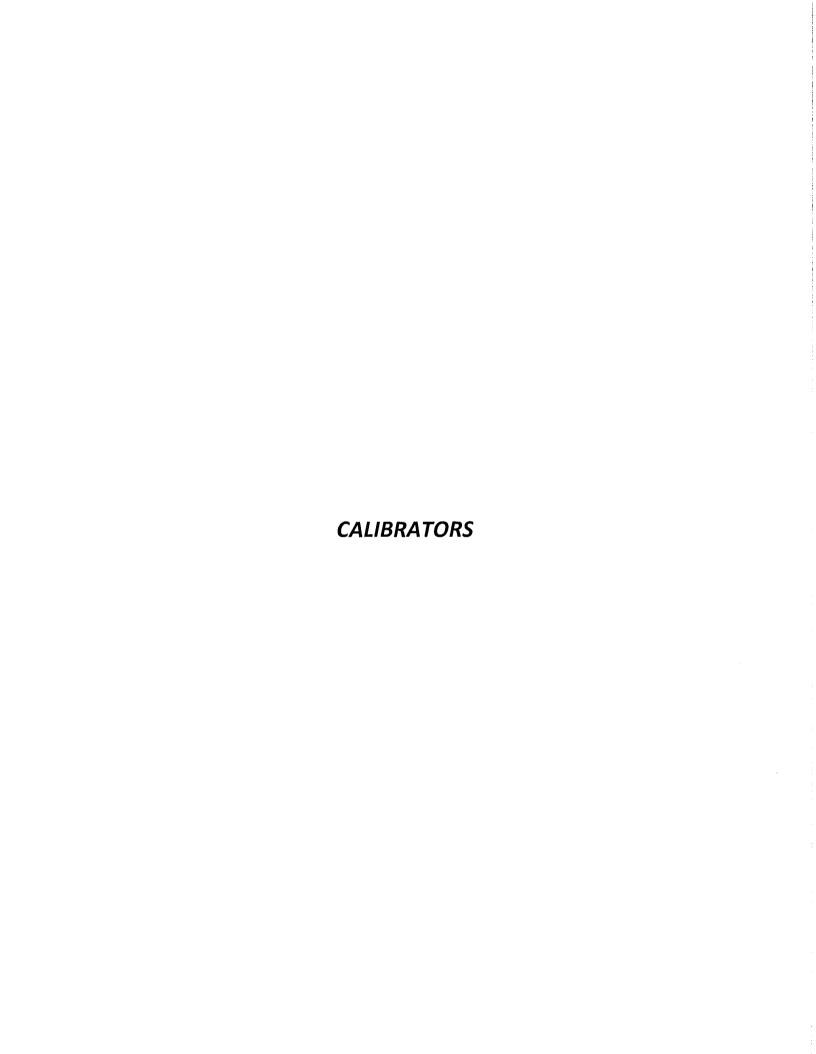
Audit Performed by:



	360	35	4.8	1.01	
			A	verage Correction Factor:	1.00
Remarks:	Pre-installation calibration	on.			

Audit Performed by:

Angie Noonan





## Calibrator Performance Audit OZONE

File No. 2015-030A

<u></u>							
Company: Ma	xxam	_	Operator:	Limi	n Li		
Calibrato	r:		Flow M	[easurement]	Device:		
Make/Model	Sabio	2010D	Make	/Model	N/	/A	
Serial Number	119	00613	Serial	Number	N/	/A	
Oven Temperature		N/A	Tempera	ature (°C)	N/	'A	
Last Verification Date		N/A	Barometr	ic Pressure	N/A		
Flow Measure	ments				*···		
Pt. No. 1 5000	Pt. No. 2	5000	Pt. No. 3	5000	•		
Calibrator Flow	Calc	ulated	Indi	cated	% Dif	ference	
(sccm)	1	ation (ppm)	I I	eated tion (ppm)		% Diff. Limit	
5013		000	-	001	VS Audit Gas		
5013	· <del>  </del>	400		407	1%	1.400/	
5013	· · · · · · · · · · · · · · · · · · ·	200 ·	<del>   </del>	204	1%	± 10%	
5014	The state of the s	100		101	0%	± 10% ± 10%	
007-1	<u>.</u> 0.		Average Perce	*******		± 10%	
O <sub>3</sub> Correlation=  m (Slope)=  b (Intercept % of FS)=	1.0163	y=7 LIMITS ≥ 0.995 0.90-1.10 ± 3% F.S.	nx+b (where x=ca	lculated concentral	iion, y≒indicated	concentration)	
AENV	Standards		······································	Ozone Ar	nalvzer	· · · · · · · · · · · · · · · · · · ·	
Audit Calibrator			Make	/Model	Tec	o 49i	
Make/Model	Teco	49i PS	Serial/AN	IU Number	AMU		
Serial/AMU Number	AMU	J 1808	Last Calib	ration Date	May 21	, 2015	
Ozone Standard	Pri	mary	Full Sca	ale (ppm)	0.	5	
COMMENTS:							
Auditor: Operator Signature:	Al C	Clark Umb-		May 21			



# Calibrator Performance Audit Sulphur Dioxide (by Cylinder Dilution)

File No. 2014-258A

Company: Max	xxam	-	Operator: Lim	in Lì	
Calibrator	10		Flow Measurement	Device:	
Make/Model		I 700	Make/Model	N.	/Δ
Serial Number	R	330	Serial Number	N.	
Last Verification Date		2013	Temperature (°C)	N <sub>z</sub>	
SO <sub>2</sub> Cylinder Conc.		0.3	Barometric Pressure	N.	
SO <sub>2</sub> Cylinder S/N	LL4	2475			
Flow Measure	nents			,	
Pt. No. 1 79.5	Pt. No. 2	39.8	Pt. No. 3 19.9	-	
Calibrator Flow	Cala	ulated	Indicated	0/ Did	ference
(sccm)		ation (ppm)	Concentration (ppm)	vs Audit Gas	% Diff. Limit
Zero Air		000	0.000	VS Audit Gas	% Dill, Limit
4918		800	0.798	0%	1.400/
4918		400			± 10%
4977		200	0.398	-1% 0%	± 10%
4977	U.		Average Percent Difference	<del></del>	± 10% ± 10%
SO <sub>2</sub> Correlation= m (Slope)= b (Intercept % of FS)=	1.0000 0.9971 0.0000		SSION ANALYSIS  mx+b (where x=calculated concentr	ation, y¤Indicated	l concentration)
AENV	Standards		SO <sub>2</sub> An	alyzer	
<b>Audit Calibrator</b>			Make/Model	Tecc	43C
Make/Model	R&R N	1FC 201	Serial/AMU Number	AMU	1623
Serial/AMU Number	AML	1690	Last Calibration Date	Dec	15/14
			Full Scale (ppm)	1	.0
		slow to move the slow to move the slow to moves through	nrough the calibrator. Check f gh quickly.	or contamnatio	on inside
Auditor:	Al (	Clark	Date: Decembe	r 16, 2014	,
Operator Signature:			Location: McIntyre Cen	ter Edmonton	•



## Calibrator Performance Audit Oxides Of Nitrogen

File No. 2015-032A

Company	Max	«xam		V design	Operator:	Lim	n Ll		
	· · · · · · · · · · · · · · · · · · ·	<del></del>							
N. C 1	Calibrator					Teasurement			
	/Model	Sabio		_		/Model		I/A	
	Number	1720		4		Number		1/A	
	ication Date	Market 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-	-	ature (°C)		I/A	
	inder S/N	BLMOC		<b>-</b>	Barometr	ic Pressure	<u> </u>	√A .	
NO/NOX Co	oncentration	50,7/	50.7	-					
Dil	ution Flow (s	sccm)					***************************************		
Pt. #1	5000	Pt. #2	5000	Pt. #3	5000				
	as Flow (sco	em)		•		-			
Pt. #1	80	Pt. #2	40	Pt. #3	20				
Calibrator F	low (seem)	Calculated	Conc (ppm)	India	cated Conc.(	nnm)	0/ Difference	e vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx			
				·			NO	NOx	
5010	0.0	0,000	0.000	0.000	0.000	0,000		± 10%	
5033	79.1	0.797	0,797	0.790	-0.011	0.779	-1%	-2%	
5030	39.7	0,400	0.400	0.395	-0.005	0.390	-1%	-3%	
5029	20.0	0,202	0.202	0.198	-0.003	0.195	-2%	-3%	
				Absolute A	verage Perce	nt Difference	1%	3%	
LINEAR I	REGRESSI	ON ANALY	SIS	y=.	mx+b (where x=	calculated concen	tration, y⊐indicat	ed concentration,	
	<u>NO</u>		LIN	<u>IITS</u>		<u>NOx</u>			
(	Correlation=	1.0000		.990		Correlation=	1.0000		
	m (Slope)=	0.9920		-1.10		m (Slope)=	0.9783		
b (Interce	ept % of FS)=			6 F.S.	h (Interd	cept % of FS)=	#DIV/0I		
- (	· · · · · · · · · · · · · · · · · · ·		_5,		o (mon	ори ло от ты)	#1314701		
Flow	O <sub>3</sub> Conc	NO De	crease	NO	NO2	NOX	% Diff V	s Audit gas	
5033	0.000	0.0		0.787	-0.011	0.776	NO <sub>2</sub>	% Diff, Limi	
5033	0.520	0.4		0,297	0.475	0.772	0	± 10%	
5033	0.280	0,2		0.526	0.249	0.774	0	± 10%	
5033	0.100	0.0		0.698	0.078	0.775	0	± 10%	
	01100	0.0		/		nt Difference		± 10%	
LINEAR	REGRESSIC	ON ANALYS	212		10	calculated concen			
LJAI (331111 1		<i>31</i> 1		•	mx+b (where x-	сатсинава сопсет	uauon, y≕maicai	ea concentration	
_	<u>NO<sub>2</sub></u>	4.0000		<u>IITS</u>					
(	Correlation=	1.0000		.995					
la /Testaman	m (Slope)=	0.9916		-1.10					
D (Interce	pt % of FS)=	#DIV/01	± 3%	6 F.S.					
	AENV S	tandards				NO <sub>x</sub> Aı	ışlyzer		
	Audit Ca					Make/Model	•	00 421	
	Make/Model	Teco	146i		Serial/	AMU Number		J 1868	
	MU Number	AMU	***************************************	ı		alibration Date		21, 2015	
				•		Il Scale (ppm)	Willy 2	, 4010	
CC	MMENTS:	Contains 49.9	ppm SO2		Nat.	· · · · · · · · · · · · · · · · · · ·			
	Auditor:	Al Cl		<del></del>	Date:	May 21	2015		
Oparata	r Signature:		Combo					***	
Operato	r pignainte;	www.	semin.		Location: McIntyre Center Edmonton				

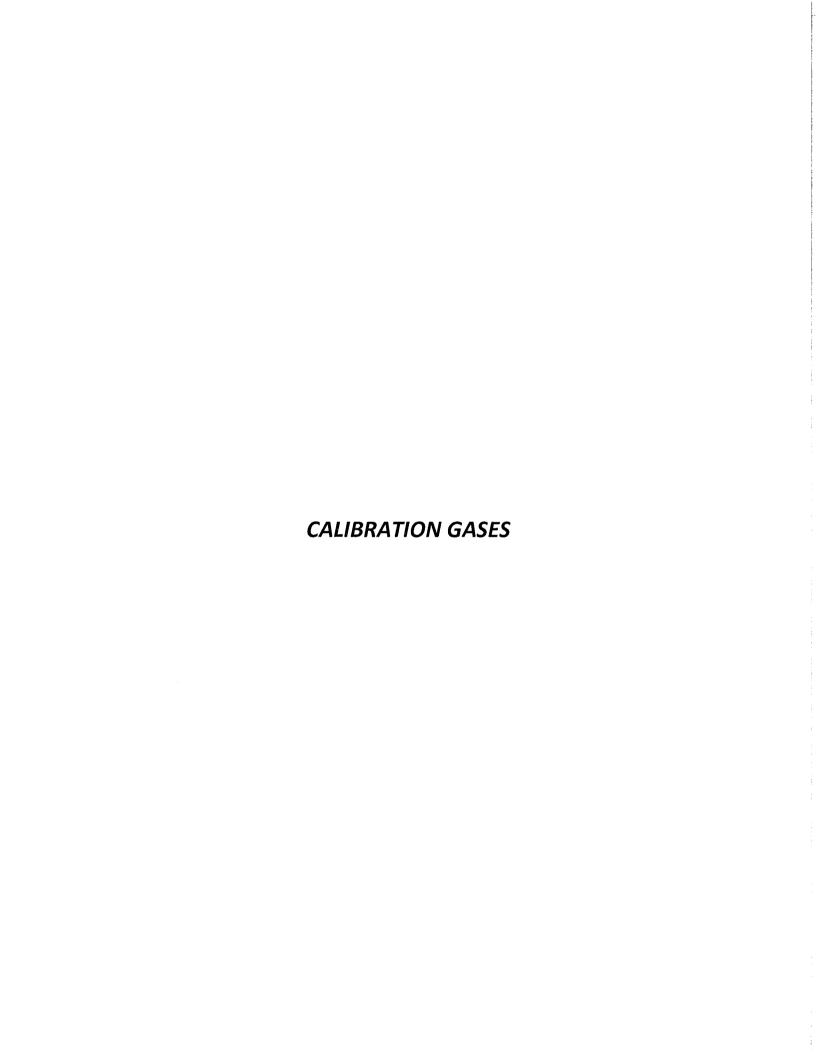


#### Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2015-001A

Company	Max	xam	_		Operator:	Limi	n Ll	
	Calibrator	•			Flow M	Ieasurement :	Davias	
Make	/Model		700			Model	Device. N	/Δ
	Number		27	•		Number .	N/	***************************************
	ication Date			•		iture (°C)	N/	
	inder S/N	, , , , , , , , , , , , , , , , , , ,	03914	•	_	ic Pressure	N <sub>i</sub>	*****
NO/NOX Co		50.8				•		<u> </u>
Dilı	ution Flow (s	scem)						
Pt. #1	5000	Pt. #2	5000	Pt. #3	5000	_		
	las Flow (sco	•						
Pt. #1	80	Pt. #2	40	Pt. #3	20	4		
Calibrator F	low (seem)	Calculated	Conc.(ppm)	Indi	Indicated Conc.(ppm)		% Difference	vs Audit Gas
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5000	0.0	0,000	0.000	0.000	0.001	0.001	L <b>i</b> mit :	l
4999	78.7	0.800	0.800	0.851	-0.016	0.835	6%	4%
5000	39.4	0.400	0.400	0.423	-0.008	0.416	6%	4%
5001	19.7	0.200	0.200	0.211	-0.003	0.208	5%	3%
					verage Perce	nt Difference		4%
b (Interce	m (Slope)= ept % of FS)=			-1.10 % F.S.	b (Interc	m (Slope)= cept % of FS)=	1.0429 0.0000	
Flow	O <sub>3</sub> Conc	NO De	crease	NO	NO2	NOX	% Diff. Vs	Audit gas
4999	0,000	0,0		0.841	-0.015	0.831	$NO_2$	% Diff. Llm
4999	0.520	0.5		0.279	0.518	0.797	-5%	± 10%
4999	0.280	0.3		0,533	0.286	0.818	-2%	± 10%
4999	0.100	0.1	08	0.733	0.095	0.828	2%	± 10%
T TATE A 15 1	DECHECK	ORY ARTAT TO	OTO			nt Difference	·····	± 10%
LINEAR I	REGRESSIO	JN ANALY			=mx+b (where x=	calculated concen	tration, y¤indlcate	d concentration
,	NO <sub>2</sub>			<u>IITS</u>				
	Correlation= m (Slope)=	0.9998		,995				
	pt % of FS)=	0.9458 -1.0258		-1.10 6 F.S.				
		***************************************						
		tandards				NO <sub>X</sub> A1	ıalyzer	
÷	Audit Ca		4.0			Make/Model		o 42i
	Make/Model	Teco AMU		•		AMU Number	· · · · · · · · · · · · · · · · · · ·	1868
Serial/A	MU Number	ANIU	1009			alibration Date		, 2015 .0
C.C.	MMENTS	Cylinder cont	oine 40 7 nnw	SO2 System		drop when O3	· · · · · · · · · · · · · · · · · · ·	
	-	during GPT pl			II SHOWS NOX (	arob witeti O3	auuou. Also N	uisy
	Auditor:	Al C			Date	April 1	2015	
Operato	r Signature;	12. 12.	J Chil			McIntyre Cent		-
Operato	· Prename.	- Comment	of Stade	21	Location;	MORRISHE CONT	er Editiou(ol)	_



Form No. Version No. F-GAS-002 1.1



Combana:	Max	xam	Oper	'ator's Name: Limi	n Li		
Cylinder#:	BLM002073	Concentration PPM:	49.5	Tolerance(%) 2	Certified By: Air Liquide		
Reference (	Calibrator a	nd Gas:	To the second section of the second second second second second second second second second second second second	Flow Measurement 1	Device:		
M	[ake/Model:	R&R MFC 201		Make/Model:	: Bios DC2		
Ser	ial Number:	AMU 1690		Serial Number:	AMU 1659		
Last Verific	cation Date:	March 31, 2015		1	22.5 C		
		SO2 Conc.	98.57	_	690 mmhg		
Cylin	•	CAL016720		-			
	-	Teco 43C Zero: 7.9		AMU Number; 1623	40		
	•		_	1.028 Range: _			
Last Calibra	tion:	Date: <u>Mar 31/15</u>	C.F.	1.000 Done By:	Al Clark		
Calibrator Flo	ows (sccm) Gas	Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration		
5000	0.0	0,000					
4976	82.6	0,801	0.01660	60.242	48.3		
4993	41.0 20.2	0,396 0,193	0.00821	121.780	48.2		
4077	20,2	0.183	0.00406 A vera	ge Cylinder Concentration:	47.6 <b>48.0</b>		
4977				-			
Previous S	rcent variance			l con revenue			
Previous S Per Meets Man	rcent variance ufacturer Toler	from Stated: 3.0 ance. Use manufacturers stated		COMMENTS:			
Previous S Per Meets Man <=5% Outsid	rcent variance ufacturer Toler le Manufacture	ance. Use manufacturers stated r Tolerance. Use manufacturers	s concentration X	COMMENTS:			
Previous S Per Meets Man <=5% Outsid	rcent variance ufacturer Toler le Manufacture	from Stated: 3.0 ance. Use manufacturers stated	s concentration X	COMMENTS:			
Previous S Per Meets Man <=5% Outsid > 5% O	rcent variance ufacturer Toler le Manufacture	ance. Use manufacturers stated r Tolerance. Use manufacturers	s concentration X	COMMENTS:  Date: March 3	1, 2015		

Form No. Version No. F-GAS-002 1.1



Company: Maxxam  Cylinder #: BLM002756T Concentration PP		(am	Opei	nin Li			
		Concentration PPM:	49.9	Tolerance(%)_	2	Certified By:	Air Liquide
Reference Cal	ibrator a	nd Gas:		Flow Me	surement	Device:	
Make/Model: R&R MFC 201		_	M	ake/Model:	Bios E	OC2	
Serial Number:AMU 1690		_	Seri	al Number:	AMU 1	1659	
Last Verificati	on Date: _	March 31, 2015	_		Temp.°C:	22,5	С
G	as Type:	SO2 Cond	c. 98.57		B.P.	690 m	mhg
Cylinder	Number:	CAL016720					
Reference Ana Make	•	Teco 43C	Serial/	AMU Number:	1623		
nstrument Sett		Zero: 7.9		1.028		1.0	
ast Calibration	_	Date: Mar 31/15		1.000			ark
Calibrator Flows	(sccm)	Indicated	Gas Flow/	Concentr		Cylin	
Dilution	Gas	Concentration (PPM)	Dilution Flow	Facto	)1°	Concent	tration
5000	0.0	0.000	0.04000	00.04	0	40	
4976 4993	82.6 41.0	0.821 0.410	0.01660 0.00821	60.24		49. 49.	
4977	20.2	0.202	0.00406	246,3		49.	
	· · · · · · ·			nge Cylinder Con			
Previous State		tration PPM: 49.9 from Stated: 0.4	_				
Percer Meets Manufac	cturer Tolera Ianufacturer	ance. Use manufacturers sta	ers concentration	COMMENTS:			
Percer Meets Manufac <=5% Outside M > 5% Outsi	cturer Tolera Ianufacturer	ance. Use manufacturers sta	ers concentration	COMMENTS: _		31, 2015	

1.1



Company: Maxxam			Oper	nin Li	
Cylinder #: Ll	_36837	Concentration PPM;	10.0	Tolerance(%) 2	Certified By: Air Liquide
Reference Cali	brator a	nd Gas:		Flow Measurement	Device:
Make/Model: R&R MFC 201			Make/Model:	Bios DC2	
		AMU 1690		Serial Number:	AMU 1659
		December 15, 2014		Temp,°C:	23.0 C
	•	H2S Conc.	20,43	İ	702 mmhg
	_	CAL015106			
				A STATE OF THE PARTY OF THE PAR	
Reference Ana Make	-	Teco 45C	Serial/A	AMU Number:1624	_
Instrument Sett		Zero: 6.4		1.160 Range	: 0.1
Last Calibration	=	Date: Dec15/14	_	1.000 Done By	
Calibrator Flows	(seem)	Indicated	Gas Flow/	Concentration	Cylinder
Dilution	Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration
5000	0.0	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 age Cylinder Concentration	9.8
	nt variance	e from Stated: 1.1	ed concentration X	COMMENTS:	
Meets Manufe					
Meets Manufa	Manufacture	or Tolerance. Use manufacture	L		
Meets Manufa	Manufacture	acturer Tolerance, <u>DO NOT U</u>	L	Date: Decem	ber 16, 2014

Form No. Version No. F-GAS-002



# Calibration Gas Audit Single Component Cylinder Gas

File No. \_\_2015-338CGA

	Max	xam	Oper	ator's Name; Lir	nin Li
Cylinder#:	BLM002508	Concentration PPM:	10.2	Tolerance(%) 2	_Certified By: _Air Liquide
Reference (	Calibrator a	nd Gas:		Flow Measurement	Device:
Make/Model: R&R MFC 201		R&R MFC 201		Make/Model	Blos DC2
Serial Number: AMU1690		-		AMU 1659	
Last Verific	cation Date:	March 31, 2015	•		23.0 C
		H2S Conc.			689 mmhg
Cylin		CAL015106		212	, coo mining
Reference A	•	Teco 450i	Serial/A	MMU Number: 1980	
				1.035 Range	. 0.1
				1.000 Done By	
Calibrator Flo	ows (scem) Gas	Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
5000	0.0	0.0000		1 40001	Concontitution
	38.2	0,0725	0.00752	132,984	9,6
5080		0.0340	0.00353	283,687	9,6
	17.9	0,0340			
5080	17.9 9.1	0.0170	0.00180	556.703	9,5
5080 5078				556.703 ge Cylinder Concentration	
5080 5078 5066	9.1				
5080 5078 5066 Previous S	9.1 Stated Concen	0.0170			
5080 5078 5066 Previous S	9.1 Stated Concen	0.0170 tration PPM: 10.2	Avera		
5080 5078 5066 Previous S Per Meets Man	9.1 Stated Concent variance ufacturer Toler	0.0170  tration PPM: 10.2  from Stated: 6.0	Avera	ge Cylinder Concentration	
5080 5078 5066  Previous S Per Meets Man <=5% Outsid	9.1 Stated Concent variance ufacturer Toler	0.0170  tration PPM: 10.2  from Stated: 6.0  ance. Use manufacturers stated	Avera  d concentration  s concentration X	ge Cylinder Concentration	
5080 5078 5066 Previous S Per Meets Man <=5% Outsid > 5% O	9.1 Stated Concent variance ufacturer Toler to Manufacture utside Manufacture	0.0170  tration PPM: 10.2  from Stated: 6.0  ance. Use manufacturers stated of Tolerance. Use manufacturers	Avera  d concentration  s concentration X  Et this cylinder	ge Cylinder Concentration  COMMENTS:	



Proxas Conoda, Inc. 9501-34th Street Edinorsan, AB 160 2X8 Tex 760-443-0778 Fax 780-440-5302

03/27/2014

MAXXAM ANALYTICS INC 'NA' 9372 49TH 8T EDMONTON, AB T6B 2L7

> Work Order No. 20248656 Customer Reference No

Product Loveaich No. 7582 4 085 02 Product Part No. NI ME600P2P-AQ

#### CERTIFICATE OF ANALYSIS Primary Standard

Component Methana Propane Nitrogen

Requested Concentration 600,0ppm 200,0ppm Balance

Certified Concentration 601.4ppm 202ppm Balance

Analytical Principle

Analytical **Accuracy** ±1% rel ±1% rel

Arialytical Instruments: Mettler-Toledo Analytical Balance-ID2sx/USA---Hewlett-Packard (Agilent)¥6890---GC-FID

Cylinder Style Gylinder Pressure (1970): AQ. 2200 p#lg Cylinder Volume Valve Outlet Connection 82.0 ft3 CGA-350 LL33874 Cvimaer Nots)

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

The Children Control of the Control

- Emmur Gan Chaparagana ana 1906 Gan Chaparagana ana 1906
  - Salara a Tim as lating

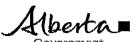
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representation of the property of the process of the proce

n No



Company:		Maxxam		Operators na	me: Limi	n Li	
Cylinder#:	LL83638	Conc CH4 (PPM)	582/203	Tolerance (%)	2 Certified By:	Prax	air
Reference (	Calibrator :	and Gas:			Flow Measurem	ent Device:	***************************************
Make/	Model	R&R MFC 2	01	_	Make/Model	Bios [	DC2
Serial Number		AMU 1691			Serial Number	AMU 1	1650
Last Verification Date				-	Temp.°C	24.0	
	Туре	CH4		999.2	B.P.	703 m	
		D751932			_,_,	, , ,	
Gas '		C3H8		- 246.5			
Cylinder		XF0037998					
Reference A Make/I Instrument S	Model	Teco 55C	N/A	- Sr		J Number;	
Last Calibra	-	-			oan: N/A	-	
		Date.	May 21/15	- '	C.F. 1.000	Done By:	Al Clark
		,					
Calibrator Flo	ows (sccm)	Indicated Conc.	(ppm)	Gas Flow/	Concentration	Cylinder Cor	ncentration
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
		0.00	0.00				
2600	0.0						
2569	51.5	11.92	11,08	0,02005	49.883	595	201
2569 3549	51,5 22,3	11.92 3.76	11.08 3.49	0.00628	159,148	598	202
2569	51.5	11.92	11,08	0.00628 0.00295			
2569 3549	51,5 22,3	11.92 3.76	11,08 3.49 1.66	0.00628 0.00295	159,148 338,750 der Concentration:	598 596	202 204
2569 3549 3523	51.5 22.3 10.4	11.92 3.76 1.76	11.08 3.49 1.66	0.00628 0.00295	159.148 338.750 der Concentration: <u>C3H8</u>	598 596	202 204
2569 3549 3523	51.5 22.3 10.4	11.92 3.76	11,08 3.49 1.66	0.00628 0.00295	159,148 338,750 der Concentration:	598 596	202 204
2569 3549 3523	51.5 22.3 10.4	11.92 3.76 1.76	11.08 3.49 1.66	0.00628 0.00295	159.148 338.750 der Concentration: <u>C3H8</u>	598 596	202 204
2569 3549 3523	51.5 22.3 10.4 evious Stated Percent v	11.92 3.76 1.76	11.08 3.49 1.66 CH4 582 2.5 on CH4 o	0.00628 0.00295 Average Cylin	159.148 338.750 der Concentration: <u>C3H8</u> 203	598 596	202 204
2569 3549 3523 Pre	51.5 22.3 10.4  evious Stated Percent v	11.92 3.76 1.76  Concentration PPM: variance from Stated: s tolerances based	11.08 3.49 1.66  CH4 582 2.5  on CH4 on facturers sta	0.00628 0.00295 Average Cylin	159.148 338.750 der Concentration:  C3H8 203 0.3  COMMENTS:	598 596	202 204
2569 3549 3523 Pre	51.5 22.3 10.4  evious Stated Percent v  Cylinder gasets Manufactur 6 Outside Man	11.92 3.76 1.76  Concentration PPM: variance from Stated: s tolerances based over Tolerance, Use manu	11.08 3.49 1.66  CH4 582 2.5  on CH4 on facturers state manufacturers	0.00628 0.00295 Average Cylin	159.148 338.750 der Concentration:  C3H8 203 0.3  COMMENTS:	598 596	202 204
2569 3549 3523 Pre	51.5 22.3 10.4  evious Stated Percent v  Cylinder gasets Manufactur 6 Outside Man	11.92 3.76 1.76  Concentration PPM: variance from Stated: s tolerances based of the rer Tolerance, Use manufacturer Tolerance, Use	11.08 3.49 1.66  CH4 582 2.5  on CH4 on facturers state manufacturers	0.00628 0.00295 Average Cylin  nly ted concentration rers concentration USE this cylinder	159.148 338.750 der Concentration:  C3H8 203 0.3  COMMENTS:	598 596 <b>596</b>	202 204



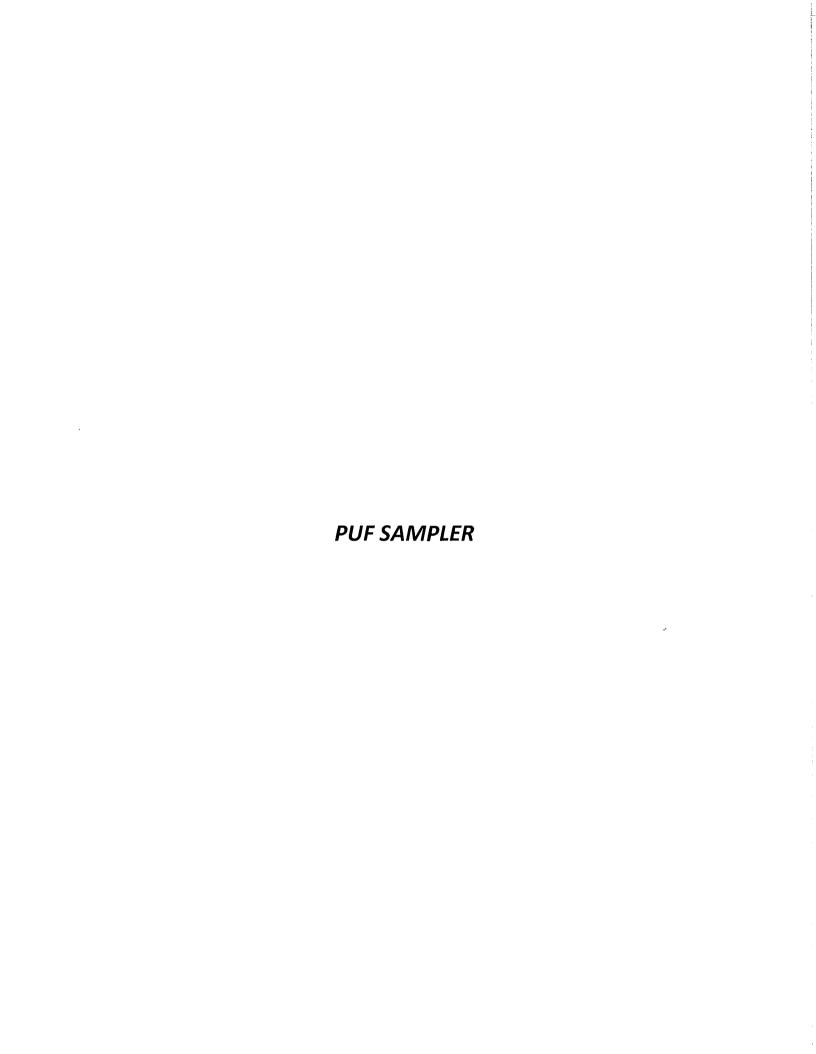
Company	Max	xxam		Operators na	me:	Limin		. , , , , , , , , , , , , , , , , , , ,
								da.
Cylinder #: BLM002073 Conc (PPM)		50.6/50.6	1 Oterance (%)		Ceruned By:	Air Liqu	nide	
Reference	Calibrator a	and Gas:			Flo	ow Measureme	ent Device:	
Make/Model Teco 1		1461	ì		lake/Model	Bios D	C2	
Serial Number AM				`		rial Number		
Last Verification Date				· ]			22.5	
		NO					690 mr	
	• •	. CAL018				•		
•	•		······································	•				
								<del></del>
Reference .	Analyzer:							
Make/	Model .	Teco 4	42i	·		Serial/AMU	J Number:	1868
Instrument :	Settings	Zero:	4.2	Sp	oan: ַ	1.008	Range:	1.0
Last Calibra	ation:	Date:	Mar 31/15			1.000		
						. , ,,,		
Calibrator Fl	ows (sccm)	Indicated Cor	nc. (npm)	Gas Flow/		Concentration	Cylinder Con	centration
Dilution	Gas	NO	NOX	Dilution Flow	_	Factor	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 Cylin	der (	Concentration:	52.0	51.3
			<u>NO</u>			<u>NOx</u>		
Previous	Stated Concer	ntration PPM; _	50.6			50.6		
Pe	ercent variance	e from Stated:	2,8			1.4		
					-			
	_	<b>olerances bas</b> erance. Use manu		only ted concentration		COMMENTS:		
•		T-1 II	e manufactur	ers concentration	X	- Contains 49.5 ppr	n SO2 in cylinder	
Meets Ma	de Manufacture	er Toterance, Osc	, municipation			<u> </u>	- y	
Meets Ma				USE this cylinder				
Meets Ma			e. <u>DO NOT 1</u>	· · 1-	ate:	March 3	1. 2015	<del></del>



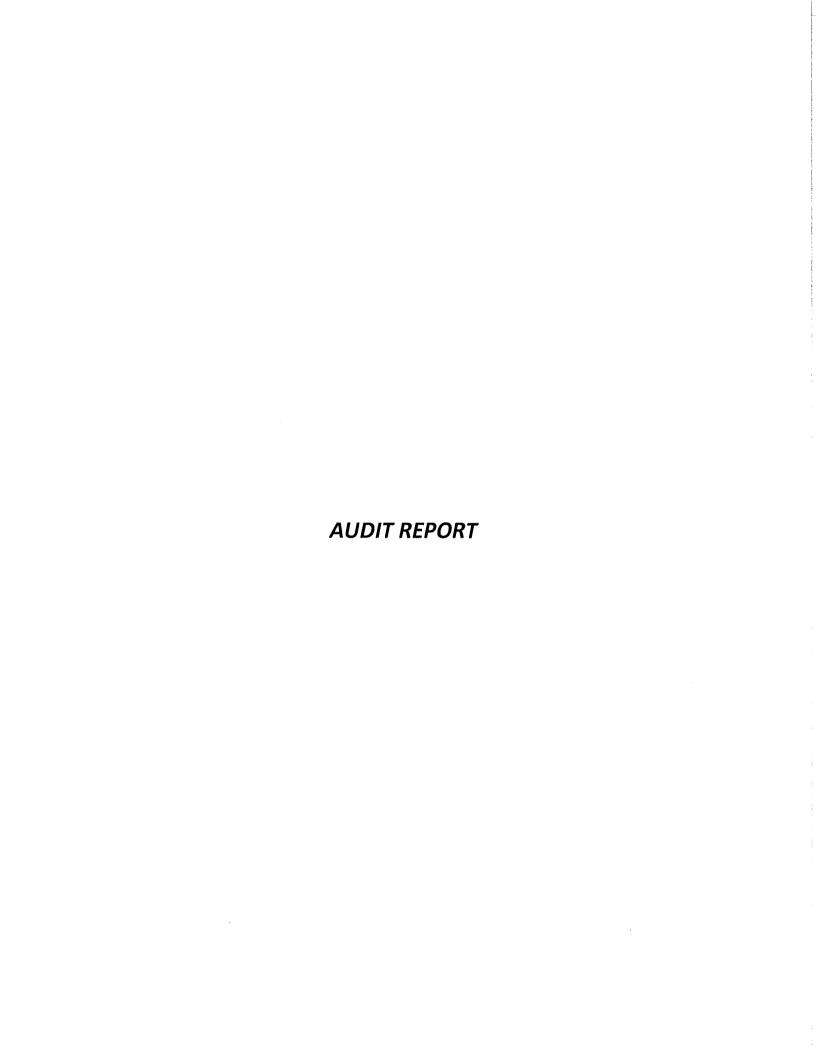
# Calibration Gas Audit No Cylinder Gas

File No. 2015-343CGA

Company:	Max	kxam		Operators na	me: Limiı	n Li	
Cylinder#:	BLM002756T	Conc (PPM)	50.7/50.7	Tolerance (%)	2 Certified By:	Air Liqu	ulde
Reference	Calibrator a	ınd Gas:			Flow Measurem	ent Device:	
Make	/Model	Teco 1	146i		Make/Model	Bios D	C2
Serial	al Number AMU 1809			Serial Number	AMU 1	659	
Last Verifi	Last Verification Date March 31, 2015			Temp.°C	22.5	С	
		NO		48.79	B.P.	690 mr	
	,	CAL018			•		
			** *** ** ** ** ** ** ** ** ** ** ** **				
Reference	Analyzer:						
Make	/Model	Teco	42i	•	Serial/AMU	J Number:	1868
Instrument	Settings	Zero:	4.2	Sį	oan: 1,008	Range:	1.0
Last Calibr	ation:	Date:	Mar 31/15	C.F. 1.000		Done By:	Al Clark
Calibrator Fl	ows (sccm) Gas	Indicated Co	nc. (ppm) NOX	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Cor NO	ncentration NOX
5000	0.0	0.000	0.000	Dhudou riow	ractor	110	NOA
4976	82.6	0.842	0.822	0.01660	60.242	50.7	49,5
4993	41.0	0,420	0,410	0.00821	121.780	51.1	49.9
4977	20.2	0.208	0,205	0.00406	246.386	51.2	50.5
				Average Cylin	der Concentration:	51.0	50.0
			<u>NO</u>		<u>NOx</u>		
Previous	Stated Concer	ntration PPM:	50.7		50,7		
P	ercent varianc	e from Stated:	0.7		1.4		
•		olerances ba brance. Use man		only ted concentration	X COMMENTS:		
<=5% Outs	ide Manufactur	er Tolerance. Us	e manufactur	ers concentration	Contains 49.9 pp	m SO2 in cylinder	
> 5%	Outside Manuf	acturer Toleranc	e. <u>DO NOT</u>	USE this cylinder			
- 5/0							
- 570	Auditor:	Al Cla	ark	D	ate: March 3	1, 2015	



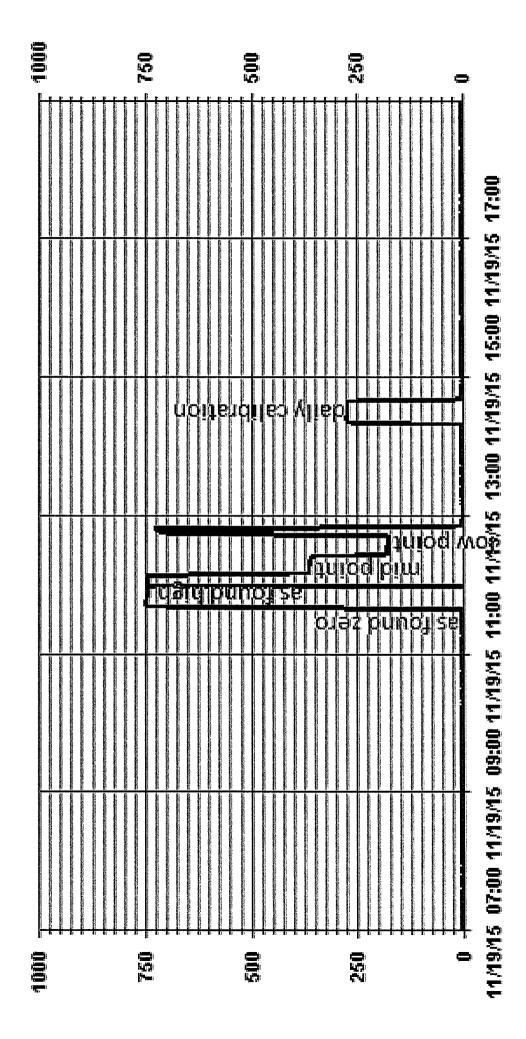
A bureau vertias droup company			<u> </u>		
Date:		er 25, 2015	PUF PLUS Serial #:	100-1	
Company/Alrshed:		ICA	Performed By/Reviewer:		Trina Whitsiti
Location/Station Name: ference Standards:		Polnt	Weather Conditions:	Mainly	
rerence Standards: Make:		ow: Scientific	Pressure: Fisher Scientific	Temper Practical Instrum	
Model:		1291	FB61291	Ent Electronics	
Serial Number:		.68457	130168457	1072	
Calibration Date:		18, 2015	March 18, 2015	January 2	
			RE AND TEMPERATURE AUDIT	··	<u> </u>
AS FOUND Reference Baron (mmHg):	etric Pressure	708.06	AS FOUND Reference Temp	erature (°C):	n/a
AS FOUND PUF PLUS Baron (mmHg):	etric Pressure	n/a	AS FOUND PUF PLUS Temp	erature (°C):	n/a
	ce (+/- 2% max.):		% Diffe	ence (+/- 2 °C max.):	#VALUE!
**IF THE PRESSURE DE\		HAN +/- 2%	**IF THE TEMPERATURE DE		AN +/- 2 °C
	ATION IS REQUIRE			TION IS REQUIRED**	
			PLUS FLOW AUDIT		
		Flow Aud	it Calculations:		
		Certification Date:	October 12, 2015		
Enter Baro		om refrence (InHg)	27,88	•	
		c Pressure (mmHg)	708.1		
		from reference °C	-3,8		
		calibrated orifice	6.07570	•	
Enter	"p" variable from	n calibrated orifice	-0.03578	•	
	-	Enter Δp in. H <sub>2</sub> O	1.82		
		lardized Flow lpm≍	231,32	•	
		low Set Point Ipm=	230.00		
**		nce (+/- 2% max.)=	-0.57% N +/- 2% A FLOW CALIBRATION IS F	icoutoco**	
	F THE PLOW DEVI		PRESSURE CALIBRATION	EQUIRED	
Dofovouse Dovometrie Dr	ACTED CALL		708.06		
Reference Barometric Pr		<u>.IBRATION</u> (mmHg): _	708.06	•	
roi barometre	C33GIG ALTER CAL	% Difference:	0,29%	Max 2.0%	
			0,2570		
Calibration Point (mmHg):		quired for target	As Found barometric pressure (mmHg):	As Left barometric pressure (mmHg):	% Difference v Calibration
740.05			<u> </u>		Target:
748,06		.57 .79	789.0	741.0	0.94%
728.06 708.06		.00	775.0 750.0	730.0 706.0	-0.27% 0,29%
688.06		0.79	717.0	683,0	0,74%
668.06		57	703.0	674.0	-0.89%
				rence (+/- 2% max.)=	0.16%
		TISCH PUF PLUS TEI	MPERATURE CALIBRATION	<del>-</del>	
Temp	erature Calibrator	Certification Date:	January 24, 2015		
Reference Te	mperature AFTER	CALIBRATION (°C):	-2.0	•	
		CALIBRATION(°C):	-3,8	•	
		Difference (°C):		Max 2.0 °C	
		- maranaa ( o)r		. 1910/ 2:0 C	
Calibration Point (°C):	As For	und (°C)	As Left (°C)	+/- Differ	ence (°C)
20		0.5	20.3	+/- Difference (°C)	
-20		.9,7	-19.7	0.	
40		0.6	40,2	-0.	
			0,2	-0.	
0 0.4			-29.8	-0.	
0 -30			% Difference (+/- 2 °C max.)	-0.	2
			% Difference (*/- Z C max.)		
		TISCH PUF PLU	S FLOW CALIBRATION		
	Callbrated Orifice		S FLOW CALIBRATION		
-30	metric Pressure fr	Flow Calibra Certification Date: om refrence (InHg)	S FLOW CALIBRATION ation Calculations:	-	
-30	metric Pressure fr	Flow Calibra Certification Date:	S FLOW CALIBRATION ation Calculations: October 12, 2015	-	
-30 Enter Barc Enter Am	metric Pressure fr Barometri blent Temperature	Flow Calibra Certification Date: com refrence (InHg) Ic Pressure (mmHg) e from reference °C	S FLOW CALIBRATION ation Calculations: October 12, 2015 27.88	- - -	
-30 Enter Barc Enter Am Enter	metric Pressure fr Barometrl blent Temperature "m" variable fron	Flow Calibra Certification Date: com refrence (inHg) Ic Pressure (mmHg) e from reference °C n callbrated orifice	S FLOW CALIBRATION ation Calculations: October 12, 2015 27.88 708.1	- - - -	
-30 Enter Barc Enter Am Enter	metric Pressure fr Barometrl blent Temperature "m" variable fron	Flow Calibra Certification Date: com refrence (InHg) Ic Pressure (mmHg) e from reference °C n calibrated orifice n calibrated orifice	S FLOW CALIBRATION ation Calculations: October 12, 2015 27.88 708.1 -3.8	- - - -	
-30 Enter Barc Enter Am Enter	metric Pressure fr Barometrl blent Temperature "m" variable fron	Flow Calibra Certification Date: com refrence (inHg) Ic Pressure (mmHg) e from reference °C n callbrated orifice	S FLOW CALIBRATION ation Calculations: October 12, 2015 27.88 708.1 -3.8 6.07570	-	
-30 Enter Barc Enter Am Enter	metric Pressure fr Barometrl blent Temperature "m" variable fron "b" variable fron	Flow Calibra Certification Date: com refrence (InHg) Ic Pressure (mmHg) e from reference °C n calibrated orifice n calibrated orifice	S FLOW CALIBRATION ation Calculations: October 12, 2015 27.88 708.1 -3.8 6.07570 -0.03578	-	
-30 Enter Barc Enter Am Enter	metric Pressure fr Barometri blent Temperature "m" variable fron "b" variable fron Stanc F	Flow Calibra Certification Date: com refrence (InHg) ic Pressure (mmHg) e from reference °C n calibrated orifice n calibrated orifice Enter Δp in, H <sub>2</sub> O dardized Flow lpm= low Set Point lpm=	S FLOW CALIBRATION ation Calculations:	-	
-30 Enter Bard Enter Am Enter Enter	metric Pressure fr Barometri blent Temperature "m" varlable fron "b" varlable fron Stanc F % Differe	Flow Calibra Certification Date: com refrence (inHg) ic Pressure (mmHg) e from reference °C n calibrated orifice Enter Δp in. H <sub>2</sub> O adrdized Flow Ipme flow Set Point Ipme ence (+/- 2% max.)=	S FLOW CALIBRATION ation Calculations: October 12, 2015 27.88 708.1 -3.8 6.07570 -0.03578 1.80 230.08 230.00 -0.03%		
-30 Enter Bard Enter Am Enter Enter	metric Pressure fr Barometri blent Temperature "m" varlable fron "b" varlable fron Stanc F % Differe	Flow Calibra Certification Date: com refrence (inHg) ic Pressure (mmHg) a from reference °C n calibrated orifice n calibrated orifice Enter Δp in. H <sub>2</sub> O dardized Flow Ipm= ince (+/- 2% max.)= iATES BY MORE THA	S FLOW CALIBRATION ation Calculations:		
-30 Enter Bard Enter Am Enter Enter	metric Pressure fr Barometri blent Temperature "m" variable fron "b" variable fron Stanc F % Differe	Flow Calibra Certification Date: com refrence (InHg) lc Pressure (mmHg) lc Pressure (mmHg) lc Pressure (mide) from reference °C n calibrated orifice n calibrated orifice Enter Δp in. H <sub>2</sub> O dardized Flow lpm= clow Set Point lpm= low Set Point lpm= arce (+/- 2% max.)= ATES BY MORE THA R, A1 a	S FLOW CALIBRATION ation Calculations:		
-30 Enter Barc Enter Am Enter Enter	metric Pressure fr Barometri blent Temperature "m" variable fron "b" variable fron Stand F % Differe	Flow Calibra Certification Date: com refrence (inHg) ic Pressure (mmHg) a from reference °C n calibrated orifice n calibrated orifice Enter Δp in. H <sub>2</sub> O dardized Flow Ipm= ince (+/- 2% max.)= iATES BY MORE THA	S FLOW CALIBRATION ation Calculations:	As Found/A	
-30 Enter Bard Enter Am Enter Enter	metric Pressure fr Barometric blent Temperature "m" variable fron "b" variable fron Stanc F % Differe IF THE FLOW DEVI	Flow Calibra Certification Date: com refrence (InHg) lc Pressure (mmHg) lc Pressure (mmHg) lc Pressure (mide) from reference °C n calibrated orifice n calibrated orifice Enter Δp in. H <sub>2</sub> O dardized Flow lpm= clow Set Point lpm= low Set Point lpm= arce (+/- 2% max.)= ATES BY MORE THA R, A1 a	S FLOW CALIBRATION ation Calculations:		
-30 Enter Barc Enter Am Enter Enter	metric Pressure fr Barometri blent Temperature "m" variable fron "b" variable fron Stanc F % Differe IF THE FLOW DEVI As Found/As	Flow Calibra Certification Date: com refrence (InHg) lc Pressure (mmHg) lc Pressure (mmHg) lc Pressure (mid) from reference °C n calibrated orifice n calibrated orifice Enter Δp in. H <sub>2</sub> O dardized Flow ipm= clow Set Point ipm= low Set Point ipm= ATES BY MORE THA R, A1 a Left Pressure:	S FLOW CALIBRATION ation Calculations:	As Found/A	.2483
-30 Enter Baro Enter Am Enter Enter	metric Pressure fr Barometri blent Temperature "m" variable fron "b" variable fron Stand F % Differe IF THE FLOW DEVI As Found/As n/a / 1	Flow Calibra Certification Date: com refrence (InHg) lc Pressure (mmHg) lc Pressure (mmHg) lc Pressure (mfHg) lc Pressure:	S FLOW CALIBRATION ation Calculations:	As Found/A n/a / -	. <b>2</b> 483 7.6 <b>2</b> 52
-30 Enter Barc Enter Am Enter Enter A0 A1	metric Pressure fr Barometri blent Temperature "m" variable fron "b" variable fron Stand F % Differe IF THE FLOW DEVI As Found/As n/a / 1	Flow Calibra Certification Dates: com refrence (inHg) ic Pressure (mmHg) a from reference °C n calibrated orifice n calibrated orifice Enter Δp in, H <sub>2</sub> O adrized Flow Ipm= low Set Point Ipm= ance (+/- 2% max.)= ATES BY MORE THA Left Pressure: 5312.75	S FLOW CALIBRATION ation Calculations:	As Found/A n/a / - n/a / 1	. <b>2</b> 483 7.6 <b>2</b> 52
-30  Enter Barc Enter Am Enter Enter A0 A1 R	metric Pressure fr Barometri blent Temperature "m" variable fron "b" variable fron Stand F % Differe IF THE FLOW DEVI As Found/As n/a / 1	Flow Calibra Certification Dates: com refrence (inHg) ic Pressure (mmHg) a from reference °C n calibrated orifice n calibrated orifice Enter Δp in, H <sub>2</sub> O adrized Flow Ipm= low Set Point Ipm= ance (+/- 2% max.)= ATES BY MORE THA Left Pressure: 5312.75	S FLOW CALIBRATION ation Calculations:	As Found/A n/a / - n/a / 1	. <b>2</b> 483 7.6 <b>2</b> 52



COMPANY: LICA	PLAN'	PLANT:		·····	DATE: November 19, 20		
tation Location: UTM Coordinates: 5	3.89134N/110.7641	ВW					
Elevation (m): 5	98m		_				
Declination: 1	3° 22'		_				
GENERAL	Yes	No	n/a		Commen	te.	
Has site location changed from previou		No	II/a		Commen	15:	
	e secure? Yes	INU					
Are station operating conditions ac							
Last twelve month's of calibrations a							
All applicable SOP's available in	station?	No					
Site documentation up	to date? Yes						
					_		
DATA ACQUISITION	Yes	No	n/a		Commen	ts:	
Are strip chart Is a digital data logge		No No					
Is a telemetry system for data acquisitio		INO					
is a telemetry system for data acquisition	yes yes						
TRAILER COMPONENTS	Yes	No	n/a		Commen	ts:	
a glass sampling manifold installed?	Yes						
s sampling manifold clean and free of chips an							
racks? s a trap in place?	Yes						
re spare manifold ports capped?	Yes Yes						
s manifold pump properly installed and operat							
horizontal, is the manifold mounted at a sligh	nt res				<u> </u>		
pward angle to prevent moisture from getting	g in to						
he lines?			n/a				
o sample lines extend halfway into manifold?		No					
re monitor sampling lines connected to manif	fold? Yes						
re sampling lines clean?		No					
re monitors properly mounted and secure? re monitors properly exhausted from room or	Yes						
crubbed (NOx pump inlet scrubbed and dated							
re zero and span systems operational?	Yes						
						····	
Meteorological	Yes	No	n/a		Commen	ts:	
Is wind equipment properly o							
Is the wind equipment functioning p	properly? Yes						
Г	· · · · · · · · · · · · · · · · · · ·	Audit	%				
	Indicated Value:	Value:	Difference	Scalar Difference:			
Station Temperature °C	21.1	20.1	-4.98	-1.00			
Barometric Pressure	n/a	n/a	n/a	n/a			
Wind Speed (kph)	4	3	n/a	-1.00			
Wind Direction (Deg)	287	w	n/a	n/a			
Relative Humidity %	n/a	n/a	n/a	n/a			
Ambient Temperature °C	n/a	n/a	n/a	n/a			
Solar Radiation kW/m²	n/a	n/a	n/a	n/a			
Precipitation (Tipping Bucket mm)	n/a	n/a	n/a	n/a			
Barrana Mariana Mariana		11			16	16.11	
Recommendations: Need to pay more atter	ntion to cleaning the	lines in to the	e manifold, als	o make sure they are h	naifway in to ti	ne manifold.	
AUDITOR: Limi							

Date:	November	19, 2015	_		27.83 <b>in</b> . ⊦	lg		
Company/Airshed:	LIC		_	Sta	tion Temperatur			19
ation/Station Name: Parameter:	ELK p Sulphur		-		Weather Conditi Calibration Purp			with light snow
art Time 24 hr. (mst):	3dipildi 11:		-	Per	formed By/Revie		imin Li	Tom Bourque
nd Time 24 hr. (mst):	12:		-		Cal Gas Explry D			er 25, 2018
Calibration Method:	Gas Di	ution	-	Converter Mode	& s/n (if applica	ble):		NA
zer:								
Serial Number:	46 November		-	Range ppb:				
ast Calibration Date: Previous C.F.:	1.0		-	As Found C.F.: New C.F.:				
rator: Flow Meter ID's:	N/	١	г	Standard Ca Point	ibration Points for Sulphur Dioxide		oration Points	
Make & Model:	5ABIO		- h	High	- Salphar Blomes	780	STATION FORIES	
Serial #:	17200		. [	Mid		380		
I Gas Cylinder I.D. #:	BLM00		_ [	Low	L	190		
Cal Gas Conc. (ppm):	49.		ARE 15 M	INUTES OF STABILITY AS OF	SEPTEMBER 23. 2	015		
	itor Flow Rates (cc	/min)	Ī	Calculated Concentration:	Indicated Conce		Correctio	n Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)			
as found zero as found high	5029 4953	77,20	5029 5030	0.0 765,8	0.9 743.0	-+	•	n/a 1,032
mid	4953	37.70	5030	374.1	360.0			1,042
low	5011	19.00	5030	188.5	178.0			1,064
					Avera	ge C.F.=		1.046
		Lines	r Regressio	n/Calibration Results:				
		Correlation Co.	efficient -	4.000	LIMITS			
		Correlation Co	Slope = _	1,000	or = 0.995 0.90-1.10	,		
	b (In	tercept as % of f		0.21%	± 3% F.S.			
		ange in C.F. fron		-3.20%	± 10%			
			-		-			
		······	API 100	DE Sulphur Dioxide Analyzer	Audit	······································	······	
700							743.0	
600						***************************************	-	
					Market and the second			
ag 400 ·				A service and the service and				
age 200 -				360,0				
200 -	- Annual Control of the Control of t	178.0						İ
100	······································							
0 \$40,9	10 2	0 30		40 50	60	70	80	90
		*************************************		calculated ppb				
		As fou			As left:			-
	SLOF			SLOPE:				
	OFFSI HVI			OFFSET: HVPS:	119,1 512			
	RCELL TEM			RCELL TEMP:	50			
	BOX TEM			BOX TEMP	29,9			
	PMT TEM			PMT TEMP:				
	PRI			PRE5	24.6			
	SAMP			SAMP FL	620			
	NORM PM			NORM PMT				
	UV LAM			UV LAMP:				
	LAMP RATI		9	LAMP RATIO	102.9			
	STR. L			STR. LGT				
	DRK PM	IT: 12.9		DRK PMT				
	DRK LM			DRK LMP	3.1			

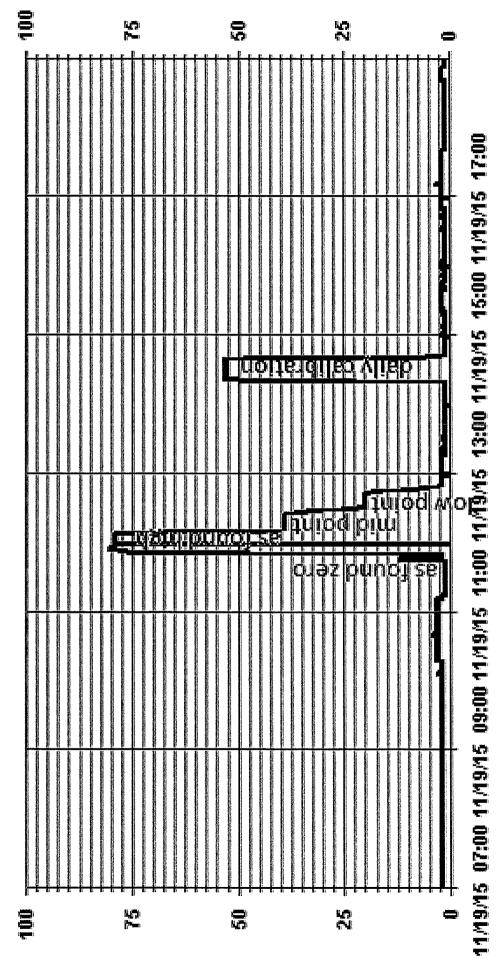
of Minute Averages



- LICA35 SO2\_ PPB

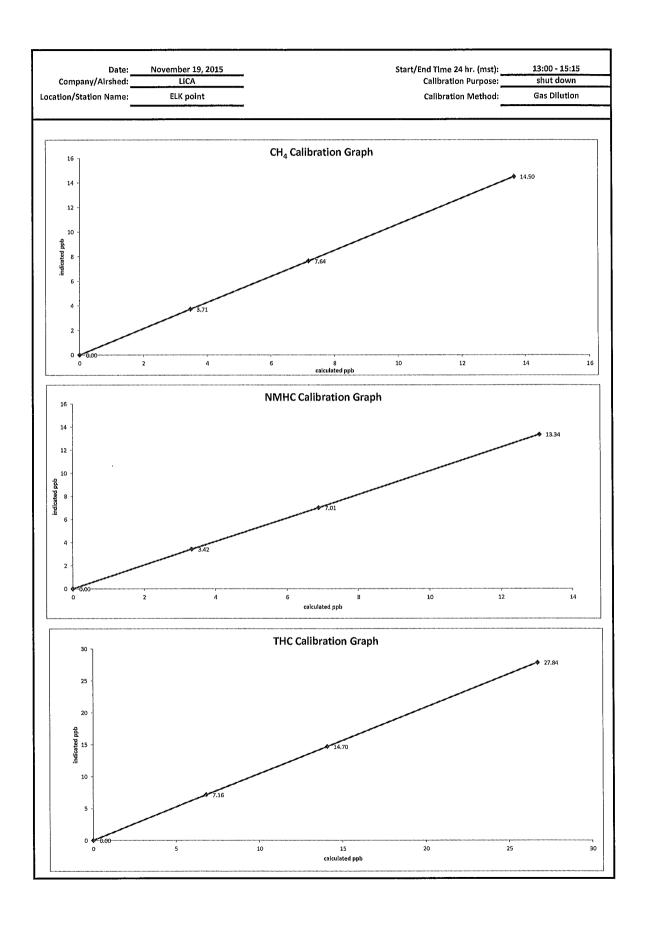
Date:	November	19, 2015			Barometric Pressur	27.83	In. Hg
Company/Airshed:	LIC	\	_	Sta	tion Temperature °		19
ation/Station Name:	ELK po		_		Weather Condition		cloudy with light snow
Parameter:	Hydrogen 11:0		-		Calibration Purpos		Audit
art Time 24 hr. (mst): ind Time 24 hr. (mst):	12:5		-	Pen	ormed By/Reviewe Cal Gas Expiry Date		Tom Bourque nuary 6, 2018
Calibration Method:			-	Converter Model	& s/n (if applicable		Internal
yzer:							<u></u>
Serial Number: Last Calibration Date:	510 November		_	Range ppb:			
Previous C.F.:			-	As Found C.F.: New C.F.:			
rator:				Standard Cal	ibration Points for I	Ranges	
Flow Meter ID's:			_ [	Point	Hydrogen Sulphi	de Calibration Points	
Make & Model:	API7			High		78	
Serial #:			-  -	Mid		38	į
al Gas Cylinder I.D. # : Cal Gas Conc. (ppm):	BLM00.		. L	Low		19	l
	rator Flow Rates (cc/		ARE 15 M	INUTES OF STABILITY AS OF			action factors (C.F.)
Point	ator Flow Rates (cc/ Diluent	Cal Gas	Total	Calculated Concentration: (ppb)	Indicated Concentr (ppb)	auon: Corr	ection Factors (C.F.):
as found zero	7500	0.00	7500	0.0	1.0		n/a
as found high	7447	57.40	7504	78.0	79.2		0.998
mid	7472	27.90	7500	37.9	38.9		1.001
low	7489	14.00	7503	19.0	20.2 Average	C.F.=	0.991 0.997
		LI.			· ·		·
		ше	ir Kegressic	on/Calibration Results:	LIMITS		
		Correlation Co	efficient = _	1.000	> or = 0,995		
			Slope =	0.998	0.90-1,10		
		ercept as % of fo ange in C.F. from		-1.02% 0.23%	± 3% F.S.		
90 80 -						79.2	
indicated ppb 20 - 40 - 40 - 40 - 40 - 40 - 40 - 40 -				<b>4-38.9</b>	ararakan kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kan		}
20 -	- Andrews - Constitution of the Constitution o	20.2	***************************************	30.9			
0 10	10 20			40 50			
	10 20	, 30	,	40 50 calculated ppb	60	70 80	90
		As fou		<u> </u>	As left:		
	SLOP OFFSE			SLOPE; OFFSET:	26.2	<del></del>	
	HVP			HVP5:	526		
	RCELL TEM	P: 50		RCELL TEMP:	50		
	BOX TEM			BOX TEMP:	31.6		
	PMT TEM Converter Tem			PMT TEMP: Converter Temp:	8.3 314.9		
	PRE	· — — — — — — — — — — — — — — — — — — —	-	PRES:		•	
	SAMP F	L: 572		5AMP FL:	572		
	UV LAM			UV LAMP:			
	LAMP RATI			LAMP RATIO:			
	STR. LO DRK PM			5TR. LGT DRK PMT:			
	DRK LM			DRK LMP:			

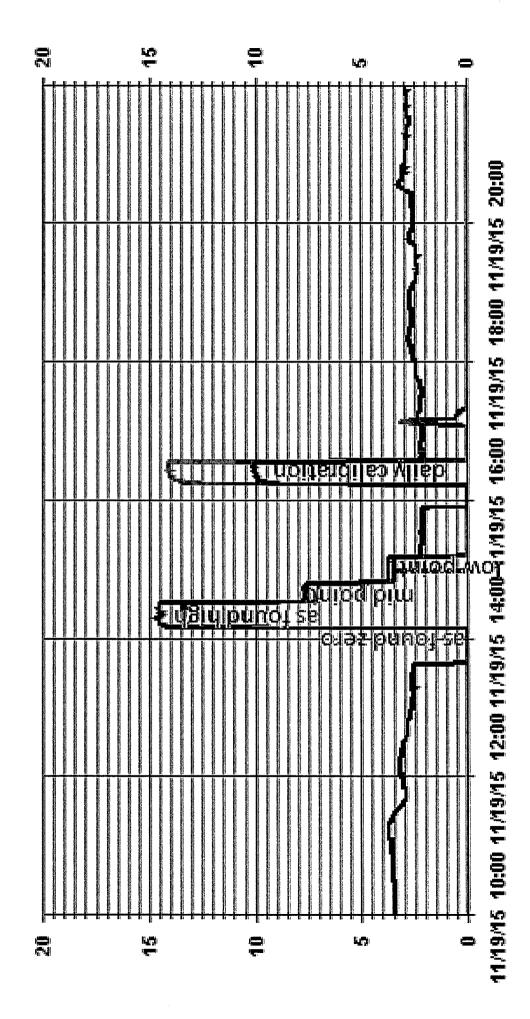
of Minute Averages



- LICA35 H2S\_ PPB

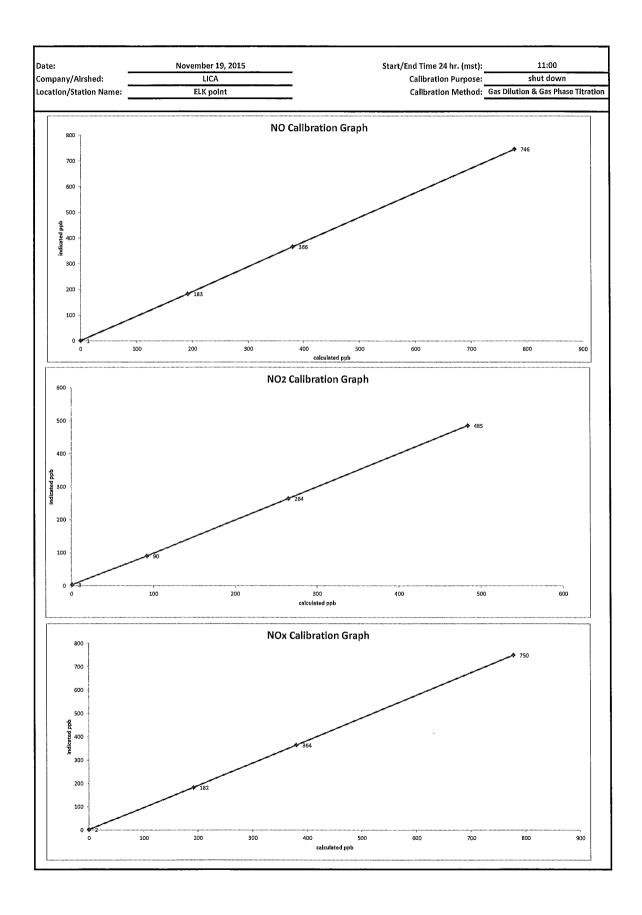
Date:		Novemb	er 19, 2015				Baron	etric Pressure:		27	7.83	
Company/Airshed:			ICA					emperature °C:			19	
Location/Station Name:			point MHC/THC					ner Conditions:			with light s	now
Parameter: Start/End Time 24 hr. (mst):		. <u> </u>	- 15:15		-			ation Purpose: i By/Reviewer:		Aud		Bourque
Calibration Method:			Dilution					as Expiry Date:			7, 2022	
Analyzer:									Corr	ection Fact	ors:	
•								Previous C.F.:	As Four	d C.F.:	Nev	w C.F.:
Serial Number: Last Calibration Date:		1236656107 vember 10, 2					CH <sub>4</sub> =	0.997	0.9			n/a n/a
Range ppm:		1/20 NMHC/		-			NMHC ≈ THC =	0.999	0.9			n/a
				•								
calibrator: Flow Meter ID's:	n,	/a					Standard Calibi	ration Points fo	r Analyzer R	ange of 20,	/20/40 ppn	1
Make & Model:		700					Po	int	CH4	NMHC	THC	
Serial #:		27						gh	13.00	13.00	26.00	
Cal Gas Cylinder I.D. #: CH4 Cylinder Conc.=	582,0	203.0	=C₃Ha Cylin	der Conc				lid ow	7.00 3.00	7.00 3.00	14.00 6.00	
CH <sub>4</sub> as C <sub>3</sub> H <sub>8</sub> =	558,3	1140.3	=total CH <sub>4</sub>					, vv	3.00	3,00	6,00	l
Calibrator Fi	D-1 /	- (1)	ALL POINT	S ARE 15 MIN		ABILITY AS OI	SEPTEMBER 23	, <u>2015</u>				
Point	Diluent	Cal Gas	Total Flow	Calculated CH <sub>4</sub> (ppm)	Calculated NMHC	Calculated THC (ppm)	Indicated CH <sub>4</sub> (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	CH₄	rrection Fa	ctors:
	2000	0.00	2000	0.00	(ppm) 0,00	0,00	0.00	0.00	0.00	n/a	n/a	n/a
as found zero as found high	2000	48,00	2048	13,64	13.08	26.72	14.50	13.34	27.84	0.941	0.981	0,96
mid	2000	25.00	2025	7.19	6.89	14,08	7.64	7.01	14.70	0.940	0.983	0,95
low	2000	12.00	2012	3.47	3.33	6,80	3,71	3,42	7.16	0.936	0.974	0,95
				Linear	Regression/0	Calibration Re	sults:	A	verage C.F.=	0.939	0.979	0.95
				CH₄	NMHC	THC	LIMITS					
	C	orrelation C	oeffecient ≈	1.000	1.000	1.000	> or = 0.995					
			Slope =	1.063	1.019	1.041	0.90-1.10					
		cept as % of		0.04%	0.04%	0.09%	± 3% F.S.					
•	% chan	ige in C.F. fr		5.64% ound:	1.82%	3.72%	± 10%			As	left:	
nterface Board Voltages:		Bias Supply:		92.8			Calibration Hist	tory cnt'd: NN	/I Peak Area:		/a	
Temperatures:	Det	ector Oven:		175			Crucial Settings		thane Start:		8	
	Co	Filter: lumn Oven:		175 '5.2				100	lethane End: Backflush:		18	
	-	Internal:		1,5				1	NMHV Start:		4,5	
Cylinder Pressures/reg.:		Carrier:	550	50					NMHC End;		56	
		Fuel:	1700	50			Run History>1:		Date:		OV15	
	Zoro Air	Span Gas: Generator:	500	22 45					Time: CH <sub>4</sub> PK HT:		250	-
nternal Pressures:	Zeio Ali	Carrier:		1.1					CH₄ RT:		12	-
		Fuel:	-	0.3				(	CH <sub>4</sub> Baseline:	23	397	-
		Air:		2.4					CH <sub>4</sub> LOD;		11	
FID Status:		Status:		lit 7760					CH <sub>4</sub> SD:		13	-
		Counts: Flame:		80.4					CH <sub>4</sub> CONC: NM PK HT:		.57 0	-
		Det Base:		175	•			NN	Л Peak Area:		0	•
Flame and Power Stats:	Las	t Power On:		n/a					NM CONC:		0	
		Flameouts:		n/a					∕l Base Start:		183	_
		ven at Start:		n/a n/a				N	M Base End:		182 16	-
Calibration History:	COLO	ven at Start: Time:		1/a 1/a				N	NM LOD: IM Start IDX:		16	-
		Туре:		1/a					NM End IDX:		70	•
		Status:		n/a				NN	и Max Slope:		e-01	_
		neck/Adjust:		1/a					Min Slope:		e-01	-
		Span Conc:		n/a n/a	•		D-11. 7 /5n-		M PT Count:		0	-
	·	:H <sub>4</sub> SP Ratio: :C <b>H<sub>4</sub> RT</b> :		1/a 1/a	•		Daily Zero/Spa		revious CH4: vious NMHC	<del></del>	ı/a ı/a	-
		CH <sub>4</sub> PK IDX:		1/a					revious THC;		i/a	-
				1/a	•				New CH4:		ı/a	-
		CH₄ PK HT:										
		CH <sub>4</sub> PK HT: I Span Conc: IM SP Ratio:		1/a 1/a	•				New NMHC New THC:		n/a n/a	



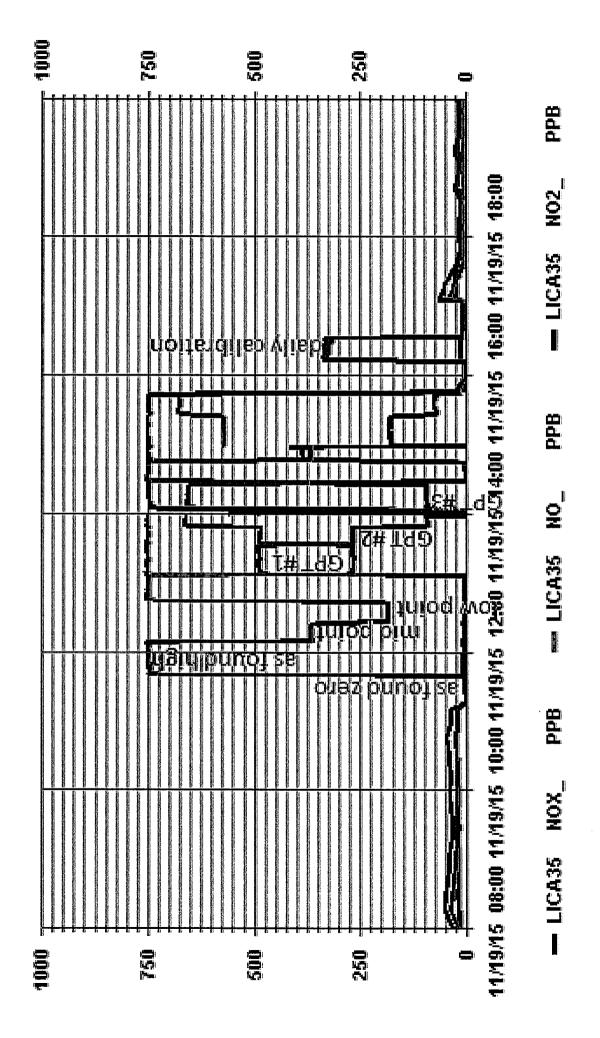


TICA36 

Date	: 0	Vovembe	r 19, 2015				Barometric Pressure:		27.83	in Ha
Company/Airshed			CA			Sta	tion Temperature °C:		19	
Location/Station Name		ELK į	ooint	•		-	Weather Conditions:		Mainly cloudy	
Start/End Time 24 hr. (mst)		:00	14:25				Calibration Purpose:		Audi	
G.P.T. to be used for Ozone			ob NOx full scale s Phase Titration			Per	formed By/Reviewer:	Lin	nin Li	Tom Bourqu
Calibration Method	: Gas D	nution & Ga	is rilase litration	•			Cal Gas Expiry Date:		December	25, 2018
nalyzer:							rection Factors:			
Serial Number		59	22		NO =	Previous C.F.: 0.999	As Found C.F.:		v C.F.: n/a	
Last Calibration Date			r 10, 2015	•	NO <sub>2</sub> =	0.996	1,044 0,998		1/a 1/a	
Range ppb		10		•	NOx =	0.999	1.040		n/a	
alibrator:										
Flow Meter ID's	: n	/a			Star	dard Calibration Pol	nts for a Range of:	1000 ppb		
Make & Mode		2010				oint	Target NO (ppb)		NO <sub>2</sub> (ppb)	Cc Ozone ?
Serial #		00415				lgh	610		75	<high ozon<="" td=""></high>
Cal Gas Cylinder I.D. # NO/NOx Gas Conc. (ppm)		02756T S0.7				lid ow	380		190 70	<mid ozon<="" td=""></mid>
NO/NOX das conc. (ppin)	: 50.7	30,7	•			Point #1	190 n/a		n/a	<low ozon<br="">n/a</low>
						Point #2	n/a		n/a	n/a
			ALL		TES OF STABILITY AS	OF SEPTEMBER 23, 2	015			.,,,,,
Calibrator Fl	,			Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.	
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)	$\geq \leq$	M	
as found zero as found high	5029 4953	77.2	5029 5030	778.1	0 778.1	1.0 746.0	1.8 750.0	n/a	n/a	
mid	4991	37.70	5029	380.1	380,1	366,0	364.0	1.044	1.040	
low	5011	19.00	5030	191,5	191.5	183.0	182.0	1.052	1.063	
							Average C.F.5	1.046	1.051	
			ALL			OF SEPTEMBER 23, 2				
Calibrator Fl			Taradelani	Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO₂ gain	NO <sub>2</sub> C.F.
Point NOx reference	4953	Cal Gas 77.20	Total Flow 5030	volts or ppb 0.0	(ppb) 748.0	(ppb) 750.0	(ppb) 3,0	(ppb) 1.0	(ppb) 3.0	(ppb)
as found high NO2	4953	77.20	5030	500.0	264.0	751.0	488.0	484.0	485.0	0.998
gpt mid	4953	77,20	5030	280.0	483,0	749.0	267.0	265.0	264.0	1,004
gpt low	4953	77.20	5030	100.0	656,0	747.0	93.0	92,0	90.0	1.022
				Linear Re	egression/Calibration	Doculter		Averag	e NO <sub>2</sub> C.F.=	1.008
				NO NO	NOx	NO <sub>2</sub>	LIMITS			
		Correlati	on Coefficient =	1,000	1.000	1.000	> or = 0.995			
			Slope =	1.044	1.039	1.000	0.90-1.10			
	b (Inte	ercept as	% of full scale)=	0.07%	-0.05%	-0.01%	± 3% F.S.			
			F. from last cal=	-4.55%	-4.10%	-0.19%	± 10%			
	-		rter efficiency = rter efficiency =	101% n/a		ce = 96%-104% ce = 96%-104%				
,,			itter entitierery	.,,						
			As found:	H0 (10)			As left:			
	Ox SLOPE: IOx OFFS:		1.396 3.4	NOx SLOPE: NOx OFFS:		NOx SLOPE: NOx OFFS:	1.396 3.4			
	IO SLOPE:		1.391	NO SLOPE:		NO SLOPE:	1,391			
	NO OFFS:		-0.2	NO OFFS:		NO OFFS:	-0.2			
SA	MP FLW:		485	SAMP FLW:		SAMP FLW:	485			
C	ZONE FL:		74	OZONE FL:		OZONE FL:	74			
NC	PMT: RM PMT:		19.7	PMT: NORM PMT:		PMT: NORM PMT:	19.7			
NC	AZERO:		15.8	AZERO;		AZERO:	1.2 15.8			
	HVPS:		638	HVPS:		HVPS:	638			
	LL TEMP:		50.2	RCELL TEMP:		RCELL TEMP:	50.2			
	OX TEMP:		27	BOX TEMP:		BOX TEMP:	27			
В	VIT TEMP:		6,9	PMT TEMP:		PMT TEMP:	6.9			
B/ Pi	UV TEL 4E		315.6	MOLY TEMP: RCEL:		MOLY TEMP: RCEL;	315.6 5.4			
B/ Pi	LY TEMP:		5.4			NCEL;	J.4			
B Pi	RCEL: SAMP:		5.4 26.8	SAMP:		SAMP:	26.8			

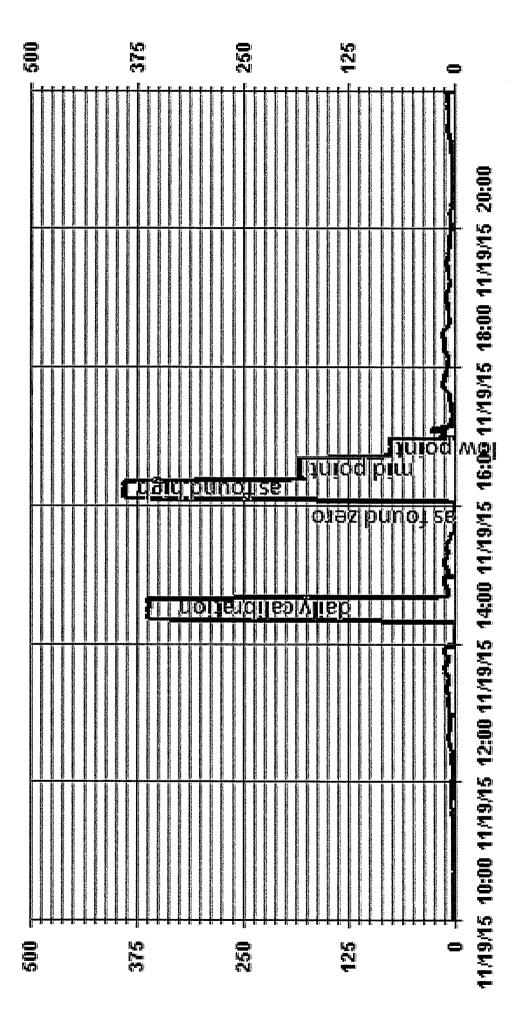


Of Minute Averages



Ozone Calibration Method: Direct G.P.T. Performed By/Reviewer: Limin LI Tom Bourque G.P.T. Date: November 18, 2015 Cal Gas Expiry Date: December 25, 2018  Talyzer: Serial Number: 1002240372 Ozone Range ppb: 500 Last Calibration Date: November 10, 2015 As Found C.F.: 0.978  Trevious Cal High Point C.F.: 1.000 New C.F.: n/a	Date:	November	19, 2015		Barometric Pressure:		27.83InHg
Series   S	Company/Airshed:	LIC	A	St	atlon Temperature °C:		20
Direct Cap P.T.   November 18, 2015   November 18, 2015   November 18, 2015   November 18, 2015   November 18, 2015   November 19, 2015   November 10, 2015   Novemb	Location/Station Name:					nlsM	ly cloudy with snow
Call Case Explicy Date   December 18, 2015   Call Gas Explicy Date   December 25, 2018					•		
Sorial Number:   10.02240372   Ozone Range ppb:   500				Pe			
Serial Number   1002240372					our our expiry pater		
As Found CF.   0.378	•	100224	0372	Ozone Range nnh:	500		
				As Found C.F.:	0.978		
Point   AMD Required Range of Coance Calibration Per   High   300-000 ppt	revious Cal High Point C.F.:	1.00	00				
High   300-400 ppb	librator:			<del>,</del>			
Mid   150-200 ppb   150-200					Point		
Call Gas Cylinder I.D. # :   BIM002756T   Low   S0-75 ppb							
Calibrator Flow Rate (sc/min)   Calculated Concentration:   Correction Factors:							
Calibrator Flow Rate (cc/min)   Calculated Concentration:   Corrected Calculated Concentration:   Correction Factors:	Cal Gas Cylinder I.D. # :	BLWOO	2/561		Low		50-75 ppb
Calibrator Flow Nete   CC/min    Concentration:   Conce		AL	L POINTS ARE 15 N	MINUTES OF STABILITY	AS OF SEPTEMBER 23, .	2015	
Concentration:   Conc		C 111	D 1 ( ( ( ) )	Calculated	Corrected Calculated	Indicated	
Start   Point Finish   (PPP)		Calibrator Flow	Kate (cc/min)	Concentration:	Conentration:	Concentration:	Correction Factors:
Sound high   So229   So229   382.0   382.0   390.6   0.978	Point			(ppb)	(ppb)	(ppb)	
mid   5029   5029   176.0   175.0   133.0   0.963     low   5029   5029   72.0   72.0   75.4   0.957     Average C.F.=   0.966						0.2	
Linear Regression/Calibration Results:   Limits							
Linear Regression/Calibration Results:   Linear Regression/Calibration Results:   Limits							
Correlation Coeffecient =   1.000   > or = 0.995	IOW	3029	5020	72.0	72.0		
As found:   As left:	350 - 300 -			***************************************			390.6
As found: O3 Bkg: -0.4 O3 Coef: 0.999 O3 Coef: 0.999 O3 Coef: 0.999 Photo Lamp O3 Lamp C68.1 O3 Lamp: 54.1 O3 Lamp: 68.1 O3 Lamp: 66.1 Pressure: 702.4 Cell A lpm: 0.750 Cell B lpm: 0.956 O3 ppb: 360 O3 ppb: 360 Cell A ppb: 359 Cell B ppb: 359 Cell B ppb: 361 Cell B ppb: 361 Cell B ppb: 361 Cell B ppb: 361 Cell B ppb: 361 Cell B ppb: 361 Cell B ppb: 361 Cell B ppb: 361 Cell A lm: 102901	150 -	75.4	***************************************	183.0			
As found:   As left:	0 40.2	50 100	150	200	250 20	250	400
O3 Bkg:     -0.4     O3 Bkg:     -0.4       O3 Coef:     0.999     O3 Coef:     0.999       Photo Lamp     14.2     Photo Lamp     14.2       O3 Lamp     9.4     O3 Lamp     9.4       Bench:     29.5     Bench:     29.5       Bench Lamp:     54.1     Bench Lamp:     54.1       O3 Lamp:     68.1     O3 Lamp:     68.1       Pressure:     702.4     Pressure:     702.4       Cell A lpm:     0.750     Cell A lpm:     0.750       Cell B lpm:     0.956     Cell B lpm:     0.956       O3 ppb:     360     O3 ppb:     360       Cell A ppb:     359     Cell A ppb:     359       Cell B ppb:     361     Cell B ppb:     361       Cell A lnt:     102901     Cell A lnt:     102901		100					400 4
O3 Coef: 0.999 O3 Coef: 0.999 Photo Lamp 14.2 Photo Lamp 14.2 O3 Lamp 9.4 O3 Lamp 9.4 Bench: 29.5 Bench 29.5 Bench Lamp: 54.1 Bench Lamp: 54.1 O3 Lamp: 68.1 O3 Lamp: 68.1 Pressure: 702.4 Cell A lpm: 0.750 Cell A lpm: 0.750 Cell B lpm: 0.956 Cell B lpm: 0.956 O3 ppb: 360 O3 ppb: 360 Cell A ppb: 359 Cell A ppb: 359 Cell B ppb: 361 Cell A lnt: 102901 Cell A lnt: 102901		O3 Bkg:			O3 Bka		
Photo Lamp         14.2         Photo Lamp         14.2           O3 Lamp         9.4         O3 Lamp         9.4           Bench:         29.5         Bench:         29.5           Bench Lamp:         54.1         Bench Lamp:         54.1           O3 Lamp:         68.1         O3 Lamp:         68.1           Pressure:         702.4         Pressure:         702.4           Cell A lpm:         0.750         Cell A lpm:         0.750           Cell B lpm:         0.956         Cell B lpm:         0.956           O3 ppb:         360         O3 ppb:         360           Cell A ppb:         359         Cell A ppb:         359           Cell B ppb:         361         Cell B ppb:         361           Cell A lnt:         102901         Cell A int:         102901		O3 Coef:					
Bench:         29.5         Bench:         29.5           Bench Lamp:         54.1         Bench Lamp:         54.1           O3 Lamp:         68.1         O3 Lamp:         68.1           Pressure:         702.4         Pressure:         702.4           Cell A lpm:         0.750         Cell A lpm:         0.750           Cell B lpm:         0.956         Cell B lpm:         0.956           O3 ppb:         360         O3 ppb:         360           Cell A ppb:         359         Cell A ppb:         359           Cell B ppb:         361         Cell B ppb:         361           Cell A lnt:         102901         Cell A lnt:         102901							
Bench Lamp:         54.1         Bench Lamp:         54.1           O3 Lamp:         68.1         O3 Lamp:         68.1           Pressure:         702.4         Pressure:         702.4           Cell A lpm:         0.750         Cell A lpm:         0.750           Cell B lpm:         0.956         Cell B lpm:         0.956           O3 ppb:         360         O3 ppb:         360           Cell A ppb:         359         Cell A ppb:         359           Cell B ppb:         361         Cell B ppb:         361           Cell A lnt:         102901         Cell A lnt:         102901							
O3 Lamp: 68.1 Pressure: 702.4 Pressure: 702.4 Cell A lpm: 0.750 Cell B lpm: 0.956 Cell B lpm: 0.956 O3 ppb: 360 Cell A ppb: 359 Cell B ppb: 361 Cell A lpm: 0.956 Cell A lpm: 0.956 Cell A lpm: 0.956 Cell A ppb: 359 Cell A ppb: 361 Cell A lpm: 361 Cell A lpm: 0.956				•			
Pressure:         702.4         Pressure:         702.4           Cell A Ipm:         0.750         Cell A Ipm:         0.750           Cell B Ipm:         0.956         Cell B Ipm:         0.956           O3 ppb:         360         O3 ppb:         360           Cell A ppb:         359         Cell A ppb:         359           Cell B ppb:         361         Cell B ppb:         361           Cell A Int:         102901         Cell A Int:         102901				•			
Cell B lpm:         0.956         Cell B lpm:         0.956           O3 ppb:         360         O3 ppb:         360           Cell A ppb:         359         Cell A ppb:         359           Cell B ppb:         361         Cell B ppb:         361           Cell A lnt:         102901         Cell A lnt:         102901							
O3 ppb:     360     O3 ppb:     360       Cell A ppb:     359     Cell A ppb:     359       Cell B ppb:     361     Cell B ppb:     361       Cell A int:     102901     Cell A int:     102901							
Cell A ppb:         359         Cell A ppb:         359           Cell B ppb:         361         Cell B ppb:         361           Cell A Int:         102901         Cell A Int:         102901				•			
Cell B ppb:         361         Cell B ppb:         361           Cell A Int:         102901         Cell A Int:         102901							
Cell A Int: 102901 Cell A Int: 102901							
				•			
				•			
omments:		Cell D lift.					

of Minute Averages



- LICA35 03\_ PPB

#### R & P 1405F TEOM PM 2.5 Analyzer Audit November 19, 2015 Performed By/Reviewer: Date: Limin Li Tom Bourque Company: LICA Start Time (mst): 11:00 Station Name/Location: ELK point 13:15 End Time (mst): Previous Audit Date: November 6, 2015 Audit Calibration Purpose: PM 2.5 Parameter: Weather Conditions: Mainly cloudy with snow 1400A Information and Status: Serial Number: 1405A207691003 As Found Filter Loading %: 27.77 15635 27.57 Ko Factor: As Left Filter Loading %: -8.4 As Found Noise: n/a Ambient Temperature °C: 0.930 **Ambient Pressure atm:** As Left Noise: n/a 3 Main Flow Reading Ipm: Pump Vacuum: 0.31 Aux Flow Reading Ipm: 16.67 Warnings: none Reference Standards: Flow: Pressure: Temperature: Make: Dwyer BRUNTON Fluke 475 Mark III 1551A EX Model: n/a Serial Number: 1868 n/a 2329070 Calibration Date: n/a 2-Nov-15 2-Nov-15 As found leak check: Base Reference Zero Zero actual 0.01 0.53 0.01 0.53 PM 2.5 Flow limit 0.15 0.15 actual 0.00 0.00 -0.72 -0.72 **Bypass Flow** limit 0.60 0.60 As found temperature and pressure: tolerance +/- 2.0°C tolerance +/- 0.01 atm 1405F temperature °C: -6.8 1405F pressure atm: 0.931 reference temperature °C: -7.2 0.930 reference pressure: difference °C: difference : 0.001

total/aux flow tolerance 16.67/13.67 lpm +/- 1.00 lpm/+/- 7%

16.65

15.97

-0.68

1400A total/aux flow lpm:

difference ipm:

reference total/aux flow lpm:

As found flows:

Ko Audit:

main flow tolerance 3.00 lpm +/- 0.20 lpm

difference lpm:

Last K<sub>o</sub> audit date: 1405F K<sub>o</sub> factor:

Measured K<sub>o</sub> factor:

Measure flow with Definer: TOTAL:16.11LPM. MAINI3.10LPM

% difference:

0.10

15635

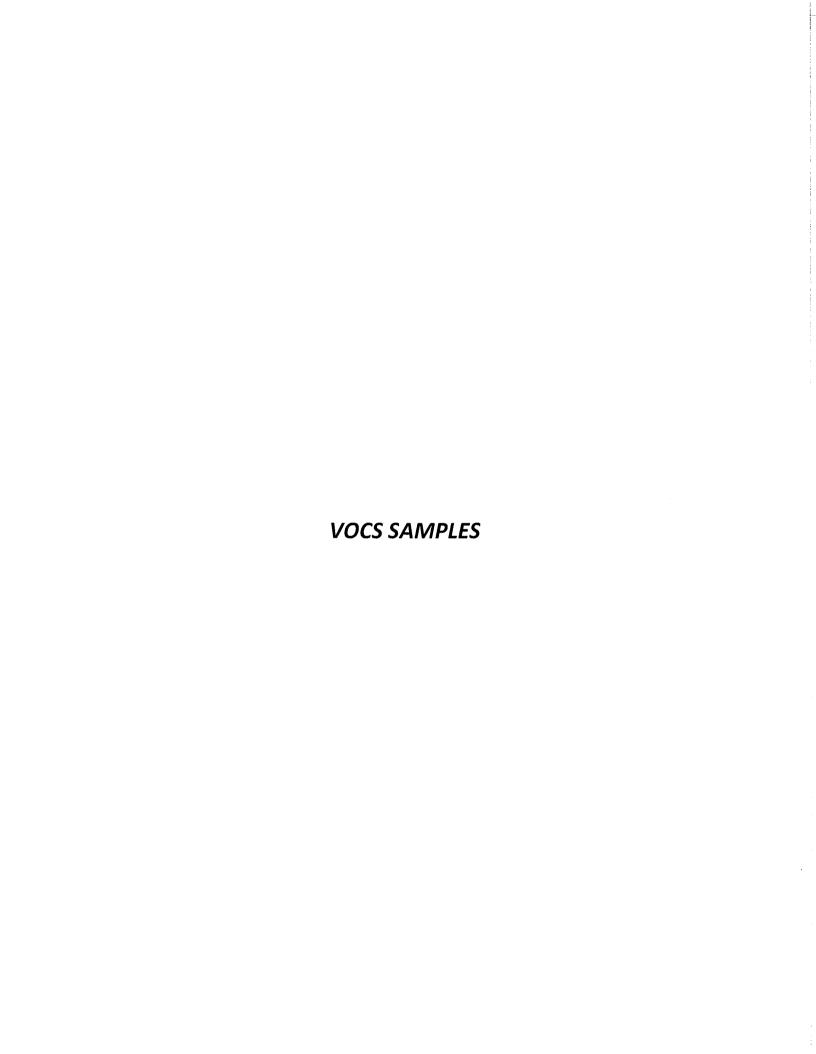
15462.0000

1.11

1405F main flow lpm:

reference main flow lpm:

#### APPENDIX IV ANALYTICAL RESULTS

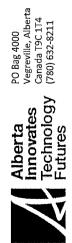




TEST REPORT

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**Analysis Date** 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 7-Nov-15 L7-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.05 0.03 0.03 0.02 0.02 0.02 0.02 0.01 0.01 0.02 0.02 0.02 0.04 0.8 0.02 0.01 0.01 0.3 0.4 0.4 0.01 0.01 0.02 0.02 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 02-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv vdqq ppbv vdqq ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv < 0.01 < 0.02 < 0.8 < 0.03 < 0.02 < 0.4 < 0.4 0.02 0.03 0.08 : 0.02 < 0.02 < 0.05 < 0.02 0.02 < 0.3 < 0.02 < 0.02 0.08 < 0.02 < 0.04 < 0.03 < 0.01 < 0.02 05-Jan-16 Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, υ K, Τ, U Κ, Τ, U K, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U K, T, U K, Τ, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U Qualifier **Ambient Air** Matrix REPORT CREATED: **CANISTER ID** 17121 1,1,2,2-Tetrachloroethane 1,2,3-Trimethylbenzene L,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene 2,3,4-Trimethylpentane 2,2,4-Trimethylpentane .,2,4-Trichlorobenzene Graham Knox, Team Lead 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethylene 2,3-Dimethylpentane .,2-Dichloropropane ,2-Dichlorobenzene L,3-Dichlorobenzene .,4-Dichlorobenzene 2,2-Dimethylbutane 2,3-Dimethylbutane Elk Point Airport .,2-Dibromoethane 1,1-Dichloroethane L,2-Dichloroethane 15110054 3-Butadiene LICA/VOC/ELK/Nov 2, 2015 .,4-Dioxane 1-Pentene Parameter L-Hexene L-Butene **CLIENT SAMPLE ID** REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110054-003 Lab ID



TEST REPORT

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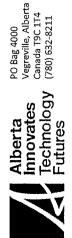
CLIENTS	CLIENT SAMPLE ID CANIS	CANISTER ID ME	Matrix	DATE SAMPLED	0		
LICA/VOC/EL	LICA/VOC/ELK/Nov 2, 2015 17	`	Ambient Air	02-Nov-15 0;	00:0		
DESCRIPTION:	Elk Point Airport						
REPORT NUMBER:	ER: 15110054	REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter	100	Qualifier	Result Units	RDL	Method	Analysis Date
15110054-003	2,4-Dimethylpentane		_	0.04 ppbv	0.01	AC-058	17-Nov-15
15110054-003	2-Methylheptane		name .	0.03 ppbv	0.01	AC-058	17-Nov-15
15110054-003	2-Methylhexane		and the same of th	0.03 ppbv	0.01	AC-058	17-Nov-15
15110054-003	2-Methylpentane			vdqq 60.0	0.01	AC-058	17-Nov-15
15110054-003	3-Methylheptane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	3-Methylhexane			0.05 ppbv	0.02	AC-058	17-Nov-15
15110054-003	3-Methylpentane		_	0.05 ppbv	0.01	AC-058	17-Nov-15
15110054-003	Acetone			1.3 ppbv	0.4	AC-058	17-Nov-15
15110054-003	Acrolein		K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
15110054-003	Benzene		_	0.13 ppbv	0.01	AC-058	17-Nov-15
15110054-003	Benzyl chloride		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110054-003	Bromodichloromethane	41	K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	Bromoform		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	Bromomethane		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110054-003	Carbon disulfide		_	0.22 ppbv	0.01	AC-058	17-Nov-15
15110054-003	Carbon tetrachloride		_	0.10 ppbv	0.01	AC-058	17-Nov-15
15110054-003	Chlorobenzene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	Chloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	Chloroform		_	0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	Chloromethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	cis-1,2-Dichloroethene		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110054-003	cis-1,3-Dichloropropene		K, T, U	< 0.04 ppbv	0.04	AC-058	17-Nov-15
15110054-003	cis-2-Butene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	cis-2-Pentene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110054-003	Cyclohexane		<del>.</del>	0.08 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	Graham Knox, Team Lead	On behalf of: F	of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: January 5 2016	7015			Inamiries: (7)	Inamiries: (780) 632 8455 Frma	E-mail: EAS Results@albertainnovates ca	innovates ca
Date. summing c, .	0103			· · · · · · · · · · · · · · · · · · ·		Mis Listabutanoum communication and	



**TEST REPORT** 

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**Analysis Date** 17-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 7-Nov-15 [7-Nov-15] 17-Nov-15 L7-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 7-Nov-15 L7-Nov-15 .7-Nov-15 L7-Nov-15 .7-Nov-15 L7-Nov-15 L7-Nov-15 .7-Nov-15 .7-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.4 0.01 0.01 0.4 0.01 0.02 0.01 0.02 0.02 0.50 0.02 0.03 0.01 0.01 0.03 0.04 0.08 0.50 0.3 0.4 0.07 0.03 0.01 0.02 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 02-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services yddd yddd ppbv ppbv Result Units vdqq ppbv ppbv vddd ppbv vddd ppbv ppbv ppbv vddd ppbv vddd ppbv ppbv ppbv 0.01 ppbv < 0.01 ppbv \qdd < 0.07 ppbv c 0.03 ppbv 0.16 ppbv < 0.4 < 0.04 0.03 0.28 0.07 : 0.02 0.56 < 0.50 0.26 0.29 < 0.01 < 0.4 < 0.01 0.09 < 0.08 < 0.50 < 0.3 < 0.4 05-Jan-16 K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, ∪ Κ, Τ, U Κ, Τ, U Qualifier Κ, Τ, U K, T, U Ambient Air Matrix REPORT CREATED: CANISTER ID 17121 Hexachloro-1,3-butadiene **Dibromochloromethane** Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Methyl methacrylate Methyl butyl ketone Methyl ethyl ketone Methylcyclopentane Elk Point Airport **Methylcyclohexane** n-Diethylbenzene sopropylbenzene sopropyl alcohol m-Ethyltoluene 15110054 Cyclopentane Ethylbenzene LICA/VOC/ELK/Nov 2, 2015 Ethyl acetate n,p-Xylene sopentane Parameter reon-113 Freon-114 sobutane Freon-11 Freon-12 soprene **CLIENT SAMPLE ID** Ethanol REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110054-003 Lab ID



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**Analysis Date** 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 Version 01 VERSION: Method AC-058 0.5 0.1 0.05 0.01 0.01 0.04 0.07 0.04 0.04 0.01 0.04 0.03 90.0 0.4 0.01 0.01 0.02 0.5 0.01 0.4 0.01 0.01 0.02 2.04 0:00 DATE SAMPLED 02-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services Result Units ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd < 0.01 ppbv < 0.04 ppbv vddd < 0.3 ppbv 0.52 ppbv : 0.07 ppbv < 0.02 ppbv 0.03 0.06 0.10 < 0.1 < 0.5 6.0 < 0.04 < 0.04 < 0.01 < 0.05 0.03 0.03 < 0.04 < 0.4 0.13 < 0.01 < 0.04 0.05 K, T, U 05-Jan-16 K, T, U K, T, U K, T, U K, T, U Κ, Τ, U Κ, T, U Κ, Τ, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U Κ, Τ, U Qualifier \_ Ambient Air Matrix REPORT CREATED: **CANISTER ID** trans-1,3-Dichloropropylene 17121 rans-1,2-Dichloroethylene Graham Knox, Team Lead etrachloroethylene Elk Point Airport Methylene chloride **Frichloroethylene** p-Diethylbenzene n-Propylbenzene **etrahydrofuran** trans-2-Pentene trans-2-Butene o-Ethyltoluene p-Ethyltoluene 15110054 LICA/VOC/ELK/Nov 2, 2015 **Naphthalene** n-Undecane n-Dodecane n-Heptane n-Pentane Parameter Nonane-רn-Hexane 1-Decane 1-Butane -Octane o-Xylene **CLIENT SAMPLE ID** oluene Styrene REPORT NUMBER: Report certified by: DESCRIPTION: 15110054-003 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455



TEST REPORT

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CLIENT SAMPLE ID	MPLE ID	CANISTER ID	D Matrix	rix	DATE SAMPLED	1PLED		
LICA/VOC/ELK/Nov 2, 2015	/Nov 2, 2015	17121	A	nt Air	02-Nov-15	0:00		
DESCRIPTION: REPORT NUMBER:	Elk Point Airport 15110054		REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	Method	Analysis Date
15110054-003	Vinyl acetate			K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110054-003	Vinyl chloride			K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	Graham Knox, Team Lead	zm Lead	On behalf of: PJ	Pretorius, Manager, Anal	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services			

E-mail: EAS.Results@albertainnovates.ca

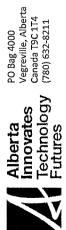
Inquiries: (780) 632 8455



TEST REPORT

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CLIENT	CLIENT SAMPLE ID CAN	CANISTER ID M	Matrix	DATE SAMPLED	ED		
LICA/VOC/EI	LICA/VOC/ELK/Nov 8, 2015		Ambient Air	08-Nov-15	0:00		
DESCRIPTION:	Elk Point Airport	DEDODT CDEATED.	7. 7.			VEBSION	70
KEPUKI NUMIB		REPORT CREATED:	US-Jan-Tb			VEKSION:	version ut
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110089-003	1,1,1-Trichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1,1,2,2-Tetrachloroethane	nane	K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1,1,2-Trichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1,1-Dichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1,1-Dichloroethylene		K, T, U	< 0.04 ppbv	0.04	AC-058	17-Nov-15
15110089-003	1,2,3-Trimethylbenzene	ne	K, T, U	< 0.05 ppbv	0.05	AC-058	17-Nov-15
15110089-003	1,2,4-Trichlorobenzene	ē	K, T, U	< 0.8 ppbv	0.8	AC-058	17-Nov-15
15110089-003	1,2,4-Trimethylbenzene	ne	K, T, U	< 0.03 ppbv	0.03	AC-058	17-Nov-15
15110089-003	1,2-Dibromoethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1,2-Dichlorobenzene		K, T, U	< 0.03 ppbv	0.03	AC-058	17-Nov-15
15110089-003	1,2-Dichloroethane		_	0.02 ppbv	0.01	AC-058	17-Nov-15
15110089-003	1,2-Dichloropropane		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110089-003	1,3,5-Trimethylbenzene	ne	K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1,3-Butadiene	-	K, T, U	< 0.02 ppbv	0.05	AC-058	17-Nov-15
15110089-003	1,3-Dichlorobenzene		K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
15110089-003	1,4-Dichlorobenzene		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110089-003	1,4-Dioxane		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110089-003	1-Butene		_	0.04 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1-Hexene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	1-Pentene		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110089-003	2,2,4-Trimethylpentane		_	0.20 ppbv	0.01	AC-058	17-Nov-15
15110089-003	2,2-Dimethylbutane		_	0.10 ppbv	0.01	AC-058	17-Nov-15
15110089-003	2,3,4-Trimethylpentane	Je		0.05 ppbv	0.01	AC-058	17-Nov-15
15110089-003	2,3-Dimethylbutane			0.33 ppbv	0.02	AC-058	17-Nov-15
15110089-003	2,3-Dimethylpentane		_	0.25 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	: Graham Knox, Team Lead		On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: January 5, 2016	2016			Inquiries:	Inquiries: (780) 632 8455	E-mail: EAS.Results@albertainnovates.ca	tainnovates.ca
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**TEST REPORT** 

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CLIENTS	CLIENT SAMPLE ID CANIS	CANISTER ID Ma	Matrix	DATE SAMPLED	APLED		
LICA/VOC/EL	LICA/VOC/ELK/Nov 8, 2015 H3282		Ambient Air	08-Nov-15	0:00		
DESCRIPTION:	Elk Point Airport						
REPORT NUMBER:	ER: 15110089	REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110089-003	2,4-Dimethylpentane			0.17 ppbv	0.01	AC-058	17-Nov-15
15110089-003	2-Methylheptane		as	0.05 ppbv	0.01	AC-058	17-Nov-15
15110089-003	2-Methylhexane			0.05 ppbv	0.01	AC-058	17-Nov-15
15110089-003	2-Methylpentane			0.23 ppbv	0.01	AC-058	17-Nov-15
15110089-003	3-Methylheptane		_	0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	3-Methylhexane			0.10 ppbv	0.02	AC-058	17-Nov-15
15110089-003	3-Methylpentane			0.14 ppbv	0.01	AC-058	17-Nov-15
15110089-003	Acetone			1.5 ppbv	0.4	AC-058	17-Nov-15
15110089-003	Acrolein		K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
15110089-003	Benzene		_	0.17 ppbv	0.01	AC-058	17-Nov-15
15110089-003	Benzyl chloride		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110089-003	Bromodichloromethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	Bromoform		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	Bromomethane		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110089-003	Carbon disulfide		_	0.06 ppbv	0.01	AC-058	17-Nov-15
15110089-003	Carbon tetrachloride		_	0.10 ppbv	0.01	AC-058	17-Nov-15
15110089-003	Chlorobenzene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	Chloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	Chloroform			0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	Chloromethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	cis-1,2-Dichloroethene		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110089-003	cis-1,3-Dichloropropene		K, T, U	< 0.04 ppbv	0.04	AC-058	17-Nov-15
15110089-003	cis-2-Butene		K, T, ∪	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	cis-2-Pentene		K, T, ∪	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110089-003	Cyclohexane		Plants	0.28 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	Graham Knox, Team Lead	On behalf of: P	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	lysis and Testing Services			
Date: January 5, 2016	2016			Inquiri	Inquiries: (780) 632 8455	E-mail: EAS.Results@albertainnovates.ca	tainnovates.ca



**TEST REPORT** 

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**Analysis Date** 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 .7-Nov-15 L7-Nov-15 L7-Nov-15 .7-Nov-15 .7-Nov-15 L7-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.02 0.02 0.50 0.02 0.03 0.01 0.4 0.01 0.03 0.04 0.08 0.50 0.3 0.4 0.07 0.03 0.01 0.01 0.01 0.02 0.01 0.02 0.01 Inquiries: (780) 632 8455 0:00 DATE SAMPLED 08-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv vddd ppbv vddd ppbv ppbv ppbv vddd Result Units < 0.01 ppbv vdqq ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv 0.05 < 0.4 0.58 < 0.50 0.99 0.01 < 0.4 0.08 < 0.08 < 0.3 < 0.4 < 0.07 0.03 0.47 0.03 0.29 0.09 : 0.02 1.02 0.01 0.04 < 0.50 Κ, Τ, U 05-Jan-16 K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U K, T, U Qualifier Ambient Air Matrix REPORT CREATED: **CANISTER ID** H3282 Hexachloro-1,3-butadiene Dibromochloromethane Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Methyl methacrylate Methylcyclopentane Methyl butyl ketone Methyl ethyl ketone Elk Point Airport Methylcyclohexane n-Diethylbenzene sopropylbenzene sopropyl alcohol n-Ethyltoluene 15110089 Cyclopentane **Ethylbenzene** LICA/VOC/ELK/Nov 8, 2015 Ethyl acetate n,p-Xylene sopentane Parameter -reon-113 Freon-114 sobutane Freon-11 Freon-12 soprene **CLIENT SAMPLE ID** Ethanol REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110089-003 Lab ID

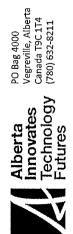


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**Analysis Date** .7-Nov-15 17-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 17-Nov-15 17-Nov-15 L7-Nov-15 .7-Nov-15 L7-Nov-15 .7-Nov-15 17-Nov-15 7-Nov-15 17-Nov-15 .7-Nov-15 17-Nov-15 L7-Nov-15 .7-Nov-15 L7-Nov-15 L7-Nov-15 L7-Nov-15 L7-Nov-15 L7-Nov-15 7-Nov-15 17-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.5 0.4 0.1 0.05 0.5 0.01 0.04 0.07 0.04 0.04 0.04 0.03 90.0 0.4 0.01 0.01 0.02 0.01 0.01 0.01 0.01 0.01 0.02 0.04 0.3 0:00 DATE SAMPLED 08-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services vddd ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv ppbv vddd vddd ppbv ppbv ppbv ppbv ppbv vddd ppbv Result Units : 0.07 ppbv 1.9 ppbv 1.36 ppbv : 0.06 ppbv < 0.1 ppbv < 0.05 ppbv < 0.5 < 0.01 < 0.04 < 0.02 0.05 < 0.5 < 0.04 < 0.04 < 0.4 0.22 < 0.01 < 0.04 < 0.01 < 0.04 0.10 0.27 0.03 0.03 K, T, U K, T, U K, T, U K, T, U Κ, Τ, ∪ K, T, U Κ, Τ, U 05-Jan-16 K, T, U K, T, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U K, T, U K, T, U Qualifier K, T, U \_ Ambient Air Matrix REPORT CREATED: CANISTER ID trans-1,3-Dichloropropylene H3282 rans-1,2-Dichloroethylene Graham Knox, Team Lead **etrachloroethylene** Elk Point Airport Methylene chloride p-Diethylbenzene **Trichloroethylene** n-Propylbenzene etrahydrofuran trans-2-Pentene trans-2-Butene o-Ethyltoluene p-Ethyltoluene 15110089 LICA/VOC/ELK/Nov 8, 2015 Vaphthalene n-Undecane n-Dodecane n-Heptane n-Pentane Parameter n-Nonane n-Decane n-Hexane -Octane n-Butane o-Xylene **CLIENT SAMPLE ID** oluene Styrene REPORT NUMBER: Report certified by: **DESCRIPTION:** 15110089-003 Lab ID

Inquiries: (780) 632 8455



TEST REPORT

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	n 01	Analysis Date	17-Nov-15		
	Version 01				
	VERSION:	Method	AC-058 AC-058		
		RDL	0.02		
<b>1PLED</b> 0:00			J		
DATE SAMPLED 08-Nov-15 0:00		Result Units	< 0.4 ppbv < 0.02 ppbv		sis and Testing Services
<b>Matrix</b> Ambient Air	05-Jan-16	Qualifier	Λ, Τ, Ό U , Τ, Ό		of: PJ Pretorius, Manager, Analysis and Testing Services
Ma	REPORT CREATED:				On behalf of: P
CANISTER ID				-	m Lead
<b>MPLE ID</b> Nov 8, 2015	Elk Point Airport 15110089	Parameter Vind 201210	Vinyl acetate Vinyl chloride		Graham Knox, Team Lead
CLIENT SAMPLE ID LICA/VOC/ELK/Nov 8, 2015	DESCRIPTION: REPORT NUMBER:	Lab ID P			Report certified by:

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455



**TEST REPORT** 

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CLIENT	CLIENT SAMPLE ID CANIS	CANISTER ID Ma	Matrix	DATE SAMPLED			
LICA/VOC/EL	LICA/VOC/ELK/Nov 14, 2014 S12		Ambient Air	14-Nov-15 0	0:00		
DESCRIPTION:							
REPORT NUMBER:	<b>ER:</b> 15110105	REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110105-001	1,1,1-Trichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1,1,2,2-Tetrachloroethane	96	K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1,1,2-Trichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1,1-Dichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1,1-Dichloroethylene		K, T, U	< 0.04 ppbv	0.04	AC-058	17-Nov-15
15110105-001	1,2,3-Trimethylbenzene		K, T, U	< 0.05 ppbv	0.05	AC-058	17-Nov-15
15110105-001	1,2,4-Trichlorobenzene		K, T, U	< 0.8 ppbv	0.8	AC-058	17-Nov-15
15110105-001	1,2,4-Trimethylbenzene		K, T, U	< 0.03 ppbv	0.03	AC-058	17-Nov-15
15110105-001	1,2-Dibromoethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1,2-Dichlorobenzene		K, T, U	< 0.03 ppbv	0.03	AC-058	17-Nov-15
15110105-001	1,2-Dichloroethane		_	0.02 ppbv	0.01	AC-058	17-Nov-15
15110105-001	1,2-Dichloropropane		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-001	1,3,5-Trimethylbenzene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1,3-Butadiene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1,3-Dichlorobenzene		K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
15110105-001	1,4-Dichlorobenzene		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-001	1,4-Dioxane		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-001	1-Butene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1-Hexene		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	1-Pentene		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-001	2,2,4-Trimethylpentane		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-001	2,2-Dimethylbutane		_	0.09 vdqq	0.01	AC-058	17-Nov-15
15110105-001	2,3,4-Trimethylpentane		_	0.03 ppbv	0.01	AC-058	17-Nov-15
15110105-001	2,3-Dimethylbutane		_	0.24 ppbv	0.02	AC-058	17-Nov-15
15110105-001	2,3-Dimethylpentane		_	0.14 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	: Graham Knox, Team Lead	On behalf of: PJ	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: January 5, 2016	2016			Inquiries: ()	Inquiries: (780) 632 8455 E-m	E-mail: EAS.Results@albertainnovates.ca	ainnovates.ca
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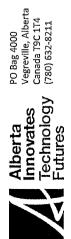
PO Bag 4000 Vegreville, Alberta Canada T9C 1T4 (780) 632-8211

# **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

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CLIENTS	CLIENT SAMPLE ID	CANISTER ID		Matrix	DATE SAMPLED		Profession and the second seco	
LICA/VOC/ELI	LICA/VOC/ELK/Nov 14, 2014	\$12945	·	Ambient Air	14-Nov-15 0:00	0		
DESCRIPTION:	Elk Point Airport	ort.						
REPORT NUMBER:	ER: 15110105		REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	Method	Analysis Date
15110105-001	2,4-Dimethylpentane	tane		_	0.10 ppbv	0.01	AC-058	17-Nov-15
15110105-001	2-Methylheptane	a)		_	0.06 ppbv	0.01	AC-058	17-Nov-15
15110105-001	2-Methylhexane			_	0.11 ppbv	0.01	AC-058	17-Nov-15
15110105-001	2-Methylpentane	a)		_	0.27 ppbv	0.01	AC-058	17-Nov-15
15110105-001	3-Methylheptane	d)		_	0.03 ppbv	0.02	AC-058	17-Nov-15
15110105-001	3-Methylhexane			_	0.14 ppbv	0.02	AC-058	17-Nov-15
15110105-001	3-Methylpentane	au		_	0.15 ppbv	0.01	AC-058	17-Nov-15
15110105-001	Acetone			K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-001	Acrolein			K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
15110105-001	Benzene				0.17 ppbv	0.01	AC-058	17-Nov-15
15110105-001	Benzyl chloride			K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-001	Bromodichloromethane	ethane		K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	Bromoform			K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	Bromomethane			K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-001	Carbon disulfide			_	0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-001	Carbon tetrachloride	ride		_	0.10 ppbv	0.01	AC-058	17-Nov-15
15110105-001	Chlorobenzene			K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	Chloroethane			K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	Chloroform			_	0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	Chloromethane			K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	cis-1,2-Dichloroethene	thene		K, T, U	< 0.01 ppbv	0.01	AC-058	17-Nov-15
15110105-001	cis-1,3-Dichloropropene	ropene		K, T, U	< 0.04 ppbv	0.04	AC-058	17-Nov-15
15110105-001	cis-2-Butene			K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	cis-2-Pentene			K, T, U	< 0.02 ppbv	0.02	AC-058	17-Nov-15
15110105-001	Cyclohexane			_	0.26 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	Graham Knox, Team Lead	ım Lead	On behalf of: P	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: January 5, 2016	910				Inquiries: (780) 632 8455		E-mail: EAS.Results@albertainnovates.ca	innovates.ca
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TEST REPORT

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CLIENT SAMPLE ID		CANISTER ID	Matrix	×	DATE SAMPLED	PLED		
LICA/VOC/ELK	LICA/VOC/ELK/Nov 14, 2014	\$12945	Ambient Air	t Air	14-Nov-15	00:00		
DESCRIPTION:								
REPORT NUMBER:	<b>R:</b> 15110105	REPORT CREATED:	ATED:	05-Jan-16			VERSION:	: Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	Method	d Analysis Date
15110105-001	Cyclopentane				0.05 ppbv	0.01	AC-058	3 17-Nov-15
15110105-001	Dibromochloromethane	nane		K, T, U	< 0.01 ppbv	0.01	AC-058	3 17-Nov-15
15110105-001	Ethanol				0.4 ppbv	0.3	AC-058	3 17-Nov-15
15110105-001	Ethyl acetate			K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-001	Ethylbenzene				0.04 ppbv	0.01	AC-058	3 17-Nov-15
15110105-001	Freon-11				0.29 ppbv	0.02	AC-058	3 17-Nov-15
15110105-001	Freon-113			_	0.08 ppbv	0.01	AC-058	3 17-Nov-15
15110105-001	Freon-114			K, T, U	< 0.02 ppbv	0.02	AC-058	3 17-Nov-15
15110105-001	Freon-12				vdqq 65.0	0.02	AC-058	3 17-Nov-15
15110105-001	Hexachloro-1,3-butadiene	adiene		K, T, U	< 0.50 ppbv	0.50	AC-058	3 17-Nov-15
15110105-001	Isobutane				1.09 ppbv	0.02	AC-058	3 17-Nov-15
15110105-001	Isopentane				0.91 ppbv	0.03	AC-058	3 17-Nov-15
15110105-001	Isoprene			K, T, U	< 0.01 ppbv	0.01	AC-058	3 17-Nov-15
15110105-001	Isopropyl alcohol			K, T, U	< 0.4 ppbv	0.4	AC-058	3 17-Nov-15
15110105-001	Isopropylbenzene			K, T, U	< 0.01 ppbv	0.01	AC-058	3 17-Nov-15
15110105-001	m,p-Xylene			_	0.11 ppbv	0.03	AC-058	3 17-Nov-15
15110105-001	m-Diethylbenzene			K, T, U	< 0.04 ppbv	0.04	AC-058	3 17-Nov-15
15110105-001	m-Ethyltoluene			K, T, U	< 0.08 ppbv	0.08	AC-058	3 17-Nov-15
15110105-001	Methyl butyl ketone	41		K, T, U	< 0.50 ppbv	0.50	AC-058	17-Nov-15
15110105-001	Methyl ethyl ketone	4		K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
15110105-001	Methyl isobutyl ketone	one		K, T, U	< 0.4 ppbv	0.4	AC-058	17-Nov-15
15110105-001	Methyl methacrylate	۵		K, T, U	< 0.07 ppbv	0.07	AC-058	17-Nov-15
15110105-001	Methyl tert butyl ether	her		K, T, U	< 0.03 ppbv	0.03	AC-058	17-Nov-15
15110105-001	Methylcyclohexane				0.47 ppbv	0.01	AC-058	17-Nov-15
15110105-001	Methylcyclopentane	a)		<u></u>	0.22 ppbv	0.02	AC-058	17-Nov-15
Report certified by:	Graham Knox, Team Lead		On behalf of: PJP	retorius, Manager, Anal	of: PJ Pretorius, Manager, Analysis and Testing Services			
Date: January 5, 2016	116				Inquirie	Inquiries: (780) 632 8455	E-mail: EAS.Results@albertainnovates.ca	pertainnovates.ca



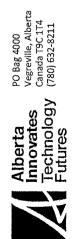
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# **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

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Ambient Air   DS-Jan-16	CLIENT SAMPLE ID	AMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	PLED		
Elk Point Airport         REPORT CREATED:         05-Jan-16           Parameter         Qualiffer         Result Units           n-Butane         1.67 pbbv         1.67 pbbv           n-Butane         1.67 pbbv         1.67 pbbv           n-Decane         1.7 U         < 0.4 pbbv           n-Heptane         1         0.14 pbbv           n-Heptane         1         0.14 pbbv           n-Heptane         1         0.14 pbbv           n-Heptane         1         0.08 pbbv           n-Heptane         1         0.01 pbbv           n-Heptane         1         0.03 pbbv           n-Propylbenzene         1         0.05 pbbv           n-Propylbenzene         1         0.03 pbbv           n-Wonane         1         0.03 pbbv           n-Sylene         1         0.03 pbbv           p-Ethyltoluene         1         0.04 pbbv           Styrene         1         0.04 pbbv           Tetrahlorocthylene         1         0.04 pbbv           Styrene         1         0.04 pbbv           Tetrahlorocthylene         1         0.04 pbbv           trans-13-Dichlorocthylene         1         0.04 pbbv	LICA/VOC/ELK	/Nov 14, 2014	S12945	Ambient Air	14-Nov-15	0:00		
Parameter         Qualifier         Result Units           Methylene chloride         k, T, U         < 0.3 pbbv           n-Butane         1.67 pbbv           n-Dodecane         1.67 pbbv           n-Dodecane         1.0.4 pbbv           n-Heytane         1.0.3 pbbv           n-Heytane         1.0.3 pbbv           n-Octane         0.30 pbbv           n-Propylbenzene         1.0.3 pbbv           n-Propylbenzene         1.0.03 pbbv           n-Nonane         2.5 pbbv           n-Nonane         2.7 U         < 0.5 pbbv           n-Nonane         2.7 U         < 0.0 pbbv           p-Diethylbenzene         2.7 U         < 0.0 pbbv           p-Ethyltoluene	DESCRIPTION:						VERSION	Version 01
Parameter         Qualifier         Result Units           Methylene chloride         K, T, U         < 0.3 ppbv           n-Butane         (K, T, U         < 0.4 ppbv           n-Dodecane         (K, T, U         < 0.4 ppbv           n-Heytane         (K, T, U         < 0.4 ppbv           n-Hexane         (K, T, U         < 0.05 ppbv           n-Pentane         (K, T, U         < 0.05 ppbv           n-Propylbenzene         (K, T, U         < 0.05 ppbv           n-Undecane         (K, T, U         < 0.05 ppbv           n-Undecane         (K, T, U         < 0.05 ppbv           n-Undecane         (K, T, U         < 0.05 ppbv           n-Vonane         (K, T, U         < 0.05 ppbv           o-Ethytoluene         (K, T, U         < 0.04 ppbv           p-Ethytoluene         (K, T, U         < 0.04 ppbv           styrene         (K, T, U         < 0.04 ppbv           trans-1,2-Dichloroethylene         (K, T, U <td< th=""><th></th><th></th><th></th><th>)</th><th></th><th></th><th></th><th>10 1050</th></td<>				)				10 1050
Methylene chloride         K, T, U         < 0.3 ppbv           n-Butane         1.67 ppbv           n-Dodecane         1.7 ppbv           n-Dodecane         1.0.1 ppbv           n-Heptane         0.30 ppbv           n-Hexane         0.30 ppbv           n-Pentane         0.6 ppbv           n-Potane         0.5 ppbv           n-Potylbenzene         K, T, U         < 0.5 ppbv	Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
n-Butane         1.67 pbbv           n-Decane         K, T, U         < 0.06 ppbv	15110105-001	Methylene chlorid	e .	K, T, U	< 0.3 ppbv	0.3	AC-058	17-Nov-15
n-Decane         K, T, U         < 0.06 ppbv           n-Dodecane         K, T, U         < 0.4 ppbv	15110105-001	n-Butane				0.03	AC-058	17-Nov-15
n-Dodecane         K, T, U         < 0.4 ppbv	15110105-001	n-Decane		K, T, U		0.06	AC-058	17-Nov-15
n-Heptane         1         0.14 ppbv           n-Hexane         0.30 pbbv           n-Octane         0.08 pbbv           n-Pentane         0.6 pbbv           n-Propylbenzene         K, T, U         < 0.05 pbbv	15110105-001	n-Dodecane		K, T, U		0.4	AC-058	17-Nov-15
n-Hexane         0.30 ppbv           n-Octane         0.08 ppbv           n-Pentane         0.6 ppbv           n-Propylbenzene         k, T, U         < 0.05 ppbv	15110105-001	n-Heptane				0.01	AC-058	17-Nov-15
n-Octane n-Pentane n-Pentane n-Propylbenzene n-Undecane N-Undecane	15110105-001	n-Hexane				0.01	AC-058	17-Nov-15
n-Pentane         0.6 ppbv           n-Propylbenzene         k, T, U         < 0.05 ppbv	15110105-001	n-Octane		_		0.02	AC-058	17-Nov-15
n-Propylbenzene	15110105-001	n-Pentane				0.1	AC-058	17-Nov-15
n-Undecane Naphthalene Naphthalene Naphthalene Naphthalene Naphthalene Naphthalene Naphthalene Naphthalene Naphthalene Naphthologapbv O-Kylene Naphylbenzene	15110105-001	n-Propylbenzene		⊢`		0.02	AC-058	17-Nov-15
Naphthalene         K, T, U         < 0.5 pbbv           n-Nonane         K, T, U         < 0.01 ppbv	15110105-001	n-Undecane		K, T, U		0.5	AC-058	17-Nov-15
n-Nonane         K, T, U         < 0.01 ppbv           o-Ethyltoluene         1         0.03 ppbv           o-Xylene         1         0.03 ppbv           p-Diethylbenzene         K, T, U         < 0.04 ppbv	15110105-001	Naphthalene		μ,		0.5	AC-058	17-Nov-15
o-Ethyltoluene         K, T, U         < 0.01 ppbv           o-Xylene         1         0.03 ppbv           p-Diethylbenzene         K, T, U         < 0.04 ppbv	15110105-001	n-Nonane		K, T, U		0.01	AC-058	17-Nov-15
o-Xylene p-Diethylbenzene p-Diethylbenzene p-Ethyltoluene Styrene Tetrachloroethylene Tetrachloroethylene Toluene trans-1,2-Dichloroptylene trans-2-Butene trans-2-Pentene k, T, U < 0.01 ppbv trans-2-Pentene k, T, U < 0.01 ppbv trans-2-Pentene k, T, U < 0.002 ppbv trans-2-Pentene k, T, U < 0.004 ppbv trans-2-Pentene k, T, U < 0.004 ppbv	15110105-001	o-Ethyltoluene		⊢`		0.01	AC-058	17-Nov-15
p-Diethylbenzene         K, T, U         < 0.04 ppbv           P-Ethyltoluene         K, T, U         < 0.07 ppbv	15110105-001	o-Xylene		_		0.01	AC-058	17-Nov-15
p-Ethyltoluene         K, T, U         < 0.07 ppbv           Styrene         K, T, U         < 0.04 ppbv	15110105-001	p-Diethylbenzene		⊥,		0.04	AC-058	17-Nov-15
Styrene         K, T, U         < 0.04 ppbv           Tetrachloroethylene         K, T, U         < 0.04 ppbv	15110105-001	p-Ethyltoluene		⊢`		0.07	AC-058	17-Nov-15
Tetrachloroethylene Tetrahydrofuran Tetrahydrofuran Toluene Trans-1,2-Dichloroethylene Trans-2-Butene Trans-2-Pentene Trichloroethylene	15110105-001	Styrene		Τ,		0.04	AC-058	17-Nov-15
Toluene  Toluene  trans-1,2-Dichloroethylene trans-2-Butene trans-2-Pentene trans-2-Pentene trans-2-Pentene trans-2-Pentene Trichloroethylene K, T, U < 0.01 ppbv K, T, U < 0.01 ppbv K, T, U < 0.01 ppbv K, T, U < 0.01 ppbv K, T, U < 0.02 ppbv K, T, U < 0.02 ppbv Trichloroethylene K, T, U < 0.04 ppbv	15110105-001	Tetrachloroethyler	ne	⊢`		0.04	AC-058	17-Nov-15
Toluene         1         0.22 ppbv           trans-1,2-Dichloroethylene         K, T, U         < 0.01 ppbv	15110105-001	Tetrahydrofuran		⊢,		0.4	AC-058	17-Nov-15
trans-1,2-Dichloroethylene trans-1,2-Dichloropropylene trans-2-Butene trans-2-Pentene trans-2-Pentene trans-2-Pentene trans-2-Pentene trans-2-Pentene trans-2-Pentene K, T, U < 0.01 ppbv K, T, U < 0.02 ppbv K, T, U < 0.04 ppbv Cabam Knox, Team Lead On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	15110105-001	Toluene		_		0.01	AC-058	17-Nov-15
trans-1,3-Dichloropropylene     trans-2-Butene     K, T, U < 0.04 ppbv     K, T, U < 0.01 ppbv     trans-2-Pentene     K, T, U < 0.02 ppbv     Trichloroethylene     K, T, U < 0.04 ppbv     K, T, U < 0.04 ppbv     Manager, Analysis and Testing Services	15110105-001	trans-1,2-Dichloro	ethylene	⊢`		0.01	AC-058	17-Nov-15
trans-2-Butene K, T, U < 0.01 ppbv trans-2-Pentene K, T, U < 0.02 ppbv Trichloroethylene K, T, U < 0.04 ppbv by: Graham Knox, Team Lead On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	15110105-001	trans-1,3-Dichloro	propylene	K, T, U		0.04	AC-058	17-Nov-15
trans-2-Pentene K, T, U < 0.02 ppbv  Trichloroethylene K, T, U < 0.04 ppbv  K, T, U < 0.04 ppbv  On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	15110105-001	trans-2-Butene		K, T, U		0.01	AC-058	17-Nov-15
Trichloroethylene K, T, U < 0.04 ppbv  by: Graham Knox, Team Lead On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	15110105-001	trans-2-Pentene		K, T, U		0.02	AC-058	17-Nov-15
Graham Knox, Team Lead	15110105-001	Trichloroethylene		⊢`	0.04	0.04	AC-058	17-Nov-15
	Report certified by:	Graham Knox, Team		alf of: PJ Pretorius, Manager,	Analysis and Testing Services			
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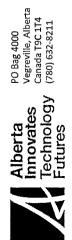
TEST REPORT

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**Analysis Date** 17-Nov-15 17-Nov-15 VERSION: Version 01 AC-058 AC-058 Method 0.4 0.02 RDL 0:00 DATE SAMIPLED 14-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services Result Units < 0.02 ppbv < 0.4 ppbv K, T, U K, T, U 05-Jan-16 Qualifier Ambient Air Matrix REPORT CREATED: **CANISTER ID** S12945 Graham Knox, Team Lead Elk Point Airport 15110105 LICA/VOC/ELK/Nov 14, 2014 Vinyl chloride Vinyl acetate Parameter **CLIENT SAMPLE ID** REPORT NUMBER: Report certified by: DESCRIPTION: 15110105-001 15110105-001 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455



TEST REPORT

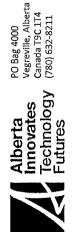
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CLIENT S.	CLIENT SAMPLE ID CANISTER ID		Matrix	DATE SAMPLED	LED		
LICA/VOC/ELK	LICA/VOC/ELK/NOV 20, 2015 1060		Ambient Air	20-Nov-15	00:00		
DESCRIPTION:							
REPORT NUMBER:	R: 15110230	REPORT CREATED:	08-Jan-16			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110230-003	1,1,1-Trichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1,1,2,2-Tetrachloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1,1,2-Trichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1,1-Dichloroethane		K, T, U	< 0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1,1-Dichloroethylene		K, T, U	< 0.04 ppbv	0.04	AC-058	03-Dec-15
15110230-003	1,2,3-Trimethylbenzene		K, T, U	< 0.05 ppbv	0.05	AC-058	03-Dec-15
15110230-003	1,2,4-Trichlorobenzene		K, T, U	< 0.8 ppbv	0.8	AC-058	03-Dec-15
15110230-003	1,2,4-Trimethylbenzene			0.04 ppbv	0.03	AC-058	03-Dec-15
15110230-003	1,2-Dibromoethane		K, T, U	< 0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1,2-Dichlorobenzene		K, T, U	< 0.03 ppbv	0.03	AC-058	03-Dec-15
15110230-003	1,2-Dichloroethane		_	0.02 ppbv	0.01	AC-058	03-Dec-15
15110230-003	1,2-Dichloropropane		K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110230-003	1,3,5-Trimethylbenzene		K, T, U	< 0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1,3-Butadiene		K, T, U	< 0.02 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1,3-Dichlorobenzene		K, T, U	< 0.3 ppbv	0.3	AC-058	03-Dec-15
15110230-003	1,4-Dichlorobenzene		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110230-003	1,4-Dioxane		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110230-003	1-Butene			0.12 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1-Hexene		pagana.	0.06 ppbv	0.02	AC-058	03-Dec-15
15110230-003	1-Pentene		B-MINE.	0.14 ppbv	0.01	AC-058	03-Dec-15
15110230-003	2,2,4-Trimethylpentane		K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110230-003	2,2-Dimethylbutane			0.04 ppbv	0.01	AC-058	03-Dec-15
15110230-003	2,3,4-Trimethylpentane		_	0.03 ppbv	0.01	AC-058	03-Dec-15
15110230-003	2,3-Dimethylbutane		_	0.19 ppbv	0.02	AC-058	03-Dec-15
15110230-003	2,3-Dimethylpentane		ev-ma	0.10 ppbv	0.02	AC-058	03-Dec-15
Report certified by:	Graham Knox, Team Lead	On behalf of: P.	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

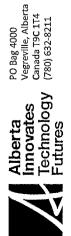
Date: Friday, January 08, 2016



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**Analysis Date** 03-Dec-15 03-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 3-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 )3-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 Version 01 E-mail: EAS Results@albertainnovates.ca VERSION: Method AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 4C-058 AC-058 0.01 0.01 0.02 0.02 0.01 0.4 0.3 0.01 0.4 0.02 0.02 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.01 0.04 0.01 0.02 0.02 0.02 Inquiries: (780) 632 8455 8000 DATE SAMPLED 20-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv ppbv ppbv Result Units ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd 0.08 ppbv ppbv 5.6 0.29 < 0.4 < 0.02 0.20 0.04 0.49 0.03 0.16 < 0.3 < 0.02 < 0.01 0.22 0.12 < 0.02 < 0.02 0.03 0.60 < 0.01 < 0.04 0.12 0.11 0.17 0.27 08-Jan-16 K, T, U K, T, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U Qualifier Ambient Air Matrix REPORT CREATED: **CANISTER ID** 1060 **Bromodichloromethane** cis-1,3-Dichloropropene cis-1,2-Dichloroethene Graham Knox, Team Lead 2,4-Dimethylpentane Carbon tetrachloride Elk Point Airport 2-Methylpentane 2-Methylheptane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide **Bromomethane** Chloromethane 3enzyl chloride Chlorobenzene LICA/VOC/ELK/NOV 20, 2015 15110230 Chloroethane cis-2-Pentene cis-2-Butene Cyclohexane Chloroform **3romoform** Parameter **CLIENT SAMPLE ID 3enzene** Acetone Acrolein Date: Friday, January 08, 2016 REPORT NUMBER: Report certified by: DESCRIPTION: 15110230-003 Lab ID



**TEST REPORT** 

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Analysis Date 03-Dec-15 )3-Dec-15 )3-Dec-15 33-Dec-15 3-Dec-15 )3-Dec-15 33-Dec-15 3-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.3 0.4 0.01 0.02 0.01 0.02 0.02 0.50 0.02 0.03 0.01 0.4 0.01 0.03 0.04 0.08 0.50 0.3 0.4 0.01 0.01 0.07 0.03 0.01 0.02 Inquiries: (780) 632 8455 00:00 DATE SAMPLED 20-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services vddd Result Units 0.08 ppbv 0.01 ppbv ppbv vddd pbbv ppbv < 0.02 ppbv ppbv < 0.50 ppbv 9.65 ppbv ppbv vddd ppbv 0.01 ppbv 0.08 ppbv < 0.04 ppbv < 0.50 ppbv ppbv ppbv 2.5 ppbv < 0.07 ppbv < 0.03 ppbv 0.20 ppbv ppbv < 0.4 0.04 0.32 0.08 0.67 3.23 0.12 < 0.4 < 0.08 < 0.3 < 0.4 0.19 38-Jan-16 K, T, U K, T, U Qualifier Κ, Τ, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** 1060 Hexachloro-1,3-butadiene Dibromochloromethane Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Methyl methacrylate Methyl butyl ketone Methyl ethyl ketone Methylcyclopentane Elk Point Airport Methylcyclohexane m-Diethylbenzene sopropylbenzene sopropyl alcohol m-Ethyltoluene LICA/VOC/ELK/NOV 20, 2015 15110230 Cyclopentane Ethyl acetate Ethylbenzene m,p-Xylene sopentane Parameter -reon-113 Freon-114 sobutane -reon-12 **CLIENT SAMPLE ID** reon-11 soprene Ethanol Date: Friday, January 08, 2016 REPORT NUMBER: Report certified by: DESCRIPTION: 15110230-003 Lab ID



TEST REPORT

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**Analysis Date** )3-Dec-15 03-Dec-15 )3-Dec-15 03-Dec-15 33-Dec-15 3-Dec-15 3-Dec-15 03-Dec-15 03-Dec-15 03-Dec-15 )3-Dec-15 03-Dec-15 33-Dec-15 03-Dec-15 )3-Dec-15 03-Dec-15 03-Dec-15 33-Dec-15 )3-Dec-15 )3-Dec-15 33-Dec-15 )3-Dec-15 )3-Dec-15 )3-Dec-15 33-Dec-15 Version 01 VERSION: Method AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 4C-058 AC-058 4C-058 AC-058 AC-058 0.4 0.05 0.5 0.5 0.04 0.04 0.4 0.03 90.0 0.01 0.02 0.01 0.01 0.01 0.07 0.04 0.01 0.04 0.3 0.01 0.1 0.01 0.01 0.02 0.04 00:00 DATE SAMPLED 20-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv vddd ppbv ppbv ppbv ppbv ppbv ppbv Result Units ppbv ppbv ppbv ppbv : 0.04 ppbv : 0.01 ppbv < 0.3 ppbv 14.7 ppbv < 0.1 ppbv < 0.5 ppbv : 0.04 ppbv < 0.4 ppbv : 0.04 ppbv 0.24 ppbv 3.4 ppbv 0.23 ppbv 0.06 < 0.05 0.29 0.01 0.16 0.04 0.02 0.04 < 0.07 < 0.04 0.32 < 0.04 K, T, U K, T, U 08-Jan-16 Qualifier K, T, U K, T, U Κ, Τ, U K, 1, U K, T, U K, T, U Κ, Τ, U K, T, U K, T, U Κ, Τ, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** trans-1,3-Dichloropropylene trans-1,2-Dichloroethylene Graham Knox, Team Lead **Tetrachloroethylene** Elk Point Airport Methylene chloride p-Diethylbenzene **Trichloroethylene** n-Propylbenzene etrahydrofuran trans-2-Pentene trans-2-Butene o-Ethyltoluene p-Ethyltoluene LICA/VOC/ELK/NOV 20, 2015 15110230 **Japhthalene** n-Dodecane 1-Undecane n-Pentane Parameter n-Heptane n-Nonane า-Hexane n-Decane 1-Octane n-Butane o-Xylene **CLIENT SAMPLE ID** oluene Styrene REPORT NUMBER: Report certified by: **DESCRIPTION:** 15110230-003 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Friday, January 68, 2016

Date:



**TEST REPORT** 

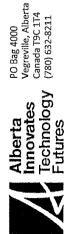
Page 12 of 18

		_	7
	Version 01	Analysis Date 03-Dec-15	
	VERSION:	AC-058 AC-058	
		0.4 0.02	
MPLED 00:00			
DATE SAMPLED 20-Nov-15 00:0		Result Units < 0.04 ppbv < 0.02 ppbv	On hahalf of DI Destoring Manages Analunia and Tarting Corrison
irix nt Air	08-Jan-16	Qualifier K, T, U K, T, U	, , , , , , , , , , , , , , , , , , ,
Matrix Ambient Air	REPORT CREATED:		10 3-31-1-V
CANISTER ID	2001		Tood
MPLE ID VOV 20, 2015	Elk Point Airport: 15110230	Vinyl acetate Vinyl chloride	for I most
CLIENT SAMPLE ID LICA/VOC/ELK/NOV 20, 2015	DESCRIPTION: REPORT NUMBER:	Lab ID F 15110230-003 V 15110230-003 V	

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016



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**Analysis Date** 03-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 3-Dec-15 )3-Dec-15 )3-Dec-15 )3-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 )3-Dec-15 03-Dec-15 )3-Dec-15 )3-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 4C-058 AC-058 AC-058 AC-058 AC-058 0.8 0.3 0.4 0.4 0.02 0.02 0.04 0.05 0.03 0.02 0.03 0.01 0.01 0.02 0.02 0.02 0.02 0.01 0.01 0.01 0.01 0.02 0.02 Inquiries: (780) 632 8455 00:00 DATE SAMPLED 26-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv **Result Units** ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv < 0.3 ppbv < 0.4 ppbv < 0.4 ppbv < 0.02 ppbv : 0.01 ppbv < 0.01 ppbv 0.03 ppbv 0.20 ppbv vddd < 0.02 : 0.02 0.05 0.04 < 0.03 < 0.01 < 0.02 0.08 < 0.02 < 0.02 < 0.04 < 0.8 0.02 0.02 < 0.02 0.12 0.12 K, T, U 38-Jan-16 Qualifier K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U Κ, Τ, U K, T, U \_ Ambient Air Matrix REPORT CREATED: **CANISTER ID** H2834 Julius Pretorius, Portfolio Manager 1,1,2,2-Tetrachloroethane L,2,3-Trimethylbenzene L, 2, 4-Trimethylbenzene ,3,5-Trimethylbenzene 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane L, 2, 4-Trichlorobenzene 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethylene 2,3-Dimethylpentane 1,2-Dichloropropane L, 2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Elk Point Airport 2,2-Dimethylbutane 2,3-Dimethylbutane 1,2-Dibromoethane l,1-Dichloroethane 1,2-Dichloroethane LICA/VOC/ELK/NOV 26, 2015 L,3-Butadiene 15110237 L,4-Dioxane Parameter L-Pentene 1-Hexene -Butene **CLIENT SAMPLE ID** REPORT NUMBER: Report certified by: DESCRIPTION: 15110237-001 Lab ID

Date: Friday, January 08, 2016



**TEST REPORT** 

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**Analysis Date** 33-Dec-15 33-Dec-15 )3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 03-Dec-15 33-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 3-Dec-15 )3-Dec-15 3-Dec-15 3-Dec-15 33-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.4 0.3 0.01 0.01 0.01 0.02 0.02 0.01 0.01 0.4 0.02 0.02 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.01 0.04 0.02 0.02 3.02 Inquiries: (780) 632 8455 00:00 DATE SAMPLED 26-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd ppbv Result Units ppbv ppbv ppbv ppbv ppbv ppbv 0.26 ppbv 0.09 < 0.4 < 0.02 < 0.02 0.08 0.31 0.04 0.13 1.7 < 0.3 0.31 < 0.02 < 0.02 < 0.01 0.02 0.11 < 0.02 0.02 0.55 < 0.01 < 0.04 < 0.02 0.12 0.17 K, T, U 08-Jan-16 K, T, U K, T, U K, T, U K, T, U K, T, U Κ, T, U K, T, U Κ, Τ, U Κ, Τ, U Qualifier Ambient Air Matrix REPORT CREATED: **CANISTER ID** H2834 Julius Pretorius, Portfolio Manager **Bromodichloromethane** cis-1,3-Dichloropropene cis-1,2-Dichloroethene 2,4-Dimethylpentane Carbon tetrachloride Elk Point Airport 2-Methylpentane 2-Methylheptane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide **3romomethane** Chloromethane 3enzyl chloride Chlorobenzene LICA/VOC/ELK/NOV 26, 2015 Chloroethane 15110237 cis-2-Pentene cis-2-Butene Cyclohexane Chloroform **3romoform** Parameter **3enzene CLIENT SAMPLE ID** Acrolein Acetone Date: Friday, January 08, 2016 REPORT NUMBER: Report certified by: DESCRIPTION: 15110237-001 Lab ID



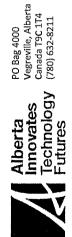
0 Alberta - 1 T.

# **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

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CLIENTS	CLIENT SAMPLE ID CANI	CANISTER ID ME	Matrix	DATE SAMPLED	IPLED		
LICA/VOC/ELI	LICA/VOC/ELK/NOV 26, 2015 H.		Ambient Air	26-Nov-15	00:00		
DESCRIPTION:	Elk Point Airport						
REPORT NUMBER:	ER: 15110237	REPORT CREATED:	08-Jan-16			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110237-001	Cyclopentane		_	0.08 ppbv	0.01	AC-058	03-Dec-15
15110237-001	Dibromochloromethane	a	K, T, U	< 0.01 ppbv	0.01	AC-058	03-Dec-15
15110237-001	Ethanol			0.6 ppbv	0.3	AC-058	03-Dec-15
15110237-001	Ethyl acetate		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110237-001	Ethylbenzene		******	0.05 ppbv	0.01	AC-058	03-Dec-15
15110237-001	Freon-11			0.41 ppbv	0.02	AC-058	03-Dec-15
15110237-001	Freon-113			0.07 ppbv	0.01	AC-058	03-Dec-15
15110237-001	Freon-114			0.02 ppbv	0.02	AC-058	03-Dec-15
15110237-001	Freon-12			vdqq 95.0	0.02	AC-058	03-Dec-15
15110237-001	Hexachloro-1,3-butadiene	ene	K, T, U	< 0.50 ppbv	0.50	AC-058	03-Dec-15
15110237-001	Isobutane			1.43 ppbv	0.02	AC-058	03-Dec-15
15110237-001	Isopentane			1.03 ppbv	0.03	AC-058	03-Dec-15
15110237-001	Isoprene		_	0.05 ppbv	0.01	AC-058	03-Dec-15
15110237-001	Isopropyl alcohol		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110237-001	Isopropylbenzene		_	0.01 ppbv	0.01	AC-058	03-Dec-15
15110237-001	m,p-Xylene		_	0.11 ppbv	0.03	AC-058	03-Dec-15
15110237-001	m-Diethylbenzene		K, T, U	< 0.04 ppbv	0.04	AC-058	03-Dec-15
15110237-001	m-Ethyltoluene		K, T, U	< 0.08 ppbv	0.08	AC-058	03-Dec-15
15110237-001	Methyl butyl ketone		K, T, U	< 0.50 ppbv	0.50	AC-058	03-Dec-15
15110237-001	Methyl ethyl ketone		K, T, U	< 0.3 ppbv	0.3	AC-058	03-Dec-15
15110237-001	Methyl isobutyl ketone		K, T, U	< 0.4 ppbv	0.4	AC-058	03-Dec-15
15110237-001	Methyl methacrylate		K, T, U	< 0.07 ppbv	0.07	AC-058	03-Dec-15
15110237-001	Methyl tert butyl ether		K, T, U	< 0.03 ppbv	0.03	AC-058	03-Dec-15
15110237-001	Methylcyclohexane			0.51 ppbv	0.01	AC-058	03-Dec-15
15110237-001	Methylcyclopentane		_	0.22 ppbv	0.02	AC-058	03-Dec-15
Report certified by:	Julius Pretorius, Portfolio Manager		On behalf of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: Friday, January 08, 2016	iary 08, 2016			İnquiri	Inquiries: (780) 632 8455	E-mail: EAS.Results@albertainnovates.ca	tainnovates.ca



TEST REPORT

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**Analysis Date** 33-Dec-15 33-Dec-15 03-Dec-15 33-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 3-Dec-15 33-Dec-15 33-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 03-Dec-15 33-Dec-15 )3-Dec-15 33-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method AC-058 0.5 0.4 0.03 90.0 0.4 0.02 0.1 0.05 0.5 0.01 0.01 0.01 0.04 0.07 0.04 0.04 0.01 0.01 0.04 0.01 0.01 0.01 0.02 Inquiries: (780) 632 8455 00:00 DATE SAMPLED 26-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv ppbv ppbv ppbv ppbv **Result Units** ppbv ppbv < 0.3 ppbv 2.39 pbbv < 0.1 ppbv < 0.5 ppbv < 0.01 ppbv : 0.02 ppbv < 0.01 ppbv</p> < 0.04 ppbv 0.10 < 0.05 < 0.4 0.02 0.04 0.04 < 0.04 0.44 < 0.04 0.19 0.35 0.10 0.07 < 0.07 < 0.04 08-Jan-16 K, T, U K, T, U K, T, U K, T, U Qualifier Κ, Τ, U K, T, U K, T, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U K, T, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** H2834 trans-1,3-Dichloropropylene Julius Pretorius, Portfolio Manager trans-1,2-Dichloroethylene **Tetrachloroethylene Elk Point Airport** Methylene chloride p-Diethylbenzene Trichloroethylene 1-Propylbenzene etrahydrofuran rans-2-Pentene o-Ethyltoluene p-Ethyltoluene :rans-2-Butene LICA/VOC/ELK/NOV 26, 2015 15110237 **Naphthalene** n-Undecane n-Dodecane n-Heptane n-Pentane Parameter n-Nonane n-Decane n-Hexane 1-Octane յ-Butane o-Xylene **CLIENT SAMPLE ID Foluene** Styrene Date: Friday, January 08, 2016 REPORT NUMBER: Report certified by: **DESCRIPTION:** 15110237-001 Lab ID



**TEST REPORT** 

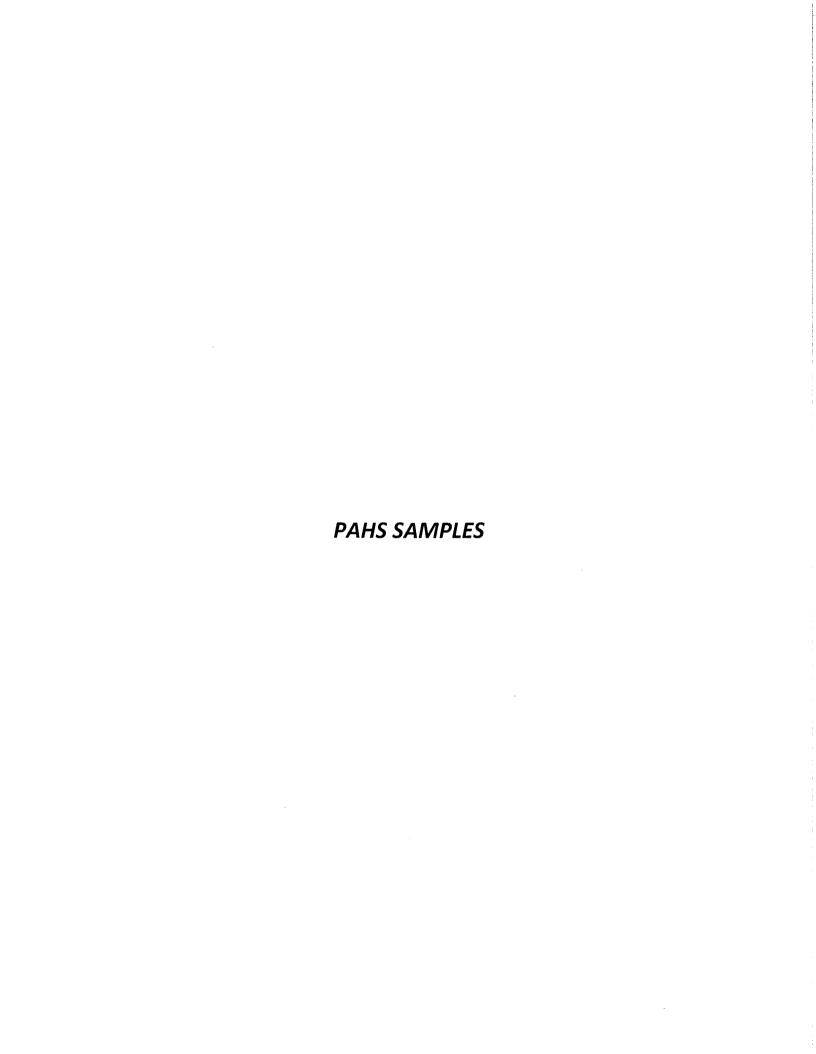
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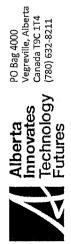
		at 10 10
	Version 01	Analysis Date 03-Dec-15 03-Dec-15
	VERSION:	Method AC-058 AC-058
		0.02 0.02
<b>MPLED</b> 00:00		
DATE SAMPLED 26-Nov-15 00:0		Result Units < 0.4 ppbv < 0.02 ppbv
r <b>ix</b> nt Air	08-Jan-16	Qualifier K, T, U K, T, U
Matrix Ambient Air	REPORT CREATED:	
CANISTER ID H2834		
MPLE ID NOV 26, 2015	Elk Point Airport: 15110237	Parameter Vinyl acetate Vinyl chloride
CLIENT SAMPLE ID LICA/VOC/ELK/NOV 26, 2015	DESCRIPTION: REPORT NUMBER:	Lab ID P 15110237-001 V 15110237-001 V

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016

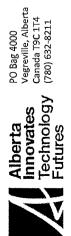




TEST REPORT

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CLIENT	CLIENT SAMPLE ID CANIS	CANISTER ID N	Matrix	DATE SAMPLED			
LICA/PUF/EI	LICA/PUF/ELK/Nov 2, 2015 A13		Air Filter	02-Nov-15 0:00			
DESCRIPTION:	Elk Point Airport						
REPORT NUMBER:	ER: 15110054	REPORT CREATED:	05-Jan-16			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110054-004	1-Methylnaphthalene			0.12 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	2-Methylnaphthalene			0.18 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	3-Methylcholanthrene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	7,12-Dimethylbenz(a)anthracene	thracene	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Acenaphthene			0.03 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Acenaphthylene			0.12 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Acridine		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Anthracene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Benzo(a)anthracene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Benzo(a)pyrene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Benzo(b,j,k)fluoranthene	a)	K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Benzo(c)phenanthrene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Benzo(e)pyrene		K, T, U	<0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Benzo(ghi)perylene		K, T, U	<0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Chrysene			0.02 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Dibenzo(a,h)pyrene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Dibenzo(a,i)pyrene		K, T, U	<0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Dibenzo(a,l)pyrene		K, T, U	<0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Dibenzo(ah)anthracene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Fluoranthene			0.05 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Fluorene			0.09 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Indeno(1,2,3-cd)pyrene		K, <b>T,</b> U	<0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Naphthalene			0.12 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Perylene		K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Phenanthrene			0.17 ug/Filter	0.01	NA-017	08-Dec-15
Report certified by:	: Graham Knox, Team Lead	On behalf of:	of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: January 5, 2016	2016			<b>Inquiries:</b> (780) 632 8455		E-mail: EAS.Results@albertainnovates.ca	uinnovates.ca



**TEST REPORT** 

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CLIENT SAMPLE ID	MPLE ID	CANISTER ID	Matrix		DATE SAMPLED			
LICA/PUF/ELK/Nov 2, 2015	/Nov 2, 2015	A13-02	Air Filter		02-Nov-15 0:00	00		
DESCRIPTION: REPORT NUMBER:	Elk Point Airport	pori REPORT CREATED:		05-Jan-16			VERSION:	Version 01
Lab ID	Parameter			Qualifier	Result Units	RDL	Method	Analysis Date
15110054-004	Pyrene				0.03 ug/Filter	0.01	NA-017	08-Dec-15
15110054-004	Retene			K, T, U	< 0.01 ug/Filter	0.01	NA-017	08-Dec-15
·								
Report certified by:	Graham Knox, Team Lead		ehalf of: PJ Pretor	ius, Manager, Analys	On behalf of: PJ Pretorius, Manager, Analysis and Testing Services			

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: January 5, 2016



TEST REPORT

Page 3 of 20

**Analysis Date** 08-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 )8-Dec-15 38-Dec-15 38-Dec-15 )8-Dec-15 08-Dec-15 38-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: Method NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 **VA-017 VA-017 VA-017 VA-017** NA-017 **VA-017 VA-017 VA-017 VA-017** NA-017 **NA-017 VA-017 VA-017** 0.01 Inquiries: (780) 632 8455 0:00 DATE SAMPLED < 0.01 ug/Filter 0.05 ug/Filter 0.08 ug/Filter : 0.01 ug/Filter : 0.01 ug/Filter 0.03 ug/Filter 0.04 ug/Filter 0.01 ug/Filter : 0.01 ug/Filter : 0.01 ug/Filter < 0.01 ug/Filter 0.05 ug/Filter : 0.01 ug/Filter 0.02 ug/Filter 0.03 ug/Filter 0.04 ug/Filter : 0.01 ug/Filter : 0.01 ug/Filter < 0.01 ug/Filter 0.07 ug/Filter 0.20 ug/Filter 0.02 ug/Filter 0.11 ug/Filter 0.02 ug/Filter 0.27 ug/Filter 08-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services Result Units 05-Jan-16 Qualifier K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U Air Filter Matrix REPORT CREATED: 7,12-Dimethylbenz(a)anthracene **CANISTER ID** 3enzo(b,j,k)fluoranthene Dibenzo(ah)anthracene ndeno(1,2,3-cd)pyrene 3-Methylcholanthrene 3enzo(c)phenanthrene 2-Methylnaphthalene Graham Knox, Team Lead 1-Methylnaphthalene Benzo(a)anthracene Elk Point Airport 3enzo(ghi)perylene Dibenzo(a,h)pyrene Oibenzo(a,i)pyrene Oibenzo(a,I)pyrene Acenaphthylene 3enzo(a)pyrene Benzo(e)pyrene Acenaphthene Phenanthrene 15110089 -luoranthene LICA/PUF/ELK/Nov 8, 2015 **Naphthalene** Anthracene Parameter Chrysene -luorene **CLIENT SAMPLE ID** Acridine Perylene REPORT NUMBER: Report certified by: DESCRIPTION: 15110089-004

Date: January 5, 2016



PO Bag 4000 Vegreville, Alberta Canada T9C 1T4 (780) 632-8211

### ENVIRONMENTAL ANALYTICAL SERVICES TEST REPORT

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**Analysis Date** 08-Dec-15 08-Dec-15 Version 01 VERSION: Method NA-017 NA-017 0.01 0.01 RDL 0:00 DATE SAMPLED 0.03 ug/Filter 0.04 ug/Filter 08-Nov-15 Result Units 05-Jan-16 Qualifier Air Filter Matrix REPORT CREATED: **CANISTER ID** 9702 Elk Point Airport 15110089 LICA/PUF/ELK/Nov 8, 2015 Parameter **CLIENT SAMPLE ID** Pyrene Retene REPORT NUMBER: **DESCRIPTION:** 15110089-004 15110089-004 Lab ID

E-mail: EAS.Results@albertainnovates.ca

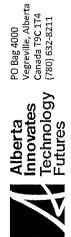
Inquiries: (780) 632 8455

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Graham Knox, Team Lead

Report certified by:

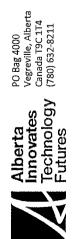
Date: January 5, 2016



**TEST REPORT** 

Page 3 of 20

**Analysis Date** 08-Dec-15 38-Dec-15 )8-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 38-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca VERSION: NA-017 NA-017 NA-017 NA-017 NA-017 Method NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 **VA-017 VA-017** NA-017 NA-017 **VA-017 VA-017** NA-017 NA-017 **VA-017** NA-017 0.01 Inquiries: (780) 632 8455 0:00 DATE SAMPLED ug/Filter 0.42 ug/Filter < 0.01 ug/Filter < 0.01 ug/Filter 0.06 ug/Filter < 0.01 ug/Filter 0.02 ug/Filter < 0.01 ug/Filter ug/Filter 0.02 ug/Filter : 0.01 ug/Filter < 0.01 ug/Filter < 0.01 ug/Filter < 0.01 ug/Filter 0.06 ug/Filter < 0.01 ug/Filter < 0.01 ug/Filter 0.26 ug/Filter 0.09 ug/Filter :0.01 ug/Filter : 0.01 ug/Filter < 0.01 ug/Filter 0.18 ug/Filter 0.19 ug/Filter 0.20 ug/Filter 14-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services Result Units < 0.01 < 0.01 05-Jan-16 K, T, U Qualifier K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U Air Filter Matrix REPORT CREATED: 7,12-Dimethylbenz(a)anthracene CANISTER ID TE-02 3enzo(b,j,k)fluoranthene Dibenzo(ah)anthracene ndeno(1,2,3-cd)pyrene Benzo(c)phenanthrene 3-Methylcholanthrene Graham Knox, Team Lead 2-Methylnaphthalene 1-Methylnaphthalene Elk Point Airport 3enzo(a)anthracene Oibenzo(a,h)pyrene 3enzo(ghi)perylene Oibenzo(a,i)pyrene Dibenzo(a,l)pyrene Acenaphthylene Benzo(a)pyrene Benzo(e)pyrene Acenaphthene Phenanthrene 15110105 LICA/PUF/ELK/Nov 14, 2014 -Inoranthene **Naphthalene** Anthracene Parameter Chrysene -Iuorene Perylene **CLIENT SAMPLE ID** Acridine REPORT NUMBER: Date: January 5, 2016 Report certified by: DESCRIPTION: 15110105-002 Lab ID



**TEST REPORT** 

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**Analysis Date** 08-Dec-15 08-Dec-15 VERSION: Version 01 Method NA-017 NA-017 0.01 0.01 RDL 0:00 DATE SAMPLED 0.02 ug/Filter 0.03 ug/Filter 14-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services Result Units 05-Jan-16 Qualifier Air Filter Matrix REPORT CREATED: CANISTER ID TE-02 Graham Knox, Team Lead Elk Point Airport 15110105 LICA/PUF/ELK/Nov 14, 2014 Parameter **CLIENT SAMPLE ID** Retene Pyrene REPORT NUMBER: Report certified by: DESCRIPTION: 15110105-002 15110105-002 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: January 5, 2016



PO Bag 4000 Vegreville, Alberta Canada T9C 174 (780) 632-8211

### **ENVIRONMENTAL ANALYTICAL SERVICES**

**TEST REPORT** 

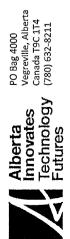
Page 3 of 20

**Analysis Date** 19-Dec-15 19-Dec-15 19-Dec-15 19-Dec-15 19-Dec-15 .9-Dec-15 19-Dec-15 .9-Dec-15 .9-Dec-15 19-Dec-15 19-Dec-15 .9-Dec-15 .9-Dec-15 19-Dec-15 .9-Dec-15 Version 01 VERSION: NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 NA-017 Method **VA-017** NA-017 **VA-017** NA-017 NA-017 NA-017 NA-017 **IA-017 IA-017 NA-017 VA-017** NA-017 **VA-017** NA-017 NA-017 NA-017 NA-017 0.01 90:00 DATE SAMPLED 0.55 ug/Filter 0.39 ug/Filter < 0.01 ug/Filter 0.01 ug/Filter 0.18 ug/Filter 0.22 ug/Filter 0.08 ug/Filter 0.05 ug/Filter 0.05 ug/Filter 0.13 ug/Filter 0.02 ug/Filter 0.05 ug/Filter 0.07 ug/Filter 0.08 ug/Filter < 0.01 ug/Filter < 0.01 ug/Filter 0.06 ug/Filter 0.02 ug/Filter 0.32 ug/Filter 0.52 ug/Filter 0.05 ug/Filter 0.53 ug/Filter 0.01 ug/Filter :0.01 ug/Filter 0.99 ug/Filter 26-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services **Result Units** 08-Jan-16 Qualifier K, T, U K, T, U K, T, U K, T, U Air Filter Matrix REPORT CREATED: 7,12-Dimethylbenz(a)anthracene **CANISTER ID** Julius Pretorius, Portfolio Manager TE-04 3enzo(b,j,k)fluoranthene **Dibenzo(ah)anthracene** ndeno(1,2,3-cd)pyrene 3enzo(c)phenanthrene 3-Methylcholanthrene 2-Methylnaphthalene 1-Methylnaphthalene Benzo(a)anthracene Elk Point Airport Oibenzo(a,h)pyrene Benzo(ghi)perylene Dibenzo(a,i)pyrene Dibenzo(a,I)pyrene Acenaphthylene 3enzo(a)pyrene 3enzo(e)pyrene Acenaphthene Phenanthrene LICA/PUF/ELK/NOV 26, 2015 15110237 -luoranthene Naphthalene Anthracene Parameter Chrysene Fluorene Perylene **CLIENT SAMPLE ID** Acridine REPORT NUMBER: Report certified by: DESCRIPTION: 15110237-002 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016



TEST REPORT

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**Analysis Date** 19-Dec-15 19-Dec-15 **VERSION:** Version 01 Method NA-017 NA-017 0.01 0.01 00:00 DATE SAMPLED 0.36 ug/Filter 0.23 ug/Filter 26-Nov-15 Result Units 08-Jan-16 Qualifier Air Filter Matrix REPORT CREATED: **CANISTER ID** TE-04 Elk Point Airport LICA/PUF/ELK/NOV 26, 2015 15110237 Parameter **CLIENT SAMPLE ID** Retene Pyrene REPORT NUMBER: DESCRIPTION: 15110237-002 15110237-002 Lab ID

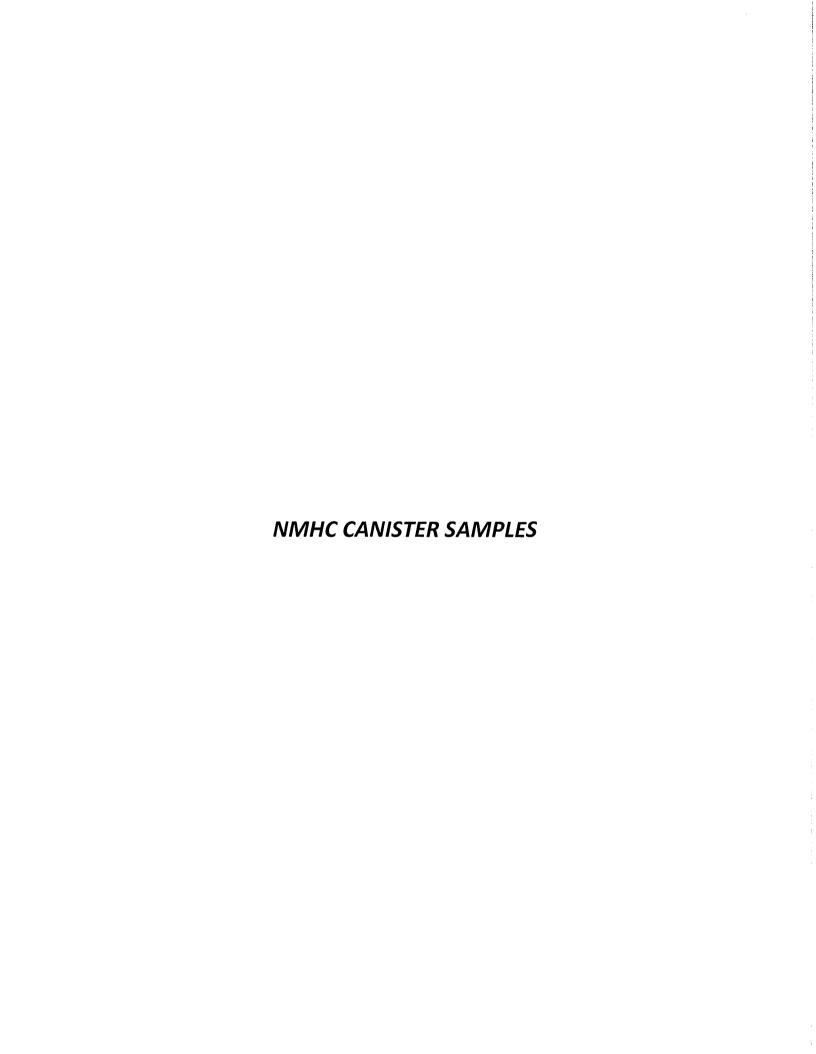
Report certified by: Julius Pretorius, Portfolio Manager

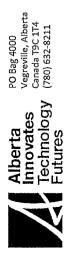
On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Date: Friday, January 08, 2016

Inquiries: (780) 632 8455 E-m

E-mail: EAS.Results@albertainnovates.ca





TEST REPORT

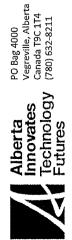
Page 1 of 11

Calgary AB INVOICE: Charmaine Code PO Box 8237 5107W-50 St Bonnyville AB Lab ID Parameter 15110198-001 1,1,1-Trichlol	T2E 6P8 ne Code 780 812-2182 3237	-					
harr 20 B 5107 30nr 4B		DESCRIPTION:	Elk Point Airport				
30nr 30nr 18	†3 Ct	DATE SAMPLED: REPORT CREATED:	19-Nov-15	17:05	DATE RECEIVED: REPORT NUMBER:	24-Nov-15 15110198	/-15 198
g	le				VERSION:	Version 01	n 01
	T9N 2J5						
	Parameter	Qualifier	Result Units		RDL Me	Method	Analysis Date
	1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv		0.02 AC	AC-058	24-Nov-15
15110198-001 1,1,2	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv		0.02 AC	AC-058	24-Nov-15
15110198-001 1,1,2	1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv		0.02 AC	AC-058	24-Nov-15
15110198-001 1,1-[	1,1-Dichloroethane	K, T, U	< 0.02 ppbv		0.02 AC	AC-058	24-Nov-15
15110198-001 1,1-[	1,1-Dichloroethylene	K, T, U	< 0.05 ppbv		0.05 AC	AC-058	24-Nov-15
15110198-001 1,2,3	1,2,3-Trimethylbenzene		0.26 ppbv		0.06 AC	AC-058	24-Nov-15
15110198-001 1,2,4	1,2,4-Trichlorobenzene	K, T, U	< 1.0 ppbv		1.0 AC	AC-058	24-Nov-15
15110198-001 1,2,4	1,2,4-Trimethylbenzene		0.94 ppbv		0.04 AC	AC-058	24-Nov-15
15110198-001 1,2-[	1,2-Dibromoethane	K, T, U	< 0.02 ppbv		0.02 AC	AC-058	24-Nov-15
15110198-001 1,2-[	1,2-Dichlorobenzene	K, T, U	< 0.04 ppbv		0.04 AC	AC-058	24-Nov-15
15110198-001 1,2-[	1,2-Dichloroethane		0.03 ppbv		0.01 AC	AC-058	24-Nov-15
15110198-001 1,2-[	1,2-Dichloropropane		0.01 ppbv		0.01 AC	AC-058	24-Nov-15
15110198-001 1,3,5	1,3,5-Trimethylbenzene		0.32 ppbv		0.02 AC-	AC-058	24-Nov-15
15110198-001 1,3-E	1,3-Butadiene	K, T, U	< 0.02 ppbv		0.02 AC	AC-058	24-Nov-15
15110198-001 1,3-	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv		0.4 AC-	AC-058	24-Nov-15
15110198-001 1,4-[	1,4-Dichlorobenzene	K, T, U	< 0.5 ppbv		0.5 AC-	AC-058	24-Nov-15
15110198-001 1,4-[	1,4-Dioxane	K, T, U	< 0.5 ppbv		0.5 AC-	AC-058	24-Nov-15
15110198-001 1-Bu	1-Butene		1.45 ppbv		0.02 AC-	AC-058	24-Nov-15

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

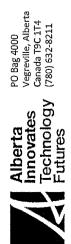
Date: Friday, November 27, 2015



TEST REPORT

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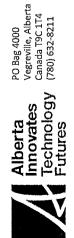
**Analysis Date** 24-Nov-15 4-Nov-15 24-Nov-15 4-Nov-15 24-Nov-15 Version 01 E-mail: EAS.Results@albertainnovates.ca AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 VERSION: AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 Method AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 0.5 0.4 0.5 0.02 0.02 0.02 0.01 0.02 0.01 0.02 0.01 0.01 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.02 0.01 0.01 0.01 Inquiries: (780) 632 8455 17:05 DATE SAMPLED 19-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv vdqq ppbv ppbv ppbv ppbv ppbv **v**ddd ppbv ppbv ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv ppbv vdqq ppbv **Result Units** < 0.02 ppbv 0.05 ppbv 0.10 : 0.02 1.50 0.13 : 0.01 0.20 < 0.4 < 0.5 < 0.02 0.17 0.05 0.13 : 0.02 0.12 0.14 0.25 0.13 0.21 0.22 < 0.02 0.01 < 0.01 27-Nov-15 K, T, U K, T, U Κ, Τ, U Κ, Τ, U K, T, U K, T, U K, T, U K, T, U K, T, U Qualifier Ambient Air Matrix REPORT CREATED: **CANISTER ID** 1840 **Bromodichloromethane** 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane Graham Knox, Team Lead 2,4-Dimethylpentane ,3-Dimethylpentane Carbon tetrachloride 2,2-Dimethylbutane Elk Point Airport 3-Dimethylbutane 2-Methylheptane 2-Methylpentane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide **3romomethane** 3enzyl chloride Chlorobenzene 15110198 Chloroethane **3romoform** JCA/VOC/ELK/Nov 19, 2015 **I-Pentene** Parametei Date: Friday, November 27, 2015 1-Hexene **3enzene** Acetone Acrolein **CLIENT SAMPLE ID** REPORT NUMBER: Report certified by: DESCRIPTION: 15110198-001 Lab ID



TEST REPORT

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CLIENT SAMPLE ID	1PLE ID CANISTER ID		Matrix	DATE SAMPLED	PLED		
ICA/VOC/ELK/Nov 19, 2015			Ambient Air	19-Nov-15	17:05		
DESCRIPTION:	Elk Point Airport						
REPORT NUMBER:	ER: 15110198	REPORT CREATED:	27-Nov-15			VERSION:	Version 01
Lab ID	Parameter		Qualifier	Result Units	RDL	Method	Analysis Date
15110198-001	Chloroform			0.04 ppbv	0.02	AC-058	24-Nov-15
15110198-001	Chloromethane		K, T, U	< 0.02 ppbv	0.02	AC-058	24-Nov-15
15110198-001	cis-1,2-Dichloroethene		K, T, U	< 0.01 ppbv	0.01	AC-058	24-Nov-15
15110198-001	cis-1,3-Dichloropropene		K, T, U	< 0.05 ppbv	0.05	AC-058	24-Nov-15
15110198-001	cis-2-Butene		_	0.13 ppbv	0.02	AC-058	24-Nov-15
15110198-001	cis-2-Pentene		_	0.04 ppbv	0.02	AC-058	24-Nov-15
15110198-001	Cyclohexane			0.13 ppbv	0.02	AC-058	24-Nov-15
15110198-001	Cyclopentane		K, T, U	< 0.01 ppbv	0.01	AC-058	24-Nov-15
15110198-001	Dibromochloromethane		K, T, U	< 0.01 ppbv	0.01	AC-058	24-Nov-15
15110198-001	Ethanol			2.9 ppbv	0.4	AC-058	24-Nov-15
15110198-001	Ethyl acetate		K, T, U	< 0.5 ppbv	0.5	AC-058	24-Nov-15
15110198-001	Ethylbenzene			0.58 ppbv	0.01	AC-058	24-Nov-15
15110198-001	Freon-11			0.33 ppbv	0.02	AC-058	24-Nov-15
15110198-001	Freon-113			0.11 ppbv	0.01	AC-058	24-Nov-15
15110198-001	Freon-114		K, T, U	< 0.02 ppbv	0.02	AC-058	24-Nov-15
15110198-001	Freon-12			0.38 ppbv	0.02	AC-058	24-Nov-15
15110198-001	Hexachloro-1,3-butadiene	au	K, T, U	< 0.62 ppbv	0.62	AC-058	24-Nov-15
15110198-001	Isobutane			0.67 ppbv	0.02	AC-058	24-Nov-15
15110198-001	Isopentane			0.97 ppbv	0.04	AC-058	24-Nov-15
15110198-001	Isoprene		_	0.14 ppbv	0.01	AC-058	24-Nov-15
15110198-001	Isopropyl alcohol		K, T, U	< 0.5 ppbv	0.5	AC-058	24-Nov-15
15110198-001	Isopropylbenzene		K, T, U	< 0.01 ppbv	0.01	AC-058	24-Nov-15
15110198-001	m,p-Xylene			1.70 ppbv	0.04	AC-058	24-Nov-15
15110198-001	m-Diethylbenzene		K, T, U	< 0.05 ppbv	0.05	AC-058	24-Nov-15
15110198-001	m-Ethyltoluene			0.73 ppbv	0.10	AC-058	24-Nov-15
Report certified by:	Graham Knox, Team Lead	On behalf of: P	of: PJ Pretorius, Manager, Analysis and Testing Services	ysis and Testing Services			
Date: Friday, November 27, 2015	ember 27, 2015			Inquirie	Inquiries: (780) 632 8455 E-m	E-mail: EAS.Results@albertainnovates.ca	ainnovates.ca
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**TEST REPORT** 

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**Analysis Date** 24-Nov-15 24-Nov-15 24-Nov-15 24-Nov-15 4-Nov-15 24-Nov-15 4-Nov-15 24-Nov-15 24-Nov-15 24-Nov-15 4-Nov-15 Version 01 VERSION: AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 Method AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 AC-058 4C-058 AC-058 9.0 0.4 0.5 90.0 9.0 0.09 0.02 0.04 0.01 0.01 0.05 0.09 0.05 0.05 0.62 0.04 0.01 0.07 0.01 0.01 0.02 0.1 0.01 Inquiries: (780) 632 8455 17:05 DATE SAMPLED 19-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv vdqq ppbv ppbv ppbv ppbv vddd vddd ppbv ppbv ppbv ppbv **Result Units** vddd vddd ppbv ppbv ppbv ppbv vddd ppbv vdqq vddd vdqq < 0.05 ppbv < 0.62 ppbv 0.16 < 0.4 > 0.6 < 0.05 < 0.5 < 0.09 < 0.04 0.24 2.0 < 0.5 0.20 0.49 < 0.1 0.13 > 0.6 0.24 0.80 0.23 0.24 0.22 2.67 0.07 0.17 27-Nov-15 Qualifier K, T, U K, T, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U \_ Ambient Air Matrix REPORT CREATED: CANISTER ID 1840 Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Methyl methacrylate Methylcyclopentane Methyl butyl ketone Methyl ethyl ketone Elk Point Airport **Tetrachloroethylene** Methylcyclohexane Methylene chloride o-Diethylbenzene n-Propylbenzene o-Ethyltoluene o-Ethyltoluene 15110198 **Naphthalene** 1-Dodecane n-Undecane η-Pentane Parameter n-Heptane ICA/VOC/ELK/Nov 19, 2015 -Nonane n-Decane n-Hexane n-Octane n-Butane o-Xylene styrene **CLIENT SAMPLE ID** REPORT NUMBER: Report certified by: DESCRIPTION: 15110198-001 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Date: Friday, November 27, 2015



PO Bag 4000 Vegreville, Alberta Canada T9C 1T4 (780) 632-8211

# **ENVIRONMENTAL ANALYTICAL SERVICES**

TEST REPORT

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PORT CREATED: 27-Nov-15  Qualifier Result  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05  K, T, U < 0.05	CLIENT SAMPLE ID	ID CANISTER ID		Matrix	DATE SAMPLED	Ð		
Other Net Creates         27-Nov-15         Version:	σ,			ient Air		7:05		
REPORT CREATED:         27-Nov-15         VERSION:	LL.	Ik Point Airport						
Qualifier         Result Units         RDI         Method           k, T, U         < 0.5 ppbv         0.5 AC-058           cethylene         k, T, U         < 0.01 ppbv         0.01 AC-058           popropylene         k, T, U         < 0.05 ppbv         0.05 AC-058           l         0.19 ppbv         0.01 AC-058           l         0.07 ppbv         0.01 AC-058           k, T, U         < 0.05 ppbv         0.05 AC-058           k, T, U         < 0.05 ppbv         0.05 AC-058           k, T, U         < 0.05 ppbv         0.05 AC-058           k, T, U         < 0.02 ppbv         0.02 AC-058           k, T, U         < 0.02 ppbv         0.02 AC-058		15110198	REPORT CREATED:	27-Nov-15			VERSION:	Version 01
k, T, U       < 0.5 ppbv       0.01       AC-058         coethylene       k, T, U       < 0.01 ppbv       0.01       AC-058         poropylene       k, T, U       < 0.05 ppbv       0.01       AC-058         l       0.19 ppbv       0.01       AC-058         l       0.07 ppbv       0.02       AC-058         k, T, U       < 0.05 ppbv       0.05       AC-058         k, T, U       < 0.05 ppbv       0.05       AC-058         k, T, U       < 0.05 ppbv       0.05       AC-058         k, T, U       < 0.02 ppbv       0.05       AC-058		ameter		Qualifier	Result Units	RDL	Method	Analysis Date
2.10 ppbv 0.01 AC-058 K, T, U < 0.01 ppbv 0.01 AC-058 K, T, U < 0.01 ppbv 0.01 AC-058 AC-058 I 0.19 ppbv 0.00 AC-058 I 0.07 ppbv 0.00 AC-058 K, T, U < 0.05 ppbv 0.05 AC-058 K, T, U < 0.05 ppbv 0.05 AC-058 K, T, U < 0.02 ppbv 0.05 AC-058 K, T, U < 0.02 ppbv 0.05 AC-058	₽	ahydrofuran		K, T, ∪	< 0.5 ppbv	0.5	AC-058	24-Nov-15
K, T, U       < 0.01 ppbv	_	nene			2.10 ppbv	0.01	AC-058	24-Nov-15
K, T, U       < 0.05 ppbv	_	ns-1,2-Dichloroethylene	a)	K, T, U	< 0.01 ppbv	0.01	AC-058	24-Nov-15
e K, T, U < 0.02 ppbv 0.02 AC-058 AC-058 K, T, U < 0.02 ppbv 0.05 AC-058 AC-058 AC-058 AC, T, U < 0.02 ppbv 0.02 AC-058 AC-058 AC, T, U < 0.02 ppbv 0.02 AC-058 AC-	_	ns-1,3-Dichloropropylen	Je	K, T, U		0.05	AC-058	24-Nov-15
e K, T, U < 0.05 ppbv 0.05 AC-058 K, T, U < 0.05 ppbv 0.05 AC-058 K, T, U < 0.02 ppbv 0.05 AC-058 AC-058 K, T, U < 0.02 ppbv 0.02 AC-058 AC-05	_	ns-2-Butene		_		0.01	AC-058	24-Nov-15
K, T, U < 0.05 ppbv 0.05 AC-058 K, T, U < 0.02 ppbv 0.05 AC-058 K, T, U < 0.02 ppbv 0.02 AC-058	_	ns-2-Pentene		_		0.02	AC-058	24-Nov-15
K, T, U < 0.5 ppbv 0.5 AC-058 K, T, U < 0.02 ppbv 0.02 AC-058		chloroethylene		K, T, U	< 0.05 ppbv	0.05	AC-058	24-Nov-15
K, T, U < 0.02 ppbv 0.02 AC-058	~	yl acetate		K, T, U	< 0.5 ppbv	0.5	AC-058	24-Nov-15
		ıyl chloride		K, T, U	< 0.02 ppbv	0.02	AC-058	24-Nov-15
						,		

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

On behalf of: PJ Pretorius, Manager, Analysis and Testing Services

Graham Knox, Team Lead

Report certified by:

Date: Friday, November 27, 2015



**TEST REPORT** 

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**Analysis Date** 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca **VERSION:** Method AC-058 0.5 0.05 90.0 6.0 0.03 0.02 0.03 0.02 0.02 0.3 0.5 0.02 0.02 0.01 0.01 0.01 0.02 0.02 0.02 0.01 0.01 0.01 0.02 0.02 Inquiries: (780) 632 8455 19:35 DATE SAMPLED 30-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv vdqq vddd vddd vdqq vddd ppbv vddd ppbv ppbv ppbv ppbv ppbv vddd ppbv ppbv vddd ppbv yddd vddd ppbv vddd Result Units < 0.02 90.0 0.03 90.0 < 0.3 < 0.5 < 0.5 90.0 < 0.01 < 0.01 0.40 0.23 1.19 < 0.02 0.02 : 0.05 < 0.9 0.10 < 0.02 < 0.03 < 0.02 1.83 0.56 < 0.02 0.01 K, T, U K, T, U K, T, U K, T, U Κ, Τ, U K, T, U K, T, U 08-Jan-16 K, T, U K, T, U K, T, U K, T, U K, T, U K, T, U Qualifier \_\_ Ambient Air Matrix REPORT CREATED: **CANISTER ID S**5635 1,1,2,2-Tetrachloroethane ,2,4-Trimethylbenzene ,3,5-Trimethylbenzene .,2,3-Trimethylbenzene 2,2,4-Trimethylpentane 2,3,4-Trimethylpentane 1,2,4-Trichlorobenzene Graham Knox, Team Lead 1,1,1-Trichloroethane 1,1,2-Trichloroethane .,1-Dichloroethylene 2,3-Dimethylpentane ,2-Dichloropropane ,4-Dichlorobenzene ,2-Dichlorobenzene ,3-Dichlorobenzene 2,2-Dimethylbutane 2,3-Dimethylbutane Elk Point Airport .,2-Dibromoethane 1,1-Dichloroethane 1,2-Dichloroethane 3-Butadiene LICA/VOC/ELK/Nov 30, 2015 15120089 ,4-Dioxane L-Pentene Parameter -Hexene -Butene **CLIENT SAMPLE ID** Friday, January 08, 2016 REPORT NUMBER: Report certified by: **DESCRIPTION:** 15120089-006 Date: Lab ID



TEST REPORT

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**Analysis Date** 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca Method **VERSION:** AC-058 0.01 0.01 0.01 0.02 0.02 0.5 0.5 0.02 0.02 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.01 0.05 0.01 0.01 0.3 0.01 0.02 0.02 0.02 Inquiries: (780) 632 8455 19:35 DATE SAMPLED 30-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services vddd ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv vdqq ppbv vddd vddd ppbv ppbv ppbv ppbv ppbv 0.46 ppbv 0.58 ppbv ppbv : 0.05 ppbv Result Units 0.36 ppbv 0.22 1.40 0.64 1.31 < 0.5 < 0.3 0.59 < 0.5 < 0.02 < 0.02 < 0.01 90.0 0.13 < 0.02 0.71 < 0.01 0.04 : 0.02 1.43 < 0.02 0.03 08-Jan-16 K, T, U Κ, Τ, υ Κ, Τ, U Κ, Τ, U Κ, Τ, U K, T, U Κ, Τ, U Qualifier K, T, U Ambient Air Matrix REPORT CREATED: **CANISTER ID S**5635 **Bromodichloromethane** cis-1,3-Dichloropropene cis-1,2-Dichloroethene Graham Knox, Team Lead 2,4-Dimethylpentane Carbon tetrachloride Elk Point Airport 2-Methylheptane 2-Methylpentane 3-Methylheptane 3-Methylpentane 2-Methylhexane 3-Methylhexane Carbon disulfide Chloromethane Bromomethane 3enzył chloride Chlorobenzene 15120089 LICA/VOC/ELK/Nov 30, 2015 Chloroethane cis-2-Pentene Cyclohexane cis-2-Butene Chloroform Bromoform Parameter **CLIENT SAMPLE ID 3enzene** Acetone Acrolein Friday, January 08, 2016 REPORT NUMBER: Report certified by: DESCRIPTION: 15120089-006 Lab ID Date:



TEST REPORT

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**Analysis Date** 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 0-Dec-15 10-Dec-15 10-Dec-15 Version 01 E-mail: EAS.Results@albertainnovates.ca Method AC-058 VERSION: AC-058 AC-058 AC-058 AC-058 4C-058 AC-058 0.58 0.03 0.5 0.01 0.03 0.05 0.09 0.58 0.01 0.01 0.02 0.01 0.02 0.02 0.02 0.01 0.5 0.08 0.03 0.01 0.3 0.01 0.02 Inquiries: (780) 632 8455 19:35 DATE SAMPLED 30-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv ppbv vddd vddd ppbv ppbv ppbv ppbv 0.02 ppbv ppbv ppbv ppbv vddd vddd : 0.08 ppbv < 0.03 ppbv 2.51 ppbv **Result Units** 0.41 ppbv < 0.01 ppbv 5.10 ppbv < 0.5 0.15 0.10 0.52 4.48 < 0.5 0.03 : 0.05 0.09 0.58 < 0.3 < 0.5 0.52 0.02 < 0.58 0.43 1.63 Κ, Τ, U Κ, Τ, U 08-Jan-16 K, T, U Κ, Τ, U K, T, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Κ, Τ, U Qualifier Ambient Air Matrix REPORT CREATED: CANISTER ID **S**5635 Hexachloro-1,3-butadiene **Dibromochloromethane** Methyl isobutyl ketone Methyl tert butyl ether Graham Knox, Team Lead Methyl methacrylate Methyl ethyl ketone Methylcyclopentane Methyl butyl ketone Elk Point Airport Methylcyclohexane m-Diethylbenzene sopropylbenzene sopropyl alcohol n-Ethyltoluene LICA/VOC/ELK/Nov 30, 2015 15120089 Cyclopentane Ethyl acetate Ethylbenzene m,p-Xylene sopentane Freon-114 Parameter -reon-113 sobutane Freon-11 Freon-12 soprene **CLIENT SAMPLE ID** Ethanol REPORT NUMBER: Report certified by: DESCRIPTION: 15120089-006 Lab ID

Friday, January 08, 2016

Date:



TEST REPORT

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**Analysis Date** 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 .0-Dec-15 .0-Dec-15 10-Dec-15 10-Dec-15 10-Dec-15 Version 01 VERSION: Method AC-058 9.0 9.0 0.05 0.5 0.03 0.07 0.5 0.01 0.01 0.02 90.0 0.01 0.01 0.01 0.08 0.05 0.05 0.01 0.01 0.05 0.01 0.05 0.1 0.02 19:35 DATE SAMPLED 30-Nov-15 On behalf of: PJ Pretorius, Manager, Analysis and Testing Services ppbv ppbv ppbv ppbv ppbv ppbv Result Units 8.14 ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv ppbv 0.4 ppbv < 0.06 ppbv < 0.6 ppbv 1.8 ppbv 0.17 ppbv 0.03 ppbv ppbv 0.07 6.0 0.95 4.47 < 0.1 0.55 0.15 < 0.05 < 0.08 < 0.05 < 0.05 < 0.5 0.99 < 0.01 : 0.05 < 0.01 0.04 < 0.05 08-Jan-16 Qualifier K, T, U K, T, U Κ, Τ, U Κ, Τ, U Κ, Τ, U K, Τ, U K, T, U Κ, Τ, U Κ, Τ, U K, T, U Ambient Air Matrix REPORT CREATED: **CANISTER ID** trans-1,3-Dichloropropylene \$5635 trans-1,2-Dichloroethylene Graham Knox, Team Lead etrachloroethylene Elk Point Airport Methylene chloride o-Diethylbenzene Trichloroethylene -Propylbenzene **Tetrahydrofuran** trans-2-Pentene o-Ethyltoluene trans-2-Butene o-Ethyltoluene 15120089 LICA/VOC/ELK/Nov 30, 2015 **Naphthalene** n-Undecane า-Dodecane 1-Pentane n-Heptane Parameter n-Decane n-Hexane n-Nonane ก-Butane -Octane o-Xylene **CLIENT SAMPLE ID** styrene oluene REPORT NUMBER: Report certified by: **DESCRIPTION:** 15120089-006 Lab ID

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Friday, January 08, 2016

Date:



TEST REPORT

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LED 19:35		VERSION: Version 0.1	RDL Method Analysis Date	0.5 AC-058 10-Dec-15	0.02 AC-058 10-Dec-15
DATE SAMPLED 30-Nov-15 19:			Result Units	< 0.5 ppbv	< 0.02 ppbv
Matrix Ambient Air	000	08-Jan-16	Qualifier	K, T, U	K, T, U
CANISTER ID ME S5635 Ambi	PERSON FORMAL	REPORI CREATED:			
MPLE ID (Nov 30, 2015		K: 15120089	Parameter	Vinyl acetate	Vinyl chloride
CLIENT SAMPLE ID LICA/VOC/ELK/Nov 30, 2015	DESCRIPTION:	KEPOKI NOIVIBEK:	Lab ID	900-68	15120089-006

E-mail: EAS.Results@albertainnovates.ca

Inquiries: (780) 632 8455

Date: Friday, January 08, 2016

### APPENDIX V CHAIN OF CUSTODY



### Maxxam Analytics - Air Services Group Project Chain of Custody

Client: Lakeland	Industry & Community Association	Project #: 2833-20	15-11-35- C
<b>Site:</b> Elk Point	Airport Site	Contact: Mike Bis	aga
QA Check Complete	lugdmhq	Date	22-Dec -2015
QA Check Review	nsodnike	Date	22-Dec-2015
Report Complete	woelnte	Date	11 - Jan - 2016
Report Reviewed	_hfb	Date	12-Jan-16
Report Shipped		Date	
Notes			



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

JOB #:2833-2015-11-30- C

**NOVEMBER 2015** 

Prepared for:

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

BOX 8237, 5107W - 50 STREET BONNYVILLE, ALBERTA T9N 2J5

Attention: MIKE BISAGA

DATE:

December 31, 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 NOVEMBER 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.

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

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0 Discussion. On this basis, Maxxam is issuing this completed report to Lakeland Industry & Community Association, 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 Indu	stry & C	commun	ity Ass	ociation				N	1AXIMUM V	ALUES			
Maskwa Site								1-HOUR			24-H0	OUR	OPERATIONAL TIME
PARAMETER	OBJE	CTIVES	EXCEE	DENCES	MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED	WIND DIRECTION	READING	DAY	(%)
	1-HR	24-HR	1-HR	24-HR	AVERAGE				(KPH)	(DEGREES)			
SO2 (PPB)	172	48	0	0	1	7	18	15	10.8	NW	2.3	18	100.0
H2S (PPB)	10	3	0	0	0	1	VAR	<b>V</b> AR	VAR	VAR	0.7	30	100.0
THC (PPM)	-	-	-	_	2,2	4.0	30	17	3	sw	3.3	30	98.9
NO2 (PPB)	159	-	0	-	4.2	29.8	30	17	3	sw	17.6	29	100.0
NO (PPB)	-	-	-	-	1.4	27.2	30	9	2.6	SW	7.9	30	100.0
NOX (PPB)	-	-	-	-	5.5	40.8	30	9	2.6	SW	25.4	30	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	74.6	91	VAR	VAR	VAR	VAR	87.9	3	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	~	937	953	26	VAR	VAR	VAR	950	26	100.0
AMBIENT TEMPERATURE (DEG C)	-	-	-	-	-3.5	7.4	7	15	3.6	SSW	3.2	7	100.0
PRECIPITATION (MM)	-	-	-	-	0.0	2.6	17	10	5.4	S	0.4	8	100.0
VECTOR WS (KPH)	-	-	-	-	5.2	13.2	22	12	-	WNW	10.1	22	100.0
VECTOR WD (DEG)	-	-	-	-	sw	-	-	-	-	-	-	-	100.0

NA-NOT AVAILABLE VAR-VARIOUS



### **Exceedence Summary Report**

**SO<sub>2</sub>** 1- Hour Exceedences

No Exceedences Recorded During the Month

SO<sub>2</sub> 24- Hour Exceedences

No Exceedences Recorded During the Month

H<sub>2</sub>S 1- Hour Exceedences
No Exceedences Recorded During the Month

H<sub>2</sub>S 24- Hour Exceedences No Exceedences Recorded During the Month

NO<sub>2</sub> 1- Hour Exceedences

No Exceedences Recorded During the Month



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2.0 Project Personnel	5
3.0 Plant Monthly Required AMD	Summary 5
4.0 Calculations and Results	5
5.0 Methods and Procedures	6
Appendix I	Continuous Monitoring Data Results
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Oxides of Nitrogen
	Nitric Oxides
	Nitrogen Dioxide
	Wind Speed
	Wind Direction
	Relative Humidity Barometric Pressure
	Ambient Temperature
	Precipitation
Appendix II	Analyzer Calibration Results
	Sulphur Dioxide
	Hydrogen Sulphide
	Total Hydrocarbon
	Nitrogen Dioxide
	Wind System
	Calibrators
	Calibration Gases
	Audit Report
Appendix III	Chain of Custody



### 1.0 Discussion

This monthly report consists of data for parameters SO2, H2S, THC, NOx, 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 completed on November 12. No issues were identified.



### **SULPHUR DIOXIDE (SO2)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 12. The routine annual internal quality audit was completed on November 17. The audit report is included in this report.

### **HYDROGEN SULPHIDE (H2S)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 12. The routine annual internal quality audit was completed on November 17. The audit report is included in this report.

### **TOTAL HYDROCARBONS (THC)**

The routine monthly calibration was performed on November 12. The routine annual internal quality audit was completed on November 17. The audit report is included in this report. Eight hours of data were invalidated this month as the readings were below the background concentration of 1.5 ppm.

### **NITROGEN DIOXIDE (NO2)**

The analyzer was working well throughout the month. The routine monthly calibration was performed on November 12. The routine annual internal quality audit was completed on November 17. The audit report is included in this report.

### 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. The routine annual internal quality audit was completed on November 17. The audit report is included in this report.

### **PRECIPITATION**

Both the rain gauge system and heating systemwere working well throughout the month. The routine annual internal quality audit was completed on November 17. The audit report is included in this report.

### **AMBIENT TEMPERATURE (TPX)**

The temperature sensor was working well throughout the month. The routine annual internal quality audit was completed on November 17. The audit report is 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-00208: RM Young Monitor Calibration

Maxxam AIR SOP-00209: Ambient H2S Monitoring

Maxxam AIR SOP-00211: Ambient SO2 Monitoring

Maxxam AIR SOP-00213: Ambient NO/NO2/NOx Monitoring

Maxxam AIR SOP-00214: Ambient Hydrocarbon (THC) Monitoring

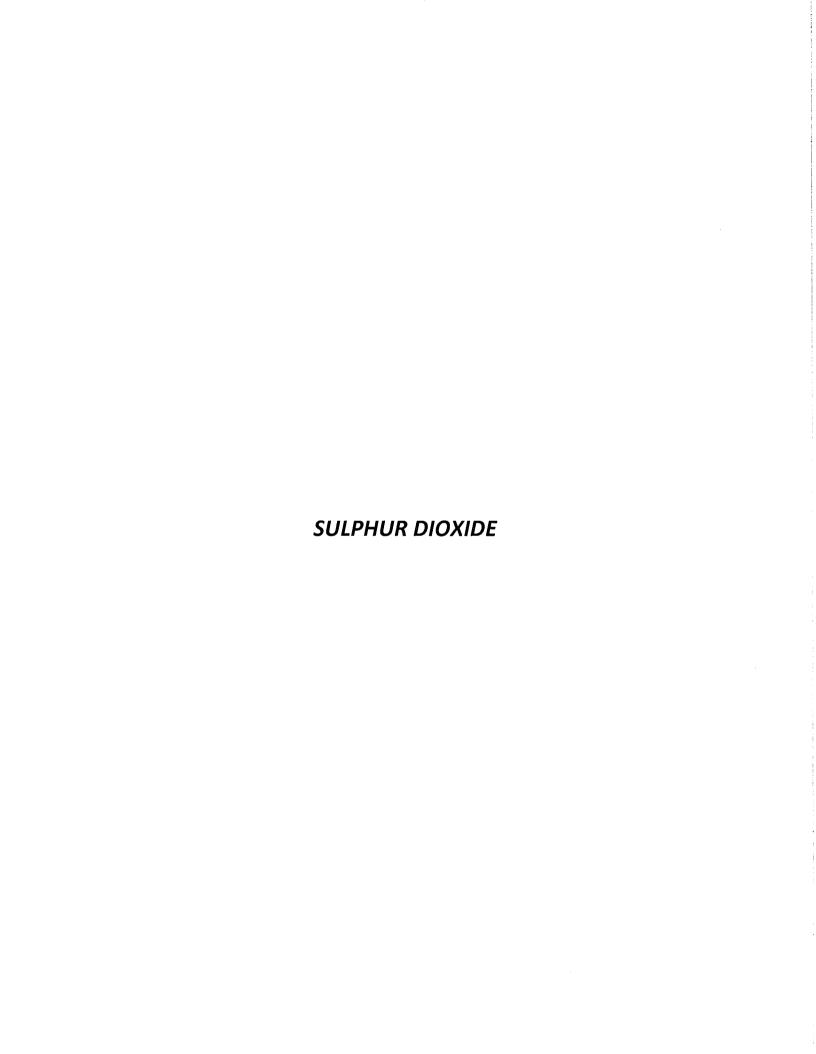
Maxxam AIR SOP-00242: Precipitation Collector Installation / Maintenance

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

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

### APPENDIX I CONTINUOUS MONITORING DATA RESULTS





MST

### qdd

y averages in
hour
(SO2)
DIOXIDE
SULPHUR

	RDGS.	54	54	54	54	24	54	54	54	25	77	54	74	24	54	54	24	54	24	54	54	54	54	54	54	54	54	54	54	54	54		
24-HOUR	AVG.	0.5	0.0	0.0	0.7	1.0	9.0	0.2	0.2	0.3	0.3	8.0	0.5	0.2	1.0	8.0	9.0	0.0	2.3	1.1	8.0	1.0	9.0	0.7	0.7	1.0	0.4	1.3	6.0	1.2	1.2		
DAILY	MAX	1	н	<b>~</b> 1	Н	m	Ŋ	7	7	т	7	₽	н	₽	7	7	4	0	7	4	m	7	m	4	m	ဖ	₽	Ŋ	7	7	m		
23:00	0.00	0	0	0	0	0	s	7	7	0	1	0	1	1	0	7	0	0	0	4	Н	1	0	0	m	0	н	Н	7	0	1	4	0.7
22:00	23:00	0	0	0	П	0	0	s	0	0	₽	0	s	₽	Н	₽	0	0	₽	7	Н	₽	0	0	7	7	7	0	7	0	0	7	9.0
21:00	22:00	1	0	0	Н	0	0	0	s	0	Н	+	т	s	Н	Н	0	0	0	₽	0	₽	0	0	Н	9	Н	Н	7	7	0	9	8.0
20:00	21:00	0	0	0	Н	0	₽	0	0	s	2	Н	0	7	s	Н	0	0	ч	0	₽	₽	0	0	Ţ	Ŧ	Н	0	Н	Н	1	2	9.0
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8.00	) - 9.0C	0	0	0	1	1	0	0	0	0	0	1	1	0	Ţ	1	1	0	1	1	m	1	Н	0	П						н		_
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HOUR START 6200	HOUR END	DAY 1	7	m	4	ľ	φ	7	œ	თ	9	П	12	<b>E</b>	14	<b>.</b>	16	17	18	13	8	21	22	23	24	22	92	27	- 28	ଯ	93	HOURLY MAX	HOURLY AVG

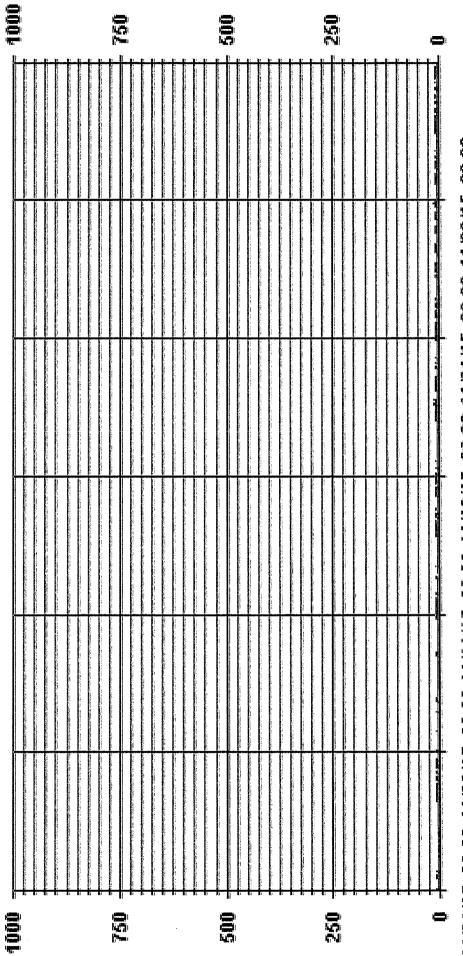
St. 1992 ( ) Construction and Local State ( September 2018) and the Construction of th	
C -CALIBRATION O - Q -CALIBRATION O - DAILY TRANSPANCE S - DAILY ZEROSPAN CHECK X - MACHINE MALFUNCTION P POWIER FAILURE O - OPERATOR ERROR	OBJECTIVE LIMIT:
<b>k</b>	NUMBER OF 1-HR E
24 HOUR AVERAGES FOR NOVEMBER 2015	
901	NUMBER OF NON-ZE
000	MAXIMUM 1-HR AV
070	MAZIMOINI 24-718 A

STATUS FLAG CODES

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CONMENT: 1-ER	
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VIRONMENT: 1-ER	
NVIRONMENT: LER	
LENVIRONMENT: 1-TR	
TA ENVIRONMENT: 1-HR	
RTA ENVIRONMENT: 1-HR	
ERTA ENVIRONMENT: 1-HR	
BERTA ENVIRONMENT: 1-HR	
ALBERTA ENVIRONMENT: 1-HR	
ALBERTA ENVIRONMENT: 1-HR 1/2 PPB 24-HR 48 48	
ALBERTA ENVIRONMENT: 1 1-HR	
ALBERTA ENVIRONMENT: 1 1-HR	
ALBERTA ENVIRONMENT: 1-ER	
ALBERTA ENVIRONMENT: 1-ER	
ALBERTA ENVIRONMENT: 1-HR	

			MO	MONTHLY SUMMARY					
NUMBER OF 24-HR EXCEEDENCES	i i		0 0						
NUMBER OF NON-ZERO READINGS:	3S:		360						
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		7 2.3	PPB PPB	PPB @ HOUR(S) PPB	51	ON DAY(S) ON DAY(S) VAR-VARIOUS	18	8 18	
IZS CALIBRATION TIME: MONTHLY CALBRATION TIME:	33	HRS HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	AE: UPTIME:		720 100.0	HRS %	
CTANDARD DEVIATION:	0			MONTHLY AVERAGE.	įį		-	PPB	

i Hoir Averages



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

- LICA30 SO2\_ PPB



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C

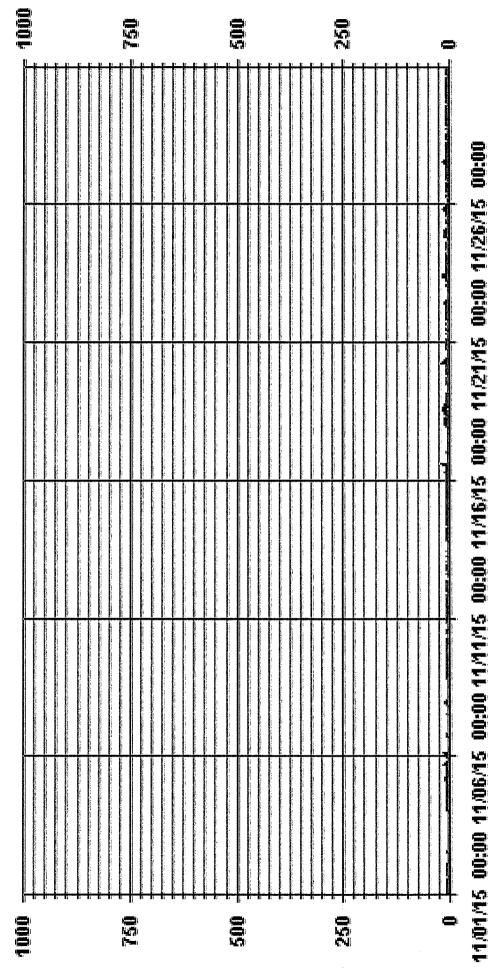
SULPHUR DIOXIDE MAX instantaneous maximum in ppb

	24-HOUR AVG.	1.1	0.4	0.0	6.0	2.6	1.5	9.0	9.0	70	11	1.0	1.0	0.7	13	1.2	1.9	0.3	5.5	2.2	2.1	1.4	1.0	<del>1</del> .8	1.9	2.4	0.8	2.3	1.7	1.6	1.7		
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	22.00	1	0	0	н	0	ч	0	s	н	н	Н	1	s	н	н	0	0	7	7	П	Ħ	0	н	4	17	7	Н	m	7	1	12	1.4
	20:00	⊣	0	0	Н	Ŋ	7	0	0	S	7	7	۲۱	1	s	m	0	0	m	1	1	7	0	7	7	7	7	1	7	7	1	7	1.3
	19:00	н	0	0	н	9	Н	0	0	Н	s	Н	7	0	н	s	0	0	7	0	Н	H	0	н	7	თ	н	н	7	H	Ħ	10	1.4
	18.00 19.00	н	0	0	н	7	Н	0	0	ч	7	s	7	0	Ţ	Ţ	s	0	13	Ţ	ı	7	0	1	ŋ	4	н	7	7	7	1	13	1.9
	17:00	1	0	0	Н	m	0	0	0	7	m	Н	7	0	1	4	0	s	1	1	0	m	0	Н	0	1	-	4	-	7	1	4	11
	16.00	2	П	0	ч	7	0	0	0	ч	Н	Н	Н	Н	Ţ	Н	0	0	s	7	0	Н	0	П	0	Н	7	Н	7	Н	1	7	0.8
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STATUS FLAG CODES  -CALIBRATION  Q -QUALITY ASSURANCE  R - RECOVERY  DAILY ZERO/SPAN, CHECK  X -MACHINE MALFUNCTION  -POWER FAILURE  C -OUT FOR REPAIR  K -COLLECTION ERROR			ž	È
-QUALITY ASS -RECOVERY -MACHINE MA - OPERATOR EI		RANCE	FUNCTION	ROR RROR
U > v a u	STATUS FLAG CODES	C - CALIBRATION Q - QUALITYAS:	S - DAILYZERO/SPANICHECK X - MACHINE M	P - POWER FAILURE O OPERATOR G - OUT FOR REPAIR K - COLLECTION

			MO	MONTHLY SUMMARY	MMARY				
NUMBER OF NON-ZERO READINGS:			512						
MAXIMUM INSTANTANEOUS VALUE:			13	PPB	@ HOUR(S)	18,7	ON DAY(S)		18, 20
						VAR-V	VAR-VARIOUS		
IZS CALIBRATION TIME:	33	HRS		OPERATIC	OPERATIONAL TIME:			720	HRS
MONTHLY CAUBRATION TIME:	Ŋ	HRS							
STANDARD DEVIATION: 2	2.04								

id Hour Averages



- LICA30 SO2MAX

LICA30 SO2\_ / WDR Joint Frequency Distribution (Percent)

Distribution By % Of Samples

Logger Id : 30 Site Name : LLCA30 Parameter : SOZ\_ Units : PPB

Wind Parameter : WDR Instrument Height : 10 Meters

Direction

Freq	100.00	00.	00.	00.	00.	00.	
MNIN	4.24	00.	00.	00.	00.	00.	4.24
WN	3.95	00,	00.	00.	00.	00.	3.95
WNW	9.07	00.	00.	00.	00.	00.	9.07
Ħ	4.09	00.	00.	00.	00.	00.	4.09
WSW	5.56	00.	00.	00.	00.	00.	5.56
SW	19.91	00.	00.	00.	00.	00.	19.91
SSW	19.47	00.	00.	00.	00.	00.	19.47
Ø	4.09	00.	00.	00.	00.	00.	4.09
SSE	4.53	00.	00.	00.	%	00.	4.53
SE	1.46	00.	%	00.	00.	00.	1.46
ESE	1.75	00.	00.	00.	00.	00.	1.75
ы	3.80	.00	00.	00.	00.	%	3.80
ENE	4.68	00.	%	00	00.	00.	4.68
Ħ	5.41	00.	00.	00.	00.	00.	5.41
NACE	4.53	00.	00.	00.	0.	00.	4.53
×	3.36	00.	0.	00.	00.	00.	3.36
Limit	20	09	110	170	340	340	Totals
	٧	٧	٧	٧	٧	X	

Calm : .00 %

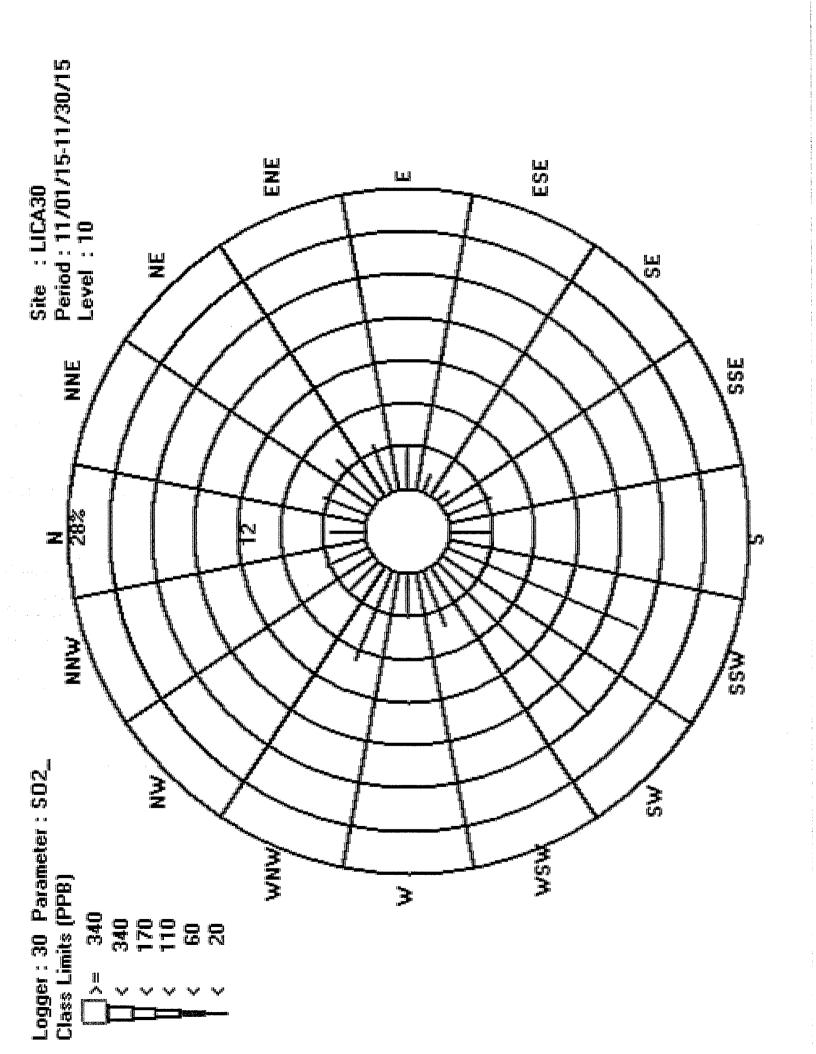
Total # Operational Hours : 683

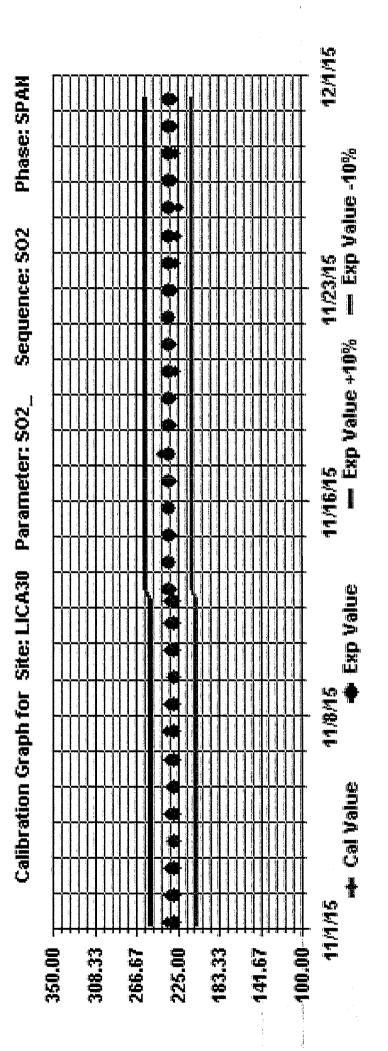
Distribution By Samples

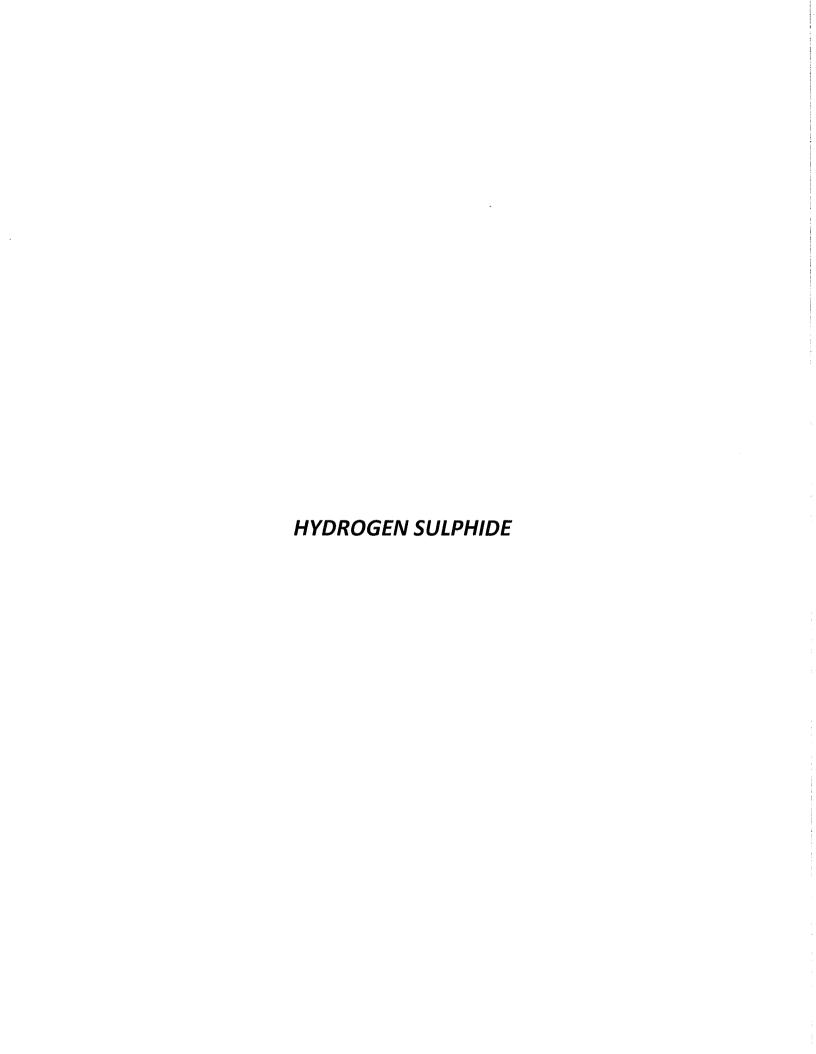
Direction

Fred	683							
NNW	29						29	
MA	27						27	
WNW	62						62	
¥	28						28	
WSW	38						38	
SW	136						136	
SSW	133						133	
Ø	28						28	
SSE	31						31	
S	10						10	
ESE	12						12	
м	26						26	
ENE	32						32	
R	37						37	
NNE	31						31	
z	23						23	
Limit	20	09	110	170	340	340	Totals	
Н	٧	٧	<b>v</b>	٧	<b>v</b>	X	e	

Calm : .00 %









## HYDROGEN SULPHIDE (H2S) hourly averages in ppb

HOURSTANT 000 150 HOUREND 100 200  2 0 0 0 4 0 0 0 0 5 5 0 0 0 6 5 5 0 0 0	2:00 3:00 3:00 4:00	3:00 4:00	4:00 5:00	5:00 6:00	6.00	38 00	00.6	10.00	11:00	12:00	13:00	14:00	5:00	500	.00.	0.07	20.00	21.00	22.00	23.00	DAILY	24-HOUR	
00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1-	4:00				のなるのがない	が現れるないのである		品を 一、一、一、一、一、一、一、一、一、一、一、一、一、一、一、一、一、一、一、	ではないのでは	るないのないないと	報の	対しいので	Contraction of	5 1	7	が は の の の の の の の の の の の の の の の の の の			は他を大利	i		
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	0	0	0	0	0			0	0	0	0	0	0				0	0	0	0	0	0.0	74
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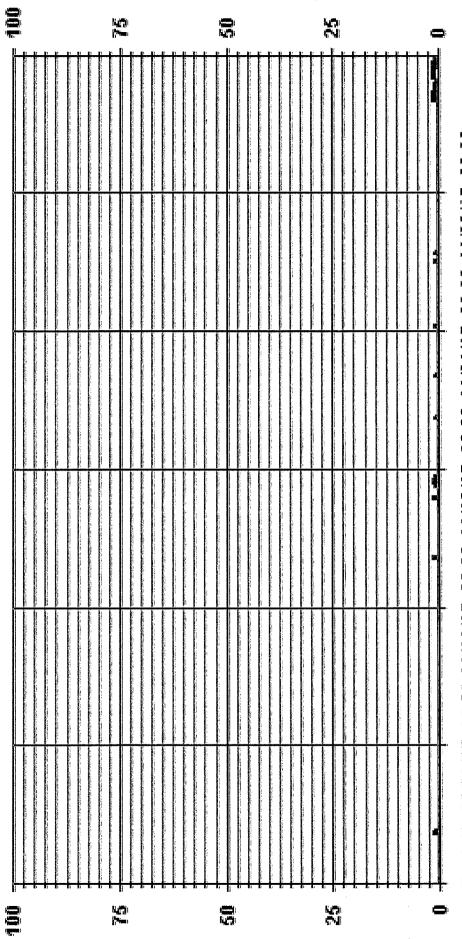
### OBJECTIVE LIMIT:

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### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES NUMBER OF 24-HR EXCEEDENCE	i, is		o o					
NUMBER OF NON-ZERO READINGS:	3S:		40					
MAXIMUM 1-HR AVERAGE:		H	PP3	PPB @ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:		0.7	PPB			ON DAY(S) VAR-VARIOUS	8	0
IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME:	31	# # # \$		OPERATIONAL TIME: AMD OPERATION UPTIME:	ME: J UPTIME:		720 100.0	HRS %
STANDARD DEVIATION:	0.23			MONTHLY AVERAGE:	AGE:		0	PPB

id Hour Averages



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

- LICA30 H2S\_ PPB



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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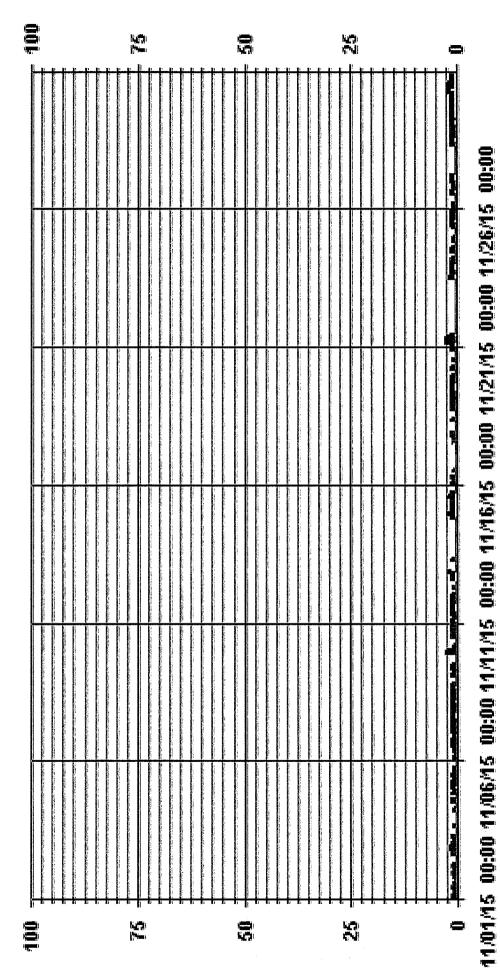
#### STATUS FLAG COD

C -CALIBRATION STATUS FLAG COLDS  Y - MAINTENANCE R - RECOVERY S - DAILY ZERO/SPAN CHECK X - MACHINE MALFUNCTION P - POWER FAILURE COLDS RROR G - OUT FOR REPAIR R - COLLECTION ERROR
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#### MONTHLY SUMMAR

NUMBER OF NON-ZERO READINGS:			301							
MAXIMUM INSTANTANEOUS VALUE:	نن		m	PPB	@ HOUR(S)	(s)	VAR	ON DAY(S)		10, 21
							VAR-VARIOUS	sions		
IZS CALIBRATION TIME:	31	HRS		OPERATIONAL TIME:	NAL TIME				720	HRS
MONTHLY CAUBRATION TIME:	4	HRS								
STANDARD DEVIATION:	0.56									
			ļ							

ù hour Averages



PPB - LICA30 H2SMAX

LICA30 LICA30 Frequency Distribution (Percent)

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

	NNW Freq	4.25 100.00	00. 00.	.00.	.00	4.25
	WM	3.95	%	00.	00.	3.95
	WINW	9.09	8.	00.	00.	60.6
	×	4.10	%	%	%	4.10
	WSW	5.57	%	%	00.	5.57
	SW	20.08	00.	00.	00.	19.20 20.08
	SSW	19.20	8.	00.	00.	
	Ø	4.25	8.	00.	8.	4.25
	SSE	4.39	00.	00.	00.	4.39
Direction	SE	1.46	00.	00.	00.	1.46
Di	ESE	1.75	00.	00.	00.	1.75
	Þ	3.81	00.	00.	00.	3.81
	ENE	4.69	00.	00.	00.	4.69
	Z	5.42	00.	00.	00.	5.42
	NNE	4.54	00.	00.	00.	4.54
	z	3.37	00.	00.	00.	3.37
	Limit	ო	10	20	20	Totals
		V	٧	٧	<u> </u>	

Calm : .00 %

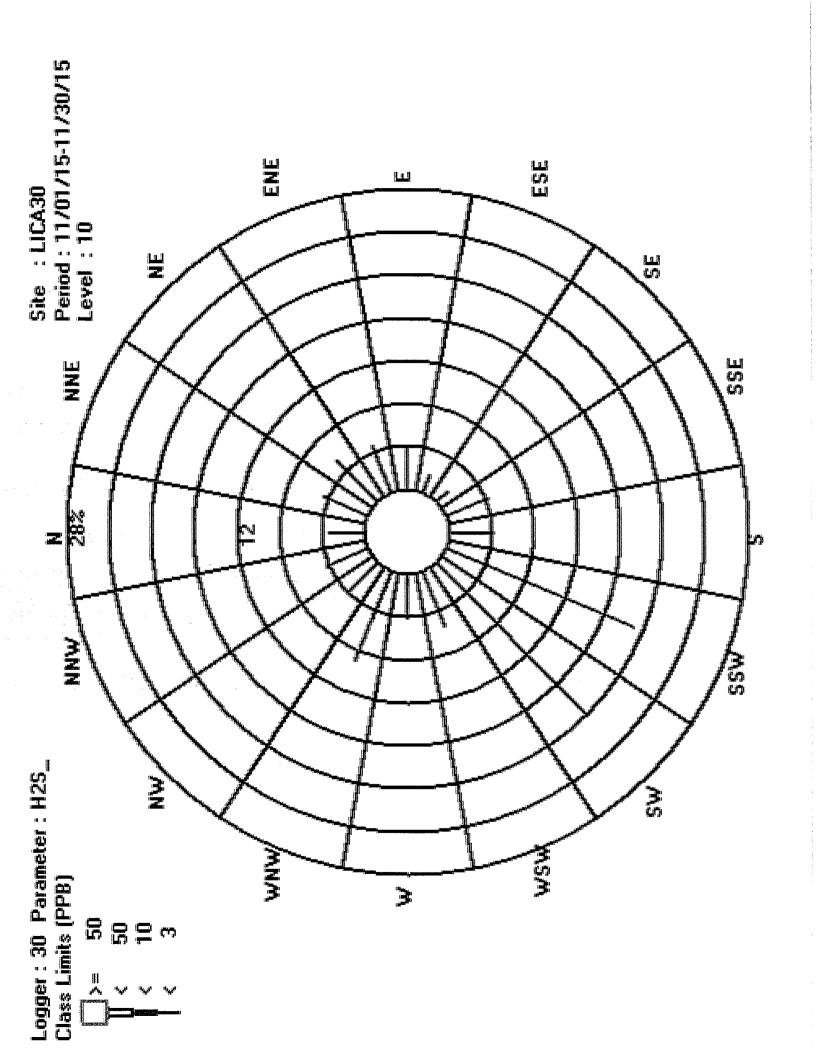
Total # Operational Hours : 682

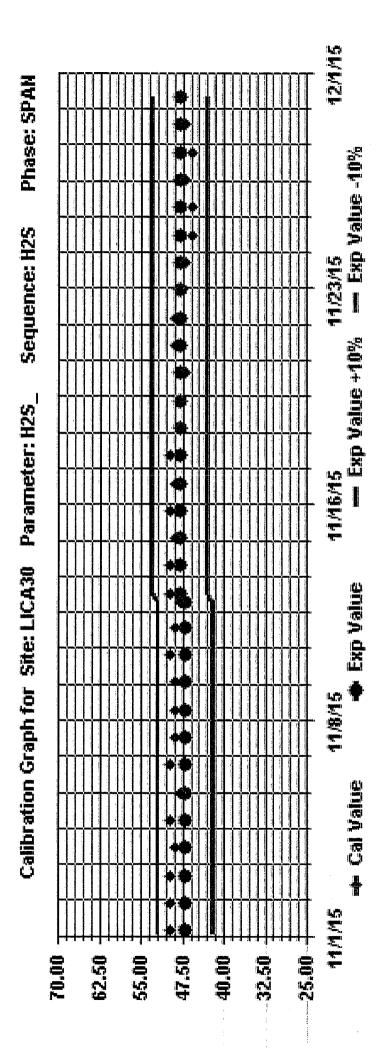
Distribution By Samples

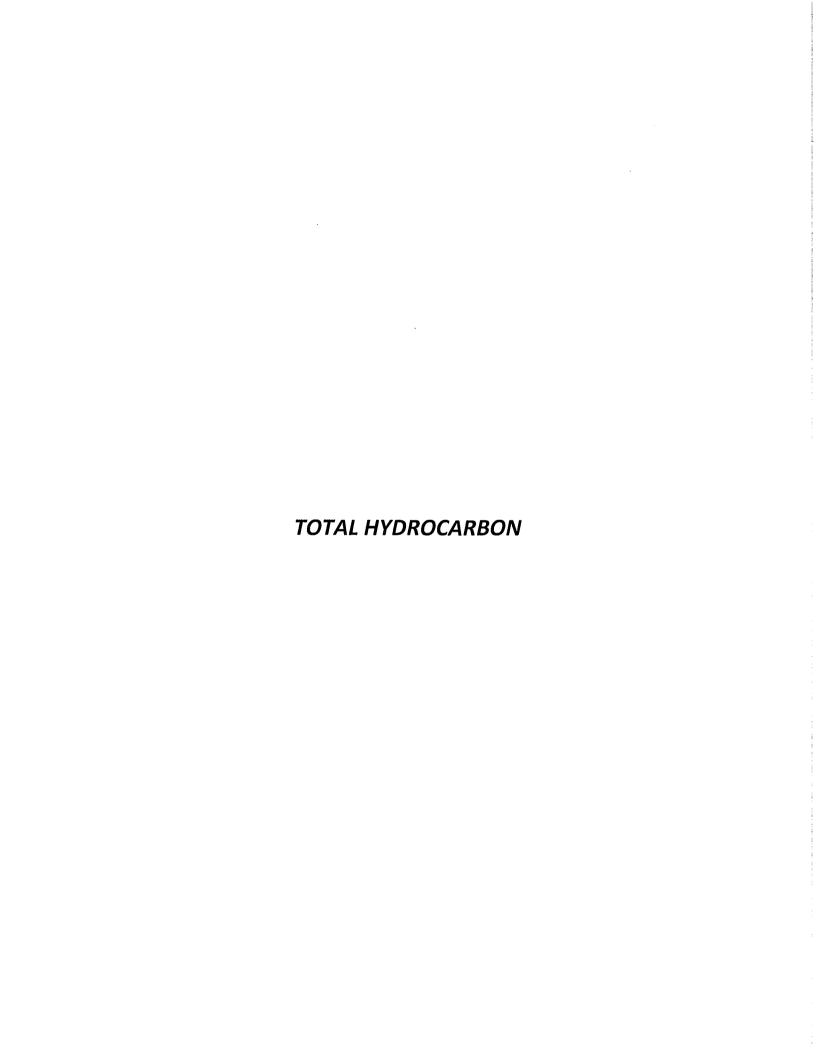
Direction

Freq	682				
NNW	58				29
K	27				27
WNW	62				62
ĸ	28				28
WSW	38				38
SW	137				137
SSW	131				131
Ø	29				29
SSE	30				30
(N)	10				10
(a) (b)	12				12
М	56				56
ENE	32				32
R	37				37
NNE	31				31
z	23				23
Limit	т	10	20	20	[otals
н	٧	<b>v</b>	٧	X	ī

Calm : .00 %









TOTAL HYDROCARBONS (THC) hourly averages in ppm

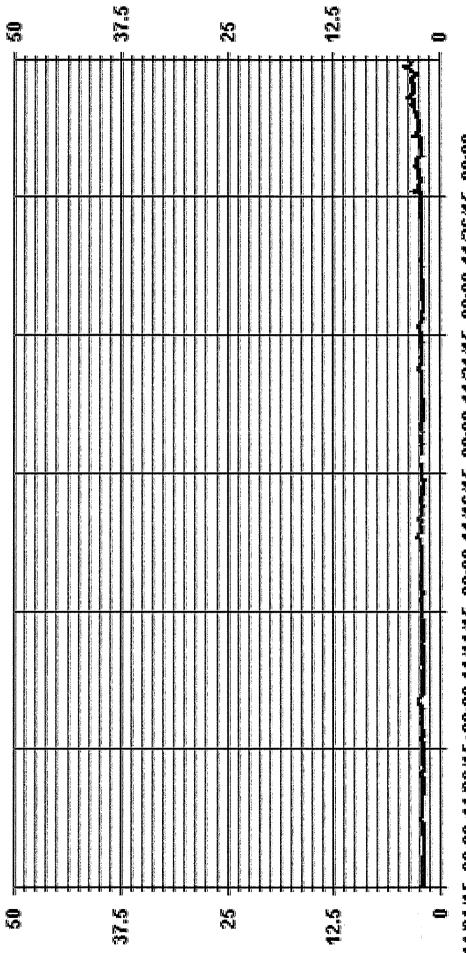
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	24-HOUR		1.9	2.1	2.1	2.0	2.1	2.3	2.0	2.0	2.0	2.1	2.2	2.3	2.2	2.1	2.1	2.2	2.0	2.2	2.2	2.2	2.0	2.1	2.1	2.2	2.4	2.4	2.5	3.1	3.3		
	DAILY	2	2.0	2.3	2.2	2.2	2.3	2.6	2.1	2.1	2.1	2.3	2.4	5.6	2.4	2.3	2.2	2.2	2.1	2.4	2.2	2.4	2.0	2.2	2.2	2.3	3.0	2.8	3.1	3.6	4.0		
	23:00	200	2.0	2.1	2.1	2.0	s	2.3	1.9	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.1	2.2	2.2	1.9	2.0	2.1	2.2	2.2	2.4	2.2	2.7	3.2	3.3	3.3	2.2
	22:00		1.9	2.1	2.0	2.0	2.1	s	1.9	2.1	2.1	2.2	s	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.2	1.9	2.0	2.1	2.1	2.2	2.4	2.3	5.6	3.1	3.2	3.2	2.2
	21.00		1 6	2.1	2.1	2.0	2.1	2.5	s	2.1	2.1	2.3	2.1	s	2.1	2.1	2.1	2.2	2.1	2.4	2.2	2.0	2.0	2.1	2.1	2.2	2.4	2.3	2.5	3.0	3.4	3.4	2.2
	20.00		9 6	2.2	2.1	2.0	2.1	2.5	2.0	s	2.1	2.3	2.1	2.5	s	2.1	2.1	2.2	2.1	2.4	2.2	2.1	2.0	2.2	2.1	2.2	2.4	2.2	2.5	3.0	3.3	3.3	2.2
	18:00 19:00		1.0	2.1	2.0	2.0	2.1	5.6	2.0	2.1	s	2.2	2.1	2.5	2.1	s	2.1	2.2	2.1	2.4	2.2	2.1	2.0	2.2	2.1	2.3	2.4	2.1	2.5	3.1	3.3	3.3	2.2
	18:00		19	2.1	2.0	5.0	2.1	2.5	2.0	2.0	2.1	s	2.1	2.5	2.2	1.9	s	2.2	2.1	2.4	2.1	2.1	2.0	2.2	2.1	2.3	25	2.1	2.4	3.3	3.6	3.6	2.2
<u>.</u>	17:00		19	2.1	2.0	2.0	2.0	2.5	2.0	2.0	2.1	2.0	2.1	5.6	2.2	2.0	2.1	s	2.0	2.3	2.2	2.1	2.0	2.2	2.1	2.2	2.5	2.1	2.4	3.4	4.0	4.0	2.2
nouny averages in ppin	16:00	0	1 6	2.1	5.0	5.0	5.0	2.5	2.0	5.0	5.0	2.1	2.1	5.6	2.2	1.9	×	2.2	s	2.2	2.2	2.1	2.0	2.2	2.1	2.2	2.2	2.1	2.4	3.5	3.9	3.9	2.2
2010	15:00	,	2.0	2.1	5.0	2.0	5.0	2.3	5.0	5.0	5.0	2.2	2.1	2.4	2.1	1.9	×	2.2	2.1	s	2.2	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.5	3.6	3.5	3.6	2.2
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	13:00	,	1 6	2.3	5.0	2.0	2.0	2.2	2.0	2.0	2.1	2.1	2.1	2.3	2.1	2.0	×	2.1	5.0	2.1	2.1	s	2.0	2.2	2.1	2.3	2.3	2.2	2.5	3.1	3.2	3.2	2.2
L	12:00		1 1	2.3	5.0	2.0	2.1	2.1	2.0	5.0	2.1	2.2	U	2.3	2.2	2.0	×	ø	5.0	2.1	2.1	2.3	s	2.1	2.1	2.3	2.3	2.1	2.4	2.7	3.0	3.0	2.2
NO N	10:00 11:00		1 1	2.2	2.1	1.9	2.2	2.2	2.0	2.0	2.1	2.2	ပ	2.3	2.3	2.0	×	σ	2.0	2.1	2.1	2.3	2.0	s	2.1	2.2	2.4	2.4	2.4	3.1	2.8	3.1	2.2
2			1 5	2.1	2.1	1.9	2.3	2.2	2.0	2.0	2.1	2.2	U	2.3	2.4	2.0	×	σ	2.1	2.2	2.2	2.3	2.0	2.1	s	2.2	2.5	2.7	2.5	3.0	2.9	3.0	2.2
OTAL HIDROCARBOINS (THC)	9:00	2	61	2.1	2.1	1.9	2.2	2.2	2.1	2.0	2.0	2.2	2.3	2.2	2.4	2.0	×	2.2	2.1	2.1	2.1	2.4	2.0	2.1	2.1	s	2.5	2.8	2.5	3.0	3.1	3.1	2.2
2	8:00	200	1 5	2.0	2.2	2.0	2.1	2.2	2.1	2.0	2.0	2.1	2.4	2.2	2.4	2.0	2.2	2.2	2.0	2.1	2.1	2.4	2.0	2.1	2.1	2.2	s	2.6	2.7	3.3	3.2	3.3	2.2
	7:00	,	1 1	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.3	2.2	2.2	2.0	2.2	2.2	2.0	2.1	2.2	2.4	2.0	2.2	2.1	2.2	2.5	s	2.7	3.1	3.3	3.3	2.2
	6:00		1 1	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.3	2.1	2.1	2.2	2.0	2.1	2.2	2.3	1.9	2.1	2.1	2.1	2.8	2.7	s	3.0	3.3	3.3	2.2
	5:00 5:00 5:00 6		5	2.0	2.1	2.2	2.0	2.2	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.2	2.1	2.2	2.0	2.1	2.2	2.3	1.9	2.1	2.1	2.1	3.0	2.7	3.1	s	3.3	3.3	2.2
	3	.1	S	2.0	2.1	2.2	2.0	2.2	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.2	2.1	2.2	2.0	2.1	2.1	2.3	1,9	2.1	2.1	2.1	2.5	2.8	2.3	2.9	S	2.9	2.2
	3:00	,	2 0	s	2.2	2.2	2.0	2.3	2.0	2.0	2.0	2.1	2.2	2.1	2.4	2.3	2.1	2.2	2.0	2.1	2.1	2.3	1.9	2.1	2.1	2.1	2.2	2.8	2.2	2.9	3.1	3.1	2.2
	2:00	,	2 5	2.0	s	2.2	2.0	2.3	2.0	9.1	2.0	2.1	2.2	2.1	2.3	2.3	2.1	2.1	2.0	2.1	2.1	2.2	1.9	2.1	2.1	2.1	2.3	2.7	2.2	2.8	3.0	3.0	2.2
	1.00	5	2 0	2.0	2.2	s	2.0	2.2	2.1	9.	5.0	2.1	2.2	2.1	2.1	2.3	2.1	2.2	2.0	2.1	2.1	2.2	2.0	2.1	2.1	2.1	2.2	2.6	2.3	2.7	3.0	3.0	2.2
	000	,	2 1	2.0	2.1	2.0	S	2.2	2.1	9,	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.0	2.1	21	2.2	13	2.0	2.1	2.1	2.2	2.5	2.3	2.6	3.1	3.1	2.2
MST	HOUR START	DAY	2.	m	4	<b></b>	9	7	•	o	9	4	12	13	14	1	16	17	18	10	20	21	22	23	24	52	26	27.	28	82	န	HOURLY MAX	HOURLY AVG

CCALIBRATION   S	24 HOUR AVERAGES FOR NOVEMBER 2015				1 0 0 0 1 E 0 7 E 0 0 10 10 10 10 10 10 10 10 10 10 10 10
	4	3.5	25 25	1.0	0.0

STATUS FLAG CODES

			MO	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:	IGS:		675					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		9.3 3.3	PPM PPM	PPM @ HOUR(S) PPM	17	ON DAY(S) ON DAY(S) VAR-VARIOUS	m ···	30
IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME:	ᅜ	HRS HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	AE: UPTIME:		712 98.9	HRS %
STANDARD DEVIATION:	0.32			MONTHLY AVERAGE:	GE:		2.2	2.2 PPM

û Hour Averages



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

PPM

HC

- LICA30



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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5
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5
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RDGS	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	16	24	24	24	24	24	74	24	24	24	74	24	24	24	24		
24-HOUR AVG.	2.0	1.9	2.1	2.1	2.1	2.1	2.3	2.1	2.0	2.1	2.2	2.2	2.3	2.3	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.0	2.2	2.1	2.2	2.5	2.5	5.6	3.2	3.4		
DAILY	2.1	2.0	2.3	2.3	2.3	2.3	5.6	2.3	2.2	2.2	2.3	2.4	2.7	2.6	2.4	2.3	2.3	2.2	2.4	2.3	2.5	2.1	2.5	2.2	2.5	3.1	5.9	3.3	3.7	4.1		
23:00	2.0	2.0	2.1	2.1	2.0	s	2.4	5.0	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.1	5.0	2.1	2.3	2.3	2.0	2.0	2.1	2.2	2.2	2.4	2.3	2.8	3.3	3.5	3.5	2.2
22:00	2.0	2.0	2.2	2.1	5.0	2.1	s	5.0	2.1	2.2	2.3	s	23	2.2	2.1	2.1	2.3	2.1	2.4	2.2	2.0	2.0	2.1	2.2	2.2	2.4	2.3	2.8	3.2	3.3	3.3	2.3
21:00	20	2.0	2.2	2.1	5.0	2.1	5.6	s	2.1	2.1	2.3	2.1	s	2.2	2.1	2.2	2.3	2.1	2.4	2.2	2.0	5.0	2.2	2.1	2.3	2.5	2.3	5.6	3.1	3.7	3.7	2.3
20:00	2.0	2.0	2.2	2.1	2.0	2.2	5.6	5.0	s	2.1	2.3	2.1	2.5	s	2.1	2.2	2.3	2.1	2.4	2.3	2.1	2.0	2.2	2.1	2.2	2.5	2.3	2.5	3.1	3.7	3.7	2.3
19.00	2.1	1.9	2.1	2.1	2.1	2.1	5.6	2.0	2.2	s	2.3	2.1	5.6	2.2	s	2.1	2.3	2.1	2.4	2.2	2.1	2.0	2.2	2.1	2.5	2.5	2.2	5.6	3.2	3.6	3.6	2.3
18:00	2.0	1.9	2.1	2.0	2.0	2.1	5.6	5.0	2.0	2.1	s	2.1	2.6	2.2	5.0	s	2.2	2.1	2.4	2.2	2.1	2.0	2.2	2.1	2.5	2.5	2.2	2.5	3.4	3.8	3.8	2.3
17.00	2.0	1.9	2.1	2.0	2.0	2.1	2.5	5.0	2.0	2.1	2.1	2.1	2.7	2.2	2.0	2.1	s	2.1	2.4	2.2	2.1	5.0	2.2	2.1	2.2	2.5	2.2	2.4	3.5	4.1	4.1	2.3
15:00	2.1	2.0	2.1	2.0	2.0	2.0	2.5	2.0	2.0	2.1	2.2	2.2	2.6	2.3	2.0	×	2.2	s	2.2	2.3	2.1	2.0	2.2	2.1	2.2	2.3	2.1	2.5	3.6	4.1	4.1	2.3
15:00	à	2.0	2.2	2.0	2.0	2.0	2.4	2.0	2.0	2.1	2.2	2.1	2.4	2.2	2.0	×	2.2	2.1	s	2.2	2.1	2.0	2.2	2.1	2.2	2.3	2.2	2.5	3.6	3.8	3.8	2.3
14:00	ŝ	2.0	2.3	2.0	2.0	2.0	2.3	2.0	2.0	2.1	2.2	2.1	2.3	2.2	2.0	×	2.2	2.1	2.1	S	2.1	2.0	2.1	2.1	2.3	2.3	2.2	2.6	3.7	3.4	3.7	2.2
13.00	ä	1.9	2.3	2.0	2.0	2.0	2.2	2.0	2.0	2.1	2.1	U	2.4	2.1	2.0	×	2.2	2.1	2.2	2.1	s	2.0	2.5	2.1	2.3	2.3	2.3	5.6	3.7	3.3	3.7	2.3
0 12:00	7	1.9	2.3	2.0	2.0	2.1	2.2	2.0	2.0	2.1	2.2										2.3	S	2.4			2.3	2.2	2.5	3.1	3.1	3.1	
0 11:00	2.0	1.9	23	2.1	2.0			. 2.0		. 2.1	•		2.3		2.0							. 2.1			2.2	2.5	2.6	2.5	3.1	2.9	3.1	
0 10:00	2.0		1 2.2																		1 2.3										3.1	
00.6 0	r e	•	0 2.1					1 2.3		1 2.1	•										5 2.4						7 2.9				4 3.3	
00 8:00	0 2.0	9 1.9	2 2.0	1 2.	_	1 2.2			_	2.0 2.1	1 2.2	2.3 2.4			1 2.0		2.2 2.			2.3 2.	2.5 2.	2.0 2.0		1 2.1	2.2 2.2		5 2.7	2.8 2.	3.3 3.4	3.3 3.	3.3 3.4	
00 7:	2.0 2	9.	2.0 2.	.1 2				.3 2.1			.1 2.1				.2 2.1								.2 2.2	.1 2					3.1		3.4 3.	
5:00 6:		6.	2 0.				2.2 2		2.0 2	2.0 2	2.1 2			2.3 2			2.2 2	1.1	11 2	2 2	.4 2	2 0.	1 2	11 2	.2 2	1.1 2	2.8 2	<u>უ</u>	s 3	3.4 3	3.4 3	3 2
.00 5		S 1	2.0 2						2.0 2		2.1				2.3		2.2	2.1	2.1	2.2	2.3	2.0	2.1	2.1	2.1	3.0	2.8	2.7	3.0	S		2.2
2:00 3:00 4:00 3:00 4:00 5:00	2.0	2.0							2.0		2.1		2.1		2.3	2.1	2.2		2.1	2.2		19	2.4	2.1	2.2	2.3		2.2		3.3		2.2
		2.0	20	s	2.2	2.1	2.3	2.1	2.0	2.0	2.1	2.3	2.1	2.4	2.4	2.3	2.1	2.1	2.1	2.2	2.3	2.0	2.1	2.1	2.2	2.3		2.3	2.8	3.2		2.2
3 1:00 2:00	2.0	2.0	2.0	2.3	s	2.2	2.3	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.4	2.2	2.3	2.0	2.1	2.2	2.2	2.0	2.2	2.1	2.2	2.3	2.7	2.3	2.8	3.1	3.1	2.2
0:00		2.0	2.0	2.2	2.1	s	2.2	2.3	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.1	2.3	2.0	2.1	2.2	2.3	5.0	2.2	2.1	2.2	2.3	2.6	2.3	2.7	3.1	3.1	2.2
HOUR START	10.7	2	m	4	ý	U	7	8	o	10	Ţ	12	13	14	2	79	17	18	<u>1</u>	20	21	22	23	24	25	26	72	28	29	8	HOURLY MAX	HOURLY AVG

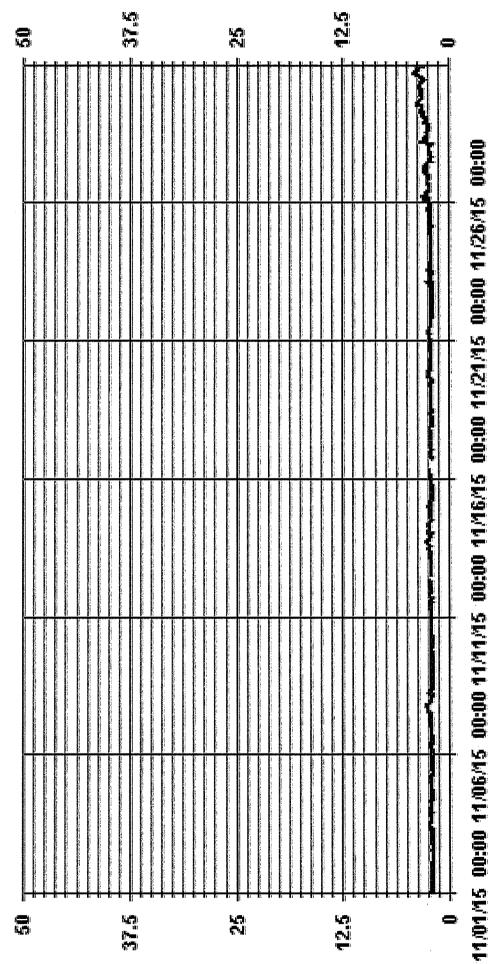
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	IBRATION. INTENANCE LY ZERO/SPAN WER FAILURE	Ī
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### VOORBALLS VILLENCAA

NUMBER OF NON-ZERO READINGS:		673						
MAXIMUM INSTANTANEOUS VALUE:		4.1		PPM @ HOUR(S)	16, 17	ON DAY(S)		30, 30
					VAR-V/	VAR-VARIOUS		
IZS CALIBRATION TIME: 31 H MONTHLY CALIBRATION TIME: 5 H	HRS HRS	-	OPERATIO	OPERATIONAL TIME:			712	HRS
STANDARD DEVIATION: 0.3S								

i ion preiges



PLA

- LICA30 THCMAX

LICA30 THC / WDR Joint Frequency Distribution (Percent)

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

Direction

Freq	94.07	5.92	00.	00.	
MNIN	4.29	00.	00.	00.	4.29
NW	4.00	00.	00.	00.	4.00
WNW	8.00	.14	00.	00.	8.14
Œ	3.85	.29	00.	00.	4.14
WSW	5.33	.14	00	00.	5.48
SW	16.88	3.25	00.	00.	20.14
SSW	17.62	2.07	.00	00.	19.70
w	4.14	00.	.00	00.	4.14
SSE	4.59	00.	00.	00.	4.59
SE	1.48	00.	00.	00.	1.48
ESE	1.77	00.	00.	00.	1.77
ы	3.85	00.	00.	00.	3.85
ENE	4.74	00.	00.	00.	4.74
E	5.48	00.	00.	00.	5.48
NNE	4.59	00.	00.	00.	4.59
z	3.40	00.	00.	00.	3.40
Limit	3.0	10.0	50.0	50.0	Totals
	٧	٧	٧	X	

Calm : .00 %

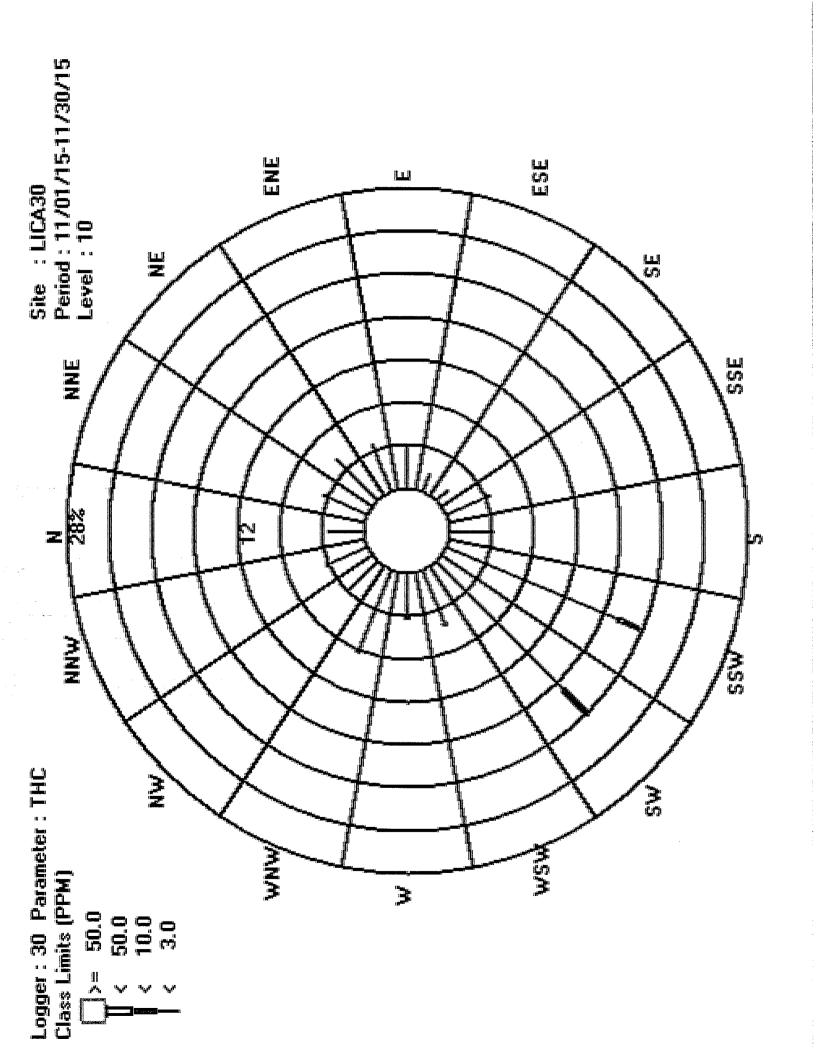
Total # Operational Hours : 675

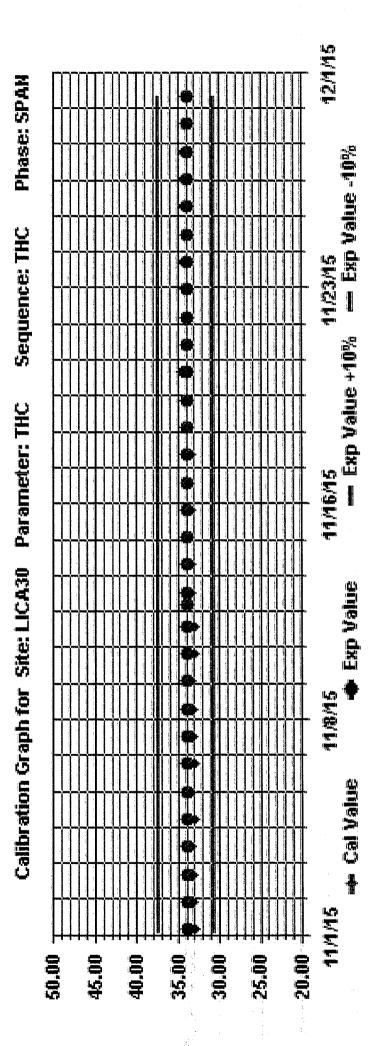
Distribution By Samples

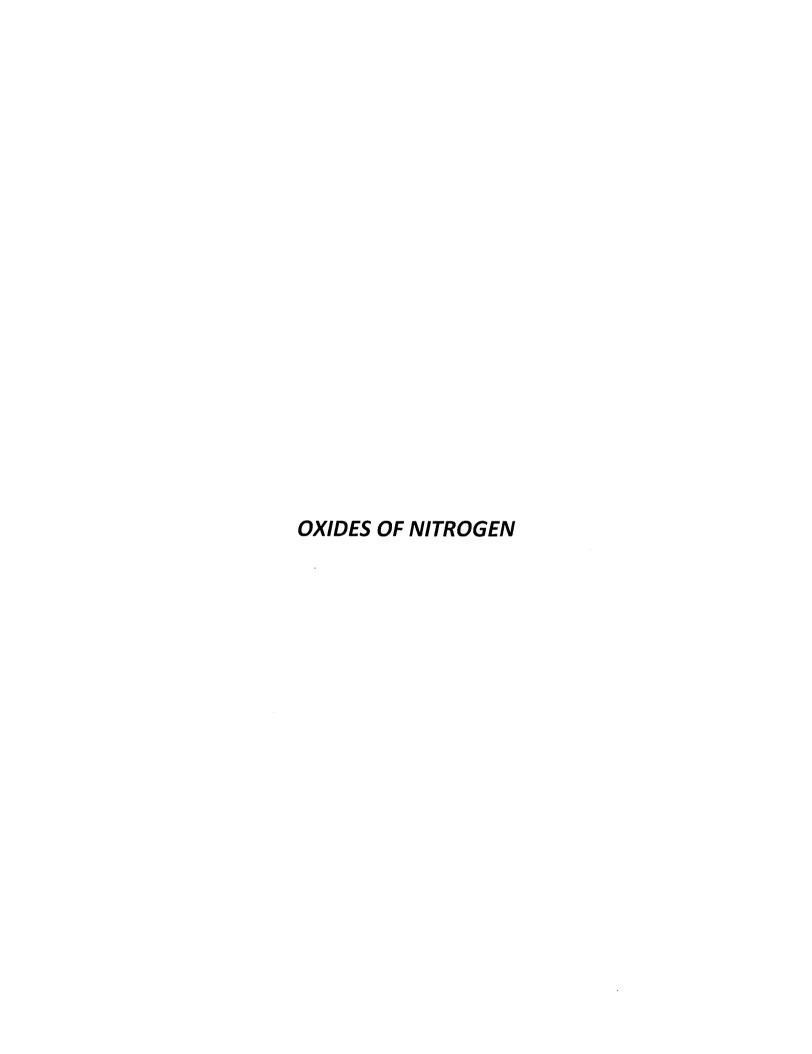
Direction

Freq	635	40			
NNW	29				29
NW	27				27
WNW	54	1			ວິວ
×	26	7			28
WSW	36	Н			37
SW	114	22			136
SSW	119	14			133
w	28				28
SSE	31				31
SE	10				10
ESE	12				12
ы	56				26
ENE	32				32
Ä	37				37
NNE	31				31
z	23				23
Limit	3.0	10.0	50.0	50.0	Totals
	٧	٧	٧	X	

Calm : .00 %









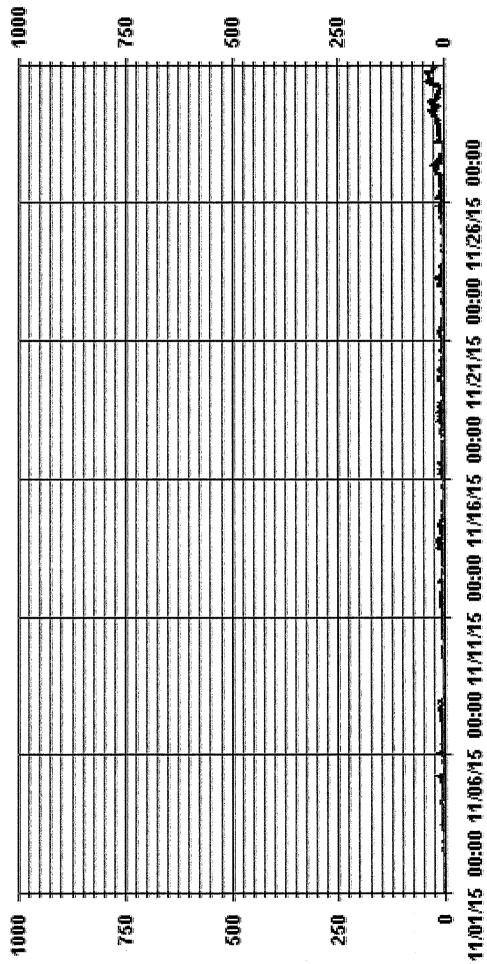
# OXIDES OF NITROGEN (NOx) hourly averages in ppb

		KDGS.	54	24	54	54	54	54	54	54	54	54	54	24	54	24	24	24	24	54	54	24	24	24	54	77	74	54	54	54	74	25		
	24-HOUR	AvG.	0.4	1.0	2.5	4.0	2.7	4.0	7.8	1.2	1.5	2.2	4.7	4.5	6.8	6.2	1.3	4.4	4.7	6.0	5.2	3.3	5.2	1.3	5.9	1.3	4.3	6.4	9.6	9.7	21.8	25.4		
	DAILY	WAY.	1.3	6.0	9.9	8.8	11.6	12.0	13.3	8.9	4.9	5.1	6.6	11.4	15.9	13.5	4.6	11.8	10.0	15.0	15.1	7.1	11.6	6.8	18.4	4.6	9.6	15.2	22.9	19.2	32.5	40.8		
	23:00	20.0	0.0	1.5	3.6	3.0	0.0	s	13.3	0.4	2.3	2.1	3.7	4.5	4.4	1.4	0.4	2.4	2.7	0.3	9.7	3,4	0.0	10	0.2	4.6	3.6	6.5	0.0	16.8	13.1	17.0	17.0	4.2
		23.00	0.0	5.0	4.6	2.2	0.0	3.3	s	1.1	3.9	2.8	9.9	s	5.7	1.8	0.7	2.2	3.8	6.0	7.1	3.4	0.0	0.2	0.4	3.0	4.0	6.1	0.0	18.7	16.8	19.0	19.0	4.3
	21.00	~77.00°	0.0	1.7	5.9	2.5	0.0	4.7	7.7	s	6.4	3.3	9.6	2.5	s	2.4	1.0	4.5	6.3	0.2	6.7	3.1	0.7	8.0	0.7	1.0	9.4	7.6	0.0	13.6	17.3	24.2	24.2	4.9
	20:00	21.00	0.0	1.1	2.8	3.1	0.3	5.4	9.0	0.1	s	4.4	6.6	1.2	15.9	s	3.2	3.5	5.9	0.5	5.1	5.6	2.5	6.0	2.0	0.8	1.6	8.9	0.0	10.0	17.2	23.8	23.8	2.0
	19:00	70.00	0.0	0.2	1.4	2.9	7.3	5.1	10.8	0.2	4.2	Ŋ	8.2	3.7	6.6	2.8	Ŋ	3.9	7.1	0.5	4.7	2.0	5.6	4.7	4.6	0.5	6.7	7.2	1.5	10.2	14.7	26.6	26.6	5.5
	18:00	TRION	0.0	0.1	1.3	2.2	6.2	3.4	11.4	0.1	1.9	4.4	s	3.1	5.7	4.0	1.5	s	9.5	7.4	6.1	2.3	3.8	0.7	5.9	1.0	9.6	8.0	6.9	8.6	18.6	31.9	31.9	6.1
2	17:00	OD:ST	0.0	0.3	1.6	2.5	0.4	5.6	11.0	0.1	4.1	5.1	3.3	3.4	15.4	6.4	4.6	2.3	s	1.1	10.1	2.7	4.5	9.0	6.0	9.0	5.6	7.4	8.2	10.3	24.1	39.7	39.7	6.3
ONIDES OF MINOCEN (NOX) HOURS averages III ppu	16.00 = 17.00	T	0.5	4.1	1.7	5.6	0.0	2.1	11.2	0.1	4.3	2.1	6.7	5.4	13.9	6.3	0.2	1.6	10.0	S	15.1	6.4	2.5	0.5	6.7	1.0	7.6	6.2	2.0	12.0	30.6	37.7	37.7	6.9
200	15:00	On O	0.1	0.9	5.8	2.5	0.1	1.3	8.1	0.1	3.4	2.5	7.5	4.6	7.1	4.8	0.4	5.9	7.8	11.9	s	3.2	1.8	2.1	2.9	2.1	3.1	6.4	9.7	11.0	31.2	33.6	33.6	6.3
, ,	14.00	10,06%	0.0	3.0	4.8	2.4	0.2	1.4	9.0	0.1	2.7	2.7	7.4	U	7.8	5.1	0.2	11.8	ď	7.8	11.0	s	5.7	0.8	1.7	1.1	4.8	5.5	7.6	13.3	28.2	33.2	33.2	9.9
<b>≅</b>		T4.00	1.3	1.2	9.9	2.9	0.3	1.4	9.5	0.1	1.5	2.4	4.5	u	6.1	5.2	0.3	9.0	ď	10.2	6.2	0.4	s	3.5	1.3	0.9	6.1	4.1	11.4	14.7	19.3	32.4	32.4	6.0
	12:00	365	0.3	0.1	6.5	5.9	0.5	5.0	8.7	0.5	0.1	2.4	5.9	U	11.7	9.7	0.4	6.4	ď	6.4	1.4	0.2	7.4	s	3.6	1.2	6.9	4.4	9.0	11.1	15.6	31.0	31.0	5.5
	2.5	TZ.OUS.	0.3	8.0	3.4	5.7	0.0	4.8	7.6	9.0	0.0	2.7	6.1	U	6.0	9.5	0.3	1.5	ď	10.2	3.1	0.3	7.2	6.8	Ŋ	1.5	5.9	5.8	8.3	9.6	21.4	30.0	30.0	5.9
	10:00	-711.00	0.3	0.1	1.9	8.1	0.0	7.6	8. 9.	0.7	0.3	2.3	6.4	U	4.0	12.1	0.4	1.6	ď	15.0	5.0	4.2	6.0	4.8	7.8	s	5.1	9.4	17.0	9.3	25.1	36.6	36.6	7.4
	00.6	On on	0.3	0.2	2.3	8.0	0.0	5.6	7.2	0.7	0.5	1.9	3.0	8.9	4.4	12.6	0.7	2.2	3.5	9.9	7.0	2.2	10.7	0.1	7.4	1.8	s	6.0	22.9	8.8	23.2	40.8	40.8	7.0
5	8:00	200.0	0.4	0.2	4.1	8.8	2.5	4.9	7.8	1.0	0.0	1.5	2.4	11.4	4.0	13.5	0.3	10.3	3.9	4.7	4.4	5.1	11.0	0.4	14.7	2.4	2.5	s	14.4	10.6	32.5	33.5	33.5	7.4
	7.00	Ž.	0.4	0.1	2.0	7.0	1.3	2.9	9.5	9.0	0.1	1.5	2.5	11.2	5.7	6.4	0.7	6.2	3.6	8.7	2.9	7.1	10.3	1.1	18.4	1.6	5.0	11.1	s	10.6	30.5	24.5	30.5	6.7
	7 78	00.7	1.1	0.3	1.0	4.9	11.6	1.0	4.6	0.5	0.1	1.1	2.3	3.0	4.8	6.1	13	6.0	3.0	2.7	2.5	3.2	11.6	0.2	11.4	2.4	1.1	13.5	20.3	s	26.4	13.0	26.4	5.6
	3:00 4:00 5:00	0.00	s	0.8	0.8	3.4	5.8	0.4	4.0	0.7	0.3	0.7	1.9	1.9	3.3	4.2	1.5	9.3	2.9	9.5	1.5	2.7	8.6	0.0	0.4	1.1	0.4	15.2	18.3	19.2	s	10.2	19.2	4.6
	4:00	0000	0.7	s	1.3	3.3	6.5	2.7	3.7	0.9	0.2	1.0	1.8	1.9	3.3	6.7	2.1	1.8	2.1	10.3	1.5	3.6	5.8	0.0	3.8	9.0	6.0	4.9	19.5	1.0	21.1	S	21.1	4.0
	3.00	00.4	6.0	0.0	s	4.8	7.1	7.6	3.7	1.2	0.0	0.9	3.2	3.8	3.3	8.5	2.6	3.8	5.0	7.4	3.4	4.1	4.8	0.0	12.5	0.7	0.5	11	17.3	2.1	23.2	9.4	23.2	4.8
	2:00	000	1.1	0.0	0.1	s	8.2	12.0	3.7	1.7	0.0	0.5	1.9	4.6	4.4	8.3	2.9	4.2	2.8	11.0	2.1	4.7	4.3	0.0	5.4	0.5	2.8	1.0	15.7	0.4	19.0	11.9	19.0	4.7
	1:00	S. C. C.	6.0	0.0	0.1	4.1	s	5.7	4.1	6.9	0.0	9.0	1.5	3.3	2.8	2.1	3.0	1.4	3.8	1.0	0.0	7.0	3.9	0.0	16.0	0.2	3.6	1.6	11.3	0.0	17.1	11.4	17.1	3,9
	00:0	DO THE	0.7	0.0	0.5	3.2	3.0	s	4.8	8.9	0.1	0.7	1.9	5.5	2.8	3.9	1.7	0.4	4.4	0.5	2.4	2.0	4.0	0.0	1.6	0.1	5.9	1.9	8.5	0.0	14.1	13.2	14.1	3.1
MST	HOUR START 0:00	DAY	el S	2	'n	4	2	9	7	œ	o	a	П	7	13	7.	15	16	17	18	19	2	21	22	83	24	25	26	27	28	. 29	œ.	HOURLY MAX	HOURLY AVG

STATUS FLAG CODES  - CALIBRATION Q - CILALITY ASSUBANCE - MAINTEDANICE - DAILY ZERO/SPAN CHECK X - MACHINE MAILURE OIT FIDE DERAID E BROOK OIT FED DE DE DAIL ON TO CONTIECTION DE DE DAIL ON TENDE DAIL ON TENDE DE DAIL ON TENDE
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			Σ	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:			640					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		40.8	PPB PPB	@ HOUR(5)	Ø	ON DAY(5) ON DAY(5) VAR-VARIOUS	30 90	0 08
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	31	HR5 HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	E: PTIME:		720	HRS
STANDARD DEVIATION:	6.63			MONTHLY AVERAGE:	ü		5.5	PPB

ût Hour Averages



- LICA30 NOX\_



## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Maskwa Site - NOVEMBER 2015

Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C

# OXIDES OF NITROGEN MAX instantaneous maximum in ppb

ST	
Σ	

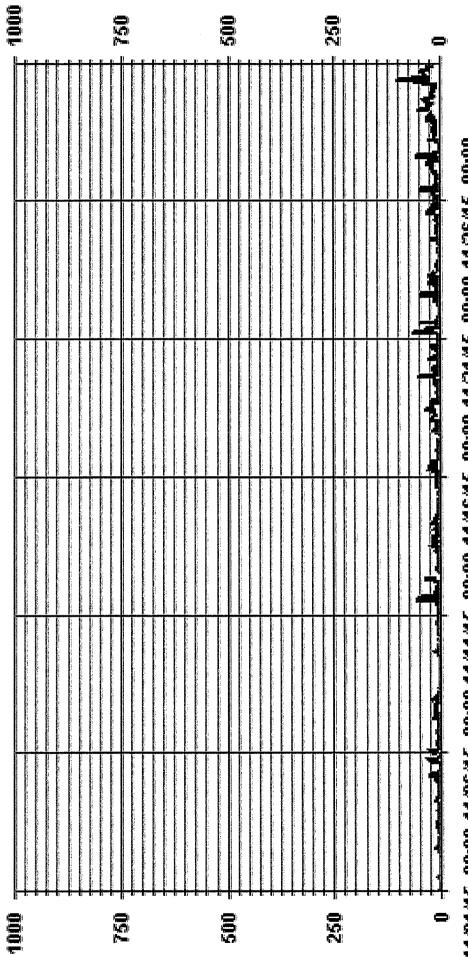
### STATUS FLAG CODES

SIAISSTAN	C CALIBRATION OF STATES OF COURLITY ASSURANCE	γMAINTENANCE	S - DAILY ZERO/SPAN CHECK	P - POWER FAILURE	G COUT FOR REPAIR

#### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	3S:		929						
MAXIMUM INSTANTANEOUS VALUE:	IUE:		104.2	PPB	@ ноик(s)	σ	ON DAY(S)		8
						VAR-V	VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	Ĭ	OPERATIC	OPERATIONAL TIME:			720	HRS
MONTHLY CAUBRATION TIME:	ω	HRS							
STANDARD DEVIATION:	10.89								

Of Hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

- LICA30 NOXMAX

LICA30 NOX\_ / WDR Joint Frequency Distribution (Percent)

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

	Freq	00.00	00.	00.	00.	
	NNW	4.27 100.00	00.	00.	00.	4.27
	NN	3.97	00.	00.	00.	3.97
	WNW	9.13	00.	00.	00.	9.13
	Ħ	4.12	00.	00.	00.	4.12
	WSW	5.59	00.	00.	00.	5.59
	SW	20.02	00.	00.	00.	20.02
	SSW	18.99	00.	00.	00.	4.12 18.99 20.02
	w	4.12	%	00.	0.	4.12
	SSE	4.56	00.	00.	%	4.56
Direction	SE	1.47	00.	00.	00.	1.47
Dia	ESE	1.76	00.	00.	00.	1.76
	ы	3.82	00.	00.	00.	3.82
	ENE	4.71	00	00.	00.	4.71
	Z	5.44	00.	0.	0.	5.44
	NNE	4.56	00.	00.	00.	4.56
	z	3.38	00.	00.	00.	3.38
	Limit	50.0	110.0	210.0	210.0	Totals
		V	٧	V	X	

Calm : .00 %

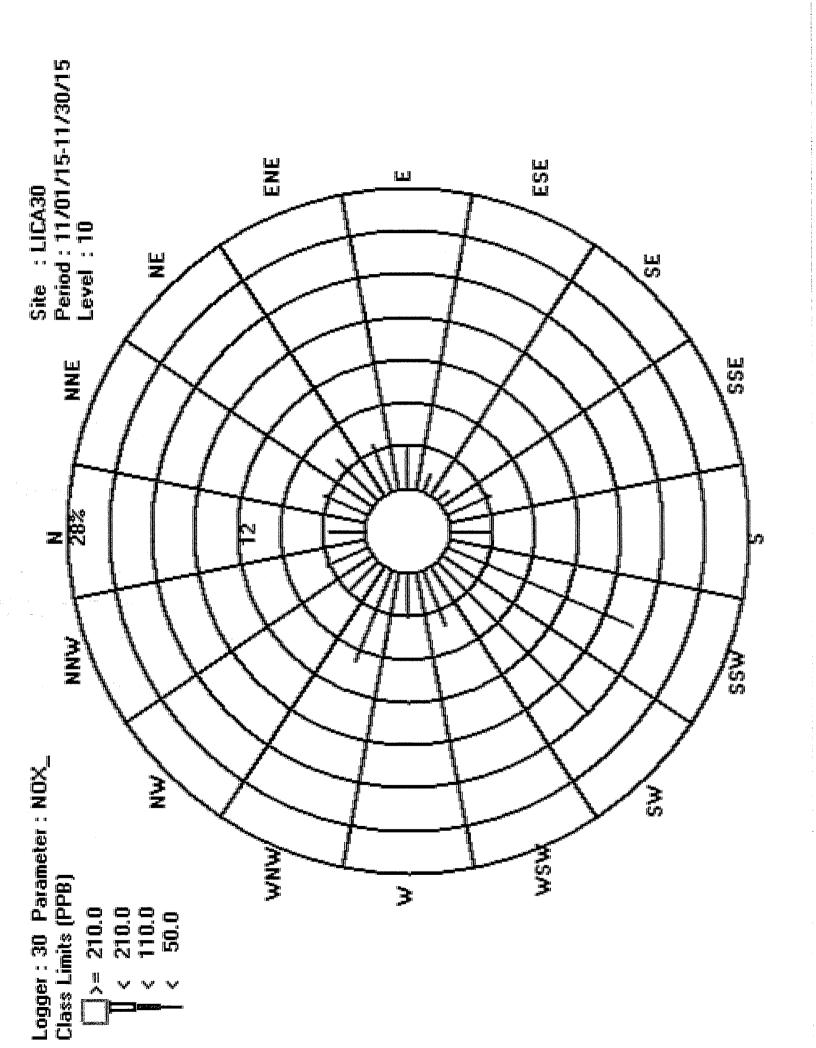
Total # Operational Hours : 679

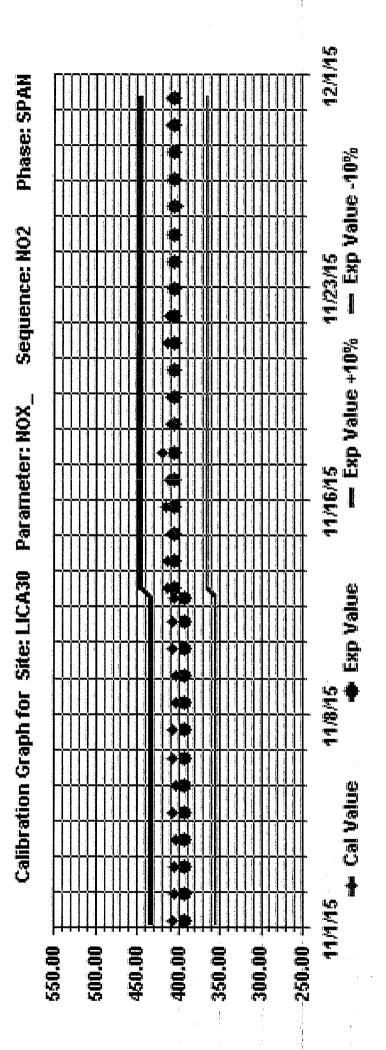
Distribution By Samples

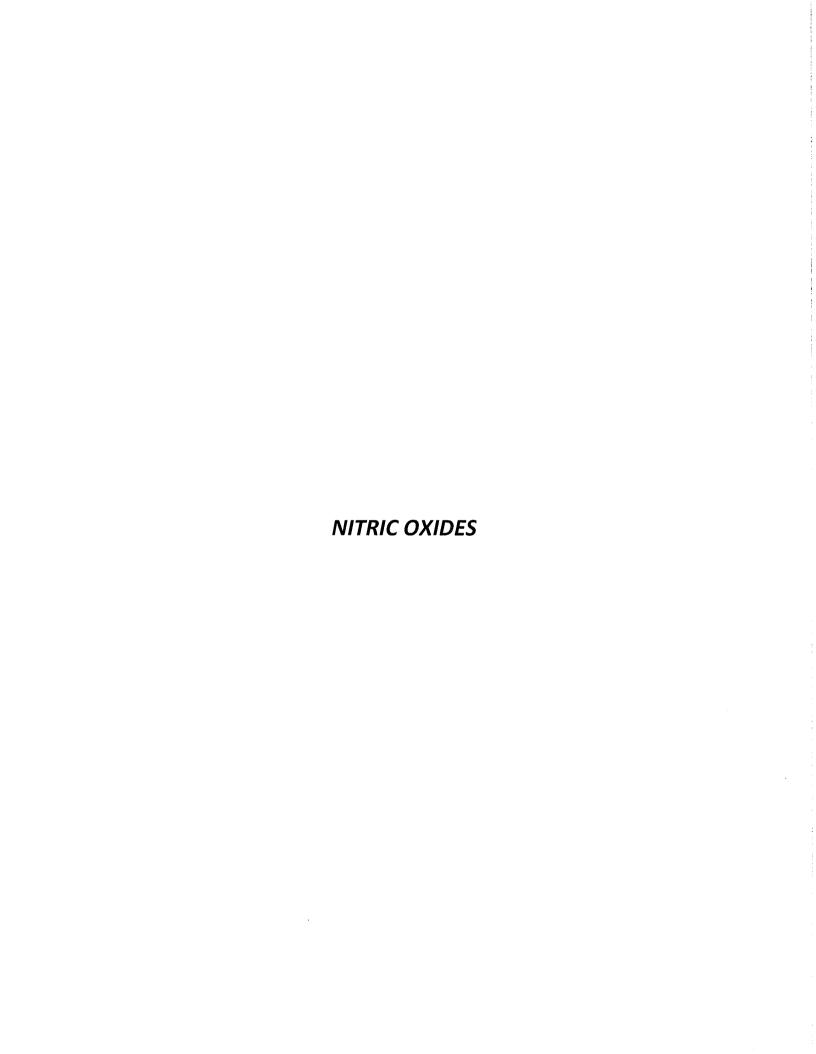
Direction

Freq	619				
MMM	59				29
NW	27				27
WNW	62				62
zi	28				28
WSW	38				38
SW	136				136
SSW	129				129
w	28				58
SSE	31				31
S	10				10
ESE	12				12
ы	56				26
ENE	32				32
RE	37				37
NNE	31				31
z	23				23
Cimi t	50.0	110.0	210.0	210.0	Totals
н	V	···	<b>v</b>	, ,	.,

Calm : .00 %









### n ppb

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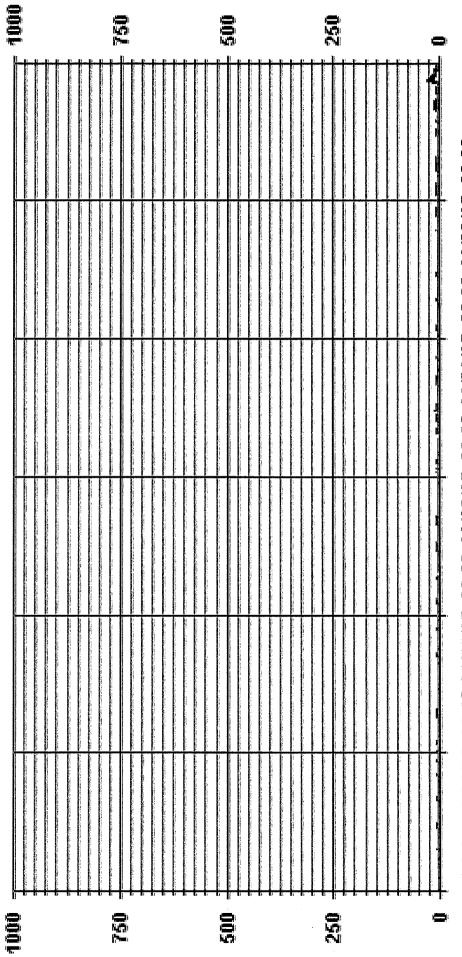
MST Code 1000 2000	00.00	00.6	ć		Ç		1.7	000	- K	ر د د د د د د د د د د د د د د د د د د د	17 (18)	: -	ourly a	אבושפר	i .	_	200	Š	00.00		1.	00.00	2	200	
	200	200	200	200	200	200	g (2)	-00:8	159702357	10:00 11:00	11:00 12:00	12:00 13:00	2,747.77	15:00 15:00	15:00 1 16:00 4		1/:00 18 18:00 19	19:00 19:00 19:00 20:00	21:00	22:00 22:00	22:00 23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
							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	0.8	0.2	24
0.0 0.0 0.0 S 0.0 0.0	0.0 0.0 S 0.0 0.0	0.0 S 0.8 0.0	0.0 8.0 S	0.0 8.0			0	0.0		0.0	8.0	0.0	0.7	1.2					0.5	9.0	0.7	9.0	1.7	0.4	74
0.0 0.0 <b>S</b> 1.0 0.7 0.7	0.0 <b>s</b> 1.0 0.7 0.7	S 1.0 0.7 0.7	1.0 0.7 0.7	0.7 0.7	0.7		œ	1.5	1.4	Ħ	1.7	2.9	2.4	1.2				0.5 0.4	0.5	0.6	0.7	0.7	2.9	6.0	54
0.6 S 0.9 0.6 0.7 0.8 1.3	S 0.9 0.6 0.7 0.8 1.3	0.9 0.6 0.7 0.8 1.3	0.6 0.7 0.8 1.3	0.7 0.8 1.3	0.8 1.3	1.3		3.0	3.5	წ.	2.6	1.3	1.0	9.0				0.5 0.6	0.7	9.0	9.0	0.5	3.9	1.2	24
S 1.2 0.8 0.8 0.8 4.5	1.2 0.8 0.8 0.8 4.5	0.8 0.8 0.8 4.5	0.8 0.8 4.5	0.8 4.5	4.5		7 1	H.	0.0	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	4.5	0.7	74
1.9 4.0 2.8 0.9 0.0 0.9 0.9	4.0 2.8 0.9 0.0 0.9 0.9	2.8 0.9 0.0 0.9 0.9	6.0 6.0 0.0 6.0	6.0 0.0 0.0	6.0	6.0		2		13	1.7	11	1.0	6.0					0.6	0:7	9.0	S	4.0	1.2	74
0.8 0.8 0.6 0.6 0.7 0.7	0.8 0.6 0.6 0.7 0.7 2.0	0.6 0.6 0.7 0.7 2.0	0.6 0.7 0.7 2.0	0.7 0.7 2.0	0.7 2.0	5.0			1.8	3.0	2.3	2.6	3.4	2.4					0.7	0.7	s	1.5	3.4	1.4	7
0.9 0.6 0.5 0.5 0.0 0.6	0.6 0.5 0.5 0.5 0.0 0.6	0.5 0.5 0.5 0.0	0.5 0.5 0.0 0.6	0.5 0.0 0.6	0.0	0.6			0.6	0.7	0.5	0.5	0.0	0.0					0.0	s ;	0.0	0.0	6.0	0.3	75 75
0.0	0.0 0.0 0.0 0.0 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 6	9 6	0 7	9 6	1;	7 ;	T o	0 1	11.	יי יי	v S	1 p	7.0	1 0	7.7	4 1	\$ 7
0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.1 0.8 0.4 0.8 0.7	0.0 0.4 0.5 0.7	0.0 0.4 0.0 0.7	0.4 0.6 0.7 0.5 0.0	0.0	) c			, r	ט ר מיני	1.1	2 0	1 ;	7 7					D 0	, ,	, u	, 6	7.7	. ·	\$ 7
0.5 0.3 0.8 0.9 0.7 0.9 0.7	0.5 0.5 0.5 0.5 0.7 1.5	0.5 0.5 0.5 0.7 1.5	0.0 0.0 0.0 0.0	0.5 0.3 0.7	0.9 0.7			_	1 6	ر ر	۵, ر	ہ ر	1, 0	ם, כ					6.0	, 6	P. v	, «	ט ע פי ע	, t	ŧ 7
0.8 0.7 0.5 0.6 0.6 0.9	0.7 0.5 0.6 0.6 0.9	0.5 0.6 0.6 0.9	0.6 0.6 0.9	0.6 0.6 0.9	0.6 0.9	6.0			18	2.0	2.9	5.1	2.8	2.0					1.0	s	0.8	0.6	5.1	13	54
9.0	0.6 0.6 0.6 0.7	0.6 0.6 0.7	0.6 0.6 0.7	0.6 0.7	0.7		7 4.0		4.5	4.9	4.0	4.3	2.0	1.6		0.8		0.7 0.6		0.7	9.0	9.0	4.9	1.6	74
0.7 0.7 0.7 0.5 0.5 0.6	0.7 0.7 0.5 0.5 0.6 0.4	0.7 0.5 0.5 0.6 0.4	0.5 0.5 0.6 0.4	0.5 0.6 0.4	0.6 0.4	0.4			9.0	0.4	0.0	0.0	0.0	0.0					0.8	0.7	9.0	0.0	6.0	0.4	54
0.7 0.7 0.7 0.6 1.1 1.0	0.7 0.7 0.6 1.1 1.0 2.6	0.7 0.6 1.1 1.0 2.6	0.6 1.1 1.0 2.6	1.1 1.0 2.6	1.0 2.6	2.6			6.0	1.4	1.0	2.4	3.0	4.2						0.8	0.6	0.7	4.2	1.2	54
0.6 0.6 0.6 0.6 0.6 0.7	0.6 0.6 0.6 0.6 0.7	0.6 0.6 0.6 0.7	0.6 0.6 0.6 0.7	0.6 0.6 0.7	0.6 0.7	0.7			1.1	ď	ď	ď	ď	ď				1.1 1.0		0.7	9.0	9.0	1.8	0.8	54
0.7 4.3 3.2 3.1 3.4 0.9 1.7	4.3 3.2 3.1 3.4 0.9 1.7	3.2 3.1 3.4 0.9 1.7	3.1 3.4 0.9 1.7	3.4 0.9 1.7	0.9 1.7	1.7			2.9	6.8	4.7	3.1	4.8	3.4						0.0	0.8	0.0	6.8	2.3	54
0.0 0.7 0.6 0.6 0.6 0.7 0.8	0.7 0.6 0.6 0.7 0.8	0.6 0.6 0.7 0.8	0.6 0.6 0.7 0.8	0.6 0.7 0.8	0.7 0.8	8.0			2.4	2.3	1.9	1.2	3.0	4.2						0.7	1.0	1.4	5.3	1.4	54
0.8 0.7 0.7 2.4	0.6 0.7 0.8 0.7 0.7 2.4	0.7 0.8 0.7 0.7 2.4	0.8 0.7 0.7 2.4	0.7 0.7 2.4	0.7 2.4	2.4			1.3	1.9	0.0	0.0	0.0	s	1,4				0.7	0.7	0.8	0.7	2.4	6.0	54
0.7 0.7 0.7 0.7 2.6 0.9	0.7 0.7 0.7 2.6 0.9	0.7 0.7 0.7 2.6 0.9	0.7 0.7 2.6 0.9	0.7 2.6 0.9	2.6 0.9	6.0			3.5	2.4	2.5	2.8	s	1.9						0.5	0.0	0.0	3.5	1.2	54
0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.5	0.0 0.5	0.5		_	0.0	1.9	2.5	s	1.2	0.7	1.6		0.5 0	0.4 0.6		0.5	0.0	9.0	2.5	0.5	54
0.7 1.0 0.7 0.0 0.9 1.7	0.7 1.0 0.7 0.0 0.9 1.7	1.0 0.7 0.0 0.9 1.7	0.7 0.0 0.9 1.7	0.0 0.9 1.7	0.9 1.7	1.7			5.0	2.8	s	1.3	0.8	0.8						0.5	0.0	0.0	5.8	6.0	54
0.0 0.5 0.5 0.5 0.6 0.8 0.7	0.5 0.5 0.5 0.6 0.8 0.7	0.5 0.5 0.6 0.8 0.7	0.5 0.6 0.8 0.7	0.6 0.8 0.7	0.8 0.7	0.7			6.0	s	1.0	0.8	0.8	6.0					0.8	0.8	11	1.5	1.5	0.7	54
0.0 9.0 0.0 8.0 6.0	0.8 0.0 0.6 0.0 0.7 1.1	0.0 0.6 0.0 0.7 1.1	0.6 0.0 0.7 1.1	1.1	1.1	1.1			s	2.2	2.8	3.2	2.7	2.2					0.8	1.3	0.8	8.0	3.2	1.3	54
0.7 0.6 0.6 0.7 1.1 1.3 1.8	0.6 0.6 0.7 1.1 1.3 1.8	0.6 0.7 1.1 1.3 1.8	0.7 1.1 1.3 1.8	1.8	1.8	1.8			2.1	4.2	2.5	5.0	1.8	1.8				.0 0.7	0.8	0.7	0.7	8.0	4.2	1.3	54
1.1 1.1 1.1 1.6 S	1.1 1.1 1.1 1.6 S	1.1 1.1 1.1 1.6 S	1.1 1.1 1.6 S	s	s	s			7.1	5.8	3.6	0.0	4.0	2.6	2.4				0.0	0.0	0.0	0.0	7.1	1.7	54
0.0 0.6 0.5 1.1	0.0 0.6 0.5 1.1 <b>S</b> 0.9	0.6 0.5 1.1 <b>S</b> 0.9	6.0 S 1	6.0 S 1	6.0 S 1	6.0			2.4	3.2	3.7	4.2	2.0	3.5		1.8	0.8 0	0.8 0.7	0.8	1.0	1.1	1.2	5.0	1.6	54
0.9 1.4 1.1 S 1.9 4.0	0.9 1.4 1.1 S 1.9 4.0	L S 1.9 4.0	L S 1.9 4.0	L S 1.9 4.0	1.9 4.0	4.0				11.0	8.9	5.9	8.1	11.3	9.4		2.3 1	1.0 0.8	6.0	1.0	1.2	1.3	11.3	4.1	54
1.0 1.0 1.1 1.2 \$ 1.6 4.5 12.9 15.9	1.1 1.2 \$ 1.6 4.5 12.9	1.6 4.5 12.9	1.6 4.5 12.9	1.6 4.5 12.9	4.5 12.9	12.9			3 27.2	18.1	13.9	14.6	14.0	12.3						4.0	1.8	2.4	27.2	7.9	24
4.5 12.9	4.3 3.2 3.1 3.4 4.5 12.9	3.2 3.1 3.4 4.5 12.9	3.1 3.4 4.5 12.9	3.4 4.5 12.9	4.5 12.9	12.9		0.	27.2	18.1	13.9	14.6	14.0	12.3	9.4	8.3	9.9	4.0 3.0	2.4	4.0	1.8	2.4			
0.6 0.8 0.8 0.7 0.7 1.1	0.8 0.8 0.7 0.7 1.1 1.5	0.8 0.7 0.7 1.1 1.5	0.7 0.7 1.1 1.5	1.1 1.5	1.1 1.5	1.5		_	2.9	3.2	2.6	2.3	2.5	2.4						0.7	9.0	0.7			

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24 HOUR AVERAGES FOR NOVEMBER 2015	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
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			MO	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:	,,		562					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		27.2	8 8 8	@ ноuռ(s)	Ø	ON DAY(S) ON DAY(S) VAR-VARIOUS	30	0
IZS CALIBRATION TIME: MONTHLY CAUBRATION TIME:	31	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	TIME		720	HRS %
STANDARD DEVIATION:	2.23			MONTHLY AVERAGE:			1.4	PPB

Of Hour Averages



11/01/115 00:00 11/06/15 00:00 11/11/115 00:00 11/16/15 00:00 11/21/115 00:00 11/26/15 00:00

- LICA30 NO\_ PPB



### Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

### in ppb

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ous maximum
instantanec
MAX
OXIDE
NITRIC

	24-HOUR AVG. RDGS.		1.4 24					2.7 24	L2 24	1.4 24				2.3 24		1.2 24				3.6 24						4.8 24				6.8 24			
	DAILY 24-		3.4						17	4.3						2.0											33.8		6.4				
	23:00 0:00	1.0	1.1	1.2	1.2	1.0	s	3.2	1.3	1.2	1.1	1.1	1.4	1.1	1.0	1.1	1.1	70	1.2	2.5	1.2	1.0	11	1.2	3.2	1.2	2.0	1.1	3.0	1.8	3.5	3.5	1.5
	2:00 2 3:00	1.1	1.4	1.1	1.2	1.3	1.2	s	1.4	1.2	1.2	1.1	s	1.5	1.1	1.1	1.2	1,0	1.7	2.8	13	1.0	1.0	1.0	3.2	1.2	1.6	1.2	2.6	1.9	3.0	3.2	1.5
	21:00 22:00	1.1	1.3	1.1	1.1	1.1	1.2	1.2	s	1.3	13	1:1	1.2	s	1,4	1.1	1.2	17	1.2	1.2	17	1.2	1.1	1.0	1.8	3.1	1.1	1.1	1.4	1.5	8.6	8.6	1.6
	20:00	1.1	1.0	1.0	1.1	4.5	1.1	1.2	1.1	s	1.4	1.5	1.0	1.4	s	1.6	17	13	1.6	1.2	1.2	1.2	1.0	1.2	2.4	1.2	1.3	1:1	1.4	1.7	6.8	8.9	1.6
	19:00 20:00	1.1	1.2	8.0	1.1	11.4	1.1	1.2	1.1	1.1	s	1.4	1.0	1.4	1.2	s	13	1.4	1.0	1.2	1.1	1.2	1.1	17	13	4.3	17	11	1.2	1.4	2.8	11.4	1.7
	18:00 19:00	1.1	1.1	1.1	11	9.5	1.1	1.4	1.1	1.1	1.0	s	1.3	1.1	1.1	1.2	s	1.8	7.0	1.3	11.4	1.2	6.0	1.2	1.2	3.1	3.1	1.2	1.2	1.8	6.8	11.4	2.4
ļ	17.00 18.00		11	1.0	1.0	2.4	1.0	1.6	17	4.3	11	1.2	1.3	2.3	1.2	5.0	0.8	s	5.9	7.0	1:1	1.2	10	1.4	17	3.6	1.4	4.5	1.6	2.8	12.1	12.1	54
<u>.</u>	16:00	1.1	5.0	1.8	1.0	1.2	1.2	3.4	1.1	2.2	1.1	38.0	1.6	5.6	15	1.1	1.2	4.0	s	28.5	7.3	1.1	1.1	13	2.0	14.3	2.8	1.4	6.4	11.5	11.7	38.0	5.4
	15:00 16:00		3.0	1.7	1.1	1.1	1.4	3.8	1.1	1.6	1.6	6.0	3.1	1.6	1.8	1.3	3.6	5.6	8.5	s	4.7	1.8	45.0	1.3	22.7	3.8	5.0	33.6	2.8	11.3	15.3	45.0	9.9
	14:00 15:00	1.1	3.4	2.4	1.3	1.1	1.6	3.3	1.1	1.7	2.7	48.3	U	5.2	2.4	1.1	65 83	ø	89 (3)	6.6	s	22.0	1.4	1.2	1.6	23.4	7.6	13.7	4.5	12.9	14.4	48.3	7.6
	.13.00	2.1	1.6	3.9	1.5	1.1	1.9	5.8	1.0	1.7	1.6	3.5	U	4.2	3.6	1.3	9.9	ø	10.6	9.9	2.5	s	2.1	13	1.3	22.0	2.8	7.6	6.3	12.9	15.9	22.0	4.9
	12:00	1.1	1.1	4.3	50	1.3	2.0	4.8	1.1	1.4	1.5	4.8	U	8.5	6.1	1.4	5.0	ø	5.9	2.0	1.4	3.8	s	2.4	1.4	4.7	2.7	2.0	5.1	8.8	16.6	16.6	3.8
	11:00	1.2	1.8	2.3	4.1	1.1	2.5	3.1	1.2	1.0	1.9															3.6						20.1	
	10:00 11:00	1.2	1.0	1.8	4.7	1.1	5.6	3.8	1.1	1.0	1.4	3.5	U	2.8																	47.6	ı	
)	9:00	1.2	1.1	4.9	4.3	1.2	3.2	2.7	1.2	1.4	1.4	1.8	U				2.8	1.9	4.4	3.8	4.2	24.8	1.0	3.7	1.4	s					82.6		
•	8:00	1.2	1.1	2.7	4.5	3.0	2.1	3.5	1.2	1.1	1.1	1.8	15.1		•								1.0			1.6					41.3		
	7.00		1.1		3.4	1.4	3.4		1.1					2.4																	17.6		
	) 7.00	1.4	1.1										2.5	1.1									2.8	1.9	1.2	1.9	2.9			2.9			
	5.00	S	1.4		1.0	1.9			1.1	. 1.2	_	1.0	1.1	1.0						1.1			1.2	3 1.2	. 1.2	1.2	1,		1.9	S	2.2		1.6
	2:00 3:00 4:00 5:00 3:00 4:00 5:00 6:00	6.0	s 1	•		3 1.4						0 1.0	2 1.1	1.1	1.1	2 1.1		1 1.1	4 7.8							3 1.2		7 1.7	2 1.1	3 1.6	3 5		
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	00 1:00	2 1.	1.1 1.0	1.0 1.		1.0 \$		.5 1.2	1.2 1.	1.1 1.0		1.1 1.1	1.1 1.0	1.1 1.2		1.2 1.2		1.0 1.1	1.0 3.4						1.1				1.2 1.				1.2 1.
<u>.</u>	ART 0:00	- T		다 () ()					H	Π	Н	T	<del>ا</del>				100			17									<del>=1</del>	-		L	
MST	HOUR START. HOUR END	DAY 1	7	m	4	'n	ω	7	∞	O	2	Ħ	12	13	14	13	16	17	18	13	8	Ŋ	22	23	24	25	26	27	78	29	30	HOURLY MAX	HOURLY AVG

#### STATUS FLAG CODES

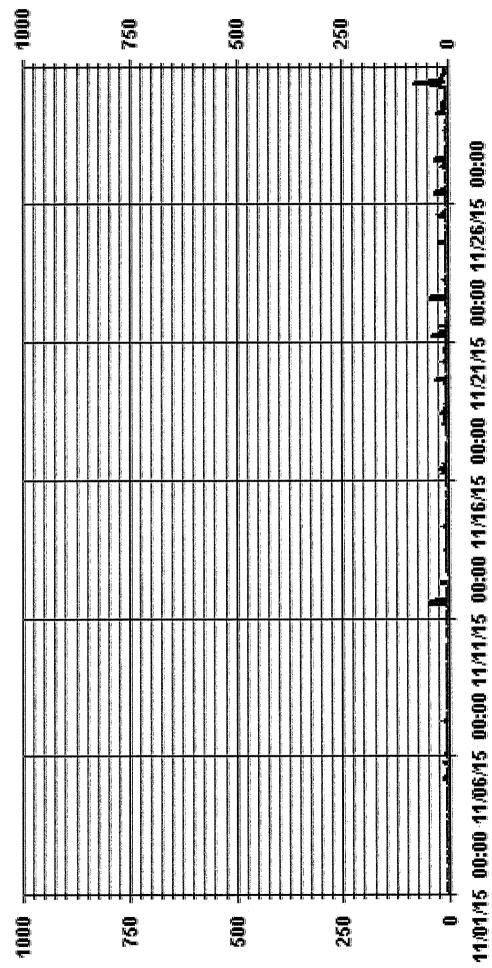
OUALITY ASSU RECOVERY MACHINE WAR O - OPERATOR ER X - COLLECTION ER	ATION: REMANCE: REMOSONALCHECK X ERQUINE: O NR REPAIR K
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#### ON DAY(S) VAR-VARIOUS თ @ HOUR(S) OPERATIONAL TIME: MONTHLY SUMMARY PPB 82.6 678 31 HRS 6 HRS 6.37 MAXIMUM INSTANTANEOUS VALUE: NUMBER OF NON-ZERO READINGS: IZS CALIBRATION TIME: MONTHLY CALIBRATION TIME: STANDARD DEVIATION:

720 HRS

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id Hour Averages



- LICA30 HOMAX

 $\label{eq:loss} \mbox{LICA30} \mbox{NO} \mbox{/ WDR Joint Frequency Distribution (Percent)}$ 

November 2015

Distribution By % Of Samples

Logger Id : 30 Site Name : LICA30 Parameter : NO\_ Units : PPB

Limit 50.0 < 110.0 < 210.0 > 210.0

WNW 9.13 00. 9.13 00. 4.12 4.12 Wind Parameter : WDR Instrument Height : 10 Meters 00. 00. 00. 5.59 5.59 WSW 00. 00. 00. 4.12 18.99 20.02 SW 4.12 18.99 20.02 00. 00. 00. SSW 00. 00. 00. 00. 00 00. Ø 4.56 4.56 00. SSE 00. 00. Direction 1.47 S 1.47 00 00. 00. ESE 1.76 1.76 00. 00 00. 3.82 3.82 00. 00. 00. 4.71 4.71 00. 00. 00. 5.44 00. 5.44 뜆 00. 00. 00. 4.56 4.56 Ä 00, 00 3.38 3.38 00. 00. 00. z

Freq

ž 3.97 00.

4.27 100.00 NNW

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Calm : .00 %

Totals

Total # Operational Hours : 679

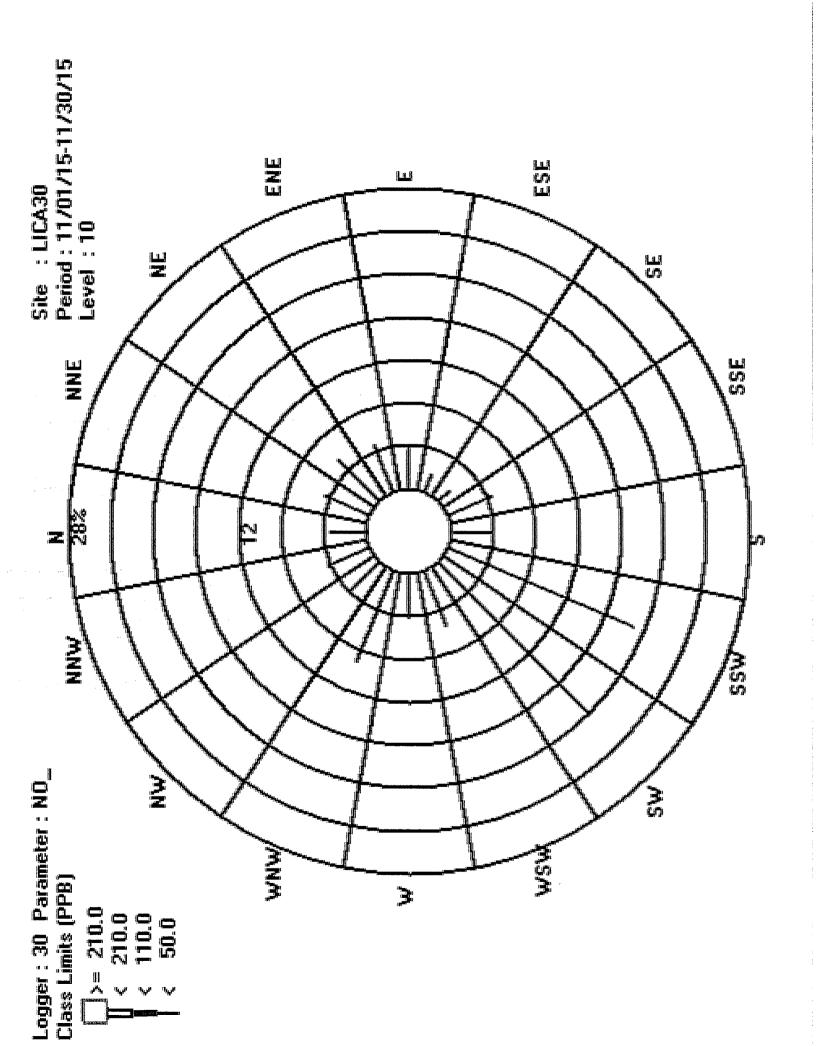
Distribution By Samples

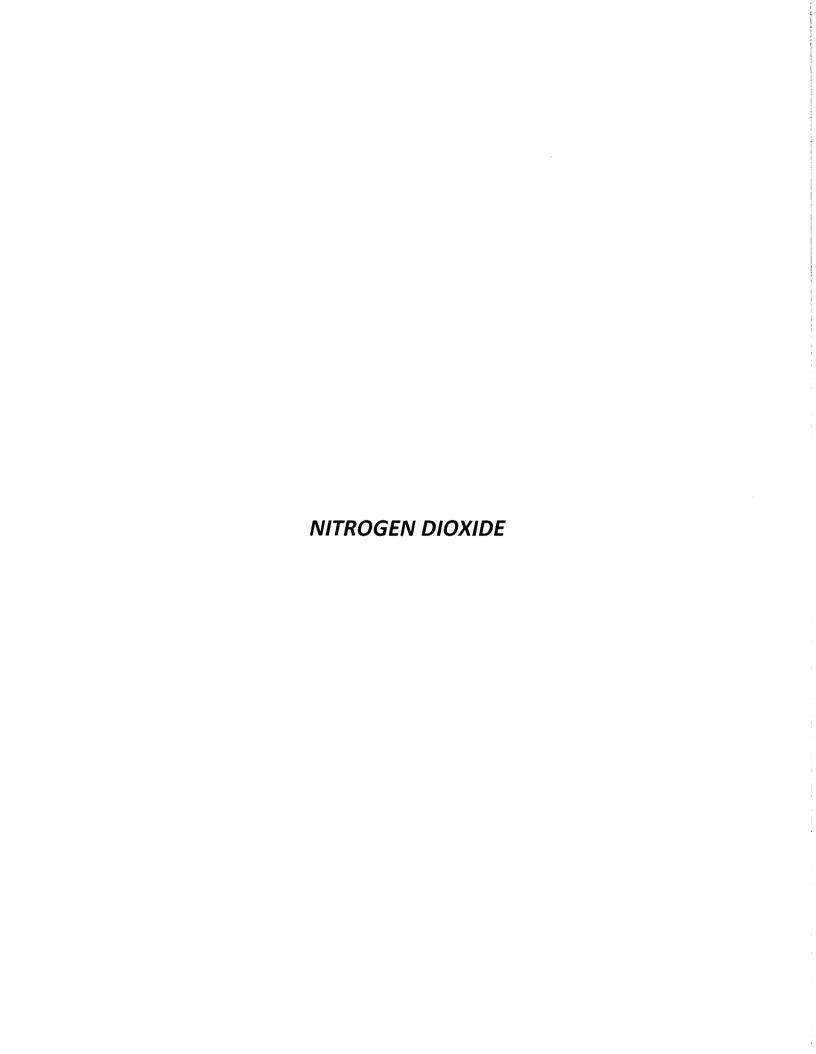
Direction

Freq	619				
NNW	29				29
WM	27				27
WNW	62				62
¥	28				28
WSW	38				38
SW	136				136
SSW	129				129
Ø	28				28
SSE	31				31
SE	10				10
ESE	12				12
Ħ	56				56
ENE	32				32
SE	37				37
NNE	31				31
z	23				23
Limit	50.0	110.0	210.0	210.0	Totals

Calm : .00 %

Total # Operational Hours : 679



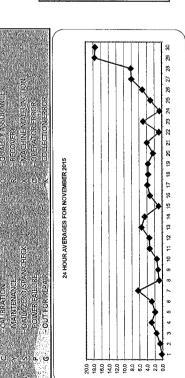




NITROGEN DIOXIDE (NO2) hourly averages in ppb

17.00- 18:00 18:00 20:00-72:00 22:00 23:00 DAILY 24+0UR 18:00 19:00 20:00 27:00 22:00 23:00 000 MAX AVG. RDGS.	0.0 0.0 0.0 0.0 0.0 0.0 0.7 0.2	3.0 0.3 0.1 0.2 0.6 1.1 1.3 0.9 4.3 0.7 24	1.1 0.8 1.0 2.3 2.3 3.9 2.9 4.2 1.6	2.0 1.7 2.3 2.4 1.9 1.6 2.5 5.8 2.9	0.4 3.6 4.3 0.3 0.0 0.0 0.0 7.1 2.0	2.0 2.8 4.4 4.8 4.0 2.7 <b>S</b> 8.0 2.8	10.3 10.7 10.0 8.3 7.0 <b>S</b> 11.8 11.8 6.4	0.1 0.1 0.2 0.1 <b>S</b> 1.1 0.4 8.1 0.9	3.0 1.4 3.5 <b>S</b> 4.1 3.2 1.5 4.1 1.1	4.6 3.9 <b>S</b> 3.5 2.6 2.1 1.4 4.6 1.5	2.6 <b>S</b> 7.2 9.0 7.9 6.0 3.0 9.0 3.4	2.7 2.4 3.0 0.6 1.9 <b>S</b> 3.7 9.7 3.4	14.1 9.0 9.2 14.9 <b>S</b> 4.9 3.8 14.9 5.5	4.3 3.3 2.2 <b>S</b> 1.7 1.2 0.8 9.5 4.6	3.7 0.9 <b>S</b> 2.4 0.3 0.1 0.4 3.7 0.9	1.9 <b>S</b> 3.2 2.8 3.7 1.6 1.7 8.2 3.2	<b>S</b> 8.4 6.1 5.2 5.6 3.2 2.1 8.4 3.9	0.2 4.9 0.5 0.5 0.2 0.1 0.3 8.2 3.7	8.3 5.3 3.9 4.4 6.0 6.1 8.3 9.8 3.7	2.1 1.4 1.4 1.9 2.4 2.6 2.7 6.2 2.4	3.9 3.1 1.9 1.8 0.2 0.0 0.0 9.4 4.0	0.1 0.3 4.1 0.4 0.3 0.2 0.4 4.3 0.8	5.3 5.2 3.9 1.3 0.2 0.4 0.2 16.7 5.0	0.6 0.3 0.5 0.0 0.2 1.9 3.1 3.1 0.6	4,4 8.2 5.0 0.8 8.1 3.2 2.8 8.2 3.0	6.6 7.0 6.5 6.0 6.9 5.4 5.7 14.1 5.1	7.0 6.2 0.9 0.0 0.0 0.0 18.7 8.0	9.5 9.0 9.5 9.2 12.6 17.6 15.6 18.1 8.1	21.8 17.6 13.9 16.3 16.3 15.6 11.8 26.5 <b>17.6</b>	29.8 27.9 25.0 21.4 20.2 17.2 14.6 29.8 17.5	29.8 27.9 25.0 21.4 20.2 17.6	5.3 5.2 4.8 4.3 4.2 3.7
10.00 11.00 12.00 13.00 14.00 15.00 15.00 16.00 15.00 15.00 16.00 15.00	0.3 0.3 0.6 0.0	0.1 0.0 0.1 0.5 1.8 4.3	1.7 3.6 4.2 3.6	3.1 1.6 1.9 1.8	0.0 0.5 0.3 0.2	3.1 0.9 0.4 0.5	5.3 6.1 6.1 6.6	0.1 0.0 0.1 0.1	0.0 0.1 0.4 1.5	1.6 1.4 1.3 1.5	3.5 3.1 2.4 3.8	υ υ υ	3.1 6.6 3.3 5.8	5.2 5.4 3.2 3.5	0.3 0.4 0.3 0.2	0.5 4.0 6.0 7.6	0 0 0	5.5 3.3 5.4 4.4	1.2 0.2 3.2 6.8	0.3 0.2 0.4 S	4.7 4.6 <b>S</b> 3.8	4.3 <b>S</b> 2.3 0.1	\$ 2.3 0.5 0.9	0.5 0.4 0.1 0.2	3.1 3.7 3.4 2.6	3.3 2.4 2.3 3.7	4.7 0.6 7.4 5.0	5.9 6.9 9.7 9.3	12.5 9.7 11.2 16.9	16.1 16.4 18.4 20.9	16.1 16.4 18.4 20.9	3.3 3.1 3.5 4.2
#200   5:00   5:00   5:00   5:00   5:00   5:00	S 0.3 0.4 0.4	S 0.0 0.3 0.1 0.2 0.2	0.1 0.3 1.2 2.6	2.7 4.1 5.7 5.8	5.0 7.1 0.6 1.4	0.4 0.1 2.0 3.7	3.3 3.9 7.2 6.4	0.2 0.5 0.0 0.3	0.3 0.1 0.1 0.0	0.3 0.5 0.8 0.8	1.4 1.4 1.8 1.6	1.3 2.3 9.7 8.4	2.7 4.2 4.8 2.8	3.6 5.4 5.7 9.5	1.0 0.7 0.3 0.3	8.2 5.0 3.6 7.9	2.3 2.4 2.9 3.0	5.8 1.8 7.0 3.4	0.9 1.8 2.1 3.4	2.0 2.5 4.7 3.3	7.9 9.0 9.4 8.4	0.0 0.2 0.6 0.4	0.4 10.5 16.7 13.3	0.5 1.6 0.9 1.6	0.4 0.4 3.9 1.6	14.1 12.2 9.3 <b>S</b>	17.2 18.7 \$ 12.4	18.1 <b>S</b> 9.7 9.3	<b>S</b> 24.5 26.5 25.1	8.6 8.5 11.6 17.6	26.5 25.1	3.9 4.5 5.1 5.3
MST HOURSTARE 0:00 E00 2:00 8:00 4 HOUREND E00 2:00 3:00 4:00 5	0.4 0.7 0.5	0.0 0.0 0.0 0.0	0.1 0.1 S	3.5 \$ 3.9	<b>S</b> 7.0 6.3	3.8 8.0 4.8	3.3 2.9 3.1	6.0 1.1 0.7	0.1 0.0 0.0 0.0	0.6 0.5 0.2	1.3 1.0 1.3 2.6	1.8 2.7 3.9 3.1	2.1 2.0 3.7 2.8	3.3 1.6 7.7 7.9	1.1 2.3 2.2 1.9	0.4 0.7 3.5 3.1	3.7 3.2 2.2 1.4	0.1 0.3 6.7 4.2	1.7 0.0 1.4 2.8	1.4 6.2 4.1 3.4	3.2 3.2 3.6 4.1	0.0 0.0 0.0 0.0	1.0 14.7 4.7 11.5	0.1 0.2 0.0 0.2	2.0 2.7 2.0 0.5	1.1 0.9 0.4 0.5	7.7 10.4 14.6 16.2	0.0 0.0 0.4 1.5	16.2 18.1 21.8	10.4 10.8 8.2	16.2 18.1 21.8	3.3 3.8 4.0

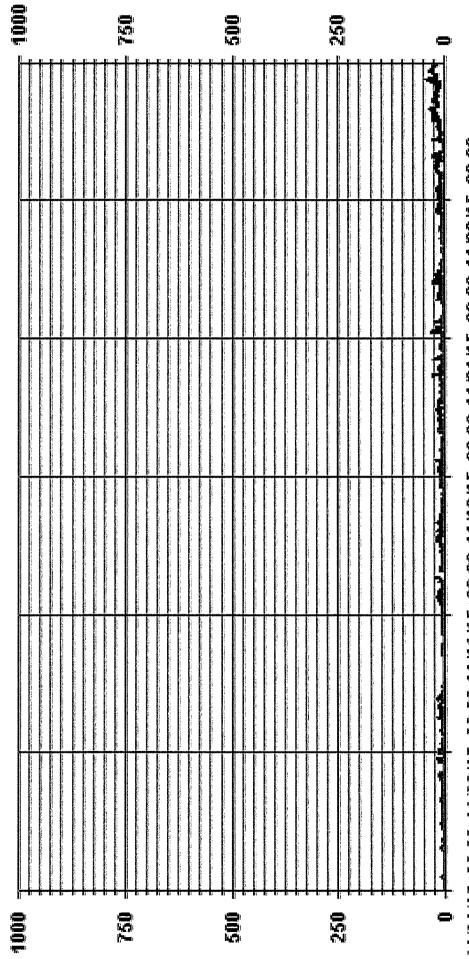
## OBJECTIVE LIMIT: STATUS FLAG CODES



## ALBERTA ENVIRONMENT: SEHR 159 REB

		δ	MONTHLY SUMMARY				
		0					
		629					
	29.8 17.6	PPB	PPB @ HOUR(5) PPB	17	ON DAY(S) ON DAY(S) VAR-VARIOUS	% 2	29
	31 HRS 5 HR5		OPERATIONAL TIME: AMD OPERATION UPTIME:	E: IPTIME:		720 100.0	HRS %
- 13	5.12		MONTHLY AVERAGE:	ئن		4.2	PPB

it hour Averages



11/01/M5 00:00 11/06/M5 00:00 11/M1/M5 00:00 11/M6/M5 00:00 11/21/M5 00:00 11/26/M5 00:00

PPB

- LICA30 NO2MAX



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C

# NITROGEN DIOXIDE MAX instantaneous maximum in ppb

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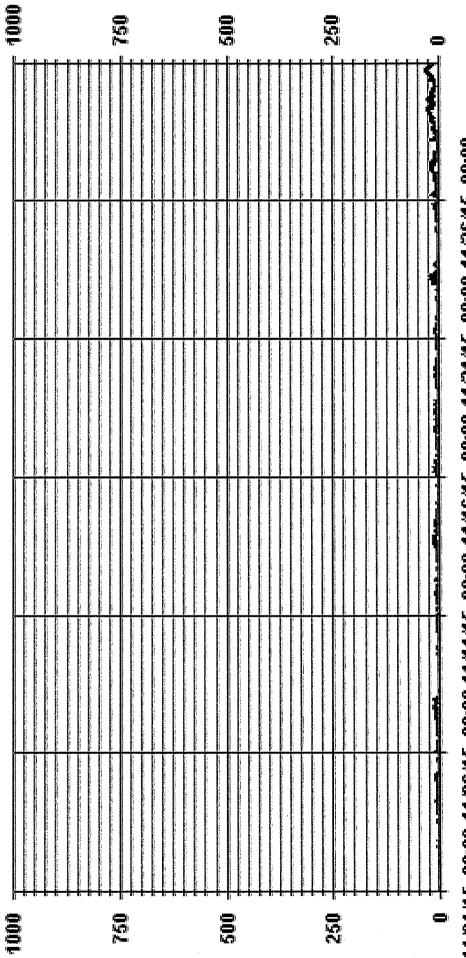
	RDGS.	24	54	54	24	75	54	24	24	54	24	24	24	24	24	24	77	77	77	77	77	24	24	77	24	77	77	54	54	24	54		
	24-HOUR AVG.	0.6	1.7	5.9	4.1	4.5	5.3	7.6	2.2	1.9	2.1	6.0	6.7	7.6	6.7	2.4	6.9	5.8	9.0	7.1	5.4	7.8	3.3	9.1	52	6.9	7.9	12.0	11.1	20.8	21.7		
	DAILY	4.5	7.5	6.0	8.2	16.8	13.5	18.0	15.7	6.7	5.8	18.8	50.6	17.2	14.9	8.6	14.8	13.7	19.9	26.1	17.3	33.0	15.1	27.1	7.1	18.6	18.9	26.5	26.0	30.9	36.0		
The second second	0.00	0.1	2.0	4.8	3.1	0.0	s	18.0	0.5	3.1	2.5	5.3	5.3	8.9	1.9	9.0	2.5	4.7	1.8	13.0	3.7	0.2	3.5	0.2	9.9	4.6	7.2	0.4	26.0	19.6	16.6	26.0	5.7
Harris Control of the	22.00	0.2	3.0	2.0	2.7	0.4	3.7	s	1.6	9,6	3.1	7.3	s	9.9	2.4	8.0	2.5	6.8	5.9	13.1	3.5	0.2	1.5	0.5	7.1	4.8	6.9	0.5	25.4	19.3	18.8	25.4	5.5
September 1	22.00 22.00	0.1	3.0	4.3	2.8	0.5	6.1	8.1	s	4.6	3.7	10.2	4.6	s	3.4	1.1	5.2	7.1	9.0	8.6	3.5	1.4	1.8	1.0	2.9	16.8	6 6	0.3	16.5	19.9	23.4	23.4	6.1
200000000000000000000000000000000000000	20:00	0.1	2.2	3.1	3.4	5.6	5.8	9.6	9.0	s	5.5	10.7	3.9	17.2	Ŋ	9.3	4.7	6.5	1.9	5.7	3.0	3.0	3.1	3.2	4.9	2.1	7.1	0.1	10.5	19.3	25.2	25.2	6.3
March (2003) (1903)	18:00 - 19:00 19:00 - 20:00	0.1	0.1	1.7	3.5	16.8	5.3	11.5	9.0	5.0	s	8.7	6.4	13.9	3.5	s	4.9	7.7	1.4	5.1	2.2	5.3	10.7	2.0	1.9	9.5	8.1	3.6	10.3	17.0	26.6	26.6	7.0
X	18.00	0.3	0.1	1.7	2.6	15.0	4.9	11.9	9.0	2.4	5.4	s	6.3	12.0	4.5	2.8	s	11.5	15.8	6.8	12.2	6.5	1.7	6.4	1.6	11.4	8.5	6.9	10.0	20.8	28.8	28.8	7.9
200000000000000000000000000000000000000	17.00 18.00	0.2	9.0	2.0	2.7	4.0	2.9	10.4	0.5	6.7	5.8	4.4	8.9	16.1	6.3	8.6	3.5	s	3.2	14.8	3.9	6.5	0.7	6.1	1.1	9.2	8.4	16.6	12.1	24.6	30.7	30.7	7.6
- 7	15:00	1.7	6.0	2.3	2.8	0.8	3.2	10.4	9.0	4.8	2.0	18.8	6.9	16.4	6.7	1.3	3.2	13.7	s	26.1	8.2	3.4	0.8	7.1	2.4	18.6	7.9	6.7	15.6	26.5	30.7	30.7	8.8
P	15:00 16:00	0.2	7.2	4.1	2.7	8.0	1.5	7.6	9.0	8. 6.	2.0	7.7	6.9	8.8	5.8	1.8	7.8	7.3	13.1	s	5.6	3.9	15.1	5.9	6.8	5.8	6.4	26.5	10.7	24.7	27.3	27.3	7.9
900000000000000000000000000000000000000	14:00 15:00	0.1	7.5	4.9	2.7	0.5	1.5	8.1	0.4	2.9	2.5	15.1	U	7.8	5.4	0.2	14.8	ø	13.2	1.6	s	21.9	3.0	2.1	1.6	12.0	8.7	19.8	10.9	19.9	23.3	23.3	8.1
- 6	13:00	3	3.6	6.0	2.5	0.7	1.9	7.7	0.5	1.7	1.8	4.0	ပ	5.2	5.8	1.0	10.0	ø	11.7	9.1	1.1	s	5.2	12	1.0	11.2	4.1	15.1	11.5	15.8	19.4	19.4	6.1
and the same of	12.00	0.3	0.0	5.8	2.8	6.0	2.2	8.0	1.0	9.0	1.8	4.6	ပ	9.0	7.7	1.4	7.2	ŏ	8.3	1.4	9.0	6.0	s	4.3	1.5	5.9	3.9	1.3	8.5	13.0	18.3	18.3	4.7
į.	11:00	8	1.8	2.6	4.8	0.4	5.5	6.3	1.0	0.1	2.0	5.8	U	6.5	6.1	0.5	3.7	ď	19.9	3.1	2.1	6.9	8.2	S	1.9	4.6	5.7	8.8	7.0	13.8	17.7	19.9	5.4
- 1	10:00 11:00		0.1	1.8	5.3	0.4	6.9	6.4	1.0	0.5	1.8	5.8	U	3.2	<u>წ</u>	1.7	6.3	ď	12.4	3.9	5.0	7.0	11.4	11.4	s	4.5	18.9	14.7	7.5	16.4	26.0	26.0	7.1
50	9:00 10:00	0.4	0.1	2.5	6.1	0.2	6.4	5.8	1.2	1.0	1.6	3.1	U	4.0	10.1	2.8	5.2	3.4	10.0	6.9	5.5	15.9	9.0	12.0	2.1	s	6.8	19.7	8.6	21.4	,	36.0	7.1
15	00.6		0.2	4.6	7.4	4.5	5.3	7.1	2.4	0.2	1.5	2.8	20.6	4.2	14.9	0.7	12.7	4.1	10.3	5.7	12.1	13.7	1.5	15.1	3.0	3.2	s	15.5	12.2	27.8		29.9	
100500000000000000000000000000000000000	2.00 8:00	8	0.1	3.9				11.4		0.2						1.3			11.7			11.6					-	s	11.9	30.9	22.7	30.9	8.3
Sec. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	6:00 7:00	1.5	0.3	1.5	5.4	14.6	1.7	4.5	1.1	9.0	0.8	4.2	11.2	5.7	7.2	1.5	12.4	3.6	7.9	3.3	4.5	33.0	1.8	19.7	2.7					27.4	6.6	33.0	7.8
Bredding Spe	5:00 6	S	6.0	0.7	3.5	7.2	2.3	3.8	1.1	9.0	0.5	2.6	2.2	4.1	4.7	1.9												18.5			10.5	24.9	5.4
200	5:00	9.0	s	1.5	3.6	6.5	7.9	3.3	1.5	0.5	0.8	2.3	2.5	3.5	8.7	2.5	4.7	2.3	13.2	3.1	4.6	6.4	0.0	13.0	1.0	1.1	13.9		11.7				
42 FIRST W. 47 FIRST	3.00 4:00	1		s																							1.6				11.2		
	3:00	1		0.2																							1.6	16.8				19.7	
- 9	1:00 7:00	1		0.3																												ŀ	
- 15	0.00		1.0	11	3.9	3.6	s	4.3	15.7	0.2	0.7	22	3.2	3.5	6.9	2.4	0.4	6.5	1.6	6.1	4.7	4.2	0.1	12.7	0.1	6.7	2.5	10.1	0.5	16.2	15.0	16.2	4.7
	HOUR START HOUR END	≨ ∴DAY 1	٨	en.	4	٠.	Φ	7	œ	0	10	1	12	13	14	15	16	17	<b>2</b>	19	20	21	22	23	24	\$2	- 56	22	28	23	œ	HOURLY MAX	HOURLY AVG

#### STATUS FLAG CODES

I					
					1
	Щ		NON		~
	SSURAN		MATE	ERROR	COLLECTION ERROR
	AUTYA	OVERY	GHINE	PERATOR	LECTO
	no	REC	Σ	<u></u>	8
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	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		¥		
	1		N CHEC		
	NOL	VANCE	ERO/SPAN	FAILURE	- OUT FOR REPAIR
	AUBRA	AAINTEI	AILY ZE	OWER	SUT FOR
	5		¥.		٠
	Ü	*	S	۵.	U
	糖	鄉	W.		

			N.O.	NOTE THE SOMEWAY	I VIVIAIIA				
NUMBER OF NON-ZERO READINGS:	22		671						
MAXIMUM INSTANTANEOUS VALUE:	ü		36	PPB	@ HOUR(S)	б	ON DAY(S)	÷	30
						4>	VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS		OPERATIC	OPERATIONAL TIME:			720	HRS
MONTHLY CALIBRATION TIME:	9	HRS							
STANDARD DEVIATION:	6.60								

Od Hour Averages



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

ppB

■ LICA30 NO2\_

LICA30 NO2\_ / WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

Logger Id : 30 Site Name : LICA30 Parameter : NO2 Units : PPB

NNW Freq 4.27 100.00 00. 4.27 00. 00. M 3.97 3.97 00. 00. 00. 9.13 WNW 9.13 00. 00. 00. 4.12 4.12 Wind Parameter : WDR Instrument Height : 10 Meters 00. 00. 00. 5.59 5.59 00. 00. 00. 4.12 18.99 20.02 SM 18.99 20.02 00. 00. 00. SSW 00. 00. 00. 4.12 00. 00. 00. Ø 4.56 4.56 SSE 00. % 00. 1.47 Direction SE 1.47 00. 00. 00. 1.76 ESE 1.76 00. 00. 00. 3.82 3.82 % 00. 00. 4.71 4.71 00. ENE 00. 00. 5.44 5.44 00. Ä 00. 00. 4.56 4.56 00. 00. 00. 3.38 3.38 00. 00. 00, z Totals Limit 50.0 < 110.0 < 210.0 >= 210.0

00. 00. 00.

Total # Operational Hours: 679

Calm : .00 %

Distribution By Samples

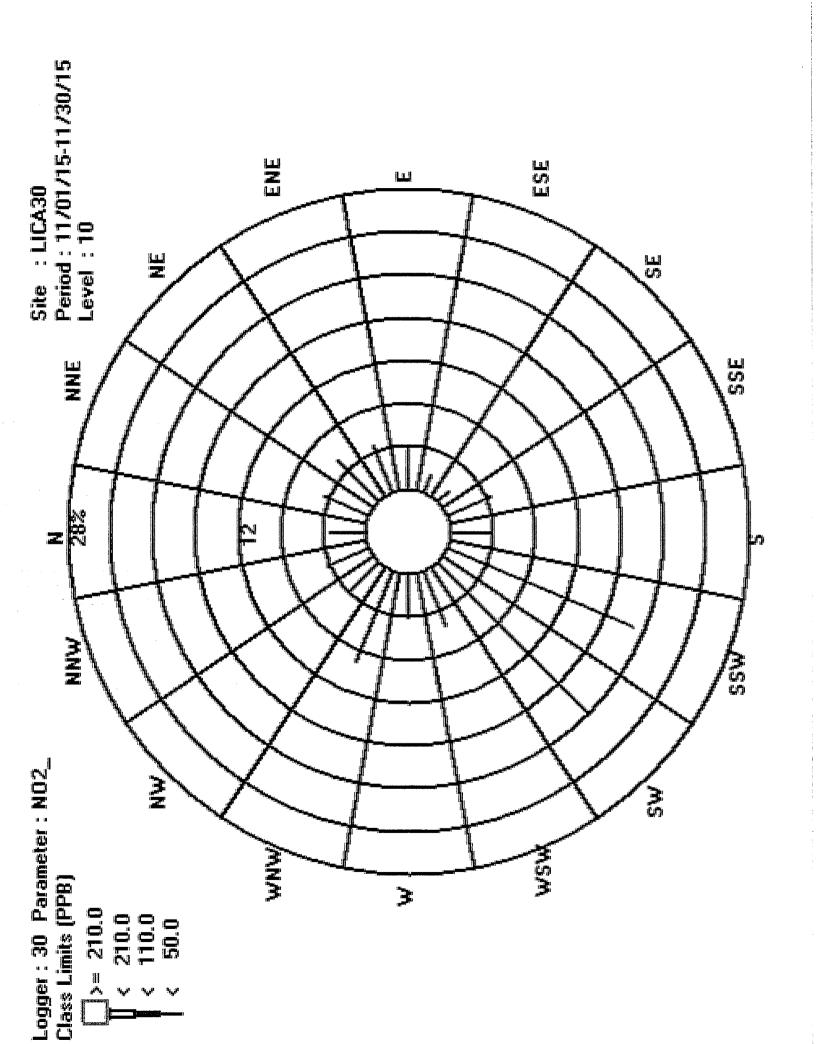
Freq

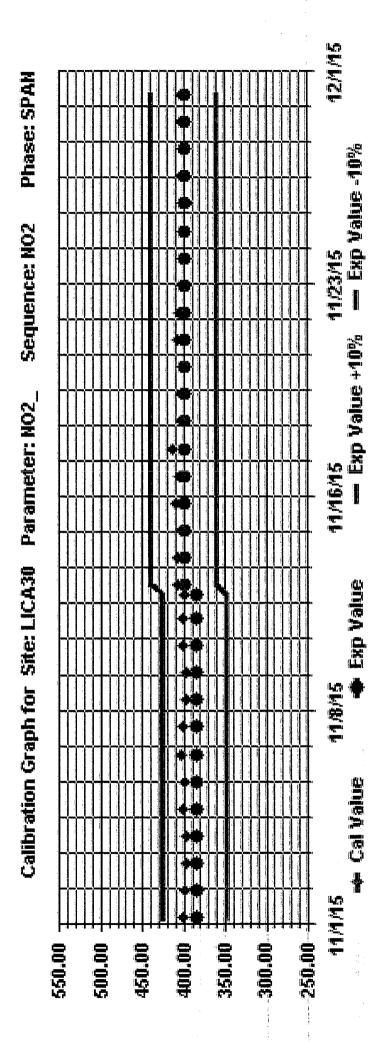
619

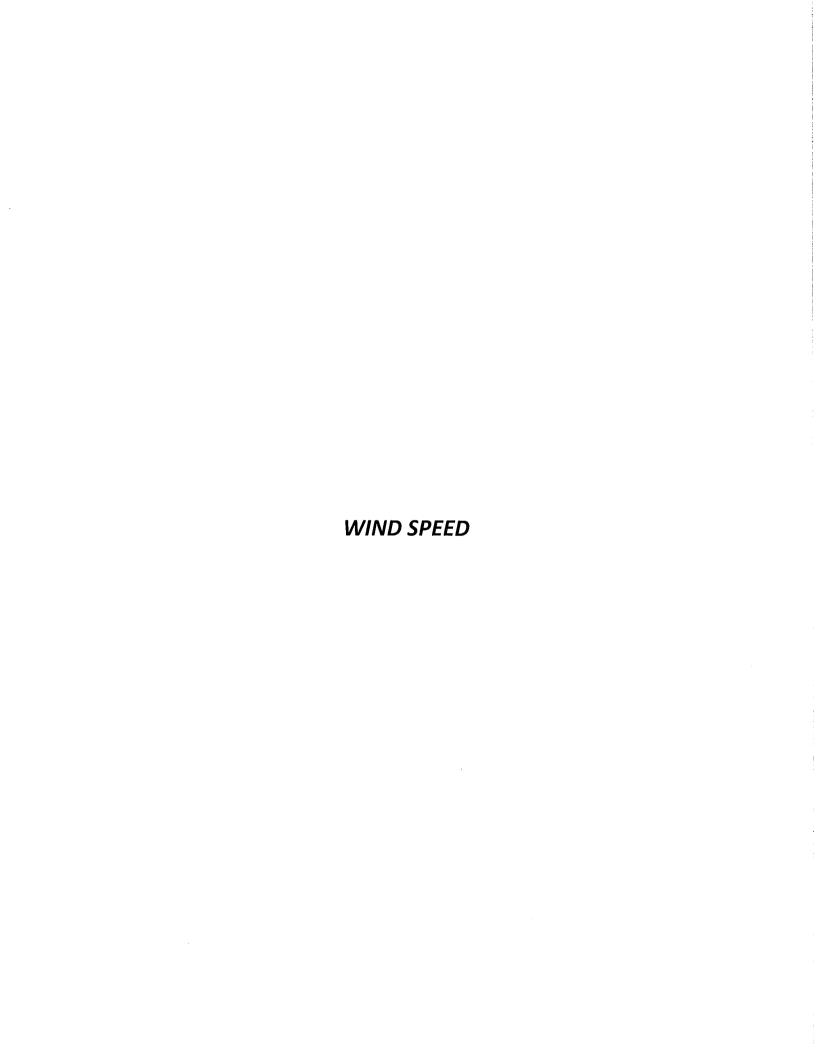
NNW 29 MZ 27 WINIW 62 62 28 38 WSM 38 SW 136 136 129 SSW 129 28 28 SSE 33 31 Direction SE 유 10 ESE 12 12 26 32 32 뛷 37 Z 31 얾 23 z 23 Totals 50.0 Limit < 110.0 < 210.0 >= 210.0

Calm : .00 %

Total # Operational Hours : 679







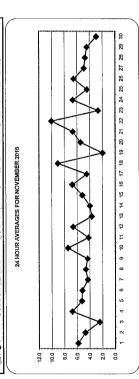


Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C

## WIND SPEED (WS) hourly averages in km/hr

3						and the same of th						•		}	,	1		1			- 1			
1.0	000	HOUR START 0:00 1:00 2:00 HOUR END 0:59 2:59	3:00 3:59	3:00 4:00 5:00 3:59 4:59 5:59	5:00	6:00 6:59	7:00 8:00 7:59 8:59	.00 9.00 59 9.59	00 10:00 39 10:59	30 11:00 59 11:59	00 12:00 39 12:59	0 13:00 9 13:59	0 14:00 9 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 2 20:59 2	21.00 25 21.59 22	22:00 23:00 22:59 23:59	DAILY MAX	24-HOUR AVG.	RDGS.
'n	7	5.8	5.6	5.7	5.8	6.5								6.8	5.2	6.2	6.2	4.2					5.9	24
4	0	4.2	5.1	4.5	5.6	5.3	5.0 5	5.5 5.4	4 5.2	2 5.3	3 5.9	5.1	6.3	5.8	4.4	3.9	4.5	2.9	3.3	4.3 4	4.4 3.5	6.3	4.8	54
ö	თ	2.3	3.4	1.6	1.2	1.3								3.0	5.9	3.0	1.8	3.1					2.5	54
4.1	Η.	4.5	4.7	4.6	8.8	5.1								9.4	7.9	7.1	7.4	7.4					6.8	54
m	00	3.6	2.3	2.3	2.8	4.4								8.6	9.9	5.4	5.9	7.6			5.9 5.3		5.3	54
4	7:	5.4	6.3	2.8	2.3	3.1								5.0	4.1	5.7	6.0	8.1					5.2	24
4	0,	6.4	5.9	7.4	6.4	6.2	4.1 5							3.6	5.2	4.4	2.6	3.9	2.3				4.4	24
(4	4	2.2	2.3	1.6	2.1	1.8	2.2 1	2 2.0	0 3.3					6.7	6.5	9.9	7.7	9.3					4.7	77
~	3.7	8.3	7.3	2.7	4.4									0.2	1.6	1.8	2.4	3.4	4.0				4.4	74
.,	5.5	4.5	7.2	9.9	7.3	8.8	6.7 8							6.3	5.1	5.6	7.0	7.6					7.5	54
_	5.2	9.9	4.3	3.7	4.7	3.6								4.6	3.4	3.3	4.6	4.4	4.5				4.3	74
•	7	4.3	3.9	3.4	8.8	4.5	5.5 6							4.8	6.2	89 53	8.1	9.5					9.9	54
۰,	4.5	4.0	3.7	2.5	3.3	2.9								3.8	5.4	4.1	3.7	4.1					3.7	54
	3.9	5.3	5.5	3.5	2.8	4.3								4.7	1.7	1.1	2.2	4.7					4.0	24
,	3.7	4.4	3.7	3.7	6.1			5.7 7.8						7.1	5.7	5.4	4.2	3.9	2.2				5.2	24
	2.0	3.5	6.5	7.3	7.7									7.0	3.5	4.4	5.3	5.5					6.8	77
	9.5	9.7	9.4	6.5	4.5			3.9 4.4						3.9	0.7	6.0	1.8	1.6					4.5	54
	7.2	10.9	8.5	10.0	12.5									10.8	8.9	6.9	6.4	5,5					9.1	54
	2.3	2.3	1.8	5.0	2.0	3,8								1.2	2.8	4.0	2.3	1.5		1.5	2.3 3.3		2.0	54
	8.	1:1	5.0	2.7	3.5									2.7	4.9	7.1	7.1	8.6					5.5	75
	6.4	7.7	8.4	5.7	6.3									5.4	7.4	5.8	2.0	6.2	5.5				6.7	75
• •	11.0	11.9	8.6	5.5	9.3			0.1 10.7	.7 11.4				11.5	11.1	10.0	8.9	8.8	9.5			8.1 5.3	13.2	10.1	24
	4.7	4.8	4.3	3.8	3.5									2.2	1.2	9.0	8.0	1.9					2.7	54
	8.5	7.1	7.1	5,9	8.8									4.7	4.3	3.8	3,5	4.6			5.2 4.8		6.7	54
	5.0	4.7	4.2	5.1	5.1									4.3	3.7	4.4	9.6	3.2		2.6			4.5	74
	3.2	1.9	6.0	3.2	3.8	4.6								11.3	7.4	10.5	10.8	8.7	4.3	5.4			9.9	54
	6.3	9.9	7.1	6.9	6.3									3.5	3.7	1.6	2.1	2.8	3.0	2.5	1.7 1.6		5.0	54
	1.4	5.6	3.0	5.1	8.3			3.5						6.1	3.9	4.7	4.3	5.6	4.6	3.9			4.8	54
	9.9	4.9	4.6	4.1	4.7									4.5	3.5	2.4	3.8	3.9	3.1	1.6 4	4.0 2.2		4.5	74
	2.8	1.6	2.1	11	5.0	1.4	3.3	3.7 2.6	6 3.2		1 5.3			5.6	4.9	3.0	4.2	3.1	0.9	0.6	2.5 1.3		3.0	24
l	11.0	11.9	8.6	10.0	12.5	11.9		2.5 11.2					11.5	11.3	10.0	10.5	10.8	8.6	10.3	9.8	11.4 9.4	İ		
	9,4	5.1	2.0	4.6	5.0									5.6	4.8	4.7	4.8	5.2						

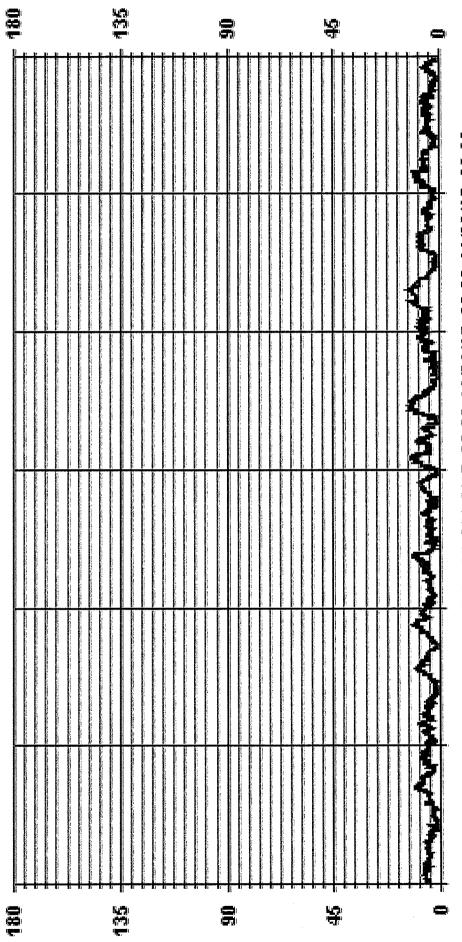
	LAST CALIBR DECLINATION
STATUS FLAG CODES	C -CALIBRATION O - GUALITY ASSUBANCE Y - JANAINIERANICE R - RECOVIERS S - GAINI-ZEROJSPANCHECK X - MACHINE MALPUNCTION P - FOWERFALURE D - OPERATOR ERROR G - OUT FOR REPAIR K



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

			Μ	MONTHLY SUMMARY				
NUMBER OF NON-ZERO READINGS:			720					
MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:		13.2	KPH KPH	КРН @ HOUR(S) КРН	13	ON DAY(5) ON DAY(5) VAR-VARIOUS	2,22	2,2
MONTHLY CALIBRATION TIME:	0	HRS		OPERATIONAL TIME: AMD OPERATION UPTIME:	IE: UPTIME:		720	% HRS
TANDARD DEGLATION:	6			MONTHIN AVERAGE.	ú		KPH	10.

Of Hour Averages



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

KPH

- LICA30 WSP



#### JOB # 2833-2015-11-30- C Maskwa Site - NOVEMBER 2015 LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

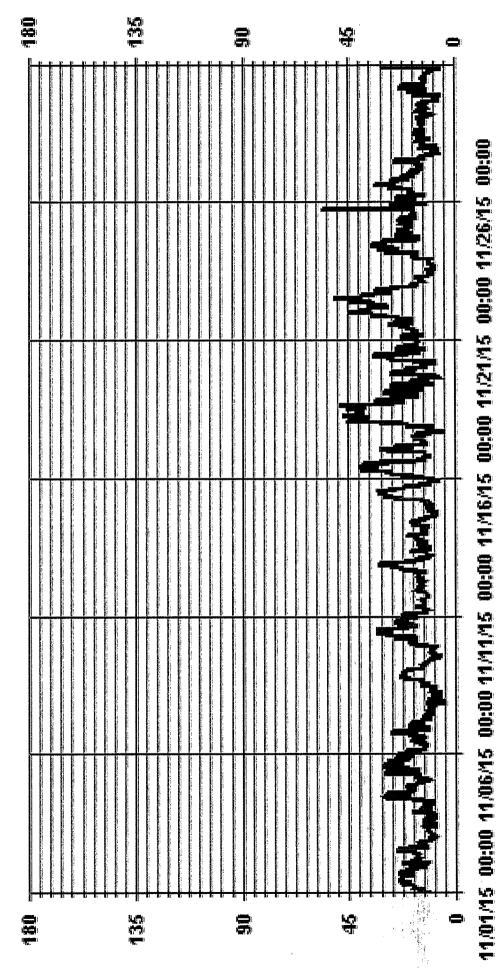
# VECTOR WIND SPEED MAX instantaneous maximum in km/hr

#### STATUS FLAG CODES

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-	
	TTON
	ASSURANC MALFUNI R ERROR ON ERROR
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	QUALI RECOV MACH OPERA COLLE
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	VICHEO
	ON ANCE O/SPAT ALURE REPAIR
	ALIBRATI AINTENV AILY ZER DIWER FD UT FOR F
	- NA PAN - OU
	ט ב א ≺ ט

	QV.	MONTHLY SUMMARY	MMARY				
MAXIMUM INSTANTANEOUS VALUE:	56.3	КРН	KPH @ HOUR(S)	18	18 ON DAY(S)		22
				VAR-V	VAR-VARIOUS		
		OPERATI	OPERATIONAL TIME:			720 HRS	HRS

ir Hour Averages



KPH - LICA30 WSMAX

LICA30 WDR Joint Frequency Distribution (Percent)

November 2015

Distribution By % Of Samples

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

Wind Parameter : WDR Instrument Height : 10 Meters

Direction

	Fred	63.61	35.69	69.	00.	00.	00.		
	MNN	2.91	1.11	00.	00.	00.	00.	4.02	
	MN	2.22	1.66	.13	00.	00.	00.	4.02	
	WNW	2.63	5.69	.55	00.	00.	00.	8.88	
	¥	3.61	.41	00.	00.	00.	00.	4.02	
	WSW	5.55	.13	00.	00.	00.	00.	5.69	
	SW	16.52	3.47	00.	00.	00.	00.	20.00	
	SSW	9.16	10.69	00.	00.	00.	00.	19.86	
	w	2.63	1.52	00,	00.	%	00.	4.16	
	SSE	1.94	2.63	00	00.	00.	00.	4.58	
DITECTION.	SE	1.11	.27	00	00.	8.	00.	1.38	
1	ESE	1.66	.13	00.	00.	00.	00.	1.80	
	ы	2.08	1.66	00.	00.	00.	00.	3.75	
	ENE	3.75	.83	00.	00.	00.	00.	4.58	
	Ä	2.91	2.50	00.	00.	00.	00.	5.41	
	NNE	3.19	1.25	00.	00-	00.	00.	4.44	
	z	1.66	1.66	00.	00.	00.	00.	3.33	
	Limit	0.9	12.0	20.0	29.0	39.0	39.0	Totals	
		٧	٧	<b>v</b>	٧	٧	X		

Calm : .00 %

Total # Operational Hours : 720

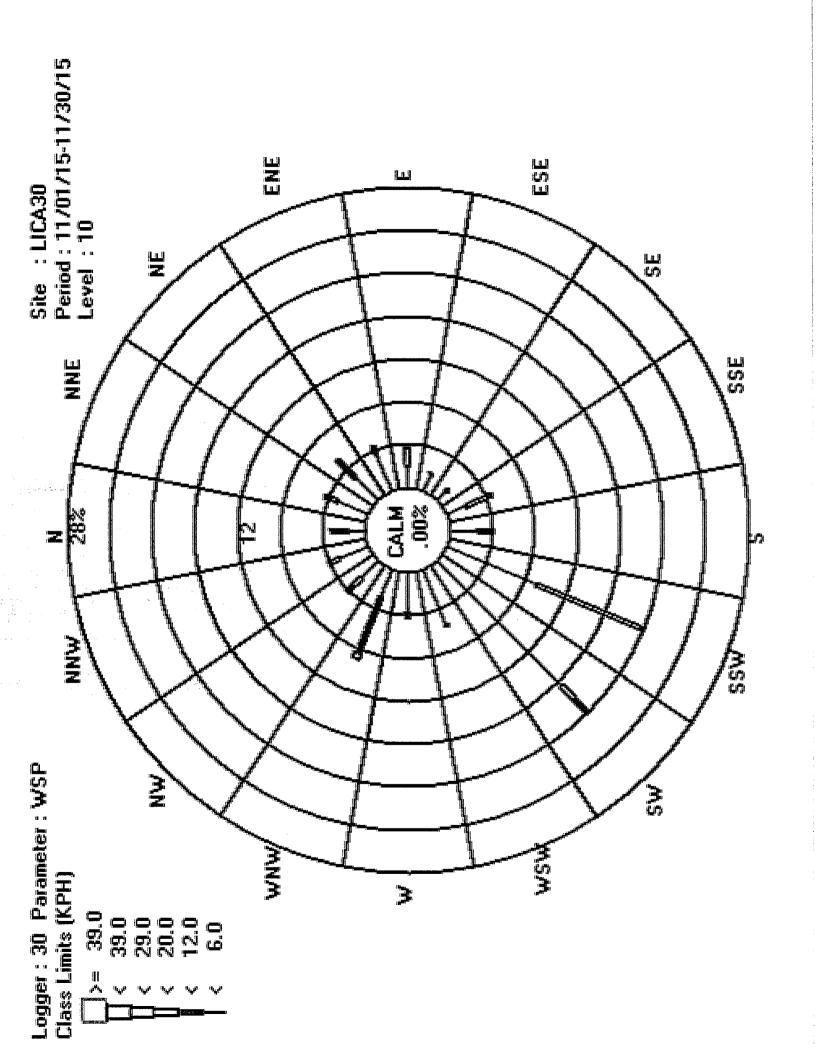
Distribution By Samples

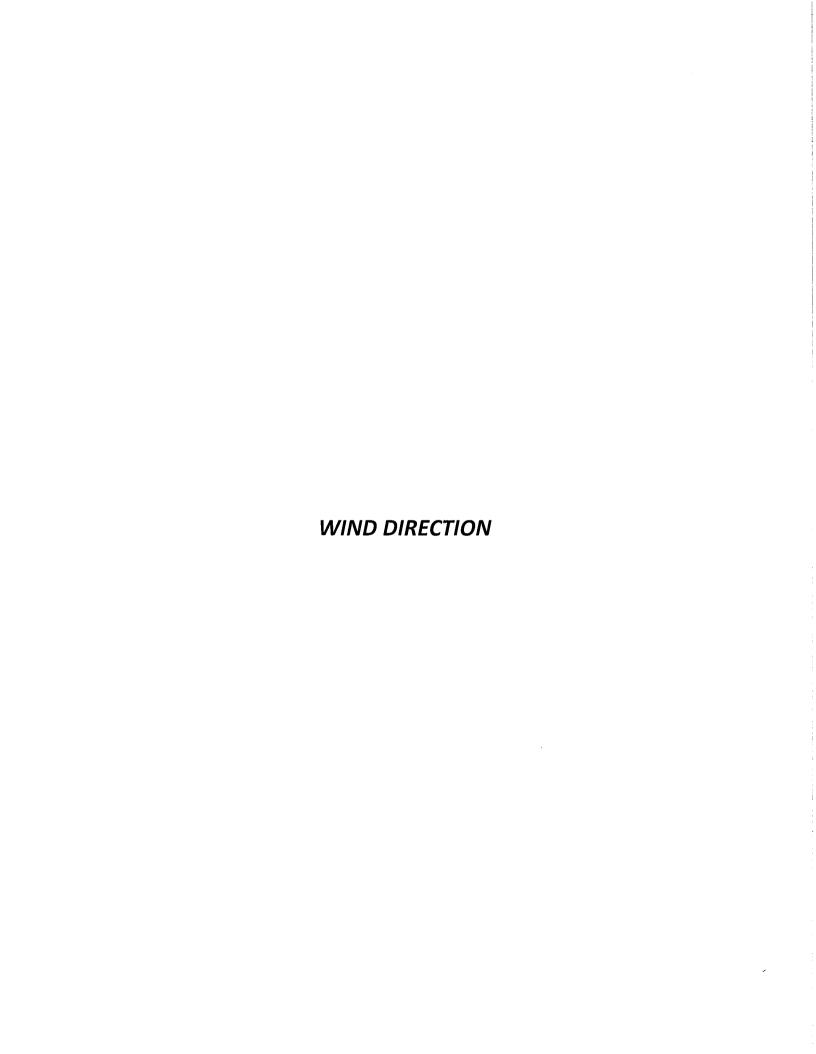
Direction

Fred	458	257	ιΩ				
NNW	21	ω					29
MN	16	12	н				29
WNW	19	41	4				97
м	26	м					29
WSW	40	н					41
SW	119	25					144
SSW	99	77					143
Ø	19	11					30
SSE	14	19					33
SS	ω	8					10
ESE	12	7					13
ы	15	12					27
ENE	27	9					33
Ä	21	18					39
NNE	23	თ					32
z	12	12					24
Limit	0.9	12.0	20.0	29.0	39.0	39.0	Totals
н	٧	٧	٧	٧	٧	*	E*I

Calm : .00 %

Total # Operational Hours : 720







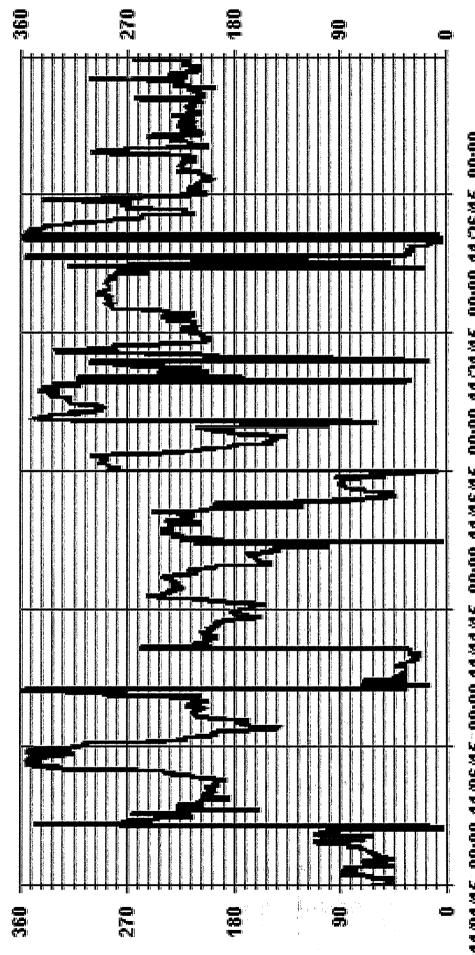
MST

/ averages
hourl)
WIND DIRECTION (WD)

HOUR START	0:00	1.00	1:00 2:00		4:00	5:00	6:00	7.00	8:00	00.6	00:00	1:00	200	00 14	00 15:00	0 16:0	10 17:00	18.00	19:00	20:00	> 21.00	22:00	23:00	24-HOUR AVG	
HOUR END	1-00	2:00	5512	4:00	2:00	5:00 6:00 7:00	7.00	8:00	00.6	10:00	11.00 1	12:00 ±	3:00 14	00 15:1	00 16:00	0 17:(	18:0	19:00	20:00	21.00	22:00	23:00	0:00	QUADRANT	RDGS.
DAY.	ENE		R	R	R	R	빙	ENE												ENE	ENE	ENE	ENE	ENE	24
2	R	Ä	N	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ш	ш	E ESE	SE ESE	ш	ENE	ENE	ENE	ESE	ESE	ESE	ESE	ENE	24
	ш		z	NE	NNE	*	NNN	≯												SW	SW	SW	SSW	SW	54
4	SSW		SSW	SSW	s	s	SSW	SSW												s	SSW	SSW	SSW	SSW	24
2	SW		SW	SW	WSW	WSW	ΝN	NNN												NNN	z	NNW	z	NNN	24
9	Ν		ΝN	ΝN	WNW	WSW	SW	SW												SSE	S	S	s	SSW	24
7	SSE		SSW	SSW	SSW	SSW	SSW	SW												SW	SSW	WNW	WNW	SSW	24
8	3		z	z	NNE	ENE	NNE	ENE												뮏	뵘	핃	핃	띨	54
ው	F		빌	NNE	NNE	NNE	NNE	NNE							-					SSW	SSW	SSW	SSW	NNE	24
10	s		SSW	SSW	SSW	SSW	SSW	SSW												s	s	s	s	s	24
1	s		SSE	SSE	SSE	SSE	s	s					-							SW	SW	SW	SW	SSW	24
12	SW		NS.	SW	WSW	SW	SW	SW												SSE	SSE	SSE	SSE	s	54
13	SSE		ĸ	SSE	SE	SE	ĸ	ш											_	ΝS	WSW	WSW	SW	SSW	54
14	NS.		SW	SSW	SW	SW	SW	SSW					-							SSW	SE	ш	ш	SSW	54
15	ENE		뮐	ENE	밀	빌	闄	ENE												Ä	ENE	NNE	NNE	ENE	54
16	z	-	≷	≥	WNW	WNW	WNW	WNW	-	-			-		_					SSW	S	S	s	8	54
17	SSE		SSE	SSE	SE	SE	K	SSE												Š	NN	NNN	NNN	SSE	54
18	NNN		Ν	Š	WNW	WNW	WNW	WNW	_	_										NNN	NNN	NNN	NNN	MN	74
19	ΝN		ΜN	Ν	NNN	ш	빌	NNE												≷	≯	WNW	WNW	8	74
8	NNE		ш	ESE	s	SSW	WSW	ΜN												SSW	SSW	SSW	SSW	WSW	24
21	SSW		SSW	SSW	ΝS	SSW	SSW	SSW											-	WSW	≯	≯	>	SW	54
22	WNW	_	WNW	WNW	WNW	WNW	WNW	WNW	_		_	_	_		_	_		_	_	WNW	WNW	WNW	>	WNW	54
EX,	WNW	_	≯	>	WSW	>	≷	WSW												NNE	NNE	NN	NNE	NW	54
24	뮏		NNE	NNE	NN	NNE	NNE	z							_	_				NNN	NNN	ΝM	ΝN	z	54
25	WNW	_	≯	WSW	WSW	WSW	WSW	SW				-								NNN N	WNW	WSW	SW	WSW	54
56	SW		SSW	ΝS	SSW	ΝS	SW	SSW												SW	SW	ΝS	SW	SSW	24
27	SW		ΝS	ΝS	SW	ΝS	SSW	SSW				_	_							SSW	SW	SW	SW	SW	54
28	SW		WSW	WSW	SSW	SSW	SSW	SSW												SW	SW	SW	SSW	MS	24
29	SSW		ΝS	SW	SW	SW	SW	SSW			-									SW	SSW	SW	SW	SSW	24
æ	SW		SW	SW	WSW	WNW	SW	SW												SW	Α	SSW	SW	SW	54
		ı																					!		

STATUS FLAG CODES	C CALIBRATION

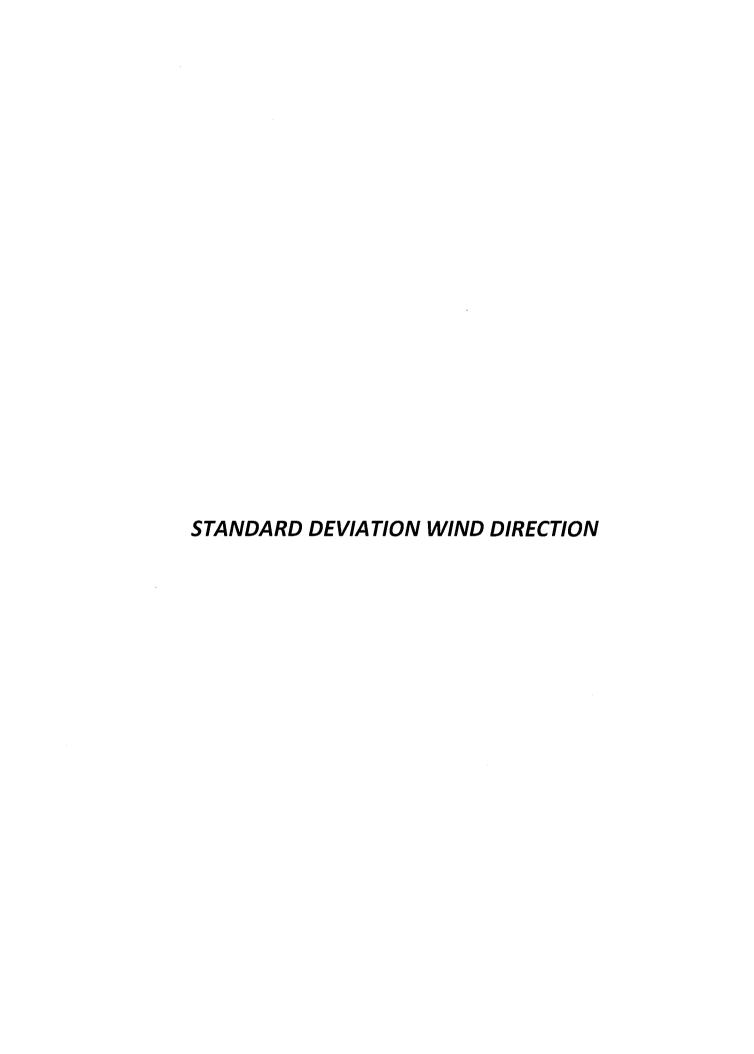
MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	87.64		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	ΝS	



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

DEG

- LICA30 WDR





## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION Maskwa Site - NOVEMBER 2015

JOB # 2833-2015-11-30- C

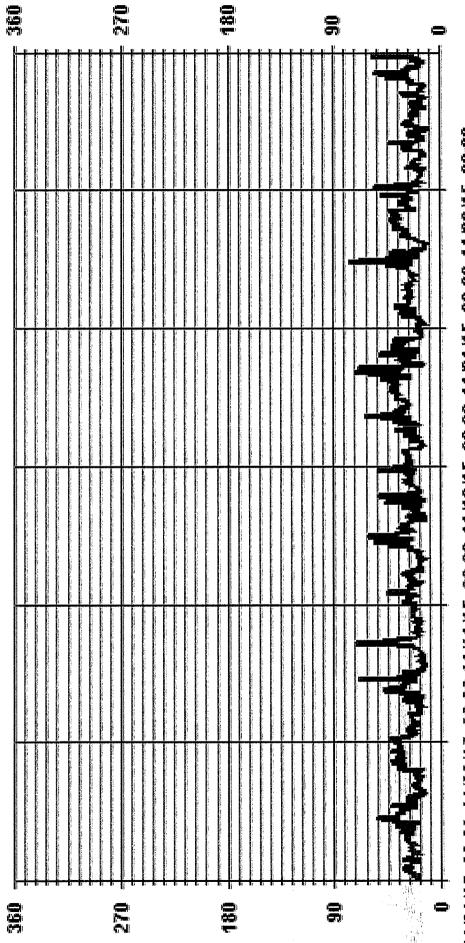
# STANDARD DEVIATION WIND DIRECTION (STDWD) hourly averages in degrees

	23:00	42	23	19	13	36	22	49	19	19	74	78	77	78	54	42	56	33	36	27	77	26	52	13	43	18	74	27	13	27	\$
	22:00	24	23	83	23	33	54	33	13	18	23	22	18	32	21	74	18	8	88	32	7	26	22	13	41	27	20	18	19	27	21
	22:00	72	27	27	8	32	24	47	14	61	23	70	20	31	38	54	12	25	43	8	t)	27	54	16	33	78	22	13	33	56	46
	20:00	26	31	54	21	37	23	36	13	21	77	17	18	¥	12	77	12	83	41	8	17	36	54	23	33	20	ଯ	13	75	17	58
	19:00	32	32	8	17	34	23	128	17	52	22	18	19	32	17	22	17	57	8	32	16	36	23	78	37	32	23	13	17	17	23
	18:00	20	23	43	18	88	22	33	18	88	23	19	18	53	35	77	16	54	88	77	17	36	22	41	88	78	15	77	54	17	16
)	17:00	20	28	13	8	43	20	53	13	51	23	27	19	74	48	27	18	32	40	13	16	31	74	43	33	23	16	4	77	17	22
,	16:00 17:00	25	31	27	5	32	12	13	17	83	23	78	12	23	77	22	20	40	36	13	17	13	56	36	38	53	18	77	52	18	15
ı	15:00	7.7	27	36	18	93	56	27	12	72	23	56	17	ଯ	12	22	78	56	32	38	23	31	27	18	38	53	17	27	54	17	13
ı	14:00 15:00	72	27	33	8	35	22	32	32	46	23	22	17	33	22	27	32	36	88	69	40	33	53	22	99	ĸ	16	56	21	16	21
	13:00	26	53	30	21	36	28	13	21	37	77	53	17	36	33	56	53	50	发	23	32	33	56	32	56	32	16	32	24	5 <u>,</u>	16
	12:00 13:00	33	78	35	23	35	28	8	20	23	19	31	17	63	52	83	88	19	33	8	31	22	78	48	8	36	18	30	53	31	77
	11:00	78	78	33	77	88	24	12	22	21	20	46	17	61	20	27	ଯ	77	36	35	32	33	27	69	31	56	13	82	52	30	18
	10:00 11:00	30	27	35	12	8	56	18	56	19	18	88	18	45	13	53	27	22	32	73	40	8	83	1	83	53	18	16	33	18	53
	9:00	25	25	88	17	32	56	18	38	18	21	22	13	22	13	22	28	32	ଯ	9	40	17	56	77	8	22	51	12	8	18	52
	8:00	7.7	23	37	16	40	23	16	70	18	19	21	14	28	23	22	27	33	78	41	36	17	22	4	56	70	13	16	21	17	53
	7:00	24	56	22	15	33	22	20	20	17	70	54	16	26	13	22	88	8	27	28	41	16	22	46	26	52	17	13	17	16	27
	6:00	22	27	20	16	83	53	91	28	17	19	8	56	56	13	13	27	56	28	24	8	17	27	37	22	41	21	13	16	16	26
	5:00	23	22	41	12	32	36	17	78	16	13	23	77	34	30	19	56	82	22	36	18	13	56	23	20	40	20	17	17	14	51
	5:00	20	22	8	19	33	45	17	53	18	22	27	31	45	56	13	54	31	ଯ	51	23	21	78	27	13	36	40	23	13	56	32
	3:00	70	53	18	17	37	8	18	34	14	19	33	32	31	11	13	54	52	32	42	37	17	53	27	12	36	26	13	54	18	28
	2:00	77	25	ଚ୍ଚ	ឡ	78	37	13	53	14	20	23	ଯ	52	17	13	똤	72	32	4	25	17	22	56	15	33	35	22	56	22	46
	1:00	12	22	30	30	32	33	52	32	t)	18	70	78	52	54	13	32	13	37	41	30	17	56	52	17	36	54	22	56	15	52
	0.00	23	20	38	52	18	37	54	45	13	21	77	23	28	22	30	33	8	88	37	13	20	56	54	13	32	23	54	12	13	78
1ST	HOUR START HOUR END	DAY I	7	m	4	5	φ	7	œ	б.	5	Ħ	12	T)	14	15	16	17	18	19	8	21	22	ĸ	77	23	26	27	82	20	æ
2	Ę P			Ġ,	ġ,									S.				Ġ						15° 25					ś	ġ.	

	LAST CALIBRATION:	
STATUS FLAG CODES	C - CALIBRATION	

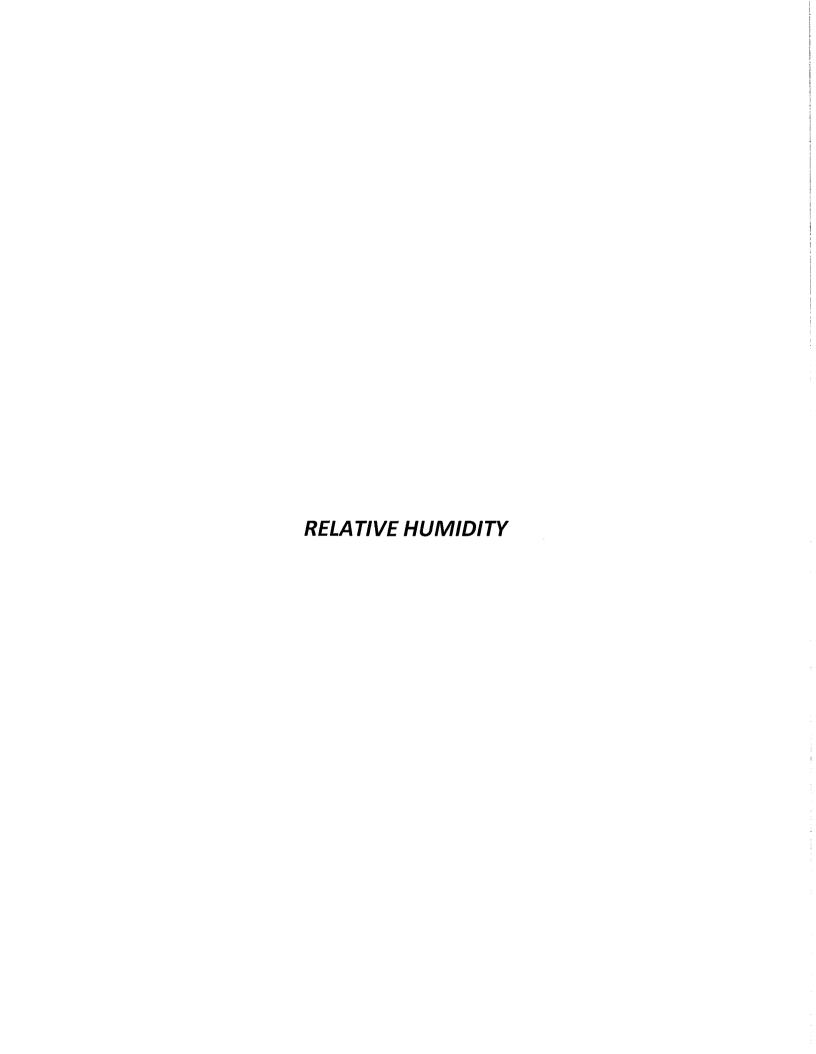
March 4, 2014

ůi Hour Averages



41/01/45 00:00 41/06/45 00:00 41/41/45 00:00 41/46/45 00:00 41/21/45 00:00 41/26/45 00:00

- LICA30 STOWDIR DEG





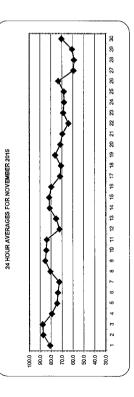
RELATIVE HUMIDITY (RH) hourly averages in %

MST

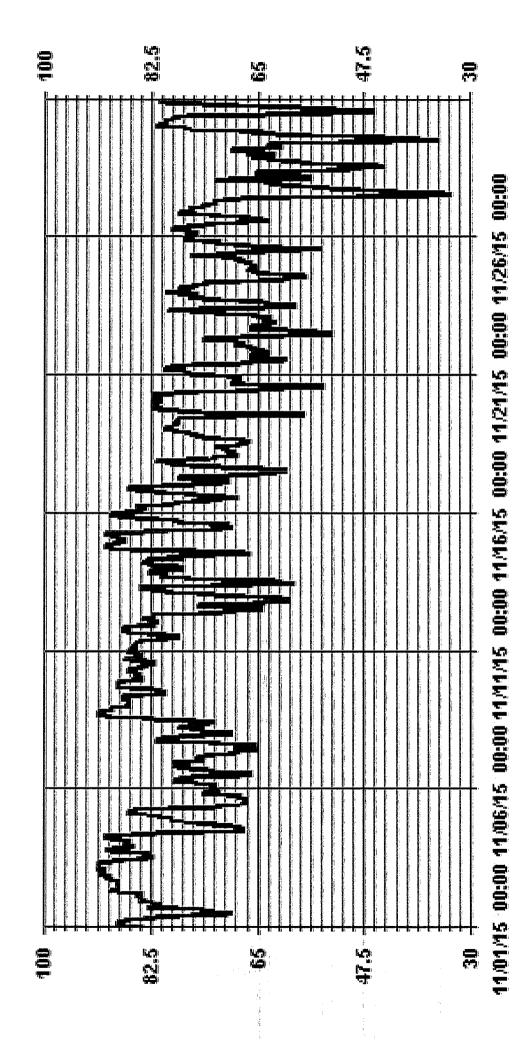
70         69         72         74<
72         74         78         83         82         81         81         82         83<
88         88         89         89         90         90         91         91         87.5           88         88         88         89         89         90         90         91         91         87.5           88         88         88         89         90         99         9
82         83         84         86         89         90         89         87         85         97         87         87         87         87         87         87         87         87         87         87         87         87         87         87         87         97<
68         68         69         72         75         77         79<
67         67         68         68         70         71         74         71         72         86         74.7           66         67         72         73         76         77         78         79         77         76         79         77         74         77         78         77         78         79         77         77         78         79         77         76         79         77         77         78         77         78         77         78         77         78         77         78
66         67         72         73         76         73         76         77         78         79         77         76         73<
66         65         71         73         78         82         79         81         78         74         82         72         73         81         78         74         82         72         78         82         83<
84         89         90         91         91         91         91         91         91         91         91         91         91         91         91         91         91         91         91         88<
81         82         88<
82         83         86         87         84         84         85         84         84         85         84         84         85         84         84         85         84         84         85         84<
80         83         86         87         87         87         85         86         87         87         87         85         86         87<
65         70         75         68         64         60         61         64         84         725           71         76         77         80         81         80         83         81         77         84         75.           70         73         77         80         81         85         89         89         89         75.           68         70         73         80         80         86         89         89         89         75.           68         70         75         80         82         86         89<
71         76         77         80         81         81         77         84         75.5           67         75         86         89
67         75         86         89         90         90         88         88         91         91         91         91         91         91         91         91         91         91         91         91         91         91         91         92         93         93         93         91         91         91         92         92         93         93         91         91         91         92         92         93         93         93         91         91         93         94         94         94         94         94         95         95         95         95         94<
70         73         74         78         81         85         88         89         99         81.3           68         70         75         77         80         82         85         86         84         88         79.3           66         70         75         75         75         77         78         88         79.3           57         66         67         68         71         74         75         76         77         78         77.0           57         69         68         68         68         68         68         68         70         71.0           59         69         66         68         68         68         68         70         71.0           50         60         66         66         63         62         62         64         71         71         71         71         71         71         71         71         71         71         71         72         72         72         72         71         71         71         72         72         72         72         72         72         72         72         72         <
68         70         75         80         82         86         86         84         88         73         93           60         64         71         76         73         80         77         73         89         73         98         73         98         73         98         71         73         73         89         71         73         74         74         74         74         74         74         74         74         74         74         74         74         74         74         74         74         74 </td
60         64         71         76         79         80         82         77         73         82         71         73         81           56         66         68         71         74         75         75         76         77         78         71         71           57         63         63         64         68         68         68         68         69         70         82         70         82         70
66         67         68         71         74         75         75         76         77         78         78         710           57         69         74         81         81         82         81         82         81         82         81         82         71         76<
57         69         74         78         81         82         81         82         81         82         81         82         81         82         81         82         81         82         82         82         83         83         83         76         76         76         76         76         76         76         76         76         77<
54         63         67         69         68         68         68         68         69         70         82         71           60         63         66         66         63         63         64         65         66         80         63.8           57         60         68         66         66         63         67         67         75         78         80         63.0           57         60         63         66         67         66         66         80         63.0           57         60         63         67         67         67         77         77         77         77           44         42         45         48         47         77         77         77         83.4           45         46         67         66         67         66         80         68.3           44         49         45         48         47         77         77         77         83.4           44         49         56         66         67         66         67         67         69         69         69         69         69
60         63         66         63         64         64         65         65         69         70         71<
55         60         66         66         65         63         62         64         74         64.3           63         64         68         71         74         76         75         75         78         80         69.0           57         66         68         71         74         76         77         77         77         77         69.0         69.0           34         42         46         68         71         73         78         76         76         79         79.4 <t< td=""></t<>
63         64         68         71         74         76         75         75         78         80         69.0           57         60         63         65         66         67         66         68         69.0         68.3           53         64         66         68         71         74         77         77         77         77         78         83         68.3         73         78         76         76         79         73.4         78         76         76         79         73.4         74         77         77         77         73.4         74         77         77         77         73.4         73.4         73         76         76         76         76         76         76         76         76         76         76         77         77         77         73.4         73         74         77         77         77         77         74         77         74         77         77         77         77         74         70         74         72         72         70         70         70         70         70         70         70         70         70         70
57         60         63         65         67         65         65         65         66         80         68.3           55         61         66         69         72         71         77         77         77         77         77         77         77         78           44         42         45         48         53         56         58         61         63         62         76         79         73           44         49         56         58         61         63         66         64         62         72         59.0           46         52         58         61         63         66         64         62         77         77         60.8           44         49         56         62         64         68         76         77         77         77         60.8           88         89         90         91         91         90         90         91         91         91         91           44.5         68.1         71         73         76.3         76.3         76.3         77.5         77.1         77.1         77.1
55         61         66         69         72         71         74         77         77         77         68.4           63         64         66         68         71         73         78         76         76         79         73.4           45         52         56         58         53         61         63         62         76         59.5           44         49         56         58         64         68         76         77         77         60.8           88         89         90         91         91         91         90         91         91         91           64.5         68.1         71.7         73.8         75.5         76.3         76.8         77.5         77.1         77.1         60.8
63 64 66 68 71 73 75 78 76 76 79 73.4 44 5 52 56 58 61 63 62 76 59.5 45 52 86 64 68 71 77 77 60.8 46 52 88 65 68 74 80 81 81 80 82 70 60.8 88 89 90 91 91 91 91 80 80 71.5 47 64.5 68.1 71.7 73.8 75.5 76.3 76.8 78.0 77.5 77.1
34         42         45         48         53         56         58         61         63         62         76         59.5           45         52         56         58         61         63         63         66         64         62         72         59.0           44         49         56         62         64         68         76         77         77         60.8           46         52         58         65         63         74         80         81         81         80         70.6           88         90         91         91         91         90         90         91         91         91           44.5         68.1         71.7         73.8         75.5         76.3         76.8         77.5         77.1         77.1
45         52         56         58         61         63         63         66         64         62         72         59.0           44         49         56         62         66         64         68         76         77         77         77         60.3           46         52         58         65         68         74         81         81         80         82         70.6           88         89         90         91         91         90         90         91         91         91           64.5         68.1         71.7         73.8         75.5         76.3         76.8         78.0         77.5         77.1         77.1
44         49         56         62         66         64         68         76         77         77         77         60.8           46         52         58         65         68         74         80         81         81         80         82         70.6           88         89         90         91         91         91         90         90         91         91         90         90         91           64.5         68.1         71.7         73.8         75.5         76.3         76.8         78.0         77.5         77.1         77.1
46         52         58         65         68         74         80         81         81         80         82         70.6           88         89         90         91         91         91         90         90         91           64.5         68.1         71.7         73.8         75.5         76.3         76.8         78.0         77.5         77.1
88 89 90 91 91 91 90 90 90 64.5 68.1 71.7 73.8 75.5 76.3 76.8 78.0 77.5
64.5 68.1 71.7 73.8 75.5 76.3 76.8 78.0 77.5

## STATUS FLAG CODES

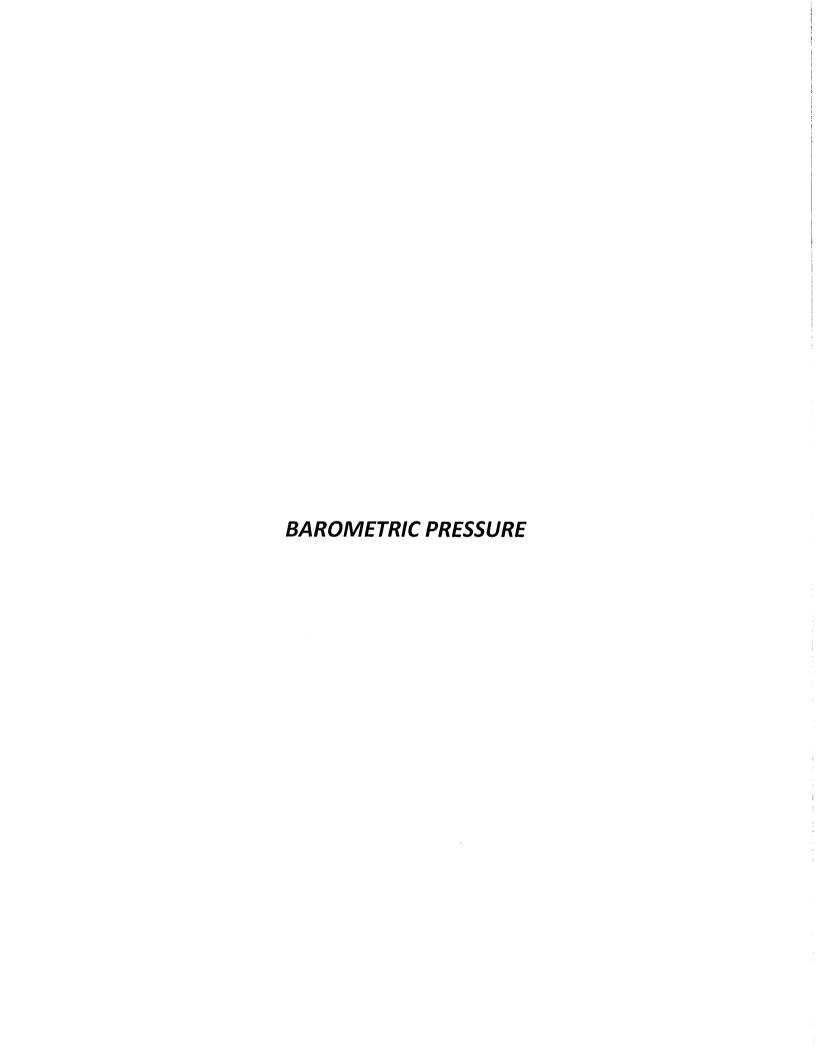
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- CALIBRATION MAINTENANCE	- DAILY ZERO/SPAN CHECK	- POWER FAILURE	- OUT FOR REPAIR
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MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:	91 87.9	% %	@ HOUR(5)	VAR	ON DAY(S) ON DAY(S)	VAR 3	ac m
			OPERATIONAL TIME: AMD OPERATION UPTIME:	IME: N UPTIME:		720 100.0	% HRS
STANDARD DEVIATION:	10.51		MONTHLY AVERAGE:	AGE:		75	%



- LICA30 RH %





ırly averages in millibar	
BP) hou	
BAROMETRIC PRESSURE (	

6 유	0 10:00 11:00 0 11:00 42:00		14:00 1	15:00 16:00 15:00 17:00	0 17:00		00	10.0	2.2	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
929 930 930 937 937 937	931		932 s	932 933 937 937		933 937	934 934 938 938		935 937	935 937	935	931 937	24
	940 940					942	-		942	942	942	940	24
940 940	940 939 939	939 938	937	936 936	936	935	935	5 934	934	934	942	938	5 5
	942 942			940 939		937	936 935		934	933	942	940	54 4
	931 932					931		1 931	932	932	933	931	54
	934 935		-	•		937			939	626	939	935	24
	942 943					943			942	942	943	942	54
	939 939					933			931	930	942	937	24
	929 930					933			935	935	935	931	54
	626 626					931			976	925	939	934	54
922 921	921 922	921 922	922	922 923		924	924 92		976	927	927	953	54
	932	933 934		934 934		934			934	934	934	932	54
1 930	929	927 926			924	923	923 923	3 922	922	923	934	928	54
	929 930			-		932			926	927	933	929	54
	921			-		914	913 9.		915	915	927	919	54
	928 929			-		937			937	937	937	930	54
-	938 939			-		941			943	943	943	940	54
8 948	3 949 949 949	949 949		948 948		946	945 944		942	941	949	946	54
	936 936					928			926	926	940	933	54
	931 932			-		935			937	938	938	932	54
	940 941			-		941			942	942	942	940	54
946 947	947 948	948 948				949			920	920	920	947	54
-	948 948					948			951	952	952	949	54
	952 952	951 950		-		946		946 945	944	944	953	950	54
942 942		944 945		945 945	946	946			947	947	947	944	54
	947 947	-	946	945 944	-	944			943	943	948	946	54
٠,	942	942 942	-	942 941	•	941	_	940 940	939	939	943	941	74
937 937		938 937	•	936 936	936	936	936 95	6 935	935	935	939	937	24
953 952	052 052	951 950	950	949 949	949	949	949 95	950 951	951	952			
-						1			ć	5			

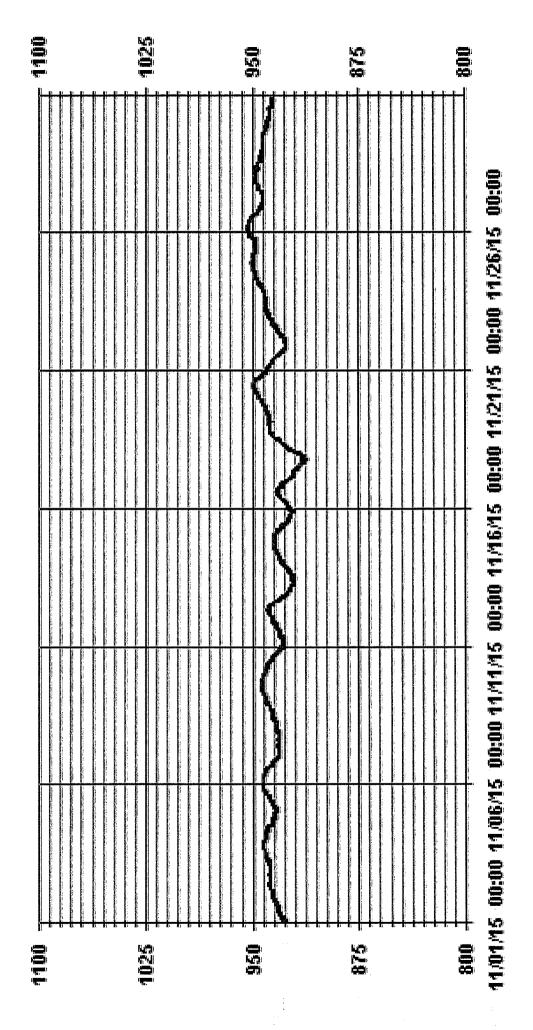
#### STATUS FLAG CODES

- OLIALITY ASSURANCE - RECOVERY	- MACHINE MALFUNCTION	- OPERATOR ERROR	COLLECTION EDDOG
O -QUALIT	X - MACHIP	O - OPERAT	100 A
-CALIBRATION - MAINTENANCE	- DAILY ZERO/SPAN CHECK	- POWER FAILURE	OLIT COD OCCUPIE
ـزان	S	۵	ı

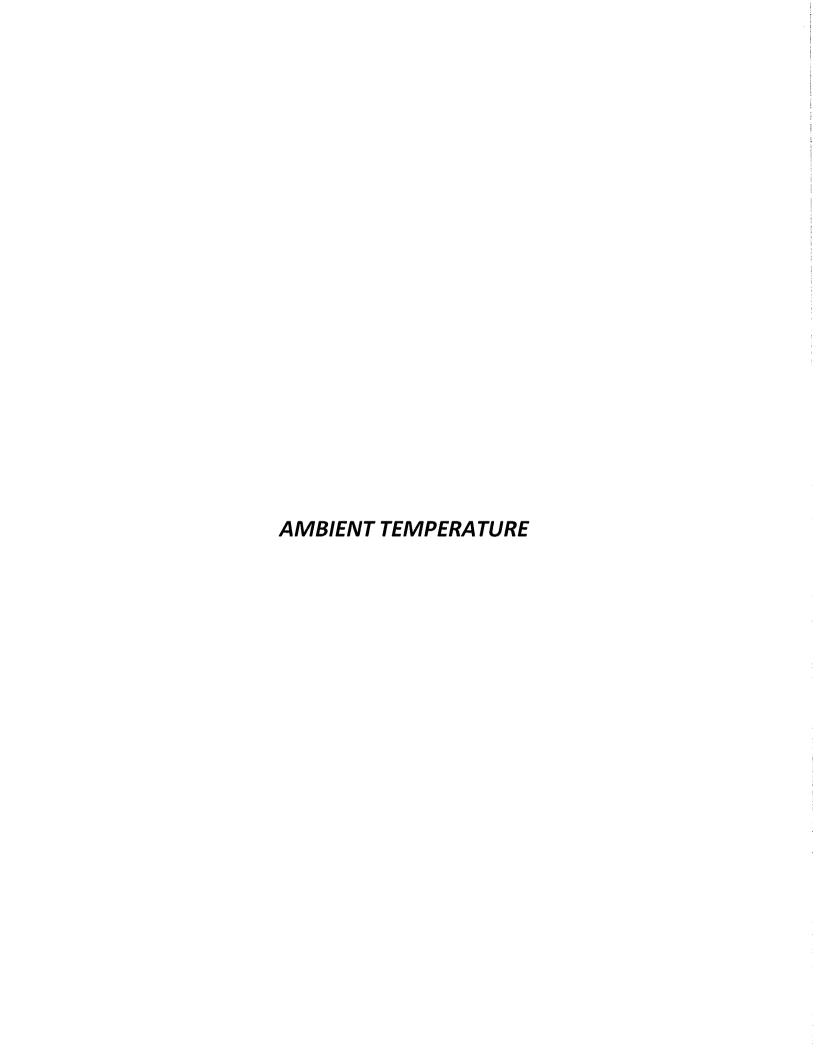
## 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 24 HOUR AVERAGES FOR NOVEMBER 2015 920

MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE:	953	MB @ HOUR(S) MB	VAR	ON DAY(5) ON DAY(S) VAR-VARIOUS	26	9 5 9
		OPERATIONAL TIME: AMD OPERATION UPTIME:	IME: N UPTIME:		720	HRS
STANDARD DEVIATION:	7.84	MONTHLY AVERAGE:	AGE:		937 MB	MB

id Hour Averages



- LICA30 BP MB





Maskwa Site - NOVEMBER 2015 JOB # 2833-2015-11-30- C

# AMBIENT TEMPERATURE (TPX) hourly averages in Degrees Celsius

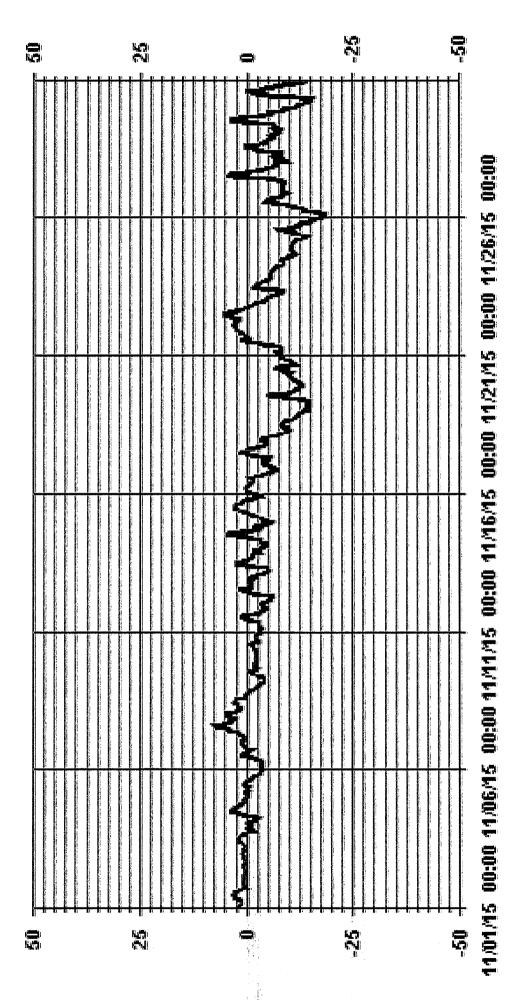
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S
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	RDGS.	24	54	54	54	24	24	54	54	24	54	24	77	24	54	54	24	24	54	24	24	24	24	24	24	24	24	54	24	24	42		
24-HOUR	AVG.	1.6	0.4	9.0	9.0	-0.7	-1.5	3.2	1.6	-2.5	-2.1	-2.4	-2.2	-1.7	-5.0	-0.7	-2.4	-3.0	9.0	-11.8	-10.0	-3.1	2.0	¥.	-8.7	-11.8	-10.9	4 8	-5.1	4.5	-9.1		
DAILY	MAX.	3.1	0.7	2.2	3.6	0.5	11	7.4	4.8	<b>9</b> .0	6.0	1.0	1.8	2.8	4.3	2.9	0.1	1.2	-3.4	<b>4</b> 0	-6.6	2.4	5.3	-1.5	-5.7	-7.2	<b>4</b> ω	4.2	0.5	3.8	<b>0</b> .1		
23:00	00:0	9.0	0.7	О	9.0	-3.4	1.1	4.6	-1.6	-2.1	-2.6	4.2	-1.6	-2.0	-5.5	-5.8	-6.6	-3.4	-12.7	-12.8	-8 3	2.4	-3.0	-5.6	-10.4	-15.9	-8.4	6.9	-5.4	6. 6.	-13.9	4.6	4.6
22:00	23:00	9.0	0.5	-0.2	0.5	-3.2	8.0	4.2	6.0	-2.1	-2.3	4.2	-0.9	-2.3	8.	-3.3	-6.6	4.0	-12.1	-12.9	φ. Э	2.2	-2.0	-5.3	-10.5	-15.1	-8 -5	-6.9	5.8	-8.6	-13.1	4.2	4.5
21.00	22:00	9.0	0.4	6.4	0.4	-3.1	0.2	3.2	-0.6	-5.0	-2.4	4.5	-1.2	-2.8	-3.3	-2.1	-7.3	-5.3	-11.9	-12.4	9.0	1.7	-1.6	-5.4	-10.5	-14.9	-6.3	-6.1	-6.1	-8.6	-12.6	3.2	4.6
20:00	21:00	9.0	0.4	11	1.0	-2.6	0.1	3.6	<del>С</del> .3	-2.1	-2.0	4.1	-1.1	-1.4	13	11	6.3	4.7	-11.8	-12.1	-10.0	1.2	-1.0	5.6	-10.5	-14.5	-8.7	5.6	4 0	-6.1	-11.2	3.6	4.1
19:00	20:00	0.3	0.4	-1.5	1.5	-1.6	-0.2	5.9	0.0	-2.1	-2.2	-3.4	6.0	-1.2	-2.4	0.4	-5.2	4.2	-11.8	-11.5	-10.3	1.2	4.0	-5.3	-10.9	-12.7	-8.0	4. 6.	4.6	-5.1	-8.2	5.9	-3.7
18:00	19:00	0.0	0.5	0.1	2.1	-1.1	1.1	3.8	0.1	-2.1	-2.4	-3.0	-0.7	-1.5	-3.2	8.0	4.6	4,0	-11.4	-11.7	-11.1	0.4	0.0	4.6	-10.8	-12.8	-7.5	6. 6.	4.3	-5.3	-6.3	3.8	-3.5
17.00	18:00	13	0.1	9.0	2.3	9. 9.	-0.6	5.1	0.2	-2.4	-2.8	-2.7	-0.7	-1.1	-2.9	1.3	-3.8	3.1	-10.8	-10.4	-11.4	0.0	1.0	4.1	-10.8	-11.9	-6.5	-2.1	3.5	4.0	-6.0	5.1	-3.0
16:00	1-7:00	5.0	0.2	6.0	2.8	-0.6	-0.2	5.7	0.2	-1.8	-2.6	-1.5	-1.5	-0.4	-1.4	1.5	-3.2	-1.7	-9.7	-9.4	-11.7	6.0	1.8	-3.3	-11.2	-11.0	-5.2	-1.0	-3.0	-2.1	4.1	5.7	-2.4
15:00	16:00	5.6	0.4	1.6	3.2	-0.3	1.0	7.4	0.4	-1.2	-1.6	-0.1	0.1	0.2	1.9	2.3	-1.7	4.2	8.8 8.8	-8.4	-10.1	0.4	2.8	-2.7	-10.5	-9.3	4.6	9.0	-1.5	0.2	-2.6	7.4	-1.3
14:00	15:00	2.8	0.5	2.0	3.3	0.2	1.0	7.0	2.3	6.0	6.0	1.0	1.7	1.2	4.2	5.9	-0.8	9.0	-8.6	4 0	-7.2	1.3	4.8	-2.2	6.9	-7.2	4.3	4.0	0.5	2.2	-0.1	7.0	-0.1
13.00	14:00	3.0	0.5	2.2	3.6	0.5	1.0	6.1	2.5	-1.2	-1.2	1.0	1.8	2.8	4.3	2.8	-1.4	1.0	-8.2	-5.5	-6.6	0.1	5.3	-1.7	8.9	-7.5	-6.0	4.2	0.4	3.8	-0.2	6.1	0.0
12:00	13:00	3.1	4.0	2.0	3.5	0.5	-0.1	4.5	2.9	-1.4	-1.4	9.0	6.0	2.1	2.1	2.7	-1.6	1.2	-8.1	-8.5	-7.8	-1.1	5.2	-1.5	-8.0	8.8	-7.3	5.9	-1.3	3.7	-1.3	5.2	-0.7
11:00	12:00	2.7	0.3	1.8	2.4	0.4	-1.7	4.0	3.1	-2.2	-1.7	-0.7	-0.1	2.2	0.1	2.0	-1.7	0.2	-8.4	و. و.	-8.6	-2.7	5.1	-1.5	-8.0	-10.6	-9.2	-0.8	-2.4	6.0	-2.2	5.1	-1.6
10:00	11:00	5.6	0.3	13	1.0	4.0	-2.4	3.6	2.7	-3.0	-1.9	-1.8	-1.4	0.1	-1.0	1.6	-1.3	ნ. ტ	8.8	-12.2	တု တု	6. 6.	4.0	-3.7	-8.7	-11.8	-10,4	4 6	-4.2	-5.8	-5.2	4.0	-2.8
00.6	10:00	2.0	0.2	6.0	-0.3	-0.1	-2.3	2.3	2.1	3.8	-2.0	-2.6	-3.4	-2.0	9. 9	6.0	-0.7	-2.9	8. 6.	-14.0	-10.5	9.9	3.0	6.7-	φ	-13.0	-12.1	-7.1	6.9	-5.9	-11.8	3.0	<b>4</b> 1
8:00	00.6	1.5	<del>ا</del> .0	0.7	-2.1	-0.2	-3.4	1.6	2.0	4	-2.3	-3.0	-6.0	-5.4	-3.5	-0.2	9.0	-3.7	-10.1	-14.9	-10.2	-7.8	1.7	-6. 1.	φ φ	-14.1	-13.6	-8.5	-8.1	-6.4	-12.8	2.0	-5.1
7.00	8:00	1.1	0.0	9.4	-2.6	-0.5	-3.6	1.3	1.6	4.2	-2.4	-3.0	-6.1	-5.0	-3.5	4.0	6.1	-5.4	-9.7	-14.9	8.6-	-8.1	1.8	8.1	& .3	-13.7	-13.0	8.8 8.8	-8.1	-6.6	-15.2	1.8	-5.2
5:00 6:00	7:00	1.1	0.5	9.0	-2.0	0.4	3.5	0.7	1.5	4.5	-2.3	-3.0	-5.6	-5.2	-3.6	-1.3	0.1	-5.2	-9.2	-14.3	-10.3	4.8	2.3	-7.0	-7.4	-12.8	-14.3	-8.6	-6.7	-6.0	-15.0	2.3	-5.0
5:00	6:00	1.2	9.0	0.5	-2.1	-0.3	-3.7	0.4	1.9	4.0	-2.2	-3.0	-5.6	4 8	4.5	-1.8	0.1	4.1	4.8	-14.6	-10.4	-8.4	2.8	-6.7	-6.6	-11.6	-15.8	-8.4	-6.2	-6.8	-14.5	2.8	4 0.
4:00	2:00	1.4	9.0	0.5	-13	6.3	-3.7	0.4	2.4	-3.4	-2.2	-3.4	-5.4	4.5	4.6	-3.0	0.1	-3.7	-7.4	-14.1	-10.7	-7.4	2.7	-5.6	-6.5	-11.2	-17.6	8,5 5,5	-7.1	-7.7	-13.9	2.7	4.8
3:00	4.00	1.5	9.0	0.3	-0.3	4.0	-3.7	0.7	2.8	-3.1	-2.2	-3.1	4.6	-3.5	4.1	-3.6	0.0	-3.8	-6.8	-13.9	-11.2	-6.7	5.9	-5.3	6.4	-10.9	-18.4	-8.6	-6.3	-7.5	-13.2	2.9	4.6
2:00	3:00	1.8	0.5	9.0	4.0	-0.1	-3.7	1.1	3.6	-7.8	-25	-2.9	4.1	-2.5	-3.3	-4.2	9.0	4.2	4.9	-13.8	-11.7	6.9	3.0	4.6	9.0	-10.8	-18.3	-8.4	6 1.	-6.9	-12.2	3.6	4.5
1.90 2.00	2:00	23	9.0	6.0	-0.7	0.2	-3.5	6.0	4.8	-2.5	-2.5	-3.2	-3.6	4.19	-3.2	-5.3	-1.2	-5.3	3.8	-14.0	-12.2	-7.9	2.4	4.3	-5.9	-10.8	-17.7	-8.7	5.5	-6.5	-11.6	4.8	4.5
00:0	1:00	2.5	0.5	6.0	6.0	0.3	-3.4	8.0	4.6	-2.2	-2.3	-3.1	-3.8	11	-3.0	-5.8	-1.9	-6.2	-3.4	-13.0	-12.2	-8.3	2.5	-3.9	-5.7	-10.7	-17.0	-8.7	-7.2	-6.4	-11.5	4.6	4.3
HOUR START	98 H		2	m	7	5	ю	7	Ø	ō	10	П	12	Ħ	14	15	16	17	8	<b>1</b>	20	П	22	23	24	25	. 26	22	28	29	æ	HOURLY MAX	HOURLY AVG

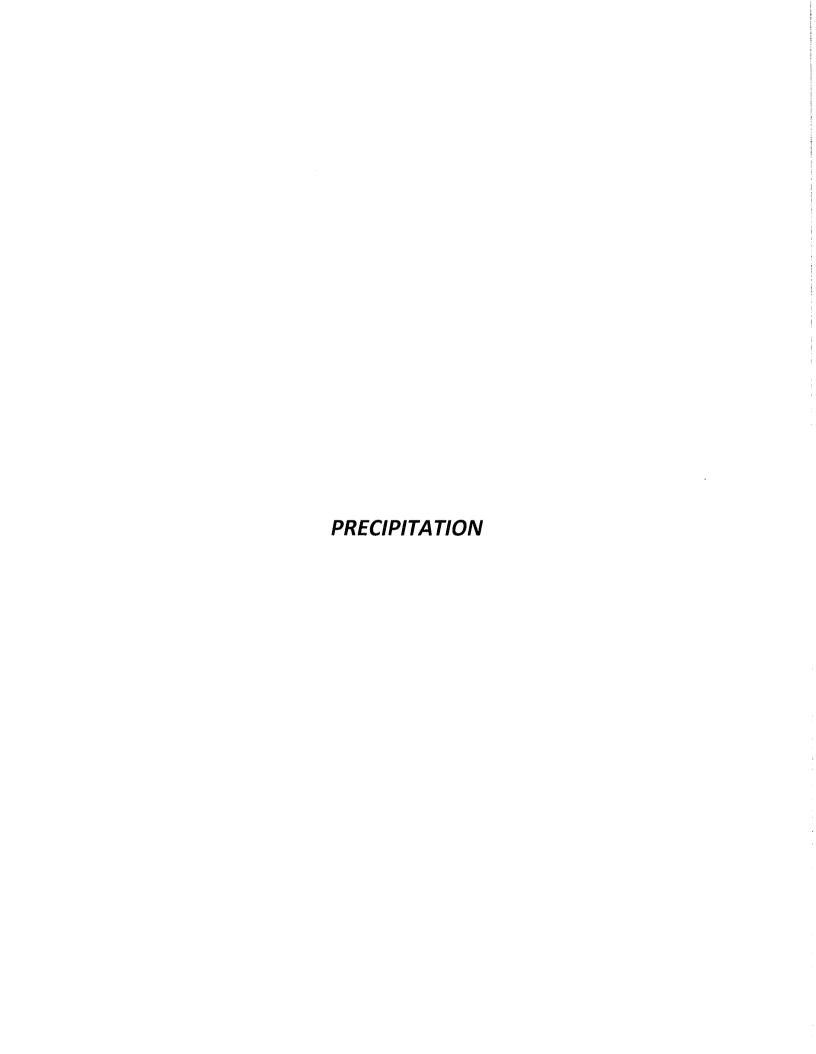
#### STATUS FLAG CODES

C. C-CALENATION  Y. MAINTENANCE S. DAILYZEROSPANCHECK: X. MACHINE MAILTUNCTION P. POWEREATIONE G. GOUT FOR REPAIR  KCOLLECTION ERROR	40 20 20 20 20 20 20 20 20 20 20 20 20 20	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
	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-14.0

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MINIMUM 1-HR AVERAGE:	-18.4	ပူ	-18.4 °C @ HOUR(S)	m	ON DAY(S)	26	
MAXIMUM 1-HR AVERAGE:	7.4	ပူ	@ HOUR(S)	<del>1</del> 3	ON DAY(S)	7	
MAXIMUM 24-HR AVERAGE:	3.2	ပူ			ON DAY(S)	7	
					VAR-VARIOUS		
			OPERATIONAL TIME:	IME		720	HRS
			AMD OPERATION UPTIME:	N UPTIME:		100.0	%
STANDARD DEVIATION:	4.95		MONTHLY AVERAGE:	AGE:		-3.5 °C	ပ္



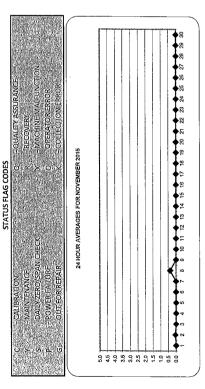
- LICA30 TPX DGC





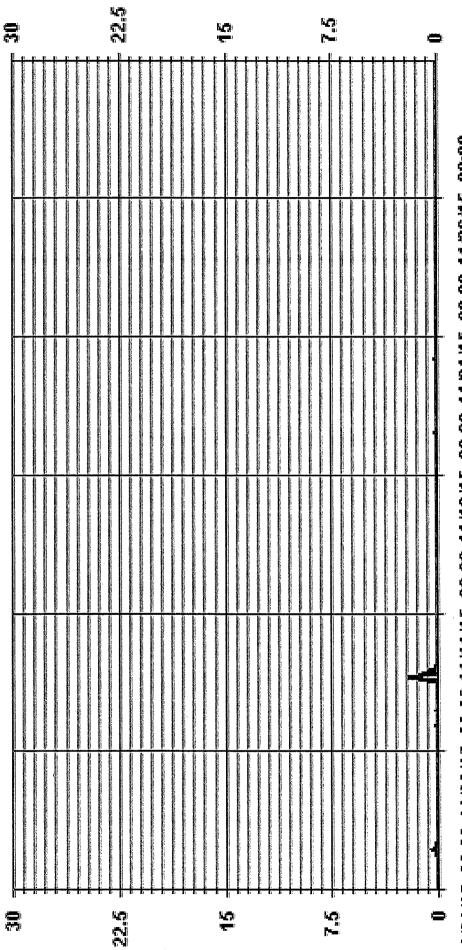
PRECIPITATION hourly averages (mm)

	RDGS.	24	24	54	54	54	54	54	54	54	54	54	54	24	24	24	24	24	54	54	54	24	54	54	54	24	24	24	54	24	54		
	24-HOUR AVG.	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	DAILY MAX.	1.0	6.0	0.0	0.0	0.0	0.1	0.1	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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		
	23.00	0.0	0.0	0.0	0.0	0.0	0.1	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	0.2	0.0
	22.00 22.59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
	21:00 21:59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
	20:00	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
	19:00 19:59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	0.0
	18:00	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.1
	17.00	0.0	0.1	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.1
ì	16:00 16:59	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
}	15:00	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	1.3	0.0
0 3	14:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
•	1300	0:0	0.1	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	0.1	0.0
	0 12:00 9 12:50		_	_	_	0.0	_	_	_	0.0	_												0.0			0.0	0.0	0.0	0.0	0.0		0.1	_
	0 11.0		0.3																													0.3	
	0 10:0		. 0.1																													. 0.1	_
•	9.0		1 0.1	0.0	0.0	0.0	0.0	0.0	0.0														0.0	0.0	0.0		0.0	0.0	0.0	0.0		1 0.1	
	90 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		1 0.1	
	90		0.0 0.1											-													0.0	0.0	0.0	0.0	0.0	0 0.1	
	59 61		0.0																						0.0	0.	.0	0.	0.0 0.0	0.0	.0	.1	0.
	00 8 8	0.0																					0.0			0.0	0	0	0.0		0 0	0.0	0
	9.4	o																									0.0	0.0			0.0		
	90	o o	0.0 0.0		0.0																		0.0				0.0	0.0	0.0 0.0	0.0 0.0	.0 0.0	0.0	
	59 2	0.1 0																										0.0 0.0	0.0	0.0			0.0
	T 0:00 1:00 2:00 3:00 4:00 5:00 0:50 0:50 0:50 0:50 0:50 0	0,0	0.0																				0.0				0.0		0.0	0.0	0.0		0.0
_	ART 0				7		<u> </u>				4.	5.7		-					Ä		j.					-:-		3			J	_	_
MS	HOUR START	DAY	2	m	Đ.	S	9	7	∞	O	12	디	12	13	14	51	16	17	18	19	2	21	22	EX	24	23	26	27	78	23	ଳ	HOURLY MAX	HOURLY AVG



MAXIMUM 1-HR AVERAGE: MAXIMUM 24-HR AVERAGE: MONTHLY TOTAL 11.4	Ā	0.4	M M	@ ноur(s)	17	ON DAY(S) ON DAY(S) VAR-VARIOUS	ω ~	
				OPERATIONAL TIME: AMD OPERATION UPTIME:	TIME		720	% HRS
STANDARD DEVIATION:	0.13			MONTHLY AVERAGE:			0.0 MM	MM

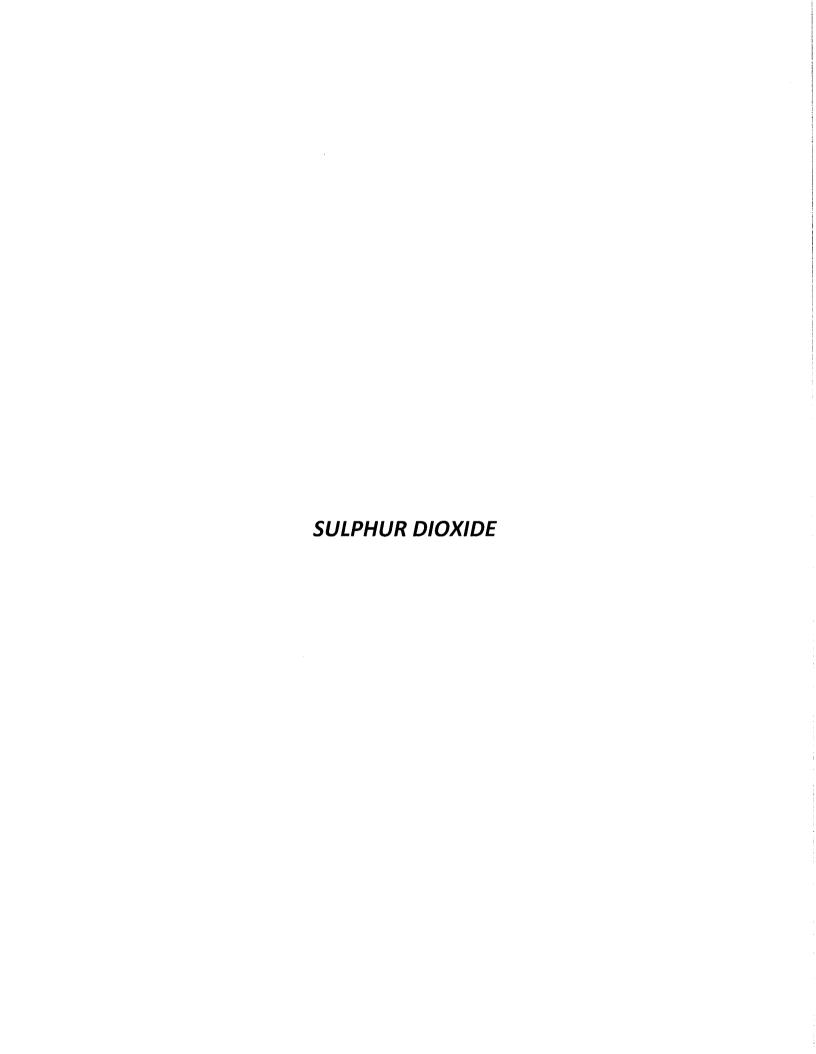
ii Hour Averages



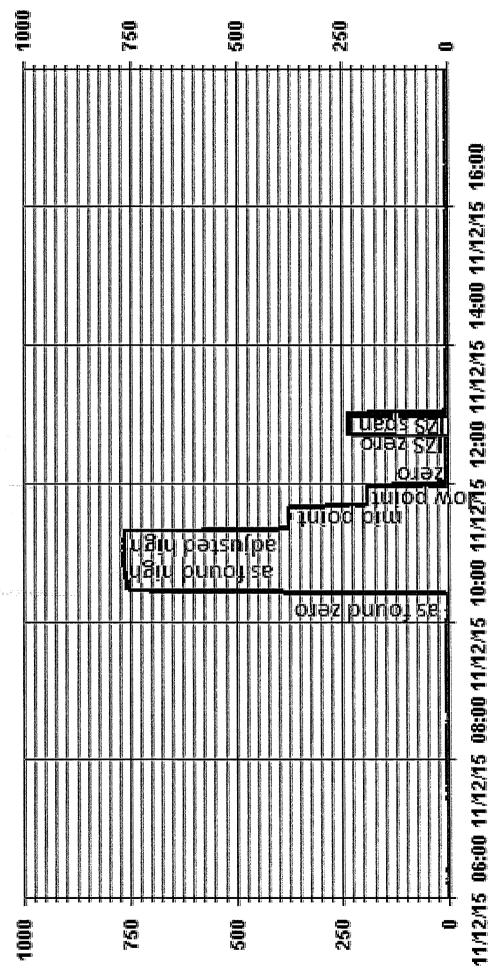
11/01/15 00:00 11/06/15 00:00 11/11/15 00:00 11/16/15 00:00 11/21/15 00:00 11/26/15 00:00

- LICA30 PRECIP MM

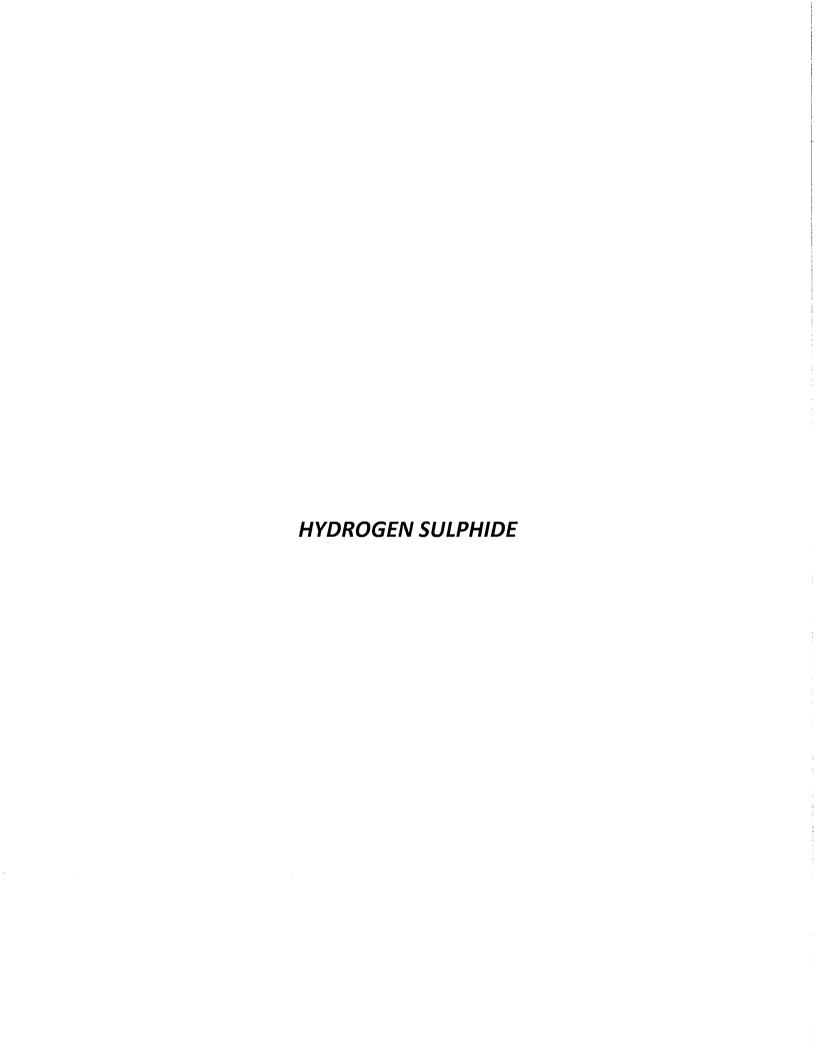
#### APPENDIX II ANALYZER CALIBRATION RESULTS



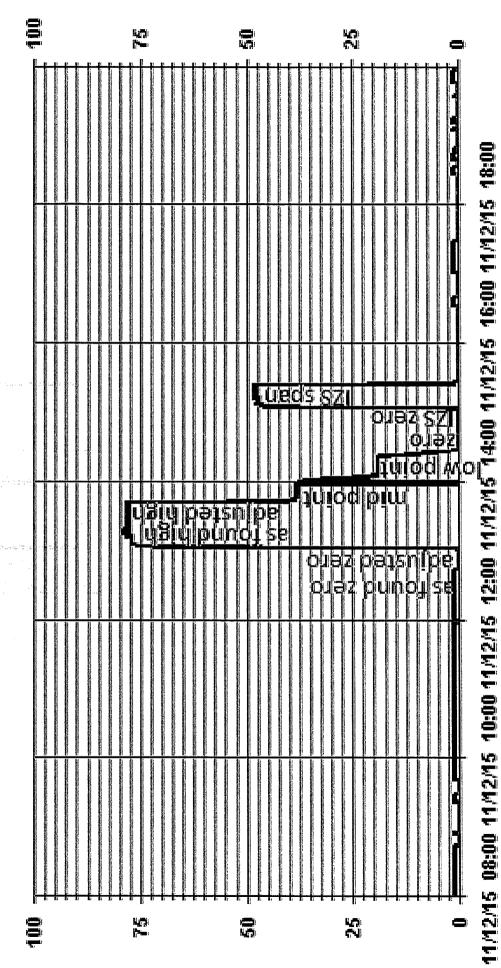
Date:	November 12,	2015		В	arometric Pressure:	0.920 atm
Company/Airshed:					on Temperature °C:	20
cation/Station Name:	Maskwa				Veather Conditions:	Mix of sun and clouds
Parameter:		xide			Calibration Purpose:	routine monthly
Start Time 24 hr. (mst): End Time 24 hr. (mst):					rmed By/Reviewer: Alex Cal Gas Expiry Date:	Yakupov Trina Whitsitt March 12, 2019
Calibration Method:		n			k s/n (if applicable):	n/a
alyzer:						
Serial Number: Last Calibration Date:		2015	•	Range ppb: _ As Found C.F.:		
Previous C.F.:				New C.F.:		
brator:				Standard Ca	libration Points for Ranges	
Flow Meter ID's:	n/a			Point	Sulphur Dioxide Standard Cali	ibration Points
Make & Model:				High	780	
Serial #:			.  -	Mid	380	
Cal Gas Cylinder I.D. # : Cal Gas Conc. (ppm):		/3	. L	Low	190	<u></u>
				UTES OF STABILITY AS OF SEF		
Point	rator Flow Rates (cc/mi Diluent	n) Cal Gas	Total	Calculated Concentration: (ppb)	Indicated Concentration: (ppb)	Correction Factors (C.F.):
as found zero	5013	0.00	5013	0.0	0.0	N/A
as found high	4938	77.20	5015	762.0	764.0	0.997
adjusted high	4938 4976	77.20 37.70	5015 5014	762.0 372.2	762.0 374.0	1.000 0.995
mld low	4976	18.90	5014	186.6	189.0	0.987
calibrator zero	5013	0.00	5013	0.0	0.0	n/a
					Average C.F.=	0.994
		cept as % of fu ge In C.F. from	last cal≖_	1.001 -0.13% 0.27%	± 3% F.S. ± 10%	
900 800 700 4 600 -		ge In C.F. from	ll scale)= _ last cal= _	-0.13%	± 10%	762.0
800 - 700 -		ge In C.F. from	ll scale)= _ last cal= _	-0,13% 0.27%	± 10%	762.0
800 - 700 -		ge In C.F. from	ll scale)= _ last cal= _	-0.13% 0.27% alphur Dioxide Analyzer Callb	± 10%	762.0
800 - 700 - 40 600 - 40 500 - 200 - 200 -	% chan	ge In C.F. from	ll scale)= _ last cal= _	-0.13% 0.27%  alphur Dioxide Analyzer Callb  374.0	± 10%	762.0 800 900
800 - 700 - 4 600 - 4	% chang	ge In C.F. from	Il scale)=  ast cale   Inst cale     Inst cale     Inst cale   Ins	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib	± 10% ration  600 700	
800 - 700 - 4 600 - 4	% chang	ge In C.F. from	Il scale)=  ast cale    IPI 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  374.0  400 500  calculated ppb	± 10% ration  600 700  As left:	
800 - 700 - 4 600 - 4	% chang	9.0 As four 0.962 23.5	Il scale = last ca	-0.13% 0.27%  alphur Dioxide Analyzer Callb  374.0	± 10% ration  600 700	
800 - 700 - 4 600 - 4	% change 18:	9.0 As four 0.962 23.5.5 782	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Alphur Dioxide Analyzer Calib  374.0  400 500 calculated ppb  SLOPE: OFFSET: HVPS:	± 10%  ration  600 700  As left: 0.957 23.5 782	
800 - 700 - 4 600 - 4	% change with the second secon	9.0 As four 0.962 23.5 7822 2565	Il scale)=   last cale     last cale     API 100A Su	-0.13% 0.27%  Ilphur Dloxide Analyzer Calib  400 500 calculated ppb  SLOPE: OFFSET: HVPS: DCPS:	± 10% ration  600 700  As left: 0.957 23.5 782 2565	
800 - 700 - 4 600 - 4	% change % c	9.0  As four 0.96; 23.5 782 2565 50.0	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  400 500 calculated ppb  SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP:	± 10%  ration  600 700  As left: 0.957 23.5 782 2565 50.0	
800 - 700 - 4 600 - 4	% change with the second secon	9.0 As four 0.962 23.5 7822 2565	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Ilphur Dloxide Analyzer Calib  400 500 calculated ppb  SLOPE: OFFSET: HVPS: DCPS:	± 10% ration  600 700  As left: 0.957 23.5 782 2565	
800 - 700 - 4 600 - 4	% change % c	9.0  As four 0.966 23.5 782 2565 50.0 26.6 7.3 45.0	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  374.0  400 500 calculated ppb  SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: IZS TEMP:	± 10%  ration  600 700  As left: 0.957 23.5 782 2565 50.0 27.2 7.3 45.0	
800 - 700 - 4 600 - 4	% change % c	9.0 As four 0.962 23.5 782 2565 50.0 26.6 7.3 4\$.0 n/a	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  400 500 calculated ppb  SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp:	± 10%  ration  600 700  As left: 0.957 23.5 782 25.65 50.0 27.2 7.3 45.0 n/a	
800 - 700 - 4 600 - 4	SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES:	9.0 As four 0.965, 782 25.05, 7.3 45.0 n/a 25.1	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Oliphur Dioxide Analyzer Calib  Alphur Dioxide Analyzer Calib  SIOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES:	± 10%  ration  600 700  As left: 0.957 23.5 782 2565 50.0 27.2 7.3 45.0 1/a 25.0	
800 - 700 - 4 600 - 4	SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL:	9.0 As four 0.962 23.5 782 2565 50.0 26.6 7.3 4\$.0 n/a	Il scale)=   last cale     last cale     API 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  alphur Dioxide Analyzer Calib  500 calculated ppb  SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: IZS TEMP: COnverter Temp: PMT TEMP: SAMP FL: SAMP FL:	± 10%  ration  600 700  As left: 0.957 23.5 782 25.65 50.0 27.2 7.3 45.0 n/a	
800 - 700	SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES:	9.0  As four 0.962 23.5 782 2565 50.0 26.6 7.3 4S.0 n/a 25.1 673 55.1.	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Oliphur Dioxide Analyzer Calib  Alphur Dioxide Analyzer Calib  SIOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES:	±10%  ration  As left: 0.957 23.5 782 2565 50.0 27.2 7.3 45.0 n/a 25.0 671 55.5 2427.8	
800 - 700	SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: PMT: UV LAMP; LAMP RATIO:	9.0 As four 0.966 23.5.5 782 2565 50.0 n/a 25.1 673 55.1 2415.		-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  SlOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temps: SAMP FL: PMT: UV LAMP: LAMP RATIO:	± 10%  ration  600 700  As left: 0.957 23.5 782 2565 50.0 27.2 7.3 45.0 n/a 25.0 671 55.5 2427.8 122.0	
800 - 700	SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FLT: UV LAMP: LAMP RATIO: STR. LGT	9.0  As four 0.96; 23.5 782 2565 50.0 26.6 7.3 45.0 n/a 25.1 2415. 121.3	Ill scale]=  last cale]   last	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  SIOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: COnverter Temp: PRES: SAMP FL: PMT: UV LAMP: LAMP RATIO: STR. LGT	±10%  ration  As left: 0.957 23.5 782 2565 50.0 27.2 7.3 45.0 1/a 25.0 671 55.5 2427.8 122.0 11.2	
800 - 700	SLOPE: OFFSET: HVPS: DOX: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: PMT: UV LAMP: LAMP RATIO: STR. LGT DRK PMT:	9.0 As four 0.96; 23.5 782 2565 50.0 26.6 7.3 4\$.0 n/a 25.1 2415. 121.3 33.1	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  Ilphur Dioxide Analyzer Calib  SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FL: PMT: UV LAMP: LAMP RATIO: STR. LGT DRK PMT:	± 10%  ration  As left: 0.957 23.5 782 25.65 50.0 27.2 7.3 45.0 n/a 25.0 671 55.5 2427.8 122.0 11.2 33.8	
800 - 700	SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: PRES: SAMP FLT: UV LAMP: LAMP RATIO: STR. LGT	9.0  As four 0.96; 23.5 782 2565 50.0 26.6 7.3 45.0 n/a 25.1 2415. 121.3	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  SIOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: COnverter Temp: PRES: SAMP FL: PMT: UV LAMP: LAMP RATIO: STR. LGT	±10%  ration  As left: 0.957 23.5 782 2565 50.0 27.2 7.3 45.0 1/a 25.0 671 55.5 2427.8 122.0 11.2	
800 - 700	SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: Converter Temp: VV LAMP; LAMP RATIO: STR. LGT DRK LMP: DRK LMP:	9.0 As four 0.966. 23.5 782 2565 50.0 26.6 7.3 45.0 n/a 25.1 241.3 33.1 -12.1 -12.1 -12.1	Il scale)=   last cale     RPI 100A Su	-0.13% 0.27%  Ilphur Dioxide Analyzer Calib  Ilphur Dioxide Analyzer Calib  SLOPE: OFFSET: HVPS: DCPS: RCELL TEMP: BOX TEMP: PMT TEMP: IZS TEMP: PMT; Converter Temp: PRES: SAMP FL: PMT; UV LAMP: LAMP RATIO: STR. LGT DRK PMT; DRK LMP:	± 10%  ration  As left: 0.957 23.5 782 2565 50.0 27.2 7.3 45.0 n/a 25.0 671 55.5 2427.8 122.0 11.2 33.8 -12.0	



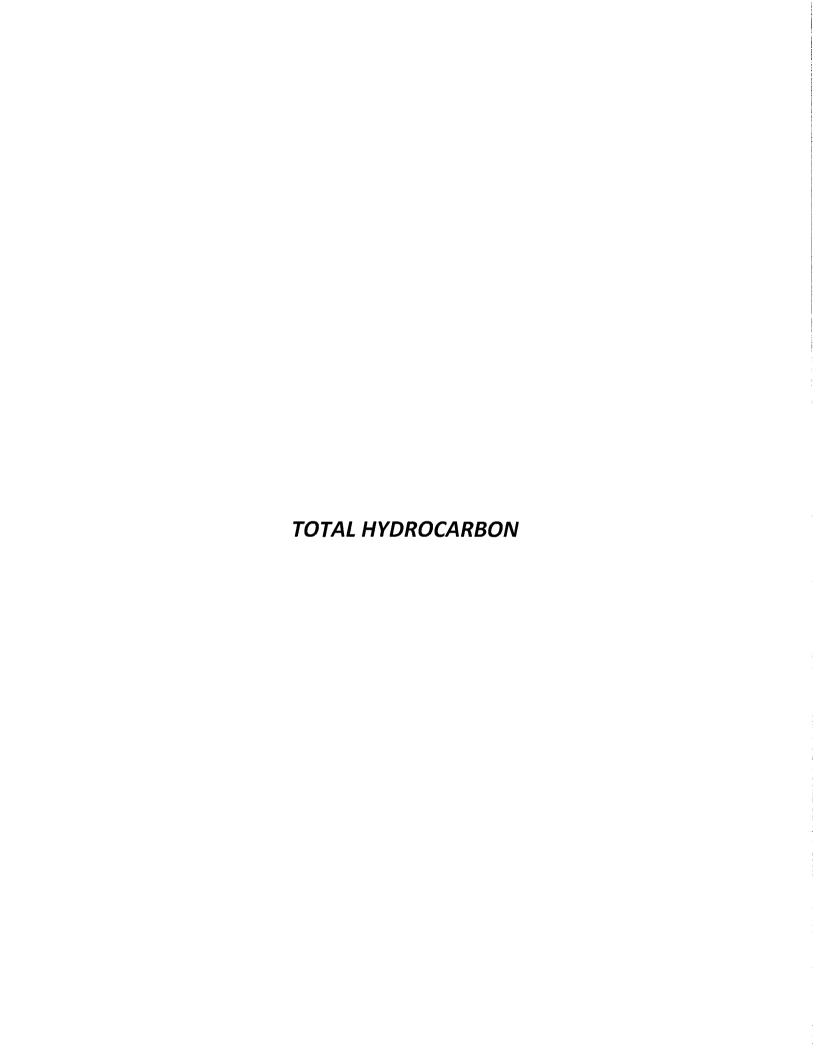
- LICA30 SO2 PPB



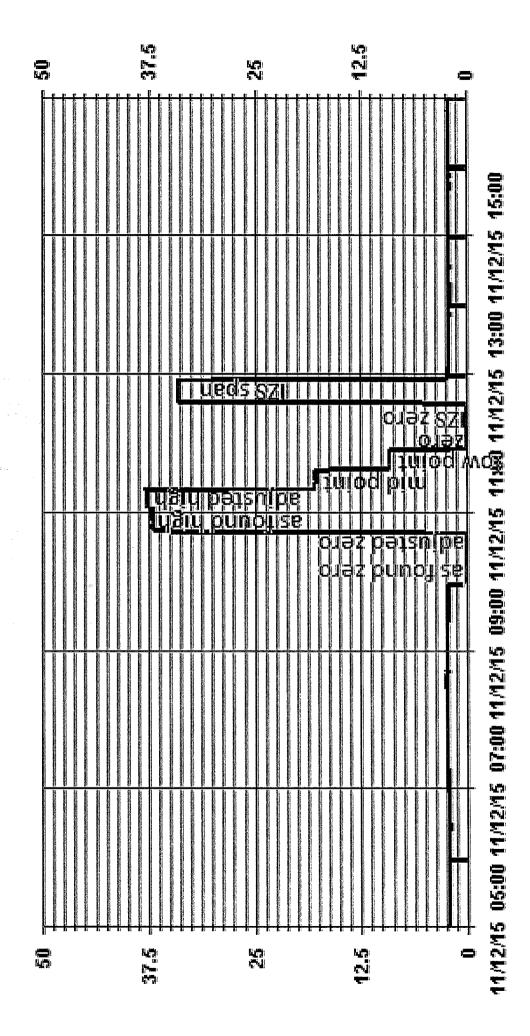
Date:	November 12,	2015		<del></del>	Barometric Pressure:	0.920	atm
Company/Airshed:	LICA		_	Stat	tion Temperature °C:	20	)
ocation/Station Name:	Maskwa		_		Weather Conditions:	Mix of sun a	
Parameter:_	Hydrogen Sul	phide	_		Calibration Purpose:	routine n	
Start Time 24 hr. (mst): _ End Time 24 hr. (mst):	12:16 15:29		_		ormed By/Reviewer:/ Cal Gas Expiry Date:	Alex Yakupov July 15,	Trina Whitsitt
Calibration Method:	Gas Dilutio	n .	-		& s/n (if applicable):	n/a	
			_				
alyzer: Serial Number:	511			Range ppb:	100		
Last Calibration Date:	October 15, 2	2015	_	As Found C.F.:	1,005		
Previous C.F.: _	1.000		_	New C.F.:	1.000	_	
ibrator:				Standard C	alibration Points for Ranges		
Flow Meter ID's:	n/a	<del></del>	_ [	Point	Hydrogen Sulphide Standard	Calibration Points	
Make & Model:	API 700		_ 1	High	78		
Serial #:_	830		_ ]	Mld	38		
Cal Gas Cylinder I.D. #:_	LL36837		_ 1	Low	19		
Cal Gas Conc. (ppm):	10.0	ALL POINTS	ARE 15 MII	NUTES OF STABILITY AS OF SE	PTEMBER 23. 2015		
Calibra	tor Flow Rates (cc/mi			Calculated Concentration:	Indicated Concentration:	Correctio	n Factors (C.F.):
Point	Diluent	Cal Gas	Total	(dqq)	(ppb)		
as found zero	7497	0.00	7497	0.0	0.9 78.5		N/A 1,005
as found high adjusted zero	7442 7497	58.50 0.00	7501 7497	78.0 0.0	78.5	<del>                                     </del>	1.005 n/a
adjusted zero	7497	58.50	7501	78,0	78,0	-	1,000
mid	7472	28.50	7501	38.0	38.0		1.000
low	7486	14.30	7500	19.1	19.1		0.998
calibrator zero	7497	0.00	7497	0.0	0,0 Average C.F.	.	n/a 0.999
90 7 80 - 60 - 60 - 955 - 940 - 940 -				38.0		78.0	
20 - 10 0 0:0	10 20		30	40 50	60 70	80	90
	THE RESIDENCE OF THE PARTY OF T			calculated ppb			
		As fou			As left:		
	SLOPE:	0.84 50.		SLOPE:	0.837 51.6	_	
	OFFSET: HVPS:	610		OFFSET: HVP5:	616		
	RCELL TEMP:	50.		RCELL TEMP:	50.0	_	
	BOX TEMP:	30.		BOX TEMP:	30.9	_	
	PMT TEMP:	7.9		PMT TEMP:	7.9	_	
	IZS TEMP:	45.0		IZS TEMP:	45.0		
	Converter Temp: PRES:	314 28.		Converter Temp:	314.5 28.7	_	
	SAMP FL:	650		PRES: SAMP FL:	647	<del>-</del>	
	UV LAMP:	2559		UV LAMP:		_	
	LAMP RATIO:	82.		LAMP RATIO:		_	
	STR. LGT	21.	1	5TR. LGT	21.6	<del></del>	
	DRK PMT:	32,		DRK PMT:	33.3	_	
	DRK LMP:	5.4		DRK LMP:	5.3 47.85	_	
	1-4				4 / X5		
	Internal Span:	47.	1	Internal Span:		_	



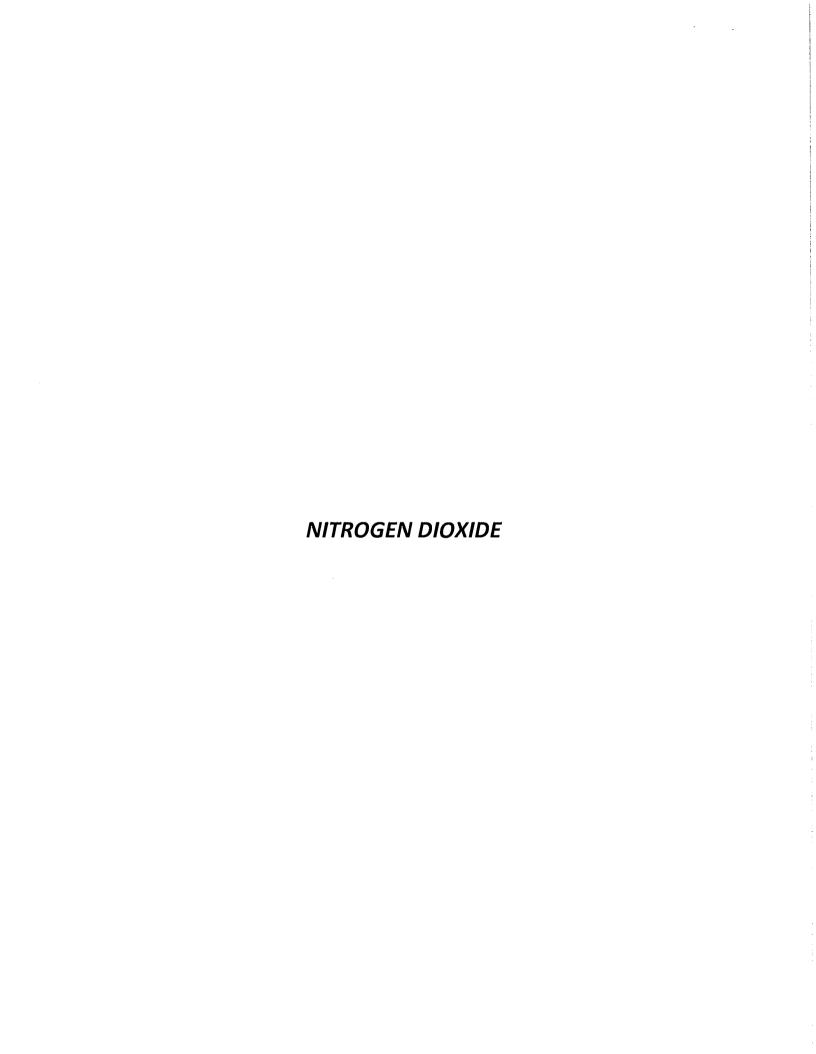
- LICA30 H2S\_ PPB



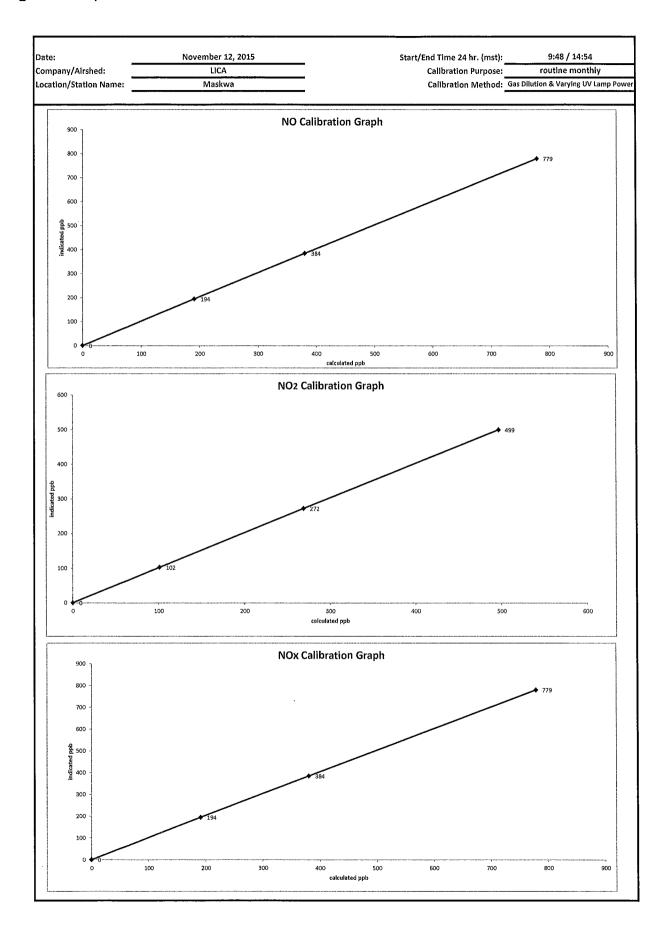
	November 12	2, 2015	_		ometric Pressure:	0,920 atm
Company/Airshed: _ Location/Station Name:	LICA Maskw	9	_		Temperature °C: ather Conditions:	20 Mix of suπ and clouds
Parameter:	Total Hydrod				bration Purpose:	routine monthly
Start/End Time 24 hr. (mst):	9:48 / 13	:00	_	Perform	ed By/Reviewer:	Alex Yakupov Trina Whitsit
Calibration Method:	Gas Dilut	lon	_	Cal	Gas Expiry Date:	March 26, 2017
yzer: Serial Number:	4366097	38		Range ppm:	50	
Last Calibration Date: _ Previous Cal High Point C.F.:	October 15, 1.001		_	As Found C.F.: New C.F.:		_
rator:						
Flow Meter ID's:	n/a		_			
Make & Model: _ Serial #:	API 700 830		– r		on Points for a Range	oi 50 ppm Target ppm
Cal Gas Cylinder I,D, # ;	LL3367	4	_ [		gh	38
I₄/C₃H₃ Cylinder Conc. (ppm): CH₄ as propane/total CH₄ [	601.4	202.0	- F		lld	18
equivilants (ppm):	555,5	1156.9	L		oww	9
		E 15 MINUTES (	OF \$TABILIT	Y AS OF SEPTEMI	BER 23, 2015 Indicated	1
Calibrato	r Flow Rates (cc/min)			Calculated Concentration:	Concentration:	Correction Factors:
Point	Diluent	Cal Gas	Total	(ppm)	(ppm)	
as found zero as found high	1999 1932	0.00 65.00	1999 1997	0.0 37.66	-0,02 36,96	n/a 1,018
adjusted zero	1999	0.00	1999	0.00	0,00	n/a
adjusted high	1932	65.00	1997	37.66	37.66	1.000
mld	1969	31.00	2000	17.93	17.83	1.006
low callbrator zero	1984 1999	16.00 0.00	2000 1999	9,26	9,15 0,00	1,011 n/a
	****	5.50	1 222		Average C.F.	
	b (Int	Correlation Coe ercept as % of f ange in C,F. fro	Slope ≃ _  -   = (full scale	1,000 0,999 0,13% -1,73%	UMITS > or = 0.995 .95-1.05 ± 3% F.S. ± 10%	
	Thern	no 51C Total Hy	ydrocarbon	Analyzer Callbrat	tion	
40 -						
35						37.66
30 -				_		37.66
30						37.55
30			17.83			37.60
30 - u 25 -			17.83			37.60
30 Ed. 25 Par 20 20 11 15			17.83			37.56
30 w 25 w 20 20 11 15	V 5.15	/	17.83			37.56
30 J Ed 25 20 20 J J 15 J	9.15		17.83			37.50
30 J He det 25 J 20 J 10 J 5 J		15		75.	30	
30 25 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	9.15	15	20 calculated	, 25 ppm	30	37.66
30 J udd 25 20 20 10 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10	15 found:	20		As left	35 40
30 J udd 25 20 20 10 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10	found:	20			35 40
30 425 426 427 420 420 420 420 420 420 420 420 420 420	10 As	found: 1000	20		As left H2 cylinder (psi): H2 cylinder reg	35 40
30 425 426 427 420 420 420 420 420 420 420 420 420 420	As H2 cylinder (psi): cylinder reg set (psi):	found: 1000 25	20		As left H2 cylinder (psi): H2 cylinder reg set (psi):	35 40 35 40 35 25
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	10  As  H2 cylinder (psi):  cylinder reg set (psi):  Span Cylinder (psi):	found: 1000 25	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi):	35 40 It
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	10  As  H2 cylinder (psi):  cylinder reg set (psi):  Span Cylinder (psi):  Span Cylinder Reg Set	found: 1000 25 600	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder	35 40 35 40 35 25
30 40 42 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set	found: 1000 25 600	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi):	35 40 t: 1000 25 600 22
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen	found: 1000 25 600 22 35	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder	35 40 35 40 35 1000 25 600
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement	found: 1000 25 600 22 35	20		As left  H2 cylinder (psi):  H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Alr Gen Pressure: measurement	35 40 t: 1000 25 600 22
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms:	found: 1000 25 600 22 35 None	20		As left  H2 cylinder (psi):  H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Alr Gen Pressure: measurement alarms:	35 40 8: 1000 25 600 22 35 None
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	10  As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms:	found: 1000 25 600 22 35 None	20		As left  H2 cylinder (psi):  H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms:	35 40 1: 1000 25 600 22 35 None
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms:	found: 1000 25 600 22 35 None None	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Rey Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms:	35 40  It 1000 25 600 22 35 None None 901
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt:	found: 1000 25 600 22 35 None None 863 1	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set [psi]: Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rrig:	35 40 1: 1000 25 600 22 35 None
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: ring: try:	found: 1000 25 600 22 35 None None 863 1	20		As left  H2 cylinder (psi):  H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Alr Gen Pressure: measurement alarms: service alarms: cnt: rng: try:	35 40  It: 1000 25 600 22 35 None None 901 1
30 40 42 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng; try; film: det:	found: 1000 25 600 22 35 None None 863 1 0 181.2	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set [psi]: Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rrig:	35 40  1000  25  600  22  35  None  None  901  1 0 180.6 125.6
30 40 42 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	10  As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rng; try; film; det: Flame:	found: 1000 25 600 22 35 None None 863 1 0 181.2 125.0	20		As left  H2 cylinder (psi):  H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame:	35 40  8: 1000 25 600 22 35 None None 901 1 0 180.6 125.6 180
30 40 40 40 40 40 40 40 40 40 40 40 40 40	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rng: try; film: det: Flame: Filter:	found: 1000 25 600 22 35 None None 863 1 0 181.2 125.0 181 125	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: try: fim: det: Flame: Filter:	35 40  It  1000  25  600  22  35  None  None  901  1  0  180.6  125.6  180  125
30 46 25 66 20 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rng: try: film: det: Filare: Filter: Base:	found: 1000 25 600 22 35 None None 863 1 0 181,2 125,0 181 125	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rig: try: film: det: Filter: Base:	35 40  8: 1000 25 600 22 35 None None 901 1 0 180.6 125.6 180
30 40 25 40 20 20 20 20 20 20 20 20 20 20 20 20 20	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rng: try; film: det: Flame: Filter:	Found: 1000 25 600 22 35 None None 863 1 0 181,2 125,0 181 125 07,53	20		As left  H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Flame: Filter: Base: Sample psi: Internal Air	35 40  1000  25  600  22  35  None  None  901  1  0  180.6  125.6  180  125
30 40 25 25 20 20 20 20 20 20 20 20 20 20 20 20 20	10  As  H2 cylinder (psi):  Cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Air Gen Pressure: measuremt alarms:  cnt: rng; try; film: det: Flaer: Flaer: Base: Sample psi:	found: 1000 25 600 22 35 None None 863 1 0 181,2 125,0 181 125 07,53 21	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Filter: Base: Sample psi: Internal Air	35 40  25  600  22  35  None  None  901  1  0  180.6  125.6  180  125  125  07.53
30 udd 25 pr 20 pr	H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try; film: det: Flame: Sample psi: Sample psi: Internal Air Pressure:	found: 1000 25 600 22 35 None None 863 1 0 181.2 125.0 181 125 125 125 125 17.53 110	20		As left  H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Flame: Filter: Base: Sample psi: Internal Air	35 40  1000  25  600  22  35  None  None  901  1  0  180.6  125.6  180  125  125  07.53  21  10
30 udd 25 20 20 10 10 15 10 10 10 10 10 10 10 10 10 10 10 10 10	As H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rig; try: film: det: Flame: Flame: Fame: Sample psi: Internal Air Pressure: nternal Fuel Pressure:	found: 1000 25 600 22 35 None None 863 1 0 181.2 125.0 181 125 125 125 125 27 10	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Zpan Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Flame: Sample psi: internal Air Internal Fuel Pressure: Internal Pressure Intenal Pressure Gauge psi:	35 40  81  1000  25  600  22  35  None  None  901  1  0  180.6  125.6  180  125  125  125  125  125  125  125  12
30 udd 25 20 20 10 10 15 10 10 10 10 10 10 10 10 10 10 10 10 10	H2 cylinder (psi): cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try; film: det: Flame: Sample psi: Sample psi: Internal Air Pressure:	found: 1000 25 600 22 35 None None 863 1 0 181.2 125.0 181 125 125 125 125 27 10	20		As left H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det: Flame: Flame: Filter: Base: Sample psi: Internal Air Internal Fuel Pressure: Internal Fuel	35 40  1000  25  600  22  35  None  None  901  1  0  180.6  125.6  180  125  125  07.53  21  10

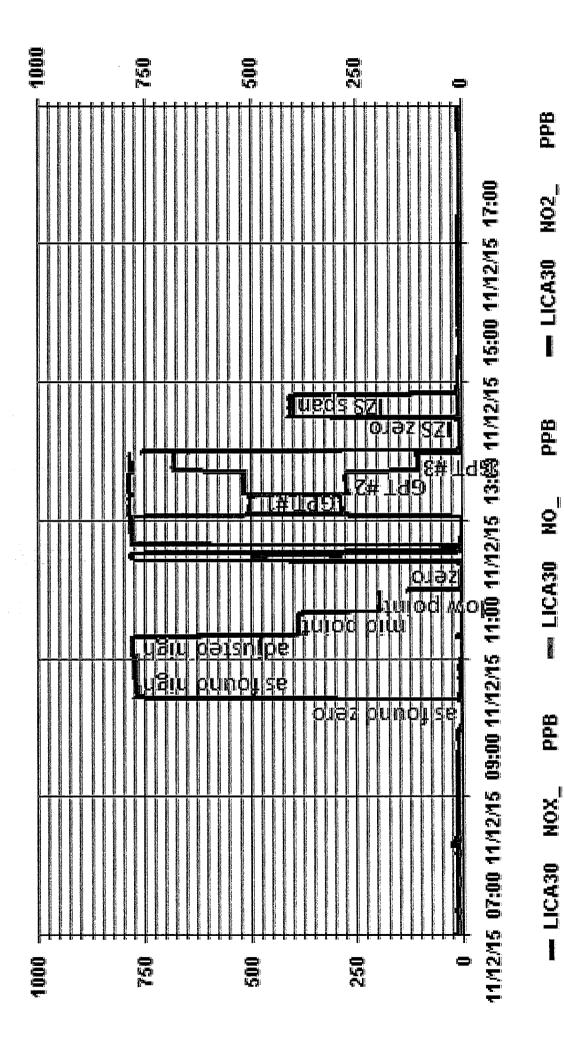


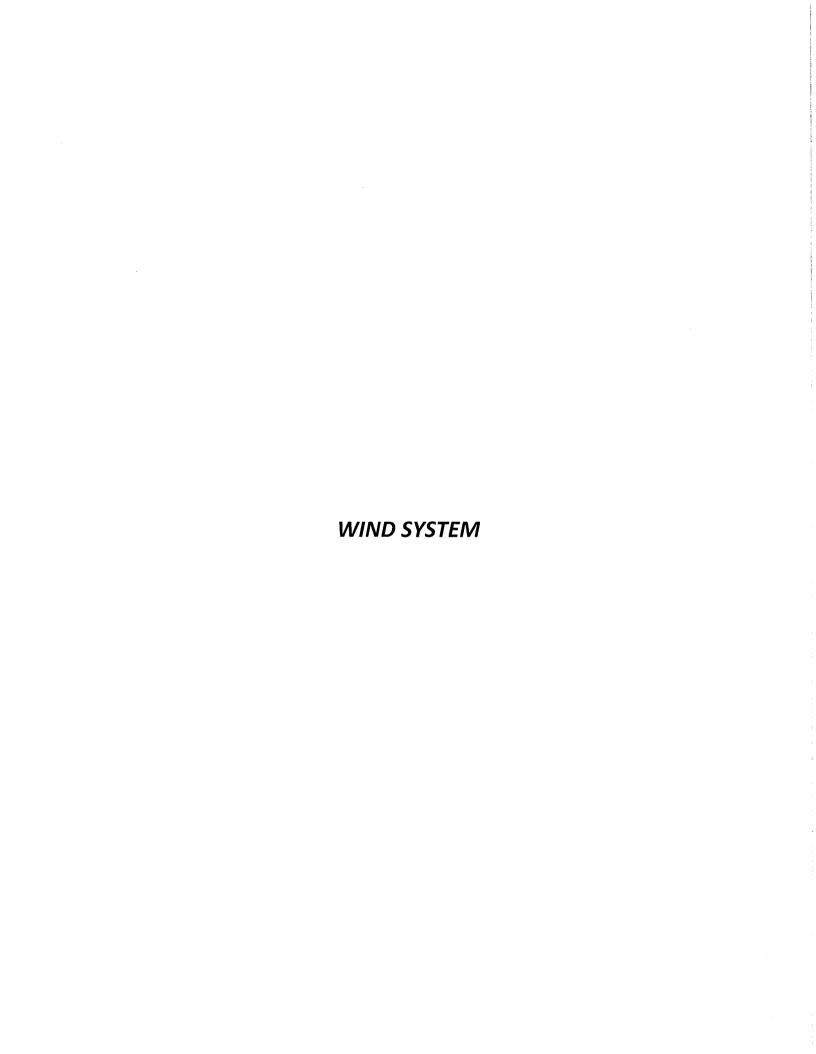
- LICA30 THC PPM



	Nov	/ember 12,	2015				Barometric Pressure:		0.920	
Company/Airshed:		LICA				Sta	tion Temperature °C:		20	
Location/Station Name: tart/End Time 24 hr. (mst):		Maskwa 9:48 / 14:5	4	•			Weather Conditions: Calibration Purpose:		Mix of sun a routine n	***************************************
P.T. to be used for Ozone?		No		•		Per	formed By/Reviewer:	Alex Y	akupov	Trina Whits
Calibration Method:	Gas Dilution	& Varying U	/ Lamp Power	•			Cal Gas Expiry Date:		March 1	
alyzer:						Cor	rection Factors:			
					r	Previous C.F.:	As Found C.F.:		v C.F.:	
Seriai Number: Last Calibration Date:		593 tober 15, 2	015		NO =	1.000	1.013 0.996		996	
Range ppb:		1000	.013	•	NO₂= NOx =	1,000	1.009		000	
brator:										
Flow Meter ID's:		/a	-			ndard Calibration Po		1000 ppb		
Make & Model:		2010 D	-			int	Target NO (ppb)		NO₂ (ppb) 500	Cc Ozone
Serial #: Cal Gas Cylinder I.D. # :		00613	-		HI W	gh id	780 380		175	n/a n/a
NO/NOx Gas Conc. (ppm):		50.6	-		Lo		190		100	n/a
		•	-		Extra P	oint #1	n/a		n/a	n/a
				ONITE ARE AT \$400		oint #2	n/a		n∕a	n/a
Calibrator Flo	w Rates (co	/min)	ALLI	Calculated NO	TES OF STABILITY AS Calculated NOx	OF SEPTEMBER 23, 2 Indicated NO	015 Indicated NOx	NOCE	NOx C.F.	
Point	Diluent	Cal Gas	Total Flow	(ppb)	(ppb)	(ppb)	(ppb)		NOX C.F.	
as found zero	5013	0.0	5013	0	0	0.0	0.0	n/a	n/a	
as found high	4938	77.2	5015	778.9	778.9	769.0	772.0	1,013	1.009	
adjusted high	4938	77.20	5015	778.9	778.9	779.0	779.0	1,000	1.000	
mid low	4976 4994	37.70 18.90	5014 5013	380.5 190.8	380.S 190.8	384.0 194.0	384,0 194.0	0,991	0.991	
calibrator zero	5013	0.00	5013	0	0	0.0	0.0	n/a	n/a	
			411	OINTE ADE AT A SILVE	FEC OF CTARVITY	OF CENTERAL CO.	Average C.F.=	0.991	0.991	
Calibrator Flo	w Rates (co	/min)	ALLI	Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> gain	NO <sub>2</sub> C.F.
Point	Diluent	Cal Gas	Total Flow	volts or ppb	(ppb)	(dqq)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4938	77.20	5015	0.0	781.0	781.0	0,0	0.0	0.0	
as found high NO2	4938	77.20	5015	520.0	284.0	784.0	499,0	497.0	499.0	0.996
gpt mid gpt low	4938 4938	77.20 77.20	5015 5015	275.0 100.0	512.0 680.0	784.0 782.0	272.0 102.0	269.0 101.0	272.0 102.0	0.989
<u>.</u>			•						e NO₂ C.F.=	0.992
					gression/Calibration					
			oeffecient =	NO 1 222	NOx	NO <sub>2</sub>	LIMITS			
	CUI	nelation C	= Slope	1.000	1.000	1.000 0.996	> or = 0.995 .95-1.05			
	b (Interc	ept as % o	f full scale)=	0.20%	0.20%	0.06%	± 3% F.S.			
	% chang	je in C.F. fr	om last cal=	-1.29%	-0.89%	0.40%	± 10%			
	NO	2 converte	r effeciency			0.99	0.96 to 1.04			
<u></u>			ound:				As left:			
	NOx SLOPE:		.972 0.0	-		NOx SLOPE:	0,980			
	NOx OFFS: NO SLOPE:		.976	-		NOx OFFS: NO SLOPE:	0.0	-		
	NO OFFS:		0.3	<del>,</del> -		NO OFFS:	-0.3			
	SAMP FLW:		177	•		SAMP FLW:	476			
	OZONE FL:		78 6.0	-		OZONE FL:	78	-		
4	PMT: IORM PMT:		1.0	-		PMT: NORM PMT:	-0.S			
·	AZERO:		7.4	-		AZERO:	7.5	•		
	HVPS:		562	-		HVP5:	662			
R	CELL TEMP:		50.0 27.6	-		RCELL TEMP: BOX TEMP:	50.0	-		
	BOX TEMP: PMT TEMP:		6.7			PMT TEMP:	28.6	-		
	IZS TEMP:		88.5			IZS TEMP:	38.6	_		
	OLY TEMP:		14.6	 •		MOLY TEMP:	315,1			
	RCEL:		4.3	-		RCEL:	4.3	-		
			26.8	-		SAMP: Internal Span NO:	27.1 6.6	-		
٨	SAMP: al Span NO:					•		-		
N Intern	SAMP: al Span NO: I Span NO2:		7.5 85.9	-		Internal Span NO2:	398.6			
Intern Intern	al Span NO:	3:		- - -		Internal Span NO2: Internal Span NOx:	398.6 404.9	-		







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

complementalisticalisticalisticalis

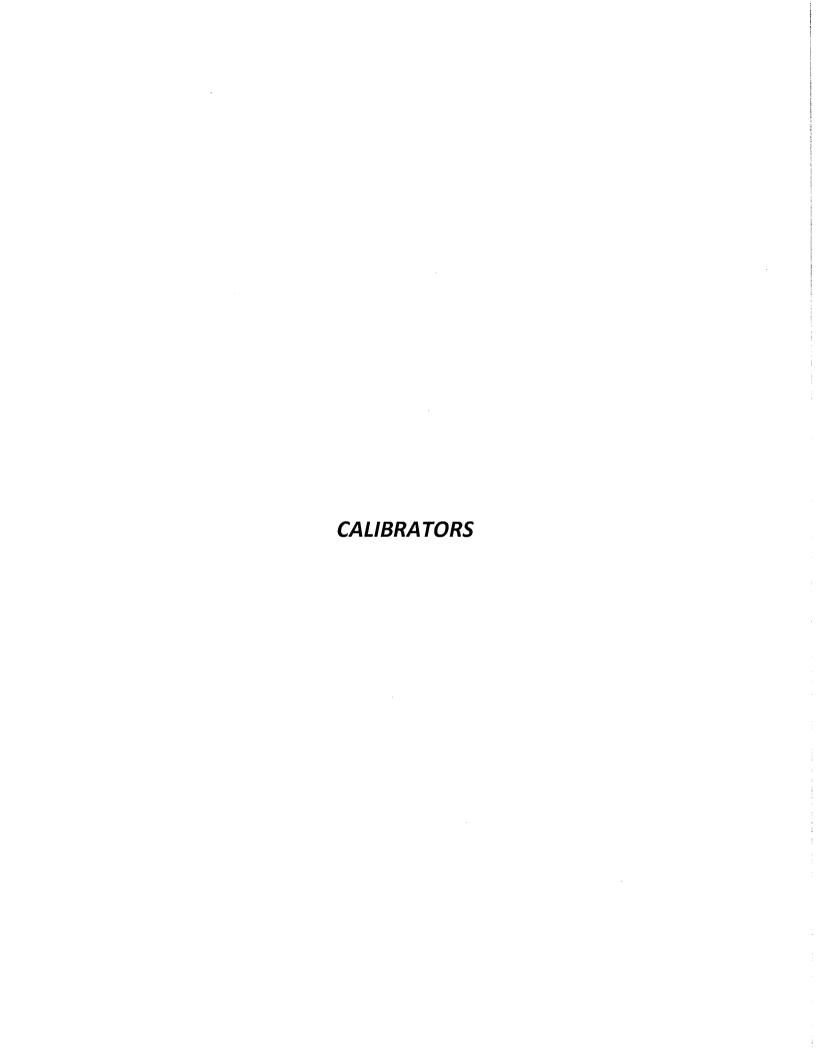
Humidity 20 to 70%. Rediation none

require platested in these standards are connected and are traceable to NIST to the extent and wed by the institute a calibration facility. Unless otherwise stated fereign all instruments are calibrated to meet the manufacturer's published people thousand a calibration system comples with MIL-STD-45662A (8/1/88). The calibration system comples with MIL-STD-45662A (8/1/88).

		rate of <b>call</b>	<b>Ofation</b>			
Instrument:	Sonic Wind Se	nsor		Model No.:	50.5H	
Manufacturer:	Met One Instit	iments Inc.		Serial No:	H10703	
Sales Order N	.: IO153	D				
Customer:	Maxxam Analy	rtics	Tested	per P.O. No.:	35+5 <u>F</u>	<u> 180</u>
instrument Co Corrective Ac	ndition Within T tion. No Adjustr	neni()	As Found () Adjust (X)	As Left (X)		
<b>Al-Work Per</b>	Manual Revisi ormed per Custo xument No.	on: Septembi xners Purcha	Maintenance () er 16, 2013. M se Order Requ	P42201Rev <sup>®</sup> C rements	<b>)</b>	
Daley (As I Fou	nd): n/a	Dale	(As Left Test):	3/4/2014		
Galibrated by	2).77	w.		Date: 3/4/	/4	
	Testi Egulome	nt Used for C	alibration of Ins	truments -	Augustus (	
- lessaladar.	Handaalija:	Model No.	Serial No.		Cal Due	Accuracy
			lp:Autheraci			+/=.02%
:::  Xellme late::/		197A	490633	3/8/2013	3/8/2014	of input
	Hawell					#/-
			71616181	3/8/2013	3/8/2014	0.0001%
Terreral (C) (G) Terreral (C) (G)	i = Mek(Oñeo.::	nii Sichlike	i making	4/24/2012	4/24/2017	<.15mph or 1% ws

Vibration none

ioale: 3/10/14/





### Calibrator Performance Audit Oxides Of Nitrogen

GOVE	ernment			Oxides Of	Tittogen		1.110.140	2015-032A
Company	Max	xam	•		Operator:	Limi	n Li	
	Calibrator	•			Flow M	Teasurement :	Device:	
	e/Model	· · · · · · · · · · · · · · · · · · ·	2010	_	Make	/Model	N/A	
	Number	1720			Serial I	Number	N/A	
Last Veri	ication Date	Ne	ew		Tempera	iture (°C)	N/A	
NO Cy	linder S/N	BLM00	27561		Barometr	ic Pressure	N	I/A .
NO/NOX C	oncentration	50.7	/50.7	•				
Dil	ution Flow (s	•					***************************************	
Pt. #1		Pt. #2	5000	Pt. #3	5000	_		
	as Flow (sco							
Pt. #1	80	Pt. #2	40	Pt. #3	20	•		
Calibuatan)	low (seem)	Calculated	Cona (nnm)	Indi	antad Cana (		0/ D100	
			Conc.(ppm)		cated Conc.(	<del> </del>		vs Audit Gas
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5010	0.0	0,000	0.000	0.000	0.000	0.000		± 10%
5033	79.1	0.797	0.797	0.790	-0.011	0.779	-1%	-2%
5030	39.7	0,400	0.400	0.395	-0.005	0.390	-1%	-3%
5029	20.0	0.202	0.202	0.198	-0.003	0.195	-2%	-3%
				Absolute A	verage Perce	nt Difference	1%	3%
LINEAR	REGRESSI	ON ANALY	SIS	y=	mx+b (where x=	calculated concen	tration, y=Indicat	ed concentration
	<u>NO</u>		LIN	<u>IITS</u>		NOx		
(	Correlation=	1.0000		.990		Correlation=	1.0000	
	m (Slope)=	0.9920		-1.10		m (Slope)=	0.9783	
b (Interce	ept % of FS)=			6 F.S.	h (Interd	cept % of FS)=	#DIV/0!	
_ (				- 1,51	U (21100)	орч 70 от г в)	B1475.	
Flow	O <sub>3</sub> Conc	NO De	crease	NO	NO2	NOX	% Diff. V	s Audit gas
5033	0.000	0.0	<del></del>	0.787	-0.011	0.776	NO <sub>2</sub>	% Diff, Limi
5033	0.520	0.4		0.297	0.475	0.772	0	± 10%
5033	0.280	0,2		0.526	0.249	0.774	0	± 10%
5033	0,100	0.0		0.698	0.078	0.775	0	± 10%
				<i>!</i>		nt Difference		± 10%
LINEAR	REGRESSIO	ON ANALY	SIS		····	calculated concen		
	NO <sub>2</sub>			<u>IITS</u>	mm s (milotox	ourourated composit	iration, y maioai	ou oonooniidhor
,	Correlation=	1.0000		.995				
`	m (Slope)=	0.9916		-1.10		•		
h (Interce	opt % of FS)=	#DIV/01		6 F.S.				
		110101		<b>0 1.</b> 9.				## (Park # 1 / La) Park
	AENV S	tandards		<del> </del>		NO <sub>X</sub> Aı	ıalvzer	
	Audit Ca	librator				Make/Model	•	o 42i
	Make/Model	Teco	146i		Sorial/	AMU Number		J 1868
Serial/A	MU Number	AMU	·	•		alibration Date		1, 2015
	•			•		ıll Scale (ppm)		
C	OMMENTS:	Contains 49.9	ppm SO2					
	Auditor:	Al C			Date:	May 2	1. 2015	
Operato	or Signature:	7) 7)	100 D.	•			· ·	
Operati	u pignanno;	U m	CEMENTE.		Location:	McIntyre Cent	er Edmonton	-n-d



## Calibrator Performance Audit Oxides Of Nitrogen

File No. 2015-001A

	rnment							2010-0017
Company	Max	xam			Operator:	Limi	n Ll	-
Make	Calibrator /Model	: API	700			leasurement : Model		/A
	Number	62		•		Number		/A //A
	ication Date			•	1	ture (°C)		/A /A
NO Cvl	inder S/N	BLMO		ı	-	Barometric Pressure		/A
NO/NOX Co		50.8/	*****					
Dil	ution Flow (s	sccm)		· · · · · · · · · · · · · · · · · · ·	<del></del>			
Pt. #1	5000		5000	Pt. #3	5000			
1	as Flow (sco	n)						
Pt. #1	80	Pt. #2	40	Pt. #3	20			***
Calibrator I	low (seem)	Calculated (	Conc.(ppm)	Ind	icated Conc.(†	opm)	% Difference	vs Audit Gas
Dilution	Gas	NO	NOx	NO	NO <sub>2</sub>	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.001	0.001	L <b>i</b> mit	± 10%
4999	78.7	0.800	0.800	0.851	-0.016	0.835	6%	4%
5000	39.4	0.400	0.400	0.423	-0.008	0.416	6%	4%
5001	19.7	0.200	0.200	0.211	-0.003	0.208	5%	3%
				Absolute A	Average Perce	nt Difference	6%	4%
LINEAR	REGRESSI	ON ANALY	SIS	<i>V</i>	=mx+b (where x=	calculated concen	tration, v=Indicate	ed concentration)
	<u>NO</u>		T.TA	<u>IITS</u>		NOx	· · · · · · · · · · · · · · · · · · ·	,
	Correlation=	1.0000		.990		Correlation=	1.0000	
`	m (Slope)=			-1.10		m (Slope)=		
b (Interce	ept % of FS)=			6 F.S.	b (Interd	ept % of FS)=		
o (mitoro	,pv /v 011 B)	. 5.1255	-07	0 A 101	b (more	орт 70 от гв)	0.0000	
Flow	O <sub>3</sub> Conc	NO De	crease	NO	NO2	NOX	% Diff. V	s Audit gas
4999	0.000	0,0		0.841	-0.015	0.831	$NO_2$	% Dlff, Limit
4999	0.520	0.5	62	0.279	0.518	0.797	-5%	± 10%
4999	0.280	0.3	08	0.533	0.286	0.818	-2%	± 10%
4999	0.100	0,1	08	0.733	0.095	0.828	2%	± 10%
				Absolute A	verage Perce	nt Difference	2%	± 10%
LINEAR	REGRESSI	ON ANALY	SIS	у	=mx+b (where x=	calculated concen	tration, y=indicat	ed concentration)
	$\underline{NO_2}$		LIM	<u>IITS</u>				
(	Correlation=	0.9998		.995				
	m (Slope)=	0.9458		-1.10				
b (Interce	ept % of FS)=	-1.0258	± 3%	6 F.S.				
,	AENV S	tandards				NO <sub>X</sub> Aı	nalvzer	<del></del>
	Audit Ca	alibrator				Make/Model	-	o 42i
	Make/Model	Teco	146i		Serial/	AMU Number		1 1868
Serial/A	MU Number	AMU	1809		Last Ca	alibration Date		1, 2015
					Fu	ll Scale (ppm)	1	.0
CC	MMENTS:	Cylinder conta	ains 49.7 ppm	SO2. Syster	n shows NOx o	lrop when O3	added. Also i	noisy
	,	during GPT pl		<del></del>				<b>-</b>
	Auditor:	AI C			Date:	April 1	, 2015	
Operato	or Signature:	Con On	Land.	d ,		Mointyre Cent	······································	<del>-</del> -



## Calibrator Performance Audit OZONE

File No. 2015-030A

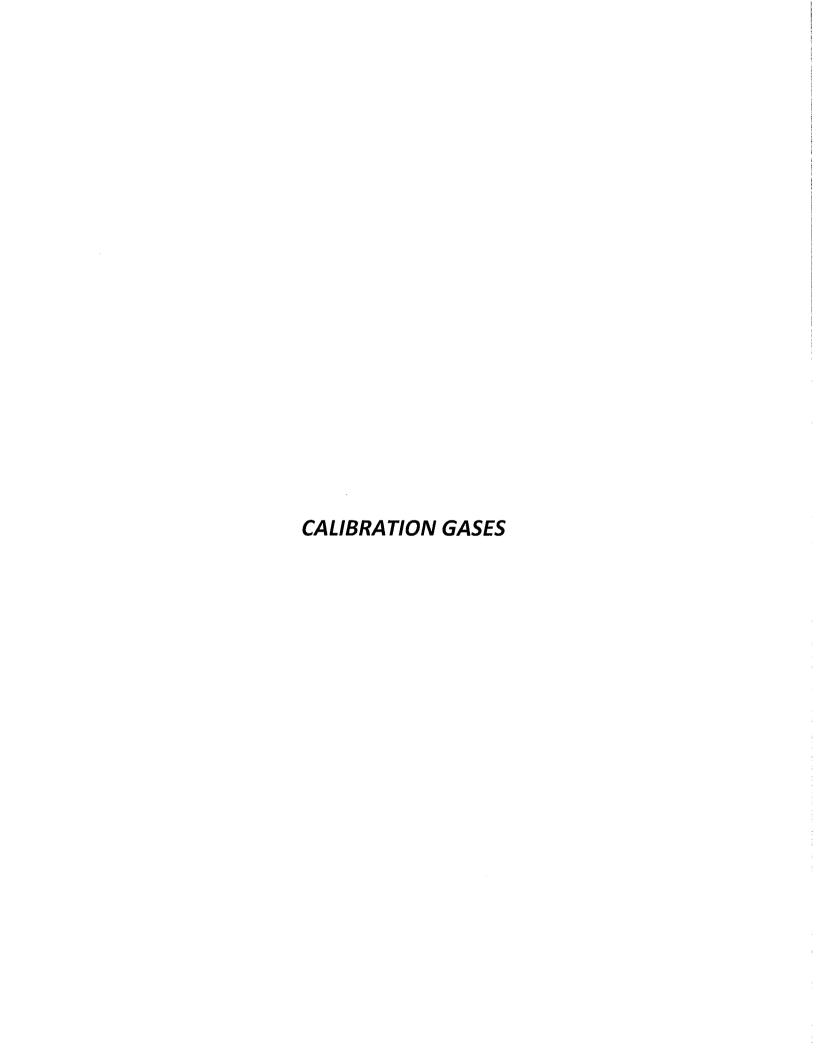
Company: Max	xam		Operator: _	Limi	n Li		
Calibrator			Flow Measurement Device:  Make/Model N/A				
Make/Model		2010D	•		N/A		
Serial Number		00613	Serial N		N/A		
Oven Temperature		V/A	Temperat	, ,	N/A		
Last Verification Date		N/A	Barometric	Pressure	N/	<u>A</u>	
Flow Measuren	nents						
Pt. No. 1	Pt. No. 2	5000	Pt. No. 3	5000	-		
Calibrator Flow	Calc	culated	Indica	ated	% Dif	ference	
(sccm)		ation (ppm)	Concentrati			% Diff. Limit	
5013		000	. 0.00		Was the Property		
5013	-	400	0.40		1%	± 10%	
5013	<del></del>	200 ·	0.20	····	1%	± 10%	
5014		100	0.10		0%	± 10%	
			Average Percen			± 10%	
O <sub>3</sub> Correlation= m (Slope)= b (Intercept % of FS)=	1.0000 1.0163 0.0800	<u>LIMITS</u> ≥ 0.995 0.90-1.10 ± 3% F.S.	·				
AENV S	Standards			Ozone Aı	ıalvzer		
Audit Calibrator			Make/N	Model ·	•	49i	
Make/Model	Teco	49i PS	Serial/AMU		AMU		
Serial/AMU Number	AMU	J 1808	Last Calibra	ation Date	May 21		
Ozone Standard	Pri	mary	Full Scale	e (ppm)	0.		
COMMENTS:							
Auditor:	Al	Clark	Date:	May 21	· · · · · · · · · · · · · · · · · · ·		
Operator Signature:	1.Esta-C	Khulm	Location: I	McIntyre Cent	ter Edmonton		



# Calibrator Performance Audit Sulphur Dioxide (by Cylinder Dilution)

File No. 2014-258A

Company: Max	cxam	Operator: Limit	ı Li		
Calibrator	•	Flow Measurement l	Device:		
Make/Model	API 700	Make/Model	N/	<sub>'A</sub>	
Serial Number	830	Serial Number	N/A		
Last Verification Date	Oct 2013	Temperature (°C)	N/		
SO <sub>2</sub> Cylinder Conc.	50.3	Barometric Pressure	N/		
SO <sub>2</sub> Cylinder S/N	LL42475	`			
		•			
Flow Measurer	nents				
Pt. No. 179.5	Pt. No. 2 39.8	Pt. No. 3 19.9			
Calibrator Flow	Calculated	Indicated	% Dif	ference	
(sccm)	Concentration (ppm)	Concentration (ppm)	vs Audit Gas	% Diff. Limit	
Zero Air	0.000	0.000	vs Audit Gas	70 DIII, LIIIII	
4918	0.800	0.798	0%	± 10%	
4960	0.400	0.398	-1%	± 10%	
4977	0.200	0,200	0%	± 10%	
4011	L.,	Average Percent Difference		± 10%	
		SSION ANALYSIS			
		aBBLOIN AINALLIBLB =mx+b (where x=calculated concentre	ation, y≕indicated	d concentration)	
$\underline{SO_2}$	<u>LIMITS</u>				
Correlation=	1.0000 $\geq 0.995$			•	
m (Slope)=	0.9971 <b>0.90-1.10</b>				
b (Intercept % of FS)=	0.0000 $\pm 3\%$ F.S.				
AENV	Standards	SO <sub>2</sub> An	alvzer	-	
Audit Calibrator		Make/Model	•	43C	
Make/Model	R&R MFC 201	Serial/AMU Number		1623	
Serial/AMU Number	AMU 1690	Last Calibration Date		15/14	
		Full Scale (ppm)	1	.0	
COMMENTS:	H2S gas was slow to move to calibrator. SO2 moves through	hrough the calibrator. Check for grant of the calibrator.	or contamnati	on inside	
Auditor:	Al Clark	Date: December	16, 2014	4	
Operator Signature:		Location: McIntyre Cent	er Edmonton	_	





Company	Ma)	xam		Operators nar	ne: Limir	ı Li	
					2 Certified By:		ılde
Reference	Calibrator a	ınd Gas:			Flow Measurem	ent Device:	
Make	/Model	Teco 1	146i		Make/Model	Bios D	C2
Serial	Number	AMU 1	809		Serial Number	AMU 1	659
Last Verif	ication Date	March 31	, 2015		_	22.5	
		NO		48.79		690 mr	
		CAL01			,		
	Settings	•	42i 4.2 Mar 31/15	•	Serial/AMU an: 1.008		1.0
····							
	lows (sccm)	Indicated Co		Gas Flow/	Concentration	Cylinder Cor	
Dilution	Gas	NO	NOX	Dilution Flow	Factor	NO	NOX
5000	0.0	0.000	0.000	0.01000	00.046		$\stackrel{>}{=}$
4976 4993	82.6 41.0	0.842 0.420	0.822	0.01660	60.242	50.7	49.5
4993	20.2	0.420	0.410 0.205	0.00821 0.00406	121.780 246.386	51.1 51.2	49.9 50.5
4911	20,2	0.200	0,200		ler Concentration:		50.0
			<u>NO</u>		<u>NOx</u>		
Dravious	Stated Concer	ntration PPM:	50.7		50.7		
TICYIOUS	ercent varianc	e from Stated:	0.7		1.4		
				only			
Р		olerances ba	sed on NO				
Р <b>С</b> у	ylinder gas t	olerances bar rance. Use man			X COMMENTS:		· · · · · · · · · · · · · · · · · · ·
P Cy Meets Ma	y <b>linder gas t</b> anufacturer Tole	rance. Use manı	ıfacturers sta		Contains 49.9 ppr	<del></del>	
P Cy Meets Me <=5% Outs	y <b>linder gas t</b> anufacturer Tole ide Manufactur	rance. Use man er Tolerance. Us	ıfacturers sta e manufactur	ted concentration		<del></del>	
P Cy Meets Me <=5% Outs	y <b>linder gas t</b> anufacturer Tole ide Manufactur	rance. Use man er Tolerance. Us	ıfacturers sta e manufactur e, <u>DO NOT l</u>	ted concentration ers concentration USE this cylinder		n SO2 in cylinder	,

F-GAS-003 1.1



					ne: Limir		
Cylinder#:	BLM002073	Conc (PPM)	50.6/50.6	Tolerance (%)	2 Certified By:	Air Liqı	uide
Reference	Calibrator :	and Gas:			Flow Measureme	ent Device:	
Make	/Model	Teco 1	1461		Make/Model	Bios D	C2
Serial	Number	AMU 1	809		Serial Number	AMU 1	659
Last Verif	ication Date	March 31	, 2015		-	22.5	
		NO				690 mr	
		. CAL018			_,_,	300111	
Reference Make Instrument Last Calibr	/Model Settings	•	42l 4.2 Mar 31/15	Sp	Serial/AMU an: 1.008 C.F. 1.000	_	1.0
Calibrator Fi	love (noom)	Indicated Co.	na (nam)	Gas Flow/	Composition	Cylinder Cor	
Dilution	Gas	NO NO	NOX	Dilution Flow	Concentration Factor	NO NO	NOX
5000	0,0	0.000	0,000				
4976	82,6	0.855	0.848	0.01660	60.242	51.5	51.1
	41.0	0.427	0,421	0.00821	121.780	52.0	51.3
4993		0.213	0.209	0.00406	246.386	52.5	51.5
4993 4977	20.2	0.210			**************************************		
	20.2	0.210		Average Cylin	der Concentration:	52.0	51.3
	20.2	0.210	<u>NO</u>	Average Cylin	der Concentration:	52.0	<u> 51.3</u>
4977		entration PPM:		Average Cylin		<b>52.0</b>	51.3
4977 Previous	Stated Conce		50.6	Average Cylin	<u>NOx</u>	<b>52.0</b>	61.3
Previous Provious	Stated Conce ercent variance vlinder gas t	entration PPM: the from Stated: tolerances base	50.6  2.8  sed on NO		<u>NOx</u> 50.6	<b>52.0</b>	61.3
Previous Provious Provious Provious	Stated Conce ercent variance linder gas t	entration PPM:  see from Stated:  colerances baserance. Use many	50.6  2.8  sed on NO	only	NOx 50.6 1.4		
Previous Previous Previous Previous Cy Meets Ma <=5% Outs	Stated Conce ercent variance linder gas to surfacturer Tole ide Manufactur	entration PPM:  see from Stated:  solerances baserance. Use manurer Tolerance. Use	50.6  2.8  sed on NO  ifacturers state manufactur	only ted concentration	NOx 50.6 1.4 COMMENTS:		
Previous Previous Previous Previous Cy Meets Ma <=5% Outs	Stated Conce ercent variance linder gas to surfacturer Tole ide Manufactur	entration PPM:  see from Stated:  solerances baserance. Use manurer Tolerance. Use	50.6  2.8  sed on NO afacturers state manufacture. DO NOT 1	only ted concentration ers concentration USE this cylinder	NOx 50.6 1.4 COMMENTS:	n SO2 in cylinder	

F-GAS-002 1,1



## Calibration Gas Audit Single Component Cylinder Gas

File No. 2015-342CGA

Company:	Max	(am	Oper	ator's Name:	Lin	nin Li
Cylinder#: BL	M002756T	Concentration PPM:	49.9	Tolerance(%)	2	Cortified By: Air Liquide
Reference Ca	librator a	nd Gas:		Flow Meas	urement	Device:
Mal	ce/Model: _	R&R MFC 201		Mal	ce/Model:	Bios DC2
Serial	Number:	AMU 1690		Serial	Number:	AMU 1659
Last Verificat	tion Date:	March 31, 2015				22.5 C
	-	SO2 Conc.	98.57			690 mmhg
		CAL016720				
Reference An	•	T 100	G!-1/	NATT NT I	4000	
		Teco 43C		AMU Number:		
nstrument Set	_	Zero: 7.9				
ast Calibratio	on:	Date: <u>Mar 31/15</u>	C.F.	1,000	Done By:	Al Clark
	F	Т		Г		T
Calibrator Flow		Indicated	Gas Flow/	Concentra		Cylinder
Dilution 5000	Gas 0.0	Concentration (PPM) 0.000	Dilution Flow	Factor		Concentration
4976	82.6	0.821	0.01660	60,242	***************************************	49,5
4993	41.0	0.410	0.00821	121.780		49.9
4977	20.2	0,202	0.00406	246.386	3	49.8
			Avera	ge Cylinder Conc	entration:	49.7
Previous Sta		tration PPM: 49.9  from Stated: 0.4  ance, Use manufacturers stated	concentration X	] COMMENTS:		
Meets Manuf		r Tolerance, Use manufacturers	concentration	<u></u>		
Meets Manuf <=5% Outside l	Manufacture		ļ			
Meets Manuf <=5% Outside l	Manufacture	r Tolerance. Use manufacturers	ļ	Date:	March	31, 2015

F-GAS-002

Alberta=

- v -	Max	xam	Oper	imin Li	
Cylinder#:_	BLM002073	Concentration PPM:	49.5	Tolerance(%)2	Certified By:Air Liquide
Reference C	Calibrator a	nd Gas:		Flow Measuremer	t Device:
M	[ake/Model:	R&R MFC 201	,	Make/Mode	l: Blos DC2
Seri	ial Number:	AMU 1690		Serial Numbe	r: <u>AMU 1659</u>
Last Verific	cation Date:	March 31, 2015		1	22.5 C
	-	SO2 Conc.	98,57		P. 690 mmhg
Cylin		CAL016720			
Reference A	-	Teco 43C	Sario1/	AMU Number: 1623	
Instrument S		Zero; 7.9		1.028 Rang	
Last Calibra	-		_		
Lasi Calibra	HOII.	Date: Mar 31/15	C.F.	1.000 Done B	y: Al Clark
Calibrator Flo		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
	Gas 0.0	0.000			
Dilution			0.01660	60.242	48.3
Dilution   5000   4976   4993	0.0 82.6 41.0	0.000 0.801 0.396	0,00821	121.780	48.3
Dilution 5000 4976	0.0 82.6	0.000 0.801	0.00821 0.00406	<u> </u>	48.3 48.2 47.6
Dilution  5000  4976  4993  4977  Previous S  Per	0.0 82.6 41.0 20.2 Stated Concentreent variance	0.000 0.801 0.396	0.00821 0.00406 Avera	121.780 246.386	48.3 48.2 47.6
Dilution     5000   4976   4993   4977     Previous S   Per   Meets Man   <=5% Outside	0.0 82.6 41.0 20.2 Stated Concentroent variance ufacturer Toler	0.000 0.801 0.396 0.193  Atration PPM: 49.5  From Stated: 3.0  Pance, Use manufacturers state  or Tolerance, Use manufacturer	0.00821 0.00406 Avera	121.780 246.386 ge Cylinder Concentration	48.3 48.2 47.6
Dilution  5000  4976  4993  4977  Previous S  Per  Meets Man  <=5% Outside	0.0 82.6 41.0 20.2 Stated Concentroent variance ufacturer Toler	0.000 0.801 0.396 0.193  Atration PPM: 49.5  From Stated: 3.0  France, Use manufacturers stated	0.00821 0.00406 Avera	121.780 246.386 ge Cylinder Concentration  COMMENTS:	48.3 48.2 47.6

F-GAS-002

Alberta=

## Calibration Gas Audit Single Component Cylinder Gas

Company:M	axxam	Operator's Name: Limin Li				
Cylinder #: BLM00250	8 Concentration PPM;	10.2	Tolerance(%)2	Certified By: Air Liquide		
Reference Calibrator	and Gas:		Flow Measurement	Device:		
Make/Mode	l:R&R MFC 201	_	Make/Model:	Blos DC2		
Serial Number	': AMU1690		Serial Number:	AMU 1659		
Last Verification Date	: March 31, 2015			23,0 C		
	: H2S Conc.	20,43		689 mmhg		
	r: CAL015106	•				
Reference Analyzer:		G 1.1/	ANALYS A			
	1: <u>Teco 450i</u>		AMU Number: 1980			
Instrument Settings:	Zero: 14.5	•	1.035 Range:			
Last Calibration:	Date: Mar 31/15	C.F.	1.000 Done By:	Al Clark		
Calibrator Flows (seem)	Indicated	Gas Flow/	Concentration	Cylinder		
Dilution Gas	Concentration (PPM)	Dilution Flow	Factor	Concentration		
5000 0,0	0,0000					
5080 38.2	0.0725	0.00752	132.984	9.6		
5078 17.9 5066 9.1	0.0340 0.0170	0.00353 0.00180	283.687 556.703	9.6		
3000   9.1	1 0.0170		age Cylinder Concentration:	9.5 <b>9.6</b>		
Percent varian Meets Manufacturer To	ce from Stated: 6.0  lerance. Use manufacturers state		COMMENTS:			
- 570 Outotao Ivianulaett			7			
SOA Outside Manu	tooturer Tolorouse 111 All VIII		1			
> 5% Outside Manu Auditor		<u></u>	Date: March	31, 2015		

F-GAS-002

Albertan

## Calibration Gas Audit

File No. 2014-251CGA

Company: _	Maxx	am	Oper	Operator's Name: Limin Li				
Cylinder #:_	LL36837	Concentration PPM:	0,0	Tolerance(%)	2	Certified By: Air Liquide		
Reference C	Calibrator at	nd Gas:		Flow Measu	ırement	Device:		
M	ake/Model: _	R&R MFC 201	_	Make	e/Model:	Bios DC2		
Seri	al Number:	AMU 1690		Serial I	Number:	AMU 1659		
		December 15, 2014		T	'emp.°C:	23.0 C		
		H2S Con	<del></del>		B.P.	702 mmhg		
Cylin	-	CAL015106						
Reference A	-							
M	ake/Model:	Teco 45C	Serial/	AMU Number:	1624			
		Zero: 6.4						
Last Calibra	tion:	Date:Dec15/14	4 C.F.	1,000 J	Done By:	Al Clark		
Calibrator Flo	ows (scem)	Indicated	Gas Flow/	Concentrat	ion	Cylinder		
Dilution	Gas	Concentration (PPM)		Factor		Concentration		
5000	0,0	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 Aver	age Cylinder Conc	.,			
Pe Meets Ma <=5% Outsi	ercent variance nufacturer Tolo de Manufacture	rance, Use manufacturers st or Tolerance, Use manufactu	arers concentration	COMMENTS:	- Agr			
> 5% (		icturer Tolerance. <u>DO NOT</u>	USE this cylinder			10.0044		
	Auditor:	Al Clark		Date:	Decemi	ber 16, 2014		
	or Signature:	20 / 1 / 1 x				enter Edmonton		



company:		Maxxam		Operators na	me: Limi	n Li	
		Conc CH4 (PPM)					alr
Reference (	Calibrator a	and Gas:			Flow Measurem	ent Device:	
Make/	'Model	R&R MFC 2	01		Make/Model	Bios E	OC2
Serial Number		AMU 1691		-	Serial Number	AMU 1	
Last Verific	cation Date	May 21, 201		•	Temp.°C	24.0	
Gas '		CH4		999,2	В.Р.	703 mi	
		D751932			, Dir.	700111	iiiig
·		C3H8		- 246.5			
		XF0037998		240.0			
- Cymraei	Tumbor	X1 0007 000		•			
Reference A	Analwzan						
Make/.	•	Teco 55C		_	Serial/AMU	J Number:	1643
nstrument S	Settings	Zero:	N/A	Sı	pan: N/A	Range:	20
		May 21/15		C.F. 1.000	_		
				-			
		To the color	· · · · · · · · · · · · · · · · · · ·	Gas Flow/	- · · ·	0 11 1 0	
7-1:1					Concentration	Cylinder Cor	acentration
	······································	Indicated Conc.	<del></del>	- 1	Factor	***************************************	***
Calibrator Flo Dilution 2600	Gas 0,0	CH4	C3H8	Dilution Flow	Factor	CH4	СЗН8
Dilution	Gas		<del></del>	- 1	Factor 49.883	***************************************	C3H8
Dilution 2600	Gas 0,0	CH4 0.00	C3H8 0.00	Dilution Flow		CH4	***************************************
Dilution 2600 2569	Gas 0.0 51.5	CH4 0.00 11.92	C3H8 0.00 11.08	0.02005 0.00628 0.00295	49.883 159.148 338.750	CH4 595	C3H8 201
2600 2569 3549	Gas 0.0 51.5 22.3	CH4 0.00 11.92 3.76	C3H8 0.00 11.08 3.49	0.02005 0.00628 0.00295	49.883 159.148	CH4 595 598	C3H8 201 202
2600 2569 3549	Gas 0.0 51.5 22.3	CH4 0.00 11.92 3.76	C3H8 0.00 11.08 3.49	0.02005 0.00628 0.00295	49.883 159.148 338.750	CH4 595 598 596	C3H8 201 202 204
Dilution  2600  2569  3549  3523	Gas 0,0 51.5 22.3 10.4	CH4 0.00 11.92 3.76	C3H8 0.00 11.08 3.49 1.66	0.02005 0.00628 0.00295	49.883 159.148 338.750 ader Concentration:	CH4 595 598 596	C3H8 201 202 204
Dilution  2600  2569  3549  3523	Gas 0.0 51.5 22.3 10.4	CH4 0.00 11.92 3.76 1.76	C3H8 0.00 11.08 3.49 1.66	0.02005 0.00628 0.00295	49.883 159.148 338.760 ader Concentration:	CH4 595 598 596	201 202 204
Dilution  2600  2569  3549  3523  Pre-	Gas 0,0 51.5 22.3 10.4 evious Stated Percent v	CH4 0.00 11.92 3.76 1.76  Concentration PPM: variance from Stated:	C3H8  0.00  11.08  3.49  1.66  CH4  582  2.5  on CH4 o	0.02005 0.00628 0.00295 Average Cylin	49.883 159.148 338.750 ader Concentration: <u>C3H8</u> 203	CH4 595 598 596	C3H8 201 202 204
Dilution 2600   2569   3549   3523   Pre-	Gas 0,0 51.5 22.3 10.4 evious Stated Percent v	CH4  0.00  11,92  3.76  1.76  Concentration PPM: variance from Stated:	C3H8  0.00  11.08  3.49  1.66  CH4  582  2.5  on CH4 o	0.02005 0.00628 0.00295 Average Cylin	49.883 159.148 338.750 ader Concentration: <u>C3H8</u> 203	CH4 595 598 596	C3H8 201 202 204
Dilution 2600   2569   3549   3523   Pre-	Gas  0.0  51.5  22.3  10.4  evious Stated  Percent v	CH4 0.00 11.92 3.76 1.76  Concentration PPM: variance from Stated:	C3H8  0.00  11.08  3.49  1.66  CH4  582  2.5  on CH4 offacturers sta	0.02005 0.00628 0.00295 Average Cylin	49.883 159.148 338.750 Ider Concentration:  C3H8 203 0.3  COMMENTS:	CH4 595 598 596	C3H8 201 202 204
2600 2569 3549 3523 Pre	Gas 0.0 51.5 22.3 10.4 evious Stated Percent v Cylinder gasets Manufactus 6 Outside Man	CH4  0.00  11.92  3.76  1.76  Concentration PPM: variance from Stated: stolerances based or Tolerance, Use manual	C3H8  0.00  11.08  3.49  1.66  CH4  582  2.5  on CH4 of facturers state e manufacturers	0.02005 0.00628 0.00295 Average Cylin	49.883 159.148 338.750 Ider Concentration:  C3H8 203 0.3  COMMENTS:	CH4 595 598 596	C3H8 201 202 204



Proxas Conodu, Inc. 950 1-34th Street Edinanton AB T68 2X6 Tel: 780-449-0778 Fax: 760-440-5302

03/27/2014

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

> Work Order No. 20248656 Customer Reference No.

Product LabBatch No. Product Part No.

Date of Fill:

Expiration Date:

Z582 4 085 02 NI ME600P2P-AQ

Gravimetric

03/28/2014

03/26/2017

#### CERTIFICATE OF ANALYSIS Primary Standard

	and the same of th		A CONTRACTOR OF A STATE OF	A STANTAGE CONTRACTOR			
	and the Control of th	Artista de la composición dela composición de la composición de la composición de la composición dela composición dela composición dela composición de la composición de la composición de la composición de la composición de la composición dela composición dela composición dela composición dela composición dela composición dela composición dela composición dela composición dela composición	catalentenario (catal	Recuested	Certified	Analylical	Analytical
1.5	en valendaring state back being	etten Station in the State	According to the Section	<b>对于10万万里,10万万万</b>		The second secon	CATALOG AND A SECURITY OF THE
	Component			Concentration	Concentration	Principle	<u>Accuracy</u>
	<u>Component</u>					Art Francisco	±1% rol
	Mothane		Laborate discussion and a	.600.0ppm	601.4ppm		AND THE NAME OF STREET PARTY AND ADDRESS OF THE PARTY OF
ALC:					444		±1% rel
	<sup>2</sup> ropane			200.0ppm	202ppm		
	12 - 44 - 12 - 12 - 12 - 12 - 12 - 12 -			Dalanca	Balance	ad Thie Astronomy Color	28134467 Tel 723138467173
際。	Vitrogan			Balance	(1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2		

Mettler-Toledo Analytical Balance-ID2sx/USA---Analytical Instruments

Hewlett-Packard (Agilent)-6890--GC-FID Filling Method.

AQ 2200 psig 82.0 ft3 Cylinder Style AQ Cylinder Pressure @70F 2200 psig Cylinder Volume 82/0/ft3 Valve Outlet Connection CGA-350

and the second of the second o

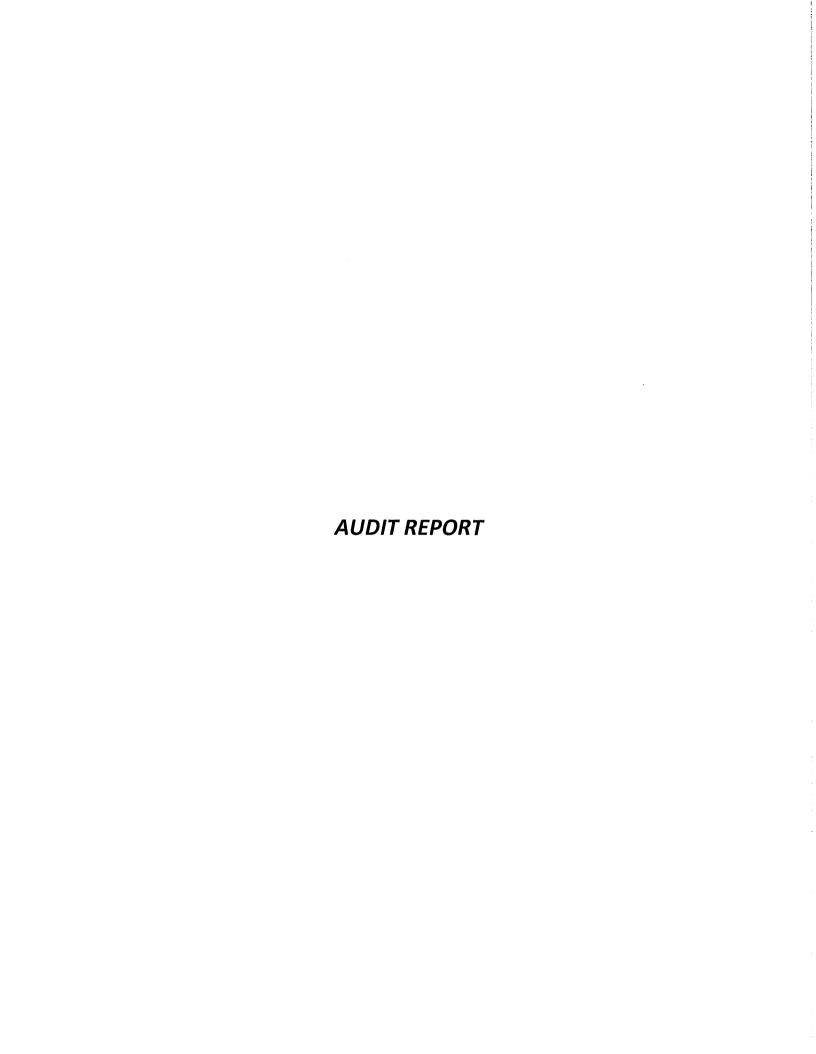
Kan Chropangyachi sak Pasar projekse:

Oliveda Gas (Busingpage) per Propinsiones des Corondo

historia (1758 et 1874)

Hancke Hoper Lindsele Sein

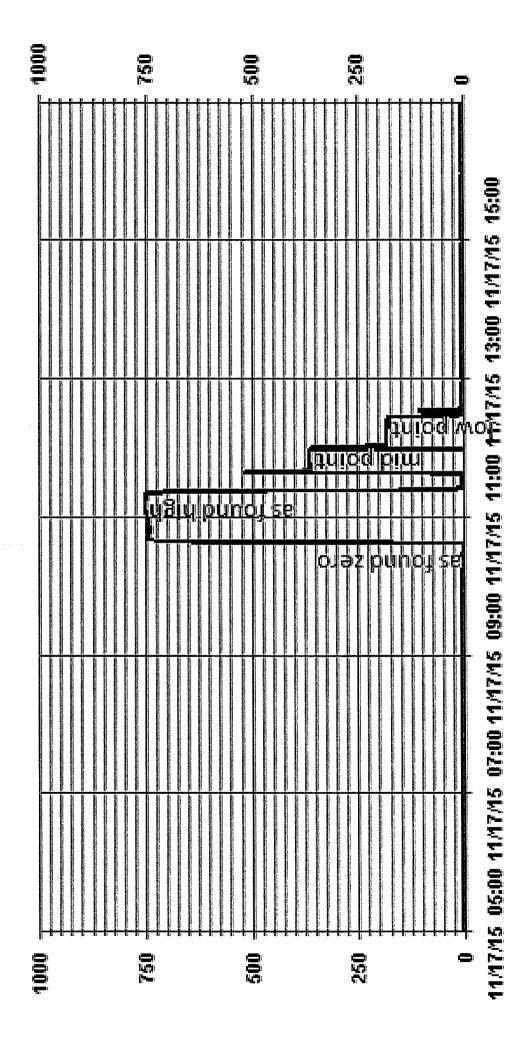
I democratical and have been expected at the property of prescription and the second of a compact of the analysis of the analysis of the analysis of the second of the sec



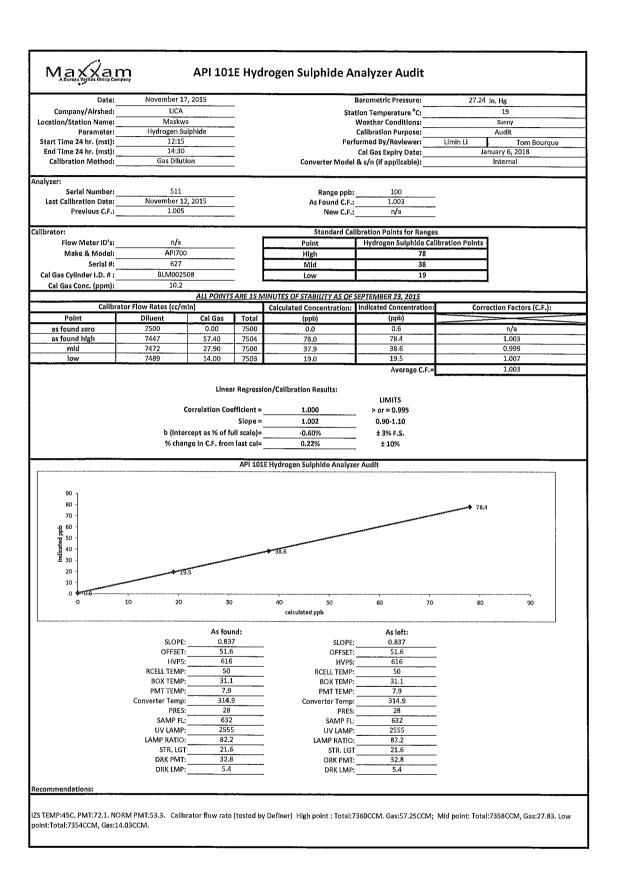
COMPANY: LICA		PLANT:		Maskwa		DATE:	November 17, 2015
tation Location: UTM Coordinates: 54.60517N		110.45270\	N	_			
Elevation (m): 6			_				
Declination: 1	.3° 19'			-			
GENERAL		Yes	No	n/a		Commen	te.
Has site location changed from previou	ıs audit?	103	No	11/0		Commen	1151
	e secure?	Yes	140				
Are station operating conditions a		Yes					
Last twelve month's of calibrations a		Yes					
All applicable SOP's available in	station?		No				
Site documentation up	to date?	Yes					
DATA ACQUISITION		Yes	No	n/a		Commer	te.
Are strip char	ts in use?		No	, u		Comme	165.
Is a digital data logge			No				
Is a telemetry system for data acquisition		Yes					
	_			'	77-1		
TRAILER COMPONENTS		Yes	No	n/a		Commer	its:
ls a glass sampling manifold installed?		Yes					
Is sampling manifold clean and free of chips an	ıd						
cracks?		Yes					
s a trap in place?		Yes					
Are spare manifold ports capped? s manifold pump properly installed and opera	tive?	Yes					
f horizontal, is the manifold mounted at a sligi	nt	Yes					
upward angle to prevent moisture from getting							
the lines?				n/a			
Do sample lines extend halfway into manifold?	)	Yes					
Are monitor sampling lines connected to mani	fold?	Yes					
Are sampling lines clean?			No				
Are monitors properly mounted and secure?		Yes					
Are monitors properly exhausted from room o							
scrubbed (NOx pump inlet scrubbed and dated	1)?	Yes					
Are zero and span systems operational?		Yes					
Meteorological		Yes	No	n/a		Commer	nts:
Is wind equipment properly o	riented?	Yes					
Is the wind equipment functioning p	oroperly?	Yes					
-		.,					
			Audit	%			
.  -	Indicate	d Value:	Value:	Difference	Scalar Difference:		
Station Temperature °C	21.		20.97	-2.00	-0.42		
Barometric Pressure	918		919.74	0.17	1.54		
Wind Speed (kph)	21		n/a	n/a	n/a /-		
Relative Humidity %	59		n/a n/a	n/a n/a	n/a n/a		
Ambient Temperature °C	1.3		1.15		-0.22		
Solar Radiation kW/m <sup>2</sup>				n/a			
Precipitation (Tipping Bucket mm)	n/ 1		n/a 1	n/a n/a	n/a n/a		
recipitation (hipping backet min)		•	<u></u>	11/4	11/ 0		
Recommendations: Clean sampling lines be	etween ana	nlyzer and n	nanifold.	- 5111			
ALIDITOR	in II						
AUDITOR: Limi	II LI		-				

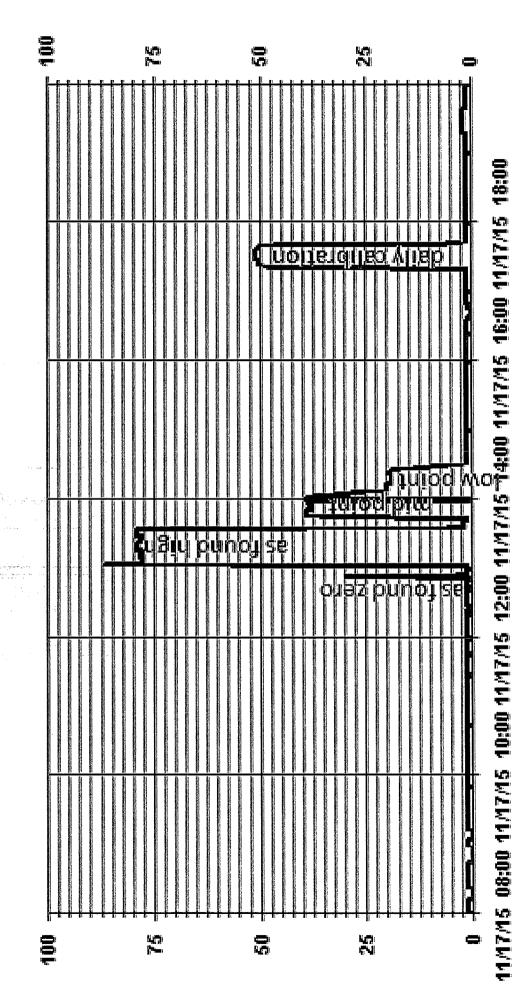
Make   Main	19 y sunny dit Tom Bourque er 25, 2018 NA  In Factors (C.F.):  n/a 1.024 1.031 1.041 1.032
Parameter:   Sulphur Dloxide   Performed by Reviewer:   Limin L1	Tom Bourque er 25, 2018  AA  In Factors (C.F.):  n/a 1.024 1.031 1.041
Serial Number:   10:00	Tom Bourque er 25, 2018 WA  In Factors (C.F.):  n/a  1.024  1.031  1.041
Cal Gas Explry Date:   December	n Factors (C.F.): n/a 1.024 1.031 1.041
Calibration Method:   Gas Dilution   Converter Model & s/n (if applicable):	n Factors (C.F.): n/a 1.024 1.031 1.041
Serial Number:   1124	n/a 1.024 1.031 1.041
Serial Number:   1124	n/a 1.024 1.031 1.041
Last Calibration Date:   November 12, 2015   Now C.F.:   1.024	n/a 1.024 1.031 1.041
Previous C.F.:   1,000   New C.F.:   n/a	n/a 1.024 1.031 1.041
Flow Meter ID's:	n/a 1.024 1.031 1.041
Flow Meter ID's:	n/a 1.024 1.031 1.041
Serial #:   17200415   BLM002756T   Low   190	n/a 1.024 1.031 1.041
Age   Score	n/a 1.024 1.031 1.041
Cal Gas Conc. (ppm):   49.9   ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015	n/a 1.024 1.031 1.041
Calibrator Flow Rates (cc/min)   Calculated Concentration: Indicated Concentration:   Indicated Concentration:   Correction	n/a 1.024 1.031 1.041
Calibrator Flow Rates (cc/min)   Calculated Concentration: Indicated Concentration: Correction   Point   Diluent   Cal Gas   Total   (ppb)   (ppb)   (ppb)	n/a 1.024 1.031 1.041
Point   Diluent   Cal Gas   Total   (ppb)   (ppb)	1.024 1.031 1.041
Second high   4953   77.20   5030   765.8   748.0	1.024 1.031 1.041
Mild   4991   37.70   5029   374.1   363.0	1.031 1.041
Iow   5011   19.00   5030   188,5   181.0   Average C.F.=	1.041
Average C.F.=	
Correlation Coefficient =   1.000   > or = 0.995	· · · · ·
Correlation Coefficient =   1.000   > or = 0.995	
Correlation Coefficient =   1.000   > or = 0.995	
b (Intercept as % of full scale)= 0.18% ± 3% F.S. % change in C.F. from last cal= -2.38% ± 10%  API 100A Sulphur Dioxide Analyzer Audit  748.0	
% change in C.F. from last cal= -2.38% ± 10%  API 100A Sulphur Dioxide Analyzer Audit  748.0	
API 100A Sulphur Dioxide Analyzer Audit  800 700 - 748.0	
700 -	
700 -	
700 -	
700 -	
The state of the s	
600 -	
B 400 -	
ब्र 500 - Pa 400 - 19 300 -	
200	
100 -	
0	
0 100 200 300 400 500 600 700 800 calculated ppb	900
As found: As left:	
SLOPE: 0.957 SLOPE: 0.957	
OFFSET: 23.5 OFFSET: 23.5	
HVPS: 782 HVPS: 782	
DCPS: 2565 DCPS: 2565	
RCELL TEMP:         50         RCELL TEMP:         50           BOX TEMP:         28.5         BOX TEMP:         28.5	
IZS TEMP: 45 IZS TEMP: 45	
Converter Temp: NA Converter Temp; NA	
PRES: 24.5 PRES: 24.5	
SAMP FL:         657         SAMP FL:         657           PMT:         1622         PMT:         1622	
UV LAMP; 2444 UV LAMP; 2444	
LAMP RATIO: 122.6 LAMP RATIO: 122.6	
STR. LGT         11.2         STR. LGT         11.2	

of Minute Averages



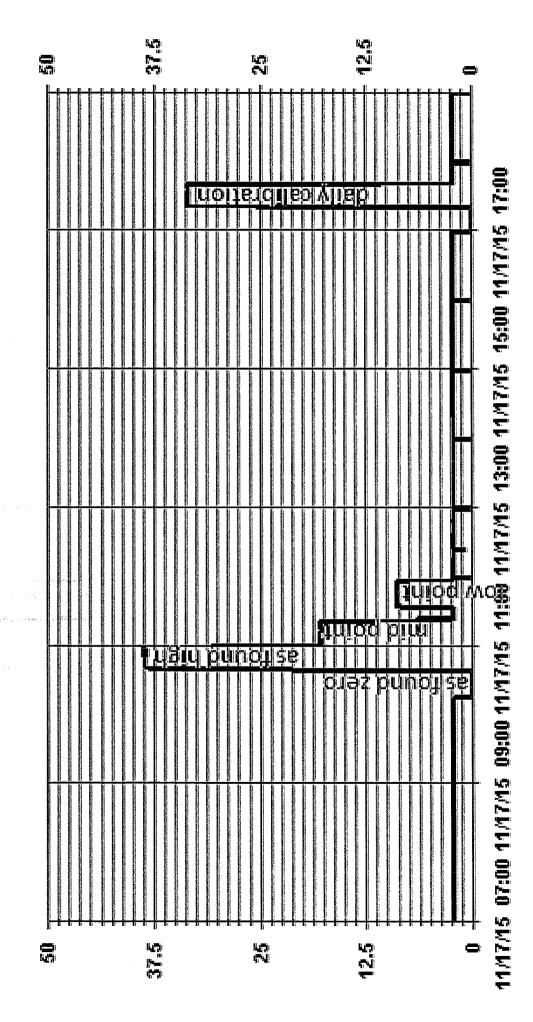
- LICA30 SO2\_ PPB





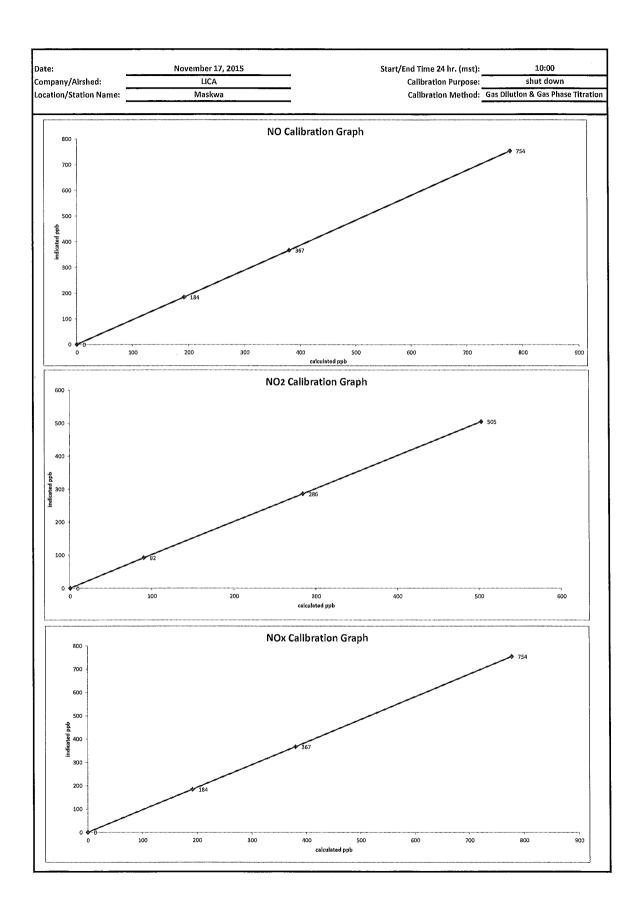
- LICA30 H2S\_ PPB

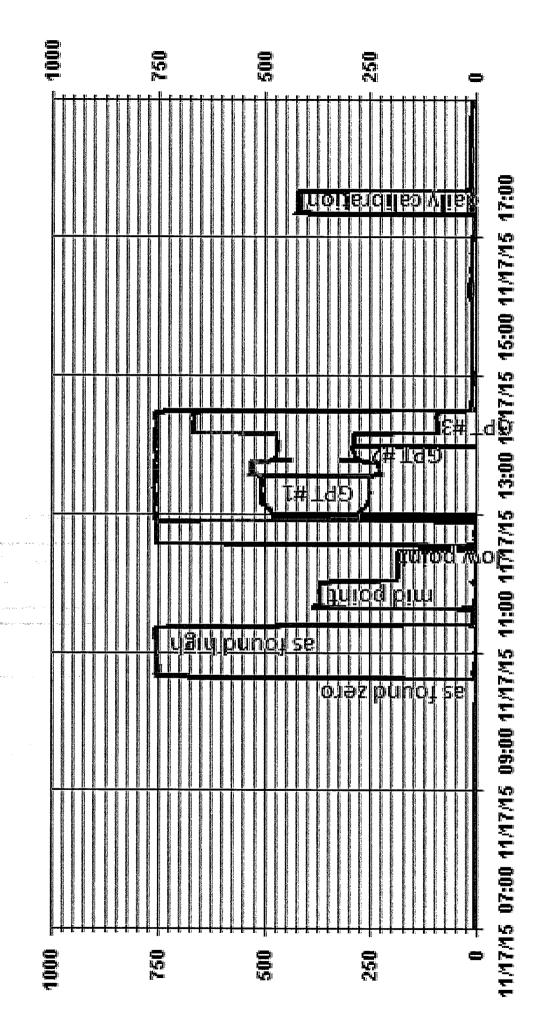
Date:	November 17	7, 2015		Bar	ometric Pressure:	27	.24inHg
Company/Airshed:	LICA				Temperature °C: _		19
Location/Station Name: Parameter:	Maskw Total Hydrod				sther Conditions:  bration Purpose:		nly sunny
Start/End Time 24 hr. (mst):					ned By/Reviewer:	Limin Li	Idit Tom Bourque
Calibration Method:	ion			Gas Explry Date:		7, 2022	
lyzer:							
Serial Number: Last Calibration Date:				Range ppm: As Found C.F.:		_	
Previous Cal High Point C.F.:				New C.F.:			
brator:	,						
Flow Meter ID's: Make & Model:		<u> </u>		tandard Callbrati	on Points for a Range	of 50 ppm	
Serial #:	627		Ī		int	Target ppm	1
Cal Gas Cylinder I.D. #:	LL8363	8	i t		gh	38	1
H <sub>4</sub> /C <sub>3</sub> H <sub>8</sub> Cylinder Conc. (ppm):	582.0	203.0			lld	18	]
CH <sub>4</sub> as propane/total CH <sub>4</sub> equivilants (ppm):	558,3	1140.3	L	L(	)W	9	ı
equivilants (ppin)	ALL POINTS AR	E 15 MINUTES O	F STABILIT	Y AS OF SEPTEM	BER 23, 2015		
Calibrate	or Flow Rates (cc/min)		T	Calculated	Indicated	Corr	ection Factors:
		0-10		Concentration:	Concentration:	COTT	ection i actorsi
Point as found zero	Diluent 2000	Cal Gas 0,00	Total 2000	(ppm) 0,0	(ppm) -0.07		n/a
as found high	2000	69.00	2069	38,03	38.50		0.986
mid	2000	32.00	2032	17.96	17.88		1.000
low	2000	16.00	2016	9.05	8,90		1.009
					Average C.I	F.=	0.998
		Linear Regress	ion/Callbr	ation Results:			
			•		LIMITS		
	1	Correlation Coef		1.000	> or = 0.995		
	h /Int	ercept as % of fu	Slope = _	0.985	.95-1.05 ± 3% F.S.		
		ange in C.F. from		3.15%	± 10%		
	The	ermo 51C Total I	lydrocarbo	n Analyzer Aud	t		
40 - 35 - 30 - E 25 - 2 20 -			17.88				38.50
35 - 30 - 4 4 5 5 5 5 5 7 8 20 - 3 9 20 5 5 5 6 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	8.90		17.88				38.50
35		15		25.	30	35	
35 . 30 . E 25 . P 32 20 . D 15 . 10 .	5.90	15	20 calculated p		30	35	38.50 40
35	10	15 found:	20		30 As Ie	***************************************	
35	10		20			***************************************	
35	10 As 1 H2 cylinder (psi):	found: 1300	20		As le H2 cylinder (psi): H2 cylinder reg	ft: 1300	
35	10 As 1	found:	20		As le H2 cylinder (psi): H2 cylinder reg set (psi):	ft:	
35	10 As 1 H2 cylinder (psi):	found: 1300	20		As le H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder	ft: 1300	
35	AS 1 H2 cylinder (psi): 2 cylinder reg set (psi):	found: 1300 25 500	20		As le H2 cylinder (psi): H2 cylinder reg set (psi):	ft: 1300 25 500	
35	As 1  H2 cylinder (psi): 2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi):	found: 1300 25	20		As le H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi):	ft: 1300 25	
35	AS 1  H2 cylinder (psi): 2 cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Alr Gen	found: 1300 25 500	20		As le H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Alr Gen	ft: 1300 25 500	
35	As 1  H2 cylinder (psi): 2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi):	found: 1300 25 500 25	20		H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement	ft: 1300 25 500 25	
35	As 1  H2 cylinder (psi):  2 cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Alr Gen Pressure: measurement alarms:	found: 1300 25 500 25 35 YES	20		H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms:	ft: 1300 25 500 25 35 none	
35	As 1  H2 cylinder (psi): 2 cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms:	found: 1300 25 500 25 35 YES	20		H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms:	ft: 1300 25 500 25 35 none	
35	As t  H2 cylinder (psi):  2 cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Air Gen Pressure: measurement alarms: service alarms: cnt:	found: 1300 25 500 25 35 YES	20		As le H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms:	ft: 1300 25 500 25 35 none	
35	As 1  H2 cylinder (psi):  2 cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Air Gen Pressure: measurement alarms:  service alarms:  cnt: rng: try:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1 0	20		H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms:	ft: 1300 25 500 25 35 none none 812 1	
35	As I  H2 cylinder (psi):  2 cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Air Gen Pressure; measurement alarms:  service alarms:  cnt: rng; try: ffm:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1 0 0 178.8	20		As le  H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: fim:	ft: 1300 25 500 25 35 none none 812 1 0 178.8	
35	AS 1  H2 cylinder (psi):  2 cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Air Gen Pressure: measurement alarms:  service alarms:  cnt: rng: try: flm: det:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1  0  178.8  125	20		As le  H2 cylinder (psi):  H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: det:	ft: 1300 25 500 25 35 none none 812 1 0 178.8 125	
35	As I  H2 cylinder (psi):  2 cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Air Gen Pressure; measurement alarms:  service alarms:  cnt: rng; try: ffm:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1 0 0 178.8	20		H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: fim: det: Hame:	ft: 1300 25 500 25 35 none none 812 1 0 178.8	
35	As 1 H2 cylinder (psi): 2 cylinder reg set (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: cnt: rng: try: ffm: det: Flame:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1  0  178.8  178.8	20		As le  H2 cylinder (psi):  H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: fim: det: Flame: Fitter: Base:	ft: 1300 25 500 25 35 none none 812 1 0 178.8 125 178	
35	As t  H2 cylinder (psi):  2 cylinder reg set (psi):  Span Cylinder Reg Set (psi):  Zero Air Gen Pressure:  measurement alarms:  cnt:  rng:  ty:  flm:  det:  Flame:  Fliter:  Base:  Sample psi:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1  0  178.8  125  178  125  7.51	20		H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: service film: film: film: Filme: Filme: Filme: Sample psi:	ft:  1300  25  500  25  35  none  none  812  1  0  178.8  125  178  125  7.51	
35 . 30 . 42 25 . 74 20 . 75 . 75 . 75 . 75 . 75 . 75 . 75 . 7	As the H2 cylinder (psi):  2 cylinder reg set (psi):  2 cylinder Reg set (psi):  2 cylinder Reg set (psi):  2 cylinder Reg set (psi):  2 cro Air Gen Pressure:  measurement alarms:  cnt:  rng:  try:  fim:  det:  Flame:  Flame:  Filter:  Base:  Sample psi:  Internal Air Pressure:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1 0 178.8 125 178 125 125 7.51 21	20		As le  H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: dett: Flame: Filter: Base: Sample psi: Internal Air	ft: 1300 25 500 25 35 none none 812 1 0 178.8 125 125 125 7.51 21	
35	H2 cylinder (psi):  Span Cylinder reg set (psi):  Span Cylinder Reg Set (psi): Zero Air Gen Pressure; measurement alarms: service alarms: cnt: rng: try: flm: det: Flame: Filter; Base: Sample psi: Internal Air Pressure: Internal Air Pressure: Internal Fuel Pressure:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1  0  178,8  125  178  125  7,51  21  10	20		As le  H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: fim: det: Flame: Filter: Base: Sample psi: Internal Air	ft: 1300 25 500 25 35 none none 812 1 0 178.8 125 178 125 125 7.51 21	
35	As the H2 cylinder (psi):  2 cylinder reg set (psi):  2 cylinder Reg set (psi):  2 cylinder Reg set (psi):  2 cylinder Reg set (psi):  2 cro Air Gen Pressure:  measurement alarms:  cnt:  rng:  try:  fim:  det:  Flame:  Flame:  Filter:  Base:  Sample psi:  Internal Air Pressure:	found:  1300  25  500  25  35  YES  Flow REG FAIL  812  1 0 178.8 125 178 125 125 7.51 21	20		As le  H2 cylinder (psi): H2 cylinder reg set (psi): Span Cylinder (psi): Span Cylinder Reg Set (psi): Zero Air Gen Pressure: measurement alarms: service alarms: cnt: rng: try: film: dett: Flame: Filter: Base: Sample psi: Internal Air	ft: 1300 25 500 25 35 none none 812 1 0 178.8 125 125 125 7.51 21	



- LICA30 THC PPM

Date	N	lovembe	r <b>17, 201</b> 5				Barometric Pressure:		27,24	n. Hg
Company/Airshed			CA			St	ation Temperature °C:		19	-
Location/Station Name		Mas		Weather Conditions: Mainly cloudy with sunny						n sunny breaks
Start/End Time 24 hr. (mst): G.P.T. to be used for Ozone?						Do	Calibration Purpose:	17	Audit	
Calibration Method			s Phase Titration	•		Pe	rformed By/Reviewer: Cal Gas Expiry Date:	ιπ	nin Li December :	Tom Bourqu 25, 2018
nalyzer:						Cor	rection Factors:			
•						Previous C.F.:	As Found C.F.:		v C.F.:	
Serial Number Last Calibration Date		59	r 12, 2015	•	NO =	1,000	1,033		n/a	
Range ppb		10		•	NO₂ = NOx =	0.996 1.000	0.996 1.033		n/a n/a	
librator:										
Flow Meter ID's		/a			Star	ndard Calibration Po	nts for a Range of:	1000 ppb		
Make & Models		2010				oint	Target NO (ppb)		NO <sub>2</sub> (ppb)	Cc Ozone ?
Serial #:						igh	780		300	n/a
Cal Gas Cylinder I.D. # : NO/NOx Gas Conc. (ppm):		02756T	•			1id ow	380	_	275 100	n/a
MO/ NOX Gas Colic. (ppm):	30.7	50.7	•			Point #1	190 n/a		n/a	n/a n/a
					Extra F	oint #2	n/a		n/a	n/a n/a
			ALL	POINTS ARE 15 MINU						
Calibrator Flo Point	w Rates Diluent	(cc/min) Cai Gas	Total Flow	Calculated NO	Calculated NOx	Indicated NO	Indicated NOx	NO C.F.	NOx C.F.	
as found zero	5029	0.0	5029	(ppb) 0	(ppb) 0	(ppb) 0.4	(ppb) 0.4	n/a	n/a	
as found high	4953	77.2	5030	778.1	778,1	754.0	754.0	1.033	1.033	
mid	4991	37.70	5029	380.1	380.1	367.0	367.0	1.037	1.037	
low	5011	19.00	5030	191.5	191.5	184.0	184.0	1,043	1,043	
			ALL	POINTS ARE 15 MINU	TES OF STABILITY AS	OF SEPTEMBER 23, :	Average C.F.=	1.037	1.037	
Calibrator Flo	w Rates	(cc/min)		Calibrator Setting	Indicated NO	Indicated NOx	Indicated NO <sub>2</sub>	NO drop	NO <sub>2</sub> gain	NO₂ C,F.
Point	_		Total Flow	volts or ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
NOx reference	4953	77.20	5030	0.0	754.0	754.0	0.0	0.4	0.0	$\geq$
as found high NO2 gpt mid	4953 4953	77.20 77.20	5030 5030	520.0 300.0	251.0 470.0	756.0 756.0	505.0	503.0 284.0	505.0	0.996
gpt low	4953	77.20	5030	100.0	664.0	756.0	286.0 92.0	90,0	286.0 92.0	0.993
				(lineau Pa		- 1		Averag	e NO₂ C،F.≔	0.989
				NO Linear Re	gression/Calibration NOx	NO <sub>2</sub>	Linaire			
		Correlati	ion Coefficient =	1,000	1,000	1.000	LIMITS > or = 0.995			
			Slope =	1.032	1,032	0.996	0.90-1.10			
	b (Inte	rcept as	% of full scale)=	-0.07%	-0.07%	0.06%	± 3% F.S.			
		_	F. from last cal=	-3.25%	-3.25%	0.00%	± 10%			
	-		erter efficiency = erter efficiency =	99% n/a		ce = 96%-104% ce = 96%-104%				
O.	Solute N			11/ a	AIVID (Oleran)	te = 50%-104%				
NC	x SLOPE:	,	As found: 0,98	NOx 5LOPE:		NOx SLOPE:	As left: 0.98			
	Ox OFF5:		0	NOx OFFS:		NOx OFFS:	0.98			
	O SLOPE:		0.987	NO SLOPE:		NO SLOPE:	0.987			
	NO OFF <b>S</b> :		-0.3	NO OFFS:		NO OFFS:	-0.3			
	MP FLW:		466	SAMP FLW:		SAMP FI.W:	466			
0	ZONE FL: PMT:		76	OZONE FL: PMT:		OZONE FL:	76			
NO	RM PMT:		-1	NORM PMT:		PMT: NORM P <b>M</b> T:	-1			
	AZERO:		7.5	AZERO:		AZERO:	7.5			
	HVPS:		662	HVPS:		HVPS:	662			
	LL TEMP:		50	RCELL TEMP:		RCELL TEMP:	50			
	OX TEMP: IT TEMP:		28.7 6.7	BOX TEMP: PMT TEMP:		BOX TEMP: PMT TEMP:	28.7			
ВС	IN ILIVIP		314.4	MOLY TEMP:		MOLY TEMP:	6.7 314.4			
BC PN						RCEL:	4.2			
BC PN	LY TEMP: RCEL:		4.2	RCEL:		) (Claire				
BC PN	LY TEMP:		4.2 26.6	SAMP:		SAMP:	26.6			





H02

- LICA30

2

- UCA30

**Ž** 

- LICA30

# APPENDIX III CHAIN OF CUSTODY



Site: Maskwa Site

Client: Lakeland Industry & Community Association

## Maxxam Analytics - Air Services Group Project Chain of Custody

**Project #:** 2833-2015-11-30- C

Contact: Mike Bisaga

QA Check Complete	insolmha	Date _	22 - Dec - 2015
QA Check Review	moelmba	Date _	12-Dec-2015
Report Complete	uselmta	Date _	31-Dec-2015
Report Reviewed	July 6	Date _	31-pec-2015
Report Shipped		Date _	
Notes			