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Wood Buffalo Environmental Association

APRIL 2025

MONTHLY CALIBRATION REPORT

CONTINUOUS MONITORING May 30, 2025

> Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS01 BERTHA GANTER - FORT MCKAY APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:Bertha Ganter-Fort McKayCalibration Date:April 9, 2025Start time (MST):11:39Reason:Routine

Station number: AMS 01 Last Cal Date: March 7, 2025 End time (MST): 15:18

Calibration Standards

Cal Gas Concentration:	49.21	ppm	Cal Gas Exp Date: March 10, 2031
Cal Gas Cylinder #:	CC418809		
Removed Cal Gas Conc:	49.21	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 3565
Zero Air Gen Model:	Teledyne API T701		Serial Number: 146

Analyzer Information

Analyzer make: Analyzer Range:	Thermo 43i 0 - 1000 ppb	Serial Number: JC1501301448			
Calibration slope: Calibration intercept:	<u>Start</u> 1.001209 -0.193570	<u>Finish</u> 1.001108 -0.433285	Backgd or Offset: Coeff or Slope:	<u>Start</u> 20.8 0.887	<u>Finish</u> 21.7 0.887

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.8	
As found High point As found Mid point As found Low point New cylinder response	4918	81.3	800.3	802.6	0.998
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	801.8 NA NA	Previous response AF Slope: AF Correlation:	801.0	*% change AF Intercept: * = > +/-5% change initiate	0.1% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4918	81.3	800.3	801.1	0.999
Mid point	4959	40.7	400.6	399.9	1.002
Low point	4979	20.3	199.8	199.5	1.002
As left zero	5000	0.0	0.0	0.0	
As left span	4918	81.3	800.3	801.7	0.998
			Averag	e Correction Factor:	1.001

Notes:

Changed the inlet filter after as founds. Adjusted the zero.

Calibration Performed By:

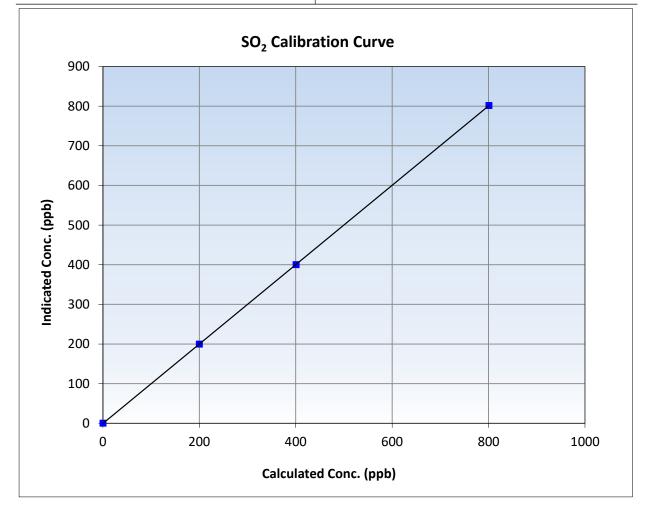


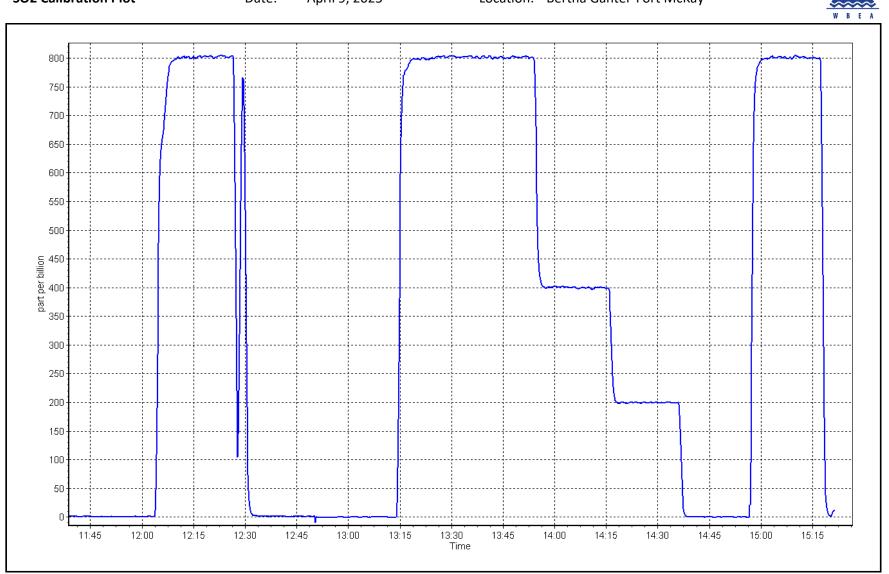
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 7, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:39	End Time (MST):	15:18
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1501301448

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999998	≥0.995
800.3	801.1	0.9990	Slope	1.001108	0.90 - 1.10
400.6	399.9	1.0017	ыбре	1.001100	0.50 1.10
199.8	199.5	1.0016	Intercept	-0.433285	+/-30





Date: April 9, 2025

Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	April 28, 2025	Last Cal Date:	March 27, 2025
Start time (MST): Reason:	10:09 Routine	End time (MST):	14:53

Calibration Standards

Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	September 5, 2027
Cal Gas Cylinder #:	CC738239			
Removed Cal Gas Conc:	4.84	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3565
ZAG Make/Model:	Teledyne API T701		Serial Number:	146

Analyzer Information

Analyzer make: Converter make:	Thermo 43iQ-TLE CD Nova		Analyzer serial #: Converter serial #:	12113311966 470	800 dog(
Analyzer Range	0 - 100 ppb <u>Start</u>	<u>Finish</u>	Converter Temp:	<u>Start</u>	800 degC <u>Finish</u>
Calibration slope: Calibration intercept:	0.995103 0.201884	1.001390 -0.118138	Backgd or Offset: Coeff or Slope:		2.18 1.148

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.2	
As found High point	4917	82.6	80.0	78.3	1.019
As found Mid point	4959	41.3	40.0	39.0	1.020
As found Low point	4979	20.7	20.0	19.6	1.012
New cylinder response					
Baseline Corr As found:	78.5	Prev response:	79.77	*% change:	-1.6%
Baseline Corr 2nd AF pt:	39.2	AF Slope:	0.981091	AF Intercept:	-0.157790
Baseline Corr 3rd AF pt:	19.8	AF Correlation:	0.999995	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4917	82.6	80.0	80.0	1.000
Mid point	4959	41.3	40.0	39.8	1.004
Low point	4979	20.7	20.0	20.0	1.002
As left zero	5000	0.0	0.0	0.0	
As left span	4917	82.6	80.0	79.0	1.012
SO2 Scrubber Check	4919	81.3	813.0	0.0	
Date of last scrubber char	ige:	December 17, 2021		Ave Corr Factor	1.002

Date of last converter efficiency test:

Inlet filter change and scrubber check completed after as founds. Adjusted span only.

Calibration Performed By:

Notes:



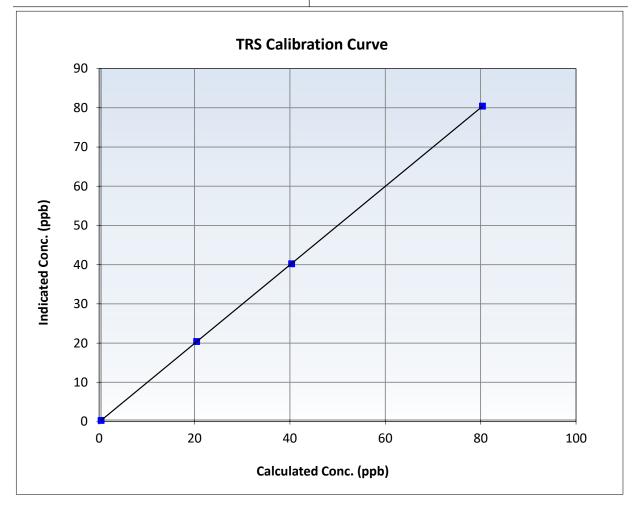
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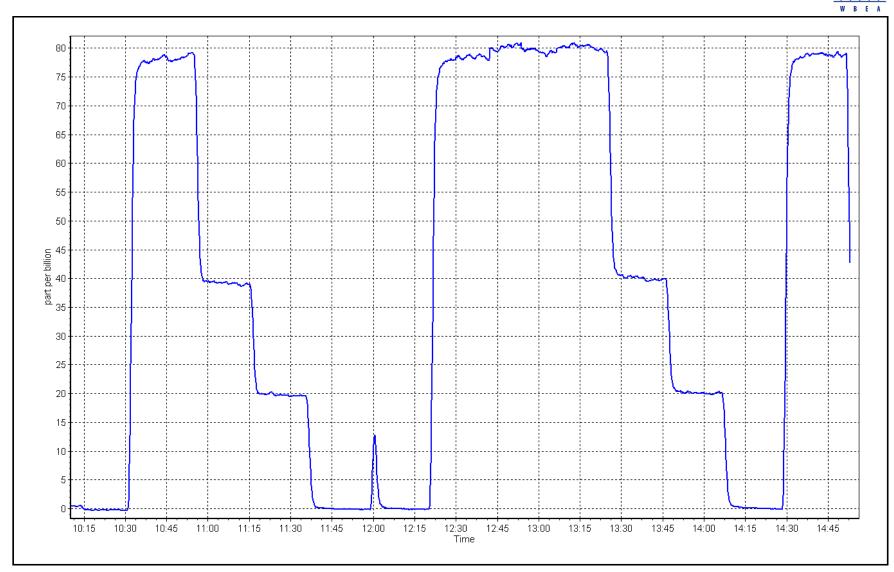
TRS Calibration Summary

Station Information

Calibration Date:	April 28, 2025	Previous Calibration:	March 27, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:09	End Time (MST):	14:53
Analyzer make:	Thermo 43iQ-TLE	Analyzer serial #:	12113311966

Calibration Data							
Calculated concentration (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>		
0.0	-0.1		Correlation Coefficient	0.999995	≥0.995		
80.0 40.0	80.0 39.8	0.9995 1.0044	Slope	1.001390	0.90 - 1.10		
20.0	20.0	1.0019	Intercept	-0.118138	+/-3		





TRS Calibration Plot

Location: Bertha Ganter-Fort McKay





Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	April 28, 2025	Last Cal Date:	March 19, 2025
Start time (MST): Reason:	10:09 Routine	End time (MST):	14:53

Calibration Standards

Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	September 5, 2027
Cal Gas Cylinder #:	CC738239			
Removed Cal Gas Conc:	4.84	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3565
ZAG Make/Model:	Teledyne API T701		Serial Number:	146

Analyzer Information

Analyzer make: Converter make:	Thermo 43iQ-TL CD Nova		Analyzer serial #: Converter serial #:	1200326167 2022-221	
Analyzer Range	0 - 100 ppb		Converter Temp:		315 degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.000243	1.002388	Backgd or Offset:	2.03	2.03
Calibration intercept:	0.021999	-0.178072	Coeff or Slope:	0.983	0.983

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4917	82.6	80.0	80.3	0.995
As found Mid point	4959	41.3	40.0	40.1	0.994
As found Low point	4979	20.7	20.0	20.0	0.997
New cylinder response					
Baseline Corr As found:	80.4	Prev response:	80.00	*% change:	0.5%
Baseline Corr 2nd AF pt:	40.2	AF Slope:	1.005677	AF Intercept:	-0.118167
Baseline Corr 3rd AF pt:	20.1	AF Correlation:	1.000000	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4917	82.6	80.0	80.0	1.000
Mid point	4959	41.3	40.0	39.9	1.002
Low point	4979	20.7	20.0	19.8	1.012
As left zero	5000	0.0	0.0	0.0	
As left span	4917	82.6	80.0	79.4	1.007
SO2 Scrubber Check	4919	81.3	813.0	0.0	
Date of last scrubber cha	ange:	January 25, 2024		Ave Corr Factor	1.005
Date of last converter efficiency test:		November 7, 2024		107.9%	efficiency

Notes:

Inlet filter change and scrubber check completed after as founds. No adjustments made.

Calibration Performed By:



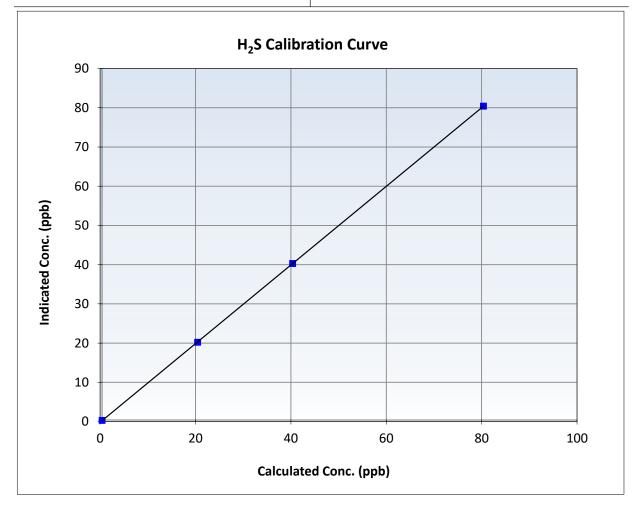
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H₂S Calibration Summary

Station Information

Calibration Date:	April 28, 2025	Previous Calibration:	March 19, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:09	End Time (MST):	14:53
Analyzer make:	Thermo 43iQ-TL	Analyzer serial #:	1200326167

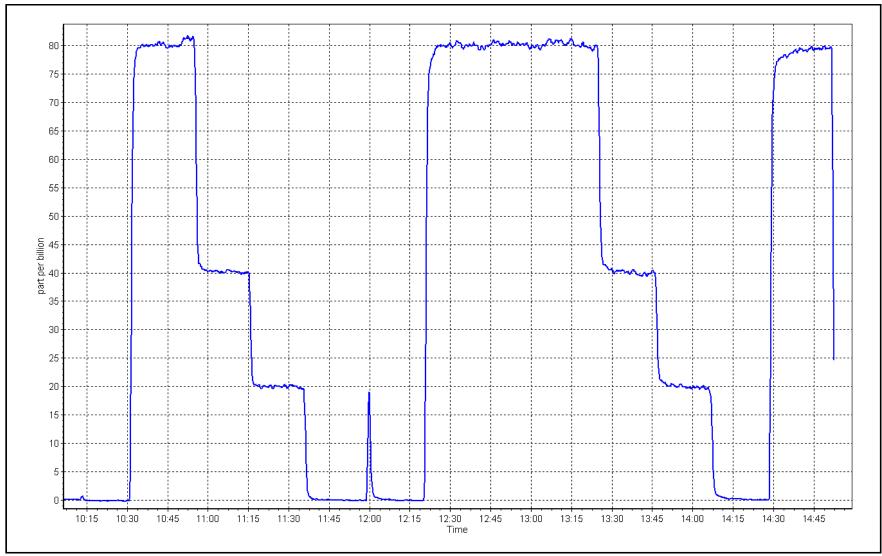
Calibration Data							
Calculated concentratior (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>		
0.0	-0.1		Correlation Coefficient	0.999995	≥0.995		
80.0 40.0	80.0 39.9	0.9995 1.0019	Slope	1.002388	0.90 - 1.10		
20.0	19.8	1.0121	Intercept	-0.178072	+/-3		





Location: Bertha Ganter-Fort McKay







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number: AMS 01
Calibration Date:	April 9, 2025	Last Cal Date: March 9, 2025
Start time (MST):	11:39	End time (MST): 15:18
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	(CC418809	Cal Gas Expiry I	Date: March 10, 2	2031	
CH4 Cal Gas Conc.	497.2	ppm	CH4 Equiv (Conc.	1061.8 ppm	
C3H8 Cal Gas Conc.	205.3	ppm				
Removed Gas Cert:		NA	Removed Gas Ex	cpiry: NA		
Removed CH4 Conc.	497.2	ppm	CH4 Equiv (Conc.	1061.8 ppm	
Removed C3H8 Conc.	205.3	ppm	Diff between cyl (1	ГНС):		
Diff between cyl (CH ₄):			Diff between cyl (NM):		
Calibrator Model:	Teledyne API T	700	Serial Nun	nber: 3565		
Zero Air Gen model:	Teledyne API T	701	Serial Nun	nber: 146		
			Analyzer Information			
Analyzer make:	Thermo 55i		Analyzer ser	ial #: 119358564	8	
THC Range:	0 - 20 ppm		NMHC/CH4 Ra	ange: 0 - 10 ppm		
	<u>Start</u>		<u>Finish</u>	Star	<u>t</u>	<u>Finish</u>

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.47E-04	2.53E-04	NMHC SP Ratio:	4.82E-05	4.89E-05
CH4 Retention time:	14.8	15.0	NMHC Peak Area:	190523	187657
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4918	81.3	17.27	16.99	1.016
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.99	Prev response	17.29	*% change	-1.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4918	81.3	17.27	17.32	0.997
Mid point	4959	40.7	8.64	8.70	0.994
Low point	4979	20.3	4.31	4.36	0.990
As left zero	5000	0.0	0.00	0.00	
As left span	4918	81.3	17.27	17.31	0.998
			Avera	ge Correction Factor	0.994

Notes:

Changed the inlet filter after as founds. Adjusted the span.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4918	81.3	9.18	9.09	1.010
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	9.09 NA NA	Prev response AF Slope: AF Correlation:	9.17	*% change AF Intercept: * = > +/-5% change initia	-1.0% tes investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4918	81.3	9.18	9.22	0.996
Mid point	4959	40.7	4.60	4.65	0.989
Low point	4979	20.3	2.29	2.34	0.981
As left zero	5000	0.0	0.00	0.00	
As left span	4918	81.3	9.18	9.22	0.996
			Avera	ge Correction Factor	0.989

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4918	81.3	8.09	7.91	1.023
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	7.91 NA NA	Prev response AF Slope: AF Correlation:	8.11	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4918	81.3	8.09	8.10	0.998
Mid point	4959	40.7	4.05	4.05	0.999
Low point	4979	20.3	2.02	2.02	0.999
As left zero	5000	0.0	0.00	0.00	
As left span	4918	81.3	8.09	8.09	1.000
			Avera	ge Correction Factor	0.999

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	0.999822	1.002190
THC Cal Offset:	0.026931	0.021536
CH4 Cal Slope:	1.004040	1.001397
CH4 Cal Offset:	-0.003534	0.001066
NMHC Cal Slope:	0.995772	1.002902
NMHC Cal Offset:	0.031064	0.020670

Calibration Performed By:

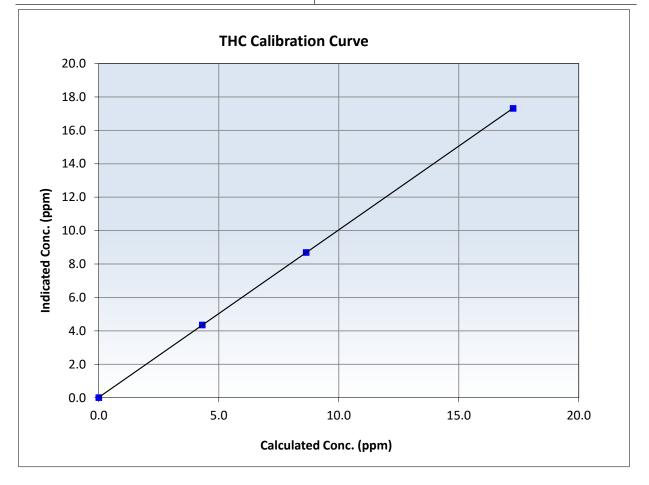


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 9, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:39	End Time (MST):	15:18
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585648

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999995	≥0.995
17.27 8.64	17.32 8.70	0.9972 0.9938	Slope	1.002190	0.90 - 1.10
4.31	4.36	0.9895	Intercept	0.021536	+/-0.5



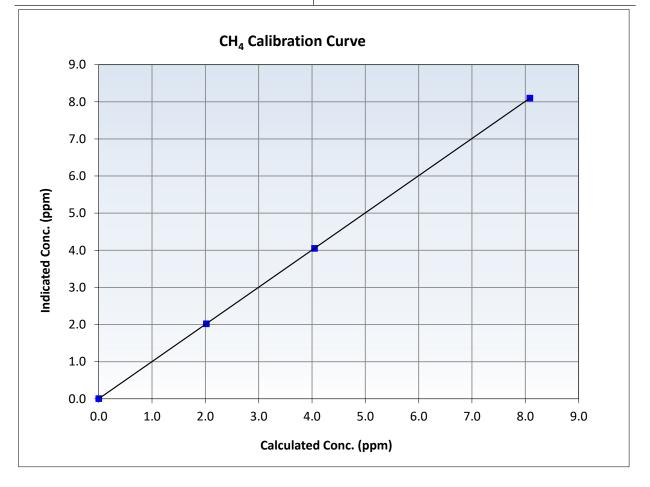


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 9, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:39	End Time (MST):	15:18
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585648

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999999	≥0.995
8.09	8.10	0.9982	Slope	1.001397	0.90 - 1.10
4.05	4.05	0.9991	Slope	1.001357 0.30	0.90 - 1.10
2.02	2.02	0.9990	Intercept	0.001066	+/-0.5



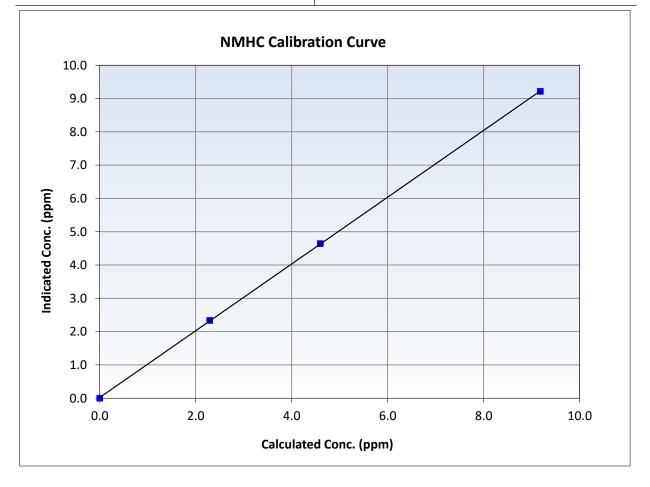


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 9, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:39	End Time (MST):	15:18
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585648

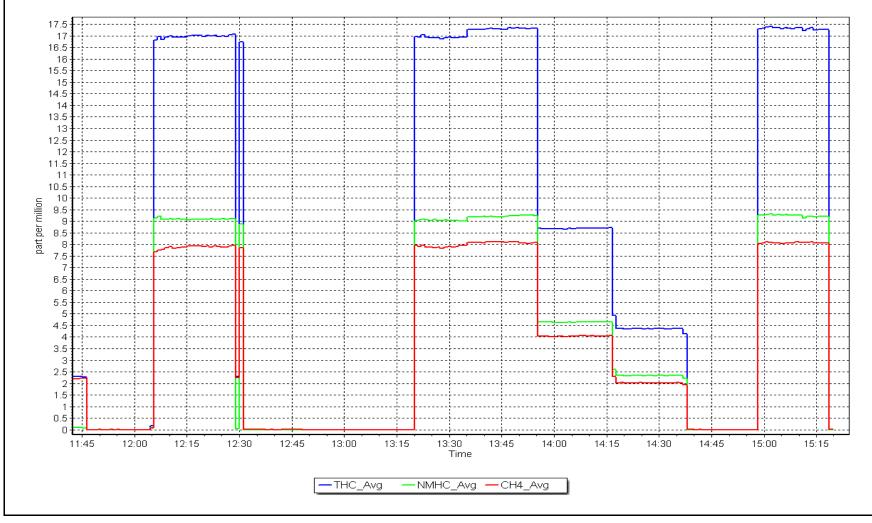
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999975	≥0.995
9.18	9.22	0.9962	Slope	1.002902	0.90 - 1.10
4.60	4.65	0.9890	Slope	1.002902	0.90 - 1.10
2.29	2.34	0.9814	Intercept	0.020670	+/-0.5



NMHC Calibration Plot

Location: Bertha Ganter-Fort McKay







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Bertha Ganter-Fort McKay	NO Gas Cylinder #:	CC335700	Cal Gas Expiry Date:	September 1, 2032
Station number:	AMS 01	NOX Cal Gas Conc:	59.40 ppm	NO Cal Gas Conc:	59.20 ppm
Calibration Date:	April 17, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date	: NA
Last Cal Date:	March 11, 2025	Removed Gas NOX Conc:	59.40 ppm	Removed Gas NO Conc	: 59.20 ppm
Start time (MST):	10:36	NOX gas Diff:		NO gas Diff:	
End time (MST):	16:12	Calibrator Model:	Teledyne API T700	Serial Number:	3565
Reason:	Routine	ZAG make/model:	Teledyne API T701	Serial Number:	146

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.6	-0.5	-0.1		
AF High point	4932	67.6	803.1	800.4	2.7	803.0	796.2	6.8	0.9994	1.0046
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	801.9 ppb	NO = 799.9	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chang	e NO _x =	0.2%
Baseline Corr 1	.st pt NO _x =	803.6 ppb	NO = 796.7	ppb	<u>As Four</u>	nd Statistics		*Percent Chang	e NO =	-0.4%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				As Fo	und GPT Calib	ration Data				
								Baseline Adjuste	ed NO2	
O3 Setor	oint (ppb)	Indicated NO Re	ference Indi	cated NO Drop	Calculated N	02 In	dicated NO2	Correction fa	ctor Conv	erter Efficiency

O3 Setpoint (ppb)	Indicated NO Reference	Indicated NO Drop	Calculated NO2	Indicated NO2	Correction factor	Converter Efficiency
	concentration (ppb)	concentration (ppb)	concentration (ppb) (Cc)	concentration (ppb) (Ic)	(Cc/(Ic-AFzero))	<i>Limit = 96-104%</i>
					<i>Limit = 0.90 - 1.10</i>	
As Found GPT zero						

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Teledyne API T20	0	Serial Number: 7117	7			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.999328	1.001733
			Instrument Settings			NO _x Cal Offset:	-0.640000	-0.160000
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.001476	1.003133
NO coeff or slope:	1.176	1.176	NO bkgnd or offset:	-3.1	-3.1	NO Cal Offset:	-1.660000	-1.240000
NOX coeff or slope:	1.178	1.178	NOX bkgnd or offset:	-2.9	-2.9	NO ₂ Cal Slope:	1.000095	1.000579
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	7.7	8.2	NO ₂ Cal Offset:	0.729865	-0.003919

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.2	0.1	0.0		
High point	4932	67.6	803.1	800.4	2.7	804.6	802.4	2.3	0.9981	0.9975
Mid point	4966	33.8	401.5	400.2	1.4	401.6	399.3	2.3	0.9999	1.0022
Low point	4983	16.9	200.8	200.1	0.7	200.8	198.3	2.5	0.9999	1.0091
As left zero	5000	0.0	0.0	0.0	0.0	1.8	1.8	0.0		
As left span	4932	67.6	803.1	371.4	431.7	782.2	371.4	410.8	1.0267	1.0000
							Average Co	orrection Factor	0.9993	1.0029

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.0		
High GPT point	795.1	404.9	392.9	393.1	0.9995	100.0%
Mid GPT point	795.1	594.3	203.5	203.7	0.9990	100.1%
Low GPT point	795.1	696.7	101.1	101.1	1.0000	100.0%
				Average Correction Factor	0.9995	100.0%

Notes: Changed the inlet filter after as founds. No adjustments made.

Calibration Performed By:

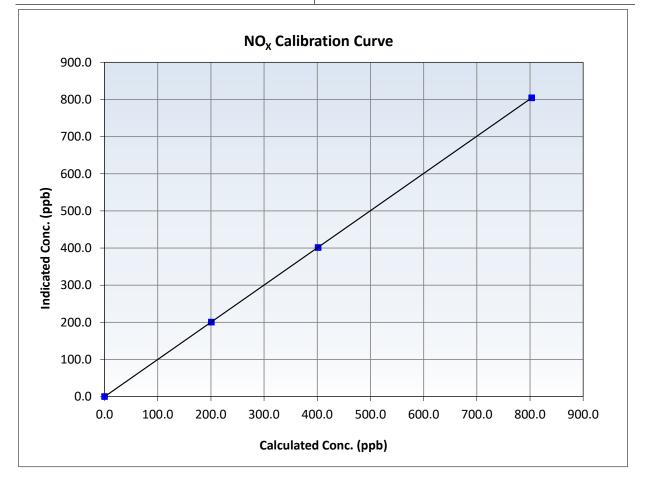


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 11, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:36	End Time (MST):	16:12
Analyzer make:	Teledyne API T200	Analyzer serial #:	7117

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999999	≥0.995
803.1 401.5	804.6 401.6	0.9981 0.9999	Slope	1.001733	0.90 - 1.10
200.8	200.8	0.9999	Intercept	-0.160000	+/-20



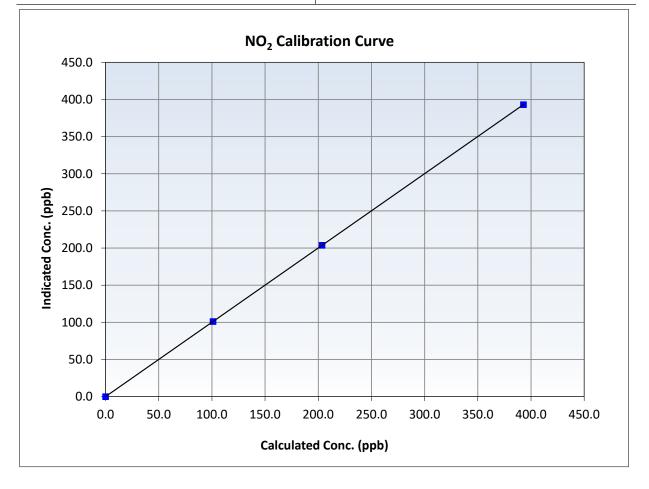


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 11, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:36	End Time (MST):	16:12
Analyzer make:	Teledyne API T200	Analyzer serial #:	7117

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	1.000000	≥0.995
392.9 203.5	393.1 203.7	0.9995 0.9990	Slope	1.000579	0.90 - 1.10
101.1	101.1	1.0000	Intercept	-0.003919	+/-20



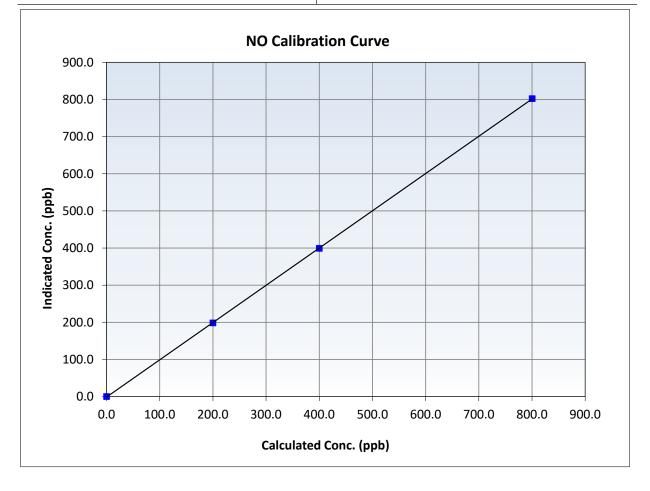


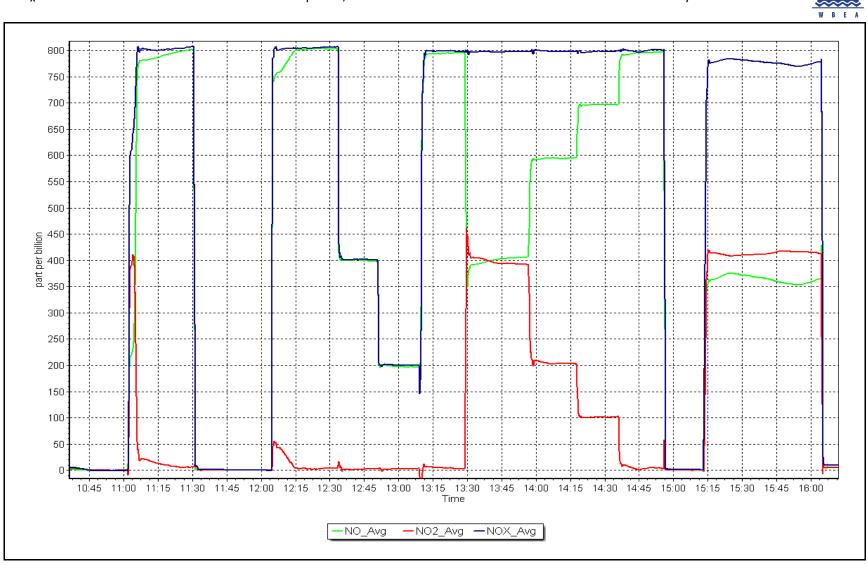
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 11, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:36	End Time (MST):	16:12
Analyzer make:	Teledyne API T200	Analyzer serial #:	7117

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999987	≥0.995
800.4 400.2	802.4 399.3	0.9975 1.0022	Slope	1.003133	0.90 - 1.10
200.1	198.3	1.0091	Intercept	-1.240000	+/-20





NO_x Calibration Plot





Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Bertha Ganter-Fort McKay April 1, 2025 11:02 Routine	Station number: AMS 01 Last Cal Date: March 5, 2025 End time (MST): 14:24
	Calibration Sta	andards
O3 generation mode:	Photometer	
Calibrator Make/Model:	Teledyne API T700	Serial Number: 3565
ZAG Make/Model:	Teledyne API T701	Serial Number: 146
	Analyzer Infor	mation
Analyzer make: Analyzer Range	Teledyne API T400 0 - 500 ppb	Analyzer serial #: 1107

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.001943	0.996600	Backgd or Offset:	7.6	6.8
Calibration intercept:	0.260000	0.920000	Coeff or Slope:	1.021	1.031

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.6	
As found High point As found Mid point As found Low point	5000	863.1	400.0	395.7	1.009
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	396.3 NA NA	Previous response AF Slope: AF Correlation:		*% change AF Intercept: * = > +/-5% change initia	

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.1	
High point	5000	863.1	400.0	399.2	1.002
Mid point	5000	744.0	200.0	200.5	0.998
Low point	5000	651.7	100.0	101.5	0.985
As left zero	5000	0.0	0.0	0.0	
As left span	5000	863.1	400.0	400.2	1.000
			Averag	e Correction Factor	0.995

Notes:

Changed the inlet filter after as founds. Adjusted both zero and span.

Calibration Performed By:

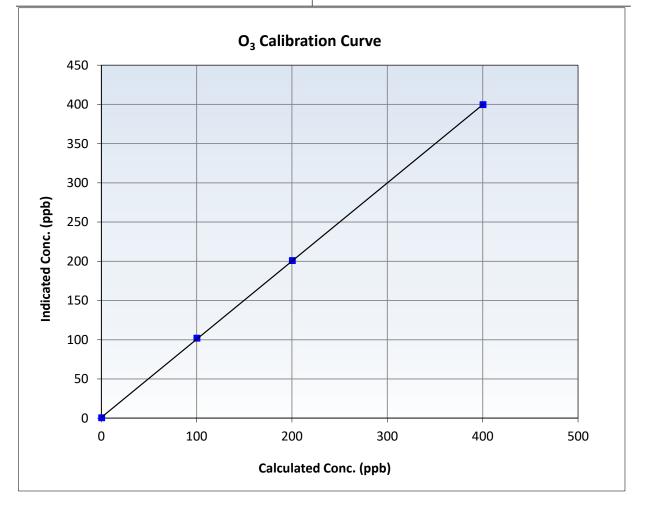


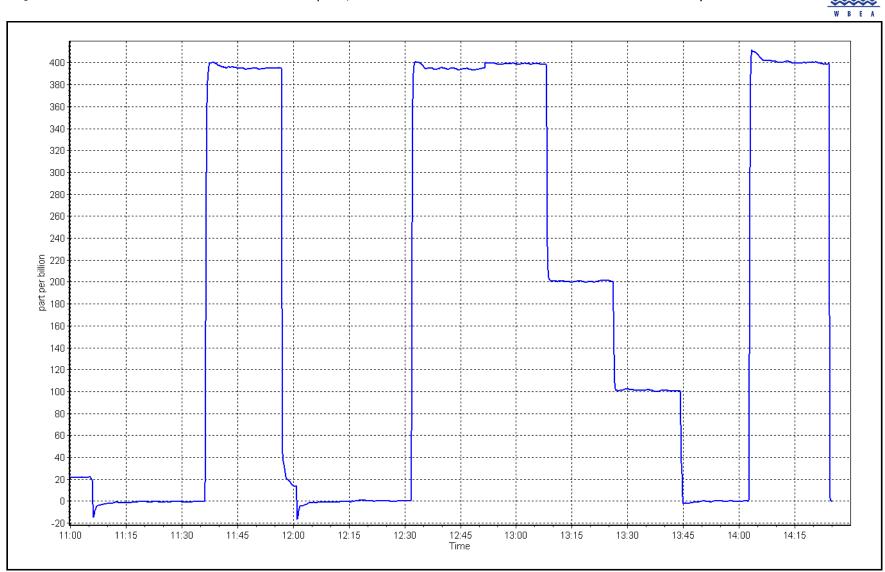
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 5, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:02	End Time (MST):	14:24
Analyzer make:	Teledyne API T400	Analyzer serial #:	1107

Calculated concentratior (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999980	≥0.995
400.0 200.0	399.2 200.5	1.0020 0.9975	Slope	0.996600	0.90 - 1.10
100.0	101.5	0.9852	Intercept	0.920000	+/- 5





O₃ Calibration Plot

Location: Bertha Ganter-Fort McKay





Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-2024
		Station Information			
Station Name:	Fort McKay - Bertha (Ganter	Station number: Al		
Calibration Date: Start time (MST):	April 2, 2025 11:59		Last Cal Date: M End time (MST): 14		
Start time (1051).	11.55			r.17	
Analyzer Make:	Teledyne API T640		S/N: 32	22	
Particulate Fraction:	PM2.5				
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 38	38752	
Temp/RH standard:	Alicat FP-25BT		S/N: 38	38752	
		Monthly Calibration	Test		
<u>Parameter</u>	As found	Measured	<u>As left</u>	Adjusted	(Limits)
T (°C)	-0.4	-0.9	-0.4		+/- 2 °C
P (mmHg)	728.2	730.53	728.2		+/- 10 mmHg
Flow (LPM)	4.99	4.978	4.99		+/- 0.25 LPM
PW% (pump)	39		39		>80%
Zero Verification	PM w/o HEPA:	17.2	PM w/ HEPA:	17.2	<0.2 ug/m3
	-				
Note: this leak check will be					
PM Inlet observation :	Inlet Head Clean	⊡ Ali	gnment Factor On :	<i>✓</i>	
		Quarterly Calibration	Test		
	Refractive Index:	10.9	Expiry Date:	June 10, 20	24
SPAN DUST	Lot No.:	100128-050-042			
Parameter	As found	Post maintenance	<u>As left</u>	Adjusted	(Limits)
PMT Peak Test	7.5	10.2	10.8	 	10.9 +/- 0.5
FIVIT FEAK TEST	7.5	10.2	10.8	Ľ	10.5 +/- 0.5
Date Optical Cham	nber Cleaned:	April 2, 1	2025		
Date Disposable Fi	Iter Changed:	April 2, 1	2025		
Post- maintenance Zero Ver	rification:	PM w/ HEPA:	0.0	<0.2 ug/m3	
		· _		_	
		Annual Maintenan	се		
Date Sample Tul	ha Claanad:	Octobor 2	4 2024		
Date Sample Tu	-	October 2 April 2, 1			
	-	, , , , , , , , , , , , , , , , , , , ,			
Notas	Flow temperature and	pressure were verified. Initia	l leak check did not nass O	ntical chamber and RH/T	ensor cleaned
Notes:		sable filter changed. PMT pe			ensor eleaneu.
Calibration by:	Rene Chamberland				
canoration by.					



Wood Buffalo Environmental Association CO Calibration Report

Station Information

Station Name:Bertha Ganter-Fort McKayCalibration Date:April 2, 2025Start time (MST):11:08Reason:Routine

Station number: AMS 01 Last Cal Date: March 3, 2025 End time (MST): 14:45

Calibration Standards

Cal Gas Concentration:	3,040	ppm	Cal Gas Exp Date: December 1, 2028	
Cal Gas Cylinder #:	ALM042207			
Removed Cal Gas Conc:	3,040	ppm	Rem Gas Exp Date: NA	
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number: 3565	
ZAG Make/Model:	Teledyne API T701		Serial Number: 146	
Analyzer Information				

Analyzer make: Analyzer Range:	Teledyne API T300 0 - 50 ppm		Analyzer serial #: 3520		
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.003849	1.002893	Backgd or Offset:	-0.015	-0.015
Calibration intercept:	0.071854	0.133812	Coeff or Slope:	0.994	0.994

CO As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4933	66.7	40.6	41.0	0.992
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	40.89 NA NA	Prev response: AF Slope: AF Correlation:	40.78	*% change: AF Intercept: * = > +/-5% change initiate	0.3% es investigation

CO Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4933	66.7	40.6	40.7	0.997
Mid point	4966	33.3	20.2	20.7	0.979
Low point	4983	16.7	10.2	10.3	0.983
As left zero	5000	0.0	0.0	0.0	
As left span	2960	40.0	40.5	40.5	1.000
			Avera	ge Correction Factor	0.986

Notes:

Changed the inlet filter after as founds. Adjusted the zero and span.

Calibration Performed By:

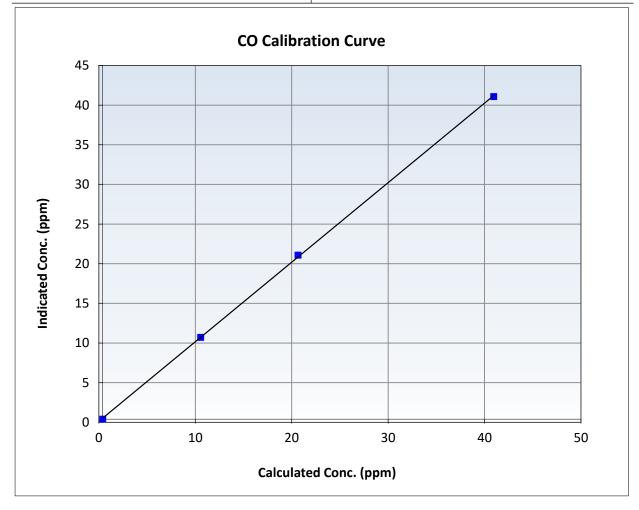


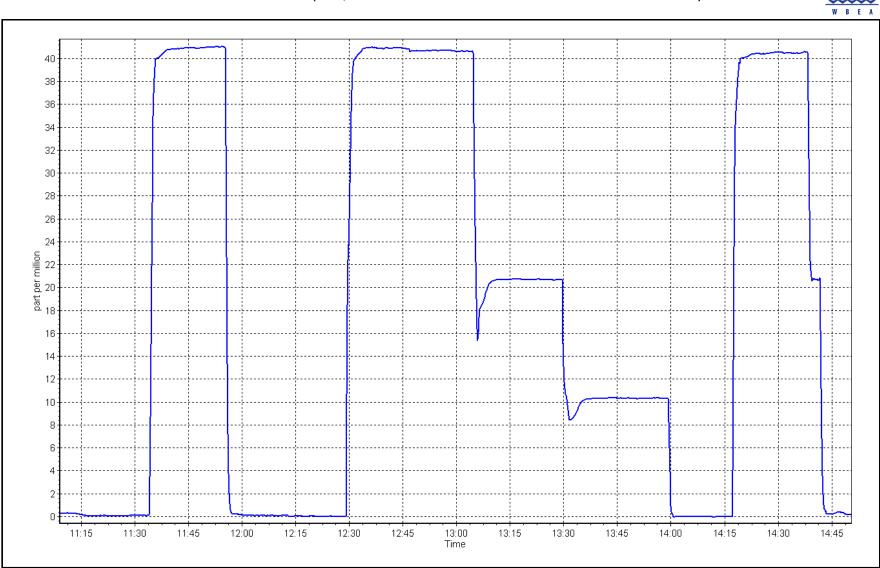
Wood Buffalo Environmental Association CO Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 3, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:08	End Time (MST):	14:45
Analyzer make:	Teledyne API T300	Analyzer serial #:	3520

Calculated concentration (ppm) (Cc)	culated concentration Indicated concentration Correction factor (ppm) (Cc) (ppm) (Ic) (Cc/Ic)		Statistical Evalua	<u>Limits</u>	
0.0	0.0		Correlation Coefficient	0.999894	≥0.995
40.6 20.2	40.7 20.7	0.9970 0.9787	Slope	1.002893	0.90 - 1.10
10.2	10.3	0.9830	Intercept	0.133812	+/-1.5





Date: April 2, 2025

Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association CO₂ Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay
Calibration Date:	April 4, 2025
Start time (MST):	10:58
Reason:	Routine

Station number: AMS 01 Last Cal Date: March 4, 2025 End time (MST): 14:09

Calibration Standards

Cal Gas Concentration:	60,200	ppm	Cal Gas Exp Date: December 1, 2028
Cal Gas Cylinder #:	ALM042207		
Removed Cal Gas Conc:	60,200	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Make/Model:	Teledyne API T700		Serial Number: 3565
N2 Gen Make/Model:	Peak Scientific		Serial Number: 7220900034

Analyzer Information

Analyzer make: Teledyne API 360 Analyzer serial #: 442 Analyzer Range 0 - 2,000 ppm <u>Start</u> <u>Finish</u> <u>Finish</u> <u>Start</u> Calibration slope: 1.005093 1.000358 Backgd or Offset: -0.011 -0.011 Calibration intercept: -5.360000 -3.460000 Coeff or Slope: 0.922 0.922

CO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	3000	0.0	0.0	0.5	
As found High Point As found Mid Point As found Low Point New cylinder response	2920	80.0	1605.3	1606.1	1.000
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	1605.6 NA NA	Prev response: AF Slope: AF Correlation:	1608.1	*% change: AF Intercept: * = > +/-5% change initiat	-0.2% es investigation

CO₂ Calibration Data

Set Point Dilution air flow rate (sccm)		Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>
Calibrator zero	3000	0.0	0.0	0.6	
High point	2920	80.0	1605.3	1607.1	0.999
Mid point	2960	40.0	802.7	789.6	1.017
Low point	2980	20.0	401.3	399.2	1.005
As left zero	3000	0.0	0.0	-3.1	
As left span	2960	40.0	802.7	791.3	1.014
			Avera	1.007	

Notes:

Changed the inlet filter after as founds. No adjustments made.

Calibration Performed By:

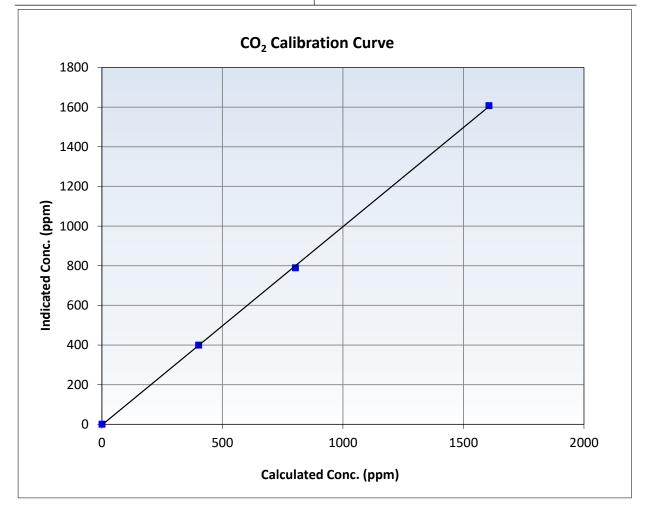


Wood Buffalo Environmental Association CO₂ Calibration Summary

Station Information

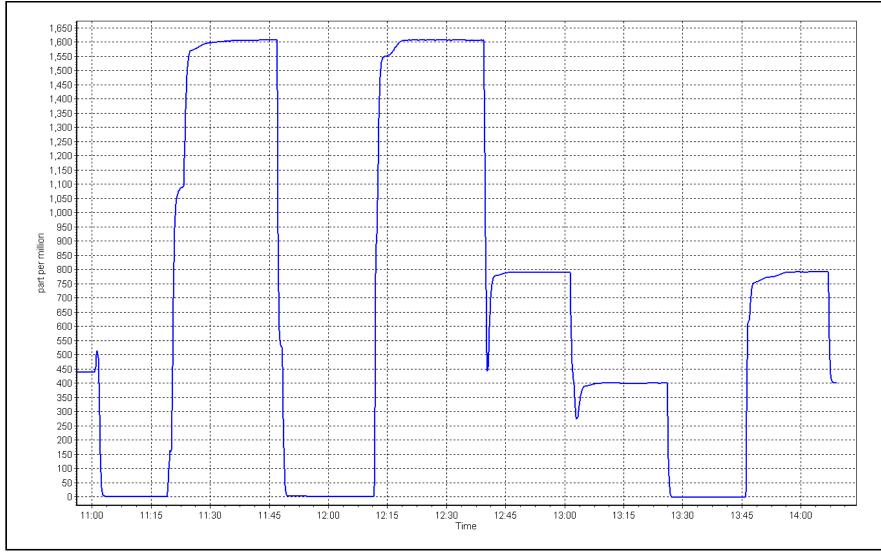
Calibration Date	April 4, 2025	Previous Calibration	March 4, 2025
Station Name	Bertha Ganter-Fort McKay	Station Number	AMS 01
Start Time (MST)	10:58	End Time (MST)	14:09
Analyzer make	Teledyne API 360	Analyzer serial #	442

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>	
0.0	0.6		Correlation Coefficient	0.999903	≥0.995	
1605.3 802.7	1607.1 789.6	0.9989 1.0165 1.0053	Slope	1.000358	0.90 - 1.10	
401.3	399.2		Intercept	-3.5	+/-20	











Wood Buffalo Environmental Association Nt - NOX - NH3 Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
NOX Cal Date:	April 14, 2025	Last Cal Date:	March 12, 2025
Start time (MST):	11:00	End time (MST):	15:55
NH3 Cal Date:	April 15, 2025	Last Cal Date:	March 13, 2025
Start time (MST):	11:10	End time (MST):	15:00
Reason:	Routine		

Calibration Standards

NOX Cal Gas Conc:	59.40	ppm	NO Gas Cylinder #:	CC335700
NO Cal Gas Conc:	59.20	ppm	NO Cal Gas Expiry:	September 1, 2032
Removed NOX Conc:	59.40	ppm	Removed Cylinder #:	NA
Removed NO Conc:	59.20	ppm	Removed cyl Expiry:	NA
NOX gas Diff:			NO gas Diff:	
NH3 Cal Gas Conc:	77.80	ppm	NH3 Gas Cylinder #:	CC711249
			NH3 Cal Gas Expiry:	December 31, 2025
Removed NH3 Conc:	77.80	ppm	Removed Cylinder #:	NA
NH3 gas Diff:			Removed cyl Expiry:	NA
Calibrator Model:	A	PI T700	Serial Number:	3565
ZAG make/model:	A	PI T701	Serial Number:	146

Analyzer Information

Analyzer model: Converter model: NH3 Range (ppb):	API T201 API T501 0 - 2000 ppb		Analyzer serial #: Converter serial #: Reaction cell Press:	808 484 4.40	
NOX Range (ppb):	0 - 1000 ppb		Sample Flow:	393	
	<u>Start</u>	Finish		<u>Start</u>	<u>Finish</u>
NO coefficient:	0.911	0.903	Nt coefficient:	0.918	0.907
NOX coefficient:	0.912	0.905	NO bkgrnd:	-1.8	0.5
NO2 coefficient:	1.000	1.000	NOX bkgrnd:	-1.7	0.8
NH3 coefficient:	0.983	0.983	Nt bkgrnd:	-0.6	2.9

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
NO _x Cal Slope:	0.998844	1.001577
NO _x Cal Offset:	-1.020000	-1.280000
NO Cal Slope:	1.001505	1.002933
NO Cal Offset:	-1.720000	-1.820000
NO ₂ Cal Slope:	1.004855	1.002698
NO ₂ Cal Offset:	-0.045831	-0.301647
NH3 Cal Slope:	0.998529	0.998379
NH3 Cal Offset:	1.260645	-6.890779
Nt Cal Slope:	1.002958	1.003583
Nt Cal Offset:	3.555325	-6.335266



Wood Buffalo Environmental Association

$NO_X - NO - NO_2$ Calibration Report

NOx / NO / Nt As Found Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated Nt concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated Nt concentration (ppb) (Ic)	Baseline corr NOx Correction factor (Cc/lc) Limit = 0.9 - 1.0	Baseline corr NO Correction factor (Cc/Ic) Limit = 0.9 - 1.0
As found zero	5000	0.0	0.0	0.0	0.0	1.5	1.1	1.3		
As found span	4932	67.6	803.1	800.4	803.1	814.7	803.7	817.0	0.9857	0.9959
AF GPT span	4932	67.6	803.1		803.1	796.0		795.6	1.0089	
new NO cyl rp										
Baseline Corr As F	Fd Nt =	815.7 ppb	NO _x = 813.2	ppb NO =	802.6 ppb			*Percent Chang	ge Nt _(NO) =	0.8%
Previous Respons	e Nt =	809.02 ppb	NO _x = 801.1	ppb NO =	799.9 ppb			*Percent Chang	ge NO _x =	1.5%
**NO _X Δ (NO to GP * *= > +/-2% differenc	1 /	-2.3% tion						*Percent Chang * = > +/-5% change	-	

NOx / NO / Nt Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated Nt concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated Nt concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>	NO Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>
Calibration zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.1		
High point	4932	67.6	803.1	800.4	803.1	803.9	801.8	804.0	0.9990	0.9982
Mid point	4966	33.8	401.5	400.2	401.5	399.5	398.5	401.1	1.0051	1.0042
Low point	4983	16.9	200.8	200.1	200.8	199.3	197.4	199.9	1.0074	1.0137
							Average Co	prrection Factor	1.0038	1.0054

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>	Converter Efficiency Limit = 96-104%
Calibration zero			0.0	0.0		
High GPT point (400 ppb O3)	797.2	403.6	396.3	397.4	0.9972	100.3%
Mid GPT point (200 ppb O3)	797.2	596.7	203.2	202.8	1.0020	99.8%
Low GPT point (100 ppb O3)	797.2	697.3	102.6	102.6	1.0000	100.0%
			A	verage Correction Factor	0.9998	100.0%



Wood Buffalo Environmental Association $NH_3 - N_T$ Calibration Report

NH3 As Found Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated Nt concentration (ppb) (Cc)	Calculated NOX concentration (ppb) (Cc)	Calculated NH3 concentration (ppb) (Cc)	Indicated Nt concentration (ppb) (Ic)	Indicated NOX concentration (ppb) (Ic)	Indicated NH3 concentration (ppb) (Ic)	Baseline corr Nt Correction factor (Cc/(Ic-zero)) Limit = 0.9 - 1.1	Baseline corr NH3 Correction factor (Cc/(Ic-zero)) Limit = 0.9 - 1.1
As found zero	5000	0.0	0.0	0.0	0.0	-0.8	-0.3	-0.6		
AF High point	2929	70.5	1828.6		1828.6	1805.4		1795.9	1.012	1.018
AF Mid point										
AF Low point										
new NH3 cyl rp										
Baseline Corr As I	Fd Nt =	1806.2 ppb	NH3 = 1796.5	ppb				*Percent Chan	ige Nt _(NH3) :	-1.7%
Previous Respons	se Nt =	1837.6 ppb	NH3 = 1827.2	ppb	* = > +/-5	5% change initiates	investigation	*Percent Chan	ige NH3 =	-1.7%

NH3 Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated Nt concentration (ppb) (Cc)	Calculated NOX concentration (ppb) (Cc)	Calculated NH3 concentration (ppb) (Cc)	Indicated Nt concentration (ppb) (Ic)	Indicated NOX concentration (ppb) (Ic)	Indicated NH3 concentration (ppb) (Ic)	Nt Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>	NH3 Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>
Calibration zero	5000	0.0	0.0	0.0	0.0	-0.1	-0.2	0.1		
High point	2931	69.4	1799.8		1799.8	1805.4		1795.9	0.997	1.002
Mid point	2961	38.6	1001.0		1001.0	990.2		984.1	1.011	1.017
Low point	2981	19.3	500.5		500.5	492.3		488.3	1.017	1.025
							Average Co	prrection Factor	1.0082	1.0148
NH3 Previous Converter Efficiency = 98.3 %										

NH3 Current Converter Efficiency = 98.3 %

Notes:

Changed the inlet filter after as founds. Adjusted the NOx/NT zero and span.

Calibration Performed By:

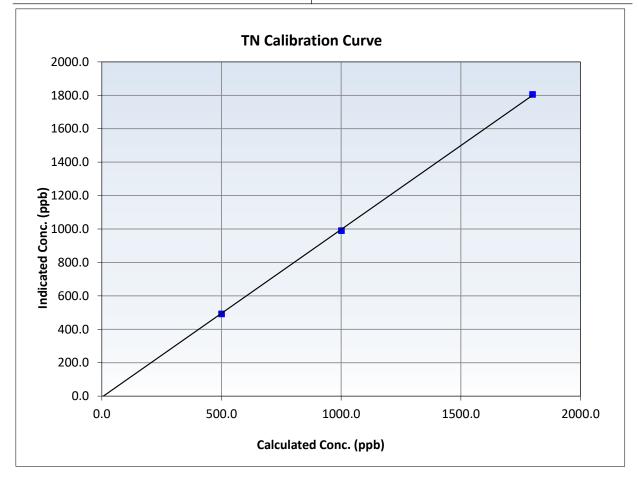


Nt Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:00	End Time (MST):	15:55
Analyzer make:	API T201	Analyzer serial #:	808

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999917	≥0.995
1799.8 1001.0	1805.4 990.2	0.9969 1.0109	Slope	1.003583	0.90 - 1.10
500.5	492.3	1.0167	Intercept	-6.335266	+/-20



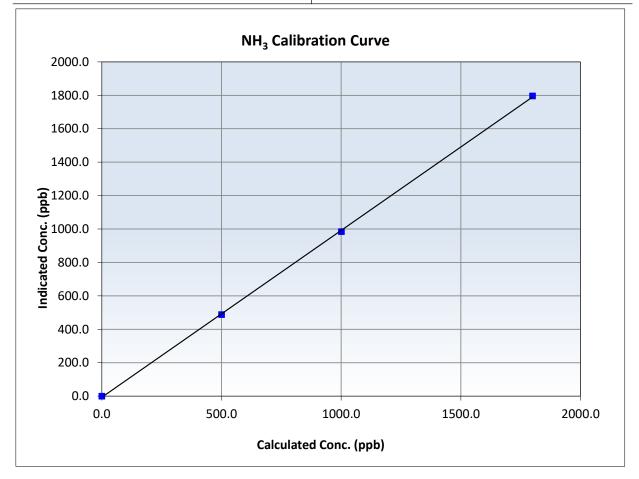


NH₃ Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:00	End Time (MST):	15:55
Analyzer make:	API T201	Analyzer serial #:	808

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999901	≥0.995
1799.8 1001.0	1795.9 984.1	1.0022 1.0172	Slope	0.998379	0.90 - 1.10
500.5	488.3	1.0250	Intercept	-6.890779	+/-20



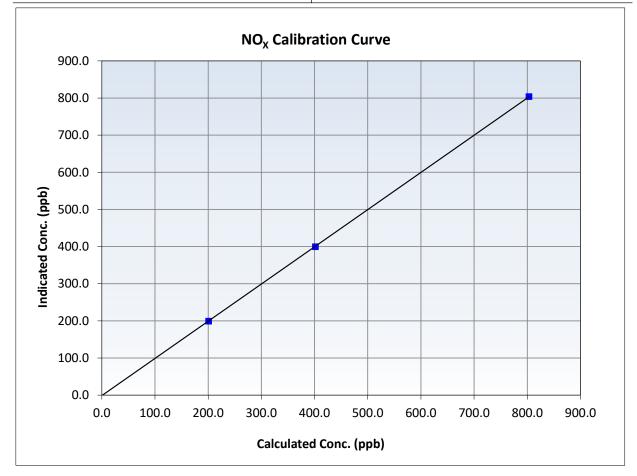


NO_x Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 12, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:00	End Time (MST):	15:55
Analyzer make:	API T201	Analyzer serial #:	808

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999989	≥0.995
803.1 401.5	803.9 399.5	0.9990 1.0051	Slope	1.001577	0.90 - 1.10
200.8	199.3	1.0074	Intercept	-1.280000	+/-20



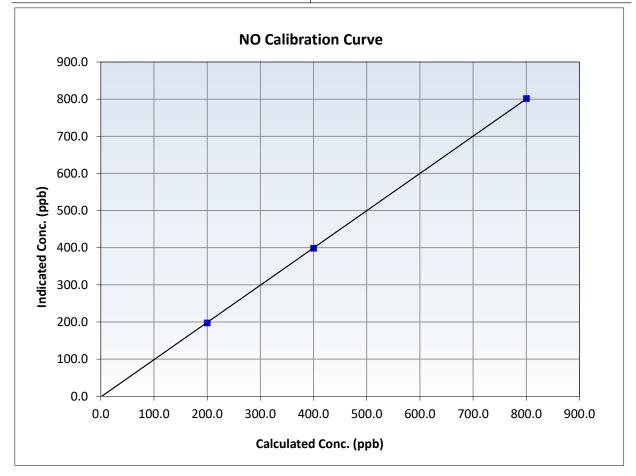


NO Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 12, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:00	End Time (MST):	15:55
Analyzer make:	API T201	Analyzer serial #:	808

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999981	≥0.995
800.4 400.2	801.8 398.5	0.9982 1.0042	Slope	1.002933	0.90 - 1.10
200.1	197.4	1.0137	Intercept	-1.820000	+/-20



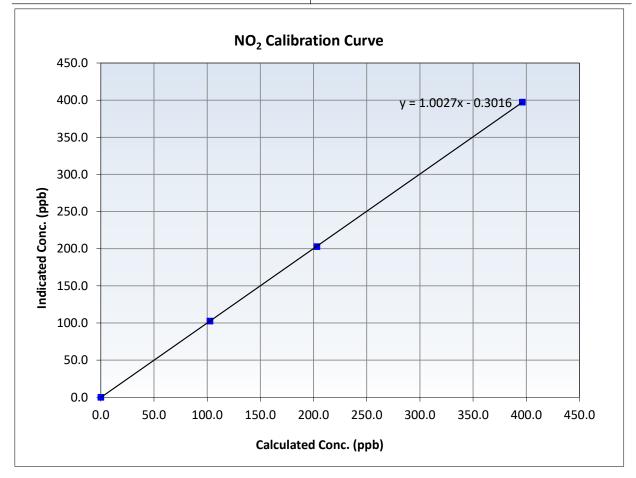


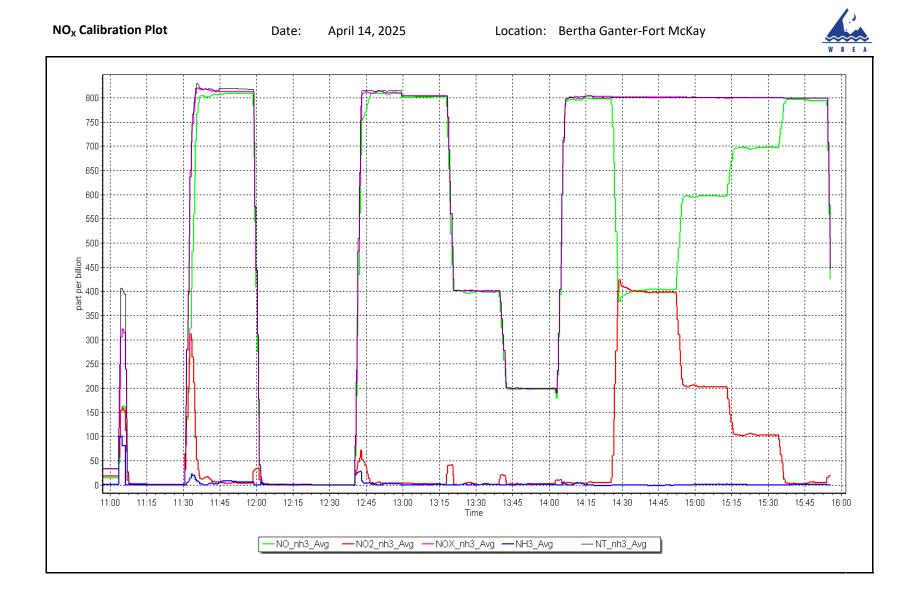
NO₂ Calibration Summary

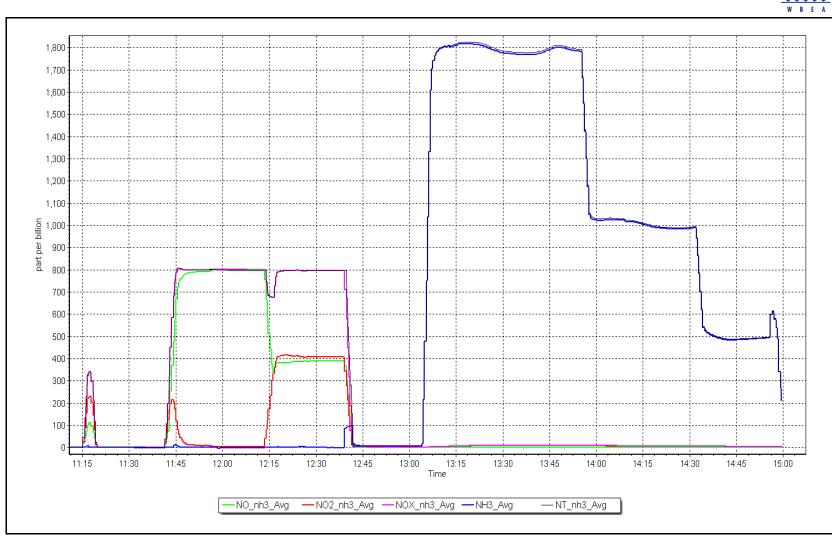
Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 12, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:00	End Time (MST):	15:55
Analyzer make:	API T201	Analyzer serial #:	808

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999993	≥0.995
396.3 203.2	397.4 202.8	0.9972 1.0020	Slope	1.002698	0.90 - 1.10
102.6	102.6	1.0000	Intercept	-0.301647	+/-20







Location: Bertha Ganter-Fort McKay





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS02 MILDRED LAKE APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Mildred Lake
Calibration Date:	April 17, 2025
Start time (MST):	9:49
Reason:	Routine

Station number: AMS 02 Last Cal Date: March 3, 2025 End time (MST): 13:24

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	50.99 EB0112903	ppm	Cal Gas Exp Date: October 9, 2032
Removed Cal Gas Conc:	50.99	ppm	Rem Gas Exp Date:
Removed Gas Cyl #:			Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 1185
Zero Air Gen Model:	Teledyne API T701		Serial Number: 4891

Analyzer Information

Analyzer make:	Thermo 43i	Thermo 43i Serial Number: JC14049			
Analyzer Range:	0-1000 ppb				
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.004323	1.008050	Backgd or Offset:	24.4	24.0
Calibration intercept:	-1.490497	-1.170425	Coeff or Slope:	0.791	0.763

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.7	
As found High point As found Mid point As found Low point New cylinder response	4913	78.6	803.0	830.0	0.968
Baseline Corr As found: Baseline Corr 2nd AF pt:	829.3 NA	Previous response AF Slope:	805.0	*% change AF Intercept:	2.9%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4913	78.4	801.0	807.0	0.993
Mid point	4961	39.2	399.8	400.7	0.998
Low point	4980	19.6	199.9	199.5	1.002
As left zero	5000	0.0	0.0	0.3	
As left span	4913	78.4	801.0	802.0	0.999
			Averag	ge Correction Factor:	0.997

Notes:

Changed sample inlet filter after as founds. Adjusted zero and span.

Calibration Performed By:

Braiden Boutilier

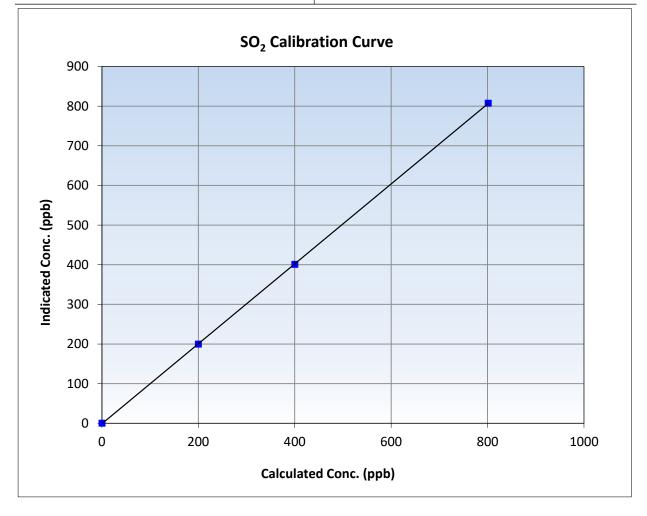


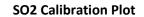
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

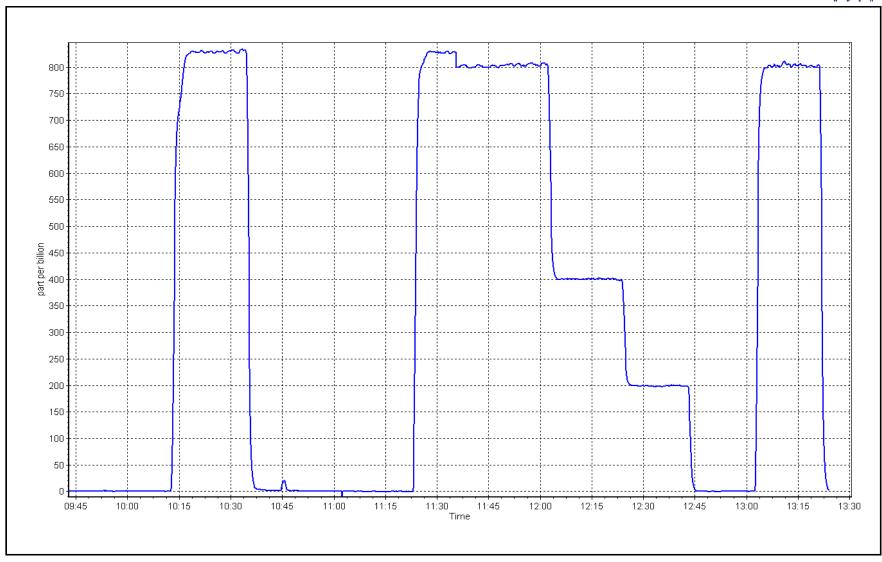
Calibration Date:	April 17, 2025	Previous Calibration:	March 3, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:49	End Time (MST):	13:24
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1404901075

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999989	≥0.995
801.0 399.8	807.0 400.7	0.9925 0.9977	Slope	1.008050	0.90 - 1.10
199.9	199.5	1.0019	Intercept	-1.170425	+/-30











Calibration intercept:

0.180000

Wood Buffalo Environmental Association H2S Calibration Report

Station Information

		station mile	mation				
Station Name: Calibration Date: Start time (MST): Reason:	Mildred Lake April 16, 2025 10:23 Routine		Station number: Last Cal Date: End time (MST):	AMS 02 March 28, 2025 15:46	5		
		Calibration S	tandards				
Cal Gas Concentration: Cal Gas Cylinder #:	4.75 CC700774	ppm	Cal Gas Exp Date:	August 28, 202	7		
Removed Cal Gas Conc: Removed Gas Cyl #:	4.75 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA			
Calibrator Make/Model:	•		Serial Number:	1185			
ZAG Make/Model:	Teledyne API T701		Serial Number:	4891			
		Analyzer Info	ormation				
Analyzer make: Converter make: Analyzer Range	Thermo 43iQTL Global G150 0 - 100 ppb		Analyzer serial #: Converter serial #: Converter Temp:	12333331546 2023-267	325	degC	
Calibration slope:	<u>Start</u> 0.999268	<u>Finish</u> 1.001840	Backgd or Offset:	<u>Start</u> 1.41			F

0.240000

H2S As Found Data

Coeff or Slope:

0.972

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	0.1	
As found High point	4916	84.2	80.0	79.8	1.004
As found Mid point	4958	42.1	40.0	39.8	1.007
As found Low point	4979	21.1	20.0	19.9	1.010
New cylinder response					
Baseline Corr As found:	79.7	Prev response:	80.11	*% change:	-0.5%
Baseline Corr 2nd AF pt:	39.7	AF Slope:	0.996696	AF Intercept:	0.020000
Baseline Corr 3rd AF pt:	19.8	AF Correlation:	0.999995	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.1	
High point	4916	84.2	80.0	80.3	0.996
Mid point	4958	42.1	40.0	40.4	0.990
Low point	4979	21.1	20.0	20.4	0.980
As left zero	5000	0.0	0.0	0.1	
As left span	4916	84.2	80.0	81.2	0.985
SO2 Scrubber Check	4920	80.2	802.0	0.0	
Date of last scrubber chan	ge:	July 16, 2024		Ave Corr Factor	0.989
Date of last converter effic	iency test:	NA			

Notes:

Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By:

Braiden Boutilier

<u>Finish</u>

1.42

0.977

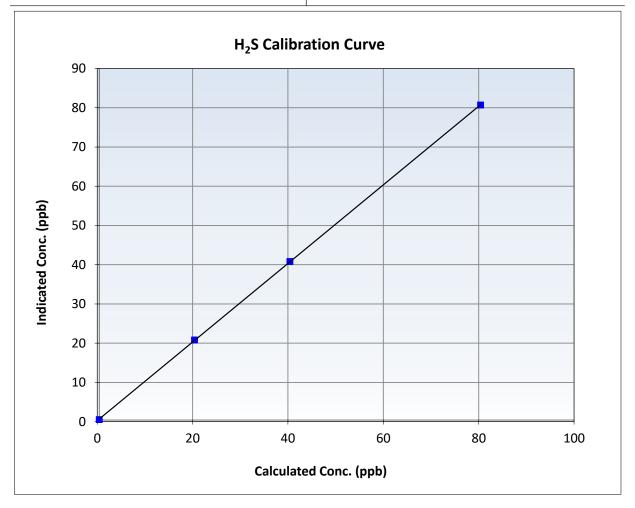


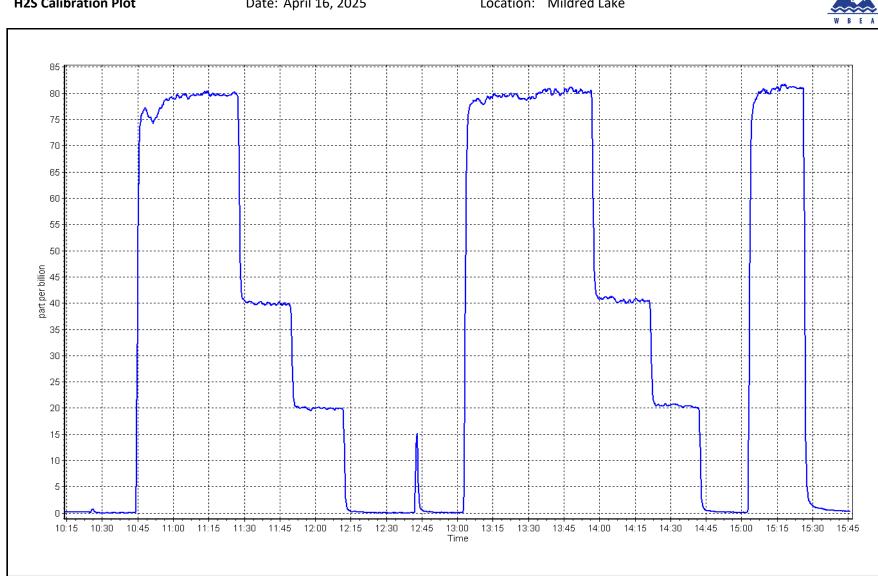
H2S Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 28, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	10:23	End Time (MST):	15:46
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12333331546

Calibration Data						
Calculated concentration Indicated concentration (ppb) (Cc) (ppb) (Ic)		Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>	
0.0	0.1		Correlation Coefficient	0.999986	≥0.995	
80.0 40.0	80.3 40.4	0.9961 0.9900	Slope	1.001840	0.90 - 1.10	
20.0	20.4	0.9803	Intercept	0.240000	+/-3	







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Analyzer serial #: 12227620776

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:Mildred LakeStation number: AMS 02Calibration Date:April 17, 2025Last Cal Date: March 6, 2025Start time (MST):9:49End time (MST): 13:24Reason:RoutineRoutine

Calibration Standards

Gas Cert Reference:	EB0112903	Cal Gas Expiry Date:	October 9, 2032
CH4 Cal Gas Conc.	503.1 ppm	CH4 Equiv Conc.	1067.1 ppm
C3H8 Cal Gas Conc.	205.1 ppm		
Removed Gas Cert:		Removed Gas Expiry:	
Removed CH4 Conc.	503.1 ppm	CH4 Equiv Conc.	1067.1 ppm
Removed C3H8 Conc.	205.1 ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):		Diff between cyl (NM):	
Calibrator Model:	Teledyne API T700	Serial Number:	1185
Zero Air Gen model:	Teledyne API T701	Serial Number:	4891

Analyzer Information

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	3.14E-04	3.17E-04	NMHC SP Ratio:	5.59E-05	5.66E-05
CH4 Retention time:	14.8	14.8	NMHC Peak Area:	158755	156929
Zero Chromatogram:	ON	ON	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4913	78.4	16.76	16.59	1.010
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.59	Prev response	16.82	*% change	-1.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4913	78.4	16.76	16.79	0.998
Mid point	4961	39.2	8.37	8.33	1.004
Low point	4980	19.6	4.18	4.10	1.021
As left zero	5000	0.0	0.00	0.00	
As left span	4913	78.4	16.76	16.78	0.999
			Avera	ge Correction Factor	1.008

Notes:

Changed nitrogen cylinder and sample inlet filter after as founds. Adjusted span.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4913	78.4	8.86	8.76	1.011
Baseline Corr AF:	8.76	Prev response	8.89	*% change	-1.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4913	78.4	8.86	8.88	0.998
Mid point	4961	39.2	4.42	4.43	0.998
Low point	4980	19.6	2.21	2.21	1.002
As left zero	5000	0.0	0.00	0.00	
As left span	4913	78.4	8.86	8.91	0.994
			Avera	ge Correction Factor	0.999

CH4 As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4913	78.4	7.90	7.83	1.009
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.83	Prev response	7.93	*% change	-1.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4913	78.4	7.90	7.91	0.999
Mid point	4961	39.2	3.94	3.90	1.011
Low point	4980	19.6	1.97	1.89	1.042
As left zero	5000	0.0	0.00	0.00	
As left span	4913	78.4	7.90	7.87	1.005
			Avera	age Correction Factor	1.018

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.005204	1.003153
THC Cal Offset:	-0.033153	-0.046376
CH4 Cal Slope:	1.007405	1.003647
CH4 Cal Offset:	-0.033157	-0.042173
NMHC Cal Slope:	1.003755	1.002609
NMHC Cal Offset:	0.000006	-0.003803

Calibration Performed By:

Braiden Boutilier

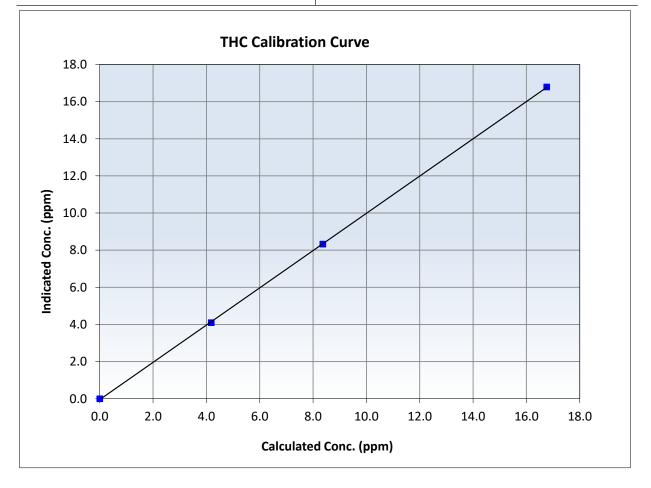


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 6, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:49	End Time (MST):	13:24
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620776

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999965	≥0.995
16.76 8.37	16.79 8.33	0.9984 1.0044	Slope	1.003153	0.90 - 1.10
4.18	4.10	1.0205	Intercept	-0.046376	+/-0.5



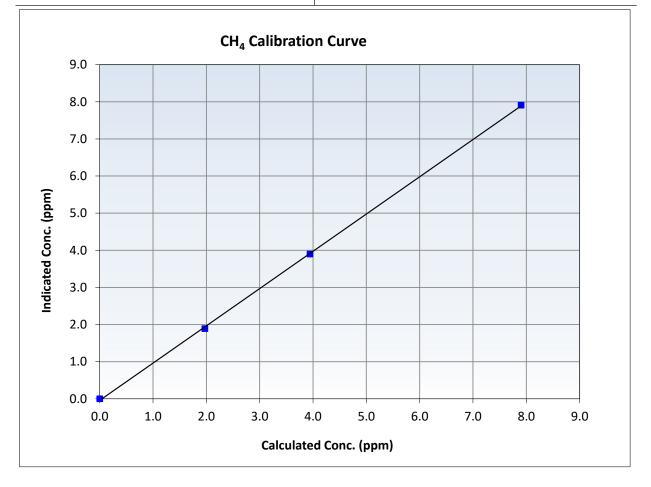


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 6, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:49	End Time (MST):	13:24
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620776

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999870	≥0.995
7.90 3.94	7.91 3.90	0.9992 1.0114	Slope	1.003647	0.90 - 1.10
1.97	1.89	1.0424	Intercept	-0.042173	+/-0.5



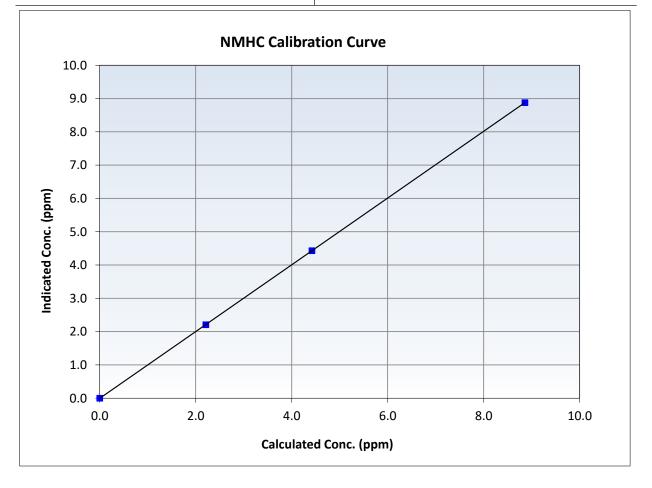


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

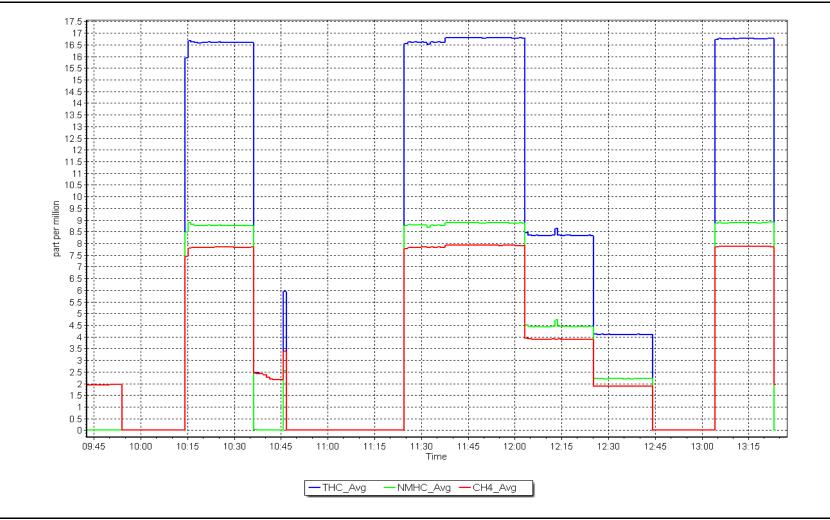
Calibration Date:	April 17, 2025	Previous Calibration:	March 6, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:49	End Time (MST):	13:24
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620776

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999999	≥0.995
8.86	8.88	0.9977	Slope	1.002609	0.90 - 1.10
4.42	4.43	0.9980	Slope	1.002009	0.30 - 1.10
2.21	2.21	1.0018	Intercept	-0.003803	+/-0.5



NMHC Calibration Plot







Wood Buffalo Environmental Association THC / CH_4 / NMHC Calibration Report

Station Information

Station Name: Mildred Lake Station number: AMS 02 Calibration Date: April 28, 2025 Start time (MST): 10:15 Cylinder Change Reason:

End time (MST): 12:15

Last Cal Date: April 17, 2025

Analyzer serial #: 12227620776

NMHC/CH4 Range: 0 - 10 ppm

Calibration Standards

Gas Cert Reference:	EB0112903	Cal Gas Expiry Date:	October 9, 2032
CH4 Cal Gas Conc.	503.1 ppm	CH4 Equiv Conc.	1067.1 ppm
C3H8 Cal Gas Conc.	205.1 ppm		
Removed Gas Cert:		Removed Gas Expiry:	
Removed CH4 Conc.	503.1 ppm	CH4 Equiv Conc.	1067.1 ppm
Removed C3H8 Conc. Diff between cyl (CH ₄):	205.1 ppm	Diff between cyl (THC): Diff between cyl (NM):	
Calibrator Model:	Teledyne API T700	Serial Number:	1185
Zero Air Gen model:	Teledyne API T701	Serial Number:	4891

Analyzer Information

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	3.17E-04	3.17E-04	NMHC SP Ratio:	5.66E-05	5.66E-05
CH4 Retention time:	14.8	14.8	NMHC Peak Area:	156929	156929
Zero Chromatogram:	ON	ON	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4913	78.4	16.76	16.63	1.008
Baseline Corr AF: Baseline Corr 2nd AF:	16.63 NA	Prev response AF Slope:	16.77	*% change AF Intercept:	-0.8%
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	
As left span	4913	78.4	16.76	16.70	1.004
			Avera	ge Correction Factor	
				_	

Notes:

Changed the H2 cylinder after as founds.



Calibration Performed By:

Max Farrell

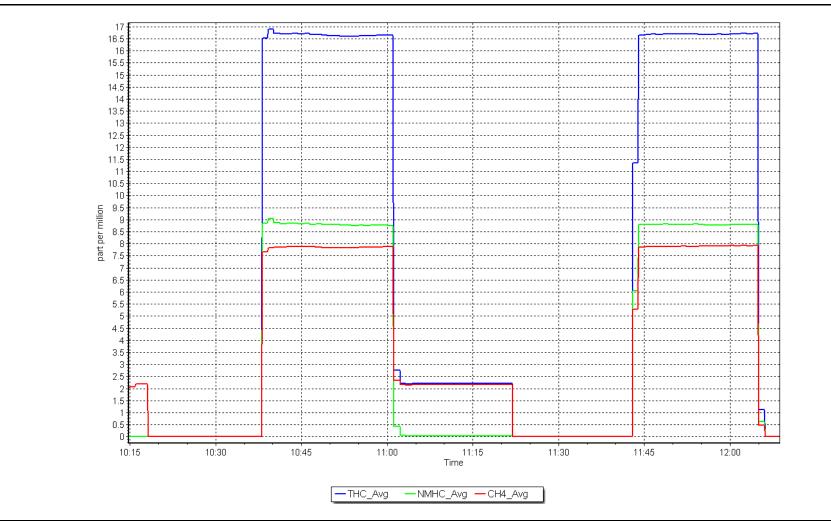
Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

			ound batta		Pacalina Adjusted
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic· AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4913	78.4	8.86	8.77	1.011
Baseline Corr AF: Baseline Corr 2nd AF:	8.77 NA	Prev response AF Slope:	8.88	*% change AF Intercept:	-1.3%
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation
		NMHC Calibi	ration Data		
	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated concentration (orrection factor (Cc/lc)
Set Point	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	<i>Limit = 0.95-1.05</i>
Calibrator zero High point Mid point Low point As left zero	5000	0.0	0.00	0.00	
As left span	4913	78.4	8.86	8.79	1.009
·			Avera	ge Correction Factor	
		CH4 As For	und Data		Deceline Adjusted
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (lc)	Baseline Adjusted Correction factor (Cc/(Ic· AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4913	78.4	7.90	7.86	1.005
Baseline Corr AF:	7.86	Prev response	7.89	*% change	-0.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation
		CH4 Calibra	ition Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero High point Mid point Low point					
As left zero	5000	0.0	0.00	0.00	
As left span	4913	78.4	7.90	7.92	0.998
			Avera	ge Correction Factor	
		Calibration	Statistics		
			Statistics	Einich	
THC Cal Slope:		<u>Start</u> 1.003153		<u>Finish</u>	
THC Cal Offset:		-0.046376			
CH4 Cal Slope:		1.003647			
CH4 Cal Offset:		-0.042173			
NMHC Cal Slope:		1.002609			
NMHC Cal Offset:		-0.003803			

NMHC Calibration Plot







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS04 BUFFALO VIEWPOINT APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Statio
Calibration Date:	April 24, 2025	Last
Start time (MST):	5:42	End ti
Reason:	Routine	

on number: AMS 04 st Cal Date: March 19, 2025 time (MST): 8:05

Calibration Standards

Cal Gas Concentration:	50.87	ppm	Cal Gas Exp Date: March 10, 2031
Cal Gas Cylinder #:	CC446753		
Removed Cal Gas Conc:	50.87	ppm	Rem Gas Exp Date:
Removed Gas Cyl #:			Diff between cyl:
Calibrator Model:	API T700		Serial Number: 3808
Zero Air Gen Model:	API T701		Serial Number: 362

Analyzer Information Serial Number: IC1327300932

Thermo 43i	Serial Number: JC1327300932					
0-1000ppb						

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.008431	1.000030	Backgd or Offset:	28.0	27.2
Calibration intercept:	-0.643895	-0.005582	Coeff or Slope:	0.892	0.879

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.2	
As found High point As found Mid point As found Low point New cylinder response	4921	78.6	799.7	812.0	0.985
Baseline Corr As found: Baseline Corr 2nd AF pt:	811.8 NA	Previous response AF Slope:	805.8	*% change AF Intercept:	0.7%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.5	
High point	4921	78.6	799.7	800.0	1.000
Mid point	4961	39.3	399.8	399.6	1.001
Low point	4980	19.6	199.4	198.9	1.003
As left zero	5000	0.0	0.0	0.2	
As left span	4921	78.6	799.7	801.5	0.998
			Averag	ge Correction Factor:	1.001

Notes:

No Maintenance done. Span adjusted.

Calibration Performed By:

Melissa Lemay

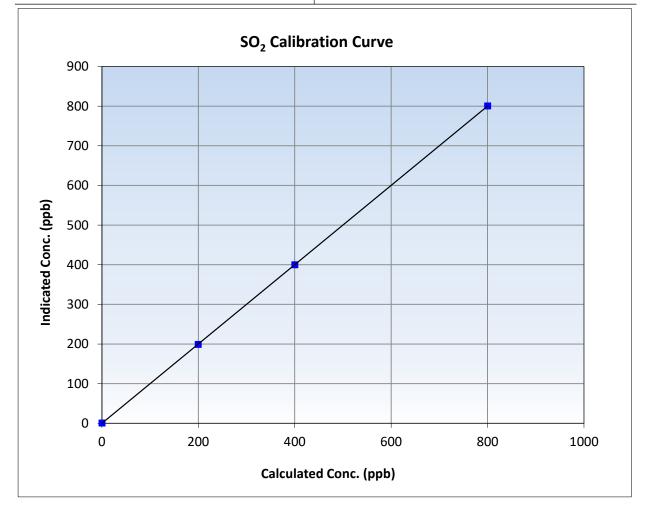


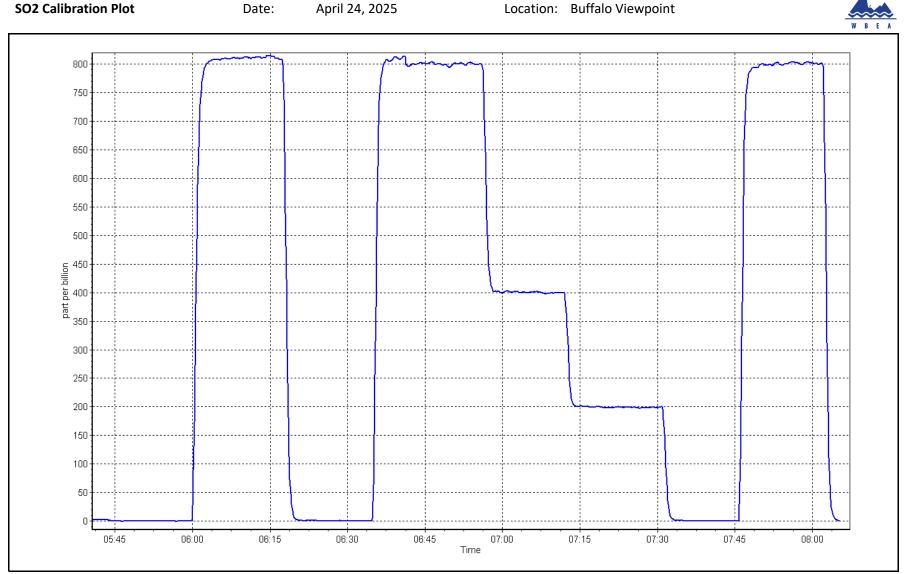
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 19, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:42	End Time (MST):	8:05
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1327300932

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.5		Correlation Coefficient	0.999998	≥0.995
799.7	800.0	0.9997	Slope	1.000030	0.90 - 1.10
399.8 199.4	399.6 198.9	1.0005 1.0026	Intercept	-0.005582	+/-30





April 24, 2025

Location: Buffalo Viewpoint



Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station number:	AMS 04
Calibration Date:	April 28, 2025	Last Cal Date:	March 18, 2025
Start time (MST):	7:28	End time (MST):	11:15
Reason:	Routine	Life (1951).	11.15

Calibration Standards

Cal Gas Concentration:	4.80	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	DT0037528			
Removed Cal Gas Conc:	4.80	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:			Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3808
ZAG Make/Model:	Teledyne API T701	н	Serial Number:	362

Analyzer Information

Analyzer make: Converter make:	Thermo 43i-LTE Global		Analyzer serial #: Converter serial #:	1008841400 2022-200	
Analyzer Range	0 - 100 ppb		Converter Temp:		325 degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.007150	0.999433	Backgd or Offset:	1.97	1.92
Calibration intercept:	0.158201	0.078228	Coeff or Slope:	1.130	1.110

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	0.1	
As found High point	4917	83.3	80.0	82.7	0.968
As found Mid point	4958	41.7	40.0	41.6	0.965
As found Low point	4979	20.8	20.0	20.8	0.965
New cylinder response					
Baseline Corr As found:	82.6	Prev response:	80.69	*% change:	2.3%
Baseline Corr 2nd AF pt:	41.5	AF Slope:	1.032872	AF Intercept:	0.158138
Baseline Corr 3rd AF pt:	20.7	AF Correlation:	0.999996	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.1	
High point	4917	83.3	80.0	80.0	1.000
Mid point	4958	41.7	40.0	40.1	0.998
Low point	4979	20.8	20.0	20.0	0.998
As left zero	5000	0.0	0.0	0.2	
As left span	4917	83.3	80.0	79.5	1.006
SO2 Scrubber Check	4920	80.0	800.0	0.0	
Date of last scrubber chan	ge:	16-May-23		Ave Corr Factor	0.999

Date of last converter efficiency test:

Notes:

Sox scrubber checked after calibrator zero. Span adjusted.

Calibration Performed By:

Melissa Lemay

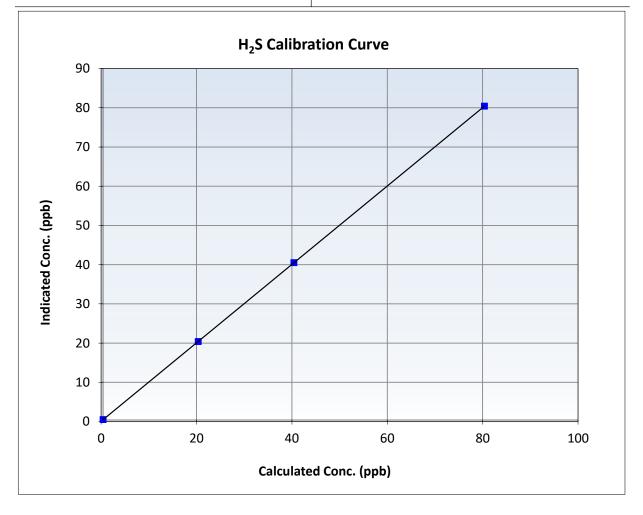


H₂S Calibration Summary

Station Information

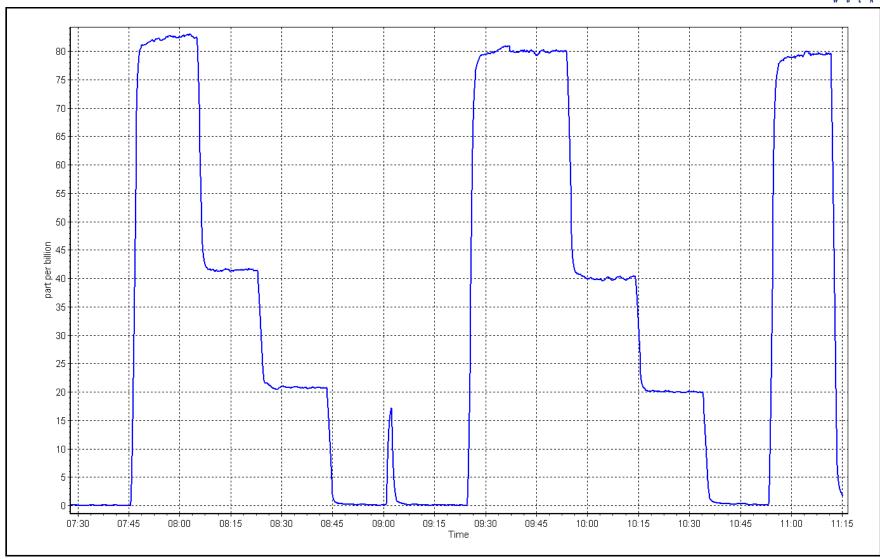
Calibration Date:	April 28, 2025	Previous Calibration:	March 18, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	7:28	End Time (MST):	11:15
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1008841400

Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation <u>Limits</u> (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999999 ≥0.995 0.0 0.1 ----80.0 80.0 0.9995 Slope 0.999433 0.90 - 1.10 40.0 40.1 0.9984 20.0 0.9984 20.0 Intercept 0.078228 +/-3











Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Analyzer serial #: 1426262594

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Buffalo Viewpoint	Station number: AMS 04
Calibration Date:	April 24, 2025	Last Cal Date: March 19, 2025
Start time (MST):	5:42	End time (MST): 8:04
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	CC446753	Cal Gas Expiry Date:	March 10, 2031
CH4 Cal Gas Conc.	497.2 ppm	CH4 Equiv Conc.	1058.2 ppm
C3H8 Cal Gas Conc.	204.0 ppm		
Removed Gas Cert:		Removed Gas Expiry:	
Removed CH4 Conc.	497.2 ppm	CH4 Equiv Conc.	1058.2 ppm
Removed C3H8 Conc.	204.0 ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):		Diff between cyl (NM):	
Calibrator Model:	API T700	Serial Number:	3808
Zero Air Gen model:	API T701	Serial Number:	362

Analyzer Information

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	4.58E-04	4.79E-04	NMHC SP Ratio:	9.45E-04	9.37E-04
CH4 Retention time:	13.7	13.9	NMHC Peak Area:	93285	94114
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	78.6	16.64	16.52	1.007
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.52	Prev response	16.54	*% change	-0.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	78.6	16.64	16.57	1.004
Mid point	4961	39.3	8.32	8.24	1.010
Low point	4980	19.6	4.15	4.07	1.019
As left zero	5000	0.0	0.00	0.00	
As left span	4921	78.6	16.64	16.57	1.004
			Avera	ge Correction Factor	1.011

Notes:

No Maintenance done. Span adjusted.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	78.6	8.82	8.92	0.989
Baseline Corr AF:	8.92	Prev response	8.76	*% change	1.7%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	ates investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	78.6	8.82	8.77	1.005
Mid point	4961	39.3	4.41	4.38	1.007
Low point	4980	19.6	2.20	2.15	1.021
As left zero	5000	0.0	0.00	0.00	
As left span	4921	78.6	8.82	8.77	1.005
			Avera	ge Correction Factor	1.011

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	78.6	7.82	7.61	1.027
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	7.61 NA NA	Prev response AF Slope: AF Correlation:	7.77	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	78.6	7.82	7.79	1.003
Mid point	4961	39.3	3.91	3.86	1.012
Low point	4980	19.6	1.95	1.92	1.016
As left zero	5000	0.0	0.00	0.00	
As left span	4921	78.6	7.82	7.79	1.003
			Avera	age Correction Factor	1.011

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	0.997100	0.996742
THC Cal Offset:	-0.049569	-0.032965
CH4 Cal Slope:	0.997360	0.997448
CH4 Cal Offset:	-0.022114	-0.016913
NMHC Cal Slope:	0.996753	0.995910
NMHC Cal Offset:	-0.027256	-0.015253

Calibration Performed By:

Melissa Lemay

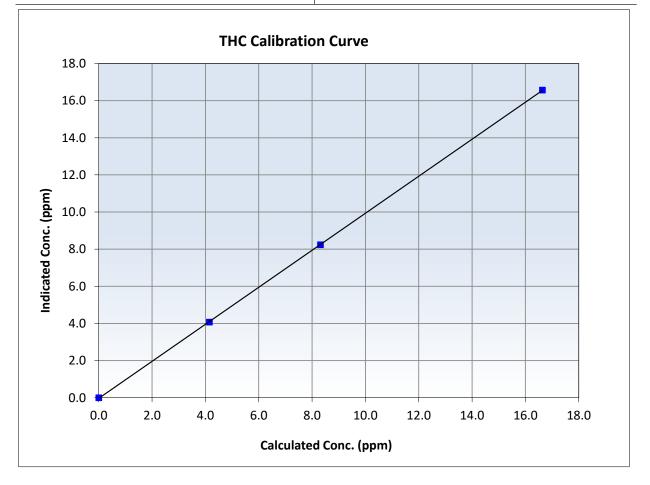


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 19, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:42	End Time (MST):	8:04
Analyzer make:	Thermo 55i	Analyzer serial #:	1426262594

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999982	≥0.995
16.64 8.32	16.57 8.24	1.0042 1.0098	Slope	0.996742	0.90 - 1.10
4.15	4.07	1.0188	Intercept	-0.032965	+/-0.5



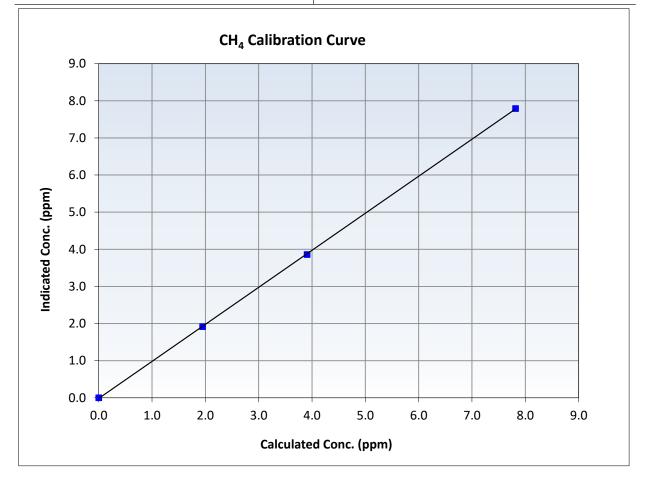


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 19, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:42	End Time (MST):	8:04
Analyzer make:	Thermo 55i	Analyzer serial #:	1426262594

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999972	≥0.995
7.82	7.79	1.0032	Slope	0.997448	0.90 - 1.10
3.91	3.86	1.0121	Siope	0.997440	0.50 - 1.10
1.95	1.92	1.0163	Intercept	-0.016913	+/-0.5



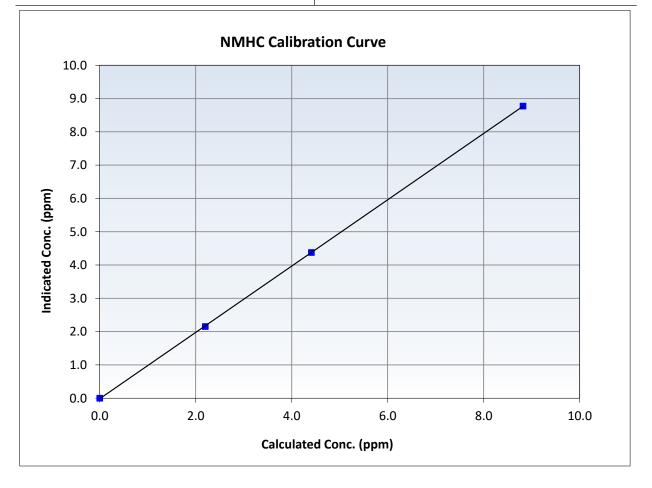


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

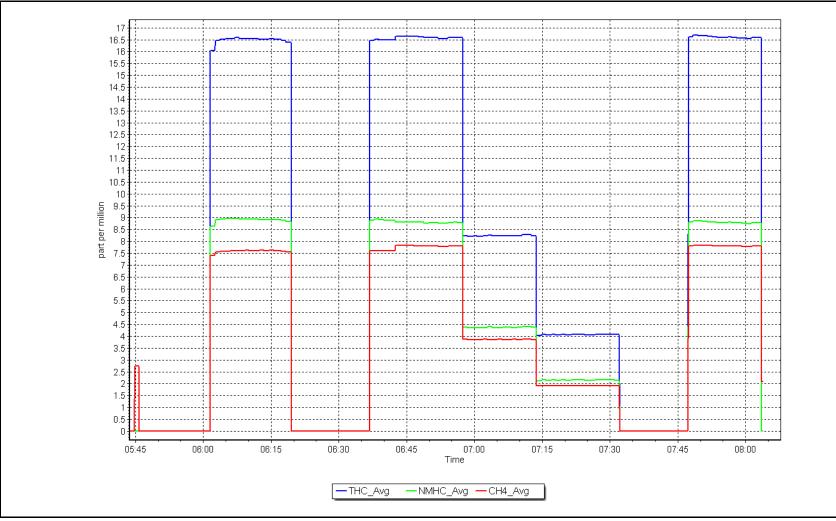
Calibration Date:	April 24, 2025	Previous Calibration:	March 19, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:42	End Time (MST):	8:04
Analyzer make:	Thermo 55i	Analyzer serial #:	1426262594

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999983	≥0.995
8.82 4.41	8.77 4.38	1.0053 1.0074	Slope	0.995910	0.90 - 1.10
2.20	2.15	1.0210	Intercept	-0.015253	+/-0.5



NMHC Calibration Plot





CALS_72



Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Buffalo Viewpoint	NO Gas Cylinder #:	CC324979	Cal Gas Expiry Date:	November 3, 2032
Station number:	AMS 04	NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.80 ppm
Calibration Date:	April 11, 2025	Removed Cylinder #:		Removed Gas Exp Date	:
Last Cal Date:	March 14, 2025	Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc	: 48.80 ppm
Start time (MST):	5:55	NOX gas Diff:		NO gas Diff:	
End time (MST):	10:49	Calibrator Model:	API T700	Serial Number:	3808
Reason:	Routine	ZAG make/model:	APIT701	Serial Number:	362

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	0.1	-0.2	0.3		
AF High point	4918	81.8	800.0	798.4	1.6	791.0	788.4	2.6	1.0116	1.0124
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	801.5 ppb	NO = 798.2	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chang	ge NO _x =	-1.3%
Baseline Corr 1	lst pt NO _x =	790.9 ppb	NO = 788.6	ppb	<u>As Four</u>	nd Statistics		*Percent Chang	ge NO =	-1.2%
Baseline Corr 2	2nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d $NO_2 r^2$:		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
		Indicated NO Da	foronco Indi		Coloulated N	0.2 In	diasted NO2	Baseline Adjust		vortor Efficiency

O2 Satagiat (aph)	Indicated NO Reference	Indicated NO Drop	Calculated NO2	Indicated NO2	Correction factor	Converter Efficiency
O3 Setpoint (ppb)	concentration (ppb)	concentration (ppb)	concentration (ppb) (Cc)	concentration (ppb) (Ic)	(Cc/(Ic-AFzero))	<i>Limit = 96-104%</i>
					<i>Limit = 0.90 - 1.10</i>	

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Teledyne API T20	0	Serial Number: 721				<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	1.001880	1.003949
			Instrument Settings			NO _x Cal Offset:	0.006724	1.107618
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.000957	1.000915
NO coeff or slope:	1.276	1.291	NO bkgnd or offset:	0.2	0.2	NO Cal Offset:	-0.954223	-0.414394
NOX coeff or slope:	1.266	1.287	NOX bkgnd or offset:	-0.2	-0.2	NO ₂ Cal Slope:	0.992096	1.002895
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	4.6	4.6	NO ₂ Cal Offset:	0.653706	1.450870

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	0.3	0.5	-0.1		
High point	4918	81.8	800.0	798.4	1.6	803.5	798.7	4.6	0.9957	0.9996
Mid point	4959	40.9	400.0	399.2	0.8	404.3	400.1	4.2	0.9894	0.9977
Low point	4980	20.4	199.5	199.1	0.4	201.4	197.0	4.4	0.9905	1.0106
As left zero	5000	0.0	0.0	1.2	-1.2	0.8	1.2	-0.4		
As left span	4918	81.8	800.0	404.7	800.0	799.7	404.7	395.0	1.0004	1.0000
							Average Co	orrection Factor	0.9919	1.0027

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	-0.1		
High GPT point	797.4	404.6	394.4	396.3	0.9953	100.5%
Mid GPT point	797.4	605.6	193.4	196.1	0.9864	101.4%
Low GPT point	797.4	700.0	99.0	102.4	0.9671	103.4%
				Average Correction Factor	0.9830	101.7%

Notes: No maintenance done. Span adjusted. Due to drifting during the GPT the 2nd NO ref point used.

Calibration Performed By:

Melissa Lemay

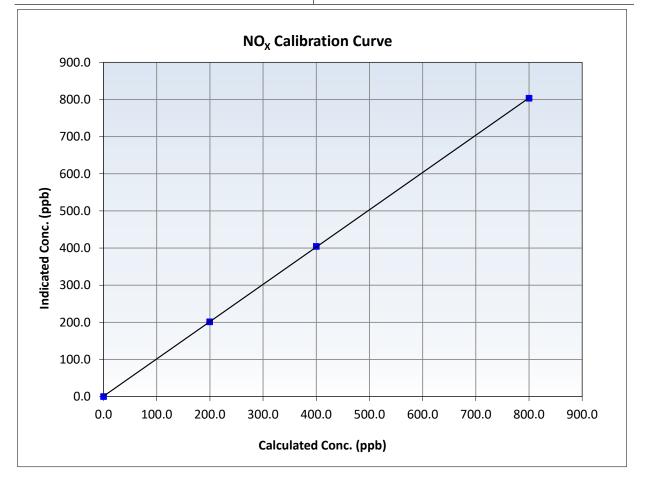


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 14, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:55	End Time (MST):	10:49
Analyzer make:	Teledyne API T200	Analyzer serial #:	721

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999989	≥0.995
800.0 400.0	803.5 404.3	0.9957 0.9894	Slope	1.003949	0.90 - 1.10
199.5	201.4	0.9905	Intercept	1.107618	+/-20



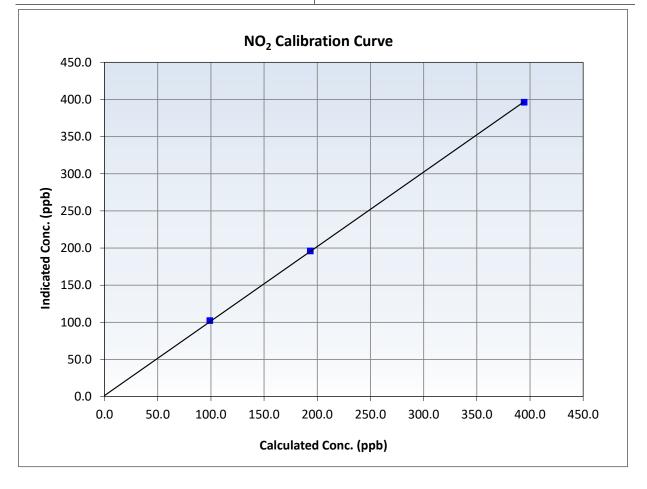


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 14, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:55	End Time (MST):	10:49
Analyzer make:	Teledyne API T200	Analyzer serial #:	721

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999930	≥0.995
394.4 193.4	396.3 196.1	0.9953 0.9864	Slope	1.002895	0.90 - 1.10
99.0	102.4	0.9671	Intercept	1.450870	+/-20



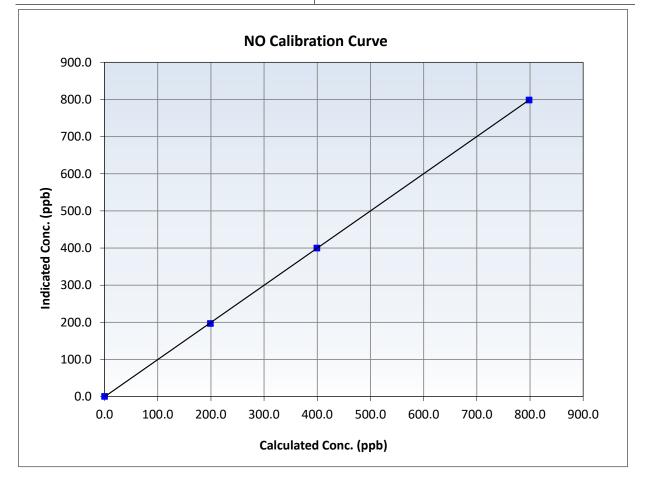


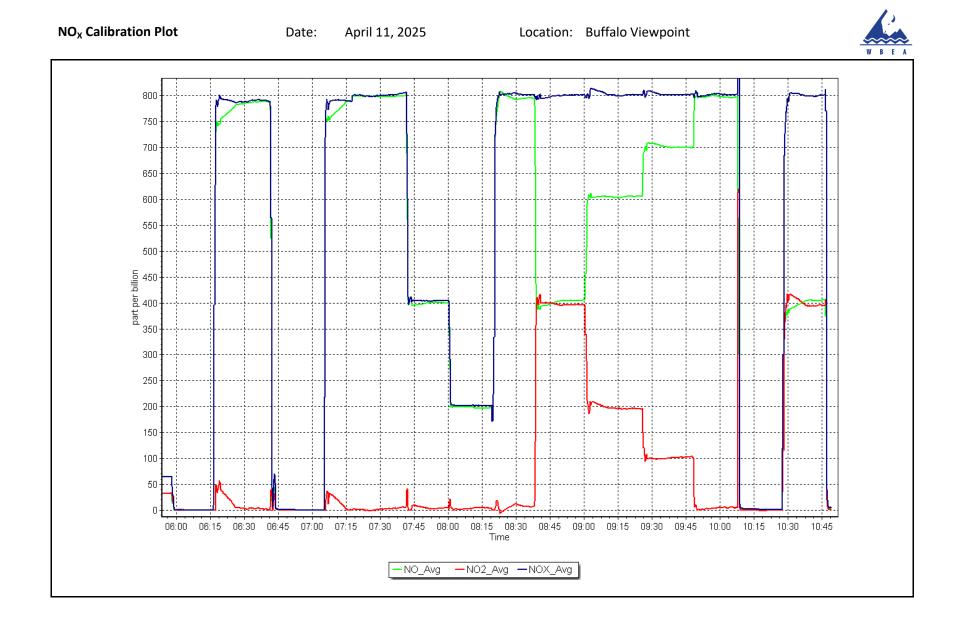
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 14, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:55	End Time (MST):	10:49
Analyzer make:	Teledyne API T200	Analyzer serial #:	721

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.5		Correlation Coefficient	0.999985	≥0.995
798.4 399.2	798.7 400.1	0.9996 0.9977	Slope	1.000915	0.90 - 1.10
199.1	197.0	1.0106	Intercept	-0.414394	+/-20







Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name:	Buffalo Viewpoint		Station number: AM	
Calibration Date:	April 24, 2025		Last Cal Date: Mar	ch 19, 2025
Start time (MST):	8:02		End time (MST): 10:1	15
Reason:	Routine			
		Calibration St	andards	
O3 generation mode:	Photometer			
Calibrator Make/Model:	APIP T700		Serial Number: 380	8
ZAG Make/Model:	API T701		Serial Number: 362	
		Analyzer Info	ormation	
Analyzer make:	API T400		Analyzer serial #: 296	1
Analyzer Range	0 - 500 ppb			
	Start	Finish		<u>Start</u>
Calibration slope:	1.000914	0.995971	Backgd or Offset:	-1.2
Calibration intercept:	0.640000	-0.020000	Coeff or Slope:	1.054

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-1.3	
As found High point	5000	1003.6	400.0	412.0	0.968
As found Mid point					
As found Low point					
Baseline Corr As found:	413.3	Previous response	401.0	*% change	3.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	ates investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.7	
High point	5000	1005.9	400.0	397.9	1.005
Mid point	5000	827.4	200.0	199.9	1.001
Low point	5000	714.8	100.0	100.0	1.000
As left zero	5000	0.0	0.0	0.0	
As left span	5000	1005.0	400.0	396.7	1.008
			Averag	e Correction Factor	1.002

Notes:

No Maintenance done. Span adjusted.

Calibration Performed By:

Melissa Lemay

Finish -1.2 1.022

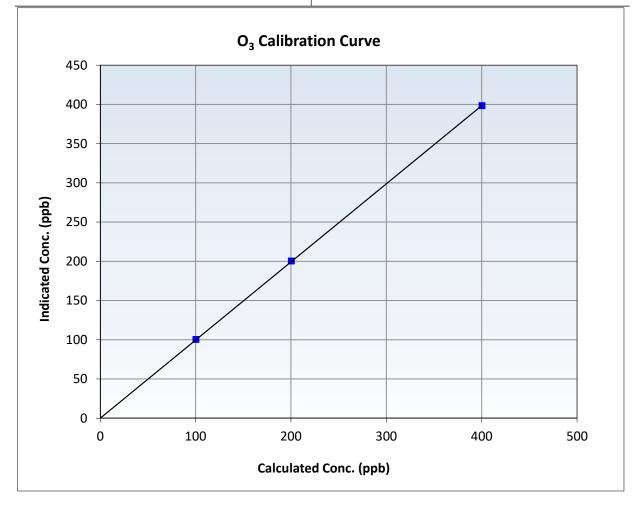


Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

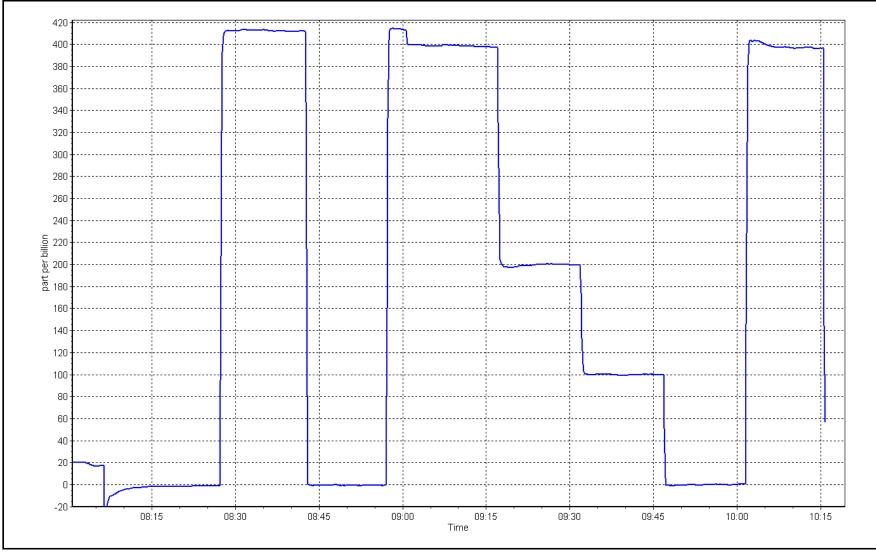
Calibration Date:	April 24, 2025	Previous Calibration:	March 19, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	8:02	End Time (MST):	10:15
Analyzer make:	API T400	Analyzer serial #:	2961

Calculated concentratior (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	-0.7		Correlation Coefficient	0.999984	≥0.995
400.0 200.0	397.9 199.9	1.0053 1.0005	Slope	0.995971	0.90 - 1.10
100.0	100.0	1.0000	Intercept	-0.020000	+/- 5











Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-2024
		Station Information	on		
Station Name: Calibration Date:	Buffalo Viewpoint April 28, 2025		Station number: AM Last Cal Date: Ma	arch 26, 2025	
Start time (MST):	6:19		End time (MST): 6:4	19	
Analyzer Make: Particulate Fraction:	Teledyne API T640 PM2.5		S/N: 32	1	
Flow Meter Make/Model: Temp/RH standard:	Alicat FP-25BT Alicat FP-25BT		S/N: 38 S/N: 38		
		Monthly Calibration	Test		
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	-2.6	-2.7	-2.6		+/- 2 °C
P (mmHg)	730.9	733.0	730.9		+/- 10 mmHg
Flow (LPM)	4.94	5.10	4.94		+/- 0.25 LPM
PW% (pump)	39		39		>80%
Zero Verification	PM w/o HEPA:	8.2	PM w/ HEPA:	0.0	<0.2 ug/m3
Note: this leak check will be PM Inlet observation :	Inlet Head Clean		ignment Factor On :		
		Quarterly Calibration			
SPAN DUST	Refractive Index: Lot No.:	10.9 100128-050-050	Expiry Date:	16-Jul-26	
<u>Parameter</u>	<u>As found</u>	Post maintenance	<u>As left</u>	<u>Adjusted</u>	(Limits)
PMT Peak Test					+/- 0.5
Date Optical Cham Date Disposable Fi		March 26 March 26			
	inter enangeu.		, 2025		
Post- maintenance Zero Ver	rification:	PM w/ HEPA:	0	<0.2 ug/m3	
		Annual Maintenan	се		
Date Sample Tul	be Cleaned:	March 26	, 2025		
Date RH/T Sense		March 26			
Notes:		No a	djustments done.		
Calibration by:	Melissa Lemay				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS05 MANNIX APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Mannix
Calibration Date:	April 15, 2025
Start time (MST):	9:39
Reason:	Routine

Station number: AMS 05 Last Cal Date: March 12, 2025 End time (MST): 13:45

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	50.06 CC30	ppm 8040	Cal Gas Exp Date:	October 22, 2032
Removed Cal Gas Conc: Removed Gas Cyl #:	50.06	ppm	Rem Gas Exp Date: Diff between cyl:	October 22, 2032
Calibrator Model:	API 1	700	Serial Number:	5470
Zero Air Gen Model:	API 1	701	Serial Number:	361

Analyzer make: Thermo 43i Serial Number: 1008841399					
Analyzer Range:	1000 ppb				
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.006894	1.005853	Backgd or Offset:	10.3	10.3
Calibration intercept:	-0.937958	0.001847	Coeff or Slope:	0.950	0.950

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.3	
As found High point As found Mid point As found Low point New cylinder response	4920	79.9	800.0	805.8	0.993
Baseline Corr As found:	805.5	Previous response	804.6	*% change	0.1%
Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	NA NA	AF Slope: AF Correlation:		AF Intercept: * = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.4	
High point	4920	79.9	800.0	804.7	0.994
Mid point	4960	40.0	400.5	403.1	0.994
Low point	4980	20.0	200.2	200.7	0.998
As left zero	5000	0.0	0.0	0.5	
As left span	4920	79.9	800.0	808.6	0.989
			Averag	ge Correction Factor:	0.995

Notes:

Changed the inlet filter after as founds. No adjustments made.

Calibration Performed By:

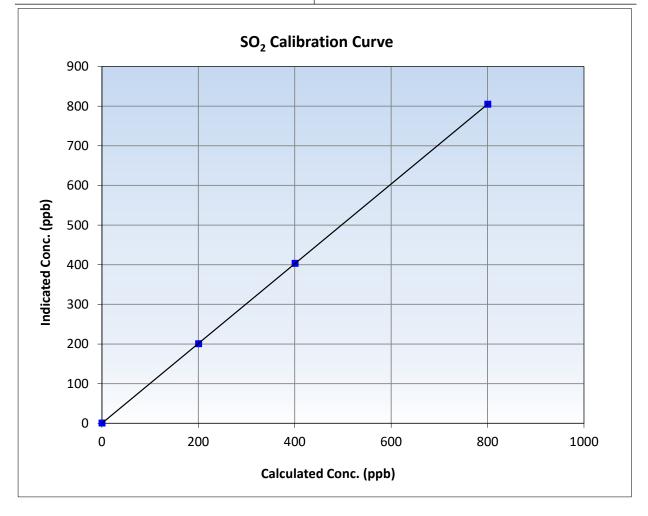


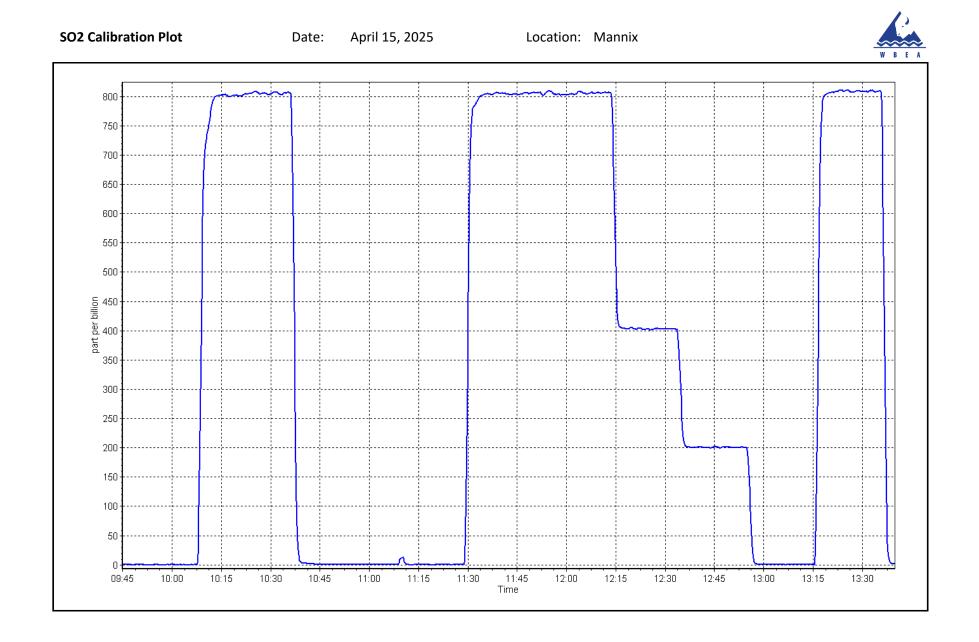
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	9:39	End Time (MST):	13:45
Analyzer make:	Thermo 43i	Analyzer serial #:	1008841399

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999998	≥0.995
800.0 400.5	804.7 403.1	0.9941 0.9935	Slope	1.005853	0.90 - 1.10
200.2	200.7	0.9977	Intercept	0.001847	+/-30







Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Mannix April 2, 2025 9:23 Routine		Station number: Last Cal Date: End time (MST):	AMS 05 March 5, 2025 14:00	
		Calibration S	tandards		
Cal Gas Concentration: Cal Gas Cylinder #:	4.96 DT0037363	ppm	Cal Gas Exp Date:	November 15, 2026	
Removed Cal Gas Conc: Removed Gas Cyl #:	4.96 N/A	ppm	Rem Gas Exp Date: Diff between cyl:	N/A	
Calibrator Make/Model:			Serial Number:	5470	
ZAG Make/Model:	API T701		Serial Number:	361	
		Analyzer Info	ormation		
Analyzer make:	Thermo 43iQ		Analyzer serial #:	1200326169	
Converter make:	Global		Converter serial #:	2022-225	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC
	<u>Start</u>	<u>Finish</u>		Start	!
Calibration slope:	1.005120	0.999974	Backgd or Offset:	1.25	
Calibration intercept:	0.102228	-0.017707	Coeff or Slope:	1.029	

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	0.0	
As found High point	4919	80.6	80.0	79.9	1.001
As found Mid point	4960	40.3	40.0	40.2	0.994
As found Low point	4980	20.2	20.0	19.9	1.007
New cylinder response					
Baseline Corr As found:	79.9	Prev response:	80.47	*% change:	-0.7%
Baseline Corr 2nd AF pt:	40.2	AF Slope:	1.000117	AF Intercept:	0.002317
Baseline Corr 3rd AF pt:	19.9	AF Correlation:	0.999979	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.1	
High point	4919	80.6	80.0	80.0	1.000
Mid point	4960	40.3	40.0	39.9	1.002
Low point	4980	20.2	20.0	19.9	1.007
As left zero	5000	0.0	0.0	0.2	
As left span	4919	80.6	80.0	79.2	1.010
SO2 Scrubber Check	4920	80.3	803.0	0.0	
Date of last scrubber char	ige:			Ave Corr Factor	1.003

Date of last converter efficiency test:

Notes:

Changed the inlet filter after as founds. Ran a SO2 scrubber check after calibrator zero. No adjustments made.

Calibration Performed By: Max Farrell

Finish 1.25 1.029



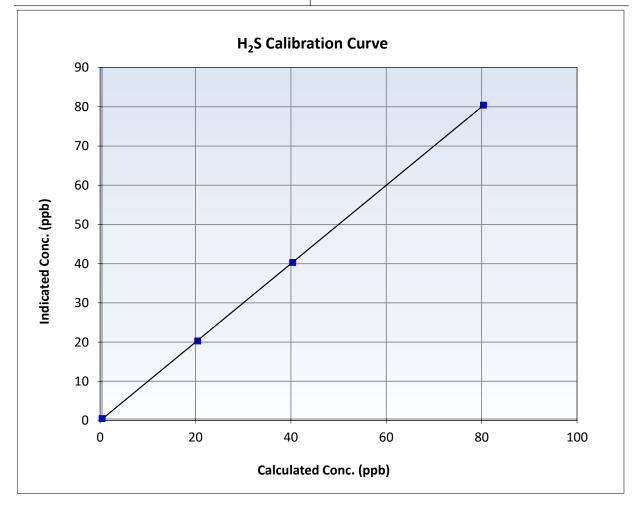
Wood Buffalo Environmental Association

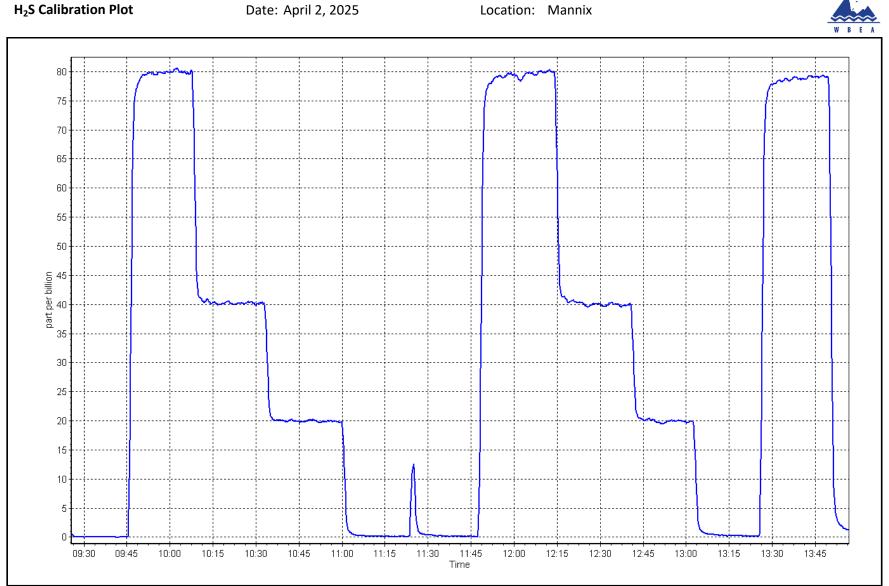
H₂S Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 5, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	9:23	End Time (MST):	14:00
Analyzer make:	Thermo 43iQ	Analyzer serial #:	1200326169

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>		
0.0	0.1		Correlation Coefficient	0.999990	≥0.995		
80.0 40.0	80.0 39.9	0.9995 1.0019	Slope	0.999974	0.90 - 1.10		
20.0	19.9	1.0069	Intercept	-0.017707	+/-3		







Analyzer make: Thermo 55i

THC Range: 0 - 20 ppm

Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Station Information

Station Name:	Mannix	Station number: AMS 05
Calibration Date:	April 15, 2025	Last Cal Date: March 12, 2025
Start time (MST):	9:38	End time (MST): 13:50
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	CC308040	Cal Gas Expiry Date:	October 22, 2032
CH4 Cal Gas Conc.	500.3 ppm	CH4 Equiv Conc.	1047.6 ppm
C3H8 Cal Gas Conc.	199.0 ppm		
Removed Gas Cert:		Removed Gas Expiry:	
Removed CH4 Conc.	500.3 ppm	CH4 Equiv Conc.	1047.6 ppm
Removed C3H8 Conc.	199.0 ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):		Diff between cyl (NM):	
Calibrator Model:	API T700	Serial Number:	5470
Zero Air Gen model:	API T701	Serial Number:	361

Analyzer Information

Analyzer serial #: 1193585649 NMHC/CH4 Range: 0 - 10 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	3.79E-04	3.74E-04	NMHC SP Ratio:	7.45E-05	7.39E-05
CH4 Retention time:	15.6	15.6	NMHC Peak Area:	117387	118483
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.9	16.74	16.63	1.007
Baseline Corr AF:	16.63	Prev response	16.64	*% change	-0.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.9	16.74	16.65	1.005
Mid point	4960	40.0	8.38	8.20	1.022
Low point	4980	20.0	4.19	4.05	1.035
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.9	16.74	16.52	1.013
			Avera	ge Correction Factor	1.021

Notes:

Changed the inlet filter and the H2/N2 cylinders after as founds. Adjusted the span.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.9	8.75	8.68	1.008
Baseline Corr AF:	8.68	Prev response	8.73	*% change	-0.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	ites investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.9	8.75	8.70	1.006
Mid point	4960	40.0	4.38	4.32	1.014
Low point	4980	20.0	2.19	2.14	1.025
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.9	8.75	8.61	1.016
			Avera	ge Correction Factor	1.015

CH4 As Found Data

		CIT T AS I U			
Set Point	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated concentration	
	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	AFzero))
					<i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.00	0.00	
As found High point	4920	79.9	7.99	7.95	1.006
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.95	Prev response	7.91	*% change	0.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initial	tes investigation

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.9	7.99	7.96	1.005
Mid point	4960	40.0	4.00	3.88	1.032
Low point	4980	20.0	2.00	1.91	1.047
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.9	7.99	7.91	1.011
			Avera	ge Correction Factor	1.028

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	0.996286	0.996242
THC Cal Offset:	-0.038478	-0.075658
CH4 Cal Slope:	0.994597	0.997482
CH4 Cal Offset:	-0.040730	-0.053327
NMHC Cal Slope:	0.997646	0.995382
NMHC Cal Offset:	0.002452	-0.023131

Calibration Performed By:

Max Farrell

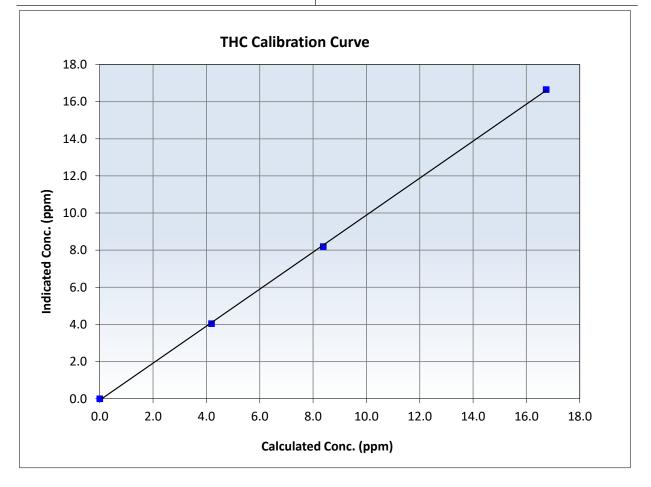


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	9:38	End Time (MST):	13:50
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585649

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	lation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999891	≥0.995
16.74 8.38	16.65 8.20	1.0053 1.0222	Slope	0.996242	0.90 - 1.10
4.19	4.05	1.0351	Intercept	-0.075658	+/-0.5



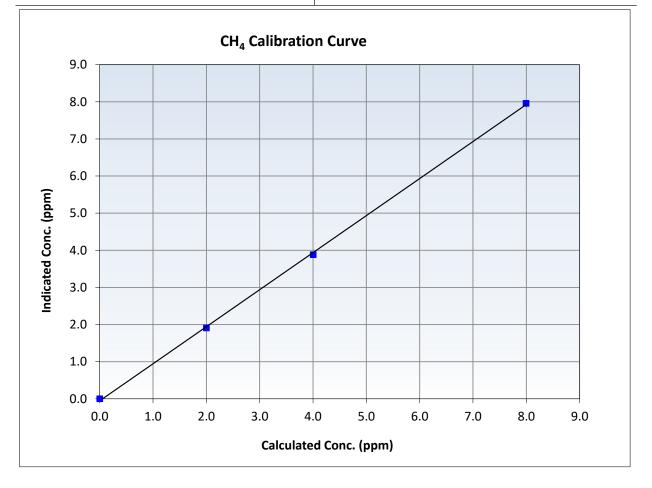


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	9:38	End Time (MST):	13:50
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585649

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999749	≥0.995
7.99 4.00	7.96 3.88	1.0045 1.0315	Slope	0.997482	0.90 - 1.10
2.00	1.91	1.0472	Intercept	-0.053327	+/-0.5



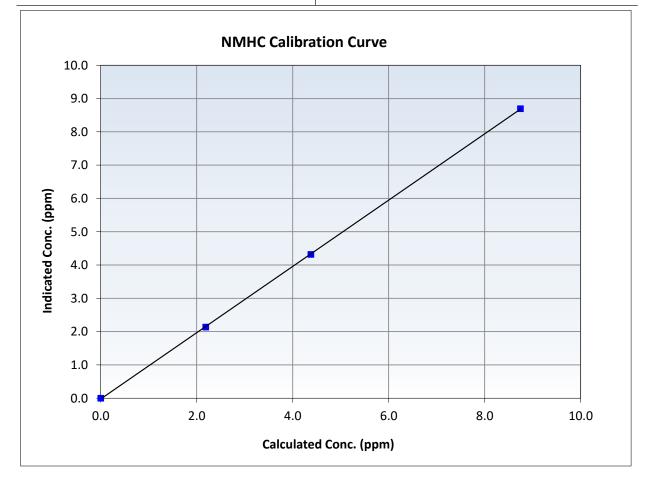


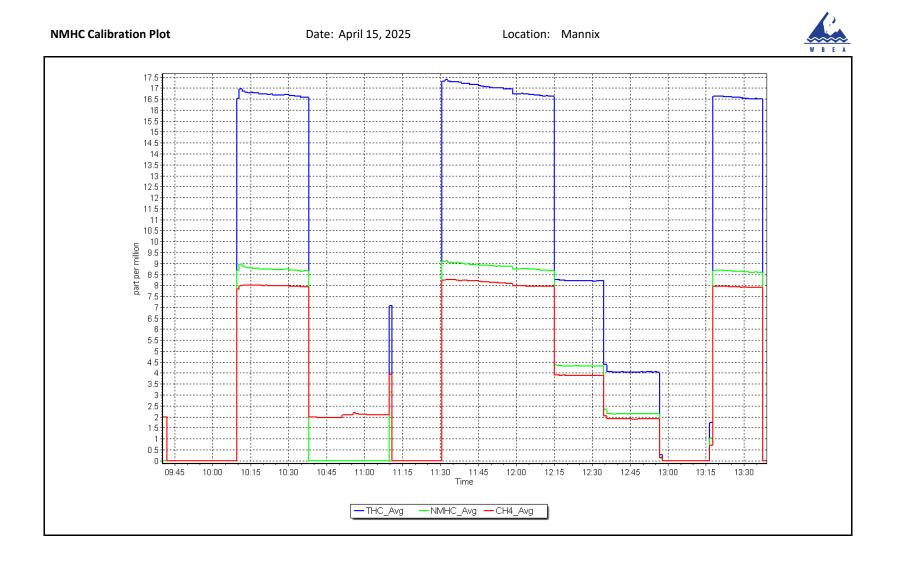
Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	9:38	End Time (MST):	13:50
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585649

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999967	≥0.995
8.75 4.38	8.70 4.32	1.0058 1.0139	Slope	0.995382	0.90 - 1.10
2.19	2.14	1.0248	Intercept	-0.023131	+/-0.5









WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS06 PATRICIA MCINNES APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Patricia McInnes
Calibration Date:	April 11, 2025
Start time (MST):	8:40
Reason:	Routine

Thermo 43i

0 - 1000 ppb

Station number: AMS 06 Last Cal Date: March 13, 2025 End time (MST): 12:00

Calibration Standards

Cal Gas Concentration:	50.08	ppm	Cal Gas Exp Date: October 22, 2032
Cal Gas Cylinder #:	CC255448		
Removed Cal Gas Conc:	50.08	ppm	Rem Gas Exp Date:
Removed Gas Cyl #:			Diff between cyl:
Calibrator Model:	API T700		Serial Number: 3566
Zero Air Gen Model:	API T701		Serial Number: 4602

Analyzer Information

Serial Number: 1160290013

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.001008	1.001251	Backgd or Offset:	18.5	18.4
Calibration intercept:	1.638757	1.678702	Coeff or Slope:	0.928	0.920

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.2	
As found High point As found Mid point As found Low point New cylinder response	4920.2	79.8	799.3	807.7	0.989
Baseline Corr As found: Baseline Corr 2nd AF pt:	807.9 NA	Previous response AF Slope:	801.7	*% change AF Intercept:	0.8%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4920.2	79.8	799.3	801.0	0.998
Mid point	4960.1	39.9	399.6	403.0	0.992
Low point	4980	20.0	200.3	203.7	0.983
As left zero	5000	0.0	0.0	-0.1	
As left span	4919.7	80.3	804.3	805.1	0.999
			Averag	0.991	

Notes:

Changed the inlet filter after as founds. Adjusted the span only.

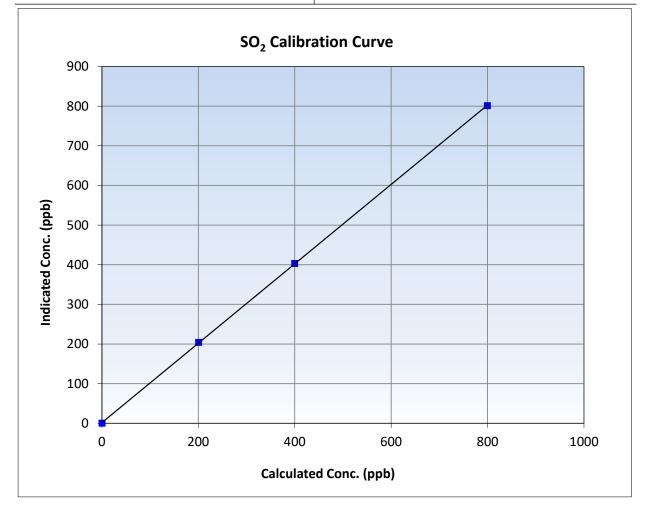


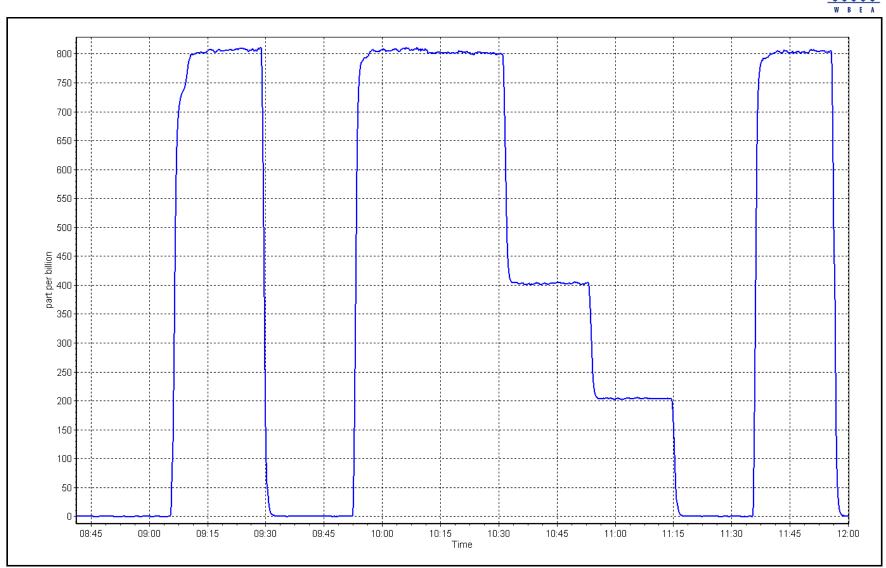
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 13, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:40	End Time (MST):	12:00
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290013

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999979	≥0.995
799.3 399.6	801.0 403.0	0.9978 0.9917	Slope	1.001251	0.90 - 1.10
200.3	203.7	0.9834	Intercept	1.678702	+/-30





Location: Patricia McInnes





Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Patricia McInnes April 16, 2025 9:03 Routine		Station number: Last Cal Date: End time (MST):	AMS 06 March 20, 2025 15:00		
		Calibration	<u>Standards</u>			
Cal Gas Concentration: Cal Gas Cylinder #:	4.760 DT0014585	ppm	Cal Gas Exp Date:	August 28, 2027		
Removed Cal Gas Conc: Removed Gas Cyl #:	5.328 CC506659	ppm	Rem Gas Exp Date: Diff between cyl:	February 14, 2025		
Calibrator Make/Model:	API T700		Serial Number:	3566		
ZAG Make/Model:	API T701		Serial Number:	4602		
		Analyzer Inf	ormation			
Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1218153358		
Converter make:	CDN-101		Converter serial #:	517		
Analyzer Range	0 - 100 ppb		Converter Temp:	80	D degC	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finis</u>	; h
Calibration slope:	1.001258	1.002115	Backgd or Offset:	1.94	1.99	9
Calibration intercept:	0.120000	0.340000	Coeff or Slope:	1.117	1.14	16

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10	
As found zero	5000	0.0	0.0	0.1		
As found High point	4925	75.1	80.0	78.7	1.018	
As found Mid point	4963	37.5	40.0	40.0	1.001	
As found Low point	4981	18.8	20.0	20.1	1.002	
New cylinder response						
Baseline Corr As found:	78.6	Prev response:	80.25	*% change:	-2.1%	
Baseline Corr 2nd AF pt:	39.9	AF Slope:	0.981741	AF Intercept:	0.360369	
Baseline Corr 3rd AF pt:	20.0	AF Correlation:	0.999913	* = > +/-5% change initiate	es investigation	

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4916	84.0	80.0	80.3	0.996
Mid point	4958	42.0	40.0	40.8	0.980
Low point	4979	21.0	20.0	20.3	0.985
As left zero	5000	0.0	0.0	0.4	
As left span	4916	84.0	80.0	79.1	1.011
SO2 Scrubber Check				0.0	
Date of last scrubber changed	ge:	December 20, 2021		Ave Corr Factor	0.987
Della official second states official	· · · · · · · · · ·				

Date of last converter efficiency test:

Notes:

Changed the inlet filter after as founds. Ran a SO2 scrubber check after calibrator zero. Adjusted the span only.

Calibration Performed By: Ma

Max Farrell



Wood Buffalo Environmental Association

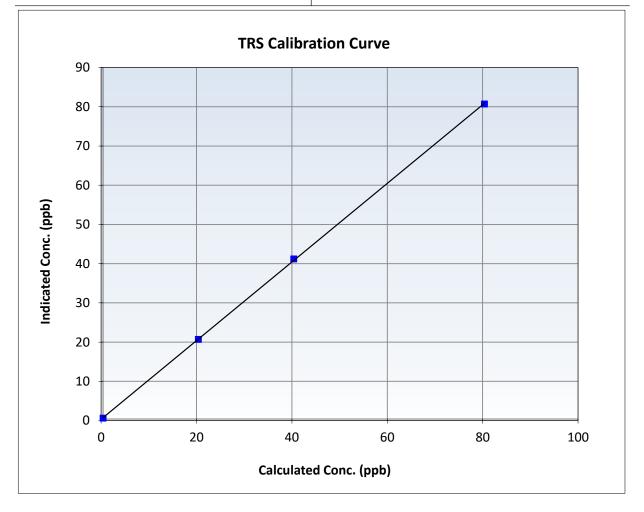
TRS Calibration Summary

Station Information

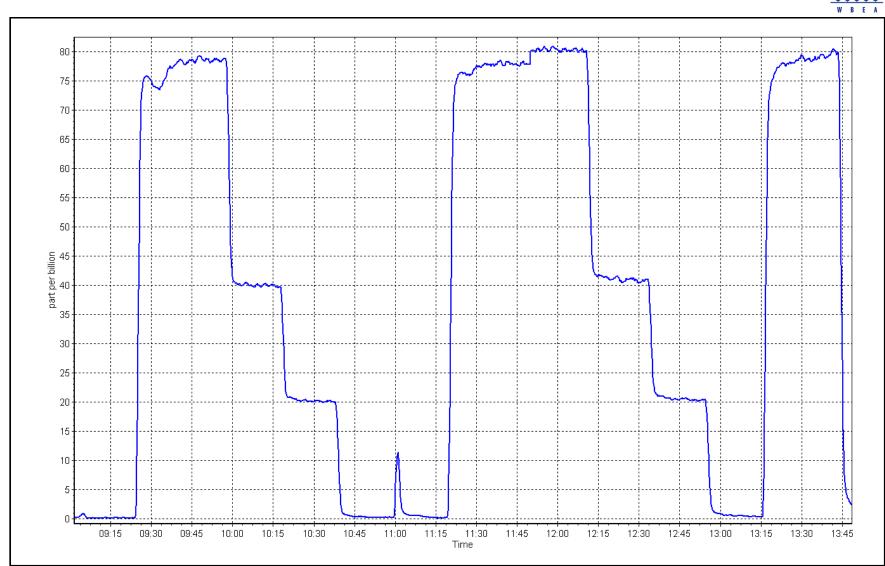
Calibration Date:	April 16, 2025	Previous Calibration:	March 20, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	9:03	End Time (MST):	15:00
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1218153358

Calculated concentration Indicated concentration (nph) (Cc) (nph) (Ic) Correction factor (Cc/Ic) Statistical Evaluation

 (ppb) (Cc)	(ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
 0.0	0.2		Correlation Coefficient	0.999940	≥0.995
80.0 40.0	80.3 40.8	0.9959 0.9800	Slope	1.002115	0.90 - 1.10
20.0	20.3	0.9848	Intercept	0.340000	+/-3



Limite



TRS Calibration Plot

Location: Patricia McInnes



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Patricia McInnes	Station number: AMS 06
Calibration Date:	April 11, 2025	Last Cal Date: March 14, 2025
Start time (MST):	8:40	End time (MST): 12:00
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	AAL070632		Cal Gas Expiry Date: Septem	ber 9, 2024	
CH4 Cal Gas Conc.	501.4	ppm	CH4 Equiv Conc.	1049.5 ppm	
C3H8 Cal Gas Conc.	199.3	ppm			
Removed Gas Cert:			Removed Gas Expiry:		
Removed CH4 Conc.	501.4	ppm	CH4 Equiv Conc.	1049.5 ppm	
Removed C3H8 Conc.	199.3	ppm	Diff between cyl (THC):		
Diff between cyl (CH ₄)	:		Diff between cyl (NM):		
Calibrator Model:	API T700		Serial Number: 3566		
Zero Air Gen model:	API T701		Serial Number: 4602		
Analyzer Information					
Analyzer make	: Thermo 55i		Analyzer serial #: 111814	8494	

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	4.25E-04	4.46E-04	NMHC SP Ratio:	4.12E-05	4.23E-05
CH4 Retention time:	14.0	14.2	NMHC Peak Area:	212421	207068
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4920	79.8	16.75	16.20	1.034
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.20	Prev response	16.84	*% change	-4.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	16.75	16.81	0.996
Mid point	4960	39.9	8.37	8.49	0.987
Low point	4980	20.0	4.20	4.32	0.972
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	16.75	16.82	0.996
			Avera	ge Correction Factor	0.985

Notes:

Instrument was installed last month. Chnaged the inlet filter after as founds. Adjusted the span.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	8.75	8.56	1.022
Baseline Corr AF:	8.56	Prev response	8.78	*% change	-2.6%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	ites investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	8.75	8.77	0.997
Mid point	4960.1	39.9	4.37	4.43	0.987
Low point	4980	20.0	2.19	2.26	0.971
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	8.75	8.77	0.998
			Avera	ge Correction Factor	0.985

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	8.00	7.64	1.047
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	7.64 NA NA	Prev response AF Slope: AF Correlation:	8.06	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	8.00	8.04	0.995
Mid point	4960.1	39.9	4.00	4.06	0.986
Low point	4980	20.0	2.01	2.06	0.973
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	8.00	8.05	0.994
			Avera	ge Correction Factor	0.984

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.002148	1.001964
THC Cal Offset:	0.059170	0.059767
CH4 Cal Slope:	1.003496	1.003725
CH4 Cal Offset:	0.028976	0.026176
NMHC Cal Slope:	1.000667	1.000863
NMHC Cal Offset:	0.031394	0.033391

Calibration Performed By:

Max Farrell

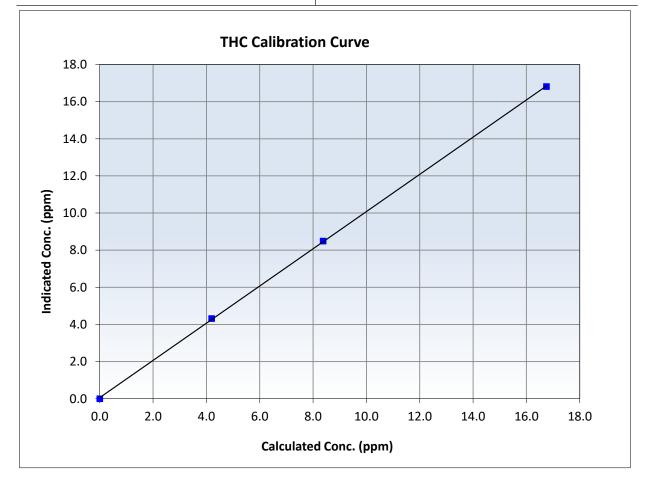


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 14, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:40	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999943	≥0.995
16.75 8.37	16.81 8.49	0.9964 0.9865	Slope	1.001964	0.90 - 1.10
4.20	4.32	0.9720	Intercept	0.059767	+/-0.5



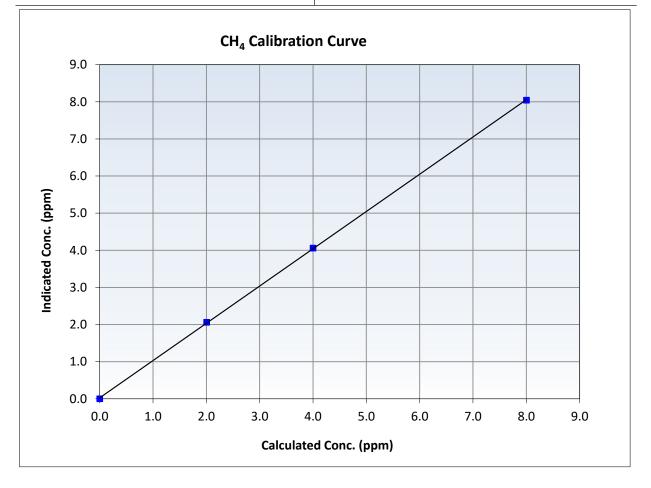


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 14, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:40	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999954	≥0.995
8.00	8.04	0.9948	Slope	1.003725	0.90 - 1.10
4.00	4.06	0.9855	Slope	1.005725	0.30 - 1.10
2.01	2.06	0.9731	Intercept	0.026176	+/-0.5



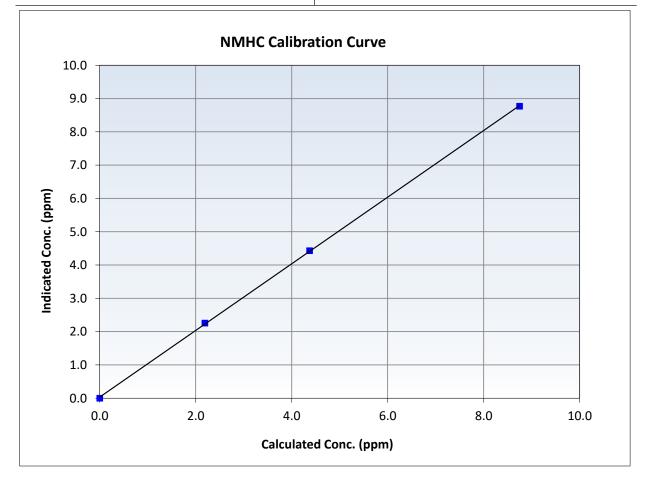


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

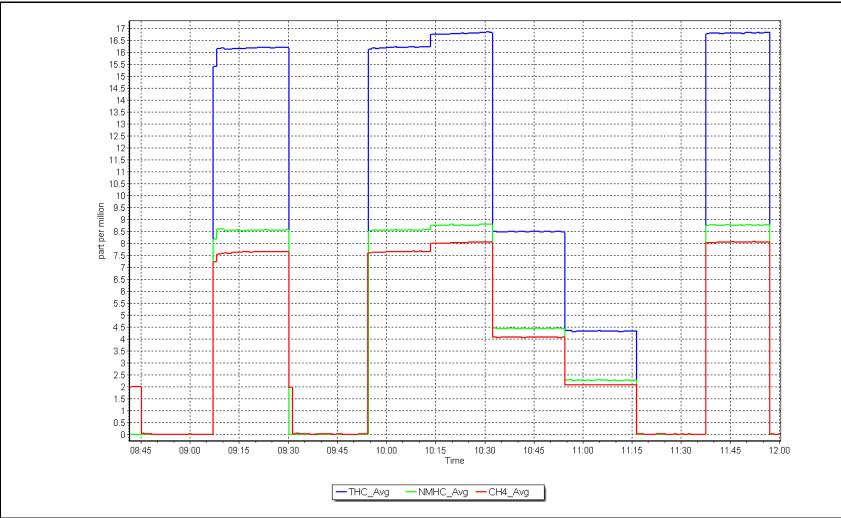
Calibration Date:	April 11, 2025	Previous Calibration:	March 14, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:40	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999933	≥0.995
8.75	8.77	0.9974	Slope	1.000863	0.90 - 1.10
4.37	4.43	0.9868	1 -		
2.19	2.26	0.9709	Intercept	0.033391	+/-0.5



NMHC Calibration Plot







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes
Calibration Date:	April 17, 2025
Start time (MST):	9:44
Reason:	Cylinder Change

Station number: AMS 06 Last Cal Date: April 11, 2025 End time (MST): 11:42

Calibration Standards

Gas Cert Reference:	/	AAL070632	Cal Gas Expiry Date: Septer	mber 9, 2024
CH4 Cal Gas Conc.	501.4	ppm	CH4 Equiv Conc.	1049.5 ppm
C3H8 Cal Gas Conc.	199.3	ppm		
Removed Gas Cert:			Removed Gas Expiry:	
Removed CH4 Conc.	501.4	ppm	CH4 Equiv Conc.	1049.5 ppm
Removed C3H8 Conc.	199.3	ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):			Diff between cyl (NM):	
Calibrator Model:	API T700		Serial Number: 3566	
Zero Air Gen model:	API T701		Serial Number: 4602	
			Analyzer Information	
Analyzer make:	Thermo 55i		Analyzer serial #: 11181	48494
THC Range:	0 - 20 ppm		NMHC/CH4 Range: 0 - 10	ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	4.46E-04	4.46E-04	NMHC SP Ratio:	4.23E-05	4.23E-05
CH4 Retention time:	14.2	14.2	NMHC Peak Area:	207068	207068
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	16.75	16.74	1.001
Baseline Corr AF: Baseline Corr 2nd AF:	16.74 NA	Prev response AF Slope:	16.84	*% change AF Intercept:	-0.6%
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.02	
As left span	4920	79.8	16.75	16.77	0.999
			Avera	ge Correction Factor	
Notes:		Changed	the H2 cylinder after a	s founds.	

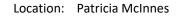


Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

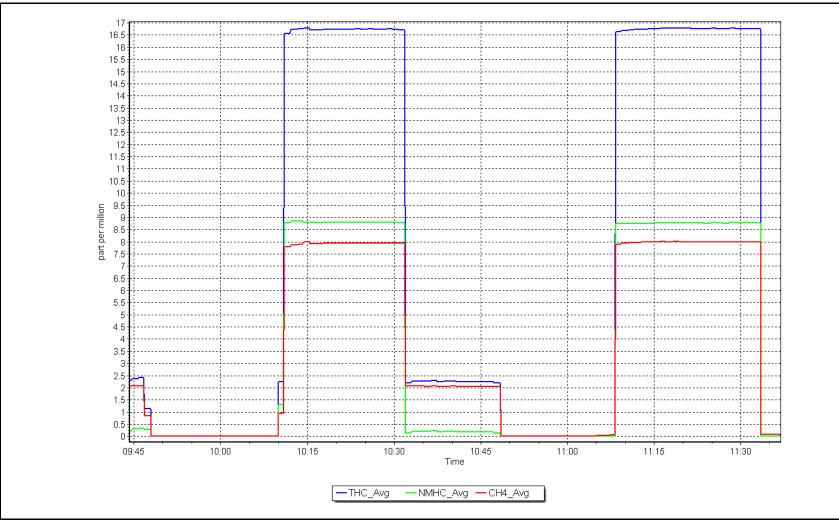
NMHC As Found Data

As found zero As found Mid point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 3rd AF: Baseline Corr 3rd AF: Baseline Corr 3rd AF: Calibrator zero High point Low point As left zero As left span Set Point Calibrator zero As left span	Dilution air flow rate (sccm) 5000 4920 8.80 NA NA Dilution air flow rate (sccm) 5000 4920 Dilution air flow rate (sccm)	Source gas flow rate (sccm) 0.0 79.8 Prev response AF Slope: AF Correlation: NMHC Caliba Source gas flow rate (sccm) 0.0 79.8 CH4 As For Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00 8.75 Avera	Indicated concentration ((ppm) (Ic) 0.00 8.80 *% change AF Intercept: * = > +/-5% change initiate Indicated concentration ((ppm) (Ic) 0.00 8.78 ge Correction Factor [Indicated concentration ((ppm) (Ic)	AFzero)) Limit = 0.90-1.10 0.994 0.1% es investigation Correction factor (Cc/lc Limit = 0.95-1.05 0.996 Baseline Adjusted
As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 3rd AF: Baseline Corr 3rd AF: Calibrator zero High point Mid point Low point As left zero As left span Set Point Calibrator zero High point Calibrator zero High point Calibrator zero As found zero As found High point As found Mid point As found Low point New cylinder response	4920 8.80 NA NA Dilution air flow rate (sccm) Dilution air flow rate (sccm) Dilution air flow rate	79.8 Prev response AF Slope: AF Correlation: <u>NMHC Calibu</u> Source gas flow rate (sccm) 0.0 79.8 <u>CH4 As Fou</u> Source gas flow rate (sccm) 0.0	8.75 8.79 ration Data Calculated concentration (ppm) (Cc) 0.00 8.75 Avera und Data Calculated concentration (ppm) (Cc)	<pre>8.80 *% change AF Intercept: * => +/-5% change initiate Indicated concentration C</pre>	0.994 0.1% es investigation Correction factor (Cc/lo <i>Limit = 0.95-1.05</i> 0.996 Baseline Adjusted Correction factor (Cc/(li AFzero))
As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 3rd AF: Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point As left zero As left span Set Point Calibrator zero As found zero As found High point As found Mid point As found Low point New cylinder response	8.80 NA NA Dilution air flow rate (sccm) 5000 4920 Dilution air flow rate (sccm)	Prev response AF Slope: AF Correlation: <u>NMHC Calibu</u> Source gas flow rate (sccm) 0.0 79.8 <u>CH4 As Fou</u> Source gas flow rate (sccm) 0.0	8.79 ration Data Calculated concentration (ppm) (Cc) 0.00 8.75 Avera und Data Calculated concentration (ppm) (Cc)	*% change AF Intercept: * = > +/-5% change initiate Indicated concentration ((ppm) (Ic) 0.00 8.78 ge Correction Factor	0.1% es investigation Correction factor (Cc/lo <i>Limit = 0.95-1.05</i> 0.996 Baseline Adjusted Correction factor (Cc/(l AFzero))
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point As left zero As left span Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	NA NA Dilution air flow rate (sccm) 5000 4920 Dilution air flow rate (sccm) 5000	AF Slope: AF Correlation: <u>NMHC Calibu</u> Source gas flow rate (sccm) 0.0 79.8 <u>CH4 As For</u> Source gas flow rate (sccm) 0.0	ration Data Calculated concentration (ppm) (Cc) 0.00 8.75 Avera und Data Calculated concentration (ppm) (Cc)	AF Intercept: * = > +/-5% change initiate Indicated concentration ((ppm) (Ic) 0.00 8.78 ge Correction Factor	es investigation Correction factor (Cc/lc <i>Limit = 0.95-1.05</i> 0.996 Baseline Adjusted Correction factor (Cc/(I AFzero))
Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point As left zero As left span Set Point C As found zero As found High point As found Mid point As found Low point New cylinder response	NA Dilution air flow rate (sccm) 5000 4920 Dilution air flow rate (sccm) 5000	AF Correlation: <u>NMHC Calibu</u> Source gas flow rate (sccm) 0.0 79.8 <u>CH4 As Fou</u> Source gas flow rate (sccm) 0.0	Calculated concentration (ppm) (Cc) 0.00 8.75 Avera und Data Calculated concentration (ppm) (Cc)	* => +/-5% change initiate Indicated concentration ((ppm) (Ic) 0.00 8.78 ge Correction Factor	Correction factor (Cc/lo Limit = 0.95-1.05
Calibrator zero High point Mid point Low point As left zero As left span Set Point Calibrator Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	(sccm) 5000 4920 Dilution air flow rate (sccm) 5000	Source gas flow rate (sccm) 0.0 79.8 CH4 As Fou Source gas flow rate (sccm) 0.0	Calculated concentration (ppm) (Cc) 0.00 8.75 Avera und Data Calculated concentration (ppm) (Cc)	(ppm) (Ic) 0.00 8.78 ge Correction Factor	Limit = 0.95-1.05 0.996 Baseline Adjusted Correction factor (Cc/(I AFzero))
Calibrator zero High point Mid point Low point As left zero As left span Set Point Calibrator Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	(sccm) 5000 4920 Dilution air flow rate (sccm) 5000	(sccm) 0.0 79.8 <u>CH4 As For</u> Source gas flow rate (sccm) 0.0	(ppm) (Cc) 0.00 8.75 Avera und Data Calculated concentration (ppm) (Cc)	(ppm) (Ic) 0.00 8.78 ge Correction Factor	Limit = 0.95-1.05 0.996 Baseline Adjusted Correction factor (Cc/(I AFzero))
High point Mid point Low point As left zero As left span Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	4920 Dilution air flow rate (sccm) 5000	79.8 <u>CH4 As For</u> Source gas flow rate (sccm) 0.0	8.75 Avera und Data Calculated concentration (ppm) (Cc)	8.78 ge Correction Factor	Baseline Adjusted Correction factor (Cc/(I AFzero))
As left span Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	4920 Dilution air flow rate (sccm) 5000	79.8 <u>CH4 As For</u> Source gas flow rate (sccm) 0.0	8.75 Avera und Data Calculated concentration (ppm) (Cc)	8.78 ge Correction Factor	Baseline Adjusted Correction factor (Cc/(I AFzero))
·	Dilution air flow rate (sccm) 5000	CH4 As For Source gas flow rate (sccm) 0.0	Avera und Data Calculated concentration (ppm) (Cc)	ge Correction Factor	Baseline Adjusted Correction factor (Cc/(I AFzero))
Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	(sccm) 5000	Source gas flow rate (sccm)	und Data Calculated concentration (ppm) (Cc)	Indicated concentration (Correction factor (Cc/(I AFzero))
Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	(sccm) 5000	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)		Correction factor (Cc/(I AFzero))
Set Point As found zero As found High point As found Mid point As found Low point New cylinder response	(sccm) 5000	(sccm) 0.0	(ppm) (Cc)		Correction factor (Cc/(I AFzero))
As found High point As found Mid point As found Low point New cylinder response			0.00		
As found Mid point As found Low point New cylinder response	4920			0.00	
Baseline Corr AF:		79.8	8.00	7.94	1.008
Baseline Corr 2nd AF:	7.94 NA	Prev response AF Slope:	8.06	*% change AF Intercept:	-1.5%
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation
		CH4 Calibra	ation Data		
Set Point D	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/Ic Limit = 0.95-1.05
Calibrator zero High point Mid point Low point					
As left zero	5000	0.0	0.00	0.02	
As left span	4920	79.8	8.00	7.99	1.002
			Avera	ge Correction Factor	
		Calibration <u>Start</u>	Statistics	Finish	
THC Cal Slope:		1.001964			
THC Cal Offset:		0.059767			
CH4 Cal Slope:		1.003725			
CH4 Cal Offset:		0.026176			
NMHC Cal Slope:		1.000863			
NMHC Cal Offset:		0.033391			
Calibration Perfor		Max Farrell			

NMHC Calibration Plot









Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Patricia McInnes	NO Gas Cylinder #:	T30YCWN	Cal Gas Expiry Date:	April 11, 2025
Station number:	AMS 06	NOX Cal Gas Conc:	47.94 ppm	NO Cal Gas Conc:	46.39 ppm
Calibration Date:	April 3, 2025	Removed Cylinder #:	N/A	Removed Gas Exp Date	: N/A
Last Cal Date:	March 4, 2025	Removed Gas NOX Conc:	47.94 ppm	Removed Gas NO Conc	: 46.39 ppm
Start time (MST):	8:39	NOX gas Diff:		NO gas Diff:	
End time (MST):	14:30	Calibrator Model:	Teledyne API T700	Serial Number:	3566
Reason:	Routine	ZAG make/model:	Teledyne API T701	Serial Number:	4602

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-1.4	-0.5	-0.9		
AF High point	4914	86.2	826.5	799.7	26.7	831.4	803.6	27.8	0.9924	0.9946
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	828.6 ppb	NO = 801.9	ppb	* = > +/-59	% change initiates	investigation	*Percent Chan	ge NO _x =	0.5%
Baseline Corr 1	lst pt NO _X =	832.8 ppb	NO = 804.1	ppb	<u>As Foun</u>	d Statistics		*Percent Chan	ge NO =	0.3%
Baseline Corr 2	2nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO _X r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _X =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calibi	ration Data				
O3 Setp	oint (ppb)	Indicated NO Re concentration		cated NO Drop entration (ppb)	Calculated No concentration (pp		dicated NO2 ntration (ppb) (Ic)	Baseline Adjus Correction f (Cc/(Ic-AFz)	actor Conv	verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1172750	022			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	1.000894	1.002857
			Instrument Settings			NO _x Cal Offset:	1.375479	1.615390
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.001960	1.004732
NO coeff or slope:	0.841	0.841	NO bkgnd or offset:	3.8	3.5	NO Cal Offset:	0.582447	0.662208
NOX coeff or slope:	0.990	0.990	NOX bkgnd or offset:	4.7	3.8	NO ₂ Cal Slope:	1.000905	1.000499
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	155.1	155.1	NO ₂ Cal Offset:	-0.618864	-0.488997

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	-0.1	0.1	-0.1		
High point	4914	86.2	826.5	799.7	26.7	829.4	803.7	25.7	0.9964	0.9951
Mid point	4957	43.1	413.2	399.9	13.4	417.4	403.3	14.1	0.9900	0.9915
Low point	4978	21.6	207.1	200.4	6.7	210.7	202.2	8.5	0.9830	0.9912
As left zero	5000	0.0	0.0	0.0	0.0	0.1	0.1	0.0		
As left span	4914	86.2	826.5	402.8	423.7	827.8	402.8	425.0	0.9984	1.0000
							Average Co	orrection Factor	0.9898	0.9926

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (C	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/Ic) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	-0.1		
High GPT point	798.7	399.2	426.2	426.2	1.0000	100.0%
Mid GPT point	798.7	593.8	231.6	231.0	1.0027	99.7%
Low GPT point	798.7	695.7	129.7	128.9	1.0064	99.4%
				Average Correction Factor	1.0030	99.7%

Notes: Changed the inlet filter after as founds. Adjusted the zero only.

Calibration Performed By:

Max Farrell

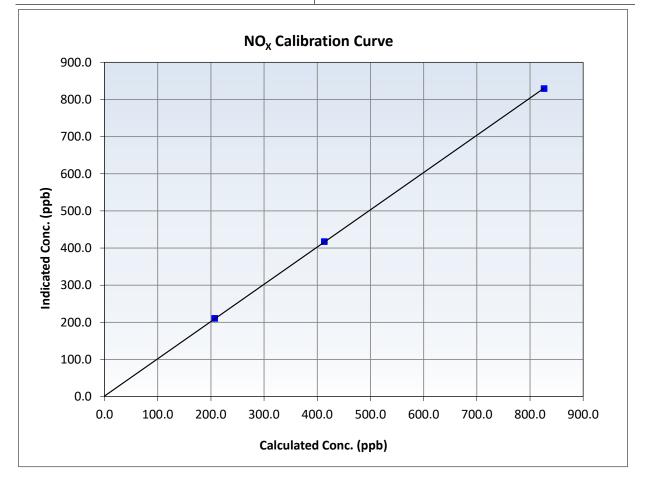


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	March 4, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:39	End Time (MST):	14:30
Analyzer make:	Thermo 42i	Analyzer serial #:	1172750022

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999979	≥0.995
826.5 413.2	829.4 417.4	0.9964 0.9900	Slope	1.002857	0.90 - 1.10
207.1	210.7	0.9830	Intercept	1.615390	+/-20



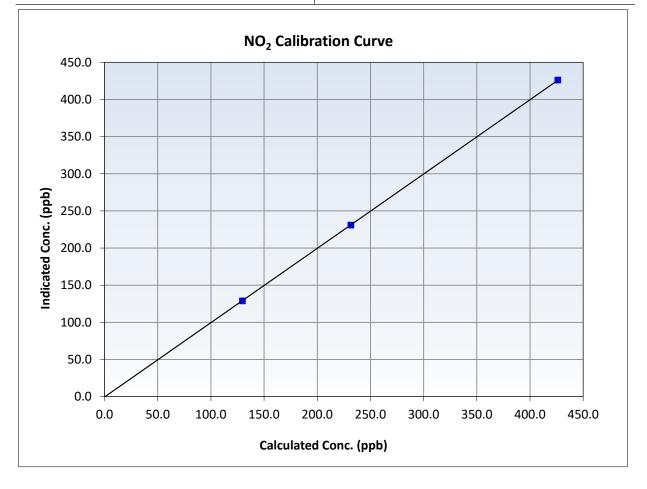


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	March 4, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:39	End Time (MST):	14:30
Analyzer make:	Thermo 42i	Analyzer serial #:	1172750022

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999996	≥0.995
426.2 231.6	426.2 231.0	1.0000 1.0027	Slope	1.000499	0.90 - 1.10
129.7	128.9	1.0064	Intercept	-0.488997	+/-20



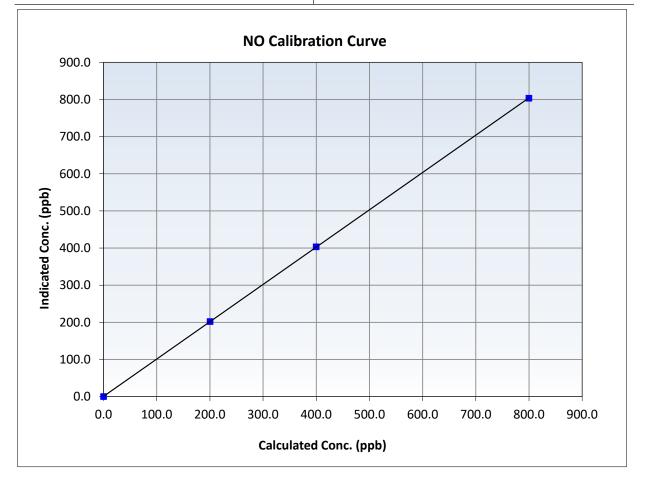


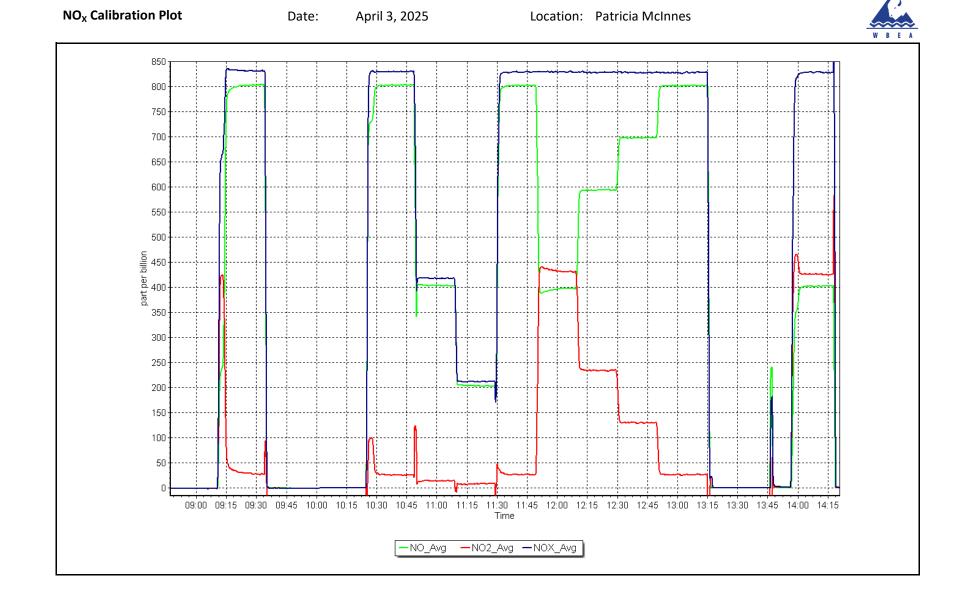
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	March 4, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:39	End Time (MST):	14:30
Analyzer make:	Thermo 42i	Analyzer serial #:	1172750022

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999996	≥0.995
799.7 399.9	803.7 403.3	0.9951 0.9915	Slope	1.004732	0.90 - 1.10
200.4	202.2	0.9912	Intercept	0.662208	+/-20







Calibration intercept:

Wood Buffalo Environmental Association O₃ Calibration Report

Coeff or Slope:

1.020

Station Information

Station Name: Calibration Date:	Patricia McInnes April 4, 2025		Station number: AM Last Cal Date: Ma	
Start time (MST):	8:14		End time (MST): 11:	30
Reason:	Routine			
		Calibration St	andards	
O3 generation mode:	Photometer			
Calibrator Make/Model:	API T700		Serial Number: 356	6
ZAG Make/Model:	API T701		Serial Number: 460	2
		Analyzer Info	rmation	
Analyzer make:	Thermo 49i		Analyzer serial #: 130	0156234
Analyzer Range	0 - 500 ppb			
- W I	<u>Start</u>	<u>Finish</u>		<u>Start</u>
Calibration slope:	1.001200	1.000714	Backgd or Offset:	-0.5

0.200000

0.340000

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	800.0	0.0	0.0	
As found High point	5000	1031.0	400.0	400.9	0.998
As found Mid point					
As found Low point					
Baseline Corr As found:	400.9	Previous response	400.8	*% change	0.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	800.0	0.0	0.3	
High point	5000	1031.0	400.0	400.5	0.999
Mid point	5000	821.4	200.0	200.4	0.998
Low point	5000	699.5	100.0	100.1	0.999
As left zero	5000	800.0	0.0	0.4	
As left span	5000	1031.0	400.0	402.2	0.995
			Averag	e Correction Factor	0.999

Notes:

Changed the inlet filter after as founds. No adjustments made.

Calibration Performed By:

Max Farrell

<u>Finish</u> -0.5

1.020

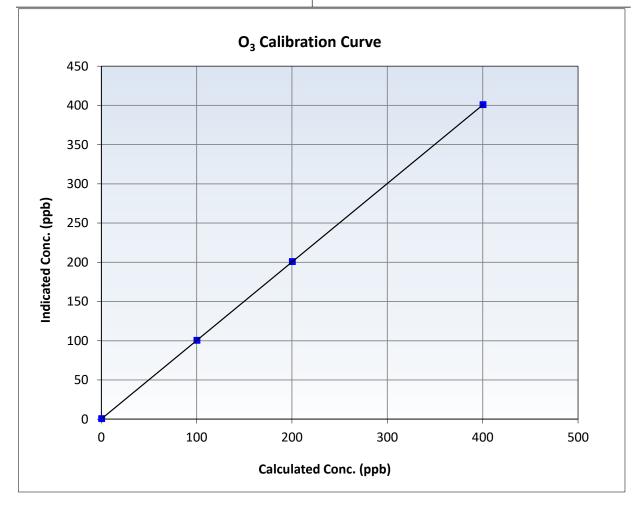


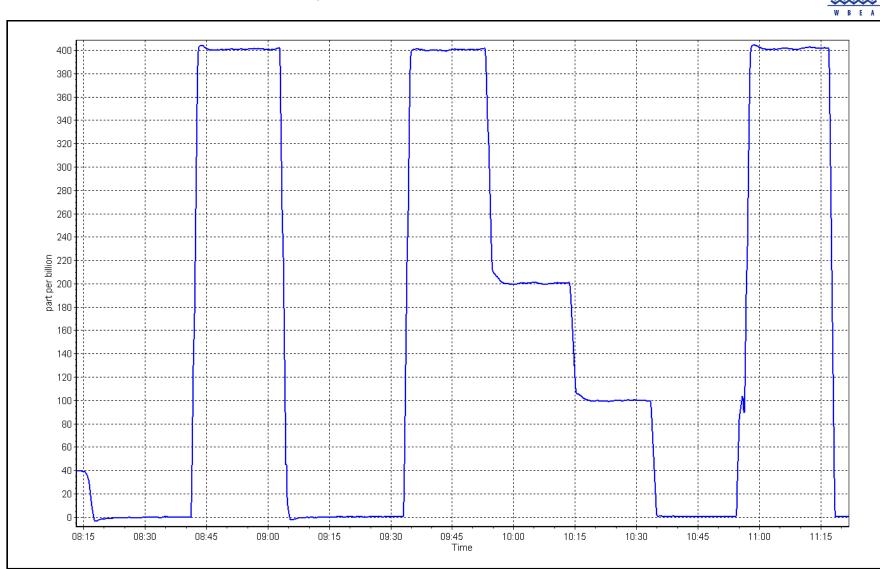
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 17, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:14	End Time (MST):	11:30
Analyzer make:	Thermo 49i	Analyzer serial #:	1300156234

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.3		Correlation Coefficient	1.000000	≥0.995
400.0 200.0	400.5 200.4	0.9988 0.9980	Slope	1.000714	0.90 - 1.10
100.0	100.1	0.9990	Intercept	0.200000	+/- 5





Date: April 4, 2025

Location: Patricia McInnes



T640 PM_{2.5} CALIBRATION

W B E A					Version-01-202
		Station Informa	tion		
Station Name:	Patricia McInnes		Station number: AMS	06	
Calibration Date:	April 4, 2025		Last Cal Date: Mar	ch 17, 2025	
Start time (MST):	11:56		End time (MST): 13:3	7	
Analyzer Make:	API T640		S/N: 766		
Particulate Fraction:	PM2.5				
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 3887	/55	
Temp/RH standard:	Alicat FP-25BT	S/N: 388755			
<u>Parameter</u>	<u>As found</u>	<u>Measured</u>	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	2.9	3.1	2.9		+/- 2 °C
P (mmHg)	732.50	734.80	732.50		+/- 10 mmHg
Flow (LPM)	4.99	5.11	4.99		+/- 0.25 LPM
PW% (pump)	86		38	v	> 80 %
Zero Verification	PM w/o HEPA:	5.7	PM w/ HEPA:	0.0	<0.2 ug/m3

 Note: this leak check will be completed before the quarterly work and will serve as the pre maintenance leak check

 PM Inlet observation :
 Inlet Head Clean

 Image: Complete the served of the served

		Quarterly Calibration	Test	
SPAN DUST	Refractive Index: Lot No.:	10.9 100128-050-050	Expiry Date:	07-16-2026
Parameter	<u>As found</u>	Post maintenance	<u>As left</u>	<u>Adjusted</u> (Limits)
PMT Peak Test	10.8	10.8	10.8	+/- 0.5
Date Optical Chan Date Disposable Fi	-	April 4, April 4,		
Post- maintenance Zero Ve	rification:	PM w/ HEPA:	0.00	<0.2 ug/m3

Annual	Maintenance
Annual	Widifficulture

Date Sample Tube Cleaned: Date RH/T Sensor Cleaned: April 4, 2025 April 4, 2025

Notes:

Replaced the pump. Completed both quarterly and annual maintenance. No issues.

Calibration by:

Max Farrell



Wood Buffalo Environmental Association Nt - NOX - NH3 Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
NOX Cal Date:	April 7, 2025	Last Cal Date:	March 10, 2025
Start time (MST):	8:30	End time (MST):	12:54
NH3 Cal Date:	April 7, 2025	Last Cal Date:	March 11, 2025
Start time (MST):	12:56	End time (MST):	15:22
Reason:	Routine		

Calibration Standards

NOX Cal Gas Conc:	47.94	ppm	NO Gas Cylinder #:	T30YCWN
NO Cal Gas Conc:	46.39	ppm	NO Cal Gas Expiry:	April 11, 2025
Removed NOX Conc:	47.94	ppm	Removed Cylinder #:	N/A
Removed NO Conc:	46.39	ppm	Removed cyl Expiry:	N/A
NOX gas Diff:			NO gas Diff:	
NH3 Cal Gas Conc:	75.0	ppm	NH3 Gas Cylinder #:	CC709372
			NH3 Cal Gas Expiry:	December 31, 2025
Removed NH3 Conc:	75.0	ppm	Removed Cylinder #:	
NH3 gas Diff:			Removed cyl Expiry:	
Calibrator Model:	A	VPI T700	Serial Number:	3566
ZAG make/model:	A	VPI T701	Serial Number:	4602

Analyzer Information

Analyzer model: Converter model: NH3 Range (ppb):	API T201 API T501 0 - 2000 ppb		Analyzer serial #: Converter serial #: Reaction cell Press:	215 147 6.20	
NOX Range (ppb):	0 - 1000 ppb		Sample Flow:	25.4	
0 (11)	Start	Finish		Start	Finish
NO coefficient:	1.002	1.027	Nt coefficient:	0.995	1.019
NOX coefficient:	0.993	1.017	NO bkgrnd:	0.2	0.2
NO2 coefficient:	1.000	1.000	NOX bkgrnd:	-0.1	-0.1
NH3 coefficient:	0.922	0.922	Nt bkgrnd:	1.7	1.7

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
NO _x Cal Slope:	0.996053	0.998888
NO _x Cal Offset:	1.276664	1.376032
NO Cal Slope:	0.991297	0.998531
NO Cal Offset:	0.864516	0.982601
NO ₂ Cal Slope:	1.003410	0.999928
NO ₂ Cal Offset:	-0.382664	0.923159
NH3 Cal Slope:	1.005770	1.004786
NH3 Cal Offset:	4.646188	9.258156
Nt Cal Slope:	1.009569	1.008514
Nt Cal Offset:	4.888735	9.809090



NO_x - NO - NO₂ Calibration Report

NOx / NO / Nt As Found Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated Nt concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated Nt concentration (ppb) (Ic)	Baseline corr NOx Correction factor (Cc/Ic) Limit = 0.9 - 1.0	Baseline corr NO Correction factor (Cc/Ic) Limit = 0.9 - 1.0
As found zero	5000	0.0	0.0	0.0	0.0	-0.1	-0.3	-0.7		
As found span	4914	86.2	826.5	799.7	826.5	803.5	776.6	808.9	1.0286	1.0298
AF GPT span										
new NO cyl rp										
Baseline Corr As F	Fd Nt =	809.6 ppb	NO _x = 803.6	ppb NO =	776.9 ppb			*Percent Chan	ge Nt _(NO) =	-3.7%
Previous Respons	se Nt =	839.25 ppb	NO _x = 824.5	ppb NO =	793.6 ppb			*Percent Chan	ge NO _x =	-2.6%
**NO _X Δ (NO to GP	PT response) =							*Percent Chan	ge NO =	-2.2%
* *= > +/-2% differenc	e initiates investigat	ion						* = > +/-5% change	e initiates investigati	on

NOx / NO / Nt Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated Nt concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated Nt concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibration zero	5000	0.0	0.0	0.0	0.0	0.1	0.0	0.5		
High point	4914	86.2	826.5	799.7	826.5	826.5	799.5	826.4	0.9999	1.0003
Mid point	4957	43.1	413.2	399.9	413.2	414.1	399.4	414.8	0.9979	1.0012
Low point	4978	21.6	207.1	200.4	207.1	210.0	203.0	210.2	0.9863	0.9873
							Average Co	prrection Factor	0.9947	0.9963

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>	Converter Efficiency <i>Limit = 96-104%</i>
As Found zero			0.0	0.2		
Calibration zero			0.0	0.1		
High GPT point (400 ppb O3)	797.8	397.7	426.8	427.5	0.9984	100.2%
Mid GPT point (200 ppb O3)	797.8	603.2	221.3	221.8	0.9978	100.2%
Low GPT point (100 ppb O3)	797.8	697.6	126.9	129.3	0.9816	101.9%
			Av	verage Correction Factor	0.9926	100.8%



Wood Buffalo Environmental Association $NH_3 - N_T$ Calibration Report

NH3 As Found Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated Nt concentration (ppb) (Cc)	Calculated NOX concentration (ppb) (Cc)	Calculated NH3 concentration (ppb) (Cc)	Indicated Nt concentration (ppb) (Ic)	Indicated NOX concentration (ppb) (Ic)	Indicated NH3 concentration (ppb) (Ic)	Baseline corr Nt Correction factor (Cc/(Ic-zero)) Limit = 0.9 - 1.1	Baseline corr NH3 Correction factor (Cc/(Ic-zero)) Limit = 0.9 - 1.1
As found zero	5000	0.0	0.0	0.0	0.0	-0.7	-0.1	-0.6		
AF High point	3416	84.0	1799.0	0.0	1799.0	1827.4	7.8	1819.6	0.984	0.988
AF Mid point										
AF Low point										
new NH3 cyl rp										
Baseline Corr As F	-d Nt =	1828.1 ppb	NH3 = 1820.2	ppb				*Percent Chan	ge Nt _(NH3) :	0.4%
Previous Respons	e Nt =	1821.1 ppb	NH3 = 1814.1	ppb	* => +/-5	% change initiates i	nvestigation	*Percent Chan	ge NH3 =	0.3%

NH3 Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated Nt concentration (ppb) (Cc)	Calculated NOX concentration (ppb) (Cc)	Calculated NH3 concentration (ppb) (Cc)	Indicated Nt concentration (ppb) (Ic)	Indicated NOX concentration (ppb) (Ic)	Indicated NH3 concentration (ppb) (Ic)	Nt Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>	NH3 Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibration zero	5000	0.0	0.0	0.0	0.0	0.5	0.1	0.4		
High point	3416	84.0	1799.0	0.0	1799.0	1818.7	7.0	1811.7	0.989	0.993
Mid point	3453	46.7	1000.3	0.0	1000.3	1023.5	4.5	1019.0	0.977	0.982
Low point	3477	23.3	499.0	0.0	499.0	522.9	2.8	520.0	0.954	0.960
							Average Co	prrection Factor	0.9736	0.9781
NH3 Previous Co	onverter Efficiency	/= 92.2	2 %							

NH3 Current Converter Efficiency = 92.2 %

Notes:

Changed the inlet filter after as founds. Adjusted the NOX span.

Calibration Performed By:

Max Farrell

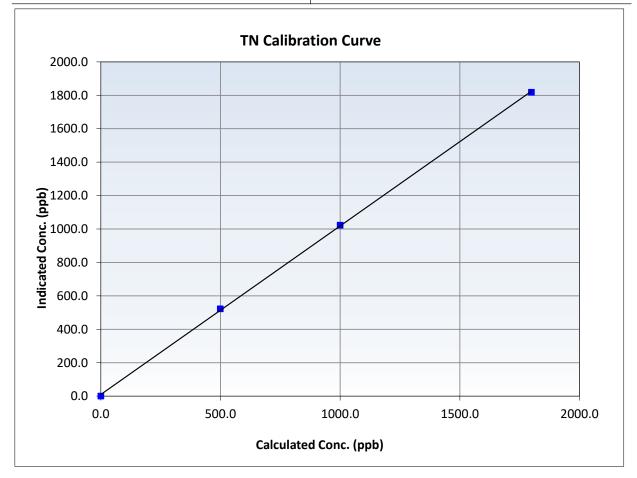


Nt Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 10, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	12:54
Analyzer make:	API T201	Analyzer serial #:	215

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.5		Correlation Coefficient	0.999868	≥0.995
1799.0 1000.3	1818.7 1023.5	0.9892 0.9773	Slope	1.008514	0.90 - 1.10
499.0	522.9	0.9542	Intercept	9.809090	+/-20



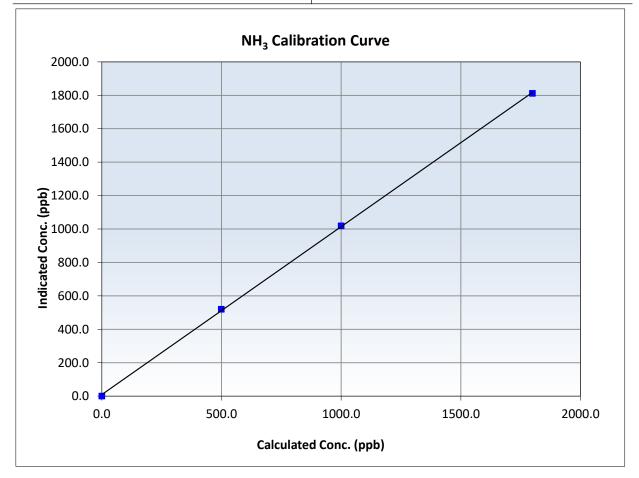


NH₃ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 10, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	12:54
Analyzer make:	API T201	Analyzer serial #:	215

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999879	≥0.995
1799.0 1000.3	1811.7 1019.0	0.9930 0.9816	Slope	1.004786	0.90 - 1.10
499.0	520.0	0.9596	Intercept	9.258156	+/-20



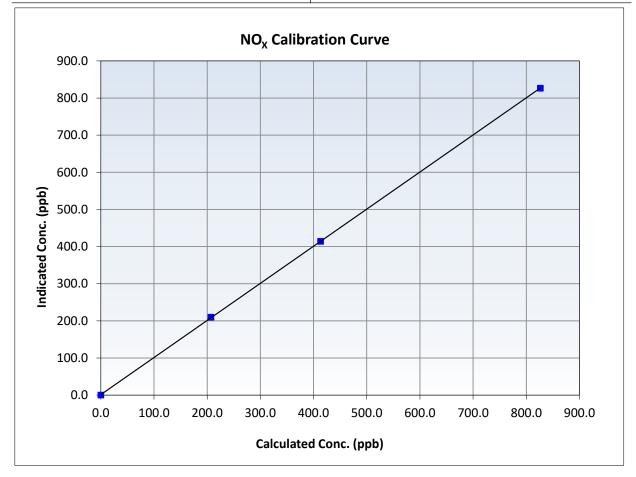


NO_x Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 10, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	12:54
Analyzer make:	API T201	Analyzer serial #:	215

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999987	≥0.995
826.5 413.2	826.5 414.1	0.9999 0.9979	Slope	0.998888	0.90 - 1.10
207.1	210.0	0.9863	Intercept	1.376032	+/-20



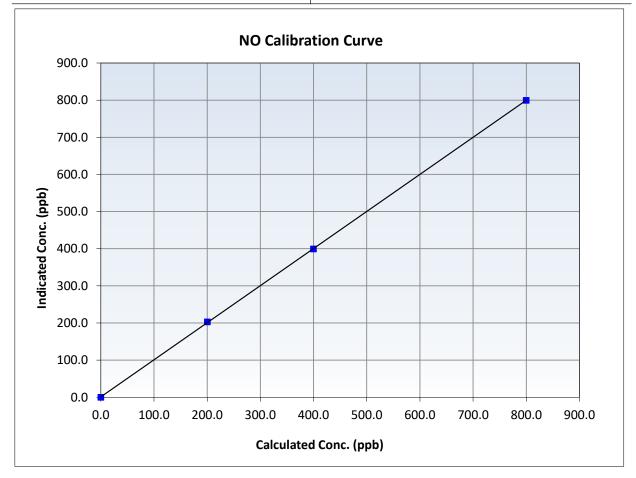


NO Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 10, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	12:54
Analyzer make:	API T201	Analyzer serial #:	215

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999985	≥0.995
799.7 399.9	799.5 399.4	1.0003 1.0012	Slope	0.998531	0.90 - 1.10
200.4	203.0	0.9873	Intercept	0.982601	+/-20



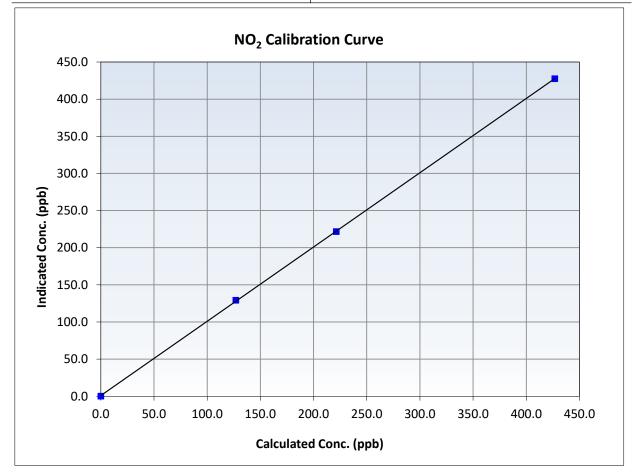


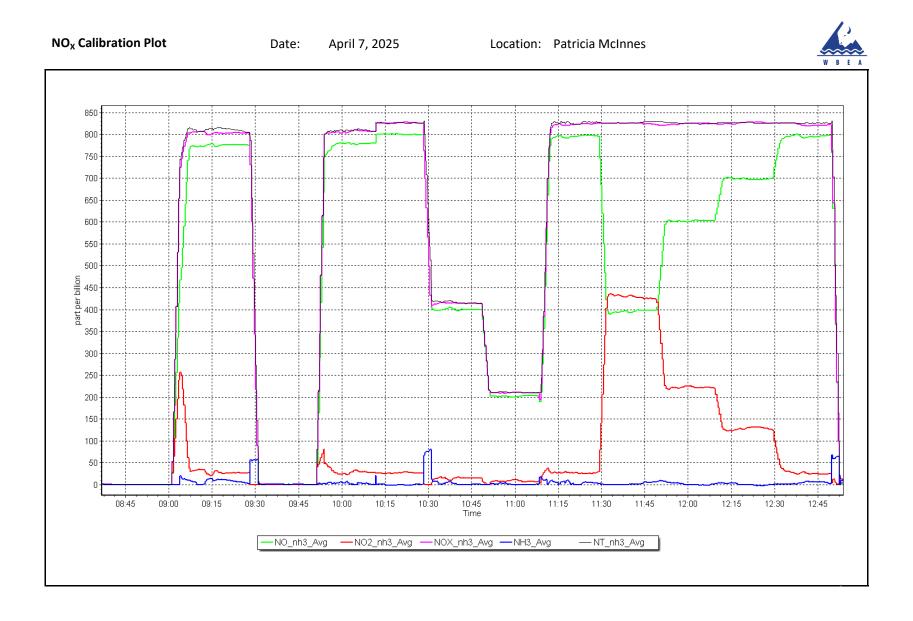
NO₂ Calibration Summary

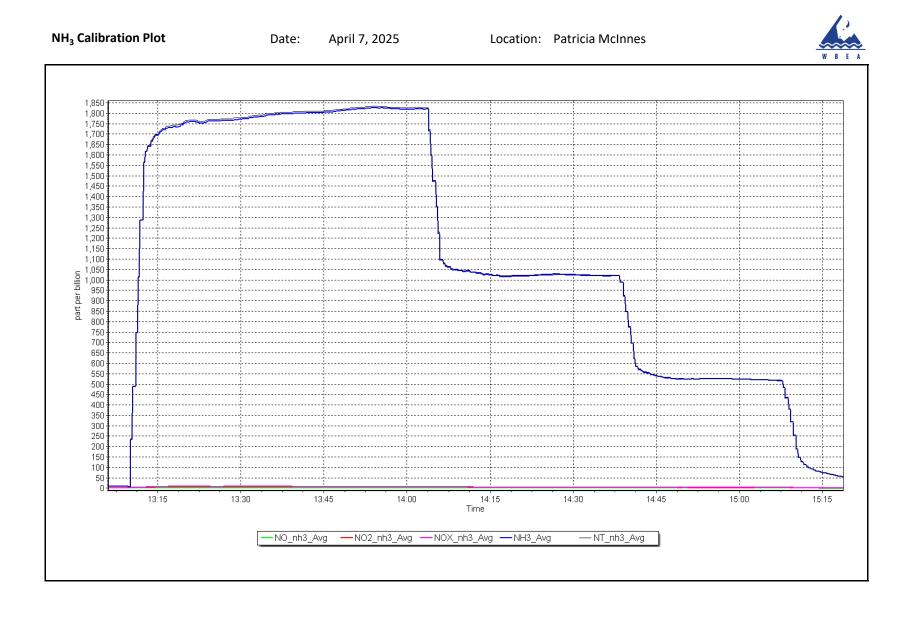
Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 10, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	12:54
Analyzer make:	API T201	Analyzer serial #:	215

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999969	≥0.995
426.8 221.3	427.5 221.8	0.9984 0.9978	Slope	0.999928	0.90 - 1.10
126.9	129.3	0.9816	Intercept	0.923159	+/-20









WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS07 ATHABASCA VALLEY APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Station Name:

Calibration Date:

Start time (MST):

Wood Buffalo Environmental Association SO₂ Calibration Report

Station number: AMS07

End time (MST): 11:30

Last Cal Date: March 11, 2025

Station Information

Athabasca Valley

April 8, 2025

8:20

Reason:	Routine				
		Calibration S	Standards		
Cal Gas Concentration:	50.06	ppm	Cal Gas Exp Date: Ma	arch 10, 2031	
Cal Gas Cylinder #:	CC320556				
Removed Cal Gas Conc:	50.06	ppm	Rem Gas Exp Date: NA	١	
Removed Gas Cyl #:	NA		Diff between cyl:		
Calibrator Model:	API T700		Serial Number: 38	05	
Zero Air Gen Model:	API 701H		Serial Number: 19	8	
		Analyzer Inf	ormation		
Analyzer make:	Thermo 43i-LTE		Serial Number: 15	07864683	
Analyzer Range:	0 - 1000 ppb				
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.997988	0.999033	Backgd or Offset:	2.70	2.73
Calibration intercept:	2.224556	2.384086	Coeff or Slope:	0.859	0.866
		SO ₂ As Fou	nd Data		

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.0	
As found High point As found Mid point	4920	79.8	799.0	793.8	1.007
As found Low point New cylinder response					
Baseline Corr As found:	793.8	Previous response	799.6	*% change	-0.7%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4920	79.8	799.0	799.1	1.000
Mid point	4960	39.9	399.5	403.8	0.989
Low point	4980	20.0	200.2	203.8	0.983
As left zero	5000	0.0	0.0	0.1	
As left span	4920	79.8	799.0	799.2	1.000
			Averag	ge Correction Factor:	0.991

Notes:

Inlet filter changed after as founds. Span adjusted.

Calibration Performed By:

Devin Russell

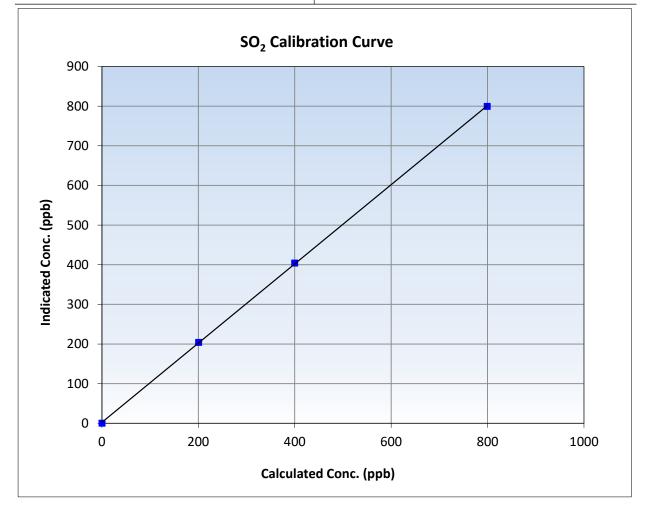


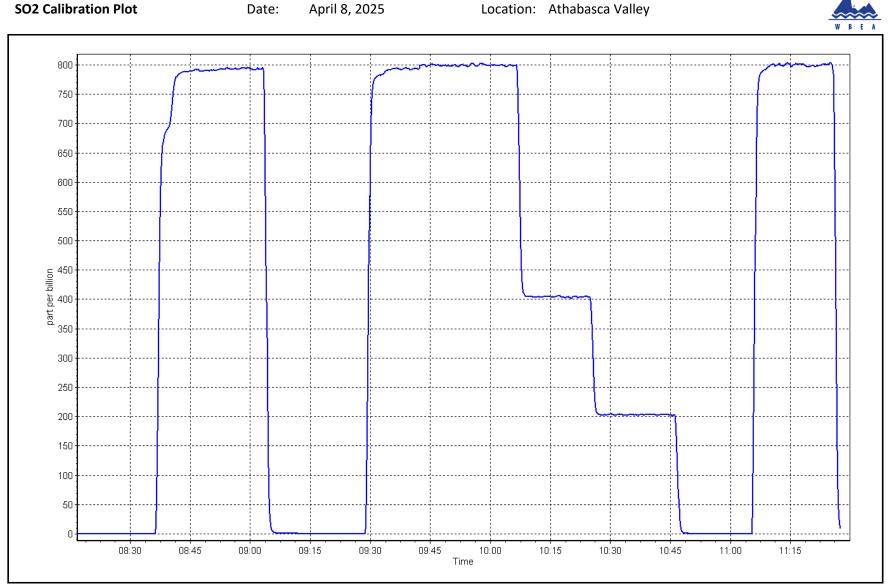
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 11, 2025
Station Name:	Athabasca Valley	Station Number:	AMS07
Start Time (MST):	8:20	End Time (MST):	11:30
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1507864683

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999959	≥0.995
799.0 399.5	799.1 403.8	0.9999 0.9893	Slope	0.999033	0.90 - 1.10
200.2	203.8	0.9825	Intercept	2.384086	+/-30







Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Athabasca Valley April 4, 2025 9:52 Routine		Station number: Last Cal Date: End time (MST):	AMS07 March 5, 2025 14:16		
		Calibration	<u>Standards</u>			
Cal Gas Concentration: Cal Gas Cylinder #:	5.25 CC504080	ppm	Cal Gas Exp Date:	January 3, 2026		
Removed Cal Gas Conc: Removed Gas Cyl #:	5.25 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA		
Calibrator Make/Model:	API T700		Serial Number:	3805		
ZAG Make/Model:	API T701H		Serial Number:	198		
		Analyzer Inf	ormation			
Analyzer make:	Thermo 43i LTE		Analyzer serial #:	1180540018		
Converter make:	CDN-101		Converter serial #:	551		
Analyzer Range	0 - 100 ppb		Converter Temp:	8	40 degC	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>		<u>Finish</u>
Calibration slope:	1.011167	1.013763	Backgd or Offset:	2.7		2.7
Calibration intercept:	-0.282221	-0.122264	Coeff or Slope:	0.908		0.908

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.2	
As found High point	4925	75.5	79.3	80.1	0.987
As found Mid point	4962	37.7	39.6	40.0	0.985
As found Low point	4981	18.9	19.8	19.7	0.997
New cylinder response					
Baseline Corr As found:	80.3	Prev response:	79.87	*% change:	0.5%
Baseline Corr 2nd AF pt:	40.2	AF Slope:	1.014050	AF Intercept:	-0.262148
Baseline Corr 3rd AF pt:	19.9	AF Correlation:	0.999987	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4925	75.5	79.3	80.3	0.988
Mid point	4962	37.7	39.6	40.0	0.990
Low point	4981	18.9	19.9	20.0	0.993
As left zero	5000	0.0	0.0	0.2	
As left span	4925	75.5	79.3	79.9	0.993
SO2 Scrubber Check	4920	79.2	792.1	0.2	
Date of last scrubber cha	inge:	21-Feb-25		Ave Corr Factor	0.990
Date of last converter eff	ficiency test:	April 22, 2022		_	

No adjusments needed.

Notes:

Calibration Performed By:

Aswin Sasi Kumar



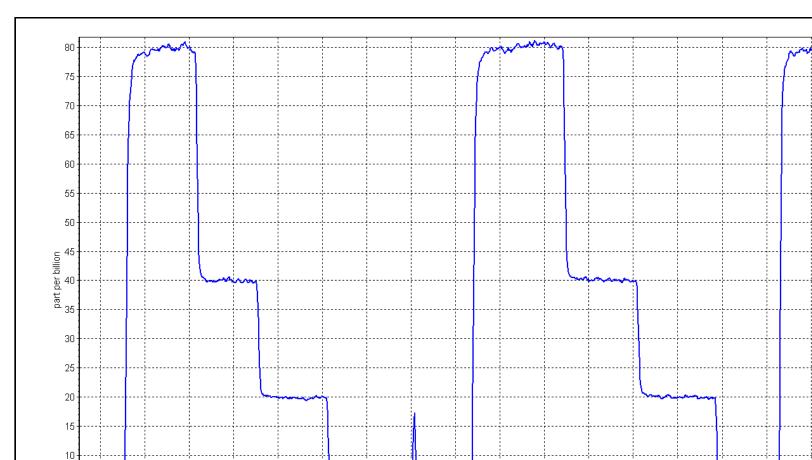
TRS Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 5, 2025
Station Name:	Athabasca Valley	Station Number:	AMS07
Start Time (MST):	9:52	End Time (MST):	14:16
Analyzer make:	Thermo 43i LTE	Analyzer serial #:	1180540018

Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation <u>Limits</u> (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999999 ≥0.995 0.0 -0.1 ----79.3 80.3 0.9877 Slope 0.90 - 1.10 1.013763 39.6 40.0 0.9902





5

0

10:00

10:15

10:30

11:00

10:45

11:15

11:30

11:45

12:00 Time

12:15

12:30

12:45

13:00

13:15

Date: April 4, 2025

Location: Athabasca Valley



14:15

13:30

13:45

14:00



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Analyzer serial #: 1331259520

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Athabasca Valley	Station number: AMS 07
Calibration Date:	April 8, 2025	Last Cal Date: March 11, 2025
Start time (MST):	8:20	End time (MST): 11:30
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	CC320556	Cal Gas Expiry Date:	March 10, 2031	
CH4 Cal Gas Conc.	496.0 ppm	CH4 Equiv Conc.	1059.8 ppm	
C3H8 Cal Gas Conc.	205.0 ppm			
Removed Gas Cert:	NA	Removed Gas Expiry:	NA	
Removed CH4 Conc.	496.0 ppm	CH4 Equiv Conc.	1059.8 ppm	
Removed C3H8 Conc.	205.0 ppm	Diff between cyl (THC):		
Diff between cyl (CH ₄):		Diff between cyl (NM):		
Calibrator Model:	Teledyne API T700	Serial Number:	3805	
Zero Air Gen model:	Teledyne API T701H	Serial Number:	198	
Analyzer Information				

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.99E-03	3.02E-03	NMHC SP Ratio:	5.57E-05	5.65E-05
CH4 Retention time:	14.4	14.4	NMHC Peak Area:	161721	159257
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4920	79.8	16.91	16.72	1.012
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.72	Prev response	16.92	*% change	-1.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	16.91	16.93	0.999
Mid point	4960	39.9	8.46	8.51	0.994
Low point	4980	20.0	4.24	4.31	0.984
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	16.91	17.00	0.995
			Avera	ge Correction Factor	0.992

Notes:

Inlet filter changed after as founds. Span adjusted.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	9.00	8.90	1.012
Baseline Corr AF:	8.90	Prev response	9.00	*% change	-1.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	ites investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	9.00	9.03	0.997
Mid point	4960	39.9	4.50	4.55	0.988
Low point	4980	20.0	2.26	2.31	0.977
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	9.00	9.07	0.993
			Avera	ge Correction Factor	0.987

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	7.92	7.82	1.012
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	7.82 NA NA	Prev response AF Slope: AF Correlation:	7.91	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
	(seeiii)	(seeiii)	(ppin) (cc)	(ppiii) (ic)	Linit - 0.55 1.65
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	7.92	7.90	1.002
Mid point	4960	39.9	3.96	3.95	1.001
Low point	4980	20.0	1.98	2.00	0.993
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	7.92	7.93	0.999
			Avera	age Correction Factor	0.999

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	0.998416	1.000066
THC Cal Offset:	0.030657	0.033446
CH4 Cal Slope:	0.998146	0.997613
CH4 Cal Offset:	0.012263	0.006863
NMHC Cal Slope:	0.998641	1.002237
NMHC Cal Offset:	0.018194	0.025783

Calibration Performed By:

Devin Russell

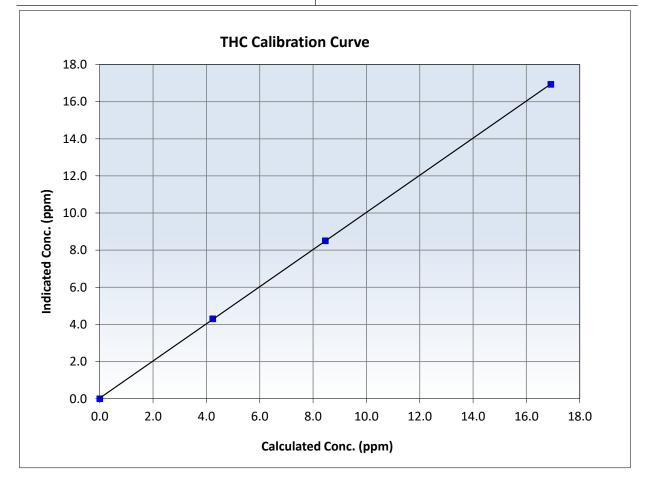


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 11, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	8:20	End Time (MST):	11:30
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259520

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999982	≥0.995
16.91 8.46	16.93 8.51	0.9990 0.9940	Slope	1.000066	0.90 - 1.10
4.24	4.31	0.9844	Intercept	0.033446	+/-0.5



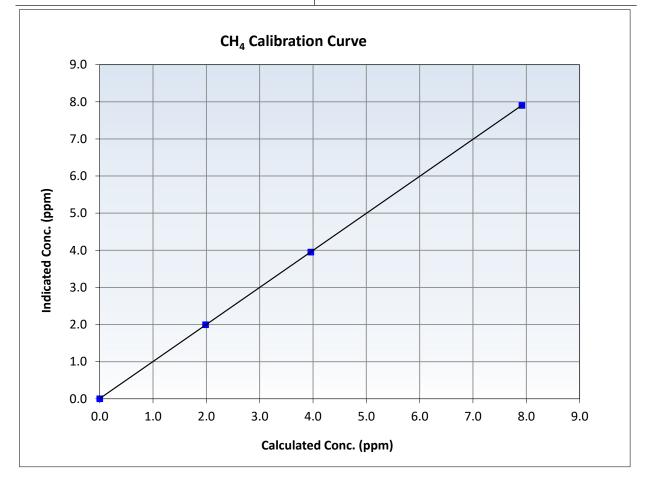


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 11, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	8:20	End Time (MST):	11:30
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259520

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999995	≥0.995
7.92 3.96	7.90 3.95	1.0017 1.0013	Slope	0.997613	0.90 - 1.10
1.98	2.00	0.9935	Intercept	0.006863	+/-0.5



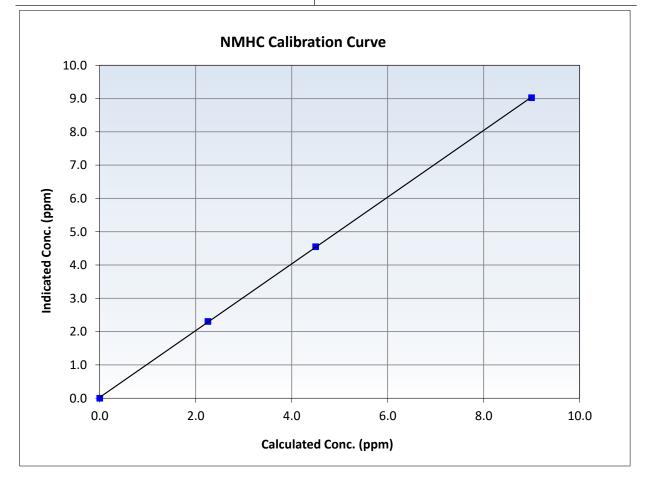


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 11, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	8:20	End Time (MST):	11:30
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259520

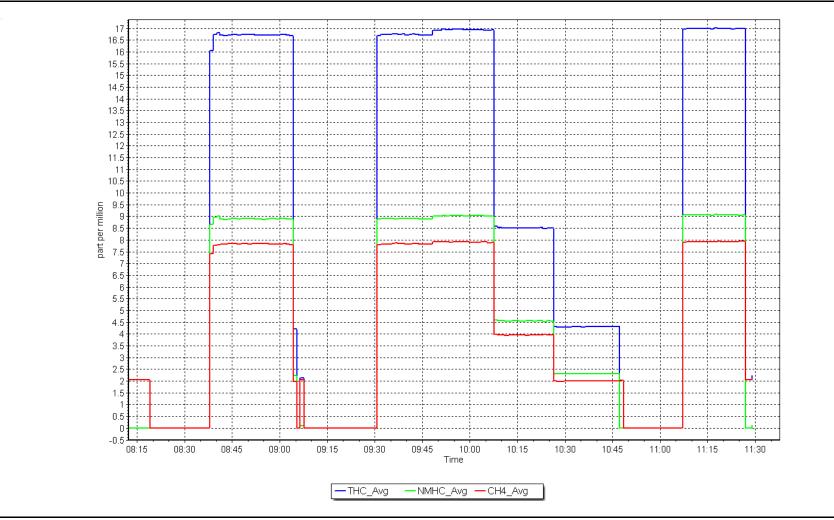
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999962	≥0.995
9.00 4.50	9.03 4.55	0.9965 0.9881	Slope	1.002237	0.90 - 1.10
2.26	2.31	0.9770	Intercept	0.025783	+/-0.5



NMHC Calibration Plot

Location: Athabasca Valley







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Analyzer serial #: 1331259520

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Athabasca Valley	Station number: AMS 07	
Calibration Date:	April 17, 2025	Last Cal Date: April 8, 20	25
Start time (MST):	9:30	End time (MST): 11:00	
Reason:	Cylinder Change		
		Calibration Standards	
Gas Cert Reference	CC320556	Cal Gas Expiry Date	March

	Cal Gas Expiry Date:	March 10, 2031
496.0 ppm	CH4 Equiv Conc.	1059.8 ppm
205.0 ppm		
NA	Removed Gas Expiry:	NA
496.0 ppm	CH4 Equiv Conc.	1059.8 ppm
205.0 ppm	Diff between cyl (THC): Diff between cyl (NM):	
eledyne API T700	Serial Number:	3805
eledyne API T701H	Serial Number:	198
	205.0 ppm NA 496.0 ppm 205.0 ppm eledyne API T700	205.0 ppmNARemoved Gas Expiry:496.0 ppmCH4 Equiv Conc.205.0 ppmDiff between cyl (THC): Diff between cyl (NM):eledyne API T700Serial Number:

Analyzer Information

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	3.02E-03	3.02E-03	NMHC SP Ratio:	5.65E-05	5.65E-05
CH4 Retention time:	14.4	14.4	NMHC Peak Area:	159257	159257
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	16.91	17.12	0.988
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	17.12 NA NA	Prev response AF Slope: AF Correlation:	16.95	*% change AF Intercept: * = > +/-5% change initiate	1.0% es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	16.91	16.71	1.012
			Avera	ge Correction Factor	
Notes:		H2 cylinder o	change, minimal change	e in response.	



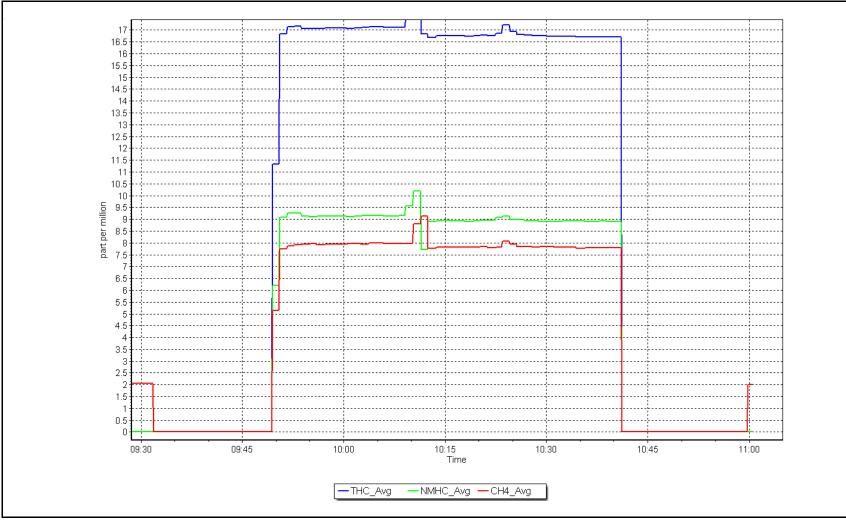
Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

WBEA		NMHC As Fe	ound Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(I AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	9.00	9.15	0.984
Baseline Corr AF: Baseline Corr 2nd AF:	9.15 NA	Prev response AF Slope:	9.04	*% change AF Intercept:	1.1%
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation
		NMHC Calib	ration Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/lc Limit = 0.95-1.05
Calibrator zero High point Mid point Low point As left zero	5000	0.0	0.00	0.00	
As left span	5000 4920	0.0 79.8	0.00 9.00	0.00 8.91	1.010
As left span	4920	79.0		ge Correction Factor	1.010
		CH4 As Fo	und Data		
					Baseline Adjusted
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/(AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	7.92	7.97	0.993
Baseline Corr AF: Baseline Corr 2nd AF:	7.97 NA	Prev response AF Slope:	7.90	*% change AF Intercept:	0.8%
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation
		CH4 Calibra	ation Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/lo Limit = 0.95-1.05
Calibrator zero High point Mid point Low point					
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	7.92	7.79	1.016
			Avera	ge Correction Factor	
		Calibration	Statistics		
		<u>Start</u>		<u>Finish</u>	
THC Cal Slope:		1.000066			
THC Cal Offset:		0.033446			
CH4 Cal Slope:		0.997613 0.006863			
CH4 Cal Offset: NMHC Cal Slope:		0.006863			
NMHC Cal Offset:		0.025783			
Calibration Per	formed By:	Ryan Power			

NMHC Calibration Plot







Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Athabasca Valley	NO Gas Cylinder #:	DT0033919	Cal Gas Expiry Date: January 9, 2032
Station number:	AMS 07	NOX Cal Gas Conc:	60.10 ppm	NO Cal Gas Conc: 59.90 ppm
Calibration Date:	April 1, 2025	Removed Cylinder #:	N/A	Removed Gas Exp Date: N/A
Last Cal Date:	March 10, 2025	Removed Gas NOX Conc:	60.10 ppm	Removed Gas NO Conc: 59.90 ppm
Start time (MST):	8:44	NOX gas Diff:		NO gas Diff:
End time (MST):	14:44	Calibrator Model:	API T700	Serial Number: 3805
Reason:	Routine	ZAG make/model:	API T701H	Serial Number: 198

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
AF High point	4933	66.8	803.0	800.3	2.7	804.4	801.3	3.2	0.9982	0.9987
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	802.9 ppb	NO = 801.2	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chang	ge NO _x =	0.2%
Baseline Corr 1	.st pt NO _x =	804.4 ppb	NO = 801.3	ppb	<u>As Four</u>	d Statistics		*Percent Chang	ge NO =	0.0%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d $NO_2 r^2$:		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
								Baseline Adjust		
O2 Soto	aint (anh)	Indicated NO Re	ference Indie	cated NO Drop	Calculated N	02 In	dicated NO2	Correction fa	actor Conv	erter Efficiency

 O3 Setpoint (ppb)
 Indicated NO Reference
 Indicated NO Drop
 Calculated NO2
 Indicated NO2
 Correction factor
 Converter Efficiency

 Concentration (ppb)
 concentration (ppb)
 concentration (ppb)
 concentration (ppb) (Cc)
 concentration (ppb) (IC)
 (Cc/(Ic-AFzero))
 Limit = 96-104%

 Converter Efficiency
 Limit = 0.90 - 1.10
 Limit = 0.90 - 1.10
 Limit = 0.90 - 1.10

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1160120	024			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.997767	1.001766
			Instrument Settings			NO _x Cal Offset:	1.751943	2.271883
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.999427	1.004283
NO coeff or slope:	1.155	1.161	NO bkgnd or offset:	8.3	8.3	NO Cal Offset:	1.411957	1.711898
NOX coeff or slope:	1.004	1.004	NOX bkgnd or offset:	8.6	8.6	NO ₂ Cal Slope:	1.002402	0.997518
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	229.8	226.7	NO ₂ Cal Offset:	1.579936	0.612052

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.3	0.2	0.1		
High point	4933	66.8	803.0	800.3	2.7	805.3	804.3	1.0	0.9971	0.9950
Mid point	4966	33.4	401.5	400.2	1.3	406.6	405.5	1.1	0.9875	0.9869
Low point	4983	16.7	200.7	200.1	0.7	204.6	203.4	1.2	0.9812	0.9837
As left zero	5000	0.0	0.0	0.0	0.0	0.0	0.1	0.0		
As left span	4933	66.8	803.0	395.4	407.6	806.7	395.4	411.4	0.9954	1.0000
							Average Co	orrection Factor	0.9886	0.9885

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (C	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	0.1		
High GPT point	800.0	396.5	406.2	405.9	1.0007	99.9%
Mid GPT point	800.0	599.3	203.4	202.6	1.0038	99.6%
Low GPT point	800.0	701.3	101.4	103.0	0.9842	101.6%
				Average Correction Factor	0.9962	100.4%

Notes:

Span adjusted.

Calibration Performed By:

Aswin Sasi Kumar

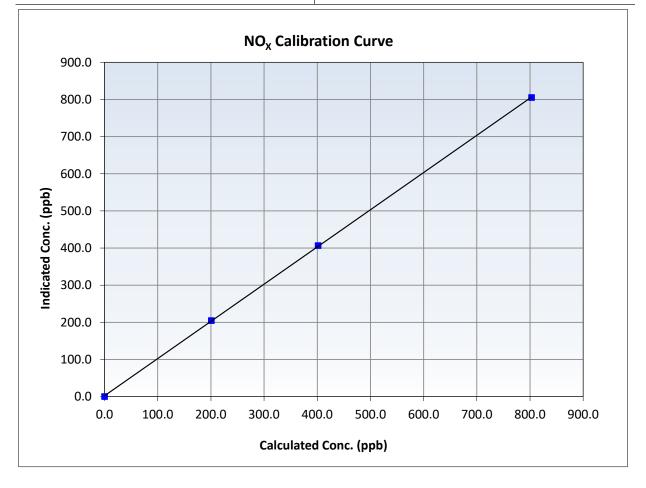


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 10, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	8:44	End Time (MST):	14:44
Analyzer make:	Thermo 42i	Analyzer serial #:	1160120024

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999967	≥0.995
803.0 401.5	805.3 406.6	0.9971 0.9875	Slope	1.001766	0.90 - 1.10
200.7	204.6	0.9812	Intercept	2.271883	+/-20



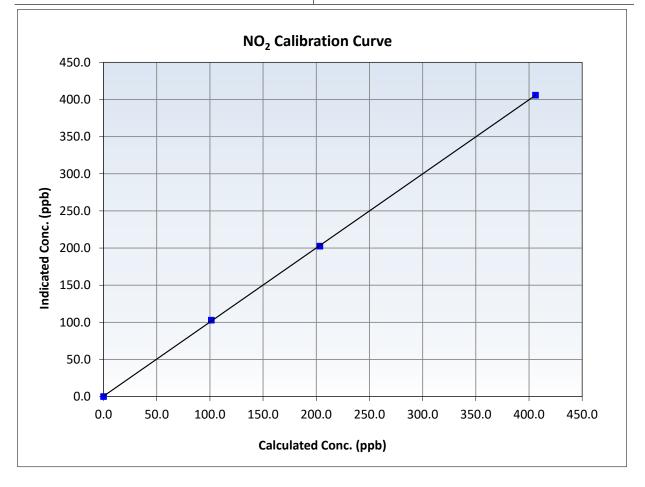


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 10, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	8:44	End Time (MST):	14:44
Analyzer make:	Thermo 42i	Analyzer serial #:	1160120024

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999970	≥0.995
406.2 203.4	405.9 202.6	1.0007 1.0038	Slope	0.997518	0.90 - 1.10
101.4	103.0	0.9842	Intercept	0.612052	+/-20



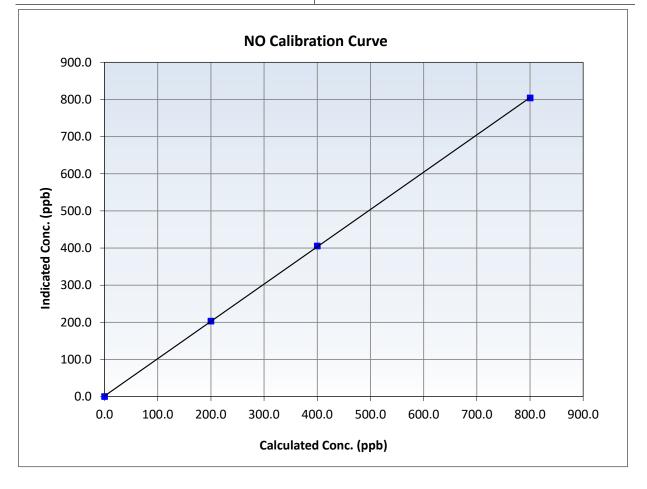


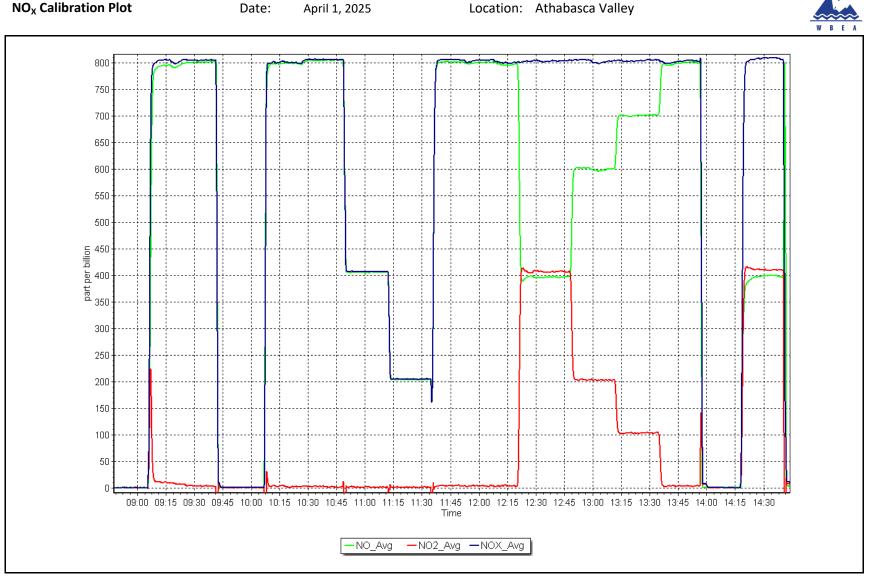
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 10, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	8:44	End Time (MST):	14:44
Analyzer make:	Thermo 42i	Analyzer serial #:	1160120024

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999978	≥0.995
800.3 400.2	804.3 405.5	0.9950 0.9869	Slope	1.004283	0.90 - 1.10
200.1	203.4	0.9837	Intercept	1.711898	+/-20







Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name: Calibration Date:	Athabasca Valley April 7, 2025		Station number:	AMS07 March 17, 2025
Start time (MST):	9:05		End time (MST):	,
Reason:	Routine		Lind time (1951).	12.40
		Calibration Sta	andards	
O3 generation mode:	Photometer			
Calibrator Make/Model:	T700		Serial Number:	3805
ZAG Make/Model:	T701H		Serial Number:	198
		Analyzer Infor	mation	
		Analyzer mior		
Analyzer make:	Thermo 49i		Analyzer serial #:	1152220023
Analyzer Range	0 - 500 ppb			
	<u>Start</u>	<u>Finish</u>		<u>Start</u>
Calibration slope:	1.001457	0.999600	Backgd or Offset:	-1.2
Calibration intercept:	0.820000	1.020000	Coeff or Slope:	1.605

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	800.0	0.0	0.1	
As found High point	5000	1704.0	400.0	412.7	0.969
As found Mid point					
As found Low point					
Baseline Corr As found:	412.6	Previous response	401.4	*% change	2.7%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	ates investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	800.0	0.0	0.1	
High point	5000	1706.0	400.0	400.4	0.999
Mid point	5000	1175.0	200.0	201.4	0.993
Low point	5000	926.0	100.0	101.9	0.981
As left zero	5000	1652.9	0.0	0.1	
As left span	5000	1582.6	400.0	402.8	0.993
			Averag	e Correction Factor	0.991

Notes:

Inlet filter changed after as founds. Adjusted span.

Calibration Performed By:

Devin Russell

Finish -1.1 1.556

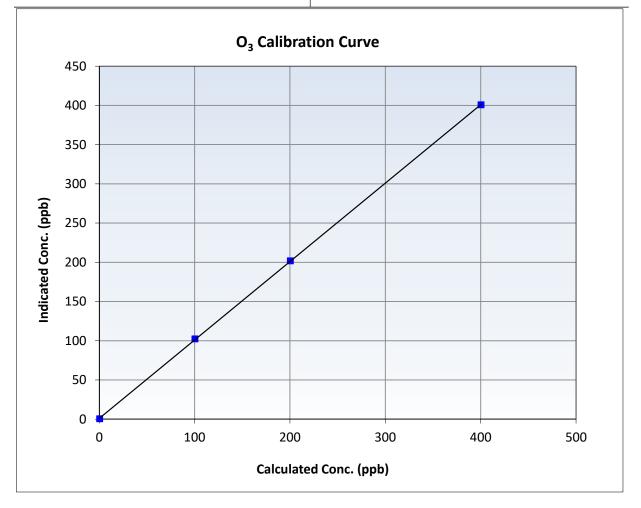


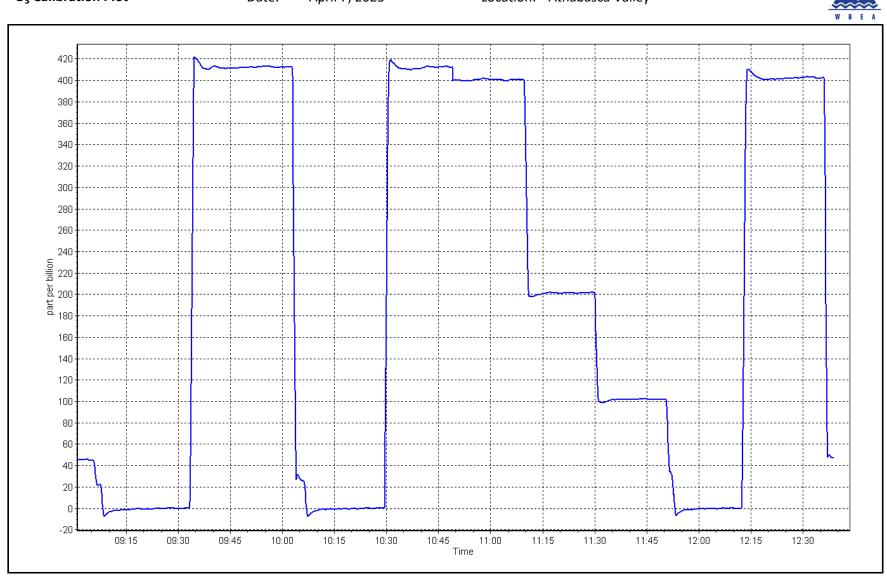
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 17, 2025
Station Name:	Athabasca Valley	Station Number:	AMS07
Start Time (MST):	9:05	End Time (MST):	12:40
Analyzer make:	Thermo 49i	Analyzer serial #:	1152220023

Calculated concentratior (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999976	≥0.995
400.0 200.0	400.4 201.4	0.9990 0.9930	Slope	0.999600	0.90 - 1.10
100.0	101.9	0.9814	Intercept	1.020000	+/- 5





O₃ Calibration Plot

Date: April 7, 2025

Location: Athabasca Valley



Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

Version-01-2024

		Station Information	n			
Station Name:	Athabasca Valley		Station number:	AMS 07		
Calibration Date:	April 1, 2025			March 24, 2025	5	
Start time (MST):	8:43		End time (MST):	9:45		
Analyzer Make:	API T640		S/N:	645		
Particulate Fraction:	PM2.5					
Flow Meter Make/Model:	Alicat FP-25BT		•	388748		
Temp/RH standard:	Alicat FP-25BT		S/N:	388748		
		Monthly Calibration T	est			
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	Ad	ljusted	(Limits)
T (°C)	-2.4	-2.9				+/- 2 °C
P (mmHg)	729.6	729.1				+/- 10 mmH
Flow (LPM)	5.00	4.75				+/- 0.25 LPN
	38					>80%
PW% (pump)	30					
Zero Verification	PM w/o HEPA: _		PM w/ HEPA: serve as the pre ma gnment Factor On :	aintenance leak	check	<0.2 ug/m3
Zero Verification Note: this leak check will be	PM w/o HEPA:	uarterly work and will	serve as the pre ma gnment Factor On :	aintenance leak	check	<0.2 ug/m3
Zero Verification Note: this leak check will be PM Inlet observation :	PM w/o HEPA:	uarterly work and will	serve as the pre ma gnment Factor On : Test	aintenance leak		
Zero Verification Note: this leak check will be	PM w/o HEPA: e completed before the c Inlet Head Clean Refractive Index:	uarterly work and will Alig Quarterly Calibration	serve as the pre ma gnment Factor On :	aintenance leak	check ber 6, 20	
Zero Verification Note: this leak check will be PM Inlet observation :	PM w/o HEPA: e completed before the c Inlet Head Clean Refractive Index:	uarterly work and will Alig Quarterly Calibration 10.9	serve as the pre ma gnment Factor On : Test	aintenance leak		
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST	PM w/o HEPA: e completed before the c Inlet Head Clean Refractive Index: Lot No.: 1	uarterly work and will Alia Quarterly Calibration 10.9 .00128-050-042	serve as the pre ma gnment Factor On : Test Expiry Date:	aintenance leak	ber 6, 20)24
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u>	PM w/o HEPA: e completed before the c Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u>	uarterly work and will Alia Quarterly Calibration 10.9 .00128-050-042	serve as the pre ma gnment Factor On : Test Expiry Date: <u>As left</u>	aintenance leak	ber 6, 20)24 (Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test	PM w/o HEPA: e completed before the c Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> nber Cleaned:	Juarterly work and will Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance	serve as the pre ma gnment Factor On : Test Expiry Date: <u>As left</u> 7, 2025	aintenance leak	ber 6, 20)24 (Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	PM w/o HEPA: e completed before the c Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> nber Cleaned:	Juarterly work and will Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance February 23	serve as the pre ma gnment Factor On : Test Expiry Date: <u>As left</u> 7, 2025	aintenance leak	ber 6, 20 ljusted)24 (Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	PM w/o HEPA: e completed before the c Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> nber Cleaned:	Juarterly work and will Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance February 23 February 23	serve as the pre ma gnment Factor On : Test Expiry Date: <u>As left</u> 7, 2025 7, 2025 0.0	aintenance leak	ber 6, 20 ljusted)24 (Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char	PM w/o HEPA: e completed before the o Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> nber Cleaned: ilter Changed: rification:	Juarterly work and will Alia Quarterly Calibration 10.9 00128-050-042 Post maintenance February 22 February 22 PM w/ HEPA:	serve as the pre ma gnment Factor On : Test Expiry Date: <u>As left</u> 7, 2025 7, 2025 0.0	aintenance leak	ber 6, 20 ljusted)24 (Limits)

Notes:

Removal calibration. Flow, temp and pressure checked. Leak check failed.

Calibration by:



Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

Version-01-2024

		Station Information		46.07	
Station Name: Calibration Date:	Athabasca Valley April 1, 2025		Station number: AM Last Cal Date: N/		
Start time (MST):	12:05		End time (MST): 13		
	12.05				
Analyzer Make:	API T640		S/N: 22	35	
Particulate Fraction:	PM2.5				
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 38	8748	
Temp/RH standard:	Alicat FP-25BT		S/N: 38	8748	
		Monthly Calibration T	est		
Parameter	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	3.5	3.5	3.5		+/- 2 °C
P (mmHg)	729.0	727.9	729.0		+/- 10 mmH
Flow (LPM)	4.95	4.78	5.05	v	+/- 0.25 LPN
PW% (pump)	38		38		>80%
		Γ 4	PM w/ HEPA:	0.0	<0.2 ug/m3
Zero Verification Note: this leak check will be PM Inlet observation :	PM w/o HEPA: e completed before the q Inlet Head Clean				.orz 05/ mo
Note: this leak check will be	e completed before the q Inlet Head Clean	uarterly work and will	serve as the pre maint gnment Factor On :	enance leak check	
Note: this leak check will be	e completed before the q Inlet Head Clean	uarterly work and will Alig Quarterly Calibration	serve as the pre maint gnment Factor On : Test	enance leak check	
Note: this leak check will be	e completed before the q Inlet Head Clean Refractive Index:	uarterly work and will	serve as the pre maint gnment Factor On :	enance leak check	
Note: this leak check will be PM Inlet observation :	e completed before the q Inlet Head Clean Refractive Index:	uarterly work and will Alig Quarterly Calibration 10.9	serve as the pre maint gnment Factor On : Test	enance leak check	
Note: this leak check will be PM Inlet observation : SPAN DUST	e completed before the q Inlet Head Clean Refractive Index: Lot No.: 1	uarterly work and will Alig Quarterly Calibration 10.9 .00128-050-042	serve as the pre maint gnment Factor On : Test Expiry Date:	enance leak check October 6, 2	024
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u>	e completed before the q Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> 10.9	uarterly work and will Alig Quarterly Calibration 10.9 .00128-050-042	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> 10.9	enance leak check October 6, 2	024 (Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test	e completed before the q Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> 10.9	Juarterly work and will Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> 10.9	enance leak check October 6, 2	024 (Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char	e completed before the q Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> 10.9 nber Cleaned:	Juarterly work and will Alig Quarterly Calibration 10.9 .00128-050-042 <u>Post maintenance</u> April 1, 2	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> 10.9	enance leak check October 6, 2	024 (Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	e completed before the q Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> 10.9 nber Cleaned:	Juarterly work and will Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance April 1, 2 April 1, 2	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> 10.9 2025 2025 0.0	enance leak check Image: Constraint of the sector of th	024 (Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	e completed before the q Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> 10.9 nber Cleaned: ilter Changed:	Juarterly work and will Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance April 1, 2 April 1, 2 PM w/ HEPA:	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> 10.9 2025 2025 0.0	enance leak check Image: Constraint of the sector of th	024 (Limits)

Notes:

Install calibration completed. Flow adjusted. Nothing else to note.

Calibration by:



Wood Buffalo Environmental Association **CO** Calibration Report

Station Information

Station Name: Calibration Date: 10:42 Start time (MST): Routine Reason:

Athabasca Valley April 25, 2025

Station number: AMS 07 Last Cal Date: March 24, 2025 End time (MST): 14:07

Calibration Standards

Cal Gas Concentration:	2,953	ppm	Cal Gas Exp Date: September 30, 2029
Cal Gas Cylinder #:	T1TWKRN		
Removed Cal Gas Conc:	2,953	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Make/Model:	Teledyne API T750		Serial Number: 282
ZAG Make/Model:	Teledyne API 751H		Serial Number: 321

Analyzer Information

Analyzer make: Analyzer Range:	Thermo 48i-TLE 0 - 50 ppm		Analyzer serial #: 1	1408761381	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.997952	1.002518	Backgd or Offset:	5.450	5.450
Calibration intercept:	0.154017	0.164069	Coeff or Slope:	1.073	1.073

CO As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4932	67.8	40.0	40.2	1.000
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	40.05 NA NA	Prev response: AF Slope: AF Correlation:	40.12	*% change: AF Intercept: * = > +/-5% change initiate	-0.2% es investigation

CO Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4932	67.8	40.0	40.2	0.996
Mid point	4966	33.9	20.0	20.4	0.981
Low point	4983	16.9	10.0	10.3	0.971
As left zero	5000	0.0	0.0	0.1	
As left span	4932	67.8	40.0	40.0	1.001
			Avera	ge Correction Factor	0.983

Notes:

No adjustments made.

Calibration Performed By:

Aswin Sasi Kumar

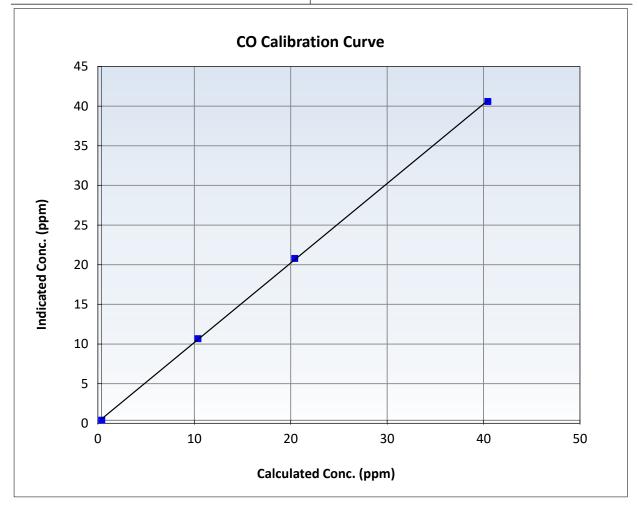


Wood Buffalo Environmental Association CO Calibration Summary

Station Information

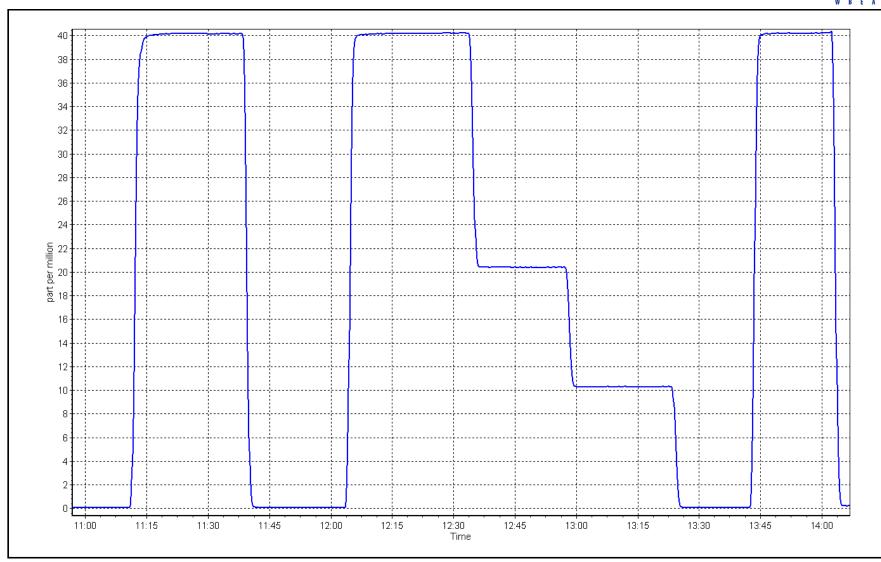
Calibration Date:	April 25, 2025	Previous Calibration:	March 24, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	10:42	End Time (MST):	14:07
Analyzer make:	Thermo 48i-TLE	Analyzer serial #:	1408761381

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999912	≥0.995
40.0 20.0	40.2 20.4	0.9961 0.9815	Slope	1.002518	0.90 - 1.10
10.0	10.3	0.9709	Intercept	0.164069	+/-1.5











WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS08 FORT CHIPEWYAN APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Fort Chipe
Calibration Date:	April 9, 202
Start time (MST):	12:23
Reason:	Routine

wyan 25

Thermo 43i-TLE

0 - 1000 ppb

Station number: AMS08 Last Cal Date: March 17, 2025 End time (MST): 14:38

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	49.84 CC196697	ppm	Cal Gas Exp Date: January 6, 2030
Removed Cal Gas Conc:	49.84	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 3810
Zero Air Gen Model:	Teledyne API T701		Serial Number: 135

Analyzer Information

Serial Number: 1236656116

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.001018	1.005001	Backgd or Offset:	2.0	2.0
Calibration intercept:	0.635300	0.414722	Coeff or Slope:	1.048	1.480

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4920	80.3	800.4	804.4	0.995
Baseline Corr As found: Baseline Corr 2nd AF pt:	804.3 NA	Previous response AF Slope:	801.8	*% change AF Intercept:	0.3%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4920	80.3	800.4	804.7	0.995
Mid point	4960	40.2	400.7	403.3	0.994
Low point	4980	20.1	200.4	201.8	0.993
As left zero	5000	0.0	0.0	0.2	
As left span	4920	80.3	800.4	807.0	0.992
			Averag	ge Correction Factor:	0.994

Notes:

Changed out inlet filter after as founds.

Calibration Performed By:

Sabian V, Jeremy C, Morgan V,

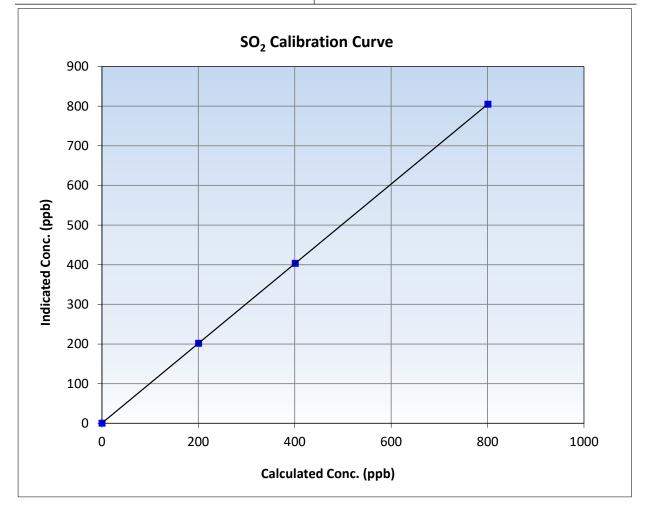


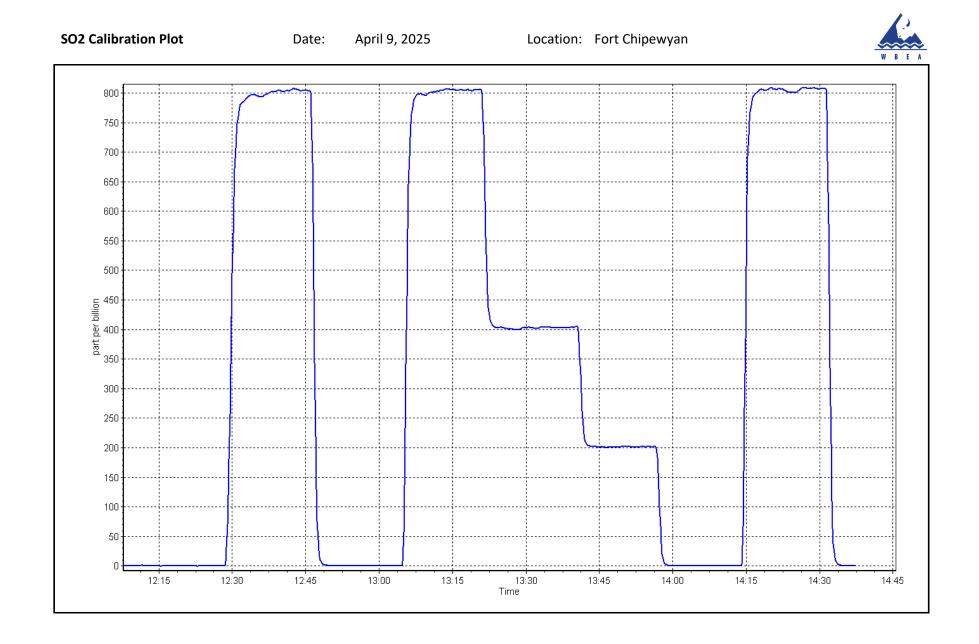
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 17, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS08
Start Time (MST):	12:23	End Time (MST):	14:38
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1236656116

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	1.000000	≥0.995
800.4 400.7	804.7 403.3	0.9946 0.9935	Slope	1.005001	0.90 - 1.10
200.4	201.8	0.9928	Intercept	0.414722	+/-30







Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Fort Chipewyan April 11, 2025 7:38 Routine		Station number: Last Cal Date: End time (MST):	AMS 08 March 10, 202 11:26	5		
		Calibration S	itandards				
Cal Gas Concentration: Cal Gas Cylinder #:	4.84 SA7549	ppm	Cal Gas Exp Date:	August 28, 202	27		
Removed Cal Gas Conc: Removed Gas Cyl #:	4.84 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA			
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3810			
ZAG Make/Model:	Teledyne API T701		Serial Number:	135			
		Analyzer Info	ormation				
Analyzer make:	Thermo 43iQ-TL		Analyzer serial #:	1203169744			
Converter make:	CDN-101		Converter serial #:	580			
Analyzer Range	0 - 100 ppb		Converter Temp:		850	degC	2
	<u>Start</u>	<u>Finish</u>		<u>Start</u>			F
Calibration slope:	1.005392	0.982087	Backgd or Offset:	2.0			
Calibration intercept:	-0.058192	-0.317646	Coeff or Slope:	0.779			(

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.2	
As found High point	4917	82.6	80.0	76.4	1.044
As found Mid point	4959	41.3	40.0	38.0	1.046
As found Low point	4979	20.7	20.0	18.6	1.066
New cylinder response					
Baseline Corr As found:	76.6	Prev response:	80.34	*% change:	-4.9%
Baseline Corr 2nd AF pt:	38.2	AF Slope:	0.959500	AF Intercept:	-0.377228
Baseline Corr 3rd AF pt:	18.8	AF Correlation:	0.999970	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4917	82.6	80.0	78.4	1.020
Mid point	4959	41.3	40.0	38.7	1.033
Low point	4979	20.7	20.0	19.1	1.049
As left zero	5000	0.0	0.0	-0.1	
As left span	4917	82.6	80.0	79.0	1.012
SO2 Scrubber Check	4919.7	80.3	803.0	-0.1	
Date of last scrubber cha	inge:	March 7, 2022		Ave Corr Factor	1.034
Date of last converter ef	ficiency test:	March 15, 2022		103.4%	efficiency

Notes:

Changed inlet filter after as founds. Scrubber check passed no issues. No Adjustments made. Calibration Performed By:

Sabian Voyageur Jeremy Cardinal

<u>Finish</u> 2.0

0.779



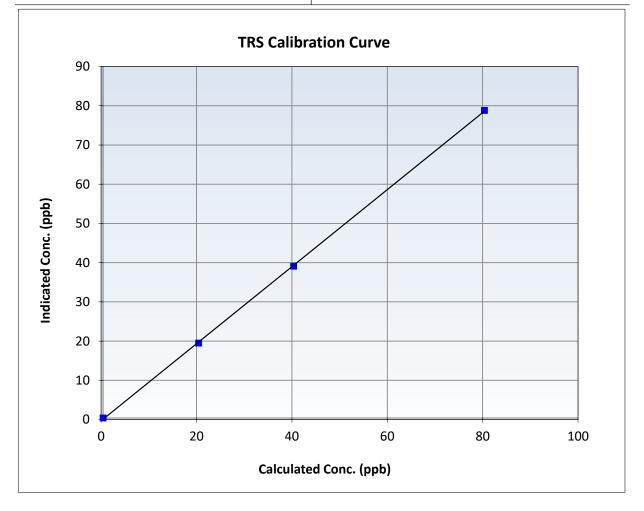
Wood Buffalo Environmental Association

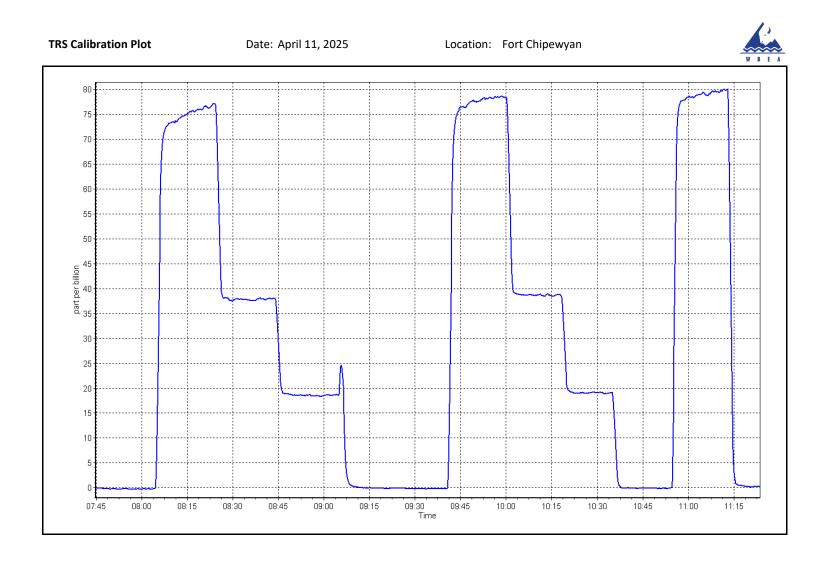
TRS Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 10, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	7:38	End Time (MST):	11:26
Analyzer make:	Thermo 43iQ-TL	Analyzer serial #:	1203169744

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999922	≥0.995
80.0	78.4	1.0199	Slope	0.982087	0.90 - 1.10
40.0	38.7	1.0330	Siope	0.982087	0.90 - 1.10
20.0	19.1	1.0492	Intercept	-0.317646	+/-3







Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Fort Chipewyan April 15, 2025 9:16 Maintenance		Station number: Last Cal Date: End time (MST):	AMS 08 April 11, 2025 11:58			
		Calibration S	itandards				
Cal Gas Concentration: Cal Gas Cylinder #:	4.84 SA7549	ppm	Cal Gas Exp Date:	August 28, 2027			
Removed Cal Gas Conc: Removed Gas Cyl #:	4.84 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA			
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3810			
ZAG Make/Model:	Teledyne API T701		Serial Number:	135			
		Analyzer Info	ormation				
Analyzer make:	Thermo 43iQ-TL		Analyzer serial #:	1203169744			
Converter make:	CDN-101		Converter serial #:	580			
Analyzer Range	0 - 100 ppb		Converter Temp:	850	degC		
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>		
Calibration slope:	0.982087	1.015539	Backgd or Offset:	2.0	2.2		
Calibration intercept:	-0.317646	-0.538270	Coeff or Slope:	0.779	0.853		
TRS As Found Data							

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.3	
As found High point As found Mid point As found Low point New cylinder response	4917	82.6	80.0	72.8	1.094
Baseline Corr As found:	73.1	Prev response:	78.21	*% change:	-7.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:	NA	AF Intercept:	NA
Baseline Corr 3rd AF pt:	NA	AF Correlation:	NA	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.3	
High point	4917	82.6	80.0	80.8	0.990
Mid point	4959	41.3	40.0	39.9	1.002
Low point	4979	20.7	20.0	19.6	1.022
As left zero	5000	0.0	0.0	-0.2	
As left span	4917	82.6	80.0	81.8	0.978
SO2 Scrubber Check	4919.7	80.3	803.0		
Date of last scrubber cha	ange:	March 7, 2022		Ave Corr Factor	1.005
Date of last converter ef	ficiency test:	March 15, 2022		103.4%	efficiency

Notes:

Calibration Performed By:

Morgan Voyageur

Redid calibration span was out of range. Adjusted span.



Wood Buffalo Environmental Association

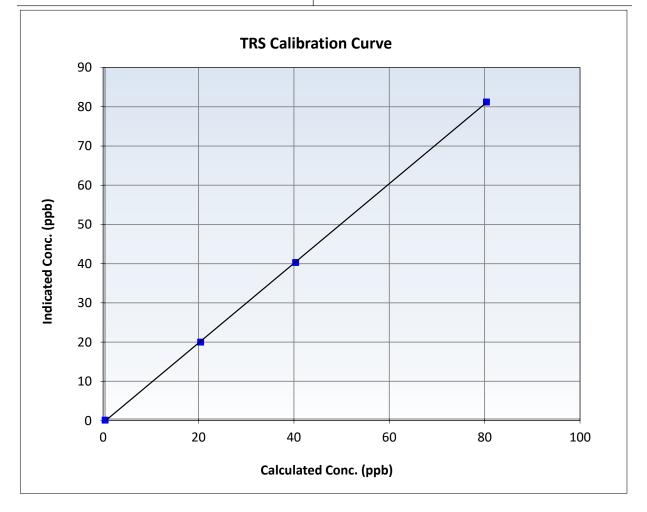
TRS Calibration Summary

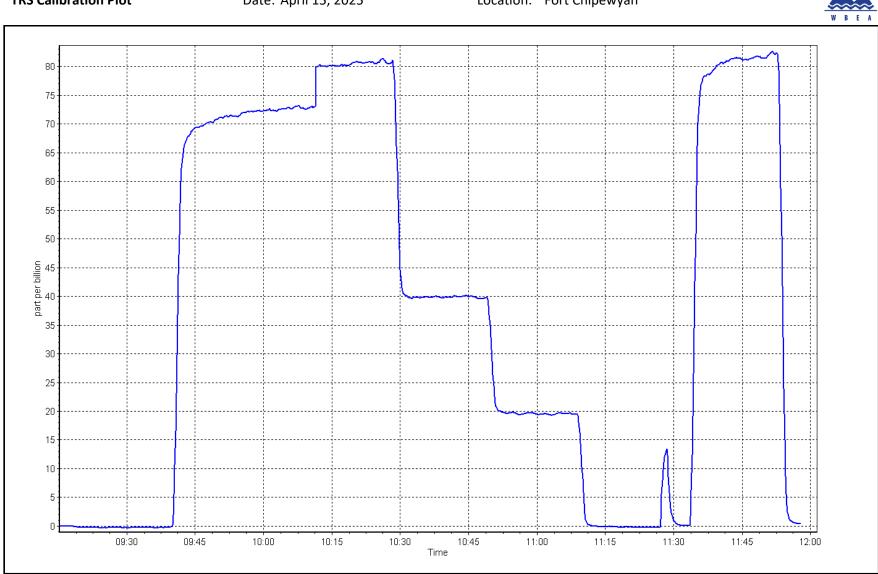
Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	April 11, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	9:16	End Time (MST):	11:58
Analyzer make:	Thermo 43iQ-TL	Analyzer serial #:	1203169744

Carraction factor (Cc/lc)

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	-0.3		Correlation Coefficient	0.999960	≥0.995
80.0	80.8	0.9896	Slope	1.015539	0.90 - 1.10
40.0	39.9	1.0019	Slope	1.015555	0.50 1.10
20.0	19.6	1.0224	Intercept	-0.538270	+/-3





Location: Fort Chipewyan



Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name: Station number:	Fort Chipewyan AMS 08	NO Gas Cylinder #: NOX Cal Gas Conc:	DT0046831	Cal Gas Expiry Date: NO Cal Gas Conc:	January 9,2032
			60.20 ppm		60.00 ppm
Calibration Date:	April 8, 2025	Removed Cylinder #:	DT0046831	Removed Gas Exp Date:	January 9,2032
Last Cal Date:	March 20, 2025	Removed Gas NOX Conc:	60.20 ppm	Removed Gas NO Conc:	60.00 ppm
Start time (MST):	9;11	NOX gas Diff:		NO gas Diff:	
End time (MST):	12:09	Calibrator Model:	Teledyne API T700	Serial Number:	3810
Reason:	Removal	ZAG make/model:	Teledyne API T701H	Serial Number:	135

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.5	-0.2	-0.2		
AF High point	4933	66.7	803.1	800.4	2.7	781.2	778.1	3.1	1.0273	1.0285
AF Mid point	4967	33.3	400.9	399.6	1.3	392.5	389.4	3.1	1.0200	1.0256
AF Low point New cyl resp	4983	16.7	201.1	200.4	0.7	198.2	195.1	3.1	1.0117	1.0261
Previous Respo	onse NO _x =	801.8 ppb	NO = 799.3	ppb	* = > +/-5	% change initiates i	investigation	*Percent Chan	ge NO _x =	-2.6%
Baseline Corr 1	lst pt NO _x =	781.7 ppb	NO = 778.3	ppb	<u>As Four</u>	nd Statistics		*Percent Chan	ge NO =	-2.7%
Baseline Corr 2	2nd pt NO _x =	393.0 ppb	NO = 389.6	ppb	As foun	d NO _x r ² :	0.999975	Nx SI: 0.9724	190 Nx Int:	1.231
Baseline Corr 3	Brd pt NO _x =	198.7 ppb	NO = 195.3	ppb	As foun	d NO r ² :	0.999998	NO SI: 0.9722	293 NO Int:	0.194
					As foun	d $NO_2 r^2$:	0.999986	NO2 SI: 0.9612	115 NO ₂ Int:	0.164

As Found GPT Calibration Data

					Baseline Adjusted NO2	
O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Converter Efficiency <i>Limit = 96-104%</i>
As Found GPT zero			0.0	-0.2		
As found high GPT point	773.4	377.0	399.1	383.3	1.0411	96.0%
As found mid GPT point	773.4	575.3	200.8	194.0	1.0349	96.6%
As found low GPT point	773.4	669.7	106.4	102.3	1.0398	96.2%



Analyzer Information

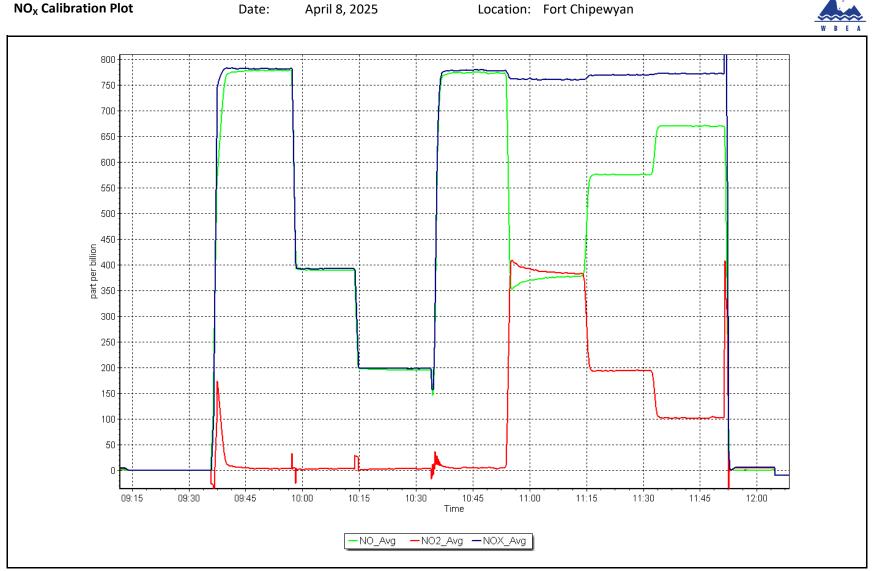
Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42iQ	Serial Number: 124	00232072			l Clanau	<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					Il Slope:	0.996890 1.194493	
	Start Fi	Instrument Settings inish	Start	Finish	NO _X Ca	ll Offset:	0.997843	
NO coeff or slope:	0.727	NO bkgnd or offse		FIIIISII		Offset:	0.574281	
NOX coeff or slope:	0.996	NOX bkgnd or offse				Il Slope:	0.971567	
NO2 coeff or slope:	1.000	Reaction cell Pres				ll Offset:	1.371312	
NOZ COEN OF SIOPE.	1.000		5. 115.7			il Oliset.	1.5/1512	
		<u> </u>	Dilution Calibrati	on Data				
Set Point	on flow rate Source gas flow sccm) rate (sccm)	Calculated NOx Calculated NO concentration concentration (ppb) (Cc) (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero High point Mid point Low point As left zero As left span					Average C	orrection Facto	r	
			GPT Calibration	<u>n Data</u>				
O3 Setpoint (pp	b) Indicated NO R concentratio	•	Calculated NO2 conc (ppb) (Cc)		ndicated NO2 ntration (ppb) (Ic)	NO2 Correction f <i>Limit = 0.95</i>		verter Efficiency mit = 96-104%
Cal zero High GPT point Mid GPT point Low GPT point				Average Co	prrection Factor			
Notes:	No adjustments or ma	aintenance performed.						

Calibration Performed By: Sabian Voyageur, Jermey Cardinal, Morgan Voyageur.



2



Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

	-					_				
Station Name: Station number: Calibration Date: Last Cal Date: Start time (MST): End time (MST): Reason:	Fort Chipewy AMS 08 April 9, 2025 N/A 7:53 12:07 Install			NOX Ca Remov Remov NOX ga Calibra	s Cylinder #: al Gas Conc: red Cylinder #: red Gas NOX Con as Diff: tor Model: ake/model:	60.20 DT00 c: 60.20 Teledyne	46831	Cal Gas Expiry NO Cal Gas Cor Removed Gas I Removed Gas I NO gas Diff: Serial Number: Serial Number:	nc: 60.00 Exp Date: January 9 NO Conc: 60.00 3810	ppm 9,2032
				<u>As Four</u>	nd Dilution Cali	bration Data				
Set Point		ce gas flow se (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero AF High point AF Mid point AF Low point New cyl resp										
Previous Response	NO _x = NA	ppb	NO = NA	ppb	* = > +/-59	% change initiates i	nvestigation	*Percent Chan	ge NO _x =	NA
Baseline Corr 1st pt	NO _x = NA	ppb	NO = NA	ppb	<u>As Foun</u>	d Statistics		*Percent Chan	ge NO =	NA
Baseline Corr 2nd pt	NO _x = NA	ppb	NO = NA	ppb	As foun	Λ.		Nx SI:	Nx Int:	
Baseline Corr 3rd pt	NO _X = NA	ppb	NO = NA	ppb	As foun As foun			NO SI: NO2 SI:	NO Int: NO ₂ Int:	
				As Fo	und GPT Calibi	ation Data				
								Baseline Adjust	ted NO2	

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero))	Converter Efficiency <i>Limit = 96-104%</i>
					Limit = 0.90 - 1.10	

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42iQ		Serial Number: 1212431	3137			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:		1.000364
			Instrument Settings			NO _x Cal Offset:		-0.525927
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:		1.002985
NO coeff or slope:		1.023	NO bkgnd or offset:		1.5	NO Cal Offset:		-2.025916
NOX coeff or slope:		0.993	NOX bkgnd or offset:		1.5	NO ₂ Cal Slope:		1.001492
NO2 coeff or slope:		1.000	Reaction cell Press:		113.7	NO ₂ Cal Offset:		1.255111

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	-0.8	-0.9	0.0		
High point	4933	66.7	803.1	800.4	2.7	802.9	801.5	1.4	1.0003	0.9987
Mid point	4967	33.3	400.9	399.6	1.3	400.2	397.8	2.4	1.0018	1.0045
Low point	4983	16.7	201.1	200.4	0.7	201.2	198.1	3.0	0.9993	1.0116
As left zero	5000	0.0	0.0	0.0	0.0	-0.6	-0.7	0.1		
As left span	4933	66.7	803.1	393.4	409.7	804.8	393.4	411.3	0.9979	1.0000
							Average Co	orrection Factor	1.0005	1.0049

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.0		
High GPT point	798.8	389.6	411.9	412.9	0.9975	100.3%
Mid GPT point	798.8	598.6	202.9	205.7	0.9862	101.4%
Low GPT point	798.8	695.7	105.8	108.0	0.9793	102.1%
				Average Correction Factor	0.9877	101.3%

Notes: Adjustments made to span. Changed filter before the start of the calibration.

Calibration Performed By: Sabian V, Jermey C, Morgan V.

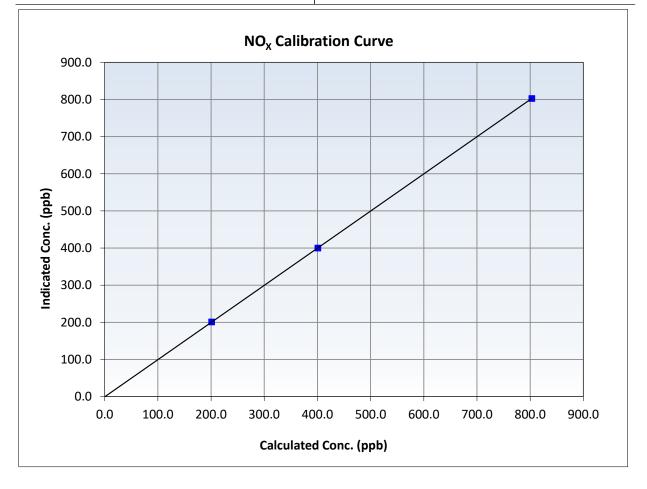


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	N/A
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	7:53	End Time (MST):	12:07
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12124313137

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.8		Correlation Coefficient	0.999999	≥0.995
803.1 400.9	802.9 400.2	1.0003 1.0018	Slope	1.000364	0.90 - 1.10
201.1	201.2	0.9993	Intercept	-0.525927	+/-20



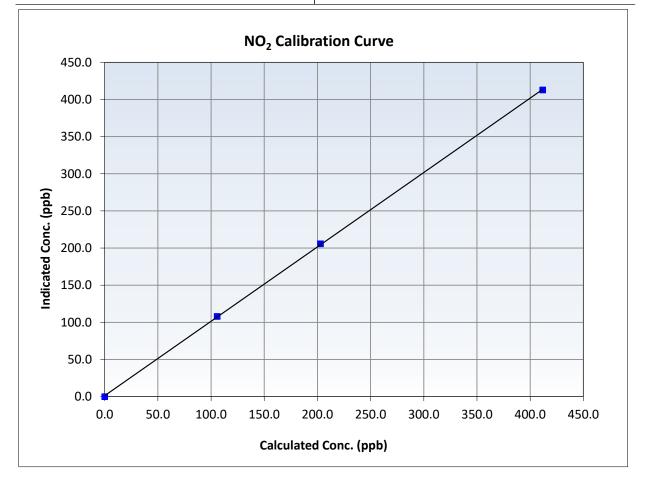


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	N/A
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	7:53	End Time (MST):	12:07
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12124313137

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999951	≥0.995
411.9 202.9	412.9 205.7	0.9975 0.9862	Slope	1.001492	0.90 - 1.10
105.8	108.0	0.9793	Intercept	1.255111	+/-20



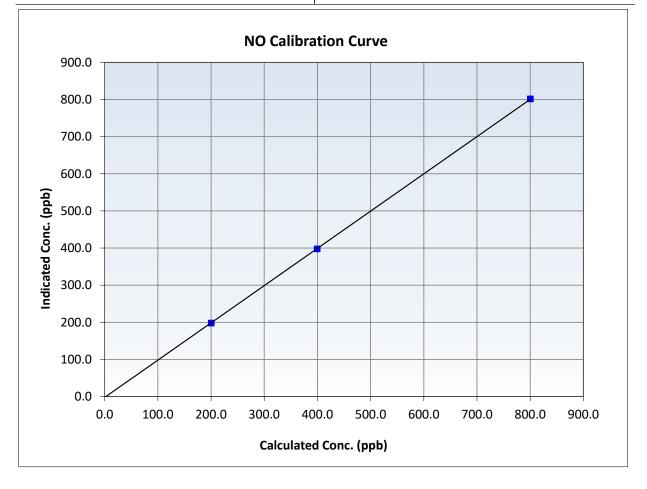


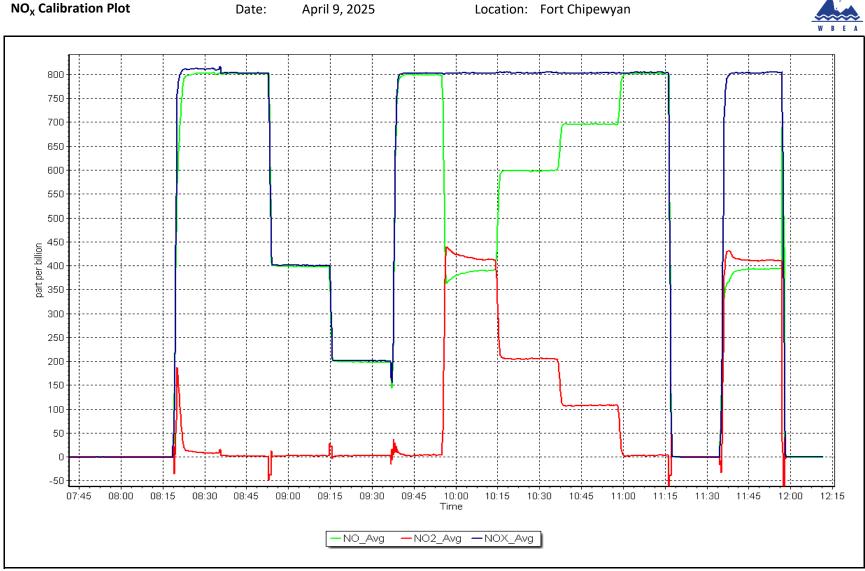
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	N/A
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	7:53	End Time (MST):	12:07
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12124313137

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.9		Correlation Coefficient	0.999990	≥0.995
800.4 399.6	801.5 397.8	0.9987 1.0045	Slope	1.002985	0.90 - 1.10
200.4	198.1	1.0116	Intercept	-2.025916	+/-20





NO_x Calibration Plot

April 9, 2025

Location: Fort Chipewyan





Calibration intercept:

Wood Buffalo Environmental Association O₃ Calibration Report

Coeff or Slope:

1.005

Station Information

Station Name: Calibration Date:	Fort Chipewyan Station number: AMS 08 April 7, 2025 Last Cal Date: March 11, 2			
Start time (MST):	12:11		End time (MST): 15:	,
Reason:	Routine		· · ·	
		Calibration St	andards	
O3 generation mode:	Photometer			
Calibrator Make/Model:	Teledyne API T700		Serial Number: 381	.0
ZAG Make/Model:	Teledyne API T701		Serial Number: 135	j
		Analyzer Info	rmation	
Analyzer make:	Thermo 49i		Analyzer serial #: 115	2220026
Analyzer Range	0 - 500 ppb			
	<u>Start</u>	<u>Finish</u>		<u>Start</u>
Calibration slope:	0.993514	0.986800	Backgd or Offset:	-0.3

0.260000

0.060000

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.3	
As found High point As found Mid point As found Low point	5000	968.7	400.0	395.4	1.012
Baseline Corr As found: Baseline Corr 2nd AF pt:	395.1 NA	Previous response AF Slope:		*% change AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.4	
High point	5000	968.7	400.0	395.1	1.012
Mid point	5000	820.5	200.0	197.4	1.013
Low point	5000	720.0	100.0	98.9	1.011
As left zero	5000	0.0	0.0	0.2	
As left span	5000	968.7	400.0	396.1	1.010
			Averag	e Correction Factor	1.012

Notes:

Changed Filter after asfound. No adjustments needed.

Calibration Performed By:

Sabian Voyageur, Jermey Cardinal, Morgan Voyageur.

Finish -0.3

1.005

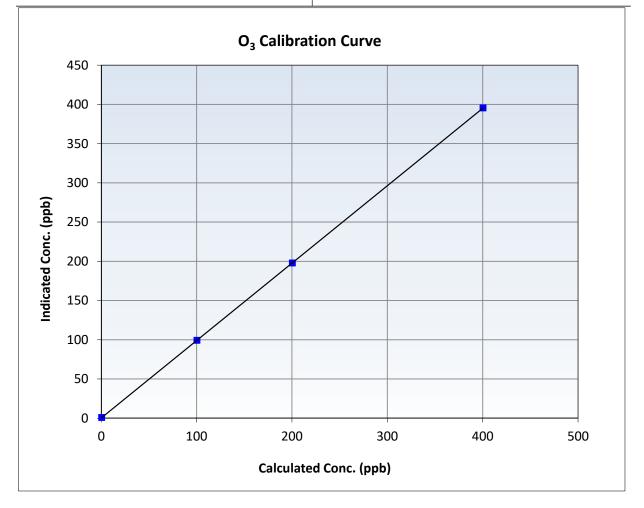


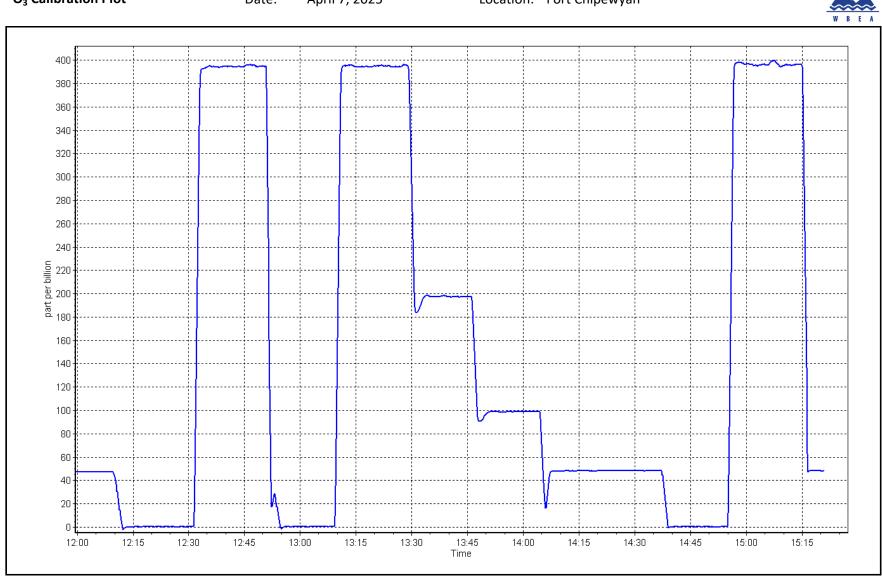
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 11, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	12:11	End Time (MST):	15:22
Analyzer make:	Thermo 49i	Analyzer serial #:	1152220026

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999999	≥0.995
400.0	395.1	1.0124	Slope	0.986800	0.90 - 1.10
200.0 100.0	197.4 98.9	1.0132 1.0111	Intercept	0.260000	+/- 5





Location: Fort Chipewyan



Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-20
		Station Informatio	n		
Station Name:	Fort Chipewyan		Station number: AN	/IS 08	
Calibration Date:	April 25, 2025		Last Cal Date: Ma		
Start time (MST):	8:10		End time (MST): 8:4	13	
Analyzer Make:	Teledyne API T640		S/N: 31	9	
Particulate Fraction:	PM2.5				
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 14	719	
Temp/RH standard:	Alicat FP-25BT		S/N: 14	719	
		Monthly Calibration	Test		
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	9.30	8.75	9.30		+/- 2 °C
P (mmHg)	736.30	738.5	736.30		+/- 10 mmH
Flow (LPM)	5.01	4.74	5.02		+/- 0.25 LPN
PW% (pump)	49%		49%		>80%
Zero Verification	PM w/o HEPA:	5.10	PM w/ HEPA:	0.00	<0.2 ug/m3
		Quarterly Calibration	Test		
	Refractive Index:	10.90	Expiry Date:	10-Jun-24	1
SPAN DUST	Lot No.:	100128-050-042			
Parameter	<u>As found</u>	Post maintenance	<u>As left</u>	Adjusted	(Limits)
PMT Peak Test	NA	10.80	10.80		+/- 0.5
Date Optical Chan	nber Cleaned:	March 11	. 2025		
Date Disposable F	-	September			
Post- maintenance Zero Ve	rification:	PM w/ HEPA: _	0.00	<0.2 ug/m3	
		Annual Maintenan	се		
Date Sample Tu	be Cleaned:	August 29	, 2024		
Date RH/T Sens	-	August 29			
		No a	idjustment made		

Notes:

No adjustment made

Calibration by:

Jeremy Cardinal, Morgan Voyageur



Wood Buffalo Environmental Association **CO** Calibration Report

Station Information

Station Name: Calibration Date: 11:57 Start time (MST): Reason: Routine

Fort Chipewyan April 10, 2025

Station number: AMS 08 Last Cal Date: March 17, 2025 End time (MST): 14:37

Calibration Standards

Cal Gas Concentration:	3,030	ppm	Cal Gas Exp Date: December 1, 2028
Cal Gas Cylinder #:	ALM014846		
Removed Cal Gas Conc:	3,030	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Make/Model:	Teledyne API T700)	Serial Number: 3810
ZAG Make/Model:	Teledyne API T701	.Н	Serial Number: 135

Analyzer Information

Analyzer make: Analyzer Range:	Teledyne API T300 0 - 50 ppm		Analyzer serial #: 3505		
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.998216	0.998612	Backgd or Offset:	-0.016	-0.016
Calibration intercept:	0.172906	0.100910	Coeff or Slope:	1.003	1.003

CO As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4934	66.7	40.4	40.5	1.000
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	40.42 NA NA	Prev response: AF Slope: AF Correlation:	40.52	*% change: AF Intercept: * = > +/-5% change initiate	-0.2% es investigation

CO Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4934	66.7	40.4	40.4	1.000
Mid point	4966.7	33.3	20.2	20.3	0.992
Low point	4983.3	16.7	10.1	10.2	0.989
As left zero	5000	0.0	0.0	0.2	
As left span	2960	40.0	40.4	40.2	1.004
			Avera	ge Correction Factor	0.994

Notes:

Changed inlet filter after as found. No Adjustments made

Calibration Performed By:

Sabian V, Jeremy C,

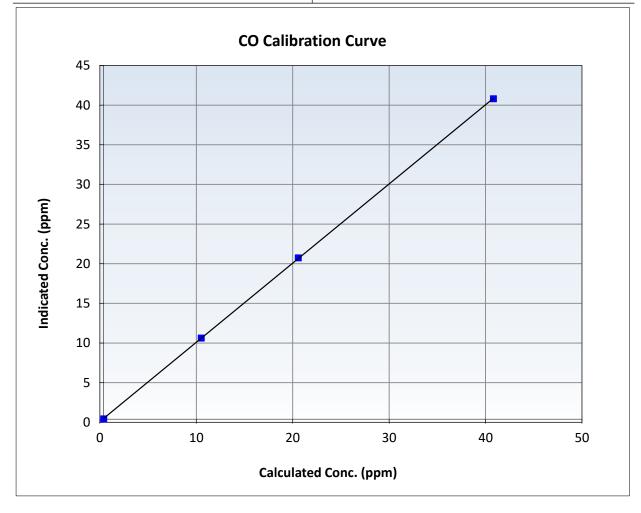


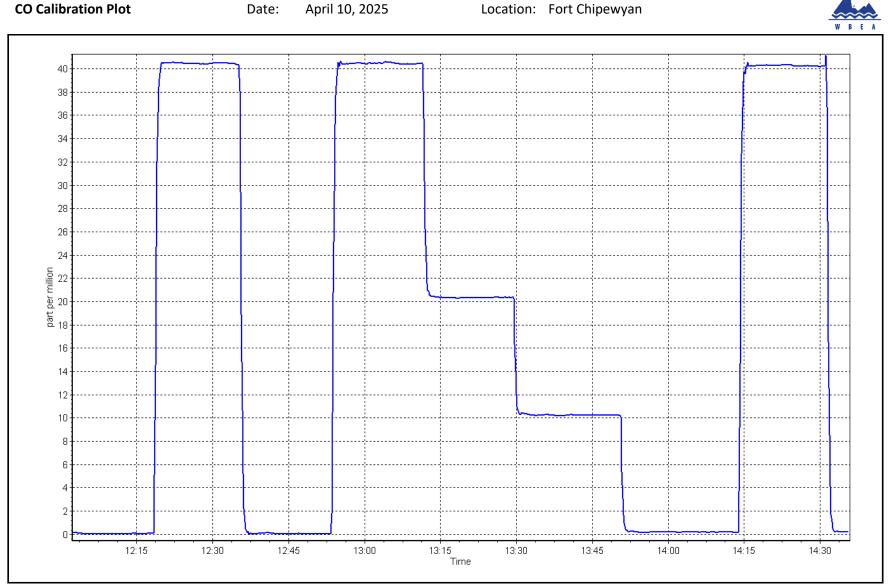
Wood Buffalo Environmental Association CO Calibration Summary

Station Information

Calibration Date:	April 10, 2025	Previous Calibration:	March 17, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	11:57	End Time (MST):	14:37
Analyzer make:	Teledyne API T300	Analyzer serial #:	3505

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999984	≥0.995
40.4 20.2	40.4 20.3	1.0001 0.9921	Slope	0.998612	0.90 - 1.10
10.1	10.2	0.9893	Intercept	0.100910	+/-1.5







Wood Buffalo Environmental Association **CO₂ Calibration Report**

Station Information

Station Name:	Fort Chipe
Calibration Date:	April 10, 20
Start time (MST):	8:19
Reason:	Routine

ewyan 025

Station number: AMS 08 Last Cal Date: March 19, 2025 End time (MST): 11:37

Calibration Standards

Cal Gas Concentration:	60,220	ppm	Cal Gas Exp Date: December 1, 2028
Cal Gas Cylinder #:	ALM014846		
Removed Cal Gas Conc:	60,220	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Make/Model:	Teledyne API T700		Serial Number: 3810
N2 Gen Make/Model:	Peak Scientific		Serial Number: 135

Analyzer Information

Analyzer make: Teledyne API T360 Analyzer serial #: 289 0 - 2,000 ppm Analyzer Range <u>Start</u> <u>Finish</u> <u>Finish</u> <u>Start</u> Calibration slope: 0.998354 1.004061 Backgd or Offset: -0.014 -0.014 Calibration intercept: -4.560000 -5.320000 Coeff or Slope: 1.033 1.033

CO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (lc)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	3000	0.0	0.0	0.1	
As found High Point As found Mid Point As found Low Point New cylinder response	2920	80.0	1605.9	1608.0	0.999
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	1607.9 NA NA	Prev response: AF Slope: AF Correlation:	1598.7	*% change: AF Intercept: * = > +/-5% change initiat	0.6% es investigation

CO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>
Calibrator zero	3000	0.0	0.0	0.4	
High point	2920	80.0	1605.9	1613.7	0.995
Mid point	2960	40.0	802.9	786.7	1.021
Low point	2980	20.0	401.5	399.6	1.005
As left zero	3000	0.0	0.0	0.2	
As left span	2960	40.0	802.9	787.8	1.019
			Avera	ge Correction Factor	1.007

Notes:

Changed inlet filter after as found, no adjustments made

Sabian V, Jeremy C

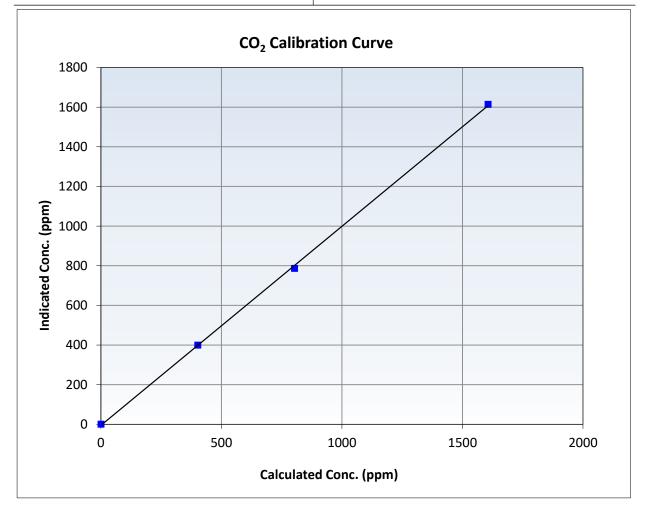


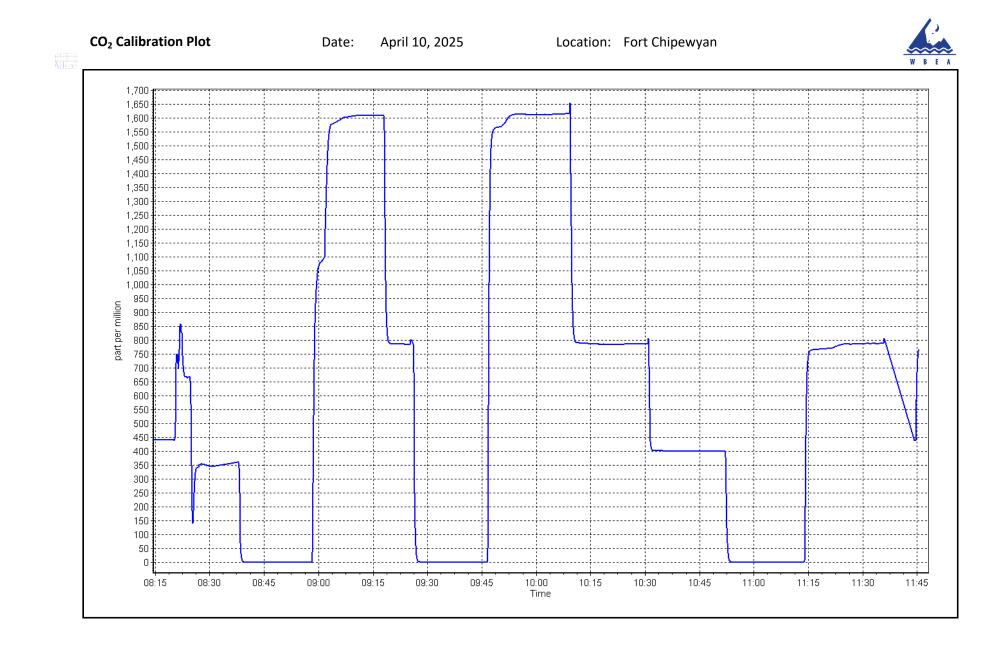
Wood Buffalo Environmental Association CO₂ Calibration Summary

Station Information

Calibration Date	April 10, 2025	Previous Calibration	March 19, 2025
Station Name	Fort Chipewyan	Station Number	AMS 08
Start Time (MST)	8:19	End Time (MST)	11:37
Analyzer make	Teledyne API T360	Analyzer serial #	289

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999802	≥0.995
1605.9 802.9	1613.7 786.7	0.9951 1.0206	Slope	1.004061	0.90 - 1.10
401.5	399.6	1.0047	Intercept	-5.3	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS09 BARGE LANDING APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Barge Landing April 7, 2025 9:09 Routine		Station number: AN Last Cal Date: Ma End time (MST): 12	arch 6, 2025	
		Calibration	<u>Standards</u>		
Cal Gas Concentration: Cal Gas Cylinder #:	50.56 CC705748	ppm	Cal Gas Exp Date: Oc	tober 9, 2032	
Removed Cal Gas Conc:	50.56	ppm	Rem Gas Exp Date: NA		
Removed Gas Cyl #:	NA		Diff between cyl:		
Calibrator Model:	API T700		Serial Number: 38	12	
Zero Air Gen Model:	APIT701		Serial Number: 48	88	
		Analyzer Inf	ormation		
Analyzer make:	Thermo 43i		Serial Number: 11	18148498	
Analyzer Range:	0 - 1000 ppb				
Calibration slope: Calibration intercept:	<u>Start</u> 0.999602 -0.799117	<u>Finish</u> 1.006817 -0.598200	Backgd or Offset: Coeff or Slope:	<u>Start</u> 11.4 0.998	<u>Finish</u> 11.5 1.010

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4921	79.1	799.8	792.9	1.009
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	792.8 NA NA	Previous response AF Slope: AF Correlation:	798.7	*% change AF Intercept: * = > +/-5% change initiate	-0.7% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4921	79.1	799.8	805.0	0.994
Mid point	4961	39.5	399.4	401.4	0.995
Low point	4980	19.8	200.2	200.0	1.001
As left zero	5000	0.0	0.0	0.1	
As left span	4921	79.1	799.8	806.4	0.992
			Averag	ge Correction Factor:	0.997

Notes:

Inlet filter changed after as founds. Adjusted span only.

Calibration Performed By:

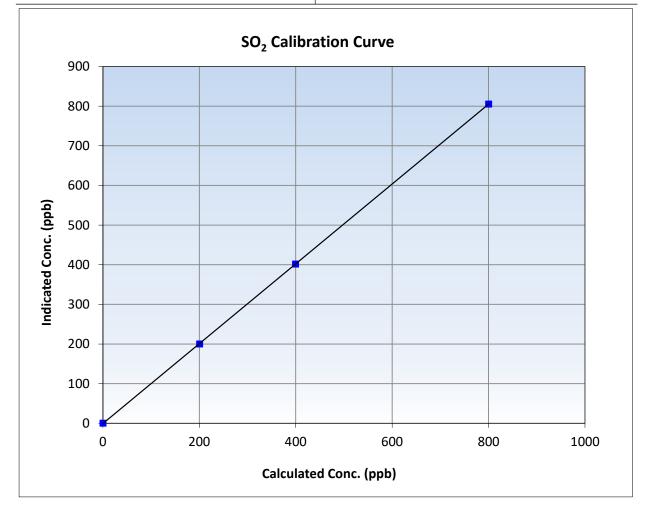


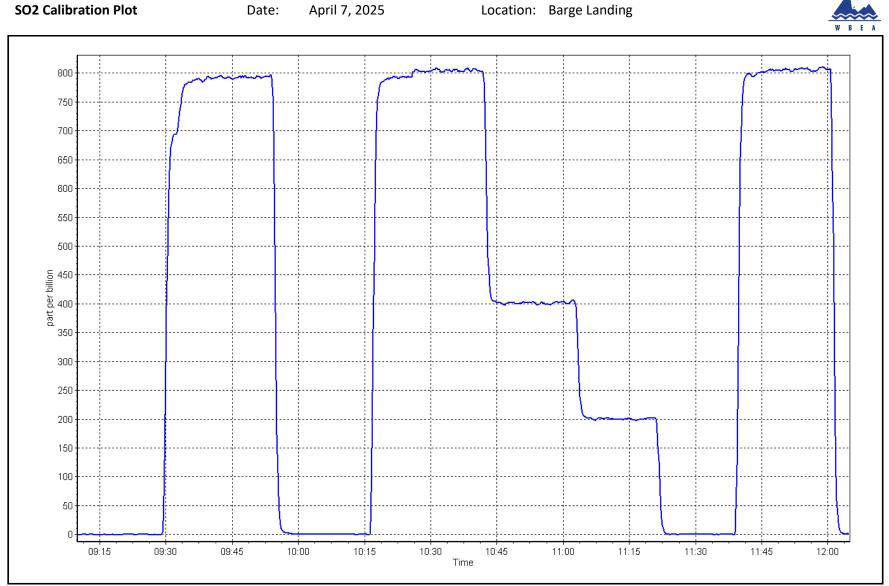
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 6, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:09	End Time (MST):	12:05
Analyzer make:	Thermo 43i	Analyzer serial #:	1118148498

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999995	≥0.995
799.8 399.4	805.0 401.4	0.9936 0.9950	Slope	1.006817	0.90 - 1.10
200.2	200.0	1.0011	Intercept	-0.598200	+/-30







Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Barge Landing April 1, 2025 8:54 Routine		Station number: Last Cal Date: End time (MST):	AMS 09 March 24, 2025 12:56	
		Calibration	<u>Standards</u>		
Cal Gas Concentration:	5.17	ppm	Cal Gas Exp Date:	August 22, 2026	i
Cal Gas Cylinder #:	CC511415				
Removed Cal Gas Conc:	5.17	ppm	Rem Gas Exp Date:	NA	
Removed Gas Cyl #:	NA		Diff between cyl:		
Calibrator Make/Model:	API T700		Serial Number:	3812	
ZAG Make/Model:	API T701		Serial Number:	4888	
		Analyzer In	formation		
Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	12426335708	
Converter make:	CDN-101		Converter serial #:		
Analyzer Range	0 - 100 ppb		Converter Temp:		330 degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.999979	0.999833	Backgd or Offset	2.130	2.130
Calibration intercept:	-0.280625	0.099474	Coeff or Slope	1.069	1.069

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.8	
As found High point	4923	77.4	80.0	72.3	1.095
As found Mid point	4961	38.7	40.0	35.8	1.094
As found Low point	4981	19.3	20.0	17.6	1.085
New cylinder response					
Baseline Corr As found:	73.1	Prev response:	79.76	*% change:	-9.1%
Baseline Corr 2nd AF pt:	36.6	AF Slope:	0.912612	AF Intercept:	-0.722238
Baseline Corr 3rd AF pt:	18.4	AF Correlation:	0.999994	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4923	77.4	80.0	80.1	0.999
Mid point	4961	38.7	40.0	40.1	0.998
Low point	4981	19.3	20.0	20.2	0.988
As left zero	5000	0.0	0.0	0.1	
As left span	4923	77.4	80.0	80.5	0.994
SO2 Scrubber Check	4920	80.2	802.0	0.1	
Date of last scrubber chan	ge:			Ave Corr Factor	0.995

Date of last converter efficiency test:

Notes:

Low span response probably due to drift. Diagnostics seems fine. Adjusted zero and span.

Calibration Performed By: Sean Bala



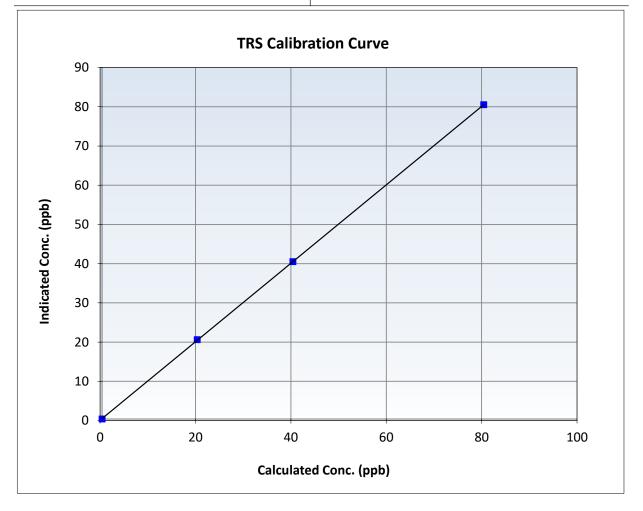
Wood Buffalo Environmental Association

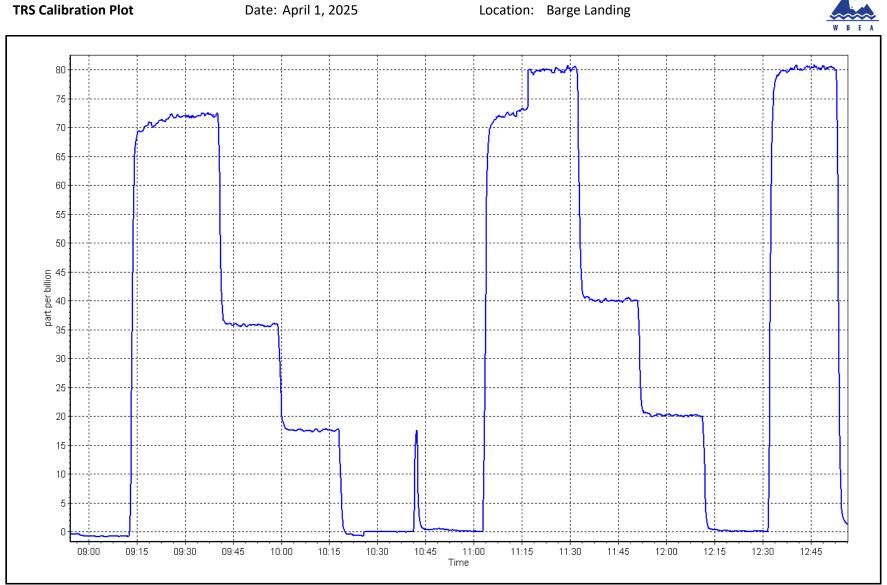
TRS Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 24, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	8:54	End Time (MST):	12:56
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	12426335708

Calculated concentration (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999991	≥0.995
80.0 40.0	80.1 40.1	0.9993 0.9982	Slope	0.999833	0.90 - 1.10
20.0	20.2	0.9881	Intercept	0.099474	+/-3





Location: Barge Landing



Calibrator Model:

Zero Air Gen model:

Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Serial Number:

Serial Number:

Analyzer serial #: 1193585650

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Barge LandingStation numberApril 5, 2025Last Cal Date12:05End time (MST)InstallInstall		March 6, 2025	
Calibration Standards				
Gas Cert Reference:	CC705748	Cal Gas Expiry Date:	October 9, 2032	
CH4 Cal Gas Conc.	505.6 ppm	CH4 Equiv Conc.	1068.8 ppm	
C3H8 Cal Gas Conc.	204.8 ppm			
Removed Gas Cert:	CC151285	Removed Gas Expiry:	January 5, 2025	
Removed CH4 Conc.	505.6 ppm	CH4 Equiv Conc.	1068.8 ppm	
Removed C3H8 Conc.	204.8 ppm	Diff between cyl (THC):		
Diff between cyl (CH ₄)	:	Diff between cyl (NM):		

API T700

APIT701

Analyzer Information

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	N/A	2.31E-04	NMHC SP Ratio:	N/A	4.90E+05
CH4 Retention time:	N/A	15.2	NMHC Peak Area:	N/A	181998
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero					
As found High point					
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	NA	Prev response	NA	*% change	NA
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.1	16.91	16.96	0.997
Mid point	4961	39.5	8.44	8.46	0.998
Low point	4980	19.8	4.23	4.22	1.004
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	16.91	17.05	0.991
			Aver	age Correction Factor	1.000

Install calibration. Span adjusted.

3812

5613



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

					Baseline Adjusted
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	-
As found zero As found High point As found Mid point As found Low point New cylinder response					
Baseline Corr AF: Baseline Corr 2nd AF:	NA NA	Prev response AF Slope:	NA	*% change AF Intercept:	NA
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation
		NMHC Calib	ration Data		
	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated concentration	Correction factor (Cc/lo
Set Point	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (lc)	Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
ligh point	4921	79.1	8.91	8.96	0.995
/id point	4961	39.5	4.45	4.48	0.994
ow point	4980	19.8	2.23	2.24	0.994
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	8.91	9.03	0.987
			Avera	age Correction Factor	0.994
Set Point	(sccm)	Source gas flow rate (sccm)	(ppm) (Cc)	(ppm) (Ic)	AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point As found Low point New cylinder response					
Baseline Corr AF:	NA	Prev response	NA	*% change	NA
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation
		CH4 Calibra	ation Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/I Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
ligh point	4921	79.1	8.00	8.01	0.998
Aid point	4961	39.5	3.99	3.98	1.004
ow point	4980	19.8	2.00	1.97	1.015
s left zero	5000	0.0	0.00	0.00	
s left span	4921	79.1	8.00	8.02	0.997
			Avera	age Correction Factor	1.006
		Calibration	Statistics		
		<u>Start</u>		<u>Finish</u>	
THC Cal Slope:		N/A		1.003755	
THC Cal Offset:		N/A		-0.014363	
CH4 Cal Slope:		N/A		1.002645	
CH4 Cal Offset:		N/A		-0.017384	
NIMHC Cal Slope		N/A		1 005/07	

Calibration Performed By:

NMHC Cal Slope:

NMHC Cal Offset:

N/A Aswin Sasi Kumar

N/A

-0.017384 1.005407

0.001219

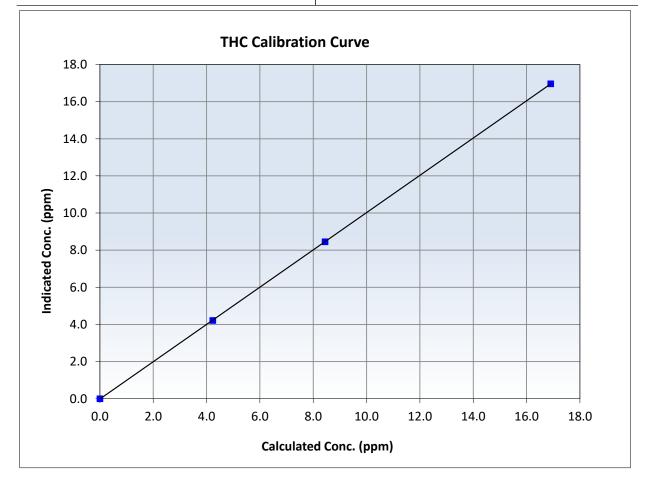


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 5, 2025	Previous Calibration:	March 6, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	12:05	End Time (MST):	14:50
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999997	≥0.995
16.91 8.44	16.96 8.46	0.9968 0.9983	Slope	1.003755	0.90 - 1.10
4.23	4.22	1.0037	Intercept	-0.014363	+/-0.5



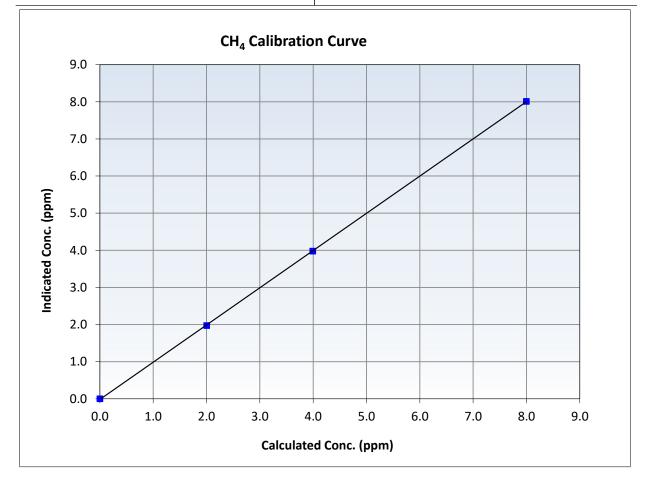


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 5, 2025	Previous Calibration:	March 6, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	12:05	End Time (MST):	14:50
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999979	≥0.995
8.00	8.01	0.9984	Slope	1.002645	0.90 - 1.10
3.99	3.98	1.0040	Slope	1.002045	0.50 1.10
2.00	1.97	1.0148	Intercept	-0.017384	+/-0.5



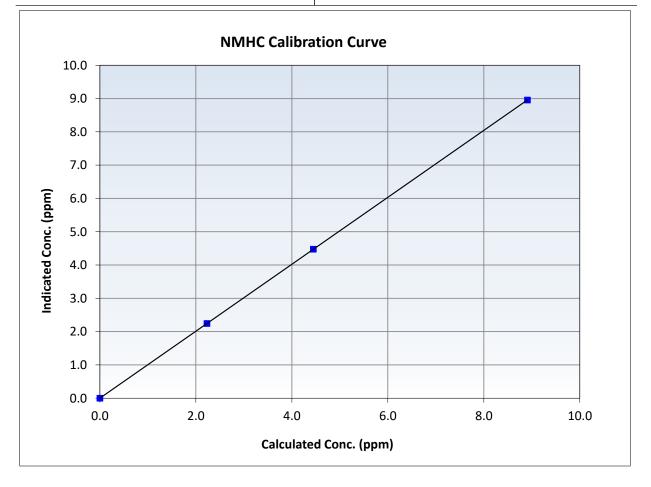


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

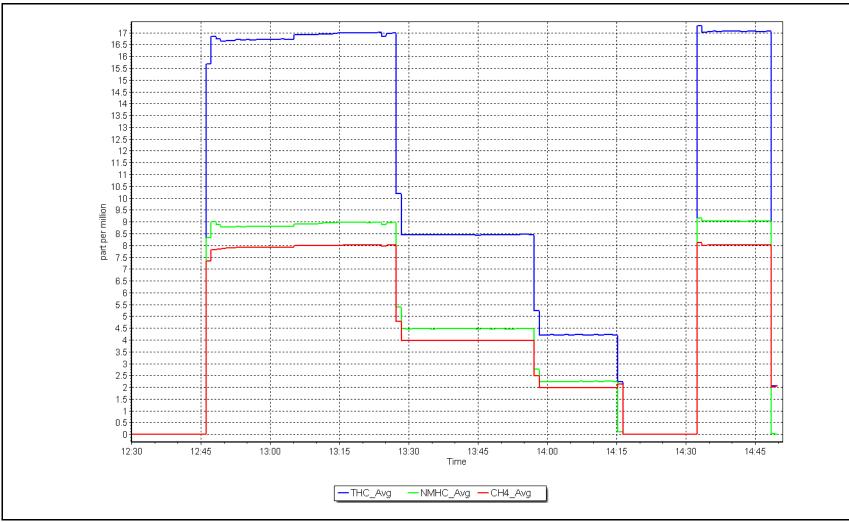
Calibration Date:	April 5, 2025	Previous Calibration:	March 6, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	12:05	End Time (MST):	14:50
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	1.000000	≥0.995
8.91	8.96	0.9946	Slope	1.005407	0.90 - 1.10
4.45	4.48	0.9939	Slope	1.005407	0.50 1.10
2.23	2.24	0.9939	Intercept	0.001219	+/-0.5



NMHC Calibration Plot







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Barge Landing	Station number: AMS 09
Calibration Date:	April 21, 2025	Last Cal Date: April 5, 2025
Start time (MST):	6:25	End time (MST): 8:40
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	CC705748	Cal Gas Expiry Date:	October 9, 2032
CH4 Cal Gas Conc.	505.6 ppm	CH4 Equiv Conc.	1068.8 ppm
C3H8 Cal Gas Conc.	204.8 ppm		
Removed Gas Cert:		Removed Gas Expiry:	
Removed CH4 Conc.	505.6 ppm	CH4 Equiv Conc.	1068.8 ppm
Removed C3H8 Conc.	204.8 ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):		Diff between cyl (NM):	
Calibrator Model:	API T700	Serial Number:	3812
Zero Air Gen model:	APIT701	Serial Number:	5613
	Ana	lyzer Information	
Analyzer make: Theri	mo 55i	Analyzer serial #: 11935	585650

THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	N/A	2.31E-04	NMHC SP Ratio:	N/A	4.90E+00
CH4 Retention time:	N/A	15.2	NMHC Peak Area:	N/A	181998
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	79.1	16.91	16.05	1.053
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.05	Prev response	16.96	*% change	-5.6%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.1	16.91	17.01	0.994
Mid point	4961	39.5	8.44	8.41	1.004
Low point	4980	19.8	4.23	4.15	1.020
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	16.91	16.85	1.003
			Avera	ge Correction Factor	1.006

Notes:

CH4 channel baseline dipping. RT has moved. Span adjusted.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic· AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	79.1	8.91	8.12	1.098
Baseline Corr AF: Baseline Corr 2nd AF:	8.12 NA	Prev response AF Slope:	8.96	*% change AF Intercept:	-10.4%
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.1	8.91	9.00	0.991
Mid point	4961	39.5	4.45	4.45	0.999
Low point	4980	19.8	2.23	2.19	1.018
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	8.91	8.92	0.999
			Avera	ge Correction Factor	1.002

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(lo AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	79.1	8.00	7.94	1.008
As found Mid point As found Low point					
New cylinder response					
Baseline Corr AF:	7.94	Prev response	8.00	*% change	-0.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	ates investigation

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.1	8.00	8.02	0.998
Mid point	4961	39.5	3.99	3.96	1.010
Low point	4980	19.8	2.00	1.96	1.023
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	8.00	7.94	1.008
			Avera	ge Correction Factor	1.010

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.003755	1.007610
THC Cal Offset:	-0.014363	-0.060372
CH4 Cal Slope:	1.002645	1.003661
CH4 Cal Offset:	-0.017384	-0.029190
NMHC Cal Slope:	1.005407	1.011373
NMHC Cal Offset:	0.001219	-0.031782

Calibration Performed By:

Melissa Lemay

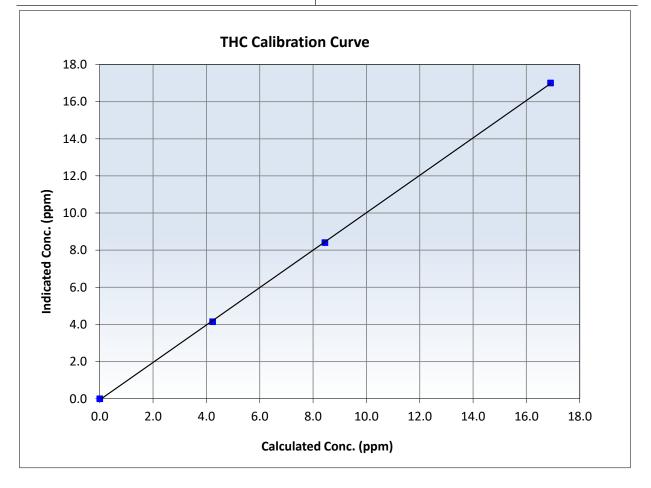


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 21, 2025	Previous Calibration:	April 5, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	6:25	End Time (MST):	8:40
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999942	≥0.995
16.91 8.44	17.01 8.41	0.9941 1.0040	Slope	1.007610	0.90 - 1.10
4.23	4.15	1.0202	Intercept	-0.060372	+/-0.5



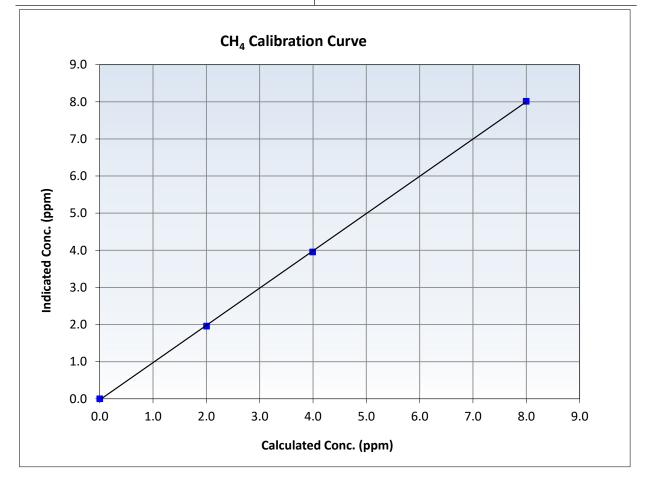


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 21, 2025	Previous Calibration:	April 5, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	6:25	End Time (MST):	8:40
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999936	≥0.995
8.00 3.99	8.02	0.9978	Slope	1.003661	0.90 - 1.10
2.00	3.96 1.96	1.0096 1.0231	Intercept	-0.029190	+/-0.5



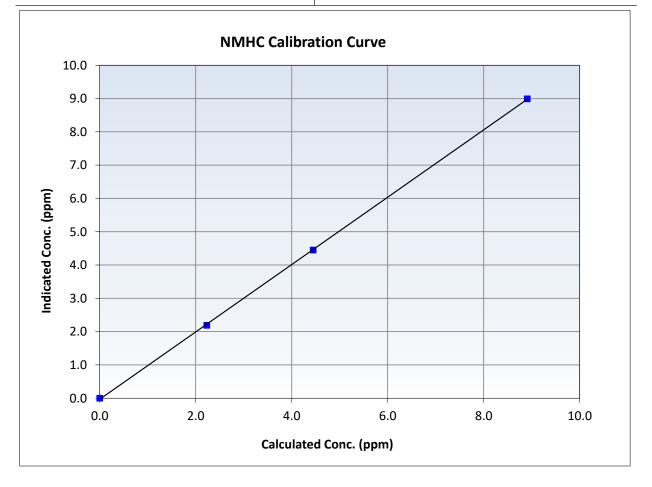


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

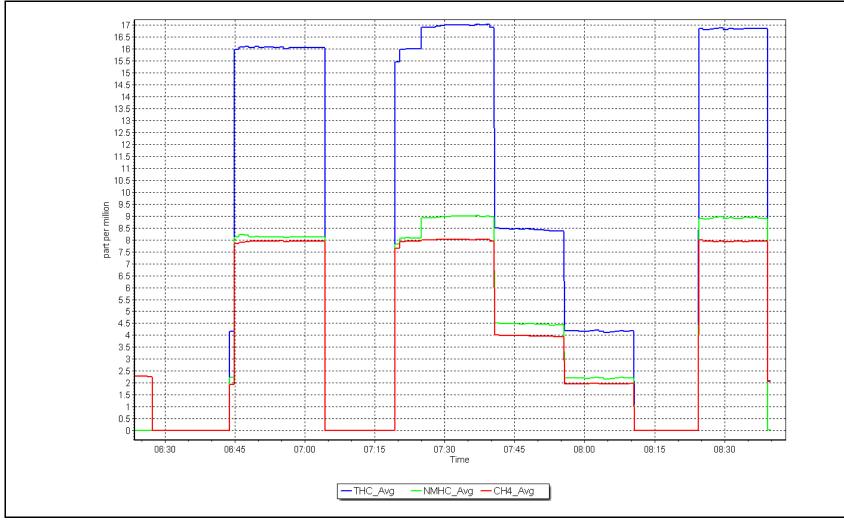
Calibration Date:	April 21, 2025	Previous Calibration:	April 5, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	6:25	End Time (MST):	8:40
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999943	≥0.995
8.91 4.45	9.00 4.45	0.9905 0.9993	Slope	1.011373	0.90 - 1.10
2.23	2.19	1.0175	Intercept	-0.031782	+/-0.5



NMHC Calibration Plot







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Analyzer serial #: 1193585650

Station Information

Station Name:	Barge Landing	Station number: AMS 09
Calibration Date:	April 29, 2025	Last Cal Date: April 21, 2025
Start time (MST):	9:08	End time (MST): 12:22
Reason:	Maintenance	

Calibration Standards

Gas Cert Reference:	CC705748	Cal Gas Expiry Date:	October 9, 2032
CH4 Cal Gas Conc.	505.6 ppm	CH4 Equiv Conc.	1068.8 ppm
C3H8 Cal Gas Conc.	204.8 ppm		
Removed Gas Cert:	CC151285	Removed Gas Expiry:	January 5, 2025
Removed CH4 Conc.	505.6 ppm	CH4 Equiv Conc.	1068.8 ppm
Removed C3H8 Conc.	204.8 ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):		Diff between cyl (NM):	
Calibrator Model:	API T700	Serial Number:	3812
Zero Air Gen model:	APIT701	Serial Number:	5613
		Least francista a	

Analyzer Information

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

THC Range: 0 - 20 ppm		NMHC/CH4 Range: 0 - 10 ppm			
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.31E-04	2.28E-04	NMHC SP Ratio:	4.90E+05	4.76E+05
CH4 Retention time:	15.2	14.2	NMHC Peak Area:	181998	187033
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	79.1	16.91	17.38	0.973
As found Mid point	4961	39.5	8.44	8.65	0.976
As found Low point New cylinder response	4980	19.8	4.23	4.31	0.981
Baseline Corr AF:	17.38	Prev response	16.98	*% change	2.3%
Baseline Corr 2nd AF:	8.65	AF Slope:	1.028459	AF Intercept:	-0.020568
Baseline Corr 3rd AF:	4.31	AF Correlation:	0.999994	* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.1	16.91	16.96	0.997
Mid point	4961	39.5	8.44	8.40	1.005
Low point	4980	19.8	4.23	4.17	1.014
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	16.91	17.00	0.995
			Avera	ge Correction Factor	1.005

Notes:

Few dips. Carrier pressure increased. Span adjusted. RT moved.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	79.1	8.91	9.39	0.949
As found Mid point	4961	39.5	4.45	4.68	0.951
As found Low point New cylinder response	4980	19.8	2.23	2.34	0.955
Baseline Corr AF:	9.39	Prev response	8.98	*% change	4.4%
Baseline Corr 2nd AF:	4.68	AF Slope:	1.054634	AF Intercept:	-0.008381
Baseline Corr 3rd AF:	2.34	AF Correlation:	0.999996	* = > +/-5% change initia	ites investigation

NMHC Calibration Data

Set Point	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated concentration Correction factor (Cc/Ic)	
SetTom	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	<i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.1	8.91	8.93	0.998
Mid point	4961	39.5	4.45	4.43	1.004
Low point	4980	19.8	2.23	2.20	1.012
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	8.91	8.96	0.994
			Avera	ge Correction Factor	1.005

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero))
					Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	79.1	8.00	7.99	1.001
As found Mid point	4961	39.5	3.99	3.97	1.007
As found Low point	4980	19.8	2.00	1.98	1.012
New cylinder response					
Baseline Corr AF:	7.99	Prev response	8.00	*% change	-0.1%
Baseline Corr 2nd AF:	3.97	AF Slope:	0.999458	AF Intercept:	-0.012987
Baseline Corr 3rd AF:	1.98	AF Correlation:	0.999987	* = > +/-5% change initia	ates investigation

CH4 Calibration Data

Set Point	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated concentration Correction factor (Cc/Ic)	
SetFont	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	<i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.1	8.00	8.03	0.997
Mid point	4961	39.5	3.99	3.97	1.006
Low point	4980	19.8	2.00	1.97	1.016
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.1	8.00	8.04	0.995
			Avera	ge Correction Factor	1.006

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.007610	1.003757
THC Cal Offset:	-0.060372	-0.041375
CH4 Cal Slope:	1.003661	1.004447
CH4 Cal Offset:	-0.029190	-0.023190
NMHC Cal Slope:	1.011373	1.003150
NMHC Cal Offset:	-0.031782	-0.018986

Calibration Performed By:

Sean Bala

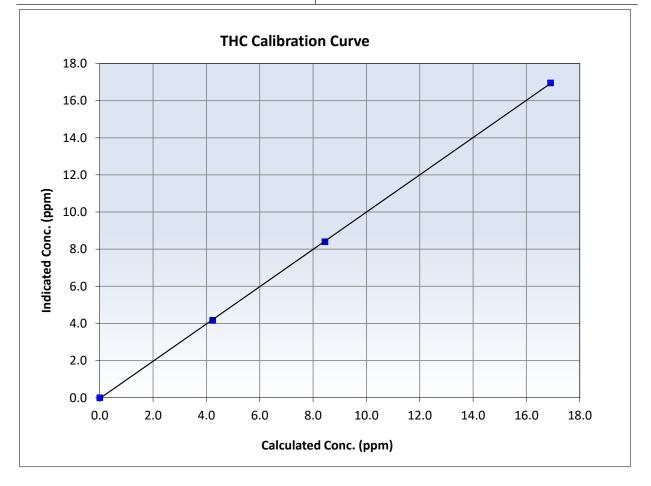


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 29, 2025	Previous Calibration:	April 21, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:08	End Time (MST):	12:22
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999971	≥0.995
16.91 8.44	16.96 8.40	0.9972 1.0051	Slope	1.003757	0.90 - 1.10
4.23	4.17	1.0140	Intercept	-0.041375	+/-0.5



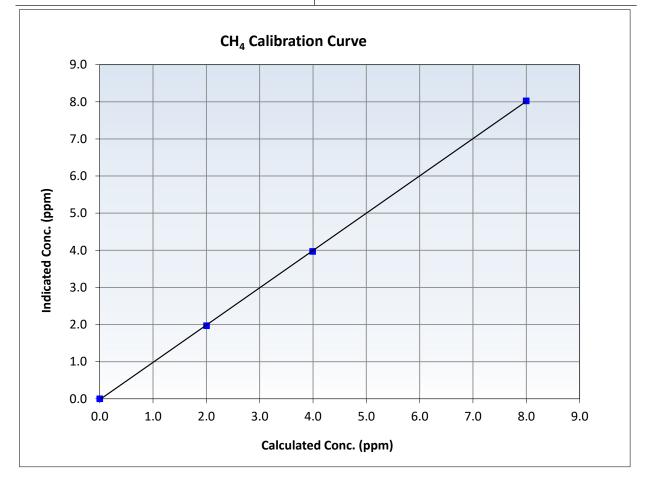


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 29, 2025	Previous Calibration:	April 21, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:08	End Time (MST):	12:22
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999959	≥0.995
8.00	8.03	0.9967	Slope	1.004447	0.90 - 1.10
3.99	3.97	1.0063	Siepe	1.001117	
2.00	1.97	1.0164	Intercept	-0.023190	+/-0.5



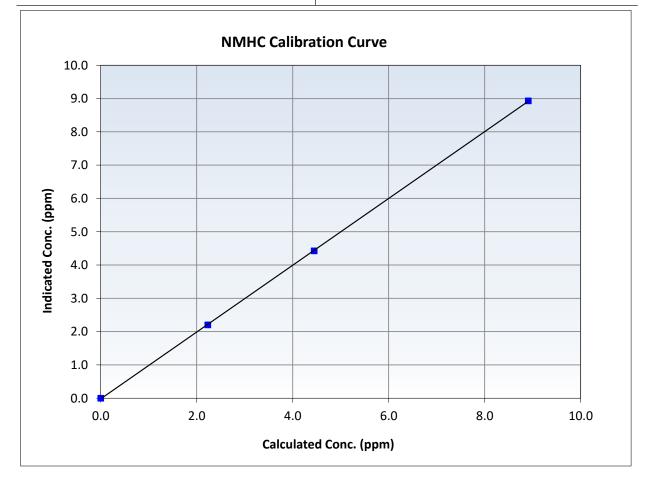


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

Calibration Date:	April 29, 2025	Previous Calibration:	April 21, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:08	End Time (MST):	12:22
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

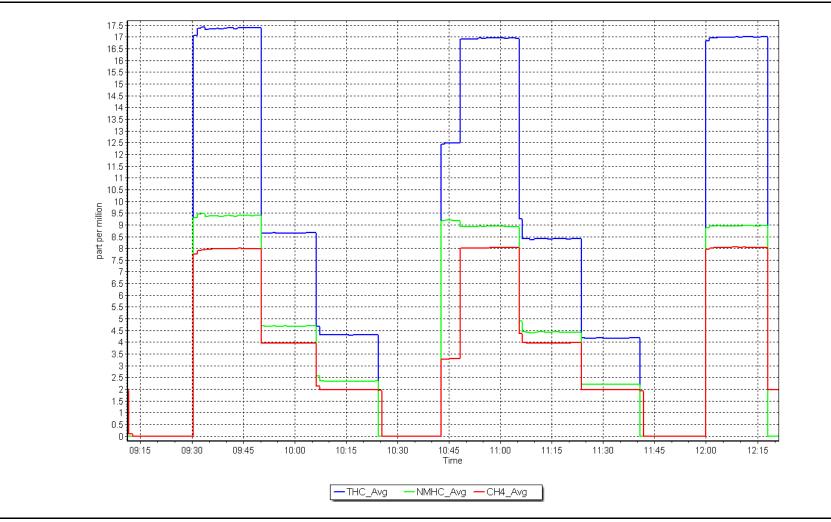
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999978	≥0.995
8.91 4.45	8.93 4.43	0.9977 1.0045	Slope	1.003150	0.90 - 1.10
2.23	2.20	1.0124	Intercept	-0.018986	+/-0.5



NMHC Calibration Plot









Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Barge Landing	NO Gas Cylinder #:	T2Y1KDH	Cal Gas Expiry Date: November 17, 2026
Station number:	AMS 09	NOX Cal Gas Conc:	47.38 ppm	NO Cal Gas Conc: 46.94 ppm
Calibration Date:	April 11, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date: NA
Last Cal Date:	March 17, 2025	Removed Gas NOX Conc:	47.38 ppm	Removed Gas NO Conc: 46.94 ppm
Start time (MST):	9:09	NOX gas Diff:		NO gas Diff:
End time (MST):	13:16	Calibrator Model:	API T700	Serial Number: 3812
Reason:	Routine	ZAG make/model:	Api T701	Serial Number: 4888

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.3	-0.2	-0.2		
AF High point AF Mid point AF Low point New cyl resp	4915	85.3	808.3	800.7	7.5	810.0	798.5	11.5	0.9975	1.0026
Previous Response NO _x = 807.		807.3 ppb	NO = 799.0 ppb		* = > +/-5% change initiates investigation			*Percent Chan	ge NO _x =	0.4%
Baseline Corr 1st pt NO _x = 810.3 ppb		810.3 ppb	NO = 798.7 ppb		As Found Statistics			*Percent Chan	ge NO =	0.0%
Baseline Corr 2	2nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d $NO_2 r^2$:		NO2 SI:	NO ₂ Int:	
As Found GPT Calibration Data										
								Baseline Adjust		
O3 Setpo	oint (ppb)	Indicated NO Re concentration		cated NO Drop entration (ppb)	Calculated No concentration (pp		dicated NO2 ntration (ppb) (Ic)	Correction f (Cc/(Ic-AFze		verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1426262	593			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.998427	0.997861
			Instrument Settings			NO _x Cal Offset:	0.358142	1.058268
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.998439	0.998054
NO coeff or slope:	1.124	1.124	NO bkgnd or offset:	10.3	10.3	NO Cal Offset:	-0.543944	-0.083947
NOX coeff or slope:	0.999	0.999	NOX bkgnd or offset:	10.6	10.6	NO ₂ Cal Slope:	1.002354	1.025270
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	176.8	176.8	NO ₂ Cal Offset:	-0.248929	-0.569655

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	-0.2	0.0	-0.2		
High point	4915	85.3	808.3	800.7	7.5	807.1	799.3	7.8	1.0014	1.0018
Mid point	4957	42.6	403.7	400.0	3.7	404.1	398.6	5.5	0.9990	1.0034
Low point	4979	21.3	201.8	200.0	1.9	204.0	199.7	4.2	0.9893	1.0013
As left zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.1		
As left span	4915	85.3	808.3	438.2	370.1	801.2	438.2	362.9	1.0088	1.0000
							Average Co	orrection Factor	0.9966	1.0022

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	-0.2		
High GPT point	791.9	442.0	357.4	366.2	0.9760	102.5%
Mid GPT point	791.9	618.5	180.9	184.3	0.9816	101.9%
Low GPT point	791.9	706.1	93.3	95.0	0.9822	101.8%
				Average Correction Factor	0.9799	102.1%

Notes:

Inlet filter changed after as founds.No adjustment. 2nd NO reference point was used due to drift.

Calibration Performed By:

Sean Bala

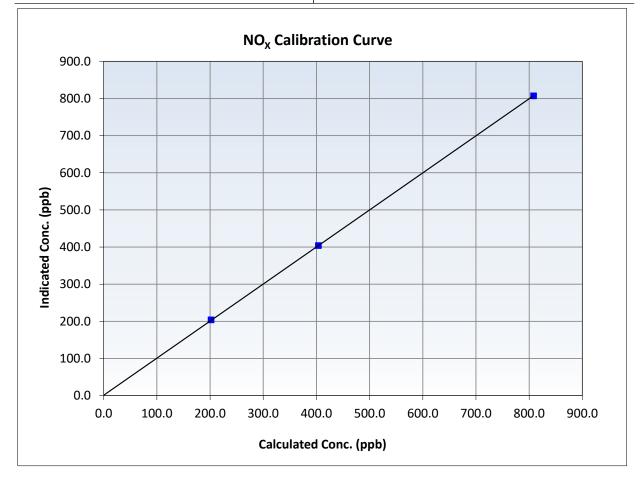


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 17, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:09	End Time (MST):	13:16
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262593

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999988	≥0.995
808.3 403.7	807.1 404.1	1.0014 0.9990	Slope	0.997861	0.90 - 1.10
201.8	204.0	0.9893	Intercept	1.058268	+/-20



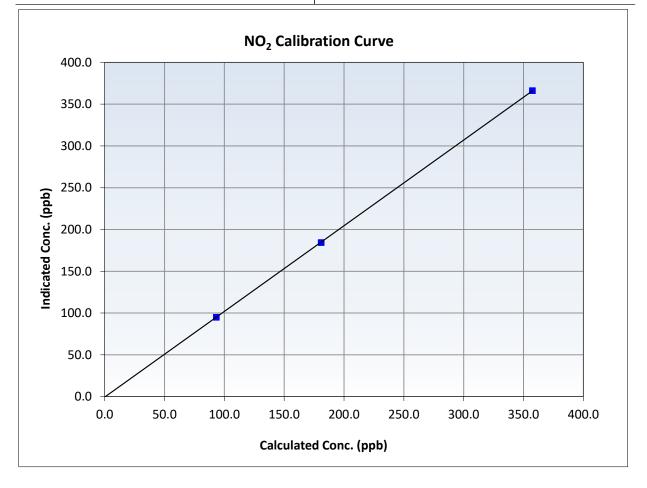


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 17, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:09	End Time (MST):	13:16
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262593

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999991	≥0.995
357.4 180.9	366.2 184.3	0.9760 0.9816	Slope	1.025270	0.90 - 1.10
93.3	95.0	0.9822	Intercept	-0.569655	+/-20



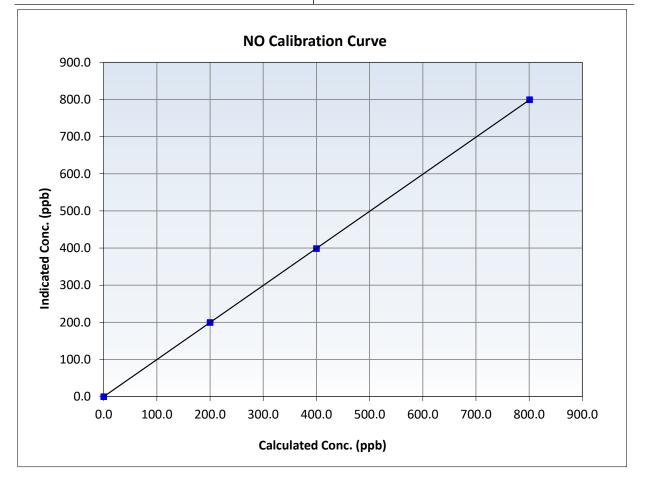


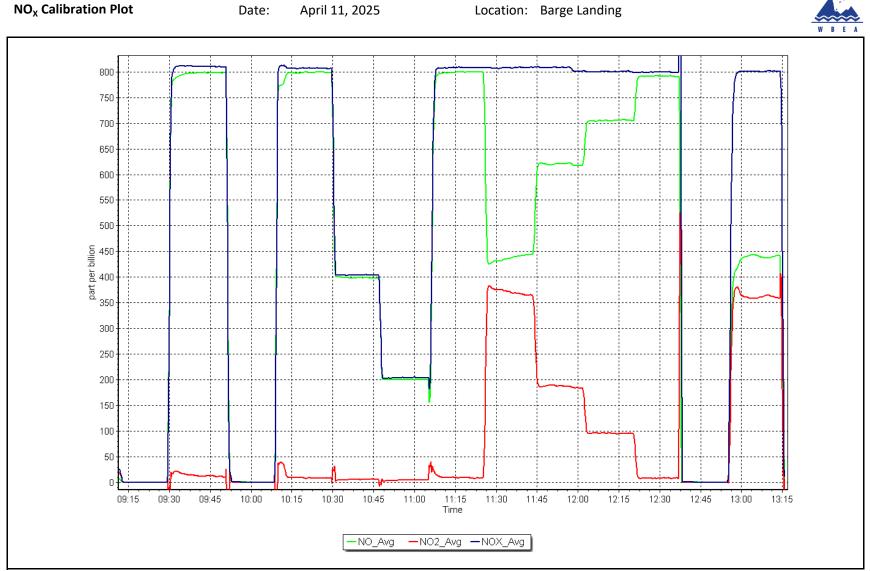
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 17, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:09	End Time (MST):	13:16
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262593

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999999	≥0.995
800.7	799.3	1.0018	Slope	0.998054	0.90 - 1.10
400.0	398.6	1.0034	Slope	0.996034	0.30 - 1.10
200.0	199.7	1.0013	Intercept	-0.083947	+/-20









Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-20
		Station Information	n		
tation Name:	Barge Landing		Station number: AN	IS 09	
Calibration Date:	April 9, 2025		Last Cal Date: Ma		
Start time (MST):	14:15		End time (MST): 14:	30	
Analyzer Make:	API T640		S/N: 844	1	
Particulate Fraction:	PM2.5				
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 388	3748	
Геmp/RH standard:	Alicat FP-25BT		S/N: 388	3748	
		Monthly Calibration T	ſest		
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	16.10	16.10	16.10		+/- 2 °C
P (mmHg)	724.00	732.50	724.00		+/- 10 mmH
Flow (LPM)	5.03	4.90	5.03		+/- 0.25 LPN
PW% (pump)	36		36		>80%
	PM w/o HEPA:	36.40	PM w/ HEPA:	21.60	<0.2 ug/m3
Zero Verification Note: this leak check will be PM Inlet observation :		quarterly work and will			
Note: this leak check will be	completed before the	quarterly work and will	serve as the pre maint gnment Factor On :	enance leak check	
Note: this leak check will be PM Inlet observation :	completed before the	quarterly work and will I Alig	serve as the pre maint gnment Factor On :	enance leak check	24
Note: this leak check will be	completed before the Inlet Head Clean Refractive Index:	quarterly work and will Quarterly Calibration	serve as the pre maint gnment Factor On : Test	enance leak check	24
Note: this leak check will be PM Inlet observation :	completed before the Inlet Head Clean Refractive Index:	quarterly work and will Alig Quarterly Calibration 10.9	serve as the pre maint gnment Factor On : Test	enance leak check	24 (Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST	completed before the Inlet Head Clean Refractive Index: Lot No.:	quarterly work and will Alig Quarterly Calibration 10.9 100128-050-042	serve as the pre maint gnment Factor On : Test Expiry Date:	enance leak check	
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u>	e completed before the Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> NA	quarterly work and will and the constraints of the constraints of the constraints of the constraints of the constraint o	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> NA	enance leak check June 10, 20 <u>Adjusted</u>	(Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test	e completed before the Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> NA	quarterly work and will Alig Quarterly Calibration 10.9 100128-050-042 Post maintenance NA	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> NA	enance leak check June 10, 20 <u>Adjusted</u>	(Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Cham	e completed before the Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> NA ber Cleaned: Iter Changed:	quarterly work and will Alig Quarterly Calibration 10.9 100128-050-042 Post maintenance NA March 24,	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> NA 2025 2025	enance leak check June 10, 20 <u>Adjusted</u>	(Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Cham Date Disposable Fi	e completed before the Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> NA ber Cleaned: Iter Changed:	quarterly work and will Alige Quarterly Calibration 10.9 100128-050-042 Post maintenance NA March 24, March 7,	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> NA 2025 2025 NA	enance leak check June 10, 20 <u>Adjusted</u>	(Limits)
Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Cham Date Disposable Fi	e completed before the Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> NA bber Cleaned: Iter Changed:	quarterly work and will Alige Quarterly Calibration 10.9 100128-050-042 Post maintenance NA March 24, March 24, PM w/ HEPA:	serve as the pre maint gnment Factor On : Test Expiry Date: <u>As left</u> NA 2025 2025 NA	enance leak check June 10, 20 <u>Adjusted</u>	(Limits)

Notes:

Re

Removal calibration due to erroneous readings. PMT check showed no response, and leak check failed.

Calibration by: Devin Russell



Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

W B E A					Version-01-202
		Station Inform	nation		
Station Name:	Barge Landing		Station number: AMS	5 09	
Calibration Date:	April 10, 2025		Last Cal Date: NA		
Start time (MST):	8:50		End time (MST): 9:10)	
Analyzer Make: Particulate Fraction:	API T640 PM2.5		S/N: 223	7	
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 388	754	
Temp/RH standard:	Alicat FP-25BT		S/N: 388	754	
	1	Monthly Calibra	tion Test		
Parameter	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	9.10	8.88	9.10		+/- 2 °C
P (mmHg)	739.20	737.70	739.20		+/- 10 mmHg
Flow (LPM)	5.02	4.97	5.02		+/- 0.25 LPM
PW% (pump)	34		34		>80%
Zero Verification	PM w/o HEPA:	3.80	PM w/ HEPA:	0.00	<0.2 ug/m3
Note: this leak check will be	completed before the a	Jarterly work an	d will serve as the pre mainte	nance leak check	
PM Inlet observation :	Inlet Head Clean	,	•		
		Quarterly Calibra	ation Test		

		Quarterly Calibration	Test		
	Refractive Index:	10.9	Expiry Date:	January 30, 20	027
SPAN DUST	Lot No.:	100128-050-042			
<u>Parameter</u>	<u>As found</u>	Post maintenance	<u>As left</u>	<u>Adjusted</u>	(Limits)
PMT Peak Test	11.00	11.00	11.00		+/- 0.5
Date Optical Chamb	per Cleaned:	April 10,	2025		
Date Disposable Filt	er Changed:	April 10,	2025		
Post- maintenance Zero Veri	fication:	PM w/ HEPA: _	0.00	<0.2 ug/m3	

Annual Maintenance

Date Sample Tube Cleaned:	October 18, 2024
Date RH/T Sensor Cleaned:	October 18, 2024

Notes:

Install calibration. Flow, temperature, pressure, and PMT verified.

Calibration by:

Devin Russell



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS11 LOWER CAMP APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Lower Camp
Calibration Date:	April 9, 2025
Start time (MST):	12:07
Reason:	Routine

Station number: AMS 11 Last Cal Date: March 3, 2025 End time (MST): 15:46

Calibration Standards

Cal Gas Concentration:	48.75	ppm	Cal Gas Exp Date: October 9, 2032
Cal Gas Cylinder #:	CC741503		
Removed Cal Gas Conc:	48.75	ppm	Rem Gas Exp Date:
Removed Gas Cyl #:	CC741503		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 3807
Zero Air Gen Model:	Teledyne API T701		Serial Number: 196

Analyzer Information

Analyzer make: Analyzer Range:	Thermo 43i 0 - 1000 ppb		Serial Number: 10	0841398	
, maryzer nanger	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.003845	1.018981	Backgd or Offset:	16.2	16.2
Calibration intercept:	-0.495900	0.056971	Coeff or Slope:	1.005	1.005

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.6	
As found High point As found Mid point As found Low point New cylinder response	4939	81.5	791.4	804.4	0.985
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	803.8 NA NA	Previous response AF Slope: AF Correlation:	793.9	*% change AF Intercept: * = > +/-5% change initiat	1.2% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.8	
High point	4939	81.5	791.4	807.2	0.980
Mid point	4972	40.8	396.8	402.9	0.985
Low point	4990	20.4	198.5	202.3	0.981
As left zero	5000	0.0	0.0	0.7	
As left span	4939	81.5	791.4	807.4	0.980
			Averag	ge Correction Factor:	0.982

Notes:

Changed sample inlet filter after as founds. No adjustments made.

Calibration Performed By:

Mohammed Kashif

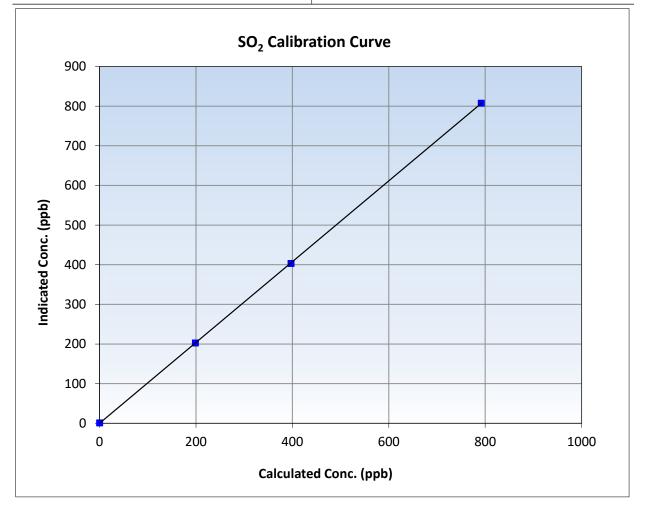


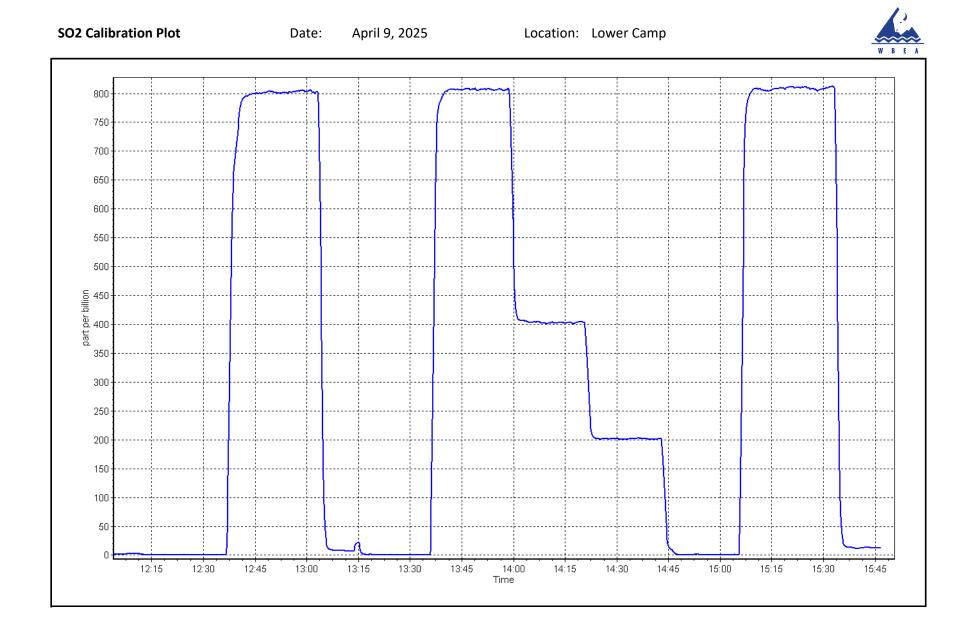
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 3, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:07	End Time (MST):	15:46
Analyzer make:	Thermo 43i	Analyzer serial #:	100841398

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.8		Correlation Coefficient	0.999991	≥0.995
791.4 396.8	807.2 402.9	0.9804 0.9848	Slope	1.018981	0.90 - 1.10
198.5	202.3	0.9812	Intercept	0.056971	+/-30







Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Lower Camp April 22, 2025 10:31 Routine		Station number: Last Cal Date: End time (MST):	AMS 11 March 24, 2025 14:50	
		Calibration S	tandards		
Cal Gas Concentration: Cal Gas Cylinder #:	4.83 CC737863	ppm	Cal Gas Exp Date:	August 28, 2028	
Removed Cal Gas Conc: Removed Gas Cyl #:	4.83 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA	
Calibrator Make/Model:	API T700		Serial Number:	3807	
ZAG Make/Model:	API T701H		Serial Number:	196	
		Analyzer Info	ormation		
Analyzer make:	Thermo 43iQ		Analyzer serial #:	1203169745	
Converter make:	Global G150		Converter serial #:	2022-223	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	1
Calibration slope:	1.000358	1.003220	Backgd or Offset:	2.6	
Calibration intercept:	-0.202641	-0.202864	Coeff or Slope:	0.752	

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.2	
As found High point	4935	83.0	79.9	80.1	0.995
As found Mid point	4977	41.6	40.0	40.1	0.993
As found Low point	4993	20.9	20.1	20.0	0.997
New cylinder response					
Baseline Corr As found:	80.3	Prev response:	79.72	*% change:	0.7%
Baseline Corr 2nd AF pt:	40.3	AF Slope:	1.005367	AF Intercept:	-0.203054
Baseline Corr 3rd AF pt:	20.2	AF Correlation:	0.999999	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.2	
High point	4935	83.0	79.9	79.9	1.000
Mid point	4977	41.6	40.0	40.1	0.998
Low point	4993	20.9	20.1	19.9	1.012
As left zero	5000	0.0	0.0	-0.2	
As left span	4935	83.0	79.9	79.3	1.007
SO2 Scrubber Check	4935	81.5	812.3	0.0	
Date of last scrubber chan	ge:			Ave Corr Factor	1.003

Changed sample inlet filter after as founds. Ran scrubber check after calibrator zero and it passed.

No adjustments made.

Date of last converter efficiency test:

Calibration Performed By:

Notes:

<u>Finish</u> 2.6 0.752



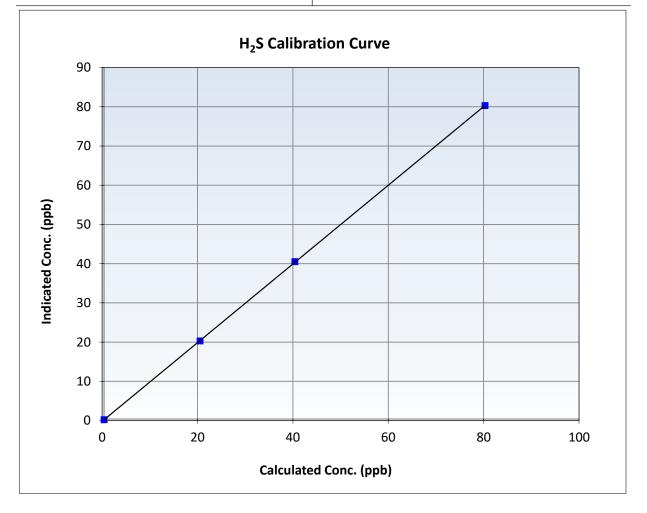
Wood Buffalo Environmental Association

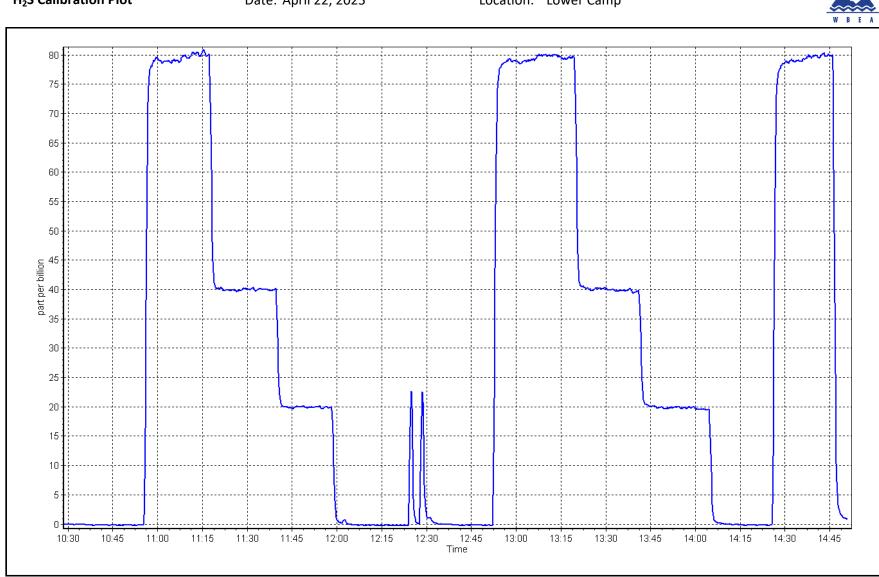
H₂S Calibration Summary

Station Information

Calibration Date:	April 22, 2025	Previous Calibration:	March 24, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	10:31	End Time (MST):	14:50
Analyzer make:	Thermo 43iQ	Analyzer serial #:	1203169745

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999991	≥0.995
79.9	79.9	0.9999	Slope	1.003220	0.90 - 1.10
40.0	40.1	0.9984	Slope	1.003220	0.30 - 1.10
20.1	19.9	1.0117	Intercept	-0.202864	+/-3





H₂S Calibration Plot

Date: April 22, 2025

Location: Lower Camp



Wood Buffalo Environmental Association THC / CH4 / NMHC Calibration Report

		Station	Information		
Station Name:	Lower Camp		Station number: AN	VIS 11	
Calibration Date:	April 9, 2025		Last Cal Date: M	arch 16, 2025	
Start time (MST):	12:07		End time (MST): 15	5:46	
Reason:	Routine				
		<u>Calibrat</u>	ion Standards		
Gas Cert Reference:	CC74150	3	Cal Gas Expiry Date:	Octo	ober 9, 2032
CH4 Cal Gas Conc.	504.8 ppr	า	CH4 Equiv Conc.	1071.9	ppm
C3H8 Cal Gas Conc.	206.2 ppr	า			
Removed Gas Cert:			Removed Gas Expiry:		
Removed CH4 Conc.	504.8 ppr	า	CH4 Equiv Conc.	1071.9	ppm
Removed C3H8 Conc.	206.2 ppr	า	Diff between cyl (THC):		
Diff between cyl (CH ₄)			Diff between cyl (NM):		
Calibrator Model:	API T700)	Serial Number:		3807
Zero Air Gen model:	API T701		Serial Number:		196
		Analyze	r Information		
Analyzer make:	Thermo 55i		Analyzer serial #: 11	18148495	
THC Range	: 0 - 20 ppm		NMHC/CH4 Range: 0	- 10 ppm	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Fin</u>

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.04E-04	2.04E-04	NMHC SP Ratio:	4.27E-05	4.27E-05
CH4 Retention time:	14.3	14.3	NMHC Peak Area:	215713	215713
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4939	81.5	17.40	16.94	1.027
Baseline Corr AF:	16.94	Prev response	17.39	*% change	-2.6%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4939	81.5	17.40	16.85	1.033
Mid point	4972	40.8	8.72	8.43	1.035
Low point	4990	20.4	4.36	4.25	1.028
As left zero	5000	0.0	0.00	0.00	
As left span	4939	81.5	17.40	16.88	1.031
			Avera	ge Correction Factor	1.032

Notes:

Changed sample inlet filter after as founds. No adjustments made.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic· AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4939	81.5	9.21	8.86	1.039
Baseline Corr AF:	8.86	Prev response	9.23	*% change	-4.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4939	81.5	9.21	8.80	1.046
Mid point	4972	40.8	4.62	4.43	1.042
Low point	4990	20.4	2.31	2.25	1.027
As left zero	5000	0.0	0.00	0.00	
As left span	4939	81.5	9.21	8.83	1.042
			Avera	ge Correction Factor	1.038

CH4 As Found Data

Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
5000	0.0	0.00	0.00	
4939	81.5	8.19	8.08	1.014
8.08 NA NA	Prev response AF Slope: AF Correlation:	8.16	*% change AF Intercept: * => +/-5% change initia	-1.1%
	(sccm) 5000 4939 8.08	Dilution air flow rate (sccm)Source gas flow rate (sccm)50000.0493981.58.08Prev response A F Slope:	(sccm) (sccm) (ppm) (Cc) 5000 0.0 0.00 4939 81.5 8.19 8.08 Prev response 8.16 NA AF Slope: 8.16	Dilution air flow rate (sccm)Source gas flow rate (sccm)Calculated concentration (ppm) (Cc)Indicated concentration (ppm) (lc)50000.00.000.00493981.58.198.088.08Prev response8.16*% change AF Intercept:

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4939	81.5	8.19	8.04	1.019
Mid point	4972	40.8	4.11	4.00	1.027
Low point	4990	20.4	2.06	2.00	1.029
As left zero	5000	0.0	0.00	0.00	
As left span	4939	81.5	8.19	8.05	1.018
			Avera	ge Correction Factor	1.025

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	0.998443	0.967607
THC Cal Offset:	0.017156	0.004689
CH4 Cal Slope:	0.998463	0.981979
CH4 Cal Offset:	-0.017882	-0.014211
NMHC Cal Slope:	0.998401	0.954688
NMHC Cal Offset:	0.035637	0.019898

Calibration Performed By:

Mohammed Kashif

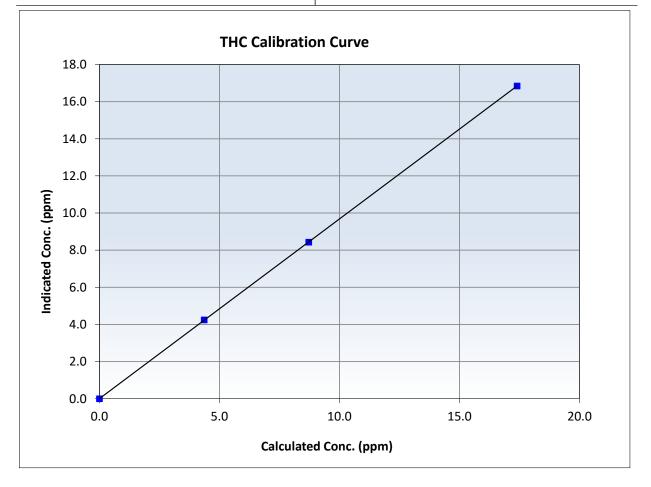


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 16, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:07	End Time (MST):	15:46
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999996	≥0.995
17.40 8.72	16.85 8.43	1.0329 1.0350	Slope	0.967607	0.90 - 1.10
4.36	4.25	1.0280	Intercept	0.004689	+/-0.5



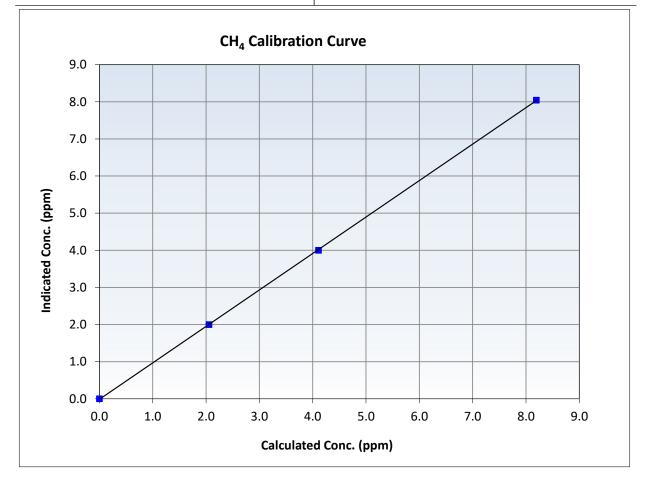


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 16, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:07	End Time (MST):	15:46
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999979	≥0.995
8.19 4.11	8.04 4.00	1.0187 1.0269	Slope	0.981979	0.90 - 1.10
2.06	2.00	1.0287	Intercept	-0.014211	+/-0.5



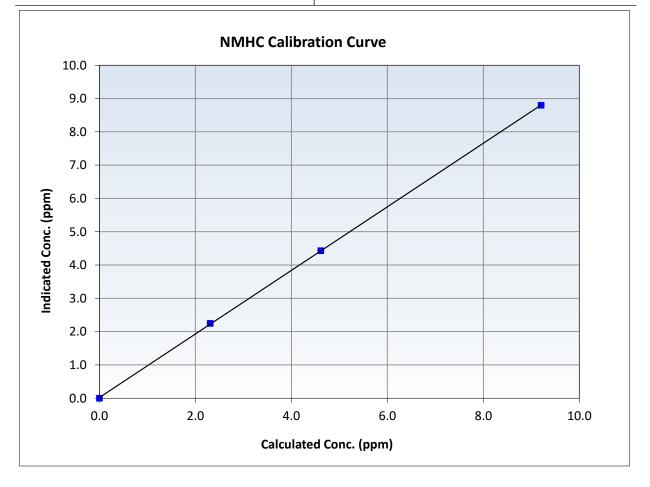


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

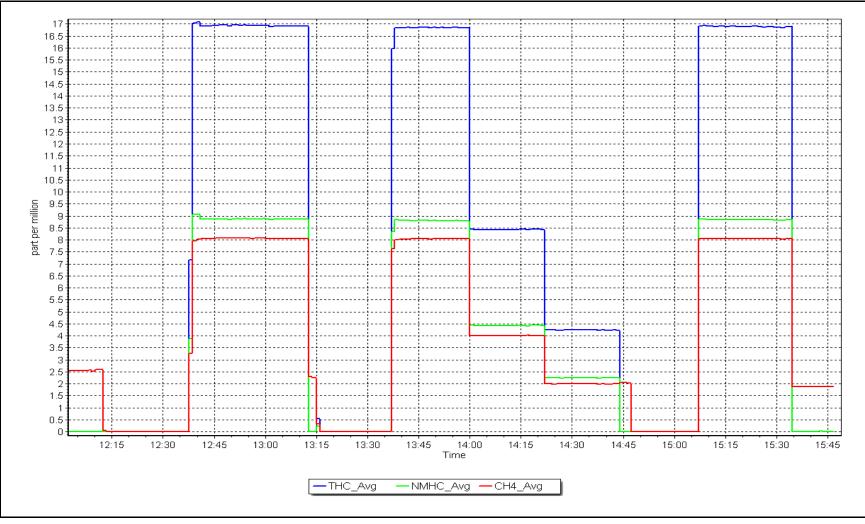
Calibration Date:	April 9, 2025	Previous Calibration:	March 16, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:07	End Time (MST):	15:46
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999975	≥0.995
9.21 4.62	8.80 4.43	1.0460 1.0418	Slope	0.954688	0.90 - 1.10
2.31	2.25	1.0270	Intercept	0.019898	+/-0.5



NMHC Calibration Plot







Wood Buffalo Environmental Association THC / CH4 / NMHC Calibration Report

Analyzer serial #: 1118148495

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Lower Camp	Station number: AMS 11
Calibration Date:	April 25, 2025	Last Cal Date: April 9, 2025
Start time (MST):	13:47	End time (MST): 17:13
Reason:	Maintenance	

Calibration Standards

Gas Cert Reference:	CC741503	3 Cal Gas Expiry Date:		ber 9, 2032		
CH4 Cal Gas Conc.	504.8 ppm	CH4 Equiv Conc.	1071.9	ppm		
C3H8 Cal Gas Conc.	206.2 ppm					
Removed Gas Cert:		Removed Gas Expiry:				
Removed CH4 Conc.	504.8 ppm	CH4 Equiv Conc.	1071.9	ppm		
Removed C3H8 Conc.	206.2 ppm	Diff between cyl (THC):				
Diff between cyl (CH ₄):		Diff between cyl (NM):				
Calibrator Model:	API T700	Serial Number:		3811		
Zero Air Gen model:	API T701	Serial Number:		196		
	Analyzer Information					

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.04E-04	2.27E-04	NMHC SP Ratio:	4.27E-05	4.96E-05
CH4 Retention time:	14.3	14.3	NMHC Peak Area:	215713	185572
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4932	82.2	17.57	15.32	1.147
As found Mid point	4971	41.2	8.81	7.64	1.153
As found Low point	4996	20.6	4.40	3.85	1.143
New cylinder response					
Baseline Corr AF:	15.32	Prev response	17.01	*% change	-11.0%
Baseline Corr 2nd AF:	7.64	AF Slope:	0.871265	AF Intercept:	-0.002098
Baseline Corr 3rd AF:	3.85	AF Correlation:	0.999987	* = > +/-5% change initiat	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4932	82.2	17.57	17.45	1.007
Mid point	4971	41.2	8.81	8.72	1.010
Low point	4996	20.6	4.40	4.40	1.001
As left zero	5000	0.0	0.00	0.00	
As left span	4932	82.2	17.57	17.26	1.018
			Avera	ge Correction Factor	1.006

No alarms were detected during the investigation. Diagnostics were consistent, and the

Notes:

chromatograms showed no discrepancies, aside from a slight alignment drift. The issue is likely due to the new calibrator, prompting only a span adjustment.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4932	82.2	9.30	7.96	1.167
As found Mid point	4971	41.2	4.66	3.99	1.168
As found Low point New cylinder response	4996	20.6	2.33	2.03	1.148
Baseline Corr AF:	7.96	Prev response	8.89	*% change	-11.7%
Baseline Corr 2nd AF:	3.99	AF Slope:	0.855410	AF Intercept:	0.012797
Baseline Corr 3rd AF:	2.03	AF Correlation:	0.999975	* = > +/-5% change initia	ites investigation

NMHC Calibration Data

Set Point	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated concentration	Correction factor (Cc/Ic)
SetFolit	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	<i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4932	82.2	9.30	9.24	1.006
Mid point	4971	41.2	4.66	4.65	1.002
Low point	4996	20.6	2.33	2.36	0.985
As left zero	5000	0.0	0.00	0.00	
As left span	4932	82.2	9.30	9.14	1.017
			Avera	age Correction Factor	0.998

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero))
					Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4932	82.2	8.28	7.35	1.125
As found Mid point	4971	41.2	4.15	3.65	1.136
As found Low point	4996	20.6	2.07	1.82	1.137
New cylinder response					
Baseline Corr AF:	7.35	Prev response	8.11	*% change	-10.3%
Baseline Corr 2nd AF:	3.65	AF Slope:	0.888951	AF Intercept:	-0.014694
Baseline Corr 3rd AF:	1.82	AF Correlation:	0.999971	* = > +/-5% change initia	ites investigation

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((Ic) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
	. ,	(seem)			2000 - 0.55 1.65
Calibrator zero	5000	0.0	0.00	0.00	
High point	4932	82.2	8.28	8.21	1.009
Mid point	4971	41.2	4.15	4.07	1.020
Low point	4996	20.6	2.07	2.04	1.018
As left zero	5000	0.0	0.00	0.00	
As left span	4932	82.2	8.28	8.12	1.019
			Avera	ge Correction Factor	1.015

Calibration Statistics

50
)74
571
195
864
.70

Calibration Performed By:

Mohammed Kashif

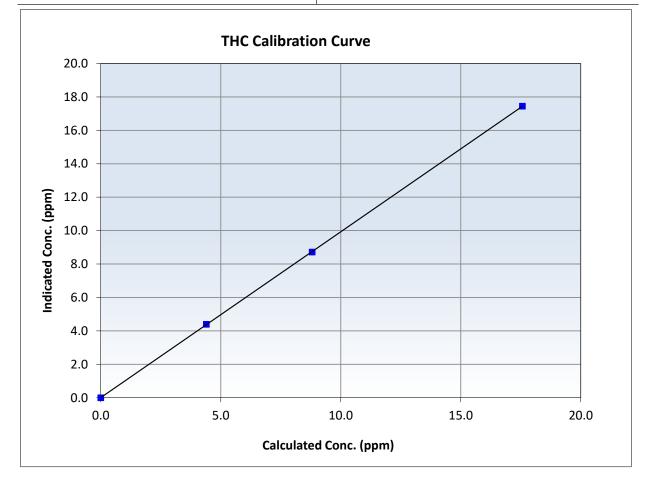


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 25, 2025	Previous Calibration:	April 9, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	13:47	End Time (MST):	17:13
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999991	≥0.995
17.57 8.81	17.45 8.72	1.0071 1.0102	Slope	0.992250	0.90 - 1.10
4.40	4.40	1.0005	Intercept	0.006074	+/-0.5



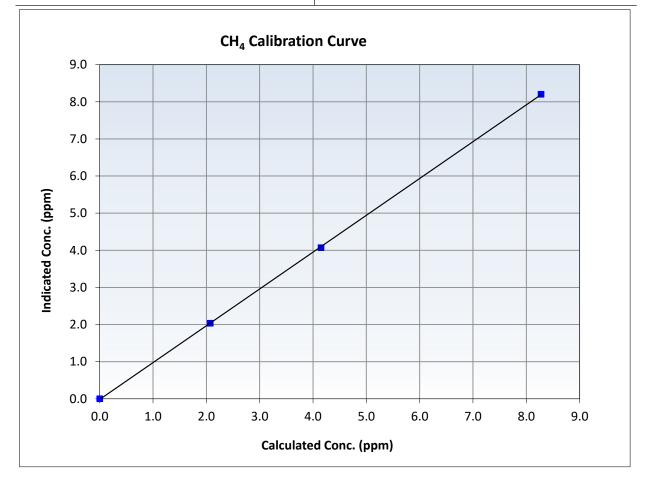


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 25, 2025	Previous Calibration:	April 9, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	13:47	End Time (MST):	17:13
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999964	≥0.995
8.28 4.15	8.21 4.07	1.0086 1.0195	Slope	0.991671	0.90 - 1.10
2.07	2.04	1.0181	Intercept	-0.016495	+/-0.5



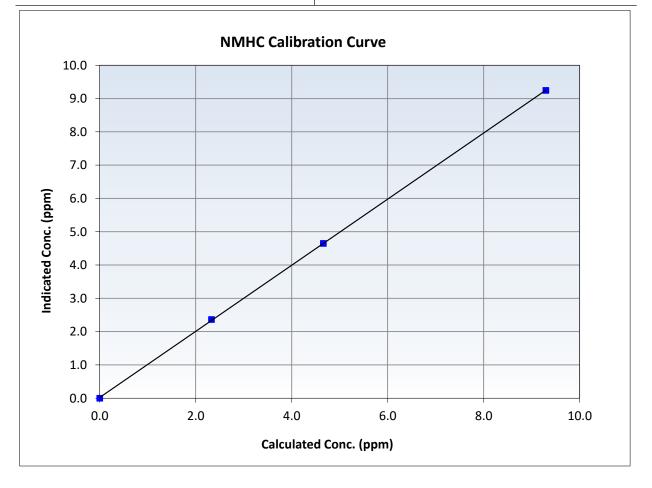


Wood Buffalo Environmental Association NMHC Calibration Summary

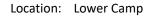
Station Information

Calibration Date:	April 25, 2025	Previous Calibration:	April 9, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	13:47	End Time (MST):	17:13
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

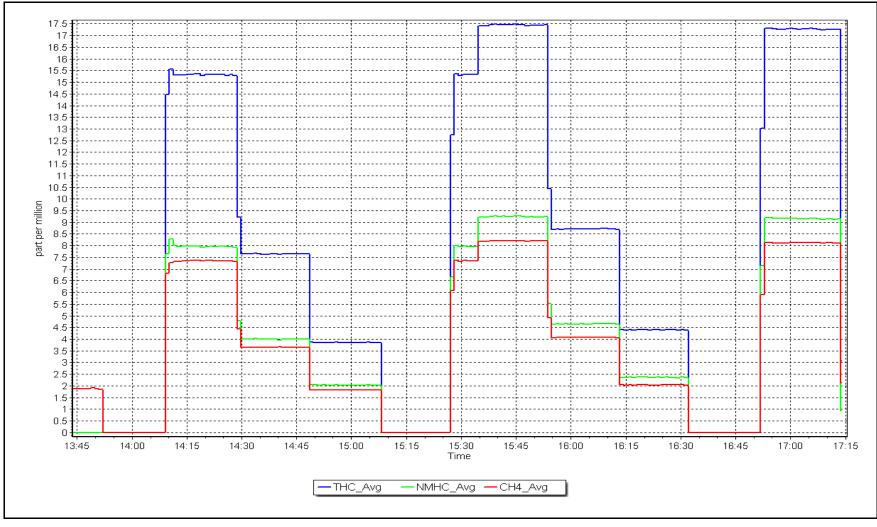
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999970	≥0.995
9.30	9.24	1.0056	Slope	0.992864	0.90 - 1.10
4.66	4.65	1.0022	Siope	0.992804	0.90 - 1.10
2.33	2.36	0.9854	Intercept	0.022170	+/-0.5



NMHC Calibration Plot









WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS13 FORT MCKAY SOUTH APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS14 ANZAC APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Anzac April 7, 2025 10:08 Routine		Station number: Last Cal Date: End time (MST):	March 5, 2025	
		Calibration Sta	andards		
Cal Gas Concentration: Cal Gas Cylinder #:	50.32 CC462030	ppm	Cal Gas Exp Date:	October 9, 2032	
Removed Cal Gas Conc:	50.32	ppm	Rem Gas Exp Date:	NA	
Removed Gas Cyl #:	NA		Diff between cyl:		
Calibrator Model:	API T700		Serial Number:	3060	
Zero Air Gen Model:	API T701H		Serial Number:	357	
Analyzer make: Analyzer Range:	Thermo 43i 0 - 1000 ppb	Analyzer Info	r <u>mation</u> Serial Number:	0710321322	
Calibration slope: Calibration intercept:	<u>Start</u> 1.004124 -0.860151	<u>Finish</u> 0.995812 -1.079277	Backgd or Offset: Coeff or Slope:	<u>Start</u> 24.4 1.074	<u>Finish</u> 24.8 1.074

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.8	
As found High point As found Mid point As found Low point New cylinder response	4941	79.7	798.8	792.4	1.009
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	791.6 NA NA	Previous response AF Slope: AF Correlation:	801.2	*% change AF Intercept: * = > +/-5% change initiate	-1.2% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.9	
High point	4941	79.7	798.8	795.7	1.004
Mid point	4980	39.9	400.0	395.2	1.012
Low point	4994	19.9	199.7	196.5	1.016
As left zero	5000	0.0	0.0	0.7	
As left span	4941	79.7	798.8	796.7	1.003
			Averag	ge Correction Factor:	1.011

Notes:

Changed sample inlet filter after as founds. No adjustments made.

Calibration Performed By:

Mohammed Kashif

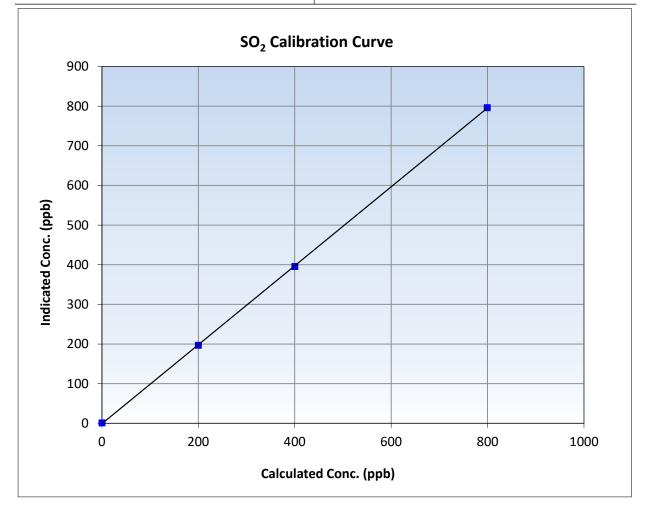


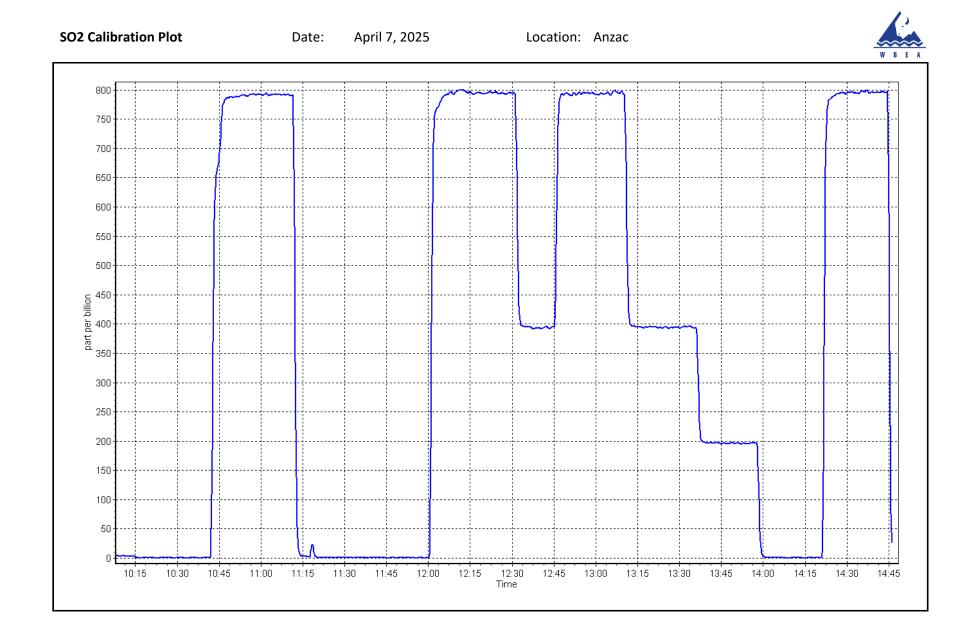
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 5, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:08	End Time (MST):	14:46
Analyzer make:	Thermo 43i	Analyzer serial #:	0710321322

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.9		Correlation Coefficient	0.999967	≥0.995
798.8 400.0	795.7 395.2	1.0039 1.0120	Slope	0.995812	0.90 - 1.10
199.7	196.5	1.0164	Intercept	-1.079277	+/-30







Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Anzac April 16, 2025 11:08 Routine		Station number: Last Cal Date: End time (MST):	AMS 14 March 11, 2025 18:45	
		Calibration	<u>Standards</u>		
Cal Gas Concentration: Cal Gas Cylinder #:	5.15 CC510379	ppm	Cal Gas Exp Date:	January 3, 2026	
Removed Cal Gas Conc: Removed Gas Cyl #:	5.15 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA	
Calibrator Make/Model:	API T700		Serial Number:	3060	
ZAG Make/Model:	API 701H		Serial Number:	357	
		Analyzer In	formation		
Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1218153582	
Converter make:	CD Nova CDN-101		Converter serial #:	503	
Analyzer Range	0 - 100 ppb		Converter Temp:	800	degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.981575	1.010026	Backgd or Offset:	2.4	2.4
Calibration intercept:	-0.085266	-0.005494	Coeff or Slope:	1.027	1.026

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4938	77.9	80.0	82.1	0.973
As found Mid point	4973	38.9	40.0	41.3	0.966
As found Low point	4997	19.5	20.0	20.5	0.972
New cylinder response					
Baseline Corr As found:	82.2	Prev response:	78.42	*% change:	4.6%
Baseline Corr 2nd AF pt:	41.4	AF Slope:	1.028067	AF Intercept:	-0.025511
Baseline Corr 3rd AF pt:	20.6	AF Correlation:	0.999980	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4938	77.9	80.0	80.9	0.988
Mid point	4973	38.9	40.0	40.1	0.996
Low point	4997	19.5	20.0	20.1	0.996
As left zero	5000	0.0	0.0	0.3	
As left span	4938	77.9	80.0	78.9	1.013
SO2 Scrubber Check	4936	80.3	800.4	-0.1	
Date of last scrubber change:				Ave Corr Factor	0.993
Date of last converter efficiency test:		April 16, 2025		86.9%	efficiency

Notes:

Changed the sample inlet filter and performed converter efficiency test(13:00 to 16:00) after as founds. Completed a SO2 scrubber check after calibrator zero. Adjusted span only.

Calibration Performed By:

Mohammed Kashif



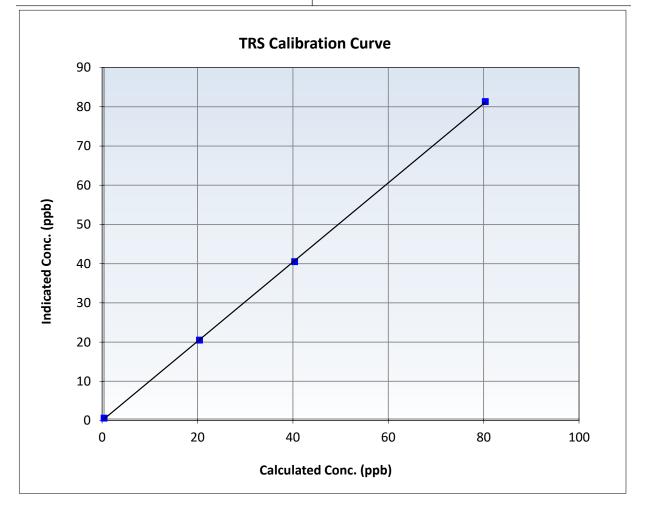
Wood Buffalo Environmental Association

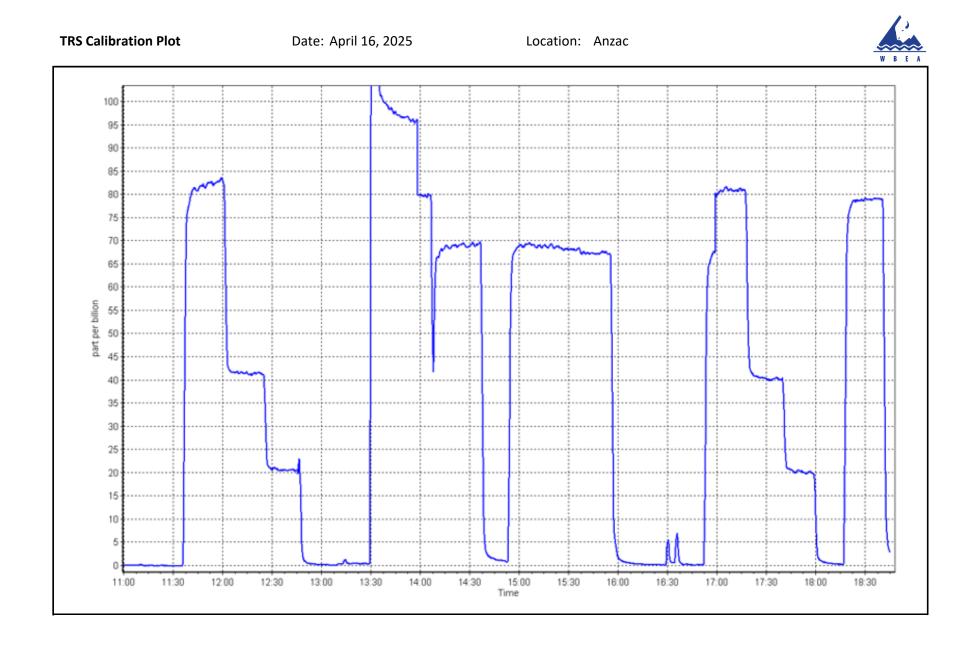
TRS Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 11, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	11:08	End Time (MST):	18:45
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1218153582

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999961	≥0.995
80.0	80.9	0.9883	Slope	1.010026	0.90 - 1.10
40.0	40.1	0.9964	·		
20.0	20.1	0.9956	Intercept	-0.005494	+/-3







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Station Information

Station Name:	Anzac		Station number: Al	MS 14	
Calibration Date:	April 7, 2025		Last Cal Date: M	larch 5, 2025	
Start time (MST):	10:08		End time (MST): 14	4:46	
Reason:	Routine				
		Calibration	<u>n Standards</u>		
Gas Cert Reference:	CC40	52030	Cal Gas Expiry Date:	Octobe	er 9, 2032
CH4 Cal Gas Conc.	505.3	ppm	CH4 Equiv Conc.	1068.3	8 ppm
C3H8 Cal Gas Conc.	204.9	ppm			
Removed Gas Cert:		NA	Removed Gas Expiry: N	A	
Removed CH4 Conc.	505.3	ppm	CH4 Equiv Conc.		8 ppm
Removed C3H8 Conc.	204.9	ppm	Diff between cyl (THC):		
Diff between cyl (CH ₄):			Diff between cyl (NM):		
Calibrator Model:	API	Т700	Serial Number:	3	060
Zero Air Gen model:	API	701H	Serial Number:	÷	357
		Analyzer I	nformation		
Analyzer make:	Thermo 55i		Analyzer serial #: 13	331259521	
THC Range:	0 - 20 ppm		NMHC/CH4 Range: 0	- 10 ppm	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.92E-04	2.88E-04	NMHC SP Ratio:	5.51E-05	5.62E-05
CH4 Retention time:	14.9	14.9	NMHC Peak Area:	162132	159092
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF
		THC As F	ound Data		
					Baseline Adjusted
	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated	Correction factor

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4941	79.7	16.97	16.98	0.999
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.98	Prev response	16.85	*% change	0.7%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4941	79.7	16.97	16.95	1.001
Mid point	4980	39.9	8.50	8.30	1.024
Low point	4994	19.9	4.24	4.09	1.037
As left zero	5000	0.0	0.00	0.00	
As left span	4941	79.7	16.97	16.96	1.000
			Avera	ge Correction Factor	1.021

Notes:

Changed sample inlet filter after as founds. Adjusted span only.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4941	79.7	8.94	8.81	1.015
Baseline Corr AF:	8.81	Prev response	8.81	*% change	0.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	ites investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4941	79.7	8.94	8.93	1.002
Mid point	4980	39.9	4.48	4.39	1.020
Low point	4994	19.9	2.24	2.17	1.030
As left zero	5000	0.0	0.00	0.00	
As left span	4941	79.7	8.94	8.93	1.001
			Avera	ge Correction Factor	1.017

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic AFzero))
					<i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.00	0.00	
As found High point	4941	79.7	8.02	8.17	0.982
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.17	Prev response	8.04	*% change	1.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4941	79.7	8.02	8.02	1.001
Mid point	4980	39.9	4.02	3.91	1.029
Low point	4994	19.9	2.01	1.92	1.045
As left zero	5000	0.0	0.00	0.00	
As left span	4941	79.7	8.02	8.03	0.999
			Avera	age Correction Factor	1.025

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	0.998574	1.000487
THC Cal Offset:	-0.092906	-0.096108
CH4 Cal Slope:	1.008920	1.001383
CH4 Cal Offset:	-0.051592	-0.055381
NMHC Cal Slope:	0.989475	0.999223
NMHC Cal Offset:	-0.041514	-0.039928

Calibration Performed By:

Mohammed Kashif

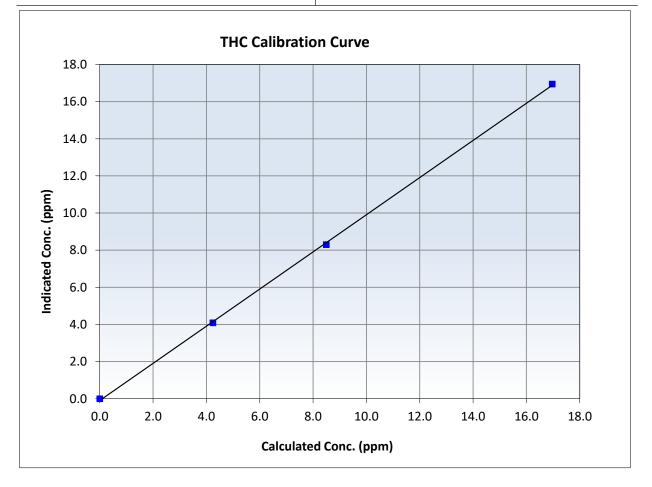


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 5, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:08	End Time (MST):	14:46
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999819	≥0.995
16.97 8.50	16.95 8.30	1.0012 1.0240	Slope	1.000487	0.90 - 1.10
4.24	4.09	1.0369	Intercept	-0.096108	+/-0.5



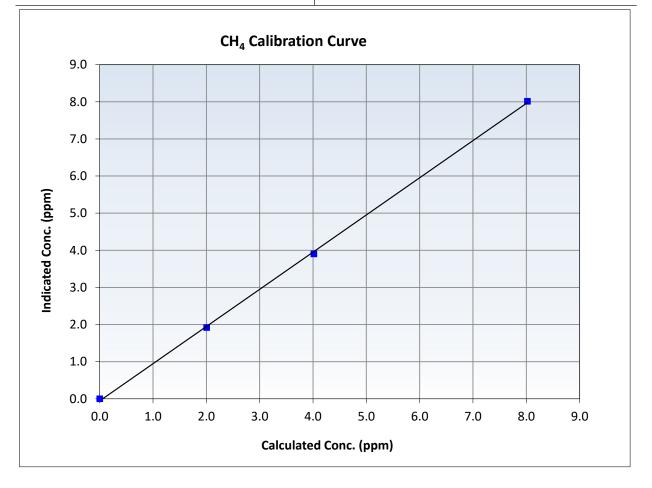


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 5, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:08	End Time (MST):	14:46
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999732	≥0.995
8.02 4.02	8.02 3.91	1.0007 1.0285	Slope	1.001383	0.90 - 1.10
2.01	1.92	1.0445	Intercept	-0.055381	+/-0.5



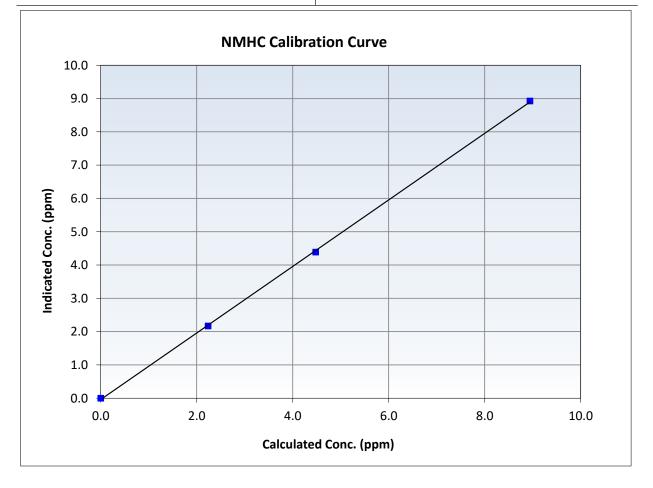


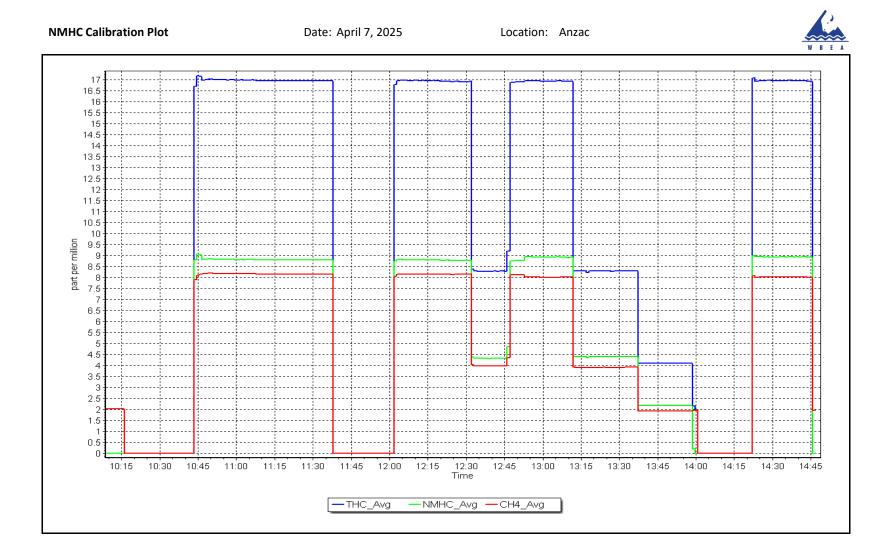
Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 5, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:08	End Time (MST):	14:46
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999888	≥0.995
8.94 4.48	8.93 4.39	1.0021 1.0200	Slope	0.999223	0.90 - 1.10
2.24	2.17	1.0301	Intercept	-0.039928	+/-0.5







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Anzac	NO Gas Cylinder #: D1	T0037092	Cal Gas Expiry Date:	May 16, 2031
Station number:	AMS 14	NOX Cal Gas Conc:	60.7 ppm	NO Cal Gas Conc:	60.40 ppm
Calibration Date:	April 4, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date	: NA
Last Cal Date:	March 6, 2025	Removed Gas NOX Conc:	60.70 ppm	Removed Gas NO Conc	: 60.40 ppm
Start time (MST):	10:16	NOX gas Diff:		NO gas Diff:	
End time (MST):	14:50	Calibrator Model:	Teledyne API T700	Serial Number: 3	060
Reason:	Routine	ZAG make/model:	Teledyne API T700H	Serial Number:	357

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.1	-0.2	0.1		
AF High point	4934	66.3	804.8	800.9	4.0	806.2	801.0	5.0	0.9982	0.9996
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	800.5 ppb	NO = 798.4	ppb	* = > +/-59	% change initiates i	nvestigation	*Percent Chan	ge NO _x =	0.7%
Baseline Corr 1	.st pt NO _x =	806.3 ppb	NO = 801.2	ppb	<u>As Foun</u>	d Statistics		*Percent Chan	ge NO =	0.3%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calibi	ration Data				
								Baseline Adjus		
O3 Setpo	oint (ppb)	Indicated NO Re concentration		cated NO Drop entration (ppb)	Calculated No concentration (pp		dicated NO2 ntration (ppb) (Ic)	Correction f (Cc/(Ic-AFz		verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

NO_X \ NO \ NO₂ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1152430	8000			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.995143	0.998863
			Instrument Settings			NO _x Cal Offset:	-0.470500	-0.430260
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.999427	1.002566
NO coeff or slope:	1.424	1.424	NO bkgnd or offset:	3.9	3.9	NO Cal Offset:	-1.989787	-2.089249
NOX coeff or slope:	0.996	0.996	NOX bkgnd or offset:	3.9	3.9	NO ₂ Cal Slope:	0.994537	0.994974
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	156.9	159.4	NO ₂ Cal Offset:	-1.309208	-1.530514

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>	NO Correction factor (Cc/lc) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.2	0.1	0.1		
High point	4934	66.3	804.8	800.9	4.0	803.6	801.6	1.9	1.0015	0.9991
Mid point	4985	33.2	401.6	399.6	2.0	401.0	398.4	2.5	1.0015	1.0030
Low point	5004	16.7	201.9	200.9	1.0	200.2	196.5	3.6	1.0085	1.0224
As left zero	5000	0.0	0.0	0.0	0.0	0.2	0.1	0.1		
As left span	4934	66.3	804.8	416.8	388.0	801.9	416.8	385.0	1.0037	1.0000
							Average Co	orrection Factor	1.0038	1.0082

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	0.1		
High GPT point	800.6	411.8	392.8	390.0	1.0071	99.3%
Mid GPT point	800.6	601.7	202.9	199.9	1.0149	98.5%
Low GPT point	800.6	701.6	103.0	99.0	1.0402	96.1%
				Average Correction Factor	r 1.0207	98.0%

Notes:

Sample inlet filter changed after as founds. No adjustments made.

Calibration Performed By:

Mohammed Kashif

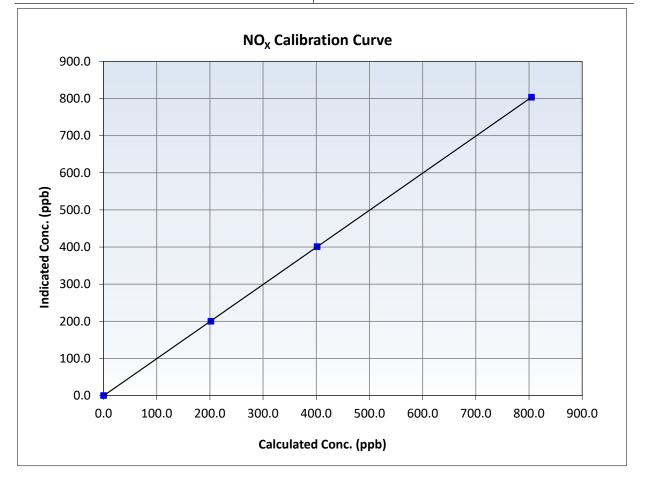


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 6, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:16	End Time (MST):	14:50
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430008

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999996	≥0.995
804.8 401.6	803.6 401.0	1.0015 1.0015	Slope	0.998863	0.90 - 1.10
201.9	200.2	1.0085	Intercept	-0.430260	+/-20



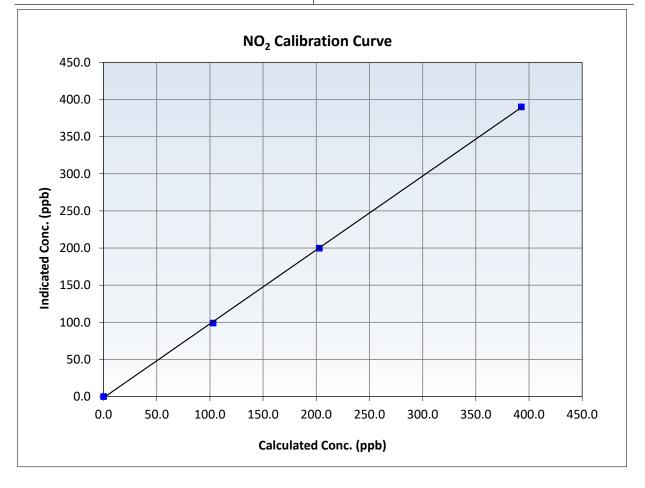


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 6, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:16	End Time (MST):	14:50
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430008

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999915	≥0.995
392.8 202.9	390.0 199.9	1.0071 1.0149	Slope	0.994974	0.90 - 1.10
103.0	99.0	1.0402	Intercept	-1.530514	+/-20



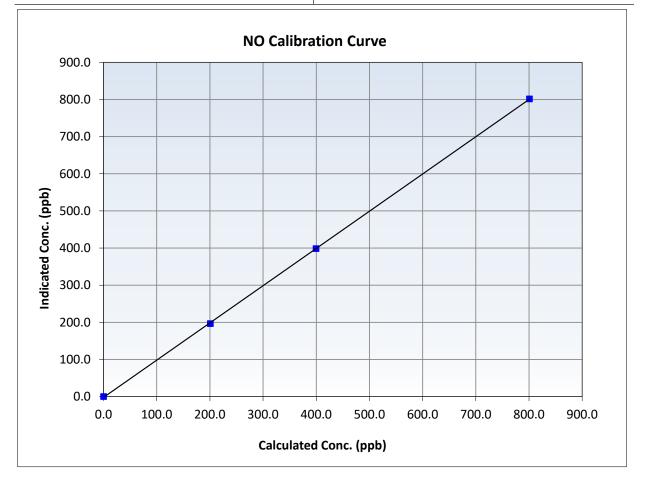


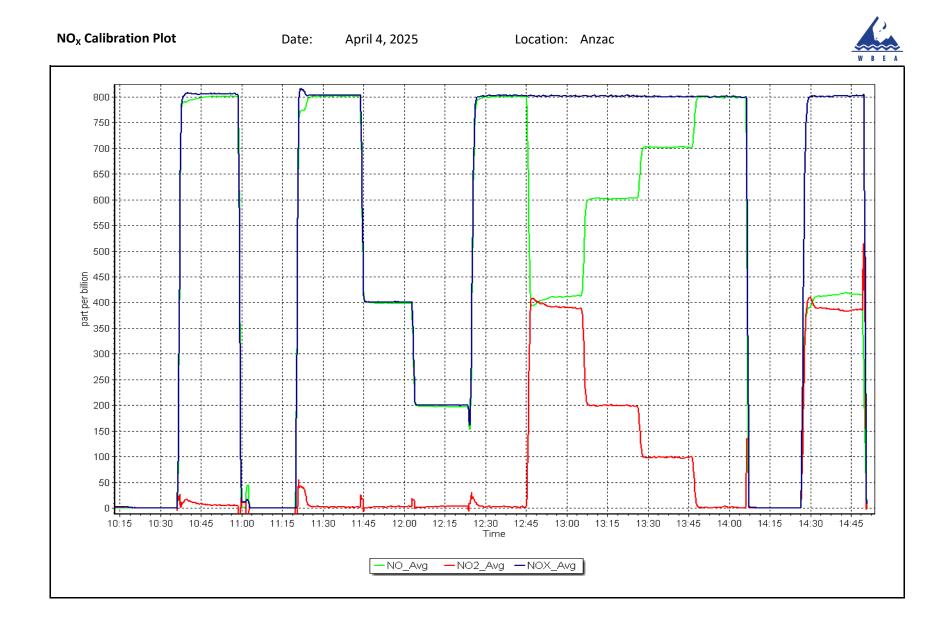
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 6, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:16	End Time (MST):	14:50
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430008

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999962	≥0.995
800.9 399.6	801.6 398.4	0.9991 1.0030	Slope	1.002566	0.90 - 1.10
200.9	196.5	1.0224	Intercept	-2.089249	+/-20







Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name:	Anzac		Station number:	AMS 14
Calibration Date:	April 1, 2025		Last Cal Date:	March 4, 2025
Start time (MST):	10:56		End time (MST):	14:06
Reason:	Routine			
		Calibration Sta	andards	
O3 generation mode:	Photometer			
Calibrator Make/Model:	API T700		Serial Number:	3060
ZAG Make/Model:	API 701H		Serial Number:	357
		Analyzer Info	mation	
Analyzer make:	Thermo 49i		Analyzer serial #:	1426262595
Analyzer Range	0 - 500 ppb			
	Start	Finish		Start
Calibration clana:		0.990971	Packed or Officiate	
Calibration slope:	0.991800		Backgd or Offset:	1.5
Calibration intercept:	0.060000	0.380000	Coeff or Slope:	1.668

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.9	
As found High point	5000	935.9	400.0	397.8	1.008
As found Mid point					
As found Low point					
Baseline Corr As found:	396.9	Previous response	396.8	*% change	0.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	5000	935.9	400.0	396.7	1.008
Mid point	5000	817.5	200.0	198.7	1.007
Low point	5000	722.8	100.0	99.5	1.005
As left zero	5000	0.0	0.0	0.3	
As left span	5000	935.9	400.0	401.4	0.997
			Averag	e Correction Factor	1.007

Notes:

Sample inlet filter changed after asfounds. No adjustment made.

Calibration Performed By:

Mohammed Kashif

Finish 1.6 1.668

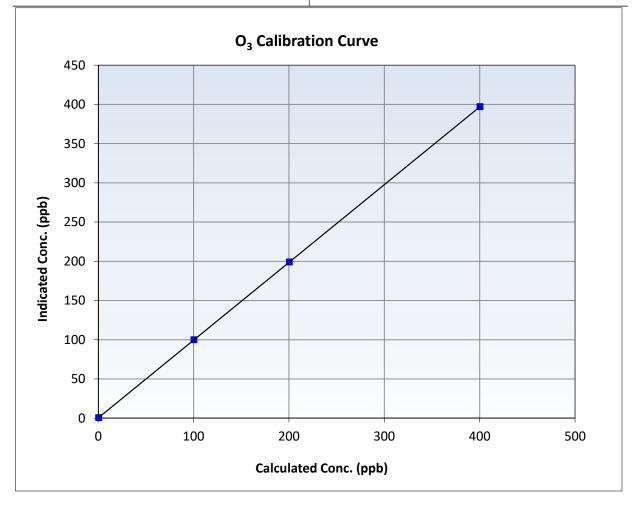


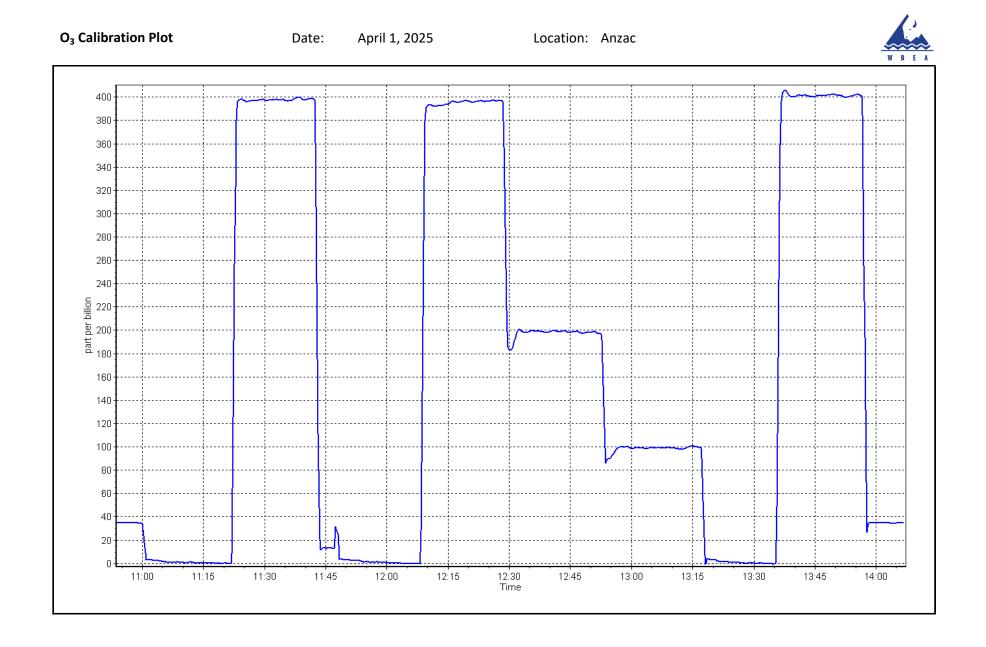
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 4, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:56	End Time (MST):	14:06
Analyzer make:	Thermo 49i	Analyzer serial #:	1426262595

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	1.000000	≥0.995
400.0 200.0	396.7 198.7	1.0083 1.0065	Slope	0.990971	0.90 - 1.10
100.0	99.5	1.0050	Intercept	0.380000	+/- 5







Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-2024
		Station Information	on		
Station Name: Calibration Date: Start time (MST):	Anzac April 29, 2025 11:50		Station number: AN Last Cal Date: Ma End time (MST): 12	arch 14, 2025	
Analyzer Make: Particulate Fraction:	AP T640 PM2.5		S/N: 82	5	
Flow Meter Make/Model: Temp/RH standard:	Alicat FP-25BT Alicat FP-25BT		S/N: 38 S/N: 38		
		Monthly Calibration	Test		
Parameter T (°C)	<u>As found</u> 8.6	Measured 8.18	<u>As left</u> 8.5	Adjusted	(Limits) +/- 2 °C
P (mmHg)	705.4	706.1	705.4		+/- 10 mmHg
Flow (LPM)	5.000	4.95	5.000		+/- 0.25 LPM
PW% (pump)	36		36		>80%
Zero Verification	PM w/o HEPA:	0.3	PM w/ HEPA:	0.0	<0.2 ug/m3
Note: this leak check will be PM Inlet observation :	e completed before the Inlet Head Clean		II serve as the pre main ignment Factor On :	tenance leak check	
		Quarterly Calibration	Test		
SPAN DUST	Refractive Index: Lot No.:		Expiry Date:		
Parameter	<u>As found</u>	Post maintenance	<u>As left</u>	Adjusted	(Limits)
PMT Peak Test					+/- 0.5
Date Optical Cham Date Disposable Fi		January 30 January 30			
Post- maintenance Zero Ver	rification:	PM w/ HEPA: _		<0.2 ug/m3	
		Annual Maintenar	ice		
Date Sample Tub Date RH/T Senso		August 29 August 29			
Notes:		No adjustments made	e. Leak check passed. He	ead cleaned	
Calibration by:	Mohammed Kashif				



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS17 WAPASU APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Wapasu
Calibration Date:	April 7, 2
Start time (MST):	10:15
Reason:	Routine

u 2025 Station number: AMS17 Last Cal Date: March 4, 2025 End time (MST): 13:59

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	50.38 ALM066507	ppm	Cal Gas Exp Date: January 12, 2029
Removed Cal Gas Conc:	50.38	ppm	Rem Gas Exp Date: N/A
Removed Gas Cyl #:	N/A		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 2449
Zero Air Gen Model:	Teledyne API 701H		Serial Number: 1238
		Ana	lyzer Information
Analyzer make:	Thermo 43i		Serial Number: 1218153459
Analyzer Range:	0 - 1000 ppb		

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.994240	0.995597	Backgd or Offset:	14.0	14.0
Calibration intercept:	-1.540718	-1.540479	Coeff or Slope:	1.109	1.109

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.0	
As found High point As found Mid point As found Low point New cylinder response	4921	79.4	800.0	794.8	1.007
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	794.8 NA NA	Previous response AF Slope: AF Correlation:	793.8	*% change AF Intercept: * = > +/-5% change initiate	0.1% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4921	79.4	800.0	796.2	1.005
Mid point	4960	39.7	400.0	394.7	1.014
Low point	4980	19.8	199.5	196.0	1.018
As left zero	5000	0.0	0.0	0.3	
As left span	4920	79.4	800.1	797.9	1.003
			Averag	1.012	

Notes:

No adjustments needed.

Calibration Performed By:

Aswin Sasi Kumar

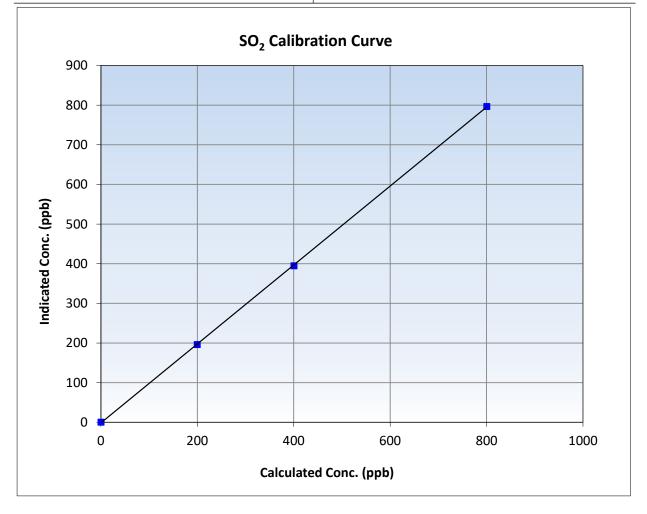


Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

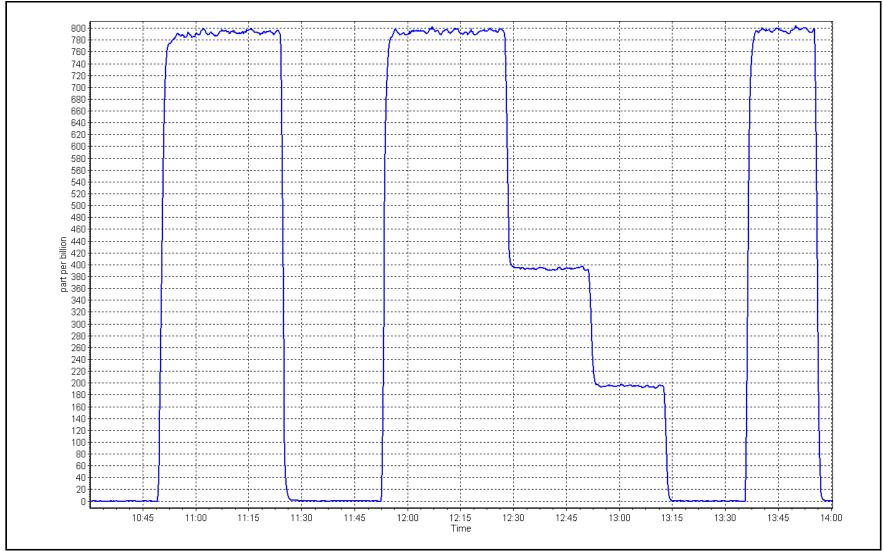
Calibration Date:	April 7, 2025	Previous Calibration:	March 4, 2025
Station Name:	Wapasu	Station Number:	AMS17
Start Time (MST):	10:15	End Time (MST):	13:59
Analyzer make:	Thermo 43i	Analyzer serial #:	1218153459

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999970	≥0.995
800.0 400.0	796.2 394.7	1.0047 1.0135	Slope	0.995597	0.90 - 1.10
199.5	196.0	1.0179	Intercept	-1.540479	+/-30











Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Wapasu April 15, 2025 10:33 Routine		Station number: Last Cal Date: End time (MST):	AMS 17 March 20, 202 15:20	5	
Neason.	Noutine	Calibration S	tandards			
		<u>calibration 5</u>	tantaaras			
Cal Gas Concentration:	4.77	ppm	Cal Gas Exp Date:	August 28, 202	.7	
Cal Gas Cylinder #:	DT20029267					
Removed Cal Gas Conc:	4.77	ppm	Rem Gas Exp Date:			
Removed Gas Cyl #:			Diff between cyl:			
Calibrator Make/Model:	API T700		Serial Number:	2449		
ZAG Make/Model:	API T701H		Serial Number:	359		
		Analyzer Info	ormation			
Analyzer make:	Thermo 450i		Analyzer serial #:	1218153583		
Converter make:	CD Nova		Converter serial #:			
				N/A		
Analyzer Range	0 - 100 ppb		Converter Temp:		340	degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>		
Calibration slope:	0.997355	1.001218	Backgd or Offset:	13.1		
Calibration intercept:	0.680200	-0.180032	Coeff or Slope:			

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.2	
As found High point	4921	83.9	80.0	80.7	0.988
As found Mid point	4961	41.9	39.9	40.5	0.982
As found Low point	4980	21.0	20.0	19.7	1.007
New cylinder response					
Baseline Corr As found:	80.9	Prev response:	80.43	*% change:	0.6%
Baseline Corr 2nd AF pt:	40.7	AF Slope:	1.013690	AF Intercept:	-0.289348
Baseline Corr 3rd AF pt:	19.9	AF Correlation:	0.999945	* = > +/-5% change initiates investigation	

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.0	0.1	
High point	4916	83.9	80.0	80.2	0.998
Mid point	4958	41.9	40.0	39.4	1.015
Low point	4979	21.0	20.0	19.8	1.012
As left zero	5000	0.0	0.0	0.2	
As left span	4916	83.9	80.0	78.3	1.022
SO2 Scrubber Check	4921	79.4	793.9	0.1	
Date of last scrubber cha	inge:	N/A		Ave Corr Factor	1.008
Date of last converter efficiency test:		N/A			

No adjustments needed.

Notes:

Calibration Performed By:

Aswin Sasi Kumar

Finish 13.1 1.099



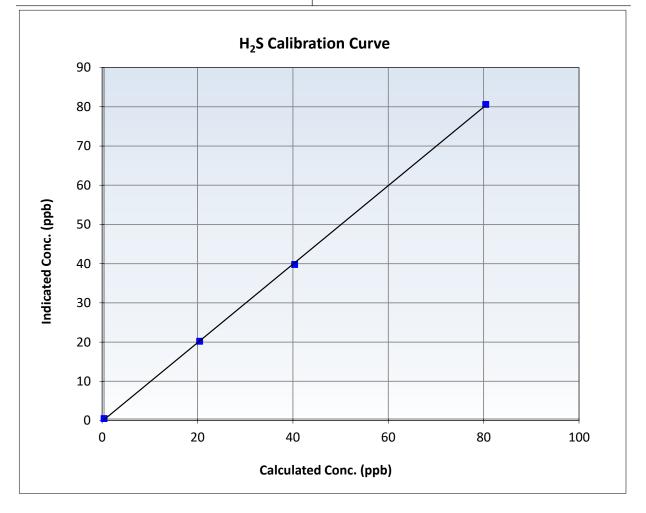
Wood Buffalo Environmental Association

H₂S Calibration Summary

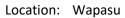
Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 20, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	10:33	End Time (MST):	15:20
Analyzer make:	Thermo 450i	Analyzer serial #:	1218153583

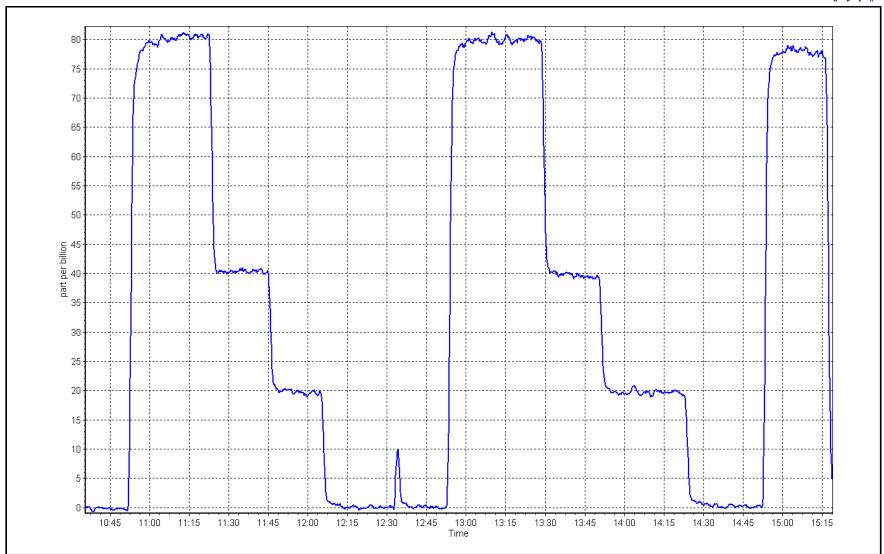
Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999904	≥0.995
80.0	80.2	0.9980	Slope	1.001218	0.90 - 1.10
40.0	39.4	1.0146	Slope	1.001218	0.90 - 1.10
20.0	19.8	1.0118	Intercept	-0.180032	+/-3













Wood Buffalo Environmental Association THC Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Wapasu April 7, 2025 10:15 Routine		Station number: Last Cal Date: End time (MST):	AMS17 March 4, 2025 13:59	
		Calibration S	tandards		
Gas Cert Reference: CH4 Cal Gas Conc. C3H8 Cal Gas Conc.	ALM066507 503.5 208.3	ppm ppm	Cal Gas Expiry Date: CH4 Equiv Conc.	January 12, 2029 1076.3	ppm
Removed Gas Cert: Removed CH4 Conc. Removed C3H8 Conc.	503.5 208.3	/a ppm ppm	Removed Gas Expiry: CH4 Equiv Conc. Diff between cyl:		ppm
Calibrator Make/Model: ZAG Make/Model:	Teledyne API T700 Teledyne API 701H		Serial Number: Serial Number:	2449 1238	
		Analyzer Info	ormation		
Analyzer make Analyzer Range	:: Thermo 51i-LT :: 0 - 20 ppm		Analyzer serial #:	1218153352	
Calibration slope: Calibration intercept:	<u>Start</u> 0.993740 -0.053360	<u>Finish</u> 1.003335 -0.176337	Background: Coefficient:	<u>Start</u> 3.230 4.337	<i>Finish</i> 3.340 4.476
		THC As Fou	nd Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	-0.15	
As found High point As found Mid point As found Low point New cylinder response	4921	79.4	17.09	16.50	1.027
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	16.65 NA NA	Previous response AF Slope: AF Correlation:	16.93	*% change AF Intercept: * = > +/-5% change initiat	-1.7% es investigation
		THC Calibrat	ion Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	-0.13	
High point	4921	79.4	17.09	17.01	1.005
Mid point	4960	39.7	8.55	8.34	1.025
Low point	4980	19.8	4.26	4.07	1.047
As left zero	5000	0.0	0.00	-0.16	
As left span	4921	79.4	17.09	17.03	1.004
			Averag	ge Correction Factor	1.026

Notes:

Span adjusted.

Calibration Performed By:

Aswin Sasi Kumar

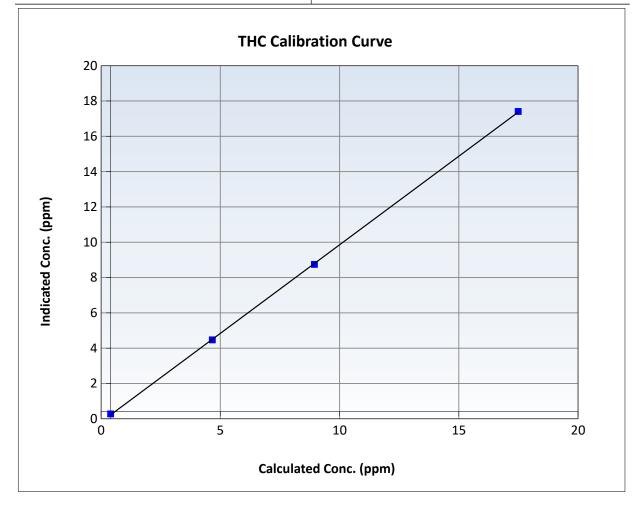


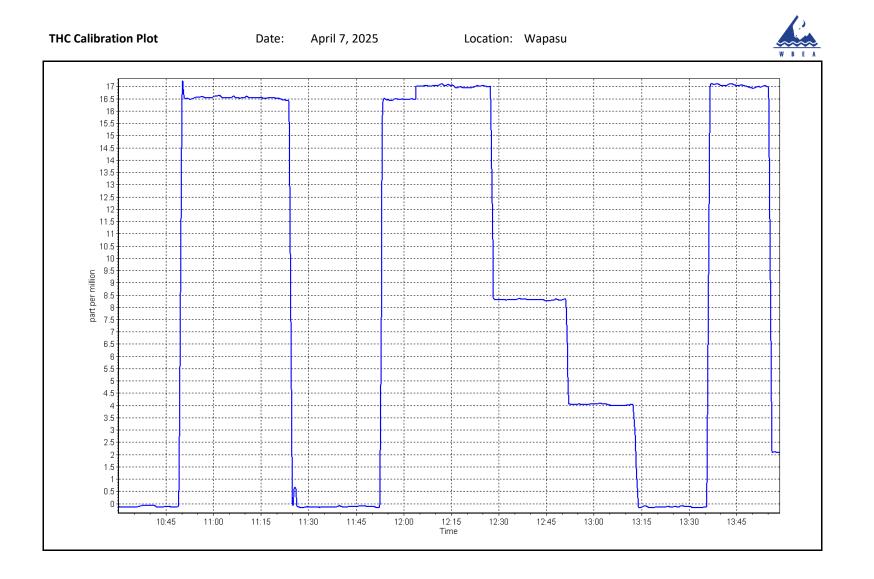
Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 4, 2025
Station Name:	Wapasu	Station Number:	AMS17
Start Time (MST):	10:15	End Time (MST):	13:59
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1218153352

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.00	-0.13		Correlation Coefficient	0.999949	≥0.995
17.09	17.01	1.0049	Slope	1.003335	0.90 - 1.10
8.55	8.34	1.0248	·		
4.26	4.07	1.0470	Intercept	-0.176337	+/-1.5







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Wapasu	NO Gas Cylinder #:	Т375ҮК8	Cal Gas Expiry Date:	April 13, 2025
Station number:	AMS 17	NOX Cal Gas Conc:	49.11 ppm	NO Cal Gas Conc:	48.07 ppm
Calibration Date:	April 8, 2025	Removed Cylinder #:	N/A	Removed Gas Exp Date	: N/A
Last Cal Date:	March 19, 2025	Removed Gas NOX Conc:	49.11 ppm	Removed Gas NO Conc	: 48.07 ppm
Start time (MST):	10:25	NOX gas Diff:		NO gas Diff:	
End time (MST):	15:44	Calibrator Model:	API T700	Serial Number:	2449
Reason:	Routine	ZAG make/model:	API T701H	Serial Number:	359

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.6	-0.2	-0.4		
AF High point	4917	83.2	817.2	799.9	17.3	818.4	798.2	20.2	0.9978	1.0019
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	817.0 ppb	NO = 797.9	ppb	* = > +/-5	% change initiates i	investigation	*Percent Chang	e NO _x =	0.2%
Baseline Corr 1	.st pt NO _x =	819.0 ppb	NO = 798.4	ppb	<u>As Four</u>	nd Statistics		*Percent Chang	e NO =	0.1%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
								Baseline Adjuste	ed NO2	
02 Cata	int (male)	Indicated NO Re	ference Indi	cated NO Drop	Calculated N	02 In	dicated NO2	Correction fa	ctor Conv	verter Efficiency

 O3 Setpoint (ppb)
 Indicated NO Reference concentration (ppb)
 Indicated NO Drop concentration (ppb)
 Calculated NO2
 Indicated NO2
 Correction factor
 Converter Efficiency

 Limit = 0.90 - 1.10
 Limit = 0.90 - 1.10
 Calculated NO2
 Limit = 0.90 - 1.10

As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo Scientific	: 42i	Serial Number: 1218153	3460			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	1.001354	0.999201
			Instrument Settings			NO _x Cal Offset:	-1.280000	-1.360000
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.999687	0.999815
NO coeff or slope:	1.084	1.084	NO bkgnd or offset:	3.8	3.8	NO Cal Offset:	-1.740000	-1.860000
NOX coeff or slope:	0.996	0.996	NOX bkgnd or offset:	4.2	4.2	NO ₂ Cal Slope:	1.002988	0.998689
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	240.6	238.6	NO ₂ Cal Offset:	0.366820	-0.611431

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	-0.4	0.0	-0.4		
High point	4917	83.2	817.2	799.9	17.3	815.8	798.9	17.0	1.0017	1.0012
Mid point	4958	41.6	408.6	399.9	8.7	406.0	396.8	9.2	1.0064	1.0079
Low point	4979	20.8	204.3	200.0	4.3	202.1	196.4	5.7	1.0109	1.0182
As left zero	5000	0.0	0.0	0.0	0.0	-0.4	-0.1	-0.4		
As left span	4917	83.2	817.2	396.7	420.5	814.5	396.7	417.8	1.0033	1.0000
							Average Co	orrection Factor	1.0063	1.0091

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/Ic) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	-0.4		
High GPT point	796.3	398.9	414.7	413.8	1.0022	99.8%
Mid GPT point	796.3	600.8	212.8	211.4	1.0066	99.3%
Low GPT point	796.3	700.5	113.1	112.4	1.0063	99.4%
			А	verage Correction Factor	1.0050	99.5%

Notes:

Sample inlet filter changed after as founds. Span adjusted.

Calibration Performed By:

Aswin Sasi Kumar

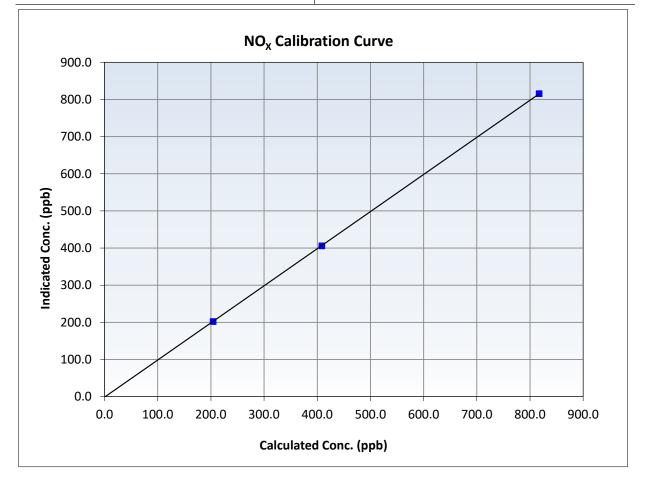


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 19, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	10:25	End Time (MST):	15:44
Analyzer make:	Thermo Scientific 42i	Analyzer serial #:	1218153460

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	-0.4		Correlation Coefficient	0.999993	≥0.995
817.2 408.6	815.8 406.0	1.0017 1.0064	Slope	0.999201	0.90 - 1.10
204.3	202.1	1.0109	Intercept	-1.360000	+/-20



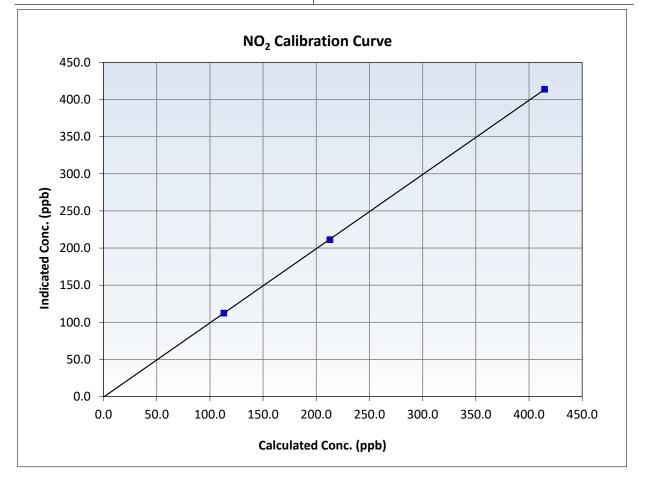


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 19, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	10:25	End Time (MST):	15:44
Analyzer make:	Thermo Scientific 42i	Analyzer serial #:	1218153460

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.4		Correlation Coefficient	0.999996	≥0.995
414.7 212.8	413.8 211.4	1.0022 1.0066	Slope	0.998689	0.90 - 1.10
113.1	112.4	1.0063	Intercept	-0.611431	+/-20



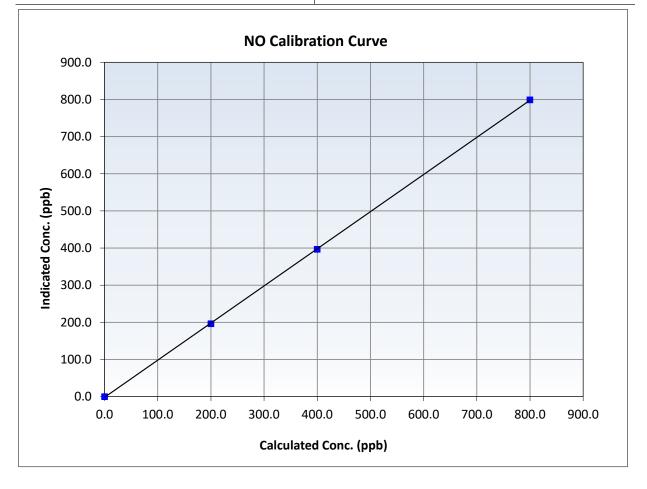


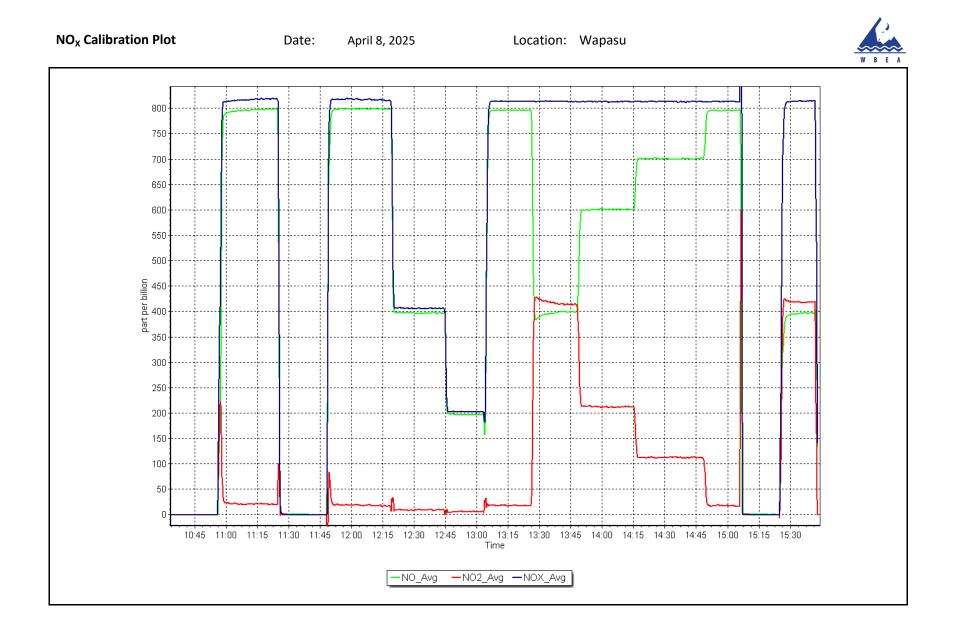
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 19, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	10:25	End Time (MST):	15:44
Analyzer make:	Thermo Scientific 42i	Analyzer serial #:	1218153460

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999975	≥0.995
799.9 399.9	798.9 396.8	1.0012 1.0079	Slope	0.999815	0.90 - 1.10
200.0	196.4	1.0182	Intercept	-1.860000	+/-20







Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Wapasu April 3, 2025 10:35 Routine		Station number: AM Last Cal Date: Ma End time (MST): 14:	rch 13, 2025	
		Calibration S	Standards		
O3 generation mode: Calibrator Make/Model: ZAG Make/Model:	Photometer API T700 API T701H		Serial Number: 244 Serial Number: 359	-	
		Analyzer Inf	ormation		
Analyzer make:	API T400		Analyzer serial #: 704	5	
Analyzer Range	0 - 500 ppb				
Calibration slope: Calibration intercept:	<u>Start</u> 1.010314 -0.280000	<u>Finish</u> 0.995943 0.160000	Backgd or Offset: Coeff or Slope:	<u>Start</u> 0.6 1.046	<u>Finish</u> 0.6 1.027

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.2	
As found High point	5000	1104.7	400.0	406.7	0.983
As found Mid point					
As found Low point					
Baseline Corr As found:	406.9	Previous response	403.8	*% change	0.8%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)		Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	5000	1104.7	400.0	398.6	1.004
Mid point	5000	917.3	200.0	199.0	1.005
Low point	5000	797.9	100.0	100.2	0.998
As left zero	5000	0.0	0.0	0.7	
As left span	5000	1104.0	400.0	399.4	1.002
·			Averag	ge Correction Factor	1.002

Notes:

Span adjusted.

Calibration Performed By:

Aswin Sasi Kumar

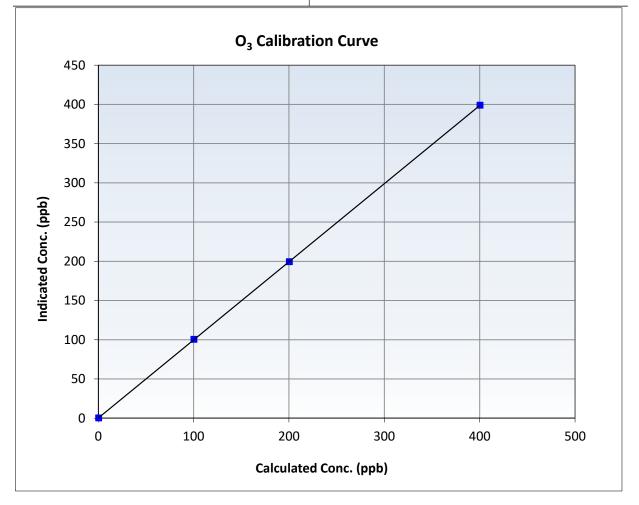


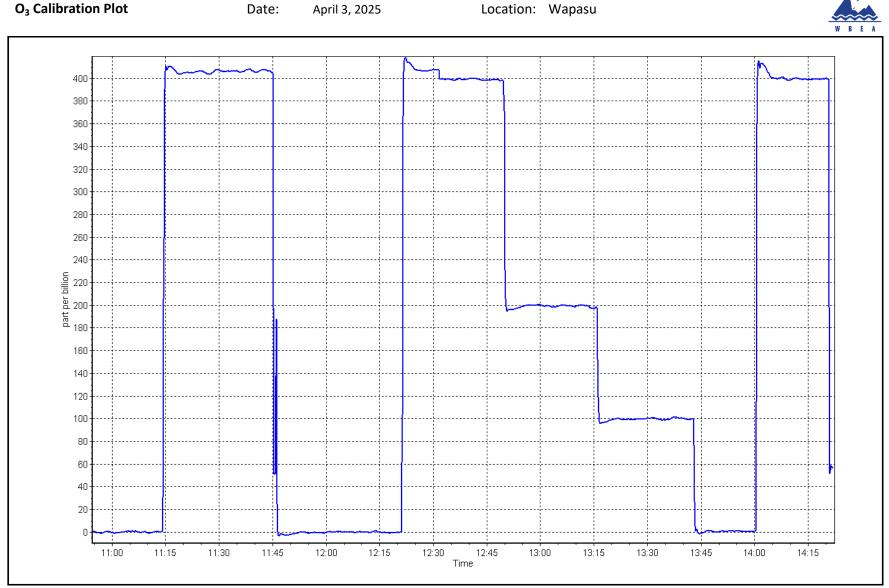
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	March 13, 2025
Station Name:	Wapasu	Station Number:	AMS17
Start Time (MST):	10:35	End Time (MST):	14:25
Analyzer make:	API T400	Analyzer serial #:	7045

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999996	≥0.995
400.0	398.6	1.0035	Slope	0.995943	0.90 - 1.10
200.0	199.0	1.0050			
100.0	100.2	0.9980	Intercept	0.160000	+/- 5





Location: Wapasu



Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name:	Wapasu		Station number: AN		
Calibration Date:	April 13, 2025		Last Cal Date: Ap	ril 3, 2025	
Start time (MST):	11:20		End time (MST): 13	:50	
Reason:	Maintenance				
		Calibration S	tandards		
		canorations	tantalas		
O3 generation mode:	Photometer				
Calibrator Make/Model:	API T700		Serial Number: 24	49	
ZAG Make/Model:	API T701H		Serial Number: 35	9	
		Analyzer Info	ormation_		
Analyzer make:	API T400		Analyzer serial #: 70	45	
Analyzer Range	0 - 500 ppb				
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.995943	1.001457	Backgd or Offset:	0.6	0.6
Calibration intercept:	0.160000	-0.680000	Coeff or Slope:	1.027	1.025
		0.4.5			
		O ₃ As Four	id Data		
					Baseline Adjusted

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)		Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero As found High point As found Mid point As found Low point					
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	NA NA NA	Previous response AF Slope: AF Correlation:		*% change AF Intercept: * = > +/-5% change initiat	NA tes investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.2	
High point	5000	1104.7	400.0	400.1	1.000
Mid point	5000	917.3	200.0	199.5	1.003
Low point	5000	797.9	100.0	98.9	1.011
As left zero	5000	0.0	0.0	0.1	
As left span	5000	1104.0	400.0	400.3	0.999
			Averag	e Correction Factor	1.004

Notes:

O3 Reference was below limits causing no readings. No as founds as the instrument was not operating upon arrival. Adjusted the lamp to increase the O3 ref. Adjusted the span.

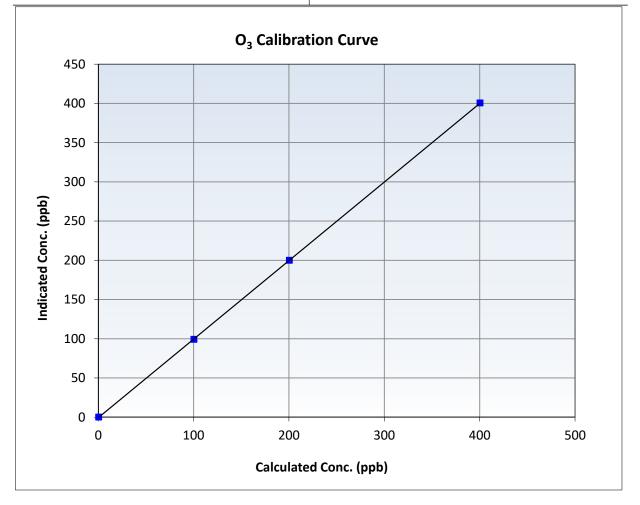


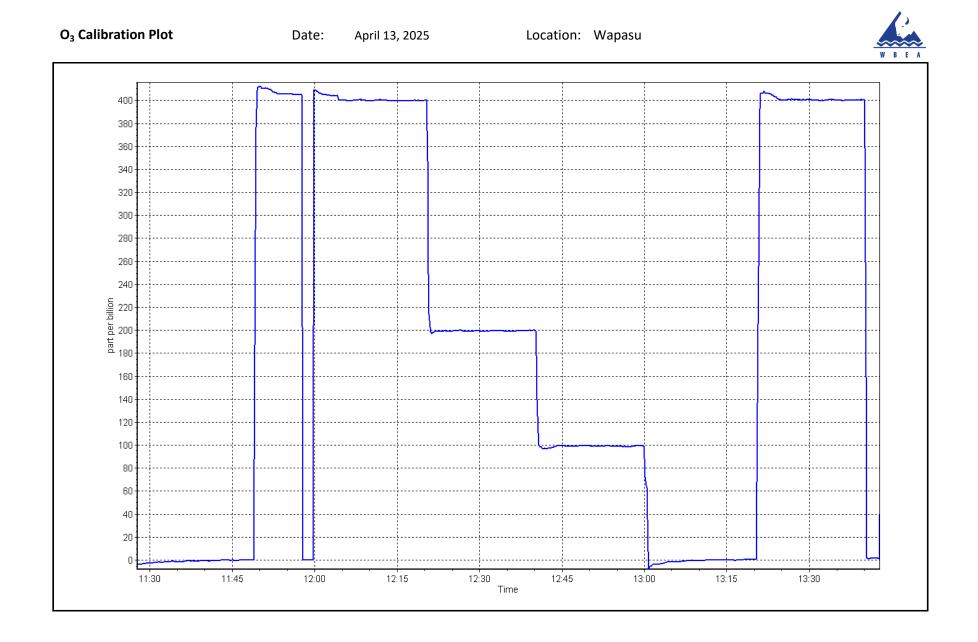
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 13, 2025	Previous Calibration:	April 3, 2025
Station Name:	Wapasu	Station Number:	AMS17
Start Time (MST):	11:20	End Time (MST):	13:50
Analyzer make:	API T400	Analyzer serial #:	7045

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999993	≥0.995
400.0	400.1	0.9998	Slope	1.001457	0.90 - 1.10
200.0	199.5	1.0025	0.000		
100.0	98.9	1.0111	Intercept	-0.680000	+/- 5







Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

					Version-01-202	
		Station Information	n			
Station Name:	Wapasu		Station number: AN			
Calibration Date:	April 15, 2025		Last Cal Date: Ma			
Start time (MST):	14:31	End time (MST): 15:12				
Analyzer Make:	Teledyne API T640	S/N: 1183				
Particulate Fraction:	PM2.5					
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 38	8749		
Temp/RH standard:	Alicat FP-25BT		S/N: 38	8749		
		Monthly Calibration T	ſest			
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)	
T (°C)	10.20	9.80	10.20		+/- 2 °C	
P (mmHg)	705.40	706.80	705.40		+/- 10 mmH	
Flow (LPM)	5.00	4.98	5.00		+/- 0.25 LPN	
PW% (pump)	33		36		>80%	
Zero Verification	PM w/o HEPA:	0.2	PM w/ HEPA:	0.0	<0.2 ug/m3	
Note: this leak check will be PM Inlet observation :	e completed before the q Inlet Head Clean	∠ Ali	gnment Factor On :	enance leak check		
	Inlet Head Clean	Alia Quarterly Calibration	gnment Factor On : Test			
	Inlet Head Clean Refractive Index:	Quarterly Calibration 10.9	gnment Factor On :		024	
PM Inlet observation :	Inlet Head Clean Refractive Index:	Alia Quarterly Calibration	gnment Factor On : Test		024	
PM Inlet observation :	Inlet Head Clean Refractive Index:	Quarterly Calibration 10.9	gnment Factor On : Test		024 (Limits)	
PM Inlet observation : SPAN DUST	Inlet Head Clean Refractive Index: Lot No.: 1	Quarterly Calibration 10.9 .00128-050-042	gnment Factor On : Test Expiry Date:	✓ October 6, 20		
PM Inlet observation : SPAN DUST <u>Parameter</u>	Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> N/A	Quarterly Calibration 10.9 00128-050-042 Post maintenance	gnment Factor On : Test Expiry Date: <u>As left</u> N/A	⊡ October 6, 20 <u>Adjusted</u>	(Limits)	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test	Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> N/A nber Cleaned:	Quarterly Calibration 10.9 00128-050-042 Post maintenance N/A	gnment Factor On : Test Expiry Date: <u>As left</u> N/A 5, 2025	⊡ October 6, 20 <u>Adjusted</u>	(Limits)	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Chan Date Disposable F	Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> N/A nber Cleaned: ilter Changed:	Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance N/A February 26	gnment Factor On : Test Expiry Date: <u>As left</u> N/A 5, 2025	⊡ October 6, 20 <u>Adjusted</u>	(Limits)	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Chan Date Disposable F	Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> N/A nber Cleaned: ilter Changed:	Alig Quarterly Calibration 10.9 00128-050-042 Post maintenance N/A February 26 March 20,	gnment Factor On : Test Expiry Date: <u>As left</u> N/A 5, 2025 2025 0.00	✓ October 6, 20 Adjusted	(Limits)	
SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Chan	Inlet Head Clean Refractive Index: Lot No.: 1 <u>As found</u> N/A nber Cleaned: ilter Changed:	Quarterly Calibration 10.9 00128-050-042 Post maintenance N/A February 26 March 20, PM w/ HEPA:	gnment Factor On : Test Expiry Date: <u>As left</u> N/A 5, 2025 2025 0.00 Ce	✓ October 6, 20 Adjusted	(Limits)	

Notes:

Flow, temp and pressure checked.

Calibration by:

Aswin Sasi Kumar



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS18 STONY MOUNTAIN APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Stony Mountain
Calibration Date:	April 28, 2025
Start time (MST):	11:05
Reason:	Routine

Station number: AMS 18 Last Cal Date: March 12, 2025 End time (MST): 14:59

Calibration Standards

Cal Gas Concentration:	51.22	ppm	Cal Gas Exp Date: October 9, 2032
Cal Gas Cylinder #:	CC417455		
Removed Cal Gas Conc:	51.22	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	CC417455		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 282
Zero Air Gen Model:	Teledyne API 701H		Serial Number: 321

Analyzer Information Serial Number: IC1501301453

Analyzer make:	Thermo 43i		Serial Number: JC	1501301453		
Analyzer Range:	0 - 1000 ppb					
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	
Calibration slope:	1.003718	1.008274	Backgd or Offset:	25.6	25.3	
Calibration intercept:	-3.279867	-2.906028	Coeff or Slope:	0.830	0.818	
	Analyzer Range: Calibration slope:	Analyzer Range: 0 - 1000 ppb <u>Start</u> Calibration slope: 1.003718	Analyzer make: Thermo 43i Analyzer Range: 0 - 1000 ppb <u>Start</u> <u>Finish</u> Calibration slope: 1.003718 1.008274	Analyzer Range: 0 - 1000 ppb <u>Start</u> <u>Finish</u> Calibration slope: 1.003718 1.008274 Backgd or Offset:	Analyzer make:Thermo 43iSerial Number: JC1501301453Analyzer Range:0 - 1000 ppbCalibration slope:1.0037181.008274Backgd or Offset:25.6	

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.3	
As found High point As found Mid point As found Low point New cylinder response	4921	78.1	800.2	814.1	0.983
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	813.8 NA NA	Previous response AF Slope: AF Correlation:	799.9	*% change AF Intercept: * = > +/-5% change initiat	1.7%

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.4	
High point	4921	78.1	800.2	804.6	0.995
Mid point	4960	39.1	400.6	402.4	0.996
Low point	4980	20.0	204.9	198.3	1.033
As left zero	5000	0.0	0.0	0.6	
As left span	4921	78.1	800.2	805.4	0.994
			Average Correction Factor:		

Notes:

Changed sample inlet filter. Span adjusted.

Calibration Performed By:

Mohammed Kashif

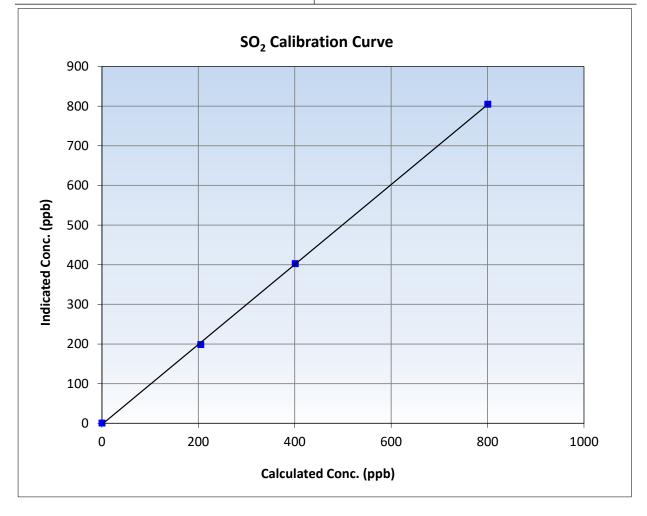


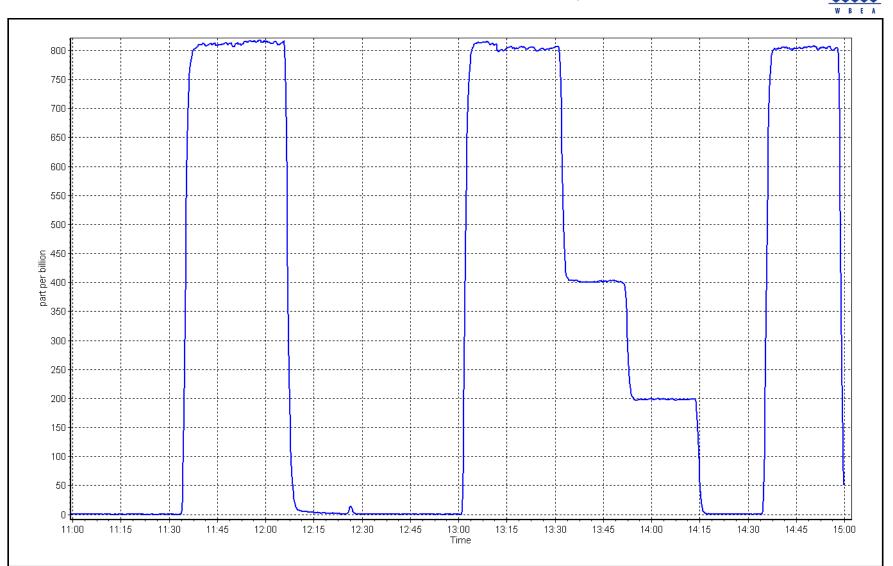
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 28, 2025	Previous Calibration:	March 12, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:05	End Time (MST):	14:59
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1501301453

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999881	≥0.995
800.2 400.6	804.6 402.4	0.9945 0.9956	Slope	1.008274	0.90 - 1.10
204.9	198.3	1.0332	Intercept	-2.906028	+/-30





SO2 Calibration Plot

Date: April 28, 2025

Location: Stony Mountain



Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Stony Mountain April 24, 2025 11:00 Routine	Station number: Last Cal Date: End time (MST):	AMS18 March 25, 2025 16:06

Calibration Standards

Cal Gas Concentration:	4.86	ppm	Cal Gas Exp Date:	May 9, 2027
Cal Gas Cylinder #:	CC523103			
Removed Cal Gas Conc:	4.86	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:			Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	2658
ZAG Make/Model:	Teledyne API T701		Serial Number:	360

Analyzer Information

Analyzer make: Converter make:	Thermo 43i-TLE CD Nova CDN-101		Analyzer serial #: Converter serial #:	1218153359 555	
Analyzer Range	0 - 100 ppb		Converter Temp:		800 degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.007792	1.002370	Backgd or Offset:	2.9	2.90
Calibration intercept:	-0.218991	0.020908	Coeff or Slope:	1.172	1.181

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	0.1	
As found High point	4917	82.3	80.0	82.7	0.969
As found Mid point	4958	41.2	40.1	41.3	0.972
As found Low point New cylinder response	4979	20.6	20.0	20.4	0.986
Baseline Corr As found:	82.6	Prev response:	80.41	*% change:	2.6%
Baseline Corr 2nd AF pt:	41.2	AF Slope:	1.033797	AF Intercept:	-0.079704
Baseline Corr 3rd AF pt:	20.3	AF Correlation:	0.999977	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4917	82.3	80.0	80.3	0.996
Mid point	4958	41.2	40.1	40.2	0.996
Low point	4979	20.6	20.0	19.7	1.016
As left zero	5000	0.0	0.0	0.4	
As left span	4917	82.3	80.0	80.4	0.995
SO2 Scrubber Check	4923	77.1	771.0	0.1	
Date of last scrubber chan	ge:	17-Dec-21		Ave Corr Factor	1.003

Span adjusted.

Date of last converter efficiency test:

Notes:

Calibration Performed By:

Aswin Sasi Kumar



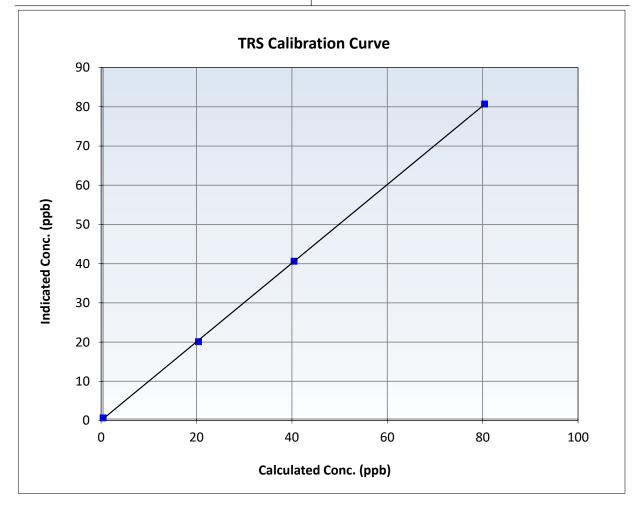
Wood Buffalo Environmental Association

TRS Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 25, 2025
Station Name:	Stony Mountain	Station Number:	AMS18
Start Time (MST):	11:00	End Time (MST):	16:06
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1218153359

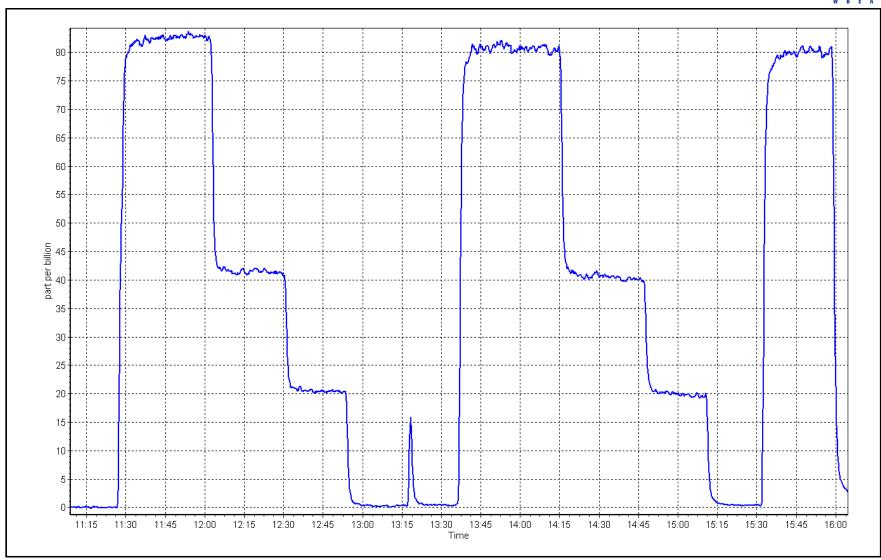
Calculated concentratior (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999932	≥0.995
80.0	80.3	0.9963	Slope	1.002370	0.90 - 1.10
40.1	40.2	0.9963	Slope	1.002570	0.90 - 1.10
20.0	19.7	1.0165	Intercept	0.020908	+/-3













Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Station Information

		Station In	ormation		
Station Name:	Stony Mountain		Station number:	AMS 18	
Calibration Date:	April 17, 2025		Last Cal Date:	March 18, 2025	
Start time (MST):	11:30		End time (MST):	16:05	
Reason:	Cylinder Change	N2 cylinder change	out		
			Charles de sele		
		Calibration			
Gas Cert Reference:		6809B	Cal Gas Expiry Date:		
CH4 Cal Gas Conc.	504.9	••	CH4 Equiv Conc.	1076.6 p	pm
C3H8 Cal Gas Conc.	207.9	••			
Removed Gas Cert:		IA	Removed Gas Expiry:		
Removed CH4 Conc.	504.9		CH4 Equiv Conc.	•	pm
Removed C3H8 Conc.	207.9	ppm	Diff between cyl (THC):		
Diff between cyl (CH ₄):			Diff between cyl (NM):		, ,
Calibrator Model:		API T750	Serial Number:	-	
Zero Air Gen model:	Teledyne	API T751H	Serial Number:	323	L
		Analyzer Ir	nformation		
Analyzer make:	Thermo 55i		Analyzer serial #:	1218153355	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	Finish		<u>Start</u>	Finish
CH4 SP Ratio:	2.17E-04	N/A	NMHC SP Ratio:	4.10E-05	N/A
CH4 Retention time:	14.2	N/A	NMHC Peak Area:		, N/A
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF
0					
		THC As Fo	ound Data		
					Baseline Adjusted
Cat Daint	Dilution air flow rate	Source gas flow rate	Calculated concentration	Indicated concentration	Baseline Adjusted Correction factor
Set Point	Dilution air flow rate (sccm)			Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero))
	(sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	(ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	(sccm) 5000	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00	(ppm) (Ic) 0.00	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero As found High point	(sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	(ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point	(sccm) 5000	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00	(ppm) (Ic) 0.00	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point As found Low point	(sccm) 5000 4921	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00	(ppm) (Ic) 0.00	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point	(sccm) 5000 4921	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00	(ppm) (Ic) 0.00	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point As found Low point	(sccm) 5000 4921	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00	(ppm) (Ic) 0.00	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point As found Low point New cylinder response	(sccm) 5000 4921	Source gas flow rate (sccm) 0.0 78.1	Calculated concentration (ppm) (Cc) 0.00 16.82	(ppm) (Ic) 0.00 16.49	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF:	(sccm) 5000 4921 16.49	Source gas flow rate (sccm) 0.0 78.1 Prev response	Calculated concentration (ppm) (Cc) 0.00 16.82	(ppm) (Ic) 0.00 16.49 *% change	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF:	(sccm) 5000 4921 16.49 NA	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation:	Calculated concentration (ppm) (Cc) 0.00 16.82 NA	(ppm) (Ic) 0.00 16.49 *% change AF Intercept:	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF:	(sccm) 5000 4921 16.49 NA	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope:	Calculated concentration (ppm) (Cc) 0.00 16.82 NA	(ppm) (Ic) 0.00 16.49 *% change AF Intercept:	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA ss investigation
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	(sccm) 5000 4921 16.49 NA	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation:	Calculated concentration (ppm) (Cc) 0.00 16.82 NA	(ppm) (Ic) 0.00 16.49 *% change AF Intercept:	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA ss investigation Correction factor
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF:	(sccm) 5000 4921 16.49 NA NA	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u>	Calculated concentration (ppm) (Cc) 0.00 16.82 NA NA	(ppm) (Ic) 0.00 16.49 *% change AF Intercept: * = > +/-5% change initiate	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA ss investigation
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate	Calculated concentration (ppm) (Cc) 0.00 16.82 NA <u>ation Data</u> Calculated concentration	(ppm) (Ic) 0.00 16.49 *% change AF Intercept: * = > +/-5% change initiate	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA ss investigation Correction factor (Cc/(Ic-AFzero))
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate	Calculated concentration (ppm) (Cc) 0.00 16.82 NA <u>ation Data</u> Calculated concentration	(ppm) (Ic) 0.00 16.49 *% change AF Intercept: * = > +/-5% change initiate	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA ss investigation Correction factor (Cc/(Ic-AFzero))
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF: Set Point Calibrator zero	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate	Calculated concentration (ppm) (Cc) 0.00 16.82 NA <u>ation Data</u> Calculated concentration	(ppm) (Ic) 0.00 16.49 *% change AF Intercept: * = > +/-5% change initiate	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA ss investigation Correction factor (Cc/(Ic-AFzero))
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00 16.82 NA ation Data Calculated concentration (ppm) (Cc)	(ppm) (Ic) 0.00 16.49 *% change AF Intercept: * = > +/-5% change initiate	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA ss investigation Correction factor (Cc/(Ic-AFzero))
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point As left zero	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate (sccm)	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate (sccm) 0.0	Calculated concentration (ppm) (Cc) 0.00 16.82 NA ation Data Calculated concentration (ppm) (Cc) 0.00	(ppm) (lc) 0.00 16.49 *% change AF Intercept: * => +/-5% change initiate Indicated concentration (ppm) (lc) 0.00	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA so investigation Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate (sccm)	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc) 0.00 16.82 NA ation Data Calculated concentration (ppm) (Cc) 0.00 16.82	(ppm) (lc) 0.00 16.49 *% change AF Intercept: * = > +/-5% change initiate Indicated concentration (ppm) (lc) 0.00 16.52	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA es investigation Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point As left zero	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate (sccm)	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate (sccm) 0.0	Calculated concentration (ppm) (Cc) 0.00 16.82 NA ation Data Calculated concentration (ppm) (Cc) 0.00 16.82	(ppm) (lc) 0.00 16.49 *% change AF Intercept: * => +/-5% change initiate Indicated concentration (ppm) (lc) 0.00	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA so investigation Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF: Set Point Calibrator zero High point Mid point Low point As left zero	(sccm) 5000 4921 16.49 NA NA Dilution air flow rate (sccm)	Source gas flow rate (sccm) 0.0 78.1 Prev response AF Slope: AF Correlation: <u>THC Calibr</u> Source gas flow rate (sccm) 0.0 78.1	Calculated concentration (ppm) (Cc) 0.00 16.82 NA ation Data Calculated concentration (ppm) (Cc) 0.00 16.82	(ppm) (lc) 0.00 16.49 *% change AF Intercept: * => +/-5% change initiate Indicated concentration (ppm) (lc) 0.00 16.52 ge Correction Factor	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10 1.020 NA so investigation Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05



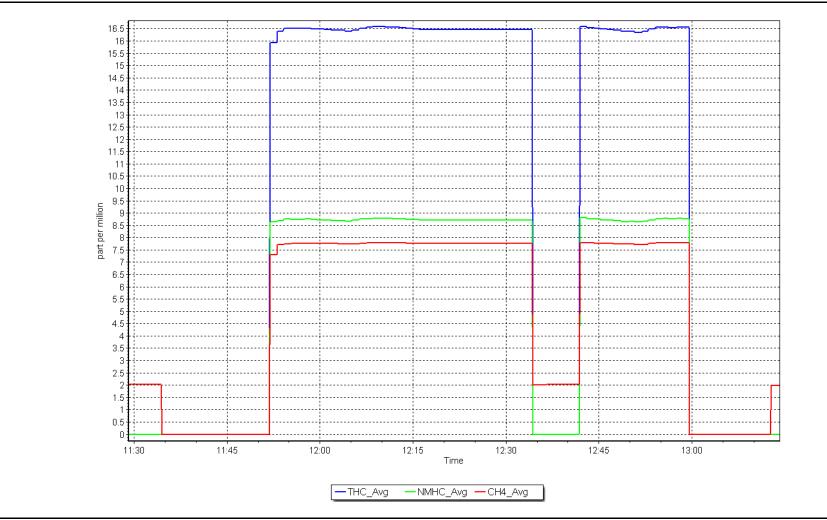
Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point As found Low point New cylinder response	5000 4921	0.0 78.1	0.00 8.93	0.00 8.73	1.023
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	8.73 NA NA	Prev response AF Slope: AF Correlation:	NA	*% change AF Intercept: * = > +/-5% change initiate	NA
				,	
		NMHC Calibi			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Limit = 0.95-1.05
Calibrator zero High point Mid point Low point As left zero As left span	5000 4921	0.0 78.1	0.00 8.93 Avera	0.00 8.74 ge Correction Factor	1.022
		CH4 As For	und Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero As found High point As found Mid point As found Low point New cylinder response	5000 4921	0.0 78.1	0.00 7.89	0.00 7.76	1.016
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	7.76 NA NA	Prev response AF Slope: AF Correlation:	NA	*% change AF Intercept: * = > +/-5% change initiate	NA es investigation
		CH4 Calibra	tion Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero High point Mid point Low point As left zero As left span	5000 4921	0.0 78.1	0.00 7.89 Avera	0.00 7.77 ge Correction Factor	 1.015
		Calibration	Statistics		
THC Cal Slope: THC Cal Offset: CH4 Cal Slope: CH4 Cal Offset: NMHC Cal Slope: NMHC Cal Offset: Calibration Per	formed By:	<u>Start</u> Aswin Sasi Kumar		<u>Finish</u>	

NMHC Calibration Plot







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC/CH4 Range: 0 - 10 ppm

Station Information

	Static		
Station Name:	Stony Mountain	Station number: AMS	18
Calibration Date:	April 28, 2025	Last Cal Date: Marc	h 18, 2025
Start time (MST):	11:05	End time (MST): 14:59)
Reason:	Routine		
	Calibra	ation Standards	
Gas Cert Reference:	XC026809B	Cal Gas Expiry Date:	January 12, 2029
CH4 Cal Gas Conc.	504.9 ppm	CH4 Equiv Conc.	1076.6 ppm
C3H8 Cal Gas Conc.	207.9 ppm		
Removed Gas Cert:	NA	Removed Gas Expiry:	NA
Removed CH4 Conc.	504.9 ppm	CH4 Equiv Conc.	1076.6 ppm
Removed C3H8 Conc.	207.9 ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):		Diff between cyl (NM):	
Calibrator Model:	Teledyne API T750	Serial Number:	282
Zero Air Gen model:	Teledyne API T751H	Serial Number:	321
	Analyz	zer Information	
Analyzer make:	Thermo 55i	Analyzer serial #: 1218	153355

THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.17E-04	2.21E-04	NMHC SP Ratio:	4.10E-05	4.15E-05
CH4 Retention time:	14.2	14.4	NMHC Peak Area:	217649	215036
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.02	
As found High point	4921	78.1	16.82	16.38	1.028
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.36	Prev response	16.83	*% change	-2.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	78.1	16.82	16.82	1.000
Mid point	4960	39.1	8.42	8.39	1.004
Low point	4980	20.0	4.31	4.17	1.032
As left zero	5000	0.0	0.00	0.00	
As left span	4921	78.1	16.82	16.80	1.001
			Avera	ge Correction Factor	1.012

Notes:

Changed H2 cylinder and sample inlet filter. Adjusted zero and span.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	78.1	8.93	8.66	1.032
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	8.66 NA NA	Prev response AF Slope: AF Correlation:	8.96	*% change AF Intercept: * = > +/-5% change initia	

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	78.1	8.93	8.92	1.001
Mid point	4960	39.1	4.47	4.46	1.002
Low point	4980	20.0	2.29	2.23	1.027
As left zero	5000	0.0	0.00	0.00	
As left span	4921	78.1	8.93	8.96	0.997
			Avera	ge Correction Factor	1.010

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.02	
As found High point As found Mid point As found Low point New cylinder response	4921	78.1	7.89	7.72	1.024
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	7.70 NA NA	Prev response AF Slope: AF Correlation:	7.87	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point Dilution air flow rate (sccm)		Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	78.1	7.89	7.89	0.999
Mid point	4960	39.1	3.95	3.92	1.006
Low point	4980	20.0	2.02	1.95	1.038
As left zero	5000	0.0	0.00	0.00	
As left span	4921	78.1	7.89	7.84	1.007
			Avera	age Correction Factor	1.015

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.003220	1.001998
THC Cal Offset:	-0.041072	-0.057041
CH4 Cal Slope:	1.001011	1.003000
CH4 Cal Offset:	-0.021650	-0.033289
NMHC Cal Slope:	1.005632	1.000998
NMHC Cal Offset:	-0.020230	-0.023550

Calibration Performed By:

Mohammed Kashif

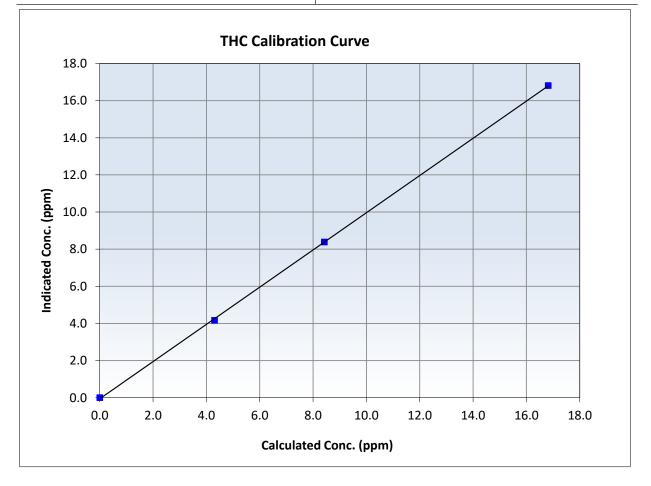


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 28, 2025	Previous Calibration:	March 18, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:05	End Time (MST):	14:59
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999927	≥0.995
16.82 8.42	16.82 8.39	1.0003 1.0040	Slope	1.001998	0.90 - 1.10
4.31	4.17	1.0320	Intercept	-0.057041	+/-0.5



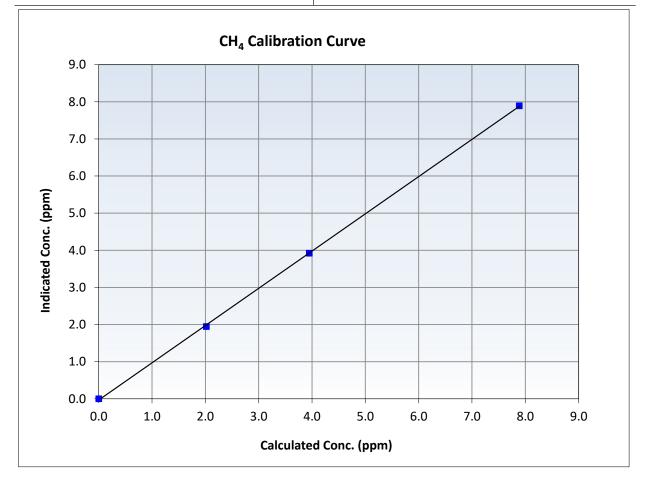


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 28, 2025	Previous Calibration:	March 18, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:05	End Time (MST):	14:59
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	<u>Limits</u>	
0.00	0.00		Correlation Coefficient	0.999892	≥0.995
7.89	7.89	0.9995	Slope	1.003000	0.90 - 1.10
3.95 2.02	3.92 1.95	1.0064 1.0378	Intercent	-0.033289	+/-0.5
			Intercept	-0.033289	+/-0.5



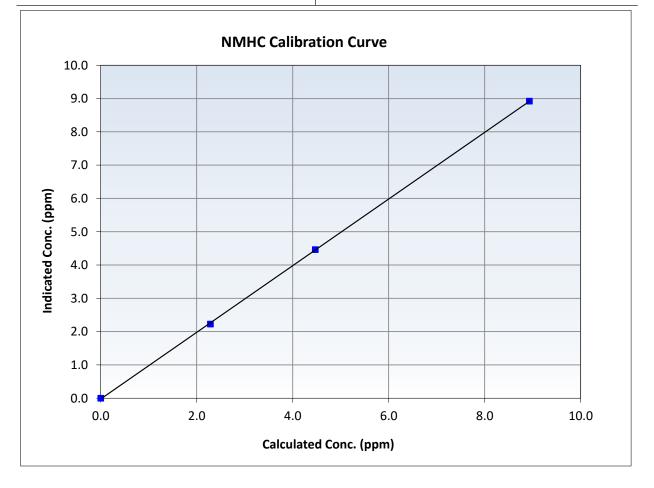


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

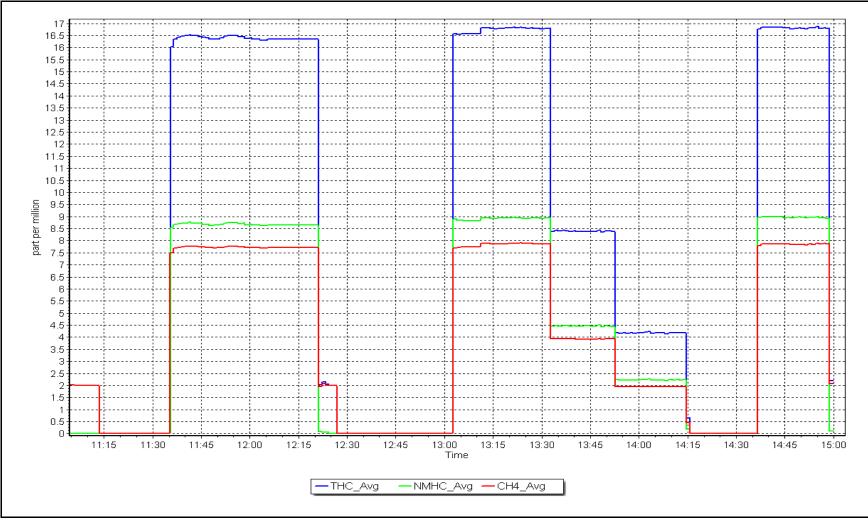
Calibration Date:	April 28, 2025	Previous Calibration:	March 18, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:05	End Time (MST):	14:59
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	<u>Limits</u>	
0.00	0.00		Correlation Coefficient	0.999950	≥0.995
8.93 4.47	8.92 4.46	1.0011 1.0019	Slope	1.000998	0.90 - 1.10
2.29	2.23	1.0269	Intercept	-0.023550	+/-0.5



NMHC Calibration Plot







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Stony Mountain	NO Gas Cylinder #:	DT0045516	Cal Gas Expiry Date:	November 17, 2026
Station number:	AMS 18	NOX Cal Gas Conc:	60.30 ppm	NO Cal Gas Conc:	60.10 ppm
Calibration Date:	April 24, 2025	Removed Cylinder #:	N/A	Removed Gas Exp Date	: N/A
Last Cal Date:	March 25, 2025	Removed Gas NOX Conc:	60.30 ppm	Removed Gas NO Conc	: 60.10 ppm
Start time (MST):	11:00	NOX gas Diff:		NO gas Diff:	
End time (MST):	16:55	Calibrator Model:	Teledyne API T750	Serial Number:	282
Reason:	Routine	ZAG make/model:	Teledyne API 751H	Serial Number:	321

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-1.0	-0.9	-0.1		
AF High point	4933	66.6	803.3	800.6	2.7	792.0	795.3	-3.3	1.0129	1.0055
AF Mid point AF Low point New cyl resp										
Previous Respo	4933 NO _x =	801.8 ppb	NO = 801.9	ppb	* = > +/-59	% change initiates i	investigation	*Percent Chang	ge NO _x =	-1.1%
Baseline Corr 1	st pt NO _x =	793.0 ppb	NO = 796.2	ppb	<u>As Foun</u>	d Statistics		*Percent Chang	ge NO =	-0.7%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO _x r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _X =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calibr	ration Data				
O3 Setpo	bint (ppb)	Indicated NO Rei concentration		cated NO Drop entration (ppb)	Calculated No concentration (pp		dicated NO2 ntration (ppb) (Ic)	Baseline Adjust Correction fa (Cc/(Ic-AFze	actor Conv	verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Teledyne API T20	00	Serial Number: 1035	5			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.999208	0.995141
			Instrument Settings			NO _x Cal Offset:	-0.808436	-1.829828
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.003246	1.002849
NO coeff or slope:	0.938	0.949	NO bkgnd or offset:	-28.3	-25.9	NO Cal Offset:	-1.307881	-2.669053
NOX coeff or slope:	0.935	0.941	NOX bkgnd or offset:	-28.0	-25.4	NO ₂ Cal Slope:	0.987109	0.990662
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	7.3	7.3	NO ₂ Cal Offset:	-0.087128	-1.030634

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.1		
High point	4933	66.6	803.3	800.6	2.7	798.3	801.7	-3.4	1.0062	0.9986
Mid point	4967	33.3	401.6	400.2	1.3	397.1	396.8	0.3	1.0113	1.0087
Low point	4983	16.6	200.2	199.5	0.7	195.7	195.3	0.4	1.0231	1.0218
As left zero	5000	0.0	0.0	0.0	0.0	0.5	0.7	-0.2		
As left span	4933	66.6	803.3	345.5	457.8	787.5	345.5	442.0	1.0200	1.0000
							Average Co	orrection Factor	1.0135	1.0097

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (C	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	-0.1		
High GPT point	802.1	404.2	400.6	396.3	1.0108	98.9%
Mid GPT point	802.1	604.8	200.0	196.5	1.0176	98.3%
Low GPT point	802.1	701.7	103.1	100.2	1.0286	97.2%
				Average Correction Factor	1.0190	98.1%

Notes:

Portable calibration system used. Zero and Span adjusted.

Calibration Performed By:

Aswin Sasi Kumar

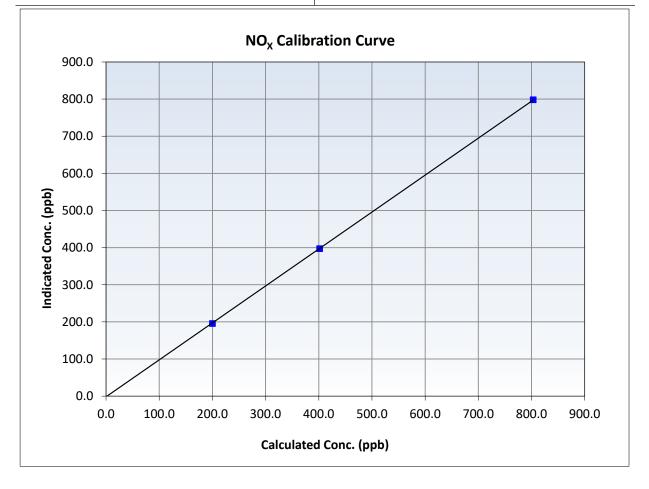


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 25, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:00	End Time (MST):	16:55
Analyzer make:	Teledyne API T200	Analyzer serial #:	1035

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999981	≥0.995
803.3 401.6	798.3 397.1	1.0062 1.0113	Slope	0.995141	0.90 - 1.10
200.2	195.7	1.0231	Intercept	-1.829828	+/-20



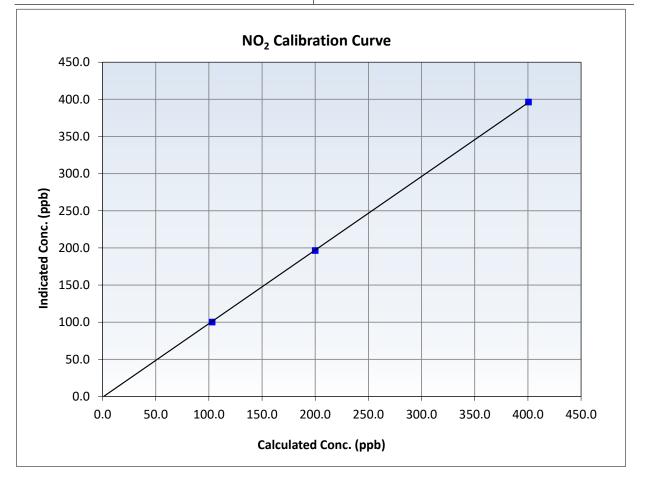


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 25, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:00	End Time (MST):	16:55
Analyzer make:	Teledyne API T200	Analyzer serial #:	1035

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999974	≥0.995
400.6 200.0	396.3 196.5	1.0108 1.0176	Slope	0.990662	0.90 - 1.10
103.1	100.2	1.0286	Intercept	-1.030634	+/-20



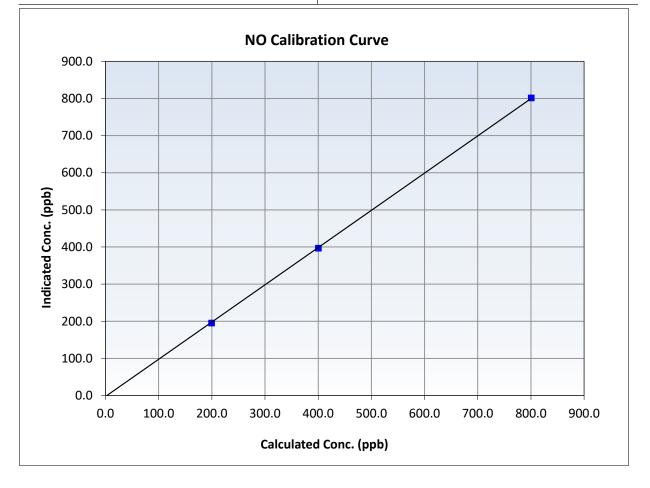


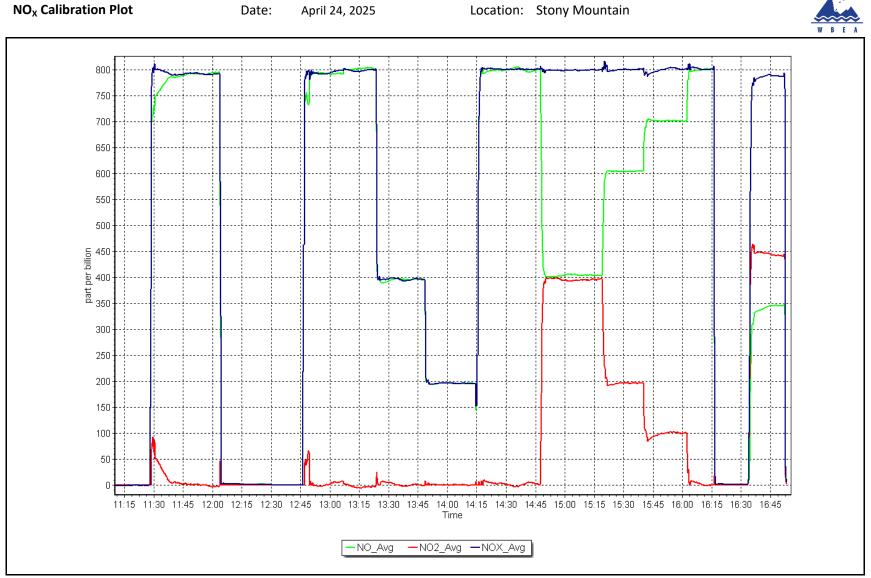
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 25, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:00	End Time (MST):	16:55
Analyzer make:	Teledyne API T200	Analyzer serial #:	1035

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999952	≥0.995
800.6 400.2	801.7 396.8	0.9986 1.0087	Slope	1.002849	0.90 - 1.10
199.5	195.3	1.0218	Intercept	-2.669053	+/-20







Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Stony Mountain April 16, 2025 10:57 Routine	Station number: AMS 18 Last Cal Date: March 6, 2025 End time (MST): 14:38		
		Calibration Star	ndards	
O3 generation mode:	Photometer			
Calibrator Make/Model:	Teledyne API T700		Serial Number: 2658	
ZAG Make/Model:	Teledyne API 701H		Serial Number: 355	
		Analyzer Inform	nation	
Analyzer make:	API T400		Analyzer serial #: 825	
Analyzer Range	0 - 500 ppb			
	<u>Start</u>	<u>Finish</u>		<u>Start</u>
Calibration slope:	0.997629	0.997657	Backgd or Offset:	2.0
Calibration intercept:	0.840000	0.960000	Coeff or Slope:	1.027

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	NA	0.0	0.0	
As found High point	4888	1138.1	400.0	407.0	0.983
As found Mid point					
As found Low point					
Baseline Corr As found:	407.0	Previous response	399.9	*% change	1.7%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	ites investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	NA	0.0	0.4	
High point	4888	1138.1	400.0	399.5	1.001
Mid point	4888	884.5	200.0	201.5	0.993
Low point	4888	741.4	100.0	100.8	0.992
As left zero	5000	NA	0.0	0.4	
As left span	4812	1097.9	400.0	399.8	1.001
			Averag	e Correction Factor	0.995

Notes:

Span adjusted.

Calibration Performed By:

Aswin Sasi Kumar

<u>Finish</u> 2.0

1.012

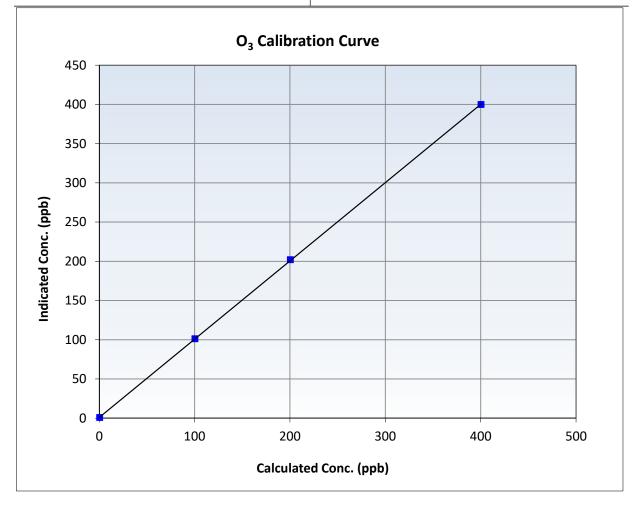


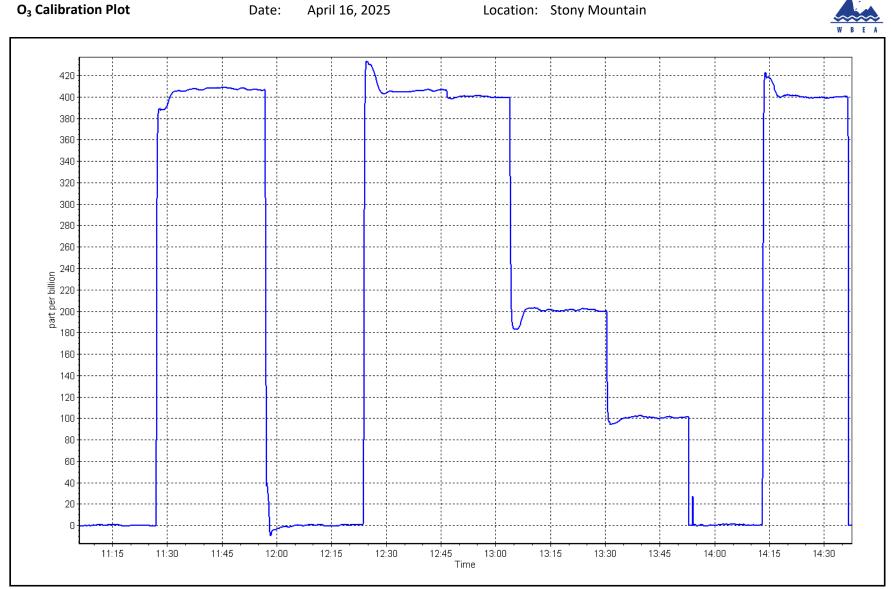
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 6, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:57	End Time (MST):	14:38
Analyzer make:	API T400	Analyzer serial #:	825

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999982	≥0.995
400.0	399.5	1.0013	Slope	0.997657	0.90 - 1.10
200.0 100.0	201.5 100.8	0.9926 0.9921	Intercept	0.960000	+/- 5
			intercept	0.500000	17 5







Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-20
		Station Information	า		
tation Name:	Stony Mountain		Station number: AN		
Calibration Date:	April 28, 2025		Last Cal Date: Ma		
Start time (MST):	15:00		End time (MST): 15	:13	
Analyzer Make:	API T640		S/N: 32	4	
Particulate Fraction:	PM2.5				
low Meter Make/Model:	Alicat FP-25BT		S/N: 38	8749	
Temp/RH standard:	Alicat FP-25BT		S/N: 38	8749	
		Monthly Calibration T	est		
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T ([°] C)	13.9	13.7	13.9		+/- 2 °C
P (mmHg)	697.8	697.51	697.8		+/- 10 mmH
Flow (LPM)	5.02	5.123	5.02		+/- 0.25 LPI
PW% (pump)	71		71		>80%
Zero Verification	PM w/o HEPA:	2.2	PM w/ HEPA:	0.0	<0.2 ug/m
		Quarterly Calibration	Test		
	Refractive Index:	10.9	Expiry Date:	October 10, 2	2024
SPAN DUST		100128-050-042		,	-
Paramotor	As found	Post maintenance	As loft	Adjusted	(Limits)
Parameter			<u>As left</u>		
PMT Peak Test	11.0	11	11.0		+/- 0.5
Date Optical Char	nber Cleaned:	February 27	7, 2025		
Date Disposable F	ilter Changed:	December 20, 2024			
Post- maintenance Zero Ve	rification:	PM w/ HEPA:	0.0	<0.2 ug/m3	
		Annual Maintenand	e		
			224		
Date Sample Tu Date RH/T Sens		July 4, 20 July 4, 20			
		July 4, 21			
		Elow town and proce	ure checked. Leak che	ek passad	
Notes:		now, temp and pless	are checked. Leak the	ur passeu.	

Calibration by:

Mohammed Kashif



Wood Buffalo Environmental Association CO Calibration Report

Station Information

Station Name:Stony MountainCalibration Date:April 23, 2025Start time (MST):10:50Reason:Routine

Station number: AMS 18 Last Cal Date: March 3, 2025 End time (MST): 13:37

Calibration Standards

Cal Gas Concentration:	3,080	ppm	Cal Gas Exp Date: November 4, 2028
Cal Gas Cylinder #:	EB0065608		
Removed Cal Gas Conc:	3,080	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Make/Model:	Teledyne API T700)	Serial Number: 2658
ZAG Make/Model:	Teledyne API T701	.Н	Serial Number: 355

Analyzer Information

Analyzer make: Analyzer Range:	Teledyne API T300 0 - 50 ppm		Analyzer serial #: 3504		
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.997355	1.002362	Backgd or Offset:	-0.012	-0.012
Calibration intercept:	0.081757	0.201757	Coeff or Slope:	0.907	0.907

CO As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4933	66.7	41.1	41.3	0.998
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	41.16 NA NA	Prev response: AF Slope: AF Correlation:	41.06	*% change: AF Intercept: * = > +/-5% change initiate	0.2%

CO Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4933	66.7	41.1	41.3	0.994
Mid point	4966	33.3	20.5	20.9	0.982
Low point	4983	16.7	10.3	10.5	0.982
As left zero	5000	0.0	0.0	0.2	
As left span	4933	66.7	41.1	41.5	0.991
			Avera	ge Correction Factor	0.986

Notes:

No adjustments made.

Calibration Performed By:

Aswin Sasi Kumar

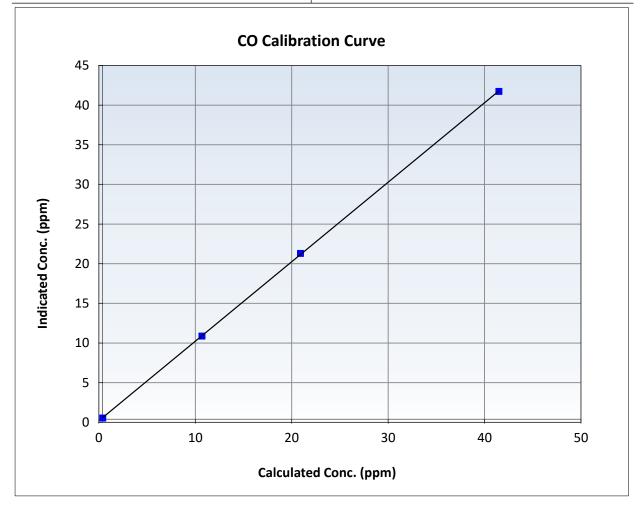


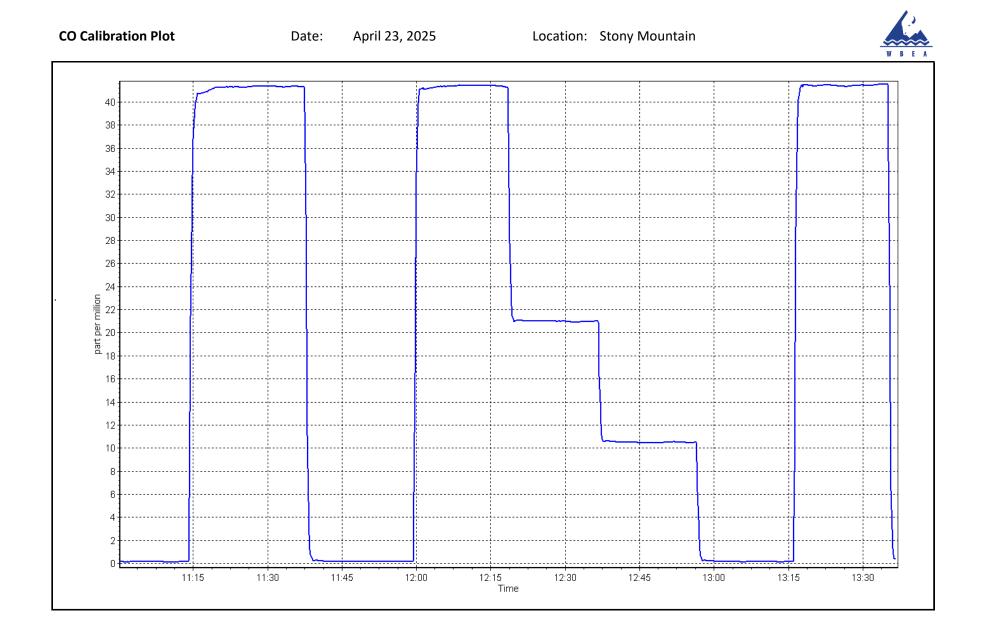
Wood Buffalo Environmental Association CO Calibration Summary

Station Information

Calibration Date:	April 23, 2025	Previous Calibration:	March 3, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:50	End Time (MST):	13:37
Analyzer make:	Teledyne API T300	Analyzer serial #:	3504

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999974	≥0.995
41.1 20.5	41.3 20.9	0.9942 0.9816	Slope	1.002362	0.90 - 1.10
10.3	10.5	0.9817	Intercept	0.201757	+/-1.5







Analyzer make:

Analyzer Range

Wood Buffalo Environmental Association CO₂ Calibration Report

Station Information

Station Name:	Stony Mour
Calibration Date:	April 22, 20
Start time (MST):	10:46
Reason:	Routine

ntain)25

API T360

0 - 2,000 ppm

Station number: AMS 18 Last Cal Date: March 27, 2025 End time (MST): 14:03

Calibration Standards

Cal Gas Concentration:	59,100	ppm	Cal Gas Exp Date: November 4, 2028
Cal Gas Cylinder #:	EB0065608		
Removed Cal Gas Conc:	59,100	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Make/Model:	Teledyne API T700		Serial Number: 2658
N2 Gen Make/Model:	Peak Scientific		Serial Number: 771048318

Analyzer Information

Analyzer serial #: 489

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.998644	1.001298	Backgd or Offset:	-0.068	-0.068
Calibration intercept:	-1.640000	-2.520000	Coeff or Slope:	0.960	0.960

CO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	3000	0.0	0.0	0.0	
As found High Point As found Mid Point As found Low Point New cylinder response	2920	80.0	1576.0	1571.6	1.003
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	1571.6 NA NA	Prev response: AF Slope: AF Correlation:	1572.2	*% change: AF Intercept: * = > +/-5% change initiat	0.0% es investigation

CO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	3000	0.0	0.0	0.4	
High point	2920	80.0	1576.0	1578.5	0.998
Mid point	2960	40.0	788.0	780.5	1.010
Low point	2980	20.0	394.0	392.1	1.005
As left zero	3000	0.0	0.0	0.0	
As left span	2930	80.0	1570.8	1578.9	0.995
			Avera	1.004	

Notes:

No adjustments needed.

Calibration Performed By:

Aswin Sasi Kumar

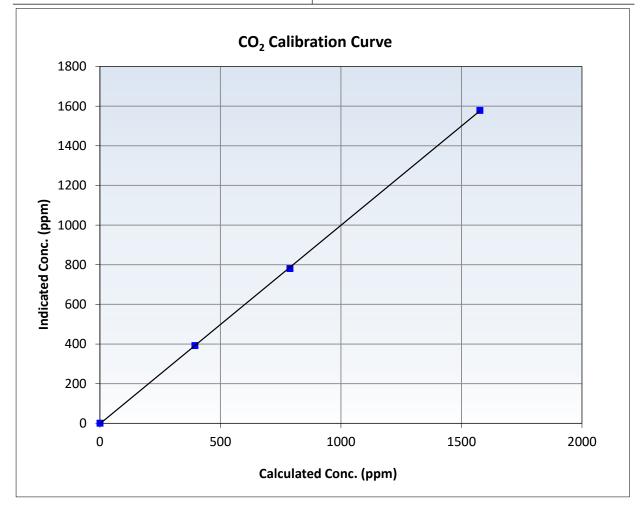


Wood Buffalo Environmental Association CO₂ Calibration Summary

Station Information

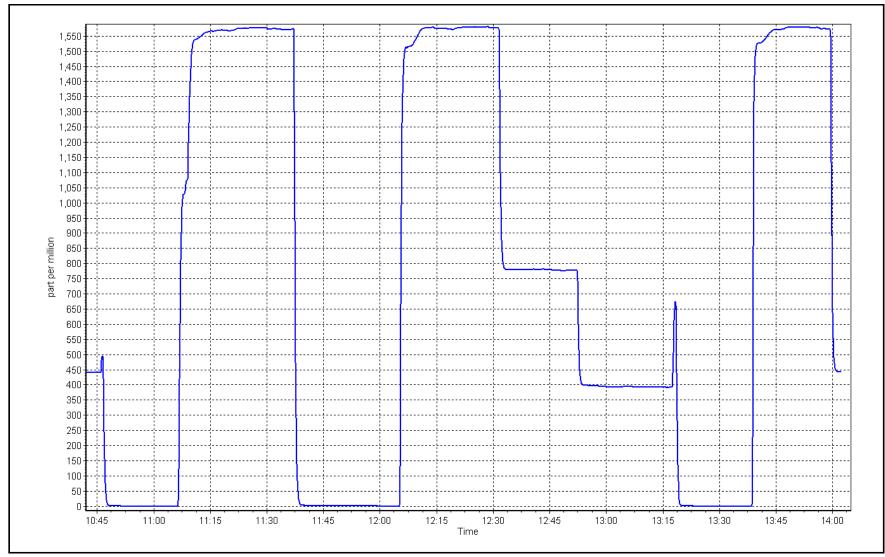
Calibration Date	April 22, 2025	Previous Calibration	March 27, 2025
Station Name	Stony Mountain	Station Number	AMS 18
Start Time (MST)	10:46	End Time (MST)	14:03
Analyzer make	API T360	Analyzer serial #	489

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999961	≥0.995
1576.0 788.0	1578.5 780.5	0.9984 1.0096	Slope	1.001298	0.90 - 1.10
394.0	392.1	1.0048	Intercept	-2.5	+/-20











WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS19 FIREBAG APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Firebag
Calibration Date:	April 28
Start time (MST):	10:55
Reason:	Routine

, 2025

Thermo 43i

0 - 1000 ppb

Station number: AMS 19 Last Cal Date: March 15, 2025 End time (MST): 14:09

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	50.97 CC705799	ppm	Cal Gas Exp Date: October 9, 2032
Removed Cal Gas Conc:	50.97	ppm	Rem Gas Exp Date:
Removed Gas Cyl #:			Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 1607
Zero Air Gen Model:	Teledyne API T701	Н	Serial Number: 201

Analyzer Information

Serial Number: 1410661308

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.002848	0.994511	Backgd or Offset:	10.9	10.8
Calibration intercept:	0.800000	0.940000	Coeff or Slope:	1.005	1.005

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	4999	0.0	0.0	0.3	
As found High point As found Mid point As found Low point New cylinder response	4922	78.4	799.2	796.3	1.004
Baseline Corr As found: Baseline Corr 2nd AF pt:	796.0 NA	Previous response AF Slope:	802.3	*% change AF Intercept:	-0.8%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	4999	0.0	0.0	0.4	
High point	4922	78.4	799.2	795.5	1.005
Mid point	4961	39.2	399.6	398.6	1.003
Low point	4980	19.6	199.8	200.2	0.998
As left zero	4999	0.0	0.0	0.2	
As left span	4922	78.4	799.2	797.6	1.002
			Averag	ge Correction Factor:	1.002

Notes:

Changed sample inlet filter after as founds. No adjustments made.

Calibration Performed By:

Braiden Boutilier

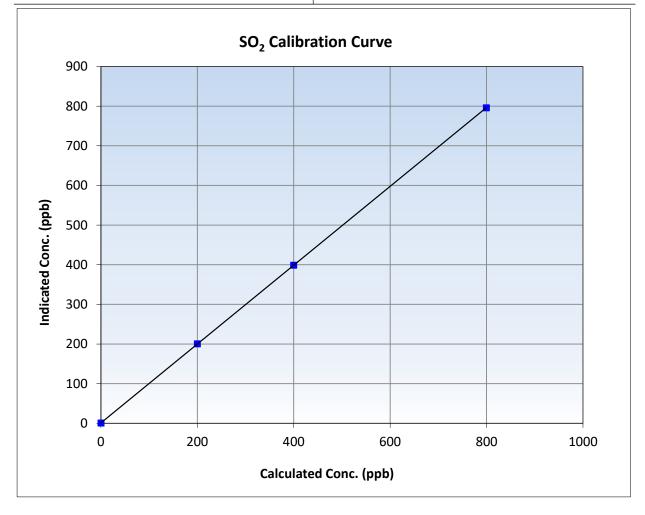


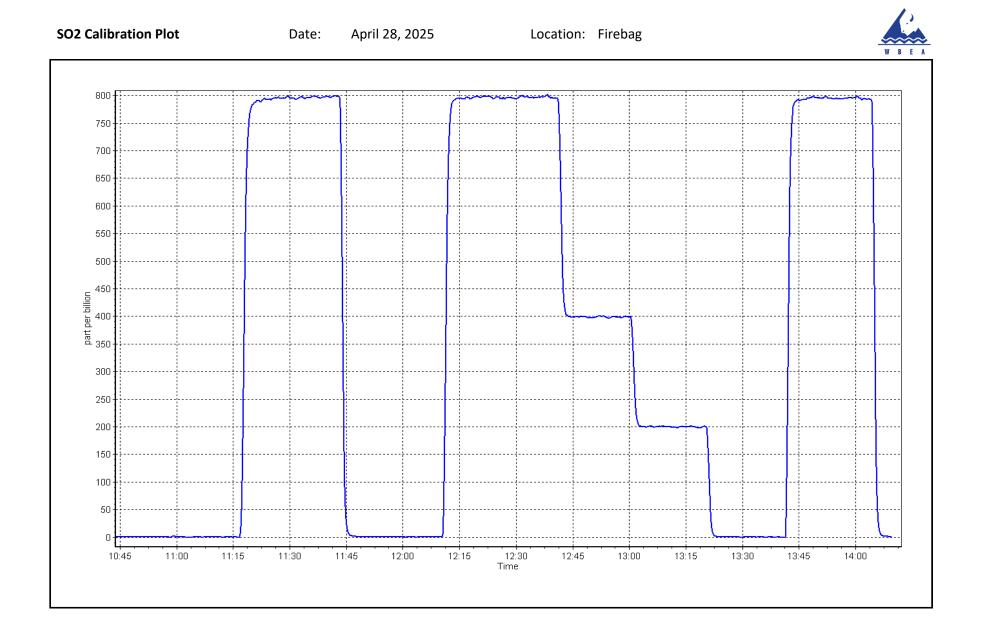
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 28, 2025	Previous Calibration:	March 15, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	10:55	End Time (MST):	14:09
Analyzer make:	Thermo 43i	Analyzer serial #:	1410661308

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999998	≥0.995
799.2	795.5	1.0047	Slope	0.994511	0.90 - 1.10
399.6 199.8	398.6 200.2	1.0025 0.9980			
133.0	200.2	0.9980	Intercept	0.940000	+/-30







Calibration slope:

Calibration intercept:

Wood Buffalo Environmental Association H2S Calibration Report

Station Information

		<u>station mis</u>	Induon						
Station Name: Calibration Date: Start time (MST): Reason:	Firebag April 29, 2025 10:30 Routine		Station number: Last Cal Date: End time (MST):	AMS 19 March 4, 2025 14:54					
		Calibration S	tandards						
Cal Gas Concentration: Cal Gas Cylinder #:	5.29 DT0010492	ppm	Cal Gas Exp Date:	March 19, 202	7				
Removed Cal Gas Conc: Removed Gas Cyl #:	5.29 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA					
Calibrator Make/Model:			Serial Number:	1607					
ZAG Make/Model:	Teledyne API T701		Serial Number:	201					
Analyzer Information									
Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1151680032					
Converter make:	Global		Converter serial #:	2022-222					
Analyzer Range	0 - 100 ppb		Converter Temp:		325	degC			
	<u>Start</u>	<u>Finish</u>		<u>Start</u>			F		

1.007763

-0.040000

1.001762

0.020000

H2S As Found Data

Backgd or Offset:

Coeff or Slope:

3.07

1.214

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.2	
As found High point	4924	75.6	80.0	81.7	0.977
As found Mid point	4962	37.8	40.0	40.9	0.973
As found Low point	4981	18.9	20.0	20.1	0.985
New cylinder response					
Baseline Corr As found:	81.9	Prev response:	80.15	*% change:	2.1%
Baseline Corr 2nd AF pt:	41.1	AF Slope:	1.024909	AF Intercept:	-0.240000
Baseline Corr 3rd AF pt:	20.3	AF Correlation:	0.999986	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.2	
High point	4924	75.6	80.0	80.4	0.995
Mid point	4962	37.8	40.0	40.6	0.985
Low point	4981	18.9	20.0	20.1	0.995
As left zero	5000	0.0	0.0	-0.1	
As left span	4924	75.6	80.0	79.8	1.002
SO2 Scrubber Check	4922	78.4	784.0	0.0	
Date of last scrubber change:		18-Jan-23		Ave Corr Factor	0.992
Date of last converter ef	ficiency test:	November 26, 2024	Ļ	106.2%	efficiency

Notes: Changed sample inlet filter after as founds. No adjustments made. SOx scrubber check done after cal zero.

Calibration Performed By:

Braiden Boutilier

<u>Finish</u>

3.09

1.214



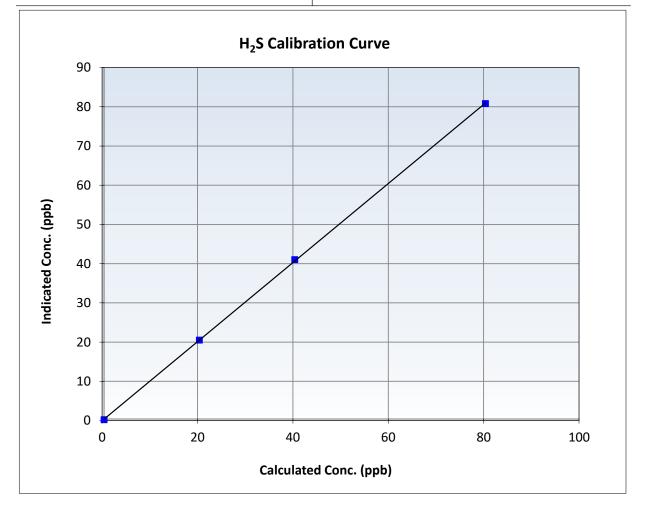
Wood Buffalo Environmental Association

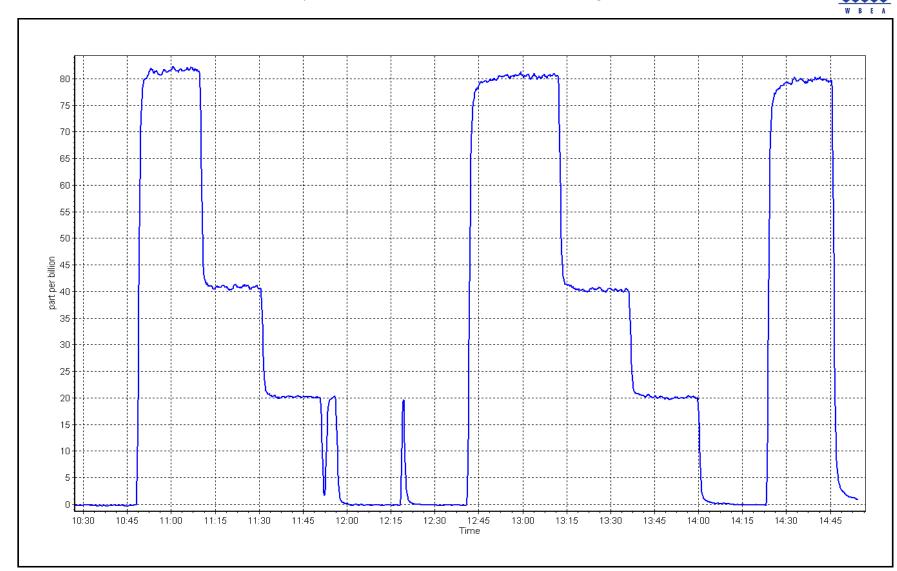
H2S Calibration Summary

Station Information

Calibration Date:	April 29, 2025	Previous Calibration:	March 4, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	10:30	End Time (MST):	14:54
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1151680032

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	<u>Limits</u>	
0.0	-0.2		Correlation Coefficient	0.999953	≥0.995
80.0	80.4	0.9948	Slope	1.007763	0.90 - 1.10
40.0	40.6	0.9850	Siope	1.007705	0.30 - 1.10
20.0	20.1	0.9948	Intercept	-0.040000	+/-3





Location: Firebag



Wood Buffalo Environmental Association THC Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Firebag April 28, 2025 10:55 Routine		Station number: Last Cal Date: End time (MST):	AMS 19 March 15, 2025 14:08									
		Calibration S	tandards										
Gas Cert Reference:	CC70	5799	Cal Gas Expiry Date:	October 9, 2032									
CH4 Cal Gas Conc.	505.1	ppm	CH4 Equiv Conc.	1066.9	ppm								
C3H8 Cal Gas Conc.	204.3 ppm												
Removed Gas Cert:			Removed Gas Expiry:	1066.0									
Removed CH4 Conc. Removed C3H8 Conc.	505.1 204.3	ppm ppm	CH4 Equiv Conc. Diff between cyl:	1066.9	ppm								
Calibrator Make/Model:	Teledyne API T700	ppin	Serial Number:	1607									
ZAG Make/Model:	Teledyne API T701	ł	Serial Number:	201									
		Analyzer Info	ormation										
Analyzer make	: Thermo 51i-LT		Analyzer serial #:	1336160089									
Analyzer Range	:: 0 - 20 ppm												
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>								
Calibration slope:	0.992690	0.993468	Background:		2.04								
Calibration intercept:	-0.023933	0.013867	Coefficient:	3.718	3.818								
		THC As Fou	THC As Found Data										
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	AFzero)								
Set Point		•			Correction factor (Cc/(Ic-								
	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10								
As found zero	(sccm) 4999	(sccm) 0.0	(ppm) (Cc) 0.00	(ppm) (Ic) 0.03	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10								
As found zero As found High point As found Mid point As found Low point	(sccm) 4999	(sccm) 0.0	(ppm) (Cc) 0.00	(ppm) (Ic) 0.03	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10								
As found zero As found High point As found Mid point	(sccm) 4999	(sccm) 0.0	(ppm) (Cc) 0.00	(ppm) (Ic) 0.03	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10								
As found zero As found High point As found Mid point As found Low point	(sccm) 4999	(sccm) 0.0	(ppm) (Cc) 0.00	(ppm) (Ic) 0.03	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt:	(sccm) 4999 4922	(sccm) 0.0 78.4	(ppm) (Cc) 0.00 16.73	(ppm) (Ic) 0.03 16.25	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found:	(sccm) 4999 4922 16.22	(sccm) 0.0 78.4 Previous response	(ppm) (Cc) 0.00 16.73	(ppm) (Ic) 0.03 16.25 *% change	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2%								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt:	(sccm) 4999 4922 16.22 NA	(sccm) 0.0 78.4 Previous response AF Slope:	(ppm) (Cc) 0.00 16.73 16.58	(ppm) (Ic) 0.03 16.25 *% change AF Intercept:	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2%								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt:	(sccm) 4999 4922 16.22 NA	(sccm) 0.0 78.4 Previous response AF Slope: AF Correlation:	(ppm) (Cc) 0.00 16.73 16.58	(ppm) (Ic) 0.03 16.25 *% change AF Intercept: * = > +/-5% change initia	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2% tes investigation								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	(sccm) 4999 4922 16.22 NA NA NA	(sccm) 0.0 78.4 Previous response AF Slope: AF Correlation: <u>THC Calibrat</u> Source gas flow rate	(ppm) (Cc) 0.00 16.73 16.58 ion Data Calculated Concentration	(ppm) (Ic) 0.03 16.25 *% change AF Intercept: * = > +/-5% change initia Indicated Concentration	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2% tes investigation								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt: Set Point Calibrator zero High point	(sccm) 4999 4922 16.22 NA NA Dilution air flow rate (sccm) 4999 4922	(sccm) 0.0 78.4 Previous response AF Slope: AF Correlation: <u>THC Calibrat</u> Source gas flow rate (sccm) 0.0 78.4	(ppm) (Cc) 0.00 16.73 16.58 ion Data Calculated Concentration (ppm) (Cc) 0.00 16.73	(ppm) (Ic) 0.03 16.25 *% change AF Intercept: * = > +/-5% change initia Indicated Concentration (ppm) (Ic) 0.02 16.64	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2% tes investigation Correction factor (Cc/Ic) Limit = 0.95-1.05								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt: Baseline Corr 3rd AF pt: Calibrator zero High point Mid point	(sccm) 4999 4922 16.22 NA NA NA Dilution air flow rate (sccm) 4999 4922 4961	(sccm) 0.0 78.4 Previous response AF Slope: AF Correlation: <u>THC Calibrat</u> Source gas flow rate (sccm) 0.0 78.4 39.2	(ppm) (Cc) 0.00 16.73 16.58 ion Data Calculated Concentration (ppm) (Cc) 0.00 16.73 8.36	(ppm) (Ic) 0.03 16.25 *% change AF Intercept: * =>+/-5% change initia Indicated Concentration (ppm) (Ic) 0.02 16.64 8.31	Correction factor (Cc/(Ic- AFzero) <i>Limit = 0.90-1.10</i> 1.031 -2.2% tes investigation Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt: Baseline Corr 3rd AF pt: Calibrator zero High point Mid point Low point	(sccm) 4999 4922 16.22 NA NA NA Dilution air flow rate (sccm) 4999 4922 4961 4980	(sccm) 0.0 78.4 Previous response AF Slope: AF Correlation: <u>THC Calibrat</u> Source gas flow rate (sccm) 0.0 78.4 39.2 19.6	(ppm) (Cc) 0.00 16.73 16.58 ion Data Calculated Concentration (ppm) (Cc) 0.00 16.73 8.36 4.18	(ppm) (Ic) 0.03 16.25 *% change AF Intercept: * = > +/-5% change initia Indicated Concentration (ppm) (Ic) 0.02 16.64 8.31 4.17	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2% tes investigation Correction factor (Cc/Ic) Limit = 0.95-1.05 1.005 1.007 1.002								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt: Baseline Corr 3rd AF pt: Calibrator zero High point Mid point Low point As left zero	(sccm) 4999 4922 16.22 NA NA Dilution air flow rate (sccm) 4999 4922 4961 4980 4999	(sccm) 0.0 78.4 Previous response AF Slope: AF Correlation: <u>THC Calibrat</u> Source gas flow rate (sccm) 0.0 78.4 39.2 19.6 0.0	(ppm) (Cc) 0.00 16.73 16.58 ion Data Calculated Concentration (ppm) (Cc) 0.00 16.73 8.36 4.18 0.00	(ppm) (Ic) 0.03 16.25 *% change AF Intercept: * = > +/-5% change initia Indicated Concentration (ppm) (Ic) 0.02 16.64 8.31 4.17 0.04	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2% tes investigation Correction factor (Cc/Ic) Limit = 0.95-1.05 1.005 1.007 1.002 								
As found zero As found High point As found Mid point As found Low point New cylinder response Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt: Set Point Calibrator zero High point Mid point Low point	(sccm) 4999 4922 16.22 NA NA NA Dilution air flow rate (sccm) 4999 4922 4961 4980	(sccm) 0.0 78.4 Previous response AF Slope: AF Correlation: <u>THC Calibrat</u> Source gas flow rate (sccm) 0.0 78.4 39.2 19.6	(ppm) (Cc) 0.00 16.73 16.58 ion Data Calculated Concentration (ppm) (Cc) 0.00 16.73 8.36 4.18 0.00 16.73	(ppm) (Ic) 0.03 16.25 *% change AF Intercept: * = > +/-5% change initia Indicated Concentration (ppm) (Ic) 0.02 16.64 8.31 4.17	Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10 1.031 -2.2% tes investigation Correction factor (Cc/Ic) Limit = 0.95-1.05 1.005 1.007 1.002 0.996								

Notes:

Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By:

Braiden Boutilier

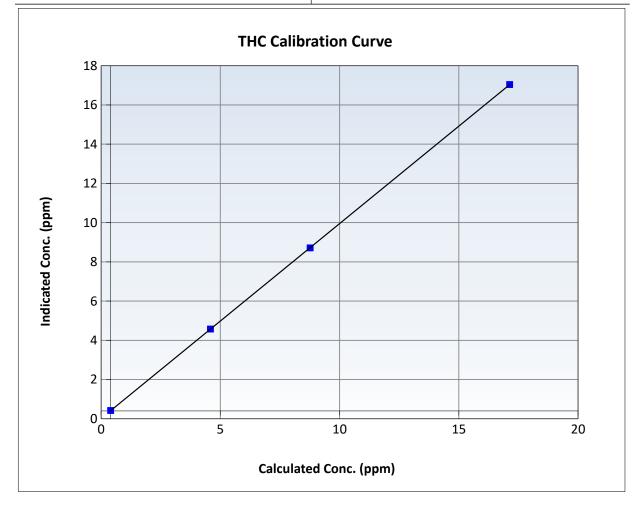


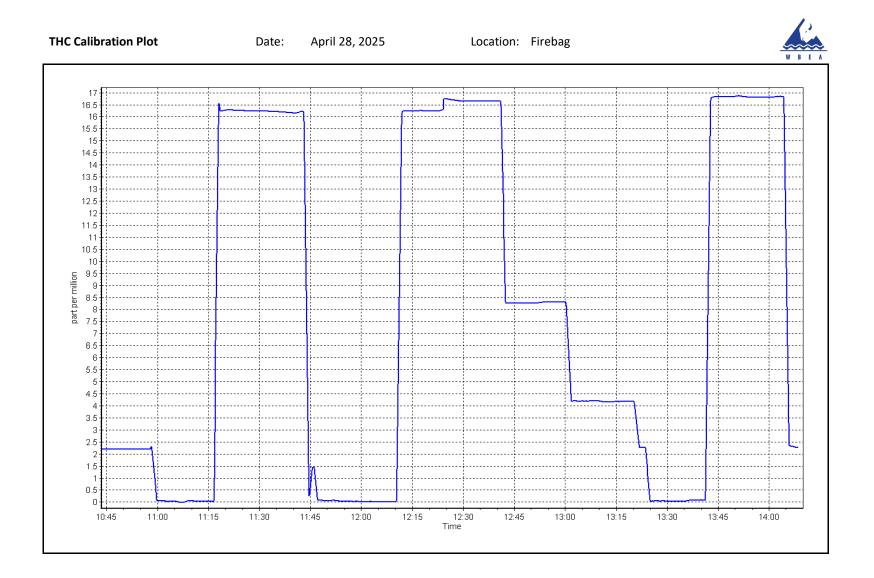
Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 28, 2025	Previous Calibration:	March 15, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	10:55	End Time (MST):	14:08
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1336160089

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	<u>Limits</u>	
0.00	0.02		Correlation Coefficient	0.999998	≥0.995
16.73 8.36	16.64 8.31	1.0054 1.0066	Slope	0.993468	0.90 - 1.10
4.18	4.17	1.0023	Intercept	0.013867	+/-1.5







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Firebag	NO Gas Cylinder #:	DT0044018	Cal Gas Expiry Date:	November 3, 2031
Station number:	AMS 19	NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.70 ppm
Calibration Date:	April 1, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Last Cal Date:	March 11, 2025	Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.70 ppm
Start time (MST):	9:48	NOX gas Diff:		NO gas Diff:	
End time (MST):	14:43	Calibrator Model:	Teledyne API T700	Serial Number: 1607	7
Reason:	Routine	ZAG make/model:	Teledyne API T701H	Serial Number: 201	L

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
AF High point	4918	82.1	802.9	799.7	3.3	796.2	791.3	4.8	1.0085	1.0106
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	798.3 ppb	NO = 793.9	ppb	* = > +/-59	% change initiates i	investigation	*Percent Chan	ge NO _x =	-0.3%
Baseline Corr 1	st pt NO _X =	796.2 ppb	NO = 791.3	ppb	<u>As Foun</u>	d Statistics		*Percent Chan	ge NO =	-0.3%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO _x r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As found	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calibr	ation Data				
								Baseline Adjus		
O3 Setpo	pint (ppb)	Indicated NO Re concentration		cated NO Drop entration (ppb)	Calculated NC concentration (pp		dicated NO2 ntration (ppb) (Ic)	Correction f (Cc/(Ic-AFz		verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1410661	1309			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb						0.993178	0.998046
			Instrument Settings			NO _x Cal Offset:	0.800270	1.240021
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.992470	1.001402
NO coeff or slope:	0.905	0.916	NO bkgnd or offset:	4.5	4.6	NO Cal Offset:	0.300227	0.500049
NOX coeff or slope:	0.994	0.993	NOX bkgnd or offset:	4.5	4.6	NO ₂ Cal Slope:	1.001499	0.997186
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	160.5	160.8	NO ₂ Cal Offset:	-0.313391	-0.688529

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	0.0	-0.1	0.1		
High point	4918	82.1	802.9	799.7	3.3	802.0	801.0	1.4	1.0012	0.9983
Mid point	4959	41.1	402.0	400.3	1.6	403.0	401.6	1.4	0.9974	0.9968
Low point	4980	20.5	200.5	199.7	0.8	202.6	201.1	1.5	0.9896	0.9929
As left zero	5000	0	0.0	0.0	0.0	0.0	-0.1	0.1		
As left span	4918	82.1	802.9	418.9	384.0	802.0	418.9	382.8	1.0012	1.0000
							Average Co	orrection Factor	0.9961	0.9960

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.1		
High GPT point	798.9	418.2	384.0	382.6	1.0036	99.6%
Mid GPT point	798.9	609.1	193.1	191.5	1.0083	99.2%
Low GPT point	798.9	704.9	97.3	95.5	1.0187	98.2%
				Average Correction Factor	1.0102	99.0%

Notes:

Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By:

Braiden Boutilier

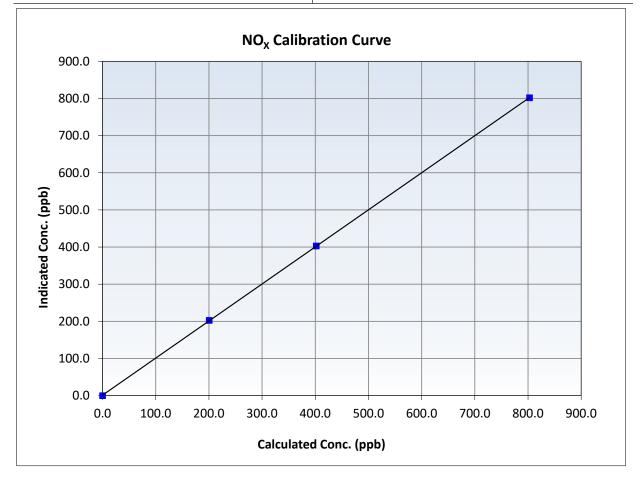


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 11, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	9:48	End Time (MST):	14:43
Analyzer make:	Thermo 42i	Analyzer serial #:	1410661309

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999989	≥0.995
802.9 402.0	802.0 403.0	1.0012 0.9974	Slope	0.998046	0.90 - 1.10
200.5	202.6	0.9896	Intercept	1.240021	+/-20



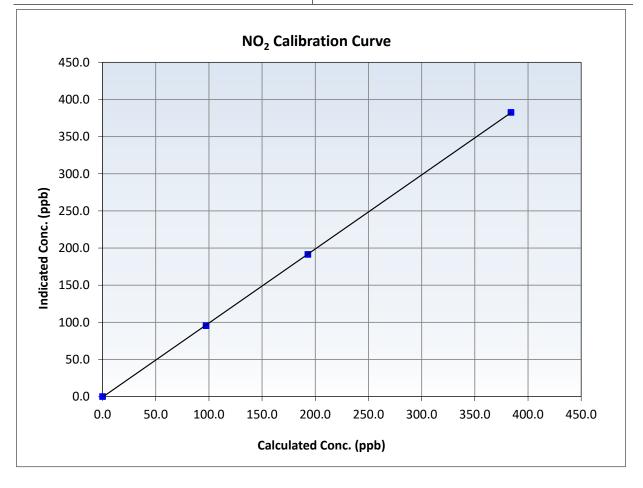


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 11, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	9:48	End Time (MST):	14:43
Analyzer make:	Thermo 42i	Analyzer serial #:	1410661309

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999980	≥0.995
384.0 193.1	382.6 191.5	1.0036 1.0083	Slope	0.997186	0.90 - 1.10
97.3	95.5	1.0187	Intercept	-0.688529	+/-20



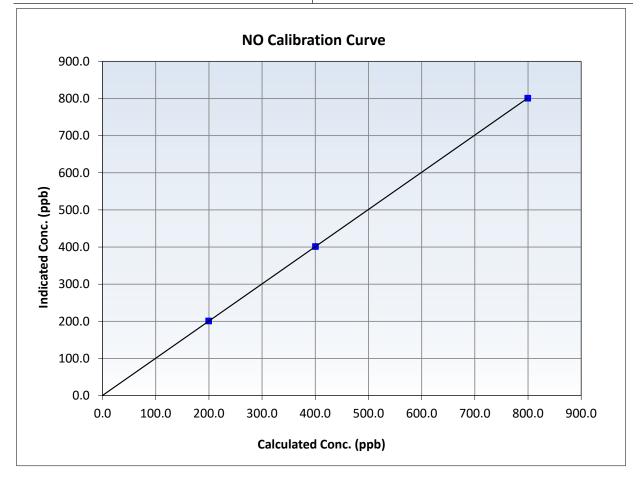


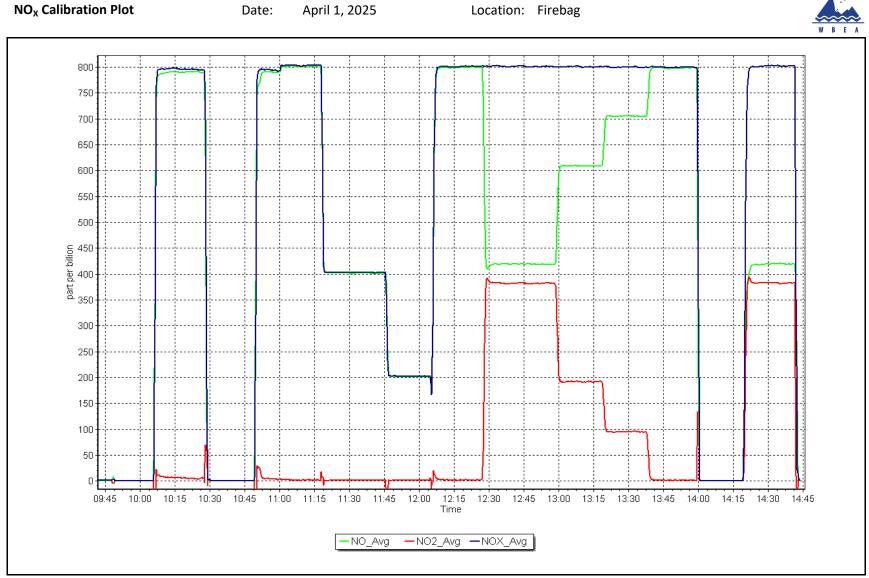
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 11, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	9:48	End Time (MST):	14:43
Analyzer make:	Thermo 42i	Analyzer serial #:	1410661309

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999997	≥0.995
799.7 400.3	801.0 401.6	0.9983 0.9968	Slope	1.001402	0.90 - 1.10
199.7	201.1	0.9929	Intercept	0.500049	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS20 MACKAY RIVER APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Calibration intercept:

-0.254232

Wood Buffalo Environmental Association SO₂ Calibration Report

Coeff or Slope:

0.961

0.945

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	MacKay River April 14, 2025 7:40 Routine	Station number: AMS 20 Last Cal Date: March 10, 2025 End time (MST): 10:26			
		Calibration	<u>Standards</u>		
Cal Gas Concentration: Cal Gas Cylinder #:	49.15 CC409669	ppm	Cal Gas Exp Date: Oct	tober 9, 2032	
Removed Cal Gas Conc: Removed Gas Cyl #:	49.15	ppm	Rem Gas Exp Date: Diff between cyl:		
Calibrator Model:	API T700		Serial Number: 570	06	
Zero Air Gen Model:	API 701		Serial Number: 452	22	
		Analyzer Inf	ormation		
Analyzer make:	Thermo 43i		Serial Number: 150	01301450	
Analyzer Range:	0-1000ppb				
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.009842	0.997962	Backgd or Offset:	20.5	19.9

SO₂ As Found Data

-0.196724

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.3	
As found High point As found Mid point As found Low point New cylinder response	4919	81.4	800.1	811.5	0.986
Baseline Corr As found: Baseline Corr 2nd AF pt:	811.2 NA	Previous response AF Slope:	807.7	*% change AF Intercept:	0.4%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4919	81.4	800.1	798.6	1.002
Mid point	4959	40.7	400.1	398.6	1.004
Low point	4980	20.3	199.5	198.6	1.005
As left zero	5000	0.0	0.0	0.2	
As left span	4919	81.4	800.1	799.9	1.000
			Averag	e Correction Factor:	1.003

Notes:

No Maintenance done. Span adjusted.

Calibration Performed By:

Melissa Lemay

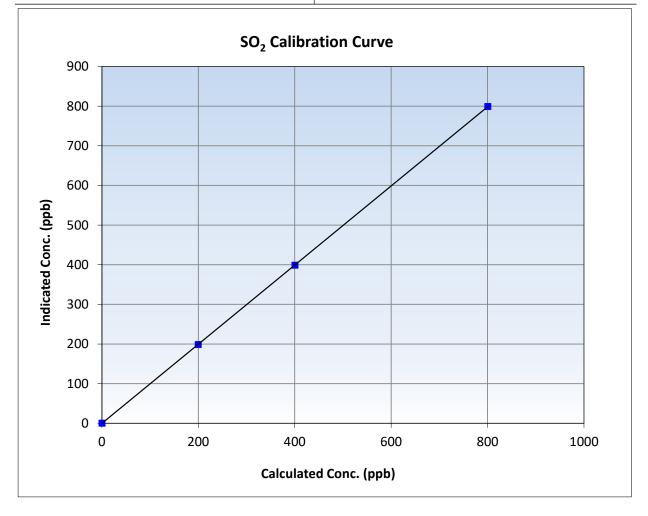


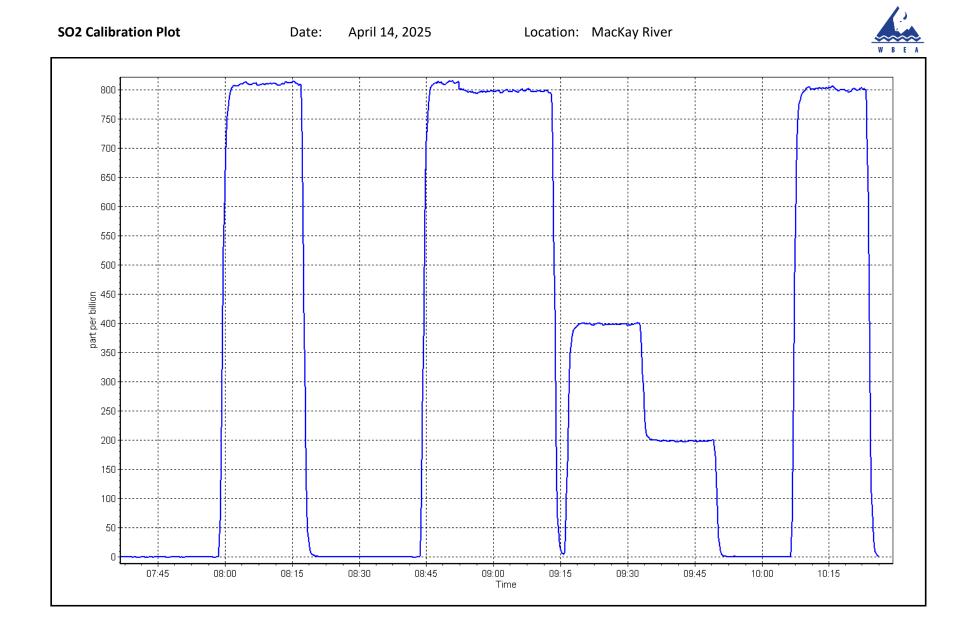
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 10, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:40	End Time (MST):	10:26
Analyzer make:	Thermo 43i	Analyzer serial #:	1501301450

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999998	≥0.995
800.1 400.1	798.6 398.6	1.0019 1.0038	Slope	0.997962	0.90 - 1.10
199.5	198.6	1.0047	Intercept	-0.196724	+/-30







Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	MacKay River April 3, 2025 6:48 Routine		Station number: Last Cal Date: End time (MST):	AMS 20 March 6, 2025 10:56			
		Calibration	Standards				
Cal Gas Concentration: Cal Gas Cylinder #:	5.12 CC515997	ppm	Cal Gas Exp Date:	January 3, 2026	5		
Removed Cal Gas Conc: Removed Gas Cyl #:	5.12	ppm	Rem Gas Exp Date: Diff between cyl:				
Calibrator Make/Model:	API T700		Serial Number:	5706			
ZAG Make/Model:	API 701		Serial Number:	4522			
		Analyzer Inf	ormation				
Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1236656117			
Converter make:	Global		Converter serial #:	2022-226			
Analyzer Range	0 - 100 ppb		Converter Temp:		325	degC	2
	<u>Start</u>	<u>Finish</u>		<u>Start</u>			F
Calibration slope:	1.004456	0.999883	Backgd or Offset:	3.84			
Calibration intercept:	-0.100522	-0.040619	Coeff or Slope:	1.086			

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4922	78.1	80.0	80.7	0.990
As found Mid point	4961	39.0	39.9	40.3	0.989
As found Low point	4980	19.5	20.0	20.0	0.994
New cylinder response					
Baseline Corr As found:	80.8	Prev response:	80.23	*% change:	0.7%
Baseline Corr 2nd AF pt:	40.4	AF Slope:	1.010744	AF Intercept:	-0.120418
Baseline Corr 3rd AF pt:	20.1	AF Correlation:	0.999998	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4922	78.1	80.0	79.9	1.001
Mid point	4961	39.0	39.9	39.9	1.001
Low point	4980	19.5	20.0	20.0	0.998
As left zero	5000	0.0	0.0	0.0	
As left span	4922	78.1	80.0	79.7	1.003
SO2 Scrubber Check	4982	81.3	802.8	0.1	
Date of last scrubber chan	ge:	25-May-23		Ave Corr Factor	1.000

Date of last converter efficiency test:

Notes:

Sox scrubber checked after the calibrator zero. No adjustments done.

Calibration Performed By: Melissa Lemay

5.84 1.086



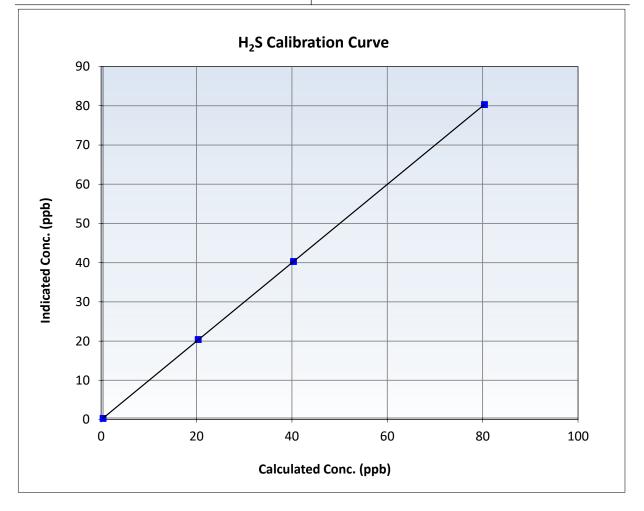
Wood Buffalo Environmental Association

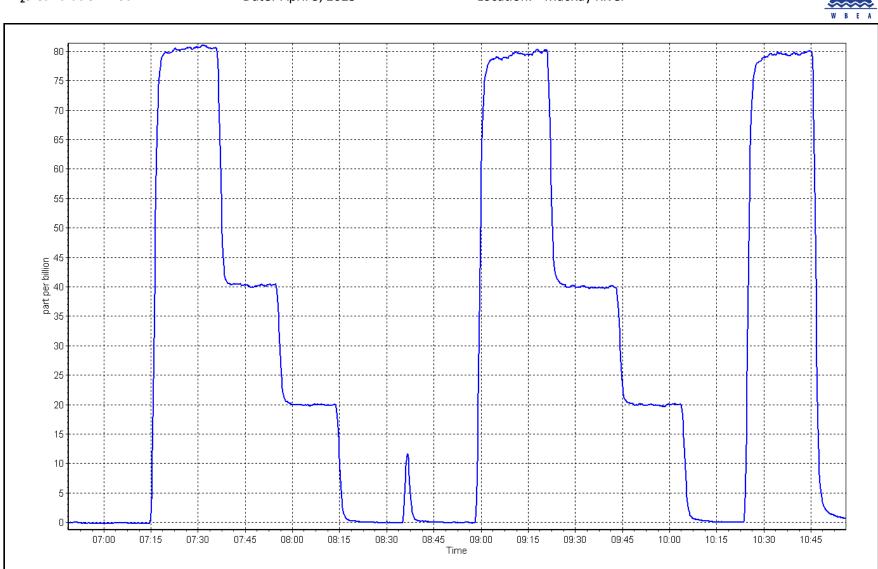
H₂S Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	March 6, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	6:48	End Time (MST):	10:56
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1236656117

Calculated concentratio (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999997	≥0.995
80.0 39.9	79.9 39.9	1.0009 1.0009	Slope	0.999883	0.90 - 1.10
20.0	20.0	0.9985	Intercept	-0.040619	+/-3





Location: MacKay River



Wood Buffalo Environmental Association THC Calibration Report

Station Information

Station Name:MacKay RiverCalibration Date:April 14, 2025Start time (MST):7:40Reason:Routine			Station number: Last Cal Date: End time (MST):	AMS 20 March 21, 2025 10:25	
		Calibration S	tandards		
Gas Cert Reference:	CC409669		Cal Gas Expiry Date:	October 9, 2032	
CH4 Cal Gas Conc.	505.1	ppm	CH4 Equiv Conc.	1072.7	ppm
C3H8 Cal Gas Conc.	206.4	ppm	·		
Removed Gas Cert:			Removed Gas Expiry:		
Removed CH4 Conc.	505.1	ppm	CH4 Equiv Conc.	1072.7	ppm
Removed C3H8 Conc.	206.4	ppm	Diff between cyl:		
Calibrator Make/Model:	API T700		Serial Number:	5706	
ZAG Make/Model:	API 701		Serial Number:	4522	
		Analyzer Info	ormation		
Analyzer make Analyzer Range	: Thermo 51i-LT : 0 - 20 ppm		Analyzer serial #:	1501663727	
	Start	Finish		Start	Finish
Calibration slope:	0.999215	0.997991	Background:		2.990
Calibration intercept:					4.871
		THC As Fou	<u>nd Data</u>		Baseline Adjusted
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	•
As found zero	5000	0.0	0.00	-0.10	
As found High point	4919	81.4	17.46	17.38	0.999
As found Mid point As found Low point New cylinder response					
Baseline Corr As found:	17.48	Previous response	17.47	*% change	0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	ates investigation
		THC Calibrat	tion Data		
	Dilution air flow rate	Source gas flow rate	Calculated Concentration	Indicated Concentration	Correction factor (Cc/Ic)
Set Point	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	<i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.03	
High point	4919	81.4	17.46	17.46	1.000
Mid point	4959	40.7	8.73	8.71	1.003
Low point	4980	20.3	4.35	4.36	1.000
As left zero	5000	0.0	0.00	0.00	
As left span	4919	81.4	17.46	17.56	0.995

Average Correction Factor

Notes:

Zero and Span adjusted. No maintenance done.

Calibration Performed By:

Melissa Lemay

1.001

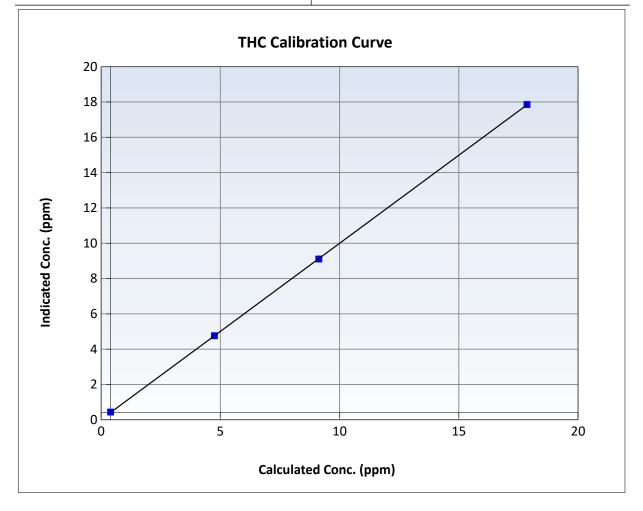


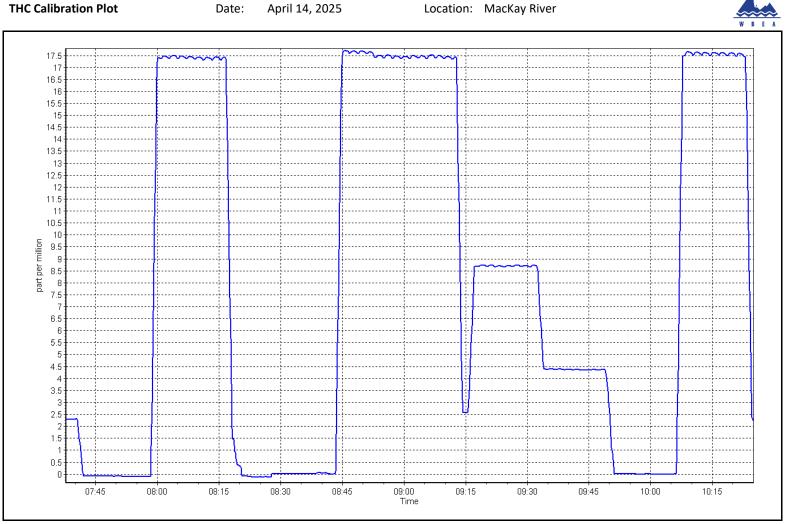
Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 21, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:40	End Time (MST):	10:25
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1501663727

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	<u>Limits</u>	
0.00	0.03		Correlation Coefficient	0.999993	≥0.995
17.46 8.73	17.46 8.71	1.0003 1.0030	Slope	0.997991	0.90 - 1.10
4.35	4.36	0.9997	Intercept	0.016001	+/-1.5









Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	MacKay River	NO Gas Cylinder #:	T376265	Cal Gas Expiry Date:	April 13, 2025
Station number:	AMS 20	NOX Cal Gas Conc:	49.19 ppm	NO Cal Gas Conc:	48.04 ppm
Calibration Date:	April 2, 2025	Removed Cylinder #:		Removed Gas Exp Date	:
Last Cal Date:	March 5, 2025	Removed Gas NOX Conc:	49.19 ppm	Removed Gas NO Conc	: 48.04 ppm
Start time (MST):	6:50	NOX gas Diff:		NO gas Diff:	
End time (MST):	10:55	Calibrator Model:	API T700	Serial Number: 570	6
Reason:		ZAG make/model:	API T701	Serial Number: 452	2

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.2	0.0	-0.2		
AF High point	4917	83.3	819.5	800.3	19.2	826.3	806.2	20.0	0.9915	0.9927
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	817.4 ppb	NO = 798.9	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chan	ge NO _x =	1.1%
Baseline Corr 1	st pt NO _x =	826.5 ppb	NO = 806.2	ppb	<u>As Four</u>	nd Statistics		*Percent Chan	ge NO =	0.9%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	$NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	NO ₂ r^2 :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
								Baseline Adjus		
		Indicated NO Re	ference Indi	rated NO Drop	Calculated N	02 In	dicated NO2	Correction f	actor Conv	erter Efficiency

 O3 Setpoint (ppb)
 Indicated NO Reference
 Indicated NO Drop
 Calculated NO2
 Indicated NO2
 Correction factor
 Converter Efficiency

 03 Setpoint (ppb)
 concentration (ppb)
 concentration (ppb)
 concentration (ppb)
 concentration (ppb) (Cc)
 concentration (ppb) (IC)
 (Cc/(Ic-AFzero))
 Limit = 96-104%

 Limit = 0.90 - 1.10
 Limit = 0.90 - 1.10

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1505164	1379			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.996966	1.005402
			Instrument Settings			NO _x Cal Offset:	0.422044	0.721954
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.998643	1.006853
NO coeff or slope:	0.285	1.002	NO bkgnd or offset:	2.8	2.8	NO Cal Offset:	-0.357427	-0.357714
NOX coeff or slope:	0.991	0.991	NOX bkgnd or offset:	3.0	3.0	NO ₂ Cal Slope:	0.997985	0.997243
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	159.4	159.4	NO ₂ Cal Offset:	-1.492859	-1.552636

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	0.0	0.2	-0.2		
High point	4917	83.3	819.5	800.3	19.2	824.3	805.7	18.5	0.9941	0.9933
Mid point	4958	41.7	410.3	400.7	9.6	413.4	402.8	10.5	0.9924	0.9947
Low point	4979	20.8	204.6	199.9	4.8	207.3	200.3	7.0	0.9872	0.9978
As left zero	5000	0.0	0.0	0.0	0.0	0.0	0.2	-0.2		
As left span	4917	83.3	819.5	409.7	409.8	818.2	409.7	408.5	1.0015	1.0000
							Average Co	orrection Factor	0.9912	0.9953

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (C	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	-0.2		
High GPT point	799.6	407.9	410.9	408.9	1.0048	99.5%
Mid GPT point	799.6	601.2	217.6	214.9	1.0124	98.8%
Low GPT point	799.6	698.8	120.0	116.5	1.0297	97.1%
				Average Correction Factor	1.0156	98.5%

Notes: No maintenance or adjustments done.

Calibration Performed By: Melissa Lemay

CALS 349 Version 03-2024

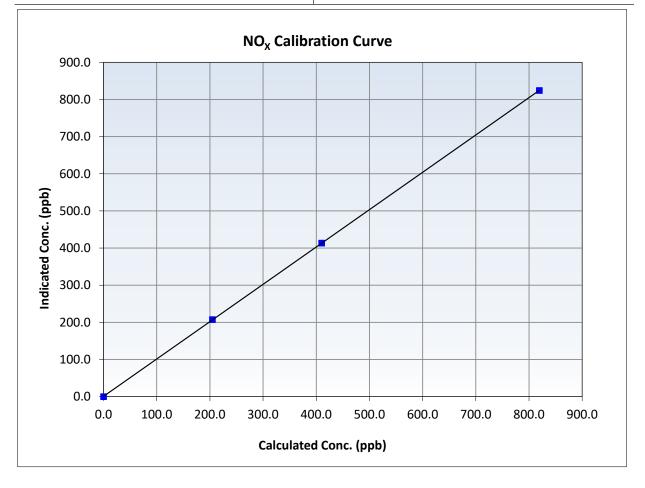


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 5, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	6:50	End Time (MST):	10:55
Analyzer make:	Thermo 42i	6:50:00 AM	1505164379

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999996	≥0.995
819.5 410.3	824.3 413.4	0.9941 0.9924	Slope	1.005402	0.90 - 1.10
204.6	207.3	0.9872	Intercept	0.721954	+/-20



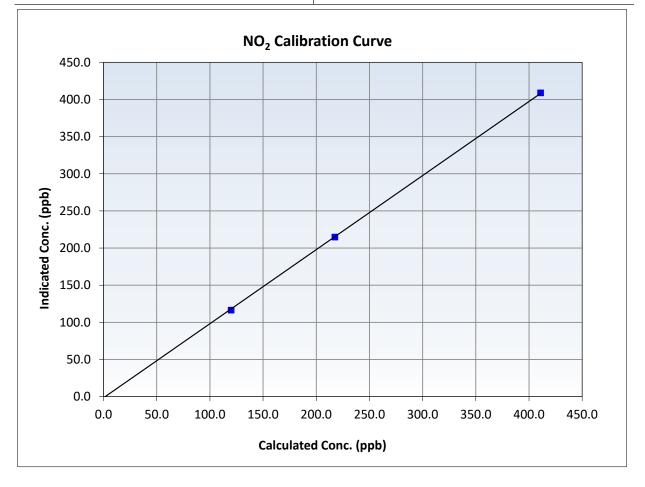


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 5, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	6:50	End Time (MST):	10:55
Analyzer make:	Thermo 42i	6:50:00 AM	1505164379

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999943	≥0.995
410.9	408.9	1.0048	Slope	0.997243	0.90 - 1.10
217.6 120.0	214.9 116.5	1.0124 1.0297			1.5.5
			Intercept	-1.552636	+/-20



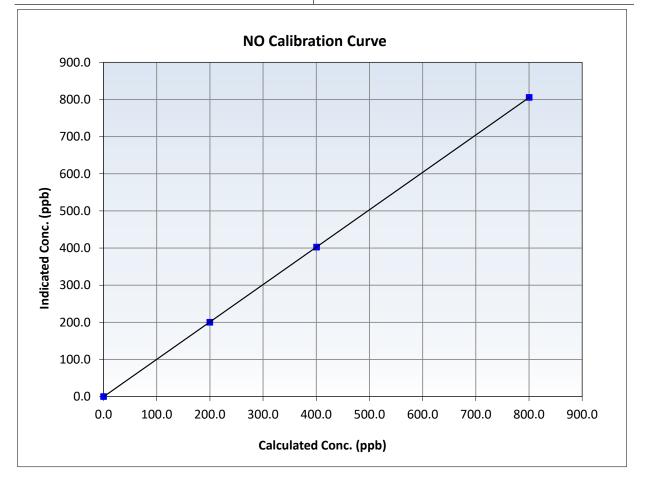


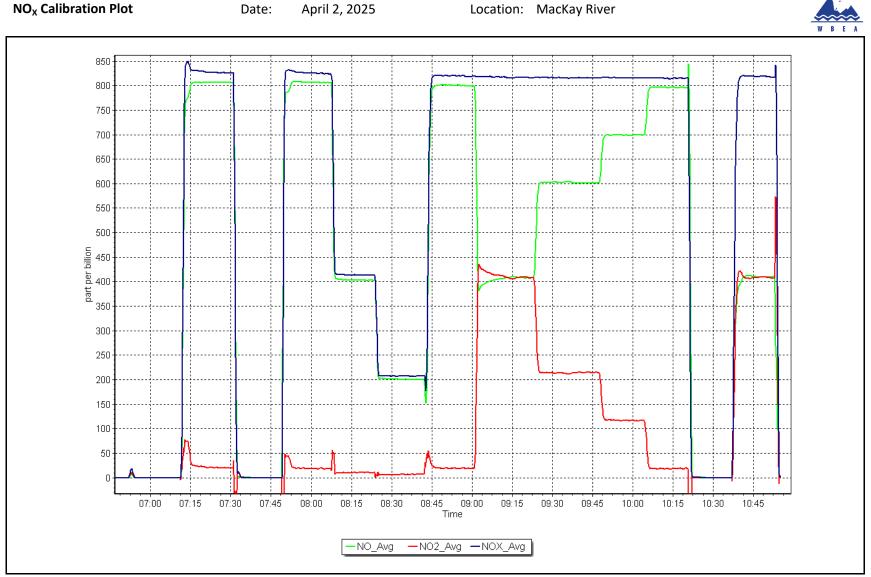
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 5, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	6:50	End Time (MST):	10:55
Analyzer make:	Thermo 42i	6:50:00 AM	1505164379

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999998	≥0.995
800.3 400.7	805.7 402.8	0.9933 0.9947	Slope	1.006853	0.90 - 1.10
199.9	200.3	0.9978	Intercept	-0.357714	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS21 APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Conklin
Calibration Date:	April 4, 1
Start time (MST):	9:50
Reason:	Routine

2025

Station number: AMS 21 Last Cal Date: March 17, 2025 End time (MST): 13:00

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	50.34 CC340840	ppm	Cal Gas Exp Date: October 9, 2032
Removed Cal Gas Conc:	50.34	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Model:	Teledyne API T700)P	Serial Number: 2659
Zero Air Gen Model:	Teledyne API T701	L	Serial Number: 953

Analyzer Information

Thermo 43i Analyzer make: Serial Number: 1428701363 Analyzer Range: 0 - 1000 ppb <u>Start</u> **Finish** <u>Start</u> Finish Calibration slope: 0.995774 1.000944 Backgd or Offset: 29.3 29.3 Calibration intercept: -0.820824 -1.182060 Coeff or Slope: 0.899 0.899

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.5	
As found High point As found Mid point As found Low point New cylinder response	4921	79.5	800.3	801.0	1.000
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	800.5 NA NA	Previous response AF Slope: AF Correlation:	796.1	*% change AF Intercept: * = > +/-5% change initiate	0.5% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.5	
High point	4921	79.5	800.3	800.2	1.000
Mid point	4960	39.8	400.7	400.7	1.000
Low point	4980	19.9	200.4	196.6	1.019
As left zero	5000	0.0	0.0	0.6	
As left span	4921	79.5	800.3	800.0	1.000
			Averag	e Correction Factor:	1.006

Notes:

Sample inlet filter and H2/N2 was changed after as founds. No adjustment made.

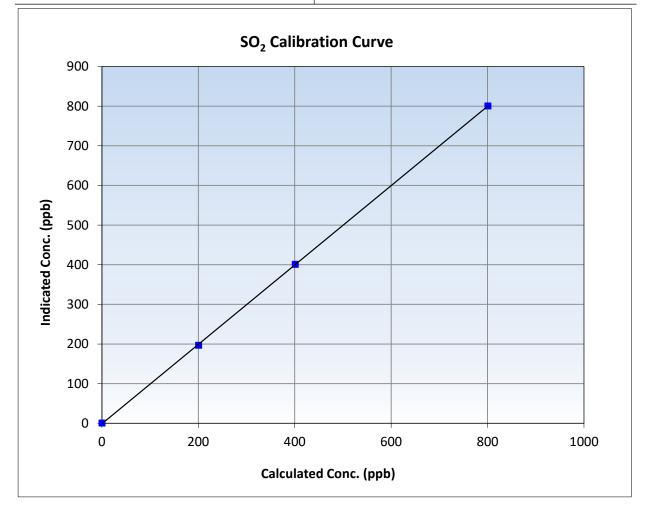


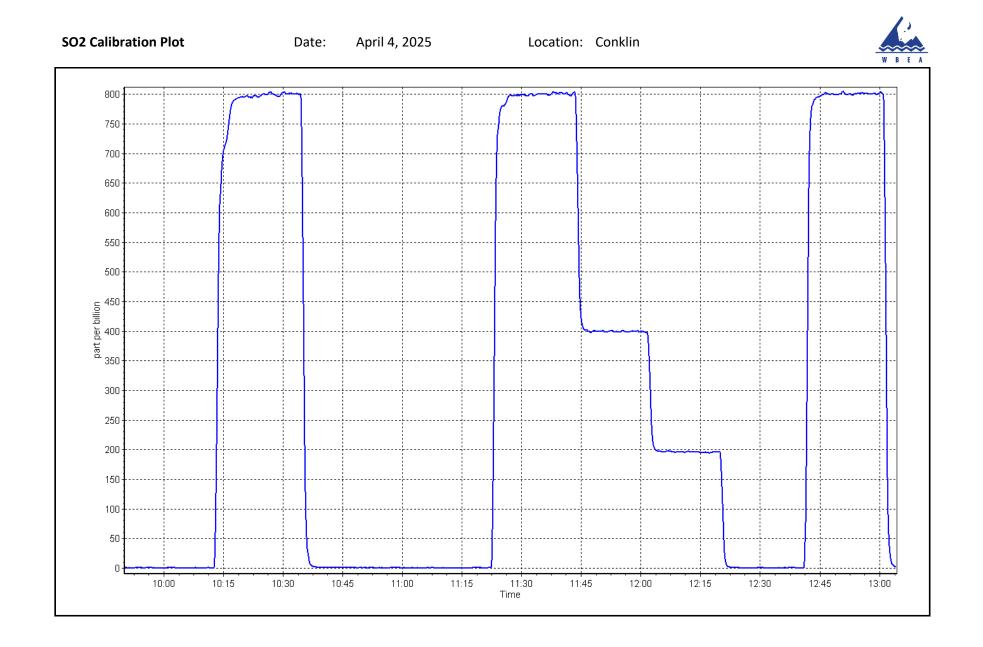
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 17, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:50	End Time (MST):	13:00
Analyzer make:	Thermo 43i	Analyzer serial #:	1428701363

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.5		Correlation Coefficient	0.999968	≥0.995
800.3 400.7	800.2 400.7	1.0002 1.0001	Slope	1.000944	0.90 - 1.10
200.4	196.6	1.0191	Intercept	-1.182060	+/-30







Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Conklin April 9, 2025 9:33 Routine		Station number: Last Cal Date: End time (MST):	AMS 21 March 6, 2025 13:20		
		Calibration S	tandards			
Cal Gas Concentration: Cal Gas Cylinder #:	5.14 CC501204	ppm	Cal Gas Exp Date:	January 3, 2026	5	
Removed Cal Gas Conc: Removed Gas Cyl #:	5.14 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA		
Calibrator Make/Model:	Teledyne T700P		Serial Number:	2659		
ZAG Make/Model:	Teledyne T701		Serial Number:	953		
		Analyzer Info	ormation			
Analyzer make:	Thermo 43i-QTL		Analyzer serial #:	12228021058		
Converter make:	CD-Nova 101		Converter serial #:	565		
Analyzer Range	0 - 100 ppb		Converter Temp:		850 degC	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>		<u>Finish</u>
Calibration slope:	1.006000	1.000789	Backgd or Offset:	3.3		3.3
Calibration intercept:	-0.160000	-0.061610	Coeff or Slope:	1.545		1.571
		TDC As Fou	nd Data			

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4922	78.4	80.6	80.2	1.004
As found Mid point	4961	39.2	40.3	40.1	1.002
As found Low point New cylinder response	4980	19.6	20.2	20.0	1.003
, ,		_		the C - L	
Baseline Corr As found:	80.3	Prev response:	80.91	*% change:	-0.8%
Baseline Corr 2nd AF pt:	40.2	AF Slope:	0.996393	AF Intercept:	-0.081607
Baseline Corr 3rd AF pt:	20.1	AF Correlation:	1.000000	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4922	78.4	80.6	80.6	1.000
Mid point	4961	39.2	40.3	40.3	1.000
Low point	4980	19.6	20.2	20.0	1.008
As left zero	5000	0.0	0.0	0.0	
As left span	4922	78.4	80.6	81.1	0.994
SO2 Scrubber Check	4921	79.5	794.9	0.0	
Date of last scrubber chan	ge:	November 13, 2024		Ave Corr Factor	1.002

Date of last converter efficiency test:

Notes: Sample inlet filter was changed after multipoint as founds. SO2 scrubber check done after calibrator zero and passed. Adjusted span only.

Calibration Performed By: Jan Castro



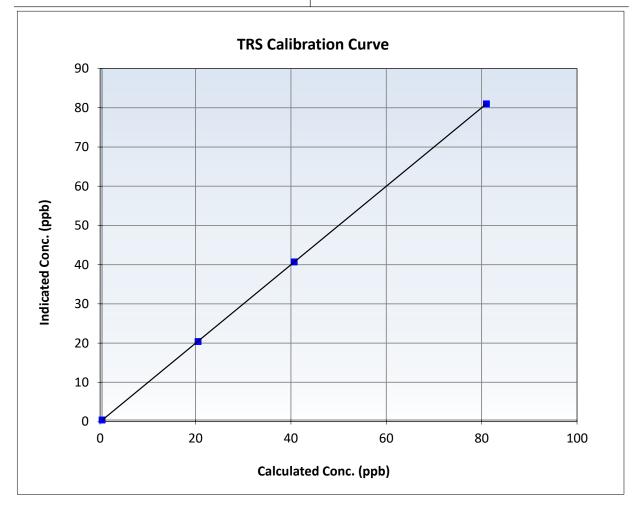
Wood Buffalo Environmental Association

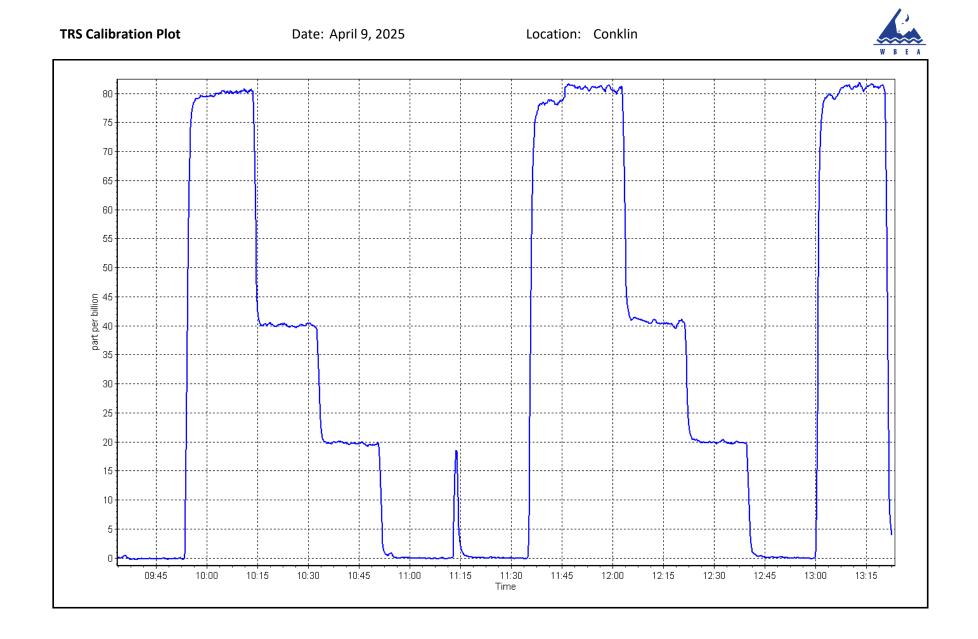
TRS Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 6, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:33	End Time (MST):	13:20
Analyzer make:	Thermo 43i-QTL	Analyzer serial #:	12228021058

Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation <u>Limits</u> (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999996 ≥0.995 0.0 0.0 ----80.6 80.6 0.9999 Slope 1.000789 0.90 - 1.10 40.3 40.3 0.9999 20.0 1.0075 20.2 Intercept -0.061610 +/-3







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Analyzer serial #: 1180320039

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Conklin	Station number: AMS 21
Calibration Date:	April 4, 2025	Last Cal Date: March 17, 2025
Start time (MST):	9:50	End time (MST): 13:00
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	CC340840	Cal Gas Expiry Date:	October 9, 2032		
CH4 Cal Gas Conc.	503.8 ppm	CH4 Equiv Conc.	1067.6 ppm		
C3H8 Cal Gas Conc.	205.0 ppm				
Removed Gas Cert:	NA	Removed Gas Expiry:	NA		
Removed CH4 Conc.	503.8 ppm	CH4 Equiv Conc.	1067.6 ppm		
Removed C3H8 Conc.	205.0 ppm	Diff between cyl (THC):			
Diff between cyl (CH ₄):		Diff between cyl (NM):			
Calibrator Model:	Teledyne API T700P	Serial Number:	2659		
Zero Air Gen model:	Teledyne API T701	Serial Number:	953		
Analyzer Information					

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	2.30E-04	2.30E-04	NMHC SP Ratio:	4.73E-05	4.73E-05
CH4 Retention time:	15.2	15.2	NMHC Peak Area:	190954	190954
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	79.5	16.97	17.05	0.995
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	17.05	Prev response	17.00	*% change	0.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.5	16.97	17.08	0.994
Mid point	4960	39.8	8.50	8.52	0.998
Low point	4980	19.9	4.25	4.19	1.015
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.5	16.97	17.10	0.993
			Avera	ge Correction Factor	1.002

Notes:

Sample inlet filter and H2/N2 was changed after as founds. No adjustment made.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	79.5	8.96	9.00	0.996
Baseline Corr AF:	9.00	Prev response	8.98	*% change	0.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.5	8.96	9.00	0.996
Mid point	4960	39.8	4.49	4.51	0.996
Low point	4980	19.9	2.24	2.23	1.008
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.5	8.96	9.04	0.992
			Avera	ge Correction Factor	1.000

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	79.5	8.01	8.05	0.994
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	8.05 NA NA	Prev response AF Slope: AF Correlation:	8.03	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.5	8.01	8.07	0.993
Mid point	4960	39.8	4.01	4.01	1.000
Low point	4980	19.9	2.01	1.96	1.023
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.5	8.01	8.06	0.993
			Avera	ge Correction Factor	1.005

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.004359	1.007955
THC Cal Offset:	-0.043713	-0.042932
CH4 Cal Slope:	1.005753	1.009706
CH4 Cal Offset:	-0.029221	-0.029831
NMHC Cal Slope:	1.003137	1.005229
NMHC Cal Offset:	-0.015091	-0.011299

Calibration Performed By:

Jan Castro

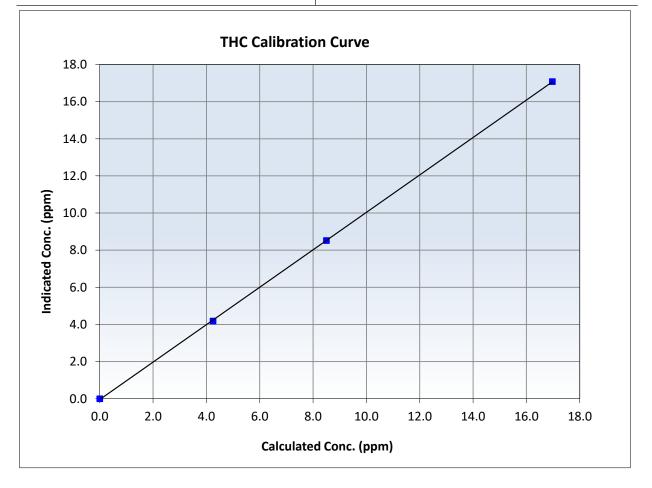


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 17, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:50	End Time (MST):	13:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1180320039

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999968	≥0.995
16.97 8.50	17.08 8.52	0.9937 0.9975	Slope	1.007955	0.90 - 1.10
4.25	4.19	1.0153	Intercept	-0.042932	+/-0.5



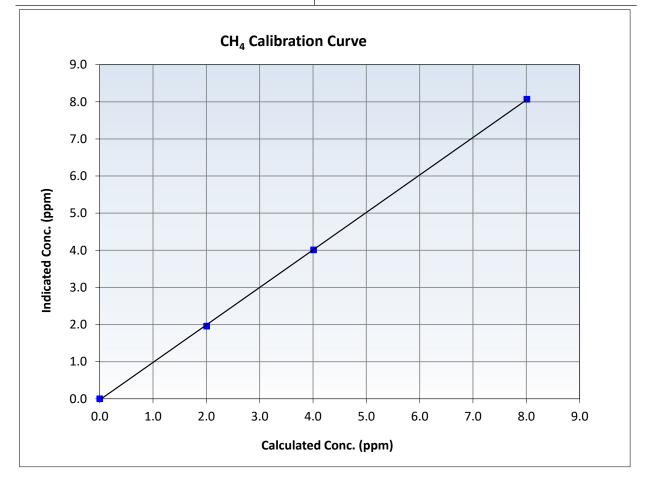


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 17, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:50	End Time (MST):	13:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1180320039

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999935	≥0.995
8.01	8.07	0.9925	Slope	1.009706	0.90 - 1.10
4.01	4.01	0.9996	Slope	1.009700	0.30 - 1.10
2.01	1.96	1.0230	Intercept	-0.029831	+/-0.5



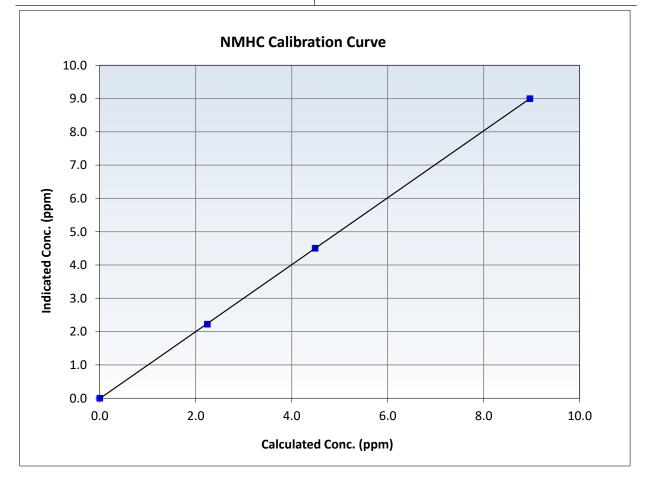


Wood Buffalo Environmental Association NMHC Calibration Summary

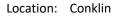
Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 17, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:50	End Time (MST):	13:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1180320039

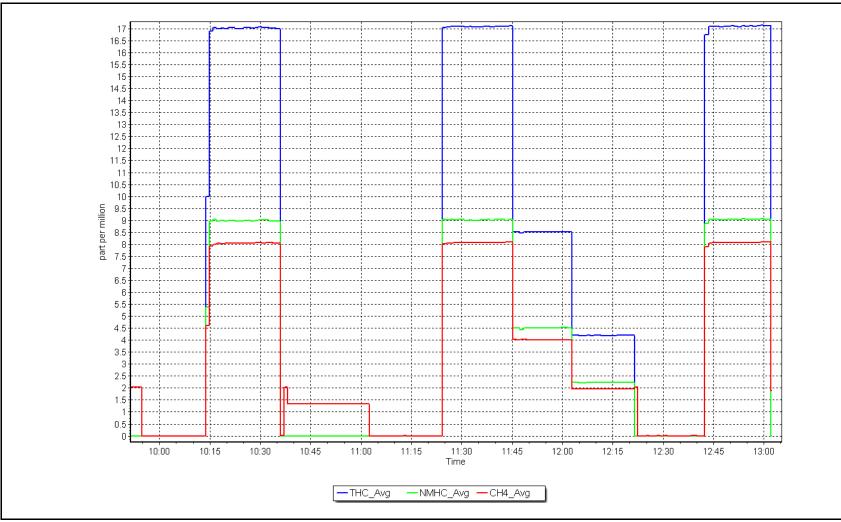
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	lation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999988	≥0.995
8.96 4.49	9.00 4.51	0.9959 0.9959	Slope	1.005229	0.90 - 1.10
2.24	2.23	1.0084	Intercept	-0.011299	+/-0.5



NMHC Calibration Plot









Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Conklin	NO Gas Cylinder #:	SA18828	Cal Gas Expiry Date: November 3, 2031
Station number:	AMS 21	NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc: 48.80 ppm
Calibration Date:	April 24, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date: NA
Last Cal Date:	March 18, 2025	Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc: 48.80 ppm
Start time (MST):	9:45	NOX gas Diff:		NO gas Diff:
End time (MST):	14:00	Calibrator Model:	Teledyne API T700P	Serial Number: 2659
Reason:	Routine	ZAG make/model:	Teledyne API T701	Serial Number: 953

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.3	0.1		
AF High point	4918	82.0	802.0	800.3	1.6	790.5	787.2	3.3	1.0142	1.0163
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	801.3 ppb	NO = 800.1	ppb	* = > +/-5	% change initiates i	investigation	*Percent Chang	ge NO _x =	-1.3%
Baseline Corr 1	st pt NO _X =	790.7 ppb	NO = 787.5	ppb	<u>As Four</u>	d Statistics		*Percent Chang	ge NO =	-1.6%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO _x r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
O3 Setpo	pint (ppb)	Indicated NO Re concentration		cated NO Drop entration (ppb)	Calculated Ne concentration (pp		ndicated NO2 ntration (ppb) (Ic)	Baseline Adjust Correction fa (Cc/(Ic-AFze	actor Conv	verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1501663	3731			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	1.000027	0.998189
			Instrument Settings			NO _x Cal Offset:	-0.712016	-0.392024
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.002448	0.999592
NO coeff or slope:	1.043	1.060	NO bkgnd or offset:	10.1	10.3	NO Cal Offset:	-2.192041	-1.692057
NOX coeff or slope:	0.995	0.995	NOX bkgnd or offset:	10.1	10.3	NO ₂ Cal Slope:	1.001058	0.996573
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	148.5	150.0	NO ₂ Cal Offset:	-0.135051	-0.812981

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	-0.1	-0.1	0.1		
High point	4918	82.0	802.0	800.3	1.6	799.7	798.5	1.2	1.0028	1.0023
Mid point	4959	41.0	401.0	400.2	0.8	401.4	399.3	2.2	0.9990	1.0022
Low point	4980	20.5	200.5	200.1	0.4	198.3	195.5	2.8	1.0109	1.0233
As left zero	5000	0.0	0.0	0.0	0.0	0.0	-0.1	0.1		
As left span	4918	82.0	802.0	403.8	398.2	793.4	403.8	389.6	1.0108	1.0000
							Average Co	orrection Factor	1.0042	1.0093

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.1		
High GPT point	795.8	402.3	395.1	393.1	1.0052	99.5%
Mid GPT point	795.8	601.0	196.4	195.5	1.0048	99.5%
Low GPT point	795.8	698.1	99.3	96.6	1.0284	97.2%
				Average Correction Factor	1.0128	98.7%

Notes: Sample inlet filter was changed after as founds. Adjusted span only.

Calibration Performed By:

Jan Castro

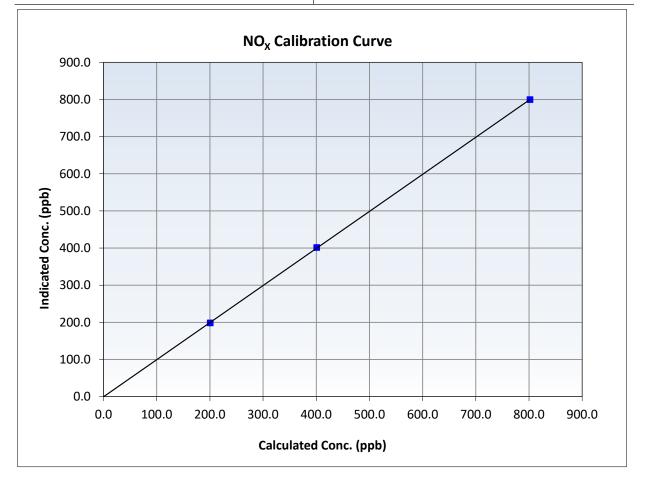


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 18, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:45	End Time (MST):	14:00
Analyzer make:	Thermo 42i	Analyzer serial #:	1501663731

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999987	≥0.995
802.0 401.0	799.7 401.4	1.0028 0.9990	Slope	0.998189	0.90 - 1.10
200.5	198.3	1.0109	Intercept	-0.392024	+/-20



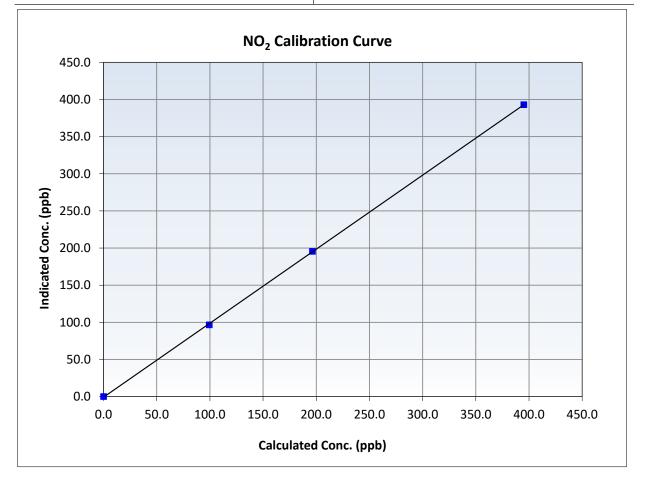


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 18, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:45	End Time (MST):	14:00
Analyzer make:	Thermo 42i	Analyzer serial #:	1501663731

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999957	≥0.995
395.1 196.4	393.1 195.5	1.0052 1.0048	Slope	0.996573	0.90 - 1.10
99.3	96.6	1.0284	Intercept	-0.812981	+/-20



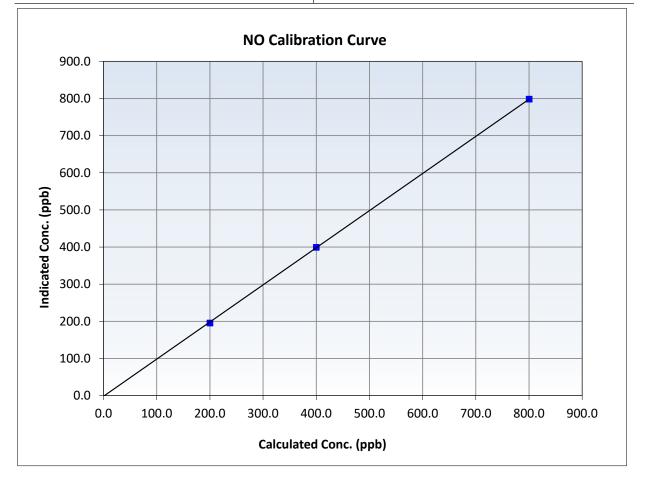


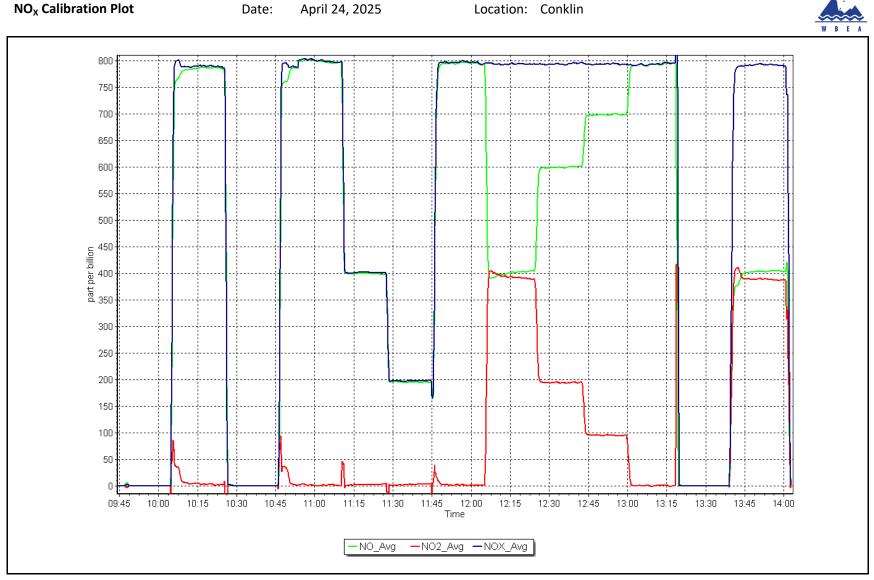
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 18, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:45	End Time (MST):	14:00
Analyzer make:	Thermo 42i	Analyzer serial #:	1501663731

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999968	≥0.995
800.3 400.2	798.5 399.3	1.0023 1.0022	Slope	0.999592	0.90 - 1.10
200.1	195.5	1.0233	Intercept	-1.692057	+/-20







Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Conklin April 14, 2025 11:14 Routine		Station number: AM Last Cal Date: Ma End time (MST): 14:	rch 3, 2025	
		Calibration St	andards		
O3 generation mode:	Photometer				
Calibrator Make/Model:	Teledyne API T700P		Serial Number: 265	59	
ZAG Make/Model:	Teledyne API T701		Serial Number: 953	5	
		Analyzer Info	rmation		
Analyzer make:	Thermo 49i		Analyzer serial #: 150	1663734	
Analyzer Range	0 - 500 ppb				
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	ŀ
Calibration slope:	1.003886	1.005686	Backgd or Offset:	1.9	
Calibration intercept:	-0.480000	-0.120000	Coeff or Slope:	1.100	

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)		Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	800.0	0.0	0.4	
As found High point	5000	918.9	400.0	399.5	1.002
As found Mid point					
As found Low point					
Baseline Corr As found:	399.1	Previous response	401.1	*% change	-0.5%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	800.0	0.0	0.4	
High point	5000	921.1	400.0	402.4	0.994
Mid point	5000	757.7	200.0	200.8	0.996
Low point	5000	653.1	100.0	99.9	1.001
As left zero	5000	800.0	0.0	-0.6	
As left span	5000	921.9	400.0	418.6	0.956
			Averag	e Correction Factor	0.997

Notes:

Sample inlet filter was changed after as founds. Adjusted span only.

Calibration Performed By: Jan Castro

Einish 2.0 1.113

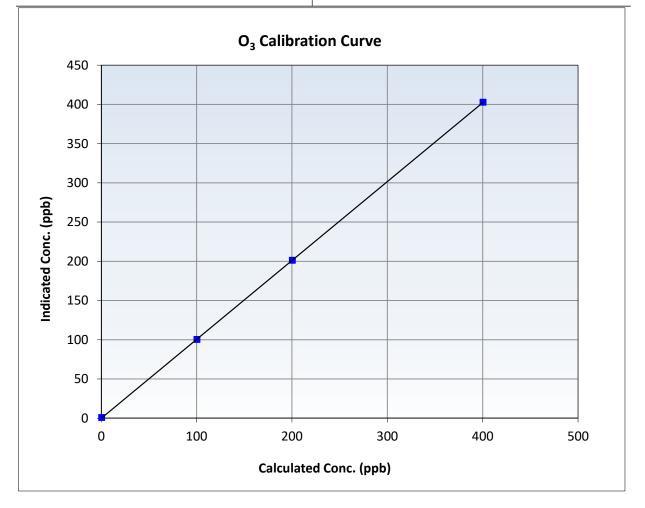


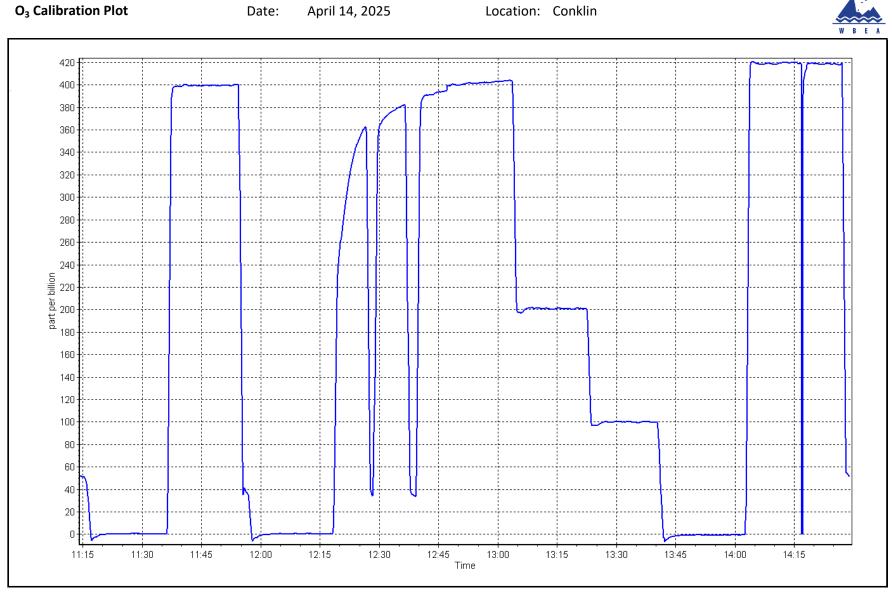
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 3, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	11:14	End Time (MST):	14:26
Analyzer make:	Thermo 49i	Analyzer serial #:	1501663734

Calculated concentration (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.4		Correlation Coefficient	0.999992	≥0.995
400.0 200.0	402.4 200.8	0.9940 0.9960	Slope	1.005686	0.90 - 1.10
100.0	99.9	1.0010	Intercept	-0.120000	+/- 5







Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA		Station Informatio	n		
itation Name:	Conklin	Station mormatio	Station number	· AMS 21	
Calibration Date:	April 14, 2025			: March 6, 2025	
Start time (MST):	12:01		End time (MST)	-	
Analyzer Make:	API T640		S/N	: 326	
Particulate Fraction:	PM2.5				
low Meter Make/Model:	Alicat FP-25BT		S/N	: 388754	
Temp/RH standard:	Alicat FP-25BT		-	: 388754	
		Monthly Calibration	Tost		
Parameter	As found	Measured	As left	Adjusted	(Limits)
T (°C)	13.00	12.97	13.00		+/- 2 °C
P (mmHg)	711.10	713.50	711.10		+/- 10 mmH
Flow (LPM)	5.00	5.08	5.00		+/- 0.25 LPN
PW% (pump)	38		38		+/- 0.23 LFN >80%
Zero Verification		3.50		.: 0.00	
zero vernication	PM w/o HEPA:	5.50	PM w/ HEPA		<0.2 ug/m3
Note: this leak check will b	e completed before the	quarterly work and will	l serve as the pre m	naintenance leak check	
Note: this leak check will b PM Inlet observation :	e completed before the Inlet Head Clean		l serve as the pre n gnment Factor On		
		Ali	gnment Factor On		
	Inlet Head Clean	Quarterly Calibration	gnment Factor On Test	: 🗹	
	Inlet Head Clean Refractive Index:	C Ali Quarterly Calibration 10.90	gnment Factor On		
PM Inlet observation :	Inlet Head Clean Refractive Index:	Quarterly Calibration	gnment Factor On Test	: 🗹	
PM Inlet observation :	Inlet Head Clean Refractive Index:	C Ali Quarterly Calibration 10.90	gnment Factor On Test	: 🗹	(Limits)
PM Inlet observation : SPAN DUST	Inlet Head Clean Refractive Index: Lot No.: 1	Quarterly Calibration 10.90 100128-050-040	gnment Factor On Test Expiry Date:	:	(Limits) +/- 0.5
PM Inlet observation : SPAN DUST <u>Parameter</u>	Inlet Head Clean Refractive Index: Lot No.: 1	Quarterly Calibration 10.90 100128-050-040	gnment Factor On Test Expiry Date:	:	
PM Inlet observation : SPAN DUST <u>Parameter</u>	Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u>	Quarterly Calibration 10.90 100128-050-040	gnment Factor On Test Expiry Date: <u>As left</u>	:	
SPAN DUST <u>Parameter</u> PMT Peak Test	Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> nber Cleaned:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance	gnment Factor On Test Expiry Date: <u>As left</u> 5, 2025	:	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> nber Cleaned:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance February 2 February 2	gnment Factor On Test Expiry Date: <u>As left</u> 5, 2025	: July 16, 2026 <u>Adjusted</u>	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> nber Cleaned:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance February 2	gnment Factor On Test Expiry Date: <u>As left</u> 5, 2025	:	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char	Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> nber Cleaned:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance February 2 February 2	gnment Factor On Test Expiry Date: <u>As left</u> 5, 2025 5, 2025	: July 16, 2026 <u>Adjusted</u>	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	Inlet Head Clean Refractive Index: Lot No.: : <u>As found</u> nber Cleaned:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance February 2 February 2 PM w/ HEPA:	gnment Factor On Test Expiry Date: <u>As left</u> 5, 2025 5, 2025	: July 16, 2026 <u>Adjusted</u>	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F Post- maintenance Zero Ve Date Sample Tu	Inlet Head Clean Refractive Index: Lot No.: As found nber Cleaned: ilter Changed: rification:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance February 2 February 2 PM w/ HEPA: Annual Maintenan August 9,	gnment Factor On Test Expiry Date: As left 5, 2025 5, 2025 ce . 2024	: July 16, 2026 <u>Adjusted</u>	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F Post- maintenance Zero Ve	Inlet Head Clean Refractive Index: Lot No.: As found nber Cleaned: ilter Changed: rification:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance February 2 February 2 PM w/ HEPA: Annual Maintenan	gnment Factor On Test Expiry Date: As left 5, 2025 5, 2025 ce . 2024	: July 16, 2026 <u>Adjusted</u>	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F Post- maintenance Zero Ve Date Sample Tu	Inlet Head Clean Refractive Index: Lot No.: As found nber Cleaned: ilter Changed: rification:	Ali Quarterly Calibration 10.90 100128-050-040 Post maintenance February 2 February 2 PM w/ HEPA: Annual Maintenan August 9,	gnment Factor On Test Expiry Date: As left 5, 2025 5, 2025 ce . 2024	: July 16, 2026 <u>Adjusted</u>	

Calibration by: Jan Castro



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS22 JANVIER APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Janvier
Calibration Date:	April 11, 2025
Start time (MST):	12:00
Reason:	Routine

Station number: AMS 22 Last Cal Date: March 26, 2025 End time (MST): 15:24

Calibration Standards

Cal Gas Concentration:	50.11	ppm	Cal Gas Exp Date: January 18, 2029
Cal Gas Cylinder #:	CC281519		
Removed Cal Gas Conc:	50.11	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 3806
Zero Air Gen Model:	Teledyne API T701		Serial Number: 691

Thermo 43i

0 - 1000 ppb

Analyzer Information

Serial Number: 1152430006

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.999521	0.999692	Backgd or Offset:	26.1	26.4
Calibration intercept:	1.164268	0.304361	Coeff or Slope:	1.017	1.017

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	1.0	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	799.8	798.5	1.003
Baseline Corr As found: Baseline Corr 2nd AF pt:	797.5 NA	Previous response AF Slope:	800.6	*% change AF Intercept:	-0.4%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4920	79.8	799.8	799.8	1.000
Mid point	4960	39.9	399.9	400.1	0.999
Low point	4980	20.0	200.4	200.8	0.998
As left zero	5000	0.0	0.0	0.3	
As left span	4920	79.8	799.8	797.3	1.003
			Averag	0.999	

Notes:

Changed the inlet filter after as founds. No adjustments made.

Calibration Performed By:

Rene Chamberland

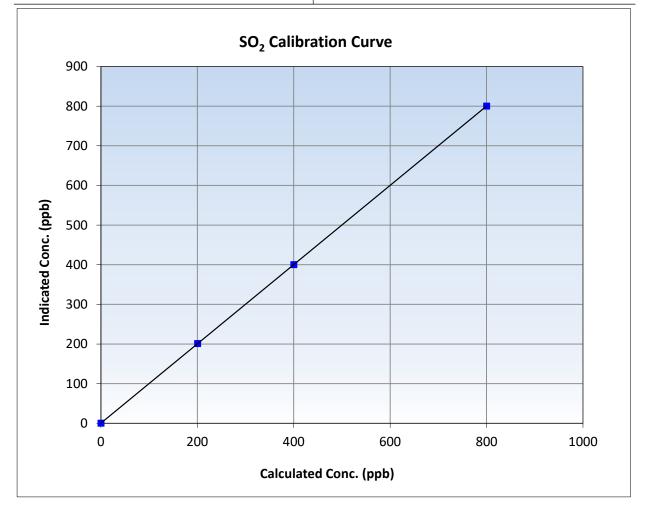


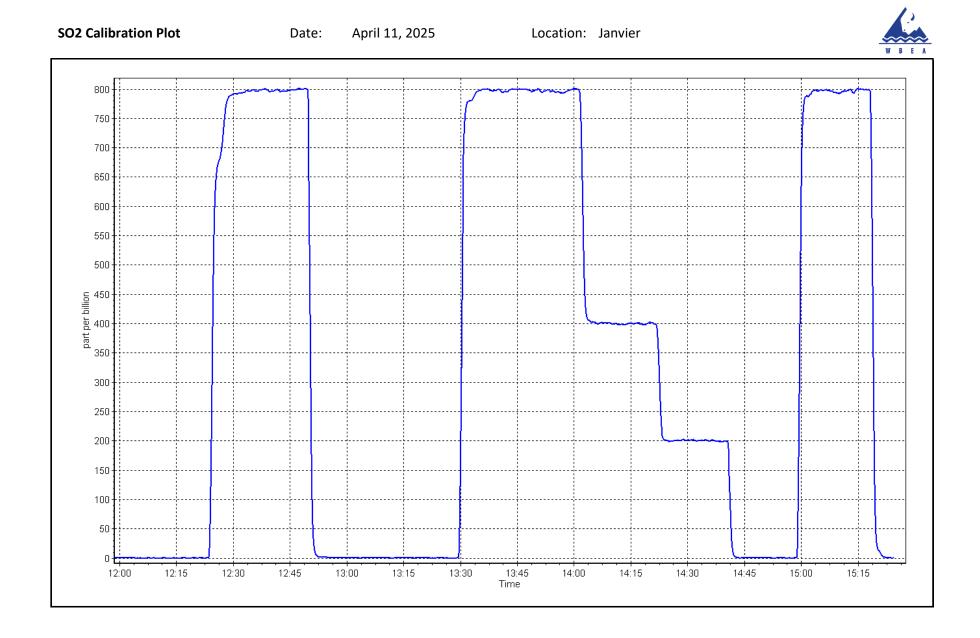
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 26, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	12:00	End Time (MST):	15:24
Analyzer make:	Thermo 43i	Analyzer serial #:	1152430006

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	1.000000	≥0.995
799.8 399.9	799.8 400.1	1.0000 0.9995	Slope	0.999692	0.90 - 1.10
200.4	200.8	0.9982	Intercept	0.304361	+/-30







Wood Buffalo Environmental Association TRS Calibration Report

Station Information

		station into	mation				
Station Name: Calibration Date: Start time (MST): Reason:	Janvier April 29, 2025 11:50 Routine		Station number: Last Cal Date: End time (MST):	AMS 22 March 27, 2025 16:30	5		
		Calibration S	tandards				
Cal Gas Concentration: Cal Gas Cylinder #:	5.02 CC424047	ppm	Cal Gas Exp Date:	November 15, 2	2026		
Removed Cal Gas Conc: Removed Gas Cyl #:	5.02 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA			
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3806			
ZAG Make/Model:	Teledyne API T701		Serial Number:	691			
		Analyzer Info	ormation				
Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1151680031			
, Converter make:	CDN-101		, Converter serial #:	620			
Analyzer Range	0 - 100 ppb		Converter Temp:		850	degC	2
	<u>Start</u>	<u>Finish</u>		<u>Start</u>			F
Calibration slope:	0.970959	0.999093	Backgd or Offset:	3.77			
Calibration intercept:	0.300065	0.140635	Coeff or Slope:	1.197			

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.0	
As found High point	4920	79.7	80.0	77.5	1.033
As found Mid point	4960	39.8	40.0	38.9	1.027
As found Low point New cylinder response	4980	19.9	20.0	19.4	1.030
Baseline Corr As found:	77.5	Prev response:	78.00	*% change:	-0.6%
Baseline Corr 2nd AF pt:	38.9	AF Slope:	0.968533	AF Intercept:	0.059981
Baseline Corr 3rd AF pt:	19.4	AF Correlation:	0.999992	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.1	
High point	4920	79.7	80.0	80.0	1.000
Mid point	4960	39.8	40.0	40.3	0.992
Low point	4980	19.9	20.0	20.0	0.999
As left zero	5000	0.0	0.0	0.4	
As left span	4920	79.7	80.0	78.9	1.014
SO2 Scrubber Check	4920	79.8	798.0	-0.1	
Date of last scrubber chan	ige:			Ave Corr Factor	0.997

Date of last converter efficiency test:

Notes:

Changed the inlet filter after as founds. Scrubber test performed after zero point, no issues. Adjusted the span.

Calibration Performed By:

Rene Chamberland

Finish 3.98 1.251



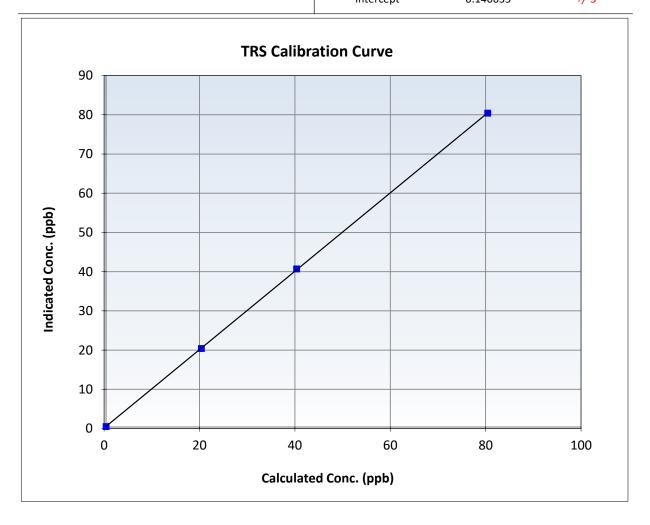
Wood Buffalo Environmental Association

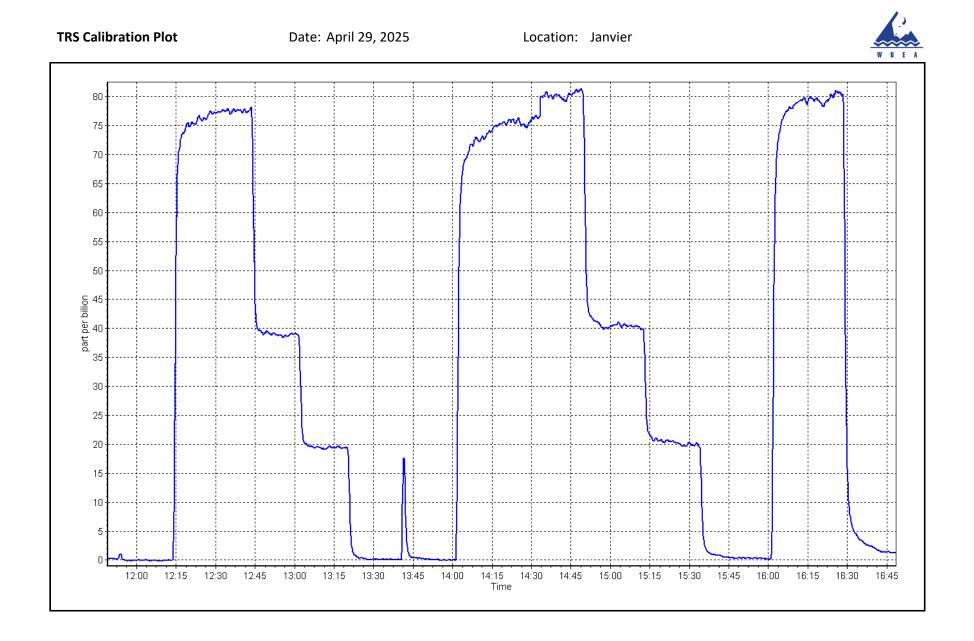
TRS Calibration Summary

Station Information

Calibration Date:	April 29, 2025	Previous Calibration:	March 27, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:50	End Time (MST):	16:30
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1151680031

Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation <u>Limits</u> (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999978 ≥0.995 0.0 0.1 ----80.0 80.0 1.0003 Slope 0.999093 0.90 - 1.10 40.0 40.3 0.9916 20.0 20.0 0.9990 Intercept 0.140635 +/-3







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Station Information

Station Name:	Janvier	Station number: AMS 22
Calibration Date:	April 11, 2025	Last Cal Date: March 26, 2025
Start time (MST):	12:00	End time (MST): 15:24
Reason:	Routine	

OFF

Calibration Standards

Gas Cert Reference:	CC2	81519	Cal Gas Expiry Date:	January 18, 202	9	
CH4 Cal Gas Conc.	502.8	ppm	CH4 Equiv Conc.	107	5.9 ppm	
C3H8 Cal Gas Conc.	208.4	ppm				
Removed Gas Cert:		NA	Removed Gas Expiry:	NA		
Removed CH4 Conc.	502.8	ppm	CH4 Equiv Conc.	107	5.9 ppm	
Removed C3H8 Conc.	208.4	ppm	Diff between cyl (THC):			
Diff between cyl (CH ₄):			Diff between cyl (NM):			
Calibrator Model:	Teledyne API 700		Serial Number:	3806		
Zero Air Gen model:	Teledyne API 701		Serial Number:	691		
		Anal	zer Information			
Analyzer make:	Thermo 55i		Analyzer serial #:	1317958219		
THC Range:	0 - 20 ppm		NMHC/CH4 Range: 0 - 10 ppm			
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	
CH4 SP Ratio:	2.51E-04	2.54E-04	NMHC SP Ratio:	6.02E-05	6.12E-05	
CH4 Retention time:	11.6	11.6	NMHC Peak Area:	152054	149432	

OFF

THC As Found Data

Flat Baseline:

OFF

OFF

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4920	79.8	17.17	17.01	1.009
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	17.01	Prev response	17.15	*% change	-0.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	17.17	17.20	0.999
Mid point	4960	39.9	8.59	8.51	1.009
Low point	4980	20.0	4.30	4.27	1.008
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	17.17	17.21	0.998
			Avera	ge Correction Factor	1.005

Notes:

Zero Chromatogram:

Changed the inlet filter and H2 cylinder after as founds. Adjusted span only.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	9.15	9.04	1.012
Baseline Corr AF:	9.04	Prev response	9.14	*% change	-1.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	9.15	9.15	1.000
Mid point	4960	39.9	4.57	4.55	1.006
Low point	4980	20.0	2.29	2.29	1.000
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	9.15	9.16	0.999
			Avera	ge Correction Factor	1.002

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Io AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4920	79.8	8.03	7.97	1.007
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.97	Prev response	8.01	*% change	-0.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	tes investigation

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4920	79.8	8.03	8.05	0.997
Mid point	4960	39.9	4.01	3.96	1.013
Low point	4980	20.0	2.01	1.98	1.018
As left zero	5000	0.0	0.00	0.00	
As left span	4920	79.8	8.03	8.06	0.996
			Avera	ge Correction Factor	1.009

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.000628	1.001574
THC Cal Offset:	-0.035596	-0.034204
CH4 Cal Slope:	1.001452	1.003860
CH4 Cal Offset:	-0.029759	-0.028964
NMHC Cal Slope:	0.999880	0.999793
NMHC Cal Offset:	-0.006237	-0.005640

Calibration Performed By:

Rene Chamberland

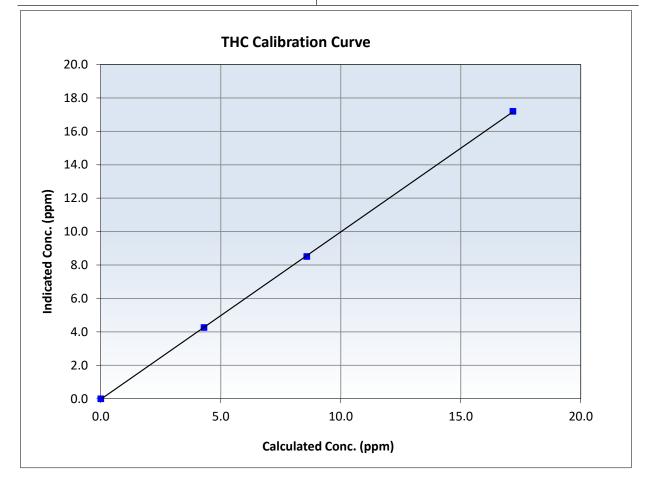


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 26, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	12:00	End Time (MST):	15:24
Analyzer make:	Thermo 55i	Analyzer serial #:	1317958219

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999967	≥0.995
17.17 8.59	17.20 8.51	0.9987 1.0090 1.0083	Slope	1.001574	0.90 - 1.10
4.30	4.27		Intercept	-0.034204	+/-0.5



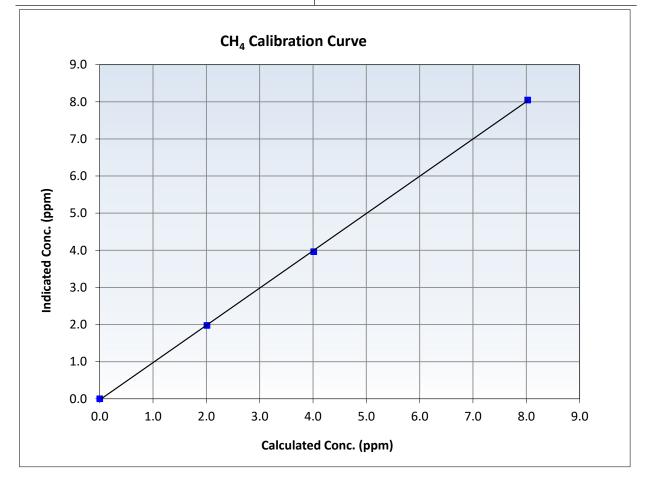


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 26, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	12:00	End Time (MST):	15:24
Analyzer make:	Thermo 55i	Analyzer serial #:	1317958219

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999919	≥0.995
8.03	8.05	0.9970	Slope	1.003860	0.90 - 1.10
4.01	3.96	1.0127	Siope	1.005800	0.90 - 1.10
2.01	1.98	1.0178	Intercept	-0.028964	+/-0.5



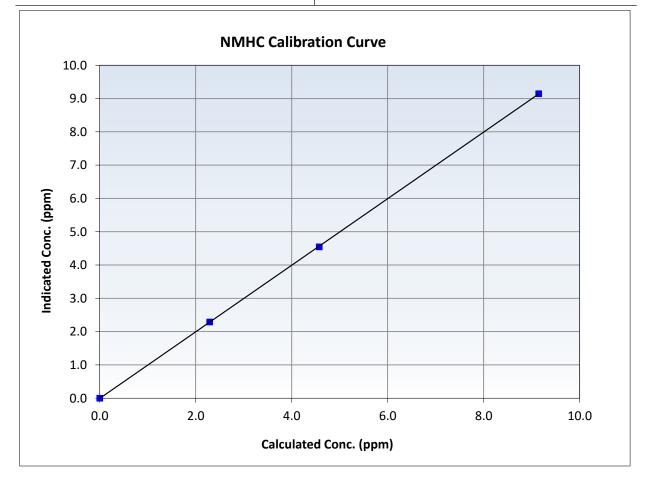


Wood Buffalo Environmental Association NMHC Calibration Summary

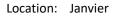
Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 26, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	12:00	End Time (MST):	15:24
Analyzer make:	Thermo 55i	Analyzer serial #:	1317958219

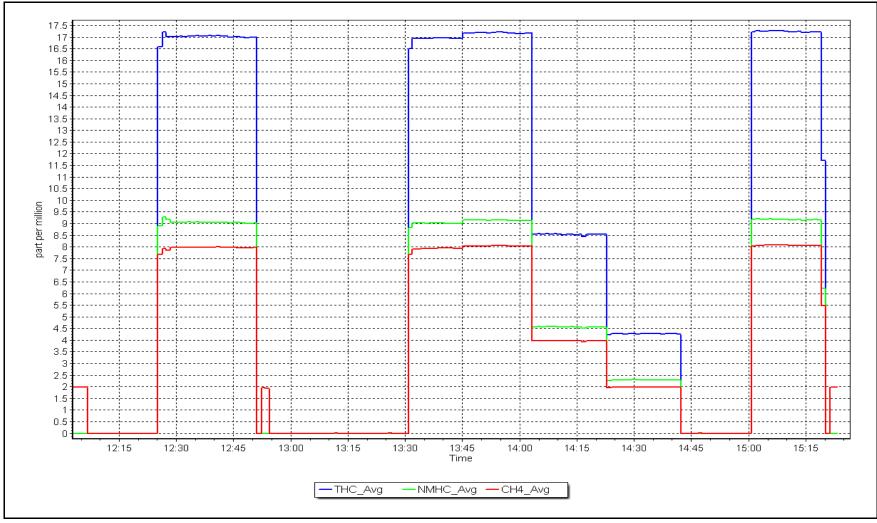
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999988	≥0.995
9.15 4.57	9.15 4.55	0.9999 1.0058 1.0002	Slope	0.999793	0.90 - 1.10
2.29	2.29		Intercept	-0.005640	+/-0.5



NMHC Calibration Plot









Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Janvier	NO Gas Cylinder #:	DT0047765	Cal Gas Expiry Date:	March 11, 2031
Station number:	AMS 22	NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.80 ppm
Calibration Date:	April 30, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Last Cal Date:	March 25, 2025	Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.80 ppm
Start time (MST):	11:41	NOX gas Diff:		NO gas Diff:	
End time (MST):	16:17	Calibrator Model:	Teledyne API T700	Serial Number:	3806
Reason:	Routine	ZAG make/model:	Teledyne API T701	Serial Number:	691

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.2	0.0		
AF High point	4918	82.0	802.0	800.3	1.6	771.4	764.6	6.7	1.0393	1.0464
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	802.5 ppb	NO = 799.9	ppb	* = > +/-59	% change initiates i	nvestigation	*Percent Chan	ge NO _x =	-4.0%
Baseline Corr 1	st pt NO _X =	771.6 ppb	NO = 764.8	ppb	<u>As Foun</u>	d Statistics		*Percent Chan	ge NO =	-4.6%
Baseline Corr 2	nd pt NO _X =	NA ppb	NO = NA	ppb	As foun	d NO _X r^2 :		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _X =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As found	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
As Found GPT Calibration Data										
								Baseline Adjus		
O3 Setpo	pint (ppb)	Indicated NO Re concentration		cated NO Drop entration (ppb)	Calculated NC concentration (pp		dicated NO2 ntration (ppb) (Ic)	Correction f (Cc/(Ic-AFz		verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1229254	Serial Number: 1229254994					
NOX Range (ppb):	0 - 1000 ppb				NO _x Cal Slope:	1.001849	1.001321		
			Instrument Settings			NO _x Cal Offset:	-0.955969	0.204103	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.001603	1.000003	
NO coeff or slope:	0.950	0.988	NO bkgnd or offset:	2.6	2.7	NO Cal Offset:	-1.676088	-0.716024	
NOX coeff or slope:	0.996	0.998	NOX bkgnd or offset:	2.7	2.8	NO ₂ Cal Slope:	1.004645	1.004611	
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	173.8	172.9	NO ₂ Cal Offset:	-1.110485	0.607262	

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
High point	4918	82.0	802.0	800.3	1.6	803.1	799.9	3.1	0.9986	1.0005
Mid point	4960	41.0	400.9	400.1	0.8	401.8	399.2	2.5	0.9978	1.0022
Low point	4980	20.5	200.5	200.1	0.4	201.1	198.5	2.7	0.9969	1.0079
As left zero	5000	0.0	0.0	0.0	0.0	-0.1	0.0	0.0		
As left span	4918	82.0	802.0	398.1	403.9	800.8	398.1	402.7	1.0014	1.0000
							Average Co	prrection Factor	0.9977	1.0035

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	0.0		
High GPT point	797.9	396.1	403.4	405.4	0.9952	100.5%
Mid GPT point	797.9	599.7	199.8	202.3	0.9878	101.2%
Low GPT point	797.9	697.8	101.7	103.0	0.9878	101.2%
				Average Correction Factor	0.9903	101.0%

Notes: Inlet filter was changed after as founds. Adjusted the span.

Calibration Performed By: Rene Chamberland

CALS 391 Version 03-2024

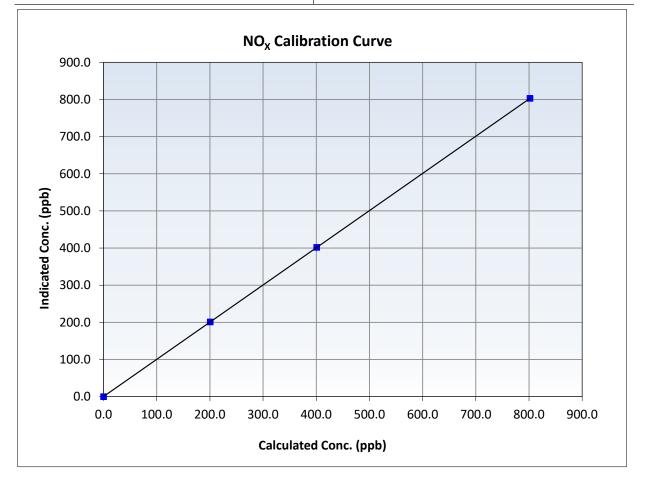


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 30, 2025	Previous Calibration:	March 25, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:41	End Time (MST):	16:17
Analyzer make:	Thermo 42i	Analyzer serial #:	1229254994

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	1.000000	≥0.995
802.0 400.9	803.1 401.8	0.9986 0.9978	Slope	1.001321	0.90 - 1.10
200.5	201.1	0.9969	Intercept	0.204103	+/-20



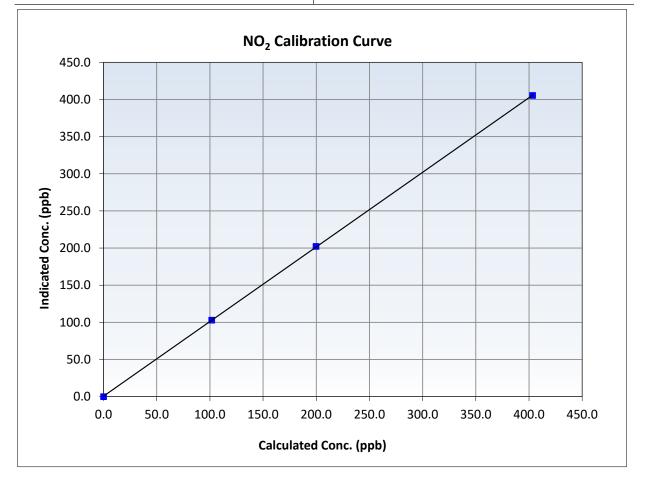


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 30, 2025	Previous Calibration:	March 25, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:41	End Time (MST):	16:17
Analyzer make:	Thermo 42i	Analyzer serial #:	1229254994

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999983	≥0.995
403.4 199.8	405.4 202.3	0.9952 0.9878	Slope	1.004611	0.90 - 1.10
101.7	103.0	0.9878	Intercept	0.607262	+/-20



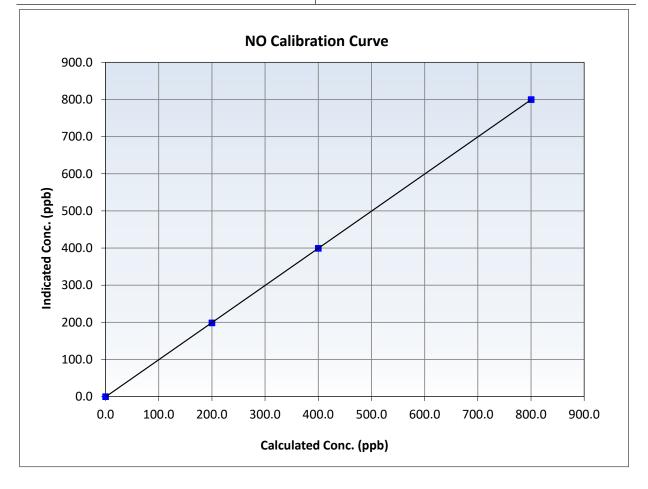


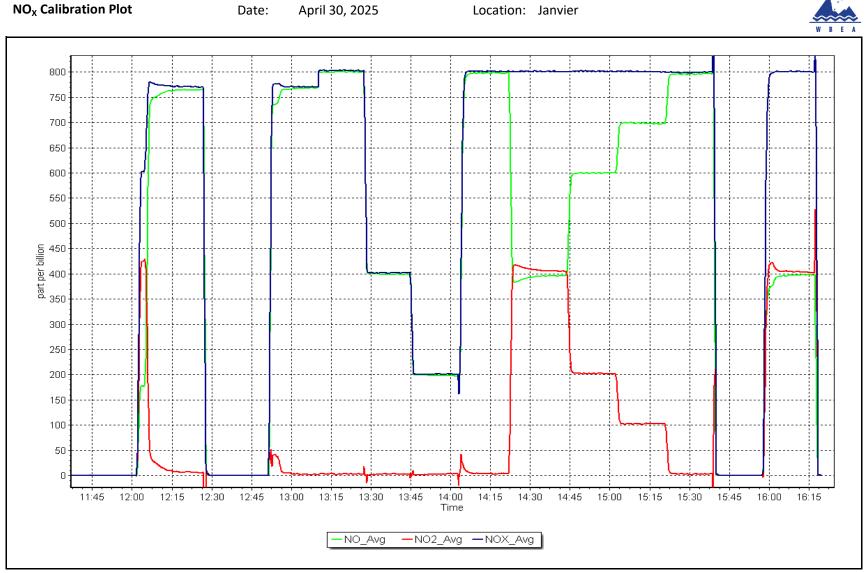
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 30, 2025	Previous Calibration:	March 25, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:41	End Time (MST):	16:17
Analyzer make:	Thermo 42i	Analyzer serial #:	1229254994

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999996	≥0.995
800.3 400.1	799.9 399.2	1.0005 1.0022	Slope	1.000003	0.90 - 1.10
200.1	198.5	1.0079	Intercept	-0.716024	+/-20







Wood Buffalo Environmental Association O₃ Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Janvier April 22, 2025 9:51 Routine	Station number: AMS 22 Last Cal Date: March 18, 2025 End time (MST): 12:42			
		Calibration S	Standards		
O3 generation mode:	Photometer				
Calibrator Make/Model:	Teledyne API T700		Serial Number: 38	06	
ZAG Make/Model:	Teledyne API T701H		Serial Number: 69	1	
		Analyzer Inf	ormation_		
Analyzer make:	Teledyne API T400		Analyzer serial #: 704	46	
Analyzer Range	0 - 500 ppb				
	Start	Finish		Start	Finish
Calibration slope:	1.000486	0.996029	Backgd or Offset:	1.5	1.5
Calibration intercept:	1.040000	1.320000	Coeff or Slope:	1.011	1.011

O₃ As Found Data

Set Point	Dilution air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)		Baseline Adjusted Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	800.0	0.0	0.3	
As found High point As found Mid point As found Low point	5000	922.9	400.0	399.0	1.003
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	398.7 NA NA	Previous response AF Slope: AF Correlation:		*% change AF Intercept: * = > +/-5% change initia	

O₃ Calibration Data

Set Point	Total air flow rate (sccm)	Calibrator Lamp Voltage Drive (mV)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	800.0	0.0	0.6	
High point	5000	922.9	400.0	399.2	1.002
Mid point	5000	768.8	200.0	201.4	0.993
Low point	5000	656.1	100.0	101.3	0.987
As left zero	5000	800.0	0.0	0.6	
As left span	5000	916.2	400.0	401.2	0.997
	Average Correction Factor				0.994

Notes:

Changed the inlet filter after the as founds. No adjustment made.

Calibration Performed By:

Sean Bala

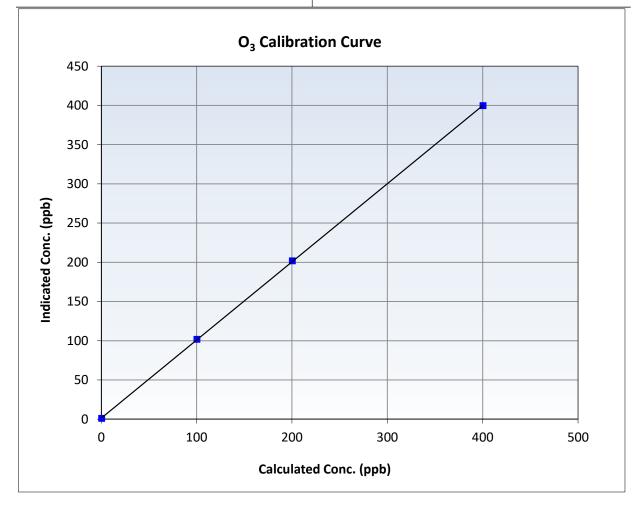


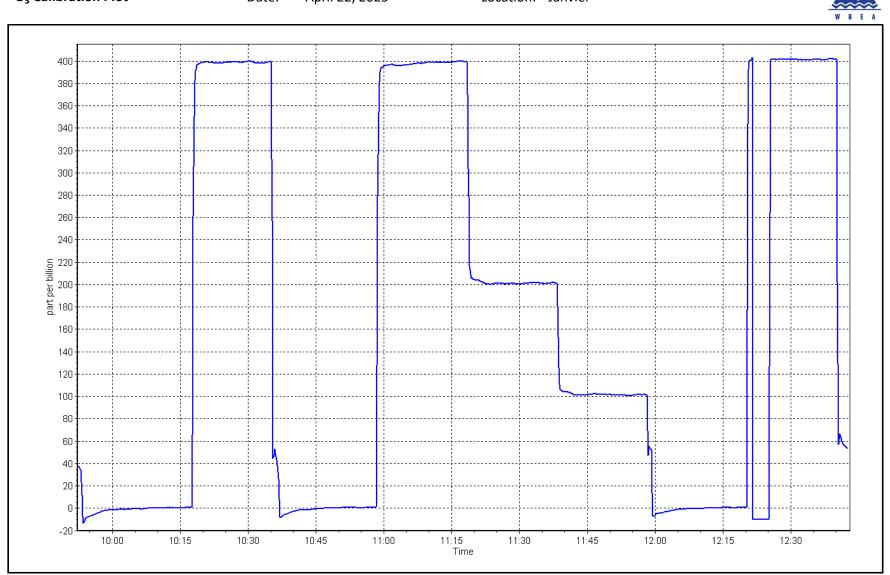
Wood Buffalo Environmental Association O₃ Calibration Summary

Station Information

Calibration Date:	April 22, 2025	Previous Calibration:	March 18, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	9:51	End Time (MST):	12:42
Analyzer make:	Teledyne API T400	Analyzer serial #:	7046

Calculated concentration (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.6		Correlation Coefficient	0.999980	≥0.995
400.0 200.0	399.2 201.4	1.0020 0.9930	Slope	0.996029	0.90 - 1.10
100.0	101.3	0.9872	Intercept	1.320000	+/- 5





O₃ Calibration Plot

Date: April 22, 2025

Location: Janvier



Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

					Version-01-202	
		Station Information	on			
tation Name:	Janvier		Station number: AM	S 22		
Calibration Date:	April 30, 2025		Last Cal Date: Ma	rch 24, 2025		
Start time (MST):	12:27	End time (MST): 14:19				
Analyzer Make:	Teledyne API T640	S/N: 325				
Particulate Fraction:	PM2.5					
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 388			
Гетр/RH standard:	Alicat FP-25BT		S/N: 388	3754		
		Monthly Calibration	Test			
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)	
T ([°] C)	12.3	11.51	12.3		+/- 2 °C	
P (mmHg)	713.7	714.94	713.7		+/- 10 mmH	
Flow (LPM)	5.04	4.896	5.04		+/- 0.25 LPN	
PW% (pump)	37		37		>80%	
Zero Verification	PM w/o HEPA:	1.1	PM w/ HEPA:	0.0	<0.2 ug/m3	
	•	<u> </u>	•			
Note: this leak check will be PM Inlet observation :	e completed before the Inlet Head Clean	Ali	ignment Factor On :	enance leak check ☑		
	Inlet Head Clean	Quarterly Calibration	ignment Factor On :	 ✓ 		
	Inlet Head Clean Refractive Index:	Ali	ignment Factor On :		24	
PM Inlet observation :	Inlet Head Clean Refractive Index:	Quarterly Calibration	ignment Factor On :	 ✓ 	24 (Limits)	
PM Inlet observation :	Inlet Head Clean Refractive Index: Lot No.:	Quarterly Calibration 10.9 100128-050-042	ignment Factor On : Test Expiry Date:	✓ June 10, 20		
PM Inlet observation : SPAN DUST <u>Parameter</u>	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u>	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance January 33	ignment Factor On : Test Expiry Date: <u>As left</u> 1, 2025	✓ June 10, 20 <u>Adjusted</u>	(Limits)	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> nber Cleaned:	Quarterly Calibration 10.9 100128-050-042 Post maintenance	ignment Factor On : Test Expiry Date: <u>As left</u> 1, 2025	✓ June 10, 20 <u>Adjusted</u>	(Limits)	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Chan Date Disposable Fi	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> nber Cleaned: ilter Changed:	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance January 33	ignment Factor On : Test Expiry Date: <u>As left</u> 1, 2025	✓ June 10, 20 <u>Adjusted</u>	(Limits)	
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Chan Date Disposable Fi	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> nber Cleaned: ilter Changed:	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance January 3: January 3:	ignment Factor On : Test Expiry Date: <u>As left</u> 1, 2025 1, 2025	✓ June 10, 20 <u>Adjusted</u>	(Limits)	
SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Chan	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> nber Cleaned: ilter Changed: rification:	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance January 3: January 3: PM w/ HEPA:	ignment Factor On : Test Expiry Date: <u>As left</u> 1, 2025 1, 2025 1, 2025	✓ June 10, 20 <u>Adjusted</u>	(Limits)	

Notes:

Verified flow, temperature, and pressure. Leak check passed.

Calibration by: Rene Chamberland



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

> AMS23 FORT HILLS APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Fort Hills
Calibration Date:	April 17, 2025
Start time (MST):	6:30
Reason:	Routine

Thermo 43i

0-1000ppb

Station number: AMS 23 Last Cal Date: March 17, 2025 End time (MST): 9:05

Calibration Standards

Cal Gas Concentration:	50.35	ppm	Cal Gas Exp Date: October 9, 2032
Cal Gas Cylinder #:	CC484463		
Removed Cal Gas Conc:	50.35	ppm	Rem Gas Exp Date:
Removed Gas Cyl #:			Diff between cyl:
Calibrator Model:	API T700		Serial Number: 451
Zero Air Gen Model:	API T701		Serial Number: 1117

Analyzer Information

Serial Number: 1160290012

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.988558	0.998705	Backgd or Offset:	18.9	18.9
Calibration intercept:	-0.121868	0.080120	Coeff or Slope:	1.071	1.071

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.2	
As found High point As found Mid point As found Low point New cylinder response	4921	79.4	799.5	797.8	1.002
Baseline Corr As found: Baseline Corr 2nd AF pt:	797.6 NA	Previous response AF Slope:	790.2	*% change AF Intercept:	0.9%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4921	79.4	799.5	798.5	1.001
Mid point	4960	39.7	399.8	399.7	1.000
Low point	4980	19.8	199.4	198.7	1.003
As left zero	5000	0.0	0.0	0.4	
As left span	4921	79.4	799.5	798.5	1.001
			Averag	ge Correction Factor:	1.002

Notes:

Calibration gas changed out. No adjustments done.

Calibration Performed By:

Melissa Lemay

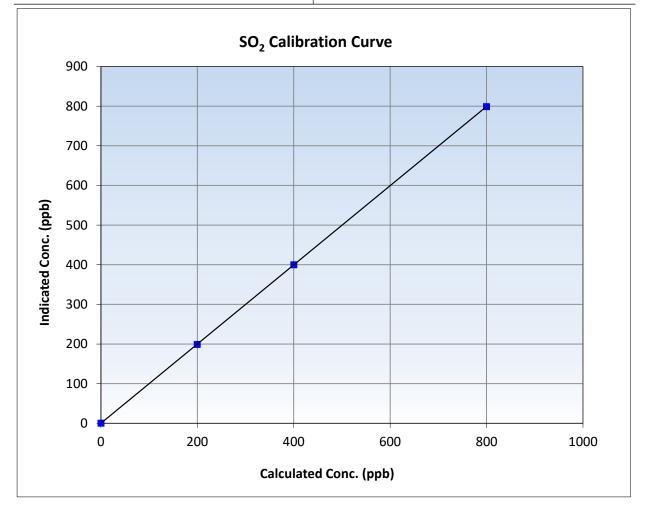


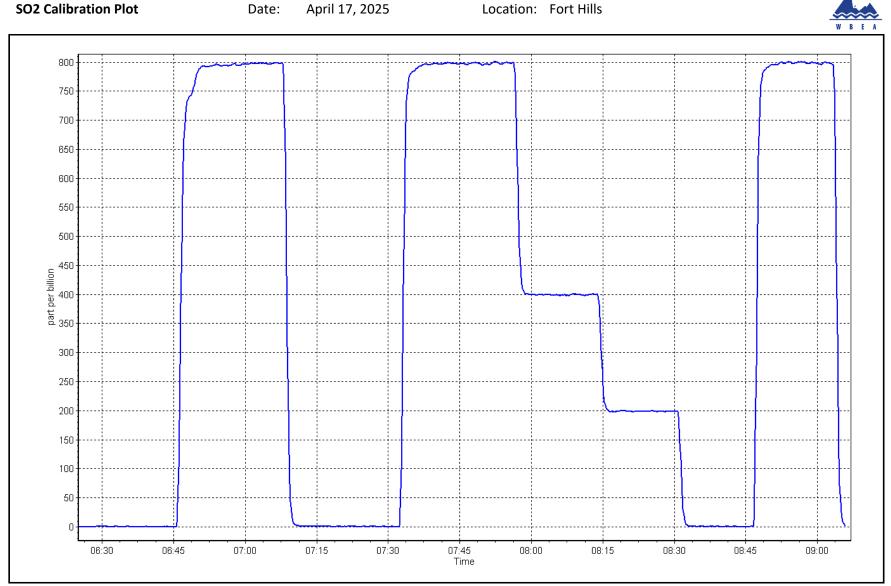
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:30	End Time (MST):	9:05
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290012

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999999	≥0.995
799.5 399.8	798.5 399.7	1.0012 1.0003	Slope	0.998705	0.90 - 1.10
199.4	198.7	1.0035	Intercept	0.080120	+/-30







Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Fort Hills April 16, 2025 6:32 Routine		Station number: Last Cal Date: End time (MST):	AMS 23 March 11, 2025 10:19
		Calibration	<u>Standards</u>	
Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	August 28, 2027

	4.04	ppin	Cal Gas Exp Date.	August 20, 2027
Cal Gas Cylinder #:	DT0021910			
Removed Cal Gas Conc:	4.84	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:			Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	451
ZAG Make/Model:	API T701		Serial Number:	1117

Analyzer Information

Analyzer make: Converter make:	Thermo 43i TLE CDN-101		Analyzer serial #: Converter serial #:	1300156232 594	
Analyzer Range	0 - 100 ppb		Converter Temp:		800 degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.001247	1.002388	Backgd or Offset:	2.06	2.06
Calibration intercept:	-0.038151	-0.078072	Coeff or Slope:	1.160	1.160

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4917	82.6	80.0	79.7	1.002
As found Mid point	4959	41.3	40.0	39.6	1.007
As found Low point	4979	20.7	20.0	19.4	1.028
New cylinder response					
Baseline Corr As found:	79.8	Prev response:	80.02	*% change:	-0.3%
Baseline Corr 2nd AF pt:	39.7	AF Slope:	0.999812	AF Intercept:	-0.337937
Baseline Corr 3rd AF pt:	19.5	AF Correlation:	0.999956	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4917	82.6	80.0	80.1	0.998
Mid point	4959	41.3	40.0	40.0	0.999
Low point	4979	20.7	20.0	19.9	1.007
As left zero	5000	0.0	0.0	-0.1	
As left span	4917	82.6	80.0	82.1	0.974
SO2 Scrubber Check	4920	80.3	803.0	0.0	
Date of last scrubber c	hange:			Ave Corr Factor	1.002
Date of last converter	efficiency test:	March 13, 2024		110.3%	efficiency

Notes:

SOx scrubber checked after the calibrator zero. No adjustments done.

Calibration Performed By:

Melissa Lemay



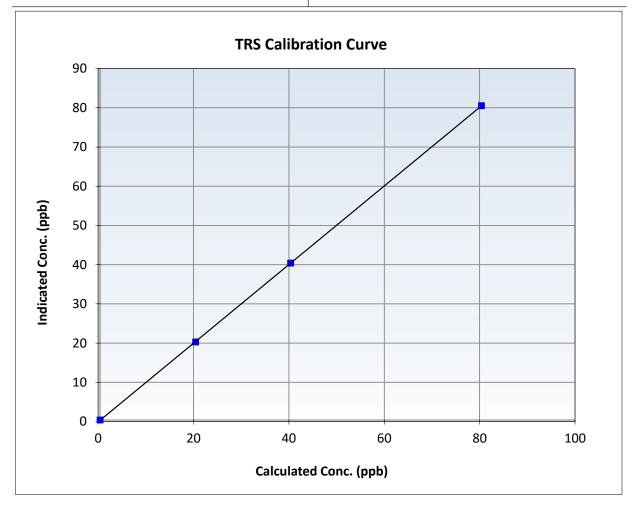
Wood Buffalo Environmental Association

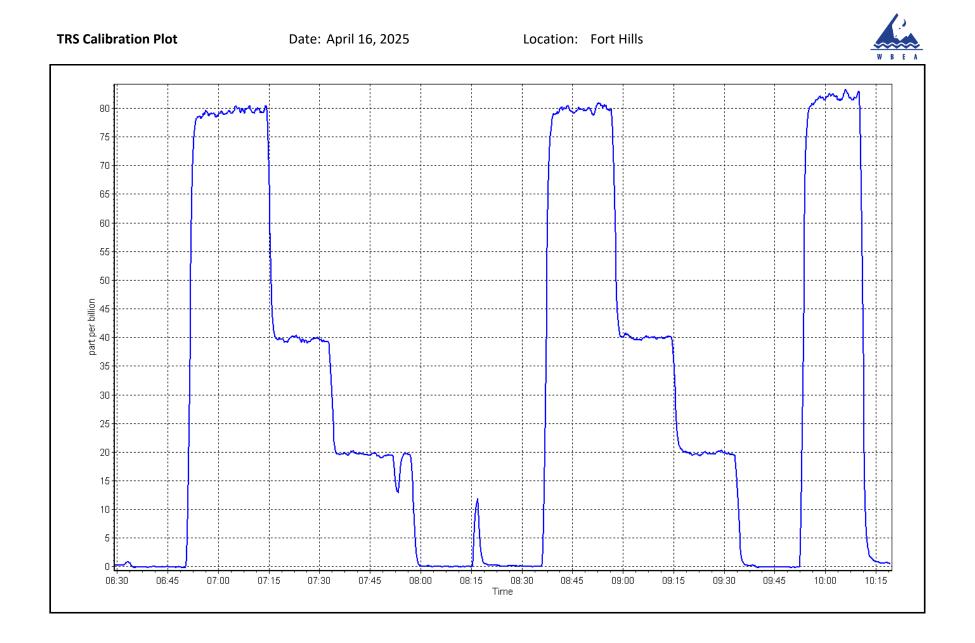
TRS Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 11, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:32	End Time (MST):	10:19
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1300156232

Calibration Data						
Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>	
0.0	0.0		Correlation Coefficient	0.999995	≥0.995	
80.0	80.1	0.9983	Slope	1.002388	0.90 - 1.10	
40.0	40.0	0.9994				
20.0	19.9	1.0070	Intercept	-0.078072	+/-3	







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Analyzer serial #: 12227620777

NMHC/CH4 Range: 0 - 10 ppm

Station Information

Station Name:	Fort Hills	Station number: AMS 23
Calibration Date:	April 17, 2025	Last Cal Date: March 17, 2025
Start time (MST):	6:30	End time (MST): 9:05
Reason:	Routine	

Calibration Standards

Gas Cert Reference:	CC484463	Cal Gas Expiry Date:	October 9, 2032
CH4 Cal Gas Conc.	504.3 ppm	CH4 Equiv Conc.	1065.6 ppm
C3H8 Cal Gas Conc.	204.1 ppm		
Removed Gas Cert:		Removed Gas Expiry:	
Removed CH4 Conc.	504.3 ppm	CH4 Equiv Conc.	1065.6 ppm
Removed C3H8 Conc.	204.1 ppm	Diff between cyl (THC):	
Diff between cyl (CH ₄):		Diff between cyl (NM):	
Calibrator Model:	API T700	Serial Number:	451
Zero Air Gen model:	API T701	Serial Number:	1117

Analyzer Information

Analyzer make: Thermo 55i THC Range: 0 - 20 ppm

_					
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	3.55E-04	3.55E-04	NMHC SP Ratio:	5.42E-05	5.42E-05
CH4 Retention time:	15.2	15.2	NMHC Peak Area:	164497	164497
Zero Chromatogram:	OFF	OFF	Flat Baseline:	OFF	OFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4921	79.4	16.92	17.00	0.996
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	17.00	Prev response	16.86	*% change	0.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.4	16.92	16.90	1.001
Mid point	4960	39.7	8.46	8.40	1.007
Low point	4980	19.8	4.22	4.21	1.003
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.4	16.92	16.85	1.004
			Avera	age Correction Factor	1.004

Notes:

Calibration Gas changed out. Span adjusted.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration ((ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic· AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	79.4	8.91	9.00	0.990
Baseline Corr AF:	9.00	Prev response	8.90	*% change	1.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.4	8.91	8.95	0.996
Mid point	4960	39.7	4.46	4.47	0.997
Low point	4980	19.8	2.22	2.25	0.987
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.4	8.91	8.90	1.002
			Avera	ge Correction Factor	0.994

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4921	79.4	8.01	7.99	1.002
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	7.99 NA NA	Prev response AF Slope: AF Correlation:	7.97	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4921	79.4	8.01	7.95	1.007
Mid point	4960	39.7	4.00	3.93	1.019
Low point	4980	19.8	2.00	1.96	1.021
As left zero	5000	0.0	0.00	0.00	
As left span	4921	79.4	8.01	7.95	1.007
			Avera	ge Correction Factor	1.016

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	0.997066	0.998551
THC Cal Offset:	-0.009783	-0.012778
CH4 Cal Slope:	0.997435	0.993810
CH4 Cal Offset:	-0.021799	-0.020604
NMHC Cal Slope:	0.996952	1.003055
NMHC Cal Offset:	0.011416	0.006627

Calibration Performed By:

Melissa Lemay

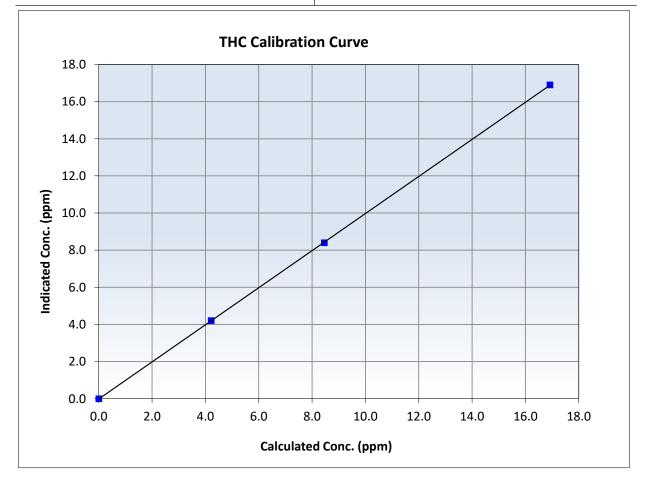


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:30	End Time (MST):	9:05
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>	
0.00	0.00		Correlation Coefficient	0.999989	≥0.995	
16.92 8.46	16.90 8.40	1.0012 1.0073 1.0028		Slope	0.998551	0.90 - 1.10
4.22	4.21		Intercept	-0.012778	+/-0.5	



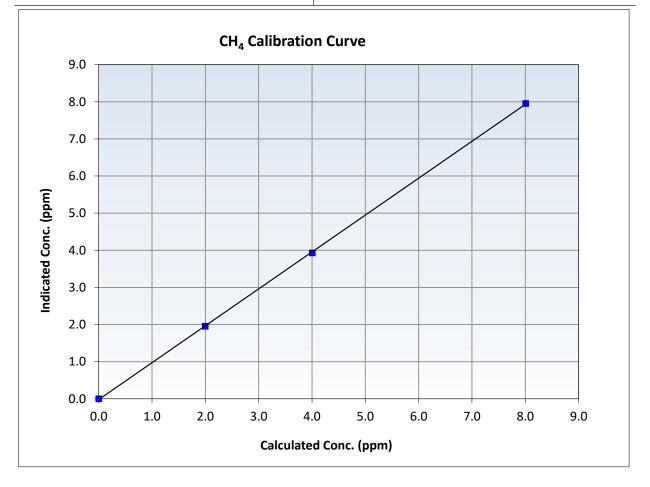


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:30	End Time (MST):	9:05
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999954	≥0.995
8.01 4.00	7.95 3.93	1.0067 1.0189	Slope	0.993810	0.90 - 1.10
2.00	1.96	1.0210	Intercept	-0.020604	+/-0.5



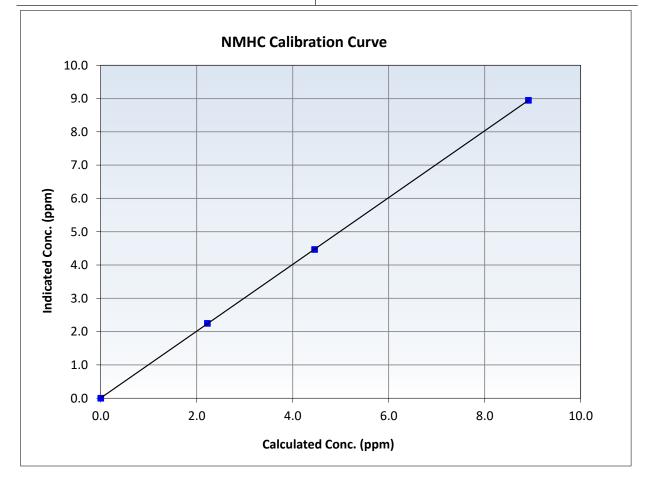


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

Calibration Date:	April 17, 2025	Previous Calibration:	March 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:30	End Time (MST):	9:05
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777

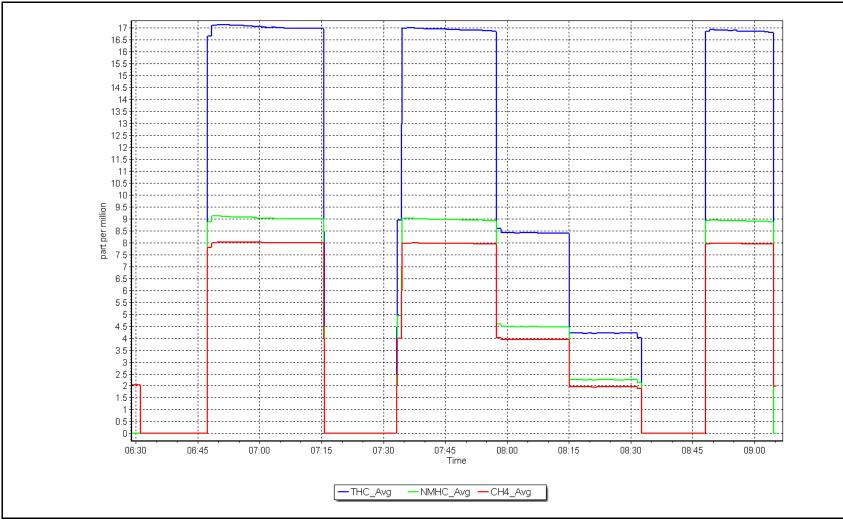
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999992	≥0.995
8.91 4.46	8.95 4.47	0.9961 0.9975	Slope	1.003055	0.90 - 1.10
2.22	2.25	0.9874	Intercept	0.006627	+/-0.5



NMHC Calibration Plot









Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Fort Hills	NO Gas Cylinder #:	CC358149	Cal Gas Expiry Date:	January 5, 2032
Station number:	AMS 23	NOX Cal Gas Conc:	60.30 ppm	NO Cal Gas Conc:	60.10 ppm
Calibration Date:	April 15, 2025	Removed Cylinder #:		Removed Gas Exp Date	:
Last Cal Date:	March 12, 2025	Removed Gas NOX Conc:	60.30 ppm	Removed Gas NO Conc	: 60.10 ppm
Start time (MST):	6:50	NOX gas Diff:		NO gas Diff:	
End time (MST):	11:33	Calibrator Model:	API T700	Serial Number:	451
Reason:	Routine	ZAG make/model:	API T701	Serial Number:	1117

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.4	-0.4	0.0		
AF High point	4934	66.3	799.5	796.9	2.7	775.0	770.9	4.0	1.0311	1.0332
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	794.8 ppb	NO = 793.8	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chan	ge NO _x =	-2.5%
Baseline Corr 1	.st pt NO _x =	775.4 ppb	NO = 771.3	ppb	<u>As Four</u>	nd Statistics		*Percent Chan	ge NO =	-2.9%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _X =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d $NO_2 r^2$:		NO2 SI:	NO ₂ Int:	
				As Fo	und GPT Calib	ration Data				
								Baseline Adjus	ted NO2	

					buschine najusted NOL	
O3 Setpoint (ppb)	Indicated NO Reference	Indicated NO Drop	Calculated NO2	Indicated NO2	Correction factor	Converter Efficiency
Os serpoint (ppb)	concentration (ppb)	concentration (ppb)	concentration (ppb) (Cc)	concentration (ppb) (Ic)	(Cc/(Ic-AFzero))	<i>Limit = 96-104%</i>
					<i>Limit = 0.90 - 1.10</i>	

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1152430007					<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb			NO _x Cal Slope:	0.995194	0.999841		
			Instrument Settings			NO _x Cal Offset:	-0.872416	0.026011
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.999005	1.002405
NO coeff or slope:	0.940	0.970	NO bkgnd or offset:	2.8	2.5	NO Cal Offset:	-2.271408	-1.432704
NOX coeff or slope:	0.990	0.990	NOX bkgnd or offset:	3.0	2.7	NO ₂ Cal Slope:	0.998438	0.997503
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	146.3	146.3	NO ₂ Cal Offset:	-1.622293	-1.163127

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.1	0.2	0.0		
High point	4934	66.3	799.5	796.9	2.7	799.4	798.2	1.2	1.0002	0.9983
Mid point	4967	33.2	400.4	399.0	1.3	400.5	397.7	2.7	0.9997	1.0034
Low point	4983	16.6	200.2	199.5	0.7	200.0	197.0	3.0	1.0011	1.0129
As left zero	5000	0.0	0.0	0.0	0.0	0.1	0.2	-0.1		
As left span	4934	66.3	799.5	410.8	388.7	796.8	410.8	386.0	1.0034	1.0000
							Average Co	orrection Factor	1.0003	1.0049

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	0.0		
High GPT point	795.0	411.1	386.6	384.9	1.0043	99.6%
Mid GPT point	795.0	603.0	194.7	192.8	1.0096	99.0%
Low GPT point	795.0	696.9	100.8	97.9	1.0291	97.2%
				Average Correction Factor	1.0143	98.6%

Notes: Zero and Span Adjusted. During second point the NOx and NO were spiking down, Blow out inside of analyzer. Continued Calibration.

Calibration Performed By:

Melissa Lemay

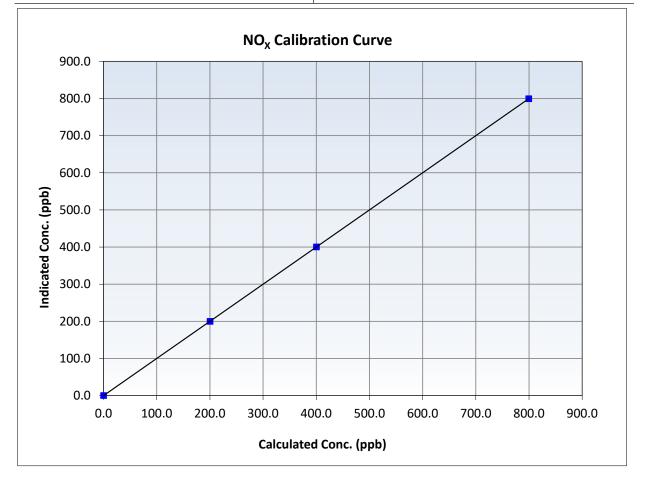


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:50	End Time (MST):	11:33
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430007

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	1.000000	≥0.995
799.5 400.4	799.4 400.5	1.0002 0.9997	Slope	0.999841	0.90 - 1.10
200.2	200.0	1.0011	Intercept	0.026011	+/-20



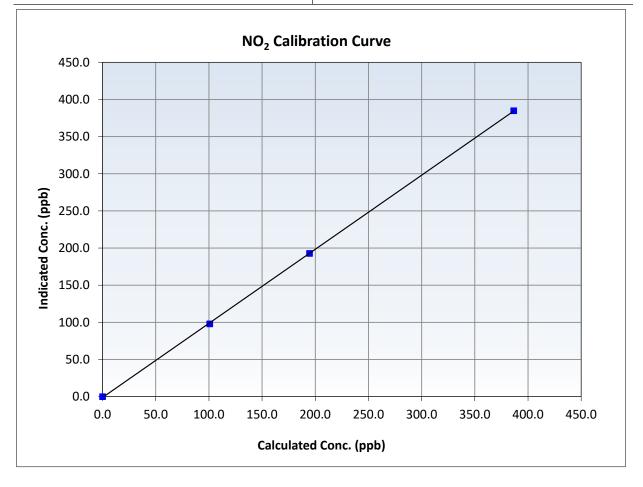


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:50	End Time (MST):	11:33
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430007

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999954	≥0.995
386.6 194.7	384.9 192.8	1.0043 1.0096	Slope	0.997503	0.90 - 1.10
100.8	97.9	1.0291	Intercept	-1.163127	+/-20



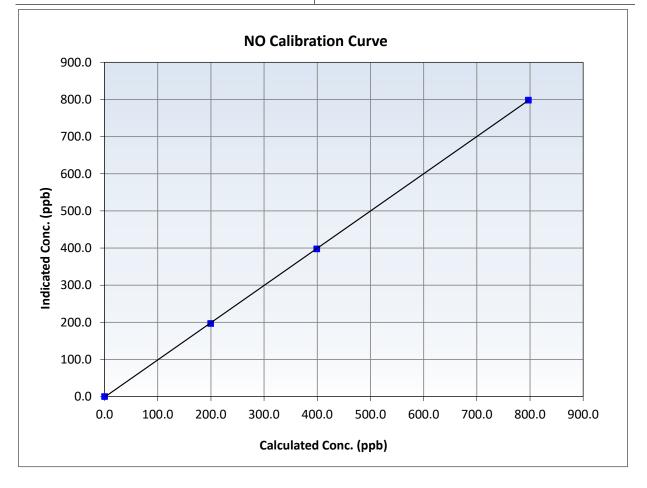


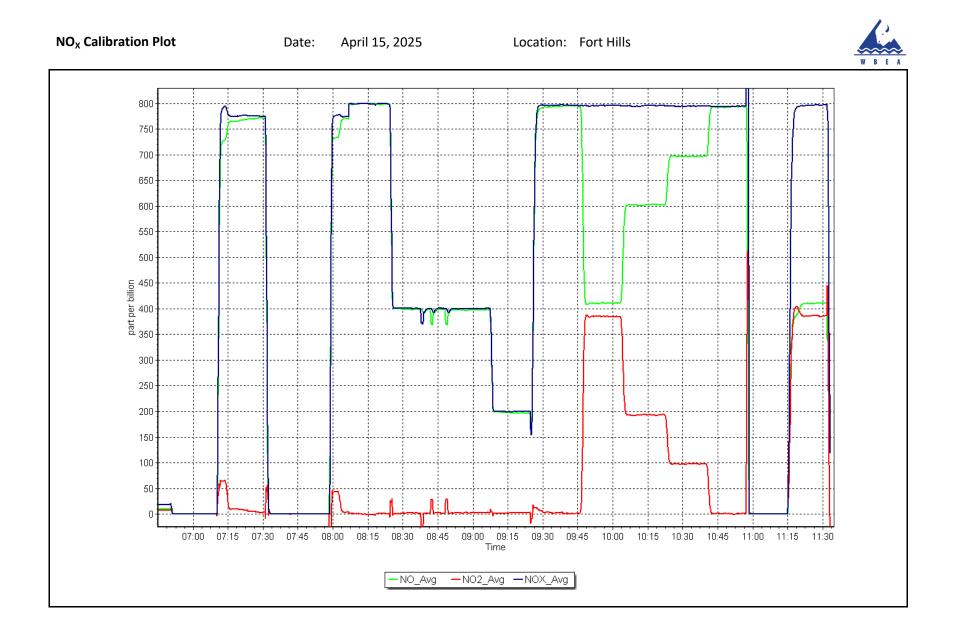
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 12, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:50	End Time (MST):	11:33
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430007

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999981	≥0.995
796.9	798.2	0.9983	Slope	1.002405 0.	0.90 - 1.10
399.0	397.7	1.0034	Slope	1.002405	0.90 - 1.10
199.5	197.0	1.0129	Intercept	-1.432704	+/-20







Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA		Ctation Informat	1		Version-01-202
		Station Informat	ion		
Station Name:	Fort Hills		Station number: AMS	5 23	
Calibration Date:	April 17, 2025		Last Cal Date: Mar	ch 17, 2025	
Start time (MST):	7:00		End time (MST): 7:52		
Analyzer Make:	API T640		S/N: 320		
Particulate Fraction:	PM2.5				
Flow Meter Make/Model:	Alicat FP-25BT		S/N: 388	744	
Temp/RH standard:	Alicat FP-25BT		S/N: 3887	744	
	I	Monthly Calibration	n Test		
<u>Parameter</u>	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	-3.8	-4.1	-3.8		+/- 2 °C
P (mmHg)	740.4	739.4	740.4		+/- 10 mmHg
Flow (LPM)	4.98	4.96	4.98		+/- 0.25 LPM
PW% (pump)	55		55		>80%
Zero Verification	PM w/o HEPA:	4.7	PM w/ HEPA:	0.0	<0.2 ug/m3

Note: this leak check will be completed before the quarterly work and will serve as the pre maintenance leak check PM Inlet observation : Inlet Head Clean 🗹 Alignment Factor On : 🗹

Quarterly Calibration Test							
SPAN DUST	Refractive Index:	: 10.9 Expiry Date:		16-Jul-26			
SPAN DOST	Lot No.:	100128-050-050					
<u>Parameter</u>	<u>As found</u>	Post maintenance	<u>As left</u>	<u>Adjusted</u>	(Limits)		
PMT Peak Test	8	11.2	11.2		+/- 0.5		
Date Optical Chamb	er Cleaned:	April 17,	2025				
Date Disposable Filter Changed:		April 17,	2025				
Post- maintenance Zero Verification:		PM w/ HEPA: 0		<0.2 ug/m3			

Annual Maintenance

Date Sample Tube Cleaned:ApriDate RH/T Sensor Cleaned:Apri

April 17, 2025 April 17, 2025

Notes:

No adjustments done. Leak Check, Flow and PMT checked before and after cleaning.

Calibration by:

Melissa Lemay



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS25 WASKŌW OHCI PIMÂTISIWIN APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Waskow ohci Pimatisiwin	Station number: AMS 25
Calibration Date:	April 9, 2025	Last Cal Date: March 25, 2025
Start time (MST):	7:04	End time (MST): 9:50
Reason:	Routine	

Calibration Standards

Cal Gas Concentration:	49.70	ppm	Cal Gas Exp Date: March 10, 2031
Cal Gas Cylinder #:	CC342445		
Removed Cal Gas Conc:	49.70	ppm	Rem Gas Exp Date:
Removed Gas Cyl #:			Diff between cyl:
Calibrator Model:	API T700		Serial Number: 621
Zero Air Gen Model:	API T701		Serial Number: 4765

	Analyzer Info	<u>prmation</u>		
Thermo 43i		Serial Number: 11	18148497	
0-1000ppb				
<u>Start</u>	<u>Finish</u>		<u>Start</u>	Finish
1.003113	1.007511	Backgd or Offset:	11.3	11.3
-0.352267	0.109107	Coeff or Slope:	1.065	1.065
	0-1000ppb <u>Start</u> 1.003113	Thermo 43i 0-1000ppb <u>Start</u> <u>Finish</u> 1.003113 1.007511	0-1000ppb <u>Start</u> <u>Finish</u> 1.003113 1.007511 Backgd or Offset:	Serial Number: 1118148497 0-1000ppb Start Start Finish Start 1.003113 1.007511 Backgd or Offset: 11.3

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4920	80.5	800.1	802.9	0.997
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	802.8 NA NA	Previous response AF Slope: AF Correlation:	802.2	*% change AF Intercept: * = > +/-5% change initiate	0.1% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4920	80.5	800.1	806.1	0.993
Mid point	4960	40.2	399.6	403.1	0.991
Low point	4980	20.1	199.8	201.0	0.994
As left zero	5000	0.0	0.0	0.2	
As left span	4920	80.5	800.1	807.2	0.991
			Averag	ge Correction Factor:	0.993

Notes:

No Maintenance or adjustments done.

Calibration Performed By:

Melissa Lemay

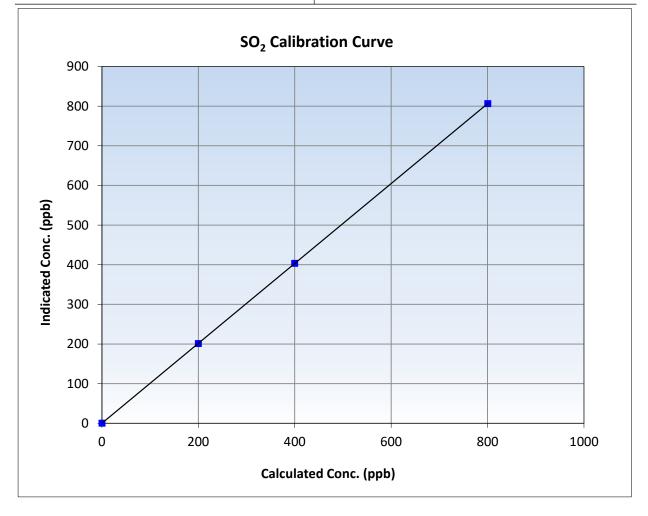


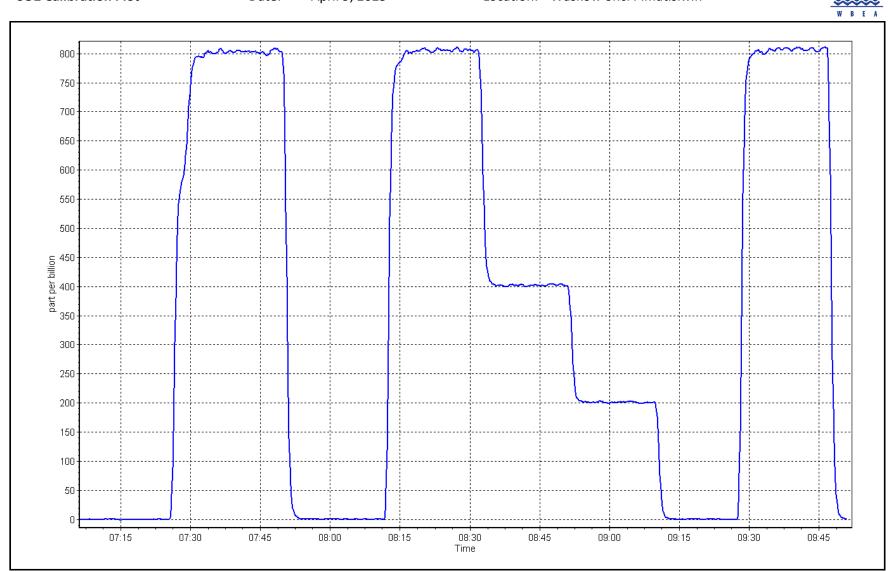
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 9, 2025	Previous Calibration:	March 25, 2025
Station Name:	Waskow ohci Pimatisiwin	Station Number:	AMS 25
Start Time (MST):	7:04	End Time (MST):	9:50
Analyzer make:	Thermo 43i	Analyzer serial #:	1118148497

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999999	≥0.995
800.1 399.6	806.1 403.1	0.9925 0.9912	Slope	1.007511	0.90 - 1.10
199.8	201.0	0.9940	Intercept	0.109107	+/-30





SO2 Calibration Plot

Date: April 9, 2025

Location: Waskow ohci Pimatisiwin





Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Waskow ohci Pima April 23, 2025 7:10 Routine	ıtisiwin	Station number: Last Cal Date: End time (MST):	AMS 25 March 24, 2025 11:07	5		
		Calibration	<u>Standards</u>				
Cal Gas Concentration: Cal Gas Cylinder #:	4.97 CC517099	ppm	Cal Gas Exp Date:	January 3, 2026	5		
Removed Cal Gas Conc: Removed Gas Cyl #:	4.97	ppm	Rem Gas Exp Date: Diff between cyl:				
Calibrator Make/Model:	API T700		Serial Number:	747			
ZAG Make/Model:	API T701		Serial Number:	261			
		Analyzer In	formation				
Analyzer make:	Thermo 43i-LTE		Analyzer serial #:	1170050146			
Converter make:	Global G-150		Converter serial #:	2022-219			
Analyzer Range	0 - 100 ppb		Converter Temp:		325	degC	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>			<u>Finish</u>
Calibration slope:	1.011498	1.007473	Backgd or Offset:	3.50			3.50
Calibration intercept:	-0.140000	0.000000	Coeff or Slope:	1.108			1.086

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4920	80.0	79.5	82.8	0.959
As found Mid point	4960	40.0	39.8	41.4	0.958
As found Low point	4980	20.0	19.9	20.6	0.960
New cylinder response					
Baseline Corr As found:	82.9	Prev response:	80.29	*% change:	3.1%
Baseline Corr 2nd AF pt:	41.5	AF Slope:	1.042685	AF Intercept:	-0.100000
Baseline Corr 3rd AF pt:	20.7	AF Correlation:	0.999999	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4920	80.0	79.5	80.1	0.993
Mid point	4960	40.0	39.8	40.1	0.992
Low point	4980	20.0	19.9	20.0	0.994
As left zero	5000	0.0	0.0	0.1	
As left span	4920	80.0	800.0	811.7	0.986
SO2 Scrubber Check	4920	80.0	800.0	0.0	
Date of last scrubber ch	ange:			Ave Corr Factor	0.993
Date of last converter e	fficiency test:	February 12, 2025		111.0%	efficiency

Notes:

SOx Scrubber checked after the calibrator zero. Span adjusted.

Calibration Performed By:

Melissa Lemay



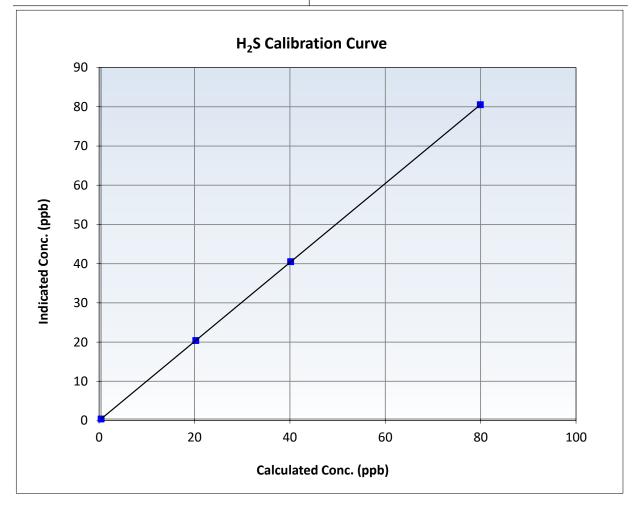
Wood Buffalo Environmental Association

H₂S Calibration Summary

Station Information

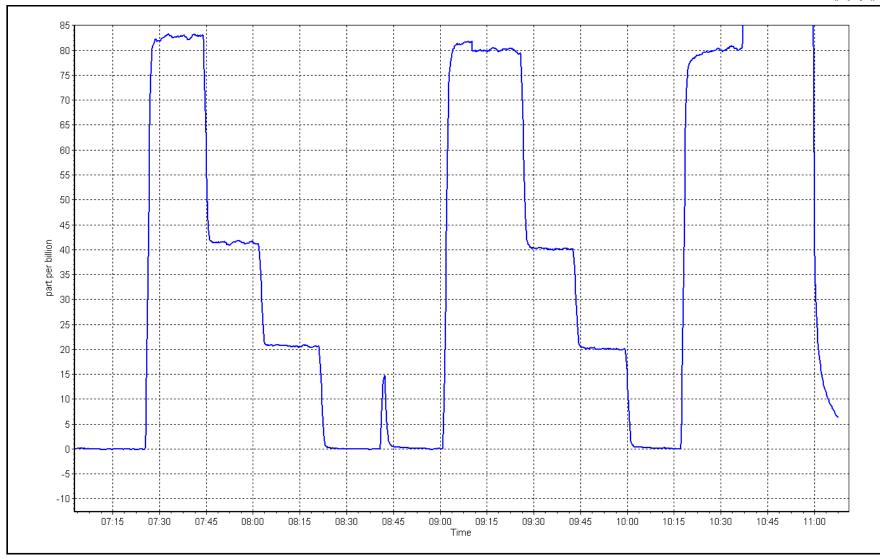
Calibration Date:	April 23, 2025	Previous Calibration:	March 24, 2025
Station Name:	Waskow ohci Pimatisiwin	Station Number:	10:47:00 AM
Start Time (MST):	7:10	End Time (MST):	11:07
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1170050146

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999999	≥0.995
79.5 39.8	80.1 40.1	0.9928 0.9915	Slope	1.007473	0.90 - 1.10
19.9	20.0	0.9940	Intercept	0.000000	+/-3











WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS27 JACKFISH 2/3 APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Jackfish 2/
Calibration Date:	April 11, 20
Start time (MST):	10:47
Reason:	Routine

:kfish 2/3 ril 11, 2025 :47

Thermo 43iQ-TL

Station number: AMS 27 Last Cal Date: March 13, 2025 End time (MST): 14:04

Serial Number: 12124313138

Calibration Standards

Cal Gas Concentration:	50.58	ppm	Cal Gas Exp Date:	December 29, 2028	
Cal Gas Cylinder #:	SG9133974BAL				
Removed Cal Gas Conc:	50.58	ppm	Rem Gas Exp Date:	NA	
Removed Gas Cyl #:	NA		Diff between cyl:		
Calibrator Model:	API T700		Serial Number:	5252	
Zero Air Gen Model:	API 701		Serial Number:	268	
Analyzer Information					

Analyzer Range: 0 - 1000 ppb <u>Start</u> **Finish** <u>Start</u> Finish Calibration slope: 0.997385 1.010079 Backgd or Offset: 8.5 8.4 Calibration intercept: -0.546041 0.842963 Coeff or Slope: 0.947 0.947

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	1.2	
As found High point As found Mid point As found Low point New cylinder response	4913	78.9	799.4	808.6	0.990
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	807.4 NA NA	Previous response AF Slope: AF Correlation:	796.8	*% change AF Intercept: * = > +/-5% change initiate	1.3% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	1.3	
High point	4913	78.9	799.4	808.8	0.988
Mid point	4955	39.5	400.0	404.0	0.990
Low point	4971	19.7	199.7	202.5	0.986
As left zero	5000	0.0	0.0	1.3	
As left span	4913	78.9	799.4	807.3	0.990
			Averag	e Correction Factor:	0.988

Notes:

Changed the sample inlet filter after as founds. No adjustments made.

Calibration Performed By:

Mohammed Kashif

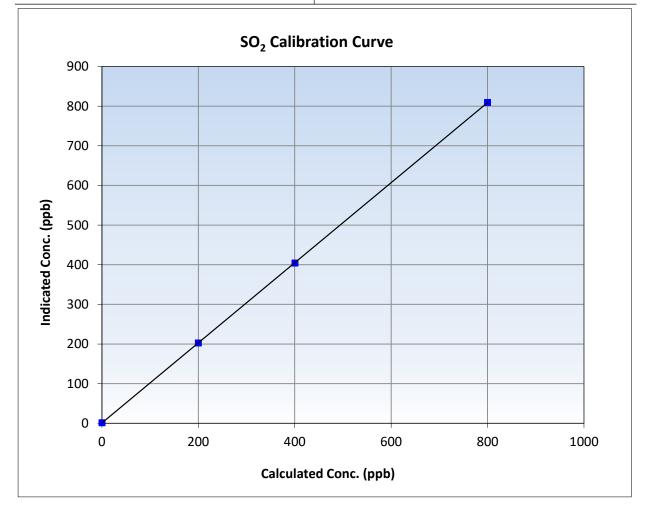


Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

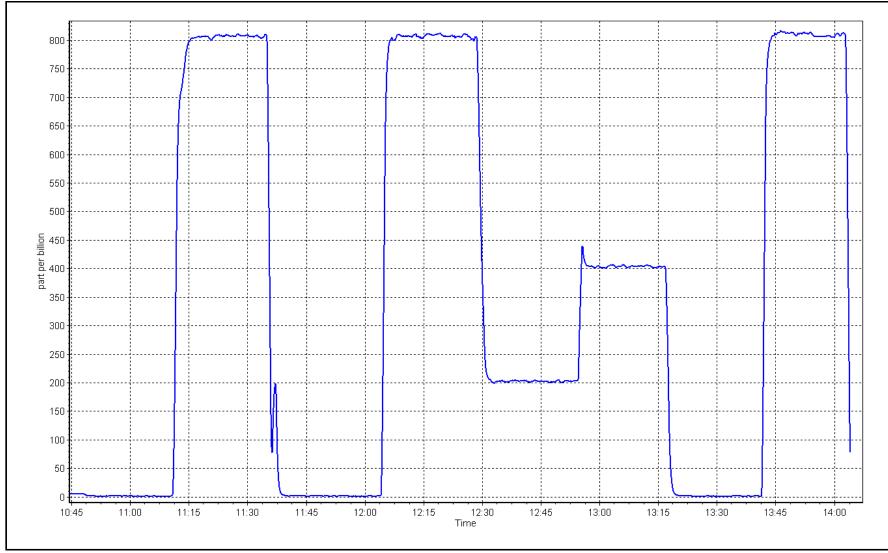
Calibration Date:	April 11, 2025	Previous Calibration:	March 13, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	10:47	End Time (MST):	14:04
Analyzer make:	Thermo 43iQ-TL	Analyzer serial #:	12124313138

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	1.3		Correlation Coefficient	0.999997	≥0.995
799.4 400.0	808.8 404.0	0.9884 0.9902	Slope	1.010079	0.90 - 1.10
199.7	202.5	0.9860	Intercept	0.842963	+/-30











Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Jackfish 2/3 April 23, 2025 11:48 Routine		Station number: Last Cal Date: End time (MST):	AMS 27 March 19, 2025 18:33	
		Calibration	Standards		
Cal Gas Concentration: Cal Gas Cylinder #:	4.87 CC523090	ppm	Cal Gas Exp Date:	September 5, 2027	
Removed Cal Gas Conc: Removed Gas Cyl #:	4.87 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA	
Calibrator Make/Model: ZAG Make/Model:	API T700 API T701H		Serial Number: Serial Number:	5252 268	
,		Analyzer Inf			
	The second 2010	Analyzer III		42220024055	
Analyzer make:	Thermo 43iQ		Analyzer serial #:	12228021055 2022-195	
Converter make:	Global G150		Converter serial #:		
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	
Calibration slope:	1.011680	1.004231	Backgd or Offset:	3.6	
Calibration intercept:	-0.227800	0.159197	Coeff or Slope:	1.136	

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.3	
As found High point	4911	82.0	80.0	81.1	0.983
As found Mid point	4951	41.0	40.0	40.1	0.990
As found Low point	4973	20.5	20.0	19.7	1.000
New cylinder response					
Baseline Corr As found:	81.4	Prev response:	80.69	*% change:	0.9%
Baseline Corr 2nd AF pt:	40.4	AF Slope:	1.018806	AF Intercept:	-0.500808
Baseline Corr 3rd AF pt:	20.0	AF Correlation:	0.999971	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4911	82.0	80.0	80.5	0.994
Mid point	4951	41.0	40.0	40.3	0.993
Low point	4973	20.5	20.0	20.2	0.990
As left zero	5000	0.0	0.0	0.2	
As left span	4911	82.0	80.0	79.2	1.010
SO2 Scrubber Check	4915	78.9	790.0	-0.2	
Date of last scrubber cha	inge:	21-Feb-25		Ave Corr Factor	0.992
Date of last converter ef	ficiency test:	April 23, 2025		91.4%	efficiency

Notes: Performed a converter efficiency test. Changed sample inlet filter after as founds. Ran scrubber check after calibrator zero and it passed. Adjusted span only.

Calibration Performed By:

Mohammed Kashif

Finish 3.6 1.150



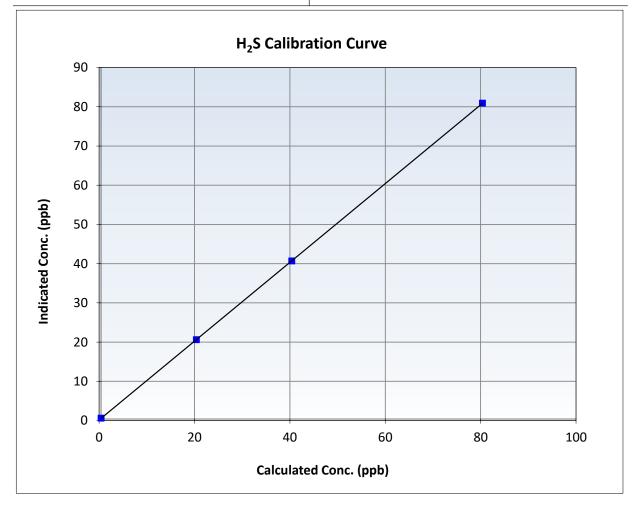
Wood Buffalo Environmental Association

H₂S Calibration Summary

Station Information

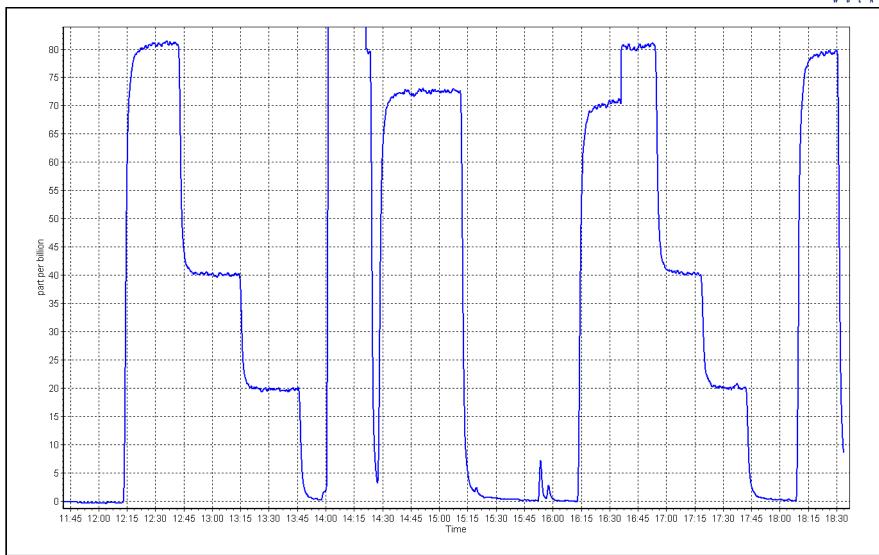
Calibration Date:	April 23, 2025	Previous Calibration:	March 19, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:48	End Time (MST):	18:33
Analyzer make:	Thermo 43iQ	Analyzer serial #:	12228021055

<u>cannaton bata</u>						
Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>	
0.0	0.2		Correlation Coefficient	0.999999	≥0.995	
80.0 40.0	80.5 40.3	0.9935 0.9925	Slope	1.004231	0.90 - 1.10	
20.0	20.2	0.9898	Intercept	0.159197	+/-3	











Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Jackfish 2/3	NO Gas Cylinder #:	CC757838	Cal Gas Expiry Date:	January 9, 2032
Station number:	AMS 27	NOX Cal Gas Conc:	60.30 ppm	NO Cal Gas Conc:	60.20 ppm
Calibration Date:	April 14, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Last Cal Date:	March 18, 2025	Removed Gas NOX Conc:	60.30 ppm	Removed Gas NO Conc:	60.20 ppm
Start time (MST):	11:12	NOX gas Diff:		NO gas Diff:	
End time (MST):	16:28	Calibrator Model:	Teledyne API T700	Serial Number:	5252
Reason:	Routine	ZAG make/model:	Teledyne API T701	Serial Number:	268

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	0.4	0.5	-0.1		
AF High point	4924	66.3	801.1	799.8	1.3	810.2	804.9	5.4	0.9893	0.9943
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	799.3 ppb	NO = 796.9	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chan	ge NO _x =	1.3%
Baseline Corr 1	lst pt NO _X =	809.8 ppb	NO = 804.4	ppb	<u>As Four</u>	d Statistics		*Percent Chan	ge NO =	0.9%
Baseline Corr 2	2nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _X =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
								Baseline Adjus		
O3 Setpo	oint (ppb)	Indicated NO Re concentration		cated NO Drop entration (ppb)	Calculated N concentration (pp		dicated NO2 ntration (ppb) (Ic)	Correction f (Cc/(Ic-AFz		verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

NO_X \ NO \ NO₂ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1218153	3357			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	1.000532	0.996775
			Instrument Settings			NO _x Cal Offset:	-2.295044	1.250382
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.001195	0.999158
NO coeff or slope:	1.279	1.272	NO bkgnd or offset:	4.3	4.3	NO Cal Offset:	-3.895489	-0.729210
NOX coeff or slope:	0.996	0.996	NOX bkgnd or offset:	4.4	4.4	NO ₂ Cal Slope:	1.000485	0.999829
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	158.1	159.3	NO ₂ Cal Offset:	-0.127047	0.510255

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	1.2	0.6	0.5		
High point	4924	66.3	801.1	799.8	1.3	799.8	799.0	0.8	1.0017	1.0010
Mid point	4958	33.2	401.1	400.4	0.7	401.0	398.9	2.1	1.0002	1.0038
Low point	4976	16.6	200.5	200.2	0.3	201.2	197.8	3.4	0.9965	1.0119
As left zero	5000	0.0	0.0	0.0	0.0	2.9	0.8	2.1		
As left span	4924	66.3	801.1	374.4	426.7	796.8	374.4	422.4	1.0054	1.0000
							Average Co	orrection Factor	0.9995	1.0056

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.5		
High GPT point	793.4	373.0	421.7	422.2	0.9989	100.1%
Mid GPT point	793.4	577.3	217.4	217.8	0.9983	100.2%
Low GPT point	793.4	691.7	103.0	103.6	0.9945	100.6%
				Average Correction Factor	0.9972	100.3%

Notes:

Changed sample inlet filter after as founds. Adjusted span only.

Calibration Performed By:

Mohammed Kashif

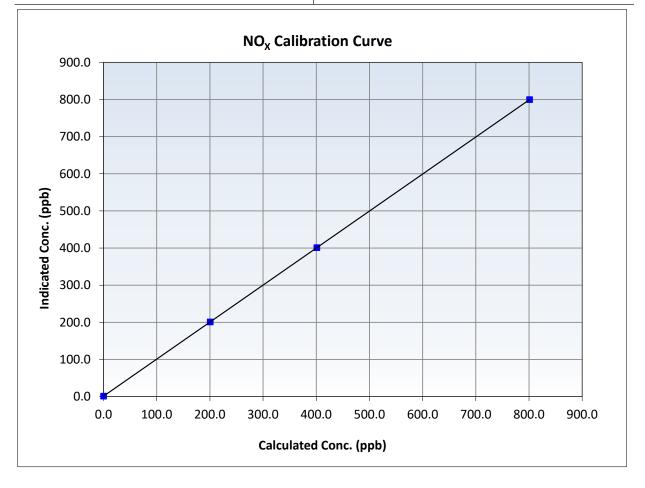


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 18, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:12	End Time (MST):	16:28
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153357

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	1.2		Correlation Coefficient	1.000000	≥0.995
801.1 401.1	799.8 401.0	1.0017 1.0002	Slope	0.996775	0.90 - 1.10
200.5	201.2	0.9965	Intercept	1.250382	+/-20



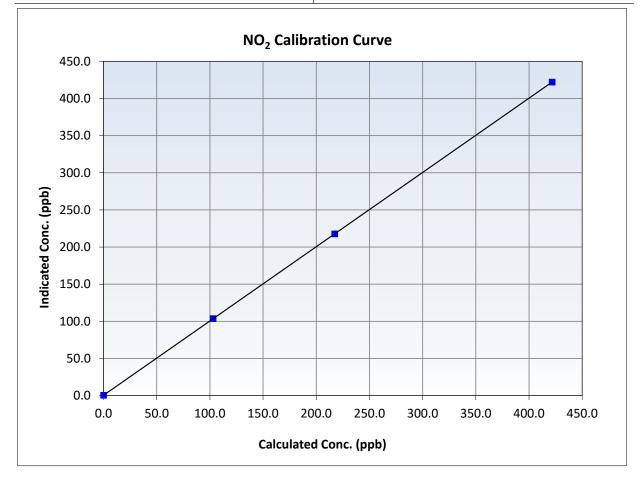


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 18, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:12	End Time (MST):	16:28
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153357

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.5		Correlation Coefficient	1.000000	≥0.995
421.7 217.4	422.2 217.8	0.9989 0.9983	Slope	0.999829	0.90 - 1.10
103.0	103.6	0.9945	Intercept	0.510255	+/-20



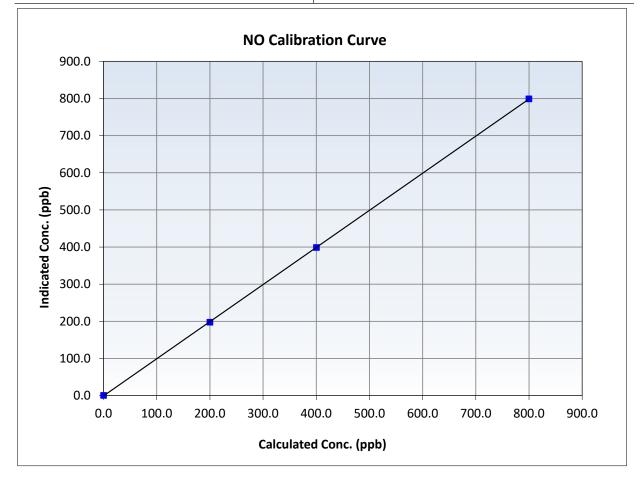


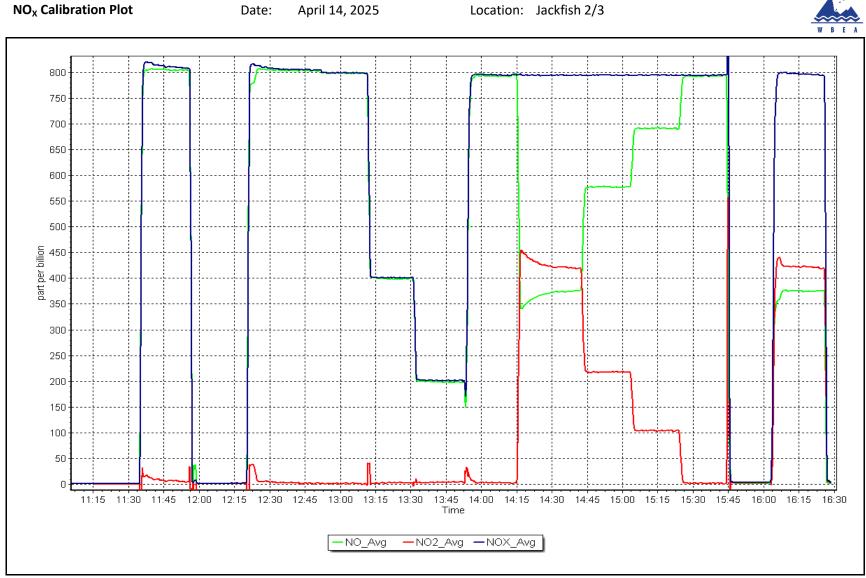
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 18, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:12	End Time (MST):	16:28
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153357

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.6		Correlation Coefficient	0.999987	≥0.995
799.8 400.4	799.0 398.9	1.0010 1.0038	Slope	0.999158	0.90 - 1.10
200.2	197.8	1.0119	Intercept	-0.729210	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS29 SURMONT 2 APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Surmont 2
Calibration Date:	April 14, 2025
Start time (MST):	10:28
Reason:	Routine

Station number: AMS 29 Last Cal Date: March 17, 2025 End time (MST): 14:14

Calibration Standards

Cal Gas Concentration:	49.95	ppm	Cal Gas Exp Date: October 9, 2032
Cal Gas Cylinder #:	CC356229		
Removed Cal Gas Conc:	49.95	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 5472
Zero Air Gen Model:	Teledyne API T701		Serial Number: 4428

Thermo 43i

0 - 1000 ppb

Analyzer Information

Serial Number: 1170050150

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.000431	1.006144	Backgd or Offset:	14.5	14.3
Calibration intercept:	-1.000571	-1.799656	Coeff or Slope:	0.962	0.956

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.3	
As found High point As found Mid point	4919.9	80.1	800.2	806.0	0.992
As found Low point New cylinder response	4920	80.1	800.2		
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	806.3 NA NA	Previous response AF Slope: AF Correlation:	799.5	*% change AF Intercept: * = > +/-5% change initiate	0.8% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.2	
High point	4920	80.1	800.2	804.0	0.995
Mid point	4960	40.0	399.6	400.2	0.999
Low point	4980	20.0	199.8	196.6	1.016
As left zero	5000	0.0	0.0	-0.2	
As left span	4920	80.1	800.2	798.1	1.003
			Averag	1.003	

Notes:

Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By:

Braiden Boutilier

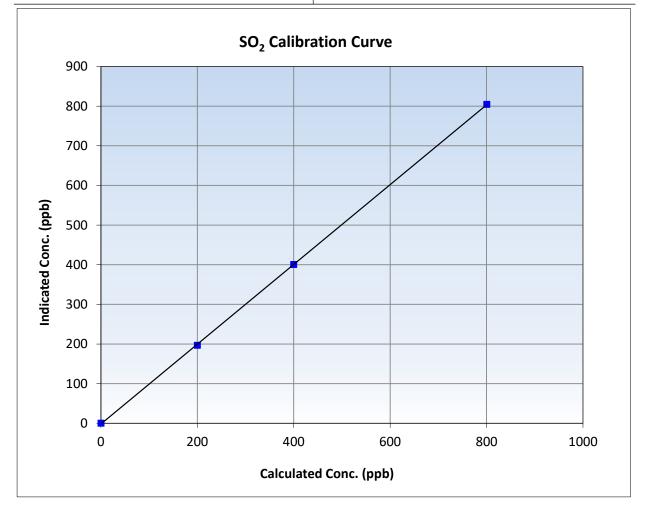


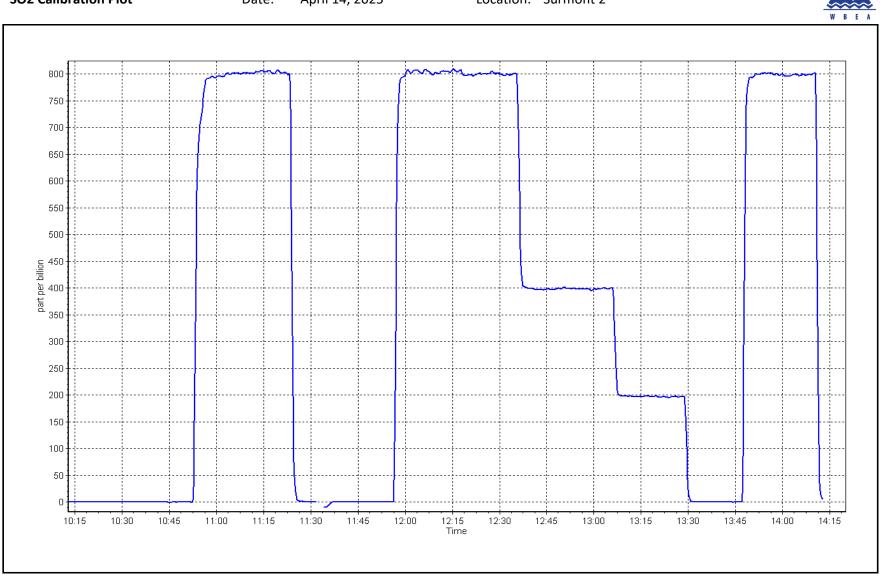
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 17, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:28	End Time (MST):	14:14
Analyzer make:	Thermo 43i	Analyzer serial #:	1170050150

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999968	≥0.995
800.2 399.6	804.0 400.2	0.9953 0.9985	Slope	1.006144	0.90 - 1.10
199.8	196.6	1.0163	Intercept	-1.799656	+/-30







Wood Buffalo Environmental Association H2S Calibration Report

Station Information

		Station into	mation				
Station Name: Calibration Date: Start time (MST): Reason:	Surmont 2 April 8, 2025 9:59 Routine		Station number: Last Cal Date: End time (MST):	AMS 29 March 26, 20 15:34	25		
		Calibration S	itandards				
Cal Gas Concentration: Cal Gas Cylinder #:	<u>4.750</u> CC737848	ppm	Cal Gas Exp Date:	August 28, 20	027		
Removed Cal Gas Conc: Removed Gas Cyl #:	<u>4.750</u> NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA			
Calibrator Make/Model:	Teledyne API T700		Serial Number:	5472			
ZAG Make/Model:	Teledyne API T701		Serial Number:	4428			
		Analyzer Info	ormation				
Analyzer make:	Thermo 43iQ-TLE		Analyzer serial #:	1200326170			
, Converter make:	Global		, Converter serial #:	2022-220			
Analyzer Range	0 - 100 ppb		Converter Temp:		325.0	degC	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>			F
Calibration slope:	1.006025	1.003882	Backgd or Offset:	0.94			
Calibration intercept:	-0.080482	-0.180480	Coeff or Slope:	1.039			:

H2S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4916	84.2	80.0	81.7	0.978
As found Mid point	4958	42.1	40.0	40.5	0.985
As found Low point New cylinder response	4979	21.1	20.0	20.4	0.975
Baseline Corr As found:	81.8	Prev response:	80.39	*% change:	1.7%
Baseline Corr 2nd AF pt:	40.6	AF Slope:	1.022028	AF Intercept:	-0.140489
Baseline Corr 3rd AF pt:	20.5	AF Correlation:	0.999979	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4916	84.2	80.0	80.2	0.997
Mid point	4958	42.1	40.0	39.8	1.005
Low point	4979	21.1	20.0	19.9	1.005
As left zero	5000	0.0	0.0	0.1	
As left span	4916	84.2	80.0	79.1	1.011
SO2 Scrubber Check	4919	81.3	813.0	0.1	
Date of last scrubber cha	ange:			Ave Corr Factor	1.002
Date of last converter ef	ficiency test:	December 5, 2024		108.1%	efficiency

Notes: Changed sample inlet filter after as founds. Ran SOx scrubber check after cal zero, passed. Adjusted span.

Calibration Performed By:

Braiden Boutilier

Finish 0.95 1.031



Wood Buffalo Environmental Association

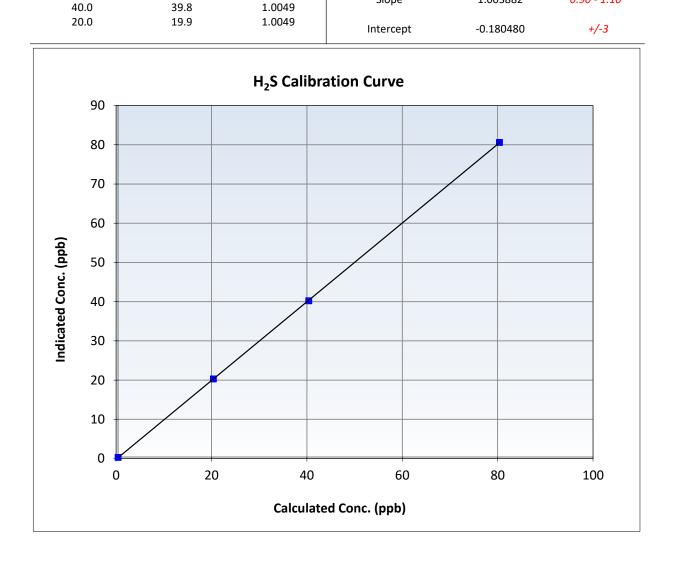
H2S Calibration Summary

Slope

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 26, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	9:59	End Time (MST):	15:34
Analyzer make:	Thermo 43iQ-TLE	Analyzer serial #:	1200326170

Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999988 ≥0.995 0.0 -0.1 ----80.0 80.2 0.9973

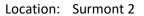


<u>Limits</u>

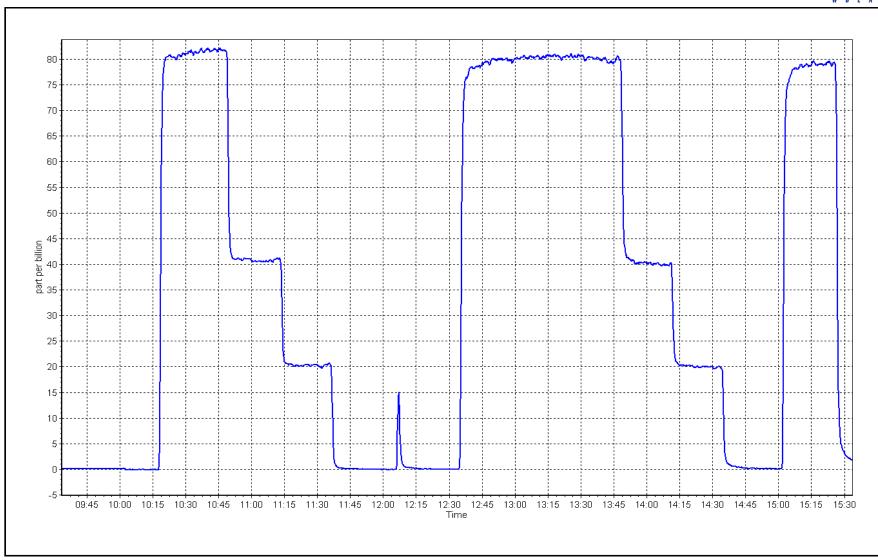
0.90 - 1.10

1.003882











Wood Buffalo Environmental Association THC Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Surmont 2 April 14, 2025 10:28 Routine		Station number: Last Cal Date: End time (MST):	AMS 29 March 17, 2025 14:14	
		Calibration S	<u>Standards</u>		
Gas Cert Reference: CH4 Cal Gas Conc. C3H8 Cal Gas Conc.	CC356229 <u>503.7</u> <u>204.8</u>	ppm ppm	Cal Gas Expiry Date: CH4 Equiv Conc.	October 9, 2032 1066.9	ppm
Removed Gas Cert: Removed CH4 Conc. Removed C3H8 Conc. Calibrator Make/Model:	NA <u>503.7</u> <u>204.8</u> Teledyne API T700	ppm ppm	Removed Gas Expiry: CH4 Equiv Conc. Diff between cyl: Serial Number:	NA 1066.9 5472	ppm
ZAG Make/Model:	Teledyne API 1700		Serial Number:	4428	
		Analyzer Inf	ormation		
Analyzer make Analyzer Range	: Thermo 51i-LT : 0 - 20 ppm		Analyzer serial #:	1170050149	
Calibration slope: Calibration intercept:	<u>Start</u> 0.999635 -0.017156	<u>Finish</u> 1.001408 -0.029160	Background: Coefficient:		<u>Finish</u> 3.54 3.872
		THC As Fou	Ind Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Baseline Adjusted n Correction factor (Cc/(Ic- AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.07	
As found High point As found Mid point As found Low point	4920	80.1	17.09	17.21	0.997
New cylinder response	4920	80.1	17.09		
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	17.14 NA NA	Previous response AF Slope: AF Correlation:		*% change AF Intercept * = > +/-5% change initi	:
		THC Calibrat	tion Data		

Set Point	Dilution air flow rate	Source gas flow rate	Calculated Concentration	Indicated Concentration	
	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	<i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.03	
High point	4920	80.1	17.09	17.12	0.998
Mid point	4960	40.0	8.54	8.48	1.007
Low point	4980	20.0	4.27	4.19	1.019
As left zero	5000	0.0	0.00	-0.02	
As left span	4920	80.1	17.09	17.14	0.997
			Avera	ge Correction Factor	1.008

Notes:

Changed sample inlet filter after as founds. Adjusted zero and span.

Calibration Performed By:

Braiden Boutilier

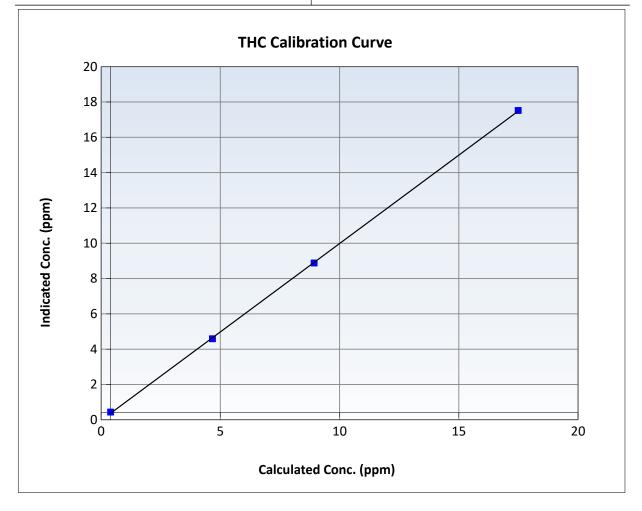


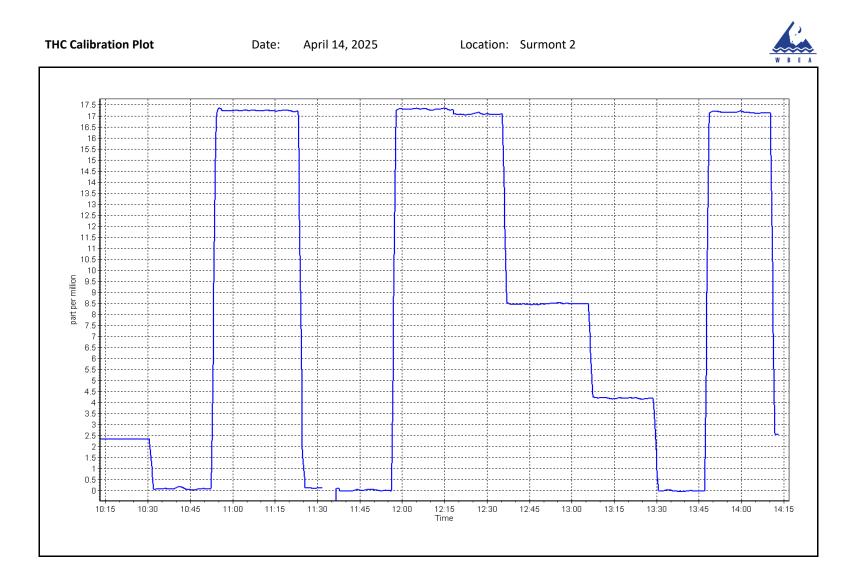
Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 14, 2025	Previous Calibration:	March 17, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:28	End Time (MST):	14:14
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1170050149

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.03		Correlation Coefficient	0.999939	≥0.995
17.09 8.54	17.12 8.48	0.9983 1.0065	Slope	1.001408	0.90 - 1.10
4.27	4.19	1.0193	Intercept	-0.029160	+/-1.5







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Surmont 2	NO Gas Cylinder #:	CC218007	Cal Gas Expiry Date:	January 9, 2032
Station number:	AMS 29	NOX Cal Gas Conc:	60.00 ppm	NO Cal Gas Conc:	60.00 ppm
Calibration Date:	April 7, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Last Cal Date:	March 25, 2025	Removed Gas NOX Conc:	60.00 ppm	Removed Gas NO Conc:	60.00 ppm
Start time (MST):	10:20	NOX gas Diff:		NO gas Diff:	
End time (MST):	14:32	Calibrator Model:	Teledyne API T700	Serial Number:	5472
Reason:	Routine	ZAG make/model:	Teledyne API T701	Serial Number:	4428

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0	0.0	0.0	0.0	0.0	-0.1	0.1		
AF High point	4933	66.7	800.4	800.4	0.0	790.1	788.2	1.9	1.0131	1.0154
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	799.5 ppb	NO = 798.3	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chang	e NO _x =	-1.2%
Baseline Corr 1	st pt NO _x =	790.1 ppb	NO = 788.3	ppb	<u>As Four</u>	d Statistics		*Percent Chang	e NO =	-1.3%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO _x r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
	As Found GPT Calibration Data									
								Baseline Adjuste	ed NO2	
O3 Setto	vint (nnh)	Indicated NO Re	ference Indie	cated NO Drop	Calculated N	O2 In	dicated NO2	Correction fa	ctor Conv	erter Efficiency

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero))	Converter Efficiency Limit = 96-104%
					<i>Limit = 0.90 - 1.10</i>	
As Found CDT zoro						

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1170050	148			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.999329	0.997004
			Instrument Settings			NO _x Cal Offset:	-0.449184	-0.809963
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.999498	0.994903
NO coeff or slope:	1.001	1.001	NO bkgnd or offset:	1.2	1.2	NO Cal Offset:	-1.708431	-2.049505
NOX coeff or slope:	0.989	0.989	NOX bkgnd or offset:	1.2	1.2	NO ₂ Cal Slope:	0.995539	1.002832
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	150.2	148.7	NO ₂ Cal Offset:	-0.464424	0.553598

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.1	0.1	0.0		
High point	4933	66.7	800.4	800.4	0.0	797.5	795.0	2.6	1.0037	1.0069
Mid point	4967	33.3	399.6	399.6	0.0	397.7	395.6	2.1	1.0047	1.0101
Low point	4983	16.7	200.4	200.4	0.0	197.7	194.4	3.4	1.0137	1.0309
As left zero	5000	0.0	0.0	0.0	0.0	0.1	0.1	0.0		
As left span	4933	66.7	800.4	403.2	397.2	791.4	403.2	388.2	1.0114	1.0000
							Average Co	prrection Factor	1.0074	1.0159

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.0		
High GPT point	788.8	401.8	387.0	388.5	0.9961	100.4%
Mid GPT point	788.8	602.8	186.0	187.0	0.9947	100.5%
Low GPT point	788.8	695.9	92.9	94.5	0.9831	101.7%
				Average Correction Factor	0.9913	100.9%

Notes:

Changed sample inlet filter after as founds. No adjustments made.

Calibration Performed By:

Braiden Boutilier

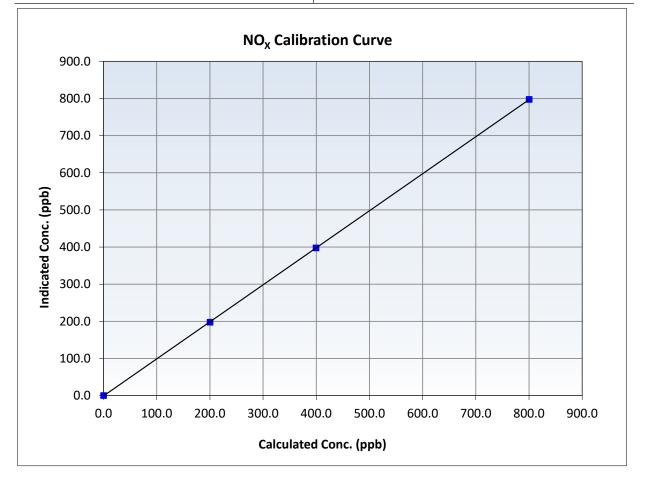


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 25, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:20	End Time (MST):	14:32
Analyzer make:	Thermo 42i	Analyzer serial #:	1170050148

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999993	≥0.995
800.4 399.6	797.5 397.7	1.0037 1.0047	Slope	0.997004	0.90 - 1.10
200.4	197.7	1.0137	Intercept	-0.809963	+/-20



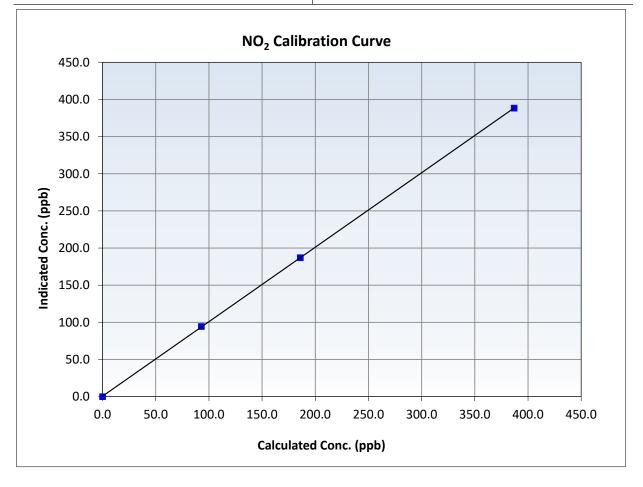


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 25, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:20	End Time (MST):	14:32
Analyzer make:	Thermo 42i	Analyzer serial #:	1170050148

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999989	≥0.995
387.0 186.0	388.5 187.0	0.9961 0.9947	Slope	1.002832	0.90 - 1.10
92.9	94.5	0.9831	Intercept	0.553598	+/-20



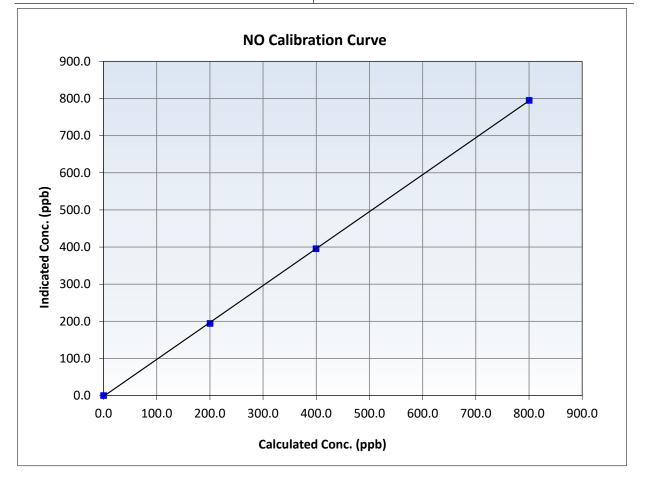


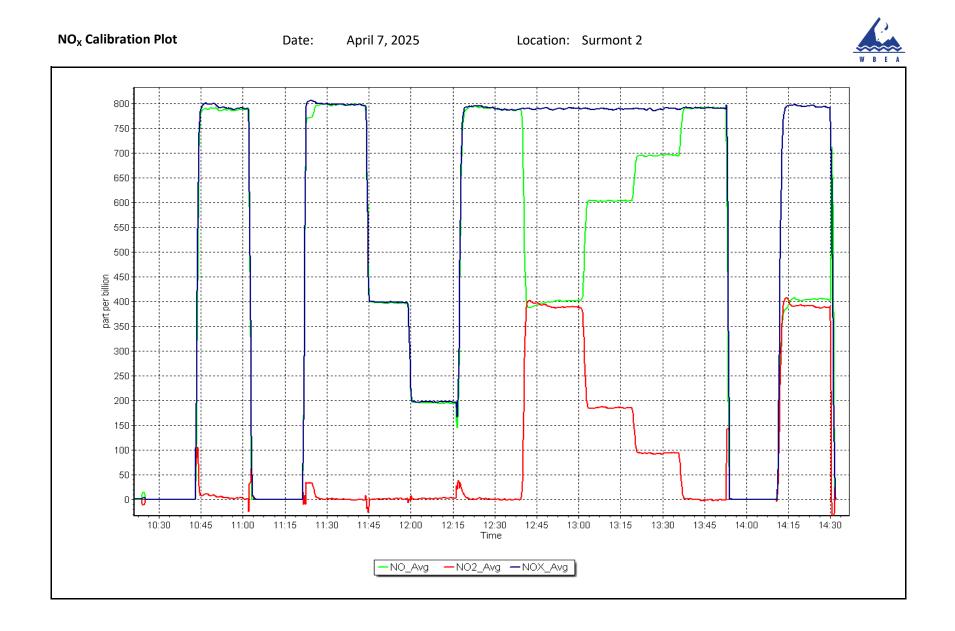
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 25, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:20	End Time (MST):	14:32
Analyzer make:	Thermo 42i	Analyzer serial #:	1170050148

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999960	≥0.995
800.4 399.6	795.0 395.6	1.0069 1.0101	Slope	0.994903	0.90 - 1.10
200.4	194.4	1.0309	Intercept	-2.049505	+/-20







Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-20
		Station Informatio	n		
tation Name:	Surmont 2		Station number: AN	1S 29	
Calibration Date:	April 14, 2025		Last Cal Date: Ma	arch 24, 2025	
itart time (MST):	10:36		End time (MST): 13	:57	
Analyzer Make:	API T640		S/N: 32	3	
Particulate Fraction:	PM2.5				
low Meter Make/Model:	Alicat FP-25BT		S/N: 38		
emp/RH standard:	Alicat FP-25BT		S/N: 38	8754	
		Monthly Calibration	Test		
Parameter	<u>As found</u>	Measured	<u>As left</u>	Adjusted	(Limits)
т (°С)	10.4	10.17	10.4		+/- 2 °C
P (mmHg)	715.5	714.43	715.5		+/- 10 mmH
Flow (LPM)	5.00	4.931	5.00		+/- 0.25 LPN
PW% (pump)	37		37		>80%
Zero Verification	PM w/o HEPA:	2.7	PM w/ HEPA:	0.0	<0.2 ug/m3
		· _ ·			
Note: this leak check will b PM Inlet observation :	e completed before the Inlet Head Clean	☑ Ali	gnment Factor On :	enance leak check	
	Inlet Head Clean	Quarterly Calibration	gnment Factor On : Test		24
	Inlet Head Clean Refractive Index:	☑ Ali	gnment Factor On :		24
PM Inlet observation :	Inlet Head Clean Refractive Index:	Quarterly Calibration 10.9	gnment Factor On : Test		24 (Limits)
PM Inlet observation : SPAN DUST	Inlet Head Clean Refractive Index: Lot No.:	Quarterly Calibration 10.9 100128-050-042	gnment Factor On : Test Expiry Date:		
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 10.8	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance	gnment Factor On : Test Expiry Date: <u>As left</u>	June 10, 20 <u>Adjusted</u>	(Limits)
PM Inlet observation : SPAN DUST <u>Parameter</u>	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 10.8 mber Cleaned:	Quarterly Calibration 10.9 100128-050-042	gnment Factor On : Test Expiry Date: <u>As left</u> 2025	June 10, 20 <u>Adjusted</u>	(Limits)
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 10.8 mber Cleaned: ilter Changed:	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance April 14,	gnment Factor On : Test Expiry Date: <u>As left</u> 2025 2025	June 10, 20 <u>Adjusted</u>	(Limits)
PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char Date Disposable F	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 10.8 mber Cleaned: ilter Changed:	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance April 14, April 14,	gnment Factor On : Test Expiry Date: <u>As left</u> 2025 2025	June 10, 20 <u>Adjusted</u>	(Limits)
SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Char	Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 10.8 mber Cleaned: ilter Changed: erification:	Ali Quarterly Calibration 10.9 100128-050-042 Post maintenance April 14, April 14, PM w/ HEPA:	gnment Factor On : Test Expiry Date: <u>As left</u> 2025 2025 2025	June 10, 20 <u>Adjusted</u>	(Limits)

Notes:

Verified temperature, pressure and flow. Leak check passed. After cleaning optical chamber, analyzer can no longer run the PMT peak test. Will replace tomorrow.

Calibration by: Braiden Boutilier



Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

Station Name: Calibration Date: Start time (MST): Analyzer Make: Particulate Fraction: Flow Meter Make/Model:	Surmont 2 April 15, 2025 10:26 API T640 PM2.5	Station Informatio	on Station number: AM Last Cal Date: Ap End time (MST): 12:	ril 14, 2025	
Calibration Date: Start time (MST): Analyzer Make: Particulate Fraction: Flow Meter Make/Model:	April 15, 2025 10:26 API T640		Last Cal Date: Ap	ril 14, 2025	
tart time (MST): malyzer Make: Particulate Fraction: low Meter Make/Model:	10:26 API T640				
Analyzer Make: Particulate Fraction: Flow Meter Make/Model:	API T640		End time (MST): 12:	07	
Particulate Fraction:					
low Meter Make/Model:	FIVIZ.J		S/N: 223	36	
•					
	Alicat FP-25BT		S/N: 388	8754	
Temp/RH standard:	Alicat FP-25BT		S/N: 388	8754	
		Monthly Calibration	Test		
<u>Parameter</u>	As found	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	10.7	11.21	10.7		+/- 2 °C
P (mmHg)	707.3	705.61	707.3		+/- 10 mmHg
Flow (LPM)	4.97	5.041	4.97		+/- 0.25 LPM
PW% (pump)	33		33		>80%
Zero Verification	PM w/o HEPA:	2.7	PM w/ HEPA:	0.0	<0.2 ug/m3
PM Inlet observation :	Inlet Head Clean	Quarterly Calibration	gnment Factor On : Test		
	Refractive Index:	10.9	Expiry Date:	June 10, 20	24
SPAN DUST		100128-050-042		, -	
Parameter	As found	Post maintenance	<u>As left</u>	<u>Adjusted</u>	(Limits)
PMT Peak Test			11.2	\checkmark	+/- 0.5
Date Optical Chamb	er Cleaned:	April 15,	2025		
Date Disposable Filt	-	April 15,			
Post- maintenance Zero Verif	ication:	PM w/ HEPA:		<0.2 ug/m3	
		Annual Maintenan	ce		
Date Sample Tube	-	April 14, October 3			
Date RH/T Sensor		October 3	0, 2024		
Notes:	Installed T640. Veri	fied pressure, temperat	ture, and flow. Conduct passed.	ed PMT peak test, a	djusted and

Calibration by: Braiden Boutilier



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS30 ELLS RIVER APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Calibration intercept:

Wood Buffalo Environmental Association SO₂ Calibration Report

Coeff or Slope:

0.991

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Ells River April 11, 2025 9:25 Routine		Station number: AM Last Cal Date: Ma End time (MST): 12:	rch 11, 2025	
		Calibration	<u>Standards</u>		
Cal Gas Concentration: Cal Gas Cylinder #:	48.75 CC350110	ppm	Cal Gas Exp Date: Ma	rch 10, 2031	
Removed Cal Gas Conc:	48.75	ppm	Rem Gas Exp Date: NA		
Removed Gas Cyl #:	NA		Diff between cyl:		
Calibrator Model:	API T700		Serial Number: 30	51	
Zero Air Gen Model:	API T701H		Serial Number: 358	3	
		Analyzer Inf	ormation		
Analyzer make:	Thermo 43i		Serial Number: 10	08841397	
Analyzer Range:	0 - 1000 ppb				
	Start	Finish		Start	Finish
Calibration slope:	1.002175	1.000403	Backgd or Offset:	10.1	10.1

-2.892063

-3.212042

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.3	
As found High point As found Mid point As found Low point New cylinder response	4918	82.0	799.5	795.6	1.005
Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:	795.9 NA NA	Previous response AF Slope: AF Correlation:	798.0	*% change AF Intercept: * = > +/-5% change initiate	-0.3% es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4918	82.0	799.5	798.2	1.002
Mid point	4959	41.0	399.8	396.0	1.009
Low point	4980	20.5	199.9	194.0	1.030
As left zero	5000	0.0	0.0	0.1	
As left span	4918	82.0	799.5	798.9	1.001
			Average Correction Factor:		

Notes:

Sample inlet filter and N2 cylinder was changed after as founds. No adjustment made.

0.991

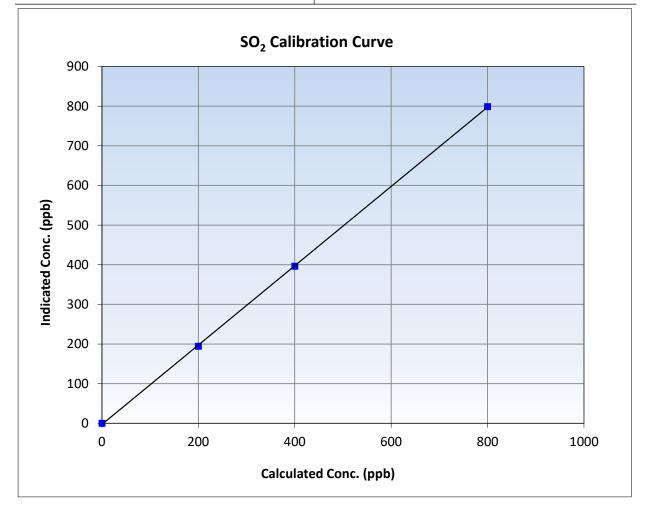


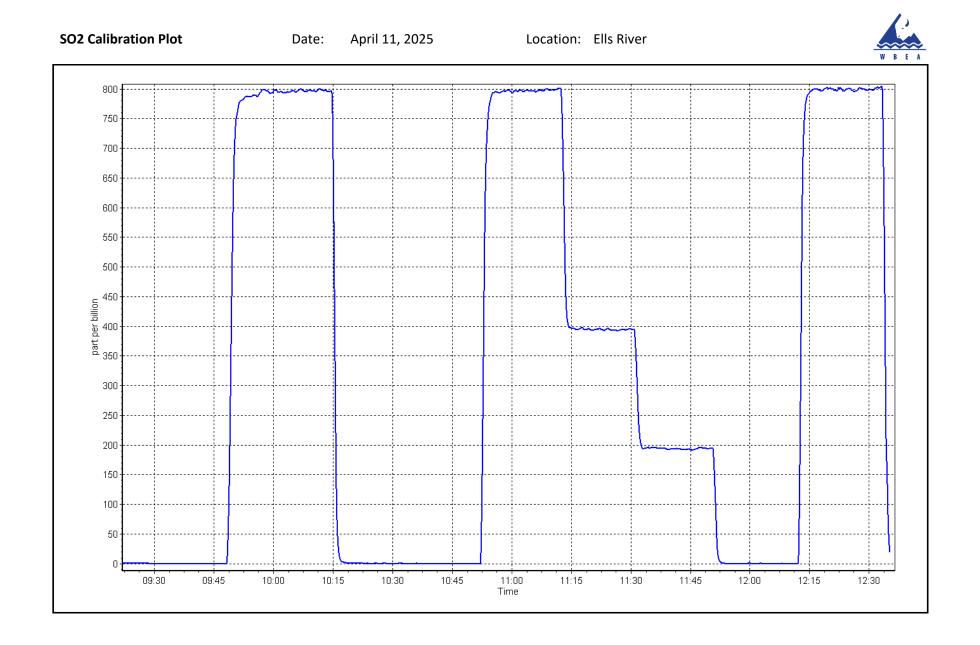
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 11, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:25	End Time (MST):	12:33
Analyzer make:	Thermo 43i	Analyzer serial #:	1008841397

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999944	≥0.995
799.5 399.8	798.2 396.0	1.0016 1.0095	Slope	1.000403	0.90 - 1.10
199.9	194.0	1.0302	Intercept	-2.892063	+/-30





CALS_461



Wood Buffalo Environmental Association TRS Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Ells River April 1, 2025 8:38 Routine		Station number: Last Cal Date: End time (MST):	AMS 30 March 14, 2025 12:27	i		
		Calibration	<u>Standards</u>				
Cal Gas Concentration: Cal Gas Cylinder #:	4.99 CC505806	ppm	Cal Gas Exp Date:	November 15, 2	2026		
Removed Cal Gas Conc: Removed Gas Cyl #:	4.99 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA			
Calibrator Make/Model:	API T700		Serial Number:	3061			
ZAG Make/Model:	API 701H		Serial Number:	358			
		Analyzer Inf	formation				
Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1410661331			
Converter make:	CDN- 101		Converter serial #:	562			
Analyzer Range	0 - 100 ppb		Converter Temp:		800	degC	
Calibration slope: Calibration intercept:	<u>Start</u> 1.007901 -0.180432	<u>Finish</u> 0.999336 -0.180614	Backgd or Offset: Coeff or Slope:				<u>Finish</u> 1.7 1.080

TRS As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4920	80.2	80.0	80.0	0.999
As found Mid point	4960	40.1	40.0	39.6	1.008
As found Low point	4980	20.0	20.0	19.5	1.018
New cylinder response					
Baseline Corr As found:	80.1	Prev response:	80.49	*% change:	-0.5%
Baseline Corr 2nd AF pt:	39.7	AF Slope:	1.001906	AF Intercept:	-0.320569
Baseline Corr 3rd AF pt:	19.6	AF Correlation:	0.999964	* = > +/-5% change initiate	es investigation

TRS Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4920	80.2	80.0	79.9	1.002
Mid point	4960	40.1	40.0	39.7	1.008
Low point	4980	20.0	20.0	19.6	1.018
As left zero	5000	0.0	0.0	0.0	
As left span	4920	80.2	80.0	79.9	1.002
SO2 Scrubber Check	4918	82.0	820.0	0.0	
Date of last scrubber chan	ge:	14-Mar-25		Ave Corr Factor	1.009

Date of last converter efficiency test:

Notes: Changed sample inlet filter after multipoint as founds. SO2 scrubber check done after calibrator zero and passed. No adjustment made.

Calibration Performed By: Jan Castro



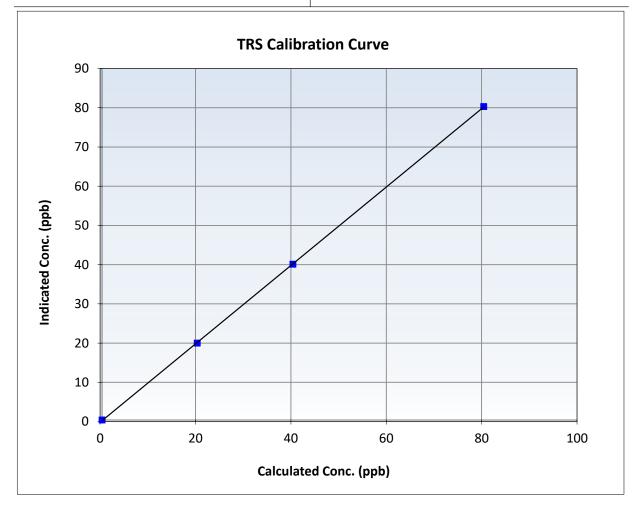
Wood Buffalo Environmental Association

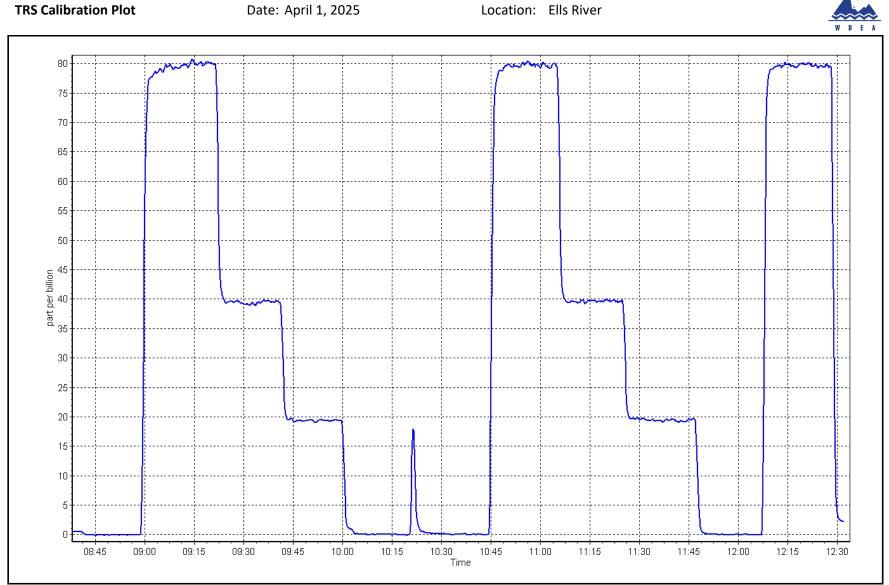
TRS Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 14, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	8:38	End Time (MST):	12:27
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1410661331

Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation <u>Limits</u> (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999977 ≥0.995 0.0 0.0 ----80.0 79.9 1.0017 Slope 0.999336 0.90 - 1.10 40.0 39.7 1.0080 20.0 1.0184 19.6 Intercept -0.180614 +/-3







Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

Station Information

Station Name:	Ells River	Station number: AMS 30
Calibration Date:	April 11, 2025	Last Cal Date: March 10, 2025
Start time (MST):	9:25	End time (MST): 12:33
Reason:	Routine	

Calibration Standards

Gas Cert Reference:		CC350110		Cal Gas Expiry Date: N	1arch 10, 2031	
CH4 Cal Gas Conc.	496.6	ppm		CH4 Equiv Conc.	1066.4	ppm
C3H8 Cal Gas Conc.	207.2	ppm				
Removed Gas Cert:		NA		Removed Gas Expiry: N	A	
Removed CH4 Conc.	496.6	ppm		CH4 Equiv Conc.	1066.4	ppm
Removed C3H8 Conc.	207.2	ppm		Diff between cyl (THC):		
Diff between cyl (CH ₄):				Diff between cyl (NM):		
Calibrator Model:	API T700			Serial Number: 3	061	
Zero Air Gen model:	API T701H			Serial Number: 3	58	
			Analyzer li	nformation		
Analyzer make:	Thermo 55i			Analyzer serial #: 1	152430011	
THC Range:	0 - 20 ppm			NMHC/CH4 Range: 0	- 10 ppm	
	<u>Start</u>		<u>Finish</u>		<u>Start</u>	<u>Finish</u>
CH4 SP Ratio:	3.11E-04	1 3	8.11E-04	NMHC SP Ratio:	5.96E-05	5.96E-05
					156640	156610

CH4 SP Ratio:3.11E-043.11E-04NMHC SP Ratio:5.96E-055.96E-05CH4 Retention time:17.417.4NMHC Peak Area:156612156612Zero Chromatogram:ONONFlat Baseline:OFFOFF

THC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point	4918	82.0	17.49	17.40	1.005
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	17.40	Prev response	17.45	*% change	-0.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

THC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.95-1.05</i>
Calibrator zero	5000	0.0	0.00	0.00	
High point	4918	82.0	17.49	17.44	1.003
Mid point	4959	41.0	8.74	8.63	1.013
Low point	4980	20.5	4.37	4.25	1.028
As left zero	5000	0.0	0.00	0.00	
As left span	4918	82.0	17.49	17.45	1.002
			Avera	ge Correction Factor	1.015

Notes:

Sample inlet filter and N2 cylinder was changed after as founds. No adjustment made.



Wood Buffalo Environmental Association THC / CH₄ / NMHC Calibration Report

NMHC As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4918	82.0	9.34	9.26	1.009
Baseline Corr AF:	9.26	Prev response	9.33	*% change	-0.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initia	ates investigation

NMHC Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4918	82.0	9.34	9.31	1.003
Mid point	4959	41.0	4.67	4.63	1.010
Low point	4980	20.5	2.34	2.29	1.019
As left zero	5000	0.0	0.00	0.00	
As left span	4918	82.0	9.34	9.31	1.004
			Avera	ge Correction Factor	1.011

CH4 As Found Data

		CIT T AS TO			
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic- AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.00	0.00	
As found High point As found Mid point As found Low point New cylinder response	4918	82.0	8.14	8.13	1.002
Baseline Corr AF: Baseline Corr 2nd AF: Baseline Corr 3rd AF:	8.13 NA NA	Prev response AF Slope: AF Correlation:	8.12	*% change AF Intercept: * = > +/-5% change initia	

CH4 Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration C (ppm) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.00	0.00	
High point	4918	82.0	8.14	8.13	1.002
Mid point	4959	41.0	4.07	4.01	1.016
Low point	4980	20.5	2.04	1.96	1.039
As left zero	5000	0.0	0.00	0.00	
As left span	4918	82.0	8.14	8.14	1.001
			Avera	ge Correction Factor	1.019

Calibration Statistics

	<u>Start</u>	<u>Finish</u>
THC Cal Slope:	1.001453	0.998643
THC Cal Offset:	-0.062426	-0.060426
CH4 Cal Slope:	1.001772	1.000159
CH4 Cal Offset:	-0.039119	-0.040119
NMHC Cal Slope:	1.001382	0.997542
NMHC Cal Offset:	-0.023907	-0.020707

Calibration Performed By:

Jan Castro

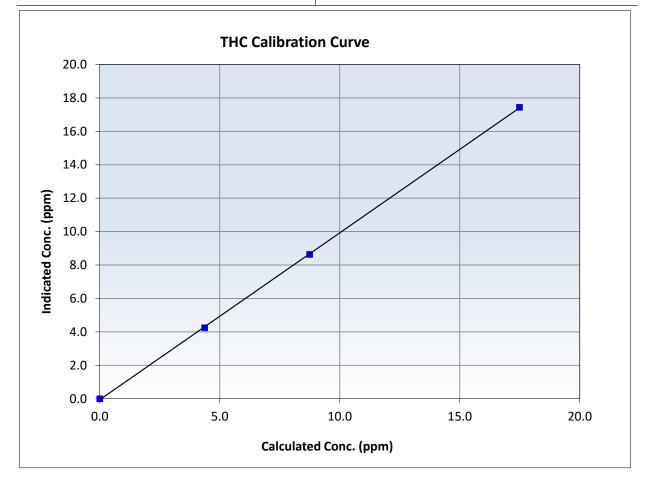


Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 10, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:25	End Time (MST):	12:33
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430011

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999945	≥0.995
17.49 8.74	17.44 8.63	1.0029 1.0129	Slope	0.998643	0.90 - 1.10
4.37	4.25	1.0284	Intercept	-0.060426	+/-0.5



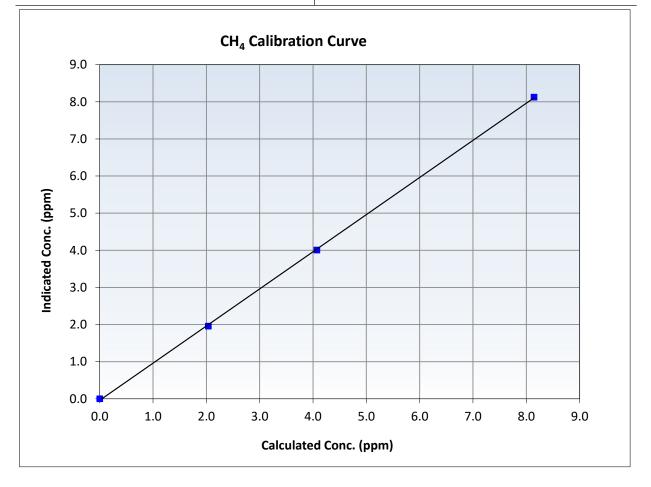


Wood Buffalo Environmental Association CH₄ Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 10, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:25	End Time (MST):	12:33
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430011

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	ion factor (Cc/Ic) Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999888	≥0.995
8.14 4.07	8.13 4.01	1.0021 1.0160	Slope	1.000159	0.90 - 1.10
2.04	1.96	1.0392	Intercept	-0.040119	+/-0.5



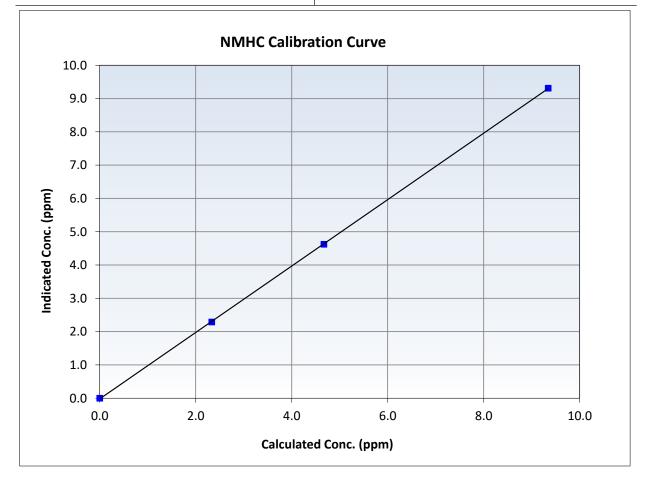


Wood Buffalo Environmental Association NMHC Calibration Summary

Station Information

Calibration Date:	April 11, 2025	Previous Calibration:	March 10, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:25	End Time (MST):	12:33
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430011

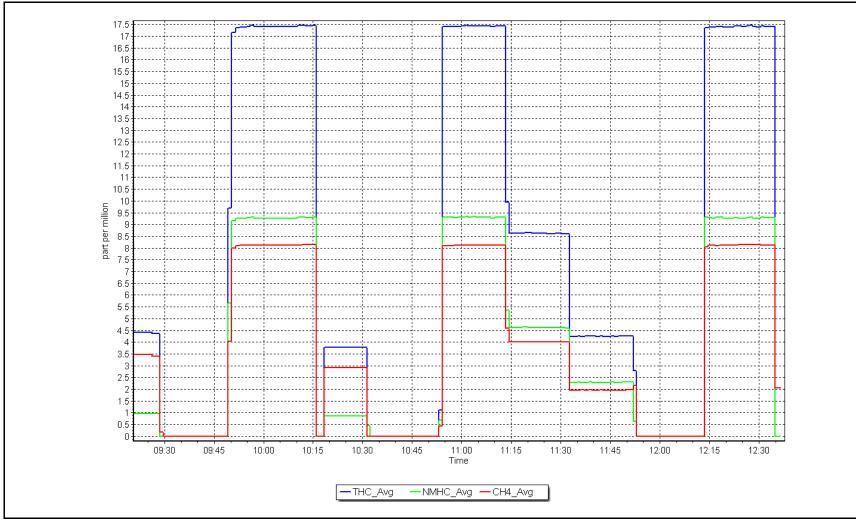
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	lation	<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999977	≥0.995
9.34 4.67	9.31 4.63	1.0034 1.0102	Slope	0.997542	0.90 - 1.10
2.34	2.29	1.0192	Intercept	-0.020707	+/-0.5



NMHC Calibration Plot









Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Ells River	NO Gas Cylinder #:	DT0027487	Cal Gas Expiry Date: January 9, 2032
Station number:	AMS 30	NOX Cal Gas Conc:	59.30 ppm	NO Cal Gas Conc: 59.10 ppm
Calibration Date:	April 16, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date: NA
Last Cal Date:	March 13, 2025	Removed Gas NOX Conc:	59.30 ppm	Removed Gas NO Conc: 59.10 ppm
Start time (MST):	9:45	NOX gas Diff:		NO gas Diff:
End time (MST):	14:00	Calibrator Model:	API T700	Serial Number: 3061
Reason:	Routine	ZAG make/model:	API T701H	Serial Number: 358

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	0.0	0.1	-0.1		
AF High point	4932	67.7	803.0	800.3	2.7	782.1	777.0	5.1	1.0267	1.0301
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	800.6 ppb	NO = 797.6	ppb	* = > +/-5	% change initiates i	investigation	*Percent Chang	e NO _x =	-2.4%
Baseline Corr 1	.st pt NO _x =	782.1 ppb	NO = 776.9	ppb	<u>As Four</u>	nd Statistics		*Percent Chang	e NO =	-2.7%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	nd NO _X r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	nd NO r ² :		NO SI:	NO Int:	
					As foun	NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
								Baseline Adjuste		
O2 Sata	sint (nucle)	Indicated NO Re	ference Indi	cated NO Drop	Calculated N	02 In	dicated NO2	Correction fa	ctor Conv	erter Efficiency

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero))	Converter Efficiency <i>Limit = 96-104%</i>
					<i>Limit = 0.90 - 1.10</i>	
As Found GPT zoro						

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 710321	429			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	1.000203	1.001140
			Instrument Settings			NO _x Cal Offset:	-2.519480	-1.398323
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.001320	1.003617
NO coeff or slope:	1.053	1.092	NO bkgnd or offset:	12.3	12.7	NO Cal Offset:	-3.700986	-2.779401
NOX coeff or slope:	0.994	0.993	NOX bkgnd or offset:	12.4	12.7	NO ₂ Cal Slope:	0.985498	1.001702
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	181.8	186.3	NO ₂ Cal Offset:	0.120532	-0.164440

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.2	0.3	0.0		
High point	4932	67.7	803.0	800.3	2.7	803.0	801.6	1.4	1.0000	0.9983
Mid point	4966	33.8	400.9	399.5	1.4	400.0	397.6	2.4	1.0022	1.0049
Low point	4983	16.9	200.4	199.8	0.7	197.1	194.0	3.1	1.0169	1.0297
As left zero	5000	0.0	0.0	0.0	0.0	0.3	0.4	0.0		
As left span	4932	67.7	803.0	428.9	374.1	802.5	428.9	373.6	1.0006	1.0000
							Average Co	orrection Factor	1.0064	1.0110

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (C	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.0		
High GPT point	799.0	424.6	377.1	377.6	0.9987	100.1%
Mid GPT point	799.0	611.4	190.3	190.6	0.9985	100.2%
Low GPT point	799.0	703.3	98.4	98.1	1.0031	99.7%
				Average Correction Factor	1.0001	100.0%

Notes: Sample inlet filter changed after as founds. Adjusted span only.

Calibration Performed By:

Jan Castro

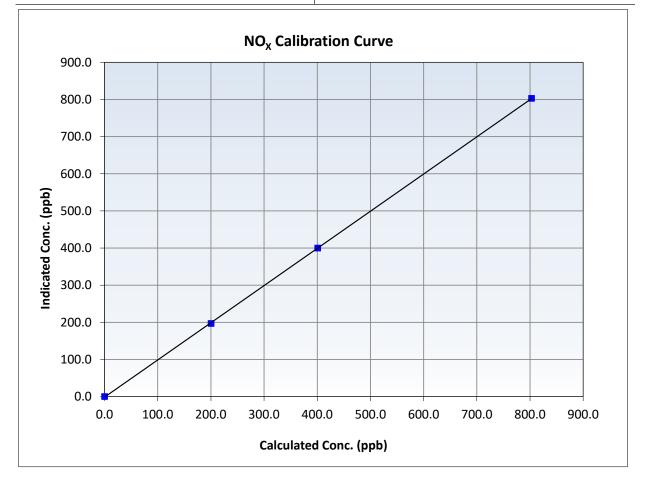


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 13, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:45	End Time (MST):	14:00
Analyzer make:	Thermo 42i	Analyzer serial #:	710321429

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999979	≥0.995
803.0 400.9	803.0 400.0	1.0000 1.0022	Slope	1.001140	0.90 - 1.10
200.4	197.1	1.0169	Intercept	-1.398323	+/-20



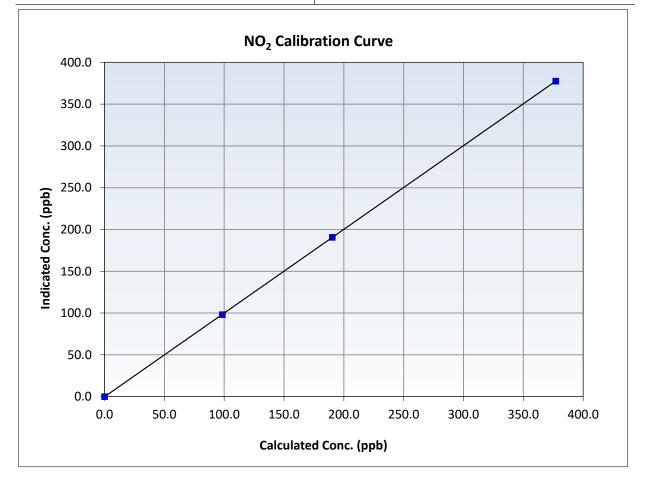


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 13, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:45	End Time (MST):	14:00
Analyzer make:	Thermo 42i	Analyzer serial #:	710321429

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999998	≥0.995
377.1 190.3	377.6 190.6	0.9987 0.9985	Slope	1.001702	0.90 - 1.10
98.4	98.1	1.0031	Intercept	-0.164440	+/-20



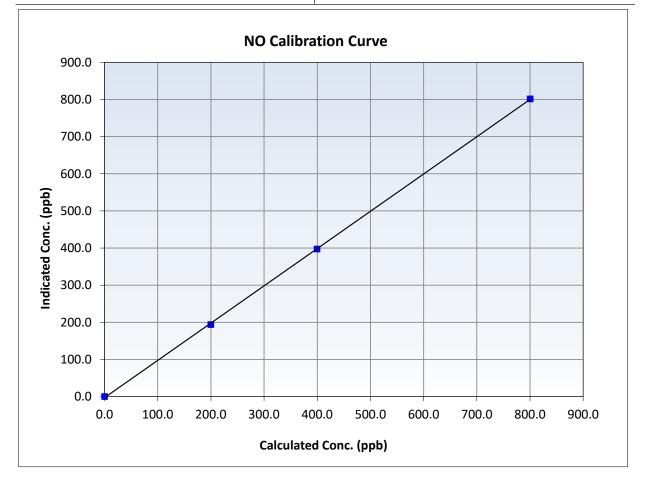


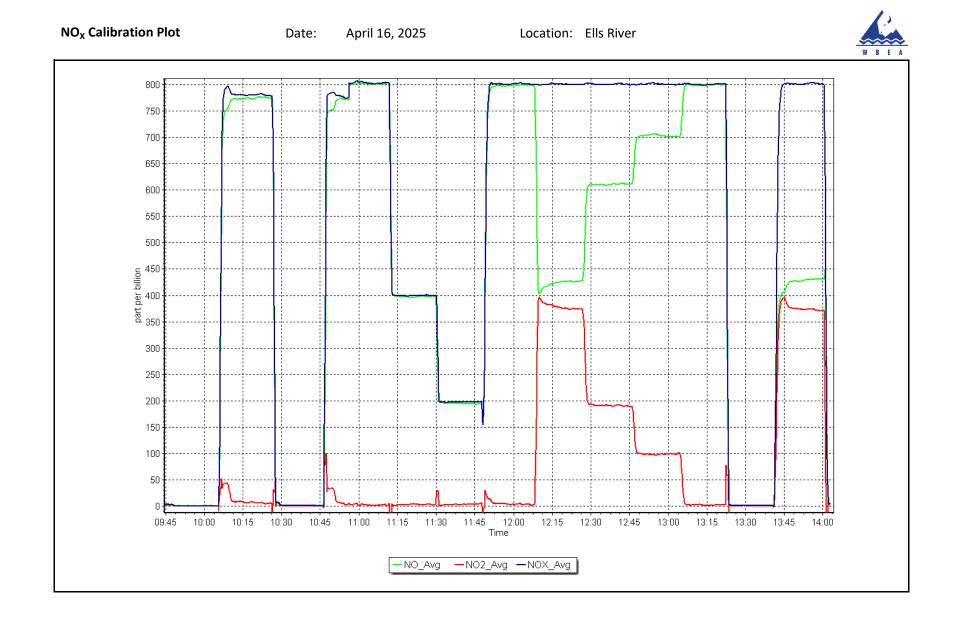
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 13, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:45	End Time (MST):	14:00
Analyzer make:	Thermo 42i	Analyzer serial #:	710321429

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999929	≥0.995
800.3 399.5	801.6 397.6	0.9983 1.0049	Slope	1.003617	0.90 - 1.10
199.8	194.0	1.0297	Intercept	-2.779401	+/-20







Wood Buffalo Environmental Association

T640 PM_{2.5} CALIBRATION

WBEA					Version-01-20
		Station Informatio	n		
station Name:	Ells River		Station number: AN		
Calibration Date:	April 16, 2025		Last Cal Date: Ma		
Start time (MST):	10:46		End time (MST): 11:	:51	
Analyzer Make:	API T640		S/N: 875	5	
Particulate Fraction:	PM2.5				
low Meter Make/Model:	Alicat FP-25BT		S/N: 388	8754	
Temp/RH standard:	Alicat FP-25BT		S/N: 388	8754	
		Monthly Calibration	Test		
Parameter	<u>As found</u>	Measured	<u>As left</u>	<u>Adjusted</u>	(Limits)
T (°C)	3.80	3.30	3.80		+/- 2 °C
P (mmHg)	728.70	730.47	728.70		+/- 10 mmH
Flow (LPM)	5.01	5.05	5.01		+/- 0.25 LPN
	33		33		>80%
PW% (pump)	55				
Zero Verification	PM w/o HEPA:	quarterly work and will	PM w/ HEPA: serve as the pre mainte gnment Factor On :	0.00 enance leak check	<0.2 ug/m3
Zero Verification	PM w/o HEPA:	quarterly work and will	serve as the pre mainte gnment Factor On :	enance leak check	<0.2 ug/m3
Zero Verification Note: this leak check will be PM Inlet observation :	PM w/o HEPA:	quarterly work and will	serve as the pre mainte gnment Factor On :	enance leak check	
Zero Verification	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index:	quarterly work and will Quarterly Calibration	serve as the pre mainte gnment Factor On : Test	enance leak check	
Zero Verification Note: this leak check will be PM Inlet observation :	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index:	quarterly work and will Quarterly Calibration 10.90	serve as the pre mainte gnment Factor On : Test	enance leak check	
Zero Verification Note: this leak check will be PM Inlet observation :	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index: Lot No.:	quarterly work and will Quarterly Calibration 10.90 100128-050-040	serve as the pre mainte gnment Factor On : Test Expiry Date:	enance leak check	2024
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u>	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 9.00	quarterly work and will Quarterly Calibration 10.90 100128-050-040 <u>Post maintenance</u> 11.00	serve as the pre mainte gnment Factor On : Test Expiry Date: <u>As left</u> 11.00	enance leak check	2024 (Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 9.00	quarterly work and will Quarterly Calibration 10.90 100128-050-040 Post maintenance	serve as the pre mainte gnment Factor On : Test Expiry Date: <u>As left</u> 11.00 2025	enance leak check	(Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST <u>Parameter</u> PMT Peak Test Date Optical Cham	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 9.00 nber Cleaned: Iter Changed:	quarterly work and will Quarterly Calibration 10.90 100128-050-040 <u>Post maintenance</u> 11.00 April 16,	serve as the pre mainte gnment Factor On : Test Expiry Date: <u>As left</u> 11.00 2025	enance leak check	2024 (Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST Parameter PMT Peak Test Date Optical Cham Date Disposable Fi	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 9.00 nber Cleaned: Iter Changed:	quarterly work and will Quarterly Calibration 10.90 100128-050-040 Post maintenance 11.00 April 16, April 16,	serve as the pre mainte gnment Factor On : Test Expiry Date: <u>As left</u> 11.00 2025 2025 0.00	enance leak check September 29, <u>Adjusted</u>	2024 (Limits)
Zero Verification Note: this leak check will be PM Inlet observation : SPAN DUST Parameter PMT Peak Test Date Optical Cham Date Disposable Fi	PM w/o HEPA: e completed before the Inlet Head Clean Refractive Index: Lot No.: <u>As found</u> 9.00 hber Cleaned: ilter Changed: rification:	quarterly work and will Quarterly Calibration 10.90 100128-050-040 Post maintenance 11.00 April 16, PM w/ HEPA:	serve as the pre mainte gnment Factor On : Test Expiry Date: <u>As left</u> 11.00 2025 2025 0.00 ce	enance leak check September 29, <u>Adjusted</u>	2024 (Limits)

Calibration by: Jan Castro

CALS_477



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS31 BLACKROD APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Station Name:

Calibration Date:

Blackrod

April 7, 2025

Wood Buffalo Environmental Association SO₂ Calibration Report

Station number: AMS 31

Last Cal Date: March 26, 2025

Station Information

Start time (MST): Reason:	13:29 Routine	End time (MST): 16:05			
		Calibration St	andards_		
Cal Gas Concentration: Cal Gas Cylinder #:	50.25 CC327023	ppm	Cal Gas Exp Date:	March 10, 2031	
Removed Cal Gas Conc: Removed Gas Cyl #: Calibrator Model: Zero Air Gen Model:	50.25 N/A Teledyne T700 Teledyne N701H	ppm	Rem Gas Exp Date: Diff between cyl: Serial Number: Serial Number:	5762	
zero Ali Gen Model.		Analyzer Info		. 72	
Analyzer make: Analyzer Range:	Thermo 43i 0 - 1000 ppb	<u>Analyzer into</u>	Serial Number:	1160290014	
Calibration slope: Calibration intercept:	<u>Start</u> 0.999971 -0.052005	<u>Finish</u> 0.998942 0.007990	Backgd or Offset: Coeff or Slope:		<u>Finish</u> 39.5 1.019
		SO ₂ As Foun	d Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero As found High point	5000 4920	0.0 79.6	0.0 800.0	-0.1 799.0	1.001
As found High point As found Mid point As found Low point New cylinder response	4320	75.0	800.0		1.001

Baseline Corr As found:	799.1	Previous response	800.0	* % change -0.19	%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	on

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4920	79.6	800.0	799.2	1.001
Mid point	4960	39.8	400.0	399.9	1.000
Low point	4980	19.9	200.0	199.2	1.004
As left zero	5000	0.0	0.0	0.2	
As left span	4920	79.6	800.0	800.0	1.000
			Averag	ge Correction Factor:	1.002

Notes:

Sample inlet filter was changed after as founds. No adjustment made.

Calibration Performed By:

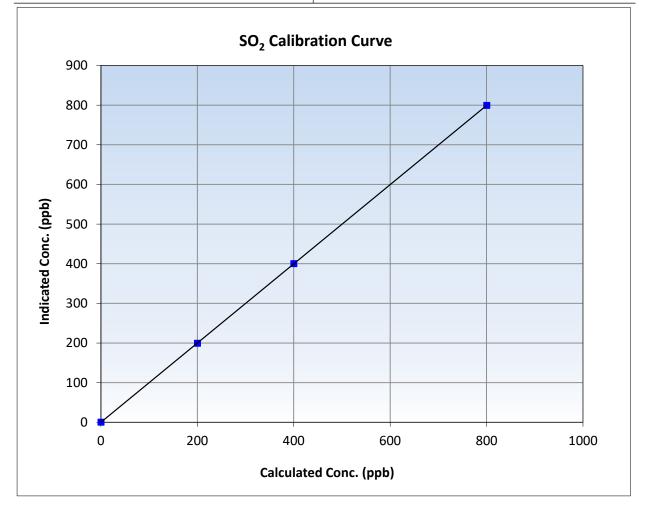


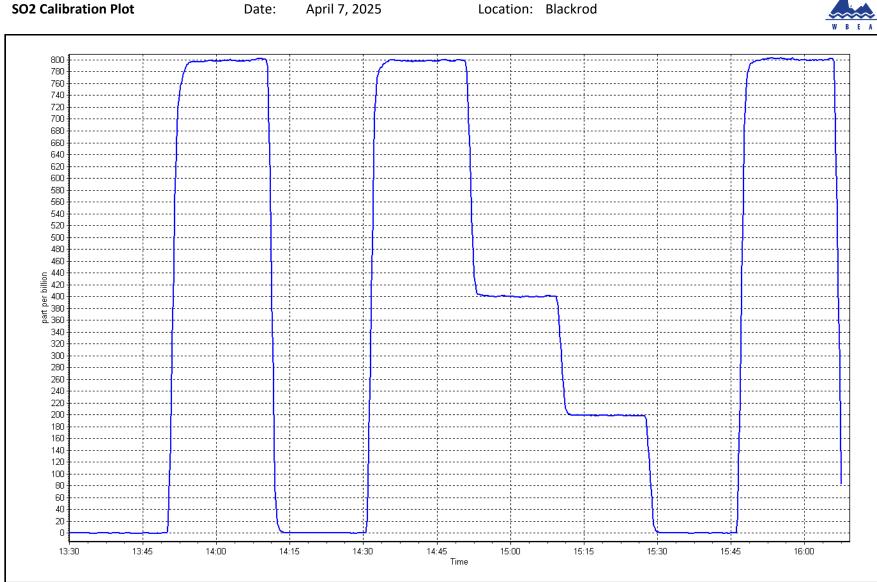
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 26, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	13:29	End Time (MST):	16:05
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290014

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999998	≥0.995
800.0 400.0	799.2 399.9	1.0011 1.0003	Slope	0.998942	0.90 - 1.10
200.0	199.2	1.0040	Intercept	0.007990	+/-30







Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Blackrod April 7, 2025 9:38 Routine	Station number: Last Cal Date: End time (MST):	AMS 31 March 24, 2025 13:29

Calibration Standards

Cal Gas Concentration:	5.42	ppm	Cal Gas Exp Date:	March 19, 2027
Cal Gas Cylinder #:	DT0016926			
Removed Cal Gas Conc:	5.42	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	5762
ZAG Make/Model:	Teledyne API N701	Н	Serial Number:	72

Analyzer Information

Analyzer make: Converter make:	Thermo 43iQTL Global		Converter serial #:		dogC
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.010620	1.007906	Backgd or Offset:	2.77	2.77
Calibration intercept:	-0.060561	-0.140523	Coeff or Slope:	1.030	1.030

H₂S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4926	73.8	80.0	80.3	0.995
As found Mid point	4963	36.9	40.0	40.6	0.983
As found Low point	4982	18.5	20.1	20.0	0.998
New cylinder response					
Baseline Corr As found:	80.4	Prev response:	80.79	*% change:	-0.5%
Baseline Corr 2nd AF pt:	40.7	AF Slope:	1.005905	AF Intercept:	-0.020438
Baseline Corr 3rd AF pt:	20.1	AF Correlation:	0.999944	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4926	73.8	80.0	80.5	0.994
Mid point	4963	36.9	40.0	40.2	0.995
Low point	4982	18.5	20.1	20.0	1.003
As left zero	5000	0.0	0.0	0.1	
As left span	4926	73.8	80.0	80.2	0.998
SO2 Scrubber Check	4920	79.6	796.1	0.1	
Date of last scrubber chan	ge:			Ave Corr Factor	0.997

Date of last converter efficiency test:

Notes:

Sample inlet filter was changed after multipoint as founds. SO2 scrubber check done after calibrator zero and passed. No adjustment made.

Calibration Performed By: Jan Castro

Version 02-2024 CALS_482



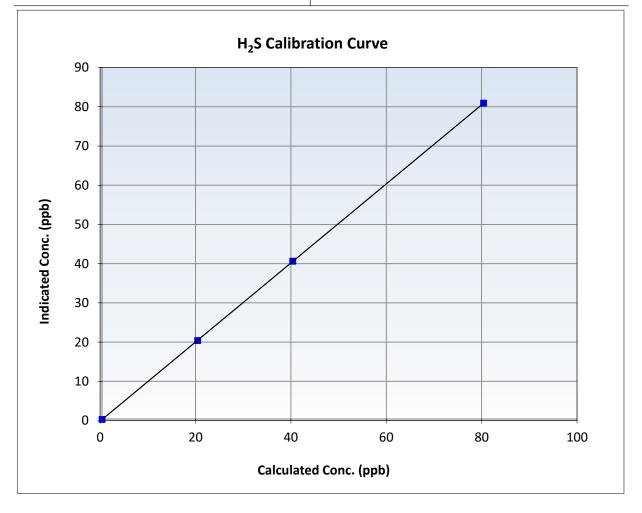
Wood Buffalo Environmental Association

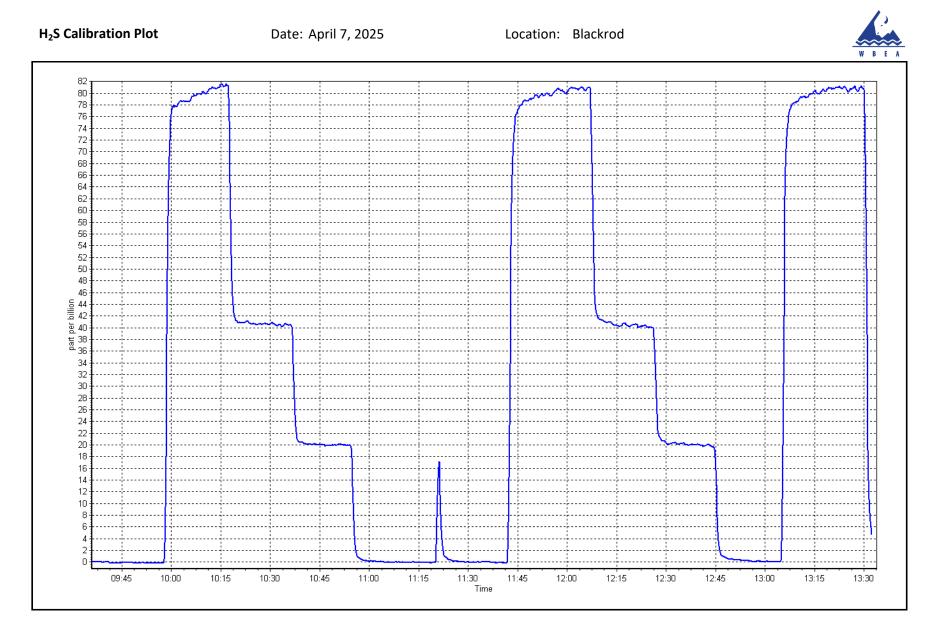
H₂S Calibration Summary

Station Information

Calibration Date:	April 7, 2025	Previous Calibration:	March 24, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	9:38	End Time (MST):	13:29
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12228021056

Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation <u>Limits</u> (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999998 ≥0.995 0.0 -0.1 ----80.0 80.5 0.9938 Slope 1.007906 0.90 - 1.10 40.0 40.2 0.9950 20.0 1.0026 20.1 Intercept -0.140523 +/-3







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Blackrod	NO Gas Cylinder #:	DT0035071	Cal Gas Expiry Date:	January 9, 2032
Station number:	AMS 31	NOX Cal Gas Conc:	59.30 ppm	NO Cal Gas Conc:	59.10 ppm
Calibration Date:	April 8, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Last Cal Date:	March 25, 2025	Removed Gas NOX Conc:	59.30 ppm	Removed Gas NO Conc:	59.10 ppm
Start time (MST):	7:17	NOX gas Diff:		NO gas Diff:	
End time (MST):	11:36	Calibrator Model:	Teledyne API T700	Serial Number: 5762	2
Reason:	Routine	ZAG make/model:	Teledyne API N701H	Serial Number: 72	2

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	0.0	0.1	-0.1		
AF High point	4932	67.7	803.0	800.3	2.7	793.6	790.8	2.8	1.0118	1.0121
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	799.3 ppb	NO = 796.8	ppb	* = > +/-59	% change initiates i	nvestigation	*Percent Chan	ge NO _x =	-0.7%
Baseline Corr 1	lst pt NO _x =	793.6 ppb	NO = 790.7	ppb	<u>As Foun</u>	d Statistics		*Percent Chan	ge NO =	-0.8%
Baseline Corr 2	2nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO _x r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d NO ₂ r ² :		NO2 SI:	NO ₂ Int:	
	As Found GPT Calibration Data									
								Baseline Adjus		
O3 Setp	oint (ppb)	Indicated NO Re concentration		ated NO Drop entration (ppb)	Calculated No concentration (pp		dicated NO2 ntration (ppb) (Ic)	Correction f (Cc/(Ic-AFz		verter Efficiency nit = 96-104%

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point *Limit = 0.90 - 1.10*



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1426262	592			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb			0.995387	1.002729			
			Instrument Settings			NO _x Cal Offset:	0.021490	0.743770
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.996585	1.003697
NO coeff or slope:	0.959	0.974	NO bkgnd or offset:	12.4	12.5	NO Cal Offset:	-0.719133	-0.157471
NOX coeff or slope:	0.996	0.998	NOX bkgnd or offset:	12.8	12.9	NO ₂ Cal Slope:	1.000119	1.005362
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	200.4	192.8	NO ₂ Cal Offset:	-0.101363	0.109061

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.1	0.3	-0.2		
High point	4932	67.7	803.0	800.3	2.7	805.0	802.7	2.3	0.9975	0.9970
Mid point	4966	33.8	400.9	399.5	1.4	404.8	402.4	2.4	0.9903	0.9929
Low point	4983	16.9	200.4	199.8	0.7	201.2	198.7	2.5	0.9962	1.0053
As left zero	5000	0.0	0.0	0.0	0.0	0.0	0.2	-0.1		
As left span	4932	67.7	803.0	394.0	409.0	795.1	394.0	401.1	1.0099	1.0000
							Average Co	orrection Factor	0.9947	0.9984

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (C	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	-0.2		
High GPT point	794.7	385.9	411.5	413.4	0.9954	100.5%
Mid GPT point	794.7	595.7	201.7	203.9	0.9893	101.1%
Low GPT point	794.7	694.6	102.8	103.2	0.9962	100.4%
				Average Correction Factor	0.9936	100.6%

Notes: Sample inlet filter was changed after as founds. Adjusted span only.

Calibration Performed By:

Jan Castro

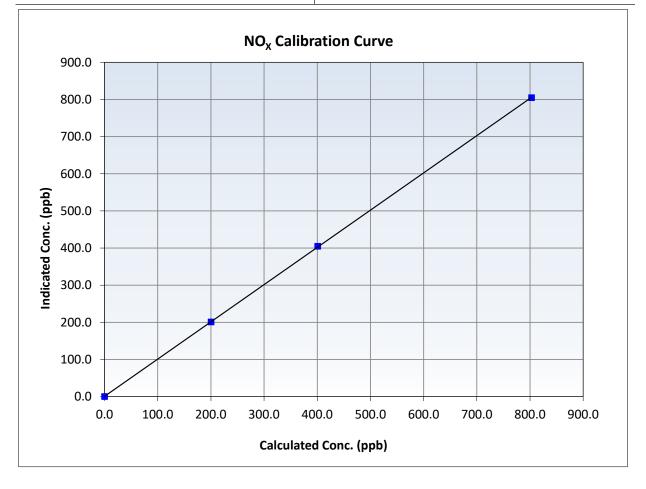


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 25, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	7:17	End Time (MST):	11:36
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262592

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.1		Correlation Coefficient	0.999984	≥0.995
803.0 400.9	805.0 404.8	0.9975 0.9903	Slope	1.002729	0.90 - 1.10
200.4	201.2	0.9962	Intercept	0.743770	+/-20



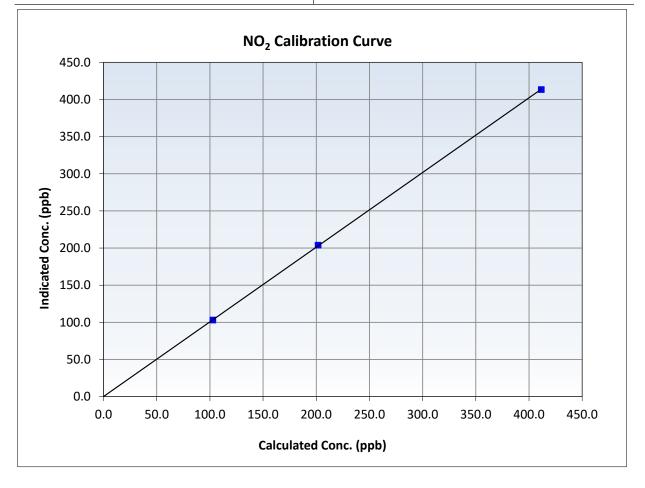


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 25, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	7:17	End Time (MST):	11:36
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262592

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	-0.2		Correlation Coefficient	0.999986	≥0.995
411.5 201.7	413.4 203.9	0.9954 0.9893	Slope	1.005362	0.90 - 1.10
102.8	103.2	0.9962	Intercept	0.109061	+/-20



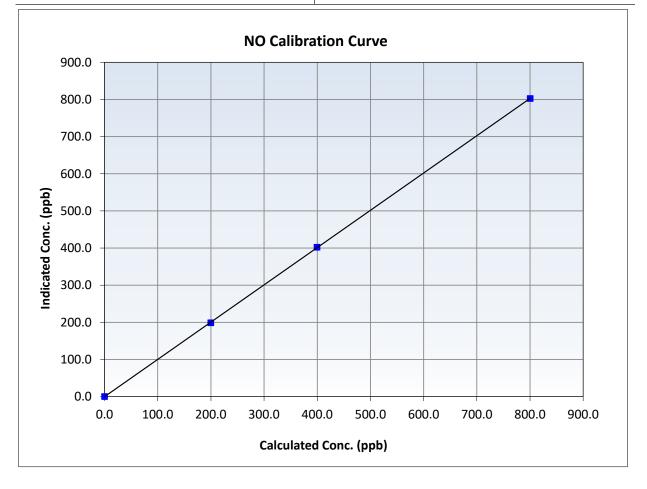


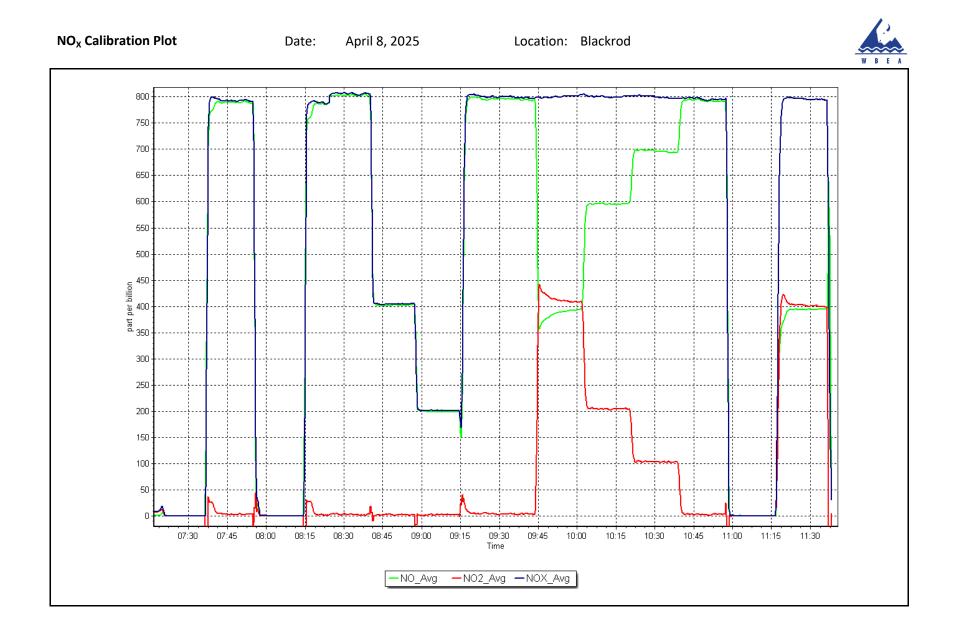
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 8, 2025	Previous Calibration:	March 25, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	7:17	End Time (MST):	11:36
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262592

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999985	≥0.995
800.3 399.5	802.7 402.4	0.9970 0.9929	Slope	1.003697	0.90 - 1.10
199.8	198.7	1.0053	Intercept	-0.157471	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS33 MONDAY CREEK APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Station Name:

Calibration Date:

Start time (MST):

Monday Creek

April 2, 2025

12:44

Wood Buffalo Environmental Association SO₂ Calibration Report

Station number: AMS 33

End time (MST): 15:35

Last Cal Date: March 5, 2025

Station Information

Reason:	Routine		, , , , , , , , , , , , , , , , , , ,		
		Calibration St	andards		
Cal Gas Concentration: Cal Gas Cylinder #:	50.62 EB0008522	ppm	Cal Gas Exp Date:	March 10, 2031	
Removed Cal Gas Conc:	50.62	ppm	Rem Gas Exp Date:	NA	
Removed Gas Cyl #:	NA		Diff between cyl:		
Calibrator Model:	Teledyne T700		Serial Number:	3253	
Zero Air Gen Model:	Teledyne T701H		Serial Number:	832	
		Analyzer Info	rmation		
Analyzer make:	Thermo 43i		Serial Number:	1152430005	
Analyzer Range:	0- 1000 ppb				
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.997815	1.005166	Backgd or Offset:	30.7	31.2
Calibration intercept:	-0.238150	-0.537953	Coeff or Slope:	0.988	1.001
		SO ₂ As Foun	d Data		
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10

					Limit = 0.90-1.10
As found zero	5000	0.0	0.0	-0.6	
As found High point	4921	79.1	800.8	791.2	1.011
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	791.8	Previous response	798.8	*% change	-0.9%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiat	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.5	
High point	4921	79.1	800.8	804.2	0.996
Mid point	4961	39.5	399.9	402.0	0.995
Low point	4980	19.8	200.5	200.5	1.000
As left zero	5000	0.0	0.0	-0.3	
As left span	4921	79.1	800.8	803.5	0.997
			Averag	ge Correction Factor:	0.997

Notes:

Sample inlet filter was changed after as founds. Adjusted span only.

Version 03-2024 CALS_492

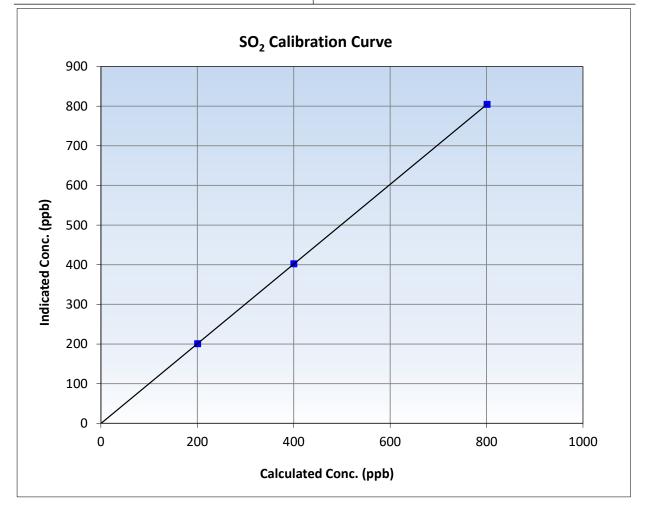


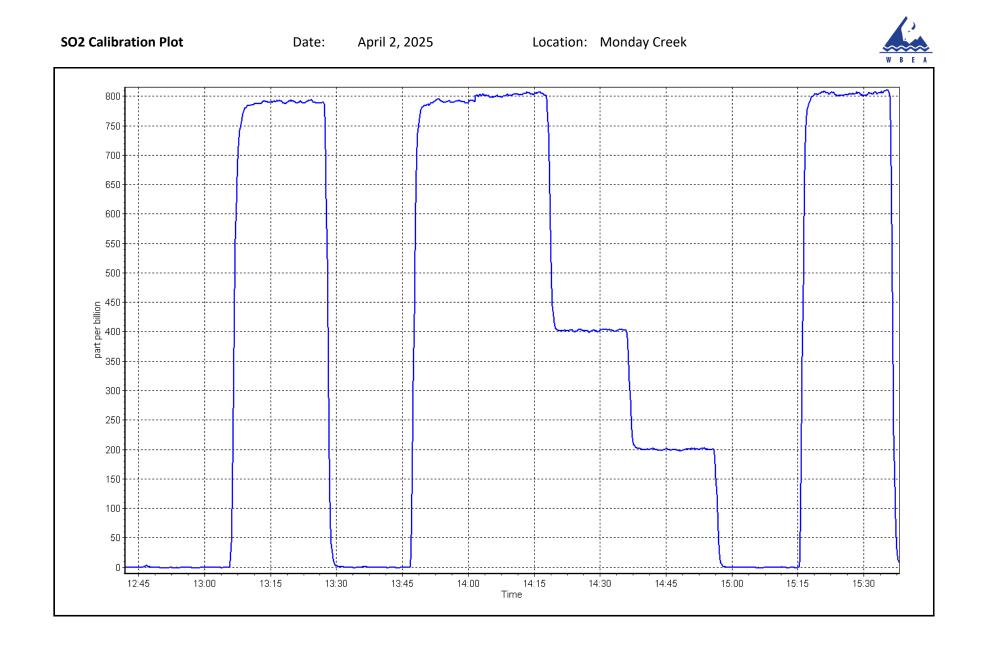
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 5, 2025
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	12:44	End Time (MST):	15:35
Analyzer make:	Thermo 43i	Analyzer serial #:	1152430005

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	-0.5		Correlation Coefficient	0.999998	≥0.995
800.8 399.9	804.2 402.0	0.9958 0.9947	Slope	1.005166	0.90 - 1.10
200.5	200.5	0.9998	Intercept	-0.537953	+/-30







Calibration intercept:

Wood Buffalo Environmental Association H2S Calibration Report

Station Information

		station mile	mation			
Station Name: Calibration Date: Start time (MST): Reason:	Monday Creek April 15, 2025 9:44 Routine		Station number: Last Cal Date: End time (MST):	AMS 33 March 4, 2025 13:18		
		Calibration S	tandards			
Cal Gas Concentration: Cal Gas Cylinder #:	5.05 DT0014831	ppm	Cal Gas Exp Date:	November 15, 2026	5	
Removed Cal Gas Conc:	5.05	ppm	Rem Gas Exp Date:	NA		
Removed Gas Cyl #:	NA		Diff between cyl:			
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3253		
ZAG Make/Model:	Teledyne T701H		Serial Number:	832		
		Analyzer Info	ormation			
Analyzer make:	Thermo 43iQTL		Analyzer serial #:	12333331547		
Converter make:	Global 150		Converter serial #:	2022-196		
Analyzer Range	0 - 100 ppb		Converter Temp:		degC	
Analyzer Nalige	0 - 100 ppb		converter remp.	525	uege	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>		ŀ
Calibration slope:	1.006570	0.999283	Backgd or Offset:	1.6		

-0.021599

H2S As Found Data

Coeff or Slope:

1.076

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.2	
As found High point	4921	79.2	80.0	80.1	0.996
As found Mid point	4960	39.6	40.0	40.1	0.993
As found Low point	4980	19.8	20.0	20.0	0.990
New cylinder response					
Baseline Corr As found:	80.3	Prev response:	80.41	*% change:	-0.1%
Baseline Corr 2nd AF pt:	40.3	AF Slope:	1.003569	AF Intercept:	-0.121610
Baseline Corr 3rd AF pt:	20.2	AF Correlation:	0.999995	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4921	79.2	80.0	79.9	1.001
Mid point	4960	39.6	40.0	39.9	1.002
Low point	4980	19.8	20.0	20.1	0.995
As left zero	5000	0.0	0.0	0.0	
As left span	4921	79.2	80.0	79.7	1.004
SO2 Scrubber Check	4921	79.1	791.0	0.1	
Date of last scrubber chan	ge:	11-Apr-24		Ave Corr Factor	1.000

Date of last converter efficiency test:

Notes: Sample inlet filter changed after multipoint as founds. SO2 scrubber check done after calibrator zero and passed. No adjustment made.

Calibration Performed By: Jan Castro

-0.101612

<u>Finish</u> 1.6

1.076



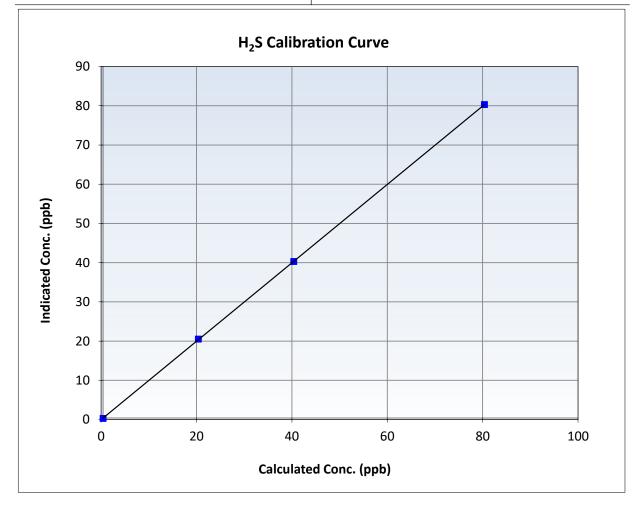
Wood Buffalo Environmental Association

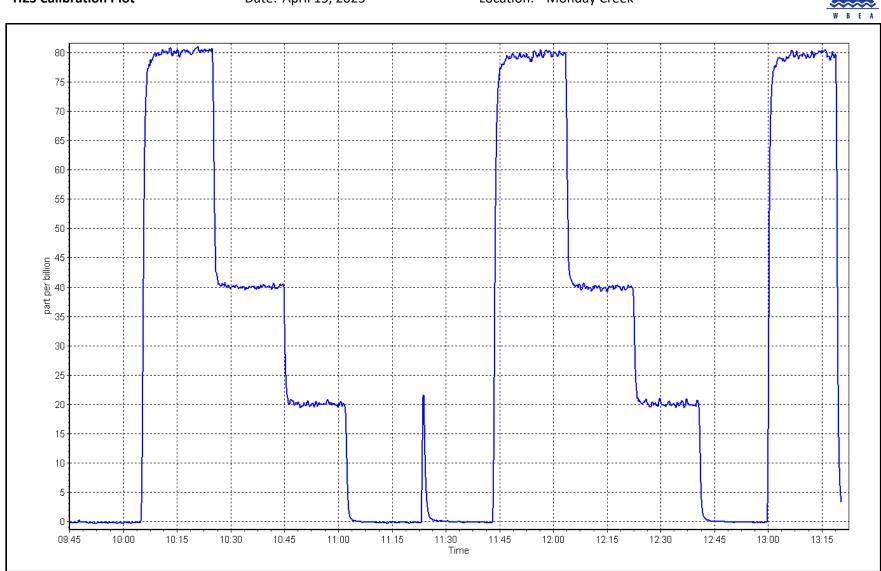
H2S Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 4, 2025
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	9:44	End Time (MST):	13:18
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12333331547

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999992	≥0.995
80.0	79.9	1.0011	Slope	0.999283	0.90 - 1.10
40.0	39.9	1.0025	Slope	0.555205	0.50 1.10
20.0	20.1	0.9950	Intercept	-0.021599	+/-3





Location: Monday Creek



Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Monday Creek	NO Gas Cylinder #:	CC755290	Cal Gas Expiry Date:	January 3, 2031
Station number:	AMS 33	NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.70 ppm
Calibration Date:	April 2, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Last Cal Date:	March 13, 2025	Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.70 ppm
Start time (MST):	10:15	NOX gas Diff:		NO gas Diff:	
End time (MST):	12:44	Calibrator Model:	Teledyne API T700	Serial Number: 3253	5
Reason:	Removal	ZAG make/model:	Teledyne API T701H	Serial Number: 832	2

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>
As found zero	5000	0.0	0.0	0.0	0.0	-0.7	-0.6	-0.1		
AF High point	4918	82.1	802.9	799.6	3.3	799.2	794.3	4.9	1.0038	1.0060
AF Mid point	4959	41.1	401.9	400.3	1.6	396.9	393.4	3.4	1.0109	1.0160
AF Low point	4980	20.5	200.5	199.7	0.8	196.8	194.0	2.8	1.0150	1.0260
New cyl resp										
Previous Respo	onse NO _x =	797.5 ppb	NO = 792.9	ppb	* = > +/-5	% change initiates i	investigation	*Percent Chan	ge NO _X =	0.3%
Baseline Corr 1	Lst pt NO _X =	799.9 ppb	NO = 794.9	ppb	<u>As Four</u>	nd Statistics		*Percent Chan	ge NO =	0.3%
Baseline Corr 2	2nd pt NO _x =	397.6 ppb	NO = 394.0	ppb	As four	$NO_X r^2$:	0.999982	Nx SI: 0.9967	777 Nx Int:	-2.153
Baseline Corr 3	Brd pt NO _x =	197.5 ppb	NO = 194.6	ppb	As four	ld NO r ² :	0.999957	NO SI: 0.9952	L69 NO Int:	-2.933
					As four	$NO_2 r^2$:	0.999985	NO2 SI: 0.995	L65 NO ₂ Int:	0.586

As Found GPT Calibration Data

					Baseline Adjusted NO2	
O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Converter Efficiency Limit = 96-104%
As Found GPT zero			0.0	-0.1		
As found high GPT point	792.7	381.2	414.8	412.9	1.0046	99.5%
As found mid GPT point	792.7	590.4	205.6	205.9	0.9985	100.2%
As found low GPT point	792.7	693.0	103.0	103.5	0.9950	100.5%



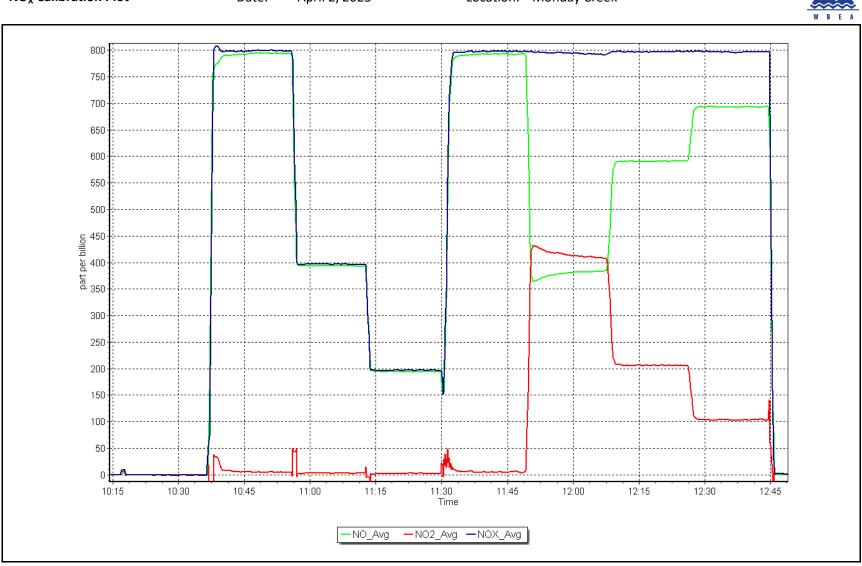
Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make: NOX Range (ppb):	Thermo 42iQ 0 - 1000 ppb		Serial Number:	118234	10006			l Slope:	<u>Start</u> 0.994870	<u>Finish</u>
NOV Kalige (hhn).	0 - 1000 hhn		(•		
	<i>c</i>		Instrument Sett	ings	<i>c</i>	F 1 1 1		l Offset:	-1.333022	
NO (()	<u>Start</u>	<u>Finish</u>		<i>.</i>	<u>Start</u>	<u>Finish</u>	NO Cal	-	0.994154	
NO coeff or slope:	1.202	NA	NO bkgnd or		1.0	NA		Offset:	-2.053068	
NOX coeff or slope:	0.992	NA	NOX bkgnd or		1.2	NA		l Slope:	0.980054	
NO2 coeff or slope:	1.000	NA	Reaction cell I	Press:	104.9	NA	NO ₂ Ca	l Offset:	2.225929	
				Dilu	ition Calibrat	ion Data				
Set Point	n flow rate Source gas sccm) rate (scc	flow m) conce	ted NOx Calculate ntration concent o) (Cc) (ppb)	ration	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero High point										
Mid point										
Low point										
As left zero										
As left span							Average C	orrection Factor		1
				6		- Dete	-			<u>. </u>
				G	PT Calibration	n Data				
O3 Setpoint (ppb)	NO Reference ration (ppb)	Indicated NO D concentration (p	-	Calculated N concentration (p		dicated NO2 ntration (ppb) (Ic)	NO2 Correction fa Limit = 0.95-		nverter Efficiency imit = 96-104%
Cal zero										
High GPT point										
Mid GPT point										
Low GPT point										
						Average Co	prrection Factor			
Notes:			Rem	oving th	e instrument to	o do further tro	ubleshooting at	the shop.		
Calibration Per	formed By:	J	an Castro							



NO_x Calibration Plot



Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Monday Creek		NO Gas	S Cylinder #:	CC75	5290	Cal Gas Expiry D	ate: Mar	ch 11, 2	2031
Station number:	AMS 33		NOX Ca	, al Gas Conc:	48.90	ppm	NO Cal Gas Cond	: 48	.70 pr	om
Calibration Date:	April 3, 2025		Remov	ed Cylinder #:	N	A	Removed Gas Ex	p Date: NA	•••	
Last Cal Date:	NA		Remov	ed Gas NOX Con	c: 48.90	ppm	Removed Gas N	O Conc: 48	.70 pp	om
Start time (MST):	7:19		NOX ga	s Diff:			NO gas Diff:			
End time (MST):	12:27		Calibra	tor Model:	Teledyne	API T700	Serial Number:	3253		
Reason:	Install		ZAG m	ake/model:	Teledyne /	API T701H	Serial Number:	832		
			<u>As Four</u>	d Dilution Cali	bration Data					
		Calculated NOx	Calculated NO	Calculated NO2	Indicated NOx	Indicated NO	Indicated NO2	Baseline Adjus	ted Ba	seline Adjusted NO

Set Point	Dilution flow rate (sccm)		e gas flow e (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	concentration (ppb) (Ic)	NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero											
AF High point											
AF Mid point											
AF Low point											
New cyl resp											
Previous Respo	onse NO _x =	NA	ppb	NO = NA	ppb	* = > +/-5	% change initiates	investigation	*Percent Chan	ge NO _X =	NA
Baseline Corr 1	st pt NO _x =	NA	ppb	NO = NA	ppb	<u>As Four</u>	nd Statistics		*Percent Chan	ge NO =	NA
Baseline Corr 2	nd pt NO _x =	NA	ppb	NO = NA	ppb	As four	d NO _x r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _x =	NA	ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
						As four	d $NO_2 r^2$:		NO2 SI:	NO ₂ Int:	

As Found GPT Calibration Data

					Baseline Adjusted NO2	
O3 Setpoint (nph)	cated NO Reference oncentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Converter Efficiency <i>Limit = 96-104%</i>

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point

Station Information



Analyzer Information

Wood Buffalo Environmental Association

NO_X \ NO \ NO₂ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42iQ		Serial Number: 1242633	5704			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:		0.999496
			Instrument Settings			NO _x Cal Offset:		-0.133286
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:		1.004314
NO coeff or slope:	NA	1.096	NO bkgnd or offset:	NA	1.6	NO Cal Offset:		-0.933140
NOX coeff or slope:	NA	0.998	NOX bkgnd or offset:	NA	1.7	NO ₂ Cal Slope:		0.975877
NO2 coeff or slope:	NA	0.990	Reaction cell Press:	NA	149.0	NO ₂ Cal Offset:		0.255076

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>	NO Correction factor (Cc/lc) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	-0.6	-0.5	-0.1		
High point	4918	82.1	802.9	799.6	3.3	802.3	802.6	-0.3	1.0008	0.9963
Mid point	4959	41.1	401.9	400.3	1.6	401.4	400.2	1.3	1.0014	1.0003
Low point	4980	20.5	200.5	199.7	0.8	201.0	199.6	1.5	0.9974	1.0003
As left zero	5000	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0		
As left span	4918	82.1	802.9	390.8	412.1	785.2	390.8	394.4	1.0226	1.0000
							Average Co	orrection Factor	0.9998	0.9989

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/Ic) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	-0.1		
High GPT point	799.8	394.8	408.3	398.0	1.0258	97.5%
Mid GPT point	799.8	606.1	197.0	194.3	1.0138	98.6%
Low GPT point	799.8	704.8	98.3	95.4	1.0302	97.1%
				Average Correction Factor	1.0233	97.7%

Notes:

Sample inlet filter and charcoal was changed before calibrator zero. Adjusted zero and span.

Calibration Performed By:

Jan Castro

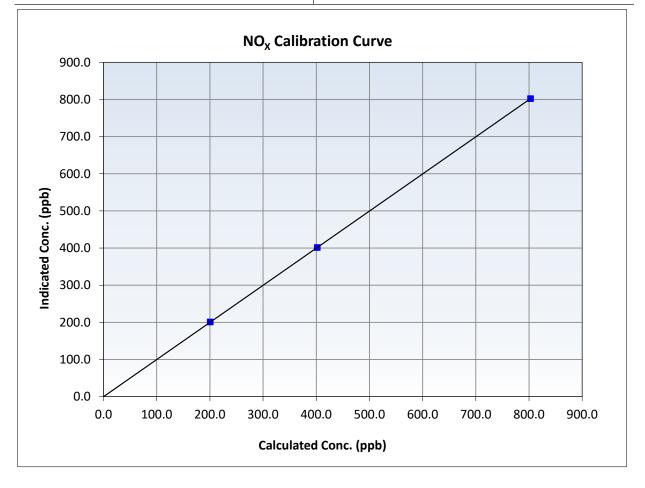


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	NA
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	7:19	End Time (MST):	12:27
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12426335704

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.6		Correlation Coefficient	0.999998	≥0.995
802.9	802.3	1.0008	Slope	0.999496	0.90 - 1.10
401.9	401.4	1.0014	·		
200.5	201.0	0.9974	Intercept	-0.133286	+/-20



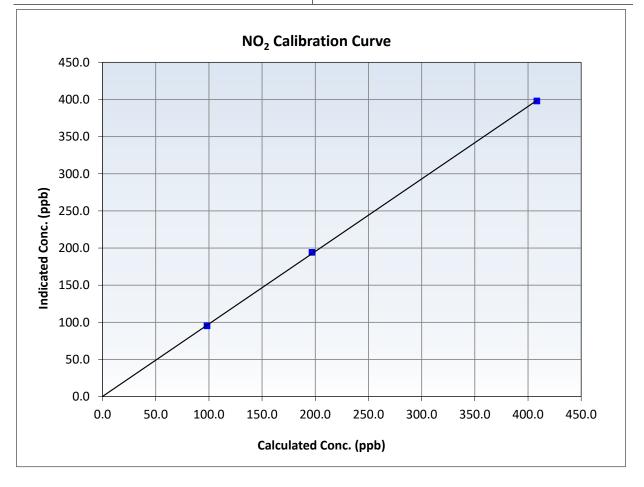


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	NA
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	7:19	End Time (MST):	12:27
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12426335704

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999949	≥0.995
408.3 197.0	398.0 194.3	1.0258 1.0138	Slope	0.975877	0.90 - 1.10
98.3	95.4	1.0302	Intercept	0.255076	+/-20



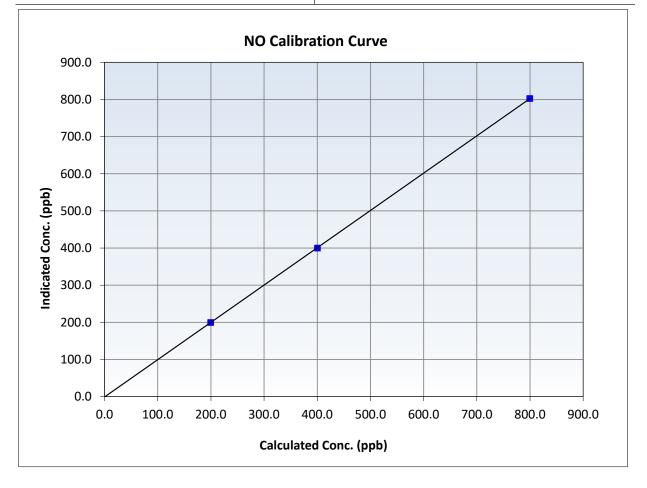


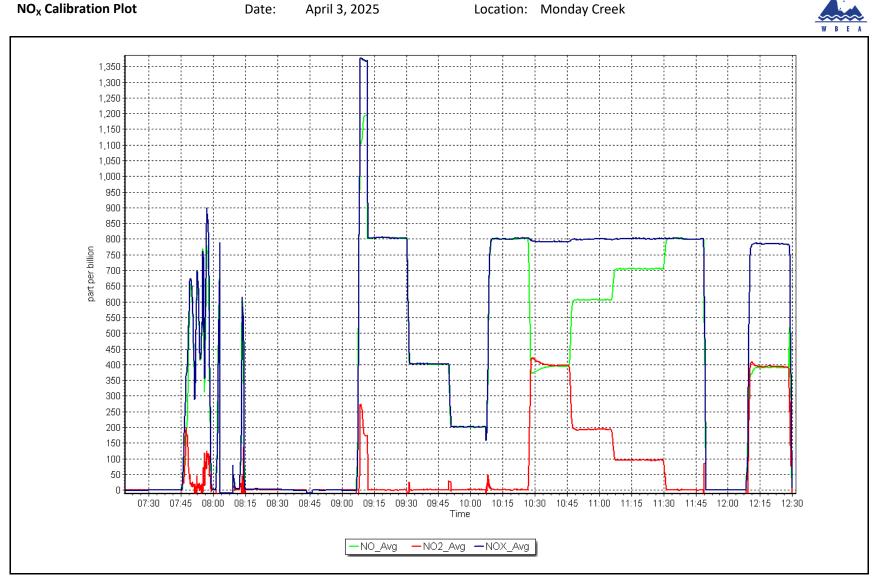
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	NA
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	7:19	End Time (MST):	12:27
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12426335704

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.5		Correlation Coefficient	0.999997	≥0.995
799.6 400.3	802.6 400.2	0.9963 1.0003	Slope	1.004314	0.90 - 1.10
199.7	199.6	1.0003	Intercept	-0.933140	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS505 SAWBONES BAY APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Sawbones
Calibration Date:	March 28
Start time (MST):	9:30
Reason:	Install

s Bay , 2025 Station number: AMS 505 Last Cal Date: NA End time (MST): 11:42

Calibration Standards

Cal Gas Concentration:	51.40	ppm	Cal Gas Exp Date: February 15, 2029
Cal Gas Cylinder #:	EY0000672		
Removed Cal Gas Conc:	51.40	ppm	Rem Gas Exp Date: February 15, 2029
Removed Gas Cyl #:	EY0000672		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 5112
Zero Air Gen Model:	Teledyne API T701		Serial Number: 690

Analyzer Information

Serial Number: 710321323

Analyzer make:	Thermo 43i
Analyzer Range:	0 - 1000 ppb
	<u>Start</u>

Calibration slope: Calibration intercept:

tart	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
	1.000238	Backgd or Offset:		19.8
	-0.072137	Coeff or Slope:		1.020

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero					
As found High point					
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	NA	Previous response	NA	*% change	NA
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.7	
High point	4922	77.8	799.8	800.0	1.000
Mid point	4961	38.9	399.9	400.5	0.999
Low point	4981	19.5	200.4	199.0	1.007
As left zero	5000	0.0	0.0	1.2	
As left span	4922	77.8	799.8	809.1	0.989
			Averag	e Correction Factor:	1.002

Notes:

Install calibration. Adjusted span and zero.

Calibration Performed By:

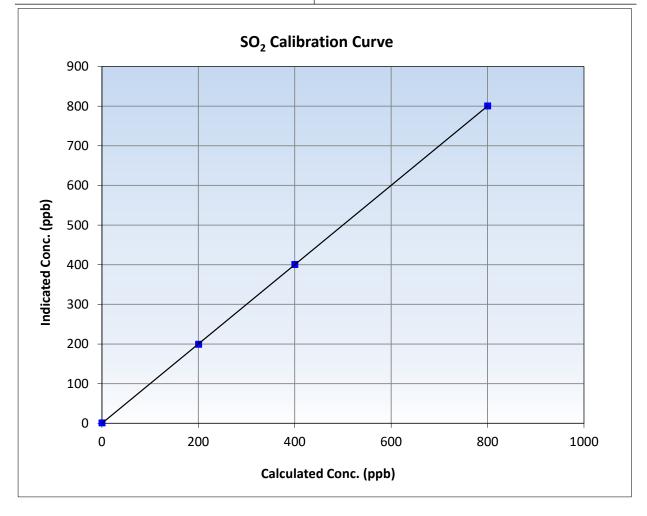


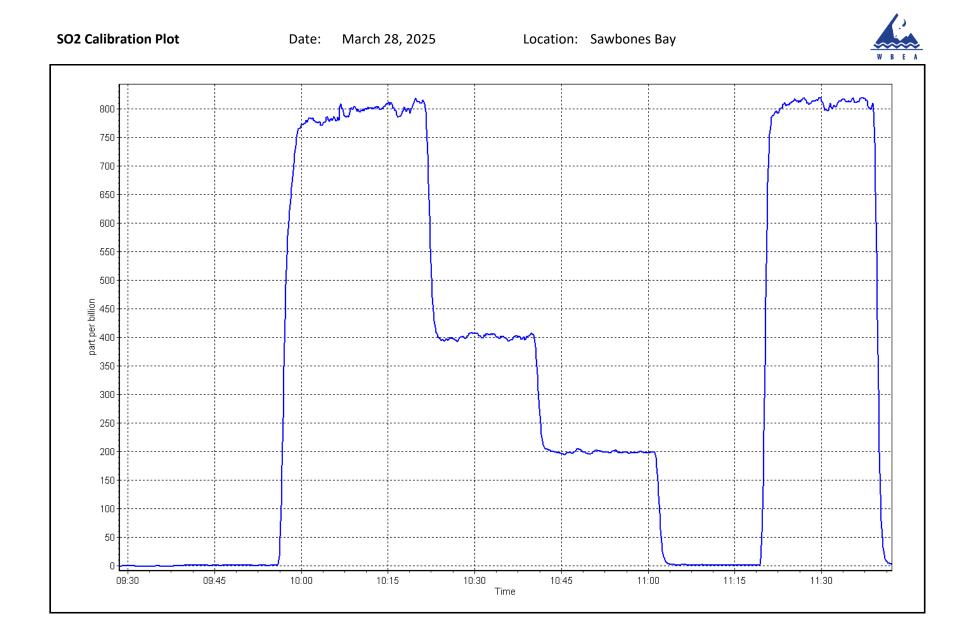
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	March 28, 2025	Previous Calibration:	NA
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	9:30	End Time (MST):	11:42
Analyzer make:	Thermo 43i	Analyzer serial #:	710321323

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.7		Correlation Coefficient	0.999992	≥0.995
799.8 399.9	800.0 400.5	0.9998 0.9985	Slope	1.000238	0.90 - 1.10
200.4	199.0	1.0072	Intercept	-0.072137	+/-30







Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Sawbones Bay
Calibration Date:	April 25, 2025
Start time (MST):	8:22
Reason:	Routine

Station number: AMS 505 Last Cal Date: March 28, 2025 End time (MST): 11:04

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	51.40 EY0000672	ppm	Cal Gas Exp Date: February 15, 2029
Removed Cal Gas Conc: Removed Gas Cyl #:	51.40 EY0000672	ppm	Rem Gas Exp Date: February 15, 2029 Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 5112
Zero Air Gen Model:	Teledyne API T701		Serial Number: 690
		Analyzer Info	<u>rmation</u>
Analyzer make:	Thermo 43i		Serial Number: 710321323
Analyzer Range:	0 - 1000 ppb		
	Start	Finish	Start

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.000238	0.999694	Backgd or Offset:	19.8	19.8
Calibration intercept:	-0.072137	0.168148	Coeff or Slope:	1.020	1.020

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.8	
As found High point As found Mid point As found Low point New cylinder response	4922	77.8	799.8	803.9	0.996
Baseline Corr As found: Baseline Corr 2nd AF pt:	803.1 NA	Previous response AF Slope:	799.9	*% change AF Intercept:	0.4%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4922	77.8	799.8	798.7	1.001
Mid point	4961	38.9	399.9	402.9	0.993
Low point	4981	19.5	200.4	198.8	1.008
As left zero	5000	0.0	0.0	-0.1	
As left span	4922	77.8	799.8	809.7	0.988
			Averag	ge Correction Factor:	1.001

Notes:

Changed inelt filter after as founds. Adjusted zero and span.

Calibration Performed By:

Sean Bala

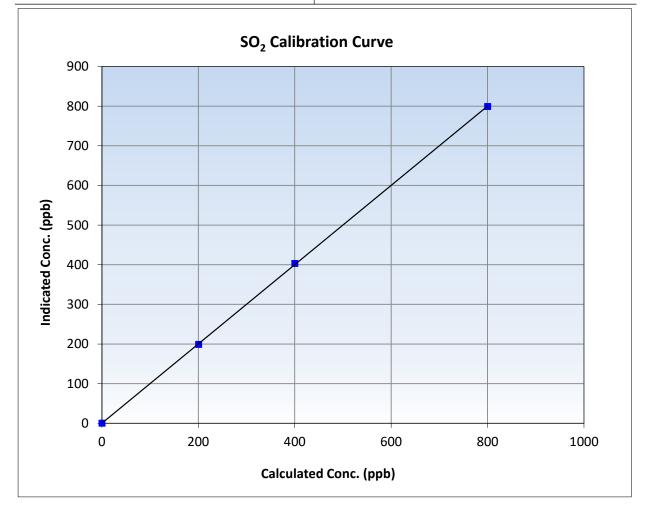


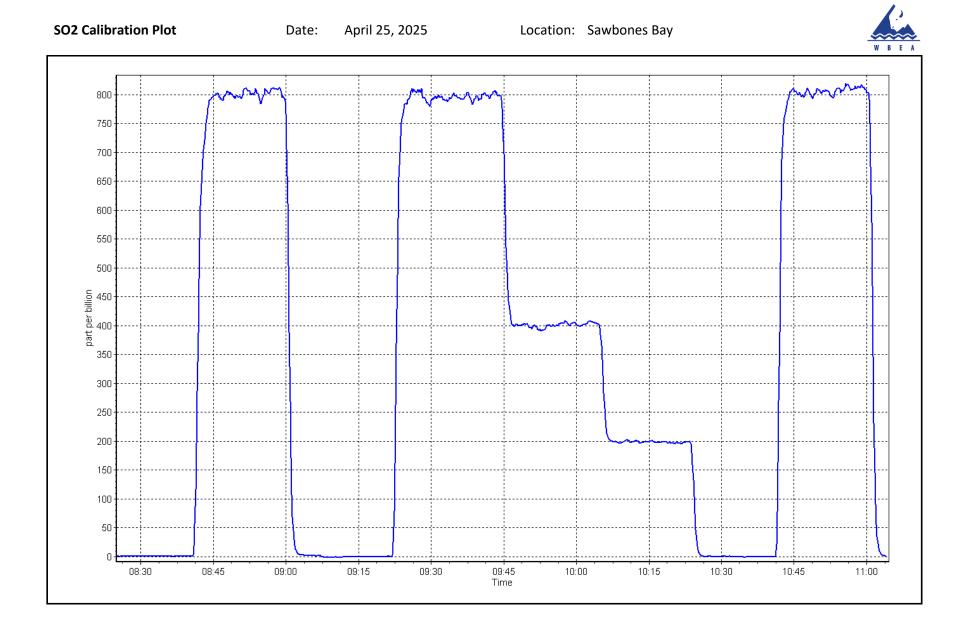
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 25, 2025	Previous Calibration:	March 28, 2025
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:22	End Time (MST):	11:04
Analyzer make:	Thermo 43i	Analyzer serial #:	710321323

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999963	≥0.995
799.8 399.9	798.7 402.9	1.0014 0.9926	Slope	0.999694	0.90 - 1.10
200.4	198.8	1.0082	Intercept	0.168148	+/-30







Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Sawbones Bay		Station number:	AMS 505			
	•						
			End time (MST):	13:13			
Reason:	Install						
		Calibration S	tandards				
Cal Gas Concentration:	5.26	ppm	Cal Gas Exp Date:	March 19, 202	7		
Cal Gas Cylinder #:	DT0034141						
Removed Cal Gas Conc:	5.26	ppm	Rem Gas Exp Date:	NA			
Removed Gas Cyl #:	NA		Diff between cyl:				
Calibrator Make/Model:	Teledyne API T750		Serial Number:	282			
ZAG Make/Model:	Teledyne API T751H		Serial Number:	321			
		Analyzer Info	ormation				
Analyzer make:	Thermo 43iQTL		Analyzer serial #:	12113311965			
Converter make:	Global 150		Converter serial #:	2022-224			
Analyzer Range	0 - 100 ppb		Converter Temp:		325	degC	
	<u>Start</u>	<u>Finish</u>		<u>Start</u>			ŀ
Calibration slope:		0.992596	Backgd or Offset:				(
Calibration intercept:		-0.020000	Coeff or Slope:				
		H2S As Fou	nd Data				
	Calibration Date: Start time (MST): Reason: Cal Gas Concentration: Cal Gas Cylinder #: Removed Cal Gas Conc: Removed Gas Cyl #: Calibrator Make/Model: ZAG Make/Model: Analyzer make: Converter make: Analyzer Range Calibration slope:	Calibration Date: March 26, 2025 Start time (MST): 10:30 Reason: Install Cal Gas Concentration: 5.26 Cal Gas Cylinder #: DT0034141 Removed Cal Gas Conc: 5.26 Removed Gas Cyl #: NA Calibrator Make/Model: Teledyne API T750 ZAG Make/Model: Teledyne API T751H Analyzer make: Global 150 Analyzer Range 0 - 100 ppb <u>Start</u> Calibration slope:	Calibration Date: March 26, 2025 Start time (MST): 10:30 Reason: Install Calibration S Cal Gas Concentration: 5.26 ppm Cal Gas Cylinder #: DT0034141 Removed Cal Gas Conc: 5.26 ppm Removed Gas Cyl #: NA Calibrator Make/Model: Teledyne API T750 ZAG Make/Model: Teledyne API T751H Analyzer make: Clobal 150 Analyzer make: Global 150 Analyzer Range 0 - 100 ppb Start Finish Calibration slope: 0.992596 Calibration intercept: -0.020000	Calibration Date:March 26, 2025Last Cal Date:Start time (MST):10:30End time (MST):Reason:InstallInstallCal Gas Concentration:5.26ppmCal Gas Exp Date:Cal Gas Cylinder #:DT0034141Removed Cal Gas Conc:5.26ppmRem Gas Exp Date:Removed Cal Gas Conc:5.26ppmRem Gas Exp Date:Diff between cyl:Calibrator Make/Model:Teledyne API T750Serial Number:Serial Number:ZAG Make/Model:Teledyne API T751HSerial Number:Serial Number:Converter make:Global 150Converter serial #:Analyzer make:Global 150Converter Temp:StartFinishCalibration slope:0 - 100 ppbBackgd or Offset:	Calibration Date:March 26, 2025Last Cal Date:NAStart time (MST):10:30End time (MST):13:13Reason:InstallInstallCalibration StandardsCal Gas Concentration:5.26ppmCal Gas Exp Date:March 19, 202Cal Gas Cylinder #:DT0034141Rem Gas Exp Date:NARemoved Cal Gas Conc:5.26ppmRem Gas Exp Date:NARemoved Gas Cyl #:NADiff between cyl:Calibrator Make/Model:Teledyne API T750Serial Number:282ZAG Make/Model:Teledyne API T751HSerial Number:321202-224202-224Analyzer make:Thermo 43iQTL Global 150Analyzer serial #:12113311965 2022-2242022-224Analyzer Range0 - 100 ppbConverter Temp:2022-224Calibration slope: Calibration intercept:StartFinish 0.992596Sackgd or Offset: Coeff or Slope:Start	Calibration Date: March 26, 2025 Last Cal Date: NA Start time (MST): 10:30 End time (MST): 13:13 Reason: Install Cal Gas Concentration: 5.26 ppm Cal Gas Exp Date: March 19, 2027 Cal Gas Cylinder #: DT0034141 Removed Cal Gas Conc: 5.26 ppm Rem Gas Exp Date: NA Removed Gas Cyl #: NA Diff between cyl: Calibrator Make/Model: Teledyne API T750 Serial Number: 282 ZAG Make/Model: Teledyne API T750 Serial Number: 321 Canalyzer make: Thermo 43iQTL Analyzer serial #: 12113311965 Converter make: Global 150 Converter serial #: 2022-224 Analyzer Range 0 - 100 ppb Converter Temp: 325 <u>Start Finish</u> Start Calibration slope: 0.992596 Backgd or Offset: Calibration intercept: -0.020000 Conformation	Calibration Date: March 26, 2025 Last Cal Date: NA Start time (MST): 10:30 End time (MST): 13:13 Reason: Install Cal Gas Concentration: 5.26 ppm Cal Gas Exp Date: March 19, 2027 Cal Gas Concentration: 5.26 ppm Rem Gas Exp Date: NA Removed Cal Gas Conc: 5.26 ppm Rem Gas Exp Date: NA Removed Cal Gas Conc: 5.26 ppm Rem Gas Exp Date: NA Removed Gas Cyl #: NA Diff between cyl: Calibrator Make/Model: Teledyne API T750 Serial Number: 282 ZAG Make/Model: Teledyne API T751H Serial Number: 321 Analyzer make: Thermo 43iQTL Analyzer serial #: 12113311965 Converter make: Global 150 Converter serial #: 2022-224 Analyzer Range 0 - 100 ppb Converter Temp: 325 degC <u>Start Finish</u> Sackgd or Offset: Calibration slope: 0.992596 Backgd or Offset: Calibration intercept: -0.020000 Coeff or Slope: Coeff or Slope

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero					
As found High point					
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	NA	Prev response:	NA	*% change:	NA
Baseline Corr 2nd AF pt:	NA	AF Slope:	NA	AF Intercept:	NA
Baseline Corr 3rd AF pt:	NA	AF Correlation:	NA	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4924	76.0	80.0	79.4	1.007
Mid point	4962	38.0	40.0	39.5	1.012
Low point	4981	19.0	20.0	19.9	1.004
As left zero	5000	0.0	0.0	0.1	
As left span	4924	76.0	80.0	79.0	1.012
SO2 Scrubber Check	4922	77.8	778.0	0.0	
Date of last scrubber changed	ge:			Ave Corr Factor	1.008
	-				

Date of last converter efficiency test:

Notes:

Calibration Performed By: Se

Sean Bala

Install calibration.

Finish 0.920 1.105



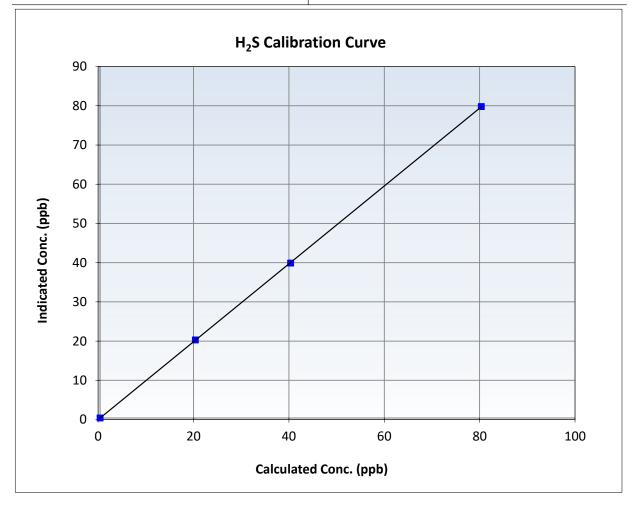
Wood Buffalo Environmental Association

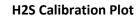
H2S Calibration Summary

Station Information

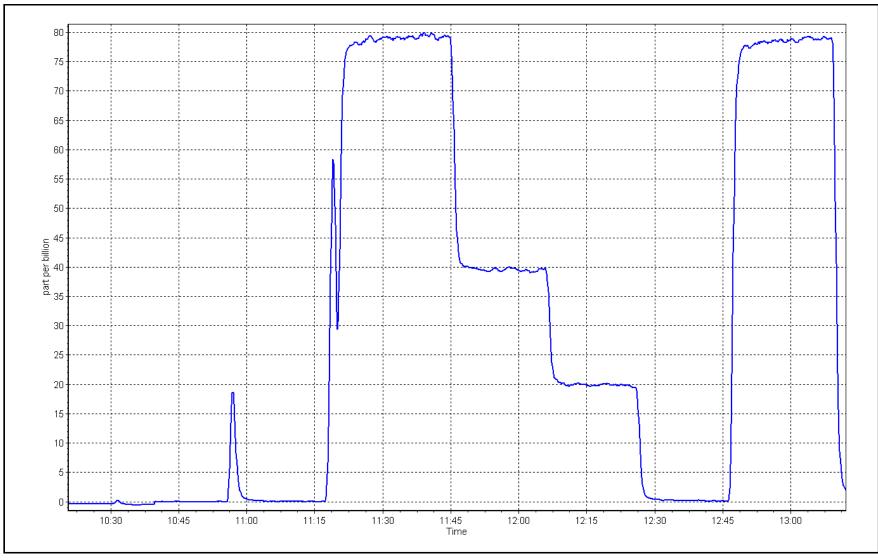
Calibration Date:	March 26, 2025	Previous Calibration:	NA
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	10:30	End Time (MST):	13:13
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12113311965

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	c) Statistical Evaluation <u>Lin</u>		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999990	≥0.995
80.0	79.4	1.0070	Slope	0.992596	0.90 - 1.10
40.0	39.5	1.0121	0.000	0.002000	0.000 1.100
20.0	19.9	1.0044	Intercept	-0.020000	+/-3











Wood Buffalo Environmental Association H2S Calibration Report

Station Information

Station Name: Calibration Date:	Sawbones Bay April 24, 2025	Station number: Last Cal Date:	AMS 505 March 26, 2025
Start time (MST):	8:09	End time (MST):	11:56
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.26	ppm	Cal Gas Exp Date:	March 19, 2027
Cal Gas Cylinder #:	DT0034141			
Removed Cal Gas Conc:	5.26	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T750		Serial Number:	282
ZAG Make/Model:	Teledyne API T751	ł	Serial Number:	321

Analyzer Information

Analyzer make: Converter make:	Thermo 43iQ Global 150		Analyzer serial #: Converter serial #:	12113311965 2022-224	
Analyzer Range	0 - 100 ppb		Converter Temp:		325 degC
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.992596	0.994025	Backgd or Offset:	0.920	0.920
Calibration intercept:	-0.020000	-0.020000	Coeff or Slope:	1.105	1.105

H2S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	0.0	
As found High point	4924	76.0	80.0	79.3	1.008
As found Mid point	4962	38.0	40.0	39.6	1.009
As found Low point	4981	19.0	20.0	19.6	1.020
New cylinder response					
Baseline Corr As found:	79.3	Prev response:	79.34	*% change:	-0.1%
Baseline Corr 2nd AF pt:	39.6	AF Slope:	0.992739	AF Intercept:	-0.100000
Baseline Corr 3rd AF pt:	19.6	AF Correlation:	0.999991	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.1	
High point	4924	76.0	80.0	79.5	1.006
Mid point	4962	38.0	40.0	39.7	1.007
Low point	4981	19.0	20.0	19.7	1.015
As left zero	5000	0.0	0.0	0.1	
As left span	4924	76.0	80.0	79.1	1.011
SO2 Scrubber Check	4922	77.8	778.0	-0.1	
Date of last scrubber chan	ge:			Ave Corr Factor	1.009

Date of last converter efficiency test:

Notes:

Changed inlet filter after as founds. Scrubber test was done after calibrator zero. No adjustment made.

Calibration Performed By: Sean Bala



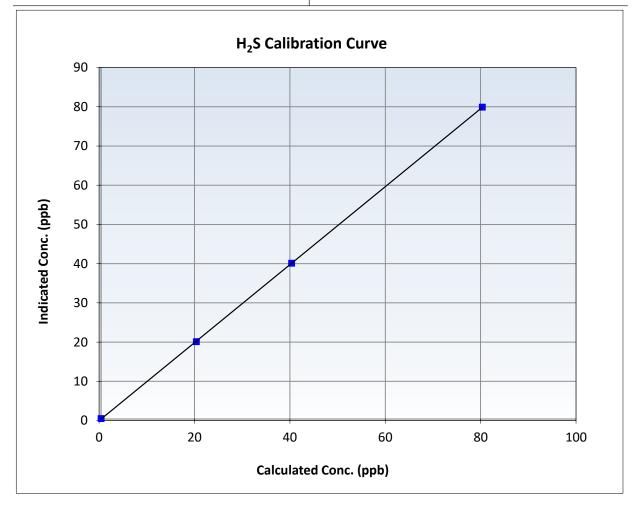
Wood Buffalo Environmental Association

H2S Calibration Summary

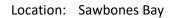
Station Information

Calibration Date:	April 24, 2025	Previous Calibration:	March 26, 2025
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:09	End Time (MST):	11:56
Analyzer make:	Thermo 43iQ	Analyzer serial #:	12113311965

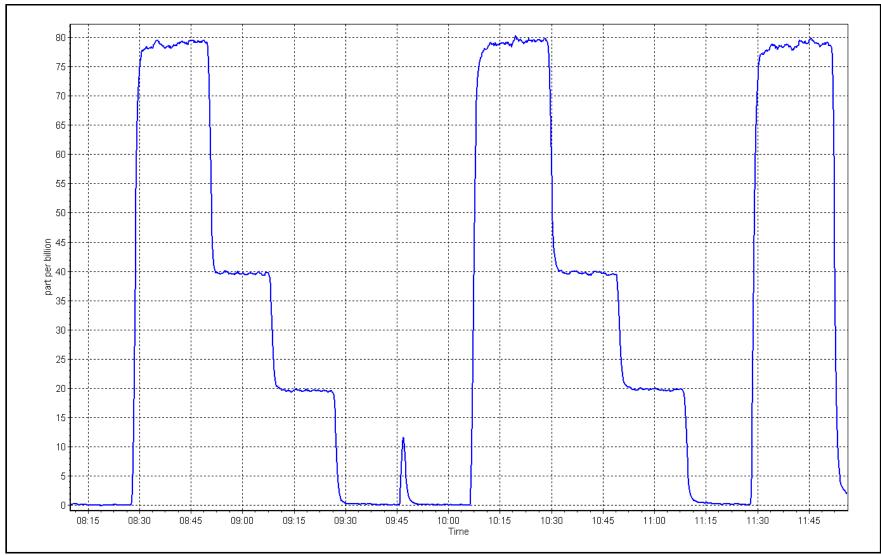
Calibration Data Calculated concentration Indicated concentration Correction factor (Cc/lc) Statistical Evaluation <u>Limits</u> (ppb) (Cc) (ppb) (Ic) **Correlation Coefficient** 0.999989 ≥0.995 0.0 0.1 ----80.0 79.5 1.0057 Slope 0.994025 0.90 - 1.10 40.0 39.7 1.0070 20.0 19.7 1.0146 Intercept -0.020000 +/-3













Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name: Station number: Calibration Date: Last Cal Date: Start time (MST): End time (MST): Reason:	Sawbones Bay AMS 505 April 2, 2025 NA 8:49 12:42 Install		NOX Ca Remov Remov NOX ga Calibra ZAG m	tor Model: ake/model:	API T API T	ppm A ppm F700	Cal Gas Expiry D NO Cal Gas Con Removed Gas E Removed Gas N NO gas Diff: Serial Number: Serial Number:	c: 60.00 xp Date: NA	•
			<u>As Four</u>	nd Dilution Cali	bration Data				
Set Point	flow rate Source gas flo ccm) rate (sccm)	Calculated NOx w concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero AF High point AF Mid point AF Low point New cyl resp									
Previous Response	NO _x = NA ppb	NO = NA	ppb	* = > +/-59	% change initiates ii	nvestigation	*Percent Chang	e NO _x =	NA
Baseline Corr 1st pt	NO _x = NA ppb	NO = NA	ppb	<u>As Foun</u>	d Statistics		*Percent Chang	e NO =	NA
Baseline Corr 2nd pt	NO _x = NA ppb	NO = NA	ppb	As foun	d NO _x r^2 :		Nx SI:	Nx Int:	
Baseline Corr 3rd pt	NO _x = NA ppb	NO = NA	ppb	As foun As foun			NO SI: NO2 SI:	NO Int: NO ₂ Int:	

As Found GPT Calibration Data

					Baseline Adjusted NO2	
O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Converter Efficiency <i>Limit = 96-104%</i>

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	API T200		Serial Number: 425	9			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:		1.003271
			Instrument Settings			NO _x Cal Offset:		-3.589772
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:		1.003045
NO coeff or slope:		0.941	NO bkgnd or offset:		3.4	NO Cal Offset:		-4.150059
NOX coeff or slope:		0.941	NOX bkgnd or offset:		3.8	NO ₂ Cal Slope:		0.998577
NO2 coeff or slope:		1.000	Reaction cell Press:		3.8	NO ₂ Cal Offset:		0.523117

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	-0.5	-0.5	0.0		
High point	4933	66.7	801.8	800.4	1.3	802.1	800.4	1.7	0.9996	1.0001
Mid point	4967	33.3	400.2	399.6	0.7	397.2	395.3	1.9	1.0077	1.0108
Low point	4983	16.7	200.7	200.4	0.3	194.2	192.9	1.3	1.0337	1.0389
As left zero	5000	0.0	0.0	0.0	0.0	-1.6	-1.7	0.1		
As left span	4933	66.7	801.8	355.4	446.4	794.6	355.4	439.3	1.0090	1.0000
							Average Co	orrection Factor	1.0137	1.0166

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (C	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.0		
High GPT point	794.0	348.4	446.9	446.5	1.0010	99.9%
Mid GPT point	794.0	551.0	244.3	244.7	0.9985	100.1%
Low GPT point	794.0	646.9	148.4	149.4	0.9935	100.7%
				Average Correction Factor	0.9977	100.2%

Notes:

Install Calibration.

Calibration Performed By:

Sean Bala

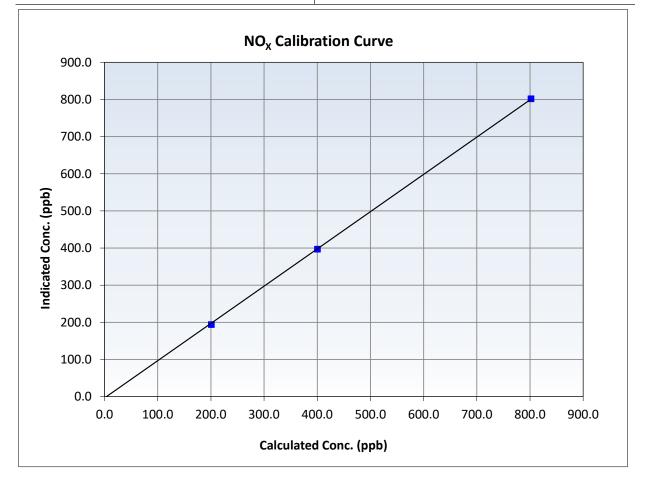


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	NA
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:49	End Time (MST):	12:42
Analyzer make:	API T200	Analyzer serial #:	4259

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalu	ation	<u>Limits</u>
0.0	-0.5		Correlation Coefficient	0.999930	≥0.995
801.8 400.2	802.1 397.2	0.9996 1.0077	Slope	1.003271	0.90 - 1.10
200.7	194.2	1.0337	Intercept	-3.589772	+/-20



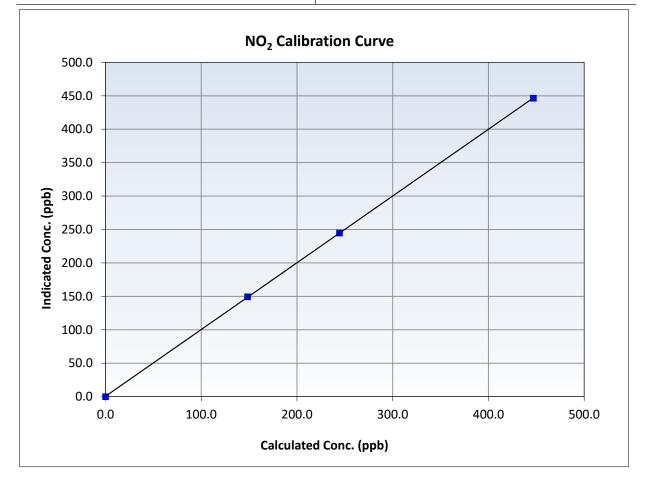


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	NA
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:49	End Time (MST):	12:42
Analyzer make:	API T200	Analyzer serial #:	4259

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evalu	lation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999992	≥0.995
446.9 244.3	446.5 244.7	1.0010 0.9985	Slope	0.998577	0.90 - 1.10
148.4	149.4	0.9935	Intercept	0.523117	+/-20



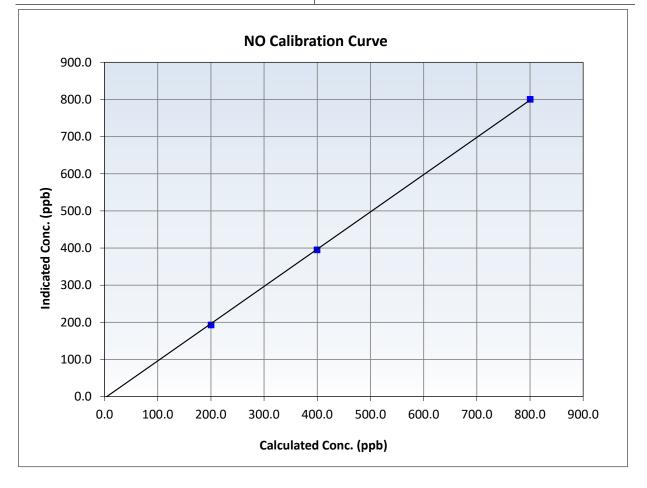


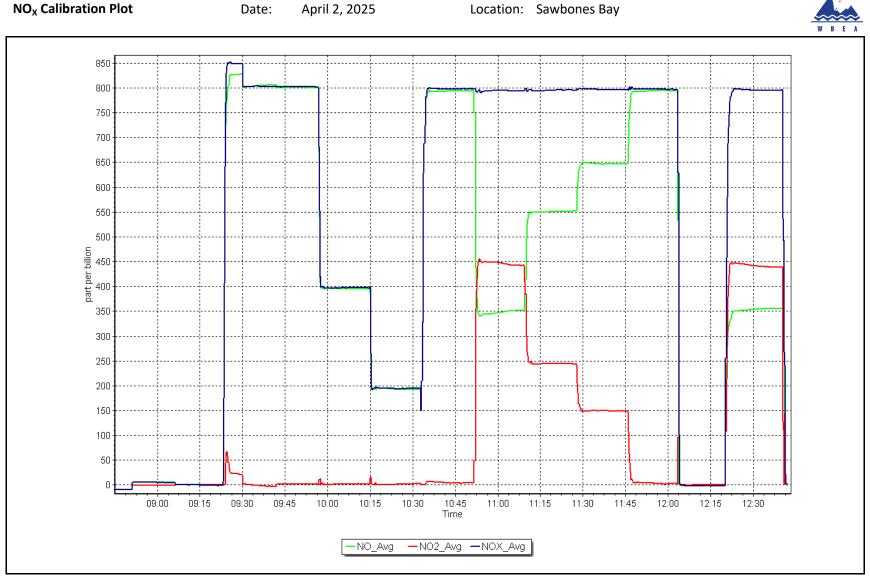
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	NA
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:49	End Time (MST):	12:42
Analyzer make:	API T200	Analyzer serial #:	4259

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.5		Correlation Coefficient	0.999904	≥0.995
800.4 399.6	800.4 395.3	1.0001 1.0108	Slope	1.003045	0.90 - 1.10
200.4	192.9	1.0389	Intercept	-4.150059	+/-20





NO_x Calibration Plot

Location: Sawbones Bay



Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Station Information

Station Name:	Sawbones Bay		Station Number:	AMS 505	
Calibration Date:	March 27, 2025		Prev Cal Date:	NA	
Start Time (MST):	9:36		End Time (MST):	12:50	
Tower Height (m):	10.0		Reason:	Install	
		Wind Spo	eed Calibration		
Sensor make/model:	Met One 010C-1		Serial Number:	P10040	
WS Calibrator:	MetOne 053		Serial Number:	CA 03845	
Shaft RPM (Hz)	Calculated Speed (K/	br) (Cy)	Indicated Sr	peed (K/hr) (lv)	% Error <i>Limit = +/- 1.5%</i>
0	0.0			0.0	
200	20.2			20.3	0.7%
400	39.4		3	39.4	0.1%
600	58.6		5	58.7	0.2%
800	77.8		7	7.8	0.1%
		<u>Start</u>	<u>Finish</u>	<u>Limits</u>	
	Correl Coeff (r ²)		0.999998	≥0.9995	
	Calculated slope		0.999451	0.98 - 1.02	
	Calculated intercept		-0.052868	+/- 2	
Courses weaks (as a date	Mat Ora 020		ction Calibration	D4602	
Sensor make/model:	Met One 020		Serial Number:	B4693	10
As Found Declination (c Solar noon (MST):	leg east of True North):	<u>NA</u> 12:28	As Left Declination (deg Calc Declination*:	g east of True North): 12.72	<u>13</u> Degrees
WD Calibrator:	Met One 04		call Decimation .		lination as per NOAA website
		•			
Physical Direction	on (Degrees) (Cv)	Indicated D	irection (Degrees) (Iv)		ased on 360° FS) t = +/- 1%
	0	0.8			0.2%
9	90		86.3	-	-1.0%
	80		177.6	-0.7%	
	70		270.5	0.1%	
3	55		356.3		0.4%
		Start	<u>Finish</u>	Limits	
	Correl Coeff (r ²)		0.999894	≥0.9995	
	· · ·				
	Calculated slope		0.994042	0.97 - 1.03	
	Calculated slope Calculated intercept		0.994042 1.762340	0.97 - 1.03 +/- 5	

Sean Bala



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS506 JACKFISH 1 APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Jackfish 1
Calibration Date:	April 23, 2025
Start time (MST):	8:58
Reason:	Routine

Thermo 43i

0-1000 ppb

Station number: AMS 506 Last Cal Date: March 19, 2025 End time (MST): 11:39

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	50.52 CC274266	ppm	Cal Gas Exp Date: December 29, 2028
Removed Cal Gas Conc:	50.52	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 2659
Zero Air Gen Model:	Teledyne API T701		Serial Number: 4427

Analyzer Information

Serial Number: 1160290011

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.001515	0.999944	Backgd or Offset:	20.2	20.2
Calibration intercept:	0.763956	0.664017	Coeff or Slope:	0.985	0.985

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.4	
As found High point As found Mid point As found Low point New cylinder response	4921	79.2	800.2	797.1	1.004
Baseline Corr As found: Baseline Corr 2nd AF pt:	796.7 NA	Previous response AF Slope:	802.2	*% change AF Intercept:	-0.7%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.6	
High point	4921	79.2	800.2	801.0	0.999
Mid point	4960	39.6	400.2	400.2	1.000
Low point	4980	19.8	200.1	201.2	0.994
As left zero	5000	0.0	0.0	0.3	
As left span	4921	79.2	800.2	801.0	0.999
			Averag	ge Correction Factor:	0.998

Notes:

Changed inlet filter after as founds. No adjustment made.

Calibration Performed By:

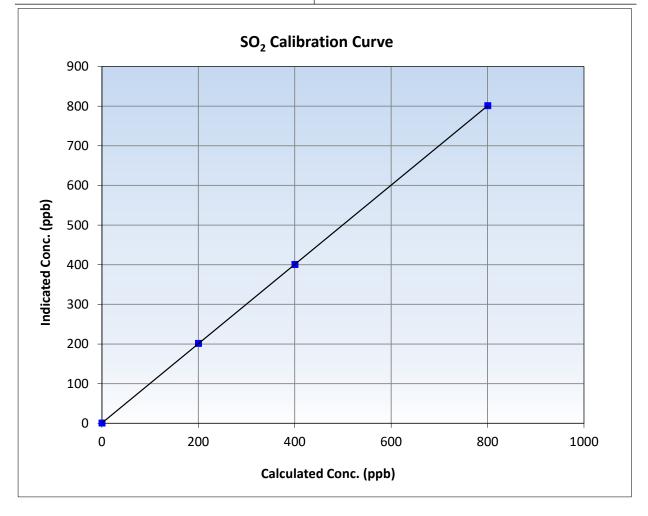


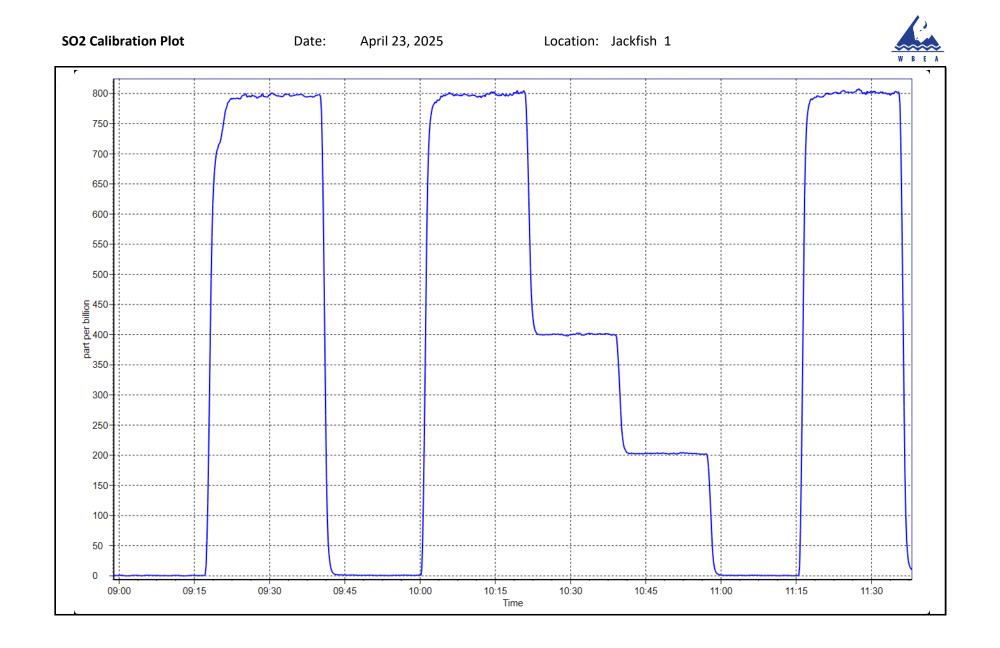
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 23, 2025	Previous Calibration:	March 19, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:58	End Time (MST):	11:39
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290011

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.6		Correlation Coefficient	0.999998	≥0.995
800.2 400.2	801.0 400.2	0.9990 0.9999 0.9944	Slope	0.999944	0.90 - 1.10
200.1	201.2		Intercept	0.664017	+/-30







Wood Buffalo Environmental Association H2S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Jackfish 1 April 15, 2025 8:59 Routine		Station number: Last Cal Date: End time (MST):	AMS 506 March 20, 2025 12:53	
		Calibration S	tandards		
Cal Gas Concentration: Cal Gas Cylinder #:	4.89 CC737971	ppm	Cal Gas Exp Date:	September 5, 2027	
Removed Cal Gas Conc: Removed Gas Cyl #:	4.89 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA	
Calibrator Make/Model:	Teledyne 750		Serial Number:	282	
ZAG Make/Model:	Teledyne 751H		Serial Number:	321	
		Analyzer Info	ormation		
Analyzer make: Converter make:	Thermo 43i-TLE Global G150		Analyzer serial #: Converter serial #:	1180540020 2022-218	
Analyzer Range	0 - 100 ppb		Converter Temp:		degC
Analyzer Range	0 - 100 ppb		converter remp.	525.0	uege
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.005447	0.993022	Backgd or Offset:	3.72	3.66
Calibration intercept:	0.020854	0.080592	Coeff or Slope:	1.179	1.156

H2S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.3	
As found High point	4918	81.8	80.0	81.5	0.978
As found Mid point	4959	40.9	40.0	40.2	0.988
As found Low point	4980	20.4	19.9	20.2	0.973
New cylinder response					
Baseline Corr As found:	81.8	Prev response:	80.46	*% change:	1.6%
Baseline Corr 2nd AF pt:	40.5	AF Slope:	1.021443	AF Intercept:	-0.338798
Baseline Corr 3rd AF pt:	20.5	AF Correlation:	0.999961	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	-0.1	
High point	4918	81.8	80.0	79.4	1.008
Mid point	4959	40.9	40.0	40.0	1.000
Low point	4980	20.4	19.9	20.0	0.997
As left zero	5000	0.0	0.0	-0.1	
As left span	4918	81.8	80.0	79.8	1.003
SO2 Scrubber Check	4921	79.2	800.2	0.0	
Date of last scrubber chan	ge:			Ave Corr Factor	1.002

Date of last converter efficiency test:

Notes:

Changed inlet filter after as founds. Adjusted span only.

Calibration Performed By:

Sean Bala



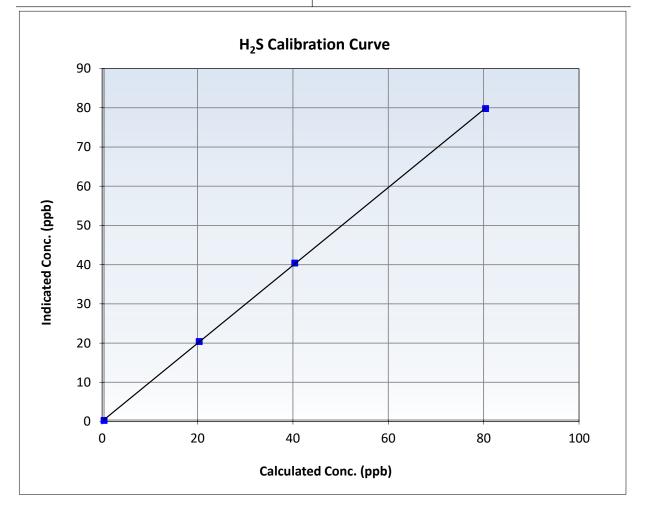
Wood Buffalo Environmental Association

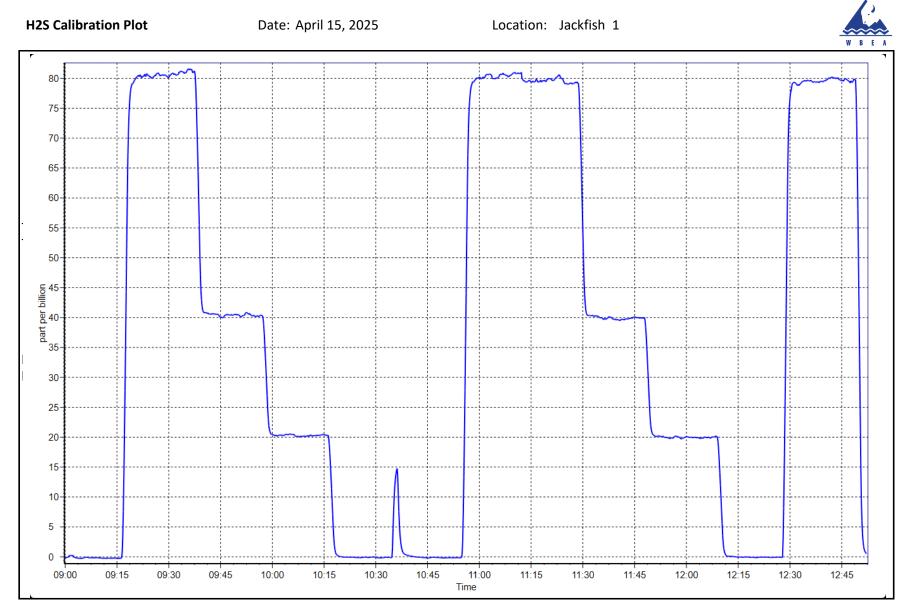
H2S Calibration Summary

Station Information

Calibration Date:	April 15, 2025	Previous Calibration:	March 20, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:59	End Time (MST):	12:53
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1180540020

Calculated concentration (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999971	≥0.995
80.0 40.0	79.4 40.0	1.0076 1.0000	Slope	0.993022	0.90 - 1.10
19.9	20.0	0.9975	Intercept	0.080592	+/-3





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Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Jackfish 1	NO Gas Cylinder #:	DT0022706	Cal Gas Expiry Date:	January 5, 2032
Station number:	AMS 506	NOX Cal Gas Conc:	60.20 ppm	NO Cal Gas Conc:	60.10 ppm
Calibration Date:	April 16, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date	: NA
Last Cal Date:	March 25, 2025	Removed Gas NOX Conc:	60.20 ppm	Removed Gas NO Conc:	60.10 ppm
Start time (MST):	8:30	NOX gas Diff:		NO gas Diff:	
End time (MST):	12:44	Calibrator Model:	Teledyne API T700	Serial Number:	3252
Reason:	Routine	ZAG make/model:	Teledyne API 701	Serial Number:	4427

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)		ndicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1		
AF High point	4933	66.6	801.9	800.6	1.3	802.0	797.1	5.0	0.9998	1.0044
AF Mid point AF Low point New cyl resp										
Previous Respo	onse NO _x =	802.1 ppb	NO = 798.4	ppb	* = > +/-5% c	hange initiates i	investigation	*Percent Change	e NO _x =	0.0%
Baseline Corr 1	Lst pt NO _X =	802.1 ppb	NO = 797.1	ppb	As Found	Statistics		*Percent Change	e NO =	-0.2%
Baseline Corr 2	2nd pt NO _x =	NA ppb	NO = NA	ppb	As found	NO _X r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _x =	NA ppb	NO = NA	ppb	As found	NO r ² :		NO SI:	NO Int:	
					As found	$NO_2 r^2$:		NO2 SI:	NO ₂ Int:	
				As Four	nd GPT Calibratio	n Data				
								Baseline Adjuste	d NO2	
O3 Setpo	oint (ppb)	Indicated NO Refe		ted NO Drop	Calculated NO2		dicated NO2	Correction fac		erter Efficiency
		concentration (p	opb) concer	tration (ppb)	concentration (ppb)	(Cc) concer	ntration (ppb) (Ic)	(Cc/(Ic-AFzer <i>Limit = 0.90 - 1</i>		nit = 96-104%

As Found GPT zero

As found high GPT point As found mid GPT point

As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 1240023	2071			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	0.996743	0.995577
			Instrument Settings			NO _x Cal Offset:	2.813160	2.172098
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	0.996494	0.996708
NO coeff or slope:	0.912	0.912	NO bkgnd or offset:	0.7	0.7	NO Cal Offset:	0.631010	0.231152
NOX coeff or slope:	0.993	0.993	NOX bkgnd or offset:	0.9	0.9	NO ₂ Cal Slope:	0.993078	0.985570
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	194.7	192.9	NO ₂ Cal Offset:	2.112455	1.533148

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.2	0.2	0.0		
High point	4933	66.6	801.9	800.6	1.3	799.5	798.5	1.0	1.0030	1.0026
Mid point	4967	33.3	400.9	400.2	0.7	402.5	398.2	4.3	0.9960	1.0051
Low point	4983	16.6	199.9	199.5	0.3	203.0	199.8	3.2	0.9846	0.9987
As left zero	5000	0.0	0.0	0.0	0.0	0.1	0.1	0.0		
As left span	4933	66.6	801.9	380.4	421.5	789.5	380.4	409.1	1.0157	1.0000
							Average Co	orrection Factor	0.9946	1.0022

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency <i>Limit = 96-104%</i>
Cal zero			0.0	0.0		
High GPT point	794.4	380.7	415.0	409.7	1.0130	98.7%
Mid GPT point	794.4	585.8	209.9	209.4	1.0025	99.7%
Low GPT point	794.4	684.1	111.6	113.0	0.9879	101.2%
				Average Correction Factor	1.0012	99.9%

Notes:

Changed inlet filter. No adjustment made.

Calibration Performed By:

Sean Bala

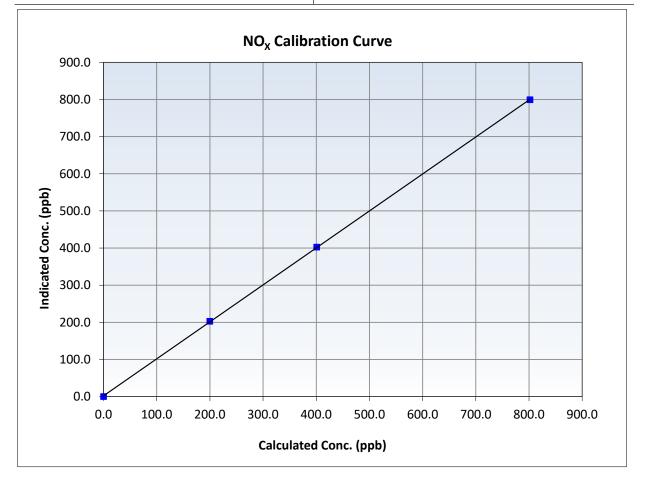


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 25, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:30	End Time (MST):	12:44
Analyzer make:	Thermo 42i	Analyzer serial #:	12400232071

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999972	≥0.995
801.9 400.9	799.5 402.5	1.0030 0.9960	Slope	0.995577	0.90 - 1.10
199.9	203.0	0.9846	Intercept	2.172098	+/-20



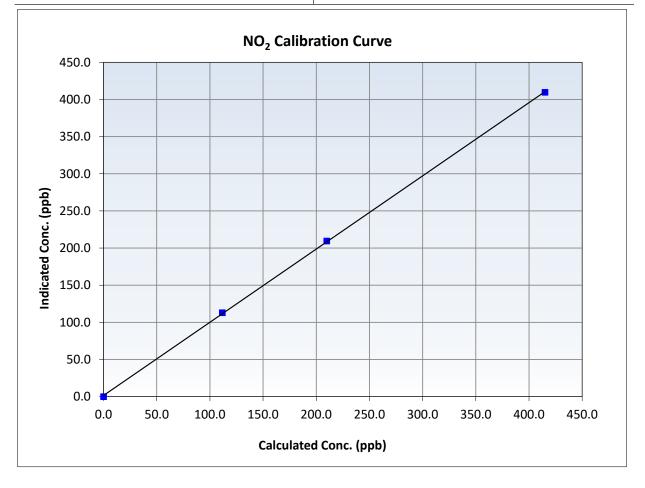


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 25, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:30	End Time (MST):	12:44
Analyzer make:	Thermo 42i	Analyzer serial #:	12400232071

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999932	≥0.995
415.0 209.9	409.7 209.4	1.0130 1.0025	Slope	0.985570	0.90 - 1.10
111.6	113.0	0.9879	Intercept	1.533148	+/-20



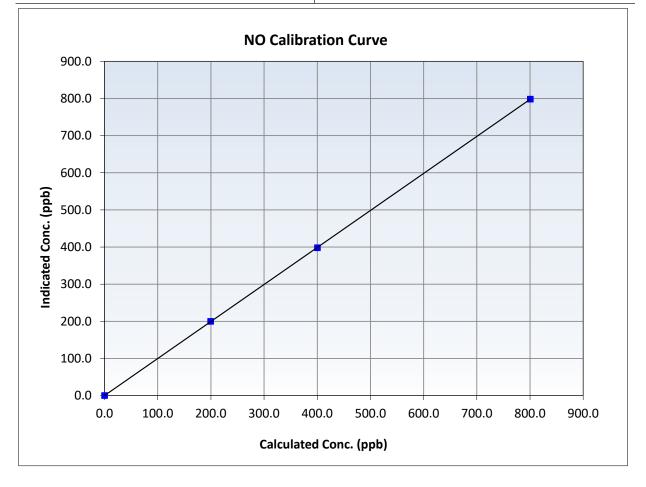


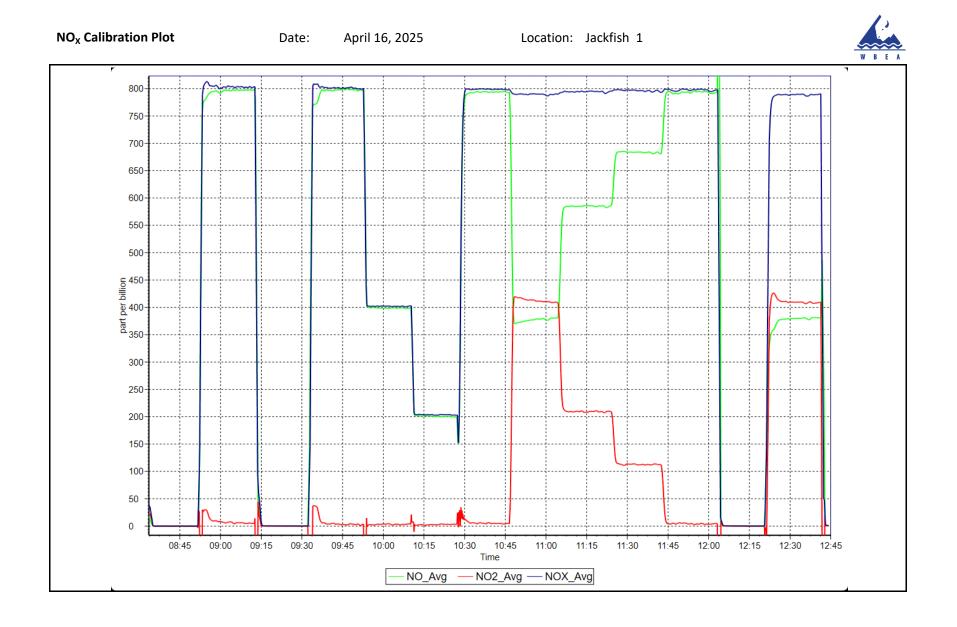
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 16, 2025	Previous Calibration:	March 25, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:30	End Time (MST):	12:44
Analyzer make:	Thermo 42i	Analyzer serial #:	12400232071

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.2		Correlation Coefficient	0.999996	≥0.995
800.6 400.2	798.5 398.2	1.0026 1.0051	Slope	0.996708	0.90 - 1.10
199.5	199.8	0.9987	Intercept	0.231152	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS508 KIRBY NORTH APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:	Kirby No
Calibration Date:	April 3,
Start time (MST):	10:54
Reason:	Routine

orth 2025

Thermo 43iQ

0 - 1000 ppb

Station number: AMS 508 Last Cal Date: March 13, 2025 End time (MST): 13:58

Calibration Standards

Cal Gas Concentration: Cal Gas Cylinder #:	50.74 CC255918	ppm	Cal Gas Exp Date: October 9, 2032
Removed Cal Gas Conc:	<u>50.74</u>	nnm	Rem Gas Exp Date:
	50.74	ppm	•
Removed Gas Cyl #:			Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 5240
Zero Air Gen Model:	Teledyne API T701	1H	Serial Number: 880

Analyzer Information

Serial Number: 1182340007

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	0.998619	1.002663	Backgd or Offset:	29.1	29.0
Calibration intercept:	0.327990	-0.512059	Coeff or Slope:	1.117	1.117

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4921	78.8	799.7	803.0	0.996
Baseline Corr As found: Baseline Corr 2nd AF pt:	802.9 NA	Previous response AF Slope:	798.9	*% change AF Intercept:	0.5%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4921	78.8	799.7	802.0	0.997
Mid point	4961	39.4	399.8	398.8	1.003
Low point	4980	19.7	199.9	200.3	0.998
As left zero	5000	0.0	0.0	-0.2	
As left span	4921	78.8	799.7	804.0	0.995
			Avera	ge Correction Factor:	0.999

Notes:

Changed sample inlet filter after as founds. Adjusted zero.

Calibration Performed By:

Braiden Boutilier

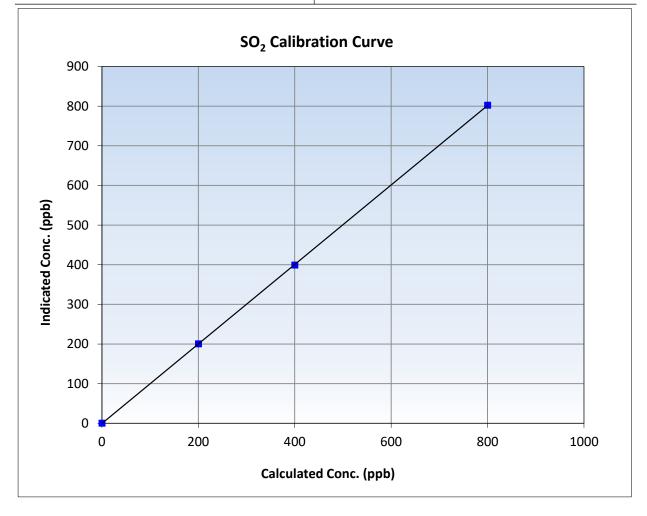


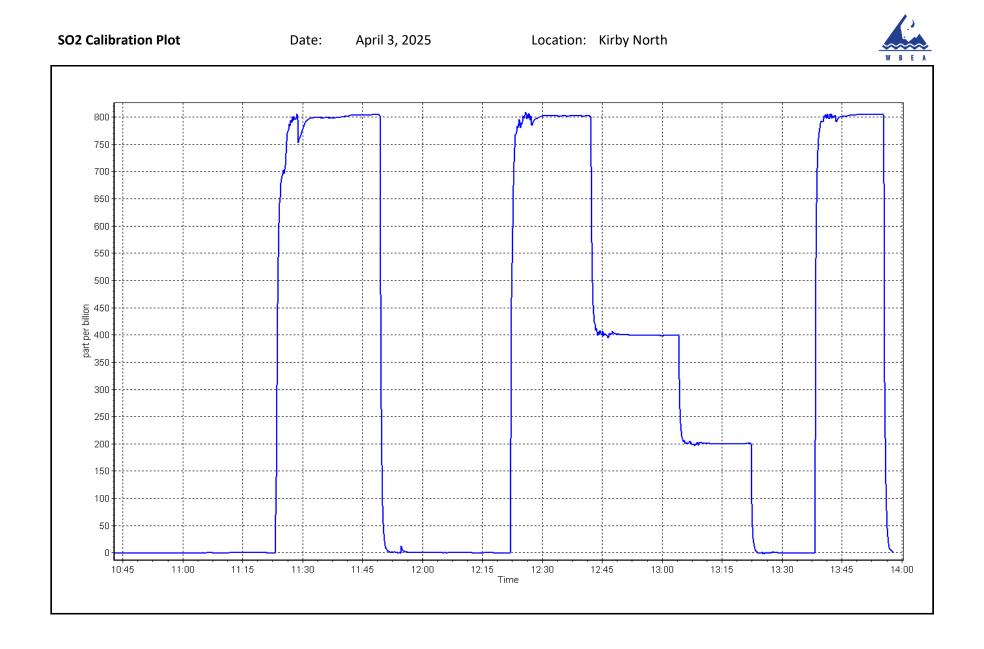
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	March 13, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	10:54	End Time (MST):	13:58
Analyzer make:	Thermo 43iQ	Analyzer serial #:	1182340007

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999991	≥0.995
799.7 399.8	802.0 398.8	0.9971 1.0025	Slope	1.002663	0.90 - 1.10
199.9	200.3	0.9981	Intercept	-0.512059	+/-30







Wood Buffalo Environmental Association H2S Calibration Report

Station Information

Station Name:	Kirby North	Station number:	AMS 508
Calibration Date:	April 2, 2025	Last Cal Date:	March 12, 2025
Start time (MST):	9:25	End time (MST):	14:40
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.05	ppm	Cal Gas Exp Date:	November 15, 2026
Cal Gas Cylinder #:	DT0019762			
Removed Cal Gas Conc:	5.05	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	n/a		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T750		Serial Number:	282
ZAG Make/Model:	Teledyne API T751	4	Serial Number:	321

Analyzer Information

Analyzer make: Converter make: Analyzer Range	Thermo 43i-TLE Global 0 - 100 ppb		Analyzer serial #: Converter serial #: Converter Temp:	1150840012 2022-197	325 degC
Calibration slope: Calibration intercept:	<u>Start</u> 1.006814 -0.160959	<u>Finish</u> 0.999956 -0.120959	Backgd or Offset: Coeff or Slope:		<i>Finish</i> 1.76 1.043

H2S As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90-1.10</i>
As found zero	5000	0.0	0.0	-0.1	
As found High point	4921	79.2	80.0	80.3	0.995
As found Mid point	4960	39.6	40.0	40.2	0.993
As found Low point	4980	19.8	20.0	19.6	1.015
New cylinder response					
Baseline Corr As found:	80.4	Prev response:	80.38	*% change:	0.0%
Baseline Corr 2nd AF pt:	40.3	AF Slope:	1.006957	AF Intercept:	-0.240970
Baseline Corr 3rd AF pt:	19.7	AF Correlation:	0.999962	* = > +/-5% change initiate	es investigation

H2S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.0	
High point	4921	79.2	80.0	79.9	1.001
Mid point	4960	39.6	40.0	39.9	1.002
Low point	4980	19.8	20.0	19.7	1.015
As left zero	5000	0.0	0.0	0.1	
As left span	4921	79.2	80.0	78.9	1.014
SO2 Scrubber Check	4919	80.0	800.2	0.0	
Date of last scrubber cha	nge:	July 25, 2023		Ave Corr Factor	1.006
Date of last converter eff	iciency test:	n/a			

Notes:

Changed sample inlet filter and conducted scrubber test after as founds. Adjusted span.

Calibration Performed By:

Braiden Boutilier



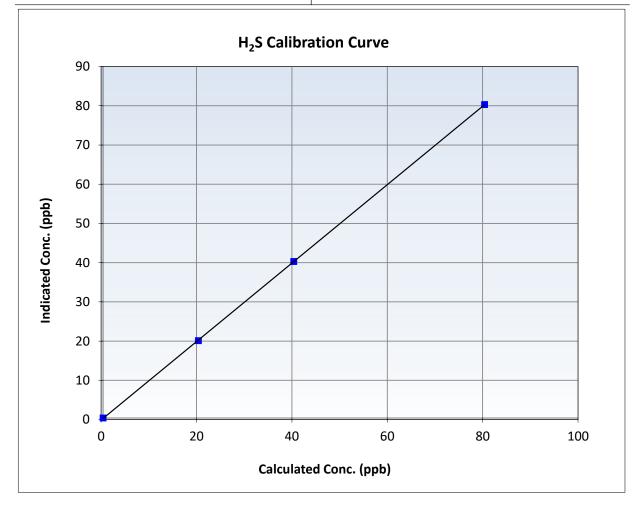
Wood Buffalo Environmental Association

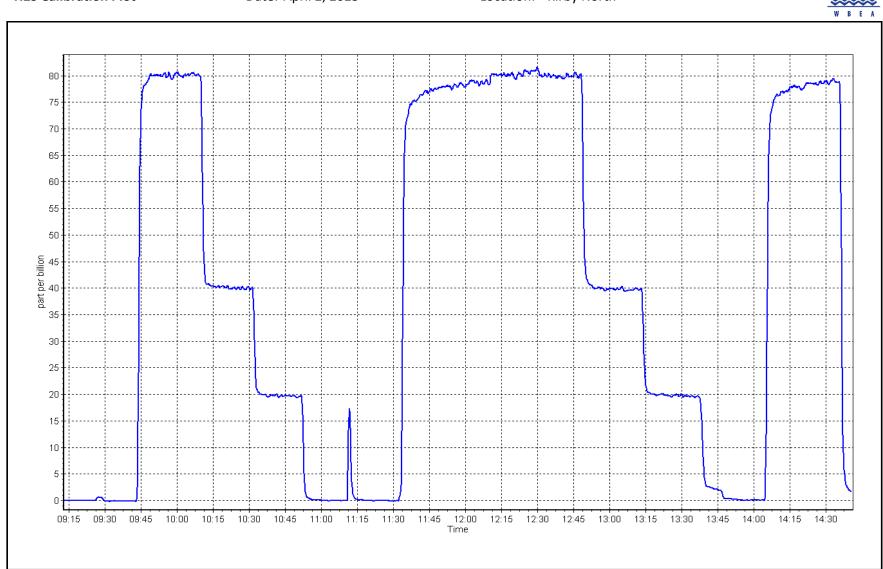
H2S Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 12, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	9:25	End Time (MST):	14:40
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1150840012

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999986	≥0.995
80.0	79.9	1.0012	Slope	0.999956	0.90 - 1.10
40.0	39.9	1.0025	Siope	0.999950	0.90 - 1.10
20.0	19.7	1.0152	Intercept	-0.120959	+/-3





Date: April 2, 2025

Location: Kirby North



Wood Buffalo Environmental Association THC Calibration Report

Station Information

Station Name: Kirby North Station number: AdMS 508 Calibration 31, 2025 Last Cal Date: March 13, 2025 Start time (MST): 10:54 End time (MST): 13:58 Reason: Routine Calibration Standards Gas Cert Reference: CC255918 Cal Gas Expiry Date: October 9, 2032 CH4 Eql Gas Conc. 205.0 ppm Removed Cal Gas Conc. 205.0 ppm CH4 Eql V Conc. 1070.2 ppm Removed Cal Gas Cert: Removed Cas Expiry: Removed Cal Gas Cert: Calibration MBre: 5240 Zal Gal Gas Cert: Calibration Marker: 5240 Zal Gal Gas Cert: Removed Cals Conc. 205.0 ppm CH4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm CH4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm CH4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm CH4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm CH4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm CH4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm Ch4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm Ch4 Eql V Conc. 1070.2 ppm Removed Call Conc. 205.0 ppm Calibration Marker: Thermo S1H-LT Analyzer marke: Thermo S1H-LT Analyzer marke: Thermo S1-LT Calibration intercept: 0-0.082032 0.019768 Caefficient: 3.697 3.644 THC As Found Data Start Source gas flow rate Calculated Concentration Indicated Concentration Correction factor (Cd/lic As found High point 4921 78.8 16.87 16.77 0.994 As found High point 4921 78.8 16.87 16.78 1.005 Mid point 4980 19.7 4.22 As 10.00 High point 4921 78.8 16.87 16.78 1.003 Mid point 4921 7			Station into	ination				
Calibration Date:April 3, 2025Last Cal Date:March 13, 2025Start time (MST):10:54End time (MST):13:58Reason:RoutineCal Gas Expiry:13:58Calibration StandardsGas Cert Reference:CC255918Cal Gas Expiry:October 9, 2032CH4 Cal Gas Conc.506.4ppmCH4 Equiv Conc.1070.2ppmRemoved Gas Conc.205.0ppmRemoved Gas Expiry:1070.2ppmRemoved CH4 Conc.506.4ppmCH4 Equiv Conc.1070.2ppmCalibrator Make/Model:Teledyne API 1700Serial Number:5240ZAG Make/Model:Teledyne API 1701Serial Number:880Analyzer InformationAnalyzer make:Thermo 51i-LTAnalyzer serial #:1182340005Analyzer make:10.000870.994170Background:2.231.96Calibration intercept:-0.0820320.019768Coefficient:3.6973.644THC As Found DataSet PointDilution air flow rateSource gas flow rateCalculated ConcentrationIndicated Concentration Indicated Concentration Intercept:As found Migh point492178.816.8716.770.994As found Migh point492178.816.8716/371.00%As found Migh point492178.816.8716/371.0%As found Migh point492178.816.8716/381.005Miditare	Station Name:	Kirby North		Station number:	AMS 508			
Start time (MST): 10:54 End time (MST): 13:58 Reason: Routine Calibration Standards October 9, 2032 Gas Cert Reference: CC255918 Cal Gas Expiry Date: October 9, 2032 CH4 Cal Gas Conc. 205.0 ppm CH4 Equiv Conc. 1070.2 ppm Removed Gas Cort: Removed Gas Expiry: Removed Gas Expi		•						
Reuson: Calibration Standards Gais Cert Reference: CC255918 Calibration Standards Gais Cent Reference: CC255918 Calibration Standards CH4 Equiv Conc. 1070.2 ppm Removed Gas Cent: Removed Gas Cent: Removed C348 Conc. 205.0 ppm CH4 Equiv Conc. 1070.2 ppm Removed C348 Conc. 205.0 ppm CH4 Equiv Conc. 1070.2 ppm Calibration Make/Model: Teledyne API T700 Serial Number: S240 ZAG Make/Model: Teledyne API T701 Serial Number: S240 Analyzer make: Thermos 51-LT Analyzer serial #: 1182340005 Calibration infercept: C.0082032 O.0199768 Coefficient: 3.697 3.644 Dilution air flow rate Surrer gas flow rate Calibration factor Cordor factor Cordor Set Point Dilution ai								
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Gas Cert Reference: CC255918 Cal Gas Expiry Date: October 9, 2032 CH4 Cal Gas Conc. 506.4 ppm CH4 Equiv Conc. 1070.2 ppm Removed Gas Conc. 205.0 ppm CH4 Equiv Conc. 1070.2 ppm Removed Gas Conc. 205.0 ppm CH4 Equiv Conc. 1070.2 ppm Removed CH4 Conc. 205.0 ppm CH4 Equiv Conc. 1070.2 ppm Calibrator Make/Model: Teledyne API T700 Serial Number: 5240 Start Start Start Start Finish Analyzer make: Thermo 51i-LT Analyzer serial #: 1182340005 Analyzer Sarge 1.06 3.664 Calibration slope: 1.000987 0.394170 Background: 2.23 1.96 Galibration introcept: -0.082032 0.019768 Coefficient: 3.697 3.644 THC As Found Data Staret (scm) Staret (scm) Staret (scm) Finish Baseline Correctation factor (C/c/l/c- AF Storet (scm) Indicated Concentration (pm/l (c/) (pm/l (c/) (pm/l (c//l/c-								
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C3H8 cal Gas Conc. 205.0 ppm Removed Gas Cert: Removed Gas Expiry: Removed Gas Expiry: Removed Gas Expiry: Removed CH4 Conc. 205.0 ppm Diff between cyl: Serial Number: 5240 Calibrator Make/Model: Teledyne API T700 Serial Number: 5240 Serial Number: 5240 ZAG Make/Model: Teledyne API T701 Analyzer Information Ranalyzer Information Ranalyzer Information Analyzer Range: 0 - 20 ppm Analyzer Serial #: 1182340005 1186 Calibration slope: 1000997 0.994170 Background: 2.23 1.96 Calibration intercept: -0.082032 0.019768 Coefficient: 3.697 3.644 Set Point Dilution air flow rate (sccm) Source gas flow rate (sccm) Calculated Concentration Indicated Concentration Correction factor (Cc/lic Limit - 0.08-0.10 As found High point 4921 78.8 16.87 16.77 0.994 As found High point 4921 78.8 16.80 *% change 1.0% Baseline Corr 2nd AF pt: <td>CH4 Cal Gas Conc.</td> <td>506.4</td> <td>ppm</td> <td>CH4 Equiv Conc.</td> <td>1070.2</td> <td>ppm</td>	CH4 Cal Gas Conc.	506.4	ppm	CH4 Equiv Conc.	1070.2	ppm		
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Analyzer InformationAnalyzer make: Thermo 51i-LT Analyzer Range: 0 - 20 ppmAnalyzer serial #:1182340005Calibration slope: Calibration intercept:Start 1.000987Finish 0.994170 0.994170 0.994170 0.994170 Background:Start 2.23 1.96 Calibration intercept:Finish 2.23 3.644THC As Found DataBaseline Adjusted Set PointDilution air flow rate (scem)Source gas flow rate (scem)Calculated Concentration (ppm) (c)Background: AFzero) Limit = 0.90-1.10As found Arero As found High point A sfound High point A sfound Mid point As found Mid point As found Mid point As found high point New cylinder response16.87 AF Slope: AF Intercept: The Schange Influtes investigation10.9% AF Slope: AF Correlation: * = > +/5% change (ppm) (c)1.0% Limit = 0.90-1.00THC Calibration DataSet PointDilution air flow rate (scem)Calculated Concentration (scem)Indicated Concentration Correction factor (Cc/lc) (ppm) (c)Baseline Corr 3rd AF pt:NA (scem)AF Slope: (scem)AF Intercept: (scem)Set PointDilution air flow rate (scem)Calculated Concentration (ppm) (c)Indicated Concentration Correction factor (Cc/lc) (ppm) (c)Calibrator zero50000.00.000.000.00Calibrator zero50000.00.000.00Calibrator zero50000.00.000.00Calibrator zero50000.0								
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Analyzer Range: 0 - 20 ppmCalibration slope:StartFinish 1.000987StartFinish 0.994170Calibration intercept:-0.0820320.019768Coefficient:3.697Coefficient:3.6973.644CHE AS Found DataBaseline AdjustedSet PointDilution air flow rate (sccm)Calculated Concentration (sccm)Indicated Concentration (ppm) (C)Baseline Adjusted (ppm) (IC)As found zero50000.00.00-0.20As found High point As found Mid point As found Low point New cylinder response16.97Previous response16.80*% change * 1.0% AF Slope:1.0% * >> 4/5% change1.0% Limit = 0.95-1.05Baseline Corr 3rd AF pt:NAAF Correlation:* *> +/-5% change initiates investigationTHC Calibration DataSet PointDilution air flow rate (sccm)Calculated Concentration (ppm) (C)Indicated Concentration factor (CC/(c) (ppm) (C)Calibrator zeroSet PointDilution air flow rate (sccm)Calculated Concentration (ppm) (C)Indicated Concentration factor (CC/(c) (ppm) (C)Calculated ConcentrationIndicated ConcentrationCorrection factor (CC/(c) (ppm) (C)Calculated ConcentrationCorrection factor (CC/(c) (ppm) (C)Calculated ConcentrationCorrection factor (CC/(c) (The same 5411 T	Analyzer Info		4400040005			
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Calibration slope: 1.000987 0.994170 Background: 2.23 1.96 Calibration intercept: -0.082032 0.019768 Coefficient: 3.697 3.644 THC As Found Data Set Point Dilution air flow rate (sccm) Calculated Concentration (ppm) (Cc) Baseline Adjusted Correction factor (Cc/(tc AFzero) Limit = 0.901.10 As found zero 5000 0.0 0.00 -0.20 As found Mid point 4921 78.8 16.87 16.77 0.994 As found Nid point 4921 78.8 16.80 *% change 1.0% Baseline Corr As found: 16.97 Previous response 16.80 *% change 1.0% Baseline Corr 3rd AF pt: NA AF Slope: AF Intercept: Easeline Correction factor (Cc/(c) (ppm) (Cc) Limit = 0.95-1.05 Calibrator zero 5000 0.0 0.00 0.00 Limit = 0.95-1.05 Calibrator zero 5000 0.0 0.00 0.00 Limit = 0.95-1.05 Calculated Concentration (ppm) (lc)	Analyzer Range	e: 0 - 20 ppm						
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Baseline AdjustedSet PointDilution air flow rate (scm)Source gas flow rate (scm)Calculated Concentration (ppm) (IC)Baseline Adjusted (ppm) (IC)As found zero50000.00.00 -0.20 As found High point492178.816.8716.770.994As found Low pointAs found Icw pointAF zero)New cylinder response16.97Previous response16.80*% change 1.0% Baseline Corr As found:16.97Previous response16.80*% change 1.0% Baseline Corr 3rd AF pt:NAAF Slope:AF Intercept:Baseline Corr 3rd AF pt:NAAF Correlation:*=>+/-5% change initiates investigationTHC Calibration DataSet PointDilution air flow rate (scm)Source gas flow rate (scm)Calculated Concentration (ppm) (lc)Correction factor (Cc//c) (ppm) (lc)Calibrator zero50000.00.000.00High point492178.816.8716.781.005Mid point492178.816.8716.781.005Mid point498019.74.224.230.997As left zero50000.00.000.06As left zero50000.00.000.06As left span492178.816.8716.831.002	Calibration intercept:	-0.082032	0.019768	Coefficient:	3.697	3.644		
Baseline AdjustedSet PointDilution air flow rate (scm)Source gas flow rate (scm)Calculated Concentration (ppm) (IC)Baseline Adjusted (ppm) (IC)As found zero50000.00.00 -0.20 As found High point492178.816.8716.770.994As found Low pointAs found Icw pointAF zero)New cylinder response16.97Previous response16.80*% change 1.0% Baseline Corr As found:16.97Previous response16.80*% change 1.0% Baseline Corr 3rd AF pt:NAAF Slope:AF Intercept:Baseline Corr 3rd AF pt:NAAF Correlation:*=>+/-5% change initiates investigationTHC Calibration DataSet PointDilution air flow rate (scm)Source gas flow rate (scm)Calculated Concentration (ppm) (lc)Correction factor (Cc//c) (ppm) (lc)Calibrator zero50000.00.000.00High point492178.816.8716.781.005Mid point492178.816.8716.781.005Mid point498019.74.224.230.997As left zero50000.00.000.06As left zero50000.00.000.06As left span492178.816.8716.831.002								
$\begin{tabular}{ c c c c c c } \hline Set Point & Dilution air flow rate (sccm) & Source gas flow rate (sccm) & Calculated Concentration (ppm) (lc) & AFzero) & Limit = 0.90-1.00 \\ \hline \end{tabular} $			THC As Fou	nd Data				
Set Point (sccm) (sccm) (ppm) (Cc) (ppm) (lc) AFzero) Limit = 0.90-1.10 As found Zero 5000 0.0 0.00 -0.20 As found High point 4921 78.8 16.87 16.77 0.994 As found Low point As found Low point As found Low point As found Low point New cylinder response Baseline Corr As found: 16.97 Previous response 16.80 *% change 1.0% Baseline Corr 3rd AF pt: NA AF Slope: AF Intercept: Baseline Corr 3rd AF pt: NA AF Correlation: * => +/-5% change initiates investigation THC Calibration Data Set Point Dilution air flow rate (sccm) Calculated Concentration (ppm) (lc) Limit = 0.95-1.05 Calibrator zero 5000 0.0 0.00 0.00 16.78 1.005 Mid point 4921 78.8 16.87 16.78 1.005 Mid point 4961 39.4 8.43 8.41 1.003 Low point 4980 <td></td> <td></td> <td></td> <td></td> <td></td> <td>•</td>						•		
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As found zero 5000 0.0 0.00 -0.20 As found High point 4921 78.8 16.87 16.77 0.994 As found Mid point As found Low point As found Low point 16.97 0.994 As found Low point New cylinder response 16.80 *% change 1.0% Baseline Corr As found: 16.97 Previous response 16.80 AF Intercept: Baseline Corr 3rd AF pt: NA AF Correlation: *=>+/-5% change initiates investigation THC Calibration Data Set Point Dilution air flow rate (sccm) Source gas flow rate (sccm) Calculated Concentration Indicated Concentration Correction factor (Cc/Ic) (ppm) (Ic) Calibrator zero 5000 0.0 0.00 High point 4921 78.8 16.87 16.78 1.005 Mid point 4961 39.4 8.43 8.41 1.003 Low point 4980 19.7 4.22 4.23 0.997 As left zero 5000 0.0 0.00 0.06 As left span 4921		(sccm)	(sccm)	(ppm) (Cc)	(ppm) (lc)			
As found High point As found Mid point As found Low point New cylinder response492178.816.8716.770.994Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:16.97 NAPrevious response AF Slope: AF Correlation:*% change AF Intercept: *=>+/-5% change initiates investigationTHC Calibration DataCalculated Concentration (ppm) (Cc)Indicated Concentration (ppm) (c)Limit = 0.95-1.05Calibrator zero50000.00.000.00High point492178.816.8716.781.005Mid point496139.48.438.411.003Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002				0.00				
As found Mid point As found Low point New cylinder response Baseline Corr As found: 16.97 Previous response 16.80 *% change 1.0% Baseline Corr 2nd AF pt: NA AF Slope: AF Intercept: Baseline Corr 3rd AF pt: NA AF Correlation: $*=>+/-5\%$ change initiates investigation THC Calibration Data Set Point Dilution air flow rate (sccm) CC/(c) (ppm) (CC) (ppm) (IC) Limit = 0.95-1.05 Calibrator zero 5000 0.0 0.00 0.00 High point 4921 78.8 16.87 16.78 1.005 Mid point 4961 39.4 8.43 8.41 1.003 Low point 4980 19.7 4.22 4.23 0.997 As left zero 5000 0.0 0.00 0.00 0.06 As left span 4921 78.8 16.87 16.83 1.002								
As found Low point New cylinder response16.97Previous response response16.80*% change AF change1.0% 1.0%Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:NAAF Slope: AF Correlation:AF Intercept: $*=>+/-5\%$ change initiates investigationTHC Calibration DataSet PointDilution air flow rate (sccm)Source gas flow rate (sccm)Calculated Concentration (ppm) (Cc)Indicated Concentration Correction factor (Cc/Ic) Limit = 0.95-1.05Calibrator zero50000.00.000.00High point492178.816.8716.781.005Mid point496139.48.438.411.003Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002	0 1	4921	78.8	16.87	16.77	0.994		
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Baseline Corr As found: Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:16.97 NAPrevious response AF Slope: AF Slope: AF Correlation:16.80*% change 	As found Low point							
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Baseline Corr 2nd AF pt: Baseline Corr 3rd AF pt:NA NAAF Slope: AF Correlation:AF Intercept: * => +/-5% change initiates investigationSet PointDilution air flow rate (sccm)Source gas flow rate (sccm)Calculated Concentration (ppm) (Cc)Indicated Concentration Correction factor (Cc/Ic) (ppm) (Ic)Limit = 0.95-1.05Calibrator zero50000.00.000.001.005High point492178.816.8716.781.005Mid point498019.74.224.230.997As left zero50000.00.000.06 As left span4921Value78.816.8716.831.002	Baseline Corr As found [.]	16 97	Previous response	16 80	*% change	1.0%		
Baseline Corr 3rd AF pt:NAAF Correlation:* = > +/-5% change initiates investigationTHC Calibration DataSet PointDilution air flow rate (sccm)Source gas flow rate (sccm)Calculated Concentration (ppm) (Cc)Indicated Concentration (ppm) (lc)Correction factor (Cc/lc) Limit = 0.95-1.05Calibrator zero50000.00.000.001.005High point492178.816.8716.781.005Mid point496139.48.438.411.003Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002					-	21070		
THC Calibration DataSet PointDilution air flow rate (sccm)Source gas flow rate (sccm)Calculated Concentration (ppm) (Cc)Indicated Concentration (ppm) (lc)Correction factor (Cc/lc) Limit = 0.95-1.05Calibrator zero50000.00.000.00High point492178.816.8716.781.005Mid point496139.48.438.411.003Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002			•		•	os investigation		
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Set Point (sccm) (sccm) (ppm) (Cc) (ppm) (lc) Limit = 0.95-1.05 Calibrator zero 5000 0.0 0.00 0.00 0.00 High point 4921 78.8 16.87 16.78 1.005 Mid point 4961 39.4 8.43 8.41 1.003 Low point 4980 19.7 4.22 4.23 0.997 As left zero 5000 0.0 0.00 0.06 As left span 4921 78.8 16.87 16.83 1.002			THC Calibrat	ion Data				
Set Point (sccm) (sccm) (ppm) (Cc) (ppm) (lc) Limit = 0.95-1.05 Calibrator zero 5000 0.0 0.00 0.00 0.00 High point 4921 78.8 16.87 16.78 1.005 Mid point 4961 39.4 8.43 8.41 1.003 Low point 4980 19.7 4.22 4.23 0.997 As left zero 5000 0.0 0.00 0.06 As left span 4921 78.8 16.87 16.83 1.002	C-4 D-1 -1	Dilution air flow rate	Source gas flow rate	Calculated Concentration	Indicated Concentration	Correction factor (Cc/Ic)		
High point492178.816.8716.781.005Mid point496139.48.438.411.003Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002	Set Point	(sccm)	(sccm)	(ppm) (Cc)	(ppm) (Ic)	<i>Limit = 0.95-1.05</i>		
Mid point496139.48.438.411.003Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002	Calibrator zero	5000	0.0	0.00	0.00			
Mid point496139.48.438.411.003Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002				46.07	16 78	1 005		
Low point498019.74.224.230.997As left zero50000.00.000.06As left span492178.816.8716.831.002	High point		78.8	16.87	10.70	1.005		
As left zero 5000 0.0 0.00 0.06 As left span 4921 78.8 16.87 16.83 1.002		4921						
As left span 4921 78.8 16.87 16.83 1.002	Mid point	4921 4961	39.4	8.43	8.41	1.003		
	Mid point Low point	4921 4961 4980	39.4 19.7	8.43 4.22	8.41 4.23	1.003 0.997		
	Mid point Low point As left zero	4921 4961 4980 5000	39.4 19.7 0.0	8.43 4.22 0.00	8.41 4.23 0.06	1.003 0.997 		
	Mid point Low point As left zero	4921 4961 4980 5000	39.4 19.7 0.0	8.43 4.22 0.00 16.87	8.41 4.23 0.06 16.83	1.003 0.997 1.002		

Notes:

Changed sample inlet filter after as founds. Adjusted zero.

Calibration Performed By:

Braiden Boutilier

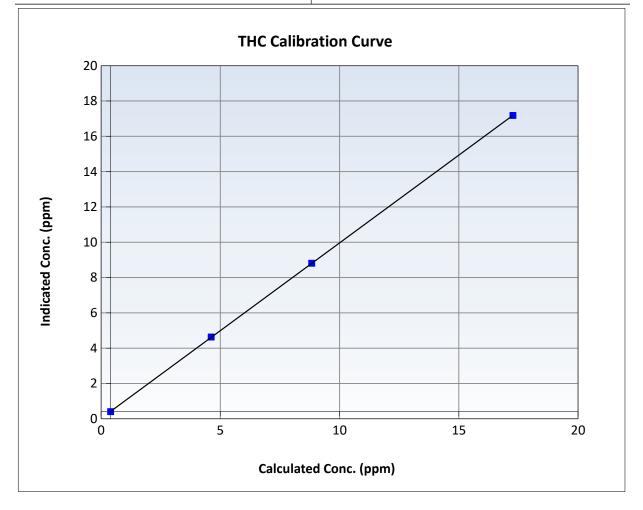


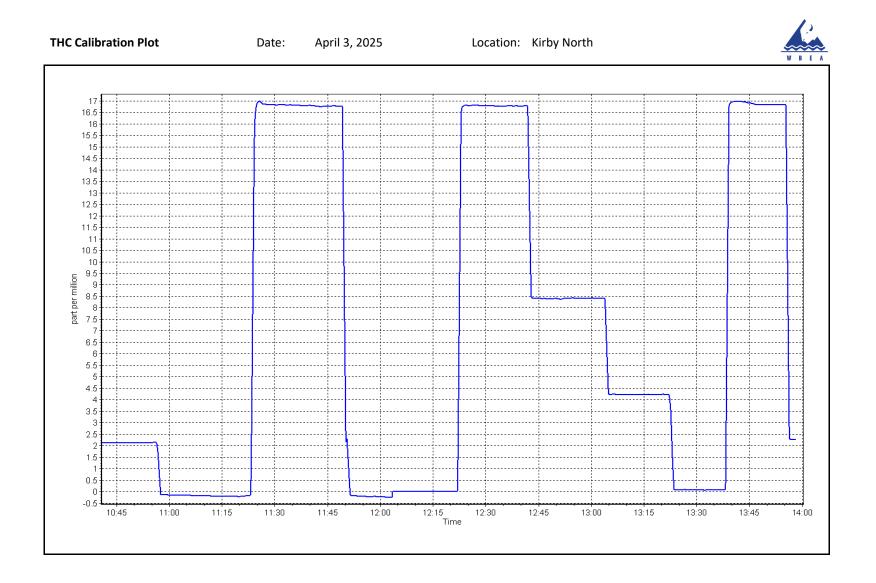
Wood Buffalo Environmental Association THC Calibration Summary

Station Information

Calibration Date:	April 3, 2025	Previous Calibration:	March 13, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	10:54	End Time (MST):	13:58
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1182340005

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.00	0.00		Correlation Coefficient	0.999996	≥0.995
16.87 8.43	16.78 8.41	1.0051 1.0026	Slope	0.994170	0.90 - 1.10
4.22	4.23	0.9973	Intercept	0.019768	+/-1.5







Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Kirby North	NO Gas Cylinder #:	DT0019572	Cal Gas Expiry Date:	January 5, 2032
Station number:	AMS 508	NOX Cal Gas Conc:	60.00 ppm	NO Cal Gas Conc:	59.90 ppm
Calibration Date:	April 2, 2025	Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Last Cal Date:	March 12, 2025	Removed Gas NOX Conc:	60.00 ppm	Removed Gas NO Conc:	59.90 ppm
Start time (MST):	9:05	NOX gas Diff:		NO gas Diff:	
End time (MST):	13:49	Calibrator Model:	Teledyne API T700	Serial Number: 5240)
Reason:	Routine	ZAG make/model:	Teledyne API T701H	Serial Number: 880)

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
AF High point	4933	66.8	801.6	800.3	1.3	805.0	804.0	1.1	0.9958	0.9954
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	799.8 ppb	NO = 799.5	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chang	ge NO _x =	0.6%
Baseline Corr 1	st pt NO _x =	805.0 ppb	NO = 804.0	ppb	<u>As Four</u>	d Statistics		*Percent Chang	ge NO =	0.6%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO _x r ² :		Nx SI:	Nx Int:	
Baseline Corr 3	rd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d $NO_2 r^2$:		NO2 SI:	NO ₂ Int:	
				As Fo	und GPT Calib	ration Data				
								Baseline Adjust	ed NO2	
O3 Setor	aint (nnh)	Indicated NO Re	ference Indi	cated NO Drop	Calculated N	O2 In	dicated NO2	Correction fa	ictor Conv	erter Efficiency

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero))	Converter Efficiency Limit = 96-104%
					<i>Limit = 0.90 - 1.10</i>	
As Found GPT zero						

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Thermo 42i		Serial Number: 11181484	196			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb			NO _x Cal Slope:				
			Instrument Settings			NO _x Cal Offset:	-0.693582	-0.053616
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.000714	0.997815
NO coeff or slope:	0.707	0.703	NO bkgnd or offset:	8.0	8.0	NO Cal Offset:	-1.373584	-0.933611
NOX coeff or slope:	0.991	0.991	NOX bkgnd or offset:	8.1	8.1	NO ₂ Cal Slope:	0.981281	0.977286
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	147.1	146.2	NO ₂ Cal Offset:	1.476756	0.360528

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) Limit = 0.95-1.05
Cal zero	5000	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
High point	4933	66.8	801.6	800.3	1.3	795.7	797.6	-1.8	1.0075	1.0034
Mid point	4967	33.4	400.8	400.1	0.7	399.4	399.3	0.1	1.0035	1.0021
Low point	4983	16.7	200.4	200.1	0.3	198.0	196.8	1.2	1.0121	1.0166
As left zero	5000	0.0	0.0	0.0	0.0	0.1	0.2	-0.1		
As left span	4933	66.8	801.6	381.9	419.7	788.0	381.9	406.1	1.0173	1.0000
							Average Co	prrection Factor	1.0077	1.0074

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.0		
High GPT point	794.8	385.6	410.5	401.4	1.0228	97.8%
Mid GPT point	794.8	610.9	185.2	181.6	1.0200	98.0%
Low GPT point	794.8	698.5	97.6	96.1	1.0160	98.4%
				Average Correction Factor	1.0196	98.1%

Notes:

Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By:

Braiden Boutilier

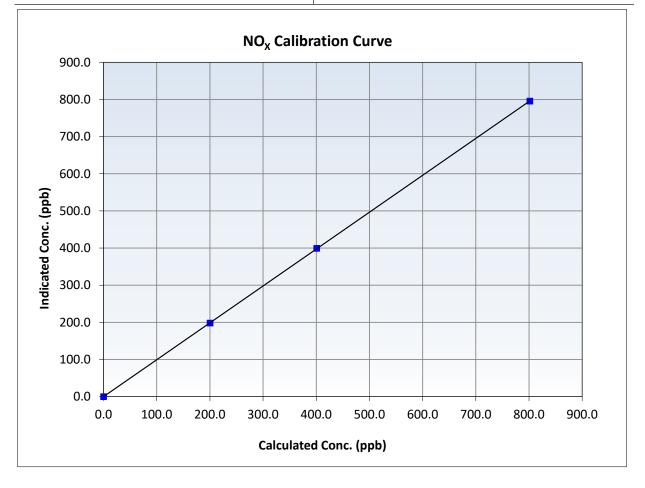


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 12, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	9:05	End Time (MST):	13:49
Analyzer make:	Thermo 42i	Analyzer serial #:	1118148496

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999991	≥0.995
801.6 400.8	795.7 399.4	1.0075 1.0035	Slope	0.993215	0.90 - 1.10
200.4	198.0	1.0121	Intercept	-0.053616	+/-20



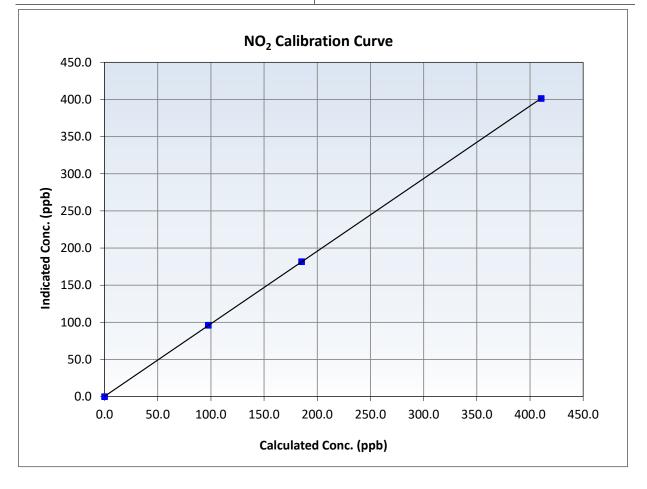


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 12, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	9:05	End Time (MST):	13:49
Analyzer make:	Thermo 42i	Analyzer serial #:	1118148496

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999997	≥0.995
410.5 185.2	401.4 181.6	1.0228 1.0200	Slope	0.977286	0.90 - 1.10
97.6	96.1	1.0160	Intercept	0.360528	+/-20



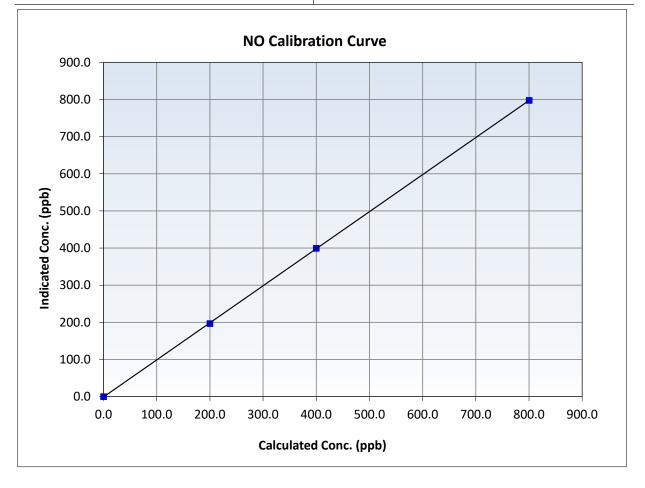


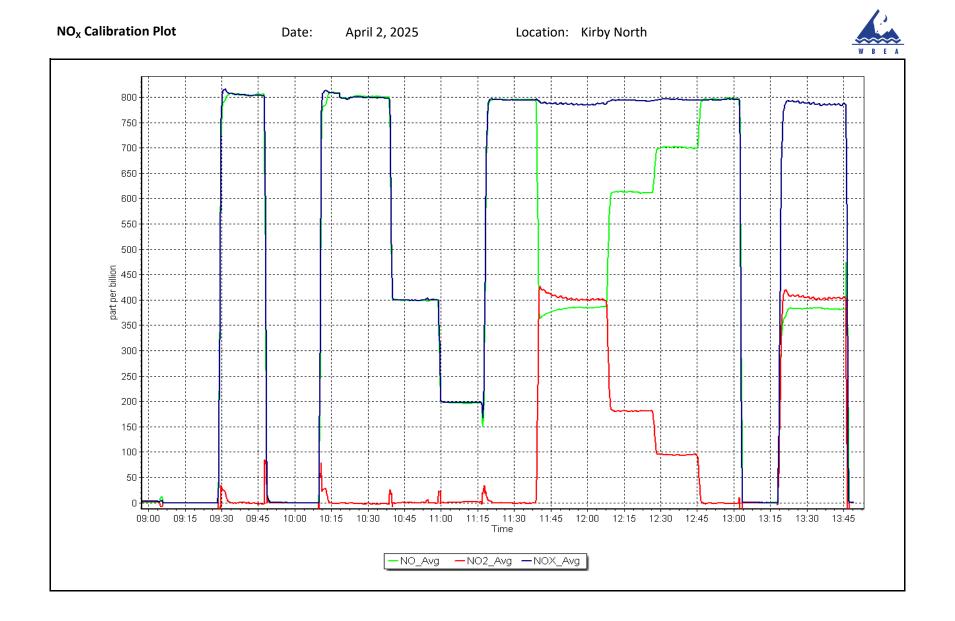
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 2, 2025	Previous Calibration:	March 12, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	9:05	End Time (MST):	13:49
Analyzer make:	Thermo 42i	Analyzer serial #:	1118148496

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	0.999984	≥0.995
800.3 400.1	797.6 399.3	1.0034 1.0021	Slope	0.997815	0.90 - 1.10
200.1	196.8	1.0166	Intercept	-0.933611	+/-20







WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM CALIBRATION REPORT

AMS512 HANGINGSTONE EXPANSION APRIL 2025

Operations, Data Collection, QA/QC, Data Validation and Reporting by: Wood Buffalo Environmental Association Fort McMurray, Alberta

May 30, 2025



Analyzer make: Analyzer Range:

Wood Buffalo Environmental Association SO₂ Calibration Report

Station Information

Station Name:Hangingstone ExpansionCalibration Date:April 10, 2025Start time (MST):6:10Reason:Routine

Thermo scientific

0 - 1000 ppb

Station number: AMS 512 Last Cal Date: March 7, 2025 End time (MST): 8:38

Calibration Standards

Cal Gas Concentration:	50.06	ppm	Cal Gas Exp Date: January 5, 2029
Cal Gas Cylinder #:	CC147416		
Removed Cal Gas Conc:	50.06	ppm	Rem Gas Exp Date: NA
Removed Gas Cyl #:	NA		Diff between cyl:
Calibrator Model:	Teledyne API T700		Serial Number: 2445
Zero Air Gen Model:	Teledyne API 701		Serial Number: 138

Analyzer Information

Serial Number: 1173410001

	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>
Calibration slope:	1.006091	1.009553	Backgd or Offset:	14.2	14.2
Calibration intercept:	-1.263661	-1.623881	Coeff or Slope:	1.175	1.175

SO₂ As Found Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.1	
As found High point As found Mid point As found Low point New cylinder response	4920	79.8	799.0	806.4	0.991
Baseline Corr As found: Baseline Corr 2nd AF pt:	806.3 NA	Previous response AF Slope:	802.6	*% change AF Intercept:	0.5%
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiate	es investigation

SO₂ Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4920	79.8	799.0	806.0	0.991
Mid point	4960	39.9	399.5	400.6	0.997
Low point	4987	20.0	200.0	198.4	1.008
As left zero	5000	0.0	0.0	0.1	
As left span	4920	79.8	799.0	809.6	0.987
			Averag	0.999	

Notes:

No adjustments or maintenance done.

Calibration Performed By:

Melissa Lemay

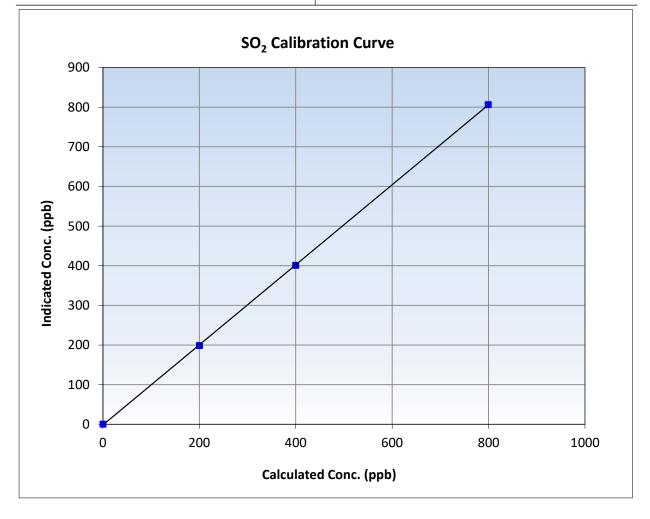


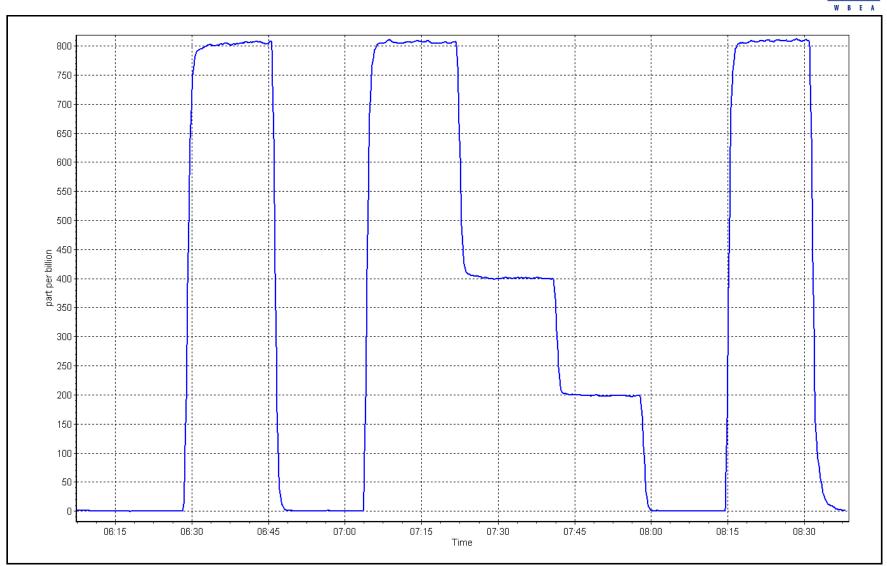
Wood Buffalo Environmental Association SO₂ Calibration Summary

Station Information

Calibration Date:	April 10, 2025	Previous Calibration:	March 7, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:10	End Time (MST):	8:38
Analyzer make:	Thermo scientific	Analyzer serial #:	1173410001

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>
0.0	0.3		Correlation Coefficient	0.999974	≥0.995
799.0	806.0	0.9913	Slope	1.009553	0.90 - 1.10
399.5	400.6	0.9972			
200.0 198.4	1.0079	Intercept	-1.623881	+/-30	





SO2 Calibration Plot

Location: Hangingstone Expansion





Wood Buffalo Environmental Association H₂S Calibration Report

Station Information

Station Name: Calibration Date: Start time (MST): Reason:	Hangingstone Expa April 4, 2025 6:27 Routine	ansion	Station number: Last Cal Date: End time (MST):	AMS 512 March 13, 2025 10:38	;	
		Calibration	<u>Standards</u>			
Cal Gas Concentration: Cal Gas Cylinder #:	5.139 CC511397	ppm	Cal Gas Exp Date:	January 3, 2026	;	
Removed Cal Gas Conc: Removed Gas Cyl #:	5.139 NA	ppm	Rem Gas Exp Date: Diff between cyl:	NA		
Calibrator Make/Model:	API T700		Serial Number:	2445		
ZAG Make/Model:	API T701		Serial Number:	138		
		Analyzer Inf	ormation			
Analyzer make:	Thermo 43i-LTE		Analyzer serial #:	1336160090		
Converter make:	Global G150		Converter serial #:	2022-227		
Analyzer Range	0 - 100 ppb		Converter Temp:		325 degC	-
	<u>Start</u>	<u>Finish</u>		<u>Start</u>		<u>Finish</u>
Calibration slope:	0.995485	1.000488	Backgd or Offset:	3.56		3.56
Calibration intercept:	0.060913	0.160819	Coeff or Slope:	1.235		1.235
		<u>H₂S As Fou</u>	ind Data			

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Baseline Adjusted Correction factor (Cc/(Ic-AFzero)) Limit = 0.90-1.10
As found zero	5000	0.0	0.0	0.2	
As found High point	4922	77.8	80.0	79.8	1.005
As found Mid point	4961	38.9	40.0	40.3	0.997
As found Low point New cylinder response	4981	19.5	20.0	20.1	1.007
Baseline Corr As found:	79.6	Prev response:	79.67	*% change:	-0.1%
Baseline Corr 2nd AF pt:	40.1	AF Slope:	0.996058	AF Intercept:	0.240853
Baseline Corr 3rd AF pt:	19.9	AF Correlation:	0.999978	* = > +/-5% change initiate	es investigation

H₂S Calibration Data

Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) Limit = 0.95-1.05
Calibrator zero	5000	0.0	0.0	0.3	
High point	4922	77.8	80.0	80.2	0.997
Mid point	4961	38.9	40.0	40.2	0.995
Low point	4981	19.5	20.0	20.0	1.002
As left zero	5000	0.0	0.0	0.4	
As left span	4922	77.8	80.0	80.0	1.000
SO2 Scrubber Check	4920	80.0	800.0	0.0	
Date of last scrubber chan	ge:			Ave Corr Factor	0.998

Date of last converter efficiency test:

Notes:

Sox scrubber checked after the calibrator zero. No adjustments done.

Calibration Performed By: Melissa Lemay



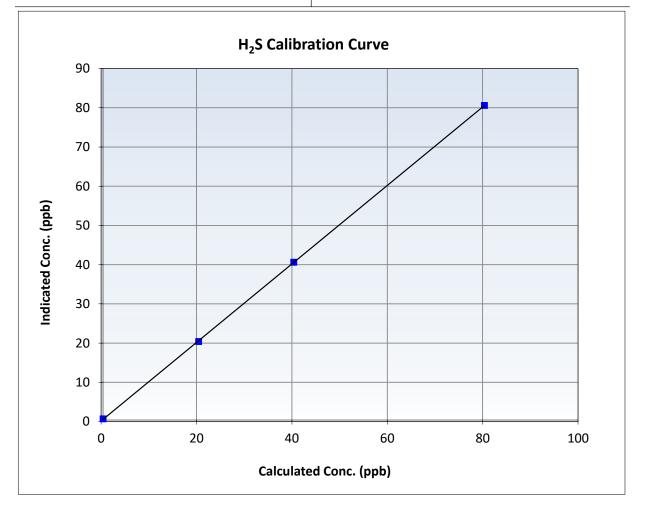
Wood Buffalo Environmental Association

H₂S Calibration Summary

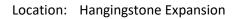
Station Information

Calibration Date:	April 4, 2025	Previous Calibration:	March 13, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:27	End Time (MST):	10:38
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1336160090

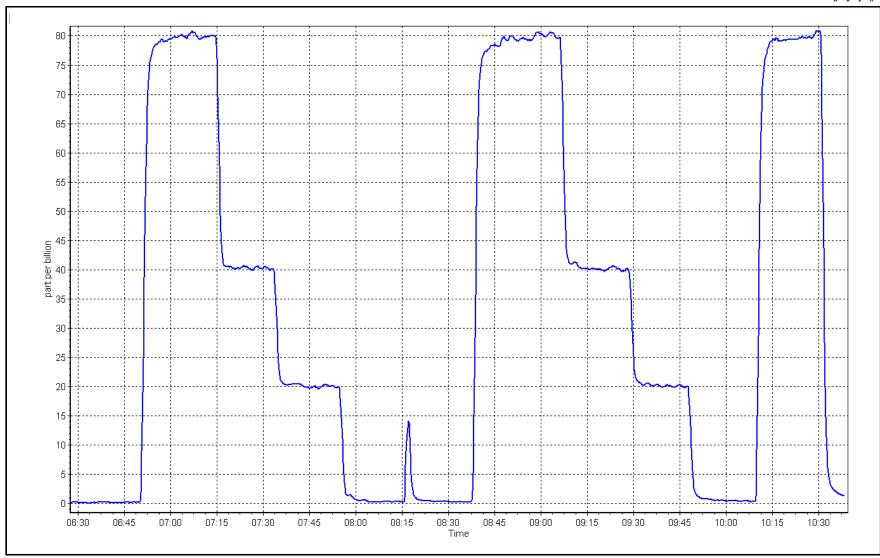
Calibration Data								
Calculated concentratior (ppb) (Cc)	n Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evalua	ation	<u>Limits</u>			
0.0	0.3		Correlation Coefficient	0.999981	≥0.995			
80.0	80.2	0.9971	Slope	1.000488	0.90 - 1.10			
40.0 20.0	40.2 20.0	0.9946 1.0020	Intercent	0.160819	+/-3			
			Intercept	0.100819	-7-5			













Station Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Standards

Station Name:	Hangingstone Expansion	NO Gas Cylinder #:	T0F8P52	Cal Gas Expiry Date:	August 16, 2026
Station number:	AMS 512	NOX Cal Gas Conc:	47.43 ppm	NO Cal Gas Conc:	47.43 ppm
Calibration Date:	April 1, 2025	Removed Cylinder #: NA		Removed Gas Exp Date	: NA
Last Cal Date:	March 3, 2025	Removed Gas NOX Conc:	47.43 ppm	Removed Gas NO Conc	: 47.43 ppm
Start time (MST):	6:28	NOX gas Diff:		NO gas Diff:	
End time (MST):	10:43	Calibrator Model:	Teledyne API T700	Serial Number:	2445
Reason:	Routine	ZAG make/model:	Teledyne API T701	Serial Number:	138

As Found Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	Baseline Adjusted NOx Correction factor (Cc/(Ic-AFzero)) <i>Limit = 0.90 - 1.10</i>	Baseline Adjusted NO Correction factor (Cc/(Ic-AFzero)) Limit = 0.90 - 1.10
As found zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.2	0.0		
AF High point	4916	84.4	800.6	800.6	0.0	801.9	801.2	0.5	0.9981	0.9989
AF Mid point										
AF Low point										
New cyl resp										
Previous Respo	onse NO _x =	807.3 ppb	NO = 807.2	ppb	* = > +/-5	% change initiates i	nvestigation	*Percent Chang	e NO _x =	-0.6%
Baseline Corr 1	.st pt NO _x =	802.1 ppb	NO = 801.4	ppb	<u>As Four</u>	nd Statistics		*Percent Chang	e NO =	-0.7%
Baseline Corr 2	nd pt NO _x =	NA ppb	NO = NA	ppb	As foun	d $NO_X r^2$:		Nx SI:	Nx Int:	
Baseline Corr 3	Brd pt NO _X =	NA ppb	NO = NA	ppb	As foun	d NO r ² :		NO SI:	NO Int:	
					As foun	d $NO_2 r^2$:		NO2 SI:	NO ₂ Int:	
				<u>As Fo</u>	und GPT Calib	ration Data				
		Indicated NO Re	ference Indi	cated NO Drop	Calculated N	02 In	dicated NO2	Baseline Adjuste Correction fa		verter Efficiency

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Cc)	Indicated NO2 concentration (ppb) (Ic)	Correction factor (Cc/(Ic-AFzero))	Converter Efficiency <i>Limit = 96-104%</i>
		,			Limit = 0.90 - 1.10	
As Found CDT zoro						

As Found GPT zero As found high GPT point As found mid GPT point As found low GPT point



Analyzer Information

Wood Buffalo Environmental Association

$NO_X \setminus NO \setminus NO_2$ Calibration Report

Calibration Statistics

Analyzer Make:	Teledyne API T20	00	Serial Number: 7029	9			<u>Start</u>	<u>Finish</u>
NOX Range (ppb):	0 - 1000 ppb					NO _x Cal Slope:	1.008889	1.005306
			Instrument Settings			NO _x Cal Offset:	-0.392928	-0.812870
	<u>Start</u>	<u>Finish</u>		<u>Start</u>	<u>Finish</u>	NO Cal Slope:	1.010359	1.005634
NO coeff or slope:	1.056	1.056	NO bkgnd or offset:	0.2	0.2	NO Cal Offset:	-1.632904	-1.552843
NOX coeff or slope:	1.052	1.052	NOX bkgnd or offset:	0.4	0.4	NO ₂ Cal Slope:	0.999078	0.999674
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	4.6	4.6	NO ₂ Cal Offset:	0.427715	0.103787

Dilution Calibration Data

Set Point	Dilution flow rate (sccm)	Source gas flow rate (sccm)	Calculated NOx concentration (ppb) (Cc)	Calculated NO concentration (ppb) (Cc)	Calculated NO2 concentration (ppb) (Cc)	Indicated NOx concentration (ppb) (Ic)	Indicated NO concentration (ppb) (Ic)	Indicated NO2 concentration (ppb) (Ic)	NOx Correction factor (Cc/Ic) Limit = 0.95-1.05	NO Correction factor (Cc/Ic) <i>Limit = 0.95-1.05</i>
Cal zero	5000	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0		
High point	4916	84.4	800.6	800.6	0.0	804.1	804.1	0.2	0.9956	0.9956
Mid point	4958	42.2	400.3	400.3	0.0	402.0	400.7	1.3	0.9958	0.9990
Low point	4979	21.1	200.2	200.2	0.0	199.2	198.0	1.2	1.0048	1.0109
As left zero	5000	0.0	0.0	0.0	0.0	0.0	0.0	-0.1		
As left span	4916	84.4	800.6	406.9	393.7	799.9	406.9	393.0	1.0008	1.0000
							Average Co	orrection Factor	0.9987	1.0018

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NO Reference concentration (ppb)	Indicated NO Drop concentration (ppb)	Calculated NO2 concentration (ppb) (Co	Indicated NO2 c) concentration (ppb) (Ic)	NO2 Correction factor (Cc/lc) Limit = 0.95-1.05	Converter Efficiency Limit = 96-104%
Cal zero			0.0	0.0		
High GPT point	802.1	410.9	391.2	391.1	1.0003	100.0%
Mid GPT point	802.1	624.1	178.0	178.2	0.9989	100.1%
Low GPT point	802.1	712.2	89.9	90.0	0.9989	100.1%
				Average Correction Factor	0.9993	100.1%

Notes:

No adjustments and maintenance done.

Calibration Performed By:

Melissa Lemay

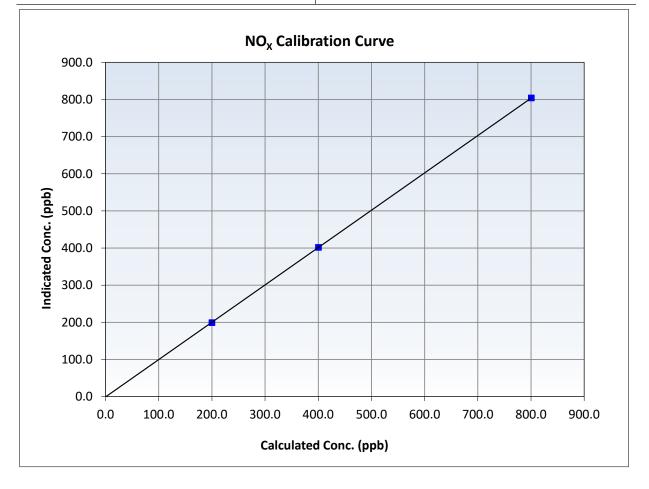


Wood Buffalo Environmental Association NO_x Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 3, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:28	End Time (MST):	10:43
Analyzer make:	Teledyne API T200	Analyzer serial #:	7029

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999994	≥0.995
800.6 400.3	804.1 402.0	0.9956 0.9958	Slope	1.005306	0.90 - 1.10
200.2	199.2	1.0048	Intercept	-0.812870	+/-20



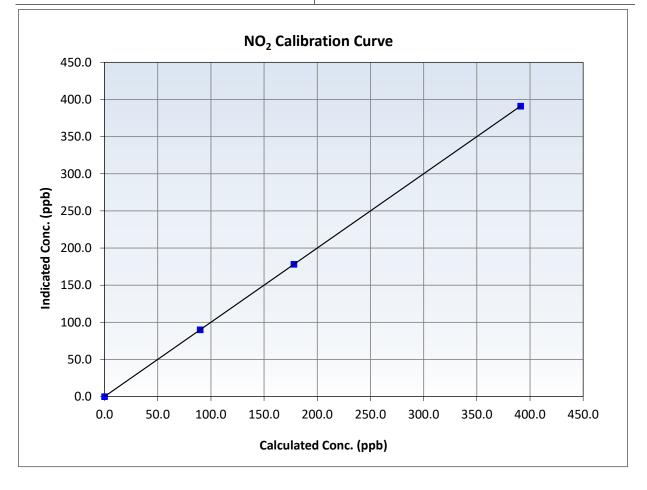


Wood Buffalo Environmental Association NO₂ Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 3, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:28	End Time (MST):	10:43
Analyzer make:	Teledyne API T200	Analyzer serial #:	7029

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		<u>Limits</u>
0.0	0.0		Correlation Coefficient	1.000000	≥0.995
391.2 178.0	391.1 178.2	1.0003 0.9989	Slope	0.999674	0.90 - 1.10
89.9	90.0	0.9989	Intercept	0.103787	+/-20



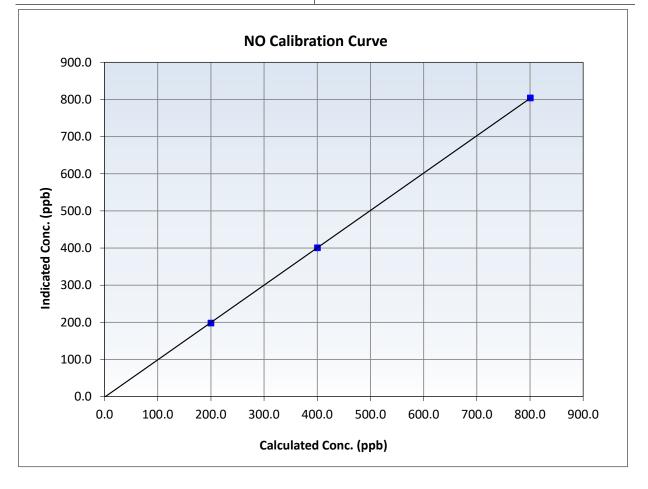


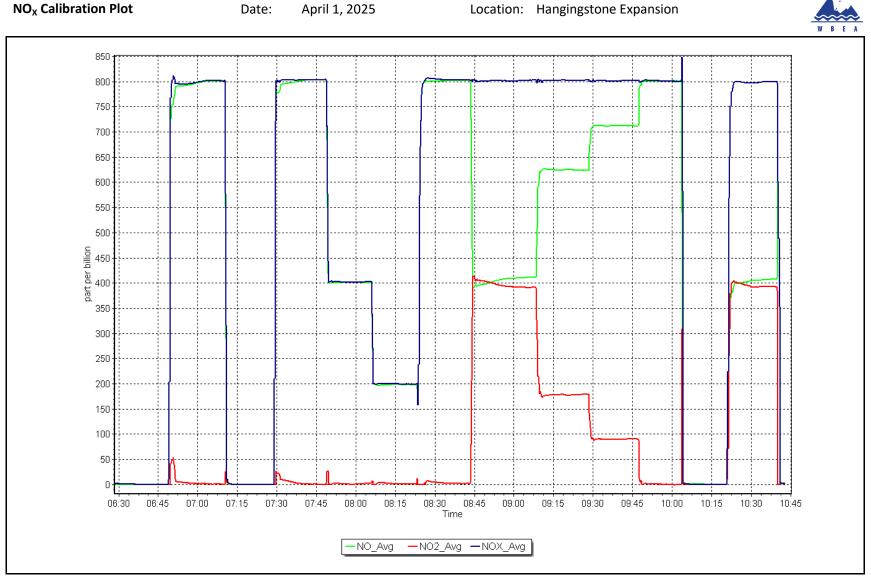
Wood Buffalo Environmental Association NO Calibration Summary

Station Information

Calibration Date:	April 1, 2025	Previous Calibration:	March 3, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:28	End Time (MST):	10:43
Analyzer make:	Teledyne API T200	Analyzer serial #:	7029

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/lc)	Statistical Evaluation		<u>Limits</u>
0.0	-0.1		Correlation Coefficient	0.999984	≥0.995
800.6 400.3	804.1 400.7	0.9956 0.9990	Slope	1.005634	0.90 - 1.10
200.2	198.0	1.0109	Intercept	-1.552843	+/-20





NO_x Calibration Plot

April 1, 2025

Location: Hangingstone Expansion



End of Report