WOOD BUFFALO
ENVIRONMENTAL ASSOCIATION

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Wood Buffalo Environmental Association

MAY 2025

MONTHLY CALIBRATION REPORT

CONTINUOUS MONITORING

June 27, 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
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	May 14, 2025	Last Cal Date:	April 9, 2025
Start time (MST):	10:48	End time (MST):	14:57
Reason:	Routine		

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:	Thermo 43i		Serial Number:	JC1501301448	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.001108	1.002820	Backgd or Offset:	21.7	21.7
Calibration intercept:	-0.433285	-1.332580	Coeff or Slope:	0.887	0.876

SO_2 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	4918	81.3	800.3	811.4	0.986
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	811.5	Previous response	800.7	*% change	1.3%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	4918	81.3	800.3	802.4	0.997
Mid point	4959	40.7	400.6	398.1	1.006
Low point	4979	20.3	199.8	198.8	1.005
As left zero	5000	0.0	0.0	0.1	----
As left span	4918	81.3	800.3	802.6	0.997
				Average Correction Factor:	1.003

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

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

SO_2 Calibration Summary

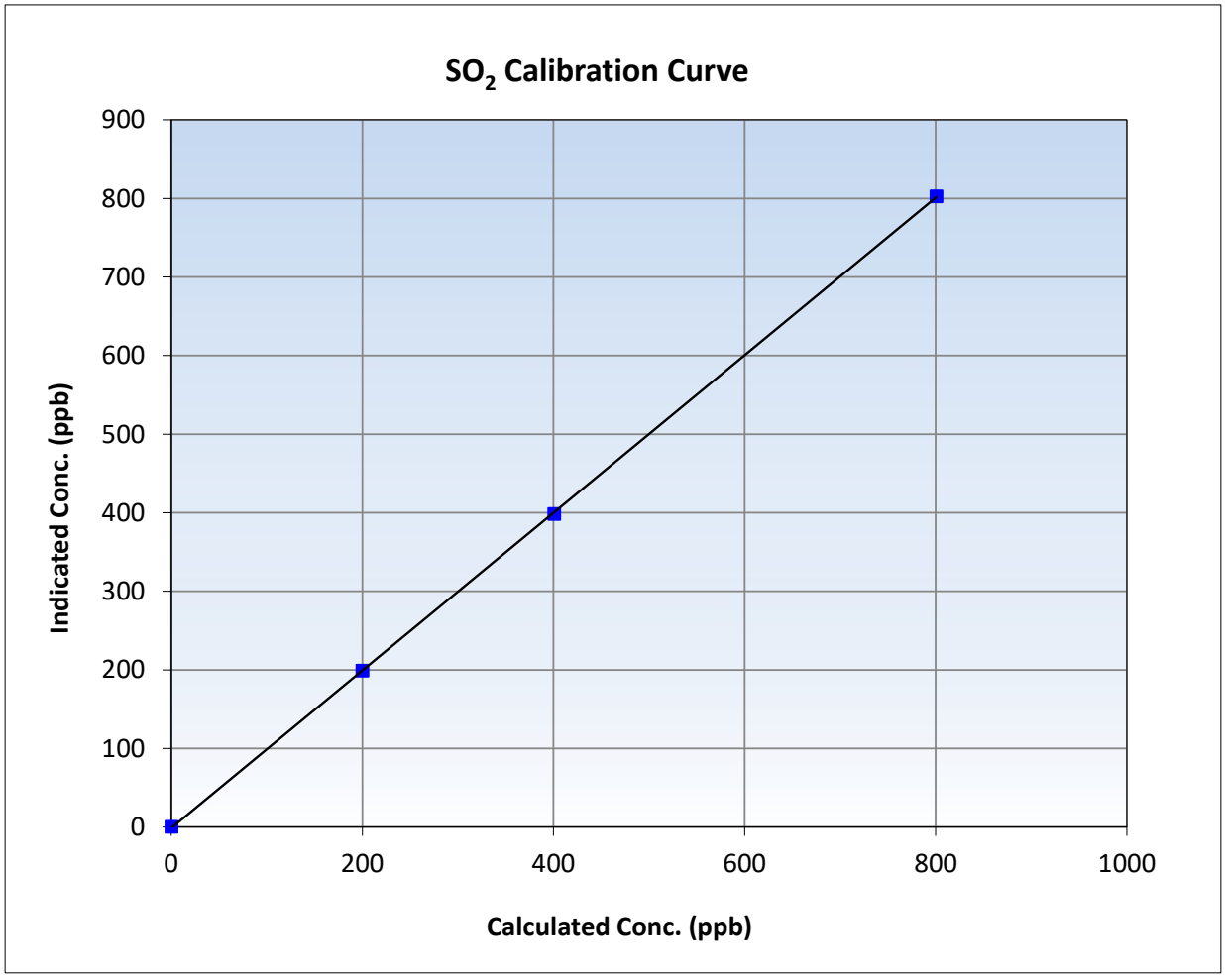
Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 9, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:48	End Time (MST):	14:57
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1501301448

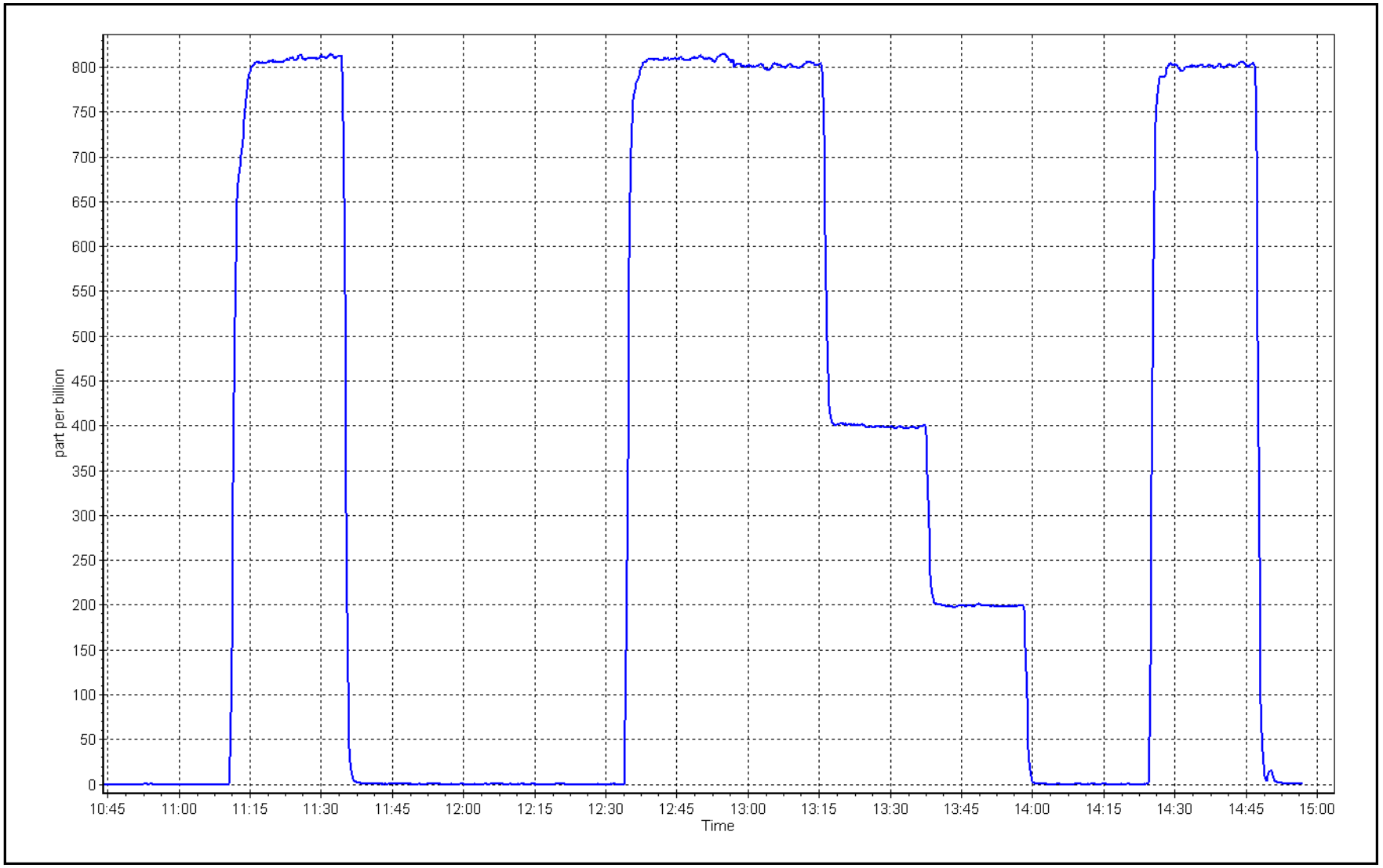
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
800.3	802.4	0.9973
400.6	398.1	1.0063
199.8	198.8	1.0051

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999976	*≥0.995*
Slope	1.002820	*0.90 - 1.10*
Intercept	-1.332580	*+/-30*



SO2 Calibration Plot Date: May 14, 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:	May 13, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	10:21	End time (MST):	14:20
Reason:	Routine		

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:	Thermo 43iQ-TLE		Analyzer serial #:	12113311966
Converter make:	CD Nova		Converter serial #:	470
Analyzer Range	0 - 100 ppb		Converter Temp:	800 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.001390	0.997388	Backgd or Offset:	2.18	2.18
Calibration intercept:	-0.118138	-0.078084	Coeff or Slope:	1.148	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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	-0.3	----
As found High point	4917	82.6	80.0	79.2	1.006
As found Mid point	4959	41.3	40.0	39.4	1.007
As found Low point	4979	20.7	20.0	19.8	0.997
New cylinder response					

Baseline Corr As found:	79.5	Prev response:	79.96	*% change:	-0.6%
Baseline Corr 2nd AF pt:	39.7	AF Slope:	0.993386	AF Intercept:	-0.238030
Baseline Corr 3rd AF pt:	20.1	AF Correlation:	0.999992	* = > +/-5% change initiates 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	79.7	1.003
Mid point	4959	41.3	40.0	39.7	1.007
Low point	4979	20.7	20.0	20.0	1.002
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	81.3	813.0	0.0	----
Date of last scrubber change:		December 17, 2021		Ave Corr Factor	1.004
Date of last converter efficiency test:					

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

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

TRS Calibration Summary

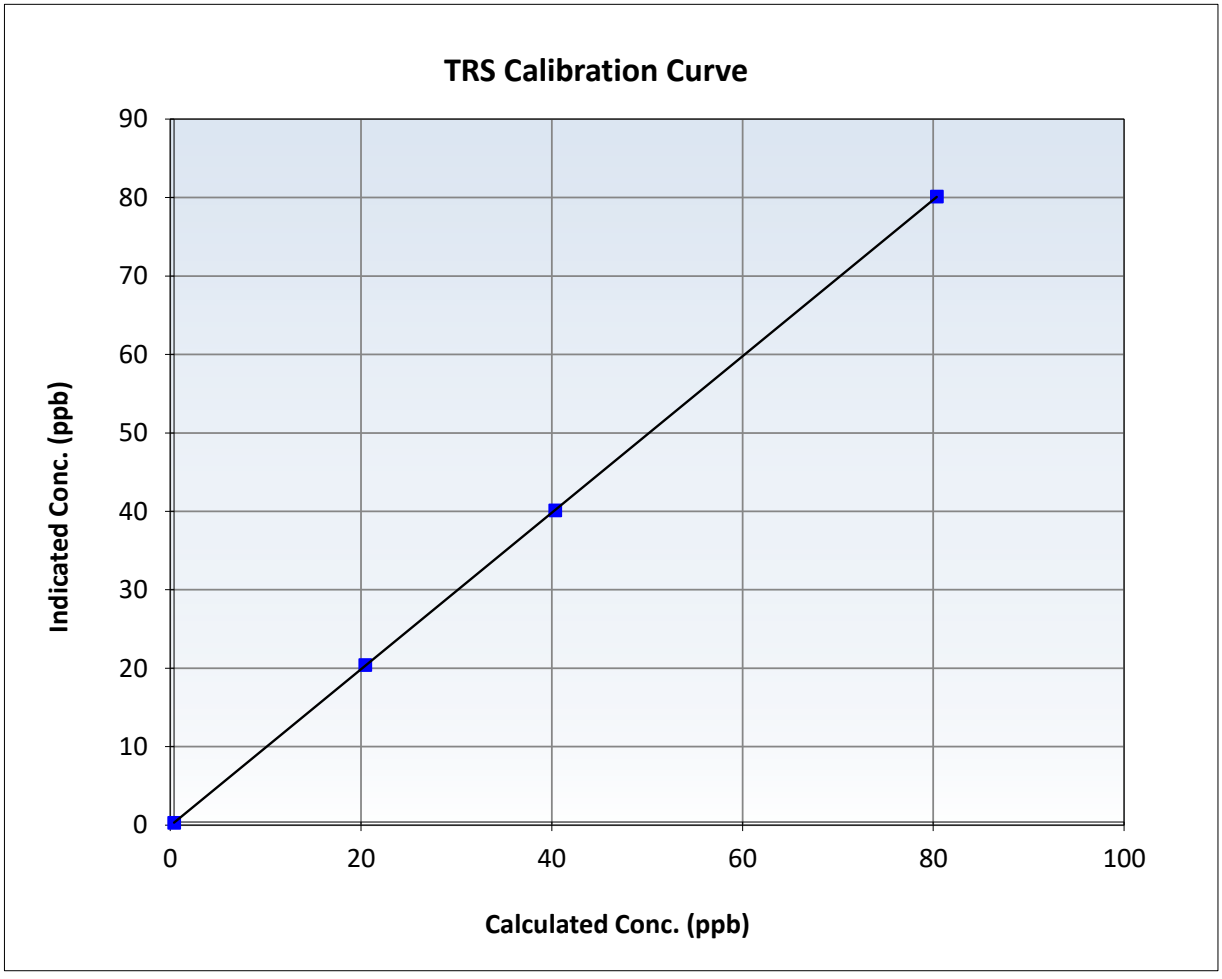
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 28, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:21	End Time (MST):	14:20
Analyzer make:	Thermo 43iQ-TLE	Analyzer serial #:	12113311966

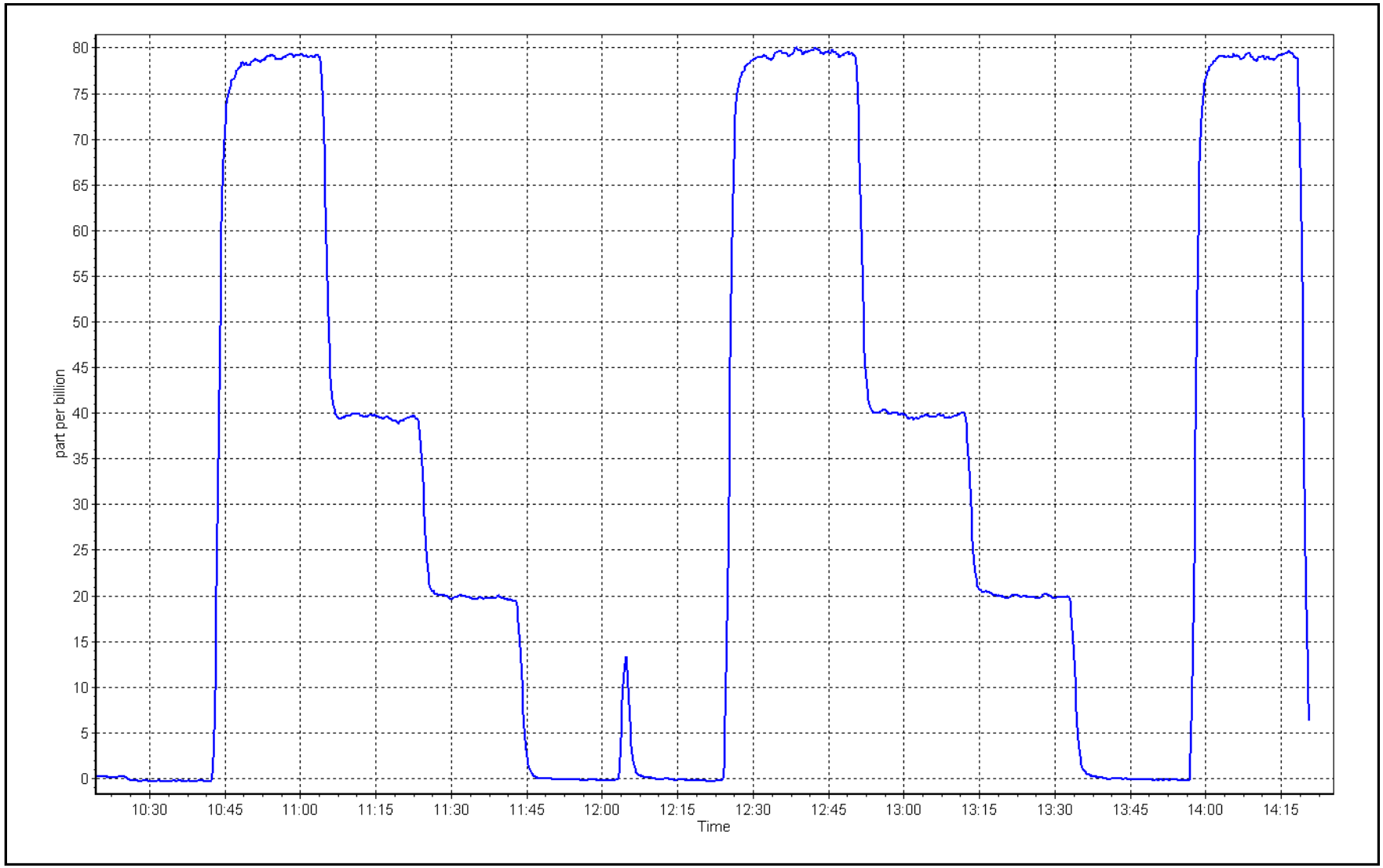
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	79.7	1.0033
40.0	39.7	1.0070
20.0	20.0	1.0019

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999995	*≥0.995*
Slope	0.997388	*0.90 - 1.10*
Intercept	-0.078084	*+/-3*



TRS Calibration Plot Date: May 13, 2025 Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	May 13, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	10:21	End time (MST):	14:20
Reason:	Routine		

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:	Thermo 43iQ-TL		Analyzer serial #:	1200326167
Converter make:	CD Nova		Converter serial #:	2022-221
Analyzer Range	0 - 100 ppb		Converter Temp:	315 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.002388	1.002961	Backgd or Offset:	2.03	2.03
Calibration intercept:	-0.178072	-0.098135	Coeff or Slope:	0.983	0.983

H_2S 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	4917	82.6	80.0	81.0	0.985
As found Mid point	4959	41.3	40.0	40.4	0.985
As found Low point	4979	20.7	20.0	19.8	1.002
New cylinder response					

Baseline Corr As found:	81.2	Prev response:	79.98	*% change:	1.5%
Baseline Corr 2nd AF pt:	40.6	AF Slope:	1.016967	AF Intercept:	-0.338268
Baseline Corr 3rd AF pt:	20.0	AF Correlation:	0.999977	* = > +/-5% change initiates investigation	

H_2S 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	80.1	0.998
Mid point	4959	41.3	40.0	40.0	0.999
Low point	4979	20.7	20.0	20.0	1.002
As left zero	5000	0.0	0.0	0.1	----
As left span	4917	82.6	80.0	79.8	1.002
SO2 Scrubber Check	4919	81.3	813.0	0.0	----

Date of last scrubber change:		January 25, 2024		Ave Corr Factor	1.000
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: Rene Chamberland

Wood Buffalo Environmental Association

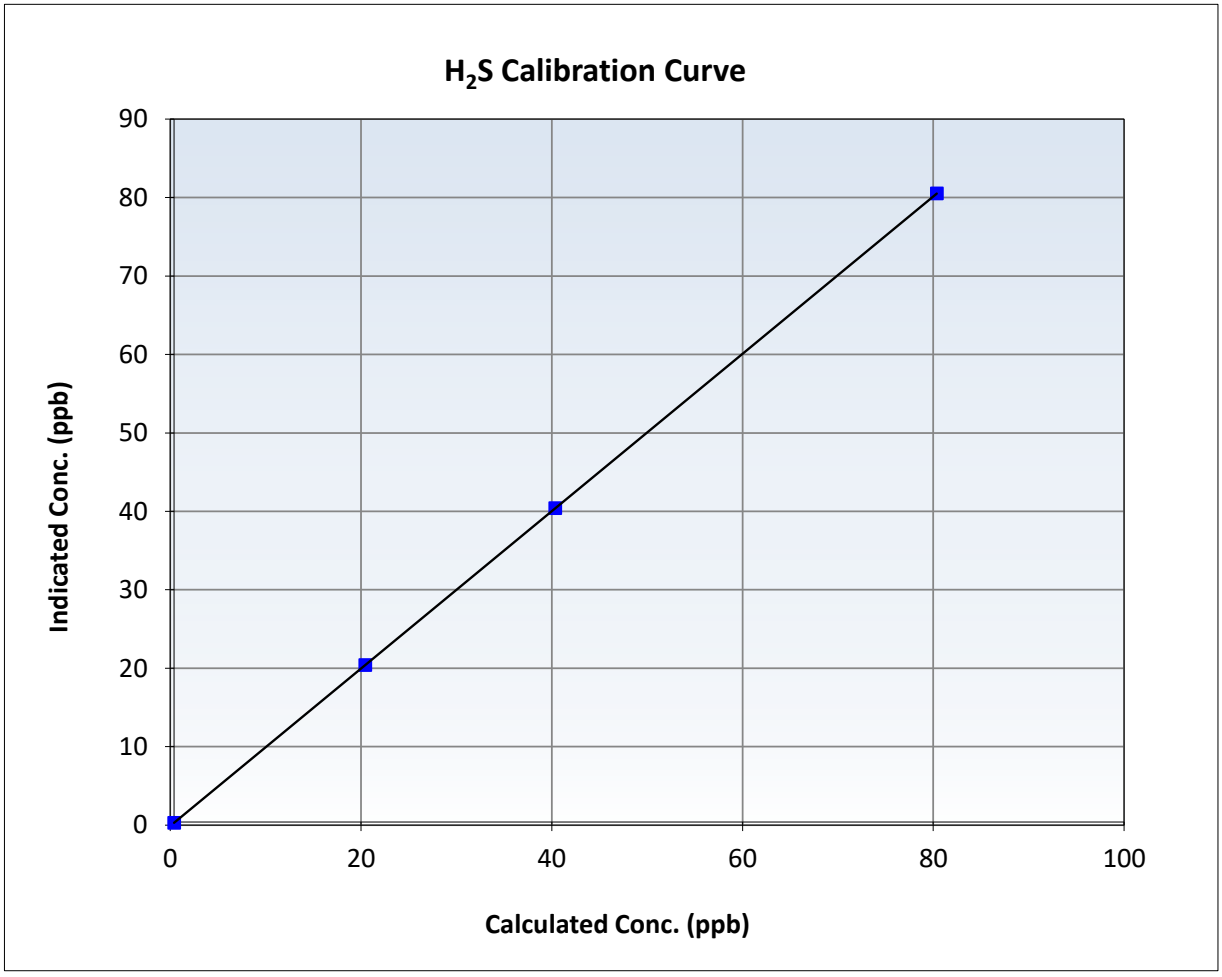
H_2S Calibration Summary

Station Information

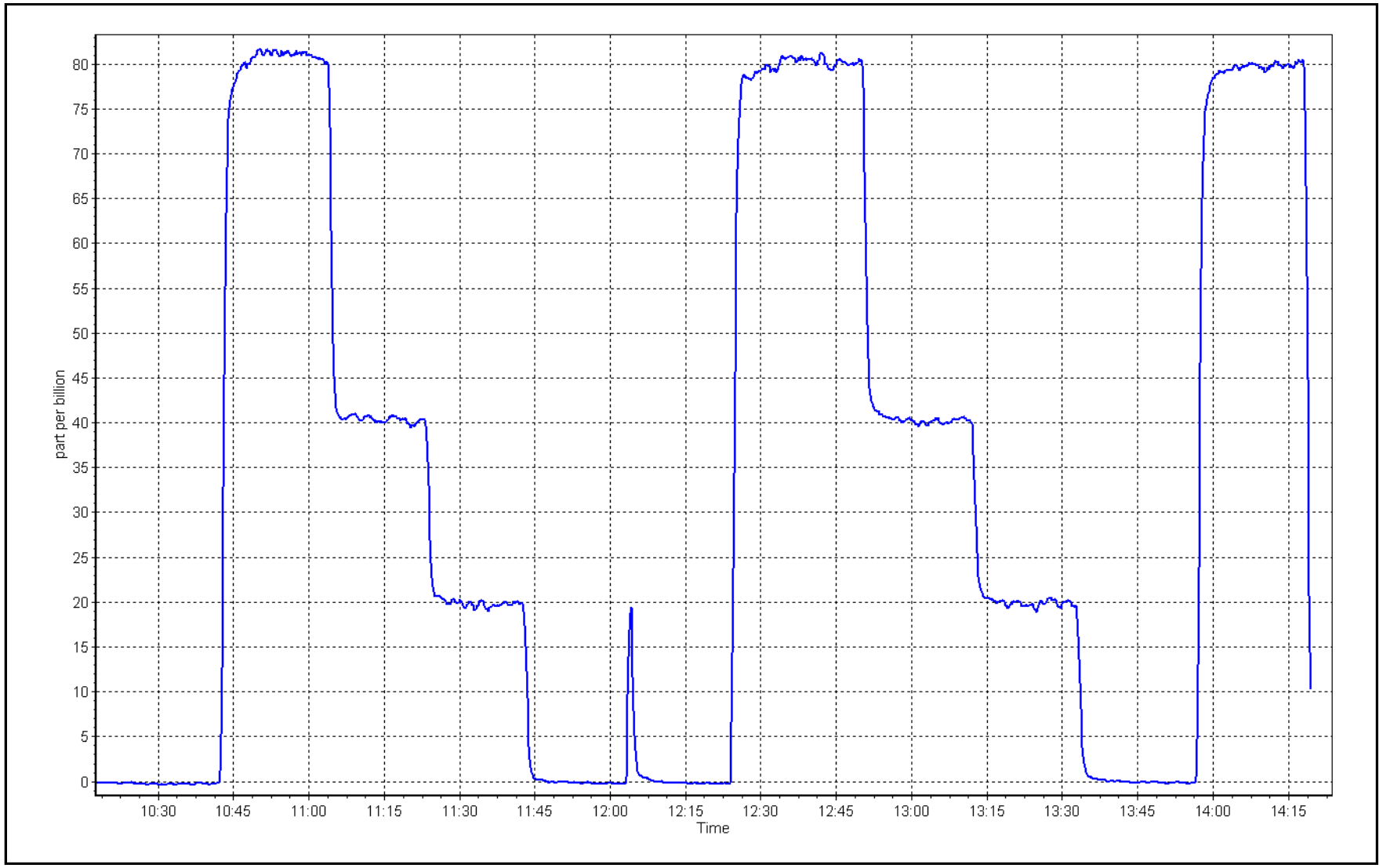
Calibration Date:	May 13, 2025	Previous Calibration:	April 28, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:21	End Time (MST):	14:20
Analyzer make:	Thermo 43iQ-TL	Analyzer serial #:	1200326167

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	-0.1	----	Correlation Coefficient	1.000000	*≥0.995*
80.0	80.1	0.9983	Slope	1.002961	*0.90 - 1.10*
40.0	40.0	0.9994			
20.0	20.0	1.0019	Intercept	-0.098135	*+/-3*



H_2S Calibration Plot Date: May 13, 2025 Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	May 14, 2025	Last Cal Date:	April 9, 2025
Start time (MST):	10:48	End time (MST):	14:57
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	CC418809		Cal Gas Expiry Date:	March 10, 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 Expiry:	NA	
Removed CH4 Conc.	497.2	ppm	CH4 Equiv Conc.	1061.8	ppm
Removed C3H8 Conc.	205.3	ppm	Diff between cyl (THC):		
Diff between cyl (CH_4):			Diff between cyl (NM):		
Calibrator Model:	Teledyne API T700		Serial Number:	3565	
Zero Air Gen model:	Teledyne API T701		Serial Number:	146	

Analyzer Information

Analyzer make:	Thermo 55i		Analyzer serial #:	1193585648	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	2.53E-04	2.52E-04	NMHC SP Ratio:	4.89E-05	4.95E-05
CH4 Retention time:	15.0	15.0	NMHC Peak Area:	187657	185536
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	17.29	0.999
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	17.29	Prev response	17.33	*% change	-0.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	17.17	1.006
Mid point	4959	40.7	8.64	8.60	1.005
Low point	4979	20.3	4.31	4.30	1.003
As left zero	5000	0.0	0.00	0.00	----
As left span	4918	81.3	17.27	17.18	1.005
				Average Correction Factor	1.004

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

Wood Buffalo Environmental Association

THC / CH_4 / 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	4918	81.3	9.18	9.15	1.004
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.15	Prev response	9.23	*% change	-0.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	9.13	1.006
Mid point	4959	40.7	4.60	4.58	1.003
Low point	4979	20.3	2.29	2.29	1.003
As left zero	5000	0.0	0.00	0.00	----
As left span	4918	81.3	9.18	9.11	1.008
				Average Correction Factor	1.004

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	4918	81.3	8.09	8.14	0.993
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.14	Prev response	8.10	*% change	0.6%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4918	81.3	8.09	8.04	1.005
Mid point	4959	40.7	4.05	4.02	1.007
Low point	4979	20.3	2.02	2.01	1.003
As left zero	5000	0.0	0.00	0.00	----
As left span	4918	81.3	8.09	8.07	1.002
				Average Correction Factor	1.005

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	1.002190	0.994262
THC Cal Offset:	0.021536	0.005938
CH4 Cal Slope:	1.001397	0.994429
CH4 Cal Offset:	0.001066	0.000469
NMHC Cal Slope:	1.002902	0.994202
NMHC Cal Offset:	0.020670	0.004870

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

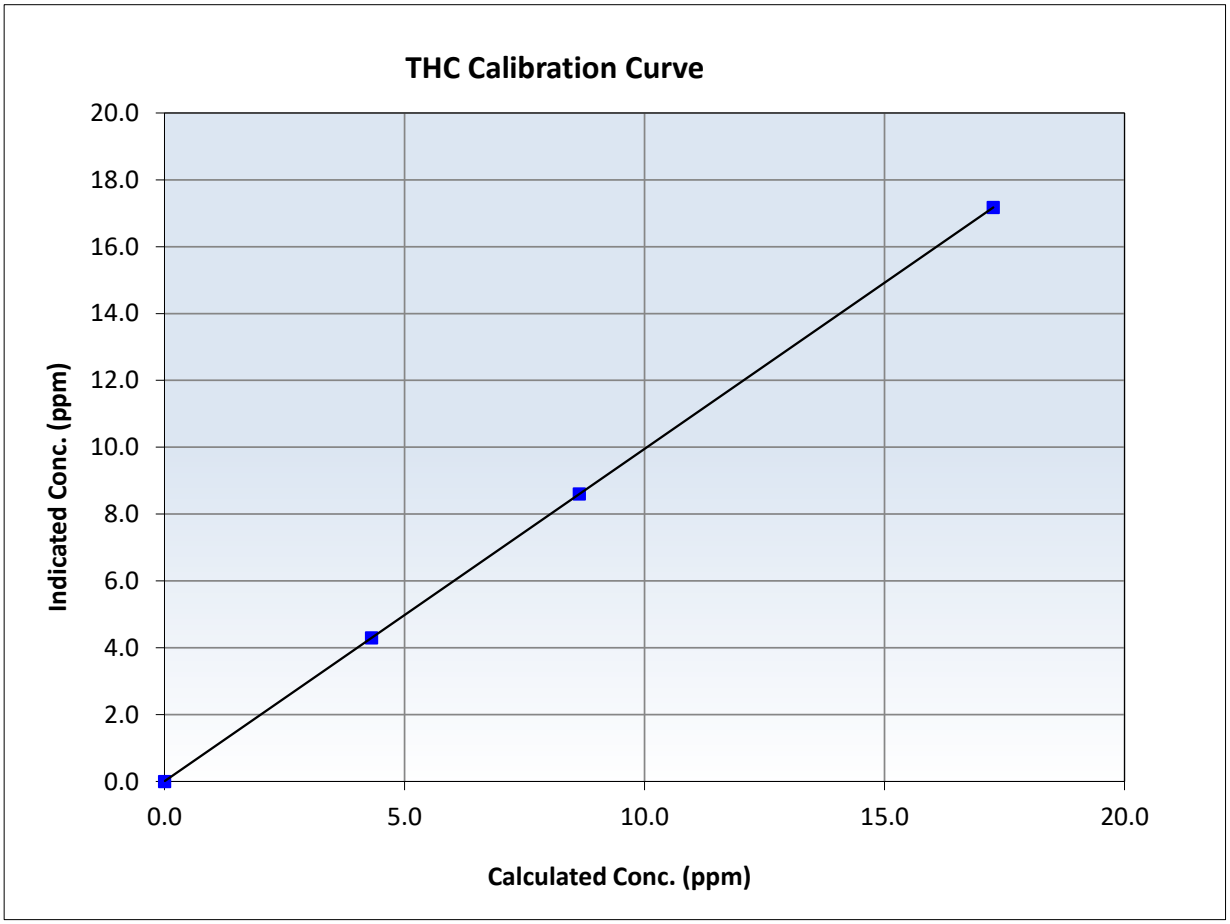
THC Calibration Summary

Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 9, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:48	End Time (MST):	14:57
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585648

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999999	*≥0.995*
17.27	17.17	1.0056	Slope	0.994262	*0.90 - 1.10*
8.64	8.60	1.0048			
4.31	4.30	1.0029	Intercept	0.005938	*+/-0.5*



Wood Buffalo Environmental Association

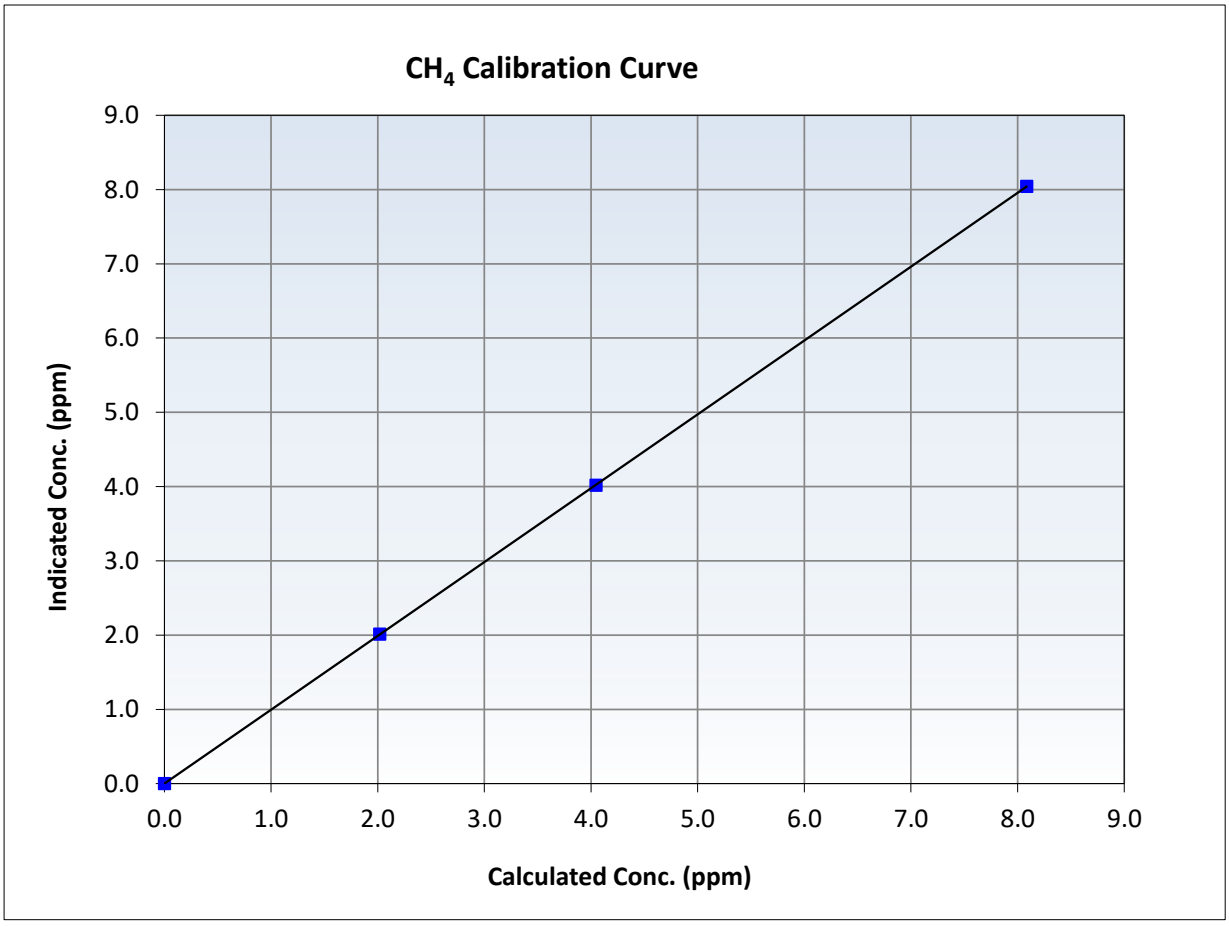
CH_4 Calibration Summary

Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 9, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:48	End Time (MST):	14:57
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585648

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999998	≥0.995
8.09	8.04	1.0053	Slope	0.994429	0.90 - 1.10
4.05	4.02	1.0071			
2.02	2.01	1.0029	Intercept	0.000469	+/-0.5



Wood Buffalo Environmental Association

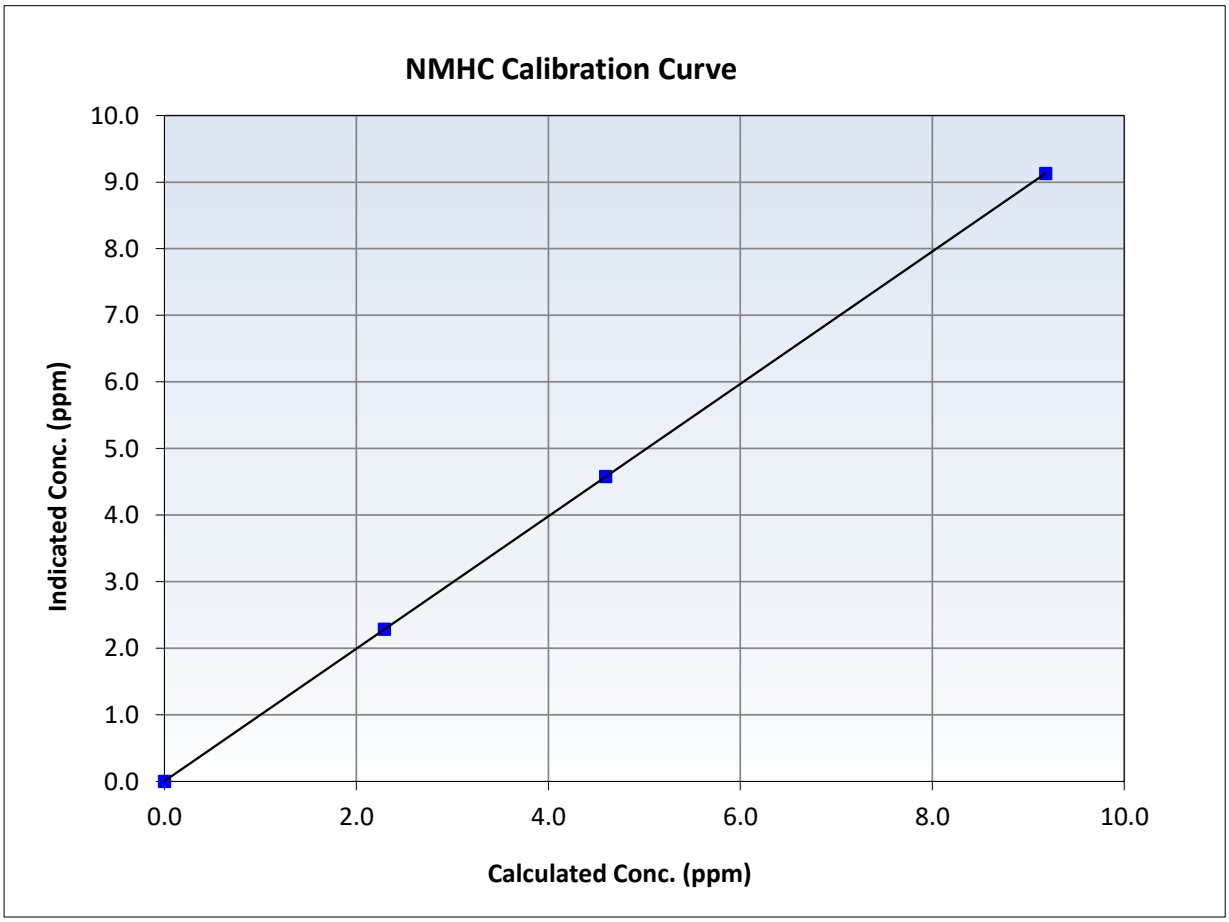
NMHC Calibration Summary

Station Information

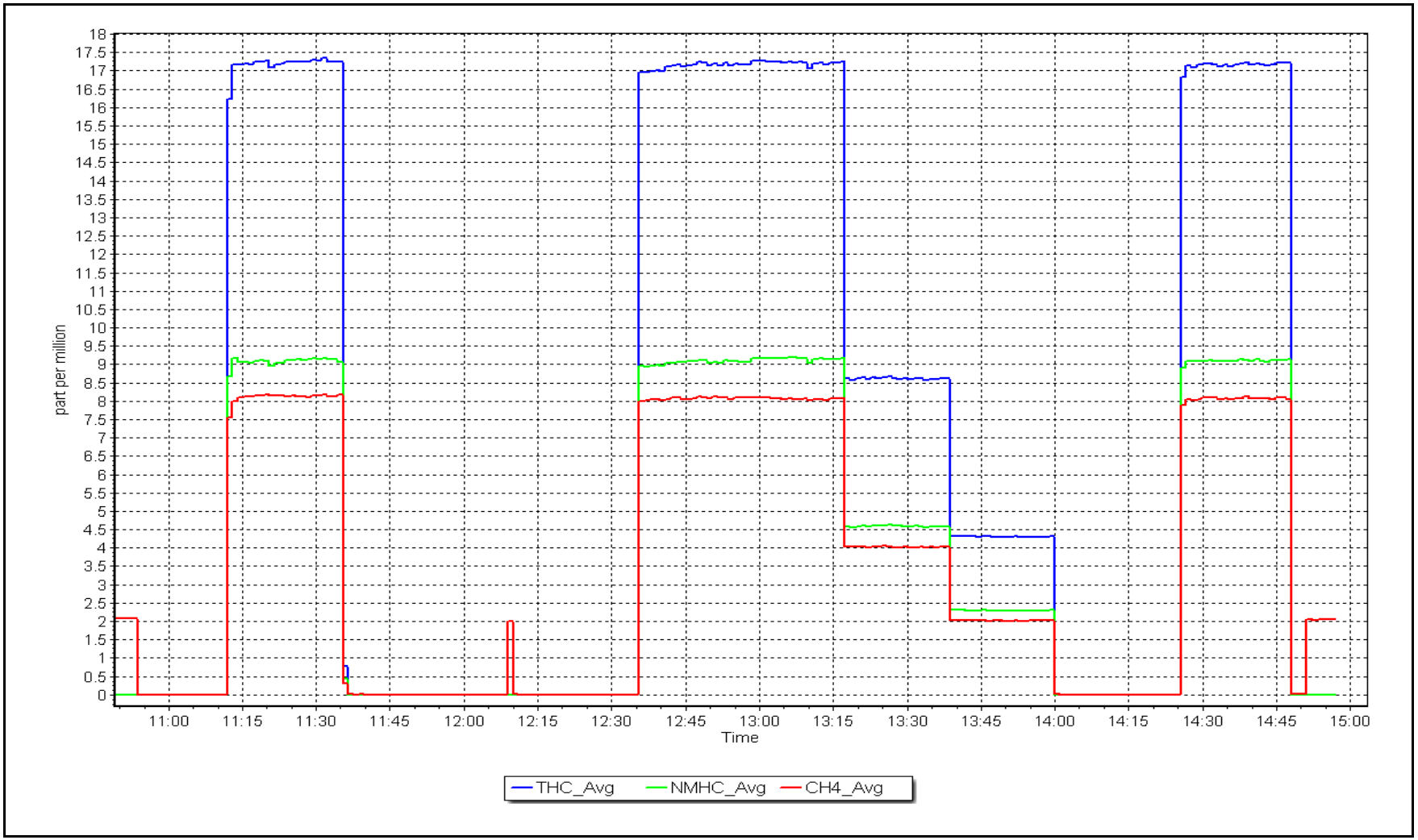
Calibration Date:	May 14, 2025	Previous Calibration:	April 9, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:48	End Time (MST):	14:57
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585648

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999998	≥0.995
9.18	9.13	1.0057	Slope	0.994202	0.90 - 1.10
4.60	4.58	1.0033			
2.29	2.29	1.0028	Intercept	0.004870	+/-0.5



NMHC Calibration Plot Date: May 14, 2025 Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay
Station number:	AMS 01
Calibration Date:	May 6, 2025
Last Cal Date:	April 17, 2025
Start time (MST):	10:09
End time (MST):	15:14
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	CC335700	Cal Gas Expiry Date:	September 1, 2032
NOX Cal Gas Conc:	59.40 ppm	NO Cal Gas Conc:	59.20 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	59.40 ppm	Removed Gas NO Conc:	59.20 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	3565
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)) *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	-0.7	0.2	----	----
AF High point	4932	67.6	803.1	800.4	2.7	793.4	789.4	4.0	1.0116	1.0130
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X =	804.3 ppb	NO =	801.7 ppb	* = > +/-5% change initiates investigation	*Percent Change	NO_X = -1.3%
Baseline Corr 1st pt	NO_X =	793.9 ppb	NO =	790.1 ppb	As Found Statistics	*Percent Change	NO = -1.5%
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO_X r^2:	Nx Sl:	Nx Int:
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO r^2:	NO Sl:	NO Int:
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Teledyne API T200 Serial Number: 7117

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.176	1.185	NO bkgnd or offset:	-3.1	-3.1
NOX coeff or slope:	1.178	1.186	NOX bkgnd or offset:	-2.9	-2.9
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	8.2	8.2

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.001733	0.998503
NO_X Cal Offset:	-0.160000	-0.400000
NO Cal Slope:	1.003133	1.003004
NO Cal Offset:	-1.240000	-1.420000
NO_2 Cal Slope:	1.000579	0.995341
NO_2 Cal Offset:	-0.003919	0.220012

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	-0.3	0.0	----	----
High point	4932	67.6	803.1	800.4	2.7	801.5	801.8	-0.3	1.0020	0.9982
Mid point	4966	33.8	401.5	400.2	1.4	400.6	399.8	0.9	1.0024	1.0010
Low point	4983	16.9	200.8	200.1	0.7	199.9	197.9	2.0	1.0044	1.0111
As left zero	5000	0.0	0.0	0.0	0.0	0.8	0.8	0.0	----	----
As left span	4932	67.6	803.1	396.6	406.5	799.1	396.6	402.6	1.0050	1.0000
							Average Correction Factor		1.0029	1.0034

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	0.0	----	----
High GPT point	798.5	399.0	402.2	400.4	1.0045	99.6%
Mid GPT point	798.5	597.6	203.6	203.1	1.0025	99.8%
Low GPT point	798.5	700.4	100.8	100.7	1.0010	99.9%
				Average Correction Factor	1.0027	99.7%

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

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

NO_X Calibration Summary

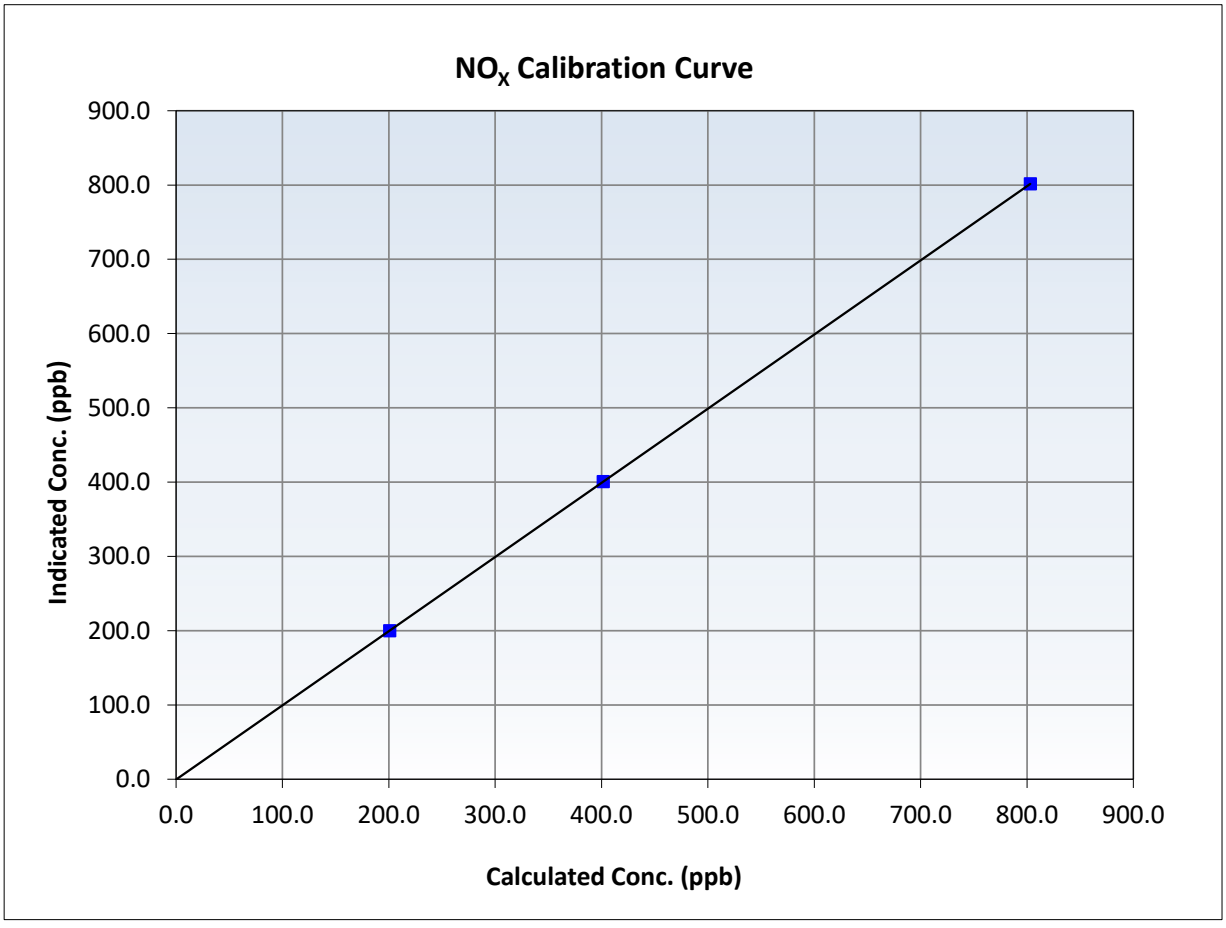
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	April 17, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:09	End Time (MST):	15:14
Analyzer make:	Teledyne API T200	Analyzer serial #:	7117

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
803.1	801.5	1.0020
401.5	400.6	1.0024
200.8	199.9	1.0044

Statistical Evaluation		*Limits*
Correlation Coefficient	1.000000	*≥0.995*
Slope	0.998503	*0.90 - 1.10*
Intercept	-0.400000	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

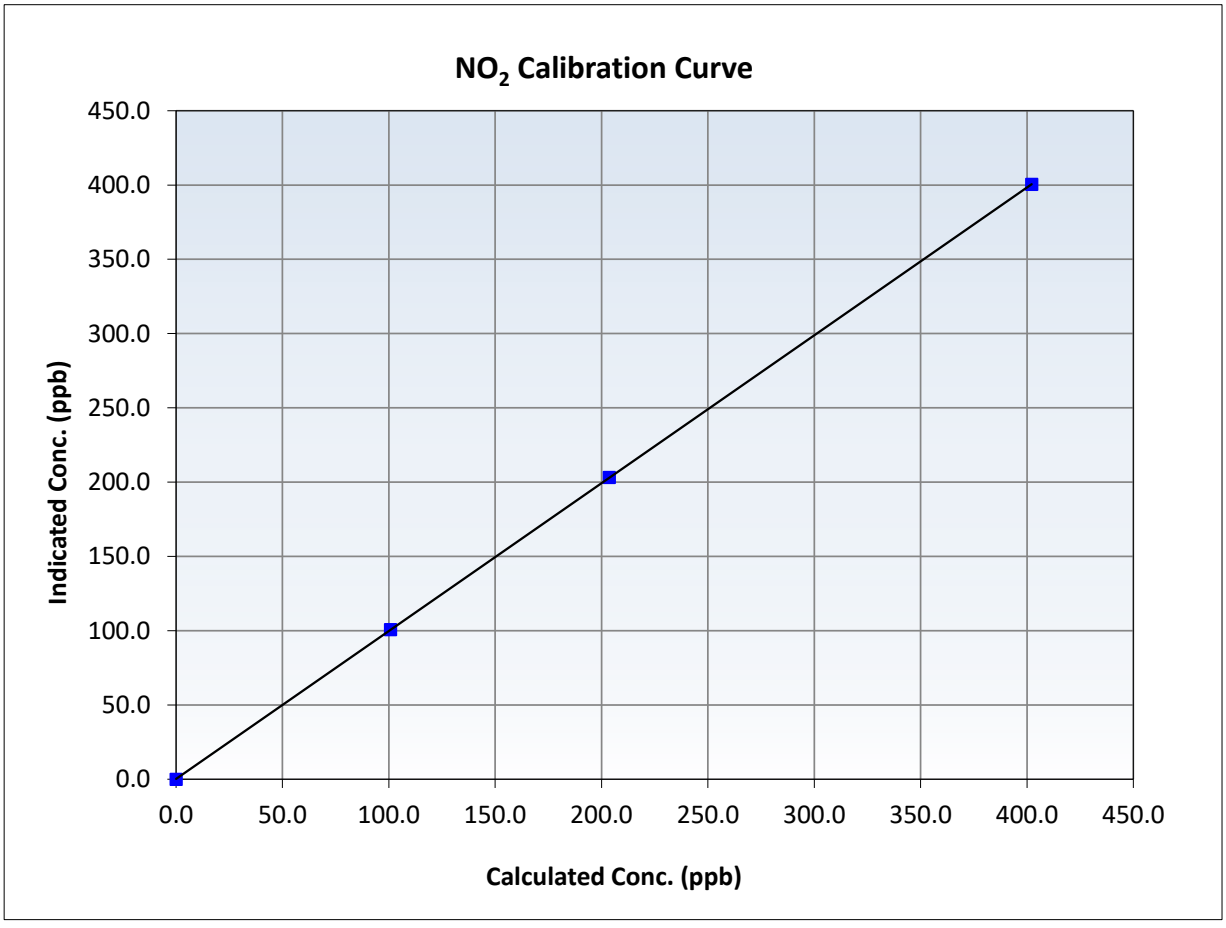
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	April 17, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:09	End Time (MST):	15:14
Analyzer make:	Teledyne API T200	Analyzer serial #:	7117

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
402.2	400.4	1.0045
203.6	203.1	1.0025
100.8	100.7	1.0010

Statistical Evaluation		Limits
Correlation Coefficient	0.999998	≥0.995
Slope	0.995341	0.90 - 1.10
Intercept	0.220012	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

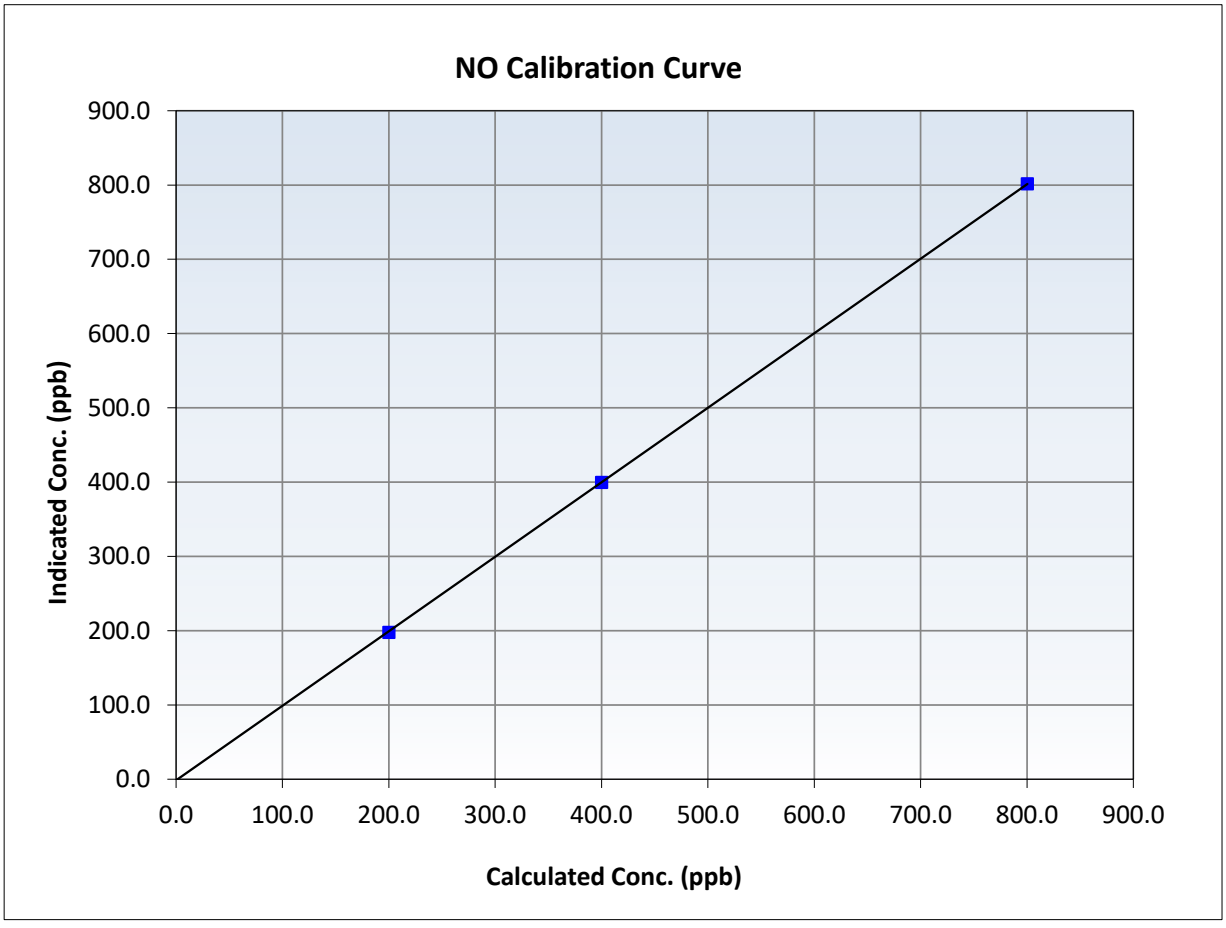
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	April 17, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:09	End Time (MST):	15:14
Analyzer make:	Teledyne API T200	Analyzer serial #:	7117

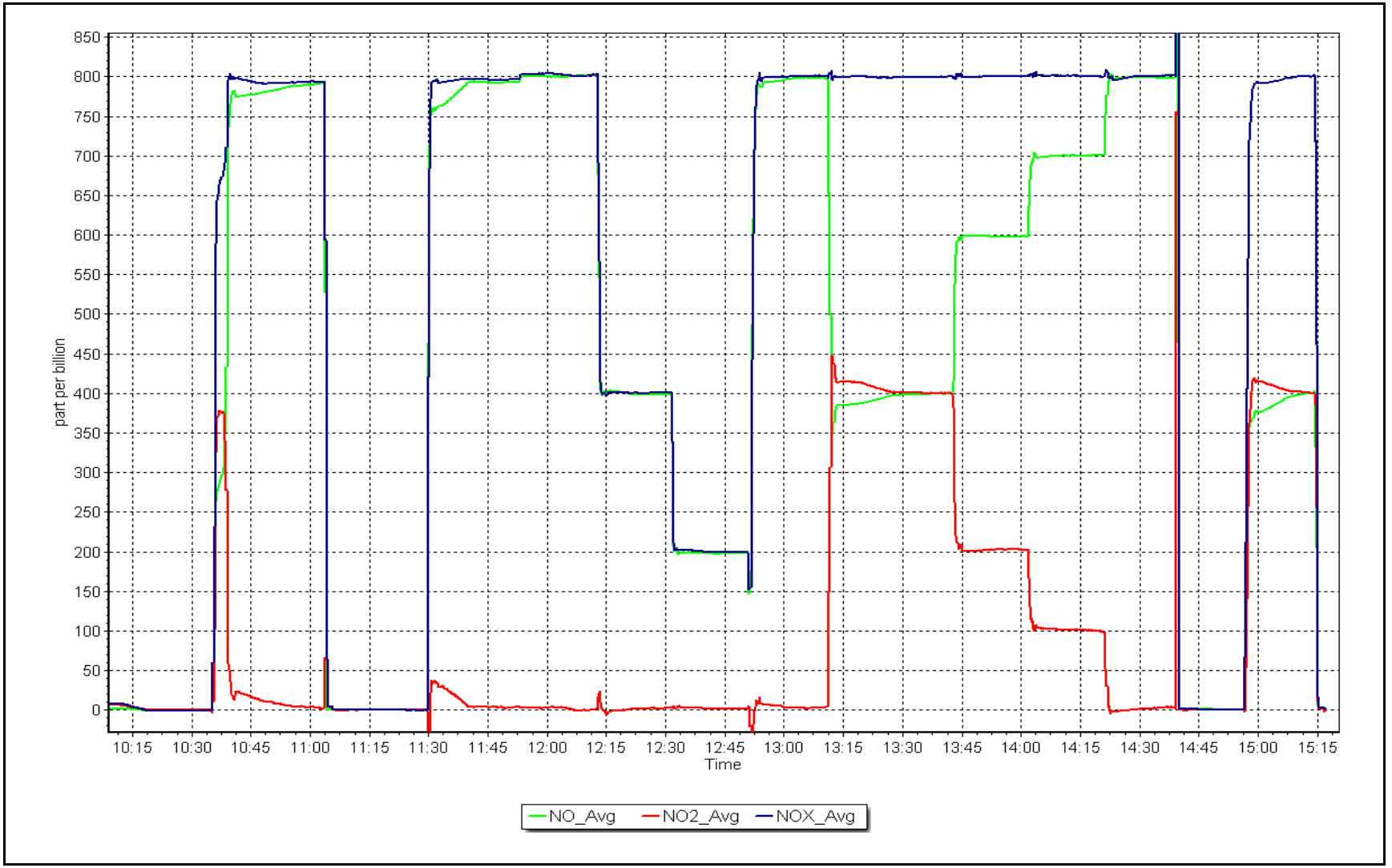
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
800.4	801.8	0.9982
400.2	399.8	1.0010
200.1	197.9	1.0111

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999990	*≥0.995*
Slope	1.003004	*0.90 - 1.10*
Intercept	-1.420000	*+/-20*



NO_X Calibration Plot Date: May 6, 2025 Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	May 1, 2025	Last Cal Date:	April 1, 2025
Start time (MST):	11:06	End time (MST):	14:30
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	Teledyne API T700	Serial Number:	3565
ZAG Make/Model:	Teledyne API T701	Serial Number:	146

Analyzer Information

Analyzer make:	Teledyne API T400		Analyzer serial #:	1107	
Analyzer Range	0 - 500 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.996600	0.998029	Backgd or Offset:	6.8	6.4
Calibration intercept:	0.920000	0.220000	Coeff or Slope:	1.031	1.013

O_3 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	863.1	400.0	407.9	0.980
As found Mid point					
As found Low point					
Baseline Corr As found:	408.1	Previous response	399.6	*% change	2.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

O_3 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	-0.2	----
High point	5000	863.1	400.0	399.2	1.002
Mid point	5000	744.0	200.0	200.1	1.000
Low point	5000	651.7	100.0	100.4	0.996
As left zero	5000	0.0	0.0	0.1	----
As left span	5000	863.1	400.0	400.8	0.998
				Average Correction Factor	0.999

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

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

O_3 Calibration Summary

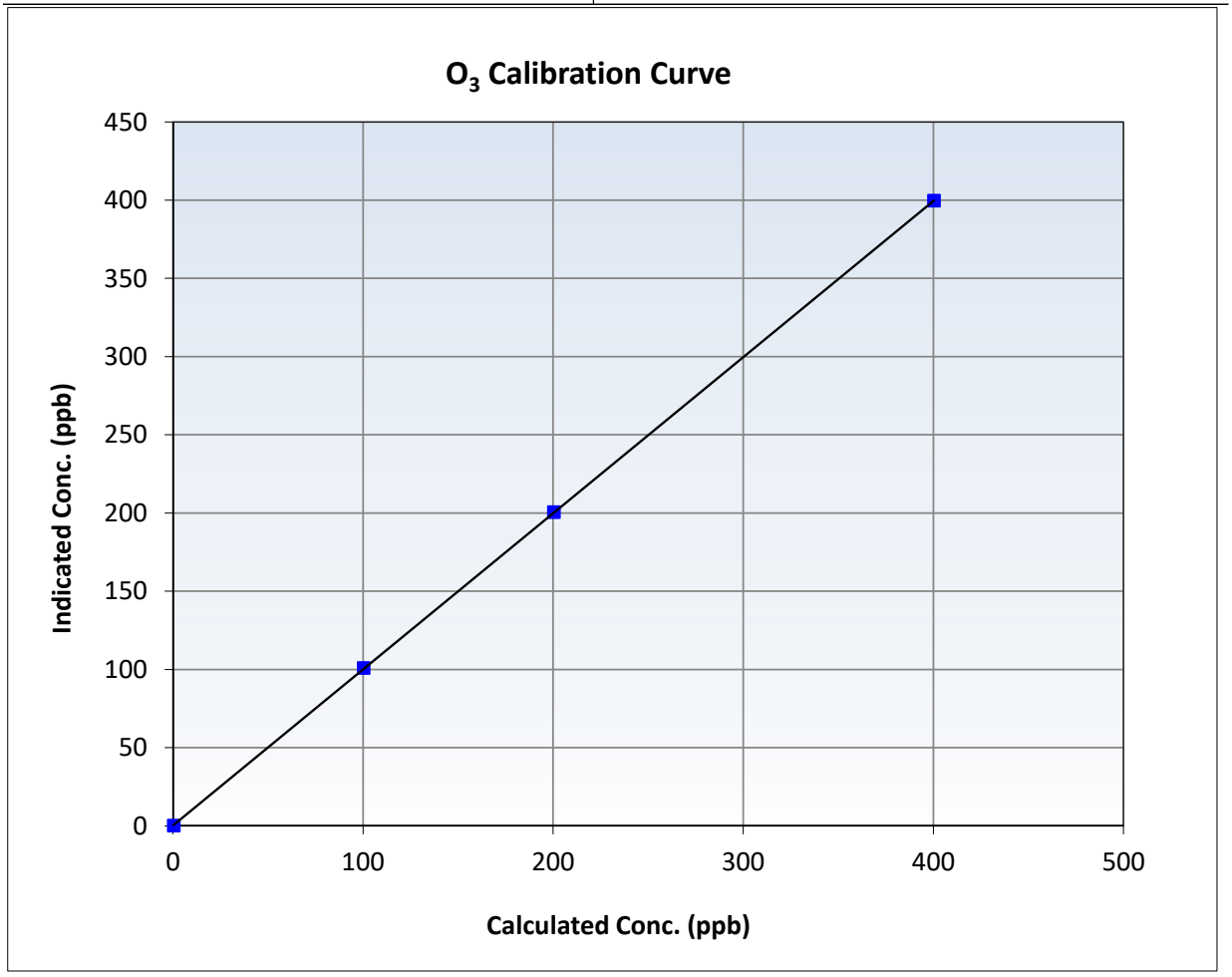
Station Information

Calibration Date:	May 1, 2025	Previous Calibration:	April 1, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	11:06	End Time (MST):	14:30
Analyzer make:	Teledyne API T400	Analyzer serial #:	1107

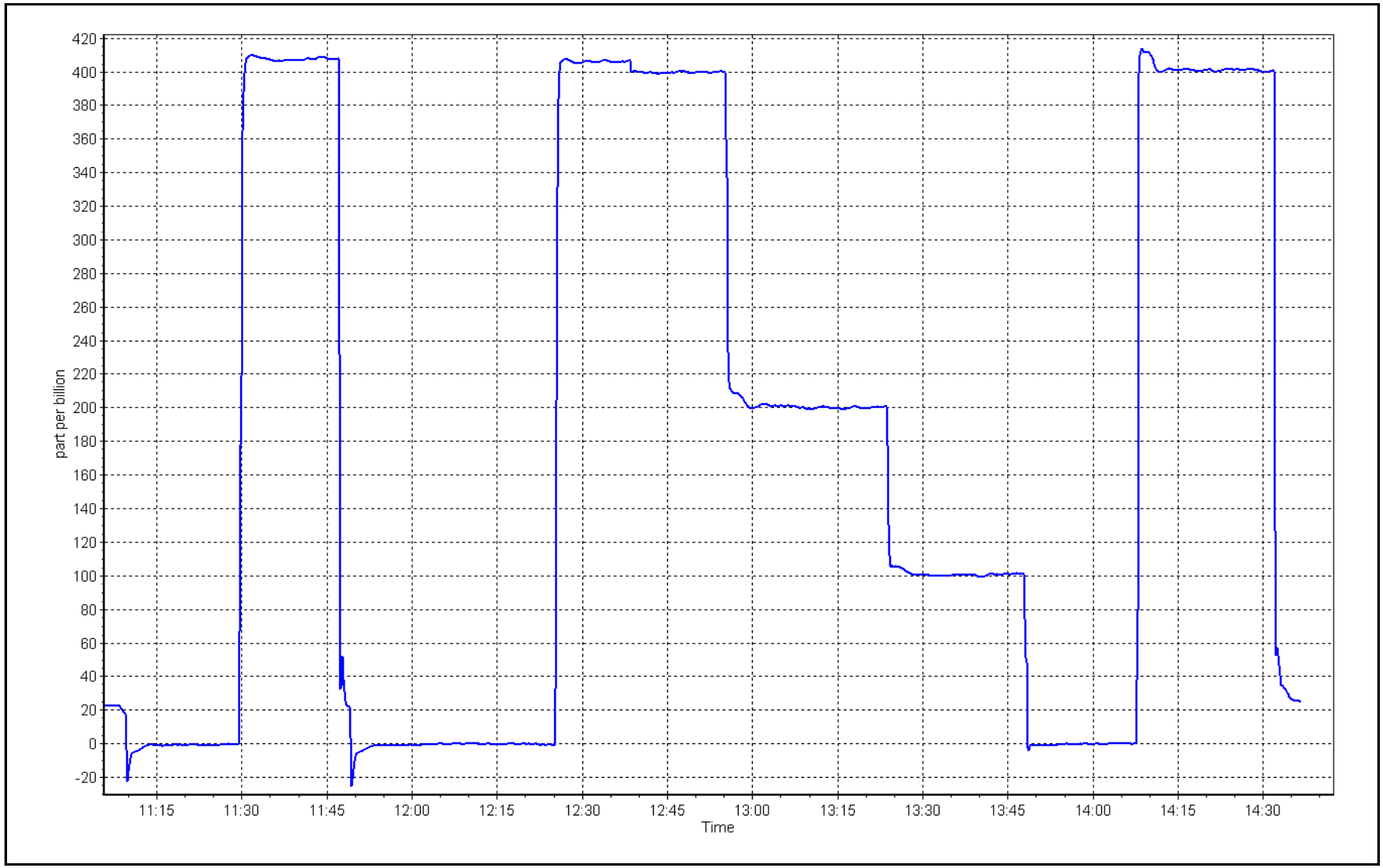
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
400.0	399.2	1.0020
200.0	200.1	0.9995
100.0	100.4	0.9960

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999995	*≥0.995*
Slope	0.998029	*0.90 - 1.10*
Intercept	0.220000	*+/- 5*



O_3 Calibration Plot Date: May 1, 2025 Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Fort McKay - Bertha Ganter	Station number:	AMS 01
Calibration Date:	May 14, 2025	Last Cal Date:	April 2, 2025
Start time (MST):	13:25	End time (MST):	15:29
Analyzer Make:	Teledyne API T640	S/N:	322
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388752
Temp/RH standard:	Alicat FP-25BT	S/N:	388752

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	(Limits)
T (°C)	14.5	14.0	14.5	☐	+/- 2 °C
P (mmHg)	730.1	732.77	730.1	☐	+/- 10 mmHg
Flow (LPM)	4.99	5.101	4.99	☐	+/- 0.25 LPM
PW% (pump)	36		36	☐	>80%
Zero Verification	PM w/o HEPA:	42.0	PM w/ HEPA:	4.9	<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: June 10, 2024 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	(Limits)
PMT Peak Test	8.7	11.1	11.1	☐	10.9 +/- 0.5

Date Optical Chamber Cleaned: May 14, 2025

Date Disposable Filter Changed: May 14, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0.0 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: October 24, 2024

Date RH/T Sensor Cleaned: May 14, 2025

Notes: Flow, temperature, and pressure were verified. Initial leak check did not pass. Optical chamber and RH/T sensor cleaned. Disposable filter changed. PMT peak test passed. Post maintenance leak check passed.

Calibration by: Rene Chamberland

Wood Buffalo Environmental Association

CO Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	May 2, 2025	Last Cal Date:	April 2, 2025
Start time (MST):	10:53	End time (MST):	14:22
Reason:	Routine		

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:	Teledyne API T300		Analyzer serial #:	3520	
Analyzer Range:	0 - 50 ppm				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.002893	1.001595	Backgd or Offset:	-0.015	-0.015
Calibration intercept:	0.133812	0.111828	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	4933	66.7	40.6	40.9	0.995
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr As found:	40.77	Prev response:	40.81	*% change:	-0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates 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	40.6	0.999
Mid point	4966	33.3	20.2	20.7	0.981
Low point	4983	16.7	10.2	10.3	0.990
As left zero	5000	0.0	0.0	-0.1	----
As left span	2960	40.0	40.5	40.5	1.001
				Average Correction Factor	0.990

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

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

CO Calibration Summary

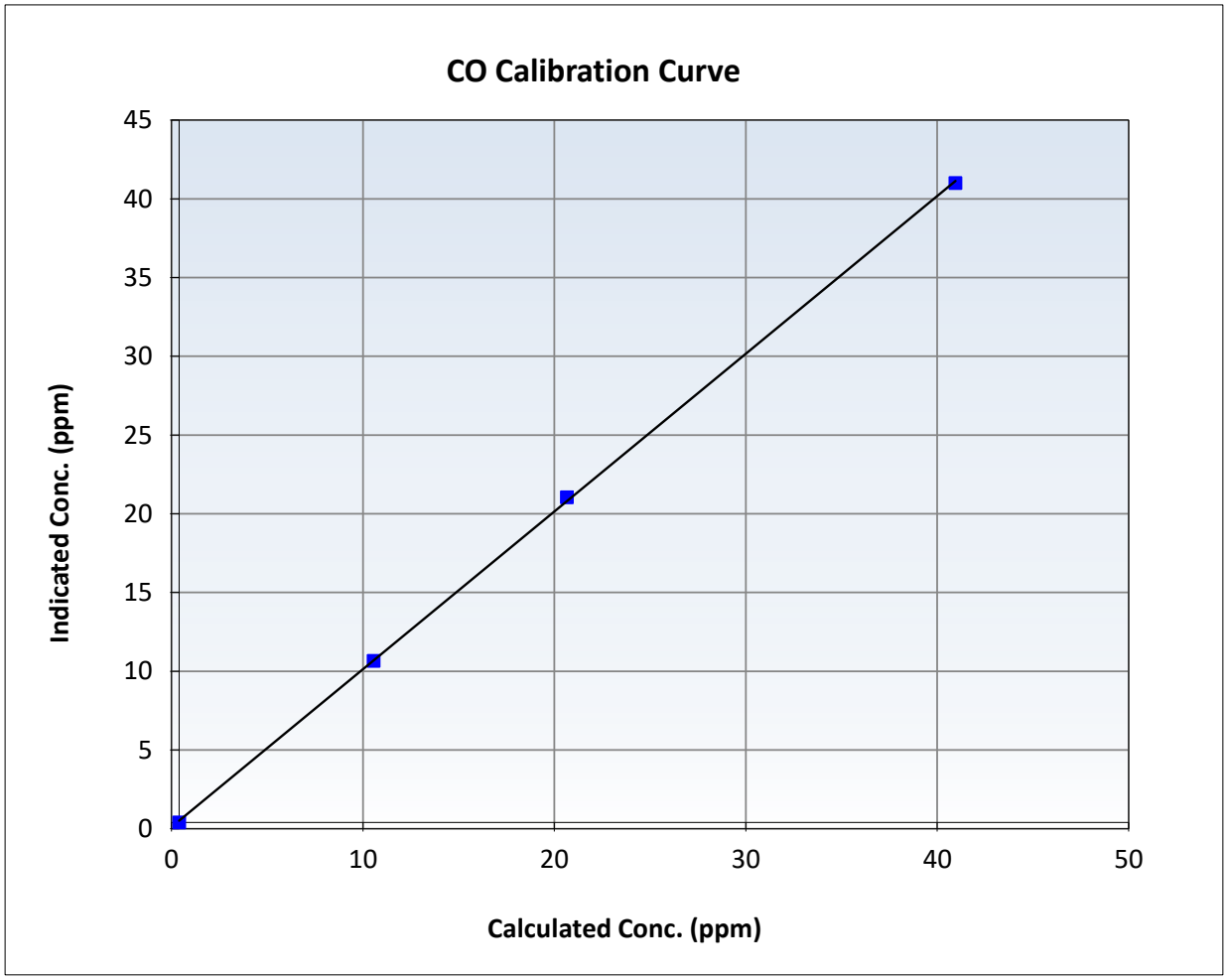
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 2, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:53	End Time (MST):	14:22
Analyzer make:	Teledyne API T300	Analyzer serial #:	3520

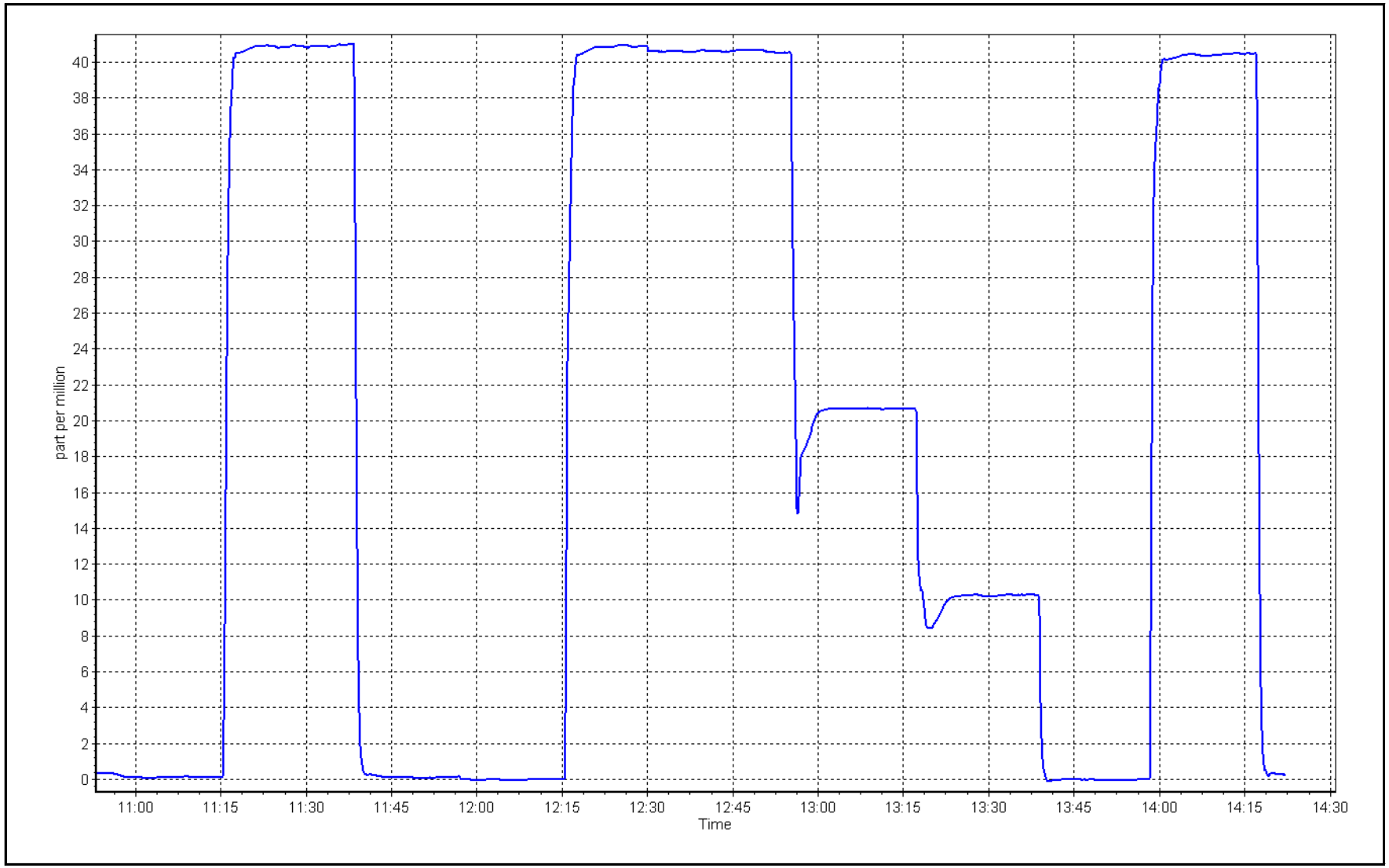
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
40.6	40.6	0.9987
20.2	20.7	0.9806
10.2	10.3	0.9897

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999896	*≥0.995*
Slope	1.001595	*0.90 - 1.10*
Intercept	0.111828	*+/-1.5*



CO Calibration Plot Date: May 2, 2025 Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association

CO_2 Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
Calibration Date:	May 5, 2025	Last Cal Date:	April 4, 2025
Start time (MST):	9:58	End time (MST):	13:25
Reason:	Routine		

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				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000358	1.000743	Backgd or Offset:	-0.011	-0.011
Calibration intercept:	-3.460000	-2.980000	Coeff or Slope:	0.922	0.922

CO_2 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	0.7	----
As found High Point	2920	80.0	1605.3	1605.3	1.000
As found Mid Point					
As found Low Point					
New cylinder response					

Baseline Corr As found:	1604.6	Prev response:	1602.4	*% change:	0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

CO_2 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	3000	0.0	0.0	0.8	----
High point	2920	80.0	1605.3	1607.6	0.999
Mid point	2960	40.0	802.7	791.9	1.014
Low point	2980	20.0	401.3	399.2	1.005
As left zero	3000	0.0	0.0	-2.6	----
As left span	2960	40.0	802.7	788.9	1.017
				Average Correction Factor	1.006

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

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

CO_2 Calibration Summary

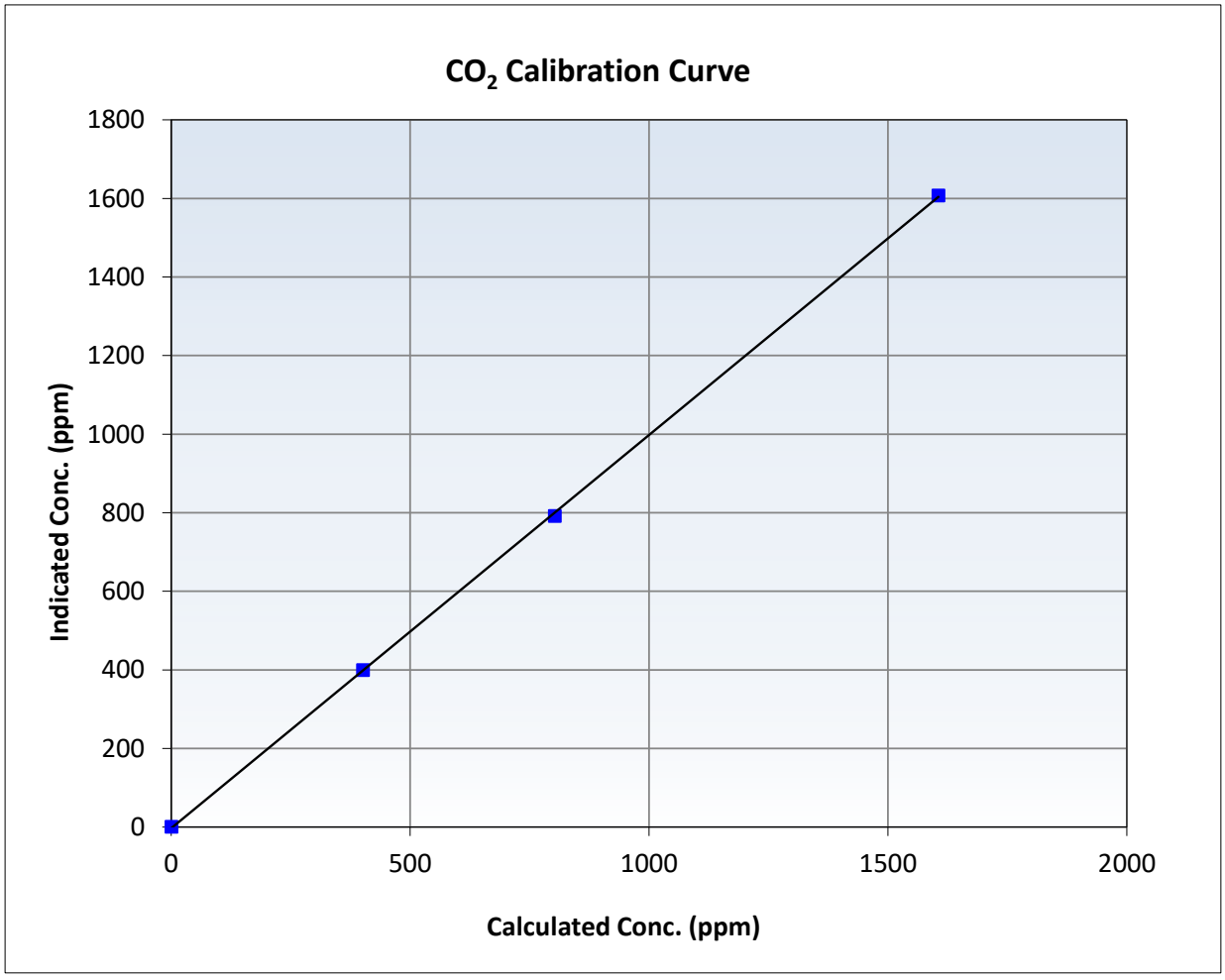
Station Information

Calibration Date	May 5, 2025	Previous Calibration	April 4, 2025
Station Name	Bertha Ganter-Fort McKay	Station Number	AMS 01
Start Time (MST)	9:58	End Time (MST)	13:25
Analyzer make	Teledyne API 360	Analyzer serial #	442

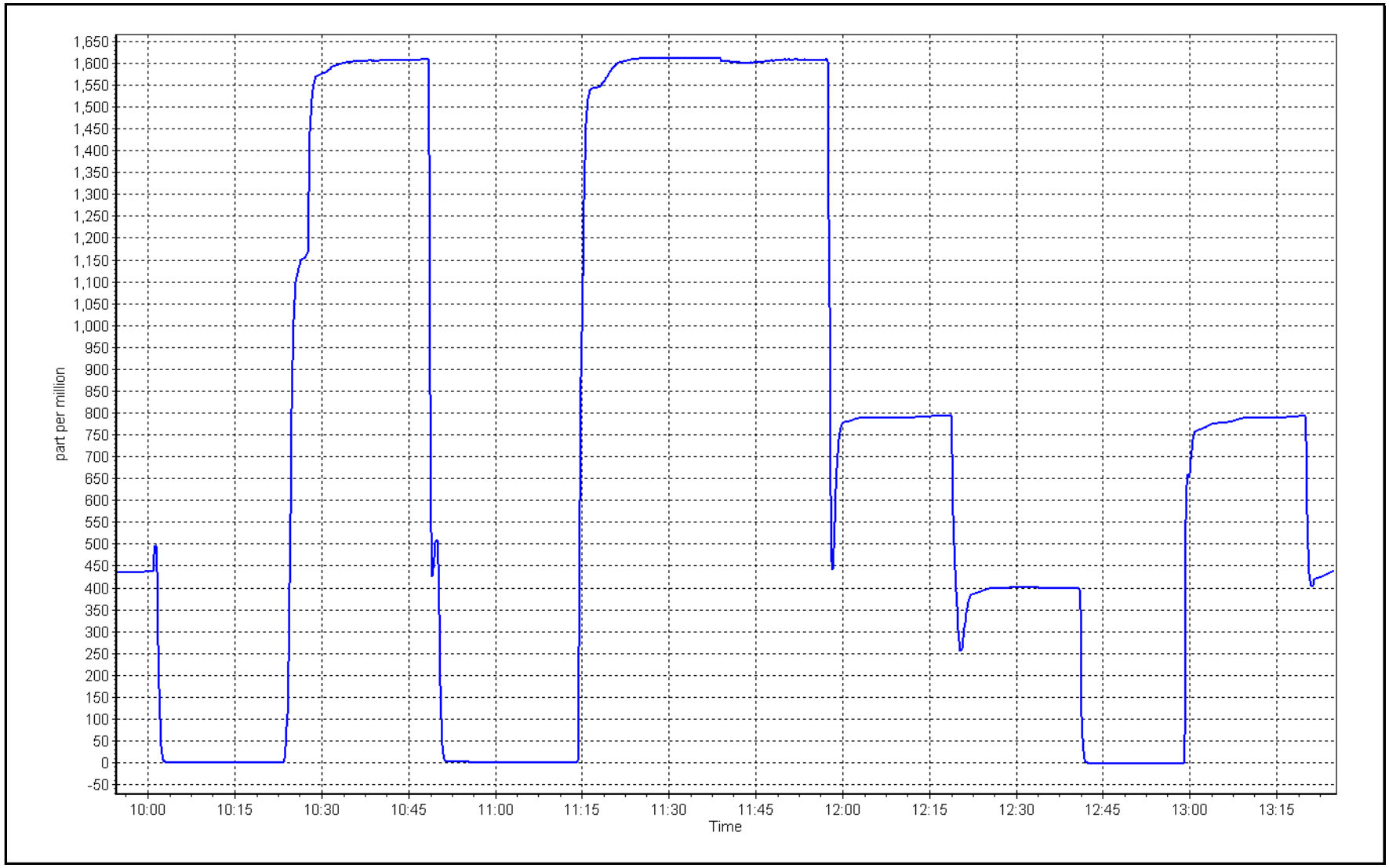
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.0	0.8	----
1605.3	1607.6	0.9986
802.7	791.9	1.0136
401.3	399.2	1.0053

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999928	*≥0.995*
Slope	1.000743	*0.90 - 1.10*
Intercept	-3.0	*+/-20*



CO_2 Calibration Plot Date: May 5, 2025 Location: Bertha Ganter-Fort McKay



Wood Buffalo Environmental Association

Nt - NOX - NH3 Calibration Report

Station Information

Station Name:	Bertha Ganter-Fort McKay	Station number:	AMS 01
NOX Cal Date:	May 7, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	10:22	End time (MST):	14:29
NH3 Cal Date:	May 8, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	10:40	End time (MST):	14:39
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:	API T700		Serial Number:	3565
ZAG make/model:	API T701		Serial Number:	146

Analyzer Information

Analyzer model:	API T201		Analyzer serial #:	808
Converter model:	API T501		Converter serial #:	484
NH3 Range (ppb):	0 - 2000 ppb		Reaction cell Press:	4.40
NOX Range (ppb):	0 - 1000 ppb		Sample Flow:	400

	Start	*Finish*		*Start*	*Finish*
NO coefficient:	0.903	0.903	Nt coefficient:	0.907	0.907
NOX coefficient:	0.905	0.905	NO bkgrnd:	0.5	0.5
NO2 coefficient:	1.000	1.000	NOX bkgrnd:	0.8	0.8
NH3 coefficient:	0.983	0.976	Nt bkgrnd:	2.9	2.9

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.001577	0.996923
NO_X Cal Offset:	-1.280000	0.380000
NO Cal Slope:	1.002933	1.001034
NO Cal Offset:	-1.820000	-2.280000
NO_2 Cal Slope:	1.002698	1.006488
NO_2 Cal Offset:	-0.301647	1.261532
NH3 Cal Slope:	0.998379	0.997827
NH3 Cal Offset:	-6.890779	-0.785052
Nt Cal Slope:	1.003583	1.002884
Nt Cal Offset:	-6.335266	-0.108174

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/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	-0.2	-0.4	-0.4	----	----
As found span	4932	67.6	803.1	800.4	803.1	799.0	796.1	799.0	1.0051	1.0054
AF GPT span	4932	67.6	803.1	-----	803.1	794.1	-----	798.3	1.0113	-----
new NO cyl rp										

Baseline Corr As Fd Nt = 799.4 ppb NO_X = 799.2 ppb NO = 796.5 ppb

Previous Response Nt = 799.63 ppb NO_X = 803.1 ppb NO = 800.9 ppb

**NO_X Δ (NO to GPT response) = -0.6%

* *= > +/-2% difference initiates investigation

*Percent Change $Nt_{(NO)}$ = 0.0%

*Percent Change NO_X = -0.5%

*Percent Change NO = -0.6%

* = > +/-5% change initiates investigation

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) *Limit = 0.95-1.05*	NO Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibration zero	5000	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.2	----	----
High point	4932	67.6	803.1	800.4	803.1	800.1	799.5	801.6	1.0037	1.0011
Mid point	4966	33.8	401.5	400.2	401.5	402.9	398.7	400.6	0.9966	1.0037
Low point	4983	16.9	200.8	200.1	200.8	199.7	195.0	199.5	1.0054	1.0261
								Average Correction Factor	1.0019	1.0103

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%*
Calibration zero	----	----	0.0	0.1	----	----
High GPT point (400 ppb O3)	790.0	392.7	400.0	403.3	0.9918	100.8%
Mid GPT point (200 ppb O3)	790.0	591.5	201.2	204.3	0.9848	101.5%
Low GPT point (100 ppb O3)	790.0	693.9	98.8	101.9	0.9696	103.1%
				Average Correction Factor	0.9821	101.8%

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	-0.5	0.0	-0.5	----	----
AF High point	2931	69.4	1799.8	----	1799.8	1805.9	----	1796.6	0.996	1.001
AF Mid point							----			
AF Low point							----			
new NH3 cyl rp										

Baseline Corr As Fd Nt = 1806.4 ppb NH3 = 1797.1 ppb *Percent Change $Nt_{(NH3)}$ = 0.4%

Previous Response Nt = 1799.9 ppb NH3 = 1790.0 ppb * = > +/-5% change initiates investigation *Percent Change NH3 = 0.4%

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) *Limit = 0.95-1.05*	NH3 Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibration zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.1	----	----
High point	2931	69.4	1799.8	----	1799.8	1805.9	----	1796.6	0.997	1.002
Mid point	2961	38.6	1001.0	----	1001.0	1001.0	----	994.8	1.000	1.006
Low point	2981	19.3	500.5	----	500.5	503.7	----	499.7	0.994	1.002
								Average Correction Factor	0.9968	1.0032

NH3 Previous Converter Efficiency = 98.3 %

NH3 Current Converter Efficiency = 97.6 %

Notes: Changed the inlet filter after as founds. Adjusted the NH3 span.

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

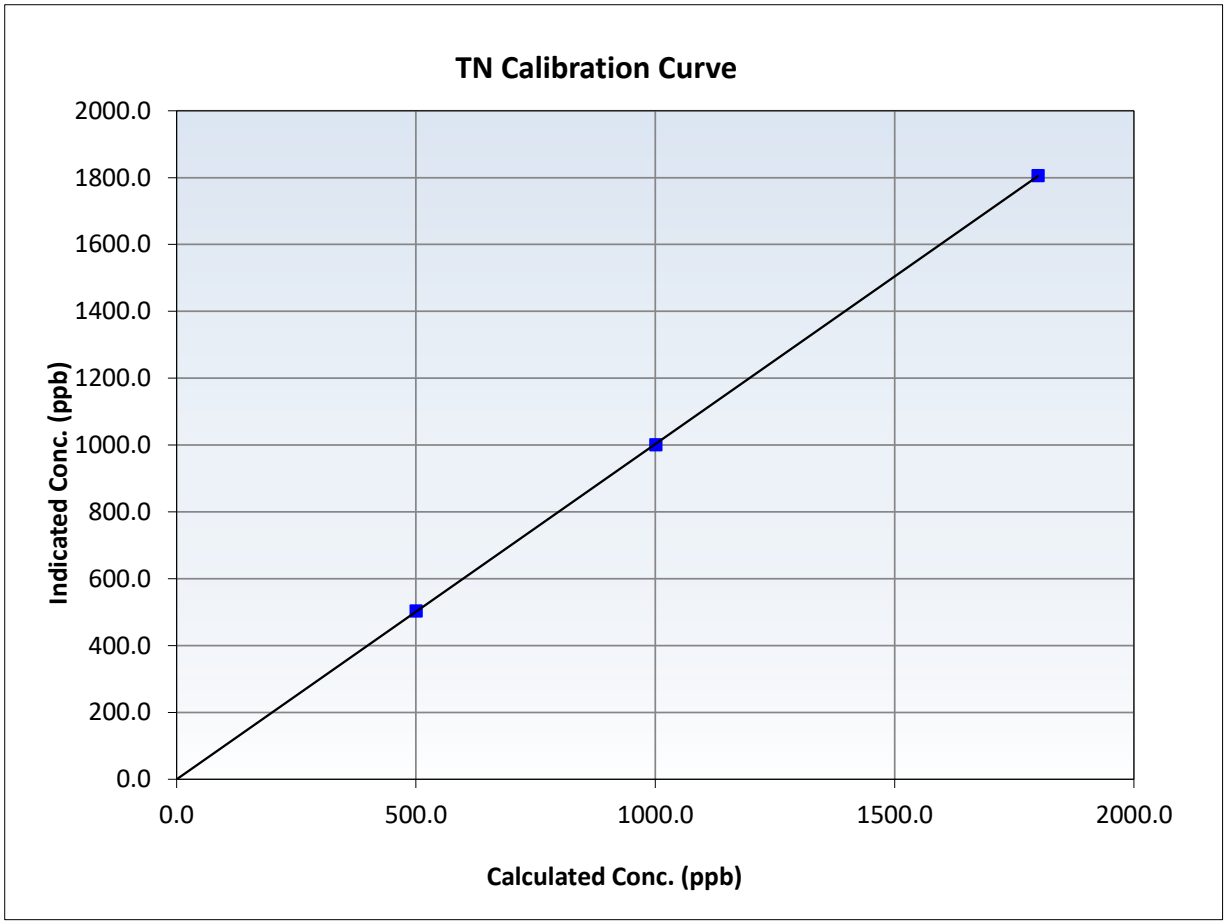
Nt Calibration Summary

Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 14, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:22	End Time (MST):	14:29
Analyzer make:	API T201	Analyzer serial #:	808

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.0	-0.2	----	Correlation Coefficient	0.999993	≥0.995
1799.8	1805.9	0.9966	Slope	1.002884	0.90 - 1.10
1001.0	1001.0	1.0000			
500.5	503.7	0.9937	Intercept	-0.108174	+/-20



Wood Buffalo Environmental Association

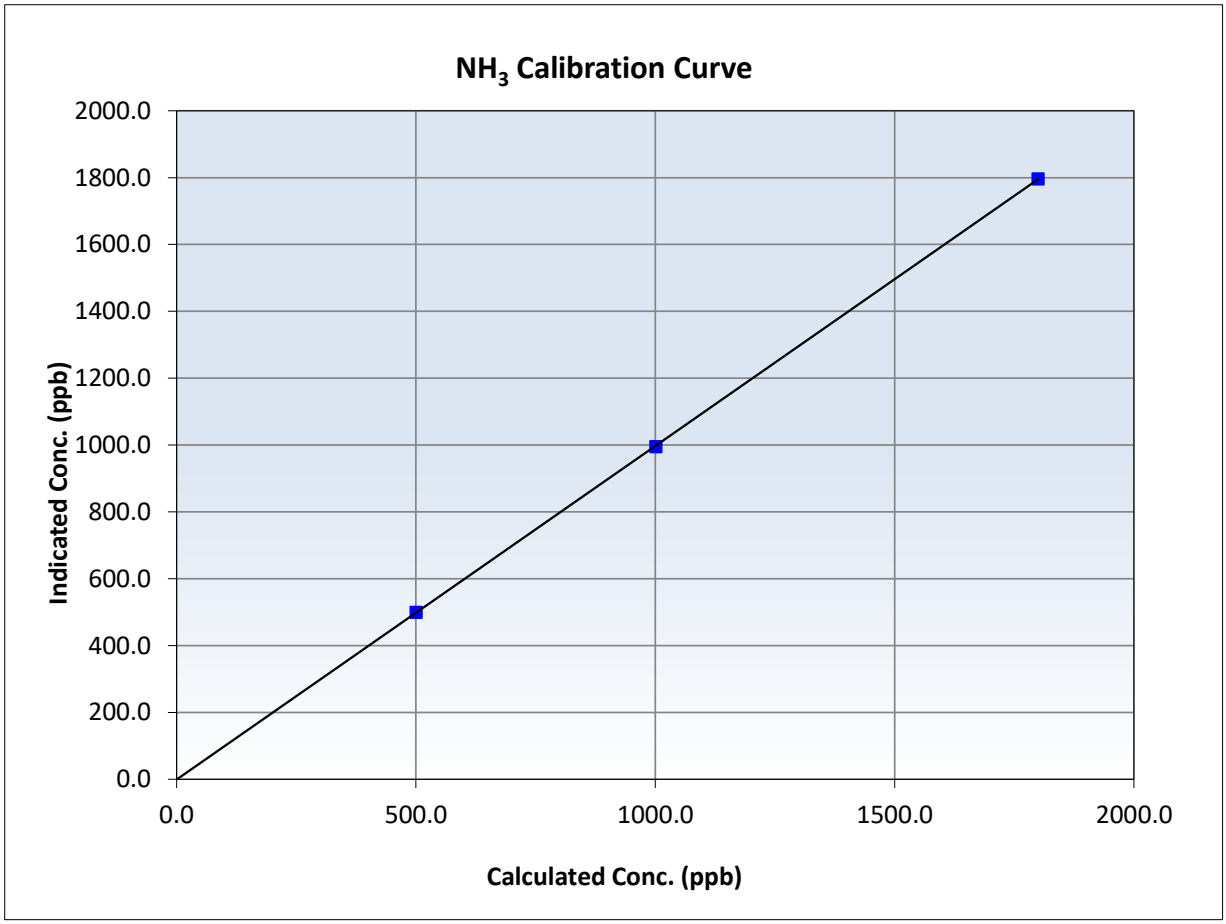
NH_3 Calibration Summary

Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 14, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:22	End Time (MST):	14:29
Analyzer make:	API T201	Analyzer serial #:	808

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	-0.1	----	Correlation Coefficient	0.999992	*≥0.995*
1799.8	1796.6	1.0018	Slope	0.997827	*0.90 - 1.10*
1001.0	994.8	1.0063			
500.5	499.7	1.0016	Intercept	-0.785052	*+/-20*



Wood Buffalo Environmental Association

NO_X Calibration Summary

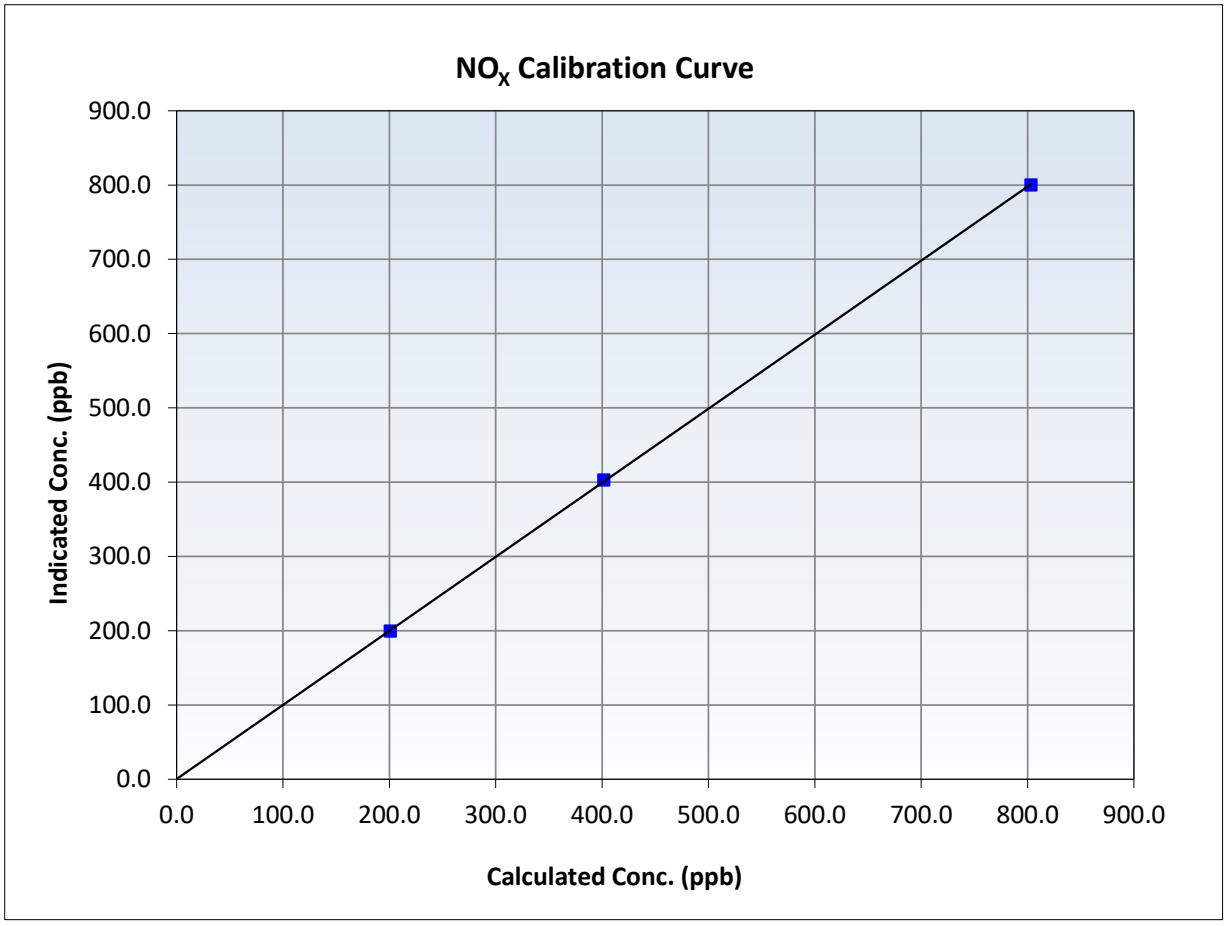
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 14, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:22	End Time (MST):	14:29
Analyzer make:	API T201	Analyzer serial #:	808

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
803.1	800.1	1.0037
401.5	402.9	0.9966
200.8	199.7	1.0054

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999981	*≥0.995*
Slope	0.996923	*0.90 - 1.10*
Intercept	0.380000	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

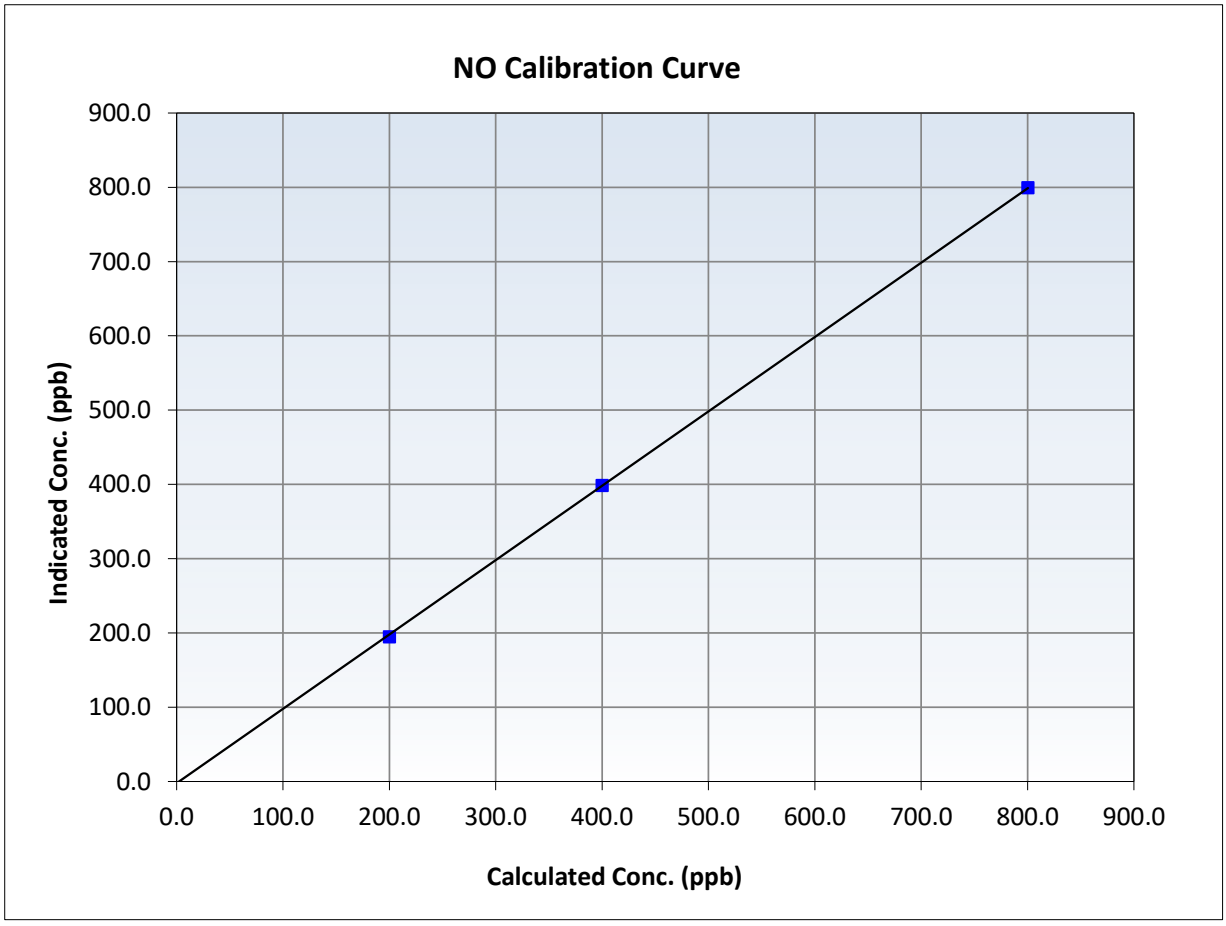
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 14, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:22	End Time (MST):	14:29
Analyzer make:	API T201	Analyzer serial #:	808

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
800.4	799.5	1.0011
400.2	398.7	1.0037
200.1	195.0	1.0261

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999960	*≥0.995*
Slope	1.001034	*0.90 - 1.10*
Intercept	-2.280000	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

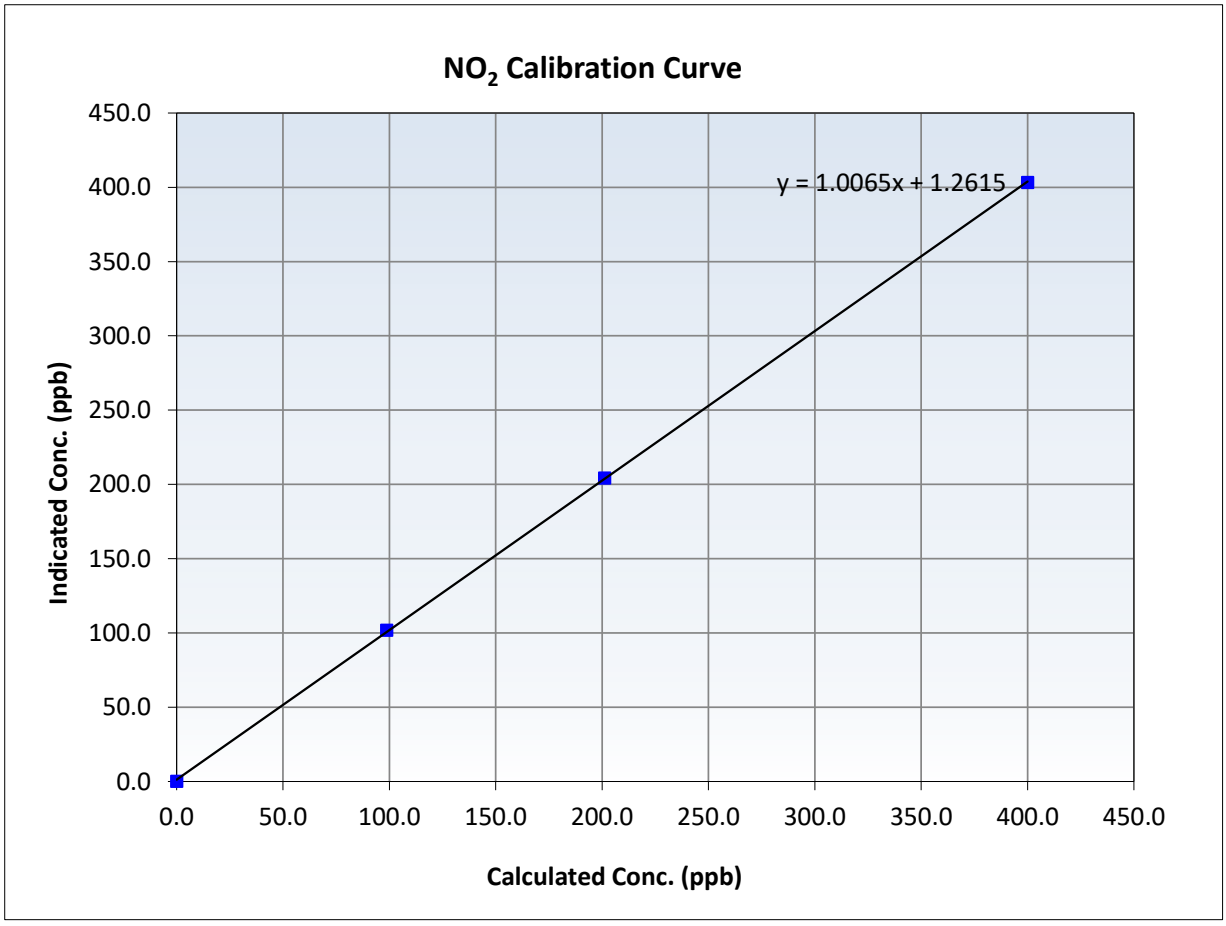
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 14, 2025
Station Name:	Bertha Ganter-Fort McKay	Station Number:	AMS 01
Start Time (MST):	10:22	End Time (MST):	14:29
Analyzer make:	API T201	Analyzer serial #:	808

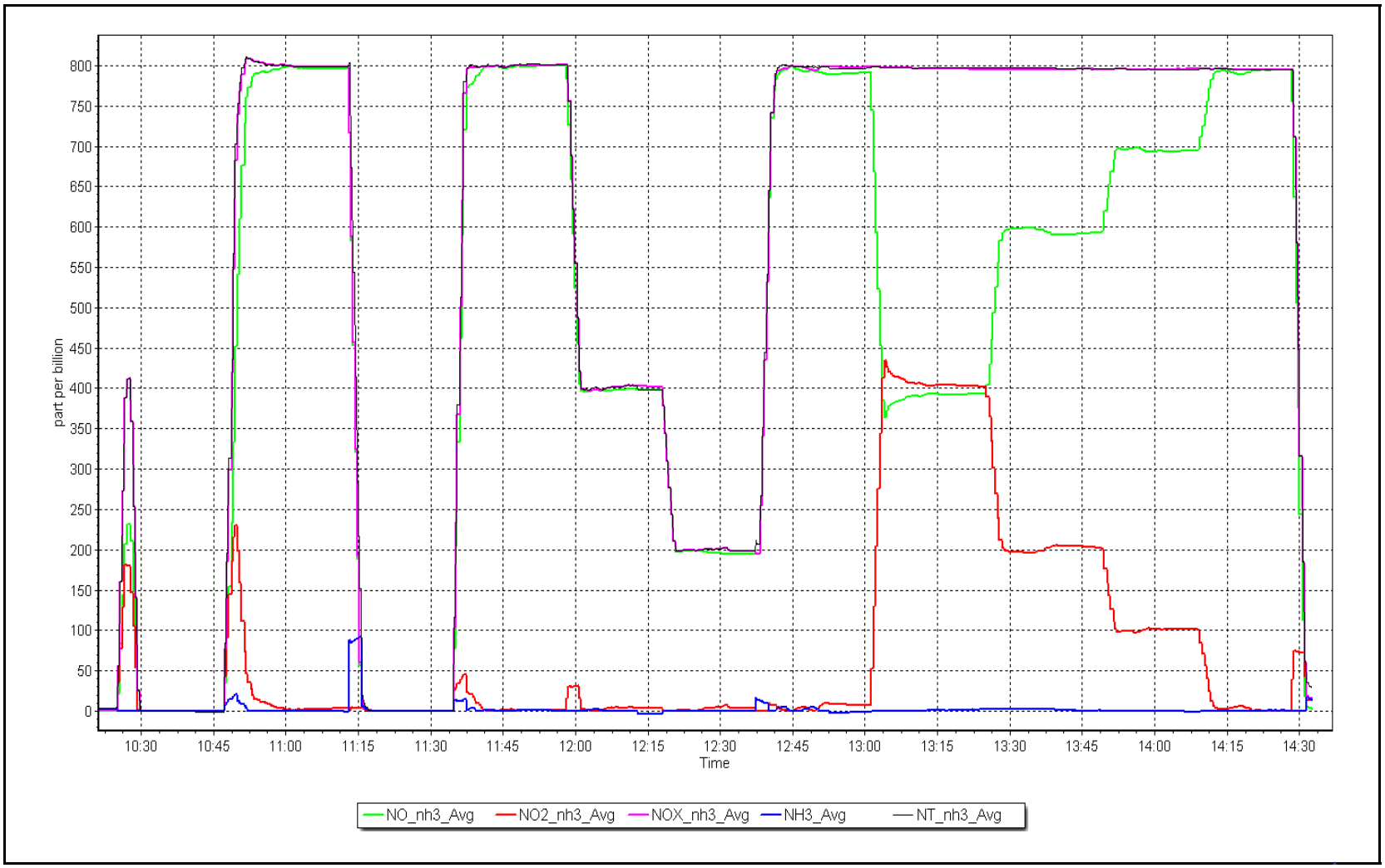
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
400.0	403.3	0.9918
201.2	204.3	0.9848
98.8	101.9	0.9696

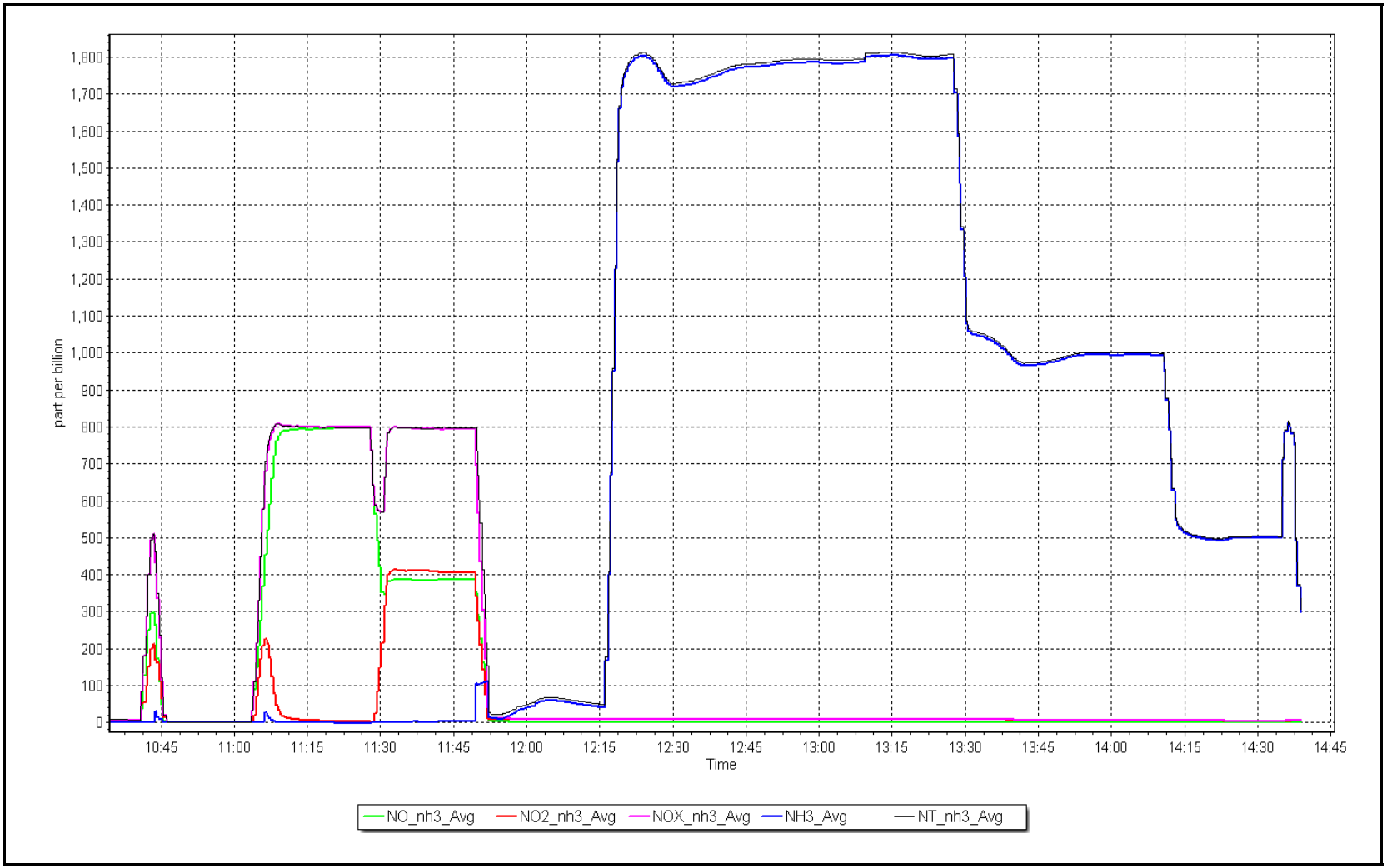
Statistical Evaluation		*Limits*
Correlation Coefficient	0.999962	*≥0.995*
Slope	1.006488	*0.90 - 1.10*
Intercept	1.261532	*+/-20*



NO_X Calibration Plot Date: May 7, 2025 Location: Bertha Ganter-Fort McKay



NH_3 Calibration Plot Date: May 8, 2025 Location: Bertha Ganter-Fort McKay



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS02
MILDRED LAKE
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Mildred Lake	Station number:	AMS 02
Calibration Date:	May 16, 2025	Last Cal Date:	April 17, 2025
Start time (MST):	9:04	End time (MST):	12:59
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.99	ppm	Cal Gas Exp Date:	October 9, 2032
Cal Gas Cylinder #:	EB0112903			
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		Serial Number:	JC1404901075	
Analyzer Range:	0-1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.008050	0.996764	Backgd or Offset:	24.0	24.3
Calibration intercept:	-1.170425	-0.793913	Coeff or Slope:	0.763	0.759

SO_2 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	4913	78.6	803.0	792.0	1.014
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	792.1	Previous response	808.3	*% change	-2.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	4913	78.4	801.0	798.5	1.003
Mid point	4961	39.2	399.8	395.9	1.010
Low point	4980	19.6	199.9	198.3	1.008
As left zero	5000	0.0	0.0	-0.1	----
As left span	4913	78.4	801.0	807.0	0.993
				Average Correction Factor:	1.007

Notes: Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

SO_2 Calibration Summary

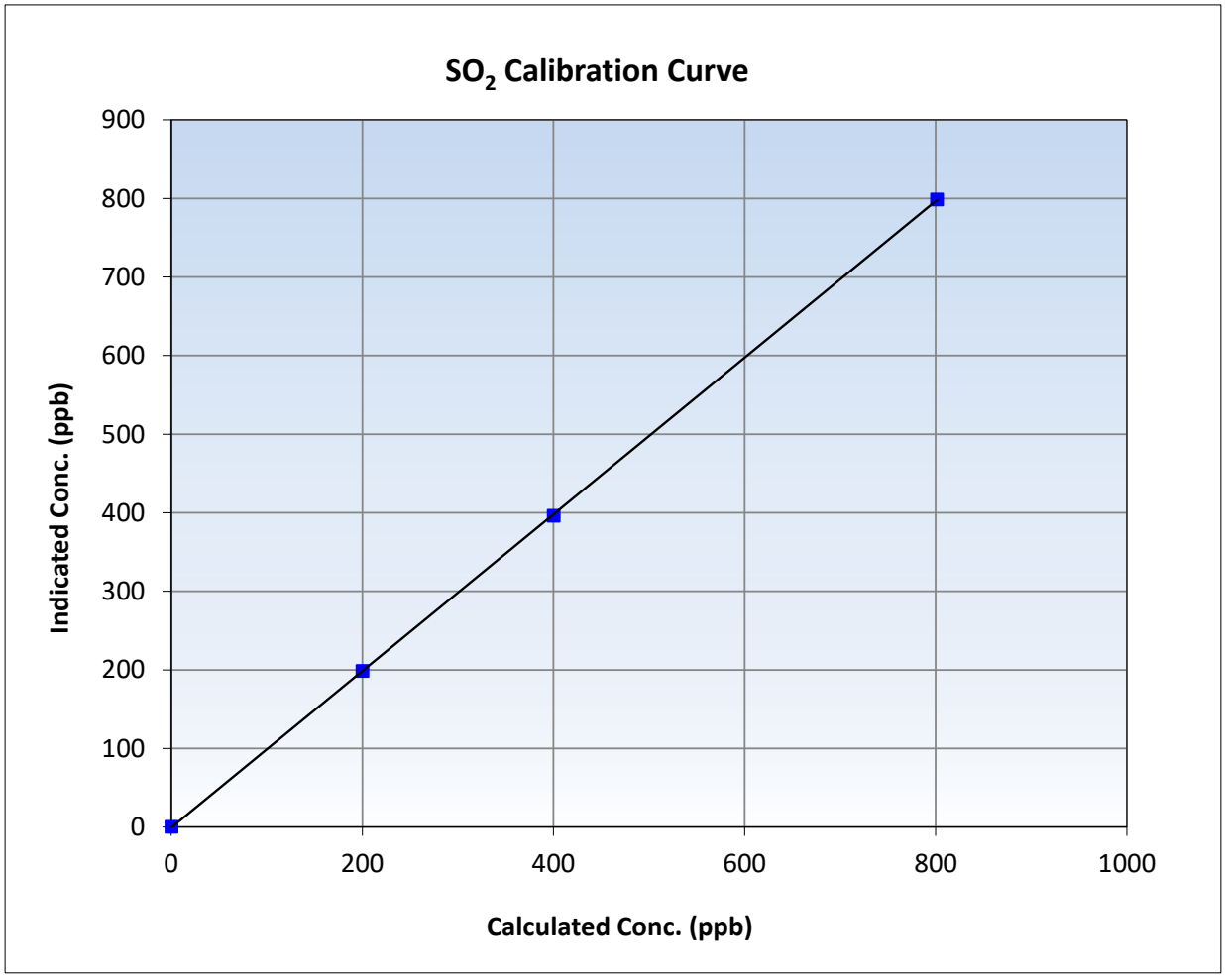
Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	April 17, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:04	End Time (MST):	12:59
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1404901075

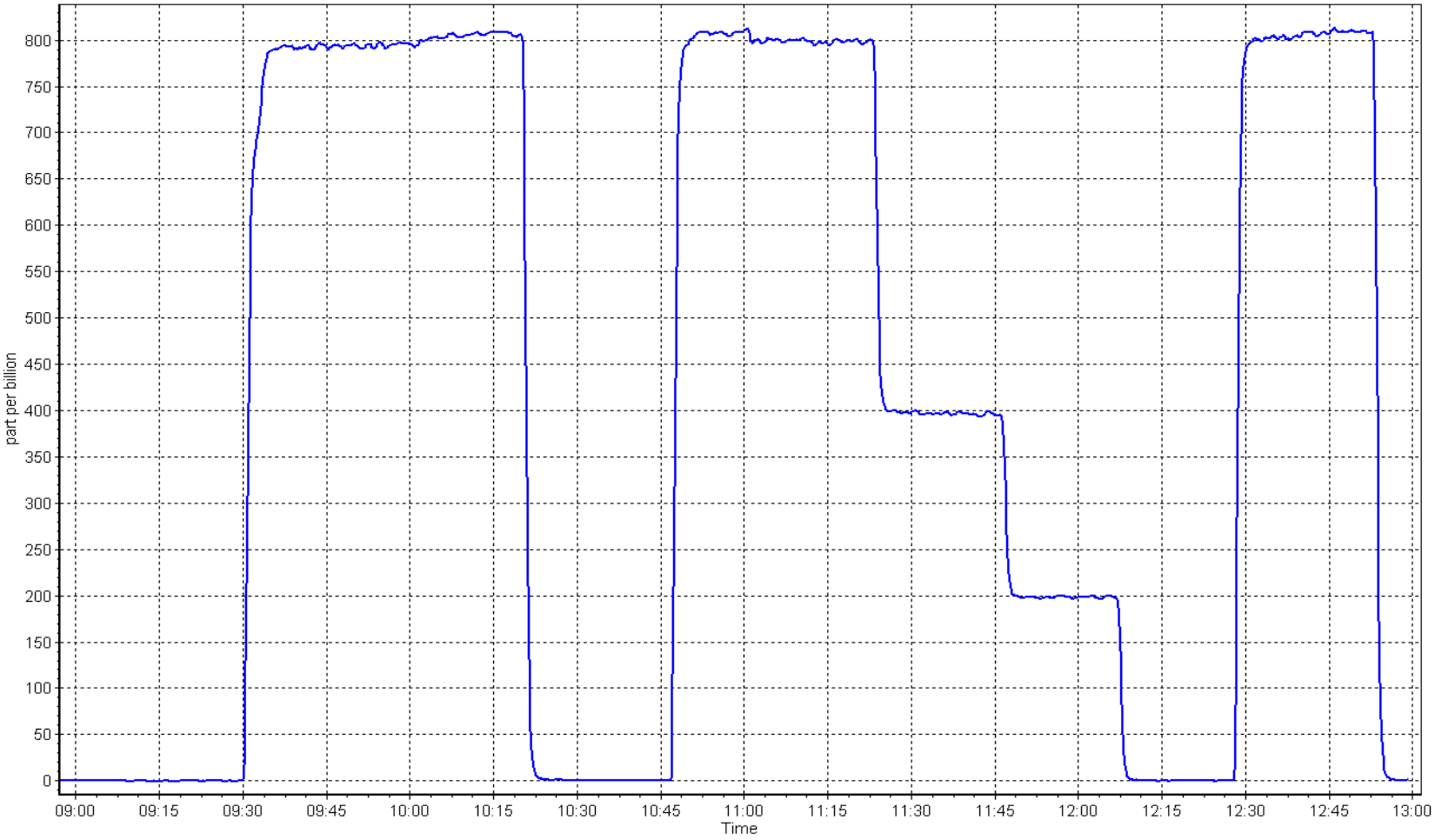
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
801.0	798.5	1.0031
399.8	395.9	1.0098
199.9	198.3	1.0080

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999986	*≥0.995*
Slope	0.996764	*0.90 - 1.10*
Intercept	-0.793913	*+/-30*



SO2 Calibration Plot Date: May 16, 2025 Location: Mildred Lake



Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Mildred Lake	Station number:	AMS 02
Calibration Date:	May 27, 2025	Last Cal Date:	April 16, 2025
Start time (MST):	9:53	End time (MST):	15:06
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.75	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	CC700774			
Removed Cal Gas Conc:	4.75	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	1185
ZAG Make/Model:	Teledyne API T701		Serial Number:	4891

Analyzer Information

Analyzer make:	Thermo 43iQTL		Analyzer serial #:	12333331546	
Converter make:	Global G150		Converter serial #:	2023-267	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.001840	1.003125	Backgd or Offset:	1.42	1.39
Calibration intercept:	0.240000	0.020000	Coeff or Slope:	0.977	0.957

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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	0.0	----
As found High point	4916	84.2	80.0	81.5	0.981
As found Mid point	4958	42.1	40.0	40.8	0.980
As found Low point	4979	21.1	20.0	20.4	0.980
New cylinder response					

Baseline Corr As found:	81.5	Prev response:	80.38	*% change:	1.4%
Baseline Corr 2nd AF pt:	40.8	AF Slope:	1.018842	AF Intercept:	0.020000
Baseline Corr 3rd AF pt:	20.4	AF Correlation:	1.000000	* = > +/-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) *Limit = 0.95-1.05*
Calibrator zero	5000	0.0	0.0	0.0	----
High point	4916	84.2	80.0	80.2	0.997
Mid point	4958	42.1	40.0	40.3	0.992
Low point	4979	21.1	20.0	20.0	1.000
As left zero	5000	0.0	0.0	0.0	----
As left span	4916	84.2	80.0	80.5	0.994
SO2 Scrubber Check	4920	80.2	802.0	0.0	----

Date of last scrubber change:	July 16, 2024	Ave Corr Factor	0.997
Date of last converter efficiency test:	NA		

Notes: Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

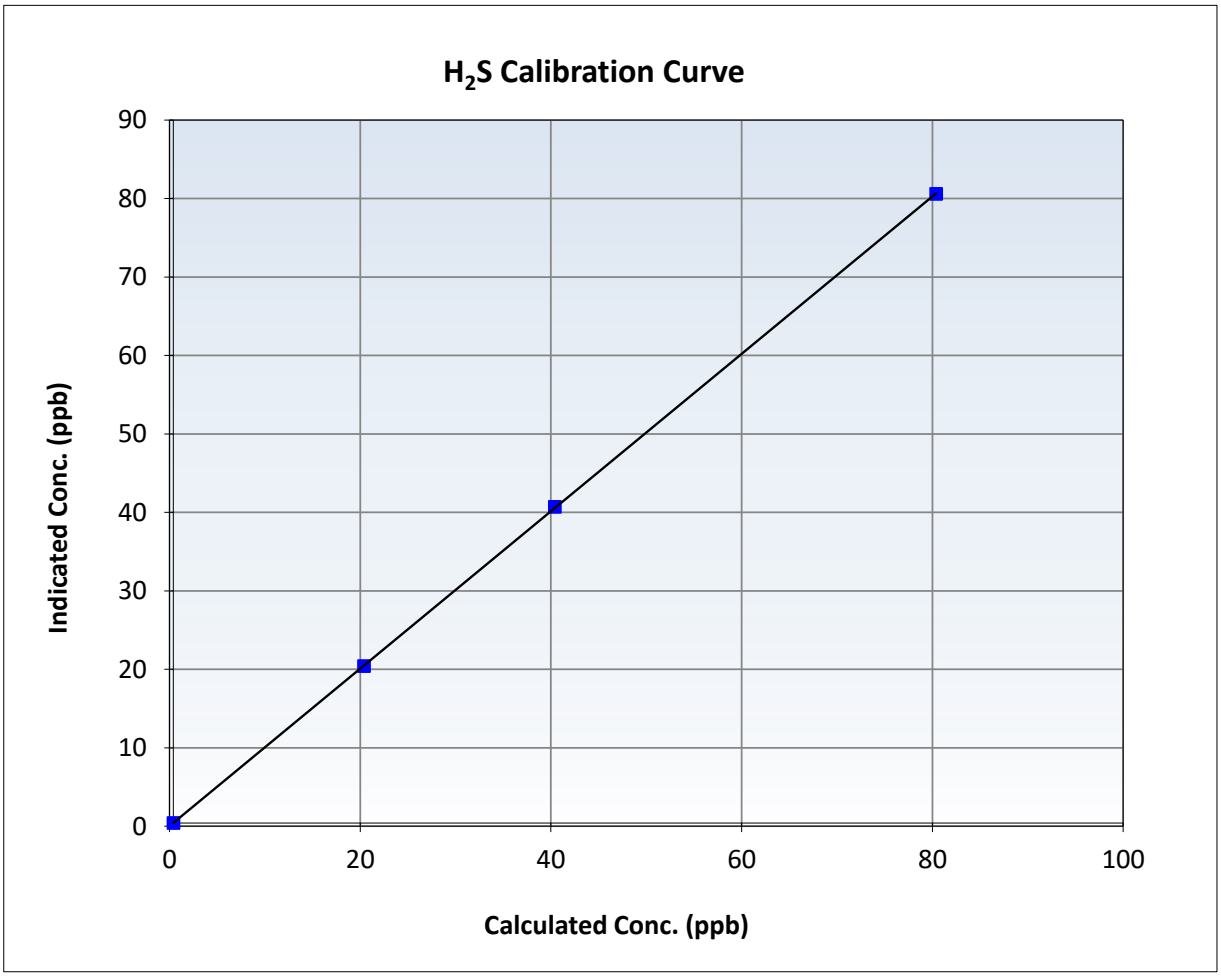
H2S Calibration Summary

Station Information

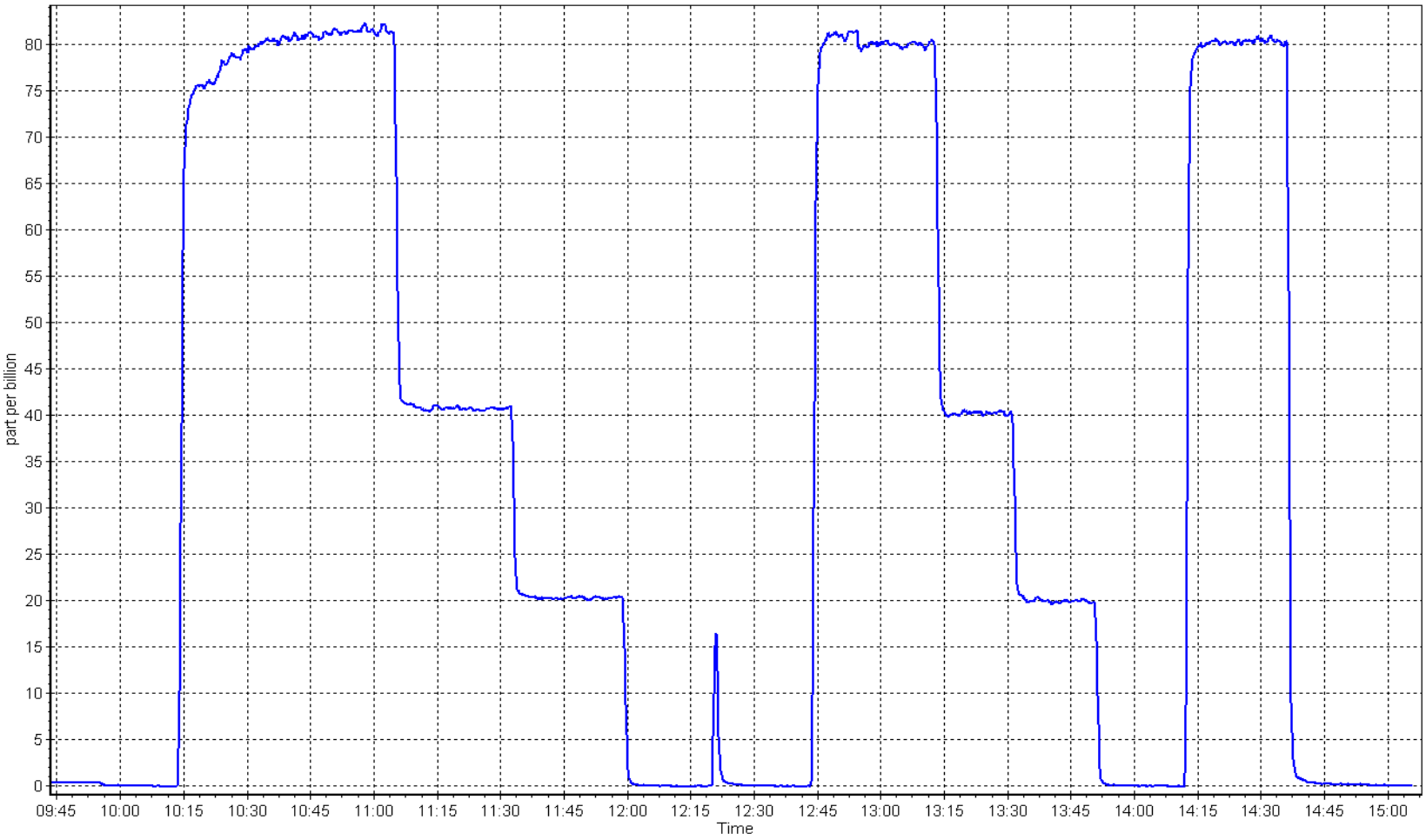
Calibration Date:	May 27, 2025	Previous Calibration:	April 16, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:53	End Time (MST):	15:06
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12333331546

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.0	----	Correlation Coefficient	0.999990	*≥0.995*
80.0	80.2	0.9974	Slope	1.003125	*0.90 - 1.10*
40.0	40.3	0.9924			
20.0	20.0	0.9999	Intercept	0.020000	*+/-3*



H2S Calibration Plot Date: May 27, 2025 Location: Mildred Lake



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Mildred Lake	Station number:	AMS 02
Calibration Date:	May 16, 2025	Last Cal Date:	April 17, 2025
Start time (MST):	9:07	End time (MST):	12:59
Reason:	Routine		

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	Analyzer serial #:	12227620776
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	3.17E-04	3.22E-04	NMHC SP Ratio:	5.66E-05	5.79E-05
CH4 Retention time:	14.8	14.8	NMHC Peak Area:	156929	153475
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	16.37	1.024
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.37	Prev response	16.77	*% change	-2.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4913	78.4	16.76	16.82	0.997
Mid point	4961	39.2	8.37	8.34	1.003
Low point	4980	19.6	4.18	4.10	1.020
As left zero	5000	0.0	0.00	0.00	----
As left span	4913	78.4	16.76	16.81	0.997
				Average Correction Factor	1.006

Notes: Changed sample inlet filter after as founds. Adjusted span.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4913	78.4	8.86	8.63	1.027
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.63	Prev response	8.88	*% change	-2.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	8.83	1.003
Mid point	4961	39.2	4.42	4.40	1.005
Low point	4980	19.6	2.21	2.19	1.012
As left zero	5000	0.0	0.00	0.00	----
As left span	4913	78.4	8.86	8.82	1.005
				Average Correction Factor	1.007

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	7.74	1.021
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.74	Prev response	7.89	*% change	-1.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4913	78.4	7.90	7.99	0.989
Mid point	4961	39.2	3.94	3.94	1.001
Low point	4980	19.6	1.97	1.92	1.029
As left zero	5000	0.0	0.00	0.00	----
As left span	4913	78.4	7.90	7.99	0.989
				Average Correction Factor	1.006

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	1.003153	1.004981
THC Cal Offset:	-0.046376	-0.048768
CH4 Cal Slope:	1.003647	1.014088
CH4 Cal Offset:	-0.042173	-0.040743
NMHC Cal Slope:	1.002609	0.997231
NMHC Cal Offset:	-0.003803	-0.009225

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

THC Calibration Summary

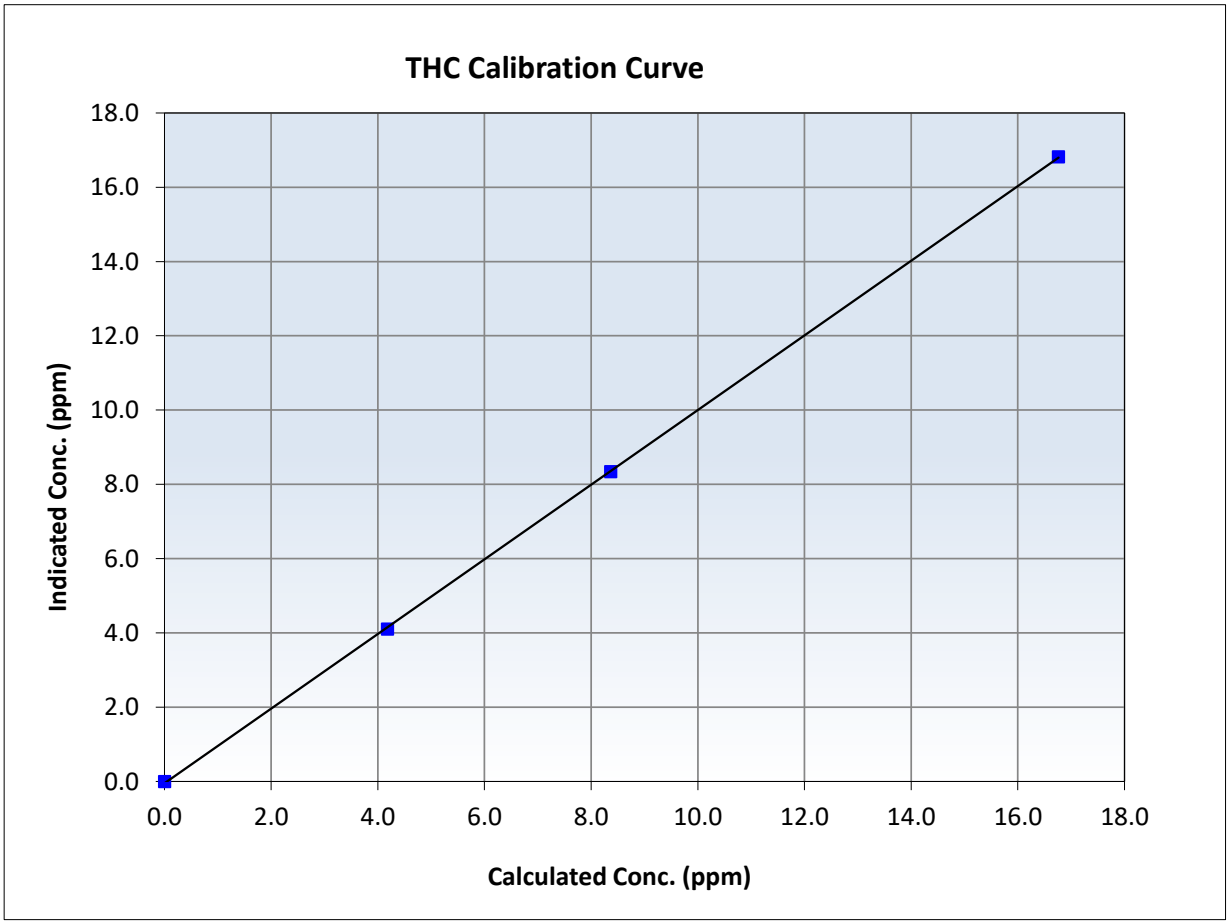
Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	April 17, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:07	End Time (MST):	12:59
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620776

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
16.76	16.82	0.9966
8.37	8.34	1.0031
4.18	4.10	1.0195

Statistical Evaluation		Limits
Correlation Coefficient	0.999961	≥0.995
Slope	1.004981	0.90 - 1.10
Intercept	-0.048768	+/-0.5



Wood Buffalo Environmental Association

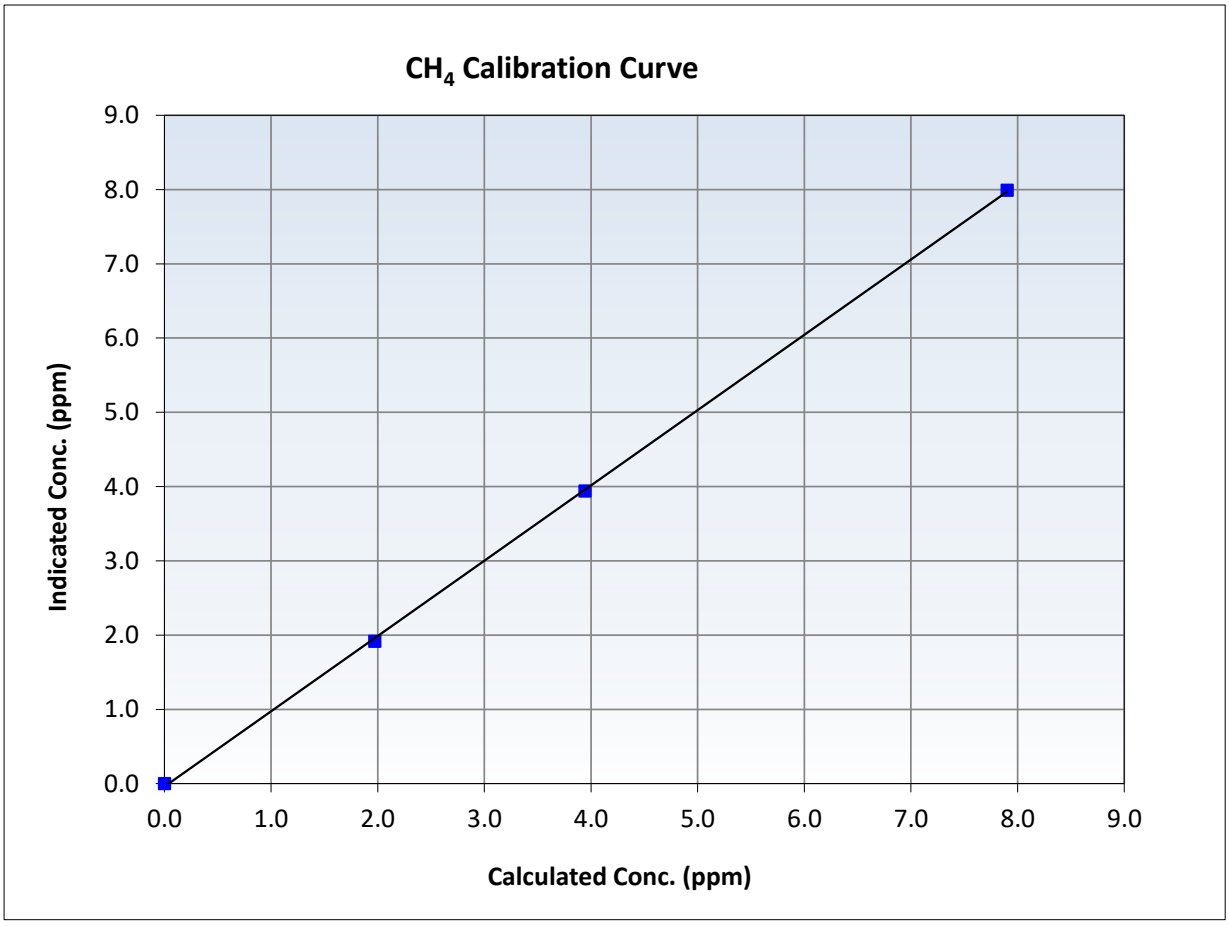
CH_4 Calibration Summary

Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	April 17, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:07	End Time (MST):	12:59
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620776

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999882	≥0.995
7.90	7.99	0.9887	Slope	1.014088	0.90 - 1.10
3.94	3.94	1.0008			
1.97	1.92	1.0288	Intercept	-0.040743	+/-0.5



Wood Buffalo Environmental Association

NMHC Calibration Summary

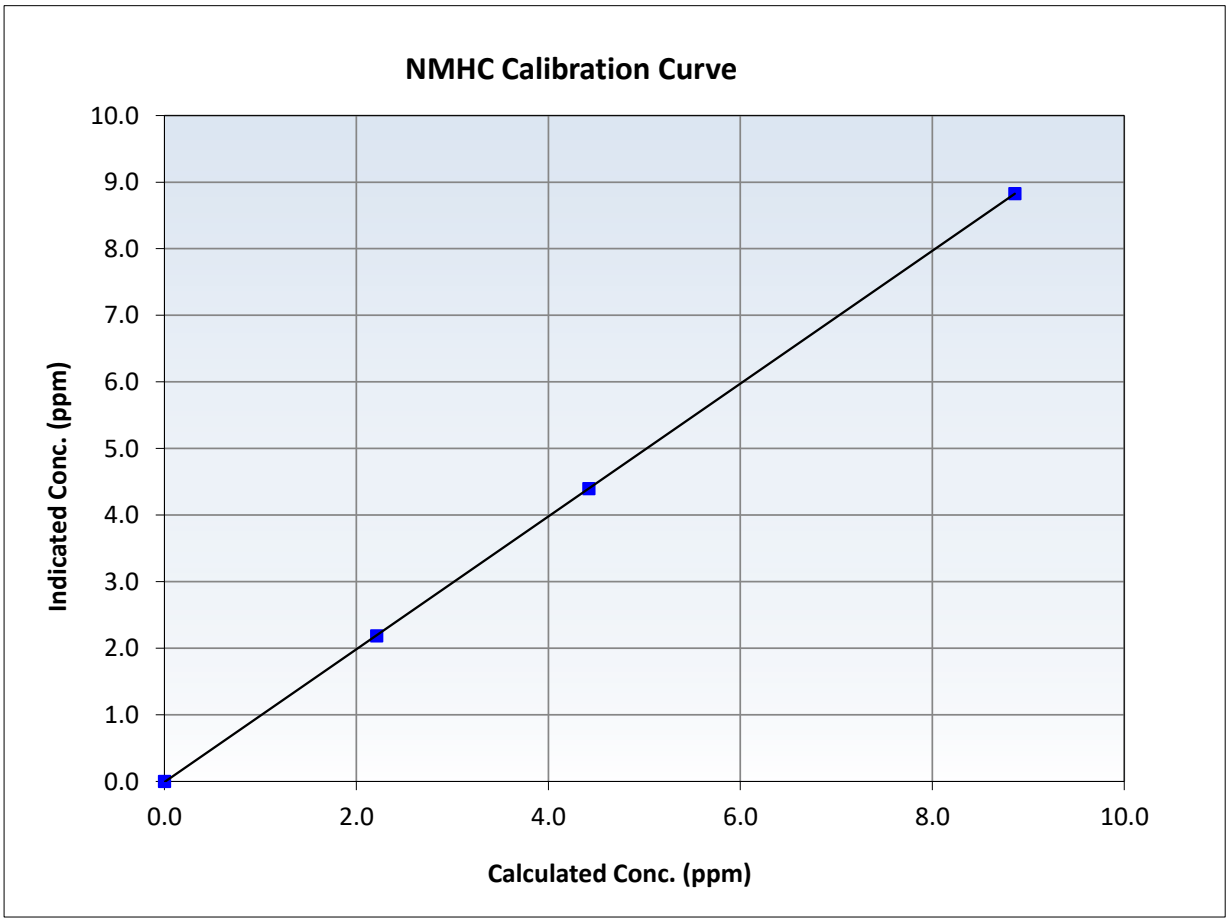
Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	April 17, 2025
Station Name:	Mildred Lake	Station Number:	AMS 02
Start Time (MST):	9:07	End Time (MST):	12:59
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620776

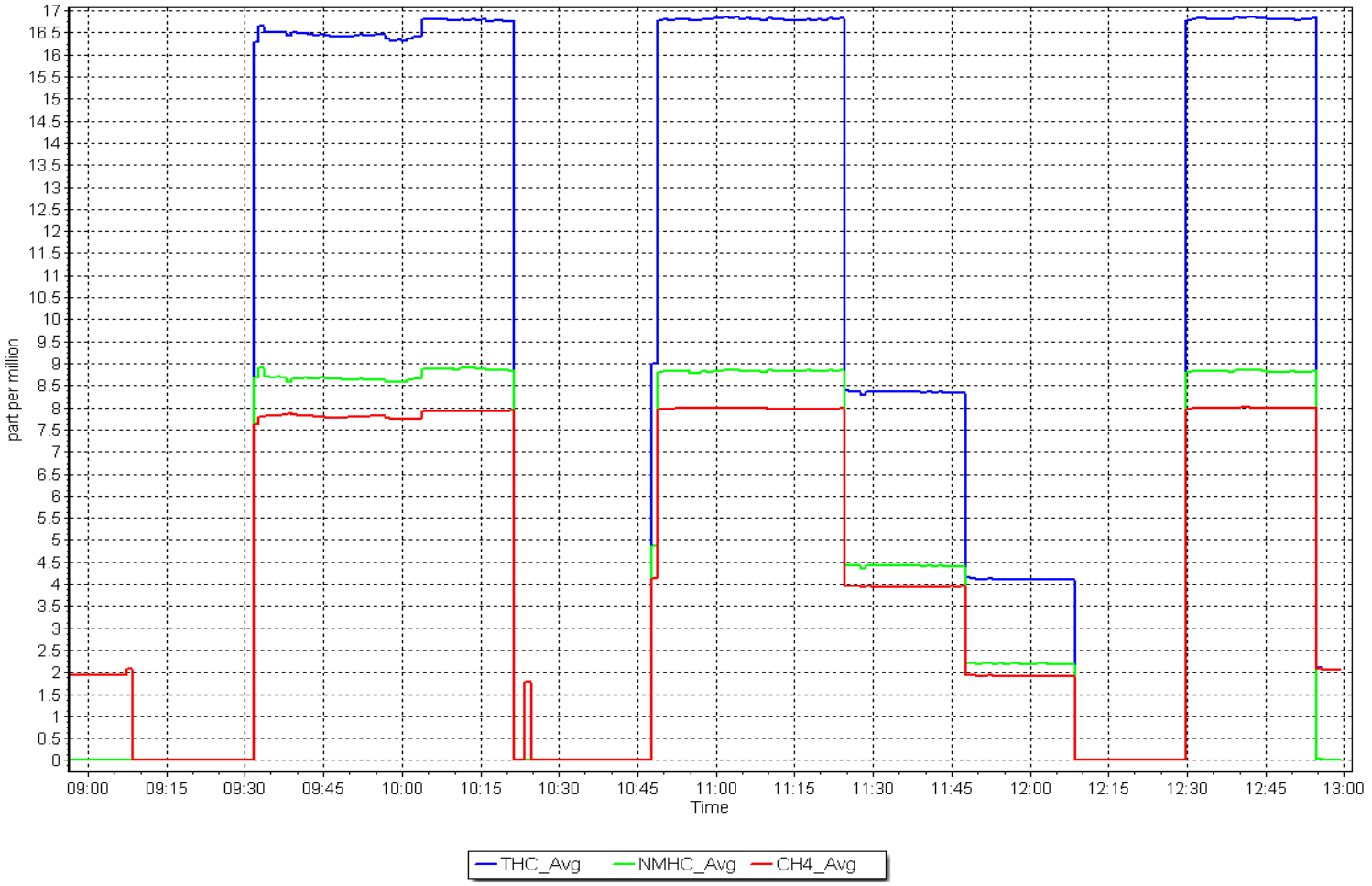
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.86	8.83	1.0034
4.42	4.40	1.0054
2.21	2.19	1.0119

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999995	*≥0.995*
Slope	0.997231	*0.90 - 1.10*
Intercept	-0.009225	*+/-0.5*



NMHC Calibration Plot Date: May 16, 2025 Location: Mildred Lake



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS04
BUFFALO VIEWPOINT
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station number:	AMS 04
Calibration Date:	May 14, 2025	Last Cal Date:	April 24, 2025
Start time (MST):	5:42	End time (MST):	8:33
Reason:	Routine		

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

Analyzer make:	Thermo 43i		Serial Number:	JC1327300932	
Analyzer Range:	0-1000ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000030	1.000358	Backgd or Offset:	27.2	27.2
Calibration intercept:	-0.005582	0.554464	Coeff or Slope:	0.879	0.879

SO_2 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	4921	78.6	799.7	798.1	1.002
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	797.8	Previous response	799.8	*% change	-0.2%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	4921	78.6	799.7	800.5	0.999
Mid point	4961	39.3	399.8	401.0	0.997
Low point	4980	19.6	199.4	199.4	1.000
As left zero	5000	0.0	0.0	0.6	----
As left span	4921	78.6	799.7	800.1	1.000
				Average Correction Factor:	0.999

Notes: No adjustments or maintenance done.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

SO_2 Calibration Summary

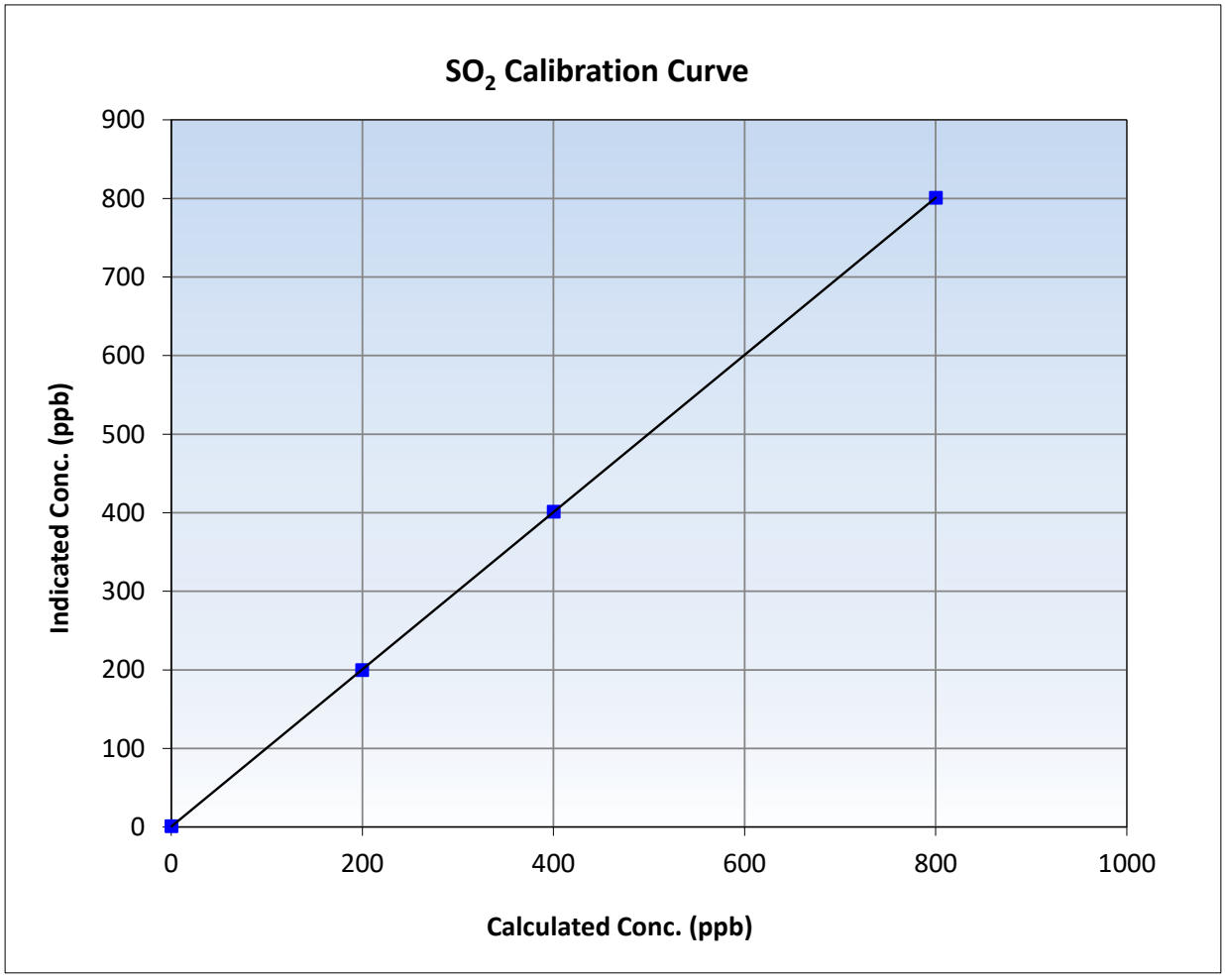
Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 24, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:45	End Time (MST):	8:33
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1327300932

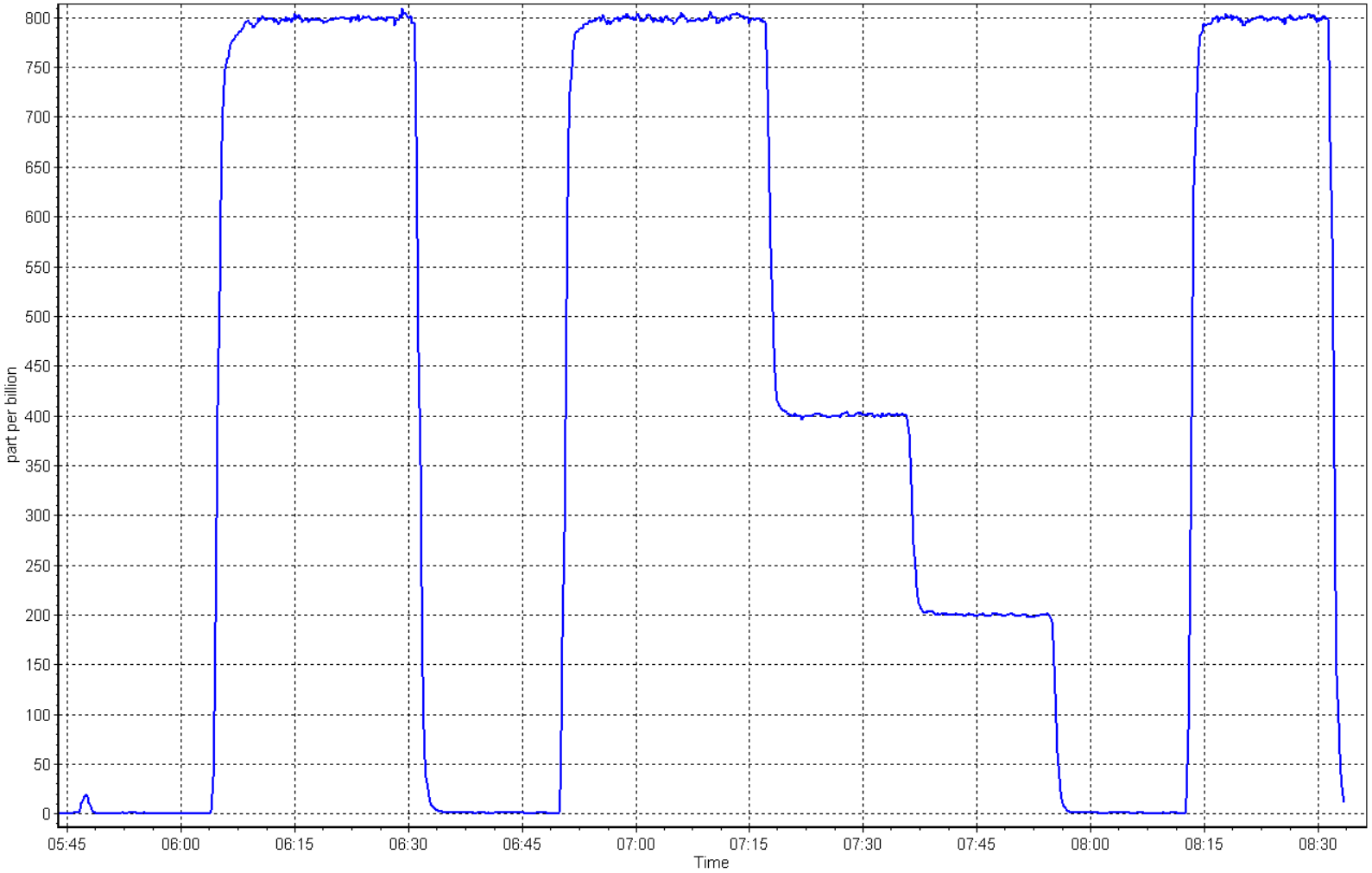
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.8	----
799.7	800.5	0.9991
399.8	401.0	0.9970
199.4	199.4	1.0001

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999998	*≥0.995*
Slope	1.000358	*0.90 - 1.10*
Intercept	0.554464	*+/-30*



SO2 Calibration Plot Date: May 14, 2025 Location: Buffalo Viewpoint



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station number:	AMS 04
Calibration Date:	May 16, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	5:43	End time (MST):	9:33
Reason:	Routine		

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 T701H		Serial Number:	362

Analyzer Information

Analyzer make:	Thermo 43i-LTE		Analyzer serial #:	1008841400	
Converter make:	Global		Converter serial #:	2022-200	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.999433	0.992720	Backgd or Offset:	1.92	1.89
Calibration intercept:	0.078228	0.038155	Coeff or Slope:	1.110	1.100

H_2S 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	4917	83.3	80.0	81.4	0.982
As found Mid point	4958	41.7	40.0	40.8	0.981
As found Low point	4979	20.8	20.0	20.4	0.979
New cylinder response					

Baseline Corr As found:	81.4	Prev response:	80.00	*% change:	1.7%
Baseline Corr 2nd AF pt:	40.8	AF Slope:	1.017724	AF Intercept:	0.038209
Baseline Corr 3rd AF pt:	20.4	AF Correlation:	0.999999	* = > +/-5% change initiates investigation	

H_2S 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	79.4	1.007
Mid point	4958	41.7	40.0	39.9	1.003
Low point	4979	20.8	20.0	19.7	1.014
As left zero	5000	0.0	0.0	0.2	----
As left span	4917	83.3	80.0	78.7	1.016
SO2 Scrubber Check	4920	80.0	800.0	0.0	----
Date of last scrubber change:		16-May-23		Ave Corr Factor	1.008
Date of last converter efficiency test:					

Notes: Sox scrubber checked after calibrator zero. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

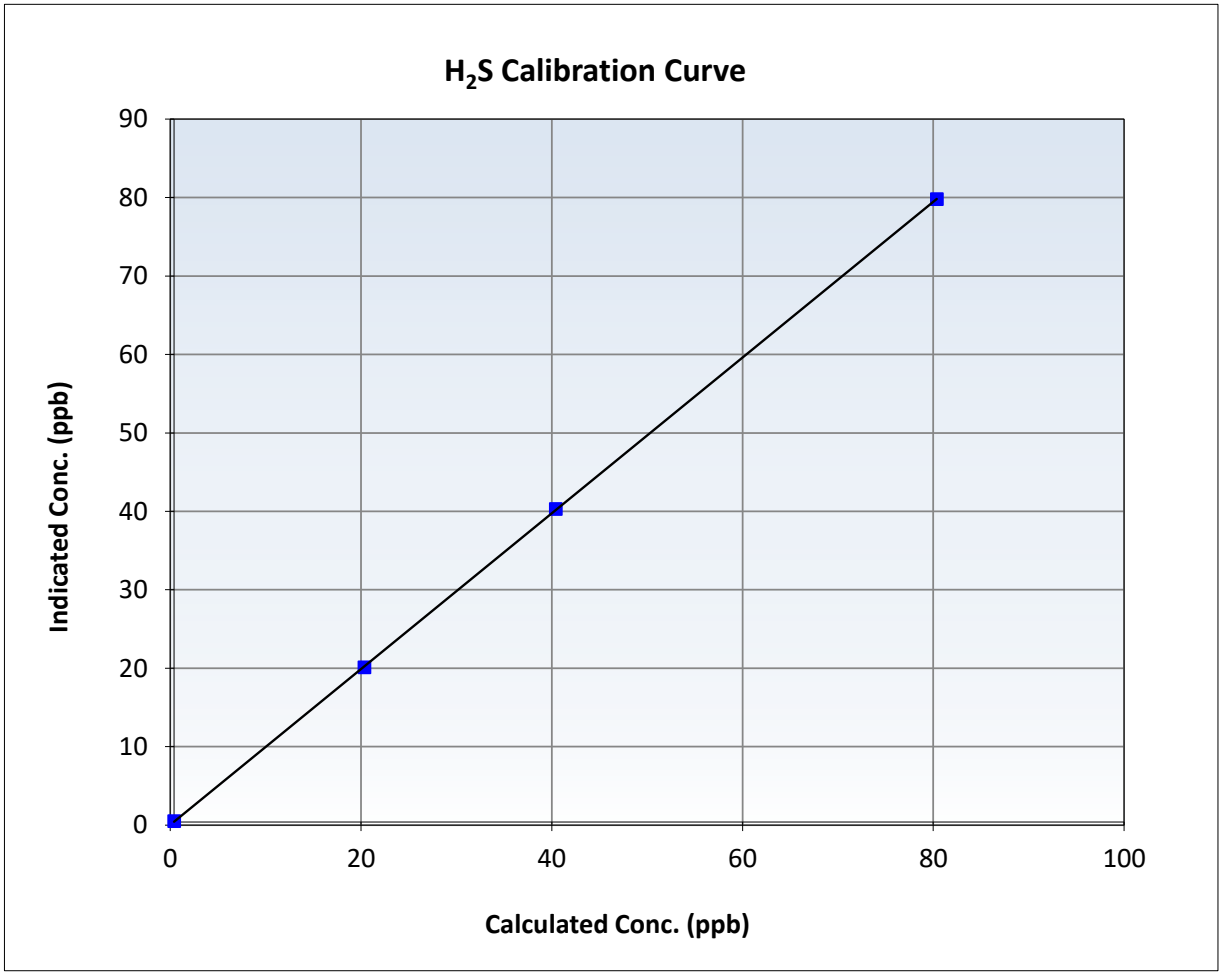
H_2S Calibration Summary

Station Information

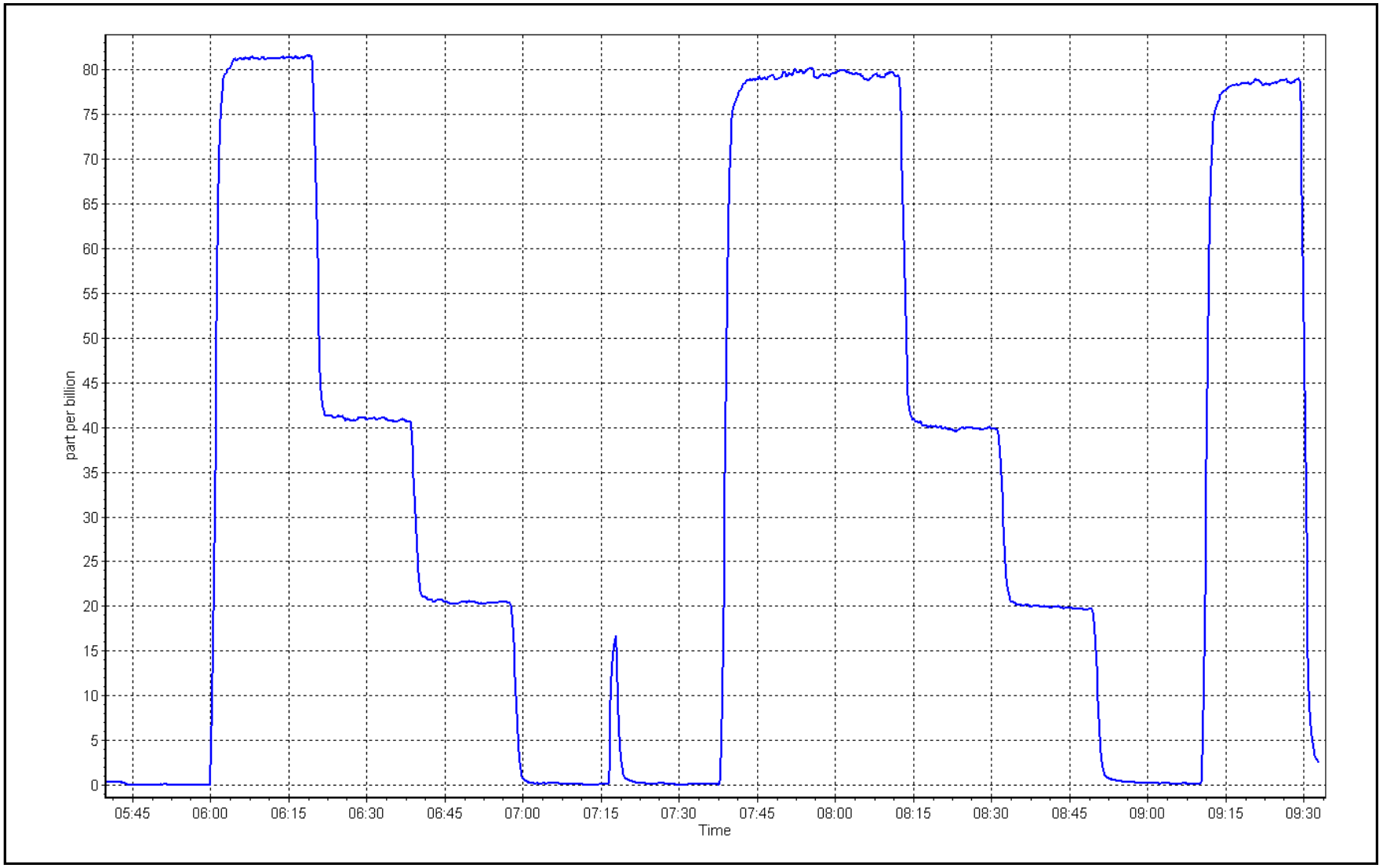
Calibration Date:	May 16, 2025	Previous Calibration:	April 28, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:43	End Time (MST):	9:33
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1008841400

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.1	----	Correlation Coefficient	0.999987	*≥0.995*
80.0	79.4	1.0071	Slope	0.992720	*0.90 - 1.10*
40.0	39.9	1.0034			
20.0	19.7	1.0136	Intercept	0.038155	*+/-3*



H_2S Calibration Plot Date: May 16, 2025 Location: Buffalo Viewpoint



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station number:	AMS 04
Calibration Date:	May 14, 2025	Last Cal Date:	April 24, 2025
Start time (MST):	5:42	End time (MST):	8:34
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	Analyzer serial #:	1426262594
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	4.79E-04	4.65E-04	NMHC SP Ratio:	9.37E-04	9.52E-04
CH4 Retention time:	13.9	13.9	NMHC Peak Area:	94114	92654
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	16.55	*% change	-0.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	16.55	1.005
Mid point	4961	39.3	8.32	8.21	1.013
Low point	4980	19.6	4.15	4.08	1.017
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	78.6	16.64	16.55	1.005
				Average Correction Factor	1.012

Notes: Hydrogen Cylinder Changed.

Wood Buffalo Environmental Association

THC / CH_4 / 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	78.6	8.82	8.92	0.989
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.92	Prev response	8.77	*% change	1.6%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	78.6	8.82	8.79	1.004
Mid point	4961	39.3	4.41	4.37	1.010
Low point	4980	19.6	2.20	2.16	1.017
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	78.6	8.82	8.80	1.002
				Average Correction Factor	1.010

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	4921	78.6	7.82	7.61	1.027
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.61	Prev response	7.78	*% change	-2.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4921	78.6	7.82	7.76	1.007
Mid point	4961	39.3	3.91	3.85	1.016
Low point	4980	19.6	1.95	1.92	1.017
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	78.6	7.82	7.76	1.008
				Average Correction Factor	1.013

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	0.996742	0.995354
THC Cal Offset:	-0.032965	-0.031367
CH4 Cal Slope:	0.997448	0.993632
CH4 Cal Offset:	-0.016913	-0.015119
NMHC Cal Slope:	0.995910	0.997088
NMHC Cal Offset:	-0.015253	-0.017047

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

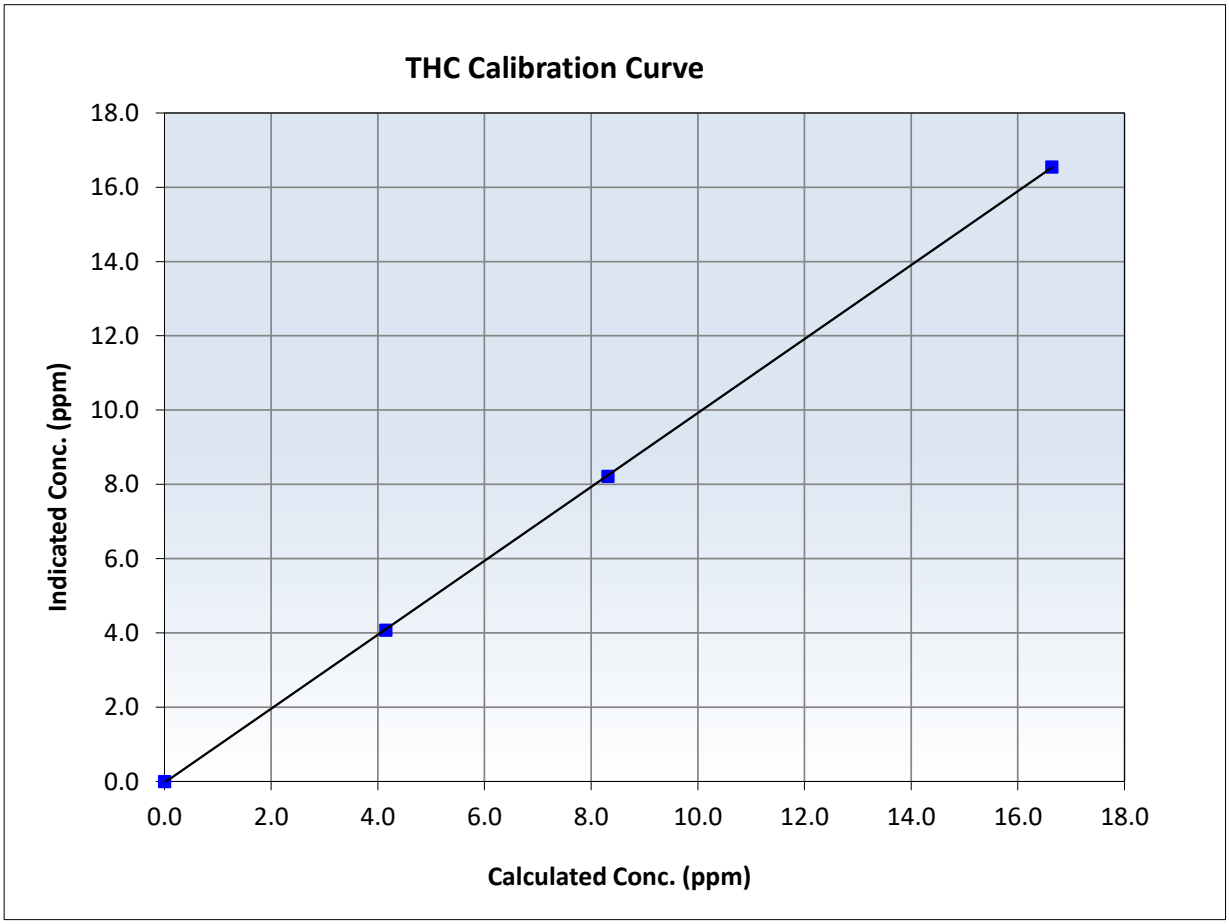
THC Calibration Summary

Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 24, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:45	End Time (MST):	8:34
Analyzer make:	Thermo 55i	Analyzer serial #:	1426262594

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999981	*≥0.995*
16.64	16.55	1.0053	Slope	0.995354	*0.90 - 1.10*
8.32	8.21	1.0125			
4.15	4.08	1.0173	Intercept	-0.031367	*+/-0.5*



Wood Buffalo Environmental Association

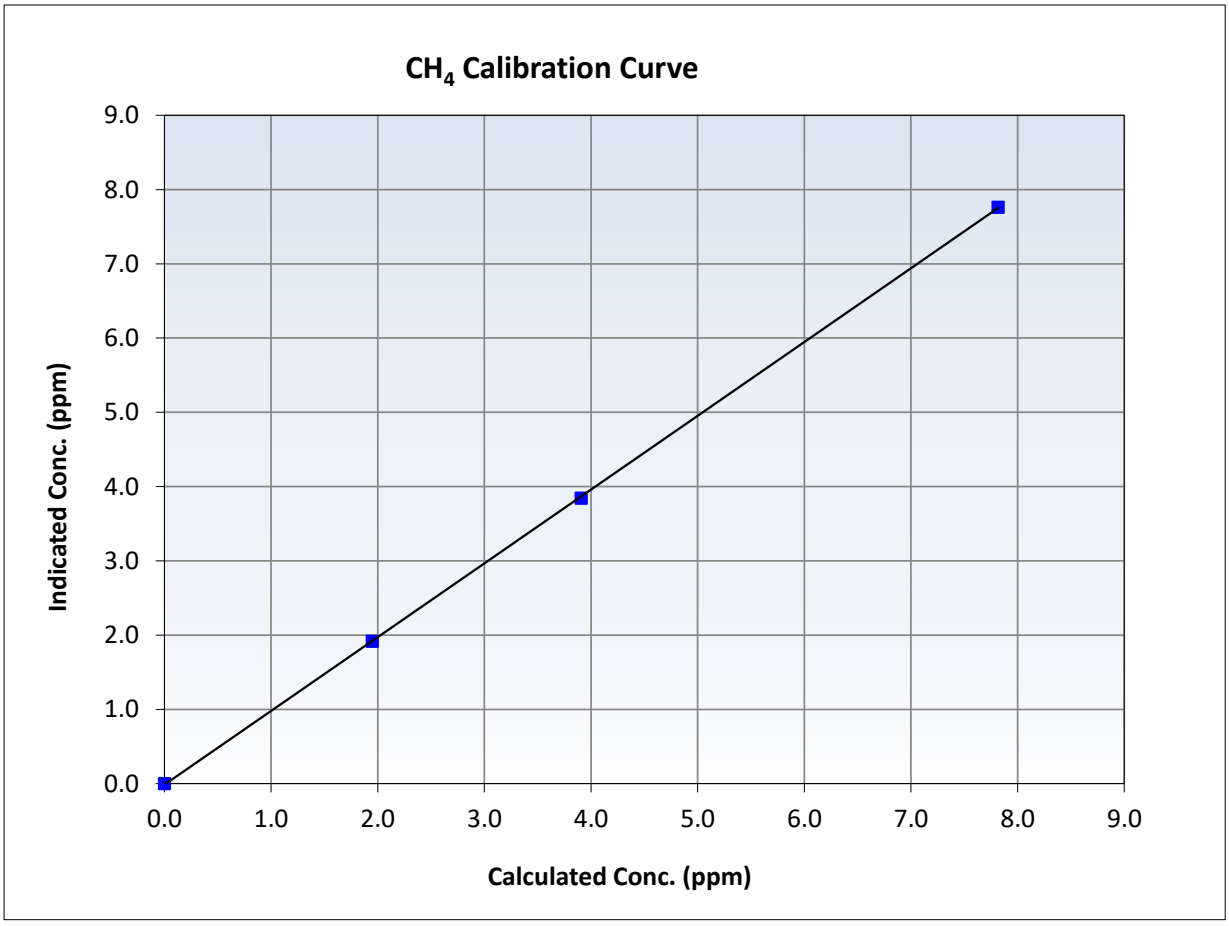
CH_4 Calibration Summary

Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 24, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:45	End Time (MST):	8:34
Analyzer make:	Thermo 55i	Analyzer serial #:	1426262594

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999973	≥0.995
7.82	7.76	1.0068	Slope	0.993632	0.90 - 1.10
3.91	3.85	1.0161			
1.95	1.92	1.0173	Intercept	-0.015119	+/-0.5



Wood Buffalo Environmental Association

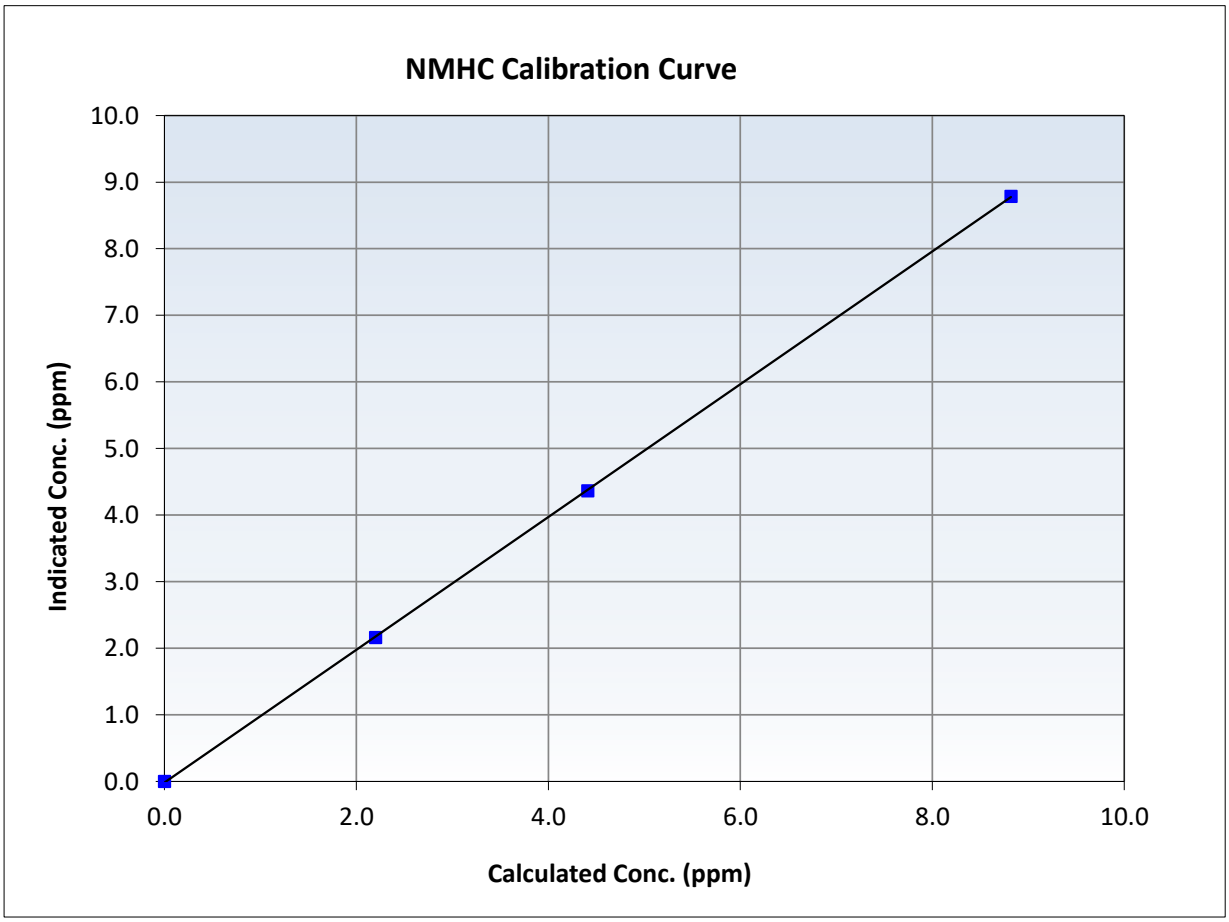
NMHC Calibration Summary

Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 24, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	5:45	End Time (MST):	8:34
Analyzer make:	Thermo 55i	Analyzer serial #:	1426262594

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999982	≥0.995
8.82	8.79	1.0037	Slope	0.997088	0.90 - 1.10
4.41	4.37	1.0099			
2.20	2.16	1.0173	Intercept	-0.017047	+/-0.5



NMHC Calibration Plot Date: May 14, 2025 Location: Buffalo Viewpoint

Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station number:	AMS 04
Calibration Date:	May 29, 2025	Last Cal Date:	May 14, 2025
Start time (MST):	8:30	End time (MST):	9:38
Reason:	Cylinder Change		

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	Analyzer serial #:	1426262594
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	4.65E-04	4.65E-04	NMHC SP Ratio:	9.52E-04	9.52E-04
CH4 Retention time:	13.9	13.9	NMHC Peak Area:	92654	92654
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	16.45	1.011
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.45	Prev response	16.53	*% change	-0.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	16.38	1.015
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor: 1.015

Notes: Nitrogen Cylinder Changed.

Wood Buffalo Environmental Association

THC / CH_4 / 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	78.6	8.82	8.71	1.013
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.71	Prev response	8.78	*% change	-0.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	78.6	8.82	8.66	1.018
Mid point					
Low point					
As left zero					
As left span					
				Average Correction Factor	1.018

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	4921	78.6	7.82	7.74	1.010
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.74	Prev response	7.75	*% change	-0.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

CH4 Calibration Data

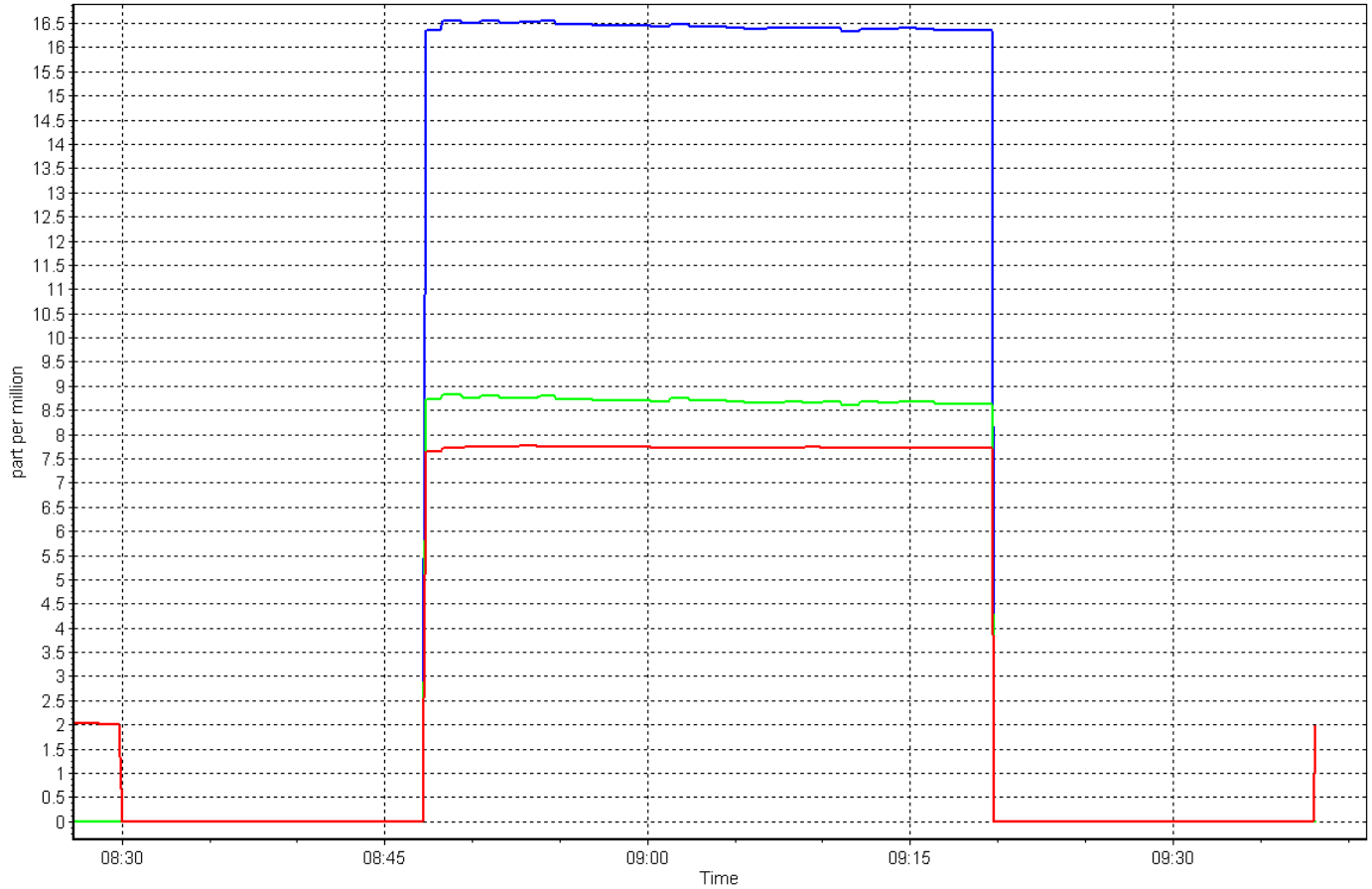
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero	5000	0.0	0.00	0.00	----
High point	4921	78.6	7.82	7.72	1.012
Mid point					
Low point					
As left zero					
As left span					
				Average Correction Factor	1.012

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.995354	0.984778
THC Cal Offset:	-0.031367	0.000000
CH4 Cal Slope:	0.993632	0.987768
CH4 Cal Offset:	-0.015119	0.000000
NMHC Cal Slope:	0.997088	0.982241
NMHC Cal Offset:	-0.017047	0.000000

Calibration Performed By: Melissa Lemay

NMHC Calibration Plot Date: May 29, 2025 Location: Buffalo Viewpoint



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Buffalo Viewpoint
Station number:	AMS 04
Calibration Date:	May 5, 2025
Last Cal Date:	April 11, 2025
Start time (MST):	7:30
End time (MST):	11:11
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	CC324979	Cal Gas Expiry Date:	November 3, 2032
NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.80 ppm
Removed Cylinder #:		Removed Gas Exp Date:	
Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.80 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	API T700	Serial Number:	3808
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)) *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	-0.4	0.2	----	----
AF High point	4918	81.8	800.0	798.4	1.6	778.5	768.3	10.3	1.0275	1.0386
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 804.3 ppb	NO = 798.7 ppb
Baseline Corr 1st pt	NO_X = 778.6 ppb	NO = 768.7 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = -3.3%
As found	NO r^2:	*Percent Change	NO = -3.9%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Teledyne API T200 Serial Number: 721

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.276	1.336	NO bkgnd or offset:	0.2	0.2
NOX coeff or slope:	1.266	1.323	NOX bkgnd or offset:	-0.2	-0.2
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	4.6	4.6

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.003949	1.002964
NO_X Cal Offset:	1.107618	0.527290
NO Cal Slope:	1.000915	1.005078
NO Cal Offset:	-0.414394	-0.293054
NO_2 Cal Slope:	1.002895	0.989411
NO_2 Cal Offset:	1.450870	-0.224141

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	0.5	0.3	0.2	----	----
High point	4918	81.8	800.0	798.4	1.6	802.8	802.3	0.4	0.9966	0.9951
Mid point	4959	40.9	400.0	399.2	0.8	402.1	401.1	0.9	0.9948	0.9952
Low point	4980	20.4	199.5	199.1	0.4	200.4	198.9	1.6	0.9955	1.0009
As left zero	5000	0.0	0.0	0.9	-0.9	1.0	0.9	0.1	----	----
As left span	4918	81.8	800.0	405.7	800.0	794.3	405.7	388.7	1.0072	1.0000
							Average Correction Factor		0.9956	0.9971

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	0.2	----	----
High GPT point	799.1	402.0	398.7	394.9	1.0097	99.0%
Mid GPT point	799.1	599.3	201.4	197.7	1.0189	98.1%
Low GPT point	799.1	701.0	99.7	98.8	1.0095	99.1%
				Average Correction Factor	1.0127	98.7%

Notes: No maintenance done. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

NO_X Calibration Summary

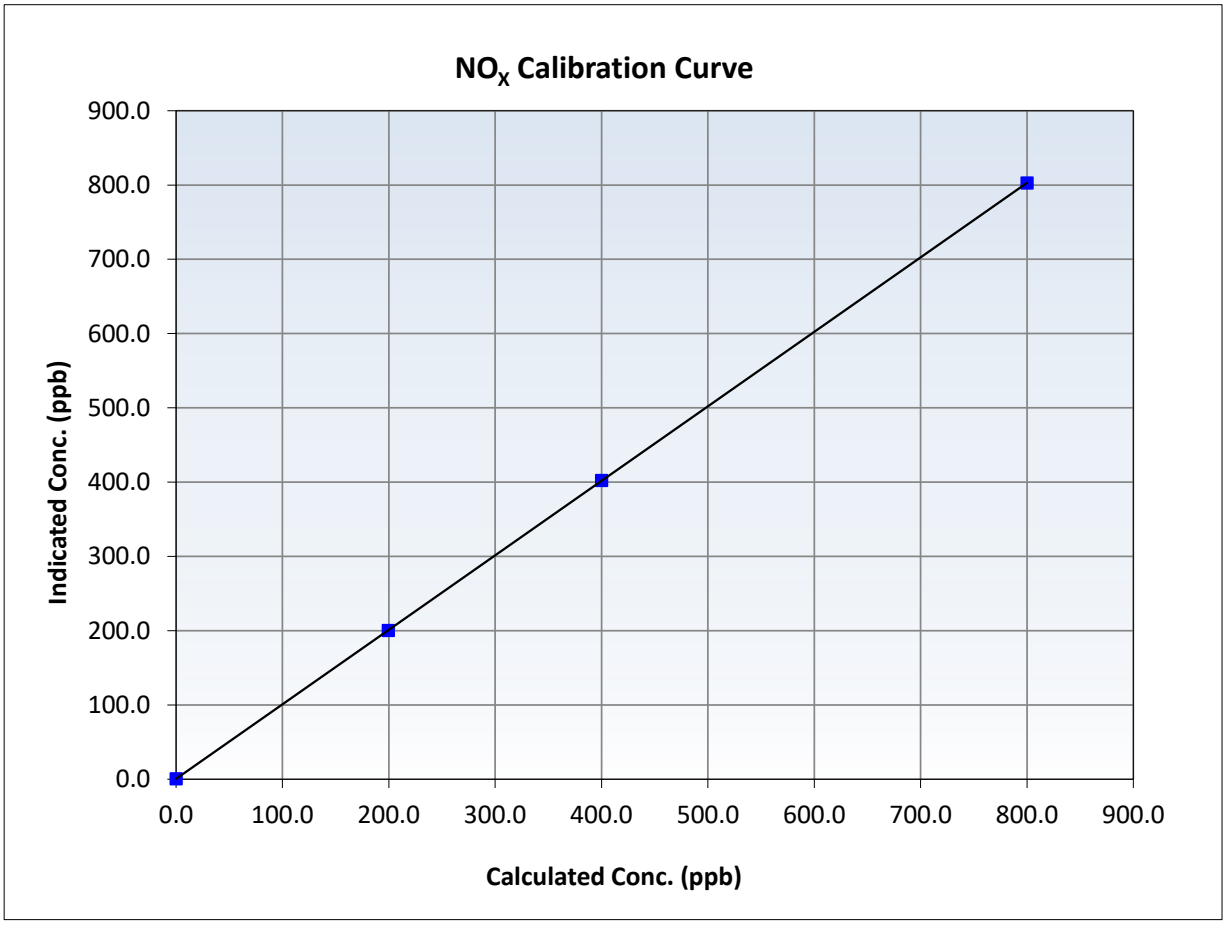
Station Information

Calibration Date:	May 5, 2025	Previous Calibration:	April 11, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	7:30	End Time (MST):	11:11
Analyzer make:	Teledyne API T200	Analyzer serial #:	721

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.5	----
800.0	802.8	0.9966
400.0	402.1	0.9948
199.5	200.4	0.9955

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	1.002964	*0.90 - 1.10*
Intercept	0.527290	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

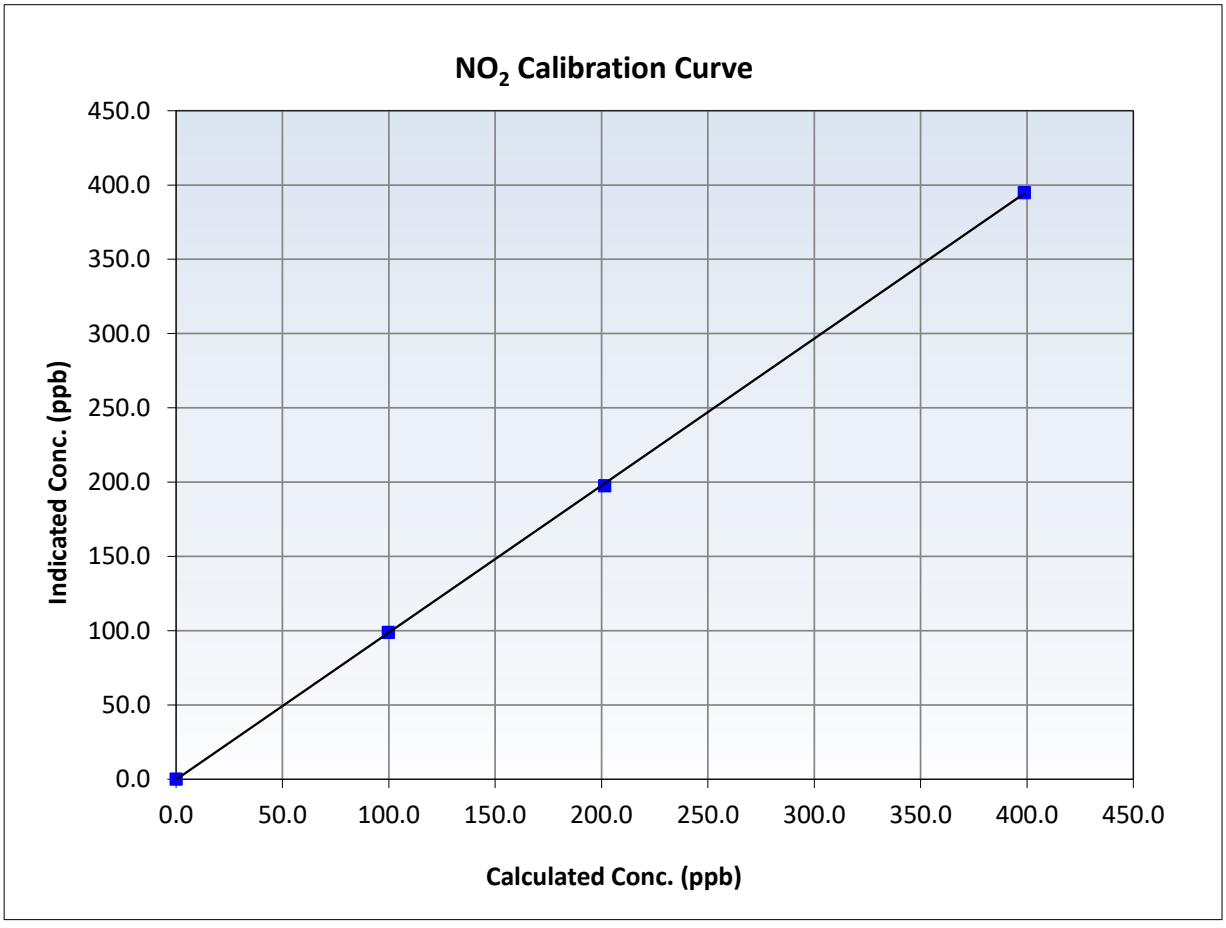
Station Information

Calibration Date:	May 5, 2025	Previous Calibration:	April 11, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	7:30	End Time (MST):	11:11
Analyzer make:	Teledyne API T200	Analyzer serial #:	721

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
398.7	394.9	1.0097
201.4	197.7	1.0189
99.7	98.8	1.0095

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999970	*≥0.995*
Slope	0.989411	*0.90 - 1.10*
Intercept	-0.224141	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

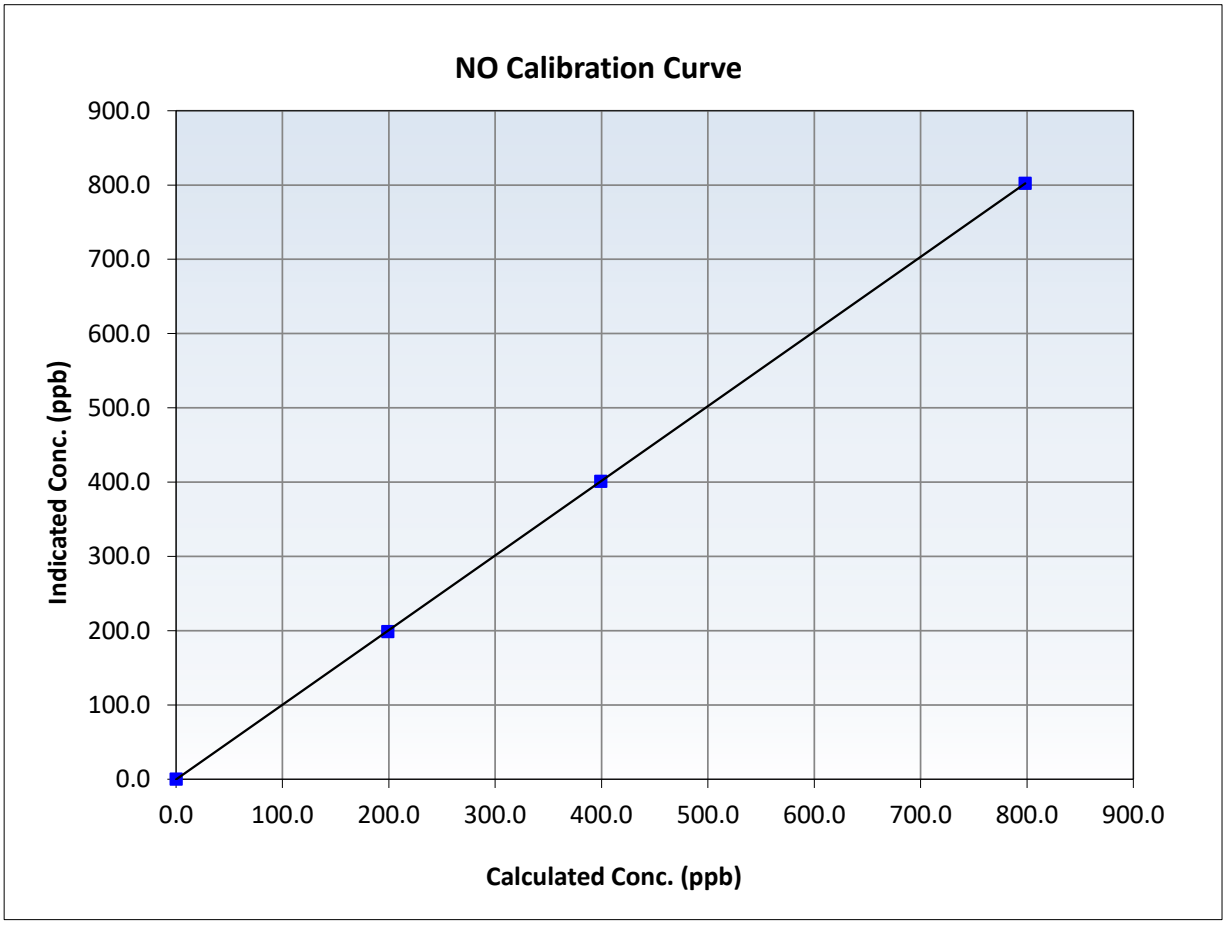
Station Information

Calibration Date:	May 5, 2025	Previous Calibration:	April 11, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	7:30	End Time (MST):	11:11
Analyzer make:	Teledyne API T200	Analyzer serial #:	721

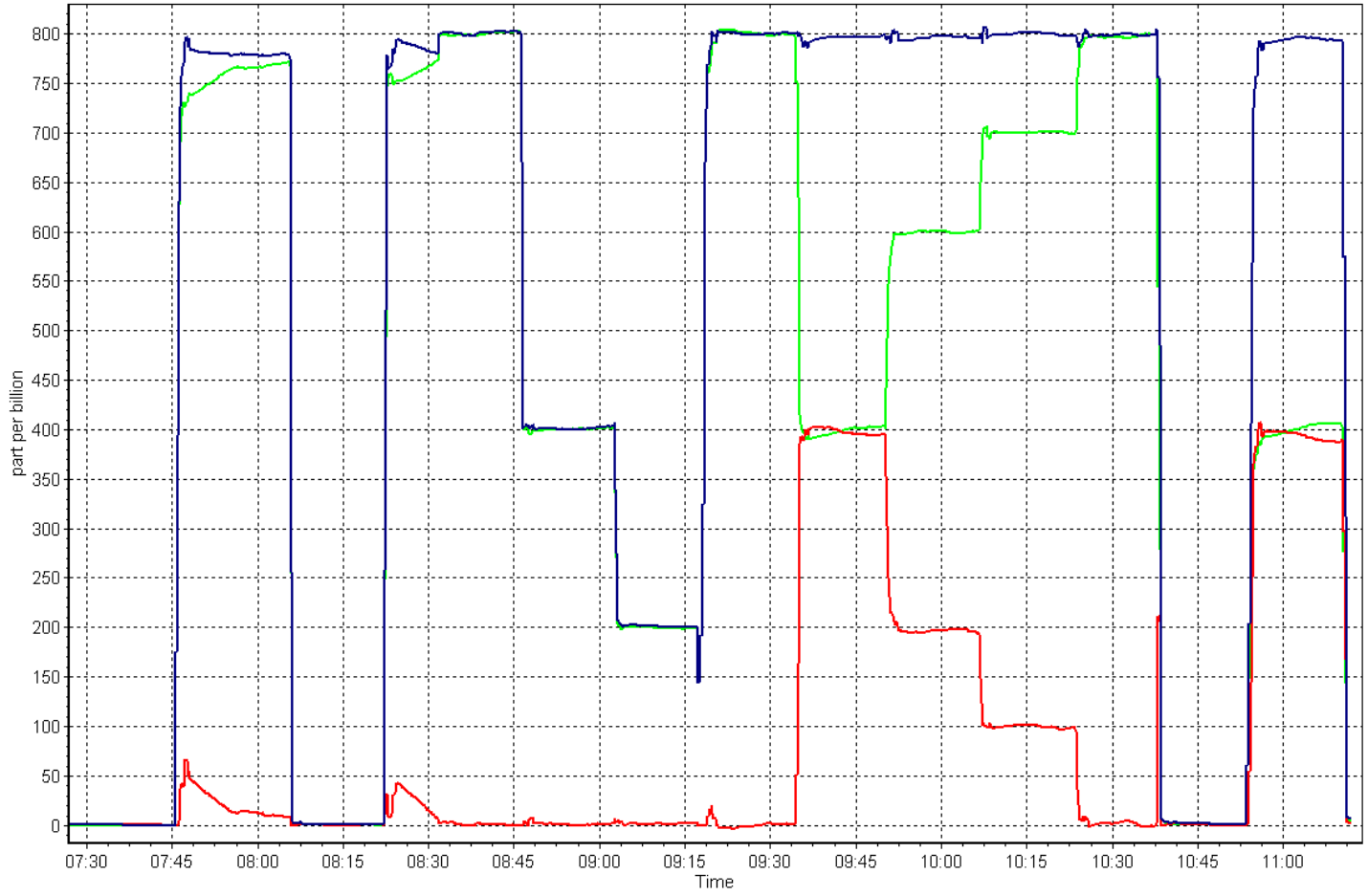
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.3	----
798.4	802.3	0.9951
399.2	401.1	0.9952
199.1	198.9	1.0009

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999997	*≥0.995*
Slope	1.005078	*0.90 - 1.10*
Intercept	-0.293054	*+/-20*



NO_X Calibration Plot Date: May 5, 2025 Location: Buffalo Viewpoint



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station number:	AMS 04
Calibration Date:	May 20, 2025	Last Cal Date:	April 24, 2025
Start time (MST):	7:55	End time (MST):	10:20
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	APIP T700	Serial Number:	3808
ZAG Make/Model:	API T701	Serial Number:	362

Analyzer Information

Analyzer make:	API T400		Analyzer serial #:	2961	
Analyzer Range	0 - 500 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.995971	1.003429	Backgd or Offset:	-1.2	-1.2
Calibration intercept:	-0.020000	-0.300000	Coeff or Slope:	1.022	1.022

O_3 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	1006.4	400.0	401.5	0.993
As found Mid point					
As found Low point					
Baseline Corr As found:	402.8	Previous response	398.4	*% change	1.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

O_3 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	1008.9	400.0	401.0	0.998
Mid point	5000	830.0	200.0	200.5	0.998
Low point	5000	718.6	100.0	100.1	0.999
As left zero	5000	0.0	0.0	-0.1	----
As left span	5000	1009.3	400.0	400.6	0.999
				Average Correction Factor	0.998

Notes: No Maintenance or adjustments done.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

O_3 Calibration Summary

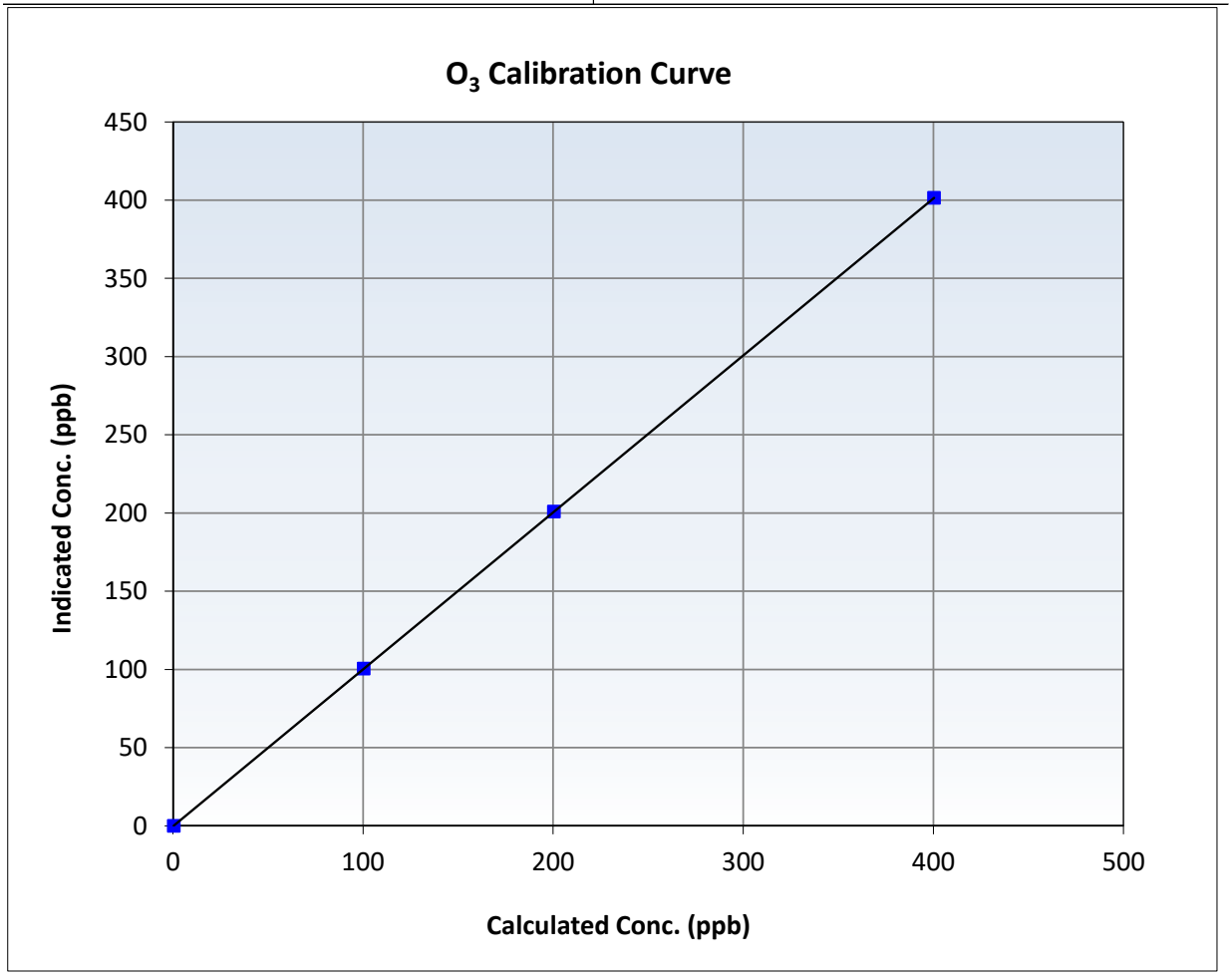
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 24, 2025
Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Start Time (MST):	7:55	End Time (MST):	10:20
Analyzer make:	API T400	Analyzer serial #:	2961

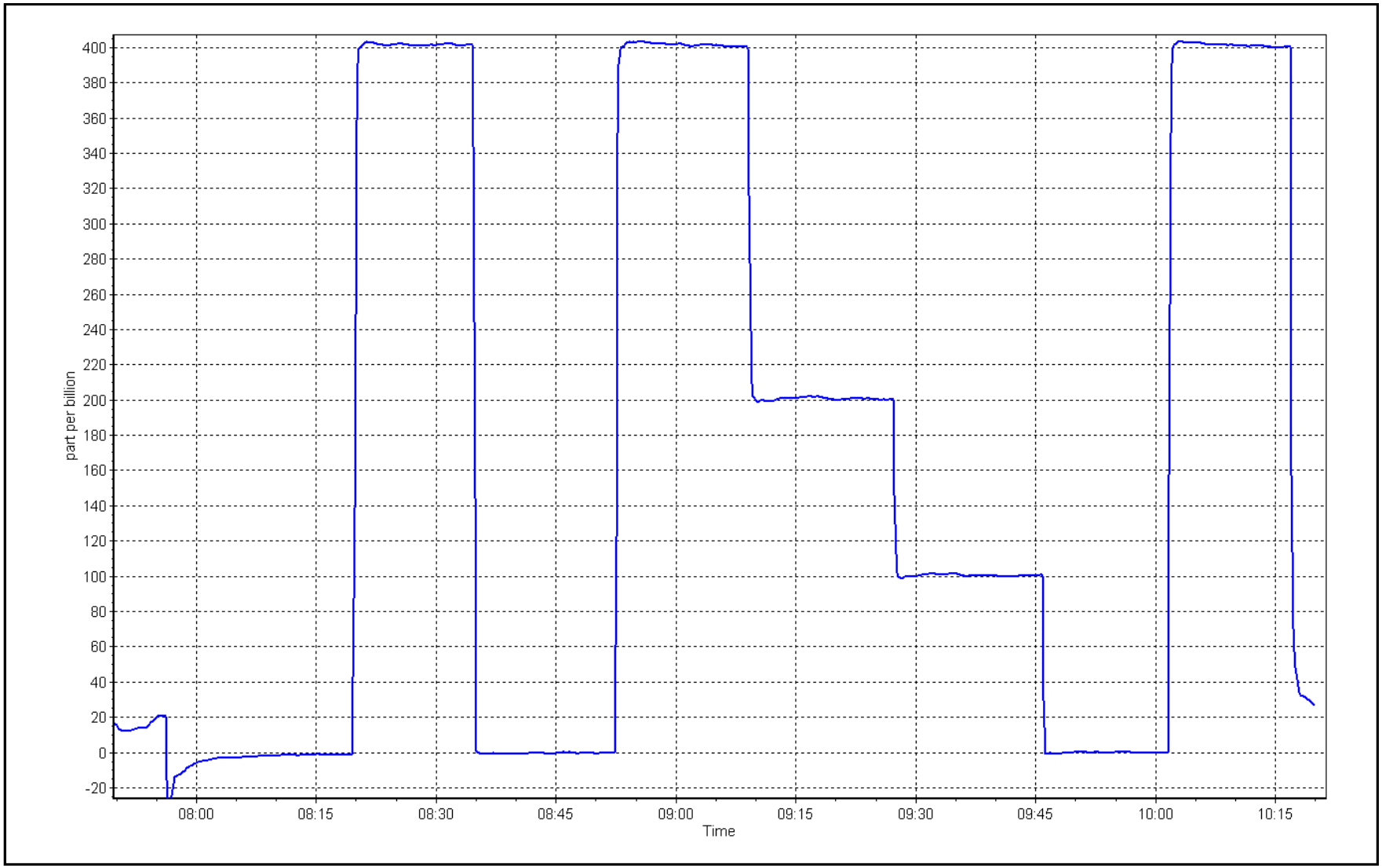
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.4	----
400.0	401.0	0.9975
200.0	200.5	0.9975
100.0	100.1	0.9990

Statistical Evaluation		*Limits*
Correlation Coefficient	1.000000	*≥0.995*
Slope	1.003429	*0.90 - 1.10*
Intercept	-0.300000	*+/- 5*



O_3 Calibration Plot Date: May 20, 2025 Location: Buffalo Viewpoint



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Buffalo Viewpoint	Station number:	AMS 04
Calibration Date:	May 20, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	7:40	End time (MST):	8:05
Analyzer Make:	Teledyne API T640	S/N:	321
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388753
Temp/RH standard:	Alicat FP-25BT	S/N:	388753

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	9.5	9.1	9.5	☐	+/- 2 °C
P (mmHg)	727.9	729.6	727.9	☐	+/- 10 mmHg
Flow (LPM)	5.04	5.08	5.04	☐	+/- 0.25 LPM
PW% (pump)	37	-----	37	☐	>80%
Zero Verification	PM w/o HEPA:	3.0	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 — Lot No.: 100128-050-050

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test				☐	+/- 0.5

Date Optical Chamber Cleaned: March 26, 2025

Date Disposable Filter Changed: March 26, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: March 26, 2025

Date RH/T Sensor Cleaned: March 26, 2025

No adjustments done.

Notes:

Calibration by: Melissa Lemay

Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Calibration Date:	May 29, 2025	Prev Cal Date:	October 23, 2024
Start Time (MST):	6:54	End Time (MST):	8:26
Tower Height (m):	10.0	Reason:	Removal

Wind Speed Calibration

Sensor make/model:	Met One 010C-1	Serial Number:	R10866
WS Calibrator:	MetOne 053	Serial Number:	P15103

Shaft RPM (Hz)	Calculated Speed (K/hr) (Cv)	Indicated Speed (K/hr) (Iv)	% Error *Limit = +/- 1.5%*
0	0.0	0.0	---
200	20.2	20.2	0.2%
400	39.4	39.4	0.1%
600	58.6	58.6	0.1%
800	77.8	77.6	-0.2%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999998	0.999997	*≥0.9995*
Calculated slope	1.002044	1.001515	*0.98 - 1.02*
Calculated intercept	-0.014312	-0.053723	*+/- 2*

Wind Direction Calibration

Sensor make/model:	Met One 020C-1	Serial Number:	V11346
As Found Declination (deg east of True North):		As Left Declination (deg east of True North):	14
Solar noon (MST):	12:23:48	Calc Declination*:	13.67 Degrees
WD Calibrator:	Met One 040		* - calculated declination as per NOAA website

Physical Direction (Degrees) (Cv)	Indicated Direction (Degrees) (Iv)	% Error (based on 360° FS) *Limit = +/- 1%*
10	13.6	1.0%
90	92.2	0.6%
180	180.8	0.2%
270	272.2	0.6%
350	350.7	0.2%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999982	0.999983	*≥0.9995*
Calculated slope	0.998102	1.006673	*0.97 - 1.03*
Calculated intercept	0.440370	-3.113867	*+/- 5*

Notes: Old WD removed. WS Torque test passed.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Station Information

Station Name:	Buffalo Viewpoint	Station Number:	AMS 04
Calibration Date:	May 29, 2025	Prev Cal Date:	October 23, 2024
Start Time (MST):	6:54	End Time (MST):	8:26
Tower Height (m):	10.0	Reason:	Install

Wind Speed Calibration

Sensor make/model:	Met One 010C-1	Serial Number:	R10866
WS Calibrator:	MetOne 053	Serial Number:	P15103

Shaft RPM (Hz)	Calculated Speed (K/hr) (Cv)	Indicated Speed (K/hr) (Iv)	% Error *Limit = +/- 1.5%*
0	0.0		---
200	20.2		
400	39.4		
600	58.6		
800	77.8		

	Start	***Finish***	*Limits*
Correl Coeff (r^2)			*≥0.9995*
Calculated slope			*0.98 - 1.02*
Calculated intercept			*+/- 2*

Wind Direction Calibration

Sensor make/model:	Met One 020C-1	Serial Number:	E4852
As Found Declination (deg east of True North):		As Left Declination (deg east of True North):	14
Solar noon (MST):	12:23:48	Calc Declination*:	13.67 Degrees
WD Calibrator:	Met One 040		* - calculated declination as per NOAA website

Physical Direction (Degrees) (Cv)	Indicated Direction (Degrees) (Iv)	% Error (based on 360° FS) *Limit = +/- 1%*
10	11.2	0.3%
90	90.1	0.0%
180	180.5	0.1%
270	272.3	0.6%
350	352.7	0.7%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)		0.999985	*≥0.9995*
Calculated slope		0.993886	*0.97 - 1.03*
Calculated intercept		-0.251102	*+/- 5*

Notes: Old WD removed. New WD installed.

Calibration Performed By: Melissa Lemay

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS05
MANNIX
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Mannix	Station number:	AMS 05
Calibration Date:	May 16, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	8:50	End time (MST):	12:00
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.06	ppm	Cal Gas Exp Date:	October 22, 2032	
Cal Gas Cylinder #:	CC308040				
Removed Cal Gas Conc:	50.06	ppm	Rem Gas Exp Date:	October 22, 2032	
Removed Gas Cyl #:			Diff between cyl:		
Calibrator Model:	API T700		Serial Number:	5470	
Zero Air Gen Model:	API T701		Serial Number:	361	

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1008841399	
Analyzer Range:	1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.005853	1.009380	Backgd or Offset:	10.3	10.3
Calibration intercept:	0.001847	-0.058416	Coeff or Slope:	0.950	0.950

SO_2 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	4920	79.9	800.0	804.5	0.995
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	804.2	Previous response	804.7	*% change	-0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	0.6	----
High point	4920	79.9	800.0	807.9	0.990
Mid point	4960	40.0	400.5	403.4	0.993
Low point	4980	20.0	200.2	201.7	0.993
As left zero	5000	0.0	0.0	0.7	----
As left span	4920	79.9	800.0	808.6	0.989
				Average Correction Factor:	0.992

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

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

SO_2 Calibration Summary

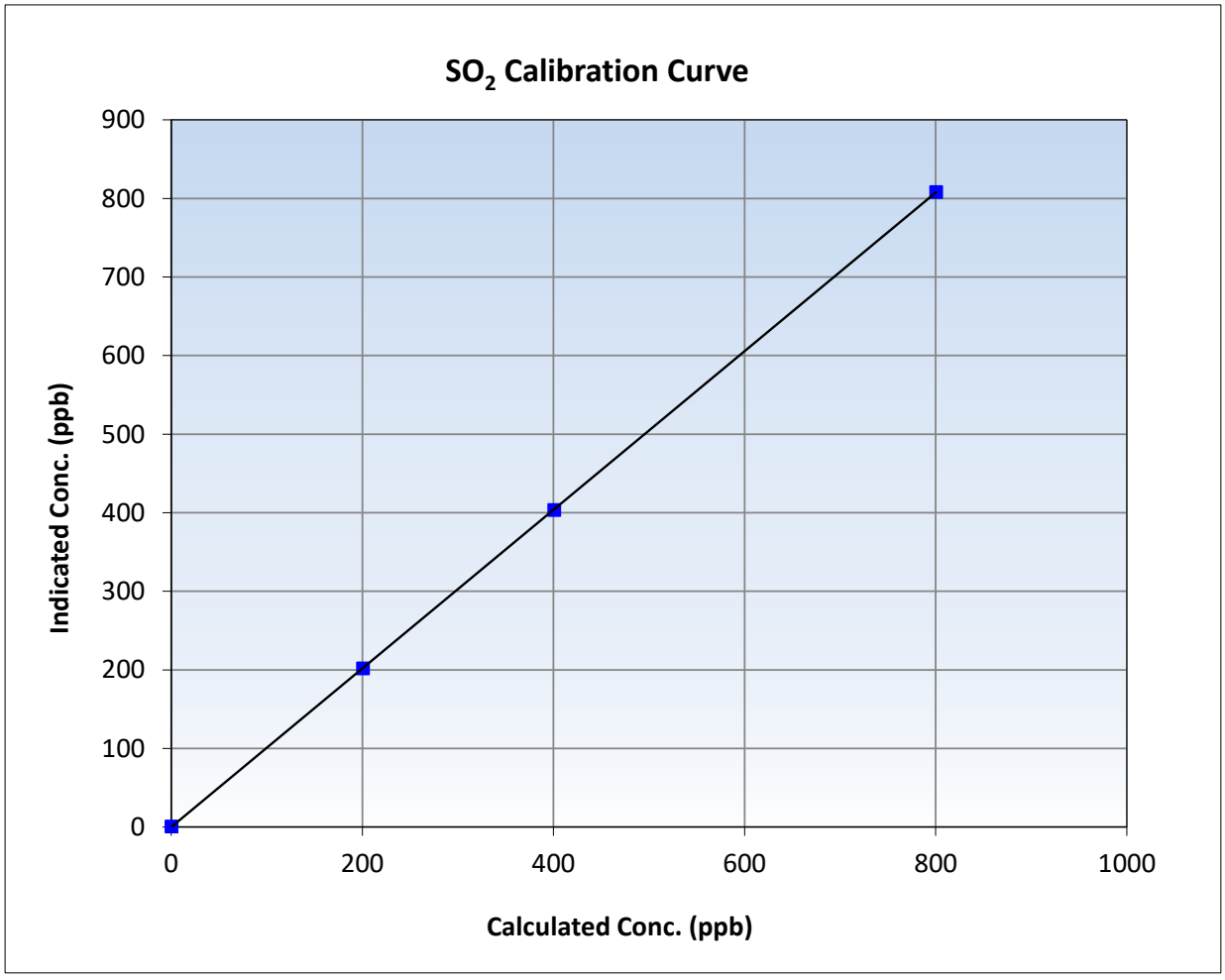
Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	April 15, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	8:50	End Time (MST):	12:00
Analyzer make:	Thermo 43i	Analyzer serial #:	1008841399

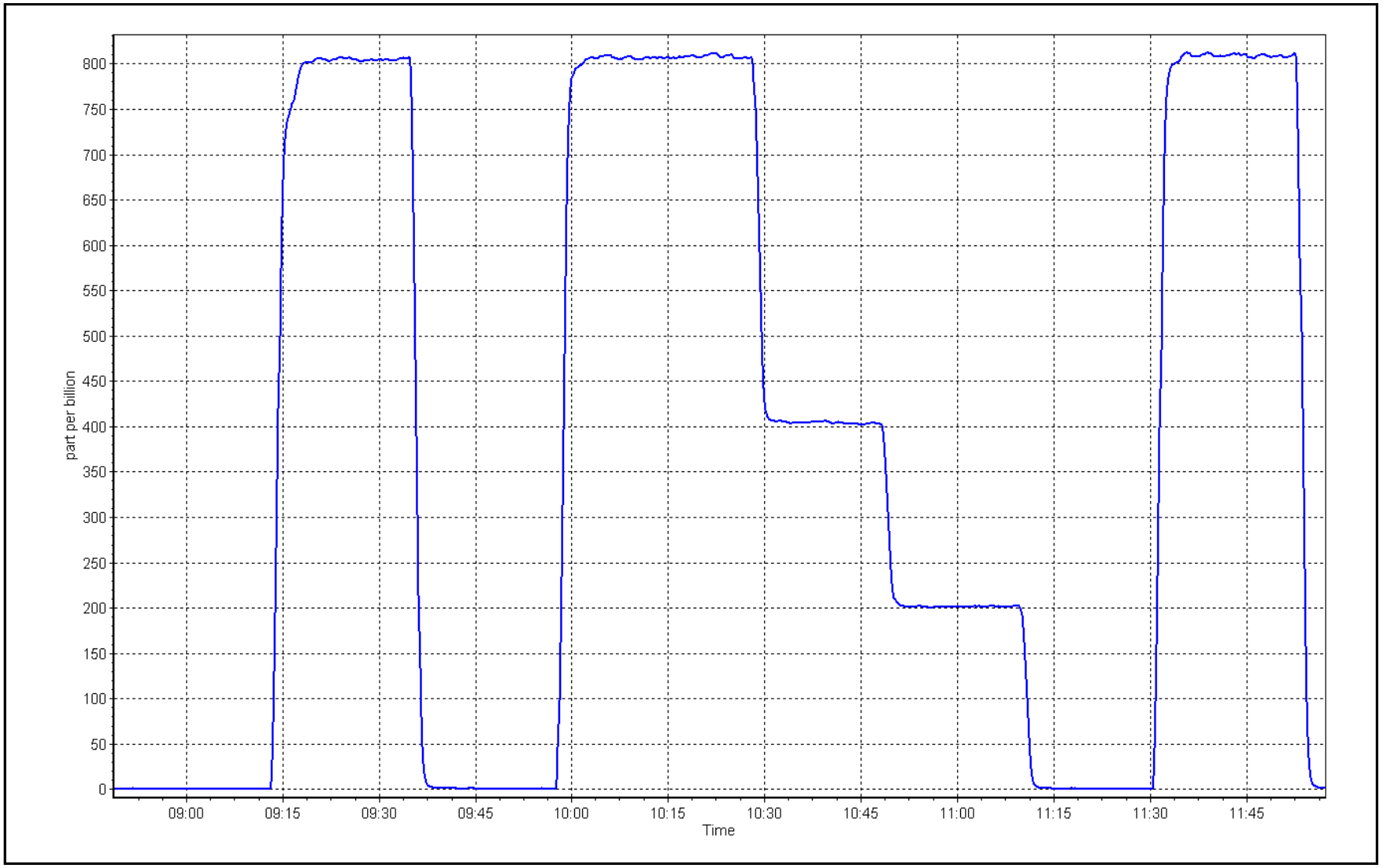
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.6	----
800.0	807.9	0.9902
400.5	403.4	0.9928
200.2	201.7	0.9928

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999996	*≥0.995*
Slope	1.009380	*0.90 - 1.10*
Intercept	-0.058416	*+/-30*



SO2 Calibration Plot Date: May 16, 2025 Location: Mannix



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Mannix	Station number:	AMS 05
Calibration Date:	May 8, 2025	Last Cal Date:	April 2, 2025
Start time (MST):	9:15	End time (MST):	13:30
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.96	ppm	Cal Gas Exp Date:	November 15, 2026
Cal Gas Cylinder #:	DT0037363			
Removed Cal Gas Conc:	4.96	ppm	Rem Gas Exp Date:	N/A
Removed Gas Cyl #:	N/A		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	5470
ZAG Make/Model:	API T701		Serial Number:	361

Analyzer Information

Analyzer make:	Thermo 43iQ		Analyzer serial #:	1200326169	
Converter make:	Global		Converter serial #:	2022-225	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.999974	1.000259	Backgd or Offset:	1.25	1.25
Calibration intercept:	-0.017707	0.122329	Coeff or Slope:	1.029	1.029

H_2S 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	4919	80.6	80.0	81.6	0.981
As found Mid point	4960	40.3	40.0	40.7	0.985
As found Low point	4980	20.2	20.0	20.0	1.007
New cylinder response					
Baseline Corr As found:	81.5	Prev response:	79.94	*% change:	1.9%
Baseline Corr 2nd AF pt:	40.6	AF Slope:	1.021272	AF Intercept:	-0.137984
Baseline Corr 3rd AF pt:	19.9	AF Correlation:	0.999954	* = > +/-5% change initiates investigation	

H_2S 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	4919	80.6	80.0	80.0	1.000
Mid point	4960	40.3	40.0	40.4	0.989
Low point	4980	20.2	20.0	20.0	1.002
As left zero	5000	0.0	0.0	0.2	----
As left span	4919	80.6	80.0	79.4	1.007
SO2 Scrubber Check	4920	80.3	803.0	0.0	----
Date of last scrubber change:				Ave Corr Factor	0.997
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

Wood Buffalo Environmental Association

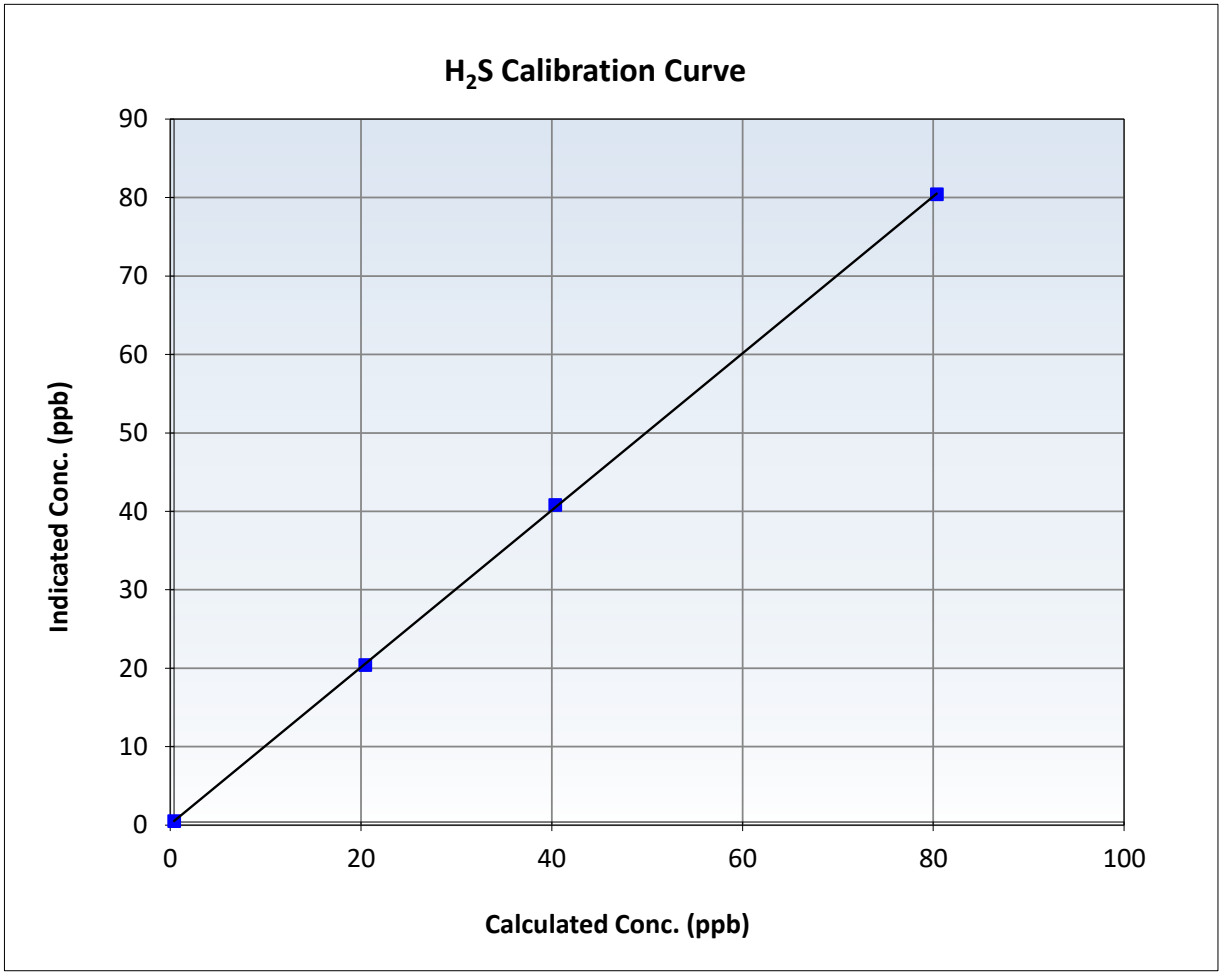
H_2S Calibration Summary

Station Information

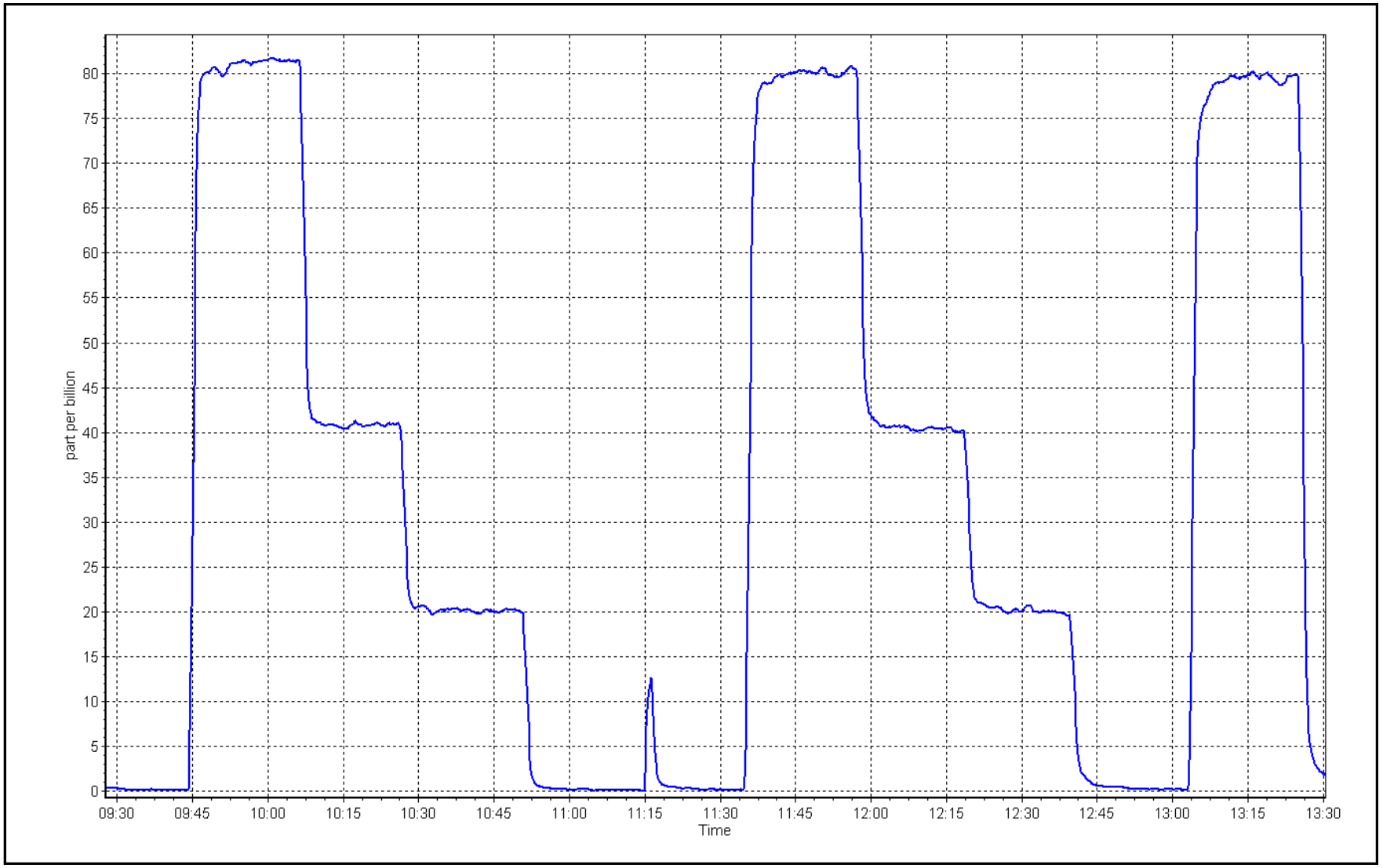
Calibration Date:	May 8, 2025	Previous Calibration:	April 2, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	9:15	End Time (MST):	13:30
Analyzer make:	Thermo 43iQ	Analyzer serial #:	1200326169

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.1	----	Correlation Coefficient	0.999965	*≥0.995*
80.0	80.0	0.9995	Slope	1.000259	*0.90 - 1.10*
40.0	40.4	0.9895	Intercept	0.122329	*+/-3*
20.0	20.0	1.0019			



H_2S Calibration Plot Date: May 8, 2025 Location: Mannix



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Mannix	Station number:	AMS 05
Calibration Date:	May 16, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	8:50	End time (MST):	12:00
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 make:	Thermo 55i	Analyzer serial #:	1193585649
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	3.74E-04	3.87E-04	NMHC SP Ratio:	7.39E-05	7.73E-05
CH4 Retention time:	15.6	15.6	NMHC Peak Area:	118483	113179
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	79.9	16.74	16.14	1.037
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.14	Prev response	16.60	*% change	-2.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.9	16.74	16.65	1.005
Mid point	4960	40.0	8.38	8.21	1.021
Low point	4980	20.0	4.19	4.09	1.025
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.9	16.74	16.66	1.005
				Average Correction Factor	1.017

Notes: Chanegd the inlet filter after as founds. Adjusted the span.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.9	8.75	8.41	1.040
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.41	Prev response	8.68	*% change	-3.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4.33	1.012
Low point	4980	20.0	2.19	2.18	1.006
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.9	8.75	8.69	1.006
				Average Correction Factor	1.008

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	4920	79.9	7.99	7.74	1.033
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.74	Prev response	7.92	*% change	-2.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.9	7.99	7.96	1.005
Mid point	4960	40.0	4.00	3.88	1.031
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	7.97	1.004
				Average Correction Factor	1.028

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	0.996242	0.995546
THC Cal Offset:	-0.075658	-0.057061
CH4 Cal Slope:	0.997482	0.996954
CH4 Cal Offset:	-0.053327	-0.051728
NMHC Cal Slope:	0.995382	0.993907
NMHC Cal Offset:	-0.023131	-0.004733

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

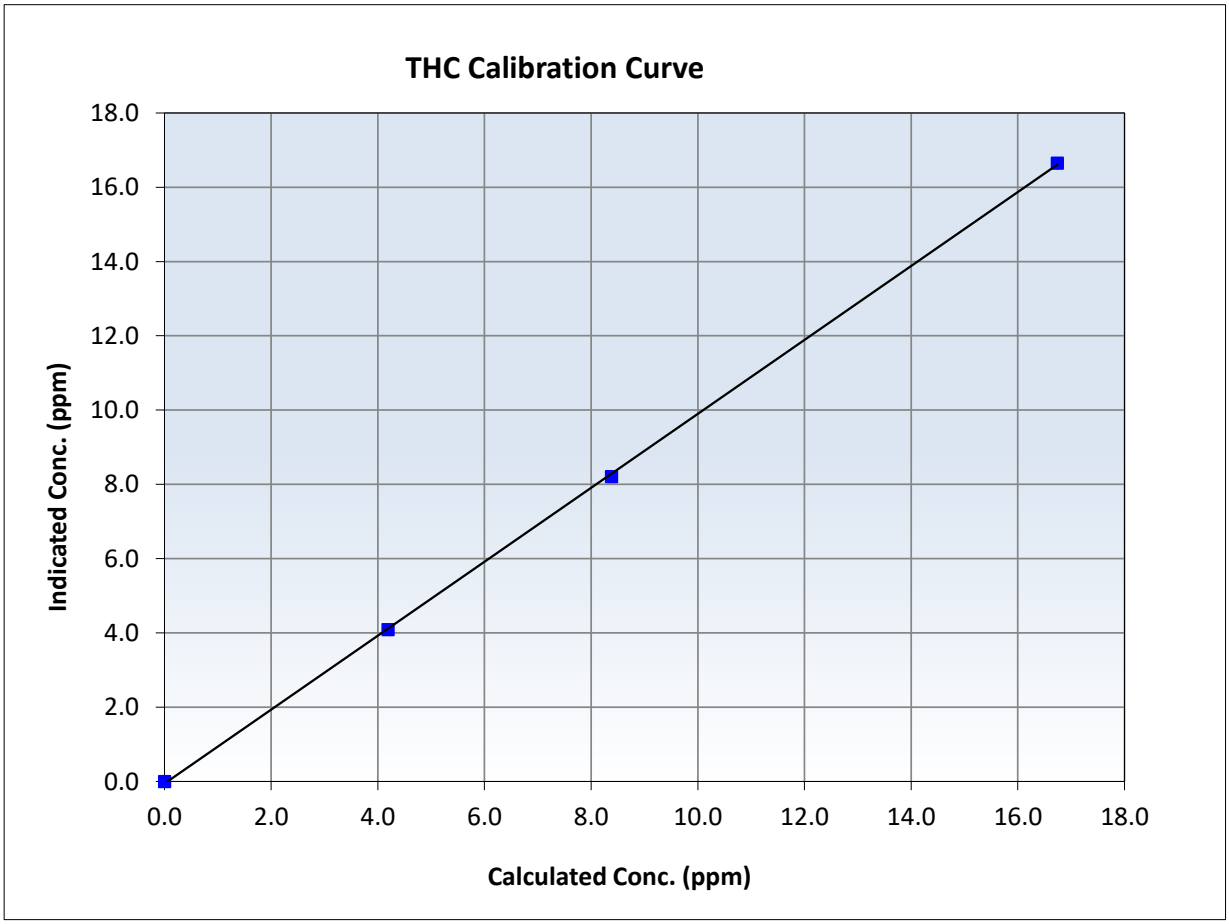
THC Calibration Summary

Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	April 15, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	8:50	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585649

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999923	≥0.995
16.74	16.65	1.0052	Slope	0.995546	0.90 - 1.10
8.38	8.21	1.0208			
4.19	4.09	1.0247	Intercept	-0.057061	+/-0.5



Wood Buffalo Environmental Association

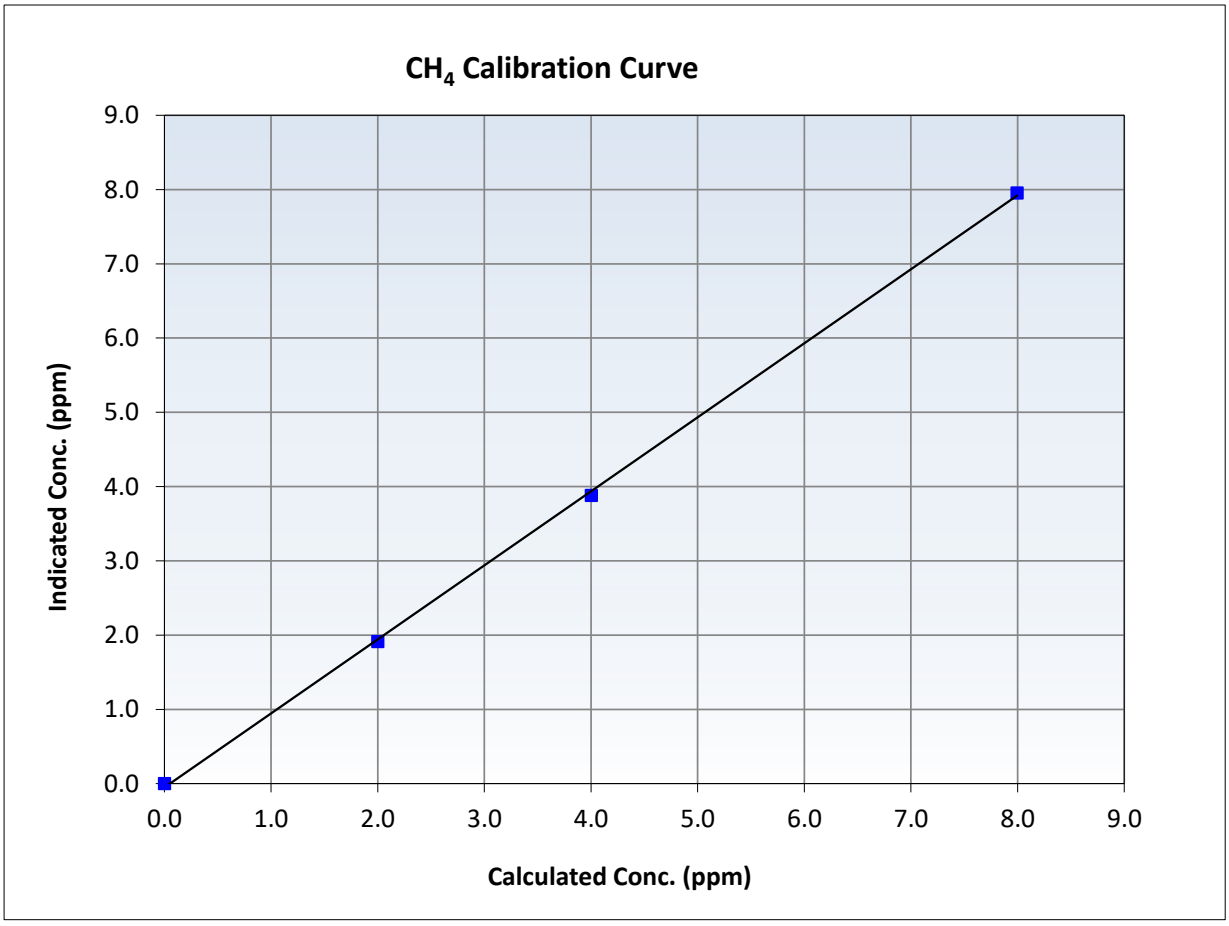
CH_4 Calibration Summary

Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	April 15, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	8:50	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585649

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999765	*≥0.995*
7.99	7.96	1.0050	Slope	0.996954	*0.90 - 1.10*
4.00	3.88	1.0310			
2.00	1.91	1.0467	Intercept	-0.051728	*+/-0.5*



Wood Buffalo Environmental Association

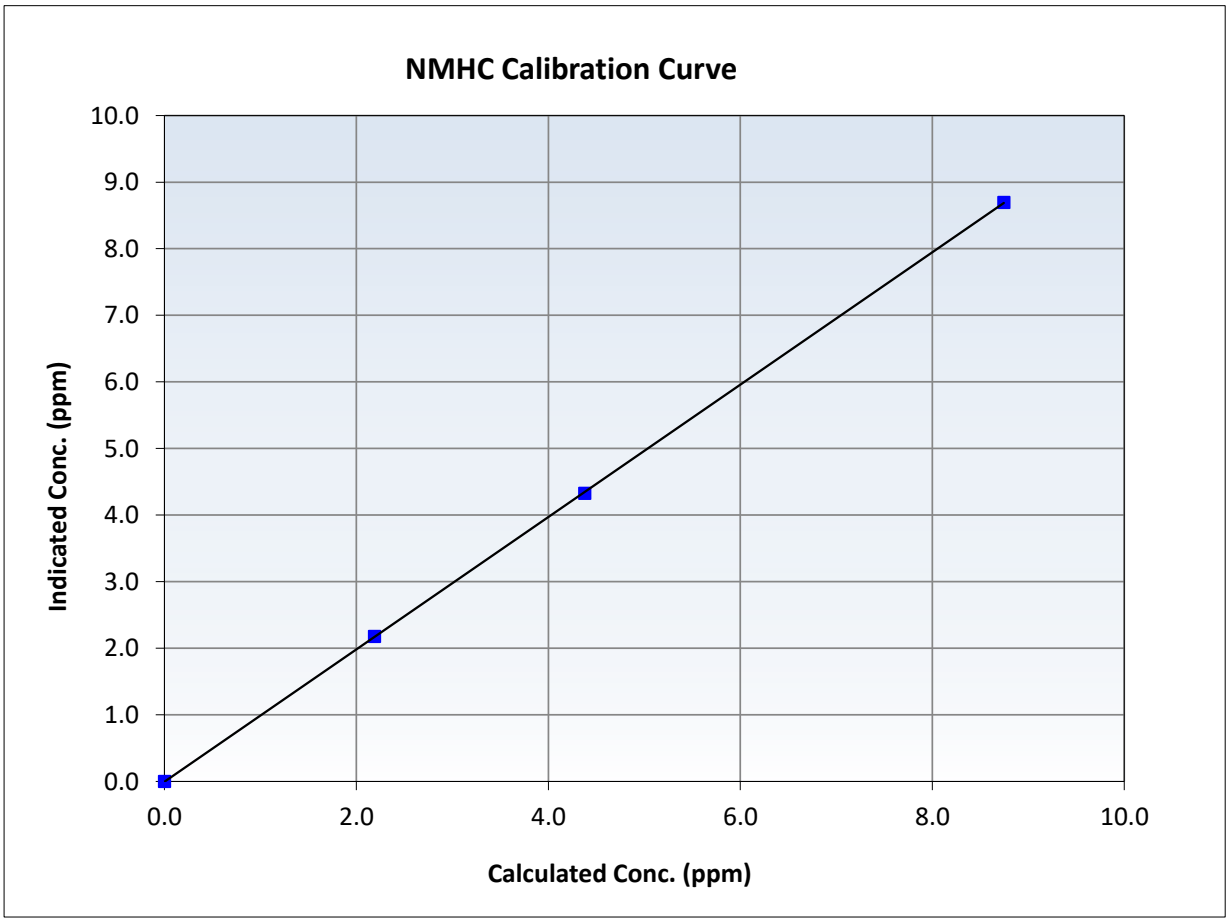
NMHC Calibration Summary

Station Information

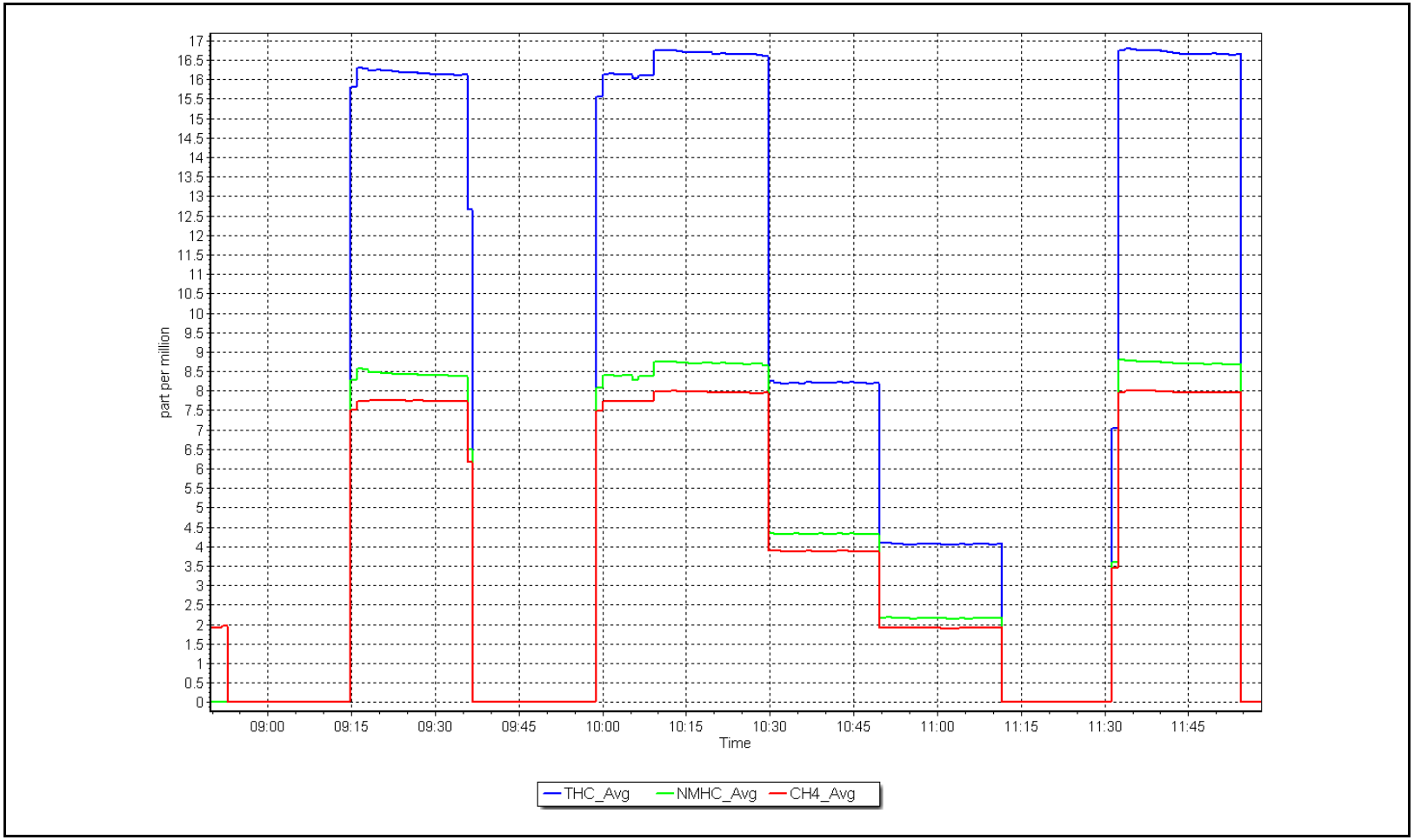
Calibration Date:	May 16, 2025	Previous Calibration:	April 15, 2025
Station Name:	Mannix	Station Number:	AMS 05
Start Time (MST):	8:50	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585649

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999989	≥0.995
8.75	8.70	1.0058	Slope	0.993907	0.90 - 1.10
4.38	4.33	1.0116	Intercept	-0.004733	+/-0.5
2.19	2.18	1.0055			



NMHC Calibration Plot Date: May 16, 2025 Location: Mannix



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS06
PATRICIA MCINNES
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 2, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	8:20	End time (MST):	12:00
Reason:	Routine		

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

Analyzer make:	Thermo 43i		Serial Number:	1160290013	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.001251	1.001436	Backgd or Offset:	18.4	18.3
Calibration intercept:	1.678702	1.038914	Coeff or Slope:	0.920	0.912

SO_2 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	4920.2	79.8	799.3	805.3	0.992
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	805.4	Previous response	802.0	*% change	0.4%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	800.9	0.998
Mid point	4960.1	39.9	399.6	401.9	0.994
Low point	4980	20.0	200.3	202.6	0.989
As left zero	5000	0.0	0.0	0.1	----
As left span	4919.7	80.3	804.3	802.1	1.003
				Average Correction Factor:	0.994

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

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

SO_2 Calibration Summary

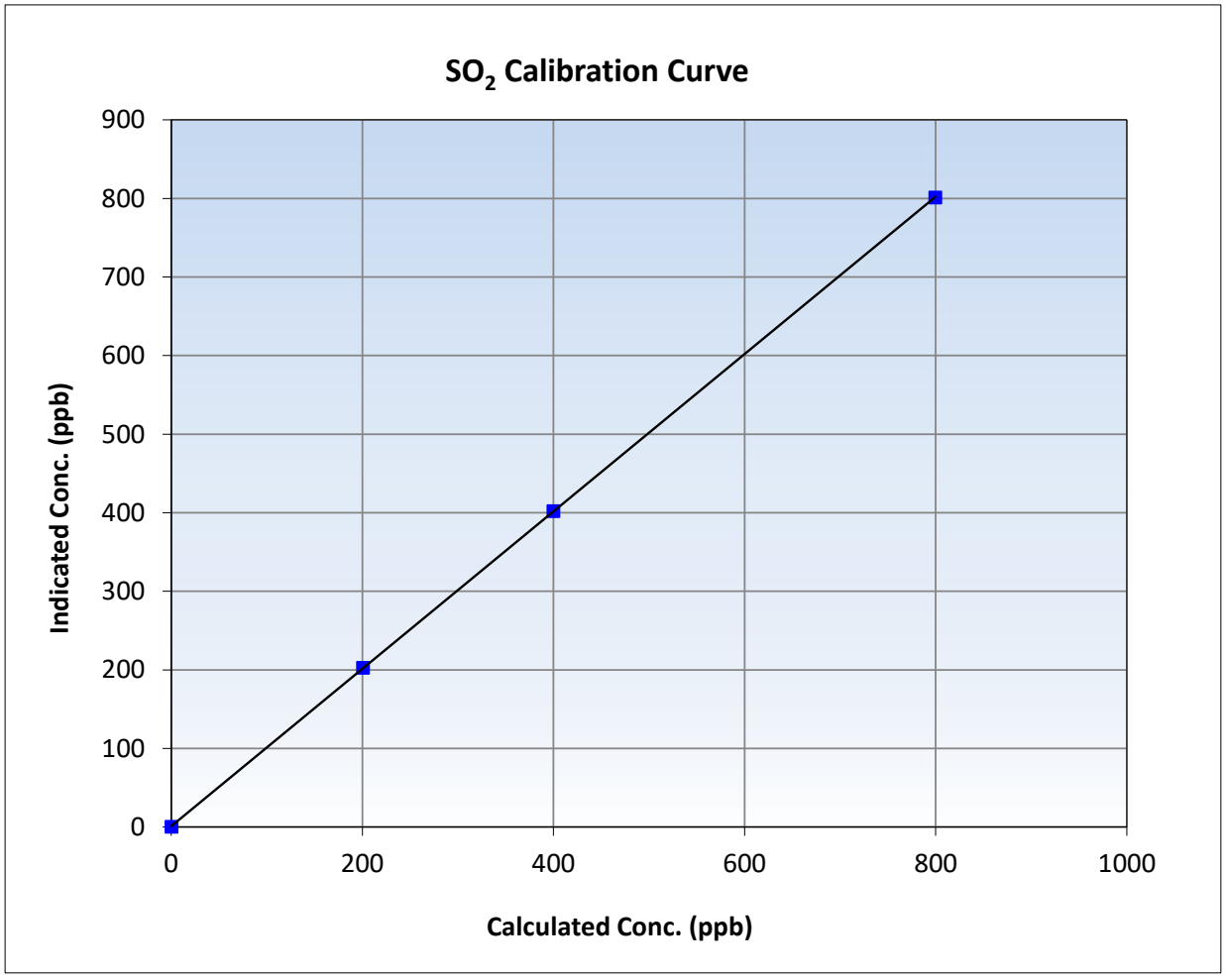
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 11, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:20	End Time (MST):	12:00
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290013

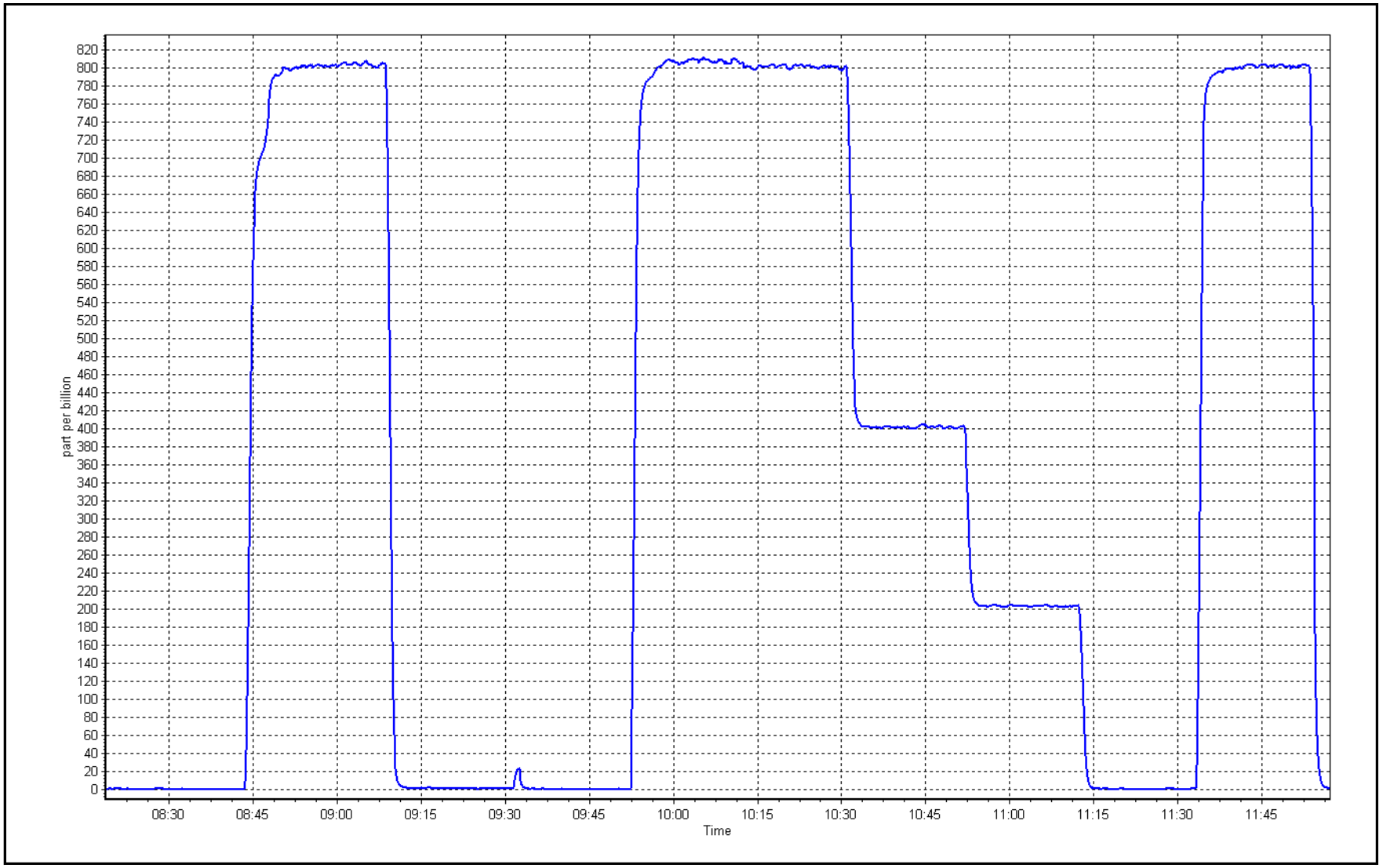
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
799.3	800.9	0.9980
399.6	401.9	0.9944
200.3	202.6	0.9887

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999992	*≥0.995*
Slope	1.001436	*0.90 - 1.10*
Intercept	1.038914	*+/-30*



SO2 Calibration Plot Date: May 2, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 12, 2025	Last Cal Date:	April 16, 2025
Start time (MST):	9:05	End time (MST):	13:50
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.760	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	DT0014585			
Removed Cal Gas Conc:	5.328	ppm	Rem Gas Exp Date:	February 14, 2025
Removed Gas Cyl #:	CC506659		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	3566
ZAG Make/Model:	API T701		Serial Number:	4602

Analyzer Information

Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1218153358	
Converter make:	CDN-101		Converter serial #:	517	
Analyzer Range	0 - 100 ppb		Converter Temp:	800	degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.002115	0.979106	Backgd or Offset:	1.99	1.99
Calibration intercept:	0.340000	0.220000	Coeff or Slope:	1.146	1.146

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	79.1	1.013
As found Mid point	4963	37.5	40.0	40.4	0.991
As found Low point	4981	18.8	20.0	20.3	0.992
New cylinder response					

Baseline Corr As found:	79.0	Prev response:	80.53	*% change:	-1.9%
Baseline Corr 2nd AF pt:	40.3	AF Slope:	0.986596	AF Intercept:	0.440435
Baseline Corr 3rd AF pt:	20.2	AF Correlation:	0.999853	* = > +/-5% change initiates 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	78.4	1.020
Mid point	4958	42.0	40.0	39.7	1.007
Low point	4979	21.0	20.0	19.6	1.020
As left zero	5000	0.0	0.0	0.3	----
As left span	4916	84.0	80.0	77.7	1.029
SO2 Scrubber Check				0.1	

Date of last scrubber change:	Monday, December 20, 2021	Ave Corr Factor	1.016
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

Wood Buffalo Environmental Association

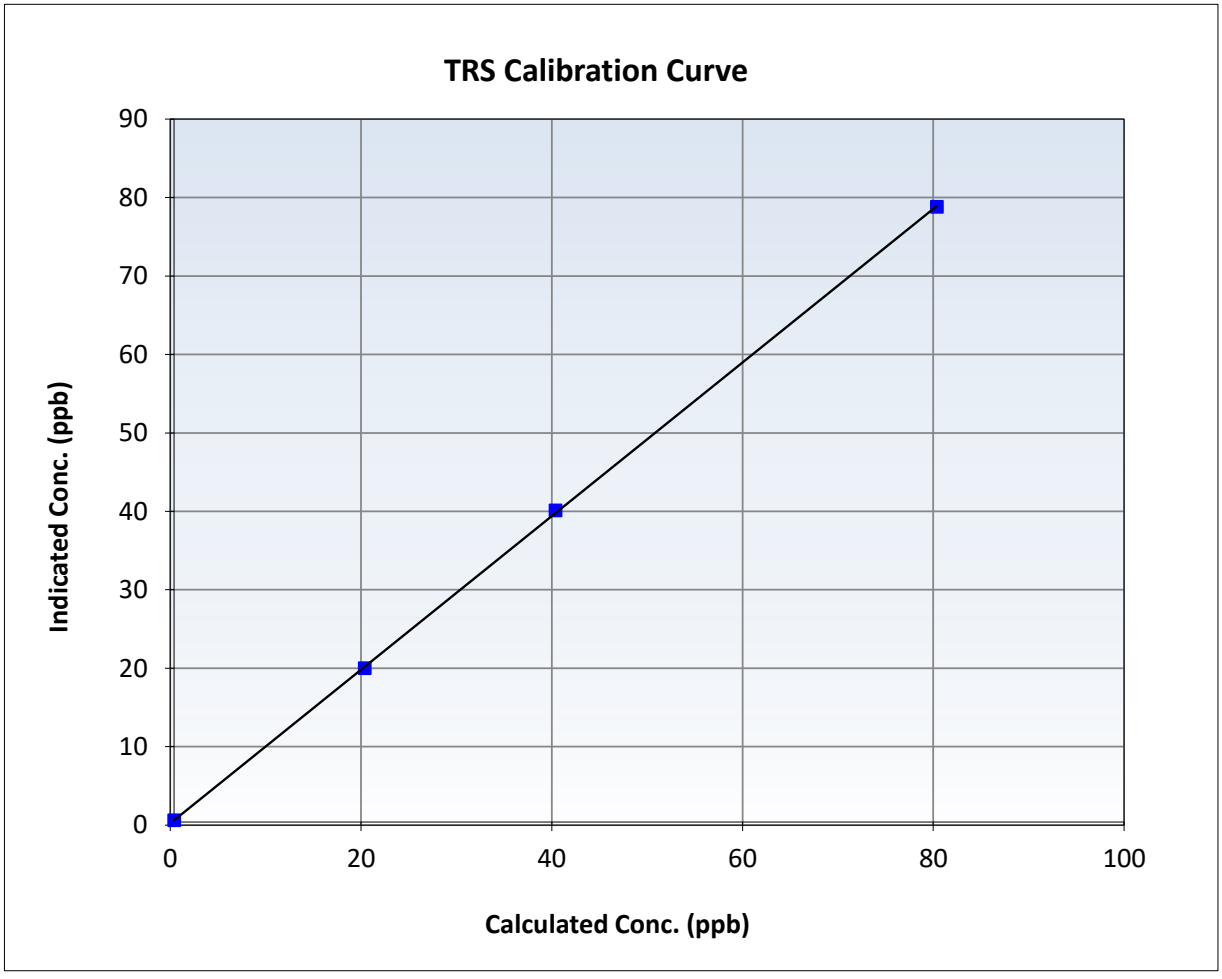
TRS Calibration Summary

Station Information

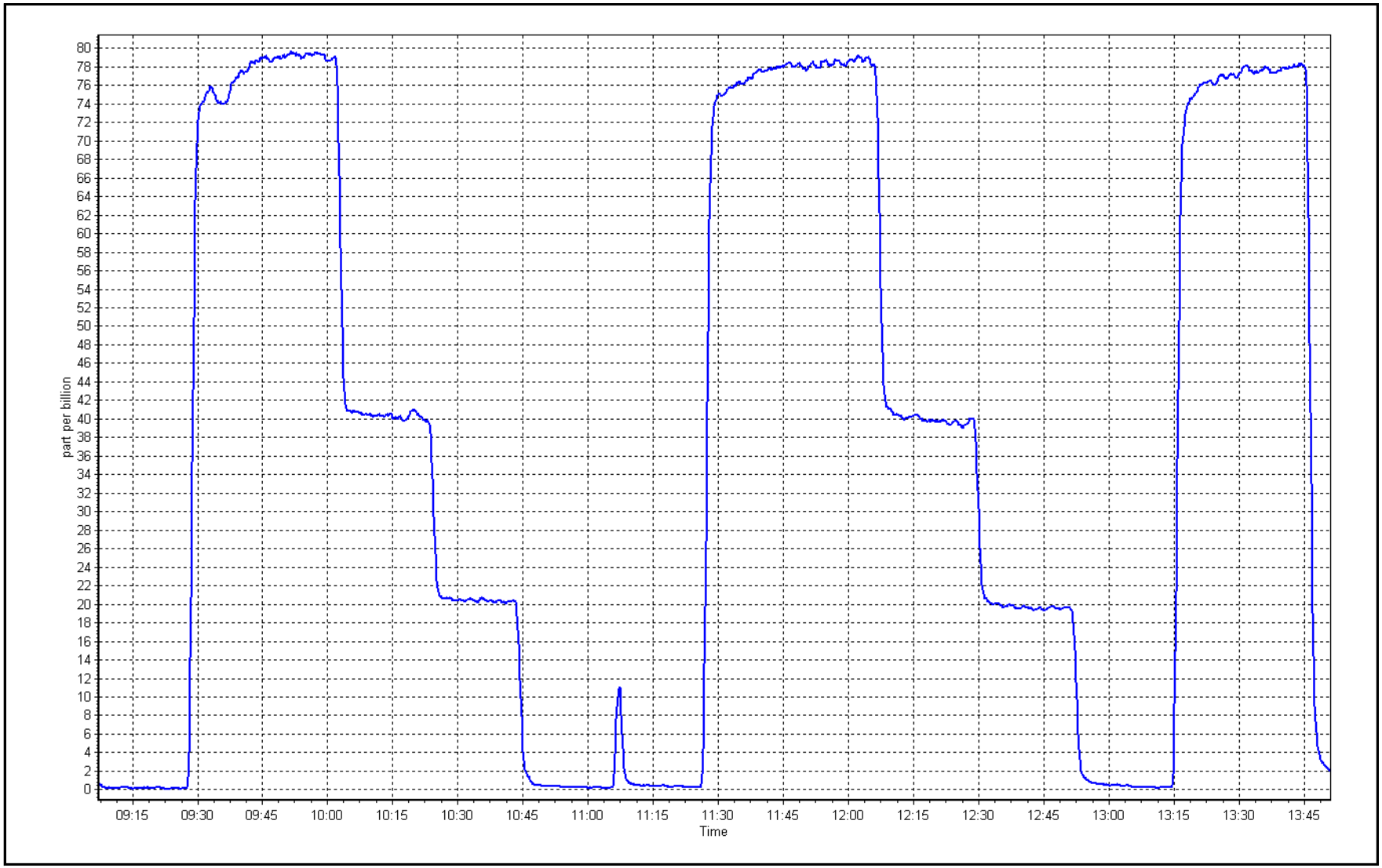
Calibration Date:	May 12, 2025	Previous Calibration:	April 16, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	9:05	End Time (MST):	13:50
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1218153358

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.2	----	Correlation Coefficient	0.999952	*≥0.995*
80.0	78.4	1.0200	Slope	0.979106	*0.90 - 1.10*
40.0	39.7	1.0072			
20.0	19.6	1.0200	Intercept	0.220000	*+/-3*



TRS Calibration Plot Date: May 12, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 2, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	8:19	End time (MST):	12:00
Reason:	Routine		

Calibration Standards

Gas Cert Reference:		AAL070632	Cal Gas Expiry Date:	Monday, September 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 #:	1118148494	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	4.46E-04	4.86E-04	NMHC SP Ratio:	4.23E-05	4.38E-05
CH4 Retention time:	14.2	14.4	NMHC Peak Area:	207068	199812
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	0.01	----
As found High point	4920	79.8	16.75	15.86	1.057
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	15.85	Prev response	16.84	*% change	-6.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	0.01	----
High point	4920	79.8	16.75	16.80	0.997
Mid point	4960	39.9	8.37	8.48	0.987
Low point	4980	20.0	4.20	4.32	0.972
As left zero	5000	0.0	0.00	0.01	----
As left span	4920	79.8	16.75	16.78	0.998
				Average Correction Factor	0.986

Notes: Changed the inlet filter and the N2 cylinder after as founds. Adjusted the span. As found points have drifted down since last month. Instrument diagnostics are normal, will monitor.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.8	8.75	8.46	1.034
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.46	Prev response	8.79	*% change	-3.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	0.998
Mid point	4960.1	39.9	4.37	4.43	0.987
Low point	4980	20.0	2.19	2.27	0.968
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.75	8.77	0.997
				Average Correction Factor	0.984

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	0.01	----
As found High point	4920	79.8	8.00	7.39	1.084
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.38	Prev response	8.06	*% change	-9.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	0.01	----
High point	4920	79.8	8.00	8.03	0.996
Mid point	4960.1	39.9	4.00	4.05	0.987
Low point	4980	20.0	2.01	2.05	0.977
As left zero	5000	0.0	0.00	0.01	----
As left span	4920	79.8	8.00	8.01	0.999
				Average Correction Factor	0.987

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	1.001964	1.000749
THC Cal Offset:	0.059767	0.064173
CH4 Cal Slope:	1.003725	1.001953
CH4 Cal Offset:	0.026176	0.027382
NMHC Cal Slope:	1.000863	1.000093
NMHC Cal Offset:	0.033391	0.036589

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

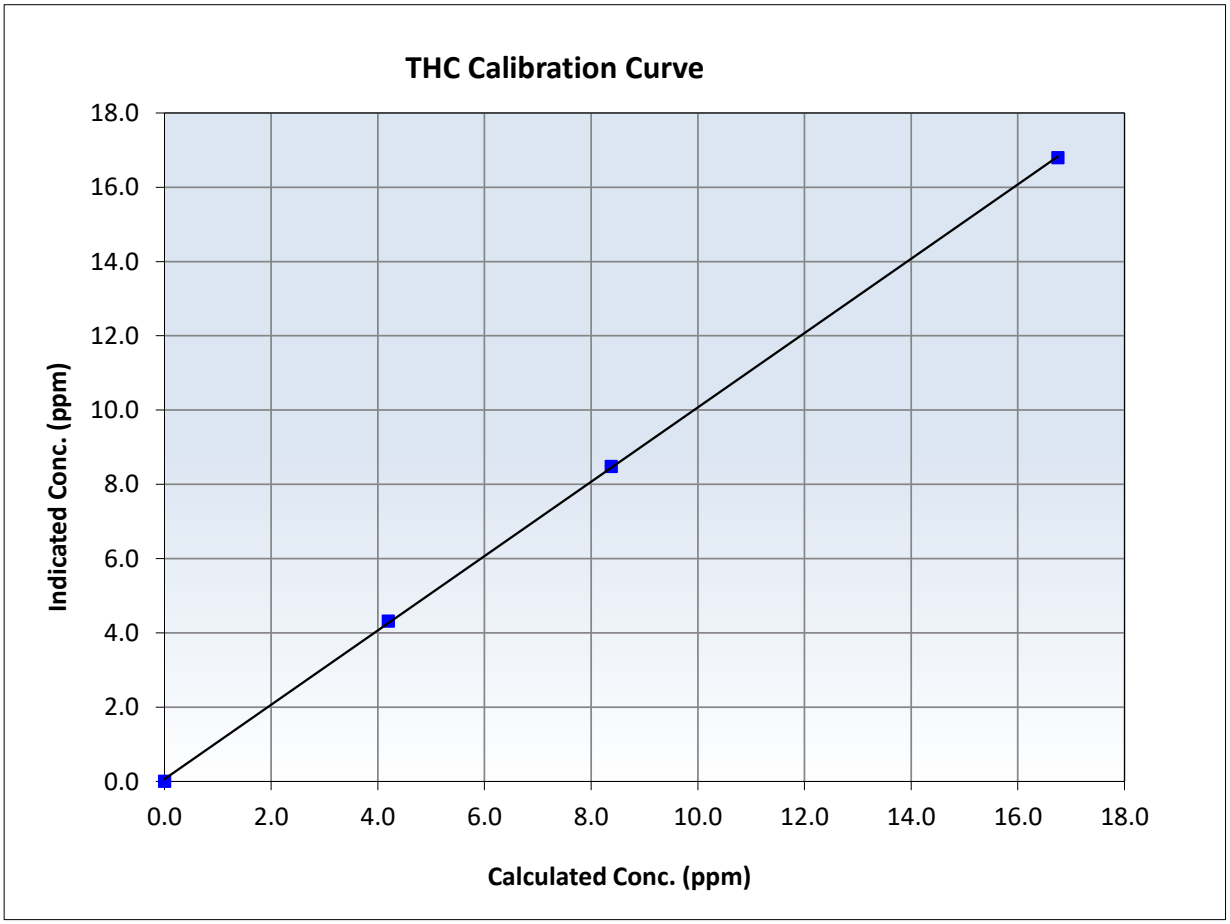
THC Calibration Summary

Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 11, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:19	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.01	----	Correlation Coefficient	0.999946	≥0.995
16.75	16.80	0.9973	Slope	1.000749	0.90 - 1.10
8.37	8.48	0.9874			
4.20	4.32	0.9724	Intercept	0.064173	+/-0.5



Wood Buffalo Environmental Association

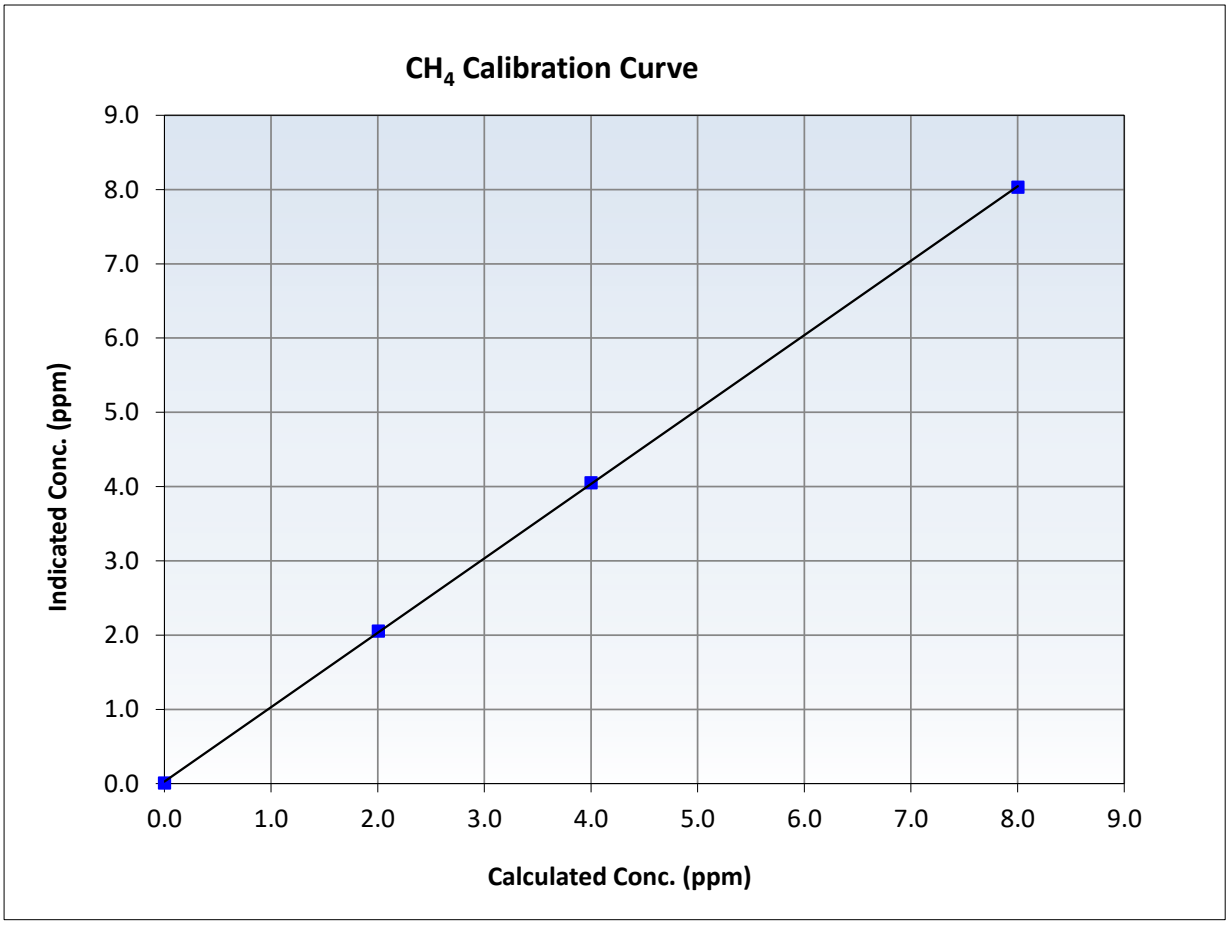
CH_4 Calibration Summary

Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 11, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:19	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.01	----	Correlation Coefficient	0.999969	≥0.995
8.00	8.03	0.9962	Slope	1.001953	0.90 - 1.10
4.00	4.05	0.9872			
2.01	2.05	0.9769	Intercept	0.027382	+/-0.5



Wood Buffalo Environmental Association

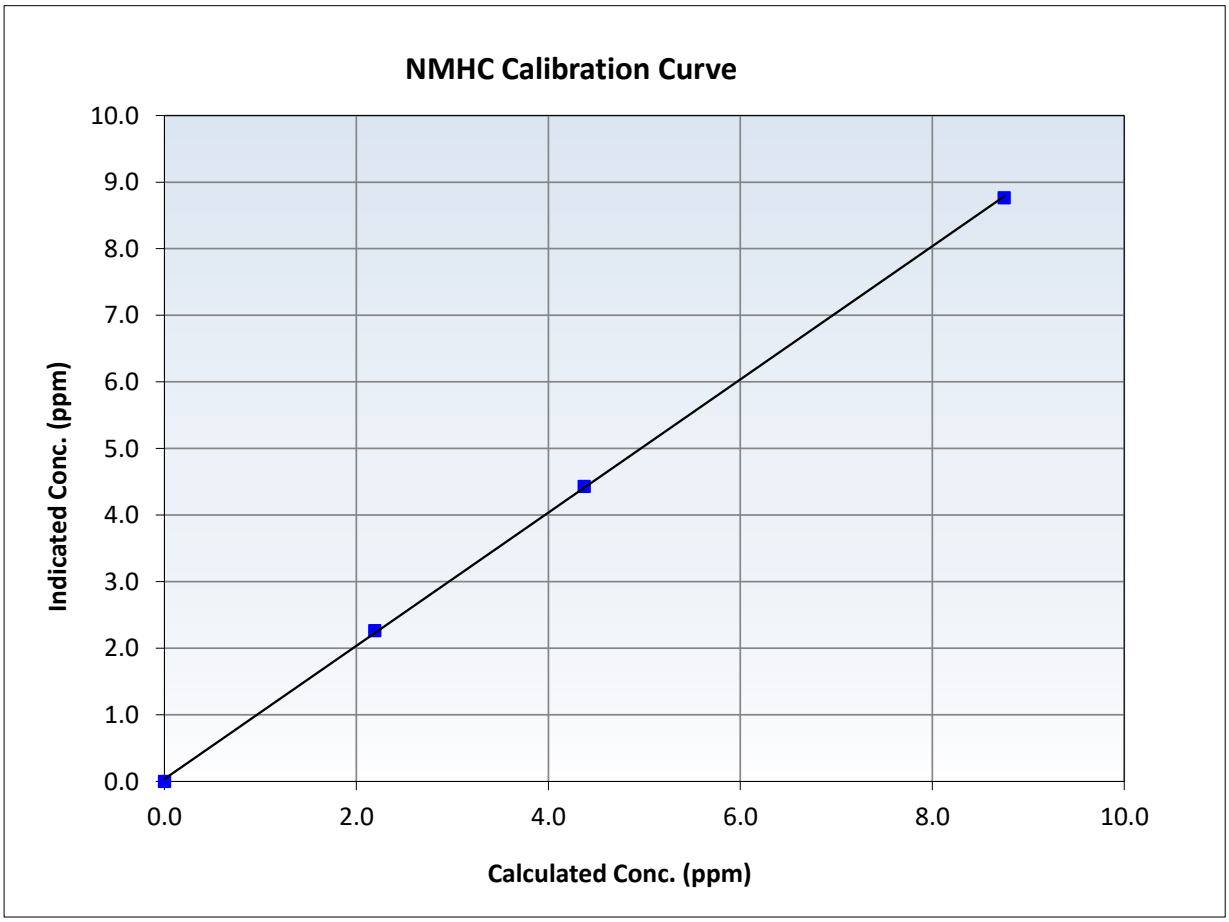
NMHC Calibration Summary

Station Information

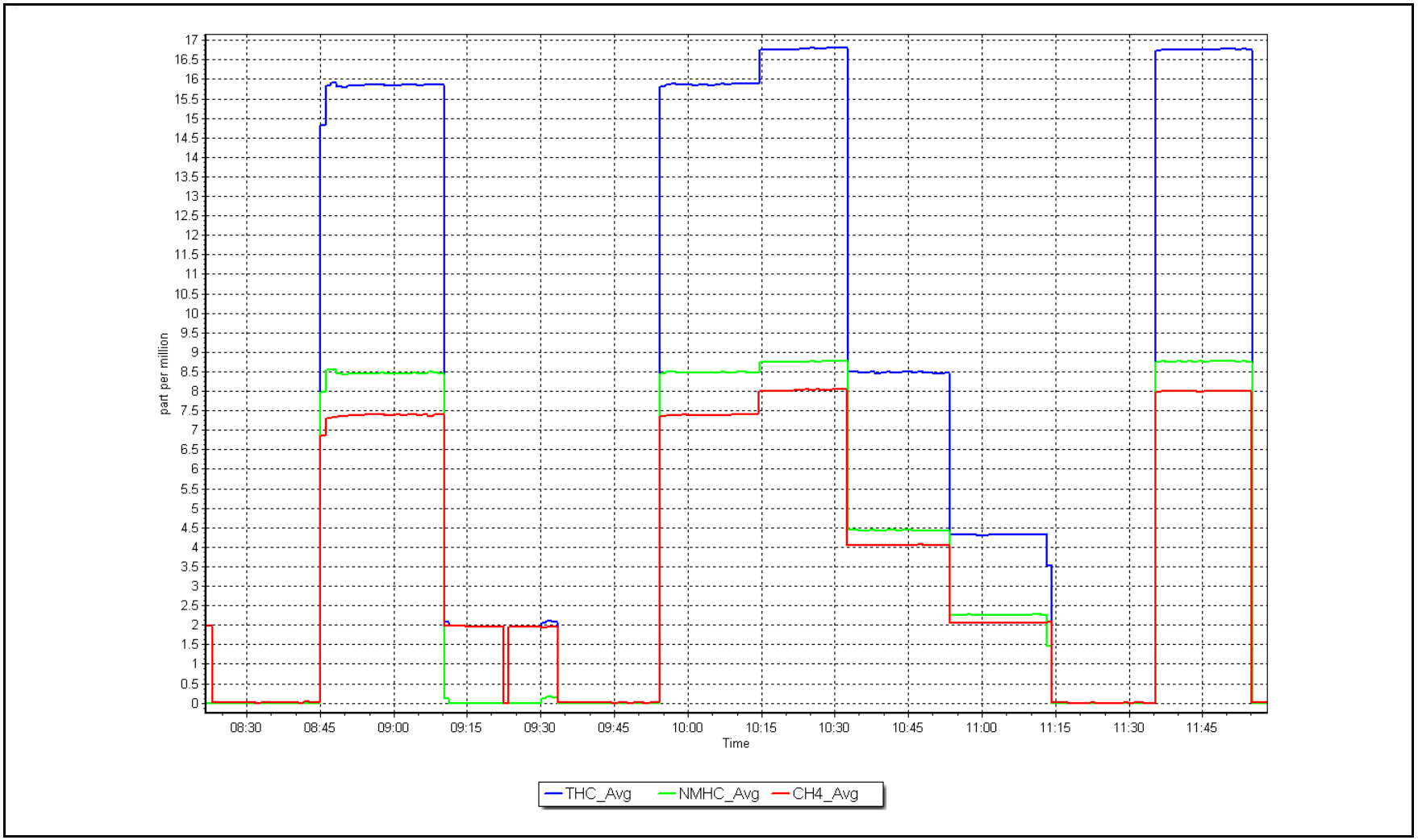
Calibration Date:	May 2, 2025	Previous Calibration:	April 11, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:19	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999920	≥0.995
8.75	8.77	0.9979	Slope	1.000093	0.90 - 1.10
4.37	4.43	0.9873	Intercept	0.036589	+/-0.5
2.19	2.27	0.9679			



NMHC Calibration Plot Date: May 2, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 13, 2025	Last Cal Date:	May 2, 2025
Start time (MST):	9:19	End time (MST):	14:30
Reason:	Maintenance		

Calibration Standards

Gas Cert Reference:	AAL070632		Cal Gas Expiry Date:	Monday, September 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 #:	1118148494	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	4.86E-04	5.94E-04	NMHC SP Ratio:	4.38E-05	4.96E-05
CH4 Retention time:	14.4	14.8	NMHC Peak Area:	199812	176413
Zero Chromatogram:	OFF	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	0.02	----
As found High point	4920	79.8	16.75	14.33	1.171
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	14.31	Prev response	16.83	*% change	-17.6%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	16.75	16.76	0.999
Mid point	4960	39.9	8.37	8.35	1.003
Low point	4980	20.0	4.20	4.25	0.987
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	16.75	17.38	0.964
				Average Correction Factor	0.996

Notes: Span has been drifting. Changed the H2 cylinder and completed an investigation to find the issue. No definitive issue was identified. See docit note for further info. Adjusted zero and span.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.8	8.75	7.84	1.116
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.84	Prev response	8.78	*% change	-12.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	8.75	0.999
Mid point	4960.1	39.9	4.37	4.38	0.998
Low point	4980	20.0	2.19	2.23	0.984
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.75	9.04	0.968
				Average Correction Factor	0.994

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	0.02	----
As found High point	4920	79.8	8.00	6.49	1.237
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	6.47	Prev response	8.05	*% change	-24.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	8.00	8.01	0.999
Mid point	4960.1	39.9	4.00	3.97	1.009
Low point	4980	20.0	2.01	2.02	0.991
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.00	8.35	0.959
				Average Correction Factor	1.000

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	1.000749	0.999357
THC Cal Offset:	0.064173	0.015384
CH4 Cal Slope:	1.001953	0.999582
CH4 Cal Offset:	0.027382	-0.000815
NMHC Cal Slope:	1.000093	0.999229
NMHC Cal Offset:	0.036589	0.015398

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

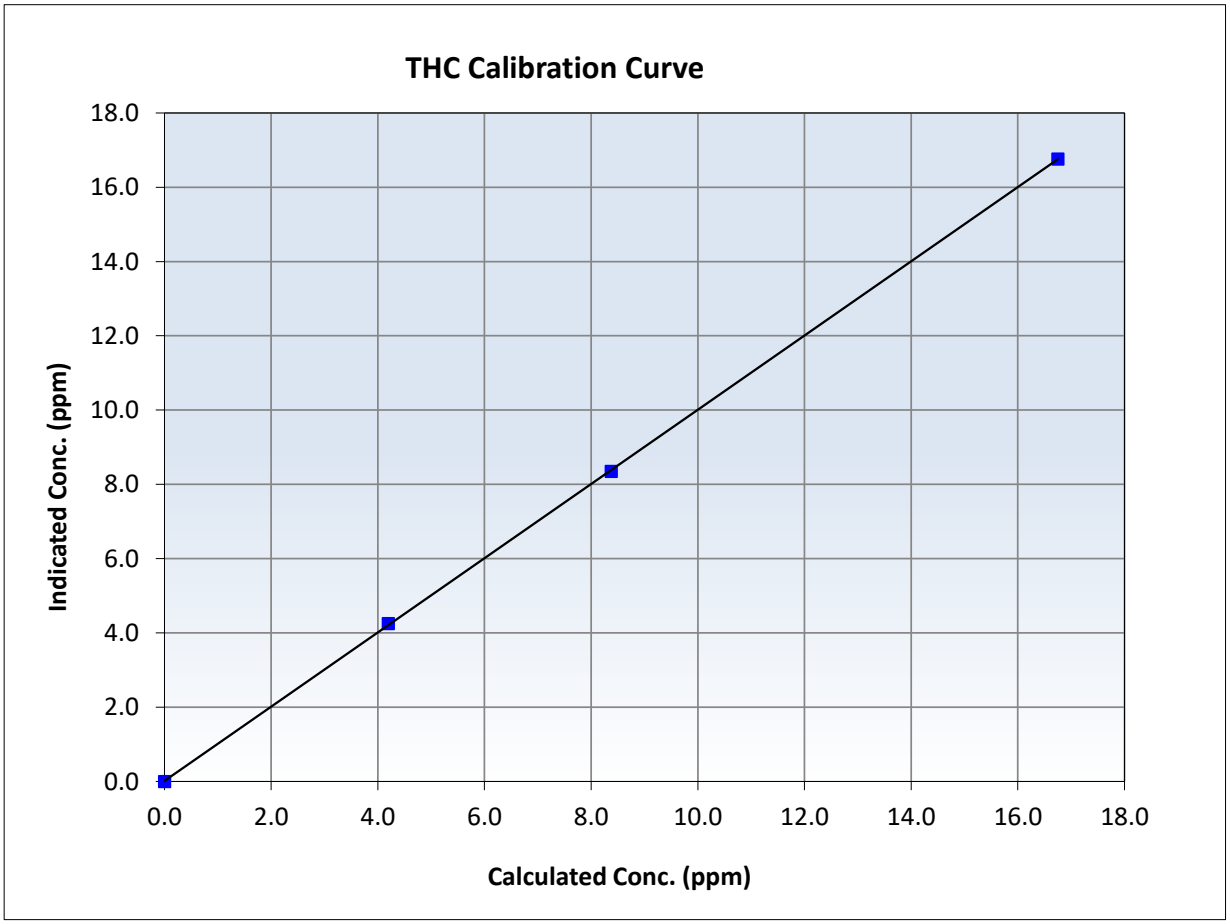
THC Calibration Summary

Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	May 2, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	9:19	End Time (MST):	14:30
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999979	≥0.995
16.75	16.76	0.9994	Slope	0.999357	0.90 - 1.10
8.37	8.35	1.0027	Intercept	0.015384	+/-0.5
4.20	4.25	0.9870			



Wood Buffalo Environmental Association

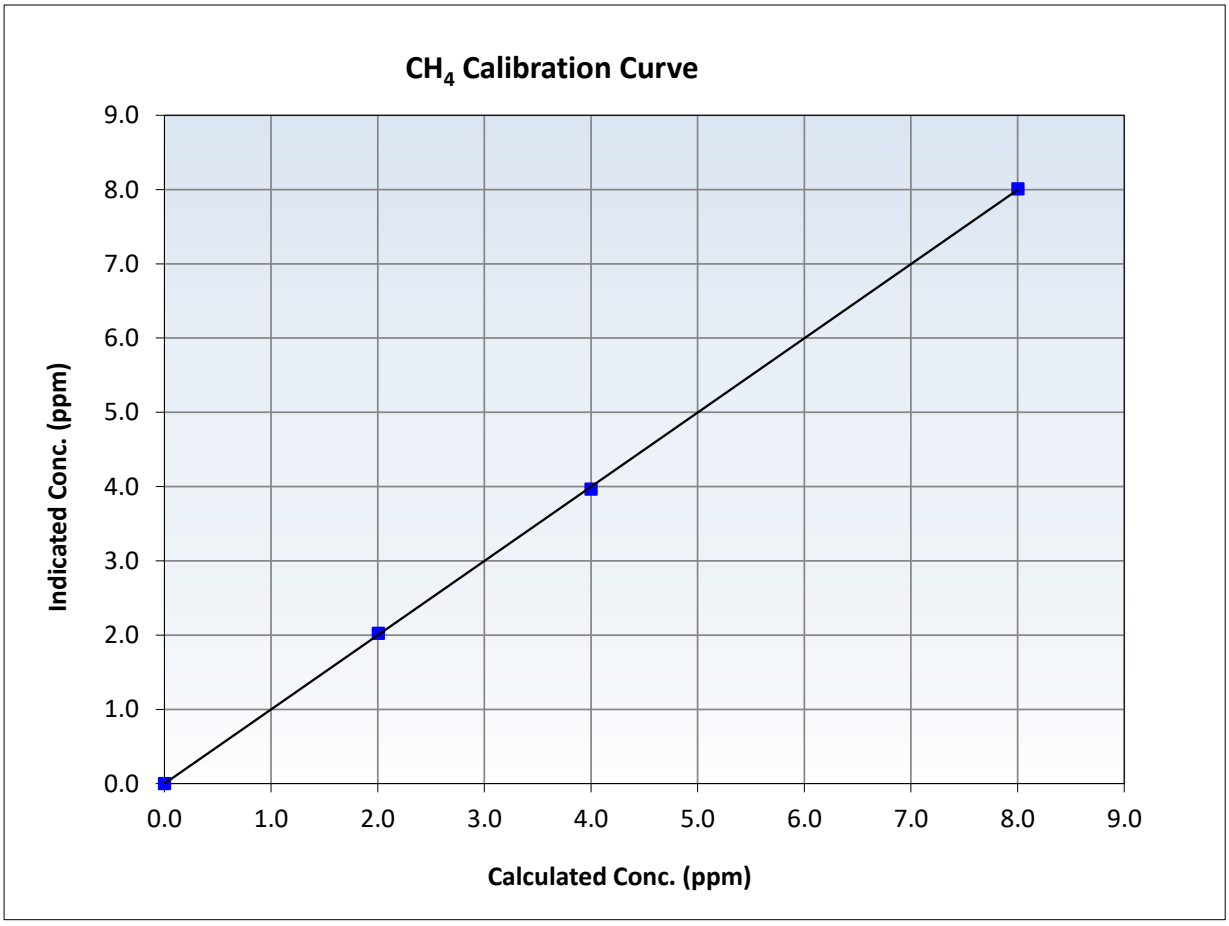
CH_4 Calibration Summary

Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	May 2, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	9:19	End Time (MST):	14:30
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999956	≥0.995
8.00	8.01	0.9992	Slope	0.999582	0.90 - 1.10
4.00	3.97	1.0086			
2.01	2.02	0.9909	Intercept	-0.000815	+/-0.5



Wood Buffalo Environmental Association

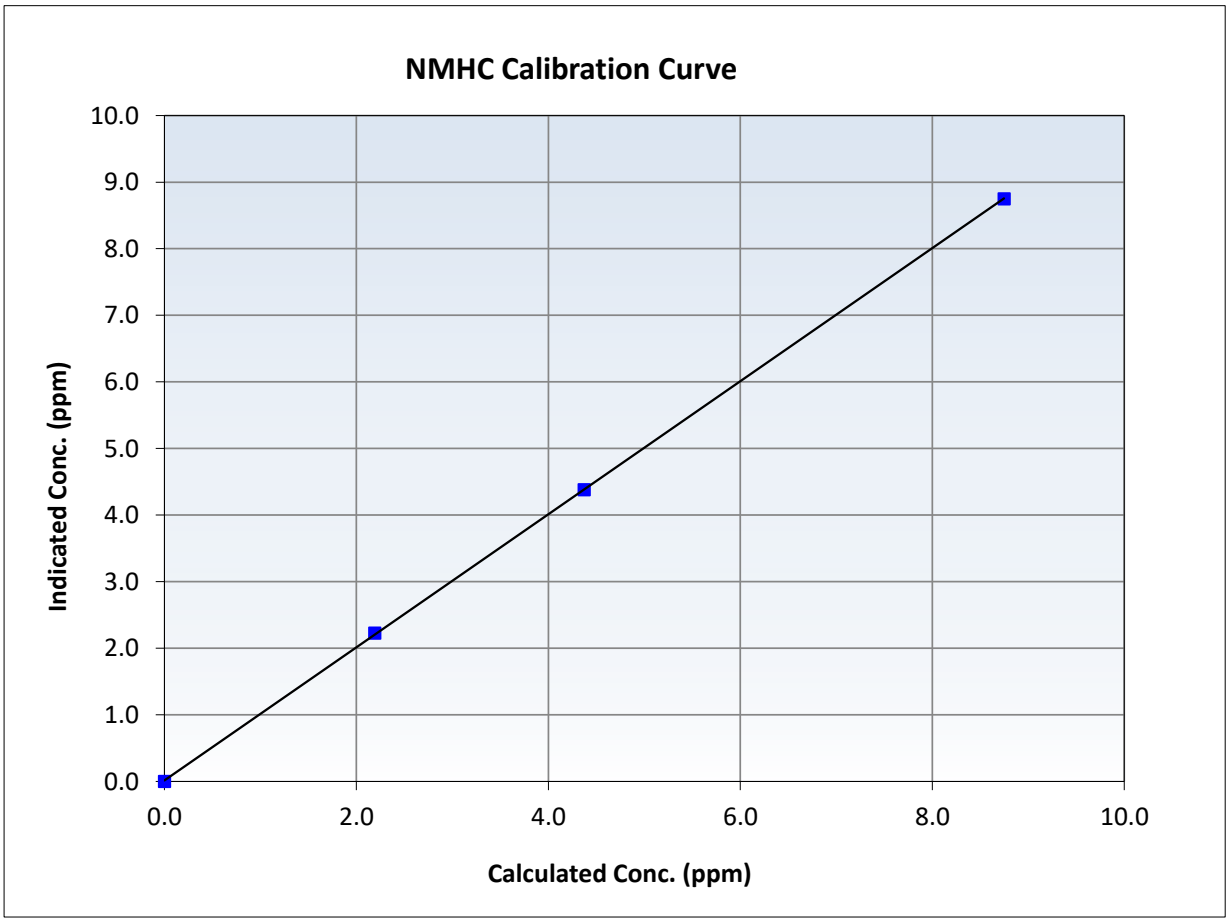
NMHC Calibration Summary

Station Information

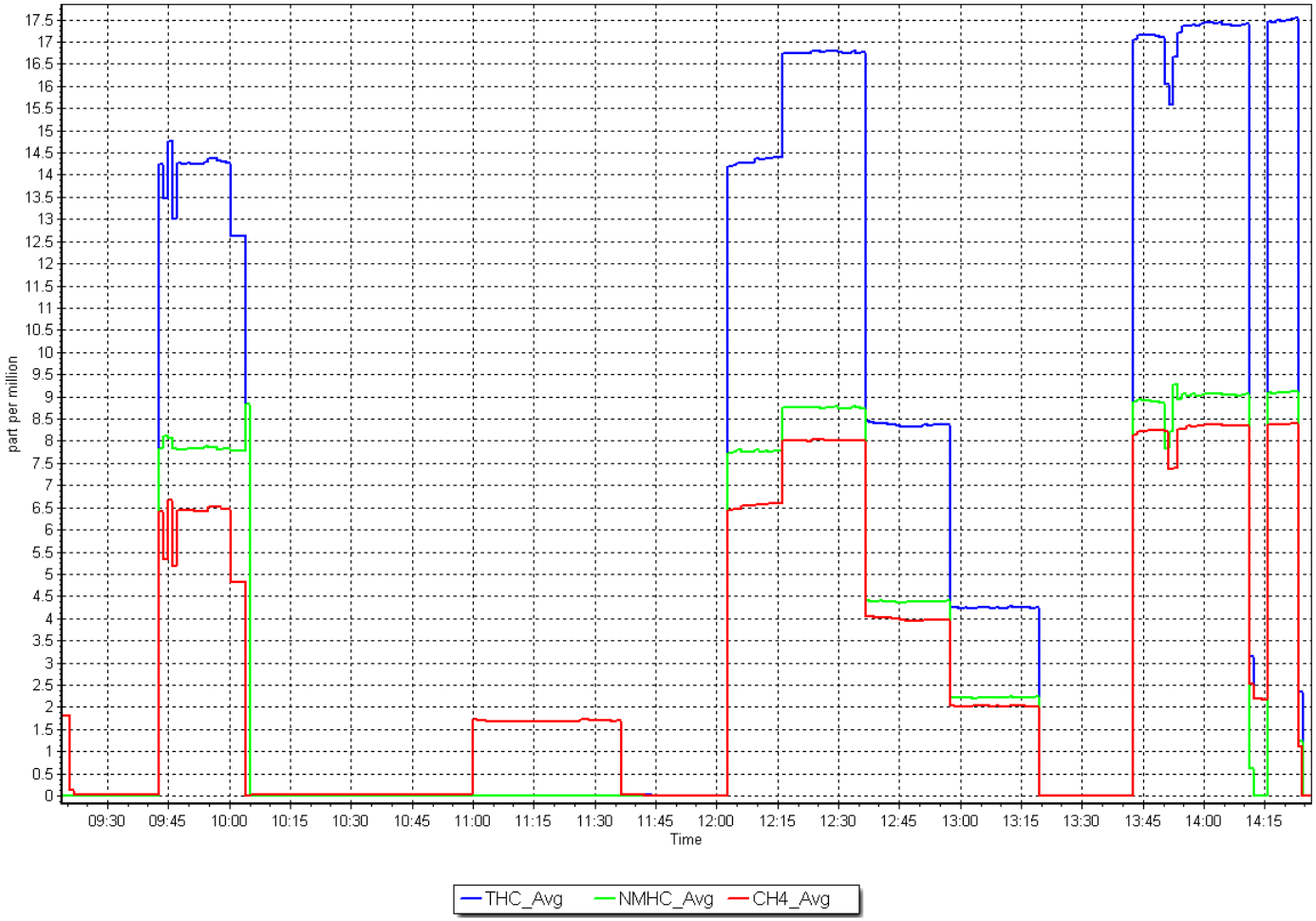
Calibration Date:	May 13, 2025	Previous Calibration:	May 2, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	9:19	End Time (MST):	14:30
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148494

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999981	≥0.995
8.75	8.75	0.9995	Slope	0.999229	0.90 - 1.10
4.37	4.38	0.9981	Intercept	0.015398	+/-0.5
2.19	2.23	0.9835			



NMHC Calibration Plot Date: May 13, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 14, 2025	Last Cal Date:	May 13, 2025
Start time (MST):	9:30	End time (MST):	10:45
Reason:	Removal		

Calibration Standards

Gas Cert Reference:		AAL070632	Cal Gas Expiry Date:	Monday, September 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 #:	1118148494	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	5.94E-04		NMHC SP Ratio:	4.96E-05	
CH4 Retention time:	14.8		NMHC Peak Area:	176413	
Zero Chromatogram:	ON		Flat Baseline:	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	0.01	----
As found High point	4920	79.8	16.75	17.80	0.942
As found Mid point	4960	39.9	8.37	8.94	0.938
As found Low point	4980	20.0	4.20	4.54	0.928
New cylinder response					
Baseline Corr AF:	17.79	Prev response	16.75	*% change	5.8%
Baseline Corr 2nd AF:	8.93	AF Slope:	1.060880	AF Intercept:	0.046129
Baseline Corr 3rd AF:	4.52	AF Correlation:	0.999984	* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

Notes: Removing instrument to complete repairs in the shop.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.8	8.75	9.23	0.948
As found Mid point	4960.1	39.9	4.37	4.64	0.943
As found Low point	4980	20.0	2.19	2.34	0.935
New cylinder response					
Baseline Corr AF:	9.23	Prev response	8.76	*% change	5.1%
Baseline Corr 2nd AF:	4.64	AF Slope:	1.053814	AF Intercept:	0.017682
Baseline Corr 3rd AF:	2.34	AF Correlation:	0.999983	* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

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	0.01	----
As found High point	4920	79.8	8.00	8.57	0.935
As found Mid point	4960.1	39.9	4.00	4.31	0.932
As found Low point	4980	20.0	2.01	2.19	0.921
New cylinder response					
Baseline Corr AF:	8.56	Prev response	8.00	*% change	6.6%
Baseline Corr 2nd AF:	4.30	AF Slope:	1.068634	AF Intercept:	0.028847
Baseline Corr 3rd AF:	2.18	AF Correlation:	0.999983	* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero					
As left span					

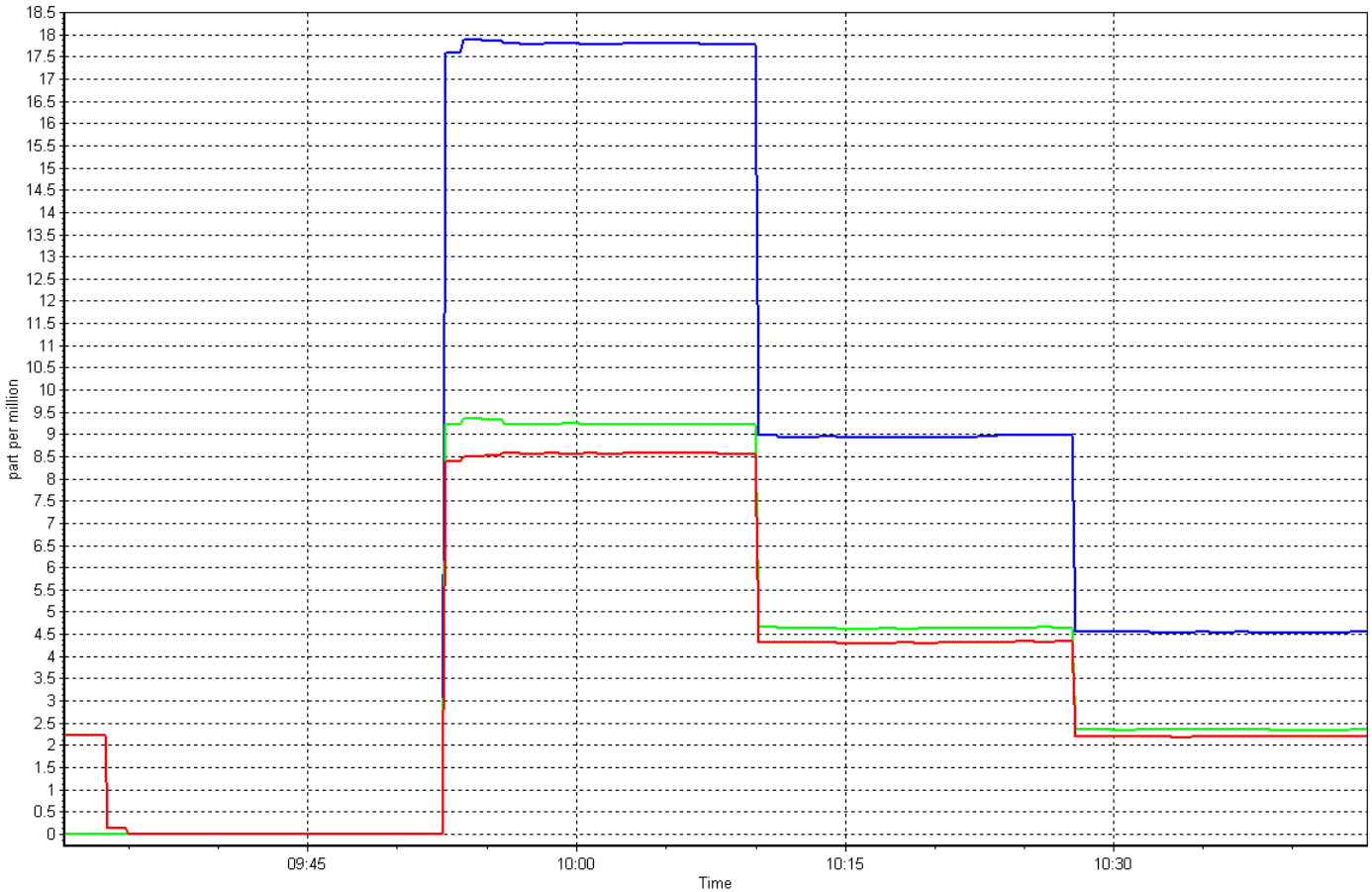
Average Correction Factor

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.999357	
THC Cal Offset:	0.015384	
CH4 Cal Slope:	0.999582	
CH4 Cal Offset:	-0.000815	
NMHC Cal Slope:	0.999229	
NMHC Cal Offset:	0.015398	

Calibration Performed By: Max Farrell

NMHC Calibration Plot Date: May 14, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 14, 2025	Last Cal Date:	
Start time (MST):	11:15	End time (MST):	13:45
Reason:	Install		

Calibration Standards

Gas Cert Reference:		AAL070632	Cal Gas Expiry Date:	Monday, September 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 #:	1152430012
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:		2.84E-04	NMHC SP Ratio:		4.69E-05
CH4 Retention time:		15.4	NMHC Peak Area:		186488
Zero Chromatogram:		OFF	Flat Baseline:		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 initiates 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	4920	79.8	16.75	16.67	1.005
Mid point	4960	39.9	8.37	8.43	0.993
Low point	4980	20.0	4.20	4.31	0.973
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	16.75	16.56	1.012
				Average Correction Factor	0.990

Notes: Install calibration due to previous instrument needing repairs. Adjusted the span.

Wood Buffalo Environmental Association

THC / CH_4 / 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					

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 initiates 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	8.68	1.008
Mid point	4960.1	39.9	4.37	4.41	0.992
Low point	4980	20.0	2.19	2.28	0.961
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.75	8.56	1.022
				Average Correction Factor	0.987

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					
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 initiates 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	4920	79.8	8.00	7.99	1.001
Mid point	4960.1	39.9	4.00	4.02	0.994
Low point	4980	20.0	2.01	2.03	0.987
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.00	8.00	1.001
				Average Correction Factor	0.994

Calibration Statistics

	Start	***Finish***
THC Cal Slope:		0.993312
THC Cal Offset:		0.073195
CH4 Cal Slope:		0.998124
CH4 Cal Offset:		0.016791
NMHC Cal Slope:		0.989276
NMHC Cal Offset:		0.056003

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

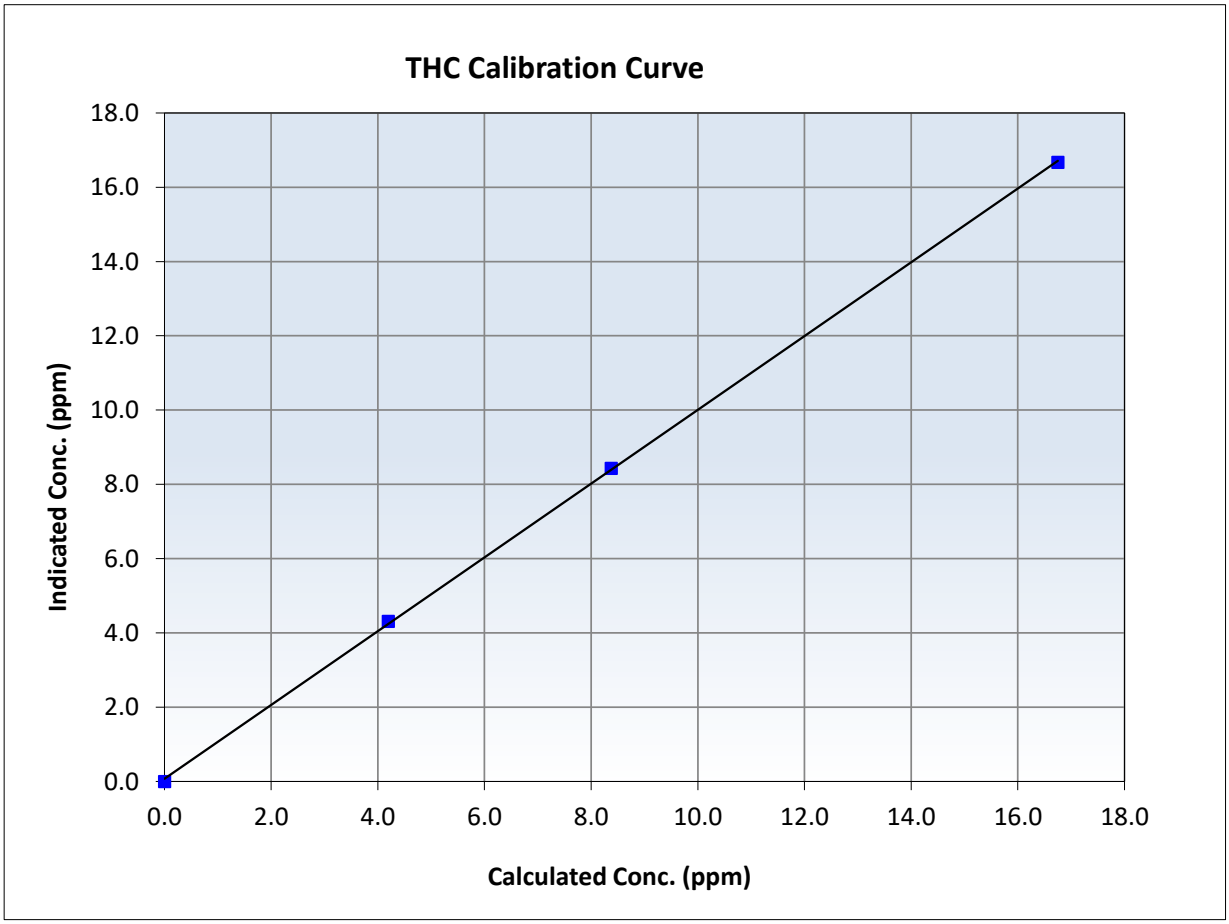
THC Calibration Summary

Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	11:15	End Time (MST):	13:45
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999911	≥0.995
16.75	16.67	1.0046	Slope	0.993312	0.90 - 1.10
8.37	8.43	0.9932	Intercept	0.073195	+/-0.5
4.20	4.31	0.9731			



Wood Buffalo Environmental Association

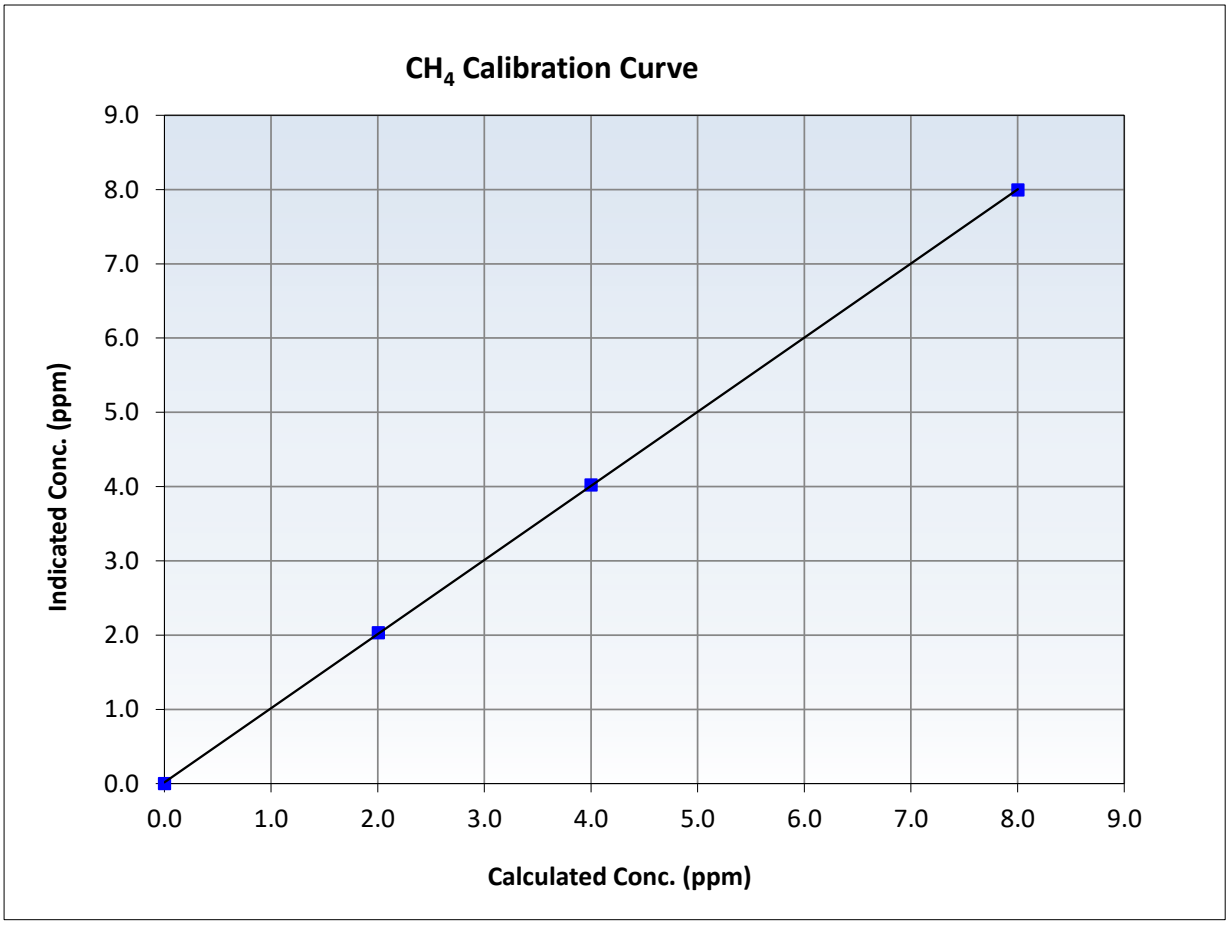
CH_4 Calibration Summary

Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	11:15	End Time (MST):	13:45
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999979	≥0.995
8.00	7.99	1.0010	Slope	0.998124	0.90 - 1.10
4.00	4.02	0.9943			
2.01	2.03	0.9870	Intercept	0.016791	+/-0.5



Wood Buffalo Environmental Association

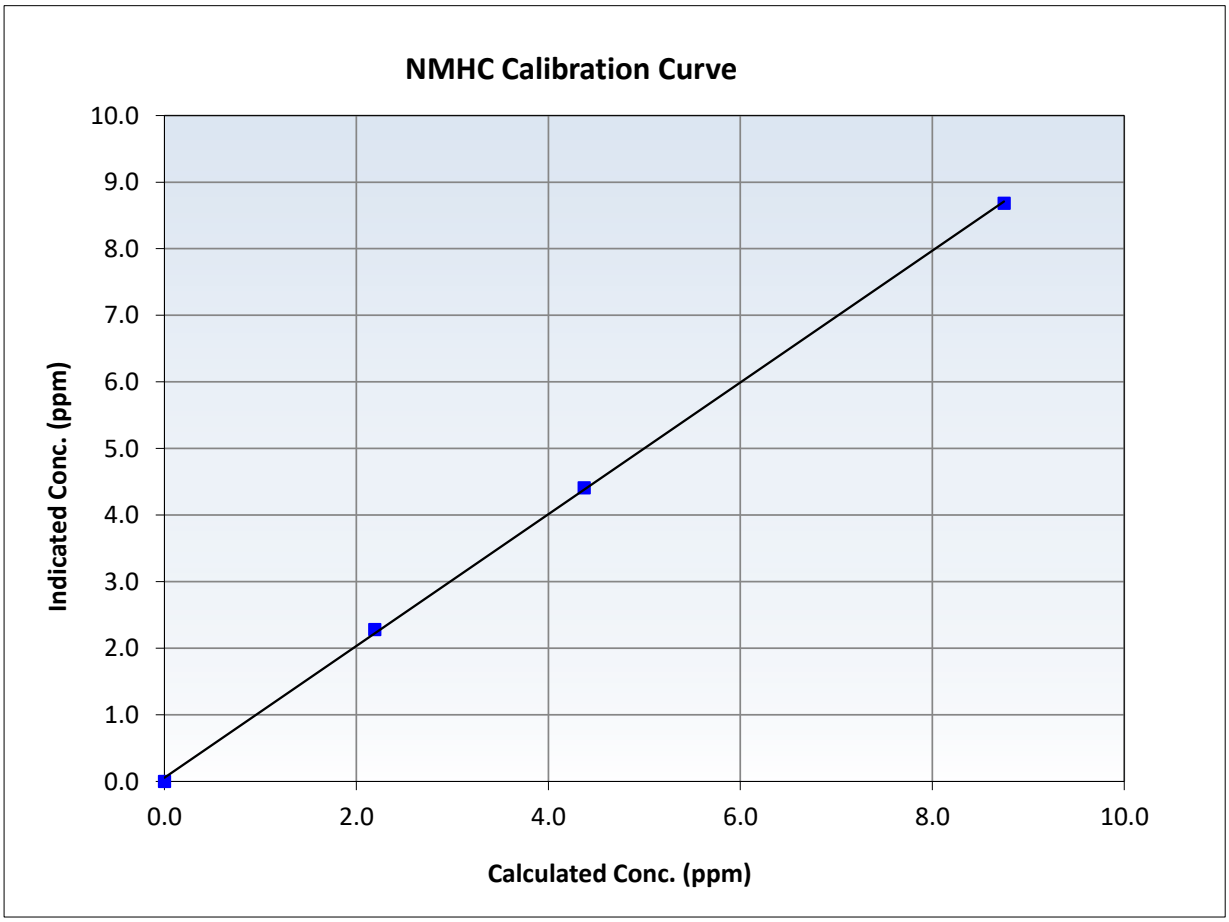
NMHC Calibration Summary

Station Information

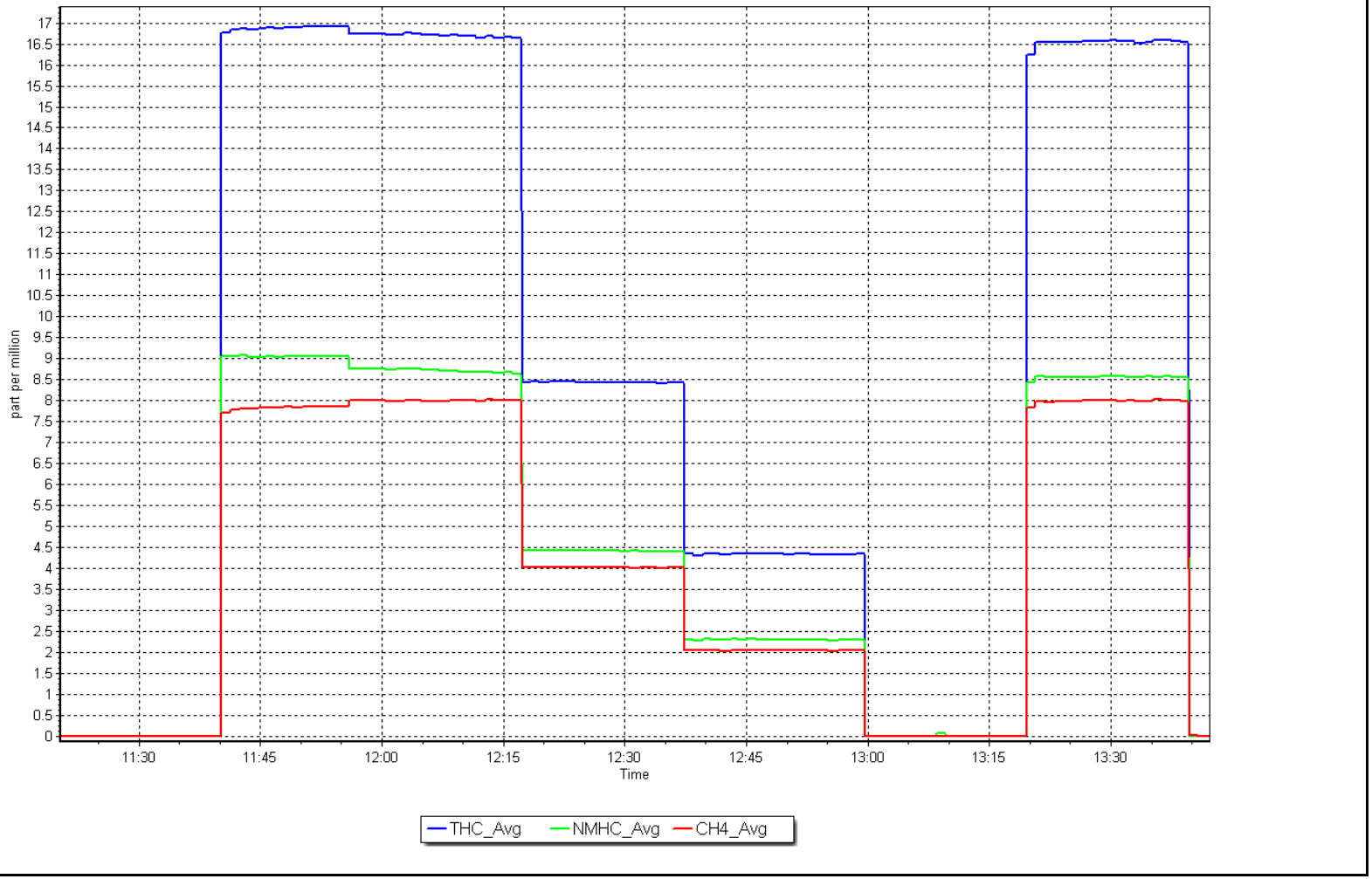
Calibration Date:	May 14, 2025	Previous Calibration:	
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	11:15	End Time (MST):	13:45
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999808	≥0.995
8.75	8.68	1.0075	Slope	0.989276	0.90 - 1.10
4.37	4.41	0.9920	Intercept	0.056003	+/-0.5
2.19	2.28	0.9607			



NMHC Calibration Plot Date: May 14, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 15, 2025	Last Cal Date:	May 14, 2025
Start time (MST):	8:45	End time (MST):	12:00
Reason:	Maintenance		

Calibration Standards

Gas Cert Reference:	AAL070632		Cal Gas Expiry Date:	October 22, 2032	
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 #:	1152430012	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	2.84E-04	2.76E-04	NMHC SP Ratio:	4.69E-05	4.29E-05
CH4 Retention time:	15.4	15.8	NMHC Peak Area:	186488	203862
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 initiates 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	4920	79.8	16.75	16.77	0.999
Mid point	4960	39.9	8.37	8.43	0.994
Low point	4980	20.0	4.20	4.30	0.976
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	16.75	16.76	0.999
				Average Correction Factor	0.989

Notes: Instrument was installed yesterday, windows have drifted outside their limits causing no readings. Adjusted the span, windows and increased the N2 pressure.

Wood Buffalo Environmental Association

THC / CH_4 / 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					

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 initiates 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	8.78	0.997
Mid point	4960.1	39.9	4.37	4.42	0.989
Low point	4980	20.0	2.19	2.27	0.966
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.75	8.77	0.998
				Average Correction Factor	0.984

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					
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 initiates 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	4920	79.8	8.00	8.00	1.000
Mid point	4960.1	39.9	4.00	4.01	0.999
Low point	4980	20.0	2.01	2.03	0.987
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.00	7.99	1.002
				Average Correction Factor	0.995

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	1.000128	0.999651
THC Cal Offset:	0.039980	0.047974
CH4 Cal Slope:	0.998681	0.998510
CH4 Cal Offset:	0.016590	0.012189
NMHC Cal Slope:	1.001582	1.000852
NMHC Cal Offset:	0.023390	0.035185

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

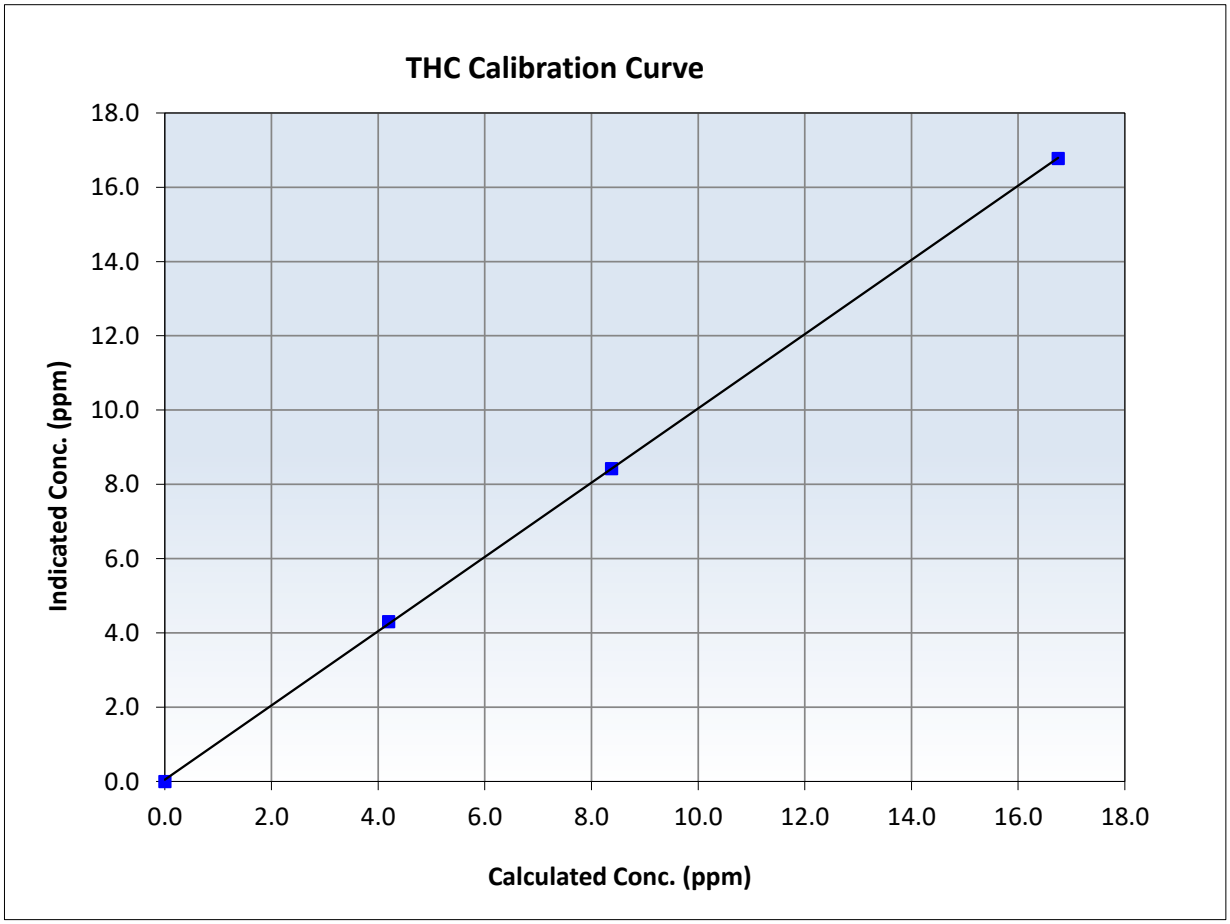
THC Calibration Summary

Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	May 14, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:45	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999960	≥0.995
16.75	16.77	0.9986	Slope	0.999651	0.90 - 1.10
8.37	8.43	0.9937	Intercept	0.047974	+/-0.5
4.20	4.30	0.9756			



Wood Buffalo Environmental Association

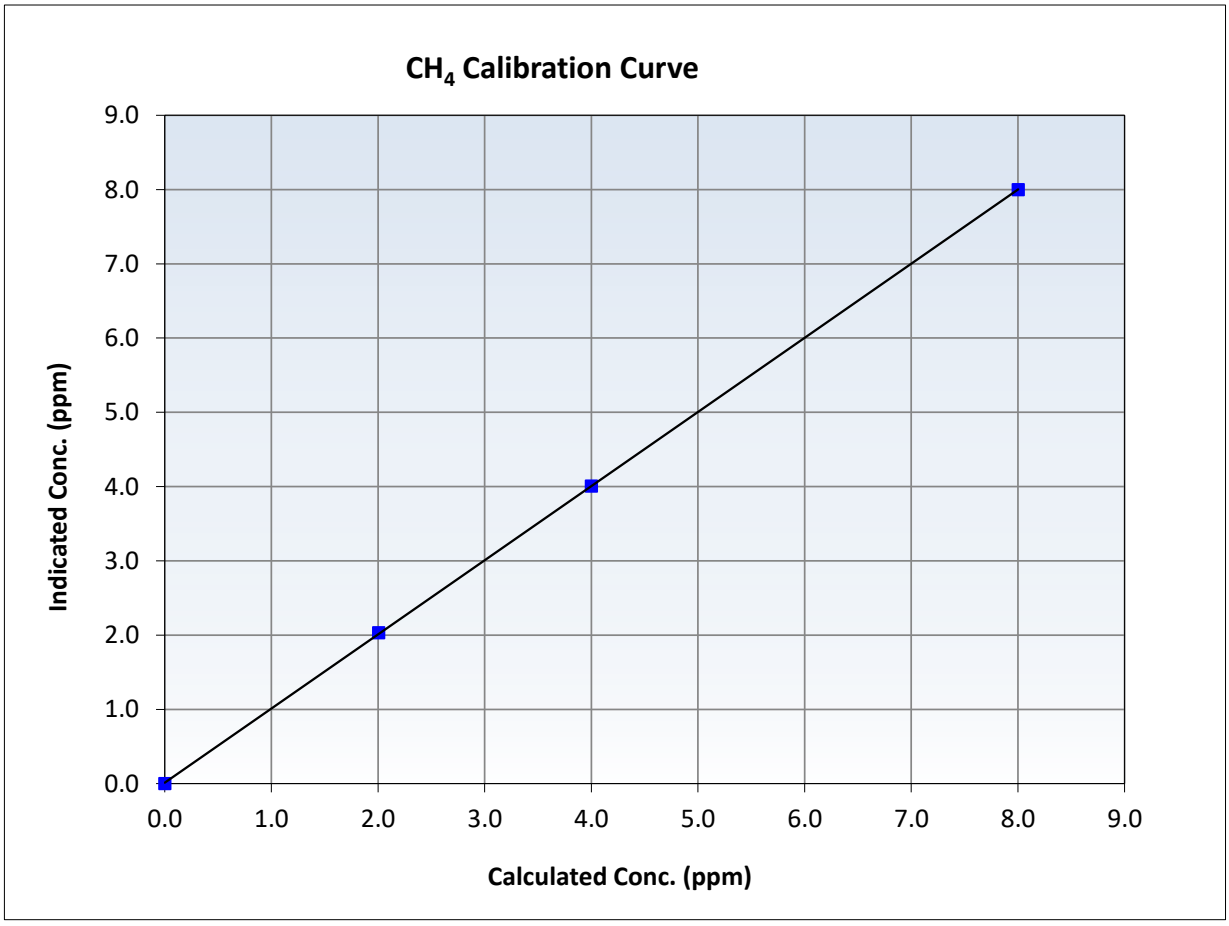
CH_4 Calibration Summary

Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	May 14, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:45	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999987	≥0.995
8.00	8.00	1.0004	Slope	0.998510	0.90 - 1.10
4.00	4.01	0.9988			
2.01	2.03	0.9870	Intercept	0.012189	+/-0.5



Wood Buffalo Environmental Association

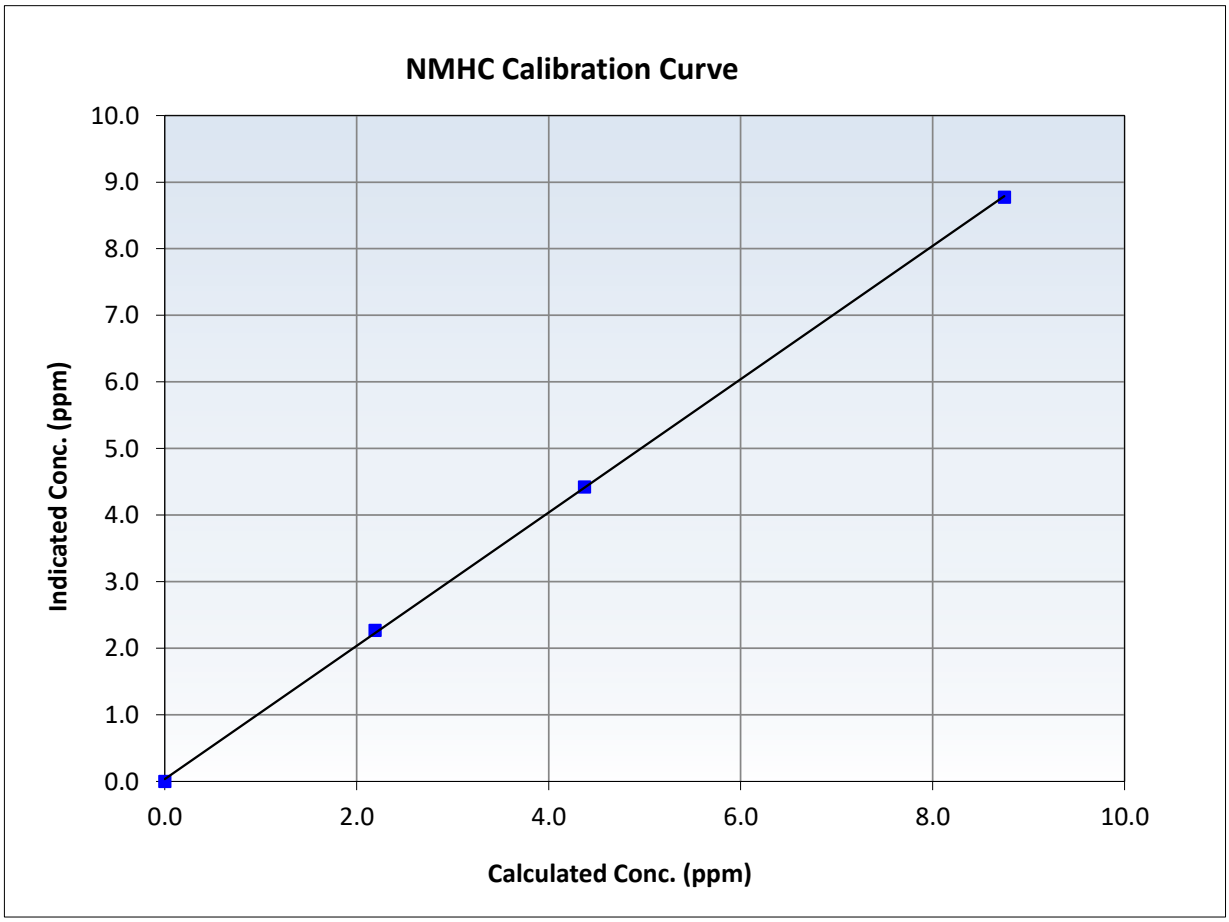
NMHC Calibration Summary

Station Information

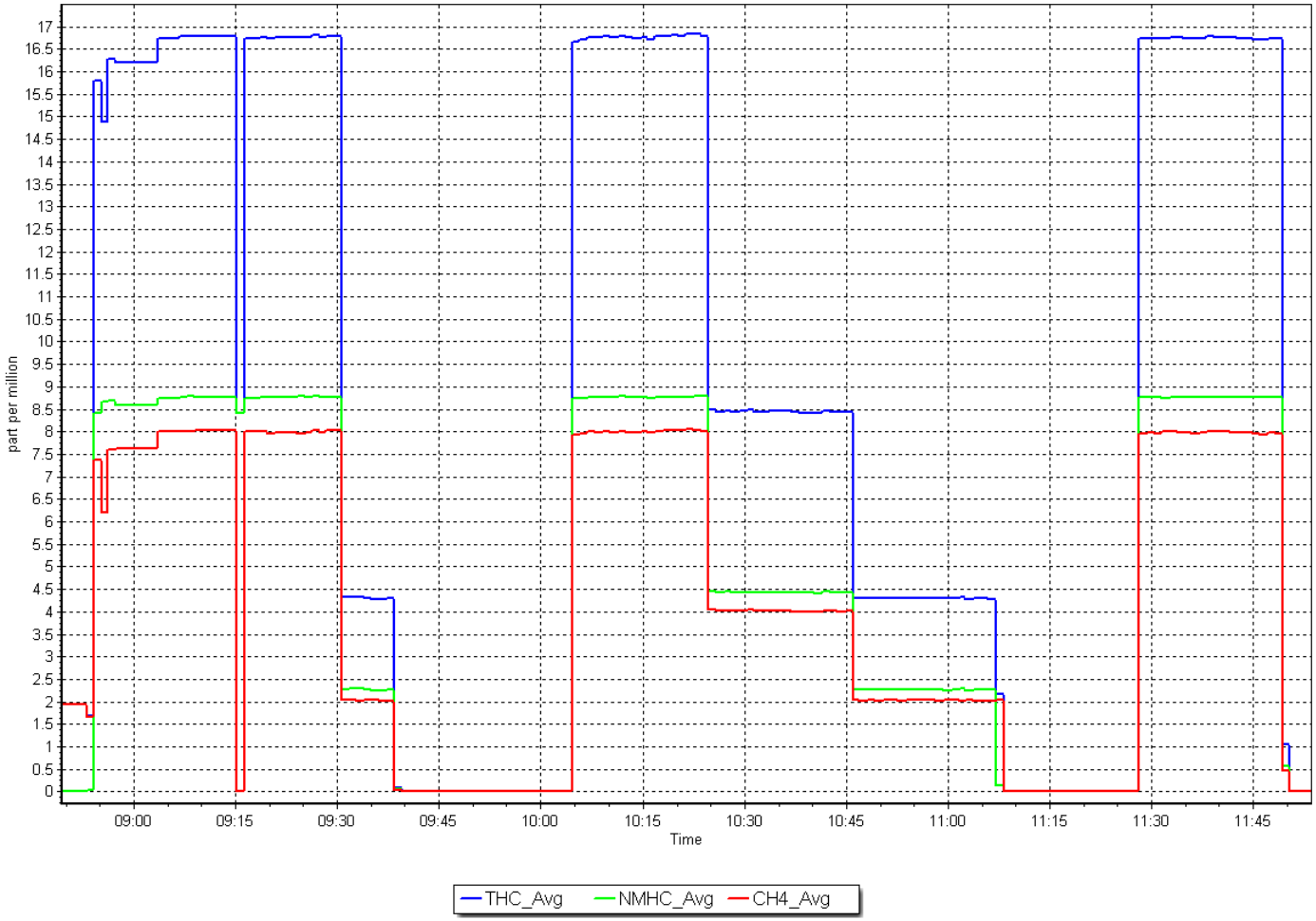
Calibration Date:	May 15, 2025	Previous Calibration:	May 14, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:45	End Time (MST):	12:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999924	*≥0.995*
8.75	8.78	0.9968	Slope	1.000852	*0.90 - 1.10*
4.37	4.42	0.9891	Intercept	0.035185	*+/-0.5*
2.19	2.27	0.9658			



NMHC Calibration Plot Date: May 15, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 16, 2025	Last Cal Date:	May 13, 2025
Start time (MST):	8:45	End time (MST):	11:40
Reason:	Maintenance		

Calibration Standards

Gas Cert Reference:		AAL070632	Cal Gas Expiry Date:	Monday, September 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 #:	1152430012	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	5.94E-04	2.54E-04	NMHC SP Ratio:	4.96E-05	4.18E-05
CH4 Retention time:	14.8	16.0	NMHC Peak Area:	176413	209468
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	0.03	----
As found High point	4920	79.8	16.75	8.59	1.957
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.56	Prev response	16.75	*% change	-95.7%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	16.75	16.71	1.003
Mid point	4960	39.9	8.37	8.40	0.997
Low point	4980	20.0	4.20	4.26	0.987
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	16.75	16.73	1.001
				Average Correction Factor	0.995

Notes: Came to find RT drifted to 17 seconds, causing no CH4 readings. Bumped up carrier pressure and re-calibrated. Lowered station temp by 4 degrees hoping for better stability.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.8	8.75	8.59	1.018
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.59	Prev response	8.76	*% change	-1.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	8.74	1.000
Mid point	4960.1	39.9	4.37	4.41	0.991
Low point	4980	20.0	2.19	2.25	0.977
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.75	8.77	0.998
				Average Correction Factor	0.989

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	0.03	----
As found High point	4920	79.8	8.00	0.00	-275.943
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	-0.03	Prev response	8.00	*% change	27679.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	8.00	7.96	1.005
Mid point	4960.1	39.9	4.00	3.98	1.004
Low point	4980	20.0	2.01	2.01	0.999
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.00	7.96	1.005
				Average Correction Factor	1.003

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	0.999357	0.996387
THC Cal Offset:	0.015384	0.036399
CH4 Cal Slope:	0.999582	0.994381
CH4 Cal Offset:	-0.000815	0.005402
NMHC Cal Slope:	0.999229	0.997962
NMHC Cal Offset:	0.015398	0.029999

Calibration Performed By: Ryan Power

Wood Buffalo Environmental Association

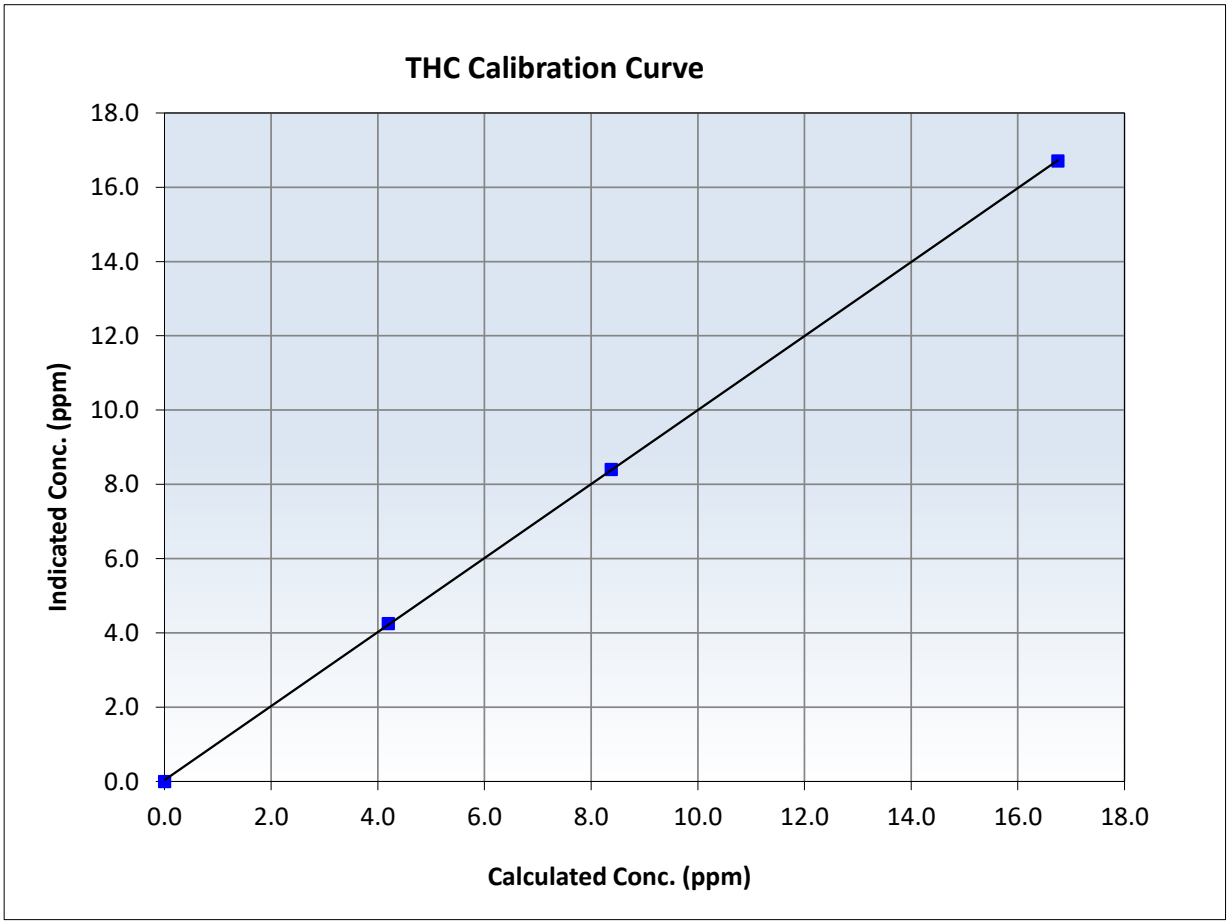
THC Calibration Summary

Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	May 13, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:45	End Time (MST):	11:40
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999978	≥0.995
16.75	16.71	1.0026	Slope	0.996387	0.90 - 1.10
8.37	8.40	0.9970	Intercept	0.036399	+/-0.5
4.20	4.26	0.9866			



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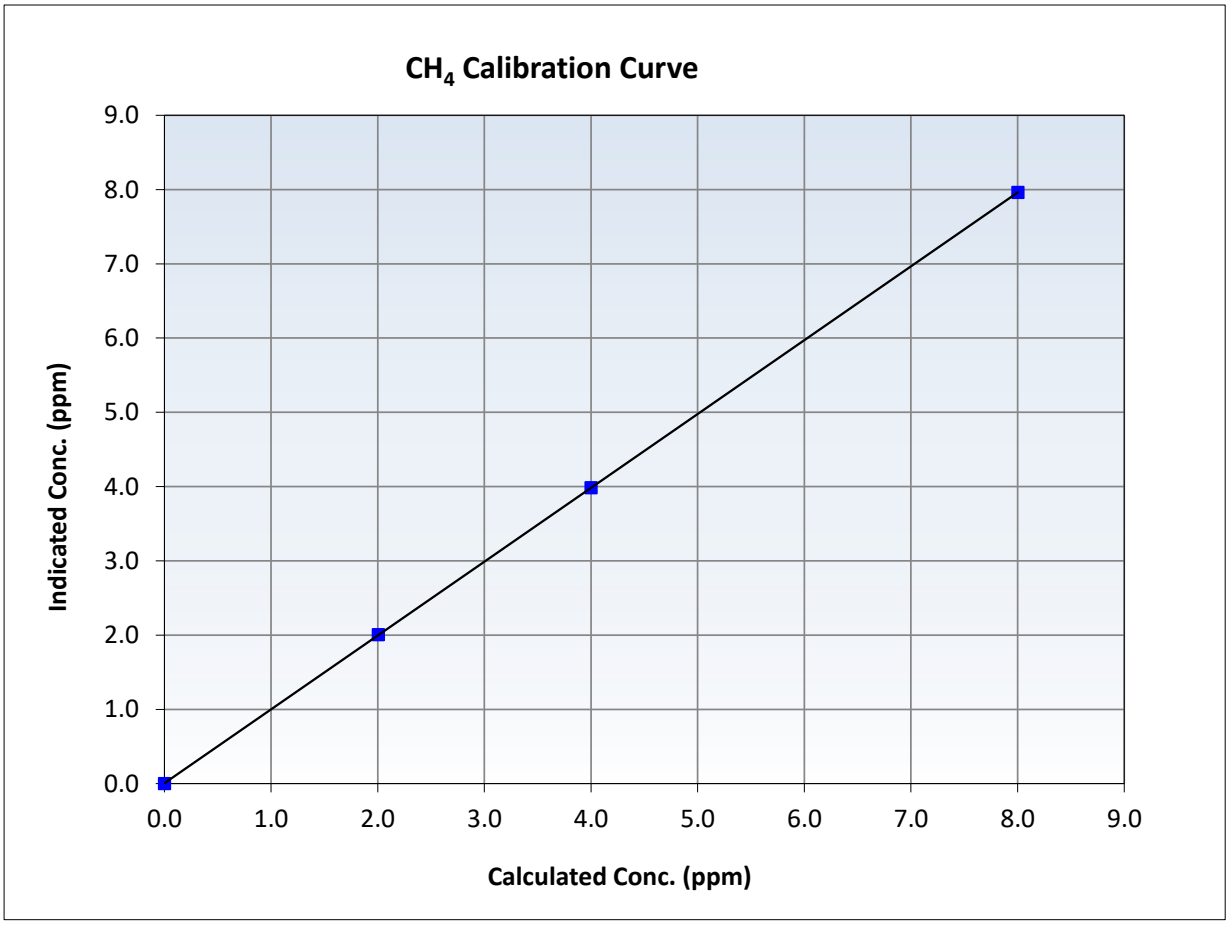
CH_4 Calibration Summary

Station Information

Calibration Date:	May 16, 2025	Previous Calibration:	May 13, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:45	End Time (MST):	11:40
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999998	≥0.995
8.00	7.96	1.0052	Slope	0.994381	0.90 - 1.10
4.00	3.98	1.0043			
2.01	2.01	0.9993	Intercept	0.005402	+/-0.5



Wood Buffalo Environmental Association

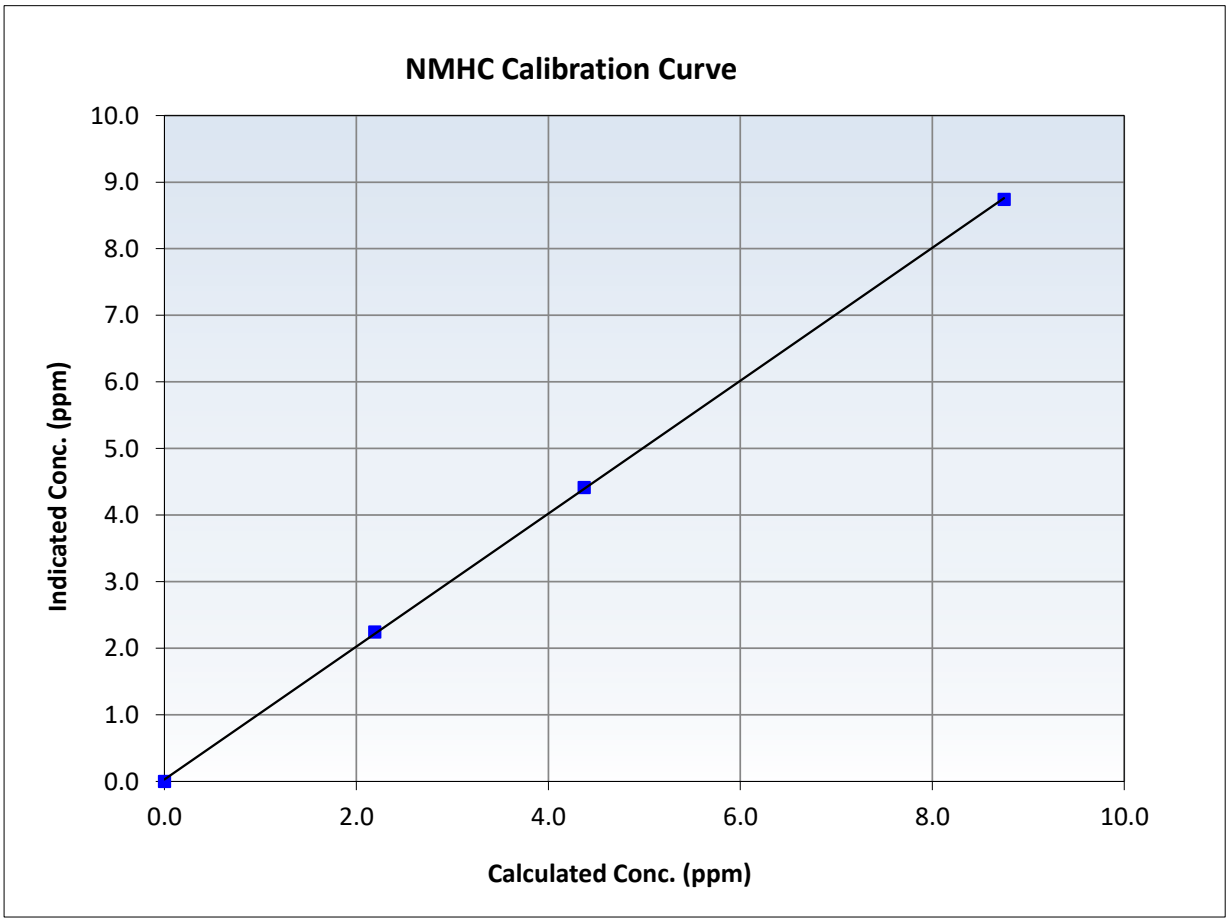
NMHC Calibration Summary

Station Information

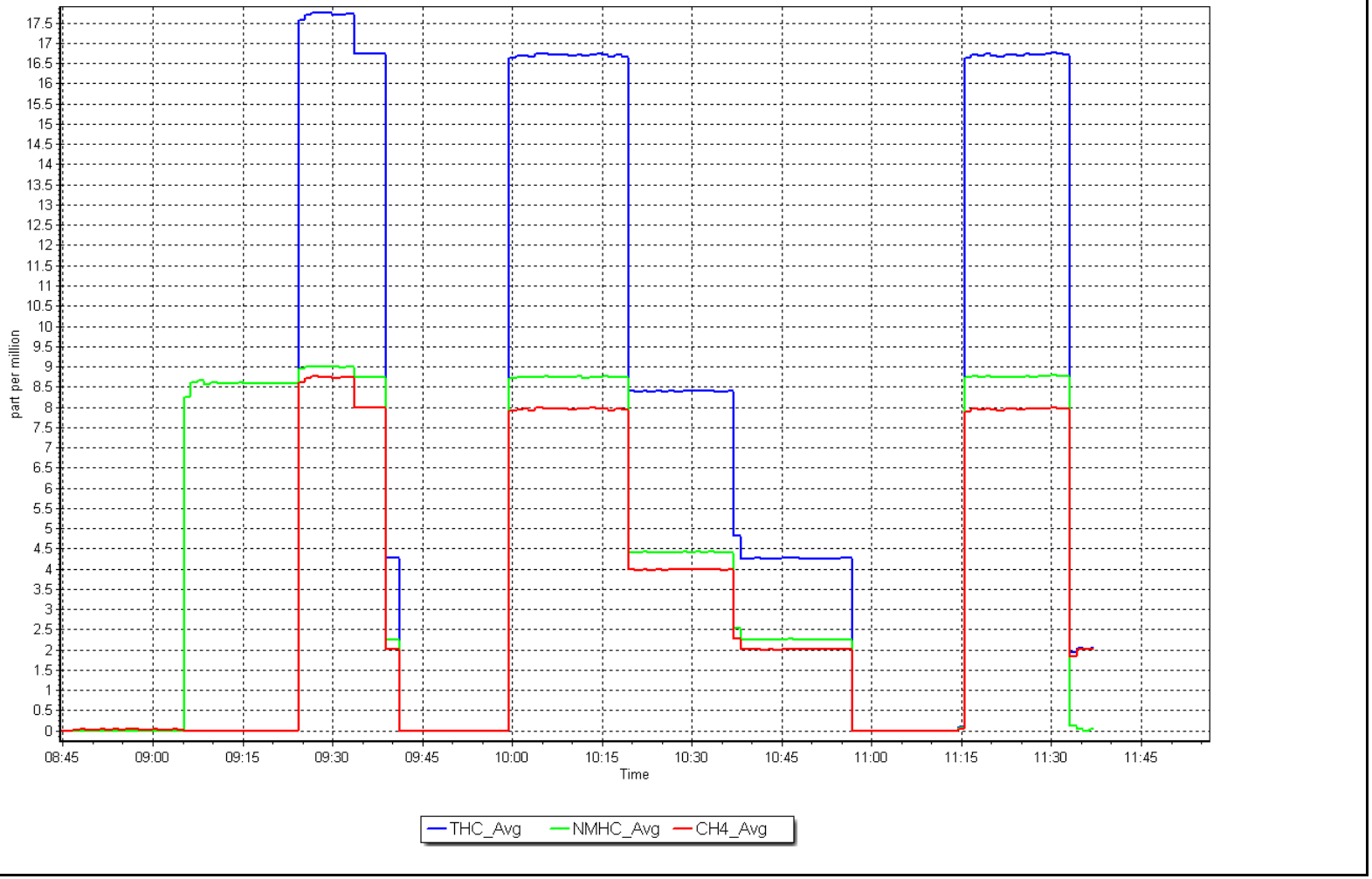
Calibration Date:	May 16, 2025	Previous Calibration:	May 13, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:45	End Time (MST):	11:40
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430012

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999945	≥0.995
8.75	8.74	1.0005	Slope	0.997962	0.90 - 1.10
4.37	4.41	0.9909	Intercept	0.029999	+/-0.5
2.19	2.25	0.9765			



NMHC Calibration Plot Date: May 16, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 20, 2025	Last Cal Date:	
Start time (MST):	10:15	End time (MST):	13:00
Reason:	Install		

Calibration Standards

Gas Cert Reference:	AAL070632		Cal Gas Expiry Date:	October 22, 2032	
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 #:	1170050131	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:		2.62E-04	NMHC SP Ratio:		5.12E-05
CH4 Retention time:		14.4	NMHC Peak Area:		171491
Zero Chromatogram:		OFF	Flat Baseline:		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 initiates 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	0.01	----
High point	4920	79.8	16.75	16.77	0.999
Mid point	4960	39.9	8.37	8.43	0.993
Low point	4980	20.0	4.20	4.30	0.976
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	16.75	16.62	1.008
				Average Correction Factor	0.989

Notes: Install calibration due to previous instrument needing repairs. Adjusted the span.

Wood Buffalo Environmental Association

THC / CH_4 / 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					

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 initiates 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	8.79	0.996
Mid point	4960.1	39.9	4.37	4.44	0.986
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	8.75	0.999
				Average Correction Factor	0.984

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					
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 initiates 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	0.01	----
High point	4920	79.8	8.00	7.99	1.002
Mid point	4960.1	39.9	4.00	4.00	1.001
Low point	4980	20.0	2.01	2.04	0.981
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.00	7.86	1.018
				Average Correction Factor	0.995

Calibration Statistics

	Start	*Finish*
THC Cal Slope:		0.999467
THC Cal Offset:		0.051578
CH4 Cal Slope:		0.995626
CH4 Cal Offset:		0.021790
NMHC Cal Slope:		1.002719
NMHC Cal Offset:		0.030788

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

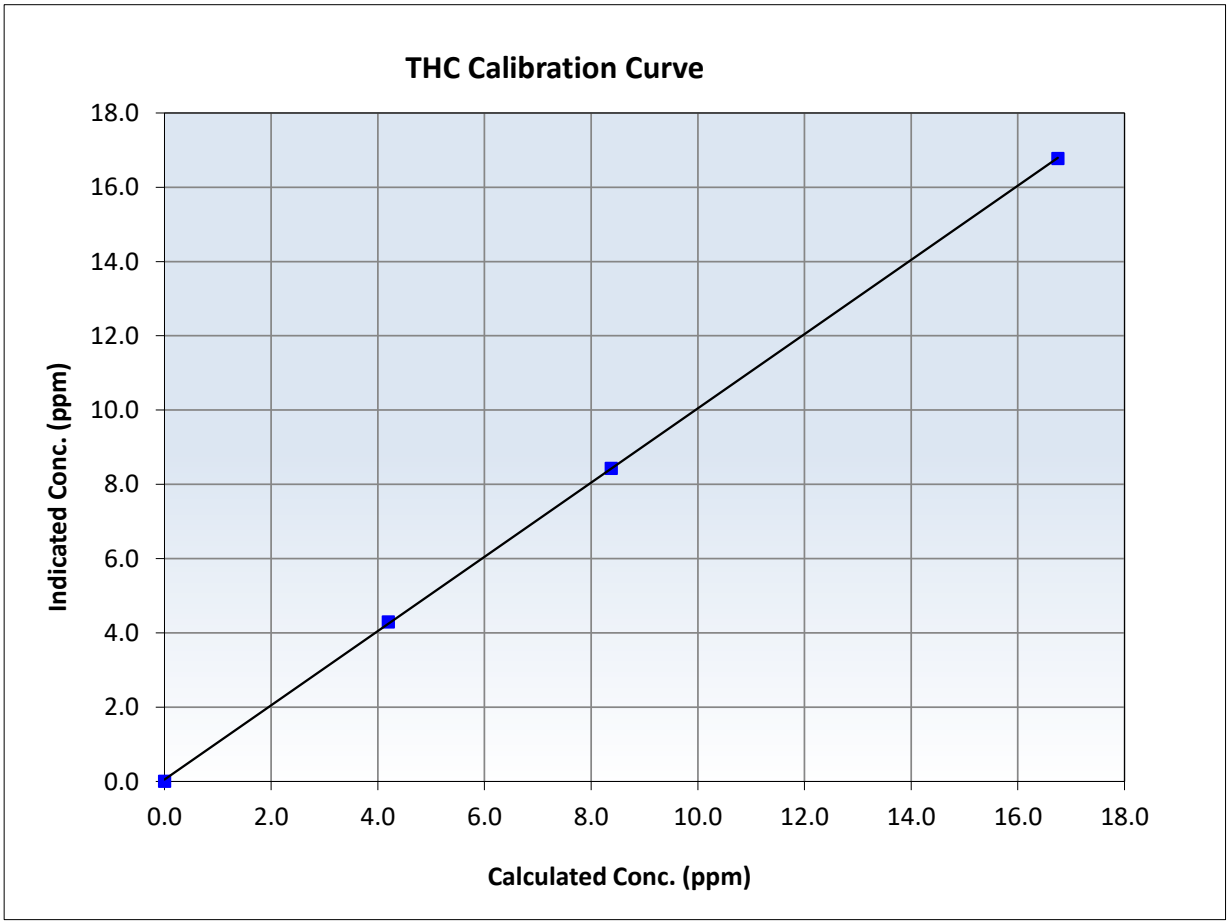
THC Calibration Summary

Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	10:15	End Time (MST):	13:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1170050131

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.01	----	Correlation Coefficient	0.999966	≥0.995
16.75	16.77	0.9985	Slope	0.999467	0.90 - 1.10
8.37	8.43	0.9932	Intercept	0.051578	+/-0.5
4.20	4.30	0.9763			



Wood Buffalo Environmental Association

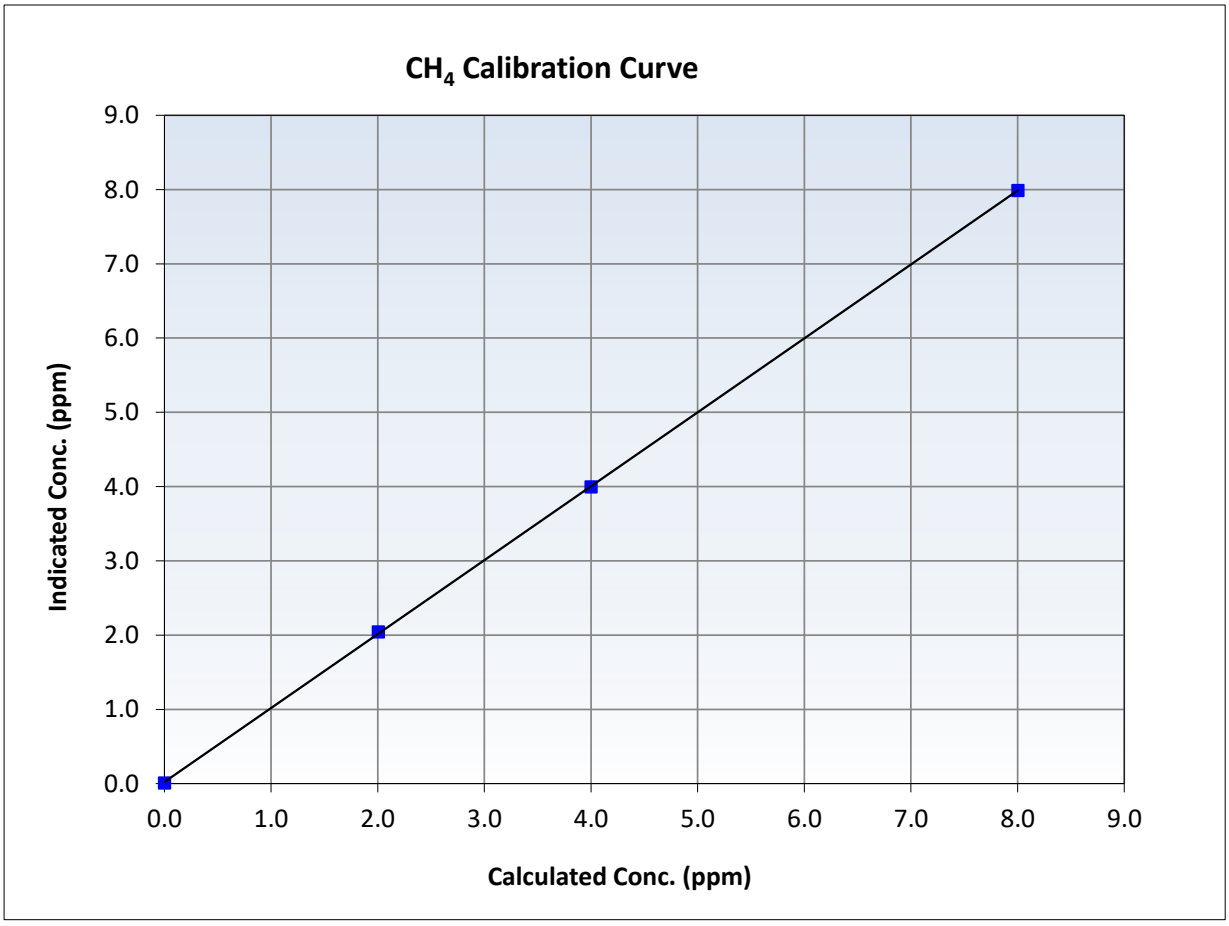
CH_4 Calibration Summary

Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	10:15	End Time (MST):	13:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1170050131

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.01	----	Correlation Coefficient	0.999973	*≥0.995*
8.00	7.99	1.0019	Slope	0.995626	*0.90 - 1.10*
4.00	4.00	1.0010	Intercept	0.021790	*+/-0.5*
2.01	2.04	0.9812			



Wood Buffalo Environmental Association

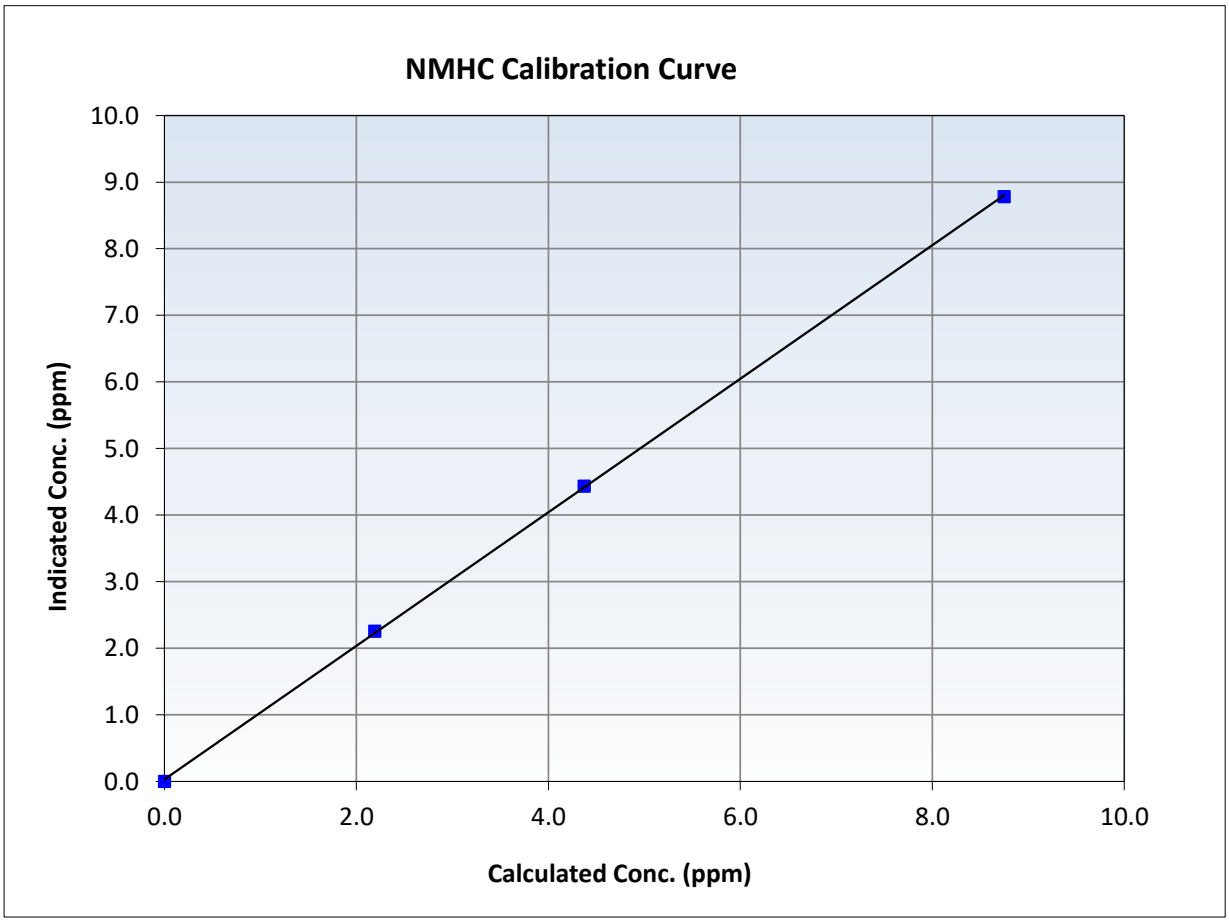
NMHC Calibration Summary

Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	10:15	End Time (MST):	13:00
Analyzer make:	Thermo 55i	Analyzer serial #:	1170050131

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999943	≥0.995
8.75	8.79	0.9957	Slope	1.002719	0.90 - 1.10
4.37	4.44	0.9859	Intercept	0.030788	+/-0.5
2.19	2.26	0.9713			



NMHC Calibration Plot Date: May 20, 2025 Location: Patricia McInnes

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Patricia McInnes
Station number:	AMS 06
Calibration Date:	May 7, 2025
Last Cal Date:	April 3, 2025
Start time (MST):	8:39
End time (MST):	13:30
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	T30YCWN	Cal Gas Expiry Date:	April 11, 2025
NOX Cal Gas Conc:	47.94 ppm	NO Cal Gas Conc:	46.39 ppm
Removed Cylinder #:	N/A	Removed Gas Exp Date:	N/A
Removed Gas NOX Conc:	47.94 ppm	Removed Gas NO Conc:	46.39 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	3566
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	0.6	0.3	0.3	----	----
AF High point	4914	86.2	826.5	799.7	26.7	827.2	798.4	28.8	0.9998	1.0020
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 830.4 ppb	NO = 804.2 ppb
Baseline Corr 1st pt	NO_X = 826.6 ppb	NO = 798.1 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = -0.5%
As found	NO r^2:	*Percent Change	NO = -0.8%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1172750022

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.841	0.841	NO bkgnd or offset:	3.5	3.5
NOX coeff or slope:	0.990	0.990	NOX bkgnd or offset:	3.8	3.8
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	155.1	155.1

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.002857	0.996274
NO_X Cal Offset:	1.615390	2.596498
NO Cal Slope:	1.004732	0.997243
NO Cal Offset:	0.662208	1.183305
NO_2 Cal Slope:	1.000499	0.998300
NO_2 Cal Offset:	-0.488997	0.985393

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	0.3	0.5	----	----
High point	4914	86.2	826.5	799.7	26.7	825.1	798.3	26.6	1.0016	1.0018
Mid point	4957	43.1	413.2	399.9	13.4	415.1	400.3	14.8	0.9955	0.9989
Low point	4978	21.6	207.1	200.4	6.7	210.8	202.0	8.8	0.9825	0.9922
As left zero	5000	0.0	0.0	0.0	0.0	0.7	0.4	0.3	----	----
As left span	4914	86.2	826.5	400.9	425.6	825.1	400.9	424.1	1.0016	1.0000
							Average Correction Factor		0.9932	0.9976

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	0.5	----	----
High GPT point	797.3	400.6	423.4	423.4	1.0000	100.0%
Mid GPT point	797.3	603.2	220.8	221.7	0.9960	100.4%
Low GPT point	797.3	700.8	123.2	124.5	0.9897	101.0%
				Average Correction Factor	0.9953	100.5%

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

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

NO_X Calibration Summary

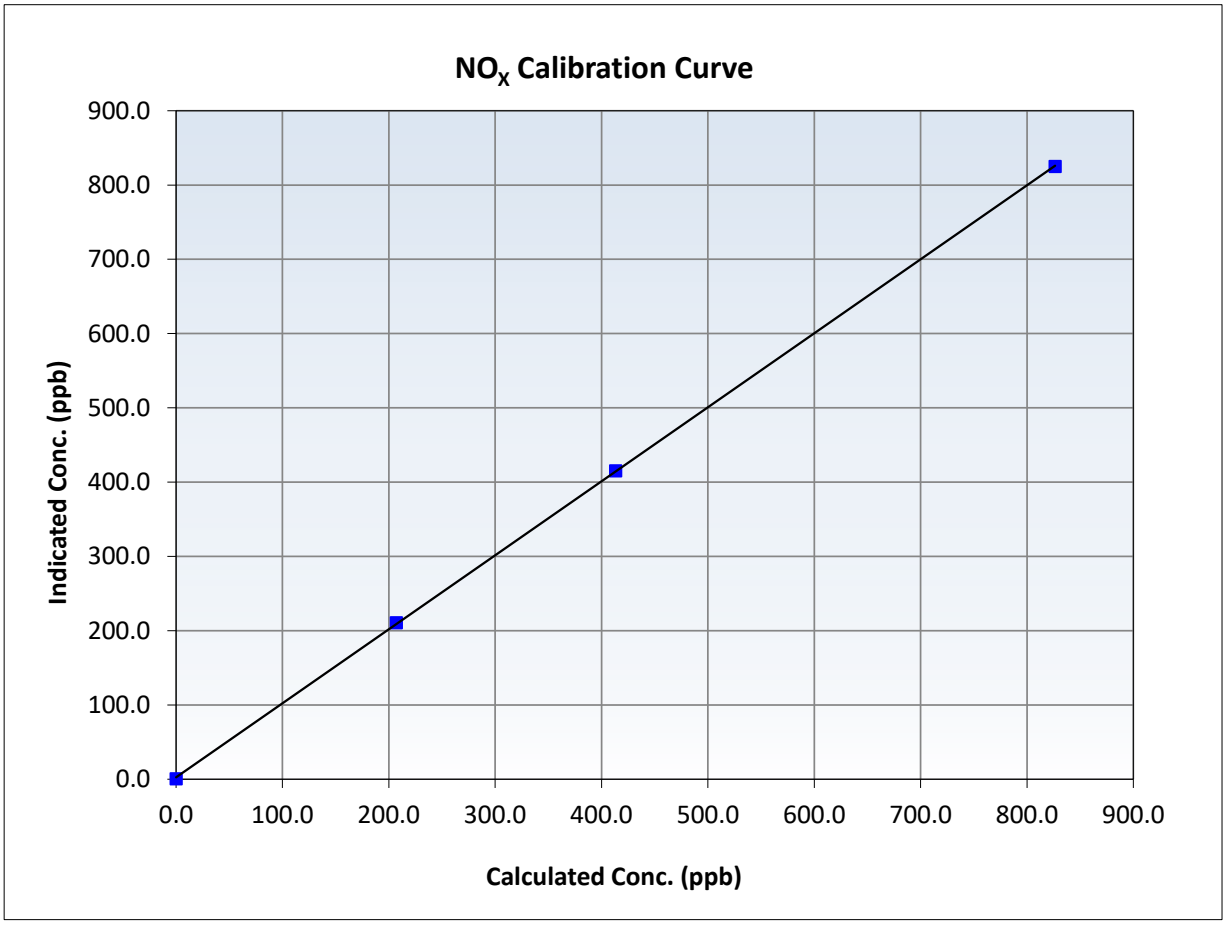
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 3, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:39	End Time (MST):	13:30
Analyzer make:	Thermo 42i	Analyzer serial #:	1172750022

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.8	----
826.5	825.1	1.0016
413.2	415.1	0.9955
207.1	210.8	0.9825

Statistical Evaluation		Limits
Correlation Coefficient	0.999978	≥0.995
Slope	0.996274	0.90 - 1.10
Intercept	2.596498	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

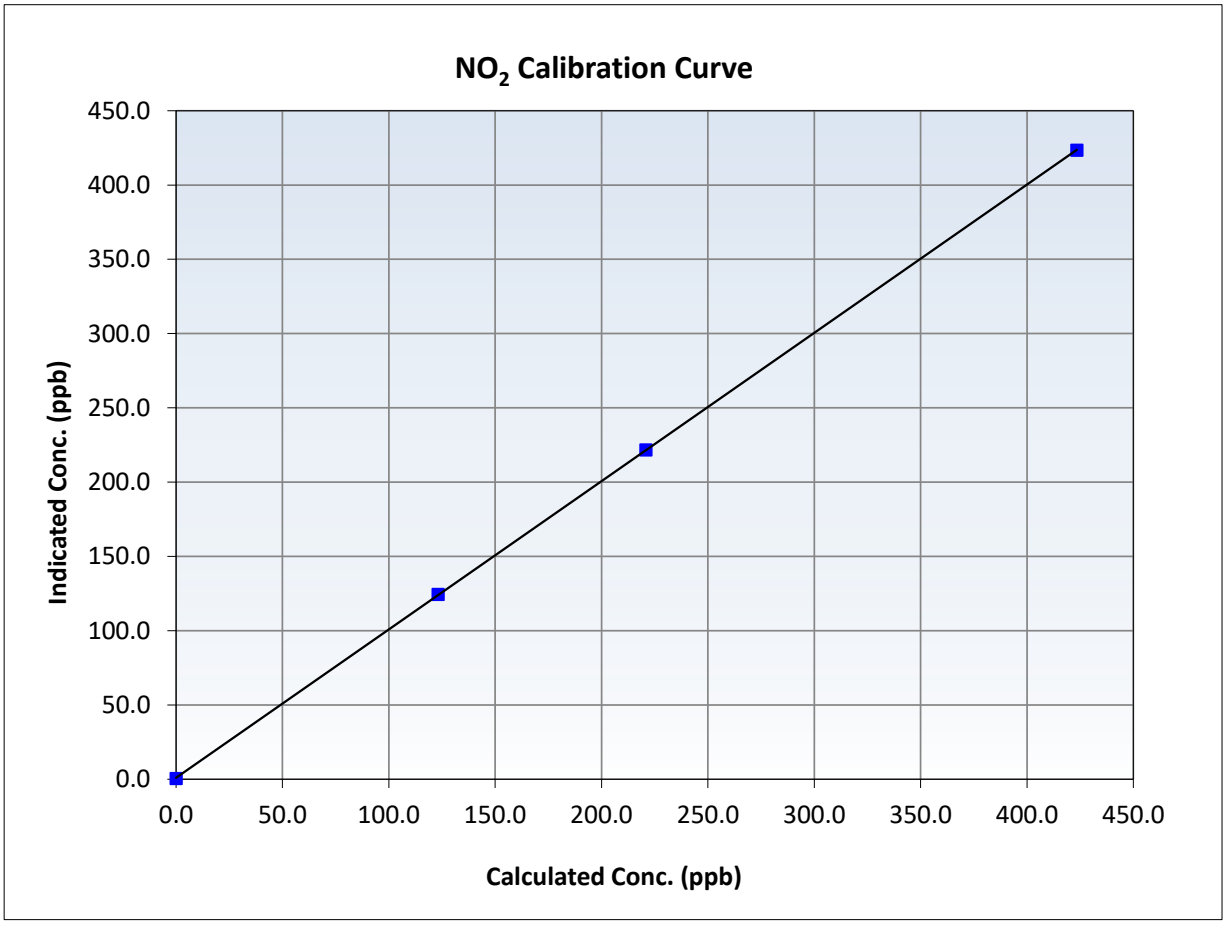
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 3, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:39	End Time (MST):	13:30
Analyzer make:	Thermo 42i	Analyzer serial #:	1172750022

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.5	----
423.4	423.4	1.0000
220.8	221.7	0.9960
123.2	124.5	0.9897

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999993	*≥0.995*
Slope	0.998300	*0.90 - 1.10*
Intercept	0.985393	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

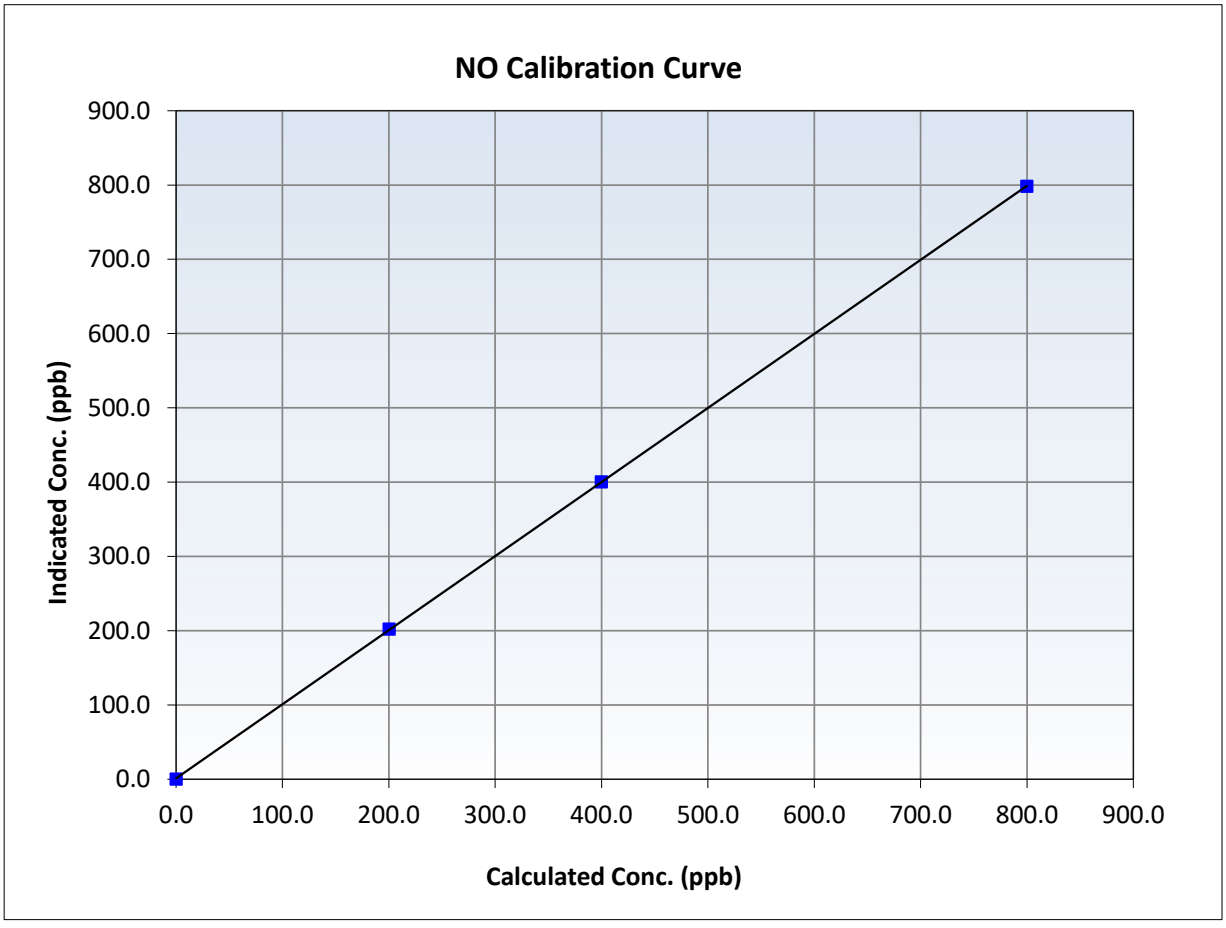
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 3, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:39	End Time (MST):	13:30
Analyzer make:	Thermo 42i	Analyzer serial #:	1172750022

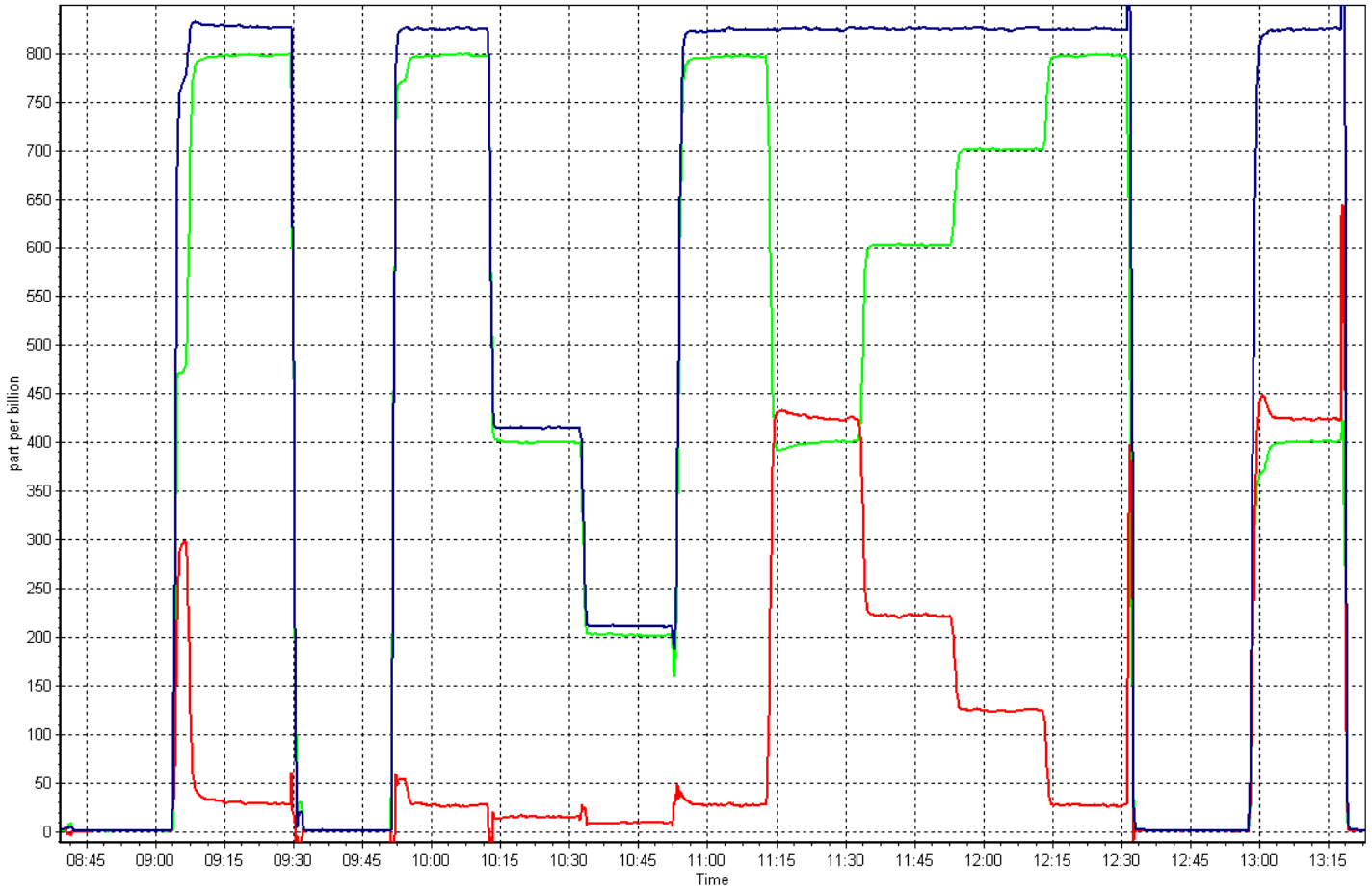
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.3	----
799.7	798.3	1.0018
399.9	400.3	0.9989
200.4	202.0	0.9922

Statistical Evaluation		Limits
Correlation Coefficient	0.999994	≥0.995
Slope	0.997243	0.90 - 1.10
Intercept	1.183305	+/-20



NO_X Calibration Plot Date: May 7, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 22, 2025	Last Cal Date:	April 4, 2025
Start time (MST):	8:47	End time (MST):	11:47
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	API T700	Serial Number:	3566
ZAG Make/Model:	API T701	Serial Number:	4602

Analyzer Information

Analyzer make:	Thermo 49i		Analyzer serial #:	1300156234	
Analyzer Range	0 - 500 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000714	0.999400	Backgd or Offset:	-0.5	-0.5
Calibration intercept:	0.200000	-0.020000	Coeff or Slope:	1.020	1.020

O_3 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	-0.6	----
As found High point	5000	1031.0	400.0	399.5	1.000
As found Mid point					
As found Low point					
Baseline Corr As found:	400.1	Previous response	400.5	*% change	-0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

O_3 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	-0.2	----
High point	5000	1031.0	400.0	399.6	1.001
Mid point	5000	821.4	200.0	200.1	1.000
Low point	5000	699.5	100.0	100.0	1.000
As left zero	5000	800.0	0.0	0.1	----
As left span	5000	1031.0	400.0	401.1	0.997
				Average Correction Factor	1.000

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

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

O_3 Calibration Summary

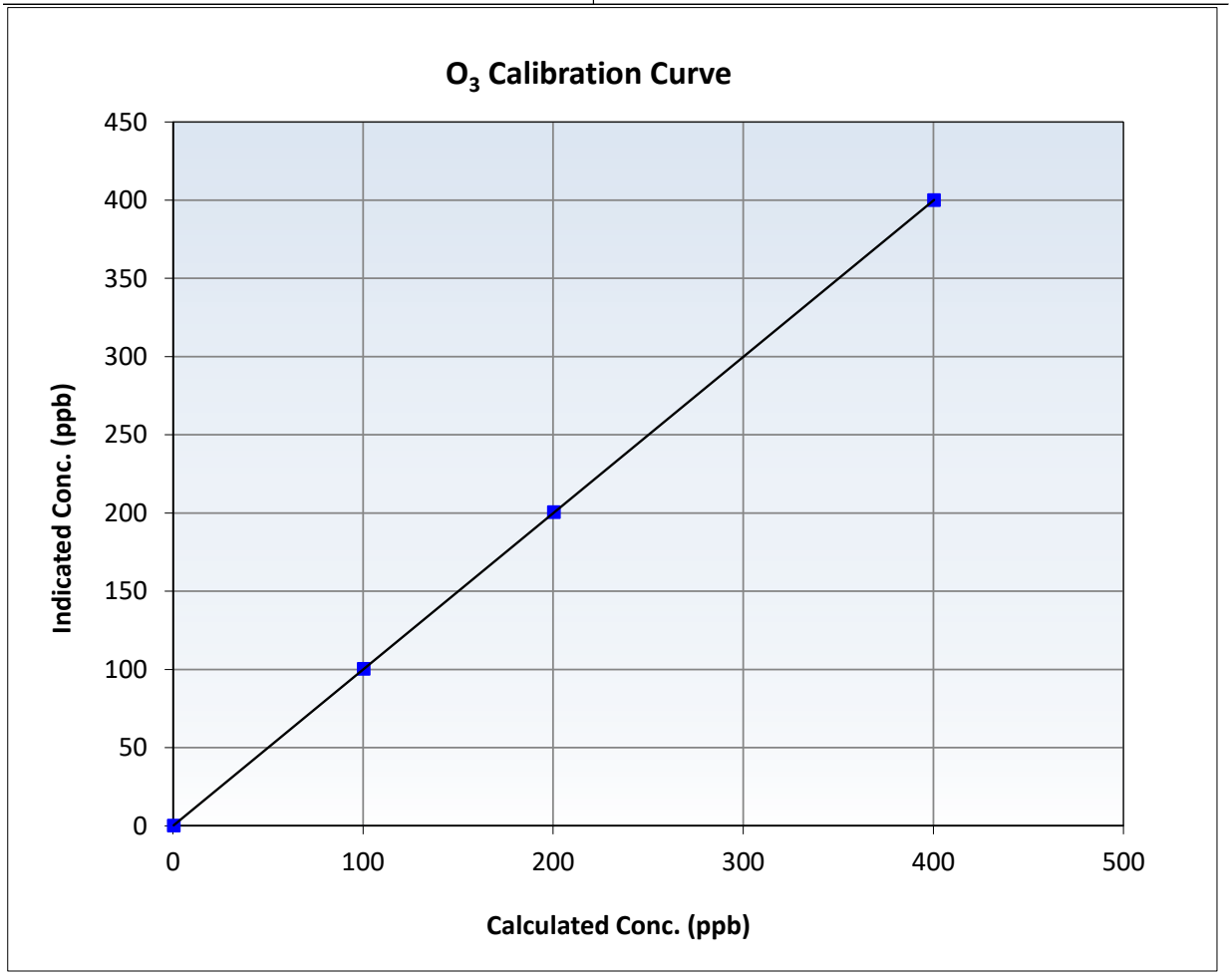
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 4, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:47	End Time (MST):	11:47
Analyzer make:	Thermo 49i	Analyzer serial #:	1300156234

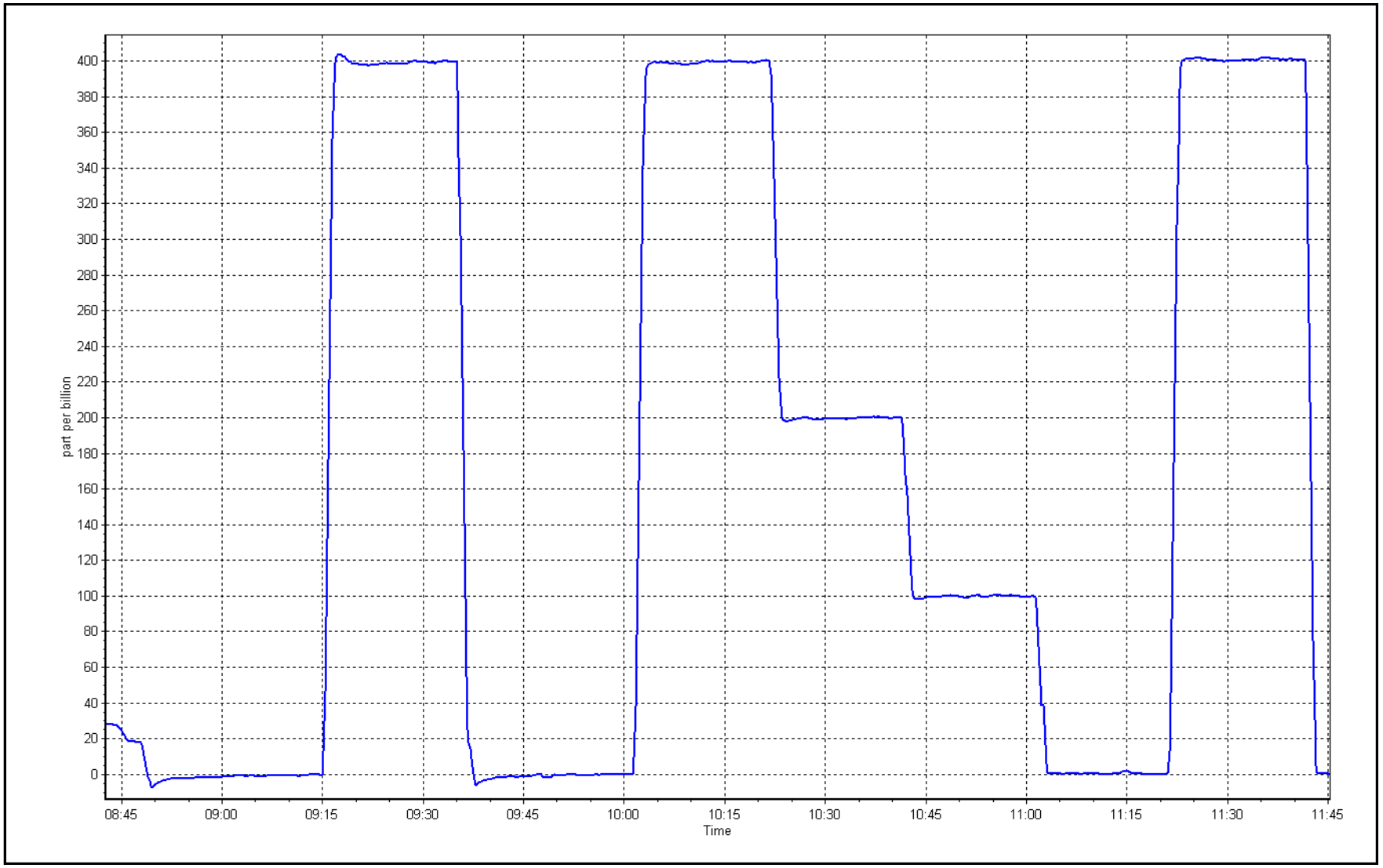
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
400.0	399.6	1.0010
200.0	200.1	0.9995
100.0	100.0	1.0000

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	0.999400	*0.90 - 1.10*
Intercept	-0.020000	*+/- 5*



O_3 Calibration Plot Date: May 22, 2025 Location: Patricia McInnes



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Patricia McInnes	Station number:	AMS 06
Calibration Date:	May 22, 2025	Last Cal Date:	April 4, 2025
Start time (MST):	12:51	End time (MST):	14:02
Analyzer Make:	API T640	S/N:	766
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388755
Temp/RH standard:	Alicat FP-25BT	S/N:	388755

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	12.5	11.94	12.5	☐	+/- 2 °C
P (mmHg)	727.80	729.20	727.80	☐	+/- 10 mmHg
Flow (LPM)	5.00	5.12	5.00	☐	+/- 0.25 LPM
PW% (pump)	34	-----	34	☐	>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 ☑ Alignment Factor On : ☑

Quarterly Calibration Test

SPAN DUST — Refractive Index: 10.9 — Expiry Date: 07-16-2026 — Lot No.: 100128-050-050

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test				☐	+/- 0.5

Date Optical Chamber Cleaned: April 4, 2025

Date Disposable Filter Changed: April 4, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0.00 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: April 4, 2025

Date RH/T Sensor Cleaned: April 4, 2025

Notes: Quarterly calibration was completed last month. No adjustments required.

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:	May 21, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	8:30	End time (MST):	13:00
NH3 Cal Date:	May 21, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	13:00	End time (MST):	15:28
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:	Friday, 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:	Wednesday, December 31, 2025
Removed NH3 Conc:	75.0	ppm	Removed Cylinder #:	
NH3 gas Diff:			Removed cyl Expiry:	
Calibrator Model:	API T700		Serial Number:	3566
ZAG make/model:	API T701		Serial Number:	4602

Analyzer Information

Analyzer model:	API T201		Analyzer serial #:	215
Converter model:	API T501		Converter serial #:	147
NH3 Range (ppb):	0 - 2000 ppb		Reaction cell Press:	6.20
NOX Range (ppb):	0 - 1000 ppb		Sample Flow:	25.4

	Start	*Finish*		*Start*	*Finish*
NO coefficient:	1.027	1.039	Nt coefficient:	1.019	1.025
NOX coefficient:	1.017	1.024	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

	Start	*Finish*
NO_X Cal Slope:	0.998888	1.000823
NO_X Cal Offset:	1.376032	0.776123
NO Cal Slope:	0.998531	1.005859
NO Cal Offset:	0.982601	-0.257331
NO_2 Cal Slope:	0.999928	1.001044
NO_2 Cal Offset:	0.923159	-0.294872
NH3 Cal Slope:	1.004786	1.001177
NH3 Cal Offset:	9.258156	8.284115
Nt Cal Slope:	1.008514	1.005580
Nt Cal Offset:	9.809090	8.553458

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/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	-0.2	-0.4	-0.8	----	----
As found span	4914	86.2	826.5	799.7	826.5	822.1	794.5	821.8	1.0053	1.0066
AF GPT span										
new NO cyl rp										

Baseline Corr As Fd Nt = 822.6 ppb NO_X = 822.3 ppb NO = 794.9 ppb

Previous Response Nt = 843.3 ppb NO_X = 826.9 ppb NO = 799.5 ppb

**NO_X Δ (NO to GPT response) =

* *= > +/-2% difference initiates investigation

*Percent Change $Nt_{(NO)}$ = -2.5%

*Percent Change NO_X = -0.6%

*Percent Change NO = -0.6%

* = > +/-5% change initiates investigation

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) *Limit = 0.95-1.05*	NO Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibration zero	5000	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	----	----
High point	4914	86.2	826.5	799.7	826.5	827.5	803.8	831.7	0.9987	0.9949
Mid point	4957	43.1	413.2	399.9	413.2	414.8	403.3	416.1	0.9962	0.9915
Low point	4978	21.6	207.1	200.4	207.1	208.8	200.1	209.8	0.9919	1.0016
								Average Correction Factor	0.9956	0.9960

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%*
As Found zero	----	----	0.0	0.2	----	----
Calibration zero	----	----	0.0	0.1	----	----
High GPT point (400 ppb O3)	797.9	389.4	435.2	435.9	0.9984	100.2%
Mid GPT point (200 ppb O3)	797.9	603.0	221.6	220.4	1.0055	99.4%
Low GPT point (100 ppb O3)	797.9	699.4	125.2	125.3	0.9994	100.1%
				Average Correction Factor	1.0011	99.9%

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	-0.2	-0.6	----	----
AF High point	3416	84.0	1799.0	0.0	1799.0	1809.8	7.8	1801.8	0.994	0.998
AF Mid point										
AF Low point										
new NH3 cyl rp										

Baseline Corr As Fd Nt = 1810.6 ppb NH3 = 1802.4 ppb *Percent Change $Nt_{(NH3)}$ = -0.7%

Previous Response Nt = 1824.2 ppb NH3 = 1816.9 ppb * = > +/-5% change initiates investigation *Percent Change NH3 = -0.8%

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) *Limit = 0.95-1.05*	NH3 Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibration zero	5000	0.0	0.0	0.0	0.0	-0.6	0.0	-0.6	----	----
High point	3416	84.0	1799.0	0.0	1799.0	1809.8	7.8	1801.8	0.994	0.998
Mid point	3453	46.7	1000.3	0.0	1000.3	1025.6	4.9	1020.7	0.975	0.980
Low point	3477	23.3	499.0	0.0	499.0	516.1	2.6	513.4	0.967	0.972
								Average Correction Factor	0.9787	0.9835

NH3 Previous Converter Efficiency = 92.2 %

NH3 Current Converter Efficiency = 92.2 %

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

Calibration Performed By: Max Farrell

Wood Buffalo Environmental Association

Nt Calibration Summary

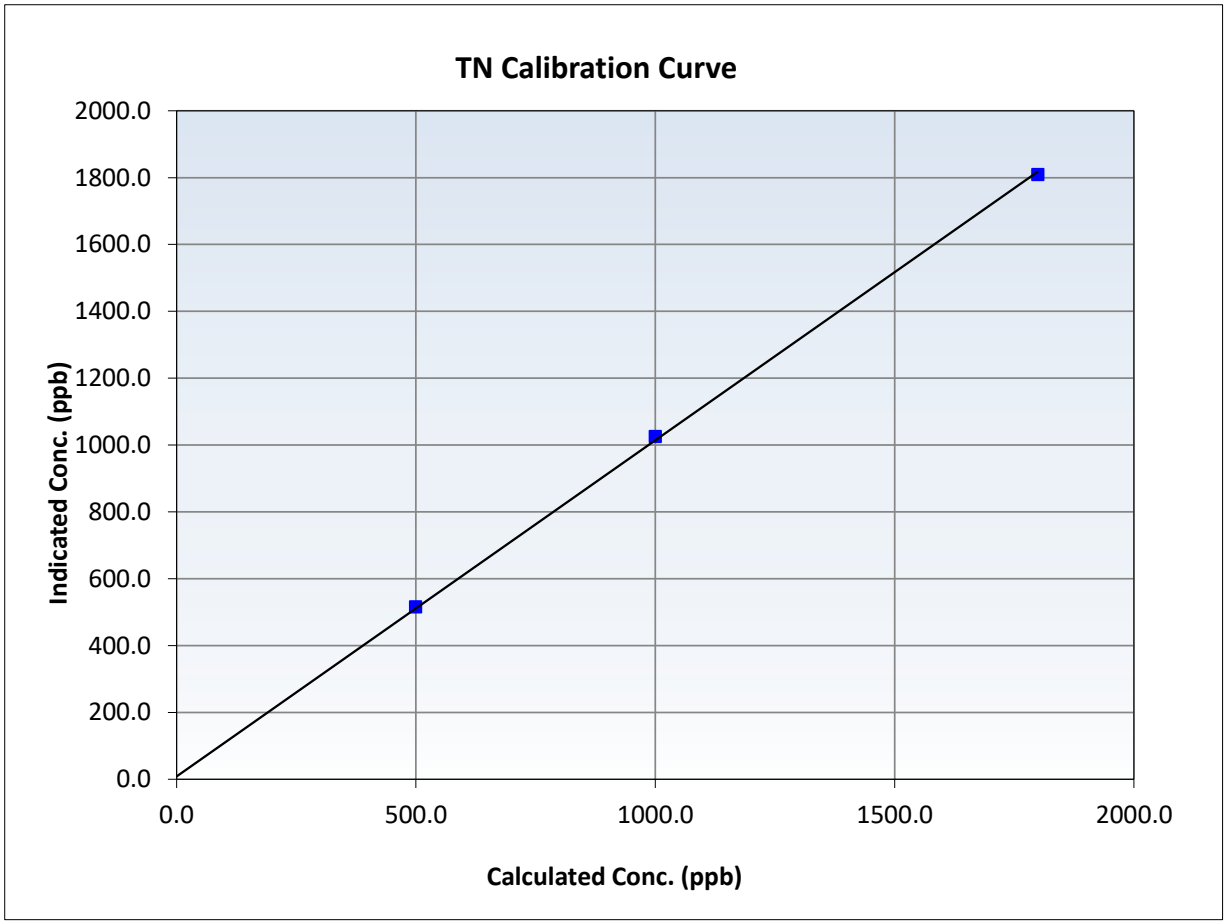
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 7, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	13:00
Analyzer make:	API T201	Analyzer serial #:	215

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.6	----
1799.0	1809.8	0.9941
1000.3	1025.6	0.9753
499.0	516.1	0.9668

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999830	*≥0.995*
Slope	1.005580	*0.90 - 1.10*
Intercept	8.553458	*+/-20*



Wood Buffalo Environmental Association

NH_3 Calibration Summary

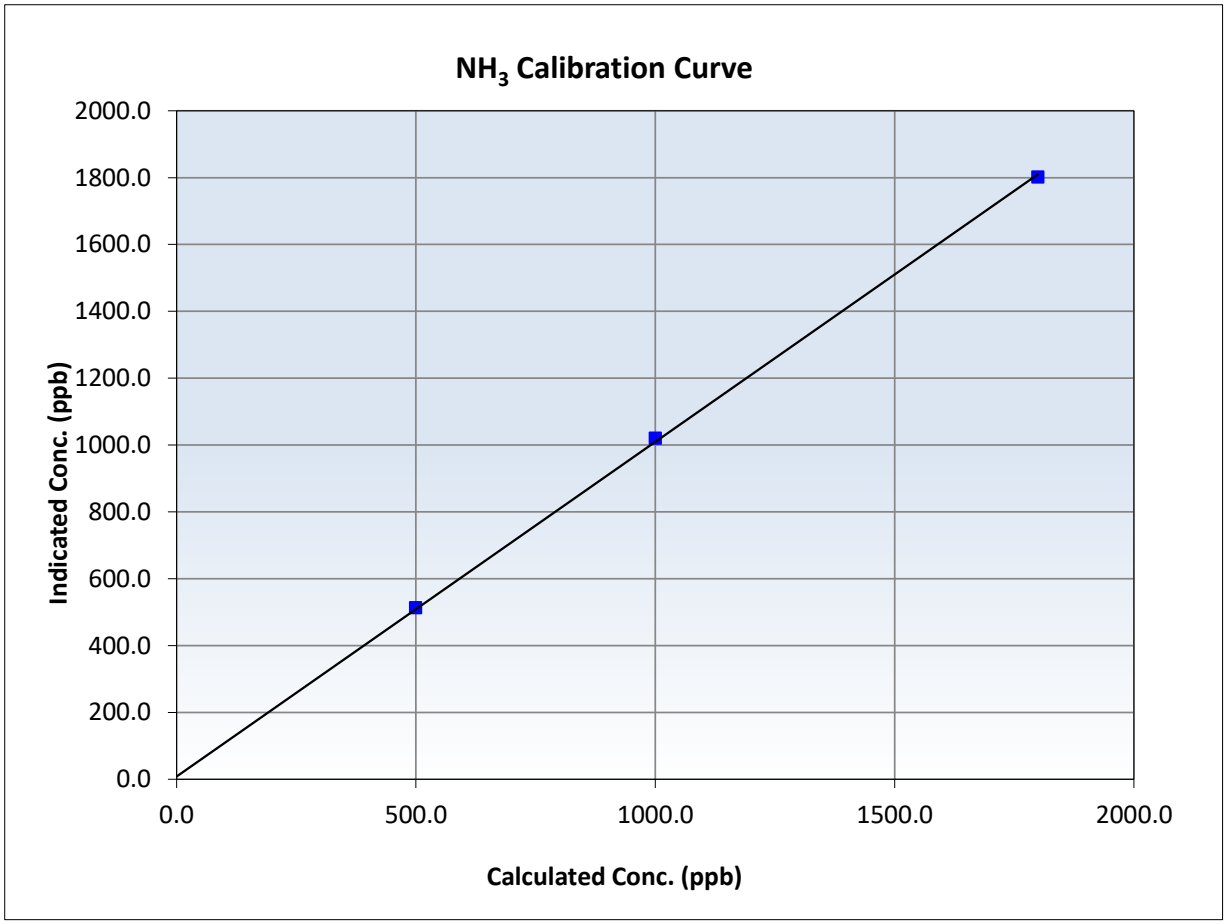
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 7, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	13:00
Analyzer make:	API T201	Analyzer serial #:	215

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.6	----
1799.0	1801.8	0.9985
1000.3	1020.7	0.9800
499.0	513.4	0.9719

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999837	*≥0.995*
Slope	1.001177	*0.90 - 1.10*
Intercept	8.284115	*+/-20*



Wood Buffalo Environmental Association

NO_X Calibration Summary

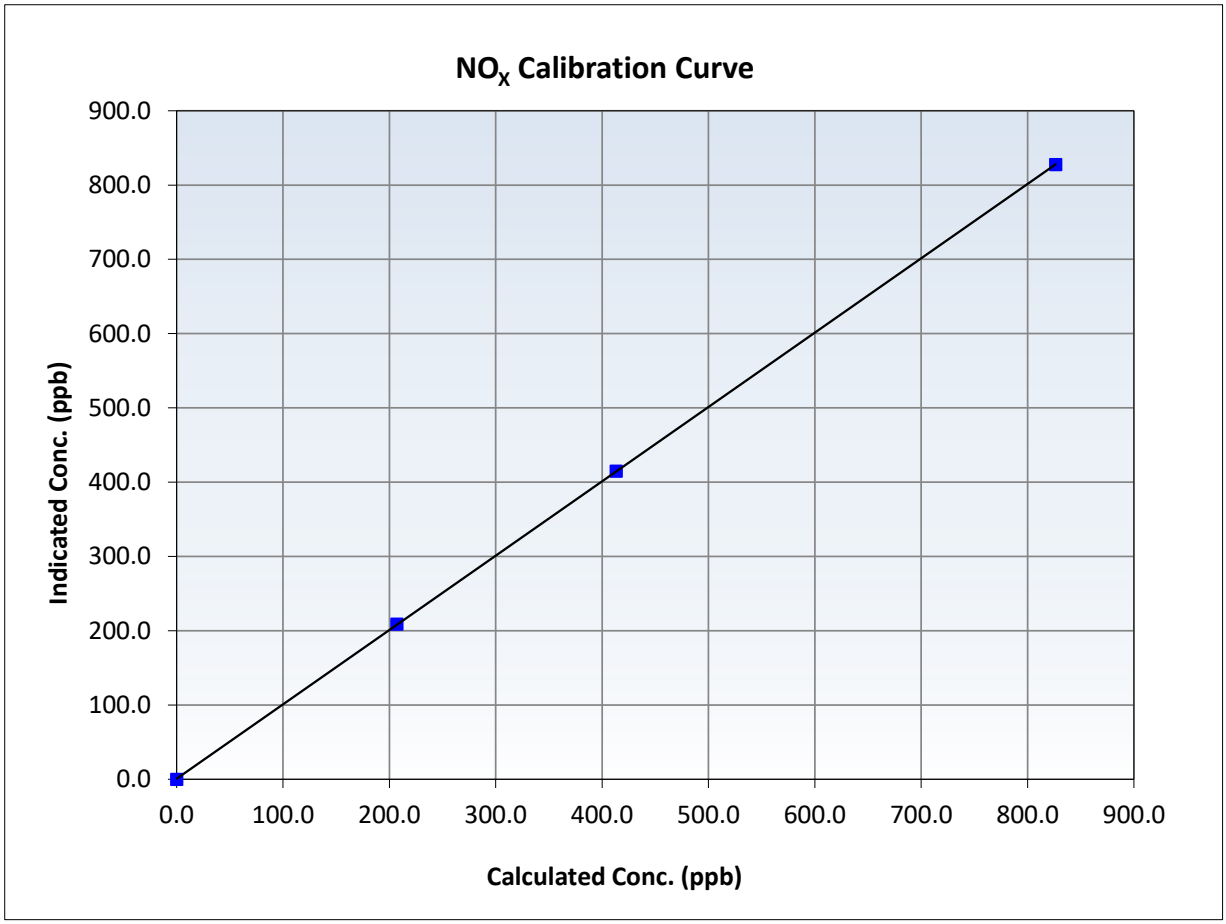
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 7, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	13:00
Analyzer make:	API T201	Analyzer serial #:	215

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
826.5	827.5	0.9987
413.2	414.8	0.9962
207.1	208.8	0.9919

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999996	*≥0.995*
Slope	1.000823	*0.90 - 1.10*
Intercept	0.776123	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

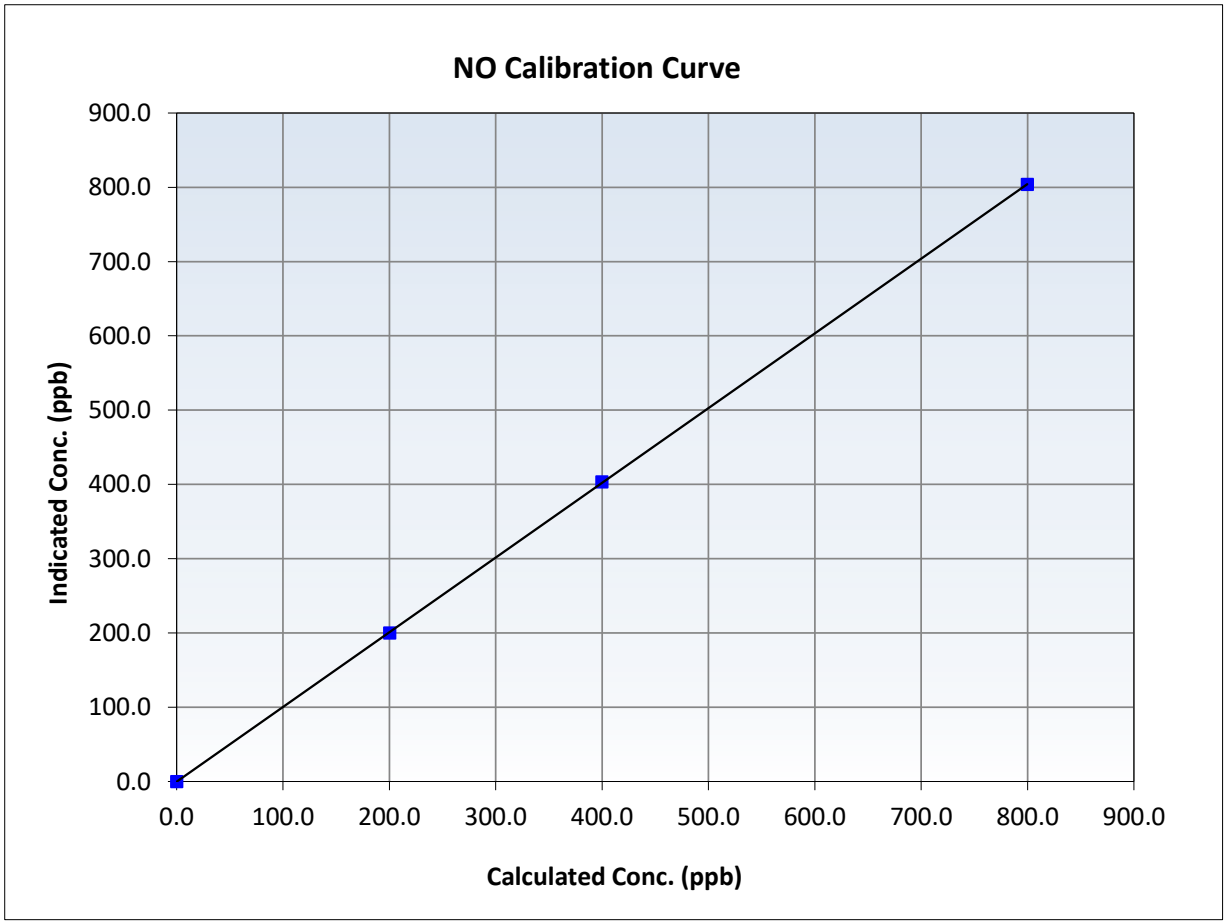
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 7, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	13:00
Analyzer make:	API T201	Analyzer serial #:	215

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
799.7	803.8	0.9949
399.9	403.3	0.9915
200.4	200.1	1.0016

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999990	*≥0.995*
Slope	1.005859	*0.90 - 1.10*
Intercept	-0.257331	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

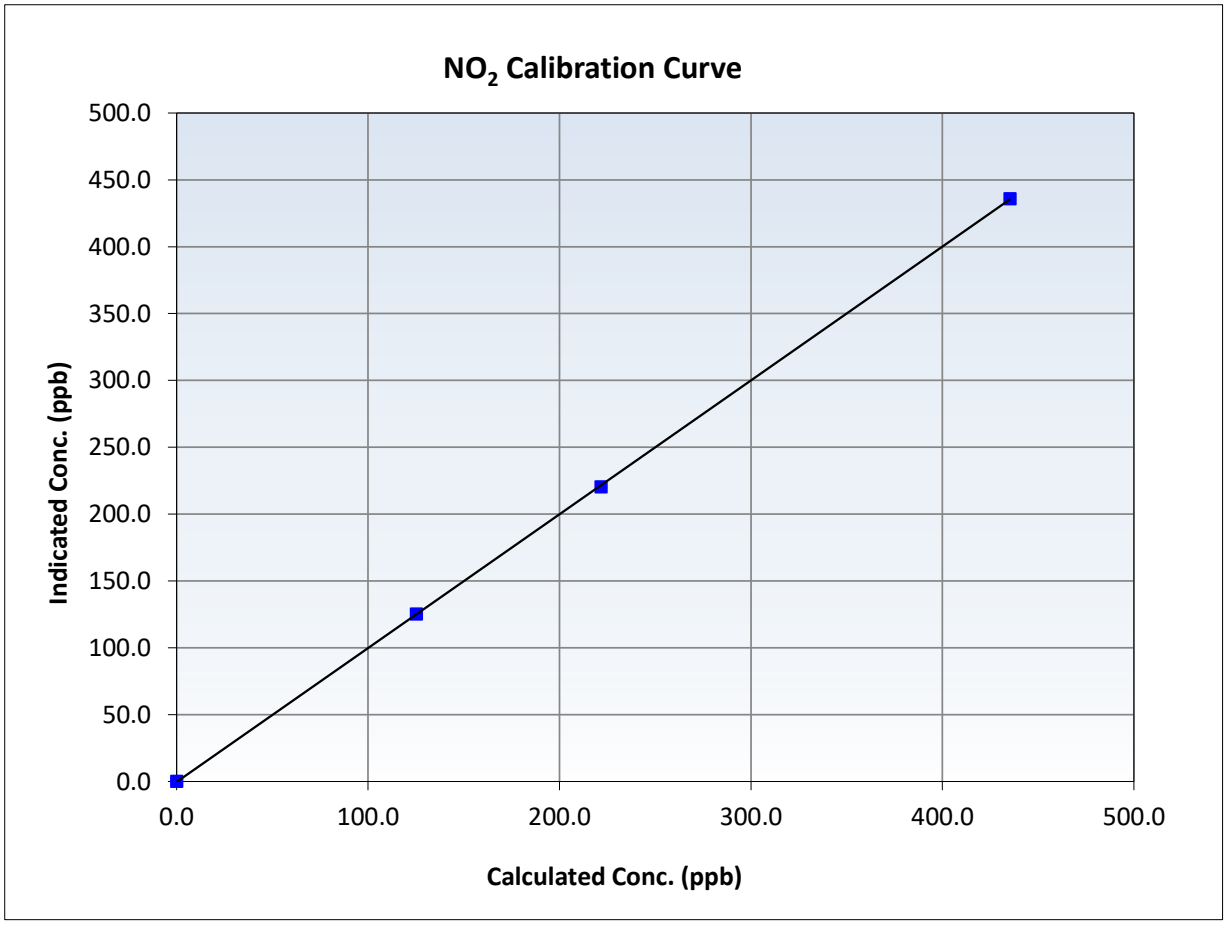
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 7, 2025
Station Name:	Patricia McInnes	Station Number:	AMS 06
Start Time (MST):	8:30	End Time (MST):	13:00
Analyzer make:	API T201	Analyzer serial #:	215

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
435.2	435.9	0.9984
221.6	220.4	1.0055
125.2	125.3	0.9994

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999982	*≥0.995*
Slope	1.001044	*0.90 - 1.10*
Intercept	-0.294872	*+/-20*



NO_X Calibration Plot Date: May 21, 2025 Location: Patricia McInnes

NH_3 Calibration Plot Date: May 21, 2025 Location: Patricia McInnes

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS07
ATHABASCA VALLEY
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Athabasca Valley	Station number:	AMS07
Calibration Date:	May 30, 2025	Last Cal Date:	April 8, 2025
Start time (MST):	9:22	End time (MST):	12:49
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.06	ppm	Cal Gas Exp Date:	March 10, 2031
Cal Gas Cylinder #:	CC320556			
Removed Cal Gas Conc:	50.06	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Model:	API T700		Serial Number:	3805
Zero Air Gen Model:	API 701H		Serial Number:	198

Analyzer Information

Analyzer make:	Thermo 43i-LTE		Serial Number:	1507864683	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.999033	1.005026	Backgd or Offset:	2.73	2.73
Calibration intercept:	2.384086	1.763400	Coeff or Slope:	0.866	0.853

SO_2 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	79.8	799.0	808.7	0.988
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	808.7	Previous response	800.6	*% 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	

SO_2 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	799.0	803.4	0.995
Mid point	4960	39.9	399.5	405.8	0.984
Low point	4980	20.0	200.2	203.4	0.984
As left zero	5000	0.0	0.0	0.1	----
As left span	4920	79.8	799.0	804.5	0.993
				Average Correction Factor:	0.988

Notes: Inlet filter changed after as founds. Span adjusted.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

SO_2 Calibration Summary

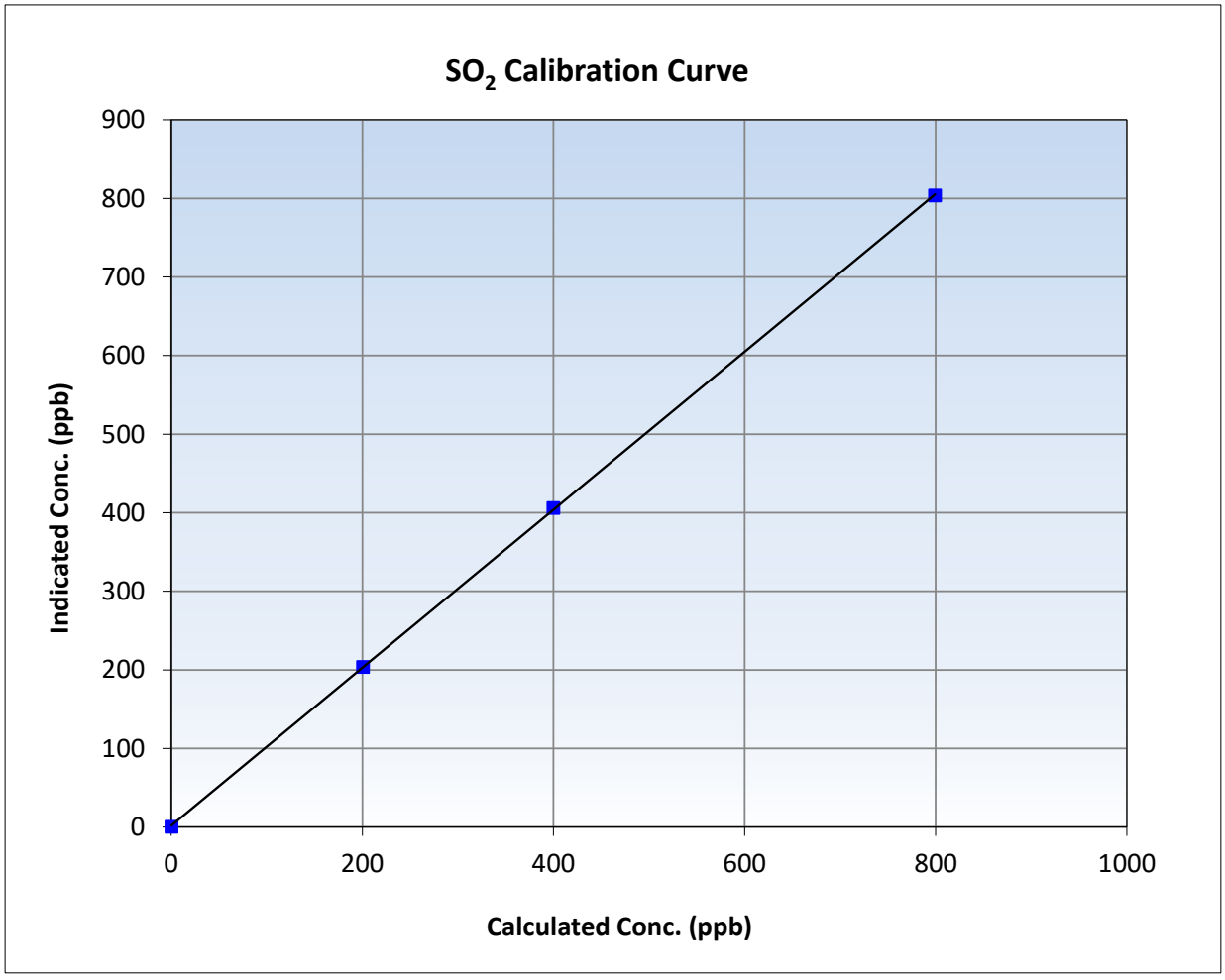
Station Information

Calibration Date:	May 30, 2025	Previous Calibration:	April 8, 2025
Station Name:	Athabasca Valley	Station Number:	AMS07
Start Time (MST):	9:22	End Time (MST):	12:49
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1507864683

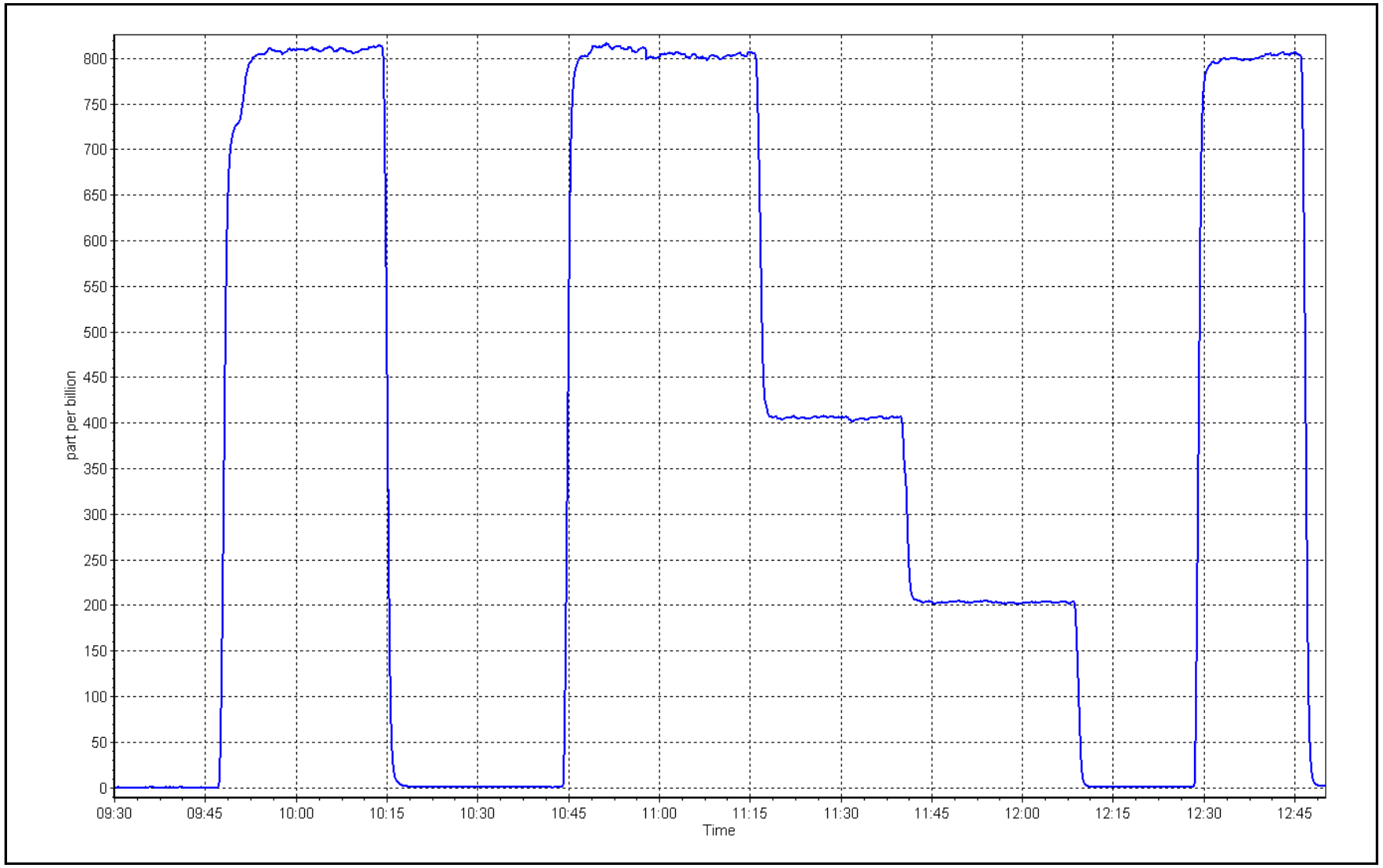
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
799.0	803.4	0.9945
399.5	405.8	0.9844
200.2	203.4	0.9845

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999969	*≥0.995*
Slope	1.005026	*0.90 - 1.10*
Intercept	1.763400	*+/-30*



SO2 Calibration Plot Date: May 30, 2025 Location: Athabasca Valley



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Athabasca Valley	Station number:	AMS07
Calibration Date:	May 8, 2025	Last Cal Date:	April 4, 2025
Start time (MST):	9:57	End time (MST):	14:32
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.25	ppm	Cal Gas Exp Date:	January 3, 2026
Cal Gas Cylinder #:	CC504080			
Removed Cal Gas Conc:	5.25	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	3805
ZAG Make/Model:	API T701H		Serial Number:	198

Analyzer Information

Analyzer make:	Thermo 43i LTE		Analyzer serial #:	1180540018
Converter make:	CDN-101		Converter serial #:	551
Analyzer Range	0 - 100 ppb		Converter Temp:	840 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.013763	1.017655	Backgd or Offset:	2.7	2.7
Calibration intercept:	-0.122264	-0.182312	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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	-0.2	----
As found High point	4925	75.5	79.3	81.4	0.971
As found Mid point	4962	37.7	39.6	40.6	0.970
As found Low point	4981	18.9	19.8	20.1	0.978
New cylinder response					

Baseline Corr As found:	81.6	Prev response:	80.24	*% change:	1.7%
Baseline Corr 2nd AF pt:	40.8	AF Slope:	1.030058	AF Intercept:	-0.242227
Baseline Corr 3rd AF pt:	20.3	AF Correlation:	0.999996	* = > +/-5% change initiates 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	80.6	0.984
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 change:		21-Feb-25		Ave Corr Factor	0.989
Date of last converter efficiency test:		April 22, 2022			

Notes: No adjustments needed.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

TRS Calibration Summary

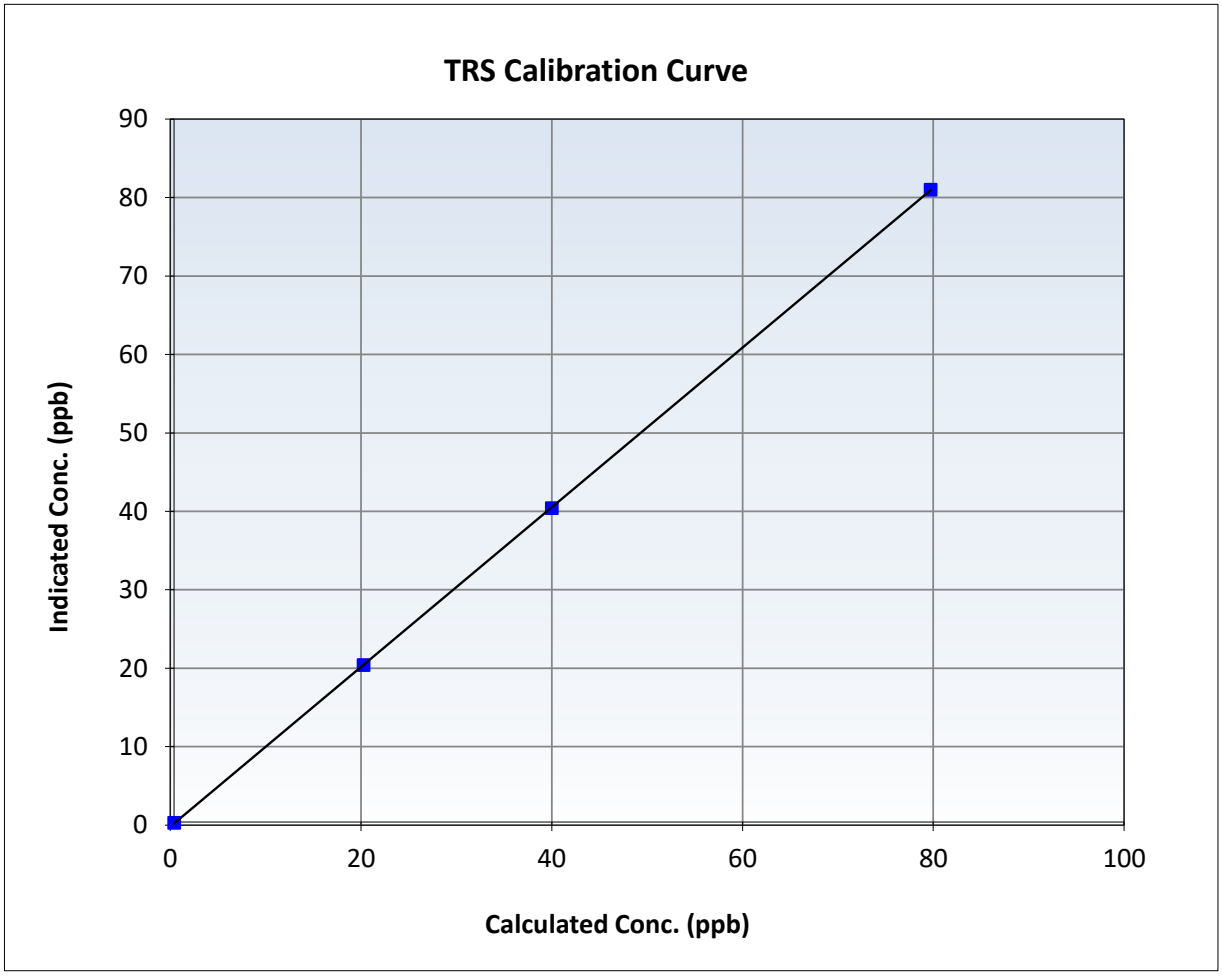
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 4, 2025
Station Name:	Athabasca Valley	Station Number:	AMS07
Start Time (MST):	9:57	End Time (MST):	14:32
Analyzer make:	Thermo 43i LTE	Analyzer serial #:	1180540018

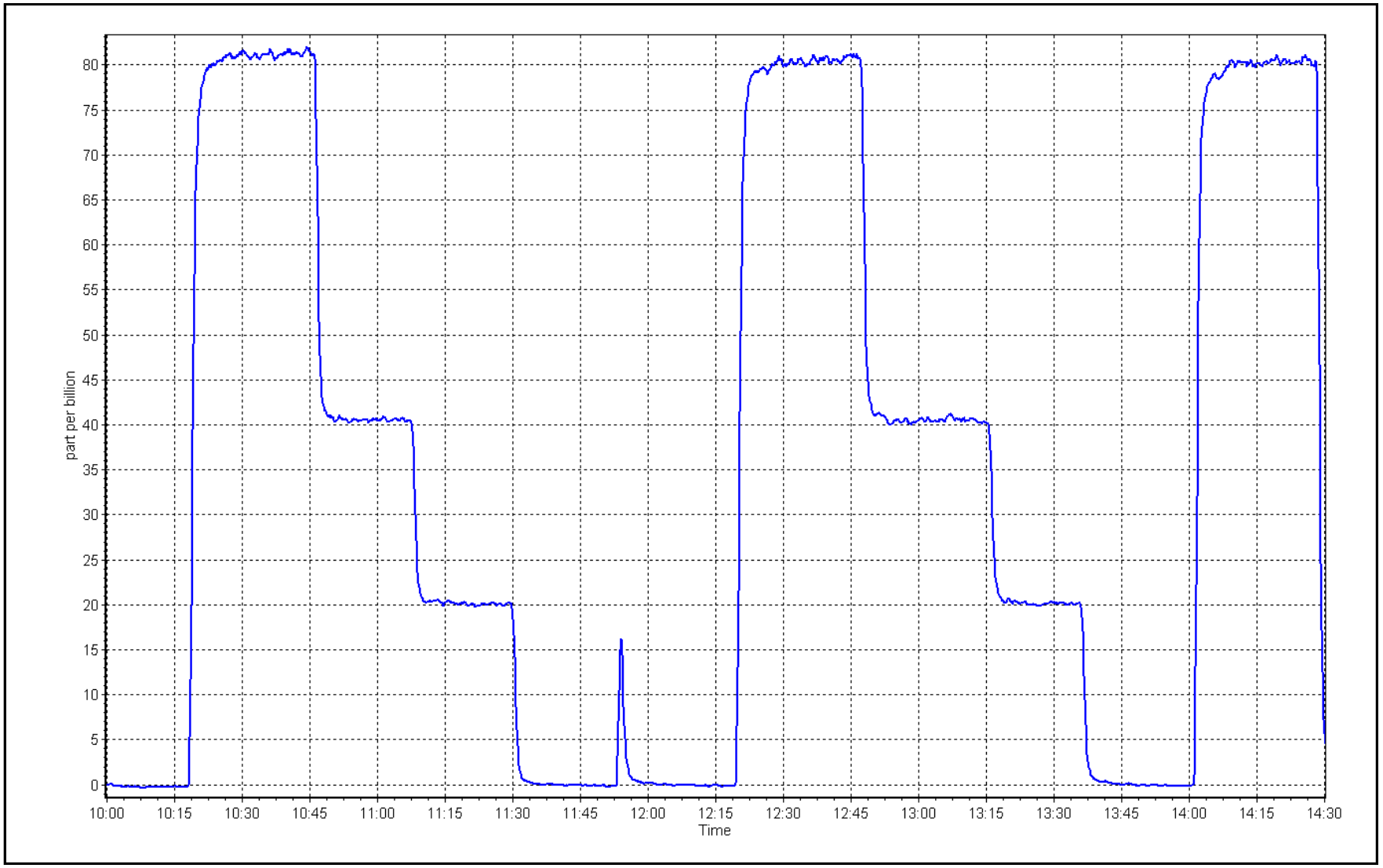
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
79.3	80.6	0.9840
39.6	40.0	0.9902
19.9	20.0	0.9928

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999992	*≥0.995*
Slope	1.017655	*0.90 - 1.10*
Intercept	-0.182312	*+/-3*



TRS Calibration Plot Date: May 8, 2025 Location: Athabasca Valley



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Athabasca Valley	Station number:	AMS 07
Calibration Date:	May 30, 2025	Last Cal Date:	April 8, 2025
Start time (MST):	9:22	End time (MST):	12:49
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	Analyzer serial #:	1331259520
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
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	4920	79.8	16.91	17.00	0.995
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	17.00	Prev response	16.95	*% change	0.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	16.91	16.82	1.005
Mid point	4960	39.9	8.46	8.42	1.004
Low point	4980	20.0	4.24	4.27	0.994
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	16.91	16.77	1.009
				Average Correction Factor	1.001

Notes: Inlet filter changed after as founds. No adjustments needed.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.8	9.00	9.04	0.996
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.04	Prev response	9.04	*% change	-0.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	9.00	8.93	1.007
Mid point	4960	39.9	4.50	4.48	1.004
Low point	4980	20.0	2.26	2.28	0.991
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	9.00	8.88	1.013
				Average Correction Factor	1.001

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	4920	79.8	7.92	7.96	0.995
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.96	Prev response	7.90	*% change	0.6%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	7.92	7.89	1.003
Mid point	4960	39.9	3.96	3.94	1.004
Low point	4980	20.0	1.98	1.99	0.997
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	7.92	7.88	1.004
				Average Correction Factor	1.001

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	1.000066	0.993700
THC Cal Offset:	0.033446	0.022073
CH4 Cal Slope:	0.997613	0.996226
CH4 Cal Offset:	0.006863	0.004666
NMHC Cal Slope:	1.002237	0.991617
NMHC Cal Offset:	0.025783	0.017607

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

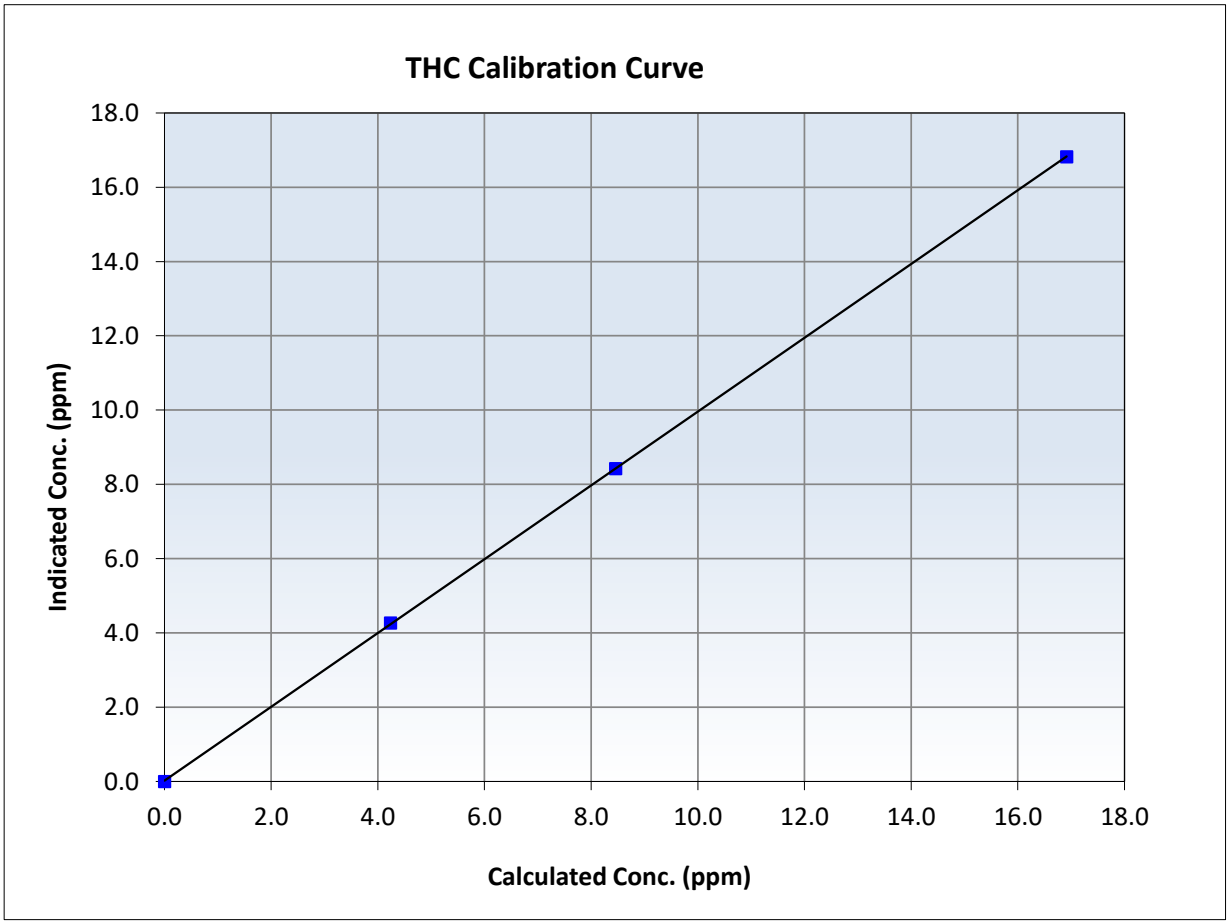
THC Calibration Summary

Station Information

Calibration Date:	May 30, 2025	Previous Calibration:	April 8, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	9:22	End Time (MST):	12:49
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259520

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999990	≥0.995
16.91	16.82	1.0054	Slope	0.993700	0.90 - 1.10
8.46	8.42	1.0039	Intercept	0.022073	+/-0.5
4.24	4.27	0.9939			



Wood Buffalo Environmental Association

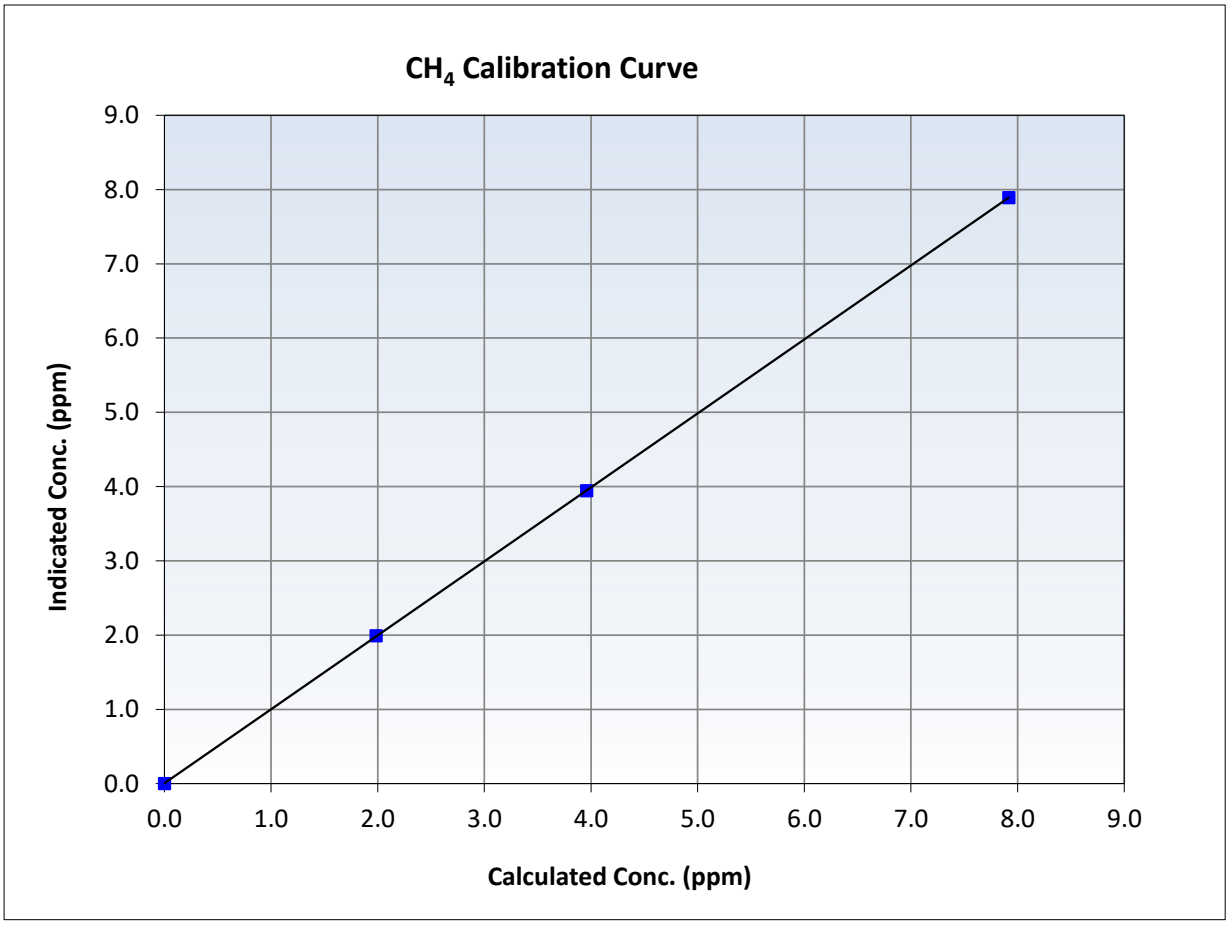
CH_4 Calibration Summary

Station Information

Calibration Date:	May 30, 2025	Previous Calibration:	April 8, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	9:22	End Time (MST):	12:49
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259520

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999997	≥0.995
7.92	7.89	1.0032	Slope	0.996226	0.90 - 1.10
3.96	3.94	1.0036			
1.98	1.99	0.9970	Intercept	0.004666	+/-0.5



Wood Buffalo Environmental Association

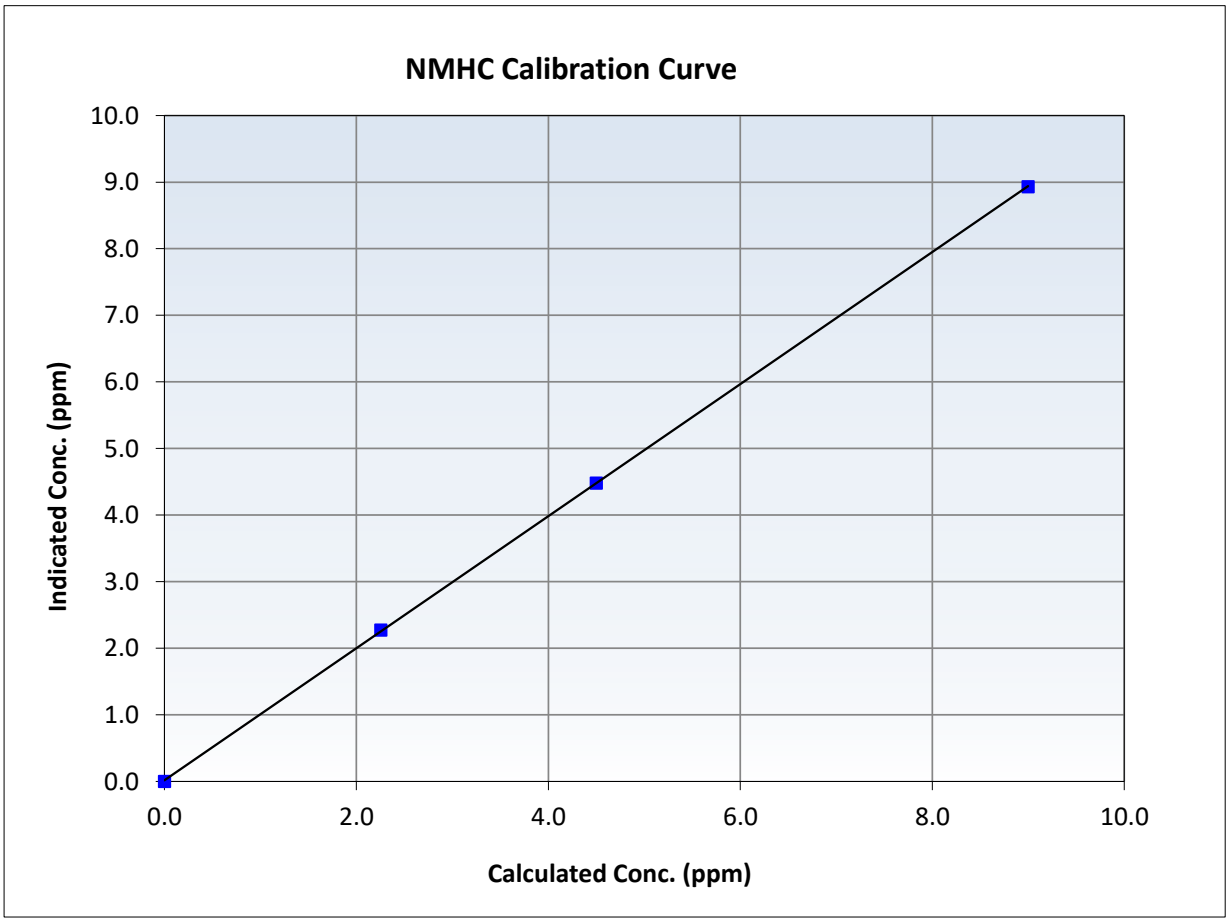
NMHC Calibration Summary

Station Information

Calibration Date:	May 30, 2025	Previous Calibration:	April 8, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	9:22	End Time (MST):	12:49
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259520

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999981	≥0.995
9.00	8.93	1.0073	Slope	0.991617	0.90 - 1.10
4.50	4.48	1.0038			
2.26	2.28	0.9912	Intercept	0.017607	+/-0.5



NMHC Calibration Plot Date: May 30, 2025 Location: Athabasca Valley

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Athabasca Valley
Station number:	AMS 07
Calibration Date:	May 12, 2025
Last Cal Date:	April 1, 2025
Start time (MST):	9:53
End time (MST):	15:19
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0033919	Cal Gas Expiry Date:	January 9, 2032
NOX Cal Gas Conc:	60.10 ppm	NO Cal Gas Conc:	59.90 ppm
Removed Cylinder #:	N/A	Removed Gas Exp Date:	N/A
Removed Gas NOX Conc:	60.10 ppm	Removed Gas NO Conc:	59.90 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	API T700	Serial Number:	3805
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)) *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	0.1	0.0	----	----
AF High point	4933	66.8	803.0	800.3	2.7	797.0	792.4	4.6	1.0076	1.0101
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 806.7 ppb	NO = 805.4 ppb
Baseline Corr 1st pt	NO_X = 796.9 ppb	NO = 792.3 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

*Percent Change	NO_X =	-1.2%
*Percent Change	NO =	-1.7%

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1160120024

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.161	1.169	NO bkgnd or offset:	8.3	8.3
NOX coeff or slope:	1.004	1.003	NOX bkgnd or offset:	8.6	8.6
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	226.7	225.2

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.001766	0.995646
NO_X Cal Offset:	2.271883	3.171929
NO Cal Slope:	1.004283	0.997871
NO Cal Offset:	1.711898	2.631946
NO_2 Cal Slope:	0.997518	1.006540
NO_2 Cal Offset:	0.612052	0.048214

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	801.0	799.8	1.3	1.0025	1.0006
Mid point	4966	33.4	401.5	400.2	1.3	405.0	403.8	1.2	0.9914	0.9910
Low point	4983	16.7	200.7	200.1	0.7	205.5	204.3	1.2	0.9769	0.9793
As left zero	5000	0.0	0.0	0.0	0.0	0.2	0.2	0.1	----	----
As left span	4933	66.8	803.0	395.3	407.7	808.6	395.3	413.3	0.9930	1.0000
							Average Correction Factor		0.9902	0.9903

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	0.1	----	----
High GPT point	801.6	395.1	409.2	411.9	0.9934	100.7%
Mid GPT point	801.6	599.8	204.5	205.9	0.9931	100.7%
Low GPT point	801.6	700.7	103.6	104.2	0.9940	100.6%
				Average Correction Factor	0.9935	100.7%

Notes: Span adjusted.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

NO_X Calibration Summary

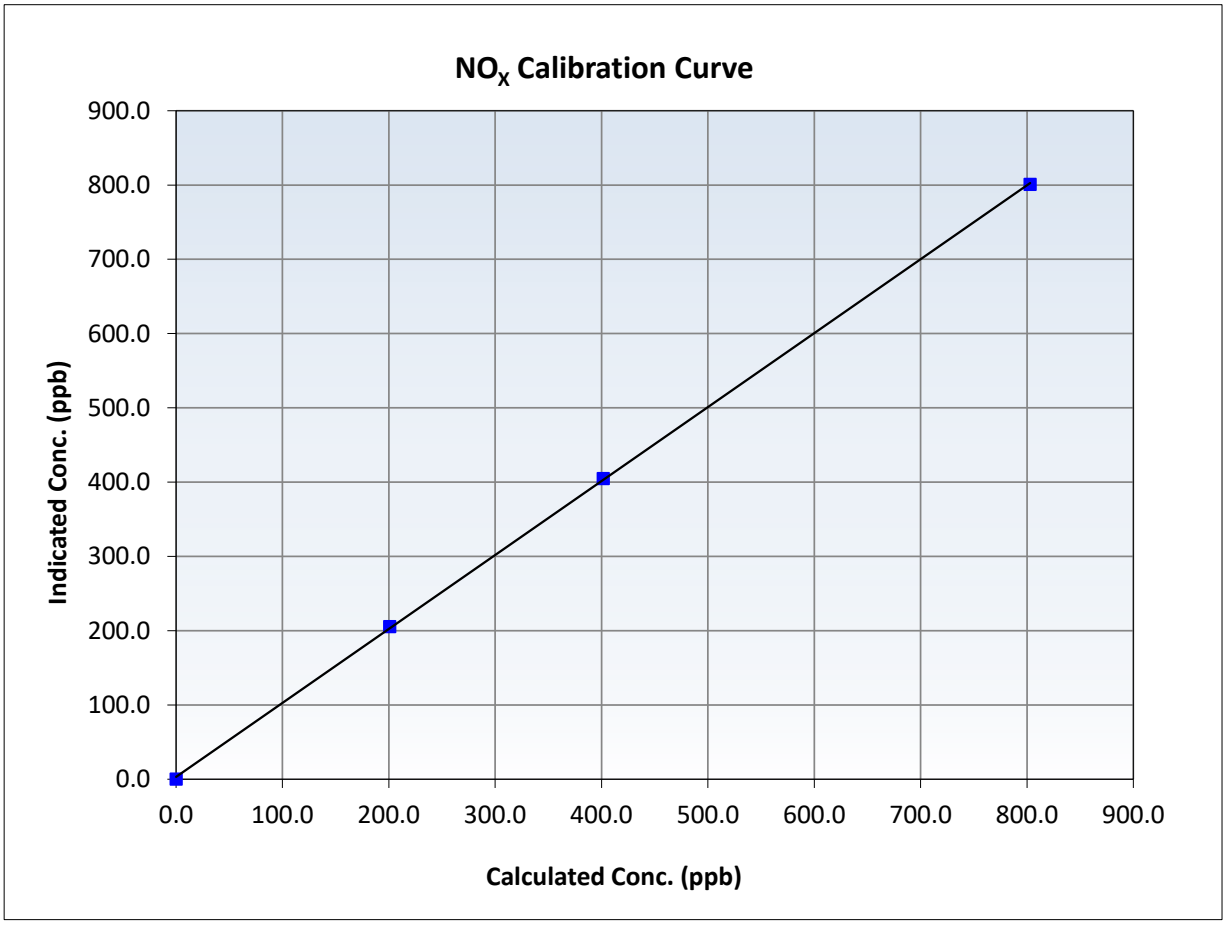
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 1, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	9:53	End Time (MST):	15:19
Analyzer make:	Thermo 42i	Analyzer serial #:	1160120024

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.3	----
803.0	801.0	1.0025
401.5	405.0	0.9914
200.7	205.5	0.9769

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999939	*≥0.995*
Slope	0.995646	*0.90 - 1.10*
Intercept	3.171929	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

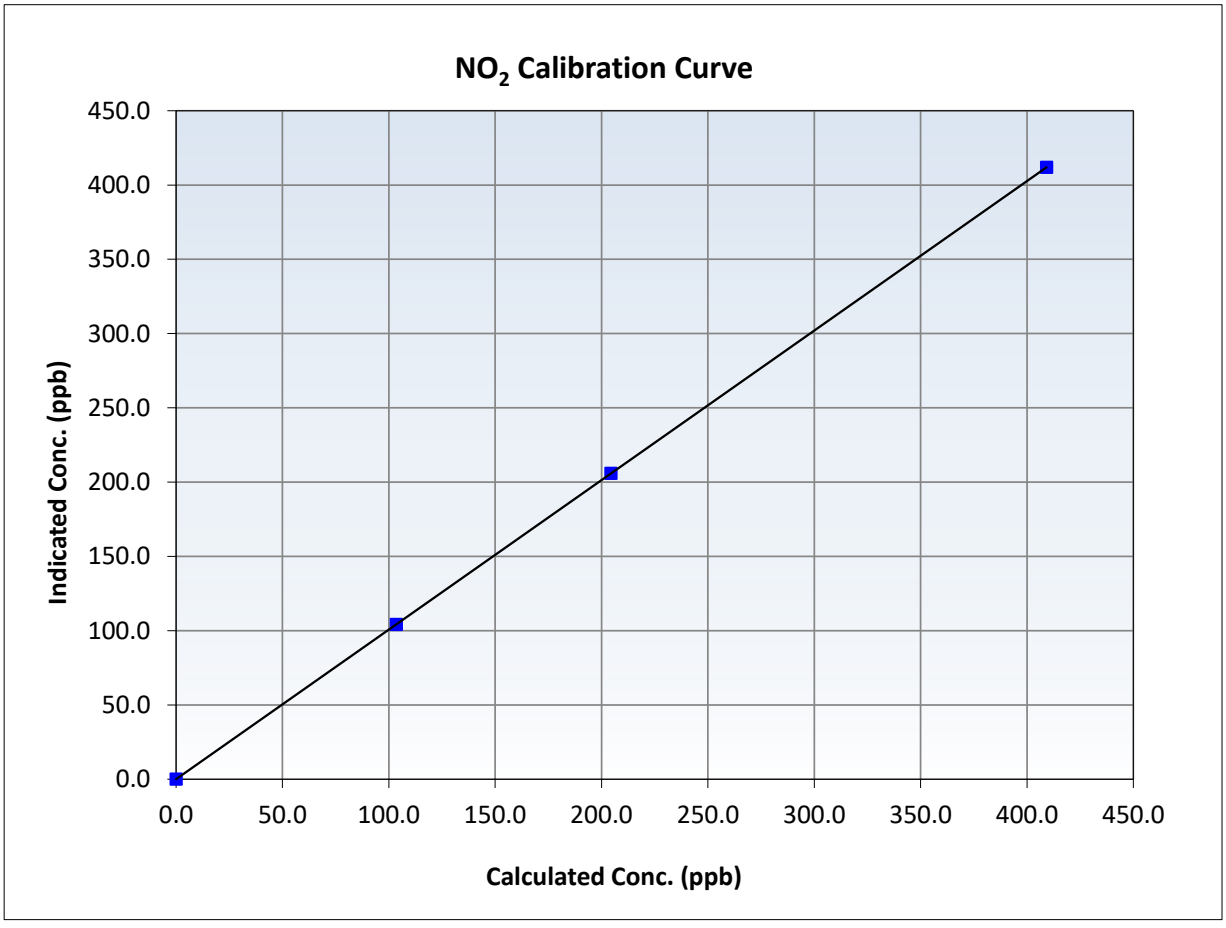
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 1, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	9:53	End Time (MST):	15:19
Analyzer make:	Thermo 42i	Analyzer serial #:	1160120024

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
409.2	411.9	0.9934
204.5	205.9	0.9931
103.6	104.2	0.9940

Statistical Evaluation		*Limits*
Correlation Coefficient	1.000000	*≥0.995*
Slope	1.006540	*0.90 - 1.10*
Intercept	0.048214	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

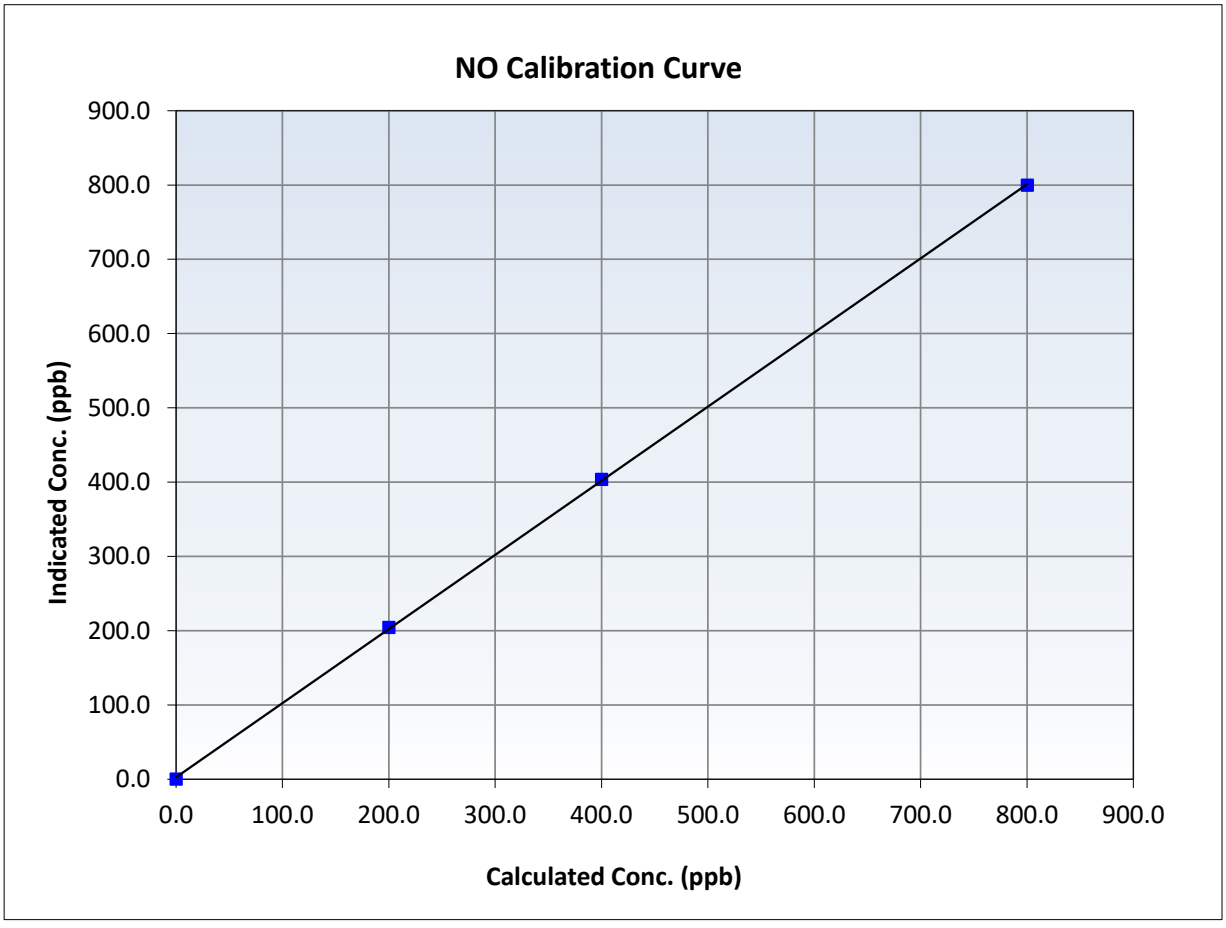
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 1, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	9:53	End Time (MST):	15:19
Analyzer make:	Thermo 42i	Analyzer serial #:	1160120024

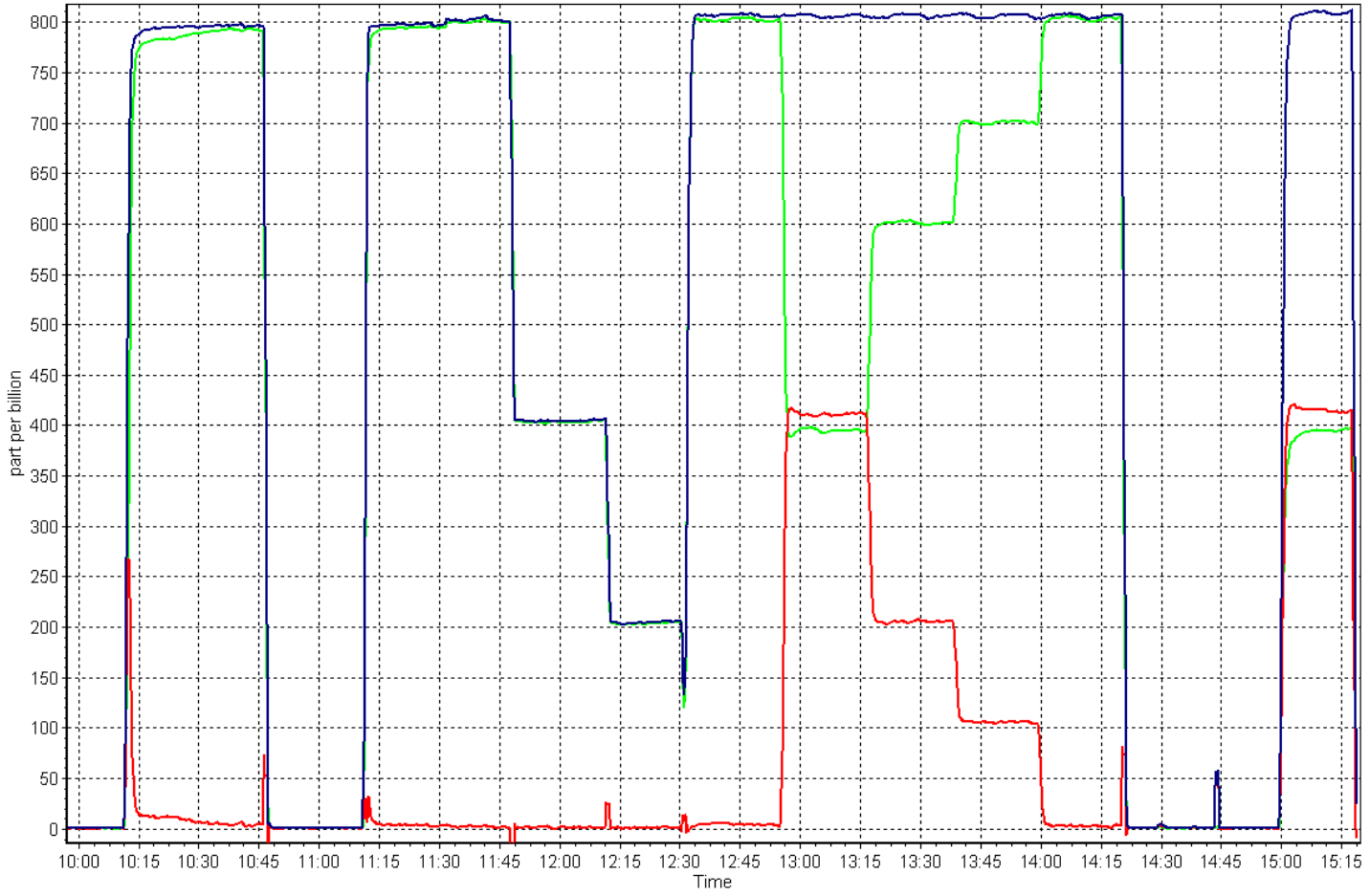
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
800.3	799.8	1.0006
400.2	403.8	0.9910
200.1	204.3	0.9793

Statistical Evaluation		Limits
Correlation Coefficient	0.999956	≥0.995
Slope	0.997871	0.90 - 1.10
Intercept	2.631946	+/-20



NO_X Calibration Plot Date: May 12, 2025 Location: Athabasca Valley



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Athabasca Valley	Station number:	AMS07
Calibration Date:	May 28, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	9:47	End time (MST):	13:45
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	T700	Serial Number:	3805
ZAG Make/Model:	T701H	Serial Number:	198

Analyzer Information

Analyzer make:	Thermo 49i	Analyzer serial #:	1152220023
Analyzer Range	0 - 500 ppb		

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.999600	1.000943	Backgd or Offset:	-1.1	-1.1
Calibration intercept:	1.020000	0.760000	Coeff or Slope:	1.556	1.556

O_3 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	-0.9	----
As found High point	5000	1725.3	400.0	411.5	0.970
As found Mid point	5000	1183.4	200.0	207.2	0.961
As found Low point	5000	924.6	100.0	104.2	0.951

Baseline Corr As found:	412.4	Previous response	400.9	*% change	2.8%
Baseline Corr 2nd AF pt:	208.1	AF Slope:	1.029829	AF Intercept:	0.280000
Baseline Corr 3rd AF pt:	105.1	AF Correlation:	0.999960	* = > +/-5% change initiates investigation	

O_3 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	5000	1705.1	400.0	400.9	0.998
Mid point	5000	1172.8	200.0	201.3	0.994
Low point	5000	921.2	100.0	101.1	0.989
As left zero	5000	NA	0.0	0.4	----
As left span	5000	1582.6	400.0	401.6	0.996
				Average Correction Factor	0.993

Notes: Post as found points replaced pump and installed charcoal scrubber and peaked lamp for optimum instensity. No adjustments performed post maintenance.

Calibration Performed By: Kelly Baragar

Wood Buffalo Environmental Association

O_3 Calibration Summary

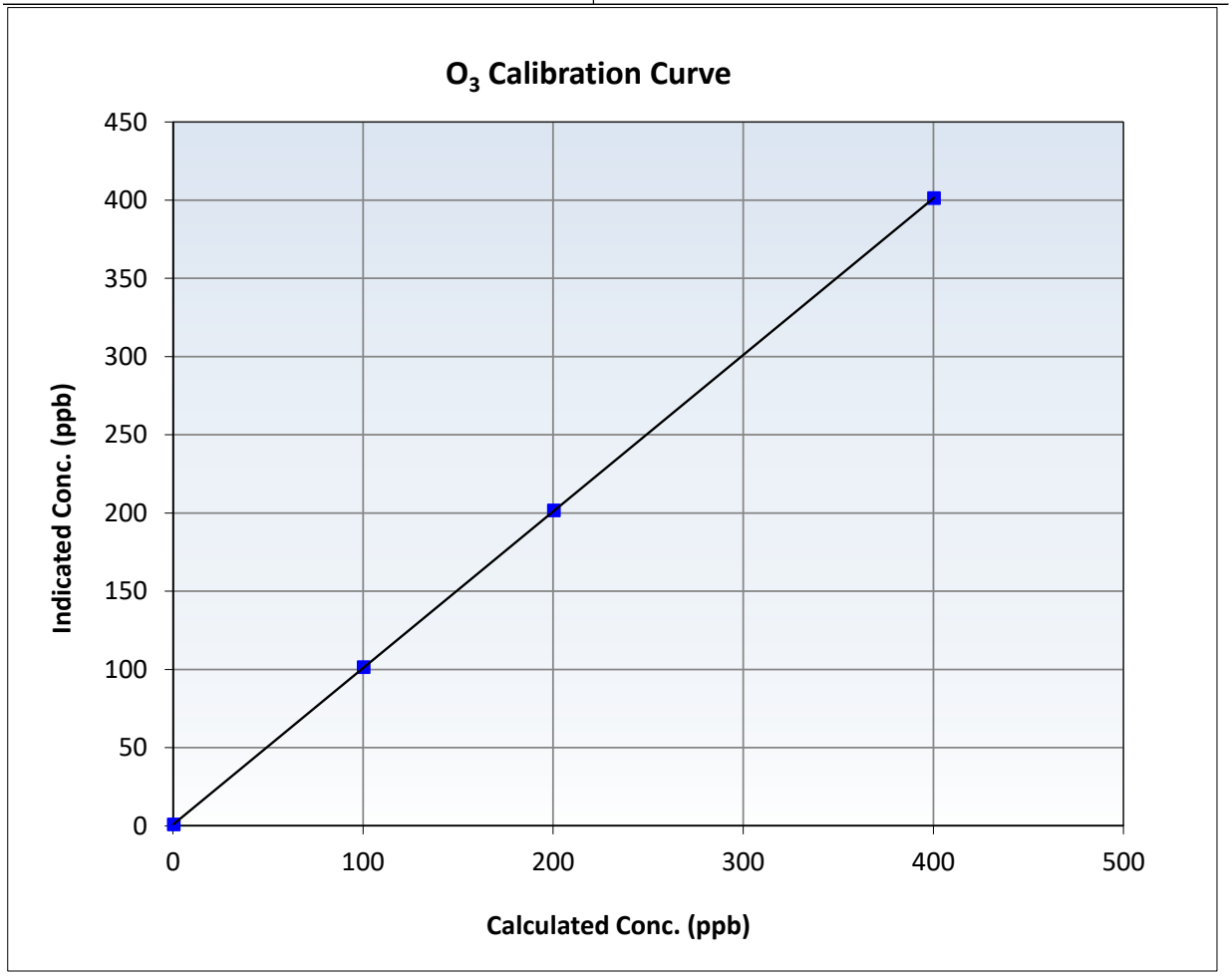
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 7, 2025
Station Name:	Athabasca Valley	Station Number:	AMS07
Start Time (MST):	9:47	End Time (MST):	13:45
Analyzer make:	Thermo 49i	Analyzer serial #:	1152220023

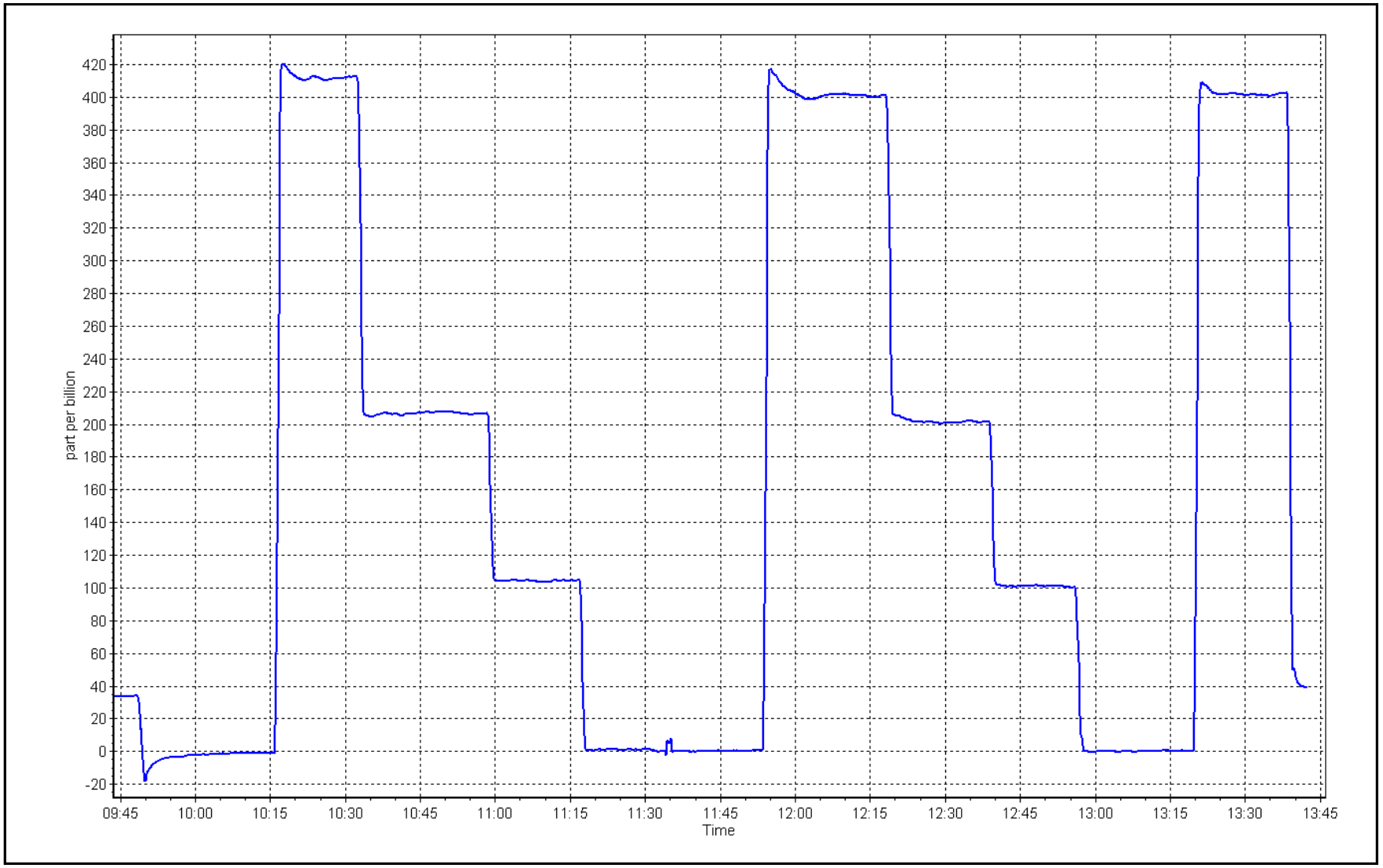
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
400.0	400.9	0.9978
200.0	201.3	0.9935
100.0	101.1	0.9891

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999996	*≥0.995*
Slope	1.000943	*0.90 - 1.10*
Intercept	0.760000	*+/- 5*



O_3 Calibration Plot Date: May 28, 2025 Location: Athabasca Valley



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Athabasca Valley	Station number:	AMS 07
Calibration Date:	May 30, 2025	Last Cal Date:	April 1, 2025
Start time (MST):	11:48	End time (MST):	12:18
Analyzer Make:	API T640	S/N:	2235
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388748
Temp/RH standard:	Alicat FP-25BT	S/N:	388748

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (^{o}C)	22.4	21.0	22.4	☐	+/- 2 ^{o}C
P (mmHg)	738.8	734.6	738.8	☐	+/- 10 mmHg
Flow (LPM)	4.95	4.85	4.95	☐	+/- 0.25 LPM
PW% (pump)	38	-----	38	☐	>80%
Zero Verification	PM w/o HEPA:	73.5	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: October 6, 2024 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test	10.9		10.9	☐	+/- 0.5

Date Optical Chamber Cleaned: April 1, 2025

Date Disposable Filter Changed: May 30, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0.0 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: July 8, 2024

Date RH/T Sensor Cleaned: July 8, 2024

Notes: Temp, pressure and flow checked. Leak check passed.

Calibration by: Aswin Sasi Kumar

Wood Buffalo Environmental Association

CO Calibration Report

Station Information

Station Name:	Athabasca Valley	Station number:	AMS 07
Calibration Date:	May 22, 2025	Last Cal Date:	April 25, 2025
Start time (MST):	11:08	End time (MST):	14:19
Reason:	Routine		

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:	Thermo 48i-TLE		Analyzer serial #:	1408761381	
Analyzer Range:	0 - 50 ppm				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.002518	0.998581	Backgd or Offset:	5.450	5.620
Calibration intercept:	0.164069	0.138007	Coeff or Slope:	1.073	1.079

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	0.2	----
As found High point	4932	67.8	40.0	40.2	0.999
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr As found:	40.09	Prev response:	40.31	*% change:	-0.5%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates 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	4932	67.8	40.0	40.0	1.000
Mid point	4966	33.9	20.0	20.3	0.987
Low point	4983	16.9	10.0	10.2	0.980
As left zero	5000	0.0	0.0	0.0	----
As left span	4932	67.8	40.0	40.0	1.001
				Average Correction Factor	0.989

Notes: Zero and span adjusted.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

CO Calibration Summary

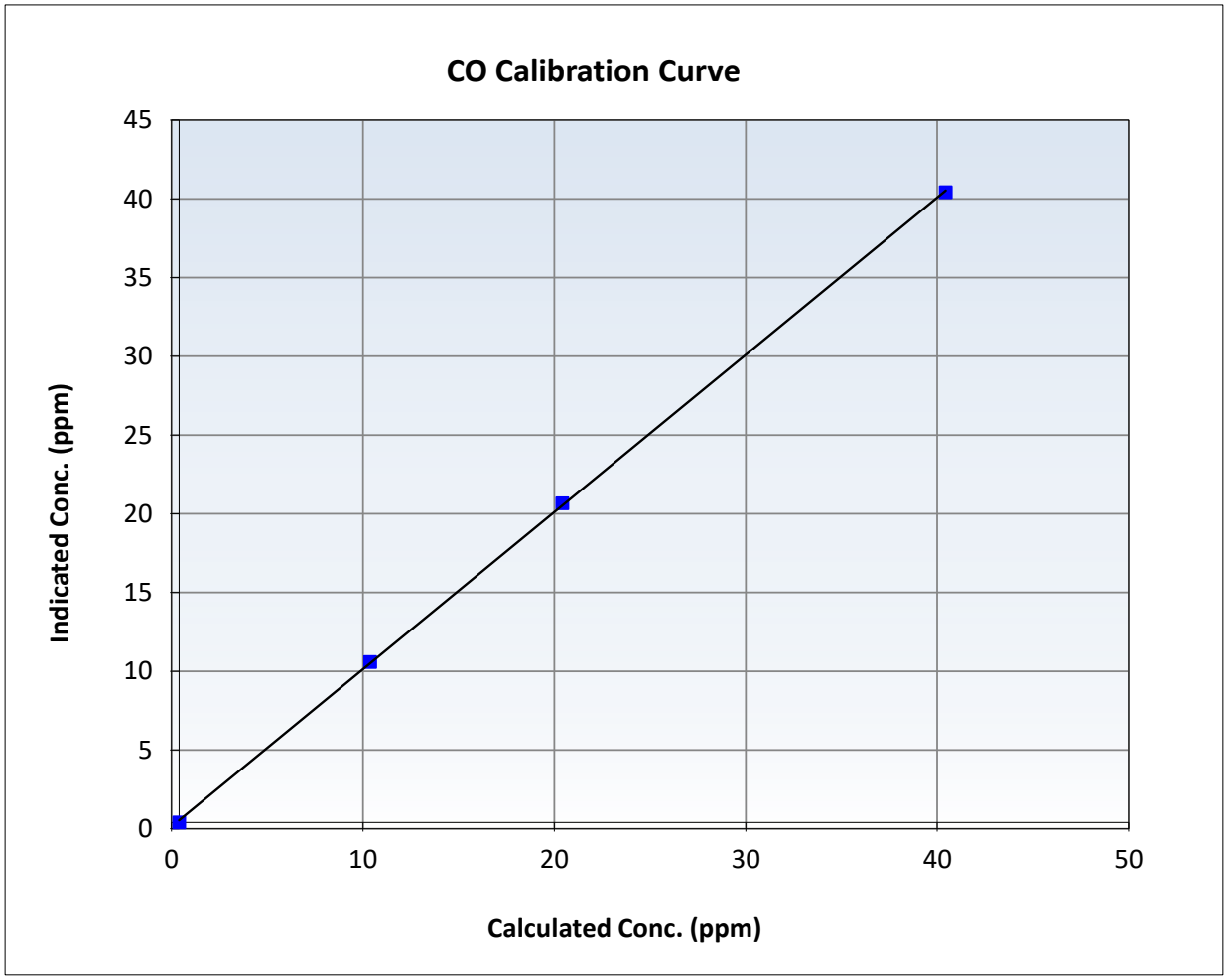
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 25, 2025
Station Name:	Athabasca Valley	Station Number:	AMS 07
Start Time (MST):	11:08	End Time (MST):	14:19
Analyzer make:	Thermo 48i-TLE	Analyzer serial #:	1408761381

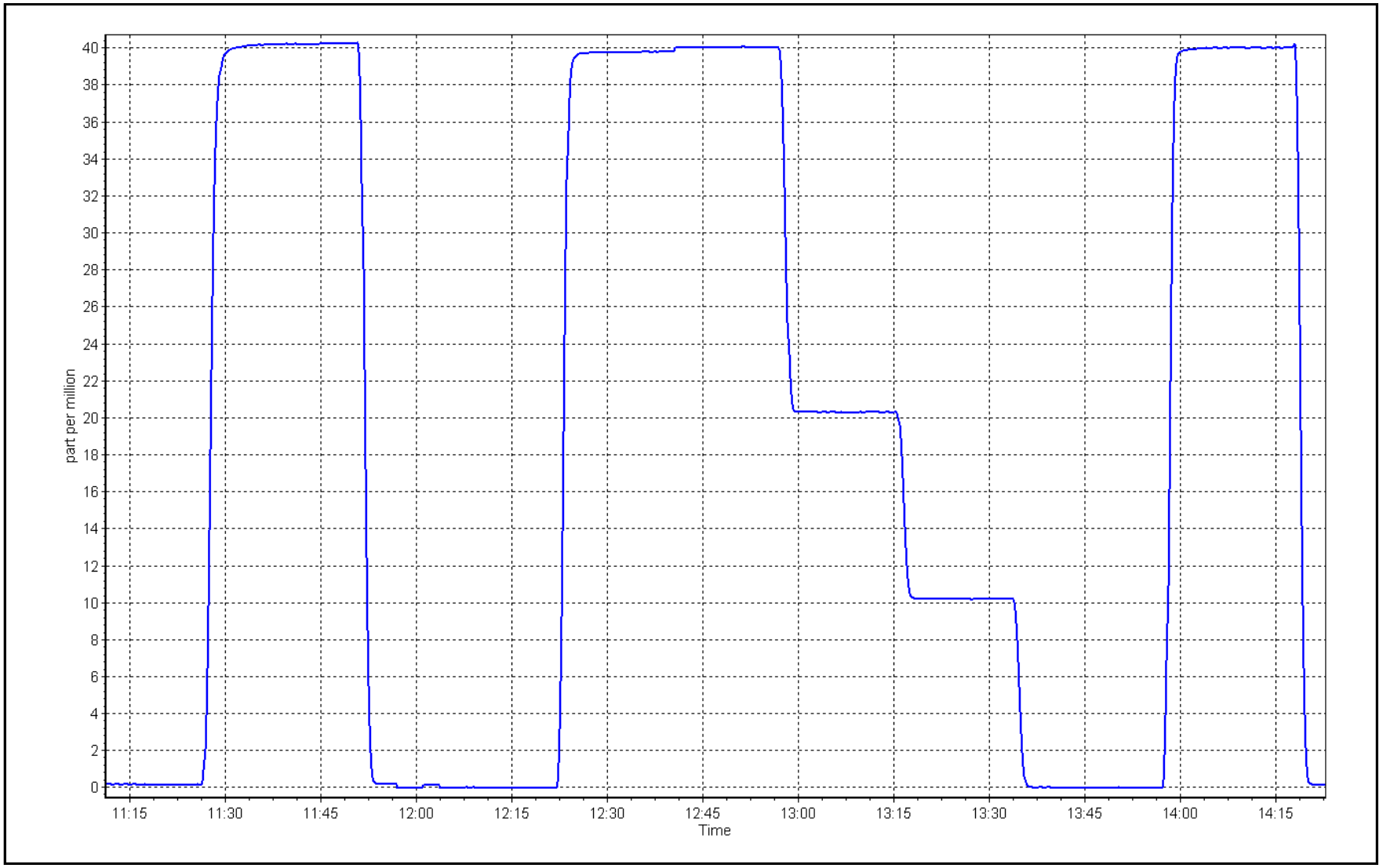
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
40.0	40.0	1.0004
20.0	20.3	0.9873
10.0	10.2	0.9795

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999934	*≥0.995*
Slope	0.998581	*0.90 - 1.10*
Intercept	0.138007	*+/-1.5*



CO Calibration Plot Date: May 22, 2025 Location: Athabasca Valley



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS08
FORT CHIPEWYAN
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS08
Calibration Date:	May 21, 2025	Last Cal Date:	April 9, 2025
Start time (MST):	13:41	End time (MST):	16:17
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	49.84	ppm	Cal Gas Exp Date:	January 6, 2030
Cal Gas Cylinder #:	CC196697			
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

Analyzer make:	Thermo 43i-TLE		Serial Number:	1236656116	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.005001	1.003142	Backgd or Offset:	2.0	1.9
Calibration intercept:	0.414722	-0.783999	Coeff or Slope:	1.480	1.029

SO_2 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	80.3	800.4	813.6	0.984
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	813.6	Previous response	804.8	*% change	1.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	4920	80.3	800.4	802.9	0.997
Mid point	4960	40.2	400.7	400.0	1.002
Low point	4980	20.1	200.4	199.4	1.005
As left zero	5000	0.0	0.0	0.2	----
As left span	4920	80.3	800.4	800.0	1.000
				Average Correction Factor:	1.001

Notes: Changed out inlet filter after as founds. Adjustments Made After As Founds

Calibration Performed By: Sabian V,

Wood Buffalo Environmental Association

SO_2 Calibration Summary

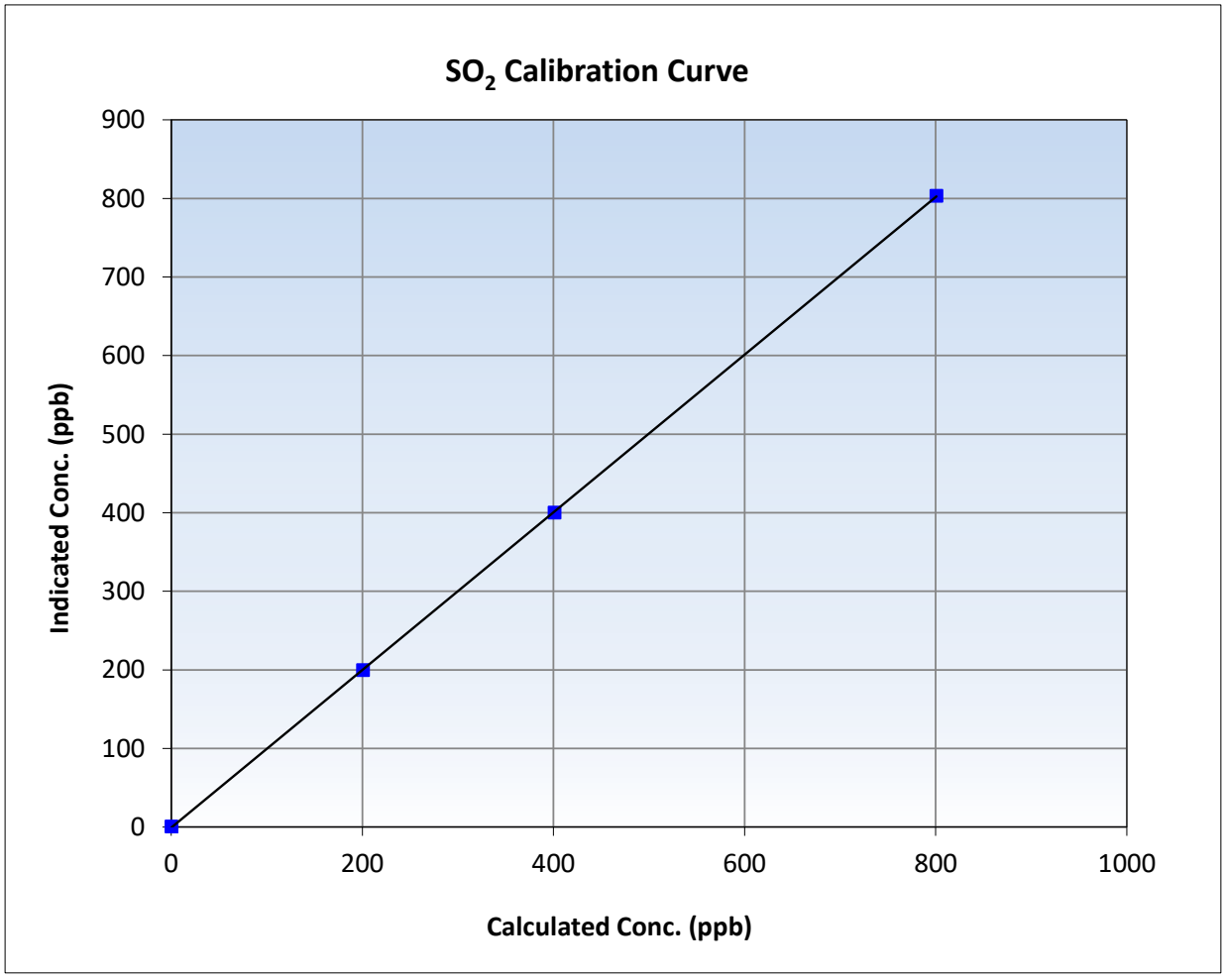
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 9, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS08
Start Time (MST):	13:41	End Time (MST):	16:17
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1236656116

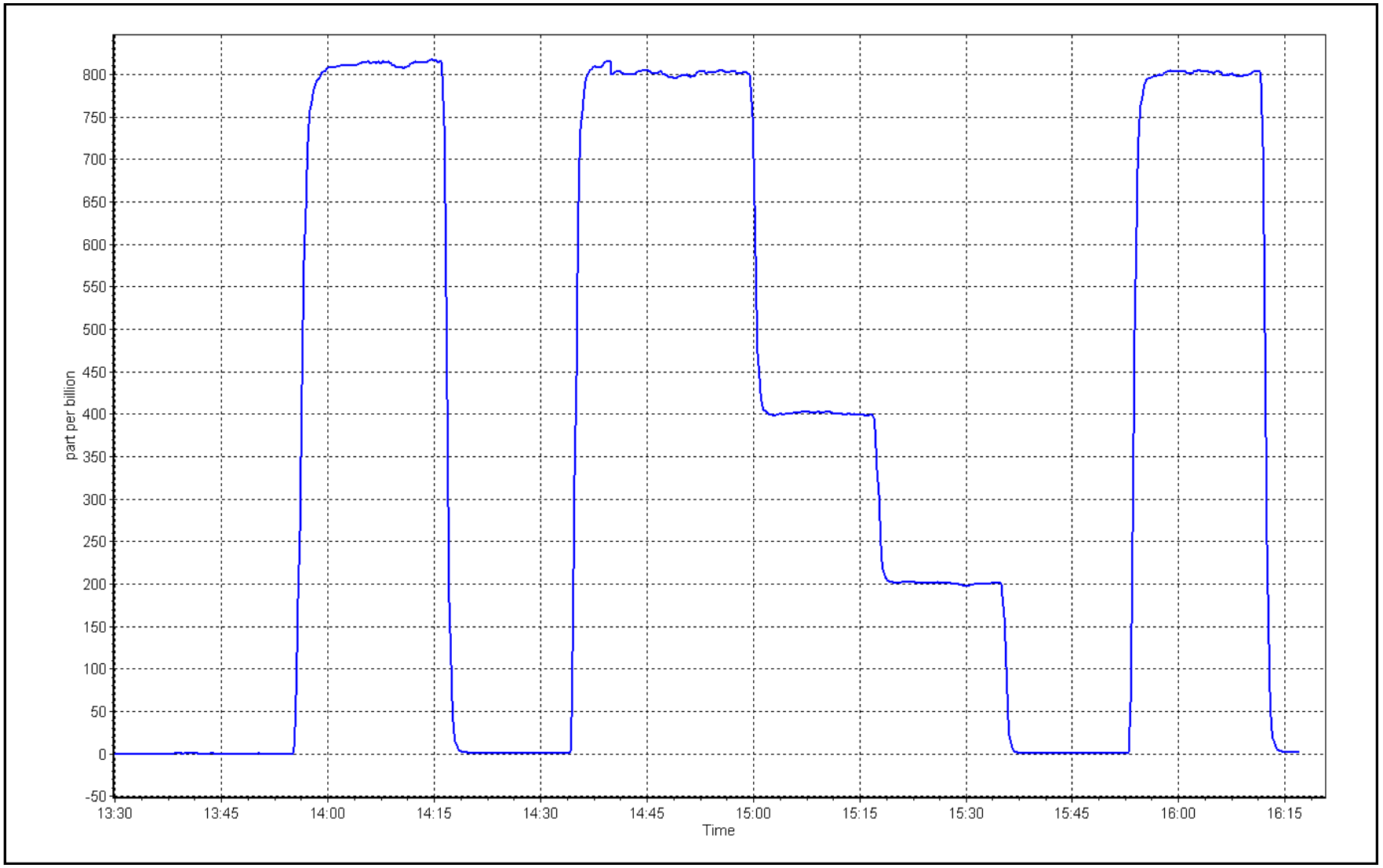
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
800.4	802.9	0.9969
400.7	400.0	1.0017
200.4	199.4	1.0048

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999989	*≥0.995*
Slope	1.003142	*0.90 - 1.10*
Intercept	-0.783999	*+/-30*



SO2 Calibration Plot Date: May 21, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS 08
Calibration Date:	May 2, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	9:10	End time (MST):	13:34
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	SA7549			
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:	3810
ZAG Make/Model:	Teledyne API T701		Serial Number:	135

Analyzer Information

Analyzer make:	Thermo 43iQ-TL		Analyzer serial #:	1203169744
Converter make:	CDN-101		Converter serial #:	580
Analyzer Range	0 - 100 ppb		Converter Temp:	850 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.015539	1.032260	Backgd or Offset:	2.2	2.2
Calibration intercept:	-0.538270	-0.398435	Coeff or Slope:	0.853	1.001

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	4917	82.6	80.0	62.2	1.279
As found Mid point	4959	41.3	40.0	30.4	1.302
As found Low point	4979	20.7	20.0	14.9	1.318
New cylinder response					

Baseline Corr As found:	62.5	Prev response:	80.67	*% change:	-29.1%
Baseline Corr 2nd AF pt:	30.7	AF Slope:	0.782811	AF Intercept:	-0.594079
Baseline Corr 3rd AF pt:	15.2	AF Correlation:	0.999882	* = > +/-5% change initiates 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	82.3	0.972
Mid point	4959	41.3	40.0	40.8	0.980
Low point	4979	20.7	20.0	19.8	1.012
As left zero	5000	0.0	0.0	0.1	----
As left span	4917	82.6	80.0	83.5	0.958
SO2 Scrubber Check	4919.7	80.3	803.0	0.0	----

Date of last scrubber change:		March 7, 2022		Ave Corr Factor	0.988
Date of last converter efficiency test:		March 15, 2022		103.4%	efficiency

Notes: Changed inlet filter after as found. Adjustments made to zero and span.

Calibration Performed By: Matthew Courtoreille

Wood Buffalo Environmental Association

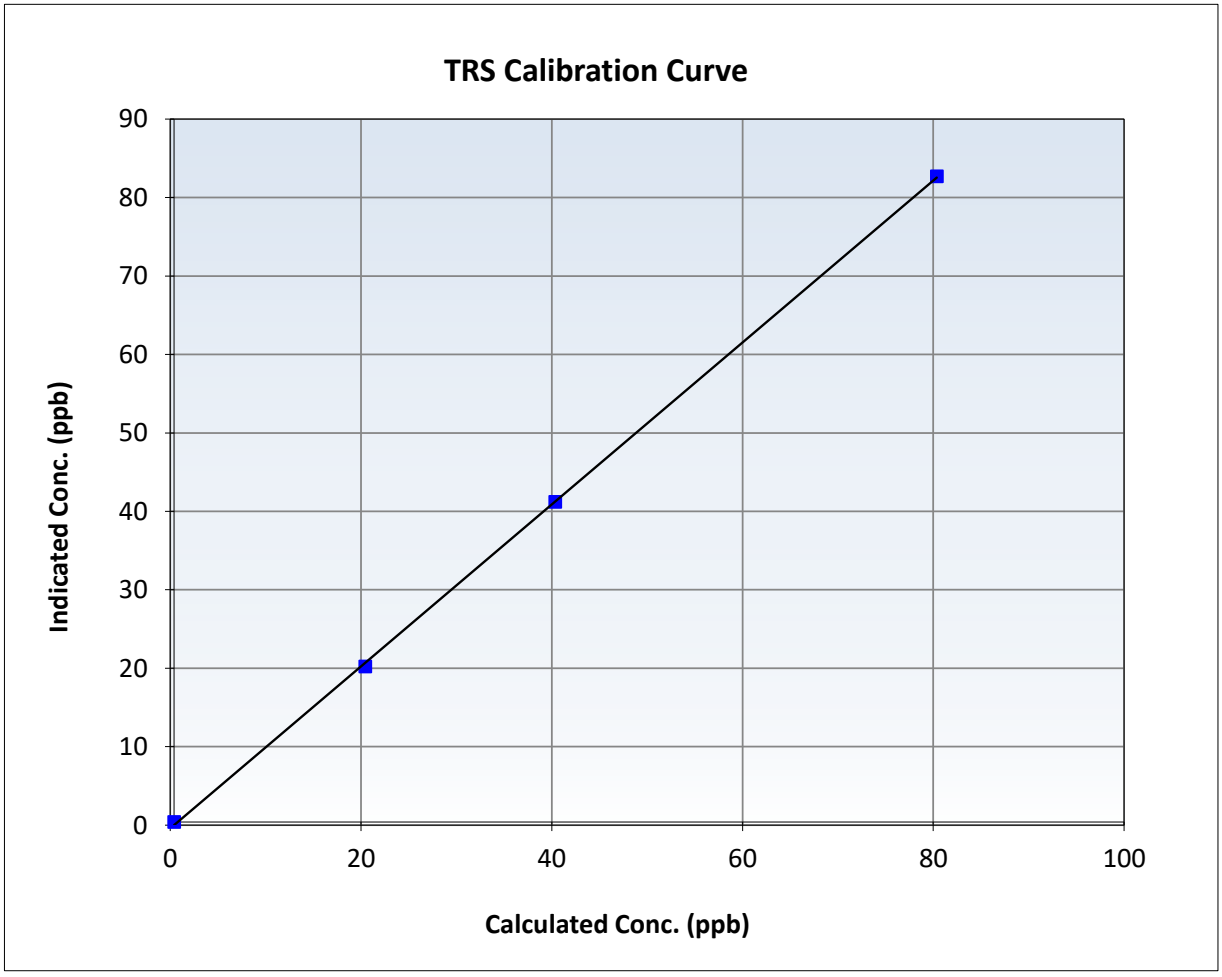
TRS Calibration Summary

Station Information

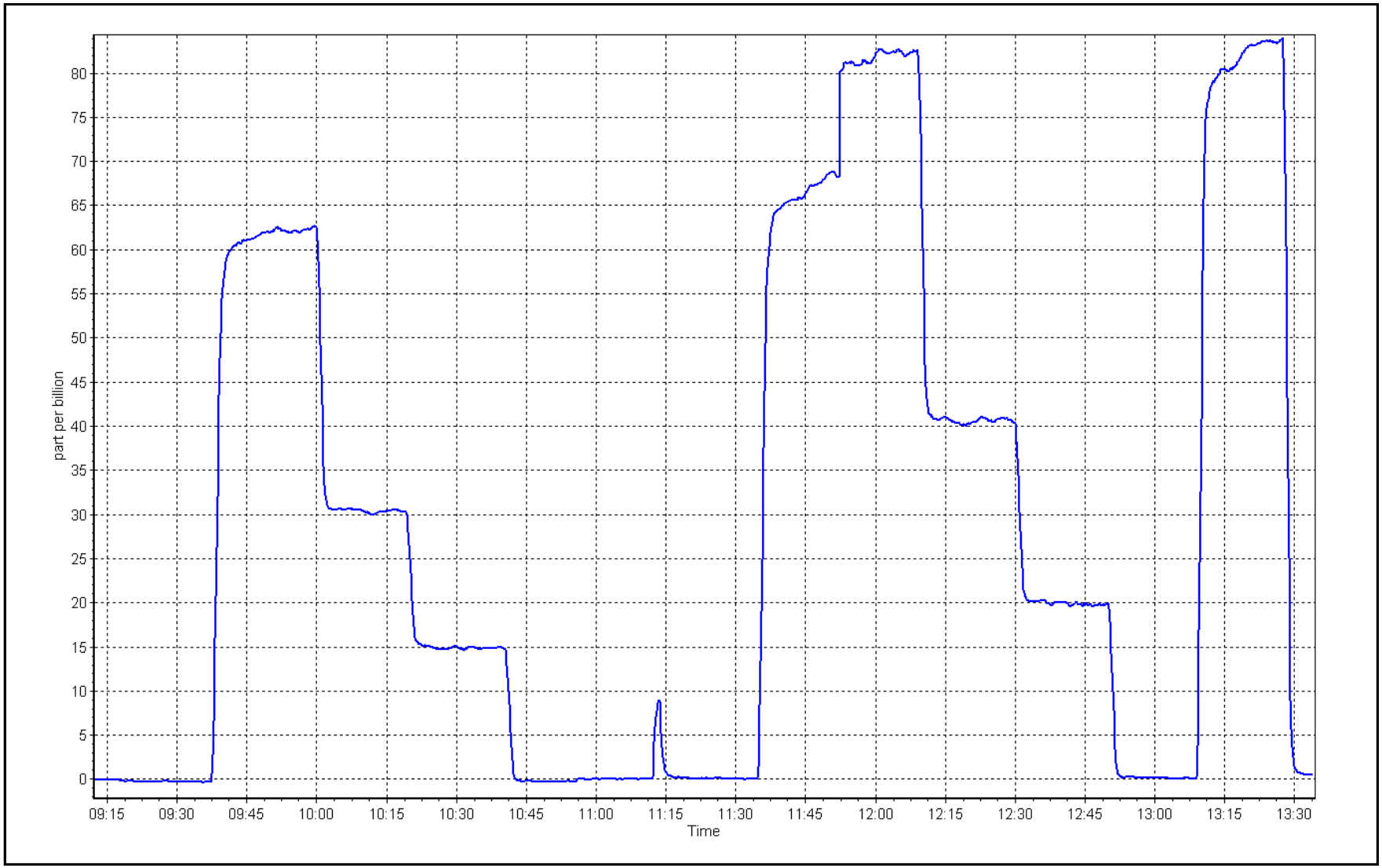
Calibration Date:	May 2, 2025	Previous Calibration:	April 15, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	9:10	End Time (MST):	13:34
Analyzer make:	Thermo 43iQ-TL	Analyzer serial #:	1203169744

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.0	----	Correlation Coefficient	0.999886	*≥0.995*
80.0	82.3	0.9716	Slope	1.032260	*0.90 - 1.10*
40.0	40.8	0.9798			
20.0	19.8	1.0121	Intercept	-0.398435	*+/-3*



TRS Calibration Plot Date: May 2, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS 08
Calibration Date:	May 14, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	12:07	End time (MST):	13:36
Reason:	Removal		

Calibration Standards

Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	SA7549			
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:	3810
ZAG Make/Model:	Teledyne API T701		Serial Number:	135

Analyzer Information

Analyzer make:	Thermo 43iQ-TL		Analyzer serial #:	1203169744
Converter make:	CDN-101		Converter serial #:	580
Analyzer Range	0 - 100 ppb		Converter Temp:	850 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.982087		Backgd or Offset:	2.0	2.0
Calibration intercept:	-0.317646		Coeff or Slope:	0.779	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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	0.2	----
As found High point	4917	82.6	80.0	56.7	1.415
As found Mid point	4959	41.3	40.0	26.5	1.520
As found Low point	4979	20.7	20.0	12.6	1.616
New cylinder response					

Baseline Corr As found:	56.5	Prev response:	78.21	*% change:	-38.4%
Baseline Corr 2nd AF pt:	26.3	AF Slope:	0.711328	AF Intercept:	-0.892555
Baseline Corr 3rd AF pt:	12.4	AF Correlation:	0.998098	* = > +/-5% change initiates investigation	

TRS Calibration Data

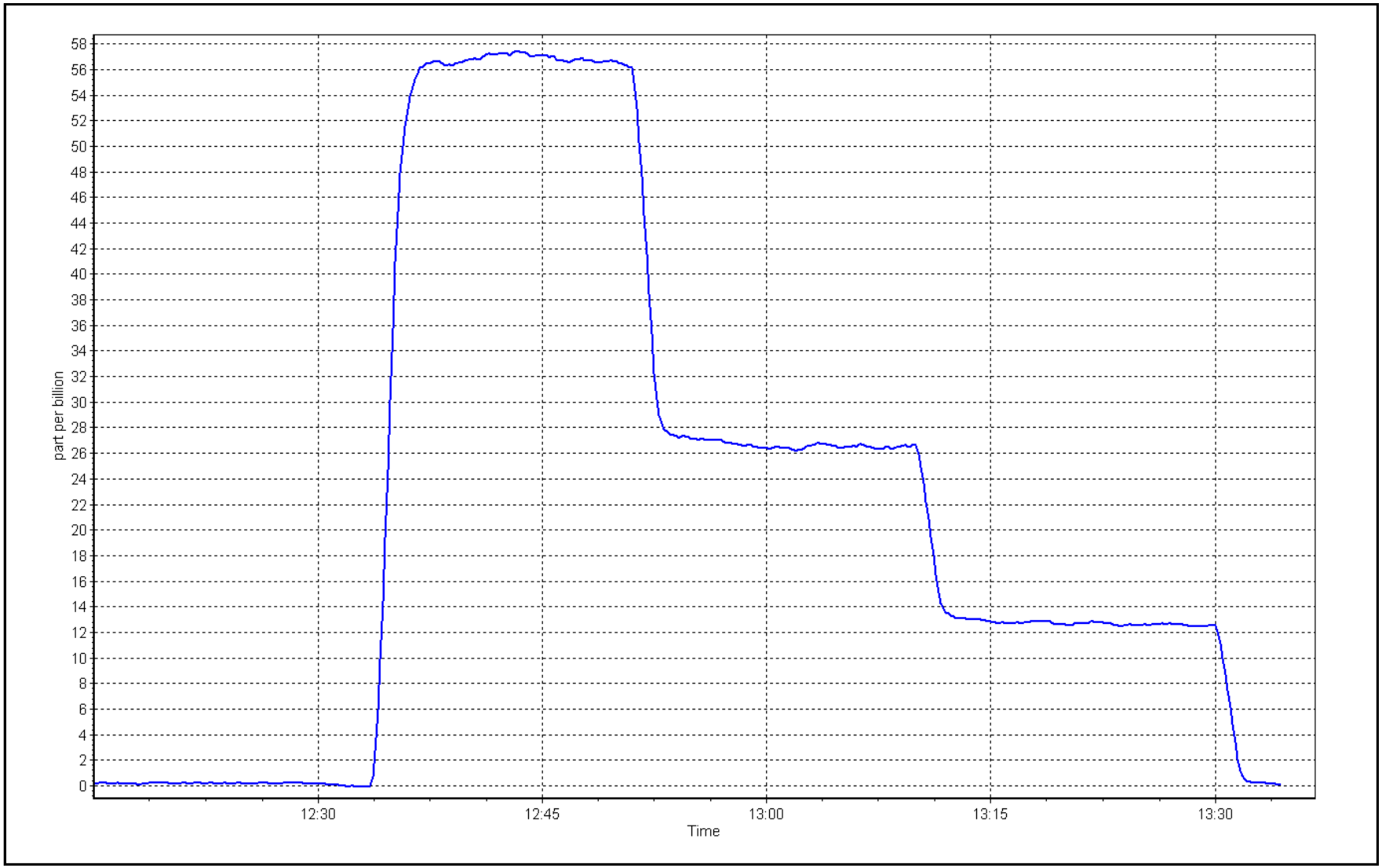
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero					
High point					
Mid point					
Low point					
As left zero					
As left span					
SO2 Scrubber Check					

Date of last scrubber change:	March 7, 2022	Ave Corr Factor	
Date of last converter efficiency test:	March 15, 2022	103.4%	efficiency

Notes: Did all the as founds. No Adjustments made.

Calibration Performed By: Sabian Voyageur Jeremy Cardinal

TRS Calibration Plot Date: May 14, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS 08
Calibration Date:	May 15, 2025	Last Cal Date:	NA
Start time (MST):	11:00	End time (MST):	14:59
Reason:	Install		

Calibration Standards

Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	SA7549			
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:	3810
ZAG Make/Model:	Teledyne API T701		Serial Number:	135

Analyzer Information

Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1218153461
Converter make:	CDN-101		Converter serial #:	630
Analyzer Range	0 - 100 ppb		Converter Temp:	800 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	NA	0.997242	Backgd or Offset:	NA	2.9
Calibration intercept:	NA	0.202005	Coeff or Slope:	NA	1.189

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					
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 initiates 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	82.6	80.0	80.0	1.000
Mid point	4959	41.3	40.0	40.0	0.999
Low point	4979	20.7	20.0	20.1	0.997
As left zero	5000	0.0	0.0	0.2	----
As left span	4917	82.6	80.0	79.0	1.012
SO2 Scrubber Check	4920	80.3	803.0	0.2	----
Date of last scrubber change:		May 15, 2025		Ave Corr Factor	0.999
Date of last converter efficiency test:					

Notes: Install calibrations. Sample inlet filter, scrubber and converter was changed before calibrator zero. SO2 scrubber check was done after the 3 calibration points and passed. Adjusted zero and span.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

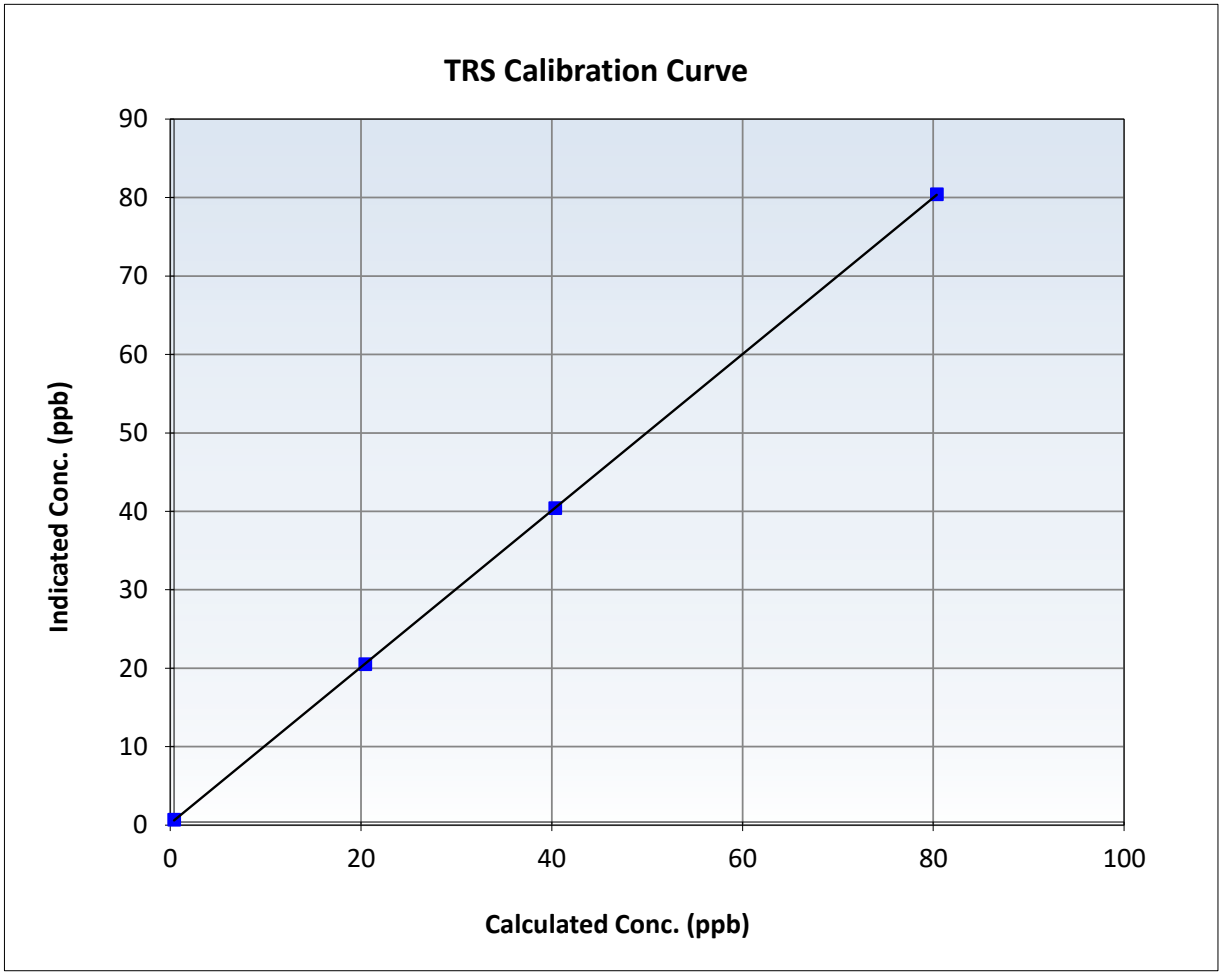
TRS Calibration Summary

Station Information

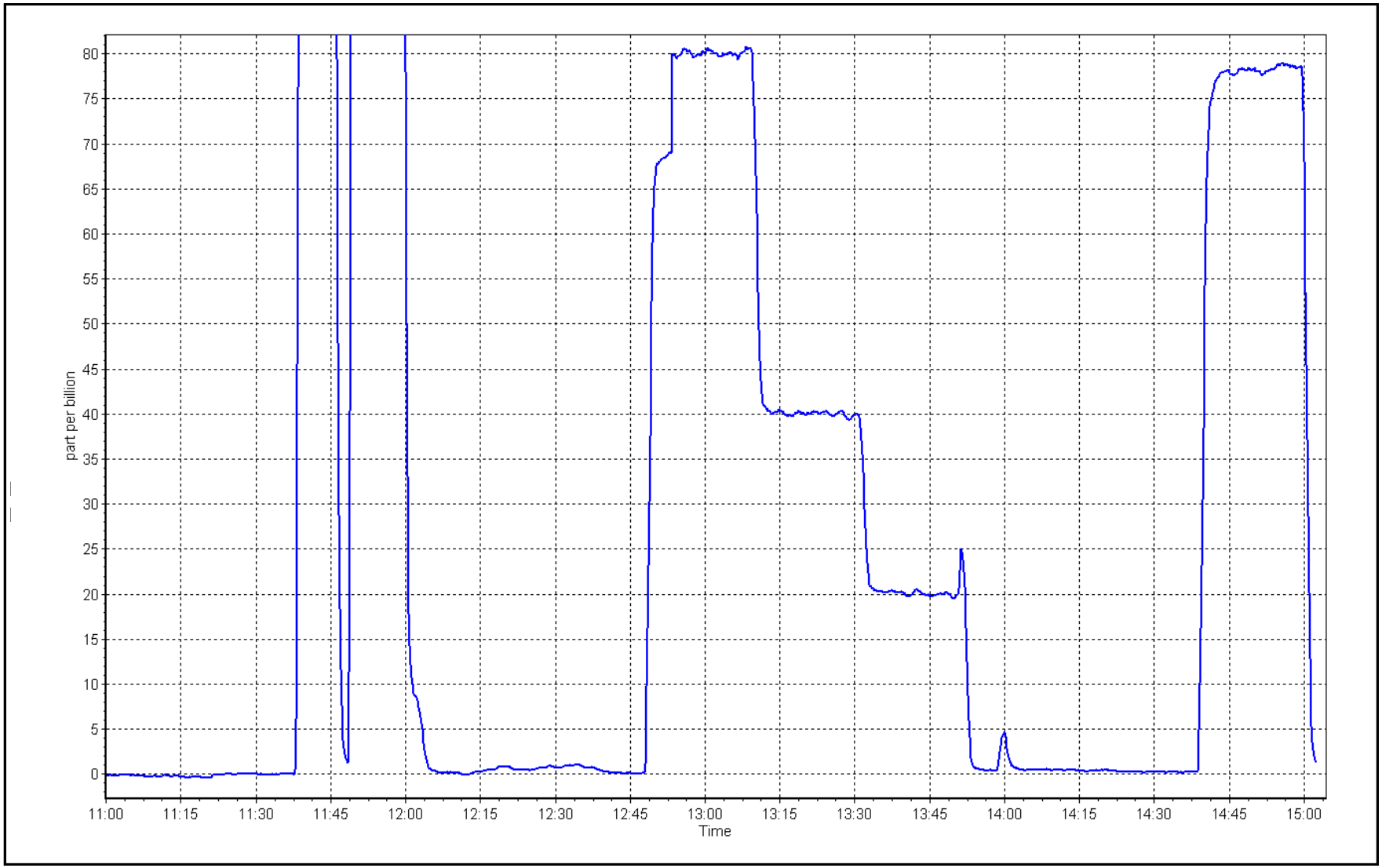
Calibration Date:	May 15, 2025	Previous Calibration:	NA
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	11:00	End Time (MST):	14:59
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1218153461

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.3	----	Correlation Coefficient	0.999993	*≥0.995*
80.0	80.0	0.9995	Slope	0.997242	*0.90 - 1.10*
40.0	40.0	0.9994			
20.0	20.1	0.9970	Intercept	0.202005	*+/-3*



TRS Calibration Plot Date: May 15, 2025 Location: Fort Chipewyan



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TRS Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS 08
Calibration Date:	May 29, 2025	Last Cal Date:	May 15, 2025
Start time (MST):	8:21	End time (MST):	11:03
Reason:	Maintenance		

Calibration Standards

Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	SA7549			
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:	3810
ZAG Make/Model:	Teledyne API T701		Serial Number:	135

Analyzer Information

Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1218153461
Converter make:	CDN-101		Converter serial #:	630
Analyzer Range	0 - 100 ppb		Converter Temp:	800 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.997242	0.998814	Backgd or Offset:	2.9	2.8
Calibration intercept:	0.202005	0.121997	Coeff or Slope:	1.189	1.144

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					
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 initiates 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	82.6	80.0	80.1	0.998
Mid point	4959	41.3	40.0	39.9	1.002
Low point	4979	20.7	20.0	20.0	1.002
As left zero	5000	0.0	0.0	0.2	----
As left span	4917	82.6	80.0	79.3	1.008
SO2 Scrubber Check	4920	80.3	803.0	0.1	----
Date of last scrubber change:		May 15, 2025		Ave Corr Factor	1.001
Date of last converter efficiency test:					

Notes: No as found done. Install new scrubber. SO2 scrubber check was done passed. Adjusted span.

Calibration Performed By: Morgan Voyageur

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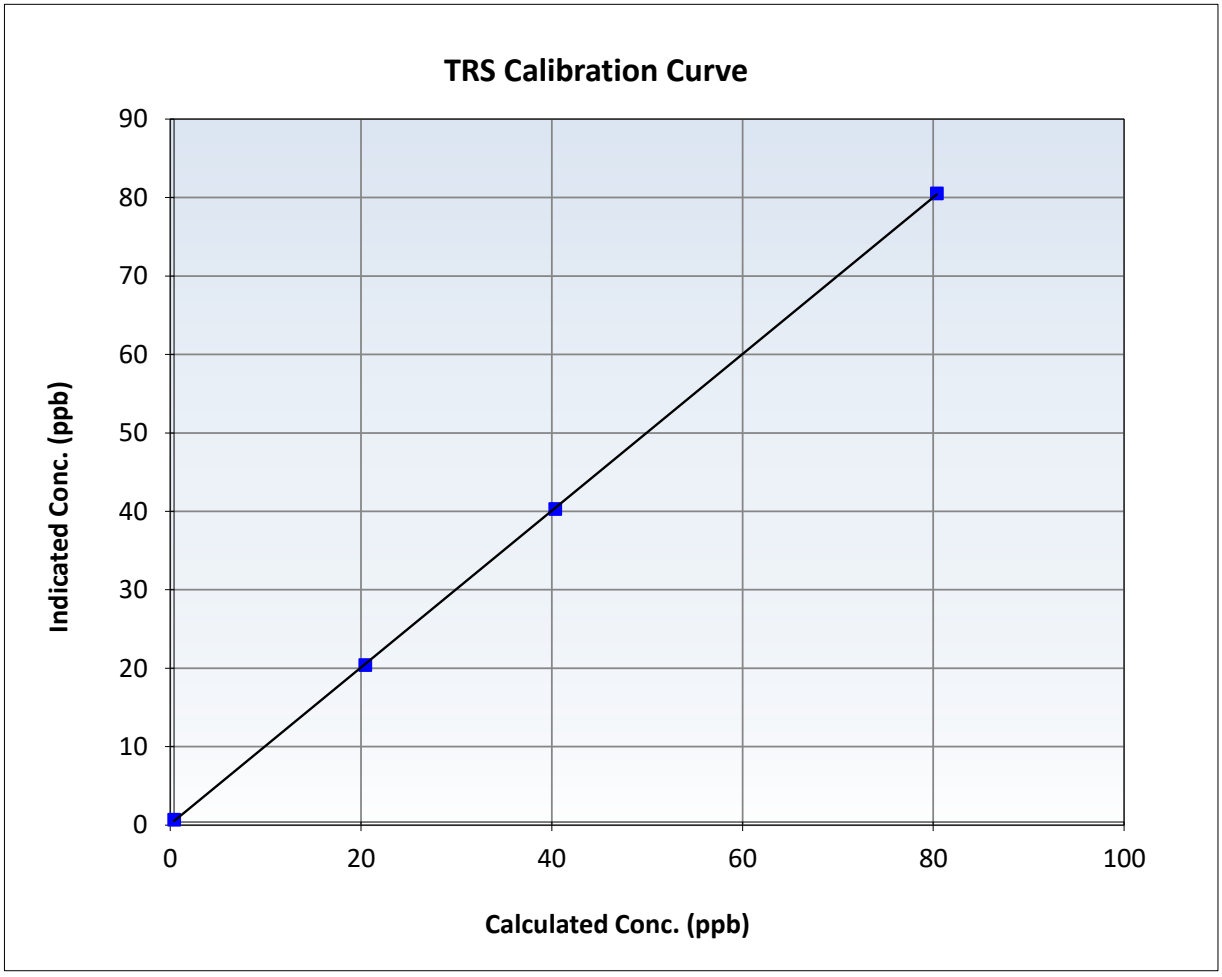
TRS Calibration Summary

Station Information

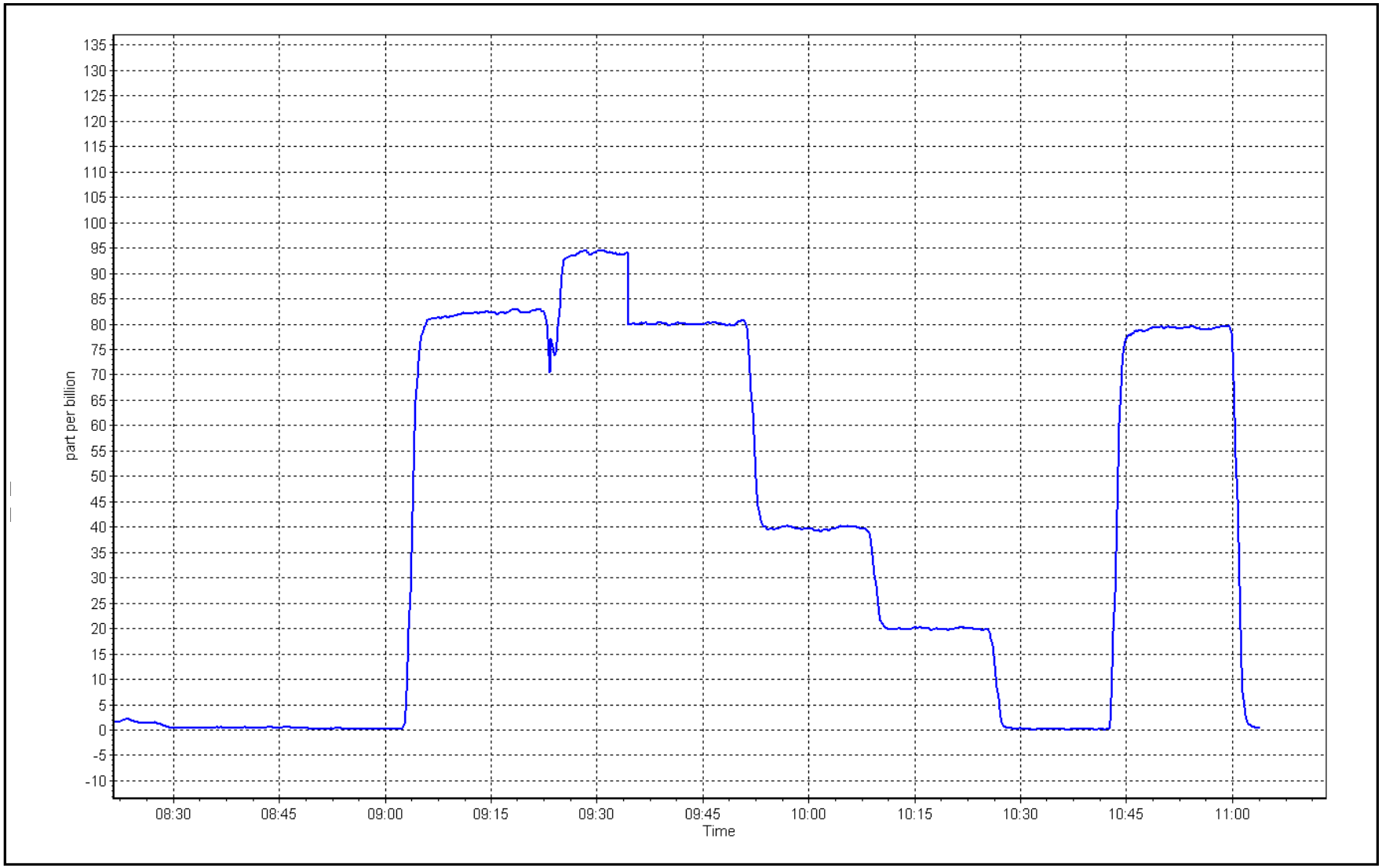
Calibration Date:	May 15, 2025	Previous Calibration:	NA
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	8:21	End Time (MST):	11:03
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1218153461

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.3	----	Correlation Coefficient	0.999976	*≥0.995*
80.0	80.1	0.9983	Slope	0.998814	*0.90 - 1.10*
40.0	39.9	1.0019			
20.0	20.0	1.0019	Intercept	0.121997	*+/-3*



TRS Calibration Plot Date: May 29, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Fort Chipewyan
Station number:	AMS 08
Calibration Date:	May 20, 2025
Last Cal Date:	April 8, 2025
Start time (MST):	10:04
End time (MST):	14:45
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0046831	Cal Gas Expiry Date:	January 9,2032
NOX Cal Gas Conc:	60.20 ppm	NO Cal Gas Conc:	60.00 ppm
Removed Cylinder #:	DT0046831	Removed Gas Exp Date:	January 9,2032
Removed Gas NOX Conc:	60.20 ppm	Removed Gas NO Conc:	60.00 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	3810
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	-1.0	-1.0	0.0	----	----
AF High point	4933	66.7	803.1	800.4	2.7	936.7	934.3	2.5	0.8565	0.8558
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 802.9 ppb	NO = 800.8 ppb
Baseline Corr 1st pt	NO_X = 937.7 ppb	NO = 935.3 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

*Percent Change	NO_X =	14.4%
*Percent Change	NO =	14.4%

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

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NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42iQ Serial Number: 12124313137

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.023	0.875	NO bkgnd or offset:	1.5	0.9
NOX coeff or slope:	0.993	0.996	NOX bkgnd or offset:	1.5	1.0
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	113.7	1.0

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.000364	1.001089
NO_X Cal Offset:	-0.525927	0.094340
NO Cal Slope:	1.002985	1.000885
NO Cal Offset:	-2.025916	-1.165920
NO_2 Cal Slope:	1.001492	1.002637
NO_2 Cal Offset:	1.255111	0.890456

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	-0.8	0.0	----	----
High point	4933	66.7	803.1	800.4	2.7	803.7	800.3	3.5	0.9993	1.0002
Mid point	4967	33.3	400.9	399.6	1.3	401.7	398.2	3.5	0.9980	1.0035
Low point	4983	16.7	201.1	200.4	0.7	202.4	199.3	3.2	0.9934	1.0055
As left zero	5000	0.0	0.0	0.0	0.0	-0.7	-0.7	0.1	----	----
As left span	4933	66.7	803.1	388.4	414.7	798.3	388.4	409.9	1.0060	1.0000
								Average Correction Factor	0.9969	1.0031

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	0.0	----	----
High GPT point	797.3	386.2	413.8	415.2	0.9966	100.3%
Mid GPT point	797.3	591.5	208.5	210.6	0.9899	101.0%
Low GPT point	797.3	688.8	111.2	113.1	0.9829	101.7%
				Average Correction Factor	0.9898	101.0%

Notes: Adjustments made to span. Changed filter after as found

Calibration Performed By: Sabian V, Jermey C,

Wood Buffalo Environmental Association

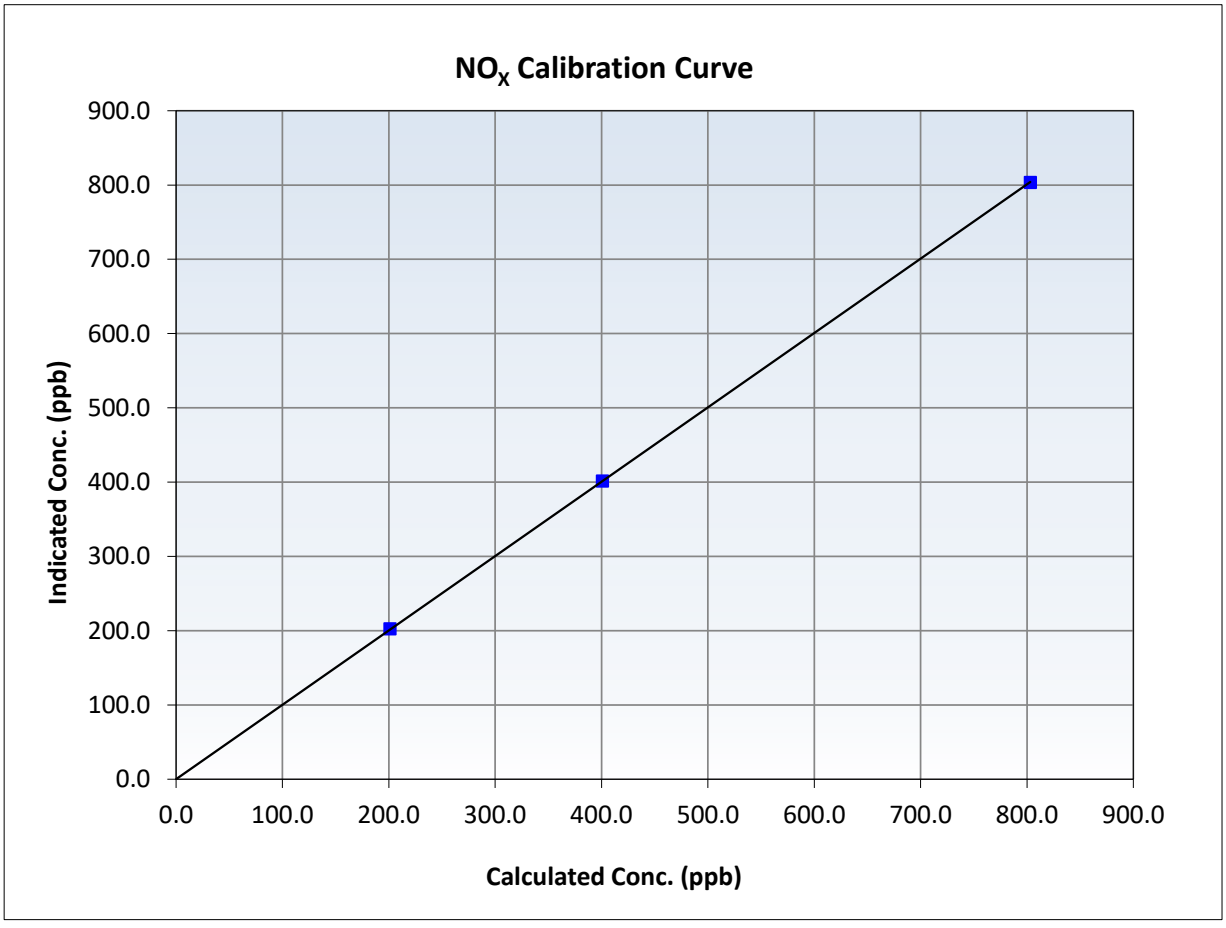
NO_X Calibration Summary

Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 8, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	10:04	End Time (MST):	14:45
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12124313137

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.0	-0.8	----	Correlation Coefficient	0.999994	≥0.995
803.1	803.7	0.9993	Slope	1.001089	0.90 - 1.10
400.9	401.7	0.9980			
201.1	202.4	0.9934	Intercept	0.094340	+/-20



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NO_2 Calibration Summary

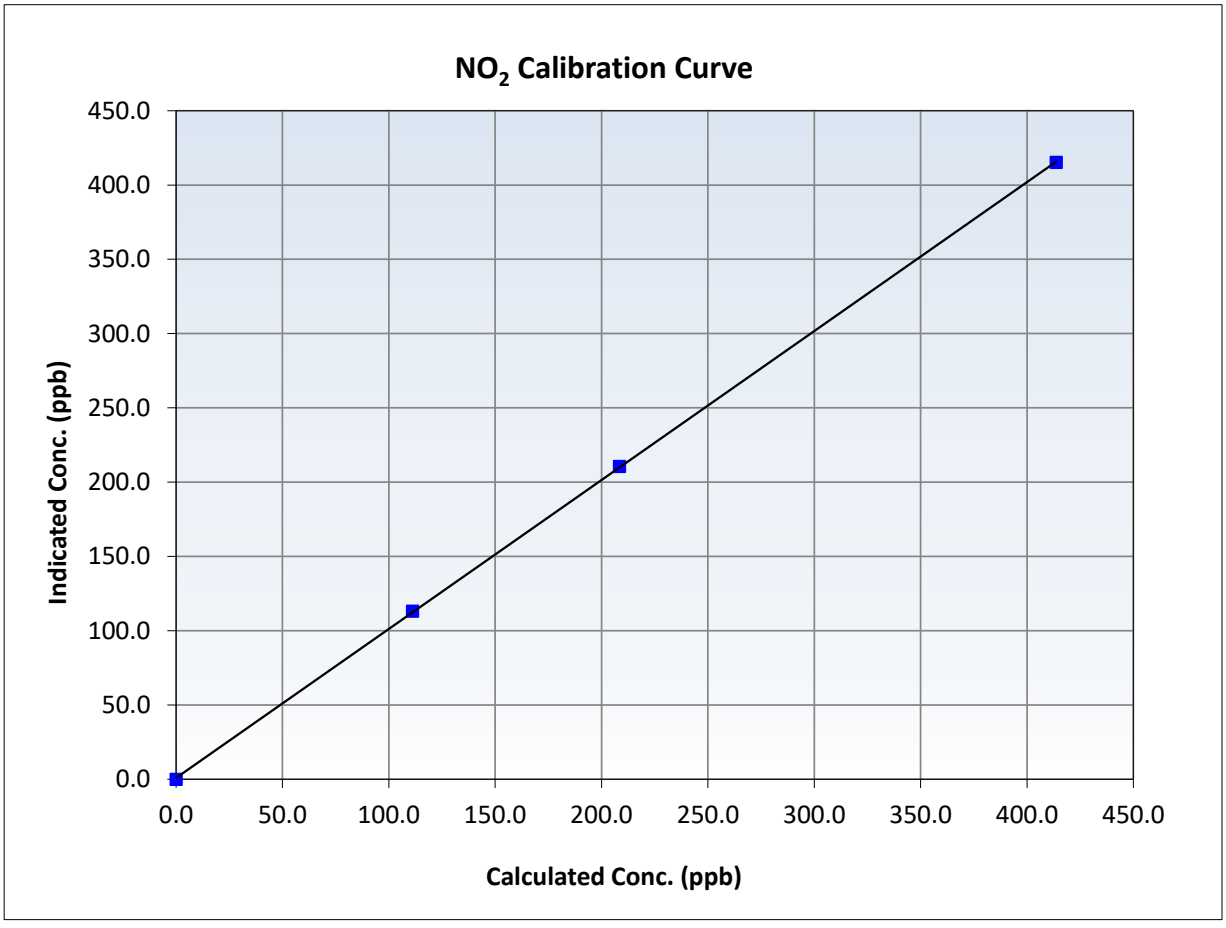
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 8, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	10:04	End Time (MST):	14:45
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12124313137

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
413.8	415.2	0.9966
208.5	210.6	0.9899
111.2	113.1	0.9829

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999977	*≥0.995*
Slope	1.002637	*0.90 - 1.10*
Intercept	0.890456	*+/-20*



Wood Buffalo Environmental Association

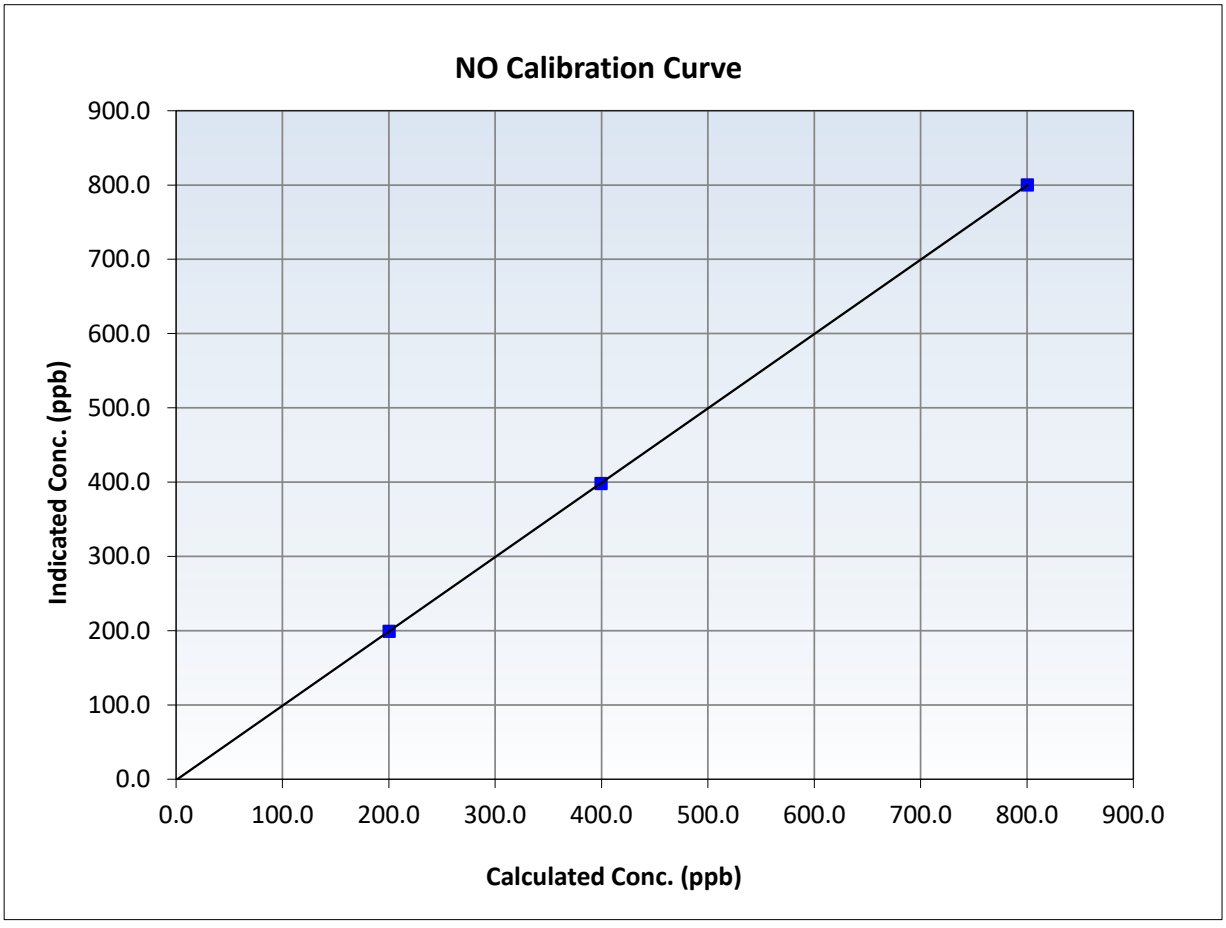
NO Calibration Summary

Station Information

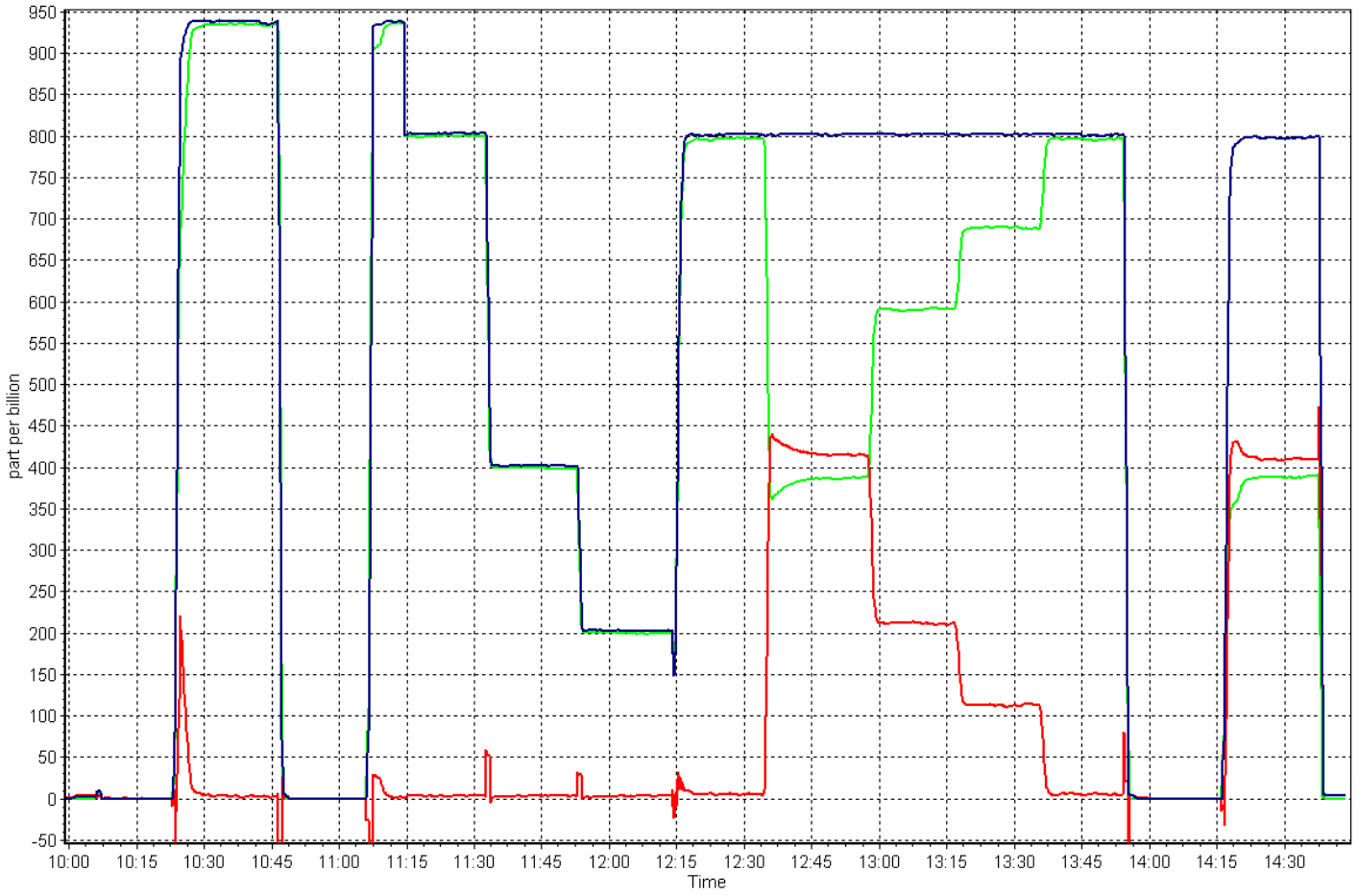
Calibration Date:	May 20, 2025	Previous Calibration:	April 8, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	10:04	End Time (MST):	14:45
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12124313137

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.0	-0.8	----	Correlation Coefficient	0.999998	≥0.995
800.4	800.3	1.0002	Slope	1.000885	0.90 - 1.10
399.6	398.2	1.0035			
200.4	199.3	1.0055	Intercept	-1.165920	+/-20



NO_X Calibration Plot Date: May 20, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS 08
Calibration Date:	May 21, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	16:33	End time (MST):	19:54
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	Teledyne API T700	Serial Number:	3810
ZAG Make/Model:	Teledyne API T701	Serial Number:	135

Analyzer Information

Analyzer make:	Thermo 49i	Analyzer serial #:	1152220026
Analyzer Range	0 - 500 ppb		

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.986800	1.003029	Backgd or Offset:	-0.3	-0.3
Calibration intercept:	0.260000	-0.380000	Coeff or Slope:	1.005	1.022

O_3 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	968.7	400.0	394.7	1.014
As found Mid point	5000	820.5	200.0	196.8	1.017
As found Low point	5000	720.0	100.0	98.2	1.020
Baseline Corr As found:	394.5	Previous response	395.0	*% change	-0.1%
Baseline Corr 2nd AF pt:	196.6	AF Slope:	0.986600	AF Intercept:	-0.180000
Baseline Corr 3rd AF pt:	98.0	AF Correlation:	0.999995	* = > +/-5% change initiates investigation	

O_3 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	401.2	0.997
Mid point	5000	820.5	200.0	199.9	1.001
Low point	5000	720.0	100.0	99.1	1.009
As left zero	5000	0.0	0.0	0.2	----
As left span	5000	968.7	400.0	401.0	0.998
				Average Correction Factor	1.002

Notes: Changed Filter after as founds. adjustments made after as founds.

Calibration Performed By: Sabian Voyageur,

Wood Buffalo Environmental Association

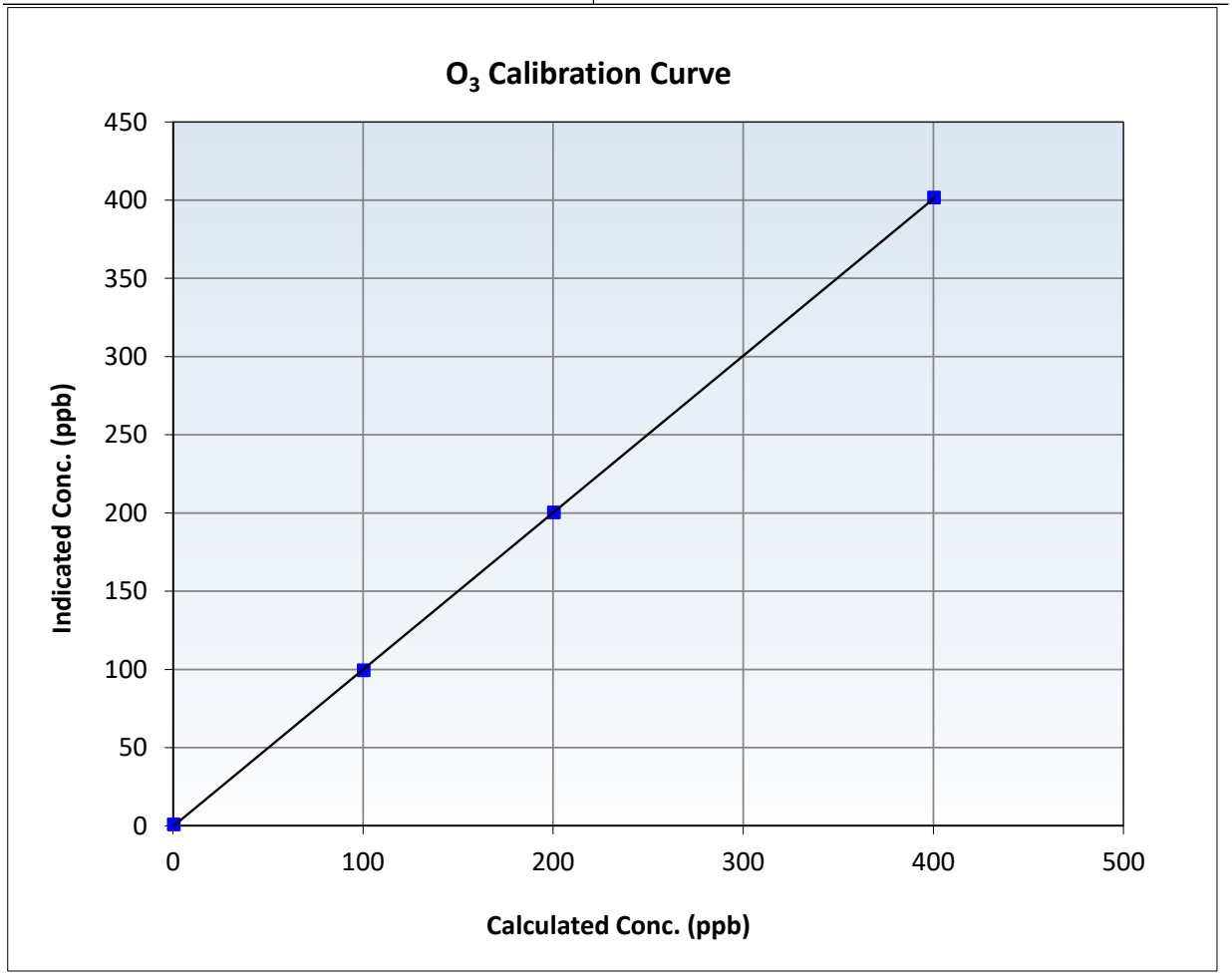
O_3 Calibration Summary

Station Information

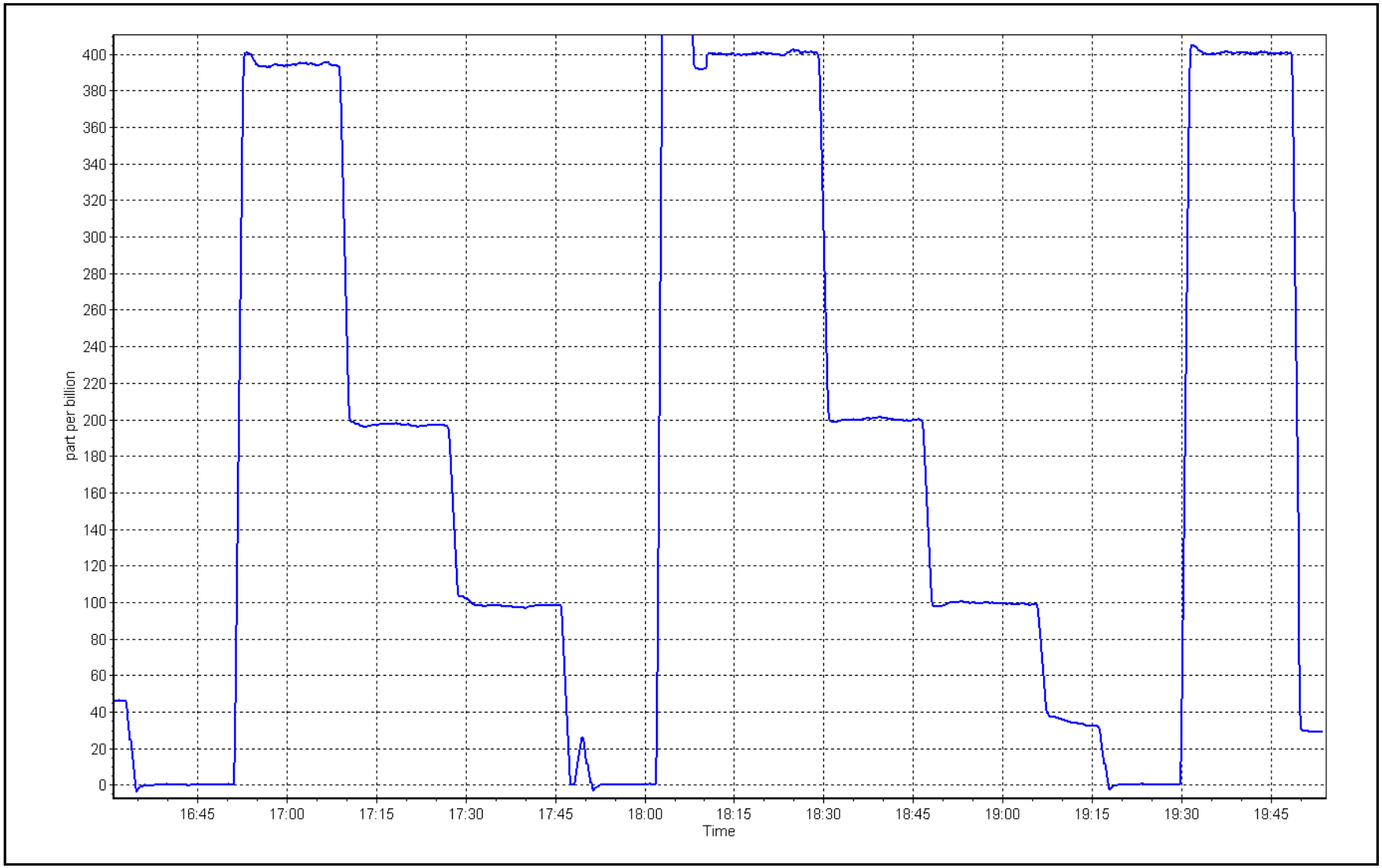
Calibration Date:	May 21, 2025	Previous Calibration:	April 7, 2025
Station Name:	Fort Chipewyan	Station Number:	AMS 08
Start Time (MST):	16:33	End Time (MST):	19:54
Analyzer make:	Thermo 49i	Analyzer serial #:	1152220026

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.4	----	Correlation Coefficient	0.999983	*≥0.995*
400.0	401.2	0.9970	Slope	1.003029	*0.90 - 1.10*
200.0	199.9	1.0005			
100.0	99.1	1.0091	Intercept	-0.380000	*+/- 5*



O_3 Calibration Plot Date: May 21, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

CO Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS 08
Calibration Date:	May 15, 2025	Last Cal Date:	April 10, 2025
Start time (MST):	14:59	End time (MST):	16:23
Reason:	Removal		

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 T701H		Serial Number:	135

Analyzer Information

Analyzer make:	Teledyne API T300		Analyzer serial #:	3505	
Analyzer Range:	0 - 50 ppm				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.998612		Backgd or Offset:	-0.016	NA
Calibration intercept:	0.100910		Coeff or Slope:	1.003	NA

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	0.0	----
As found High point	4933	66.7	40.4	40.5	0.998
As found Mid point	4967	33.3	20.2	20.3	0.993
As found Low point	4983	16.7	10.1	10.3	0.983
New cylinder response					
Baseline Corr As found:	40.49	Prev response:	40.47	*% change:	0.1%
Baseline Corr 2nd AF pt:	20.3	AF Slope:	1.000622	AF Intercept:	0.098492
Baseline Corr 3rd AF pt:	10.3	AF Correlation:	0.999978	* = > +/-5% change initiates investigation	

CO Calibration Data

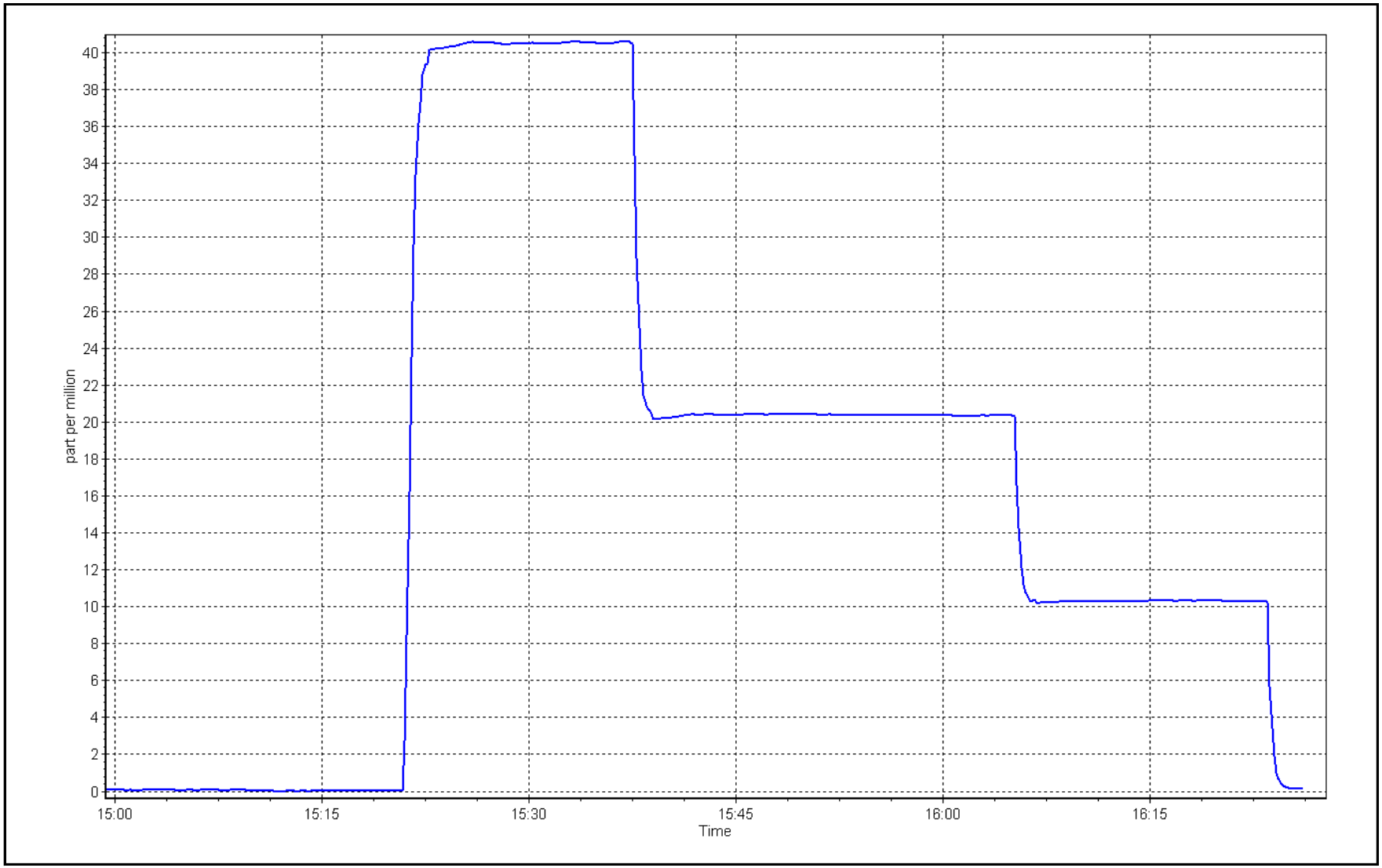
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

Notes: Removal calibrations done ordered by AATC to reduce in operations cost due to budgetary constraints.

Calibration Performed By: Jan Castro

CO Calibration Plot Date: May 15, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

CO_2 Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station number:	AMS 08
Calibration Date:	May 15, 2025	Last Cal Date:	April 10, 2025
Start time (MST):	16:24	End time (MST):	17:49
Reason:	Removal		

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	
Analyzer Range	0 - 2,000 ppm				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.004061		Backgd or Offset:	-0.014	NA
Calibration intercept:	-5.320000		Coeff or Slope:	1.033	NA

CO_2 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	1.1	----
As found High Point	2920	80.0	1605.9	1631.1	0.985
As found Mid Point	2960	40.0	802.9	800.1	1.005
As found Low Point	2980	20.0	401.5	408.0	0.987
New cylinder response					

Baseline Corr As found:	1630.0	Prev response:	1607.1	*% change:	1.4%
Baseline Corr 2nd AF pt:	799.0	AF Slope:	1.014018	AF Intercept:	-2.3
Baseline Corr 3rd AF pt:	406.9	AF Correlation:	0.999872	* = > +/-5% change initiates investigation	

CO_2 Calibration Data

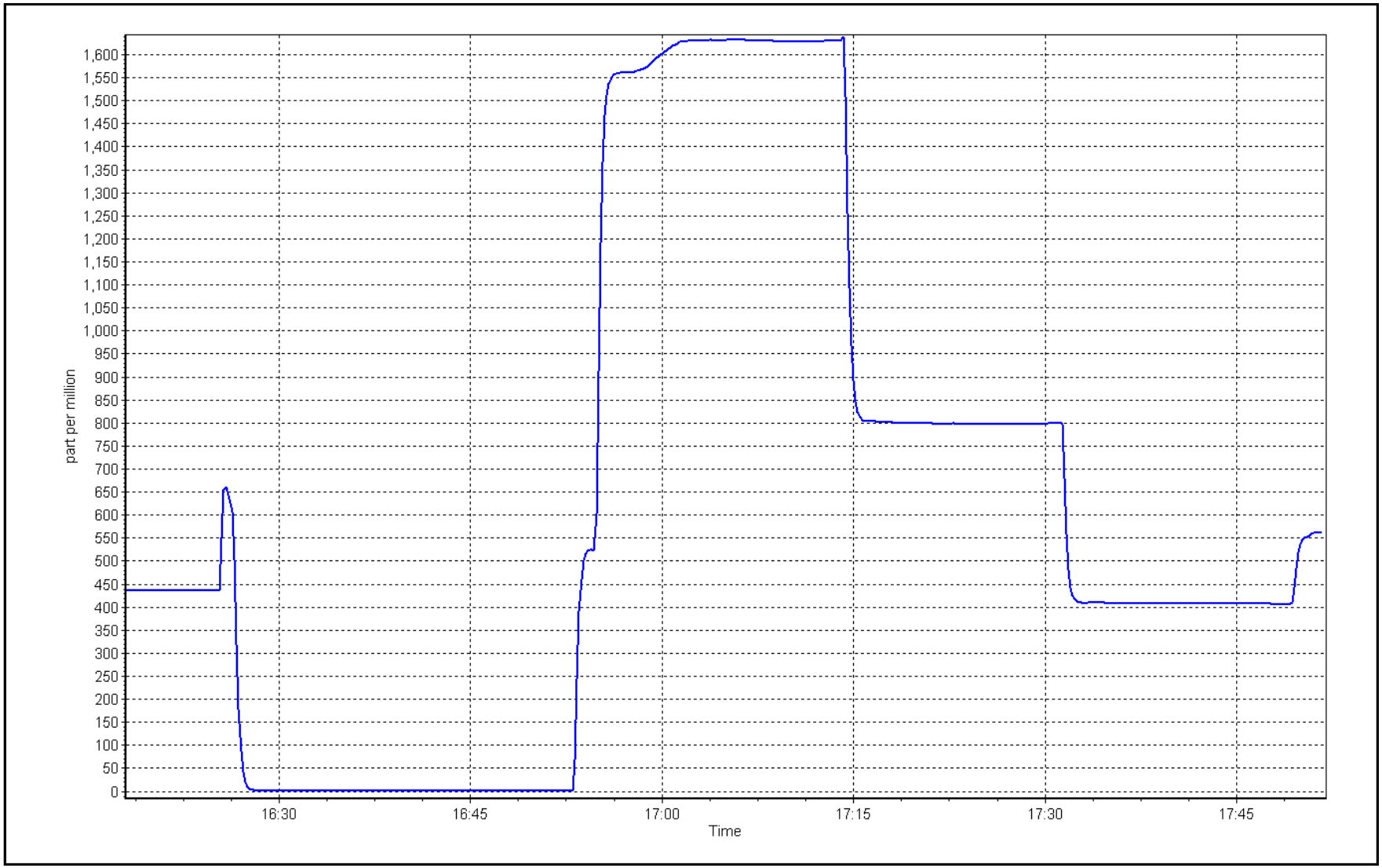
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

Notes: Removal calibrations done ordered by AATC to reduce in operations cost due to budgetary constraints.

Calibration Performed By: Jan Castro

CO_2 Calibration Plot Date: May 15, 2025 Location: Fort Chipewyan



Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station Number:	AMS 08
Calibration Date:	May 15, 2025	Prev Cal Date:	September 17, 2024
Start Time (MST):	12:00	End Time (MST):	12:30
Tower Height (m):	10.0	Reason:	Removal

Wind Speed Calibration

Sensor make/model:	Met One 010C-1	Serial Number:	
WS Calibrator:	MetOne 053	Serial Number:	

Shaft RPM (Hz)	Calculated Speed (K/hr) (Cv)	Indicated Speed (K/hr) (Iv)	% Error *Limit = +/- 1.5%*
0	0.0		
200	20.2		
400	39.4		
600	58.6		
800	77.8		

	Start	***Finish***	*Limits*
Correl Coeff (r^2)			*≥0.9995*
Calculated slope			*0.98 - 1.02*
Calculated intercept			*+/- 2*

Wind Direction Calibration

Sensor make/model:	Met One 020C-1	Serial Number:	E4853
As Found Declination (deg east of True North):	13	As Left Declination (deg east of True North):	13
Solar noon (MST):	13:21	Calc Declination*:	13.44 Degrees
WD Calibrator:	Met One 040		* - calculated declination as per NOAA website

Physical Direction (Degrees) (Cv)	Indicated Direction (Degrees) (Iv)	% Error (based on 360° FS) *Limit = +/- 1%*
10	78.9	19.1%
90	156.8	18.6%
180	249.2	19.2%
270	337.1	18.6%
350	60.1	-80.5%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999919	0.205117	*≥0.9995*
Calculated slope	1.004968	0.238924	*0.97 - 1.03*
Calculated intercept	-0.048077	137.849084	*+/- 5*

Notes: Wind direction removal calibrations done to do further troubleshooting at the shop.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Station Information

Station Name:	Fort Chipewyan	Station Number:	AMS 08
Calibration Date:	May 15, 2025	Prev Cal Date:	September 17, 2024
Start Time (MST):	11:38	End Time (MST):	13:45
Tower Height (m):	10.0	Reason:	Routine

Wind Speed Calibration

Sensor make/model:	Met One 010C-1	Serial Number:	P22394
WS Calibrator:	MetOne 053	Serial Number:	CA 05230

Shaft RPM (Hz)	Calculated Speed (K/hr) (Cv)	Indicated Speed (K/hr) (Iv)	% Error *Limit = +/- 1.5%*
0	0.0	0.0	---
200	20.2	20.1	-0.3%
400	39.4	39.4	0.1%
600	58.6	58.5	-0.1%
800	77.8	77.7	-0.1%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999997	0.999999	*≥0.9995*
Calculated slope	1.000482	1.000500	*0.98 - 1.02*
Calculated intercept	-0.053275	0.006023	*+/- 2*

Wind Direction Calibration

Sensor make/model:	Met One 020C-1	Serial Number:	P22884
As Found Declination (deg east of True North):	13	As Left Declination (deg east of True North):	13
Solar noon (MST):	13:21	Calc Declination*:	13.44 Degrees
WD Calibrator:	Met One 040		* - calculated declination as per NOAA website

Physical Direction (Degrees) (Cv)	Indicated Direction (Degrees) (Iv)	% Error (based on 360° FS) *Limit = +/- 1%*
10	9.6	-0.1%
90	89.3	-0.2%
180	179.7	-0.1%
270	269.7	-0.1%
350	349.9	0.0%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999919	0.999999	*≥0.9995*
Calculated slope	1.004968	0.998824	*0.97 - 1.03*
Calculated intercept	-0.048077	0.571167	*+/- 5*

Notes: All points within limits. Bearings inspected and both good. Verified True North using a compass.

Calibration Performed By: Jan Castro

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS09
BARGE LANDING
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Barge Landing	Station number:	AMS 09
Calibration Date:	May 6, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	9:27	End time (MST):	12:39
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.56	ppm	Cal Gas Exp Date:	October 9, 2032
Cal Gas Cylinder #:	CC705748			
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:	3812
Zero Air Gen Model:	APIT701		Serial Number:	4888

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1118148498	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.006817	0.998844	Backgd or Offset:	11.5	11.0
Calibration intercept:	-0.598200	0.041236	Coeff or Slope:	1.010	0.972

SO_2 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	4921	79.1	799.8	829.2	0.964
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	829.3	Previous response	804.7	*% change	3.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	799.2	1.001
Mid point	4961	39.5	399.4	398.4	1.002
Low point	4980	19.8	200.2	200.2	1.000
As left zero	5000	0.0	0.0	-0.1	----
As left span	4921	79.1	799.8	799.8	1.000
				Average Correction Factor:	1.001

Notes: Inlet filter changed after as founds. Adjusted span only.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

SO_2 Calibration Summary

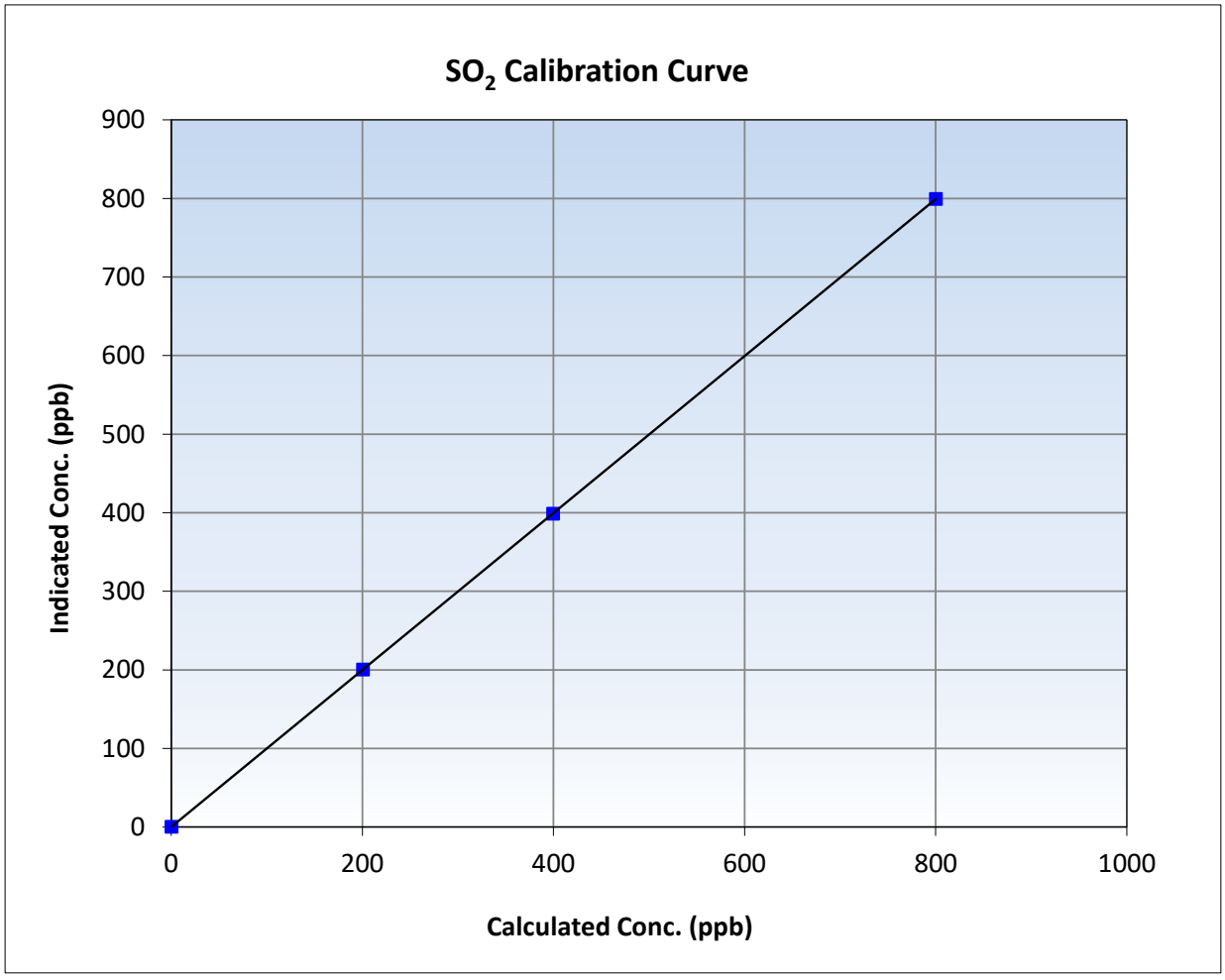
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	April 7, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:27	End Time (MST):	12:39
Analyzer make:	Thermo 43i	Analyzer serial #:	1118148498

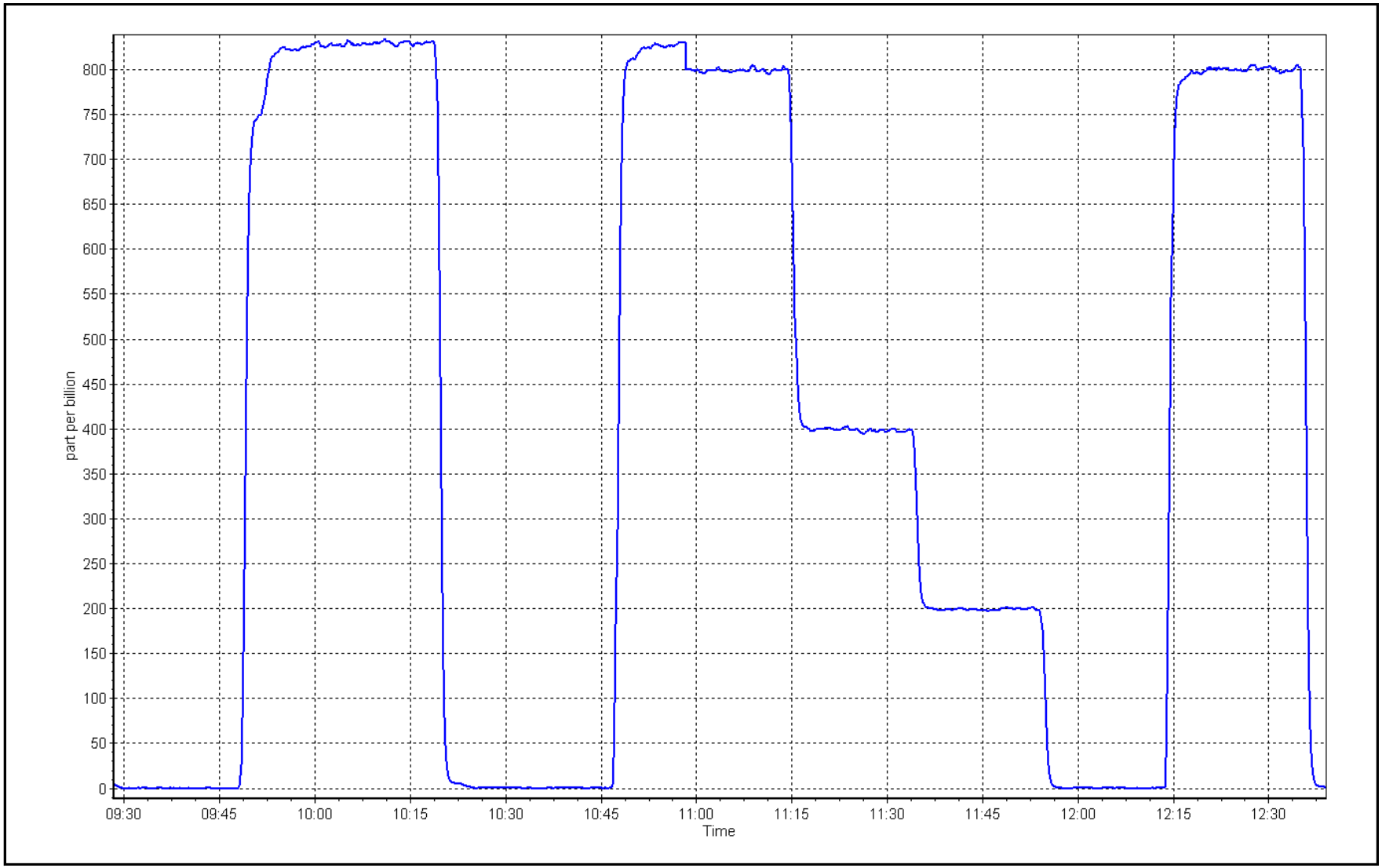
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
799.8	799.2	1.0008
399.4	398.4	1.0025
200.2	200.2	1.0001

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	0.998844	*0.90 - 1.10*
Intercept	0.041236	*+/-30*



SO2 Calibration Plot Date: May 6, 2025 Location: Barge Landing



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Barge Landing	Station number:	AMS 09
Calibration Date:	May 9, 2025	Last Cal Date:	April 1, 2025
Start time (MST):	9:18	End time (MST):	13:09
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.17	ppm	Cal Gas Exp Date:	August 22, 2026
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 Information

Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	12426335708
Converter make:	CDN-101		Converter serial #:	519
Analyzer Range	0 - 100 ppb		Converter Temp:	830 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.999833	1.000548	Backgd or Offset:	2.130	1.340
Calibration intercept:	0.099474	-0.100569	Coeff or Slope:	1.069	1.111

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	-0.2	----
As found High point	4923	77.4	80.0	82.8	0.964
As found Mid point	4961	38.7	40.0	42.0	0.948
As found Low point	4981	19.3	20.0	21.0	0.941
New cylinder response					

Baseline Corr As found:	83.0	Prev response:	80.13	*% change:	3.5%
Baseline Corr 2nd AF pt:	42.2	AF Slope:	1.035807	AF Intercept:	0.140170
Baseline Corr 3rd AF pt:	21.2	AF Correlation:	0.999901	* = > +/-5% change initiates 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	4923	77.4	80.0	80.0	1.001
Mid point	4961	38.7	40.0	39.9	1.003
Low point	4981	19.3	20.0	19.9	1.003
As left zero	5000	0.0	0.0	0.0	----
As left span	4923	77.4	80.0	79.5	1.007
SO2 Scrubber Check	4920	80.2	802.0	0.0	----
Date of last scrubber change:				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

TRS Calibration Summary

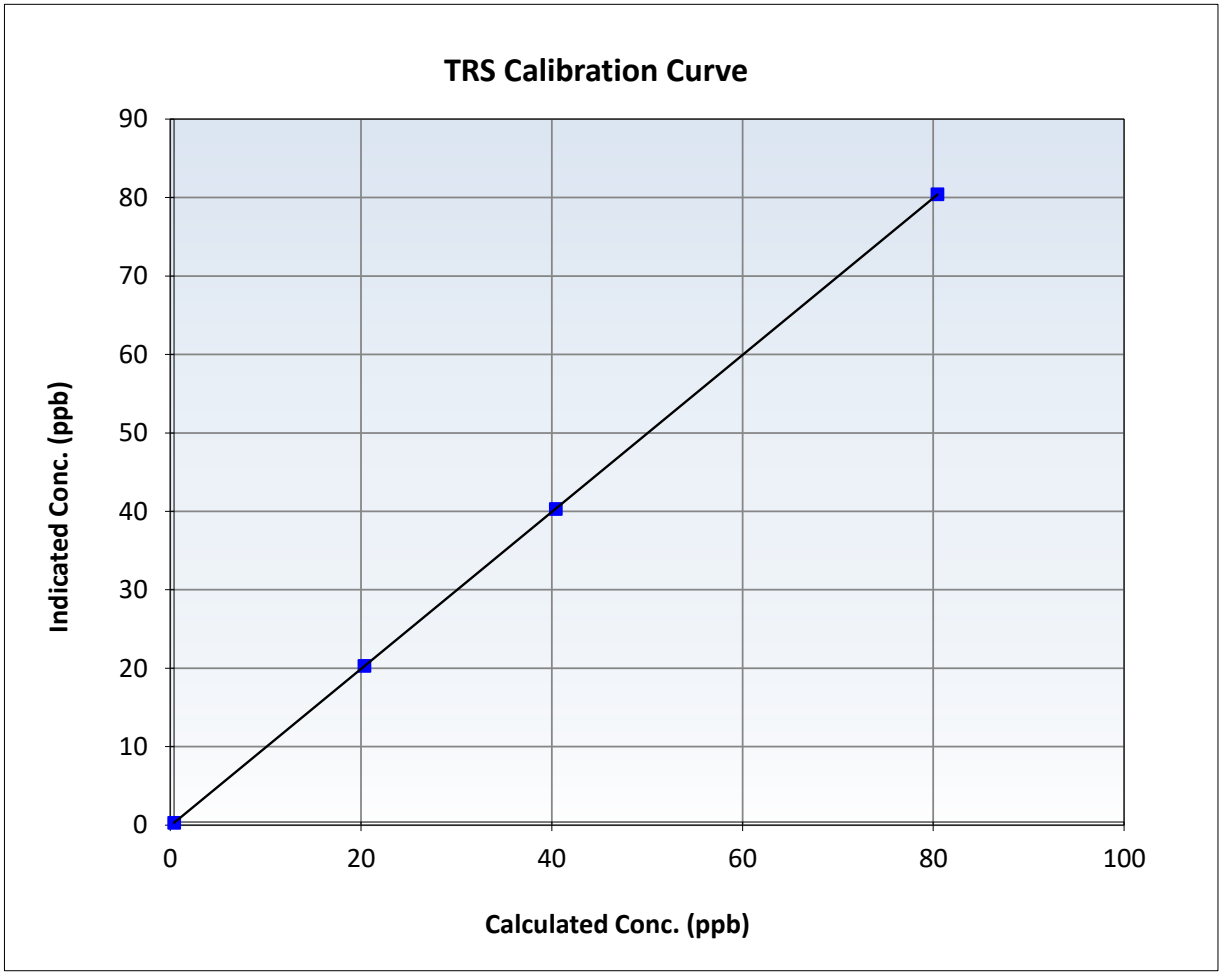
Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 1, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:18	End Time (MST):	13:09
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	12426335708

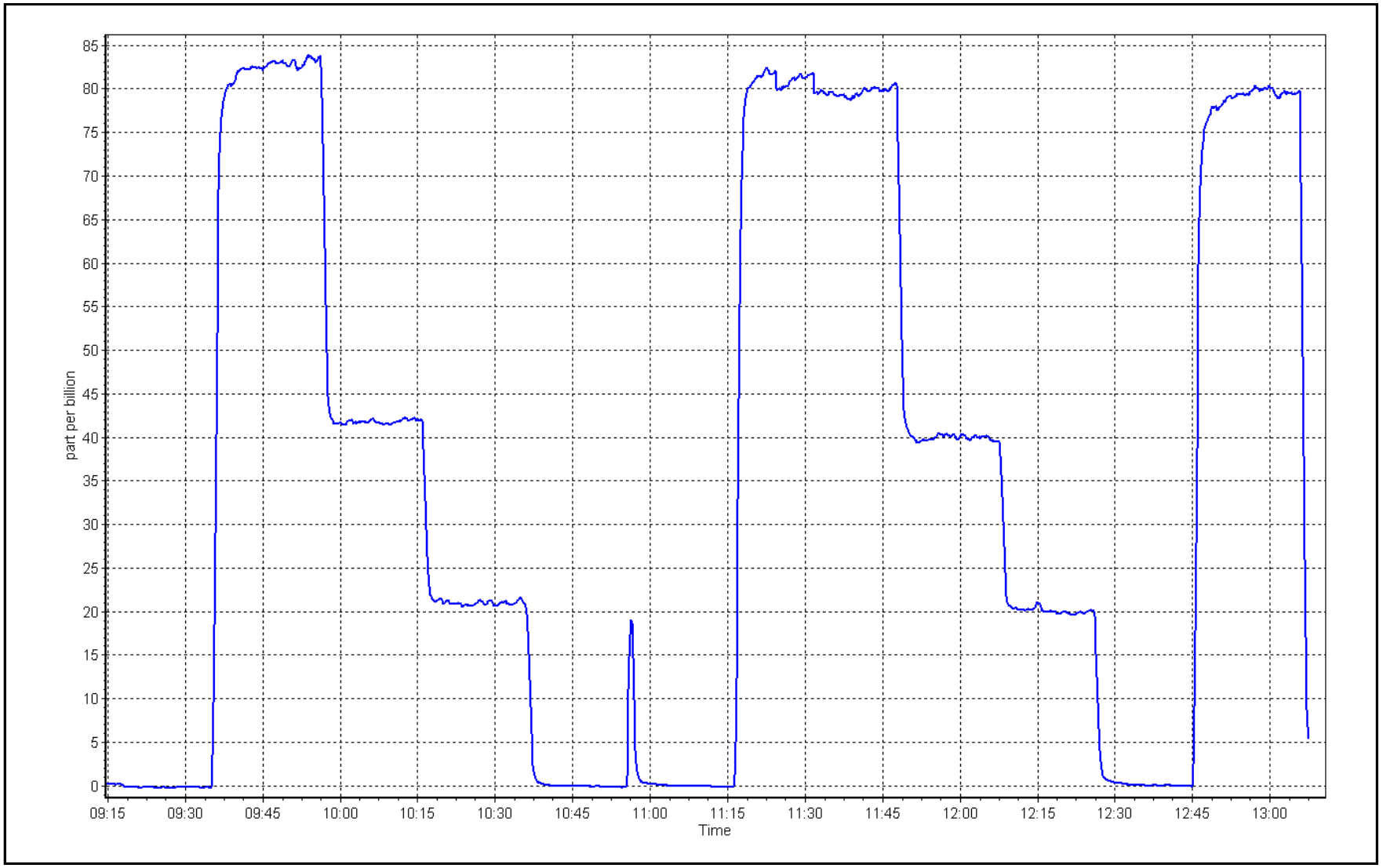
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	80.0	1.0005
40.0	39.9	1.0032
20.0	19.9	1.0030

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	1.000548	*0.90 - 1.10*
Intercept	-0.100569	*+/-3*



TRS Calibration Plot Date: May 9, 2025 Location: Barge Landing



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Barge Landing	Station number:	AMS 09
Calibration Date:	May 30, 2025	Last Cal Date:	NA
Start time (MST):	10:15	End time (MST):	12:37
Reason:	Install		

Calibration Standards

Cal Gas Concentration:	5.17	ppm	Cal Gas Exp Date:	August 22, 2026
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:	5613

Analyzer Information

Analyzer make:	Thermo 43iQ-TLE		Analyzer serial #:	1203169744
Converter make:	CDN-101		Converter serial #:	519
Analyzer Range	0 - 100 ppb		Converter Temp:	830 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	NA	1.003974	Backgd or Offset:	NA	1.850
Calibration intercept:	NA	-0.020481	Coeff or Slope:	NA	0.716

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					
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 initiates 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	4923	77.4	80.0	80.3	0.997
Mid point	4961	38.7	40.0	40.2	0.996
Low point	4981	19.3	20.0	20.1	0.993
As left zero	5000	0.0	0.0	-0.2	----
As left span	4923	77.4	80.0	80.7	0.992
SO2 Scrubber Check	4920	80.2	802.0	0.2	----
Date of last scrubber change:		30-May-25		Ave Corr Factor	0.995
Date of last converter efficiency test:					

Notes: Install cal, no issues, new scrubber checked after third point.

Calibration Performed By: Ryan Power

Wood Buffalo Environmental Association

TRS Calibration Summary

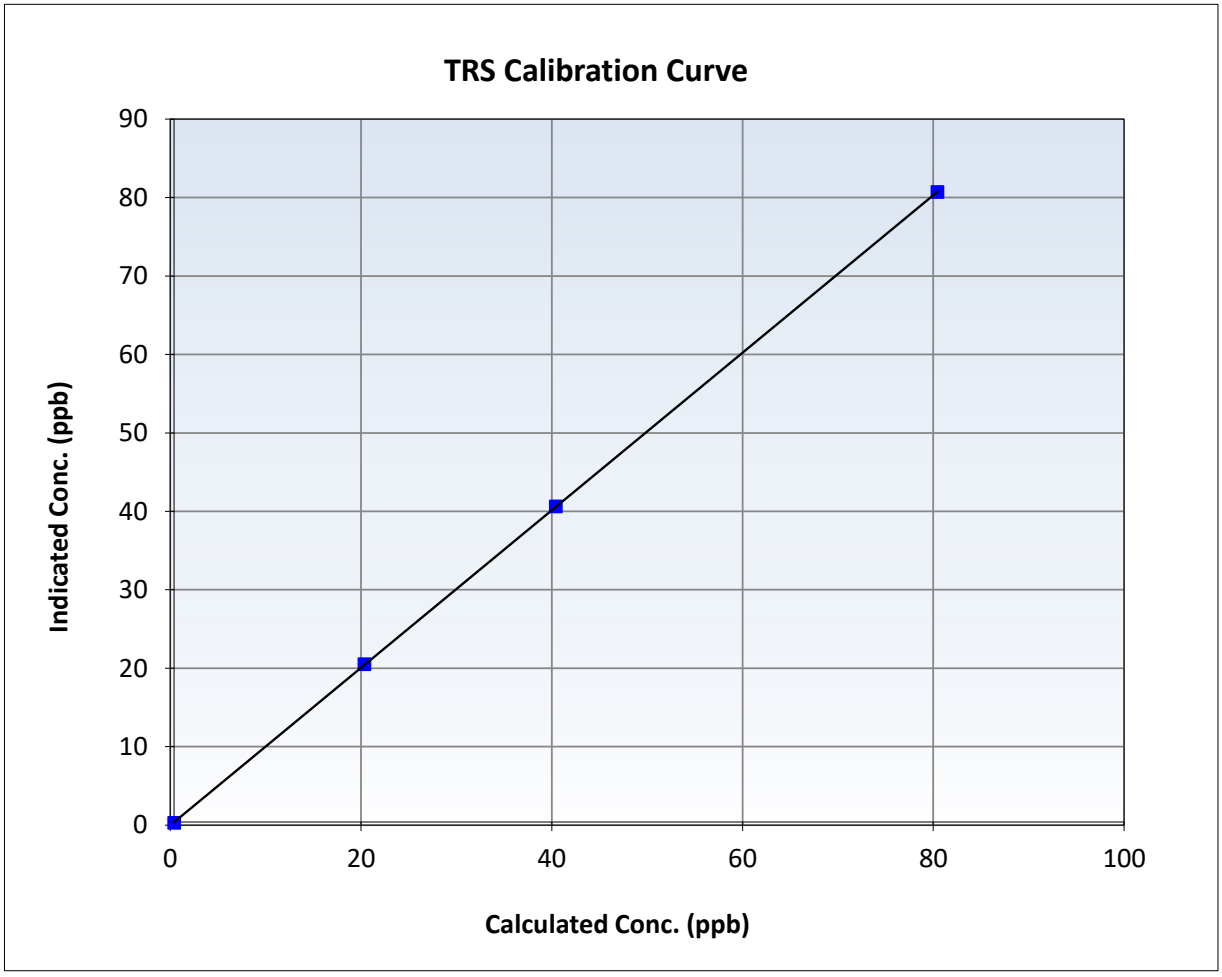
Station Information

Calibration Date:	May 30, 2025	Previous Calibration:	NA
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	10:15	End Time (MST):	12:37
Analyzer make:	Thermo 43iQ-TLE	Analyzer serial #:	1203169744

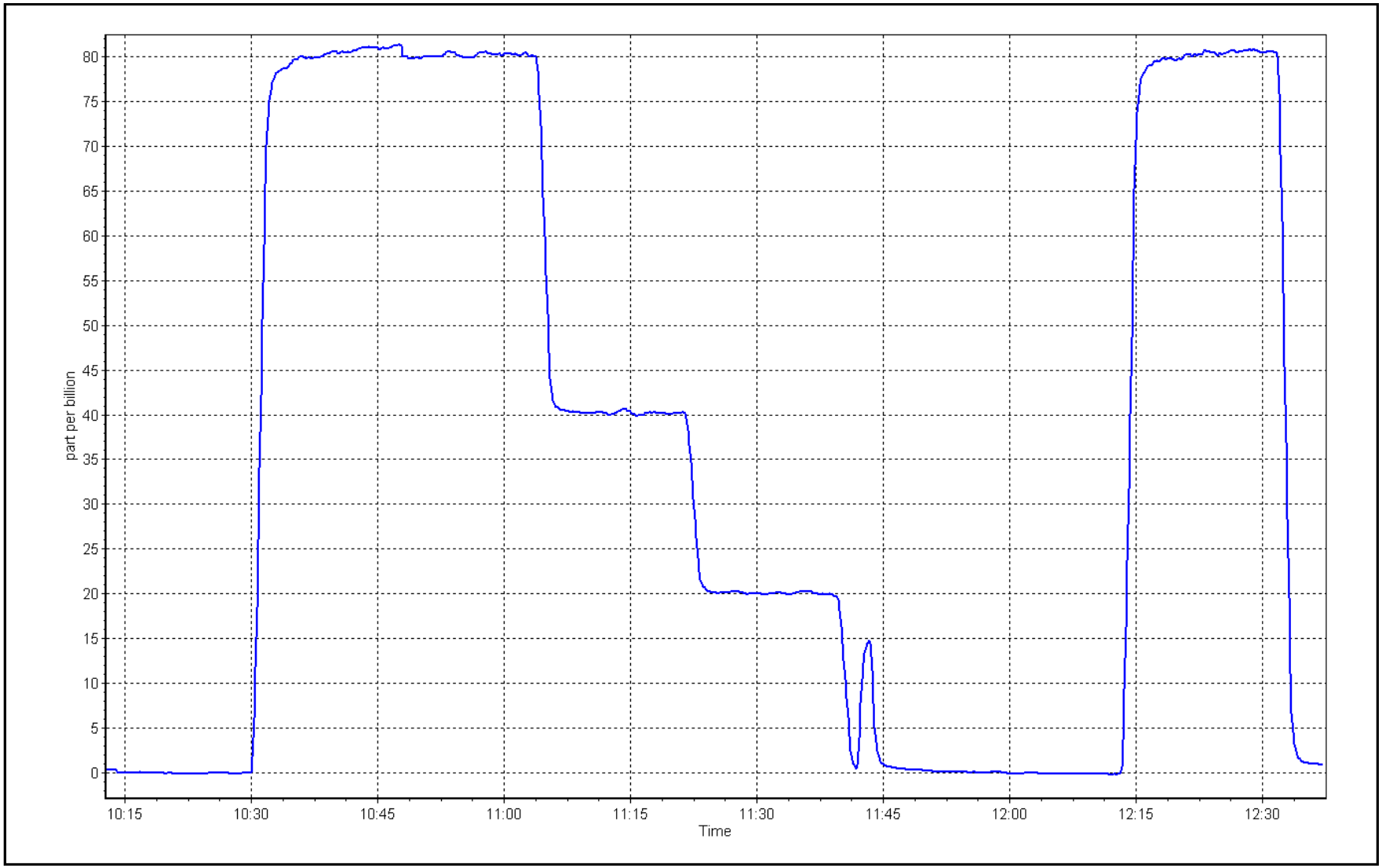
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	80.3	0.9968
40.0	40.2	0.9957
20.0	20.1	0.9930

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999996	*≥0.995*
Slope	1.003974	*0.90 - 1.10*
Intercept	-0.020481	*+/-3*



TRS Calibration Plot Date: May 30, 2025 Location: Barge Landing



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Barge Landing	Station number:	AMS 09
Calibration Date:	May 2, 2025	Last Cal Date:	April 29, 2025
Start time (MST):	8:51	End time (MST):	12:08
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:	NA	Removed Gas Expiry:	NA
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

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.28E-04	2.27E-04	NMHC SP Ratio:	4.76E+05	4.82E+05
CH4 Retention time:	14.2	14.4	NMHC Peak Area:	187033	185011
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	16.35	1.034
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.35	Prev response	16.93	*% change	-3.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	16.91	1.000
Mid point	4961	39.5	8.44	8.36	1.010
Low point	4980	19.8	4.23	4.16	1.018
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	16.91	16.91	1.000
				Average Correction Factor	1.009

Notes: Changed inlet filter and actuator after as founds. Adjusted span.

Wood Buffalo Environmental Association

THC / CH_4 / 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	8.58	1.039
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.58	Prev response	8.92	*% change	-4.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	79.1	8.91	8.91	1.000
Mid point	4961	39.5	4.45	4.41	1.009
Low point	4980	19.8	2.23	2.19	1.017
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	8.91	8.90	1.001
				Average Correction Factor	1.009

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	4921	79.1	8.00	7.78	1.028
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.78	Prev response	8.01	*% change	-3.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4921	79.1	8.00	8.00	1.000
Mid point	4961	39.5	3.99	3.95	1.011
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	79.1	8.00	8.01	0.999
				Average Correction Factor	1.011

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	1.003757	1.001114
THC Cal Offset:	-0.041375	-0.047581
CH4 Cal Slope:	1.004447	1.000789
CH4 Cal Offset:	-0.023190	-0.024392
NMHC Cal Slope:	1.003150	1.000931
NMHC Cal Offset:	-0.018986	-0.022590

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

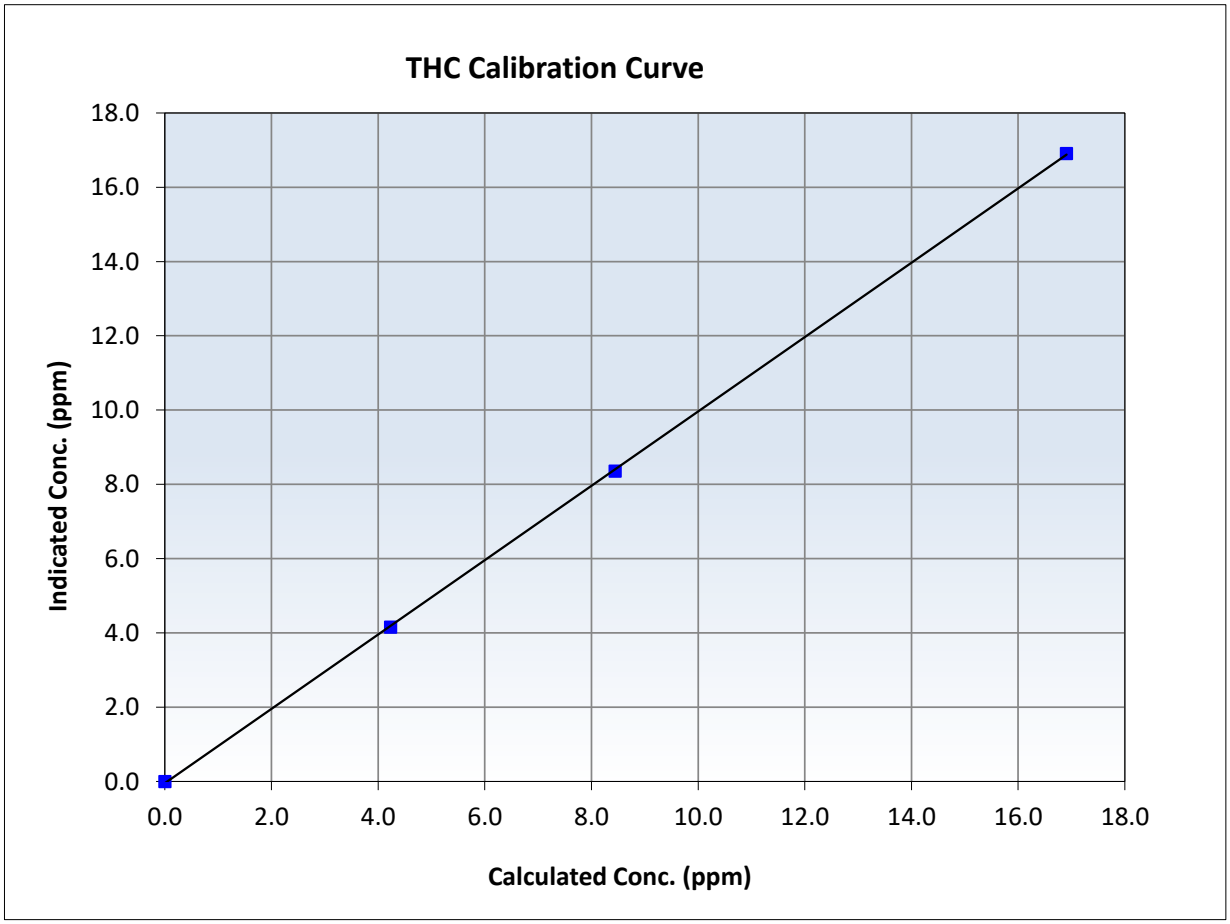
THC Calibration Summary

Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 29, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	8:51	End Time (MST):	12:08
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999960	≥0.995
16.91	16.91	0.9999	Slope	1.001114	0.90 - 1.10
8.44	8.36	1.0099	Intercept	-0.047581	+/-0.5
4.23	4.16	1.0184			



Wood Buffalo Environmental Association

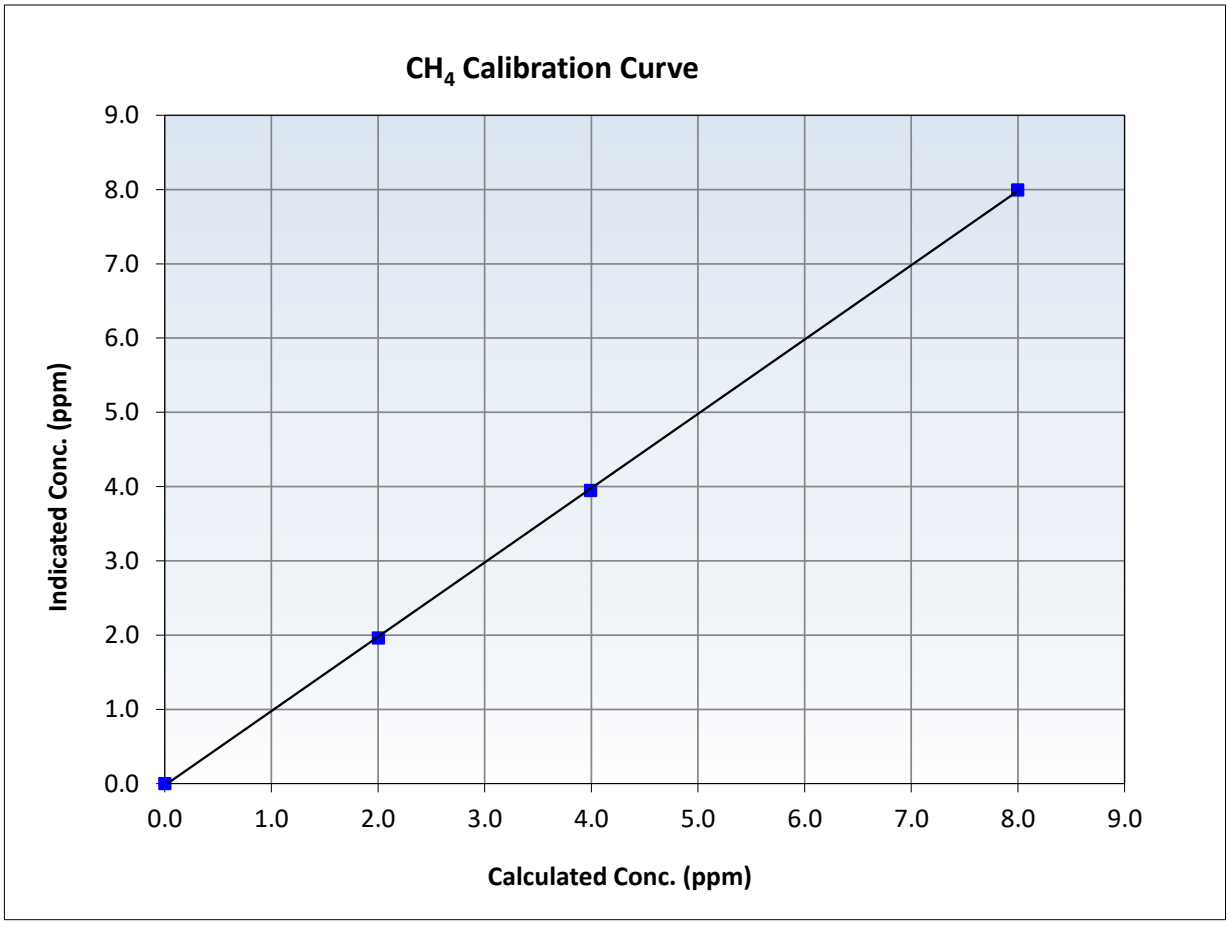
CH_4 Calibration Summary

Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 29, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	8:51	End Time (MST):	12:08
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999953	≥0.995
8.00	8.00	1.0003	Slope	1.000789	0.90 - 1.10
3.99	3.95	1.0111			
2.00	1.96	1.0205	Intercept	-0.024392	+/-0.5



Wood Buffalo Environmental Association

NMHC Calibration Summary

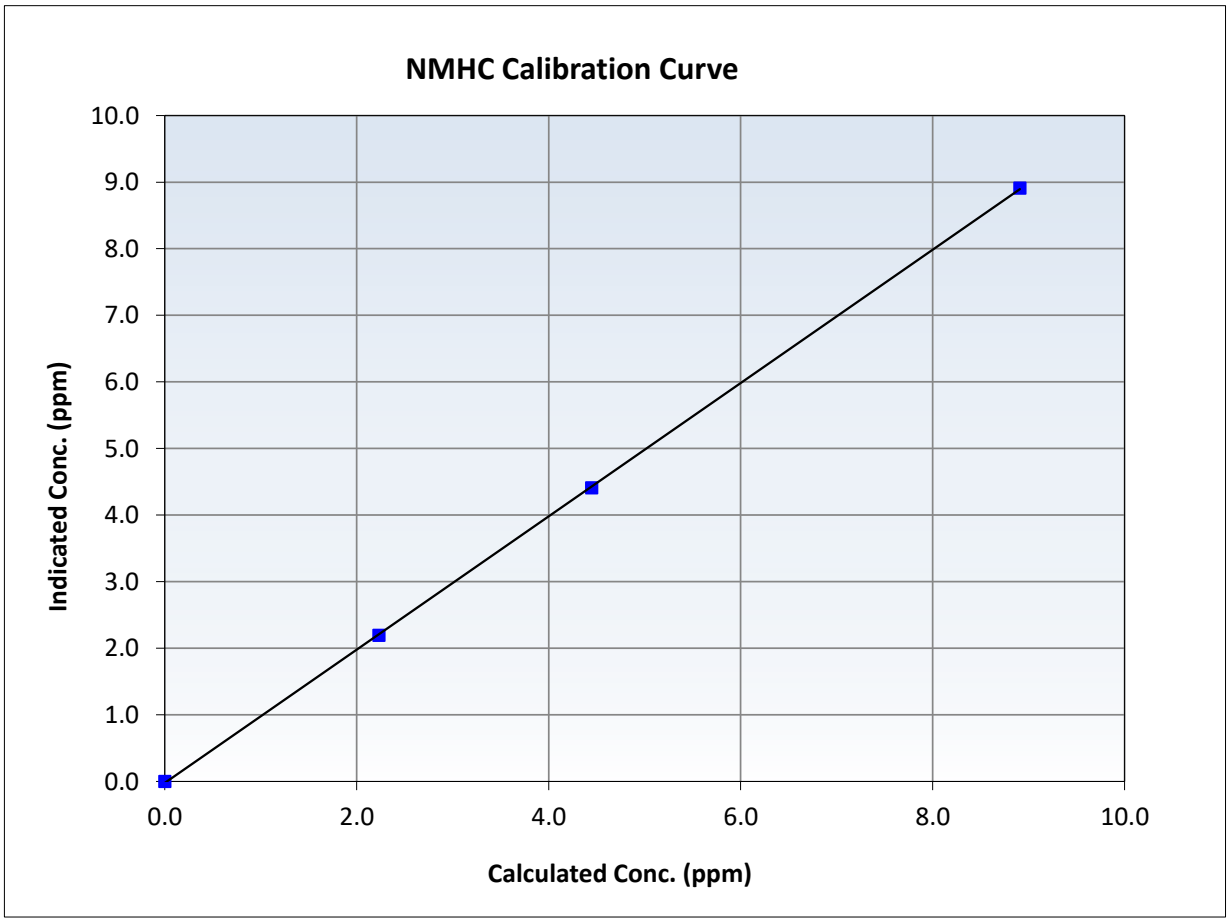
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 29, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	8:51	End Time (MST):	12:08
Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650

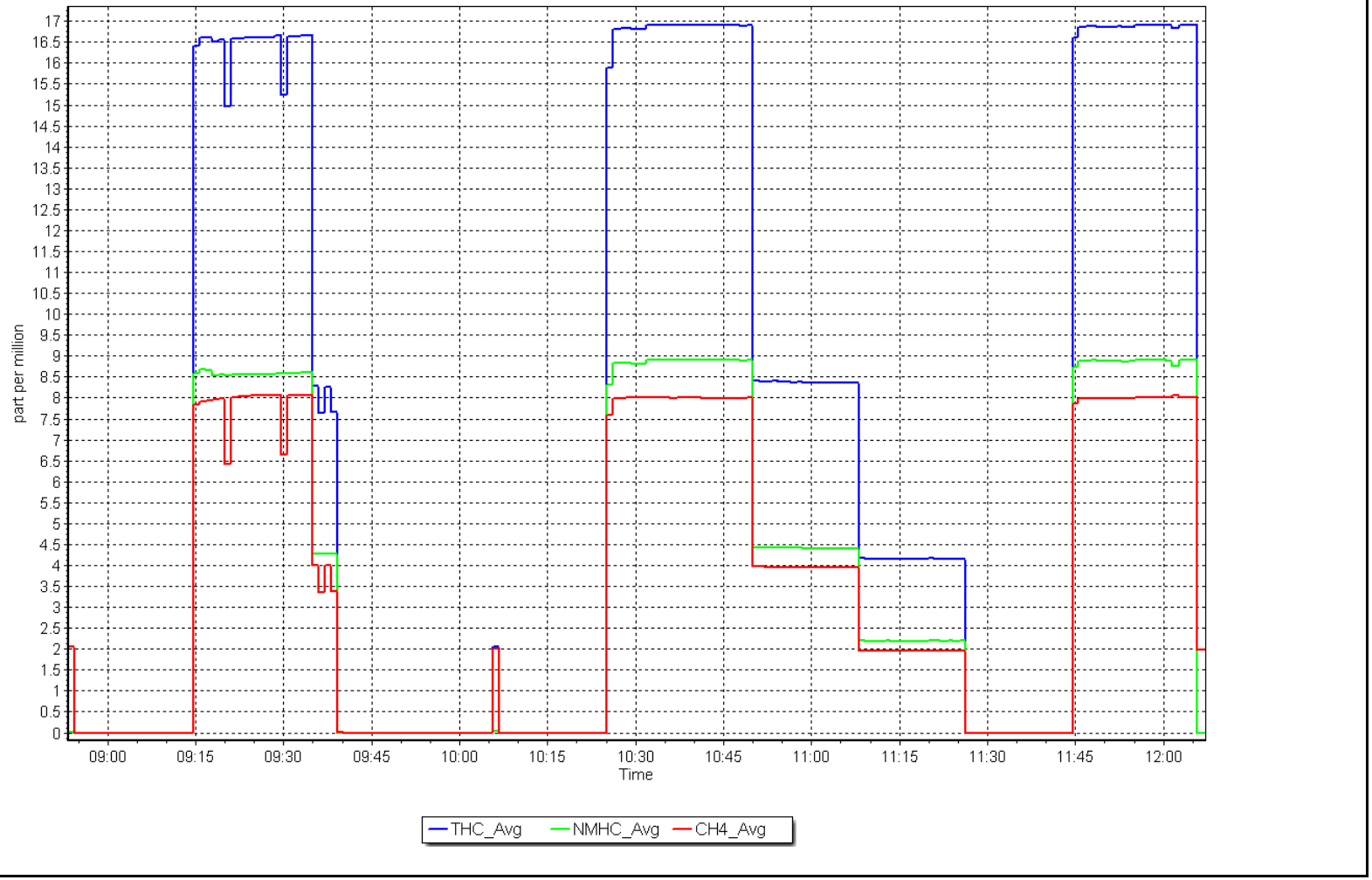
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.91	8.91	1.0000
4.45	4.41	1.0090
2.23	2.19	1.0166

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999967	*≥0.995*
Slope	1.000931	*0.90 - 1.10*
Intercept	-0.022590	*+/-0.5*



NMHC Calibration Plot Date: May 2, 2025 Location: Barge Landing



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THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Barge Landing	Station number:	AMS 09
Calibration Date:	May 21, 2025	Last Cal Date:	May 2, 2025
Start time (MST):	8:58	End time (MST):	10:35
Reason:	Cylinder Change		

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

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1193585650
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.27E-04	2.27E-04	NMHC SP Ratio:	4.82E+05	4.82E+05
CH4 Retention time:	14.4	14.4	NMHC Peak Area:	185011	185011
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	17.04	0.992
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	17.04	Prev response	16.88	*% change	0.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	16.91	17.26	0.980
				Average Correction Factor	

Notes: Sample inlet filter and H2/ N2 was changed after as founds. No adjustmend needed.

Wood Buffalo Environmental Association

THC / CH_4 / 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	8.89	1.002
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.89	Prev response	8.90	*% change	0.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	8.91	9.00	0.990
				Average Correction Factor	

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	4921	79.1	8.00	8.14	0.982
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.14	Prev response	7.98	*% change	2.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

CH4 Calibration Data

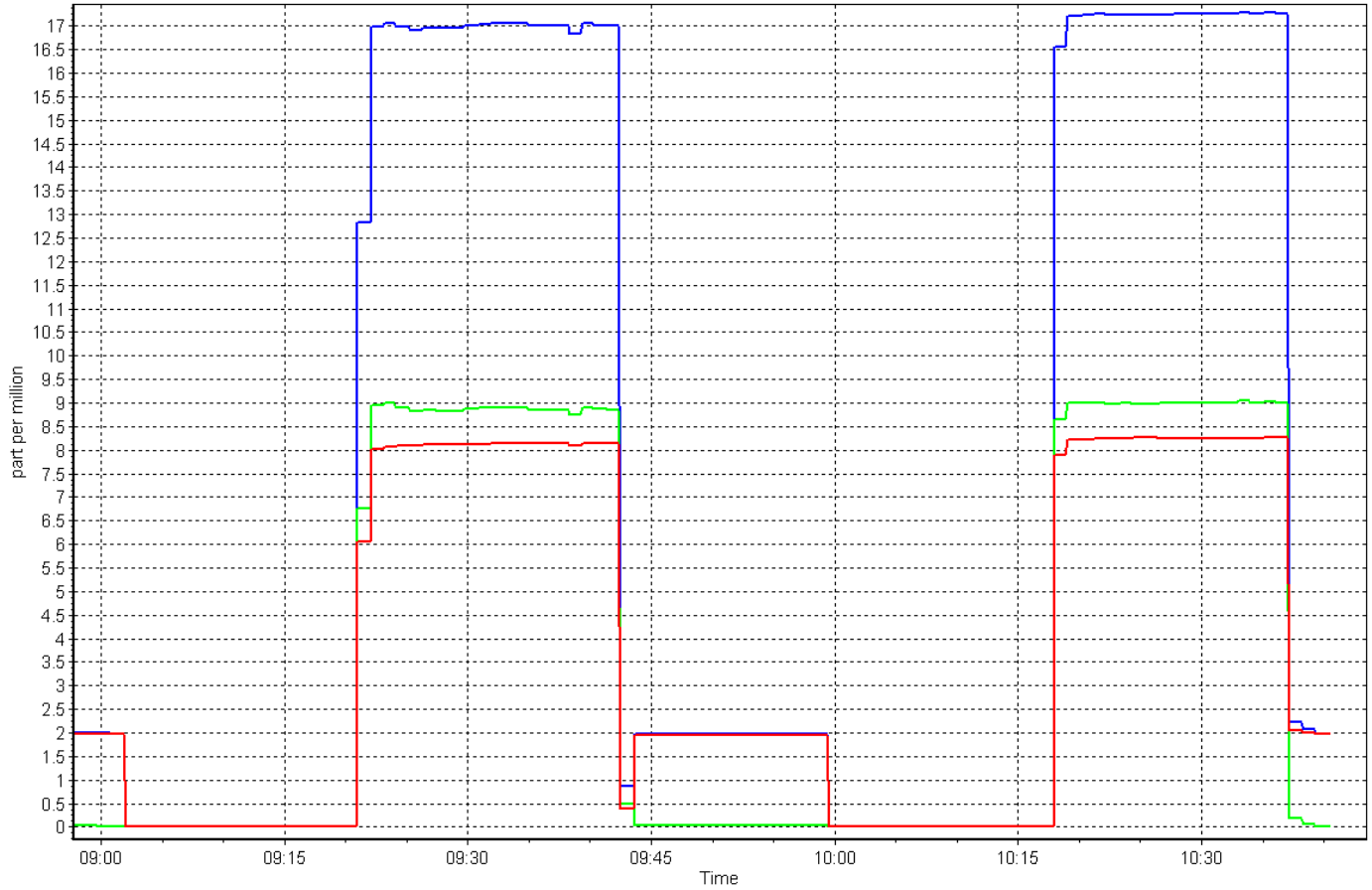
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	8.00	8.25	0.970
				Average Correction Factor	

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	1.001114	
THC Cal Offset:	-0.047581	
CH4 Cal Slope:	1.000789	
CH4 Cal Offset:	-0.024392	
NMHC Cal Slope:	1.000931	
NMHC Cal Offset:	-0.022590	

Calibration Performed By: Jan Castro

NMHC Calibration Plot Date: May 21, 2025 Location: Barge Landing



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Barge Landing
Station number:	AMS 09
Calibration Date:	May 20, 2025
Last Cal Date:	April 11, 2025
Start time (MST):	9:30
End time (MST):	13:44
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	T2Y1KDH	Cal Gas Expiry Date:	November 17, 2026
NOX Cal Gas Conc:	47.38 ppm	NO Cal Gas Conc:	46.94 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	47.38 ppm	Removed Gas NO Conc:	46.94 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	API T700	Serial Number:	3812
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	-0.2	-0.1	-0.1	----	----
AF High point	4915	85.3	808.3	800.7	7.5	824.7	814.2	10.5	0.9798	0.9834
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 807.6 ppb	NO = 799.1 ppb
Baseline Corr 1st pt	NO_X = 824.9 ppb	NO = 814.3 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = 2.1%
As found	NO r^2:	*Percent Change	NO = 1.9%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1426262593

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.124	1.103	NO bkgnd or offset:	10.3	10.1
NOX coeff or slope:	0.999	0.999	NOX bkgnd or offset:	10.6	10.4
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	176.8	178.3

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.997861	0.996716
NO_X Cal Offset:	1.058268	0.737922
NO Cal Slope:	0.998054	0.997226
NO Cal Offset:	-0.083947	-0.444131
NO_2 Cal Slope:	1.025270	1.001246
NO_2 Cal Offset:	-0.569655	0.950541

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	4915	85.3	808.3	800.7	7.5	806.0	798.3	7.8	1.0028	1.0031
Mid point	4957	42.6	403.7	400.0	3.7	403.4	398.2	5.2	1.0008	1.0044
Low point	4979	21.3	201.8	200.0	1.9	202.7	198.5	4.3	0.9957	1.0073
As left zero	5000	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	----	----
As left span	4915	85.3	808.3	403.8	404.5	804.8	403.8	401.1	1.0043	1.0000
							Average Correction Factor		0.9998	1.0049

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	0.0	----	----
High GPT point	795.5	400.7	402.3	403.5	0.9970	100.3%
Mid GPT point	795.5	602.0	201.0	202.0	0.9951	100.5%
Low GPT point	795.5	700.3	102.7	105.2	0.9763	102.4%
				Average Correction Factor	0.9895	101.1%

Notes: Inlet filter changed after as founds. Adjusted span only.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

NO_X Calibration Summary

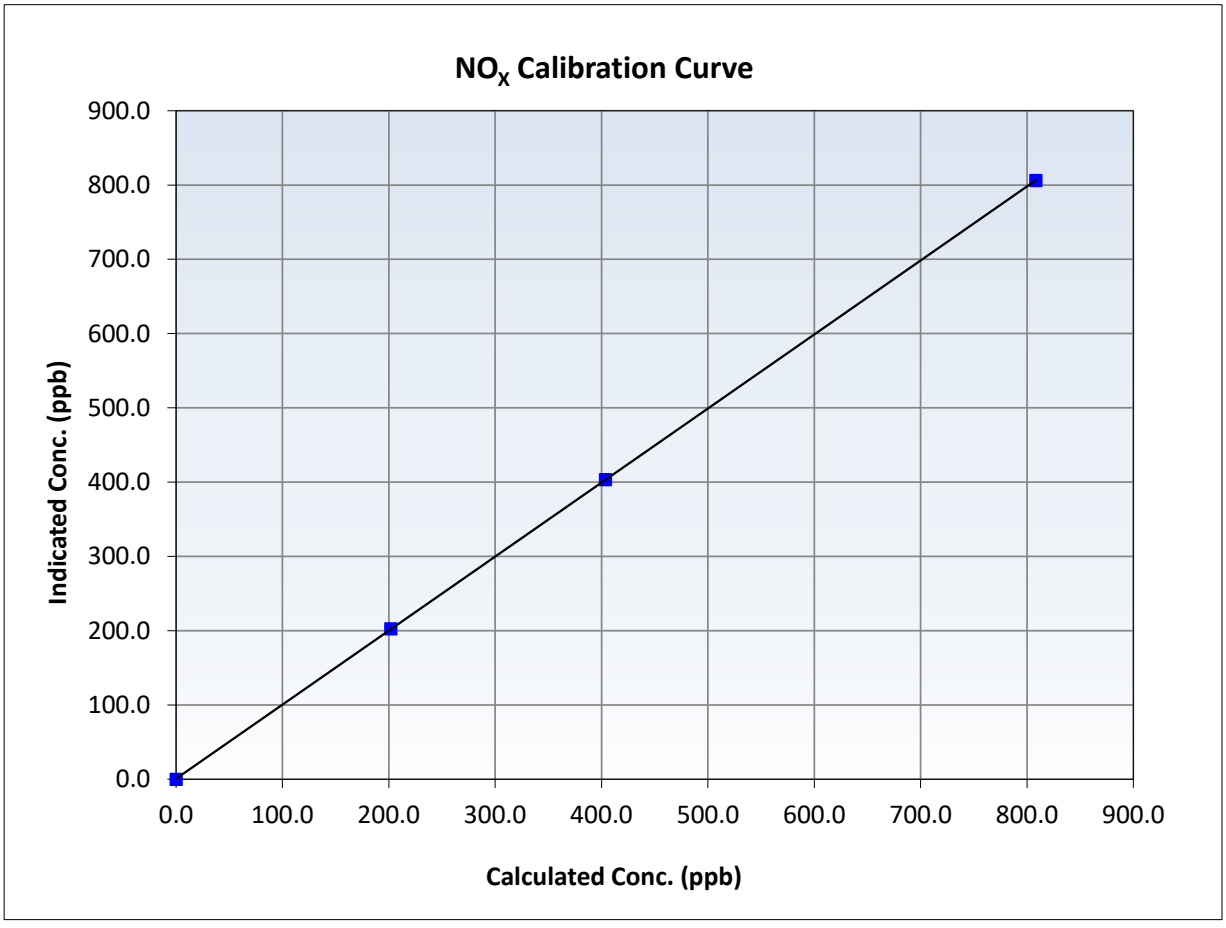
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 11, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:30	End Time (MST):	13:44
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262593

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
808.3	806.0	1.0028
403.7	403.4	1.0008
201.8	202.7	0.9957

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999996	*≥0.995*
Slope	0.996716	*0.90 - 1.10*
Intercept	0.737922	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

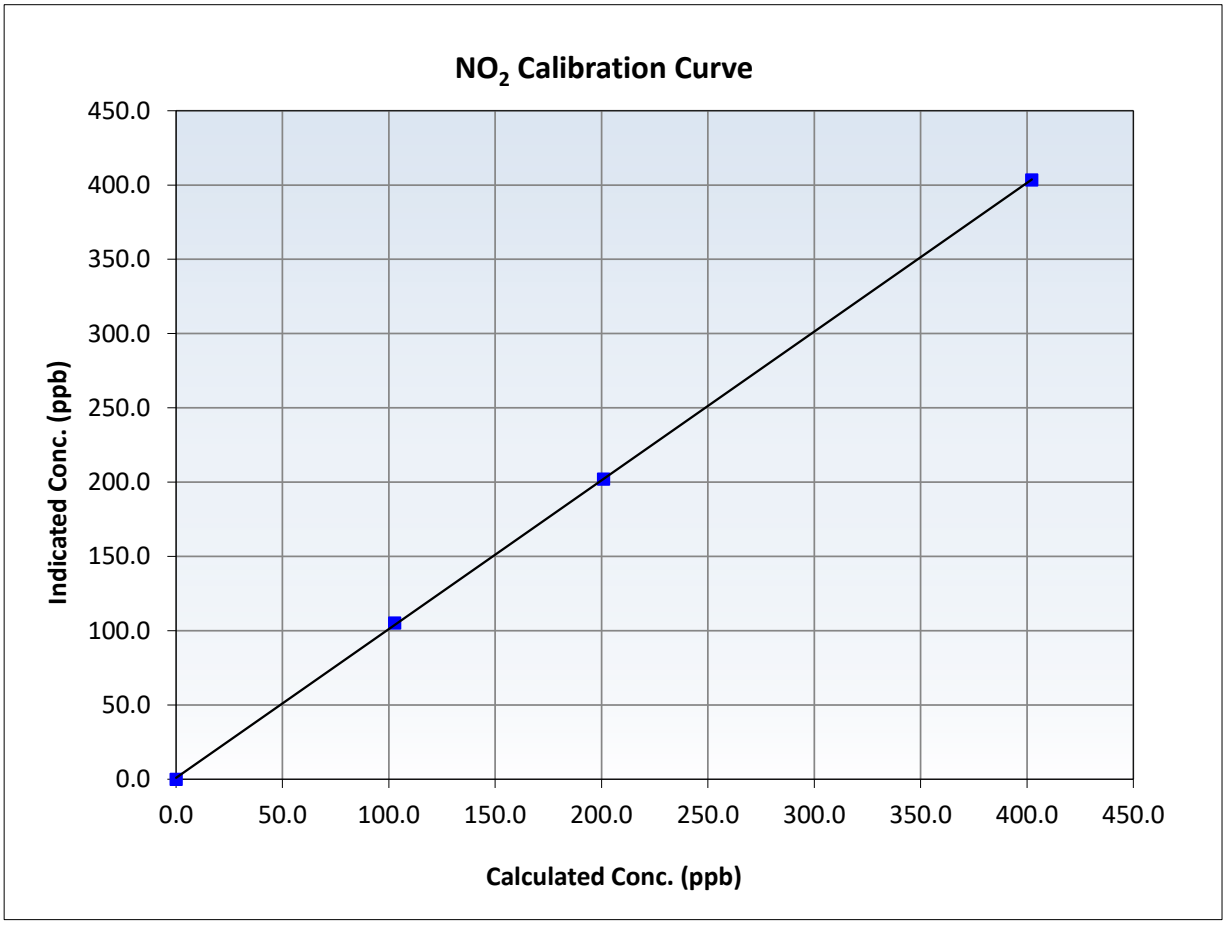
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 11, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:30	End Time (MST):	13:44
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262593

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
402.3	403.5	0.9970
201.0	202.0	0.9951
102.7	105.2	0.9763

Statistical Evaluation		Limits
Correlation Coefficient	0.999966	≥0.995
Slope	1.001246	0.90 - 1.10
Intercept	0.950541	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

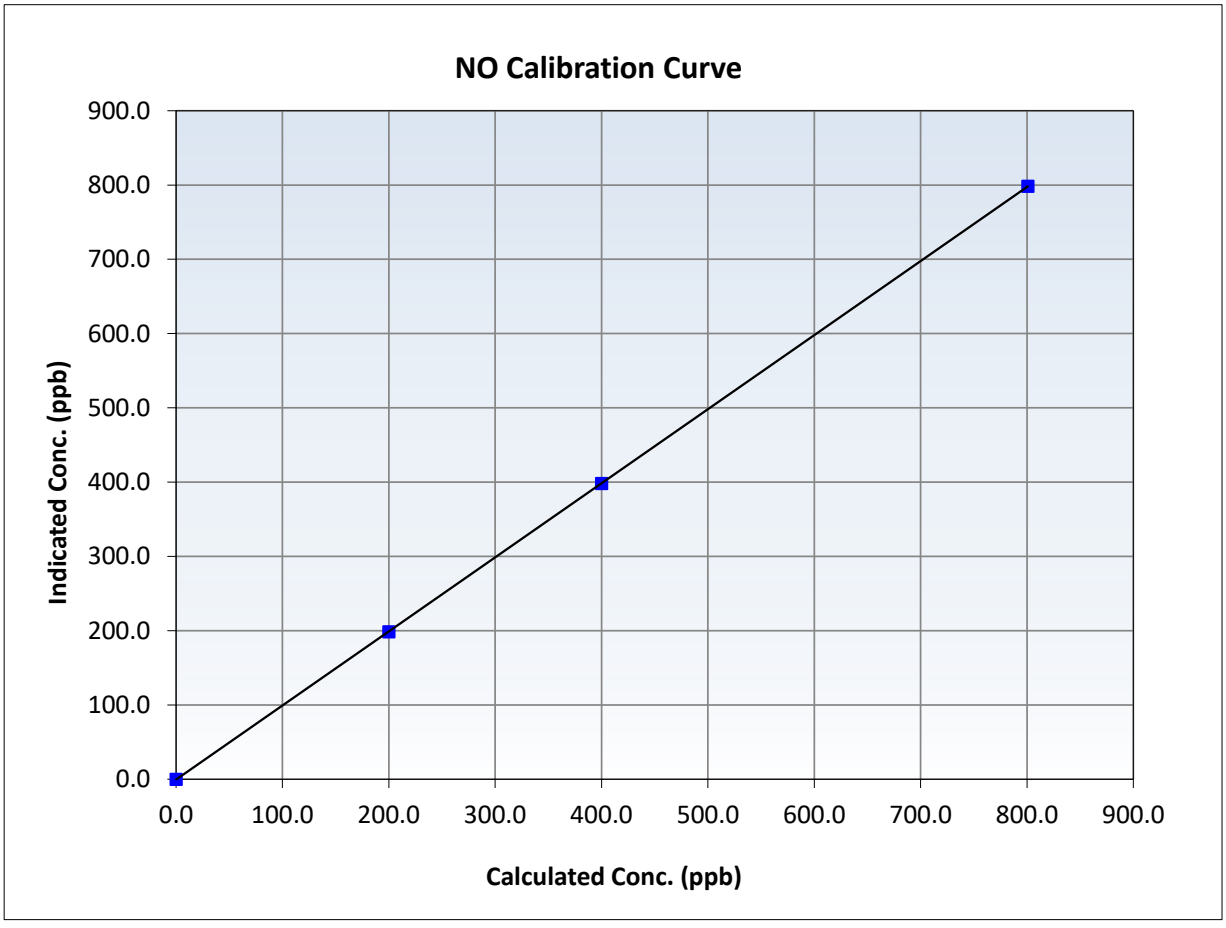
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 11, 2025
Station Name:	Barge Landing	Station Number:	AMS 09
Start Time (MST):	9:30	End Time (MST):	13:44
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262593

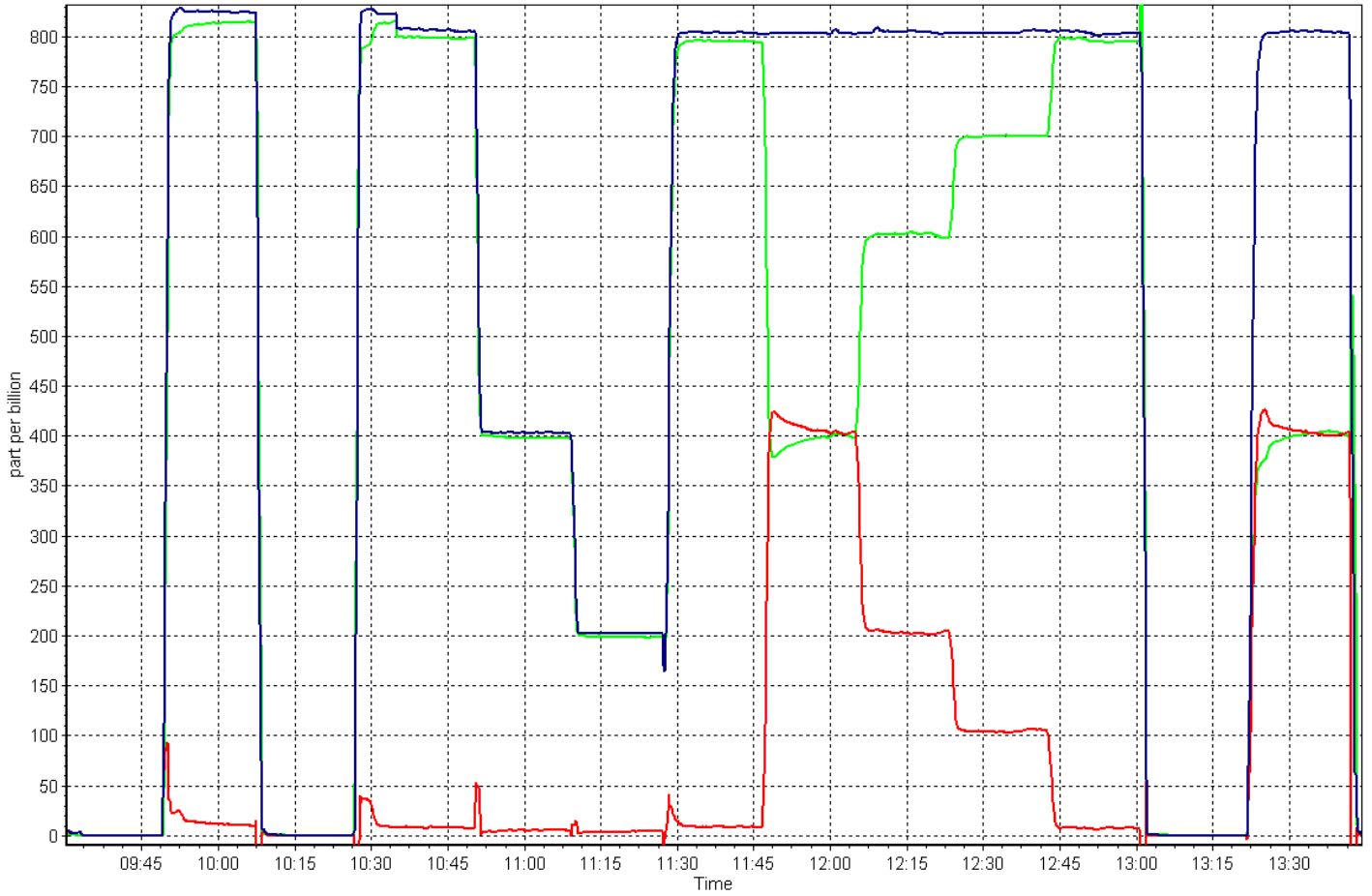
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
800.7	798.3	1.0031
400.0	398.2	1.0044
200.0	198.5	1.0073

Statistical Evaluation		Limits
Correlation Coefficient	0.999999	≥0.995
Slope	0.997226	0.90 - 1.10
Intercept	-0.444131	+/-20



NO_X Calibration Plot Date: May 20, 2025 Location: Barge Landing



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Barge Landing	Station number:	AMS 09
Calibration Date:	May 21, 2025	Last Cal Date:	April 10, 2025
Start time (MST):	10:20	End time (MST):	10:35
Analyzer Make:	API T640	S/N:	2237
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388754
Temp/RH standard:	Alicat FP-25BT	S/N:	388754

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	15.10	14.97	15.10	☐	+/- 2 °C
P (mmHg)	739.10	737.15	739.10	☐	+/- 10 mmHg
Flow (LPM)	5.03	4.95	5.03	☐	+/- 0.25 LPM
PW% (pump)	31	-----	31	☐	>80%
Zero Verification	PM w/o HEPA:	10.00	PM w/ HEPA:	0.00	<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: January 30, 2027 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test				☐	+/- 0.5

Date Optical Chamber Cleaned: April 10, 2025

Date Disposable Filter Changed: April 10, 2025

Post- maintenance Zero Verification: PM w/ HEPA: _____ <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: October 18, 2024

Date RH/T Sensor Cleaned: October 18, 2024

Notes: Verified flow, pressure, temperature and pump power. No issues. Leak check passed.

Calibration by: Jan Castro

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS11
LOWER CAMP
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Lower Camp	Station number:	AMS 11
Calibration Date:	May 12, 2025	Last Cal Date:	April 9, 2025
Start time (MST):	12:57	End time (MST):	16:42
Reason:	Routine		

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:	3811
Zero Air Gen Model:	Teledyne API T701		Serial Number:	196

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	100841398	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.018981	1.000774	Backgd or Offset:	16.2	17.4
Calibration intercept:	0.056971	0.957007	Coeff or Slope:	1.005	1.068

SO_2 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	4932	82.2	799.2	753.2	1.062
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	752.2	Previous response	814.4	*% change	-8.3%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	1.0	----
High point	4932	82.2	799.2	800.7	0.998
Mid point	4971	41.2	400.7	402.2	0.996
Low point	4996	20.6	200.2	201.1	0.995
As left zero	5000	0.0	0.0	1.2	----
As left span	4932	82.2	799.2	800.6	0.998
				Average Correction Factor:	0.997

Notes: Investigation was made and found no alarms and all diagnostics within limits; no setup issues noted, so only the span was adjusted. Sample inlet filter was replaced.

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

SO_2 Calibration Summary

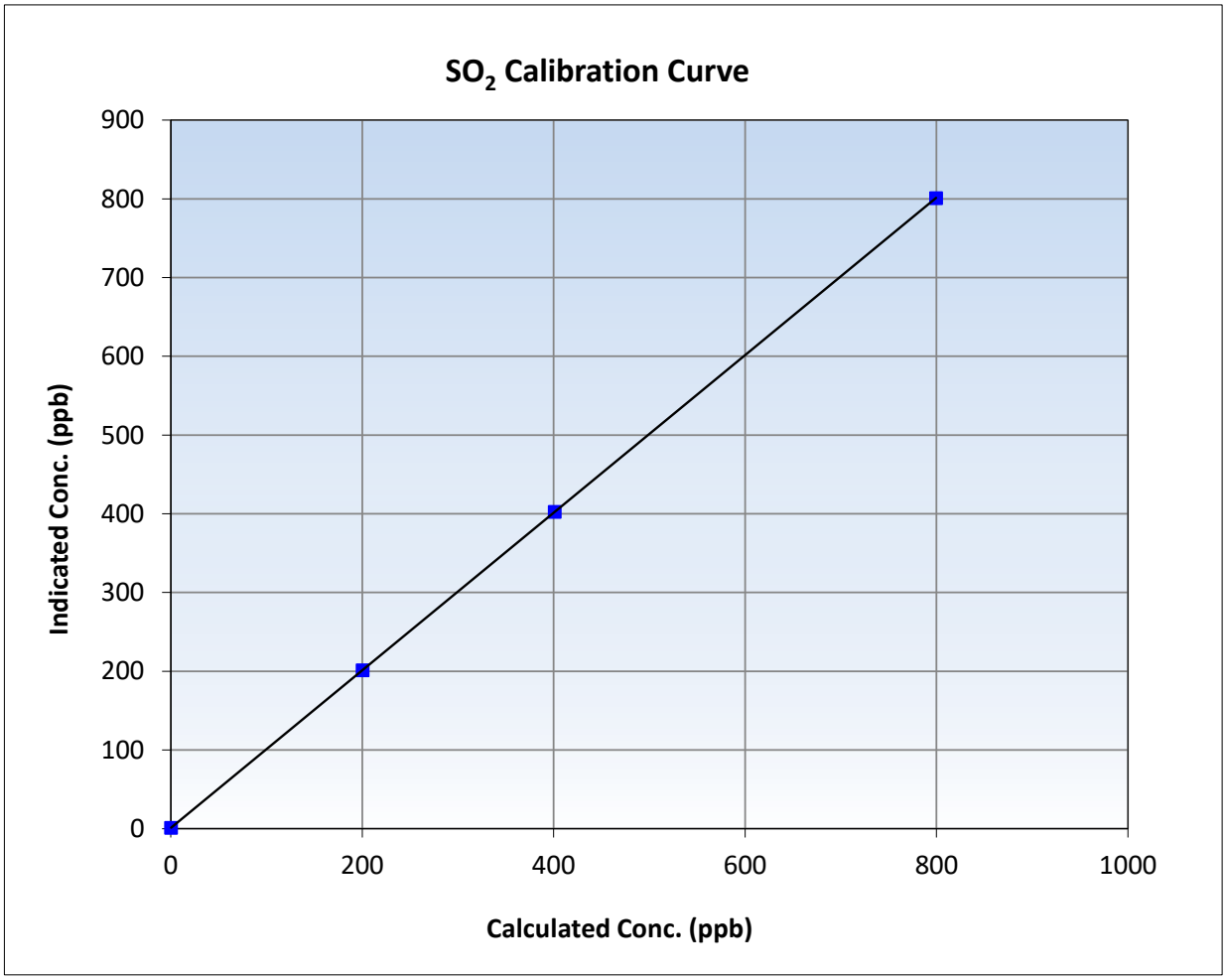
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 9, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:57	End Time (MST):	16:42
Analyzer make:	Thermo 43i	Analyzer serial #:	100841398

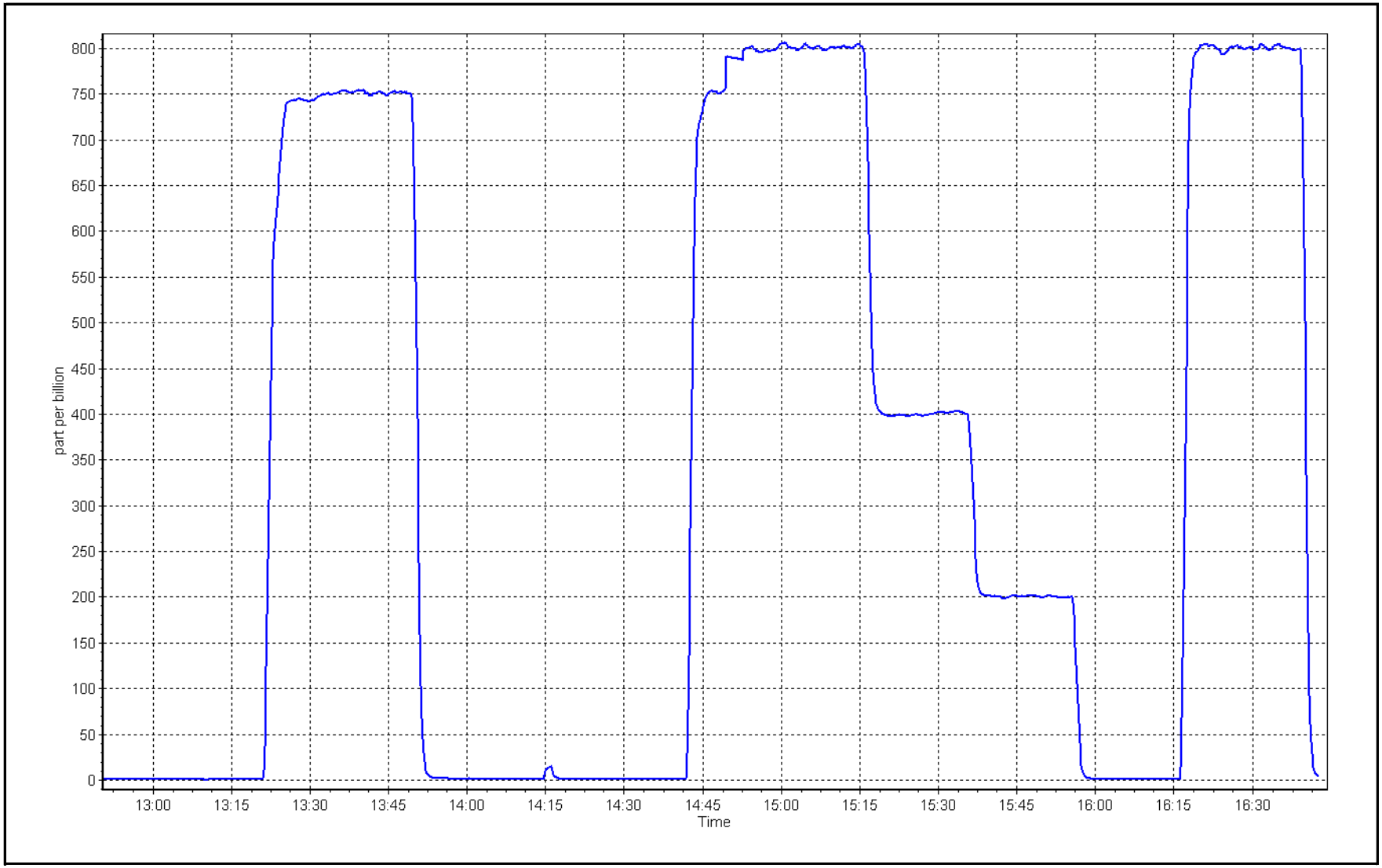
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	1.0	----
799.2	800.7	0.9981
400.7	402.2	0.9963
200.2	201.1	0.9955

Statistical Evaluation		*Limits*
Correlation Coefficient	1.000000	*≥0.995*
Slope	1.000774	*0.90 - 1.10*
Intercept	0.957007	*+/-30*



SO2 Calibration Plot Date: May 12, 2025 Location: Lower Camp



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Lower Camp	Station number:	AMS 11
Calibration Date:	May 27, 2025	Last Cal Date:	April 22, 2025
Start time (MST):	10:47	End time (MST):	15:00
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.83	ppm	Cal Gas Exp Date:	August 28, 2028
Cal Gas Cylinder #:	CC737863			
Removed Cal Gas Conc:	4.83	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	3811
ZAG Make/Model:	API T701H		Serial Number:	196

Analyzer Information

Analyzer make:	Thermo 43iQ		Analyzer serial #:	1203169745	
Converter make:	Global G150		Converter serial #:	2022-223	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.003220	1.002134	Backgd or Offset:	2.6	2.8
Calibration intercept:	-0.202864	-0.231302	Coeff or Slope:	0.752	0.808

H_2S 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	4923	82.8	79.9	74.9	1.062
As found Mid point	4967	41.5	40.0	37.3	1.064
As found Low point	4999	20.8	20.0	18.6	1.059
New cylinder response					
Baseline Corr As found:	75.2	Prev response:	79.95	*% change:	-6.3%
Baseline Corr 2nd AF pt:	37.6	AF Slope:	0.940902	AF Intercept:	-0.289317
Baseline Corr 3rd AF pt:	18.9	AF Correlation:	0.999997	* = > +/-5% change initiates investigation	

H_2S 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	4923	82.8	79.9	79.8	1.001
Mid point	4967	41.5	40.0	39.9	1.003
Low point	4999	20.8	20.0	19.9	1.006
As left zero	5000	0.0	0.0	-0.2	----
As left span	4923	82.8	79.9	80.3	0.995
SO2 Scrubber Check	4932	82.2	819.7	0.1	----
Date of last scrubber change:				Ave Corr Factor	1.003
Date of last converter efficiency test:					

Notes: Investigation was made and found no alarms and all diagnostics within limits; no setup issues noted, so only the span was adjusted. Sample inlet filter was replaced. Ran scrubber check after calibrator zero and it passed.

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

H_2S Calibration Summary

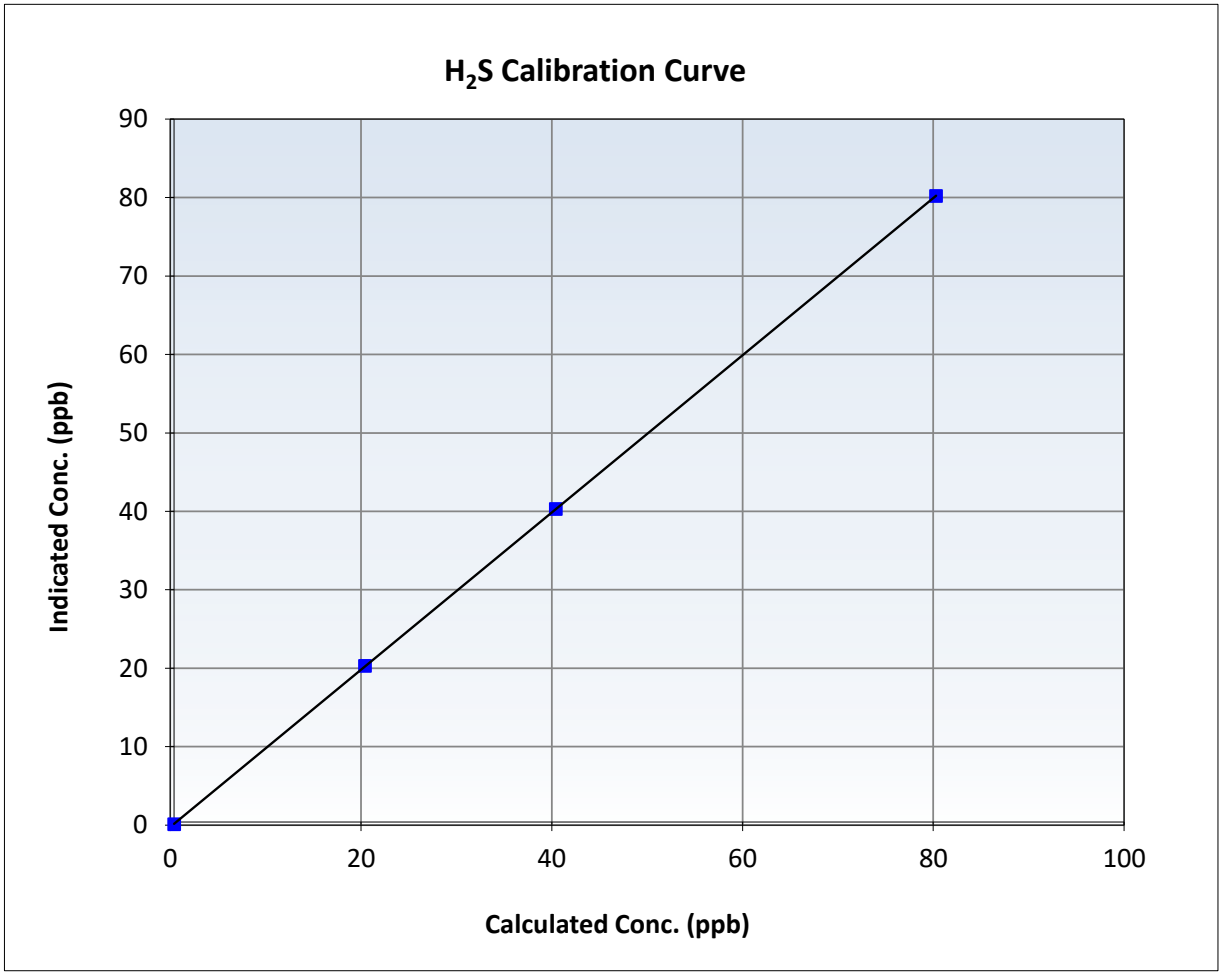
Station Information

Calibration Date:	May 27, 2025	Previous Calibration:	April 22, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	10:47	End Time (MST):	15:00
Analyzer make:	Thermo 43iQ	Analyzer serial #:	1203169745

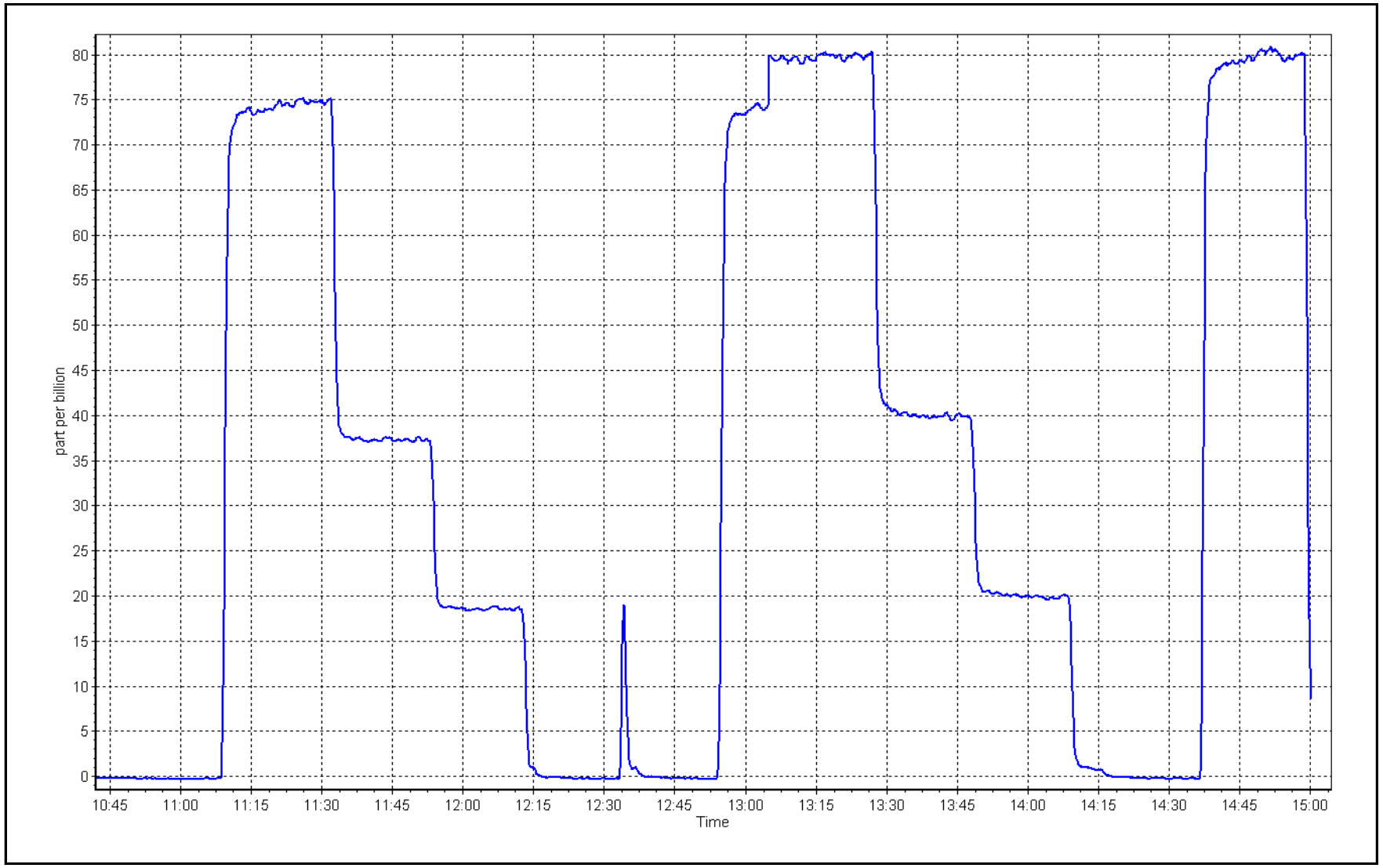
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
79.9	79.8	1.0012
40.0	39.9	1.0030
20.0	19.9	1.0057

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999997	*≥0.995*
Slope	1.002134	*0.90 - 1.10*
Intercept	-0.231302	*+/-3*



H_2S Calibration Plot Date: May 27, 2025 Location: Lower Camp



Wood Buffalo Environmental Association

THC / CH4 / NMHC Calibration Report

Station Information

Station Name:	Lower Camp	Station number:	AMS 11
Calibration Date:	May 12, 2025	Last Cal Date:	April 24, 2025
Start time (MST):	12:56	End time (MST):	16:42
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	CC741503	Cal Gas Expiry Date:	October 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		Analyzer serial #:	1118148495	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	2.27E-04	2.32E-04	NMHC SP Ratio:	4.96E-05	5.10E-05
CH4 Retention time:	14.3	14.5	NMHC Peak Area:	185572	182277
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	17.32	1.015
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	17.32	Prev response	17.44	*% change	-0.7%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	17.61	0.998
Mid point	4971	41.2	8.81	8.84	0.996
Low point	4996	20.6	4.40	4.41	0.999
As left zero	5000	0.0	0.00	0.00	----
As left span	4932	82.2	17.57	17.63	0.997
				Average Correction Factor	0.998

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

Wood Buffalo Environmental Association

THC / CH_4 / 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	9.18	1.013
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.18	Prev response	9.25	*% change	-0.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4932	82.2	9.30	9.34	0.996
Mid point	4971	41.2	4.66	4.72	0.987
Low point	4996	20.6	2.33	2.37	0.981
As left zero	5000	0.0	0.00	0.00	----
As left span	4932	82.2	9.30	9.36	0.993
				Average Correction Factor	0.988

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	4932	82.2	8.28	8.15	1.016
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.15	Prev response	8.19	*% change	-0.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4932	82.2	8.28	8.27	1.000
Mid point	4971	41.2	4.15	4.12	1.007
Low point	4996	20.6	2.07	2.03	1.020
As left zero	5000	0.0	0.00	0.00	----
As left span	4932	82.2	8.28	8.27	1.001
				Average Correction Factor	1.009

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.992250	1.002303
THC Cal Offset:	0.006074	0.000961
CH4 Cal Slope:	0.991671	1.001107
CH4 Cal Offset:	-0.016495	-0.021944
NMHC Cal Slope:	0.992864	1.003613
NMHC Cal Offset:	0.022170	0.021904

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

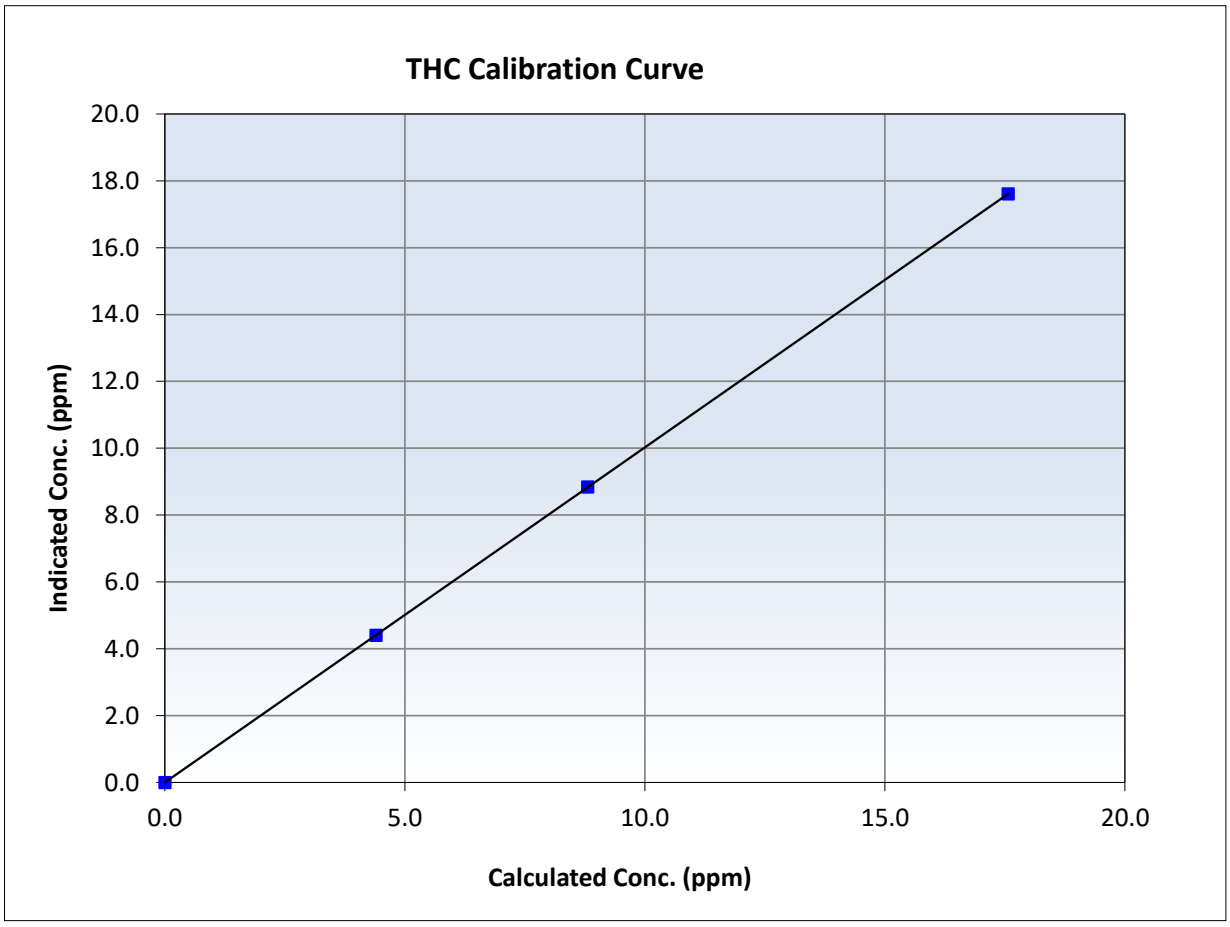
THC Calibration Summary

Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 24, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:56	End Time (MST):	16:42
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999999	*≥0.995*
17.57	17.61	0.9979	Slope	1.002303	*0.90 - 1.10*
8.81	8.84	0.9964	Intercept	0.000961	*+/-0.5*
4.40	4.41	0.9987			



Wood Buffalo Environmental Association

CH_4 Calibration Summary

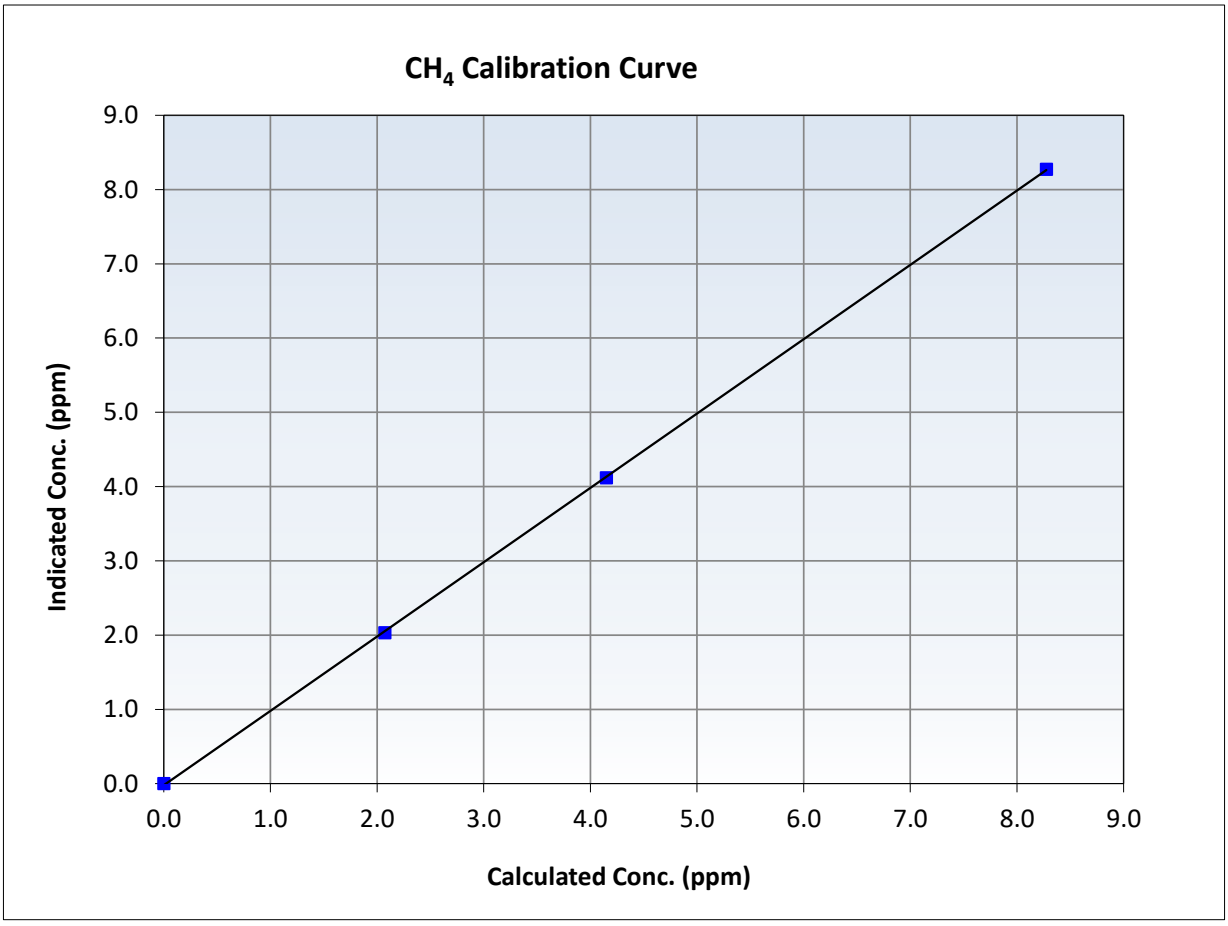
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 24, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:56	End Time (MST):	16:42
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.28	8.27	1.0002
4.15	4.12	1.0071
2.07	2.03	1.0201

Statistical Evaluation		Limits
Correlation Coefficient	0.999968	≥0.995
Slope	1.001107	0.90 - 1.10
Intercept	-0.021944	+/-0.5



Wood Buffalo Environmental Association

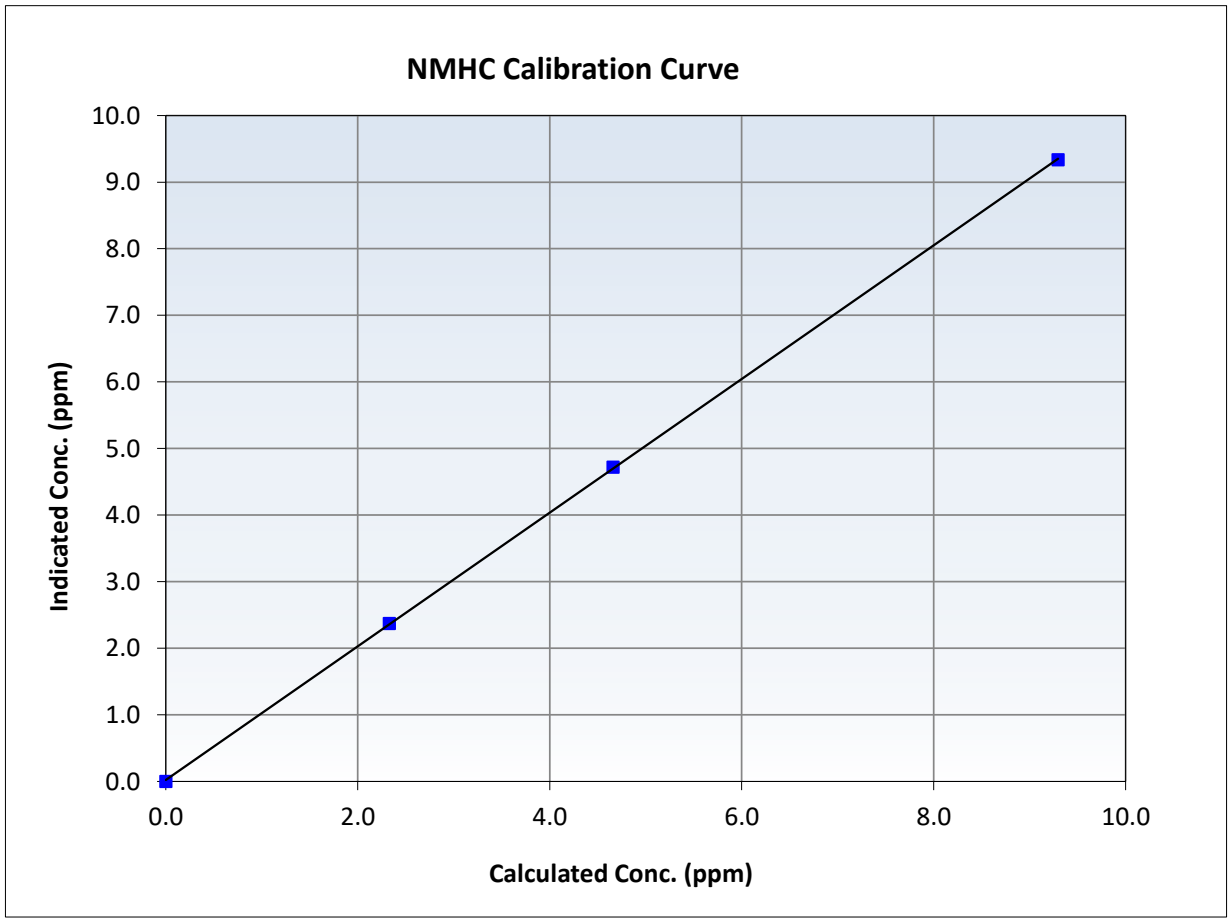
NMHC Calibration Summary

Station Information

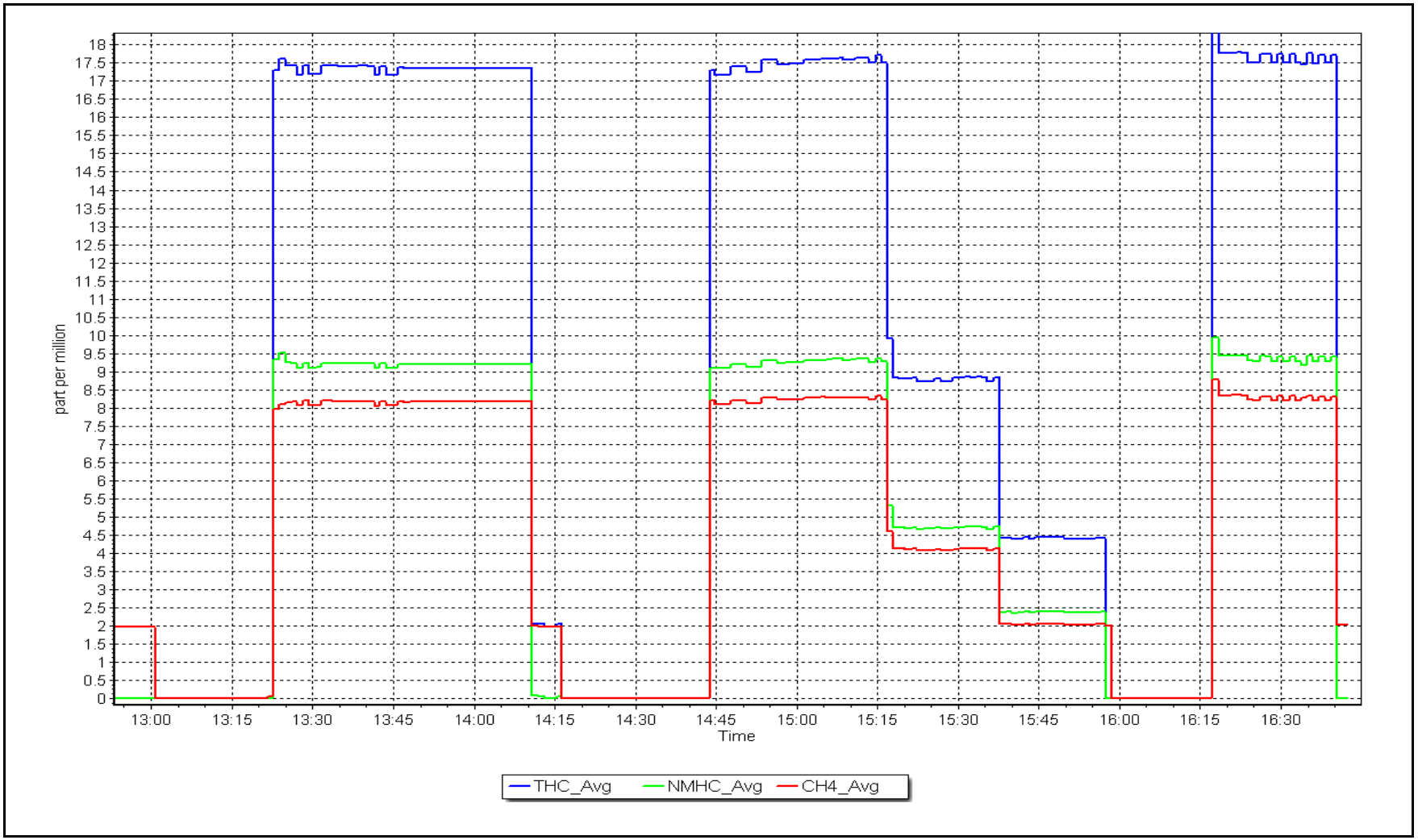
Calibration Date:	May 12, 2025	Previous Calibration:	April 24, 2025
Station Name:	Lower Camp	Station Number:	AMS 11
Start Time (MST):	12:56	End Time (MST):	16:42
Analyzer make:	Thermo 55i	Analyzer serial #:	1118148495

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999971	*≥0.995*
9.30	9.34	0.9956	Slope	1.003613	*0.90 - 1.10*
4.66	4.72	0.9873	Intercept	0.021904	*+/-0.5*
2.33	2.37	0.9808			



NMHC Calibration Plot Date: May 12, 2025 Location: Lower Camp



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS13
FORT MCKAY SOUTH
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Fort McKay South	Station number:	AMS 13
Calibration Date:	May 21, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	9:45	End time (MST):	12:37
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.55	ppm	Cal Gas Exp Date:	December 29, 2028
Cal Gas Cylinder #:	CC260812			
Removed Cal Gas Conc:	50.55	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Model:	Teledyne API T700		Serial Number:	2448
Zero Air Gen Model:	Teledyne API T701		Serial Number:	1118

Analyzer Information

Analyzer make:	Teledyne API T100		Serial Number:	599	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.002928	1.002170	Backgd or Offset:	99.5	103.5
Calibration intercept:	-2.218277	0.021872	Coeff or Slope:	0.690	0.672

SO_2 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	0.9	----
As found High point	4921	79.1	799.7	823.4	0.972
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	822.5	Previous response	799.8	*% change	2.8%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	79.1	799.7	801.1	0.998
Mid point	4961	39.5	399.3	400.8	0.996
Low point	4980	19.8	200.2	200.8	0.997
As left zero	5000	0.0	0.0	-0.5	----
As left span	4921	79.1	799.7	803.3	0.995
				Average Correction Factor:	0.997

Notes: Sample inlet filters changed after as founds. Adjusted zero and span.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

SO_2 Calibration Summary

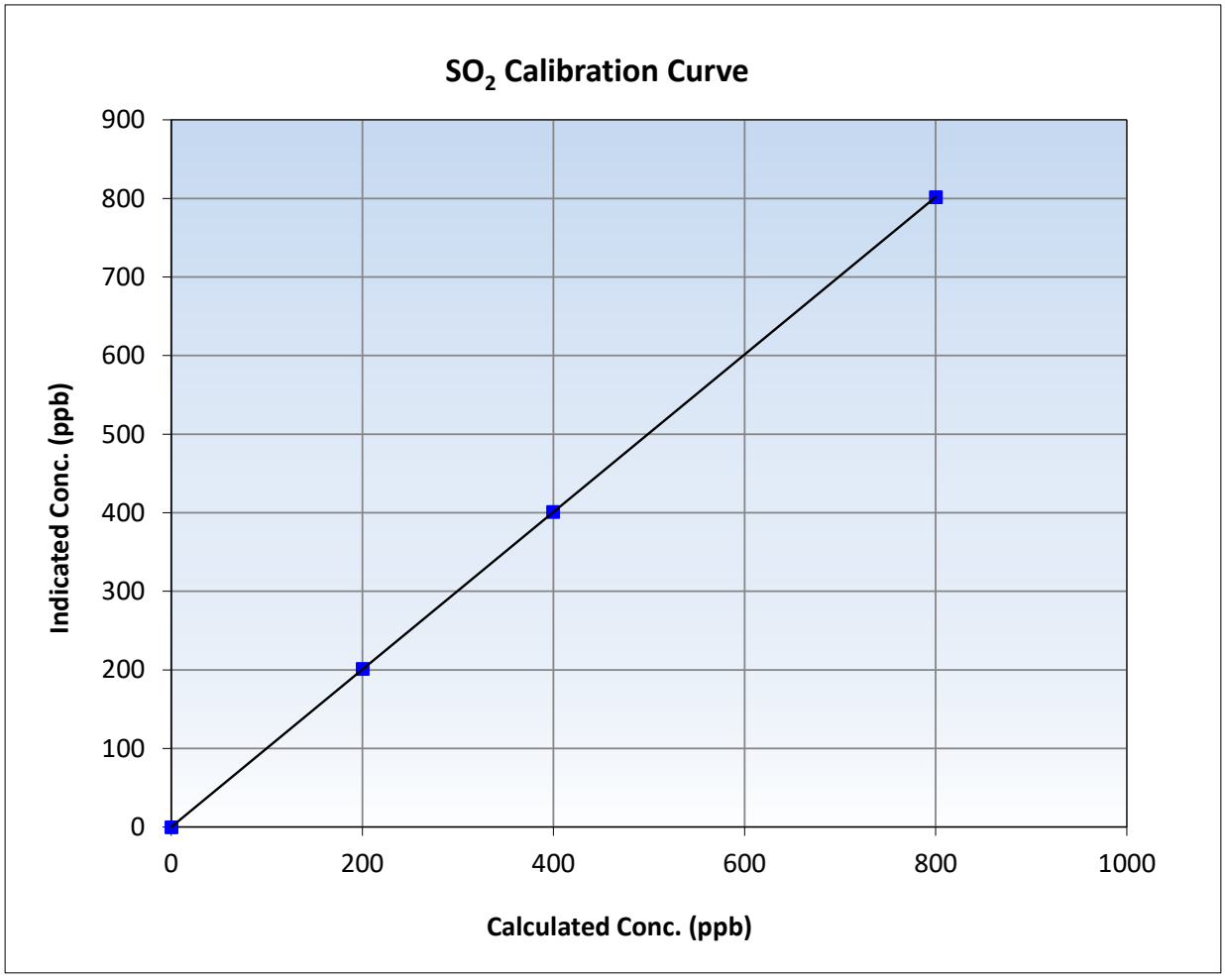
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 14, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	9:45	End Time (MST):	12:37
Analyzer make:	Teledyne API T100	Analyzer serial #:	599

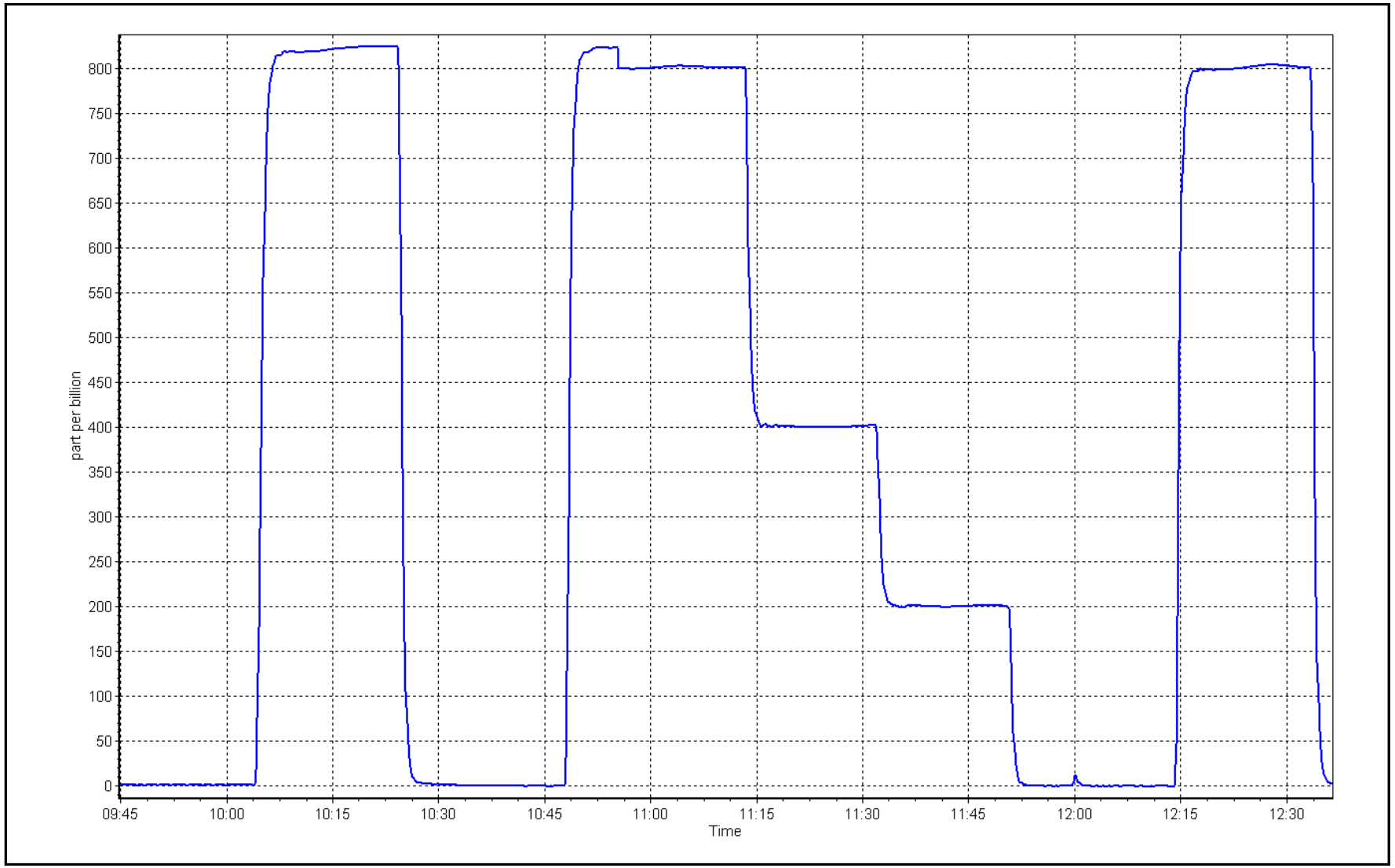
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.4	----
799.7	801.1	0.9982
399.3	400.8	0.9963
200.2	200.8	0.9969

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999998	*≥0.995*
Slope	1.002170	*0.90 - 1.10*
Intercept	0.021872	*+/-30*



SO2 Calibration Plot Date: May 21, 2025 Location: Fort McKay South



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Fort McKay South	Station number:	AMS 13
Calibration Date:	May 13, 2025	Last Cal Date:	April 3, 2025
Start time (MST):	9:13	End time (MST):	13:11
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.88	ppm	Cal Gas Exp Date:	September 5, 2027
Cal Gas Cylinder #:	CC500241			
Removed Cal Gas Conc:	4.88	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:	CC500241		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	2448
ZAG Make/Model:	Teledyne API T701		Serial Number:	5609

Analyzer Information

Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1180540017
Converter make:	CDN-101		Converter serial #:	521
Analyzer Range	0 - 100 ppb		Converter Temp:	800 degC

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.012874	1.009144	Backgd or Offset:	3.70	3.70
Calibration intercept:	-0.018392	-0.238398	Coeff or Slope:	1.14	1.12

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	4918	81.6	79.6	81.4	0.977
As found Mid point	4959	40.8	39.8	40.4	0.983
As found Low point	4980	20.4	19.9	19.9	0.995
New cylinder response					

Baseline Corr As found:	81.5	Prev response:	80.65	*% change:	1.0%
Baseline Corr 2nd AF pt:	40.5	AF Slope:	1.024497	AF Intercept:	-0.298376
Baseline Corr 3rd AF pt:	20.0	AF Correlation:	0.999973	* = > +/-5% change initiates 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	4918	81.6	79.6	80.2	0.993
Mid point	4959	40.8	39.8	39.9	0.998
Low point	4980	20.4	19.9	19.7	1.011
As left zero	5000	0.0	0.0	0.1	----
As left span	4918	81.6	79.6	78.3	1.017
SO2 Scrubber Check	4921	79.1	791.0	0.1	----

Date of last scrubber change:	20-Jan-20	Ave Corr Factor	1.001
Date of last converter efficiency test:			

Notes: Changed inlet filter after multipoint as founds. SO2 scrubber check done after calibrator zero and passed. Adjusted span only.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

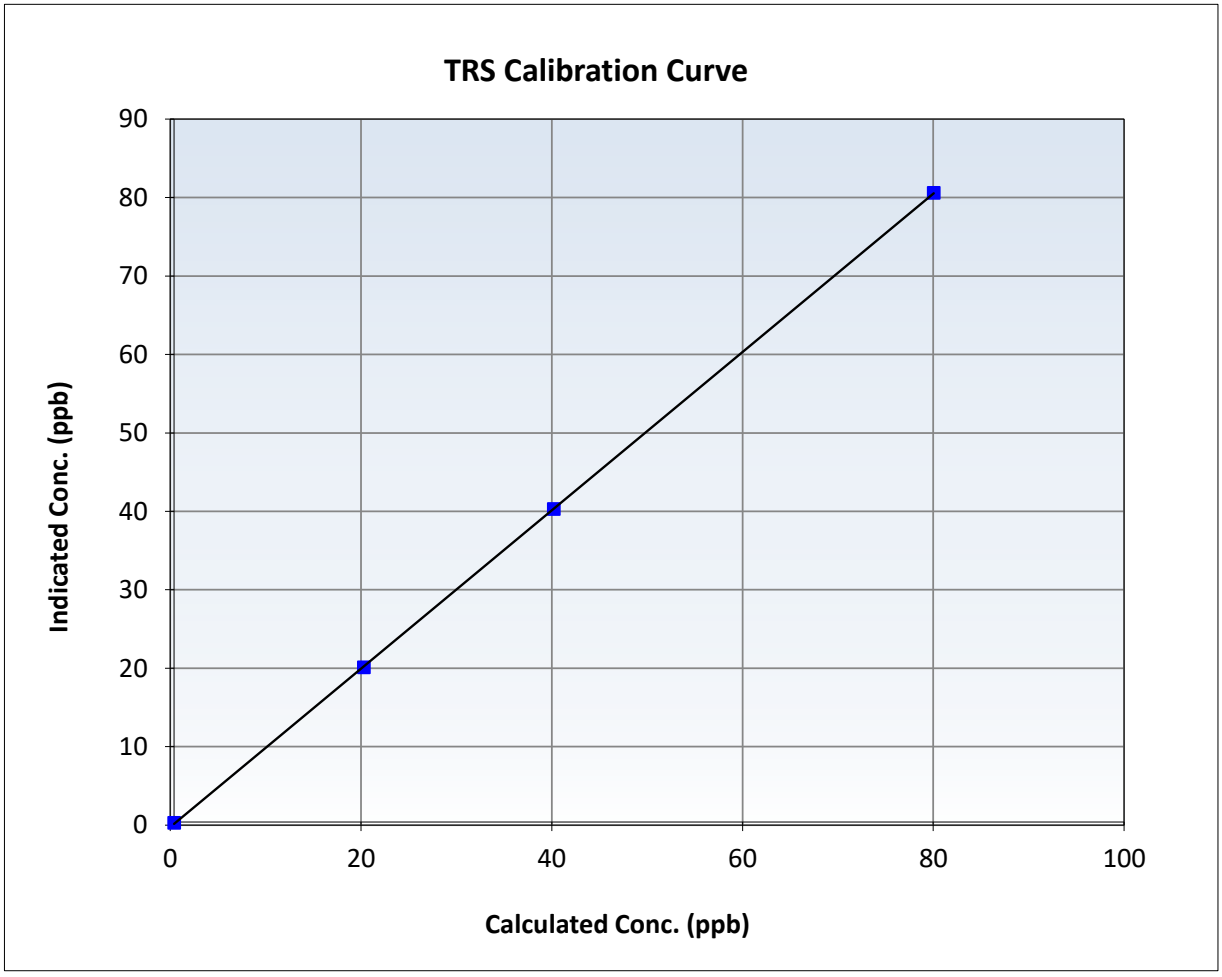
TRS Calibration Summary

Station Information

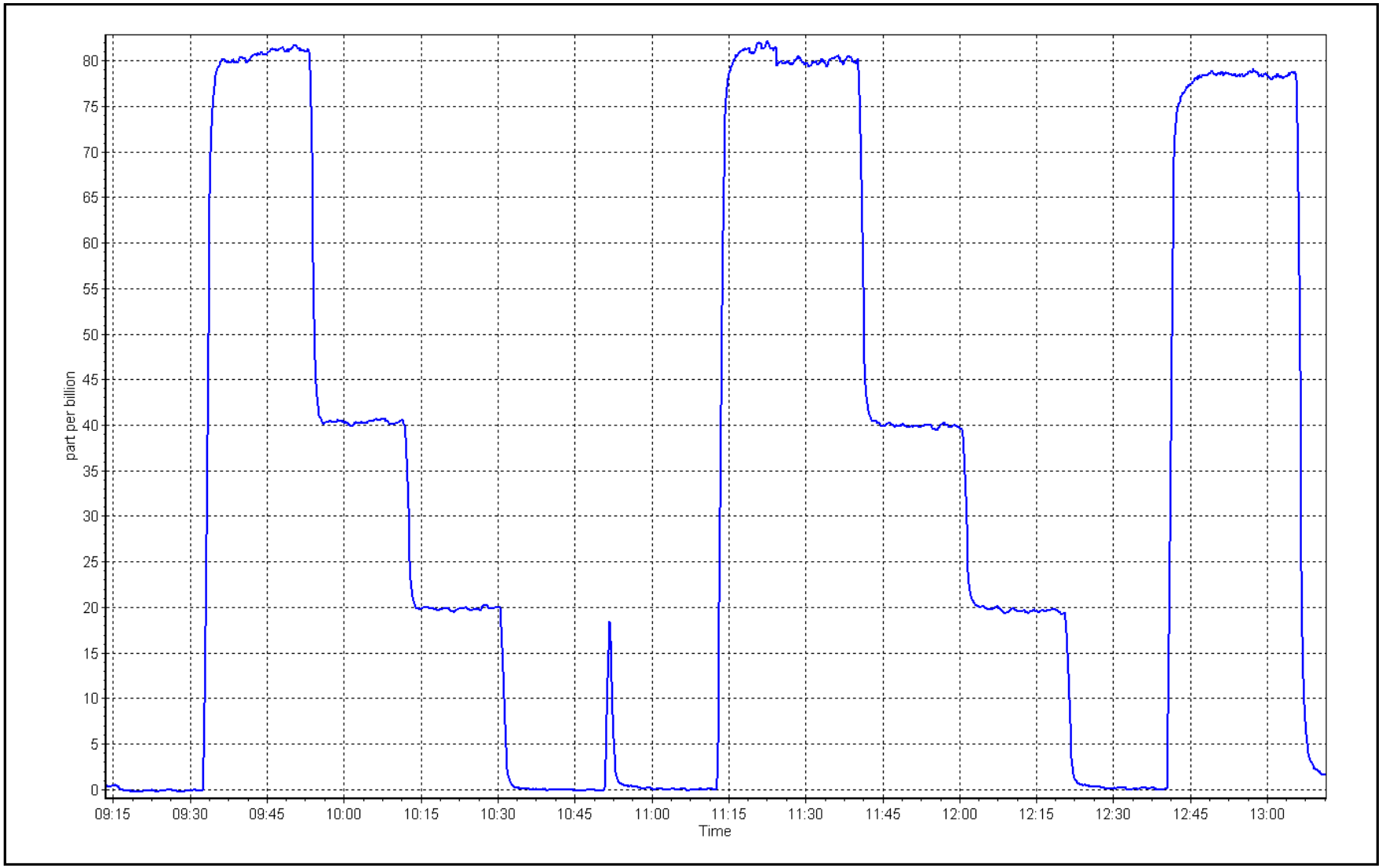
Calibration Date:	May 13, 2025	Previous Calibration:	April 3, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	9:13	End Time (MST):	13:11
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1180540017

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	-0.1	----	Correlation Coefficient	0.999986	*≥0.995*
79.6	80.2	0.9931	Slope	1.009144	*0.90 - 1.10*
39.8	39.9	0.9981			
19.9	19.7	1.0106	Intercept	-0.238398	*+/-3*



TRS Calibration Plot Date: May 13, 2025 Location: Fort McKay South



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Fort McKay South	Station number:	AMS 13
Calibration Date:	May 21, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	9:18	End time (MST):	12:37
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	CC260812	Cal Gas Expiry Date:	Friday, December 29, 2028
CH4 Cal Gas Conc.	503.6 ppm	CH4 Equiv Conc.	1077.5 ppm
C3H8 Cal Gas Conc.	208.7 ppm		
Removed Gas Cert:	NA	Removed Gas Expiry:	
Removed CH4 Conc.	503.6 ppm	CH4 Equiv Conc.	1077.5 ppm
Removed C3H8 Conc.	208.7 ppm	Diff between cyl (THC):	
Diff between cyl (CH_4):		Diff between cyl (NM):	
Calibrator Model:	Teledyne API T700	Serial Number:	2448
Zero Air Gen model:	Teledyne API T701	Serial Number:	1118

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1181490018
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.68E-04	2.64E-04	NMHC SP Ratio:	4.54E-05	4.51E-05
CH4 Retention time:	14.80	15.00	NMHC Peak Area:	200097	201353
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	17.05	17.23	0.989
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	17.23	Prev response	17.06	*% change	1.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	17.05	17.03	1.001
Mid point	4961	39.5	8.51	8.51	1.000
Low point	4980	19.8	4.27	4.29	0.994
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	17.05	17.02	1.002
				Average Correction Factor	0.999

Notes: Adjusted span only.

Wood Buffalo Environmental Association

THC / CH_4 / 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	9.08	9.15	0.992
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.15	Prev response	9.09	*% change	0.7%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	79.1	9.08	9.07	1.001
Mid point	4961	39.5	4.53	4.55	0.996
Low point	4980	19.8	2.27	2.30	0.990
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	9.08	9.07	1.001
				Average Correction Factor	0.996

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	4921	79.1	7.97	8.08	0.986
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.08	Prev response	7.97	*% change	1.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4921	79.1	7.97	7.95	1.002
Mid point	4961	39.5	3.98	3.96	1.005
Low point	4980	19.8	1.99	2.00	1.000
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.1	7.97	7.94	1.003
				Average Correction Factor	1.002

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	1.003714	0.998230
THC Cal Offset:	-0.046163	0.013228
CH4 Cal Slope:	1.003842	0.998062
CH4 Cal Offset:	-0.023182	-0.000791
NMHC Cal Slope:	1.003363	0.998390
NMHC Cal Offset:	-0.022781	0.014220

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

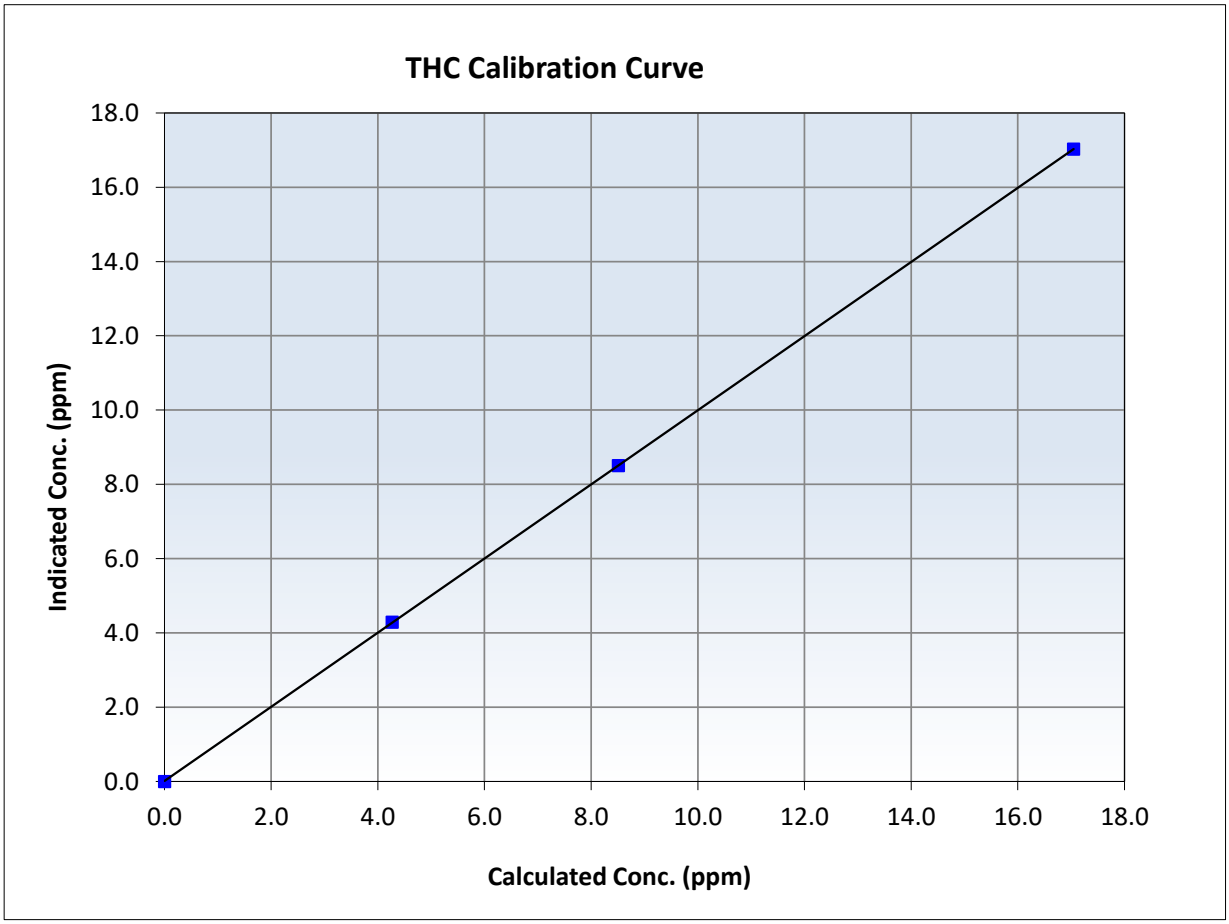
THC Calibration Summary

Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 14, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	9:18	End Time (MST):	12:37
Analyzer make:	Thermo 55i	Analyzer serial #:	1181490018

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999997	≥0.995
17.05	17.03	1.0012	Slope	0.998230	0.90 - 1.10
8.51	8.51	1.0003	Intercept	0.013228	+/-0.5
4.27	4.29	0.9944			



Wood Buffalo Environmental Association

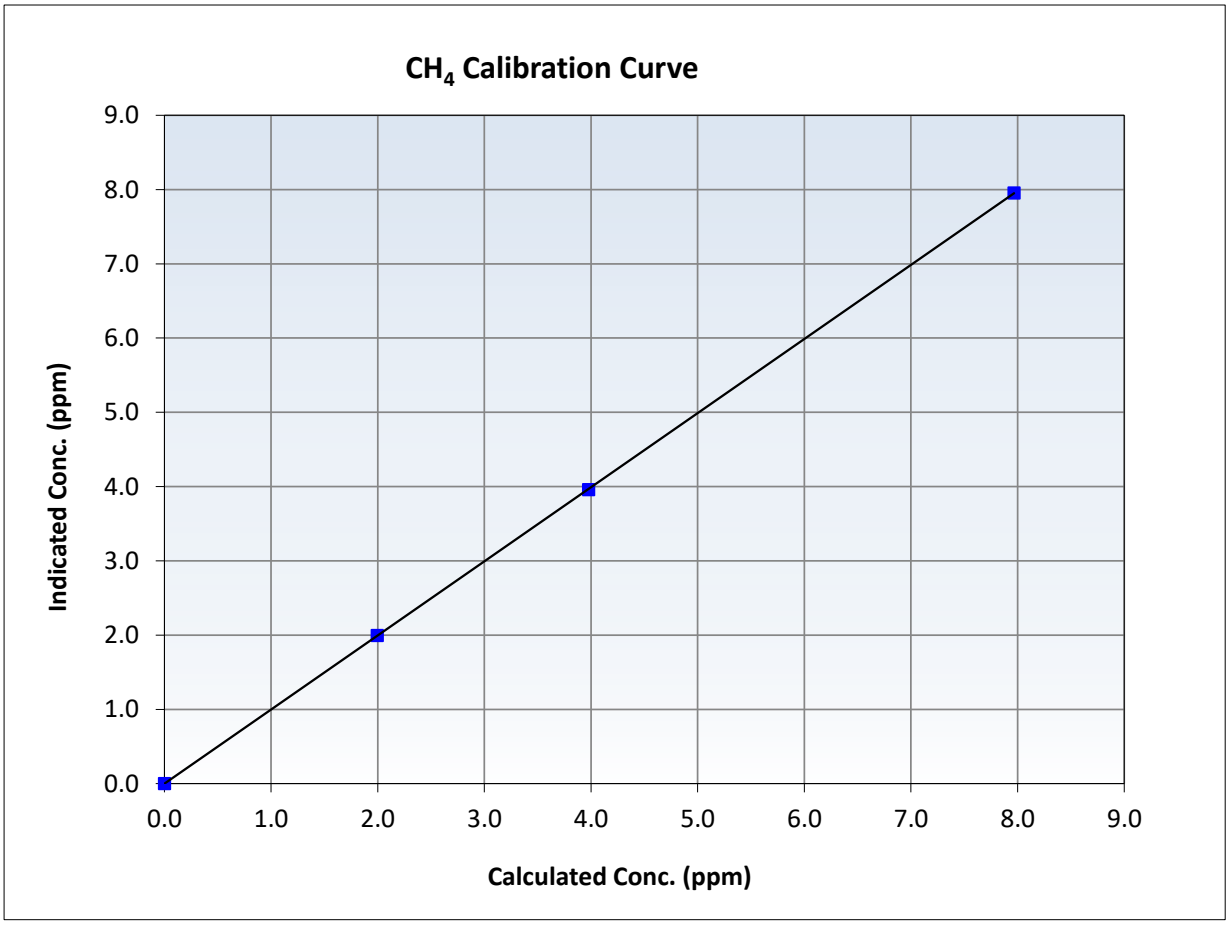
CH_4 Calibration Summary

Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 14, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	9:18	End Time (MST):	12:37
Analyzer make:	Thermo 55i	Analyzer serial #:	1181490018

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999996	≥0.995
7.97	7.95	1.0016	Slope	0.998062	0.90 - 1.10
3.98	3.96	1.0046			
1.99	2.00	0.9997	Intercept	-0.000791	+/-0.5



Wood Buffalo Environmental Association

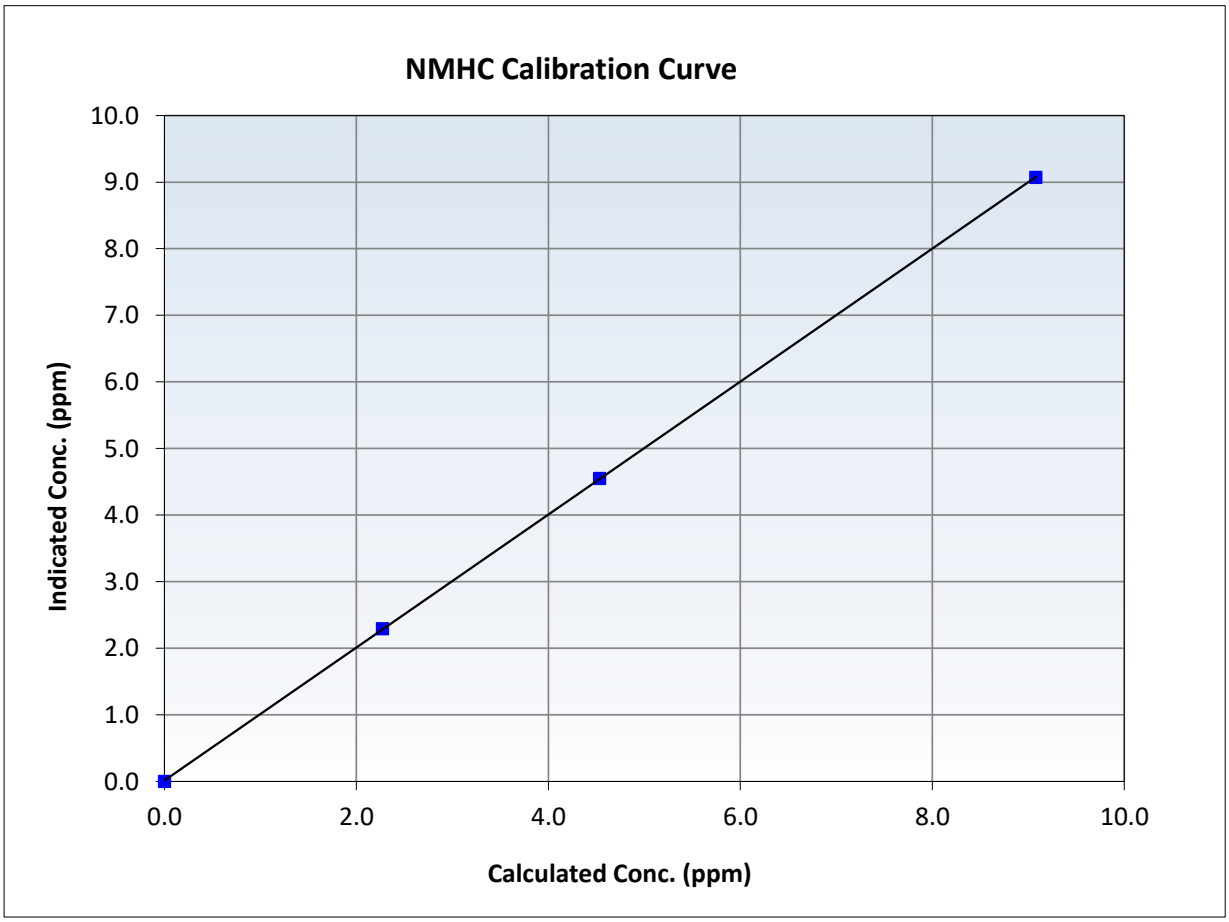
NMHC Calibration Summary

Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 14, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	9:18	End Time (MST):	12:37
Analyzer make:	Thermo 55i	Analyzer serial #:	1181490018

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999989	≥0.995
9.08	9.07	1.0009	Slope	0.998390	0.90 - 1.10
4.53	4.55	0.9964	Intercept	0.014220	+/-0.5
2.27	2.30	0.9899			



NMHC Calibration Plot Date: May 21, 2025 Location: Fort McKay South

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Fort McKay South
Station number:	AMS 13
Calibration Date:	May 15, 2025
Last Cal Date:	April 9, 2025
Start time (MST):	8:50
End time (MST):	13:13
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	T2UP1RP	Cal Gas Expiry Date:	November 17, 2026
NOX Cal Gas Conc:	48.25 ppm	NO Cal Gas Conc:	47.88 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	48.25 ppm	Removed Gas NO Conc:	47.88 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	2448
ZAG make/model:	Teledyne APIT701	Serial Number:	1118

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	0.9	1.1	-0.2	----	----
AF High point	4917	83.5	805.7	799.5	6.2	795.5	786.0	9.6	1.0140	1.0186
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X =	805.2 ppb	NO =	798.1 ppb	* = > +/-5% change initiates investigation	*Percent Change	NO_X = -1.3%
Baseline Corr 1st pt	NO_X =	794.6 ppb	NO =	784.9 ppb	As Found Statistics	*Percent Change	NO = -1.7%
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO_X r^2:	Nx Sl:	Nx Int:
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO r^2:	NO Sl:	NO Int:
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42iQ

Serial Number: 12300522720

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.439	1.459	NO bkgnd or offset:	6.2	8.4
NOX coeff or slope:	1.004	0.999	NOX bkgnd or offset:	6.5	8.4
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	299.7	318.4

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.000273	1.002421
NO_X Cal Offset:	-0.713699	-4.471249
NO Cal Slope:	1.000168	1.003677
NO Cal Offset:	-1.571481	-4.949586
NO_2 Cal Slope:	1.007210	0.995798
NO_2 Cal Offset:	-0.123860	1.237334

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	4917	83.5	805.7	799.5	6.2	806.2	800.8	5.4	0.9994	0.9984
Mid point	4958	41.8	403.4	400.3	3.1	395.2	391.8	3.4	1.0207	1.0217
Low point	4979	20.9	201.7	200.1	1.5	195.0	192.8	2.2	1.0343	1.0381
As left zero	5000	0.0	0.0	0.0	0.0	0.0	-0.2	0.2	----	----
As left span	4917	83.5	805.7	414.6	391.1	795.1	414.6	380.5	1.0133	1.0000
							Average Correction Factor		1.0181	1.0194

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	0.0	----	----
High GPT point	796.2	415.4	387.0	386.4	1.0015	99.9%
Mid GPT point	796.2	602.1	200.3	200.0	1.0014	99.9%
Low GPT point	796.2	703.2	99.2	102.1	0.9714	102.9%
				Average Correction Factor	0.9914	100.9%

Notes: Changed inlet filter. Adjusted zero and span.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

NO_X Calibration Summary

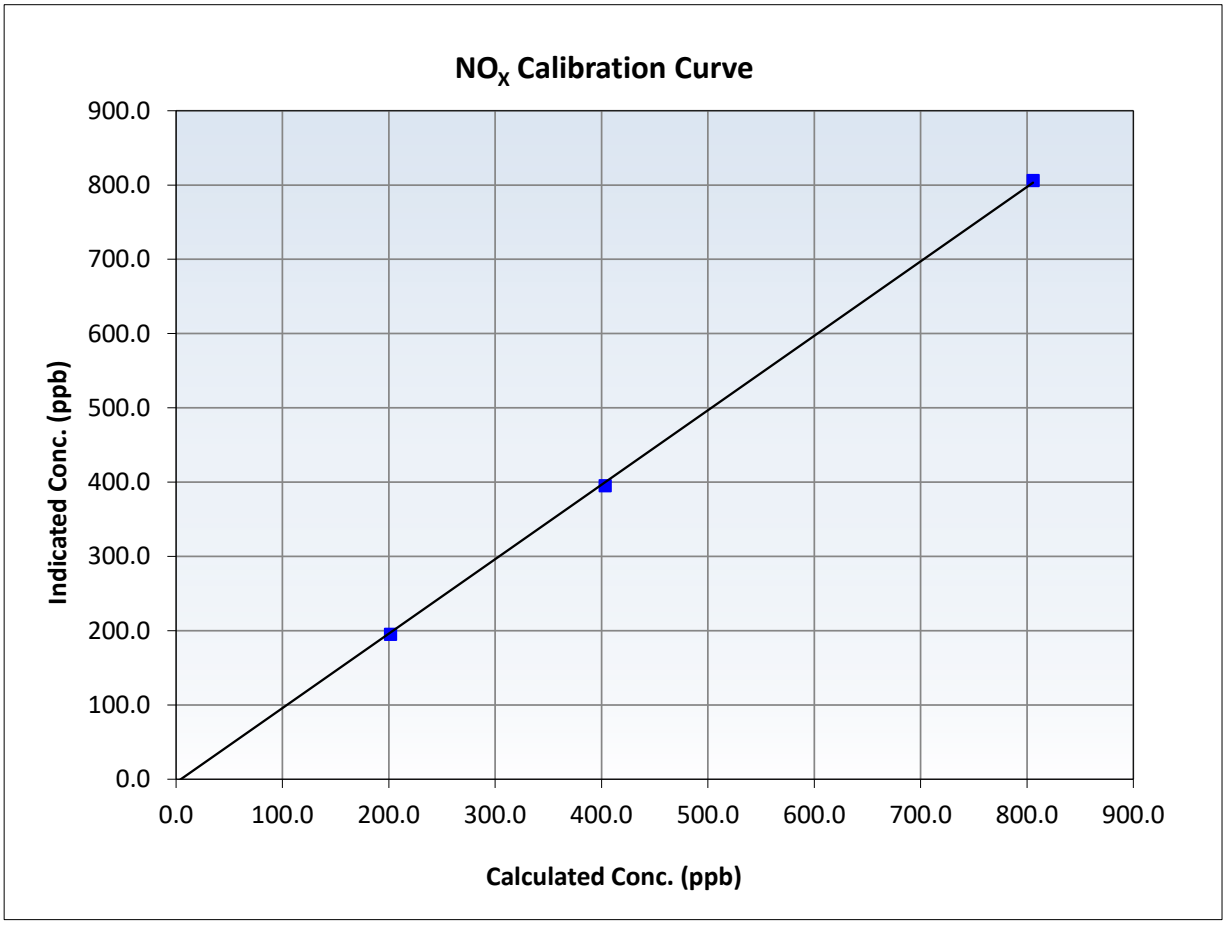
Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	April 9, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	8:50	End Time (MST):	13:13
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12300522720

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
805.7	806.2	0.9994
403.4	395.2	1.0207
201.7	195.0	1.0343

Statistical Evaluation		Limits
Correlation Coefficient	0.999839	≥0.995
Slope	1.002421	0.90 - 1.10
Intercept	-4.471249	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

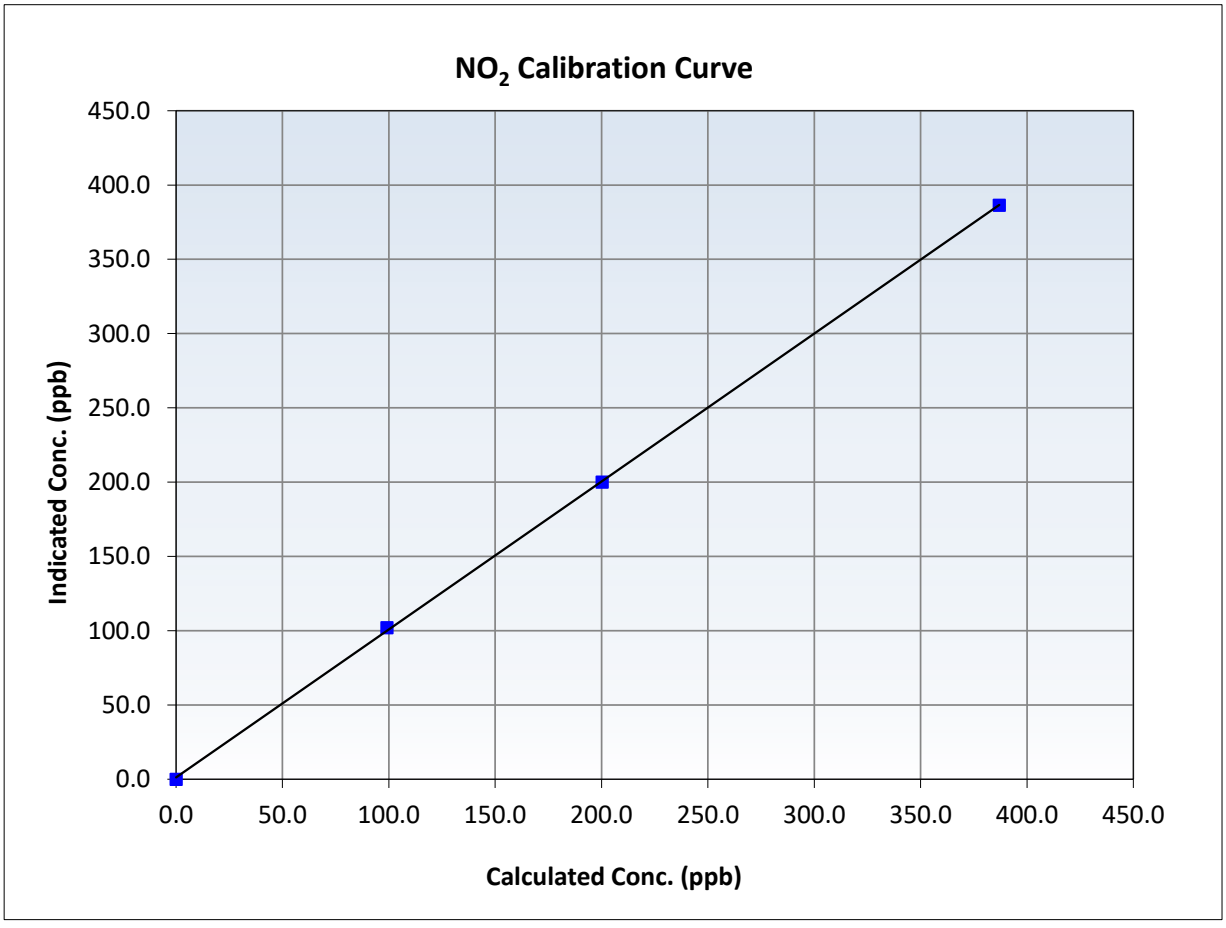
Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	April 9, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	8:50	End Time (MST):	13:13
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12300522720

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
387.0	386.4	1.0015
200.3	200.0	1.0014
99.2	102.1	0.9714

Statistical Evaluation		Limits
Correlation Coefficient	0.999921	≥0.995
Slope	0.995798	0.90 - 1.10
Intercept	1.237334	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

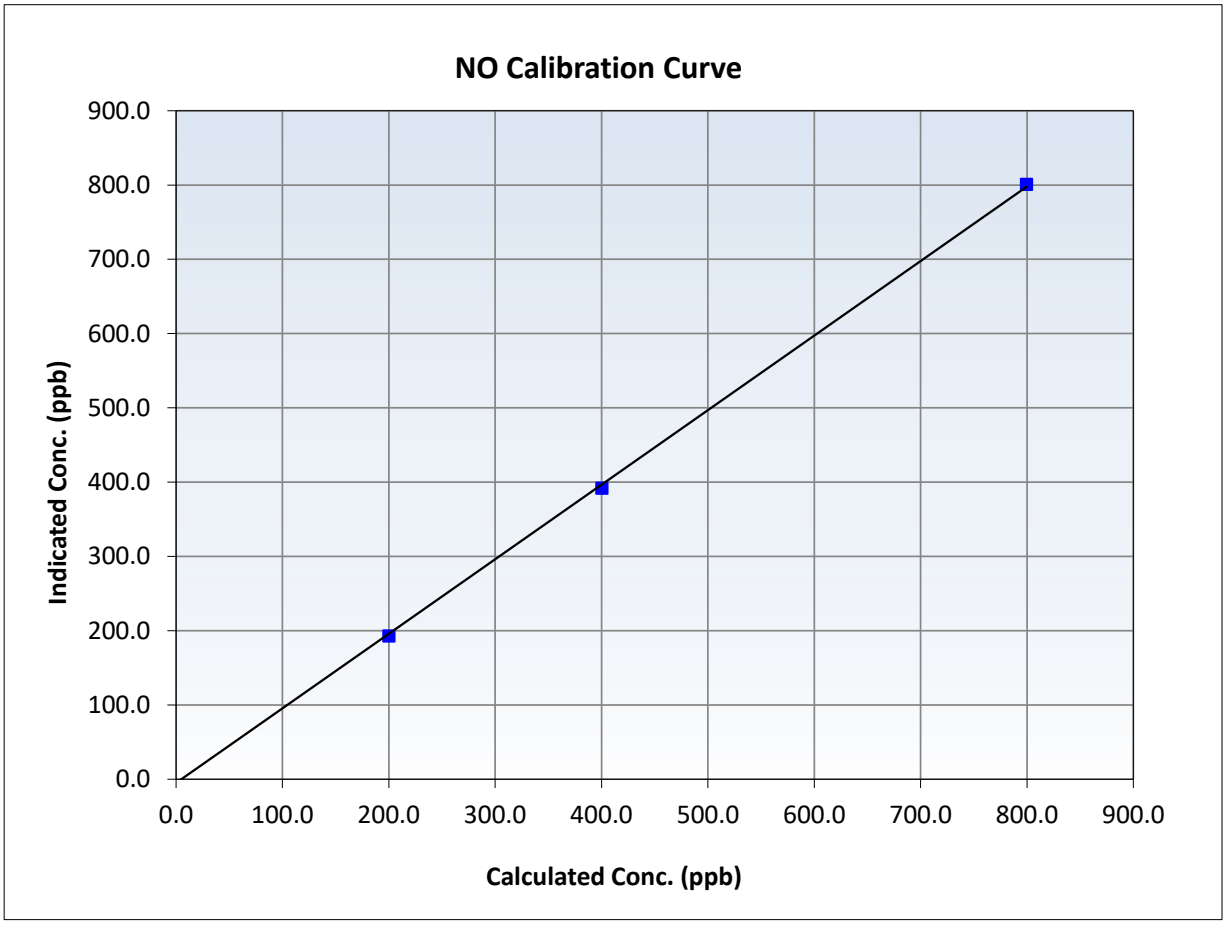
Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	April 9, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	8:50	End Time (MST):	13:13
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12300522720

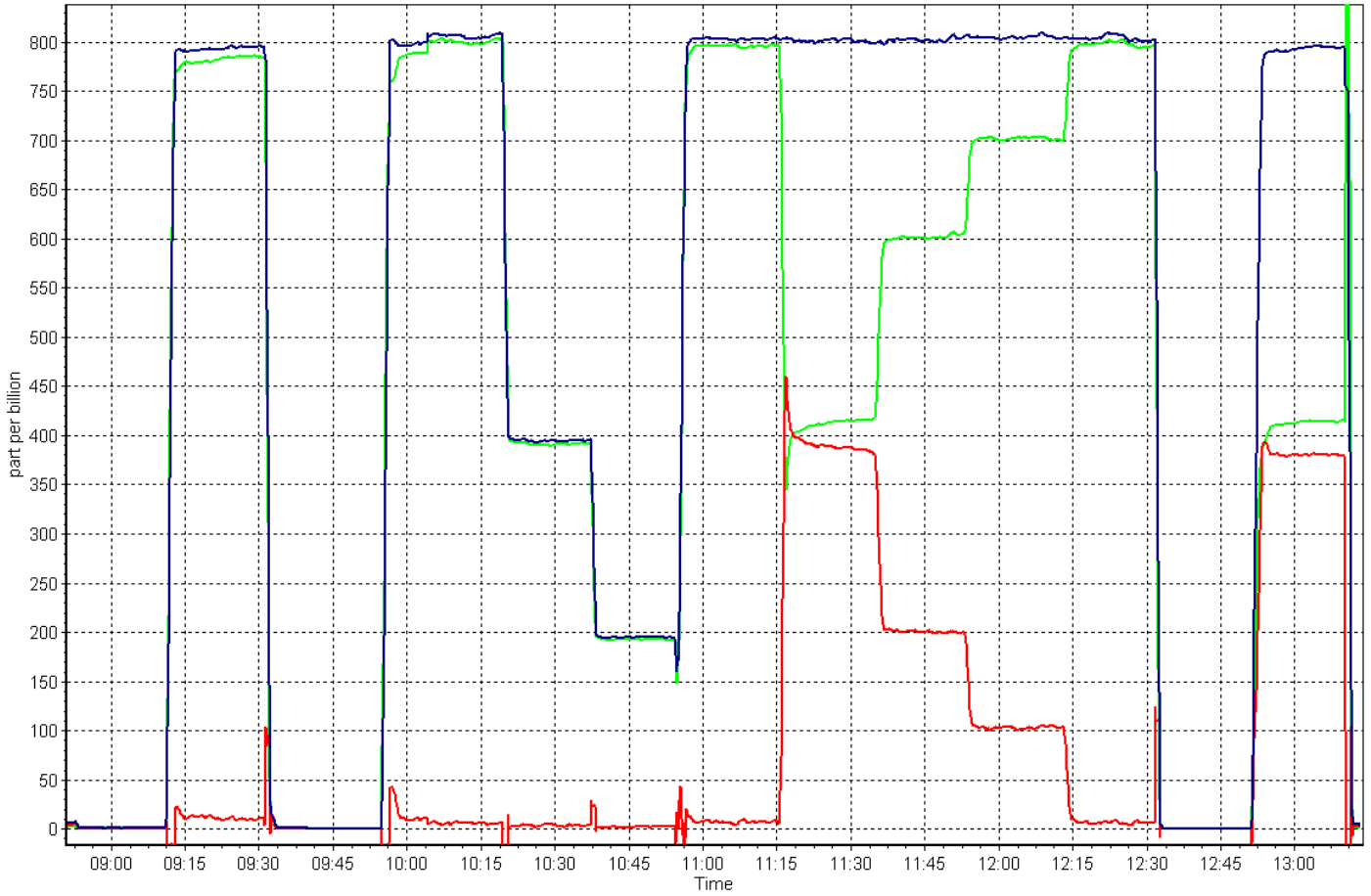
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
799.5	800.8	0.9984
400.3	391.8	1.0217
200.1	192.8	1.0381

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999803	*≥0.995*
Slope	1.003677	*0.90 - 1.10*
Intercept	-4.949586	*+/-20*



NO_X Calibration Plot Date: May 15, 2025 Location: Fort McKay South



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Fort McKay South	Station number:	AMS 13
Calibration Date:	May 12, 2025	Last Cal Date:	April 8, 2025
Start time (MST):	9:19	End time (MST):	12:33
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	Teledyne API T700	Serial Number:	2448
ZAG Make/Model:	Teledyne API T701	Serial Number:	1118

Analyzer Information

Analyzer make:	Teledyne API T400		Analyzer serial #:	3871	
Analyzer Range	0 - 500 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.998886	1.002514	Backgd or Offset:	2.8	2.7
Calibration intercept:	1.320000	1.060000	Coeff or Slope:	0.982	0.975

O_3 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	5000	997.5	400.0	404.5	0.988
As found Mid point					
As found Low point					
Baseline Corr As found:	404.8	Previous response	400.9	*% 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	

O_3 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	996.1	400.0	401.6	0.996
Mid point	5000	850.2	200.0	202.0	0.990
Low point	5000	751.7	100.0	102.3	0.978
As left zero	5000	0.0	0.0	0.3	----
As left span	5000	996.1	400.0	401.3	0.997
				Average Correction Factor	0.988

Notes: Changed inlet filter after as founds. Adjusted span only.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

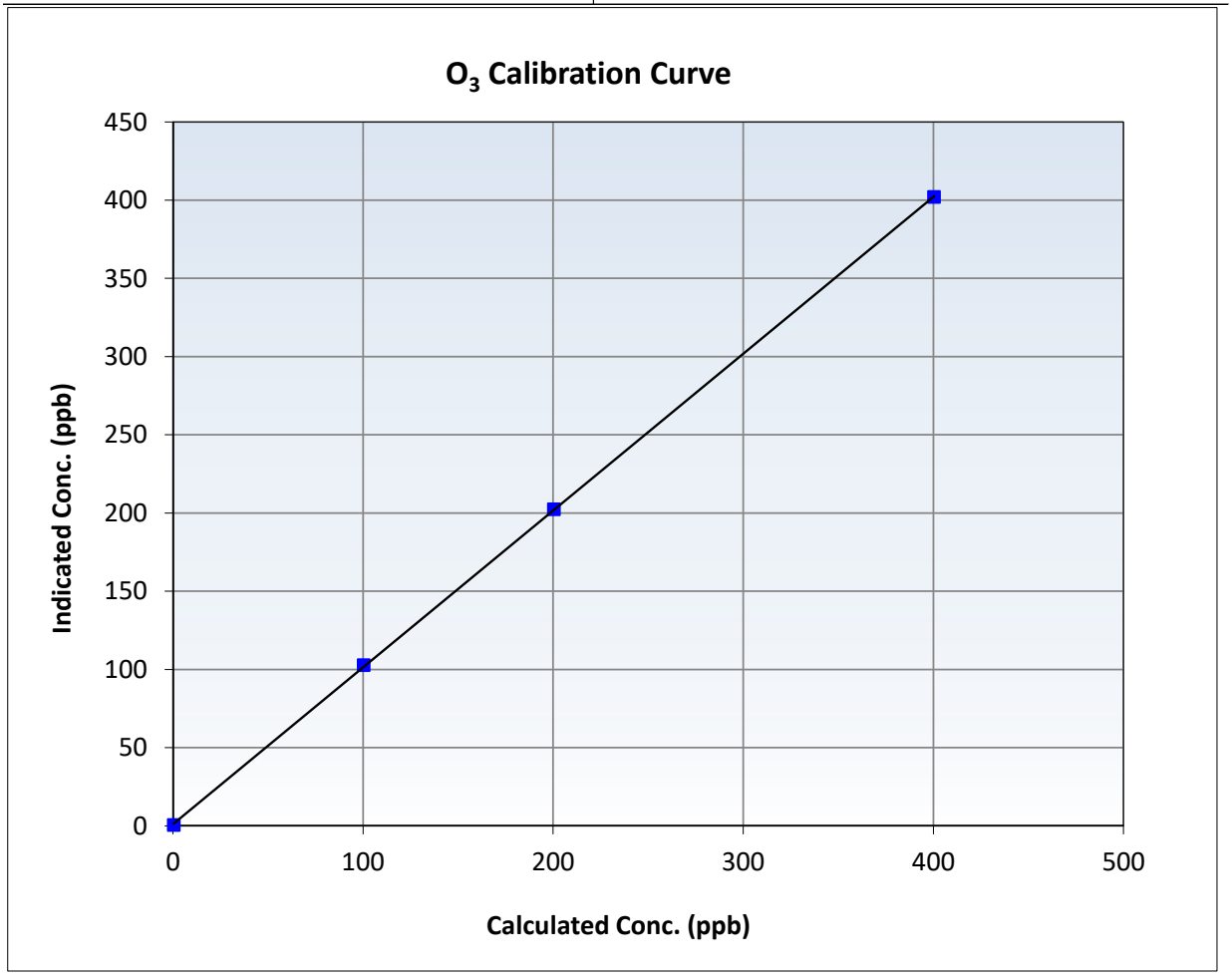
O_3 Calibration Summary

Station Information

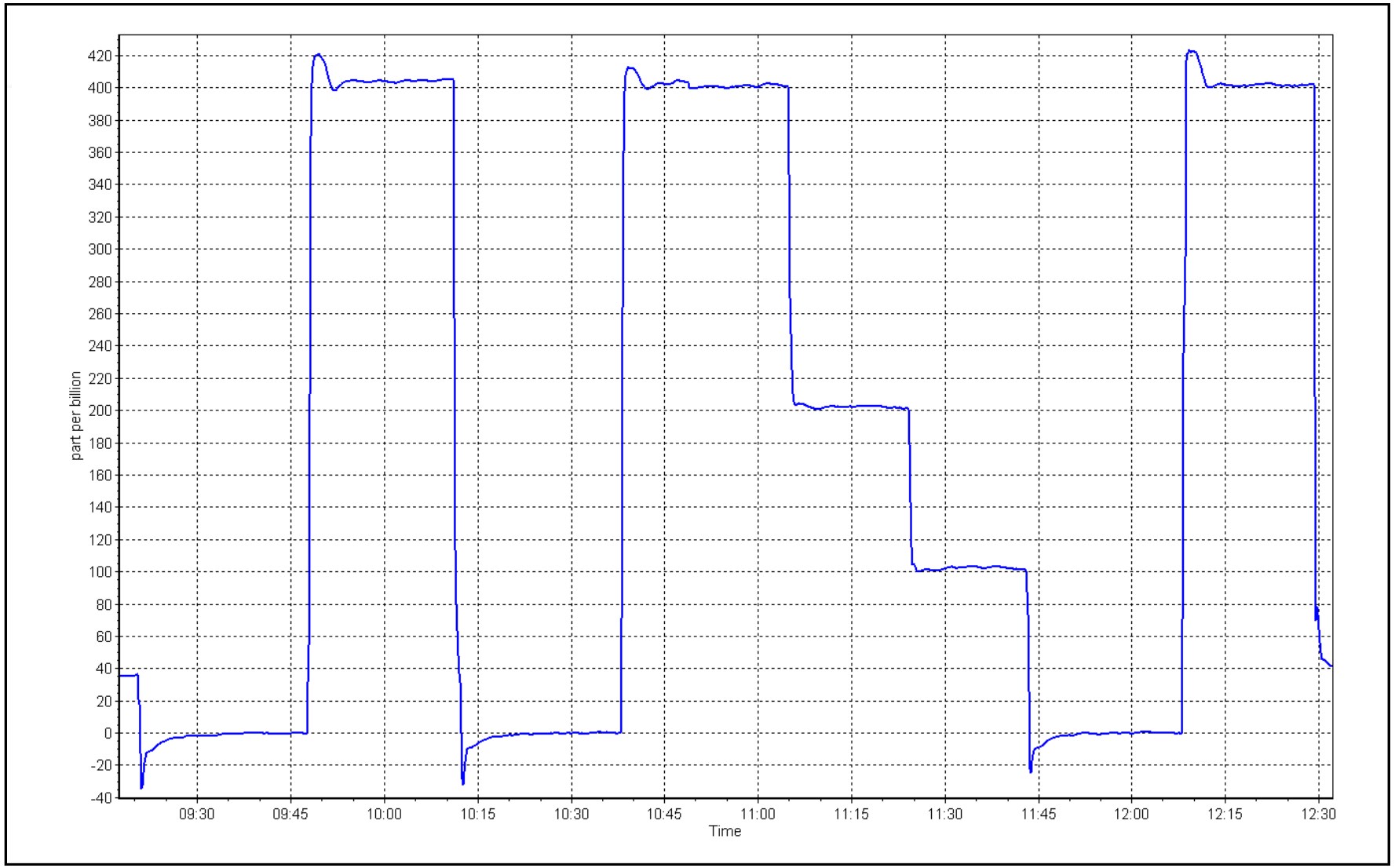
Calibration Date:	May 12, 2025	Previous Calibration:	April 8, 2025
Station Name:	Fort McKay South	Station Number:	AMS 13
Start Time (MST):	9:19	End Time (MST):	12:33
Analyzer make:	Teledyne API T400	Analyzer serial #:	3871

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.1	----	Correlation Coefficient	0.999974	*≥0.995*
400.0	401.6	0.9960	Slope	1.002514	*0.90 - 1.10*
200.0	202.0	0.9901			
100.0	102.3	0.9775	Intercept	1.060000	*+/- 5*



O_3 Calibration Plot Date: May 12, 2025 Location: Fort McKay South



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Fort McKay South	Station number:	AMS 13
Calibration Date:	May 23, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	9:52	End time (MST):	10:04
Analyzer Make:	Teledyne API T640	S/N:	1335
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388746
Temp/RH standard:	Alicat FP-25BT	S/N:	388746

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	17.9	17.63	17.9	☐	+/- 2 °C
P (mmHg)	736.0	737.80	736.0	☐	+/- 10 mmHg
Flow (LPM)	4.98	5.01	4.98	☐	+/- 0.25 LPM
PW% (pump)	41	-----	41	☐	>80%

Zero Verification — PM w/o HEPA: 4.4 — 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: June 10, 2024 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test				☐	+/- 0.5

Date Optical Chamber Cleaned: April 14, 2025

Date Disposable Filter Changed: April 14, 2025

Post- maintenance Zero Verification: PM w/ HEPA: _____ <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: April 14, 2025

Date RH/T Sensor Cleaned: April 14, 2025

Notes: Leak check passed. No adjustment.

Calibration by: Sean Bala

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS14
ANZAC
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Anzac	Station number:	AMS 14
Calibration Date:	May 8, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	10:18	End time (MST):	13:47
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.32	ppm	Cal Gas Exp Date:	October 9, 2032
Cal Gas Cylinder #:	CC462030			
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 Information

Analyzer make:	Thermo 43i		Serial Number:	0710321322	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.995812	1.003995	Backgd or Offset:	24.8	24.6
Calibration intercept:	-1.079277	-1.040153	Coeff or Slope:	1.074	1.074

SO_2 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	4941	79.7	798.8	799.1	1.000
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	798.4	Previous response	794.4	*% change	0.5%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	4941	79.7	798.8	802.3	0.996
Mid point	4980	39.9	400.0	398.3	1.004
Low point	4994	19.9	199.7	198.5	1.006
As left zero	5000	0.0	0.0	1.1	----
As left span	4941	79.7	798.8	804.1	0.993
				Average Correction Factor:	1.002

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

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

SO_2 Calibration Summary

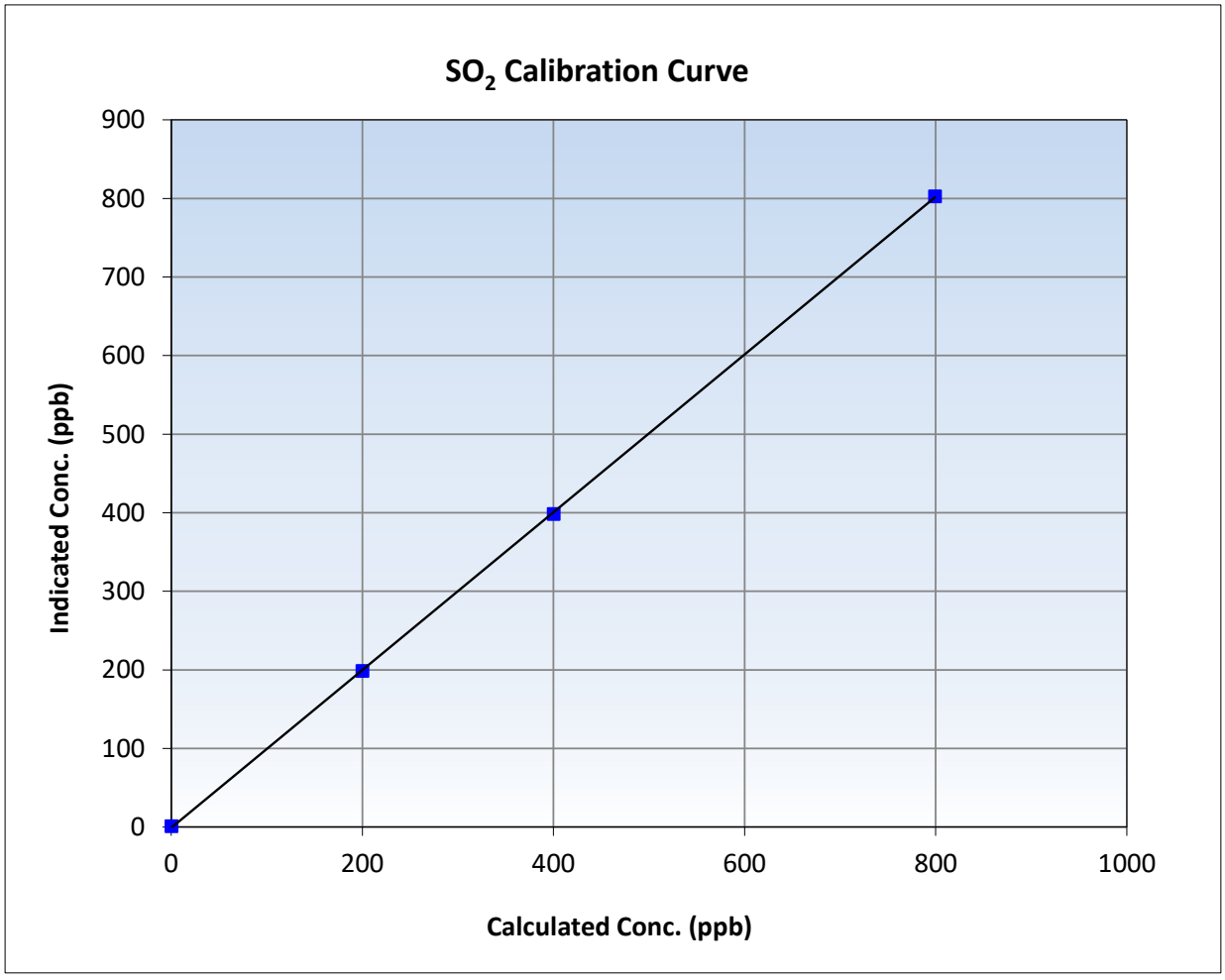
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 7, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:18	End Time (MST):	13:47
Analyzer make:	Thermo 43i	Analyzer serial #:	0710321322

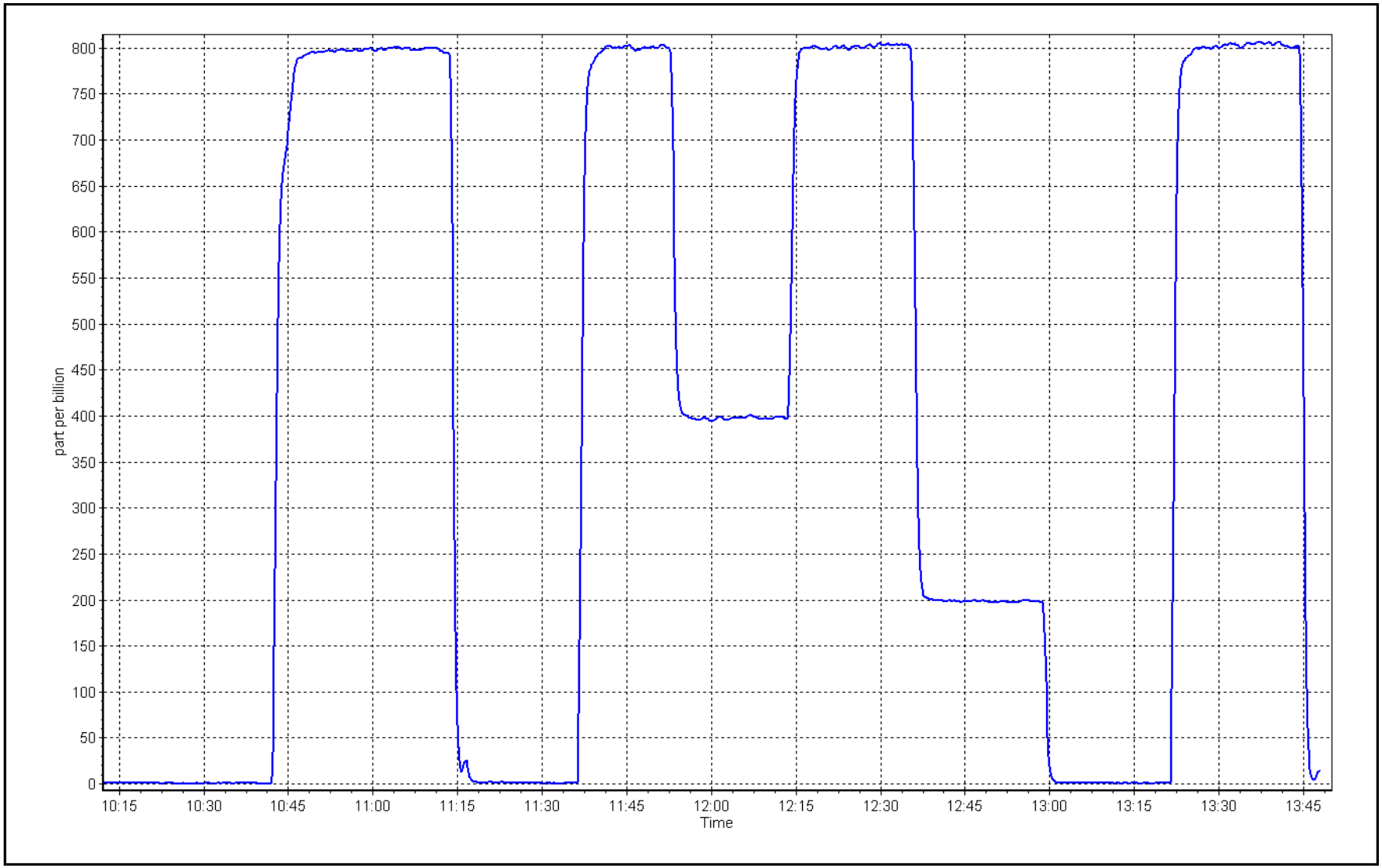
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.8	----
798.8	802.3	0.9956
400.0	398.3	1.0042
199.7	198.5	1.0061

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999968	*≥0.995*
Slope	1.003995	*0.90 - 1.10*
Intercept	-1.040153	*+/-30*



SO2 Calibration Plot Date: May 8, 2025 Location: Anzac



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Anzac	Station number:	AMS 14
Calibration Date:	May 28, 2025	Last Cal Date:	April 16, 2025
Start time (MST):	11:12	End time (MST):	13:30
Reason:	As Found		

Calibration Standards

Cal Gas Concentration:	5.15	ppm	Cal Gas Exp Date:	January 3, 2026
Cal Gas Cylinder #:	CC510379			
Removed Cal Gas Conc:	5.15	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	3060
ZAG Make/Model:	API 701H		Serial Number:	357

Analyzer Information

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
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.010026		Backgd or Offset:	2.4	
Calibration intercept:	-0.005494		Coeff or Slope:	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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	-0.2	----
As found High point	4938	77.9	80.0	82.7	0.965
As found Mid point	4973	38.9	40.0	41.1	0.968
As found Low point	4997	19.5	20.0	20.5	0.967
New cylinder response					
Baseline Corr As found:	82.9	Prev response:	80.78	*% change:	2.6%
Baseline Corr 2nd AF pt:	41.3	AF Slope:	1.036500	AF Intercept:	-0.245631
Baseline Corr 3rd AF pt:	20.7	AF Correlation:	0.999997	* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero					
As left span					
SO2 Scrubber Check					

Date of last scrubber change:

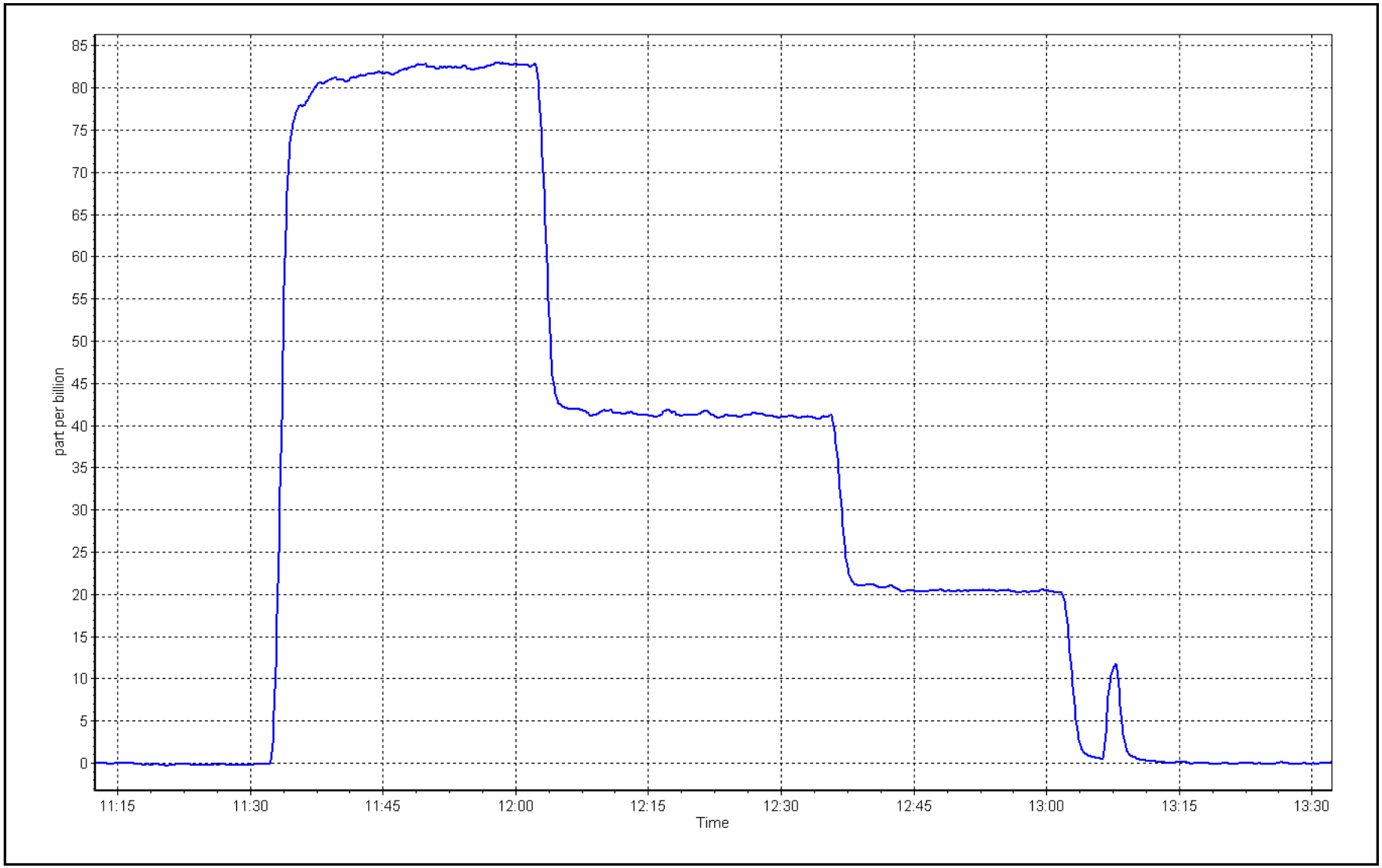
Ave Corr Factor

Date of last converter efficiency test:

Notes: Inlet filter changed after as founds. Swapped out the converter.

Calibration Performed By: Mohammed Kashif

TRS Calibration Plot Date: May 28, 2025 Location: Anzac



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Anzac	Station number:	AMS 14
Calibration Date:	May 29, 2025	Last Cal Date:	April 16, 2025
Start time (MST):	11:05	End time (MST):	14:27
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.15	ppm	Cal Gas Exp Date:	January 3, 2026
Cal Gas Cylinder #:	CC510379			
Removed Cal Gas Conc:	5.15	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	3060
ZAG Make/Model:	API 701H		Serial Number:	357

Analyzer Information

Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1218153582	
Converter make:	CD Nova CDN-101		Converter serial #:	629	
Analyzer Range	0 - 100 ppb		Converter Temp:	800	degC
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.010026	1.022605	Backgd or Offset:	2.4	2.4
Calibration intercept:	-0.005494	-0.445505	Coeff or Slope:	1.026	1.032

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					
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 initiates 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	4938	77.9	80.0	81.5	0.981
Mid point	4973	38.9	40.0	40.2	0.994
Low point	4997	19.5	20.0	19.7	1.016
As left zero	5000	0.0	0.0	0.1	----
As left span	4938	77.9	80.0	85.4	0.936
SO2 Scrubber Check	4941	79.7	793.7	0.2	----
Date of last scrubber change:		28-May-25		Ave Corr Factor	0.997
Date of last converter efficiency test:					

Notes: Adjusted span only.

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

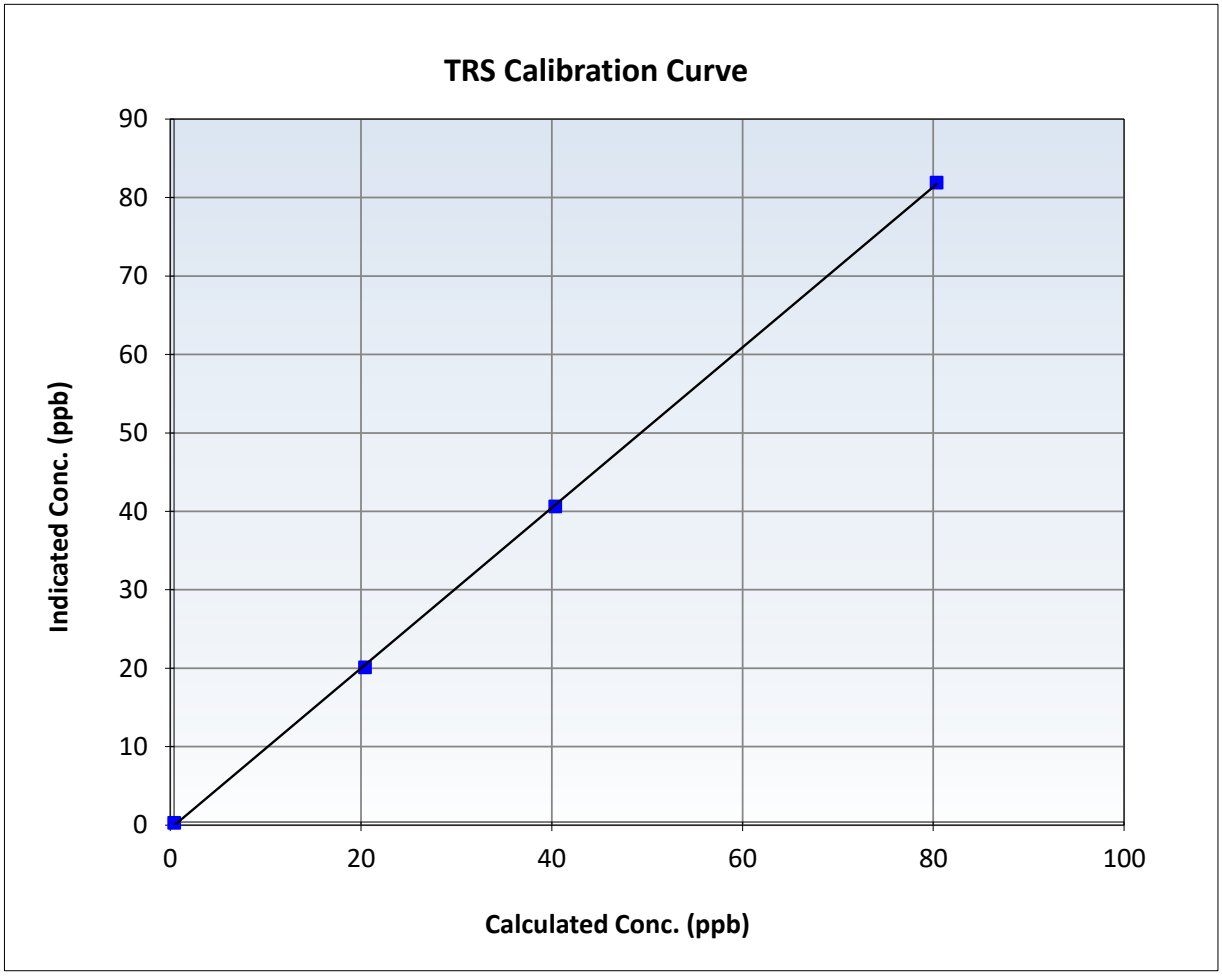
TRS Calibration Summary

Station Information

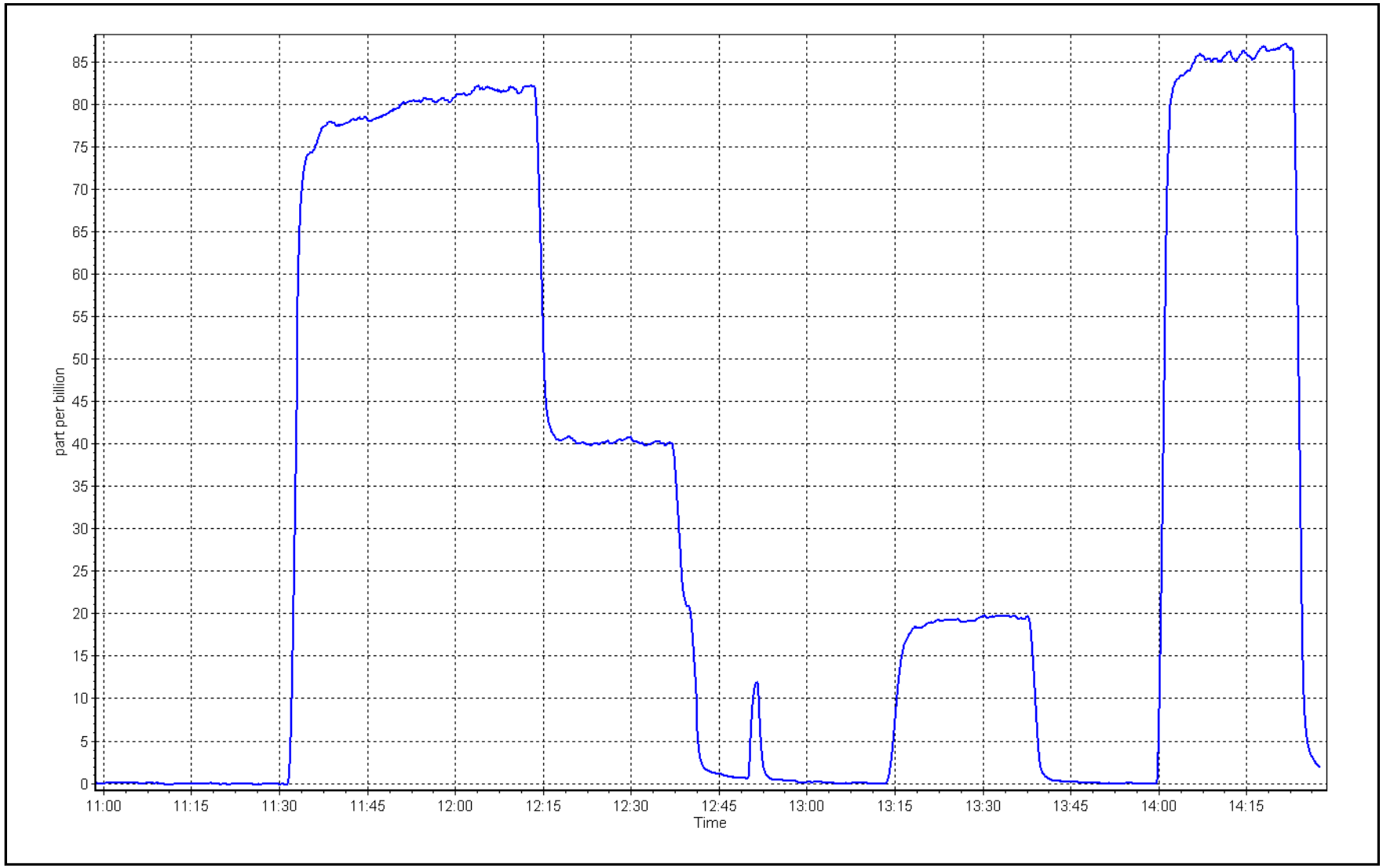
Calibration Date:	May 29, 2025	Previous Calibration:	April 16, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	11:05	End Time (MST):	14:27
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1218153582

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	-0.1	----	Correlation Coefficient	0.999918	*≥0.995*
80.0	81.5	0.9810	Slope	1.022605	*0.90 - 1.10*
40.0	40.2	0.9939			
20.0	19.7	1.0158	Intercept	-0.445505	*+/-3*



TRS Calibration Plot Date: May 29, 2025 Location: Anzac



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Anzac	Station number:	AMS 14
Calibration Date:	May 8, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	10:18	End time (MST):	13:47
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	CC462030	Cal Gas Expiry Date:	October 9, 2032
CH4 Cal Gas Conc.	505.3 ppm	CH4 Equiv Conc.	1068.8 ppm
C3H8 Cal Gas Conc.	204.9 ppm		
Removed Gas Cert:	NA	Removed Gas Expiry:	NA
Removed CH4 Conc.	505.3 ppm	CH4 Equiv Conc.	1068.8 ppm
Removed C3H8 Conc.	204.9 ppm	Diff between cyl (THC):	
Diff between cyl (CH_4):		Diff between cyl (NM):	
Calibrator Model:	API T700	Serial Number:	3060
Zero Air Gen model:	API 701H	Serial Number:	357

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.88E-04	2.88E-04	NMHC SP Ratio:	5.62E-05	5.62E-05
CH4 Retention time:	14.9	14.9	NMHC Peak Area:	159092	159092
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	4941	79.7	16.97	16.91	1.003
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.91	Prev response	16.88	*% change	0.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4941	79.7	16.97	16.84	1.008
Mid point	4980	39.9	8.50	8.25	1.029
Low point	4994	19.9	4.24	4.06	1.044
As left zero	5000	0.0	0.00	0.00	----
As left span	4941	79.7	16.97	16.82	1.009
				Average Correction Factor	1.027

Notes: Changed sample inlet filter and N2 cylinder after as founds. No adjustments made.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4941	79.7	8.94	8.90	1.005
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.90	Prev response	8.90	*% change	0.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	8.85	1.011
Mid point	4980	39.9	4.48	4.36	1.027
Low point	4994	19.9	2.24	2.15	1.040
As left zero	5000	0.0	0.00	0.00	----
As left span	4941	79.7	8.94	8.83	1.013
				Average Correction Factor	1.026

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	4941	79.7	8.02	8.01	1.001
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.01	Prev response	7.98	*% change	0.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	7.99	1.004
Mid point	4980	39.9	4.02	3.89	1.032
Low point	4994	19.9	2.01	1.91	1.049
As left zero	5000	0.0	0.00	0.00	----
As left span	4941	79.7	8.02	7.99	1.004
				Average Correction Factor	1.028

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	1.000487	0.994237
THC Cal Offset:	-0.096108	-0.094697
CH4 Cal Slope:	1.001383	0.998391
CH4 Cal Offset:	-0.055381	-0.056378
NMHC Cal Slope:	0.999223	0.990613
NMHC Cal Offset:	-0.039928	-0.038719

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

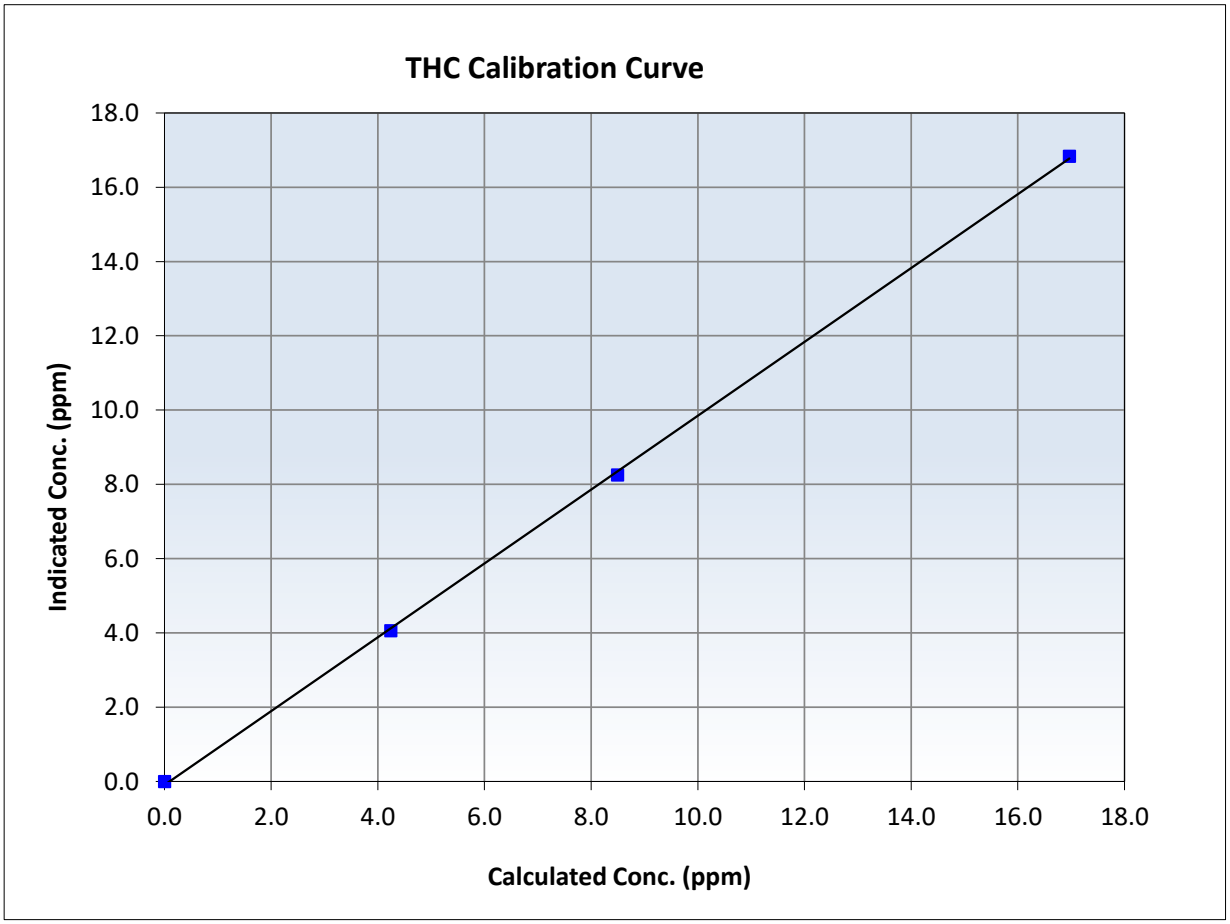
THC Calibration Summary

Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 7, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:18	End Time (MST):	13:47
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999830	≥0.995
16.97	16.84	1.0076	Slope	0.994237	0.90 - 1.10
8.50	8.25	1.0293			
4.24	4.06	1.0443	Intercept	-0.094697	+/-0.5



Wood Buffalo Environmental Association

CH_4 Calibration Summary

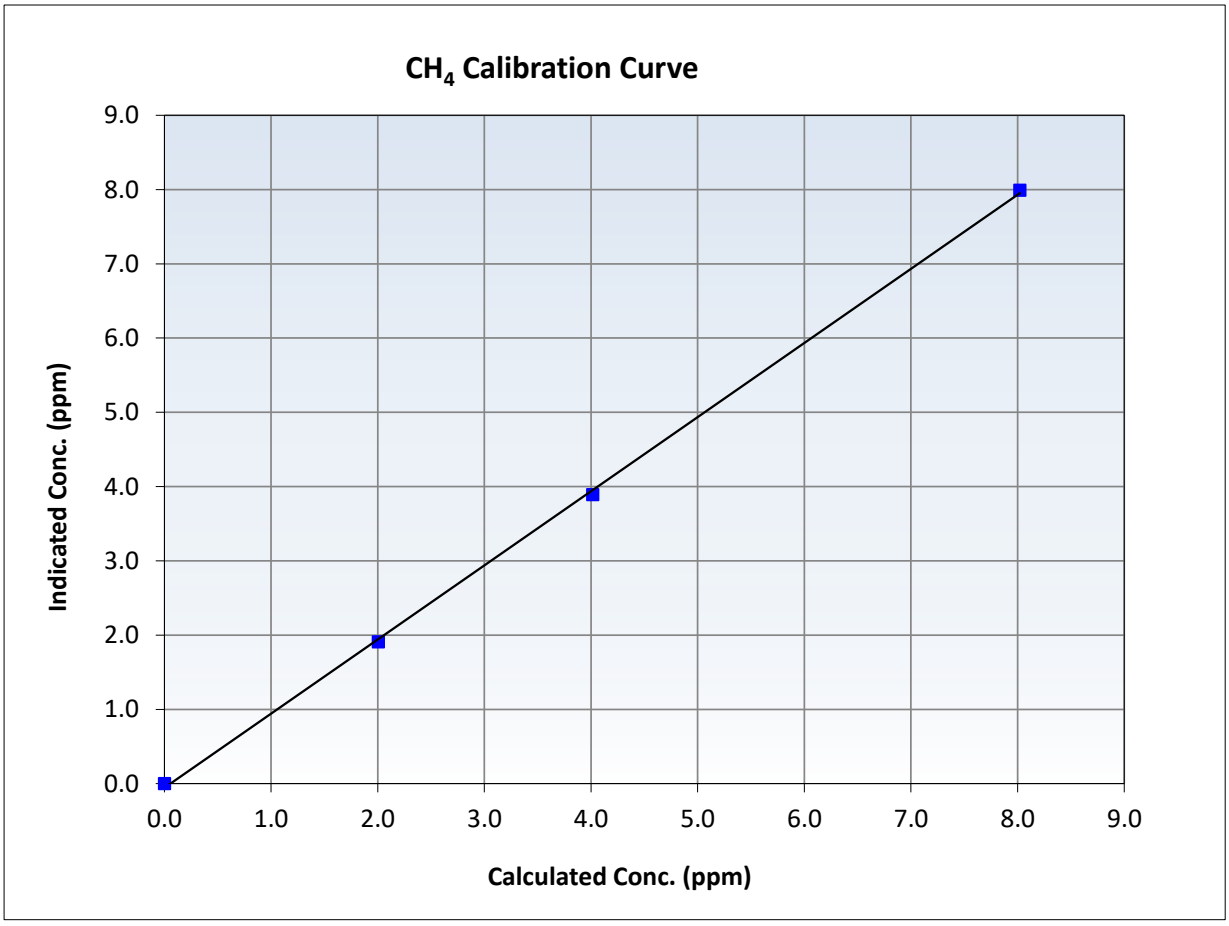
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 7, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:18	End Time (MST):	13:47
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.02	7.99	1.0038
4.02	3.89	1.0317
2.01	1.91	1.0495

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999727	*≥0.995*
Slope	0.998391	*0.90 - 1.10*
Intercept	-0.056378	*+/-0.5*



Wood Buffalo Environmental Association

NMHC Calibration Summary

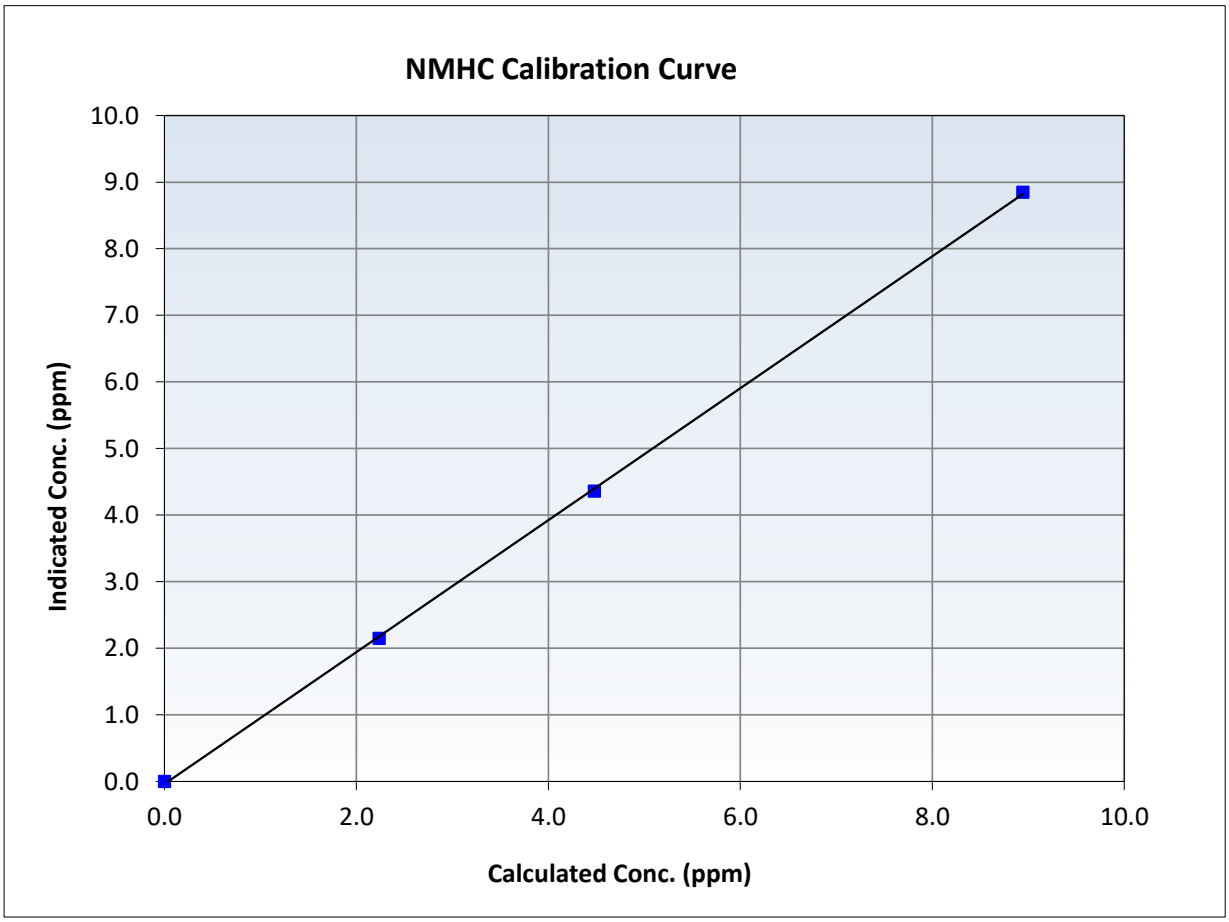
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 7, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:18	End Time (MST):	13:47
Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521

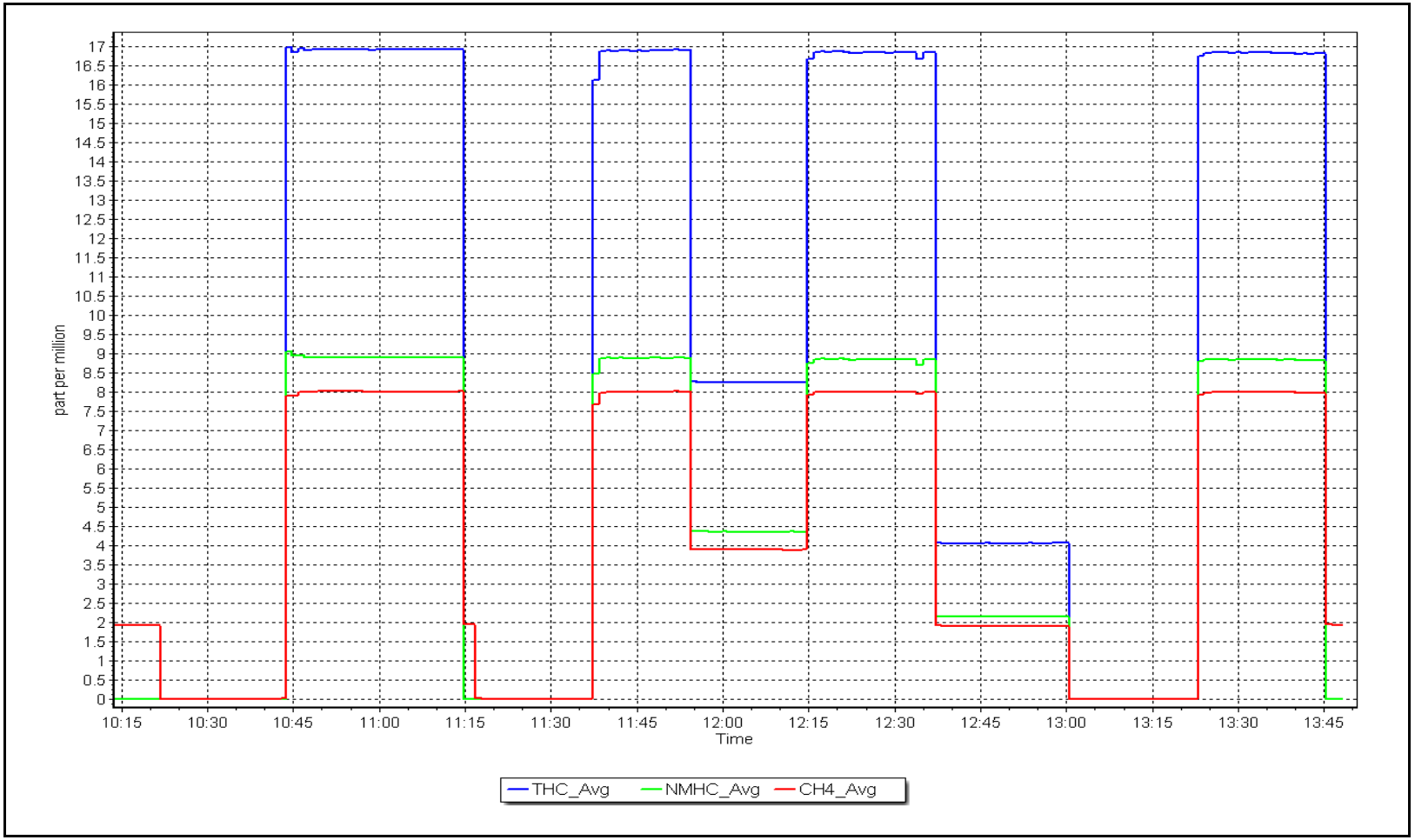
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.94	8.85	1.0109
4.48	4.36	1.0275
2.24	2.15	1.0397

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999899	*≥0.995*
Slope	0.990613	*0.90 - 1.10*
Intercept	-0.038719	*+/-0.5*



NMHC Calibration Plot Date: May 8, 2025 Location: Anzac



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Anzac	Station number:	AMS 14
Calibration Date:	May 22, 2025	Last Cal Date:	May 8, 2025
Start time (MST):	11:47	End time (MST):	13:21
Reason:	Cylinder Change		

Calibration Standards

Gas Cert Reference:	CC462030	Cal Gas Expiry Date:	October 9, 2032
CH4 Cal Gas Conc.	505.3 ppm	CH4 Equiv Conc.	1068.8 ppm
C3H8 Cal Gas Conc.	204.9 ppm		
Removed Gas Cert:	NA	Removed Gas Expiry:	NA
Removed CH4 Conc.	505.3 ppm	CH4 Equiv Conc.	1068.8 ppm
Removed C3H8 Conc.	204.9 ppm	Diff between cyl (THC):	
Diff between cyl (CH_4):		Diff between cyl (NM):	
Calibrator Model:	API T700	Serial Number:	3060
Zero Air Gen model:	API 701H	Serial Number:	357

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1331259521
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.88E-04	2.88E-04	NMHC SP Ratio:	5.62E-05	5.62E-05
CH4 Retention time:	14.9	14.9	NMHC Peak Area:	159092	159092
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	4941	79.7	16.97	16.91	1.003
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.91	Prev response	16.77	*% change	0.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4941	79.7	16.97	16.61	1.021
				Average Correction Factor	

Notes: Changed H2 cylinder.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4941	79.7	8.94	8.93	1.002
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.93	Prev response	8.82	*% change	1.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4941	79.7	8.94	8.77	1.020
				Average Correction Factor	

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	4941	79.7	8.02	7.99	1.005
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.99	Prev response	7.95	*% change	0.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

CH4 Calibration Data

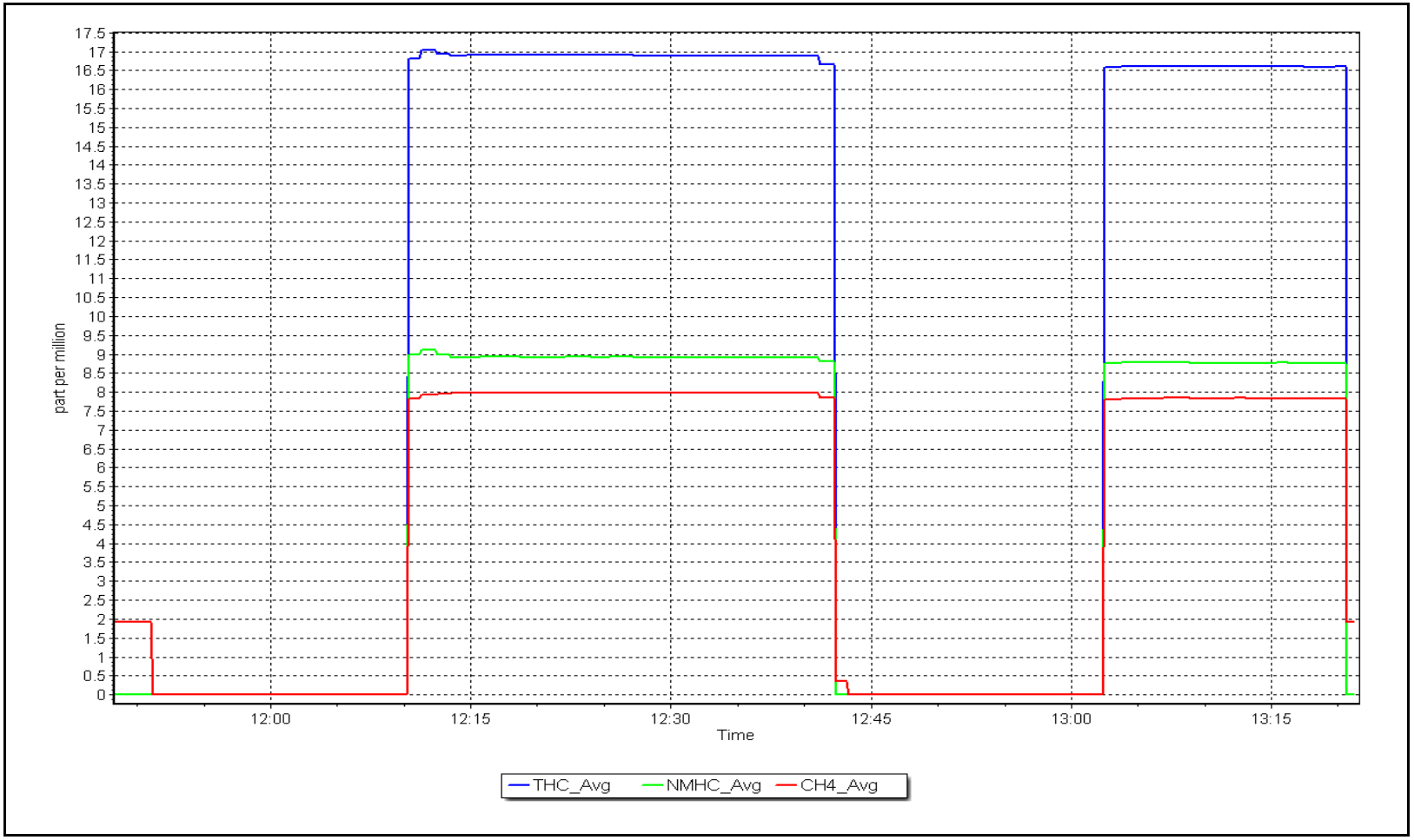
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4941	79.7	8.02	7.84	1.023
				Average Correction Factor	

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.994237	
THC Cal Offset:	-0.094697	
CH4 Cal Slope:	0.998391	
CH4 Cal Offset:	-0.056378	
NMHC Cal Slope:	0.990613	
NMHC Cal Offset:	-0.038719	

Calibration Performed By: Mohammed Kashif

NMHC Calibration Plot Date: May 22, 2025 Location: Anzac



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Anzac
Station number:	AMS 14
Calibration Date:	May 13, 2025
Last Cal Date:	April 4, 2025
Start time (MST):	10:04
End time (MST):	15:10
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0037092		Cal Gas Expiry Date:	May 16, 2031	
NOX Cal Gas Conc:	60.7	ppm	NO Cal Gas Conc:	60.40	ppm
Removed Cylinder #:	NA		Removed Gas Exp Date:	NA	
Removed Gas NOX Conc:	60.70	ppm	Removed Gas NO Conc:	60.40	ppm
NOX gas Diff:			NO gas Diff:		
Calibrator Model:	Teledyne API T700		Serial Number:	3060	
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	0.0	-0.1	0.2	----	----
AF High point	4934	66.3	804.8	800.9	4.0	796.2	792.9	3.3	1.0108	1.0099
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X =	803.5 ppb	NO =	800.8 ppb	
Baseline Corr 1st pt	NO_X =	796.2 ppb	NO =	793.0 ppb	
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb	
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb	

* = > +/-5% change initiates investigation

*Percent Change	NO_X =	-0.9%	
*Percent Change	NO =	-1.0%	

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1152430008

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.424	1.435	NO bkgnd or offset:	3.9	3.9
NOX coeff or slope:	0.996	0.996	NOX bkgnd or offset:	3.9	3.9
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	159.4	157.8

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.998863	0.994460
NO_X Cal Offset:	-0.430260	-0.229995
NO Cal Slope:	1.002566	0.999585
NO Cal Offset:	-2.089249	-1.370003
NO_2 Cal Slope:	0.994974	0.992978
NO_2 Cal Offset:	-1.530514	-1.060954

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	0.2	----	----
High point	4934	66.3	804.8	800.9	4.0	800.2	799.8	0.5	1.0058	1.0013
Mid point	4985	33.2	401.6	399.6	2.0	399.4	397.6	1.9	1.0055	1.0050
Low point	5004	16.7	201.9	200.9	1.0	199.8	197.8	2.0	1.0105	1.0157
As left zero	5000	0.0	0.0	0.0	0.0	0.2	0.0	0.1	----	----
As left span	4934	66.3	804.8	413.7	391.1	807.6	413.7	394.0	0.9966	1.0000
								Average Correction Factor	1.0073	1.0073

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	0.2	----	----
High GPT point	799.5	403.4	400.1	396.8	1.0083	99.2%
Mid GPT point	799.5	607.1	196.4	193.4	1.0154	98.5%
Low GPT point	799.5	703.6	99.9	96.8	1.0318	96.9%
				Average Correction Factor	1.0185	98.2%

Notes: Sample inlet filter changed after as founds. Adjusted span only.

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

NO_X Calibration Summary

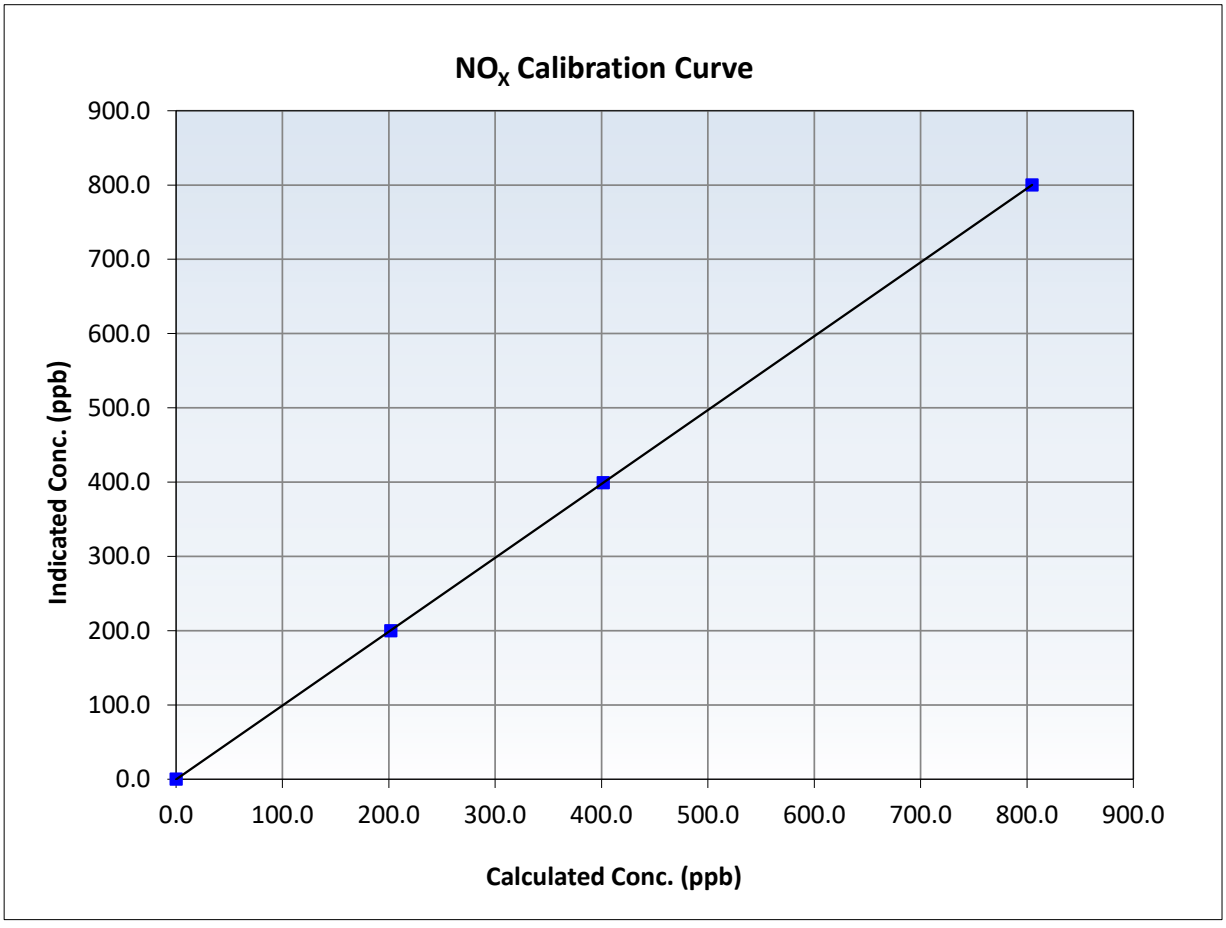
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 4, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:04	End Time (MST):	15:10
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430008

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
804.8	800.2	1.0058
401.6	399.4	1.0055
201.9	199.8	1.0105

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999998	*≥0.995*
Slope	0.994460	*0.90 - 1.10*
Intercept	-0.229995	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

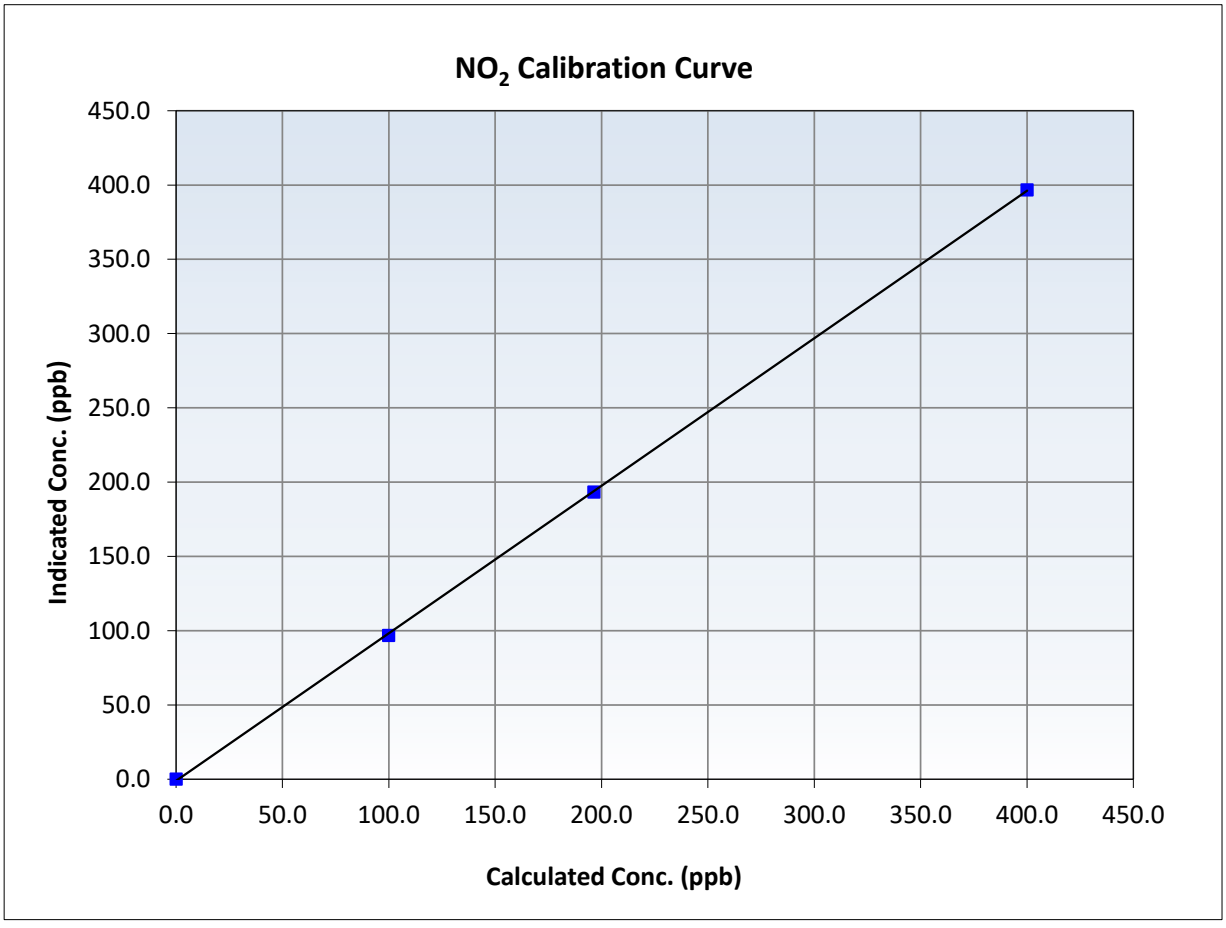
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 4, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:04	End Time (MST):	15:10
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430008

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
400.1	396.8	1.0083
196.4	193.4	1.0154
99.9	96.8	1.0318

Statistical Evaluation		Limits
Correlation Coefficient	0.999954	≥0.995
Slope	0.992978	0.90 - 1.10
Intercept	-1.060954	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

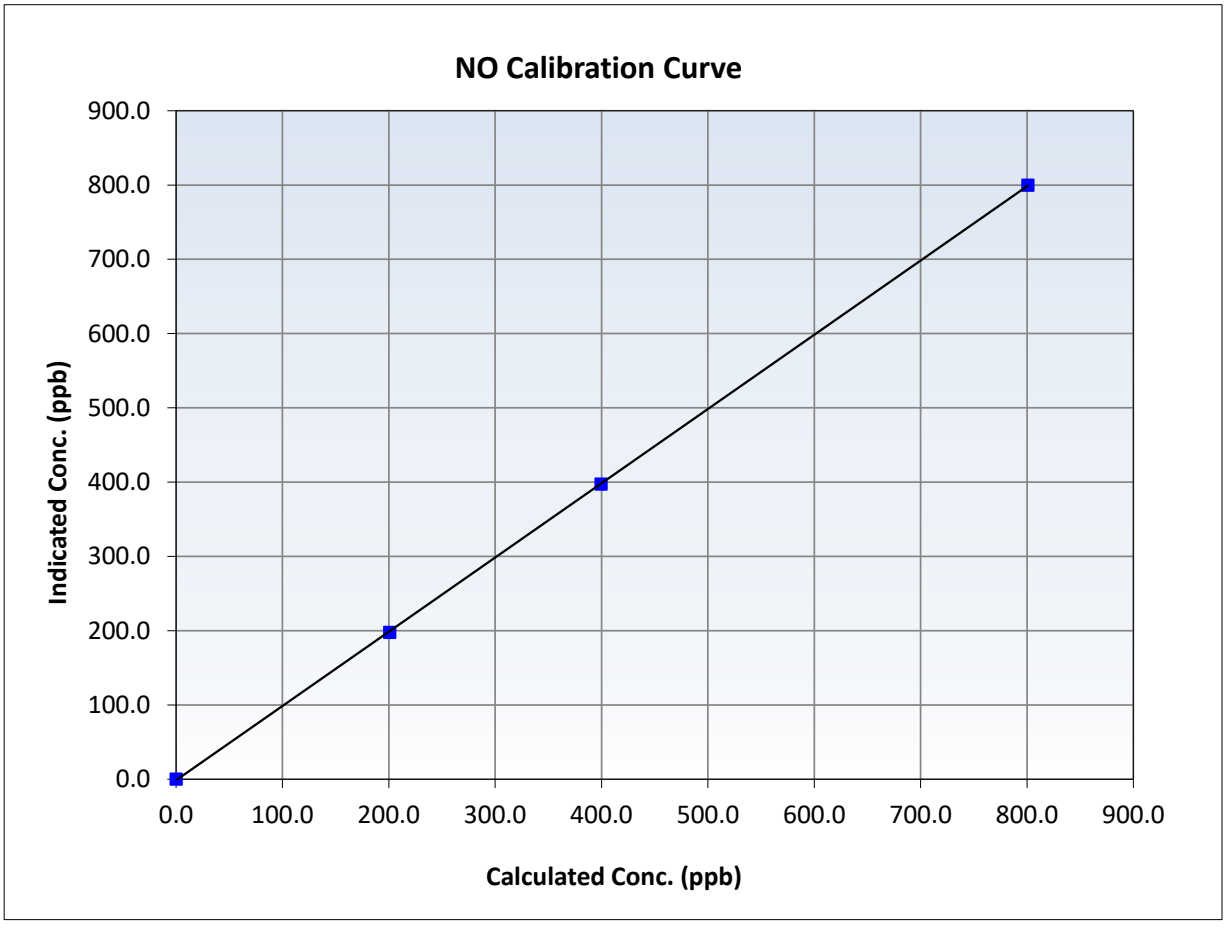
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 4, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:04	End Time (MST):	15:10
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430008

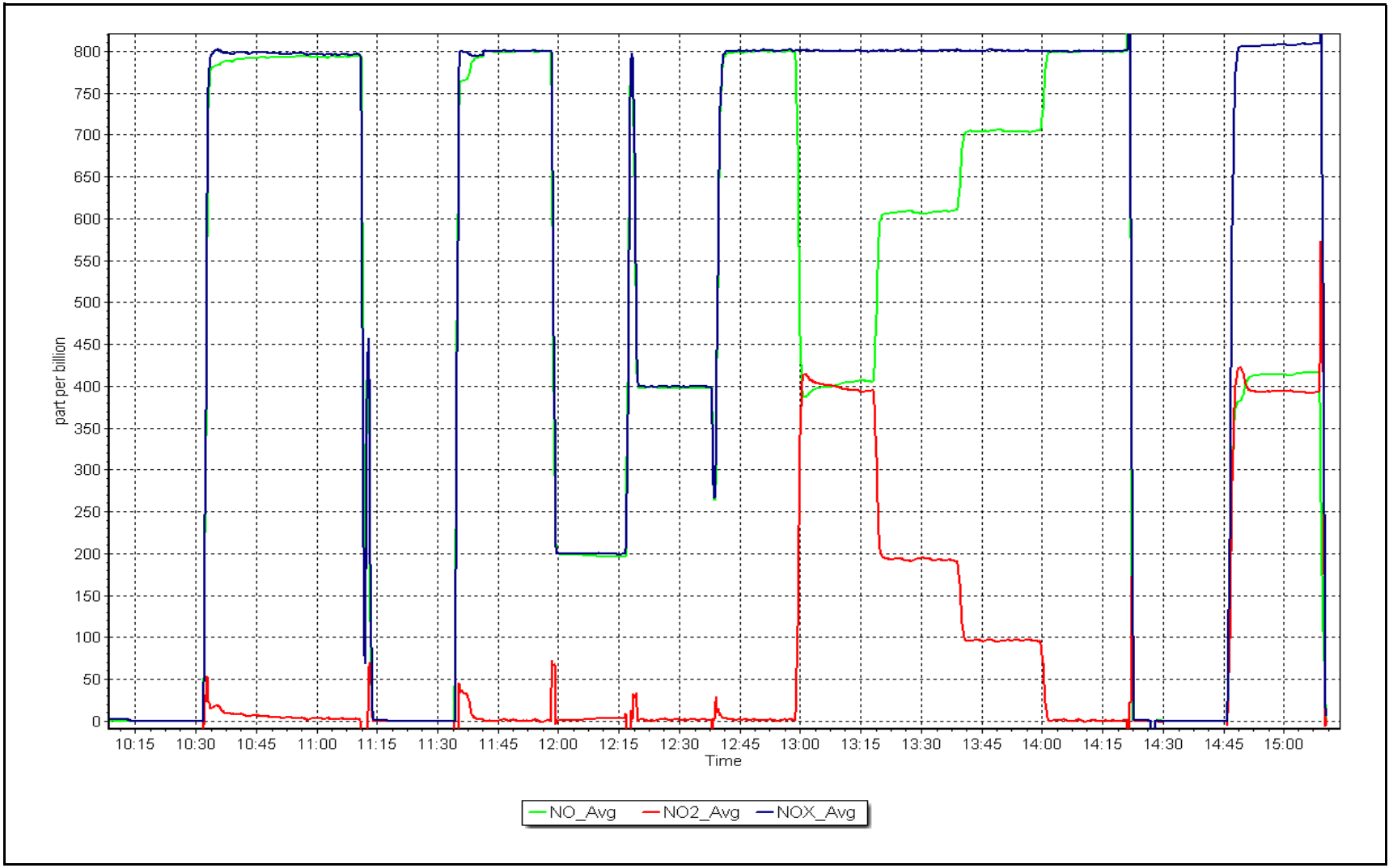
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
800.9	799.8	1.0013
399.6	397.6	1.0050
200.9	197.8	1.0157

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999984	*≥0.995*
Slope	0.999585	*0.90 - 1.10*
Intercept	-1.370003	*+/-20*



NO_X Calibration Plot Date: May 13, 2025 Location: Anzac



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Anzac	Station number:	AMS 14
Calibration Date:	May 1, 2025	Last Cal Date:	April 1, 2025
Start time (MST):	10:50	End time (MST):	13:50
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	API T700	Serial Number:	3060
ZAG Make/Model:	API 701H	Serial Number:	357

Analyzer Information

Analyzer make:	Thermo 49i	Analyzer serial #:	1426262595
Analyzer Range	0 - 500 ppb		

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.990971	0.990686	Backgd or Offset:	1.6	1.5
Calibration intercept:	0.380000	-0.020000	Coeff or Slope:	1.668	1.668

O_3 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	5000	935.9	400.0	397.4	1.007
As found Mid point					
As found Low point					
Baseline Corr As found:	397.1	Previous response	396.8	*% change	0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

O_3 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	396.0	1.010
Mid point	5000	817.5	200.0	198.6	1.007
Low point	5000	722.8	100.0	99.1	1.009
As left zero	5000	0.0	0.0	-0.2	----
As left span	5000	935.9	400.0	397.7	1.006
				Average Correction Factor	1.009

Notes: Sample inlet filter changed after asfounds. No adjustment made.

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

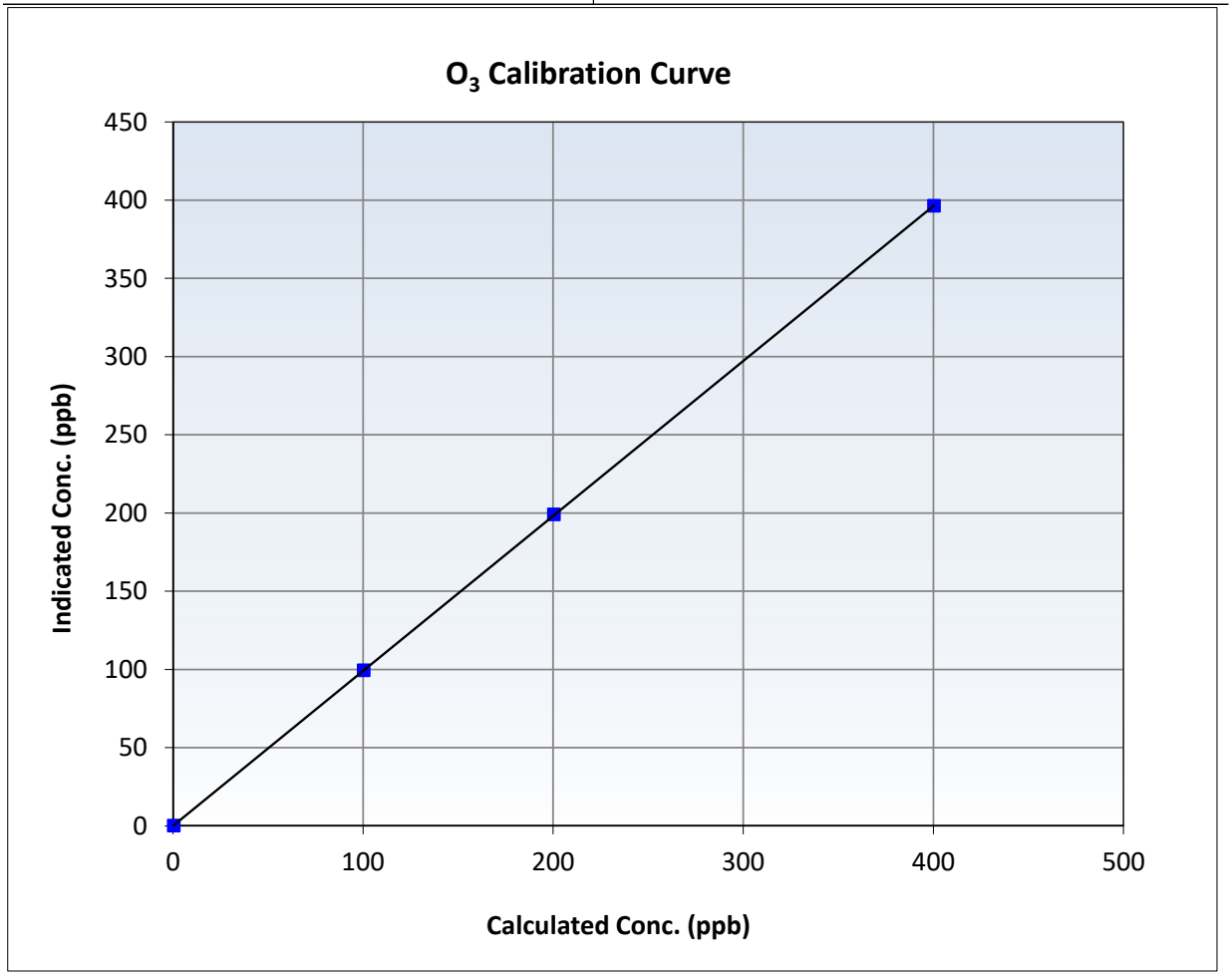
O_3 Calibration Summary

Station Information

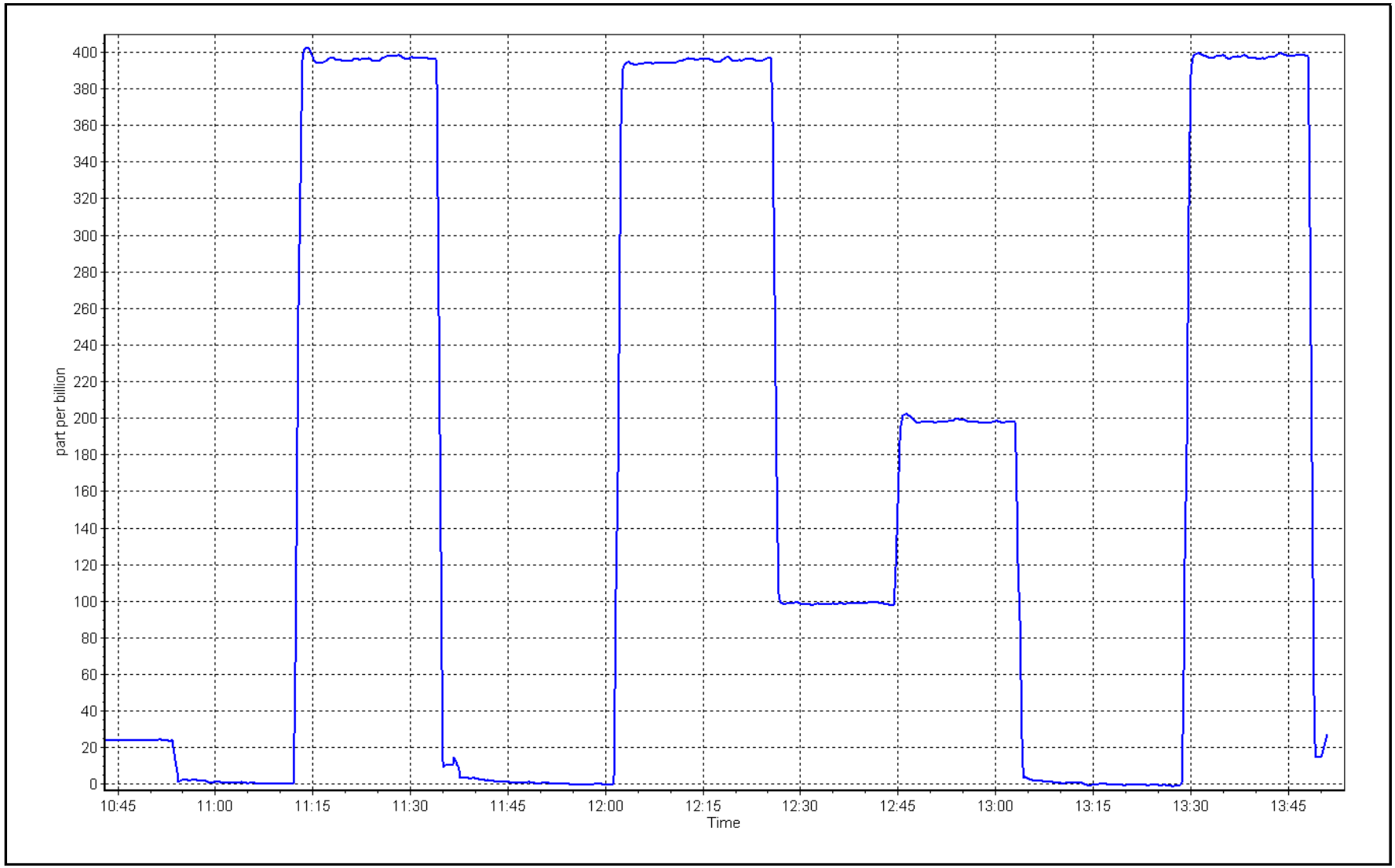
Calibration Date:	May 1, 2025	Previous Calibration:	April 1, 2025
Station Name:	Anzac	Station Number:	AMS 14
Start Time (MST):	10:50	End Time (MST):	13:50
Analyzer make:	Thermo 49i	Analyzer serial #:	1426262595

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.0	-0.3	----	Correlation Coefficient	0.999996	≥0.995
400.0	396.0	1.0101	Slope	0.990686	0.90 - 1.10
200.0	198.6	1.0070			
100.0	99.1	1.0091	Intercept	-0.020000	+/- 5



O_3 Calibration Plot Date: May 1, 2025 Location: Anzac



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Anzac	Station number:	AMS 14
Calibration Date:	May 22, 2025	Last Cal Date:	April 29, 2025
Start time (MST):	14:22	End time (MST):	15:15
Analyzer Make:	AP T640	S/N:	825
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388749
Temp/RH standard:	Alicat FP-25BT	S/N:	388749

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	9.8	9.61	9.8	☐	+/- 2 °C
P (mmHg)	717.5	718.97	717.5	☐	+/- 10 mmHg
Flow (LPM)	5.050	5.006	5.050	☐	+/- 0.25 LPM
PW% (pump)	36	-----	36	☐	>80%

Zero Verification — PM w/o HEPA: 0.6 — 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: July 16, 2026 — Lot No.: 100128-050-050

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test	10.9	9.0	10.8	☑	+/- 0.5

Date Optical Chamber Cleaned: May 22, 2025

Date Disposable Filter Changed: May 22, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0.0 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: August 29, 2024

Date RH/T Sensor Cleaned: August 29, 2024

Notes: Completed quarterly maintenance and leak check passed. Adjusted PMT.

Calibration by: Mohammed Kashif

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS17
WAPASU
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Wapasu	Station number:	AMS17
Calibration Date:	May 7, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	10:10	End time (MST):	13:18
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.38	ppm	Cal Gas Exp Date:	January 12, 2029
Cal Gas Cylinder #:	ALM066507			
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

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1218153459	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.995597	0.995553	Backgd or Offset:	14.0	14.0
Calibration intercept:	-1.540479	-1.900182	Coeff or Slope:	1.109	1.109

SO_2 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	4921	79.4	800.0	792.1	1.010
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	791.7	Previous response	794.9	*% change	-0.4%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	796.4	1.004
Mid point	4960	39.7	400.0	392.9	1.018
Low point	4980	19.8	199.5	196.1	1.017
As left zero	5000	0.0	0.0	0.1	----
As left span	4920	79.4	800.1	798.1	1.003
				Average Correction Factor:	1.013

Notes: No adjustments needed.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

SO_2 Calibration Summary

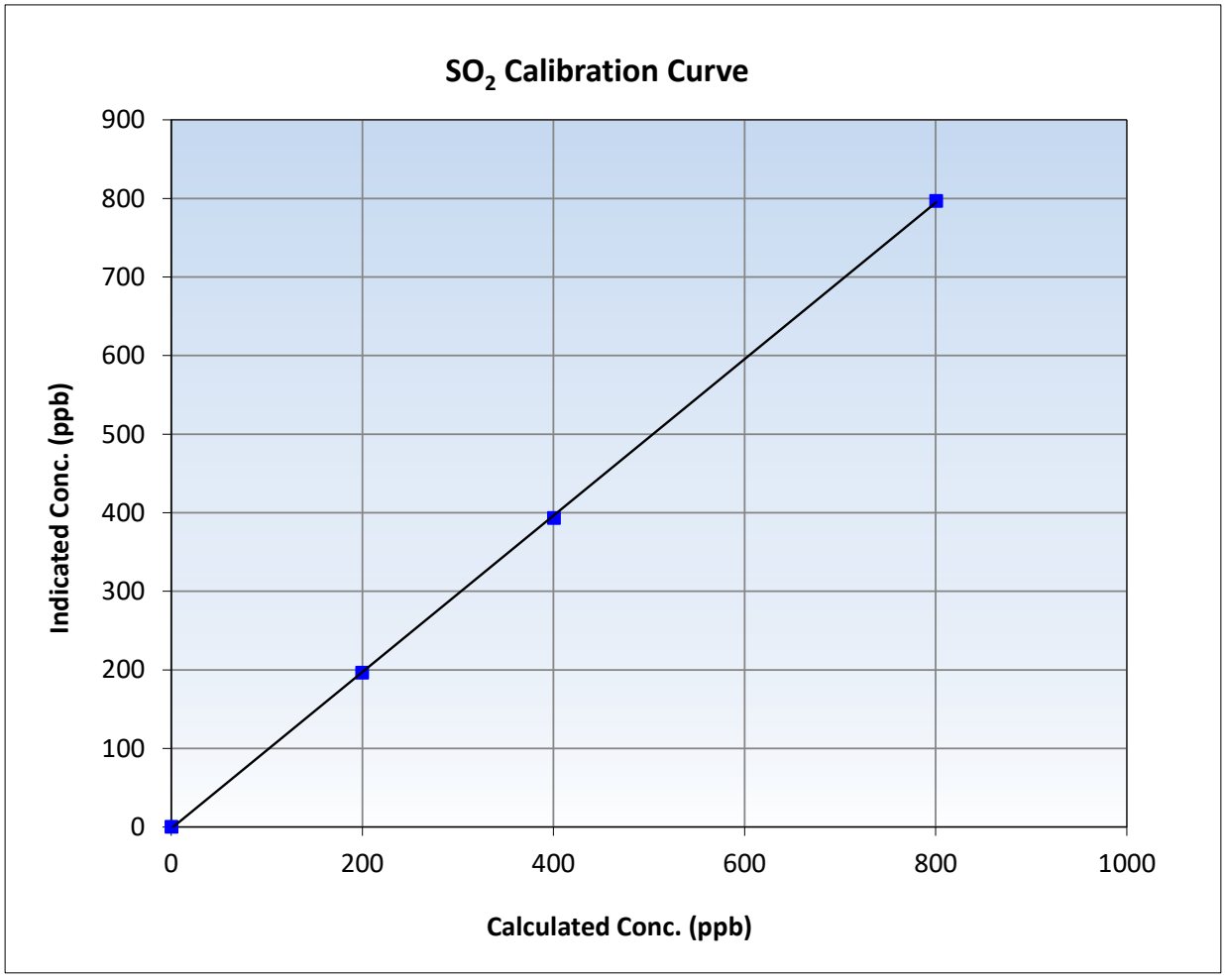
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 7, 2025
Station Name:	Wapasu	Station Number:	AMS17
Start Time (MST):	10:10	End Time (MST):	13:18
Analyzer make:	Thermo 43i	Analyzer serial #:	1218153459

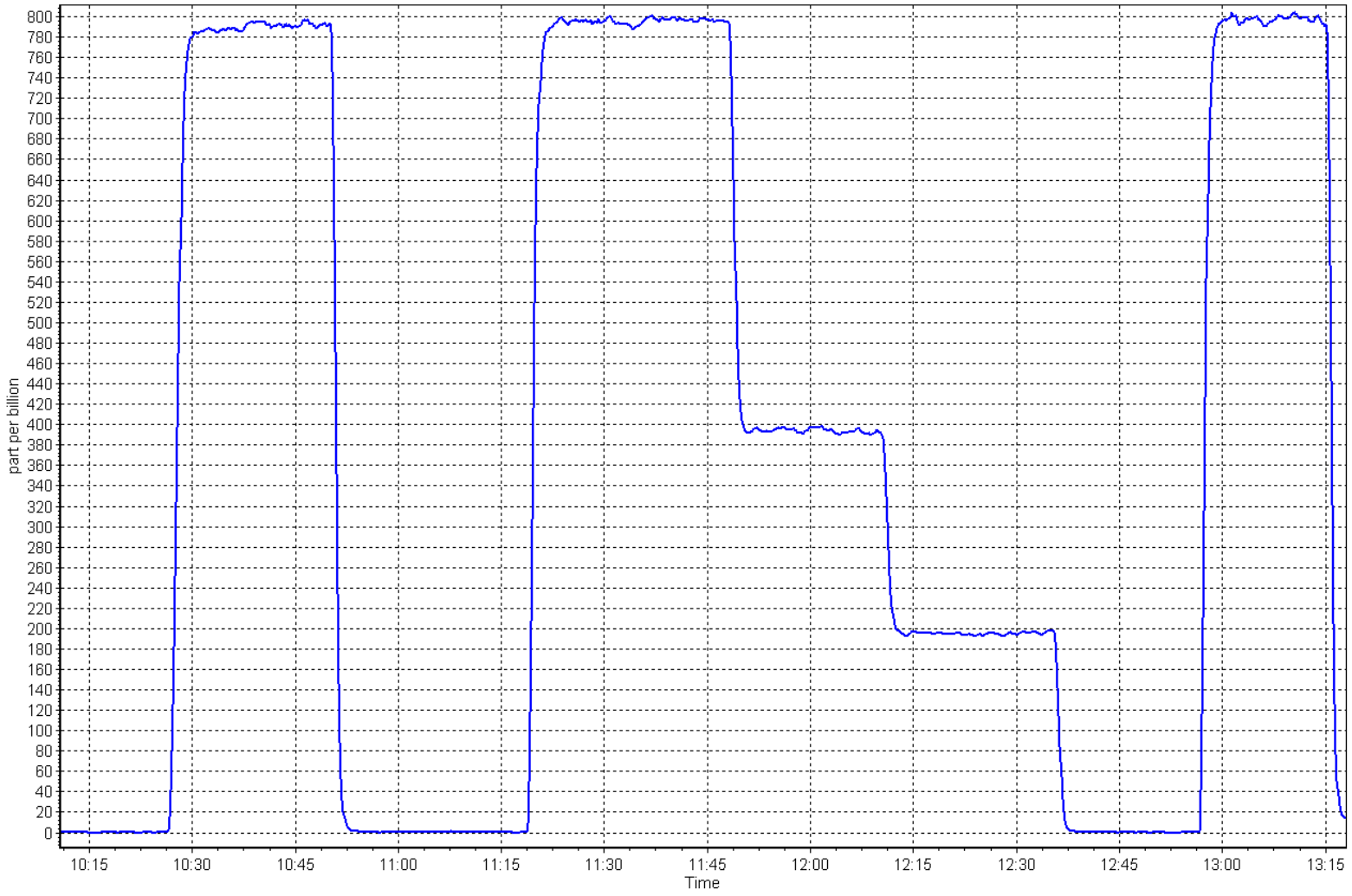
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.3	----
800.0	796.4	1.0045
400.0	392.9	1.0182
199.5	196.1	1.0174

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999940	*≥0.995*
Slope	0.995553	*0.90 - 1.10*
Intercept	-1.900182	*+/-30*



SO2 Calibration Plot Date: May 7, 2025 Location: Wapasu



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Wapasu	Station number:	AMS 17
Calibration Date:	May 13, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	10:11	End time (MST):	14:23
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.77	ppm	Cal Gas Exp Date:	August 28, 2027
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 Information

Analyzer make:	Thermo 450i		Analyzer serial #:	1218153583	
Converter make:	CD Nova		Converter serial #:	N/A	
Analyzer Range	0 - 100 ppb		Converter Temp:	340	degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.001218	0.997361	Backgd or Offset:	13.1	13.1
Calibration intercept:	-0.180032	0.180008	Coeff or Slope:	1.099	1.099

H_2S 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	4921	83.9	80.0	80.9	0.986
As found Mid point	4961	41.9	39.9	40.0	0.994
As found Low point	4980	21.0	20.0	20.0	0.992
New cylinder response					

Baseline Corr As found:	81.1	Prev response:	79.88	*% change:	1.5%
Baseline Corr 2nd AF pt:	40.2	AF Slope:	1.014269	AF Intercept:	-0.309635
Baseline Corr 3rd AF pt:	20.2	AF Correlation:	0.999981	* = > +/-5% change initiates investigation	

H_2S 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	4916	83.9	80.0	80.2	0.998
Mid point	4958	41.9	40.0	39.7	1.007
Low point	4979	21.0	20.0	20.1	0.997
As left zero	5000	0.0	0.0	0.4	----
As left span	4916	83.9	80.0	78.4	1.021
SO2 Scrubber Check	4921	79.4	793.9	-0.3	----
Date of last scrubber change:		N/A		Ave Corr Factor	1.001
Date of last converter efficiency test:		N/A			

Notes: No adjustments needed.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

H_2S Calibration Summary

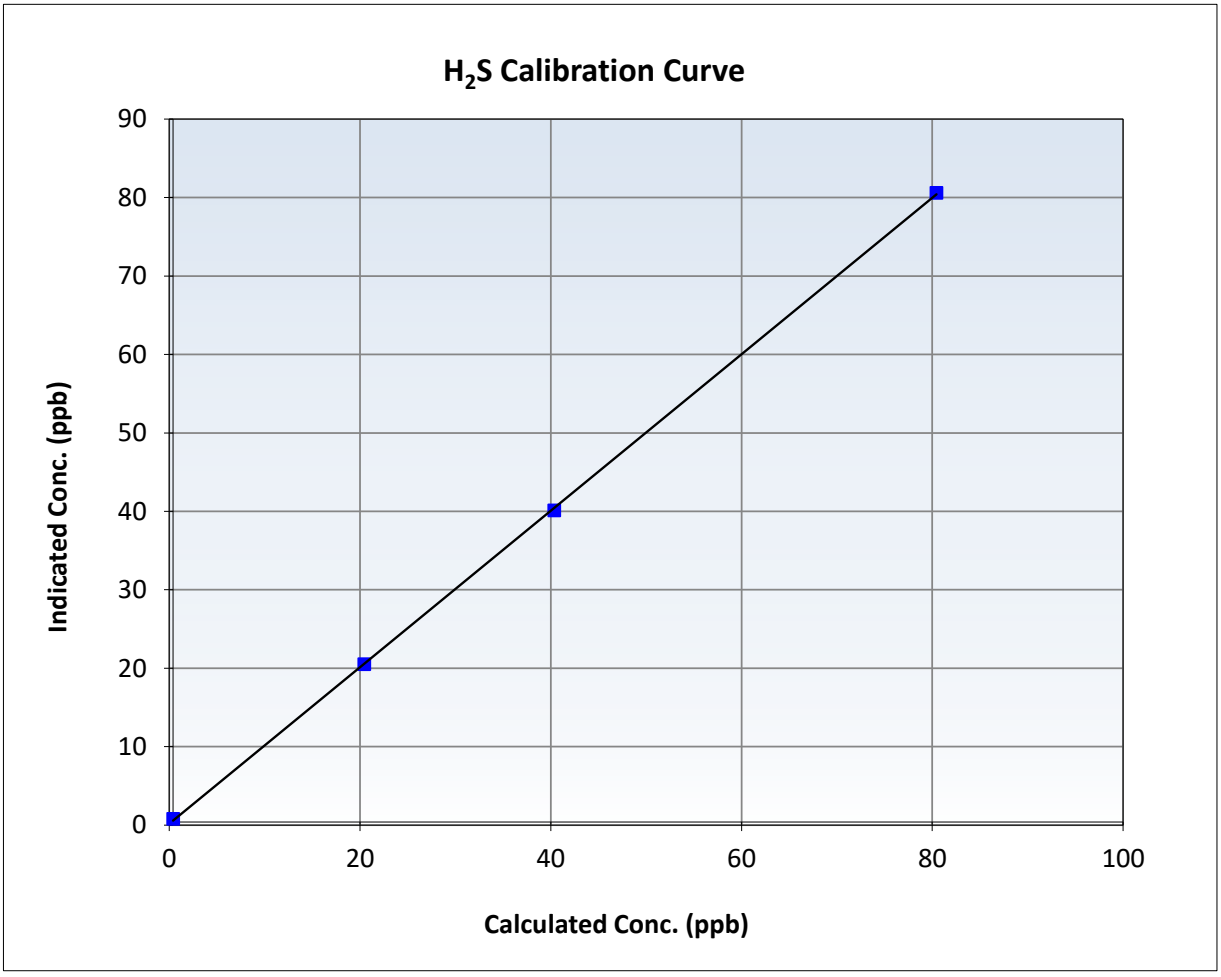
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 15, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	10:11	End Time (MST):	14:23
Analyzer make:	Thermo 450i	Analyzer serial #:	1218153583

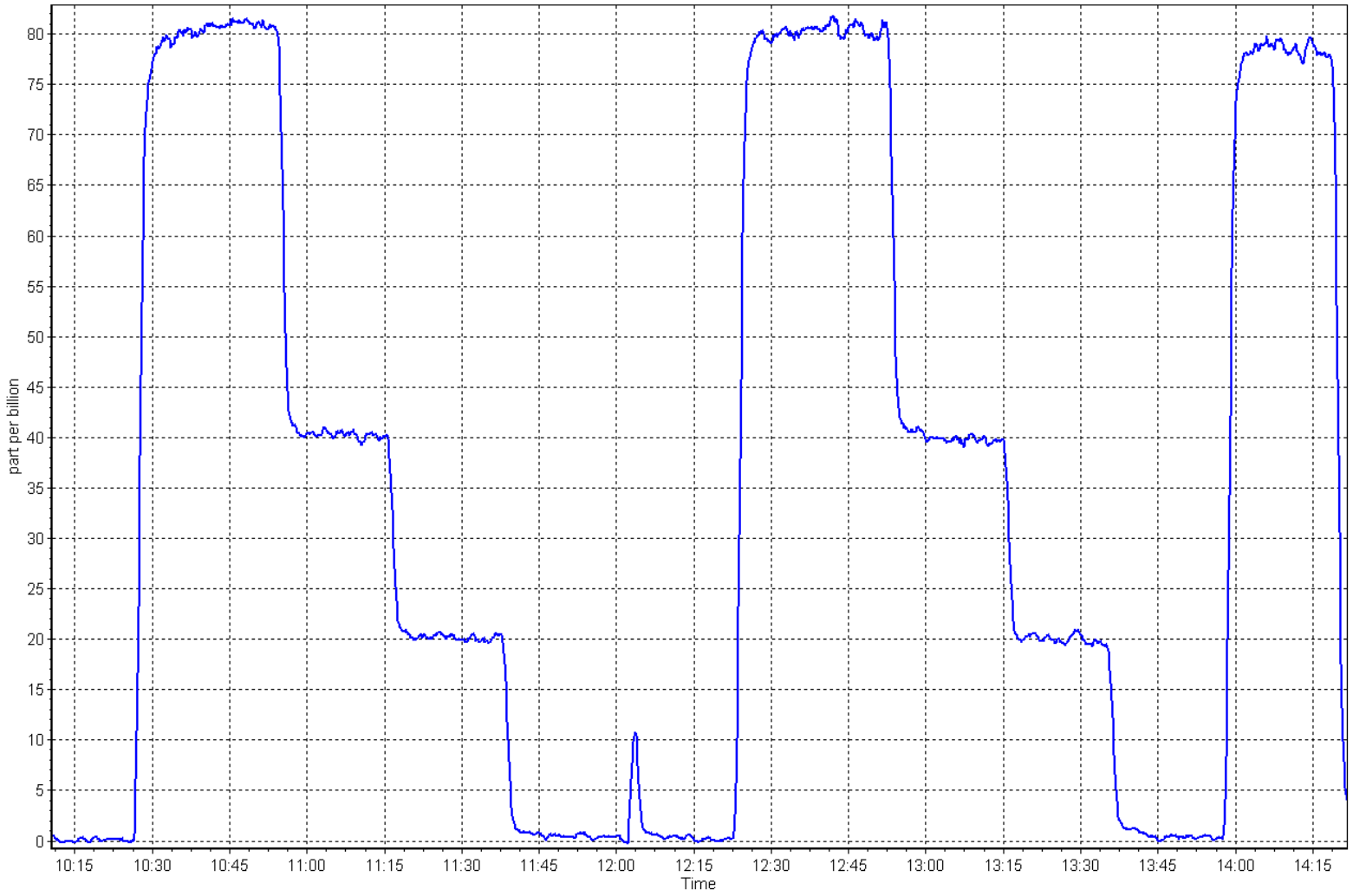
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
80.0	80.2	0.9980
40.0	39.7	1.0069
20.0	20.1	0.9967

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999940	*≥0.995*
Slope	0.997361	*0.90 - 1.10*
Intercept	0.180008	*+/-3*



H_2S Calibration Plot Date: May 13, 2025 Location: Wapasu



Wood Buffalo Environmental Association

THC Calibration Report

Station Information

Station Name:	Wapasu	Station number:	AMS17
Calibration Date:	May 7, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	10:10	End time (MST):	13:18
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	ALM066507		Cal Gas Expiry Date:	January 12, 2029	
CH4 Cal Gas Conc.	503.5	ppm	CH4 Equiv Conc.	1076.3	ppm
C3H8 Cal Gas Conc.	208.3	ppm			
Removed Gas Cert:		n/a	Removed Gas Expiry:		
Removed CH4 Conc.	503.5	ppm	CH4 Equiv Conc.	1076.3	ppm
Removed C3H8 Conc.	208.3	ppm	Diff between cyl:		
Calibrator Make/Model:	Teledyne API T700		Serial Number:	2449	
ZAG Make/Model:	Teledyne API 701H		Serial Number:	1238	

Analyzer Information

Analyzer make: Thermo 51i-LT Analyzer serial #: 1218153352

Analyzer Range: 0 - 20 ppm

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.003335	1.003535	Background:	3.340	3.340
Calibration intercept:	-0.176337	-0.155329	Coefficient:	4.476	4.476

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	-0.07	----
As found High point	4921	79.4	17.09	17.04	0.999
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	17.11	Previous response	16.97	*% change	0.8%
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)	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	-0.09	----
High point	4921	79.4	17.09	17.06	1.002
Mid point	4960	39.7	8.55	8.31	1.028
Low point	4980	19.8	4.26	4.10	1.039
As left zero	5000	0.0	0.00	-0.10	----
As left span	4921	79.4	17.09	17.02	1.004
				Average Correction Factor	1.023

Notes: No adjustments needed.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

THC Calibration Summary

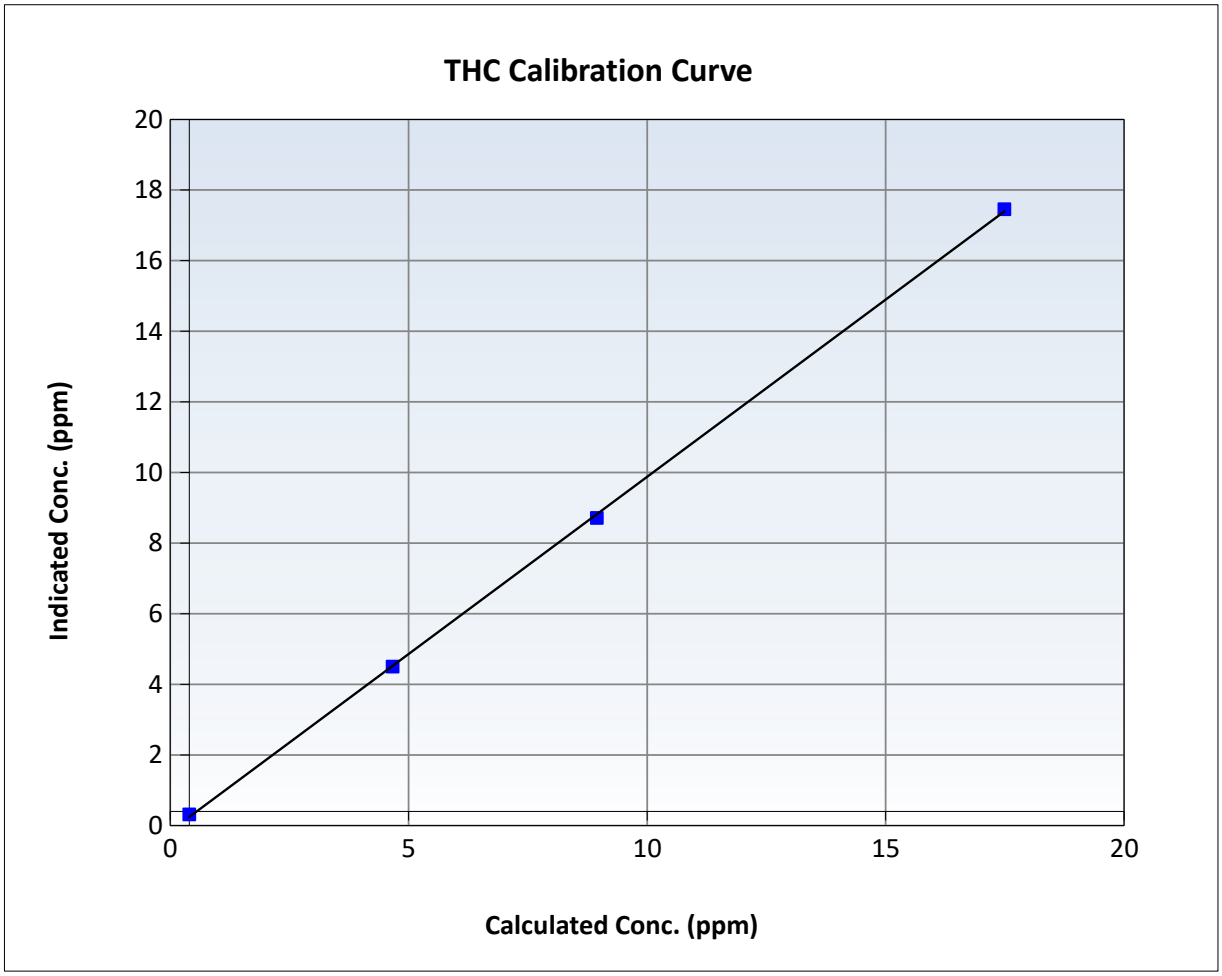
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 7, 2025
Station Name:	Wapasu	Station Number:	AMS17
Start Time (MST):	10:10	End Time (MST):	13:18
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1218153352

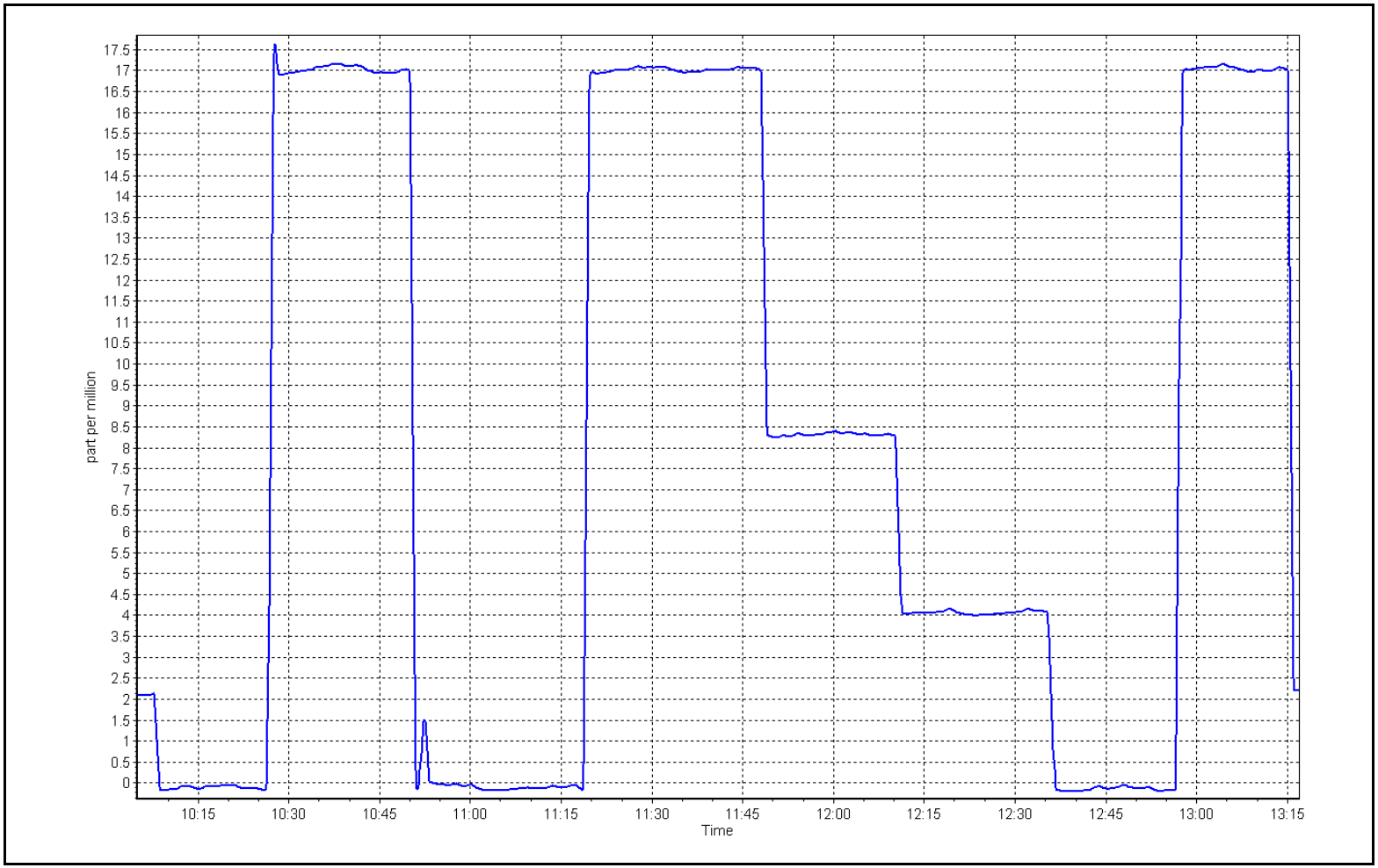
Calibration Data

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	-0.09	----
17.09	17.06	1.0020
8.55	8.31	1.0283
4.26	4.10	1.0391

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999868	*≥0.995*
Slope	1.003535	*0.90 - 1.10*
Intercept	-0.155329	*+/-1.5*



THC Calibration Plot Date: May 7, 2025 Location: Wapasu



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Wapasu
Station number:	AMS 17
Calibration Date:	May 27, 2025
Last Cal Date:	April 8, 2025
Start time (MST):	9:15
End time (MST):	14:16
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	T375YK8	Cal Gas Expiry Date:	April 13, 2025
NOX Cal Gas Conc:	49.11 ppm	NO Cal Gas Conc:	48.07 ppm
Removed Cylinder #:	N/A	Removed Gas Exp Date:	N/A
Removed Gas NOX Conc:	49.11 ppm	Removed Gas NO Conc:	48.07 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	API T700	Serial Number:	2449
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)) *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	-0.3	----	----
AF High point	4917	83.2	817.2	799.9	17.3	804.6	786.6	18.0	1.0150	1.0166
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 815.2 ppb	NO = 797.9 ppb
Baseline Corr 1st pt	NO_X = 805.1 ppb	NO = 786.8 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = -1.3%
As found	NO r^2:	*Percent Change	NO = -1.4%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo Scientific 42i
Serial Number: 1218153460
NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.084	1.101	NO bkgnd or offset:	3.8	3.8
NOX coeff or slope:	0.996	0.997	NOX bkgnd or offset:	4.2	4.3
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	238.6	243.0

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.999201	1.002068
NO_X Cal Offset:	-1.360000	-0.860000
NO Cal Slope:	0.999815	1.000087
NO Cal Offset:	-1.860000	-1.680000
NO_2 Cal Slope:	0.998689	1.003297
NO_2 Cal Offset:	-0.611431	0.328895

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	-0.1	-0.3	----	----
High point	4917	83.2	817.2	799.9	17.3	818.3	799.1	19.2	0.9986	1.0010
Mid point	4958	41.6	408.6	399.9	8.7	408.2	397.4	10.8	1.0010	1.0064
Low point	4979	20.8	204.3	200.0	4.3	203.5	196.8	6.6	1.0039	1.0161
As left zero	5000	0.0	0.0	0.0	0.0	-0.3	-0.1	-0.3	----	----
As left span	4917	83.2	817.2	401.8	415.4	820.7	401.8	419.0	0.9957	1.0000
							Average Correction Factor		1.0012	1.0078

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	-0.3	----	----
High GPT point	798.8	401.5	414.6	415.7	0.9974	100.3%
Mid GPT point	798.8	598.4	217.7	219.8	0.9905	101.0%
Low GPT point	798.8	699.9	116.2	117.1	0.9924	100.8%
				Average Correction Factor	0.9934	100.7%

Notes: Sample inlet filter changed after as founds. Span adjusted.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

NO_X Calibration Summary

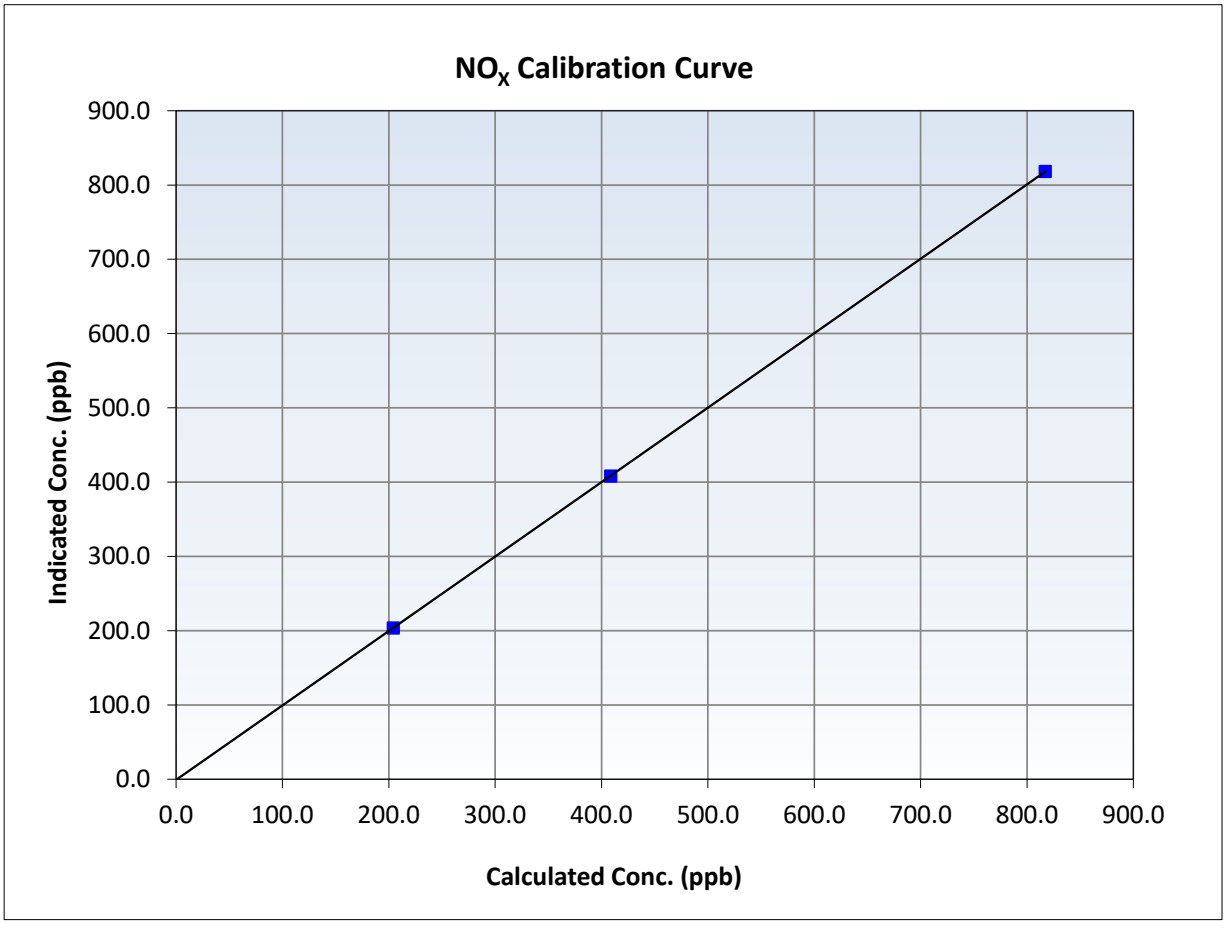
Station Information

Calibration Date:	May 27, 2025	Previous Calibration:	April 8, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	9:15	End Time (MST):	14:16
Analyzer make:	Thermo Scientific 42i	Analyzer serial #:	1218153460

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.4	----
817.2	818.3	0.9986
408.6	408.2	1.0010
204.3	203.5	1.0039

Statistical Evaluation		Limits
Correlation Coefficient	0.999998	≥0.995
Slope	1.002068	0.90 - 1.10
Intercept	-0.860000	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

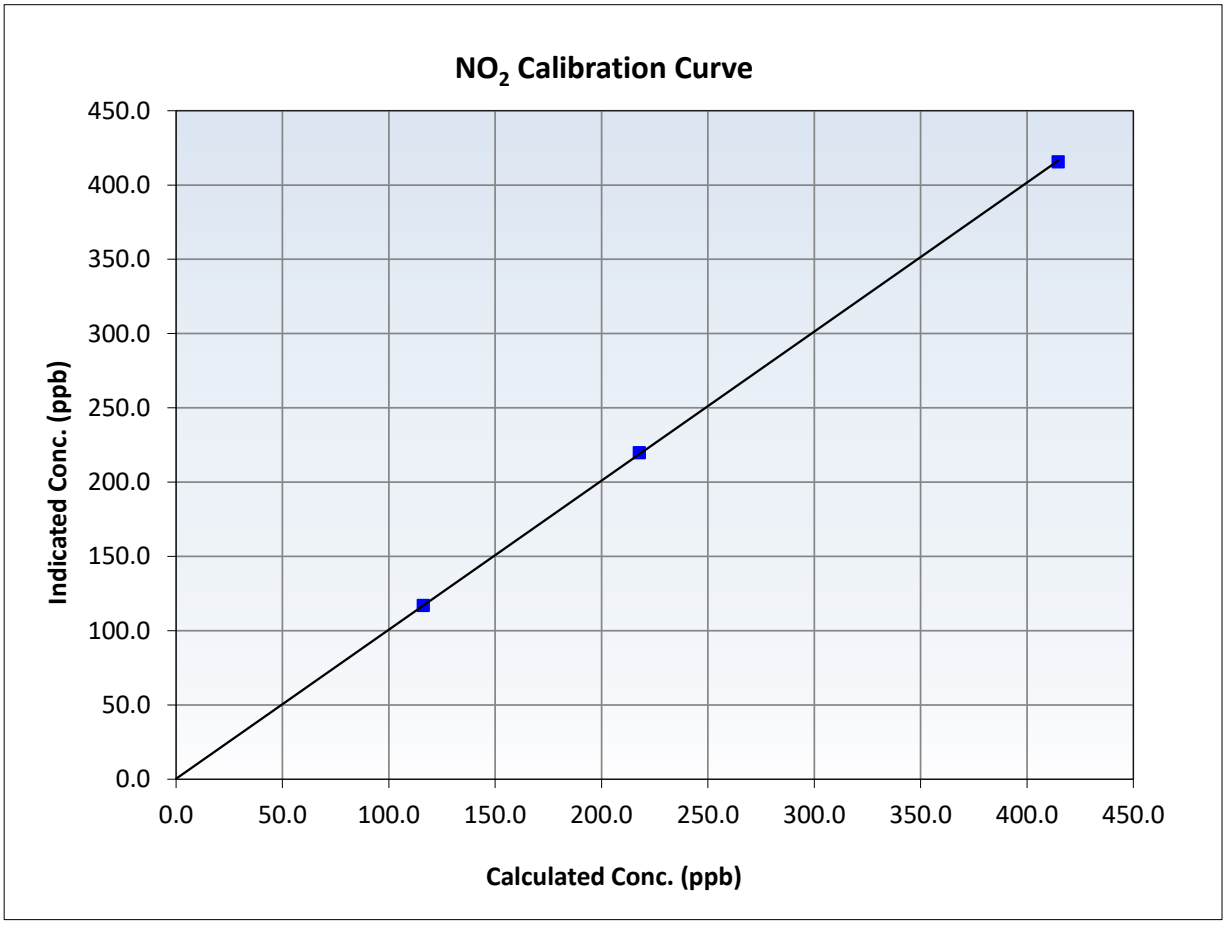
Station Information

Calibration Date:	May 27, 2025	Previous Calibration:	April 8, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	9:15	End Time (MST):	14:16
Analyzer make:	Thermo Scientific 42i	Analyzer serial #:	1218153460

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
414.6	415.7	0.9974
217.7	219.8	0.9905
116.2	117.1	0.9924

Statistical Evaluation		Limits
Correlation Coefficient	0.999980	≥0.995
Slope	1.003297	0.90 - 1.10
Intercept	0.328895	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

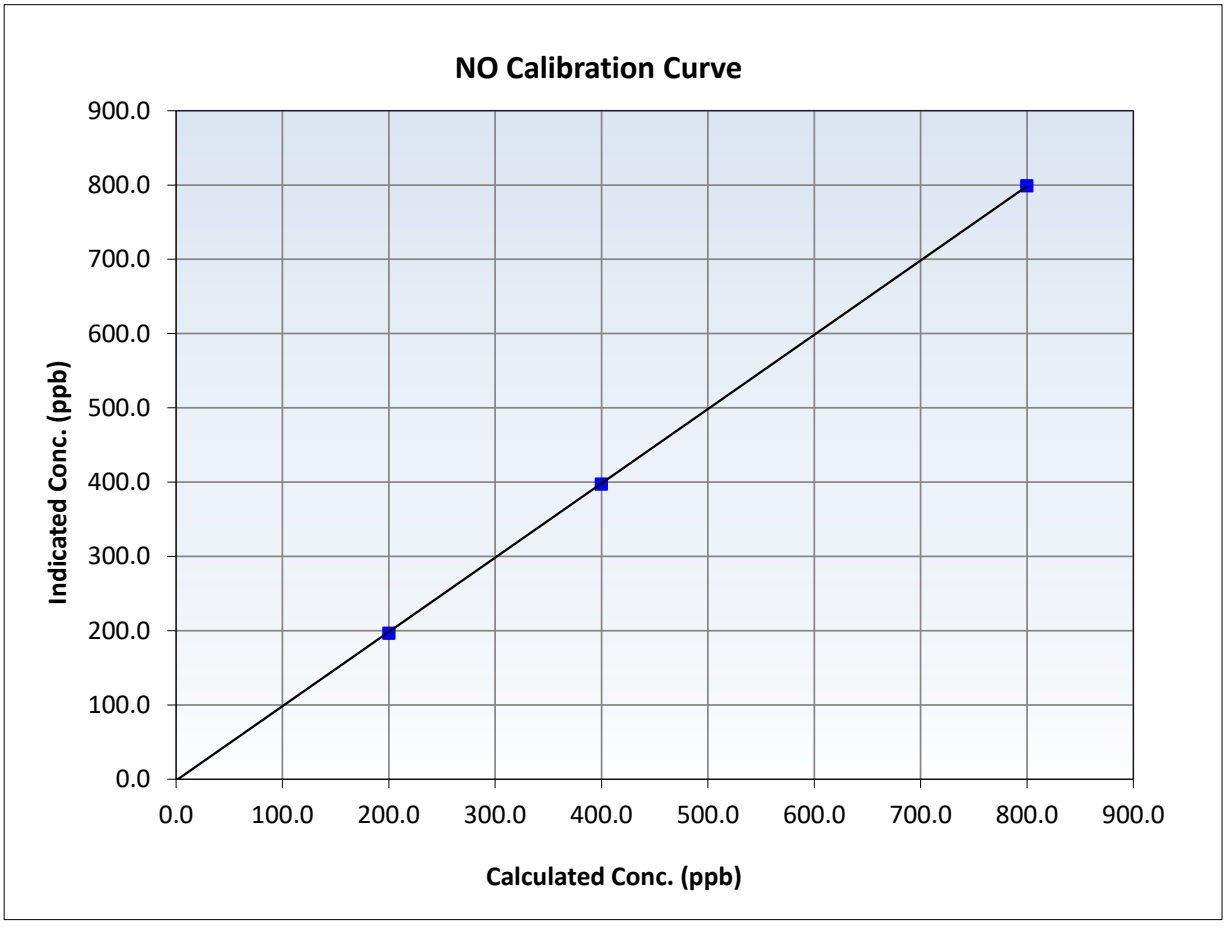
Station Information

Calibration Date:	May 27, 2025	Previous Calibration:	April 8, 2025
Station Name:	Wapasu	Station Number:	AMS 17
Start Time (MST):	9:15	End Time (MST):	14:16
Analyzer make:	Thermo Scientific 42i	Analyzer serial #:	1218153460

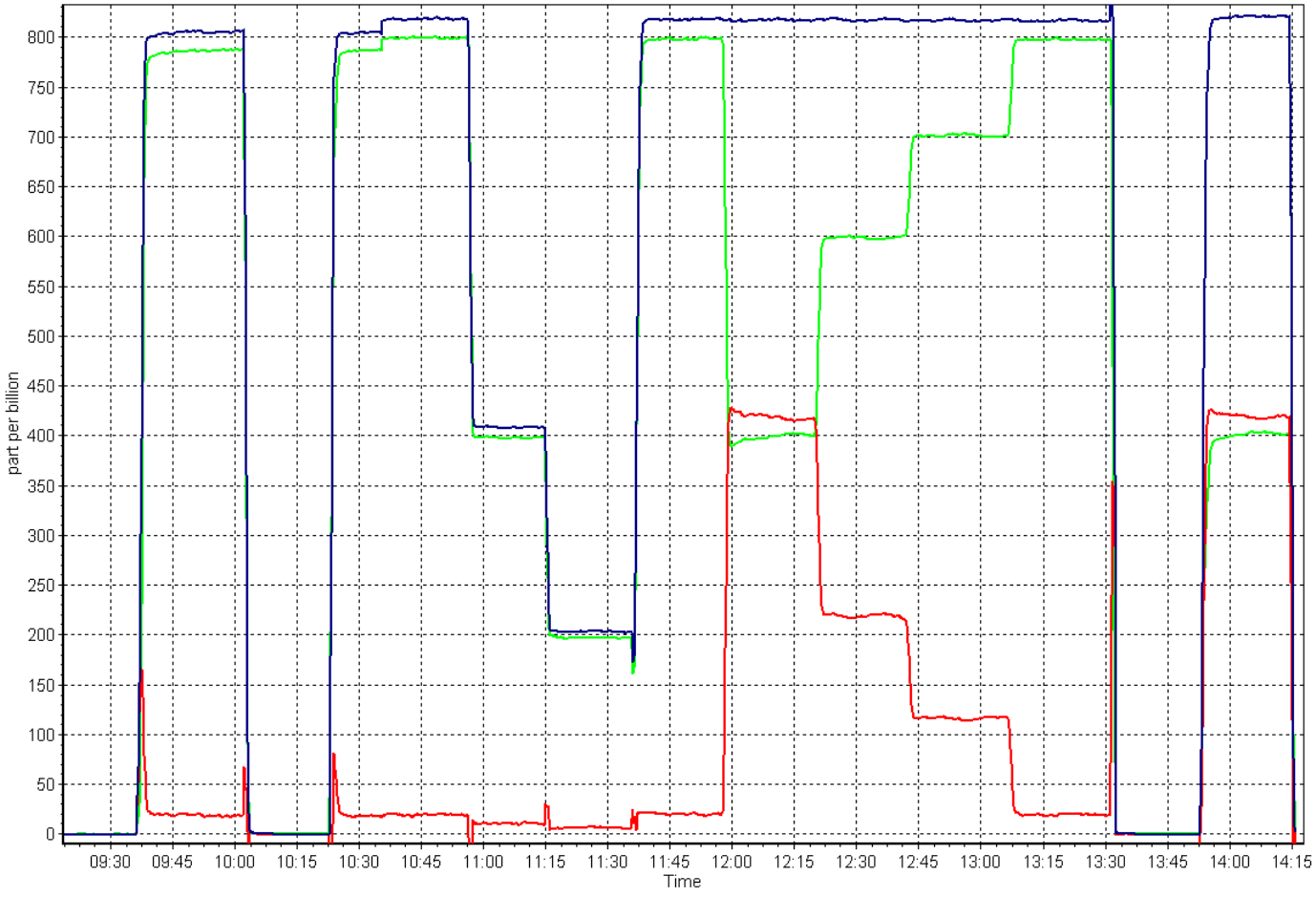
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
799.9	799.1	1.0010
399.9	397.4	1.0064
200.0	196.8	1.0161

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999982	*≥0.995*
Slope	1.000087	*0.90 - 1.10*
Intercept	-1.680000	*+/-20*



NO_X Calibration Plot Date: May 27, 2025 Location: Wapasu



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Wapasu	Station number:	AMS17
Calibration Date:	May 6, 2025	Last Cal Date:	April 3, 2025
Start time (MST):	10:10	End time (MST):	13:53
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	API T700	Serial Number:	2449
ZAG Make/Model:	API T701H	Serial Number:	359

Analyzer Information

Analyzer make:	API T400		Analyzer serial #:	7045	
Analyzer Range	0 - 500 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.995943	1.008171	Backgd or Offset:	0.6	0.6
Calibration intercept:	0.160000	-0.180000	Coeff or Slope:	1.027	1.036

O_3 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	0.1	----
As found High point	5000	1104.7	400.0	394.8	1.013
As found Mid point					
As found Low point					
Baseline Corr As found:	394.7	Previous response	398.5	*% 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	

O_3 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	0.5	----
High point	5000	1104.7	400.0	403.3	0.992
Mid point	5000	917.3	200.0	201.5	0.993
Low point	5000	797.9	100.0	99.7	1.003
As left zero	5000	0.0	0.0	0.2	----
As left span	5000	1104.0	400.0	399.4	1.002
				Average Correction Factor	0.996

Notes: Span adjusted.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

O_3 Calibration Summary

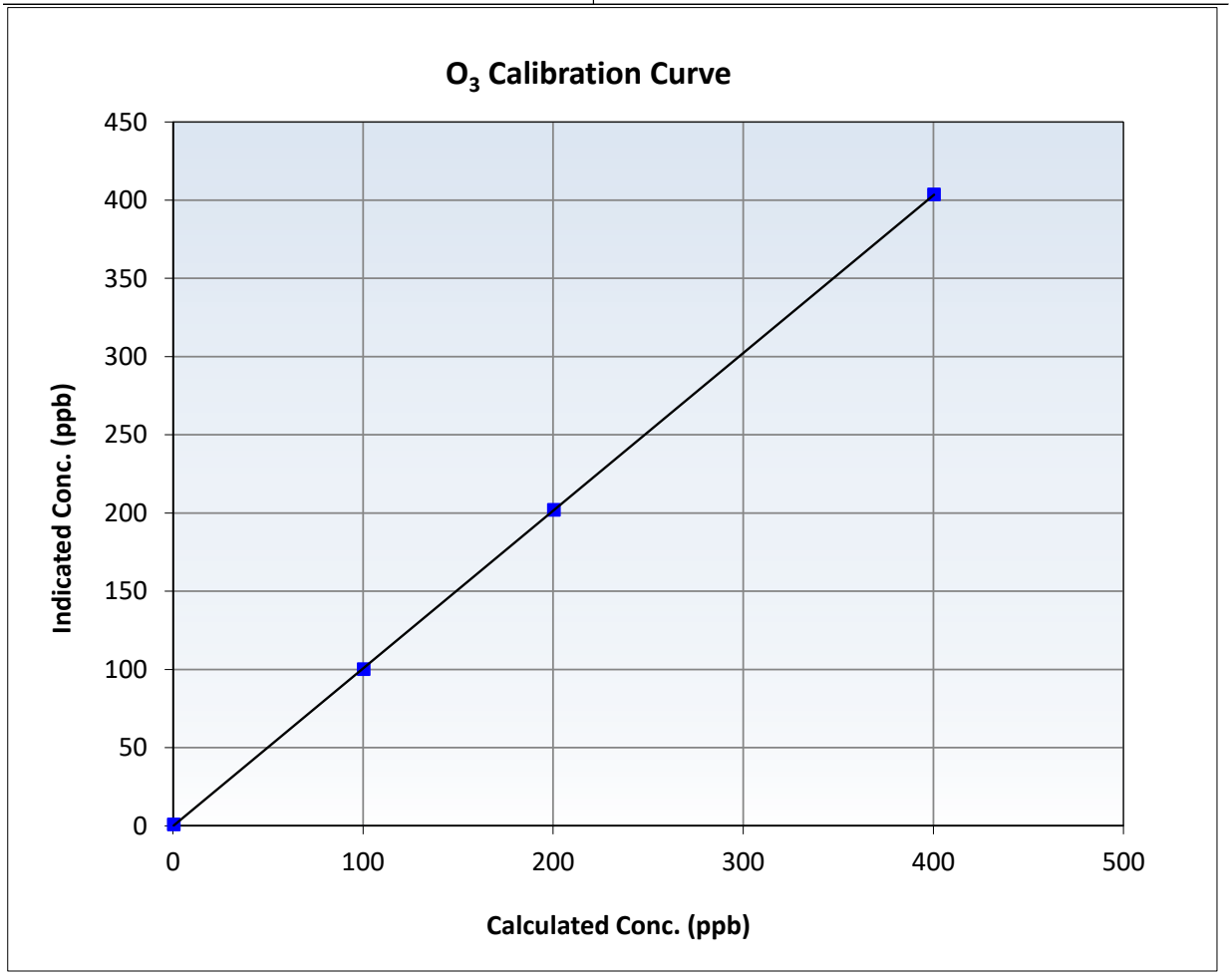
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	April 3, 2025
Station Name:	Wapasu	Station Number:	AMS17
Start Time (MST):	10:10	End Time (MST):	13:53
Analyzer make:	API T400	Analyzer serial #:	7045

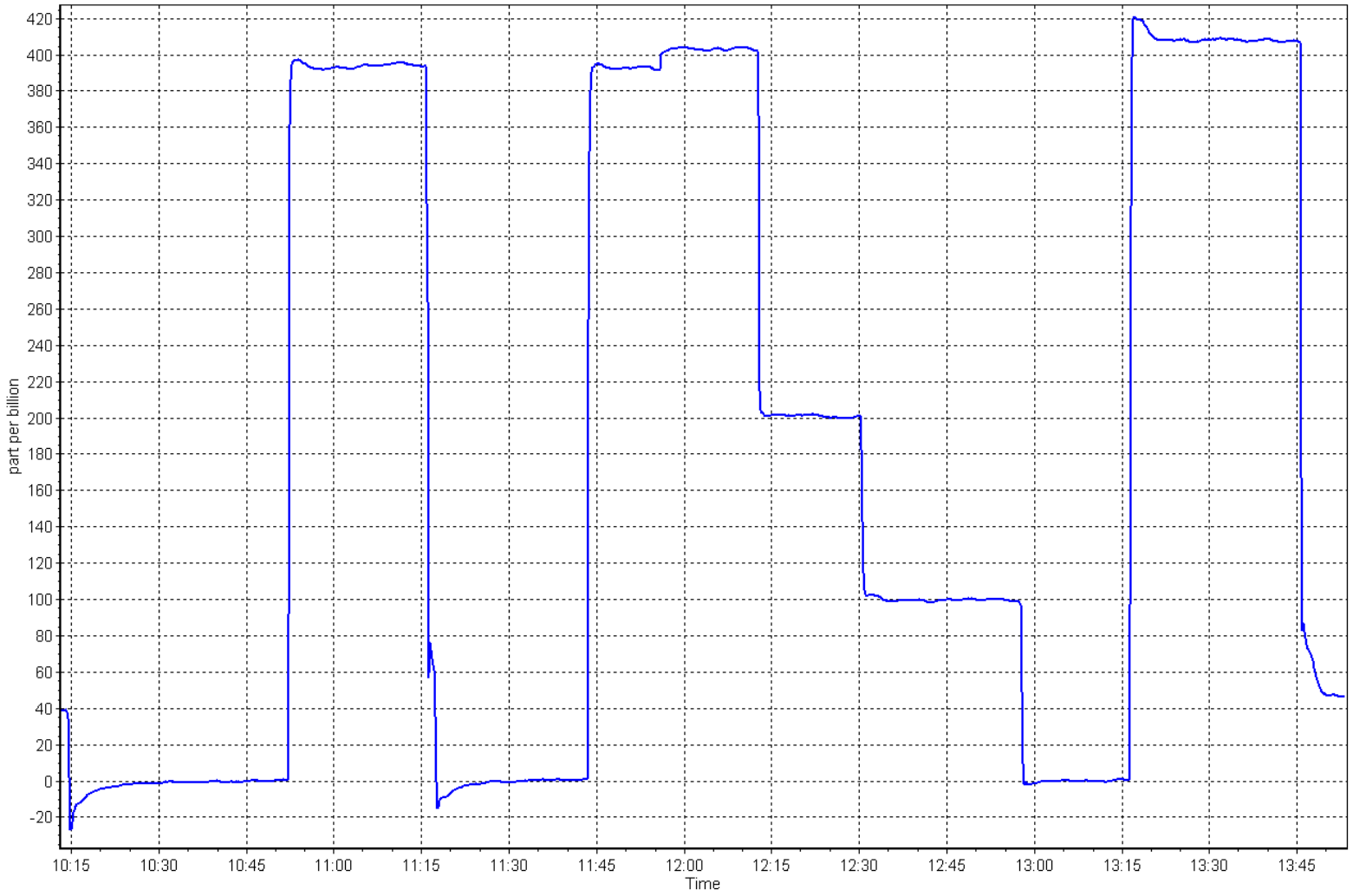
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.5	----
400.0	403.3	0.9918
200.0	201.5	0.9926
100.0	99.7	1.0030

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999984	*≥0.995*
Slope	1.008171	*0.90 - 1.10*
Intercept	-0.180000	*+/- 5*



O_3 Calibration Plot Date: May 6, 2025 Location: Wapasu



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Wapasu	Station number:	AMS 17
Calibration Date:	May 27, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	12:31	End time (MST):	14:07
Analyzer Make:	Teledyne API T640	S/N:	1183
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388749
Temp/RH standard:	Alicat FP-25BT	S/N:	388749

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (^{o}C)	23.10	23.20	23.10	☐	+/- 2 ^{o}C
P (mmHg)	711.40	713.40	711.40	☐	+/- 10 mmHg
Flow (LPM)	4.98	4.98	4.98	☐	+/- 0.25 LPM
PW% (pump)	31	-----	36	☐	>80%
Zero Verification	PM w/o HEPA:	4.8	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: October 6, 2024 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test	N/A	N/A	N/A	☐	+/- 0.5

Date Optical Chamber Cleaned: February 26, 2025

Date Disposable Filter Changed: March 20, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0.00 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: July 23, 2024

Date RH/T Sensor Cleaned: July 23, 2024

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
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 20, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	10:56	End time (MST):	14:03
Reason:	Routine		

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

Analyzer make:	Thermo 43i		Serial Number:	JC1501301453	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.008274	1.001732	Backgd or Offset:	25.3	25.3
Calibration intercept:	-2.906028	-2.057008	Coeff or Slope:	0.818	0.818

SO_2 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	4921	78.1	800.2	800.7	0.999
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	800.8	Previous response	803.9	*% change	-0.4%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	0.6	----
High point	4921	78.1	800.2	800.0	1.000
Mid point	4960	39.1	400.6	400.6	1.000
Low point	4980	20.0	204.9	198.7	1.031
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:	1.010

Notes: Changed sample inlet filter. No adjustments needed.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

SO_2 Calibration Summary

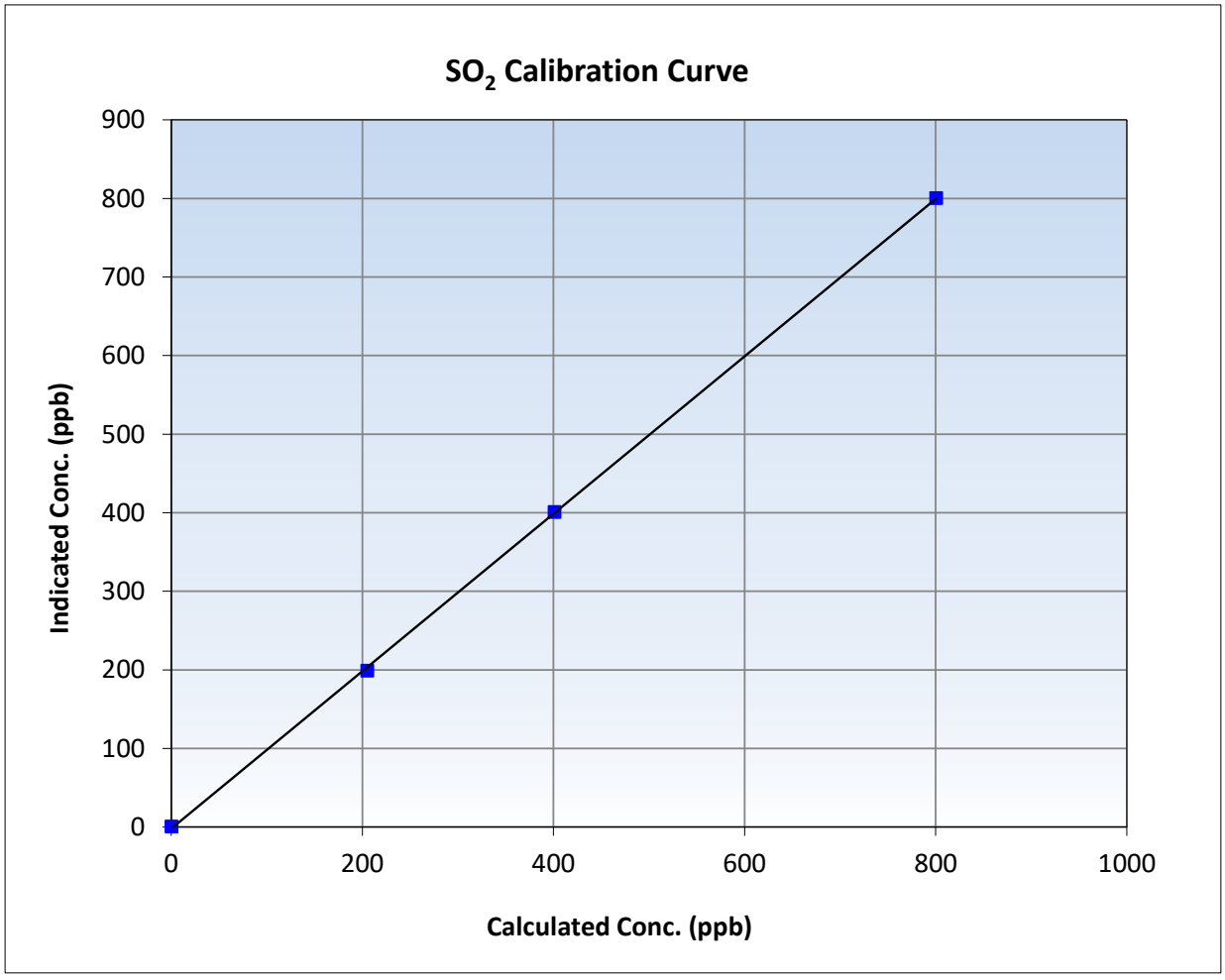
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 28, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:56	End Time (MST):	14:03
Analyzer make:	Thermo 43i	Analyzer serial #:	JC1501301453

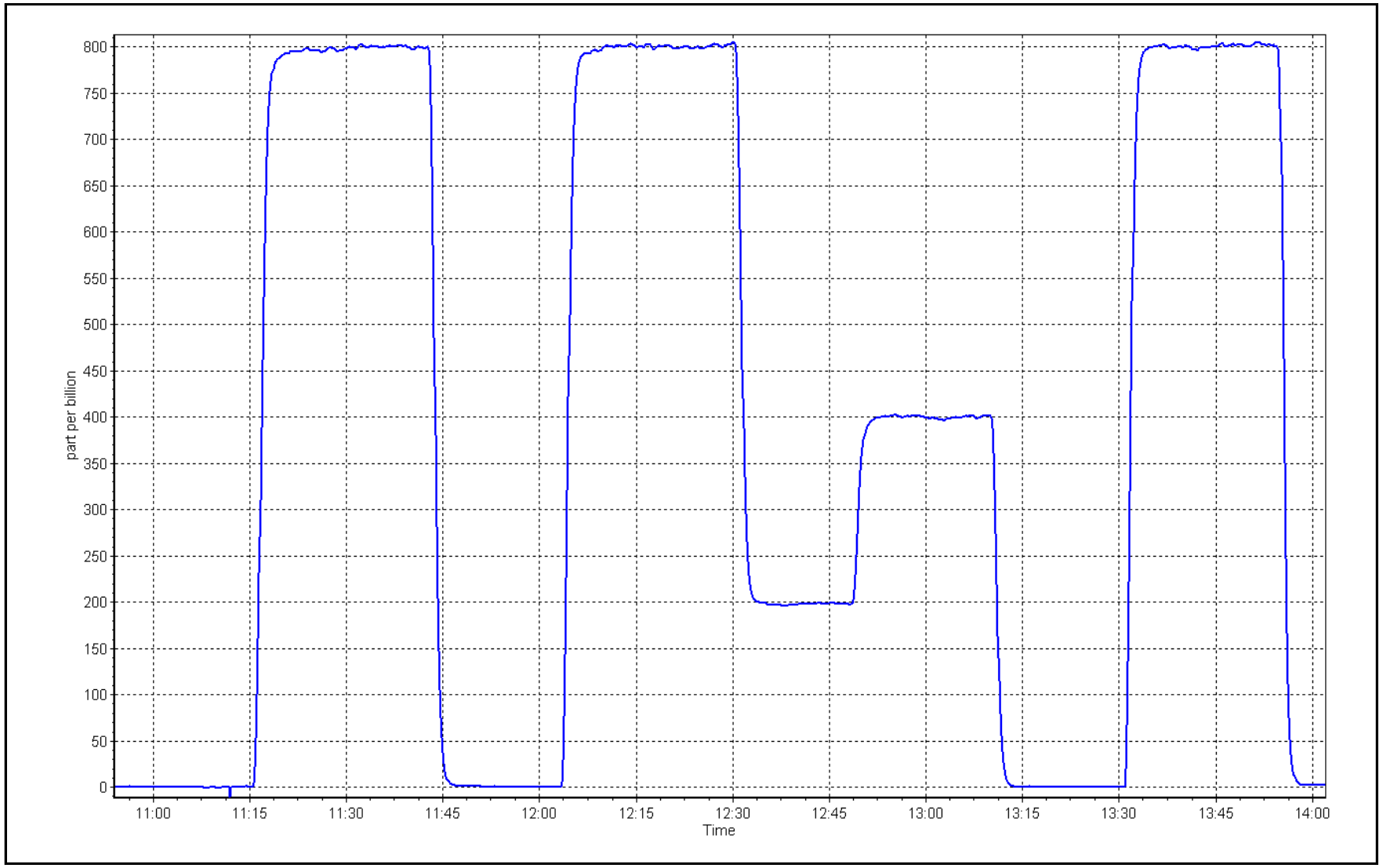
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.6	----
800.2	800.0	1.0003
400.6	400.6	1.0000
204.9	198.7	1.0311

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999917	*≥0.995*
Slope	1.001732	*0.90 - 1.10*
Intercept	-2.057008	*+/-30*



SO2 Calibration Plot Date: May 20, 2025 Location: Stony Mountain



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS18
Calibration Date:	May 28, 2025	Last Cal Date:	April 24, 2025
Start time (MST):	11:09	End time (MST):	16:52
Reason:	Routine		

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:	Thermo 43i-TLE		Analyzer serial #:	1218153359	
Converter make:	CD Nova CDN-101		Converter serial #:	555	
Analyzer Range	0 - 100 ppb		Converter Temp:	800	degC

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.002370	1.001228	Backgd or Offset:	2.9	2.94
Calibration intercept:	0.020908	0.160888	Coeff or Slope:	1.181	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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	0.0	----
As found High point	4917	82.3	80.0	82.4	0.971
As found Mid point	4958	41.2	40.1	41.2	0.972
As found Low point	4979	20.6	20.0	20.0	1.001
New cylinder response					

Baseline Corr As found:	82.4	Prev response:	80.22	*% change:	2.6%
Baseline Corr 2nd AF pt:	41.2	AF Slope:	1.032512	AF Intercept:	-0.259700
Baseline Corr 3rd AF pt:	20.0	AF Correlation:	0.999932	* = > +/-5% change initiates 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	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	20.2	0.991
As left zero	5000	0.0	0.0	0.3	----
As left span	4917	82.3	80.0	80.6	0.993
SO2 Scrubber Check	4923	77.1	771.0	0.1	----
Date of last scrubber change:		17-Dec-21		Ave Corr Factor	0.995
Date of last converter efficiency test:					

Notes: No adjustment made.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

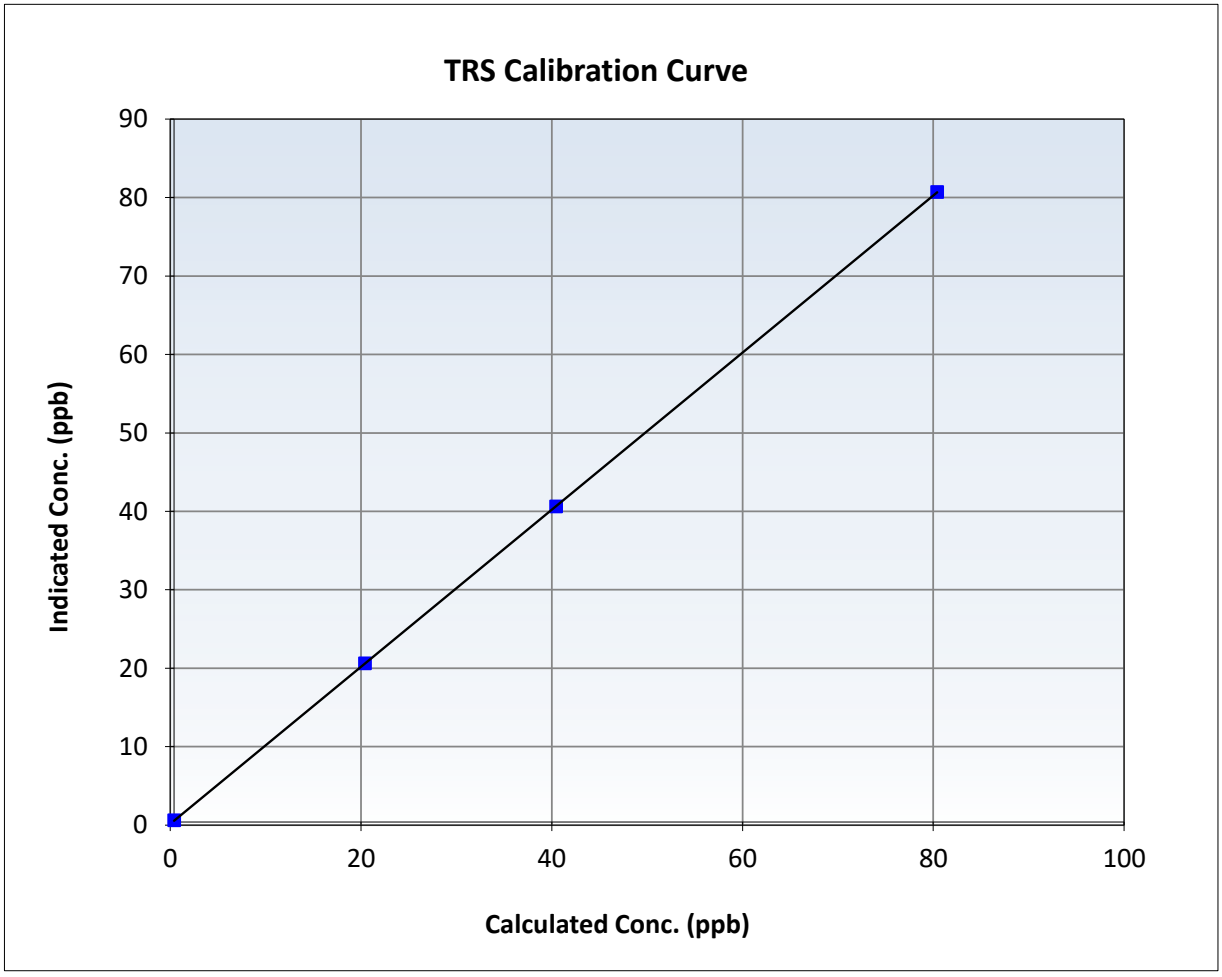
TRS Calibration Summary

Station Information

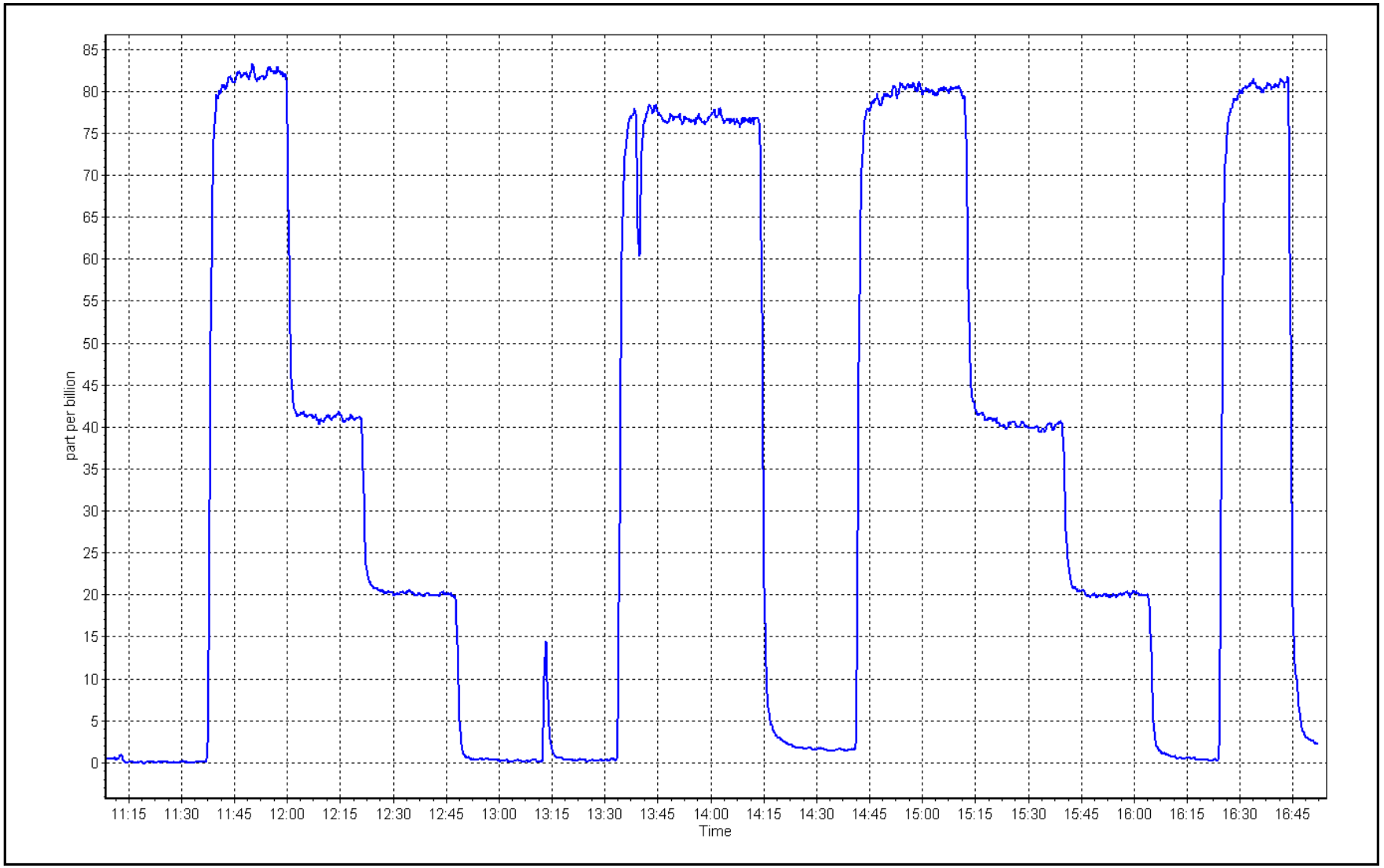
Calibration Date:	May 28, 2025	Previous Calibration:	April 24, 2025
Station Name:	Stony Mountain	Station Number:	AMS18
Start Time (MST):	11:09	End Time (MST):	16:52
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1218153359

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.2	----	Correlation Coefficient	0.999998	*≥0.995*
80.0	80.3	0.9963	Slope	1.001228	*0.90 - 1.10*
40.1	40.2	0.9963			
20.0	20.2	0.9913	Intercept	0.160888	*+/-3*



TRS Calibration Plot Date: May 28, 2025 Location: Stony Mountain



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 20, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	10:56	End time (MST):	14:03
Reason:	Routine		

Calibration 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

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.21E-04	2.25E-04	NMHC SP Ratio:	4.15E-05	4.21E-05
CH4 Retention time:	14.4	14.8	NMHC Peak Area:	215036	212089
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	0.04	----
As found High point	4921	78.1	16.82	16.29	1.035
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.25	Prev response	16.80	*% change	-3.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	0.08	----
High point	4921	78.1	16.82	16.85	0.998
Mid point	4960	39.1	8.42	8.58	0.982
Low point	4980	20.0	4.31	4.35	0.990
As left zero	5000	0.0	0.00	0.19	----
As left span	4921	78.1	16.82	16.97	0.991
				Average Correction Factor	0.990

Notes: Span adjusted.

Wood Buffalo Environmental Association

THC / CH_4 / 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	78.1	8.93	8.88	1.006
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.88	Prev response	8.92	*% change	-0.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	78.1	8.93	8.92	1.001
Mid point	4960	39.1	4.47	4.47	1.000
Low point	4980	20.0	2.29	2.25	1.015
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	78.1	8.93	8.99	0.994
				Average Correction Factor	1.006

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	0.04	----
As found High point	4921	78.1	7.89	7.41	1.070
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.37	Prev response	7.88	*% change	-6.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	0.08	----
High point	4921	78.1	7.89	7.93	0.994
Mid point	4960	39.1	3.95	4.11	0.962
Low point	4980	20.0	2.02	2.10	0.963
As left zero	5000	0.0	0.00	0.19	----
As left span	4921	78.1	7.89	7.98	0.988
				Average Correction Factor	0.973

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	1.001998	0.997975
THC Cal Offset:	-0.057041	0.093679
CH4 Cal Slope:	1.003000	0.996095
CH4 Cal Offset:	-0.033289	0.103879
NMHC Cal Slope:	1.000998	0.999889
NMHC Cal Offset:	-0.023550	-0.011203

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

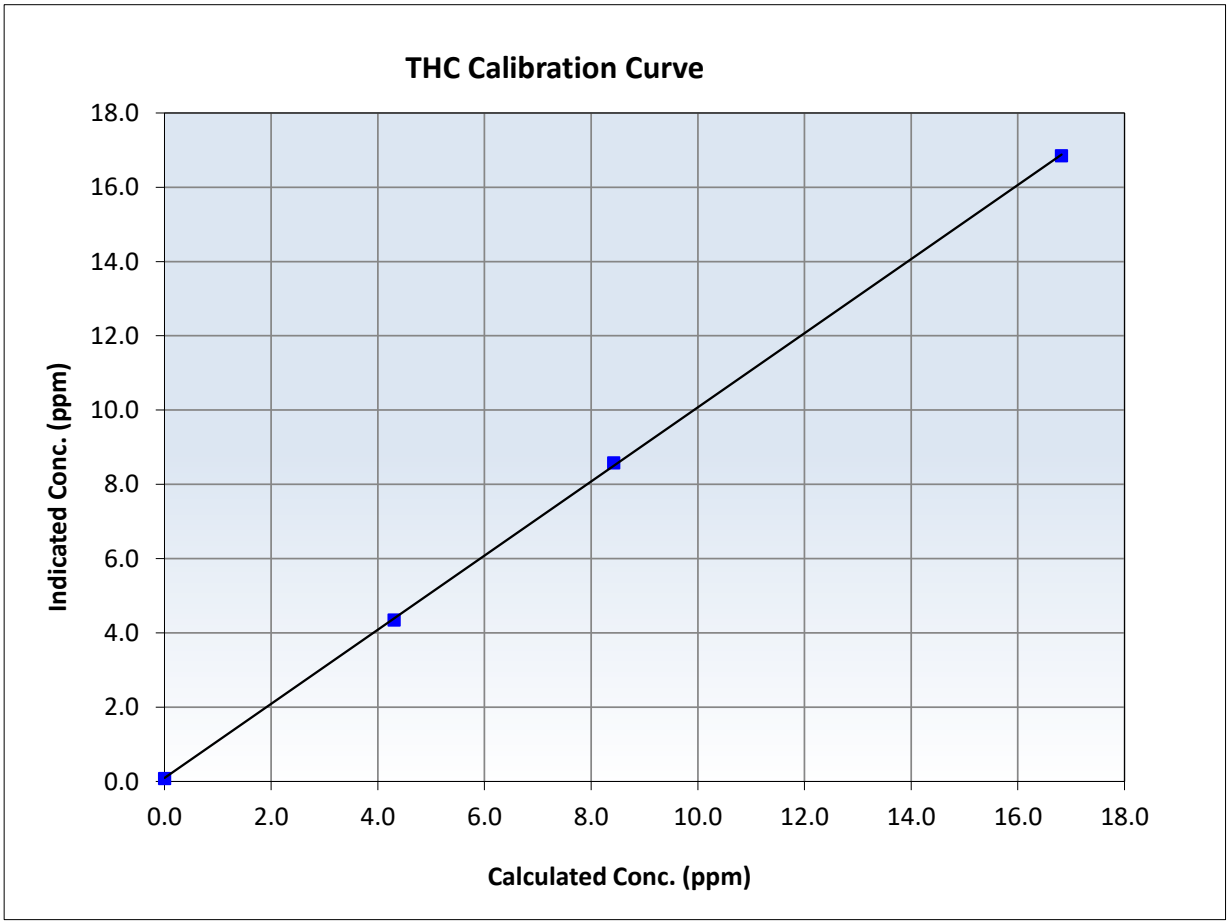
THC Calibration Summary

Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 28, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:56	End Time (MST):	14:03
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.08	----	Correlation Coefficient	0.999942	≥0.995
16.82	16.85	0.9982	Slope	0.997975	0.90 - 1.10
8.42	8.58	0.9818	Intercept	0.093679	+/-0.5
4.31	4.35	0.9898			



Wood Buffalo Environmental Association

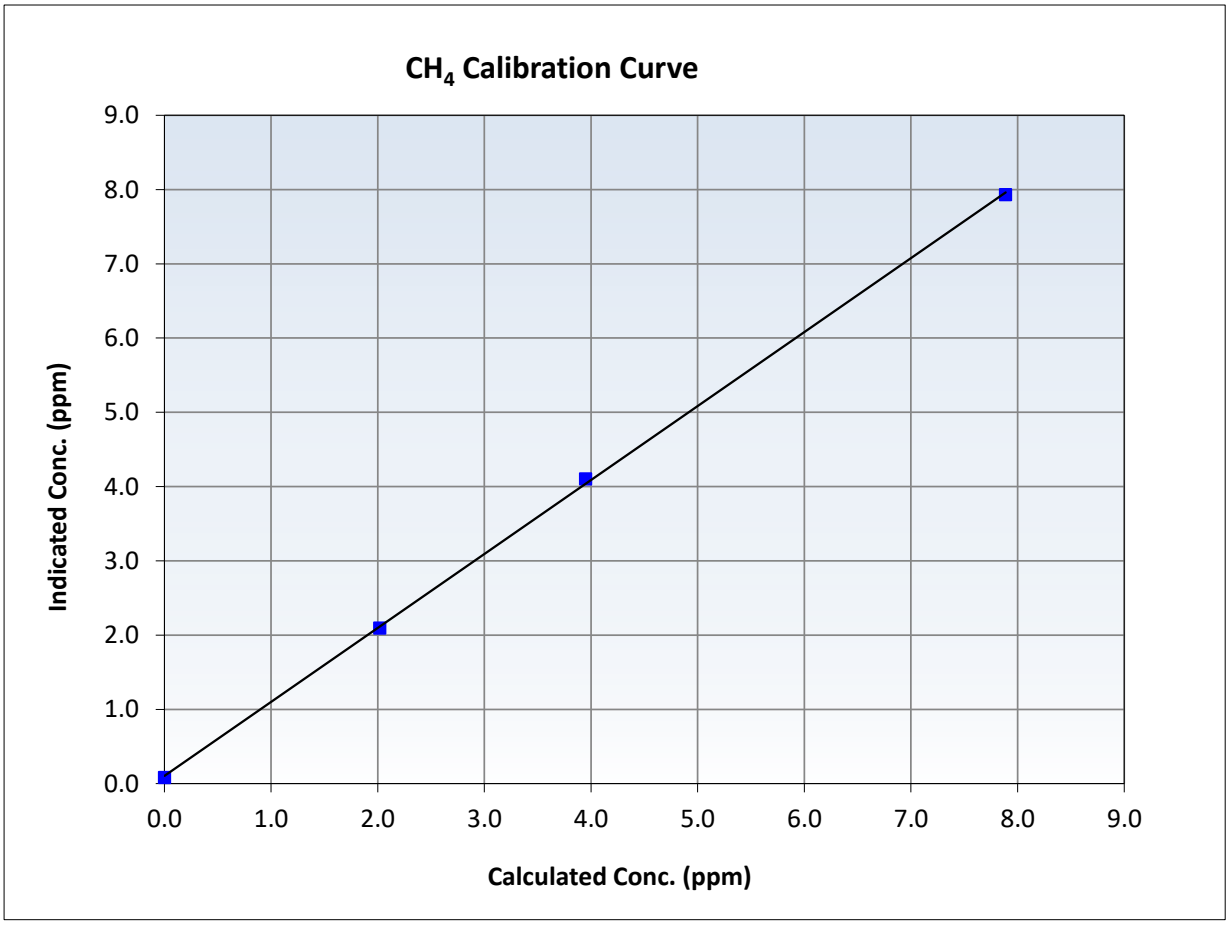
CH_4 Calibration Summary

Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 28, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:56	End Time (MST):	14:03
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.08	----	Correlation Coefficient	0.999817	≥0.995
7.89	7.93	0.9944	Slope	0.996095	0.90 - 1.10
3.95	4.11	0.9620			
2.02	2.10	0.9631	Intercept	0.103879	+/-0.5



Wood Buffalo Environmental Association

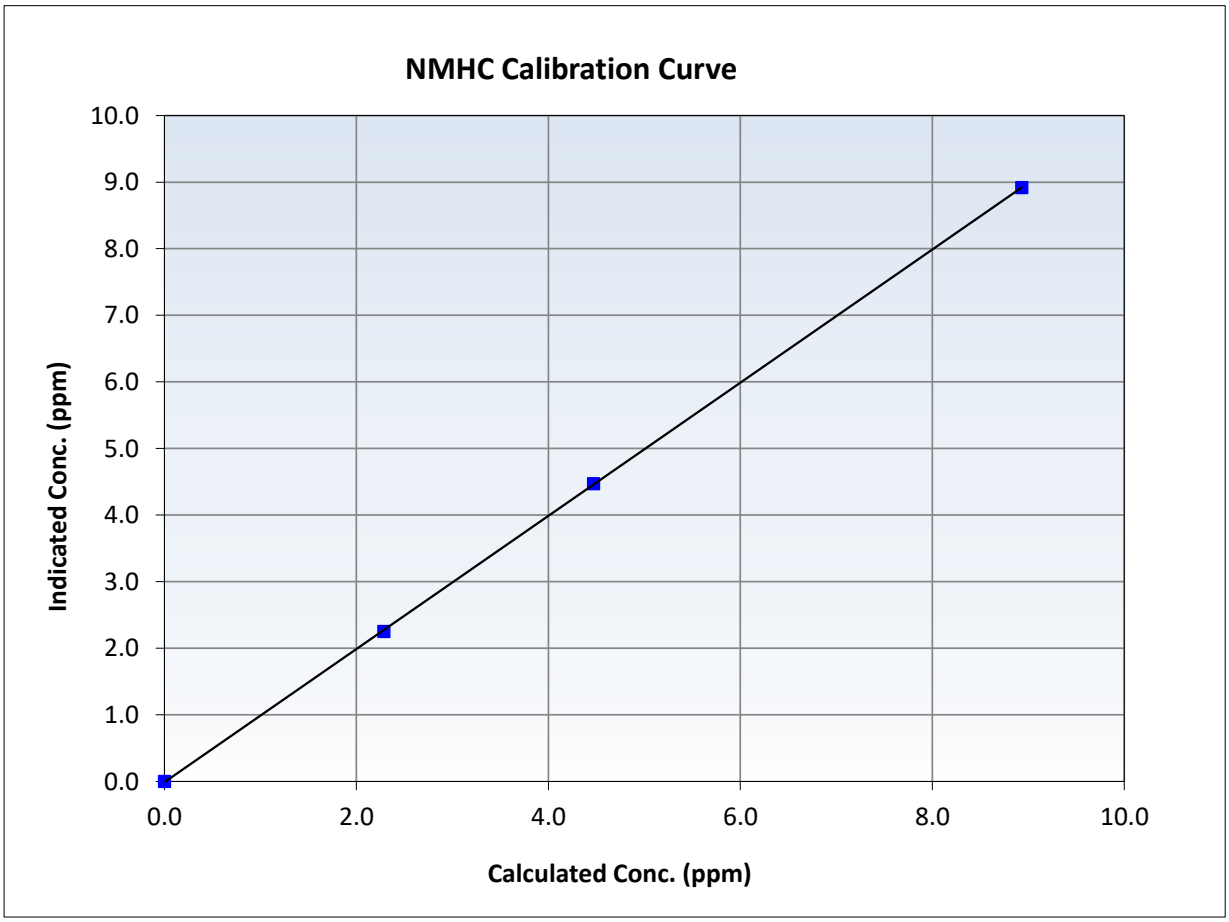
NMHC Calibration Summary

Station Information

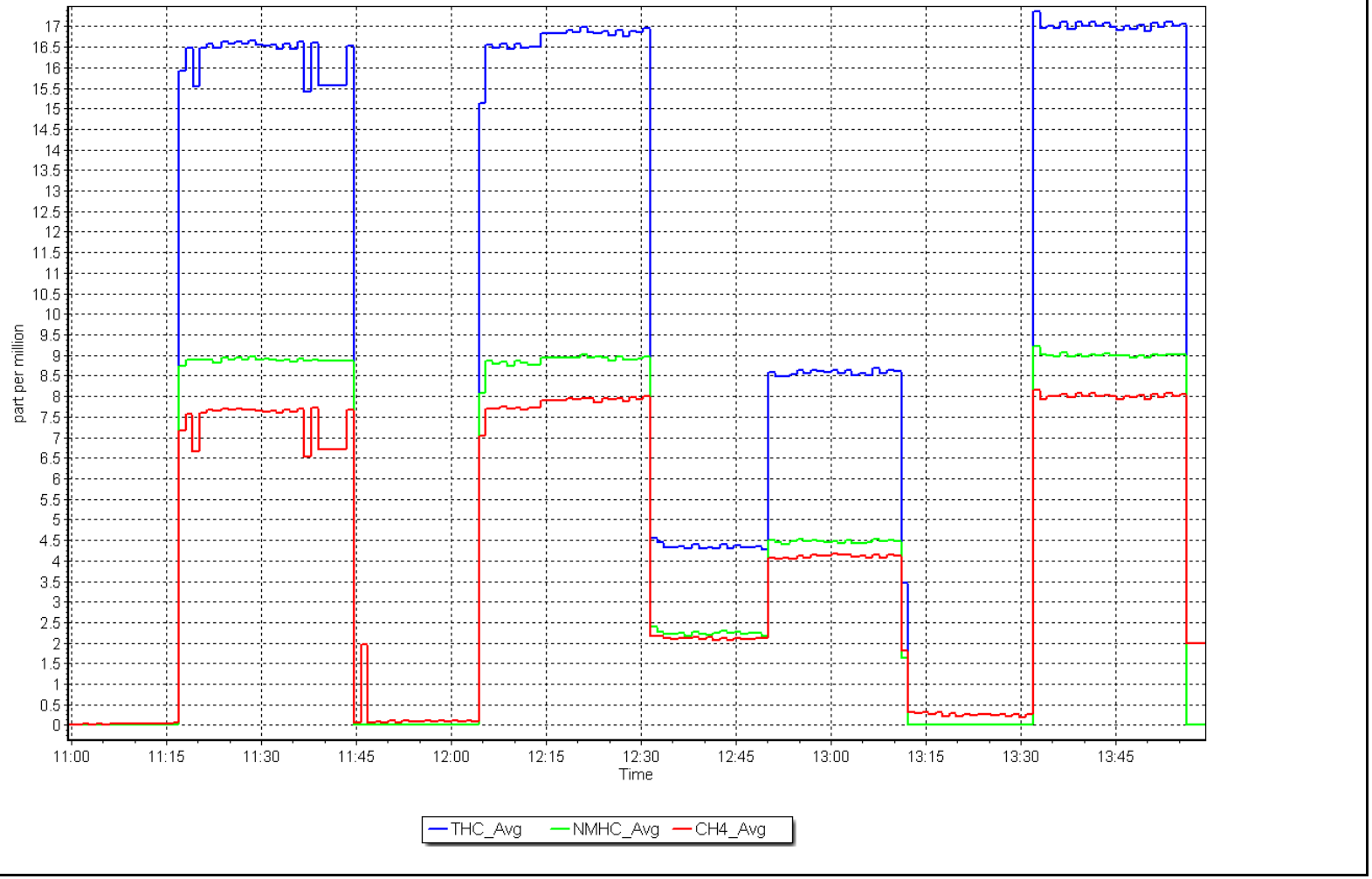
Calibration Date:	May 20, 2025	Previous Calibration:	April 28, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:56	End Time (MST):	14:03
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999983	≥0.995
8.93	8.92	1.0013	Slope	0.999889	0.90 - 1.10
4.47	4.47	1.0002	Intercept	-0.011203	+/-0.5
2.29	2.25	1.0150			



NMHC Calibration Plot Date: May 20, 2025 Location: Stony Mountain



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 23, 2025	Last Cal Date:	May 20, 2025
Start time (MST):	10:28	End time (MST):	14:03
Reason:	Maintenance		

Calibration 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 T751	Serial Number:	4890

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.25E-04	2.39E-04	NMHC SP Ratio:	4.21E-05	4.17E-05
CH4 Retention time:	14.8	15.4	NMHC Peak Area:	212089	213900
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	0.01	----
As found High point	4921	78.1	16.82	16.48	1.021
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	16.47	Prev response	16.88	*% change	-2.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	0.02	----
High point	4921	78.1	16.82	16.73	1.005
Mid point	4960	39.1	8.42	8.37	1.006
Low point	4980	20.0	4.31	4.20	1.026
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	78.1	16.82	16.97	0.991
				Average Correction Factor	1.012

Notes: Zero chromatogram used, span adjusted.

Wood Buffalo Environmental Association

THC / CH_4 / 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	78.1	8.93	9.04	0.988
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.04	Prev response	8.92	*% change	1.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	78.1	8.93	8.88	1.006
Mid point	4960	39.1	4.47	4.45	1.005
Low point	4980	20.0	2.29	2.24	1.022
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	78.1	8.93	8.99	0.994
				Average Correction Factor	1.011

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	0.01	----
As found High point	4921	78.1	7.89	7.44	1.063
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.42	Prev response	7.96	*% change	-7.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	0.02	----
High point	4921	78.1	7.89	7.85	1.004
Mid point	4960	39.1	3.95	3.92	1.007
Low point	4980	20.0	2.02	1.96	1.030
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	78.1	7.89	7.98	0.988
				Average Correction Factor	1.014

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.997975	0.995454
THC Cal Offset:	0.093679	-0.022452
CH4 Cal Slope:	0.996095	0.995401
CH4 Cal Offset:	0.103879	-0.008966
NMHC Cal Slope:	0.999889	0.995385
NMHC Cal Offset:	-0.011203	-0.013284

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

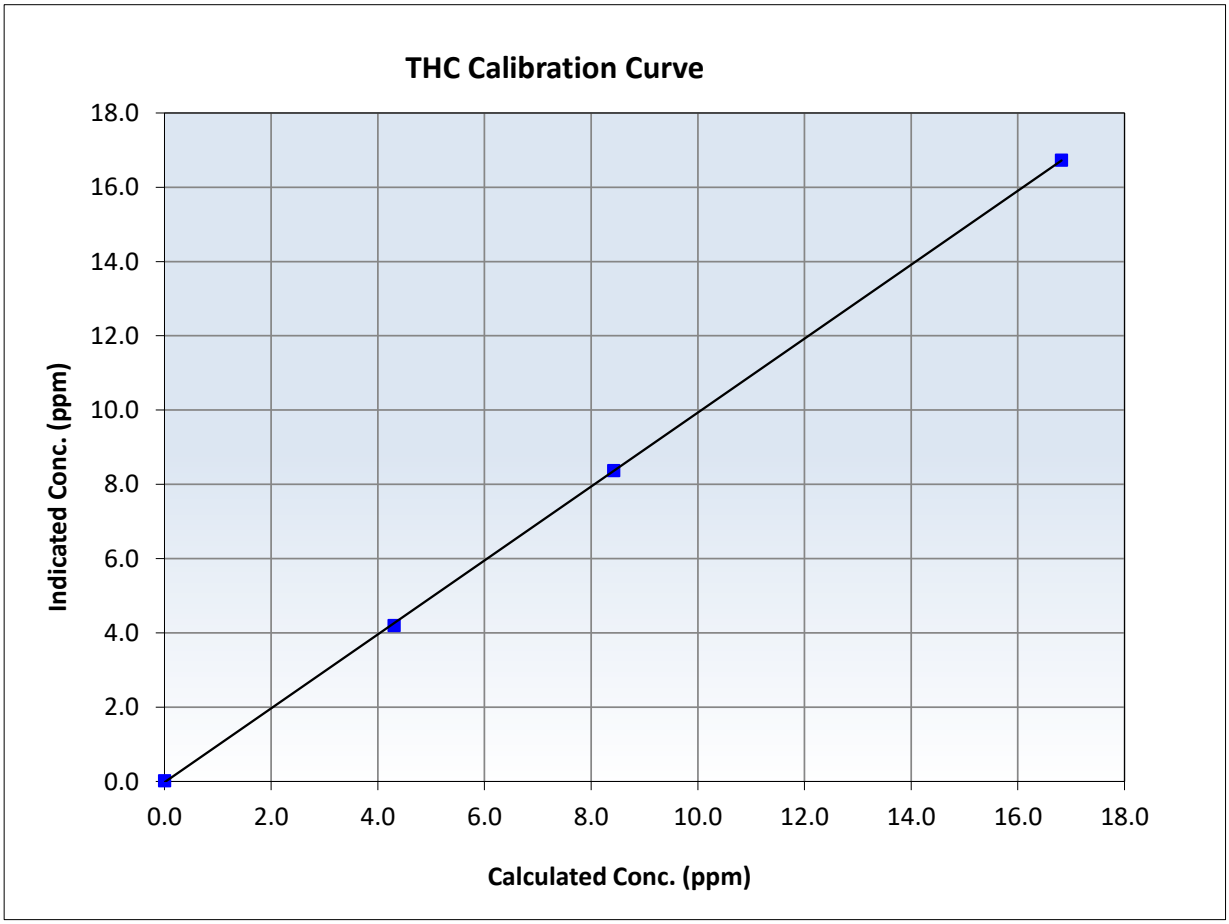
THC Calibration Summary

Station Information

Calibration Date:	May 23, 2025	Previous Calibration:	May 20, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:28	End Time (MST):	14:03
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.02	----	Correlation Coefficient	0.999957	≥0.995
16.82	16.73	1.0052	Slope	0.995454	0.90 - 1.10
8.42	8.37	1.0061	Intercept	-0.022452	+/-0.5
4.31	4.20	1.0258			



Wood Buffalo Environmental Association

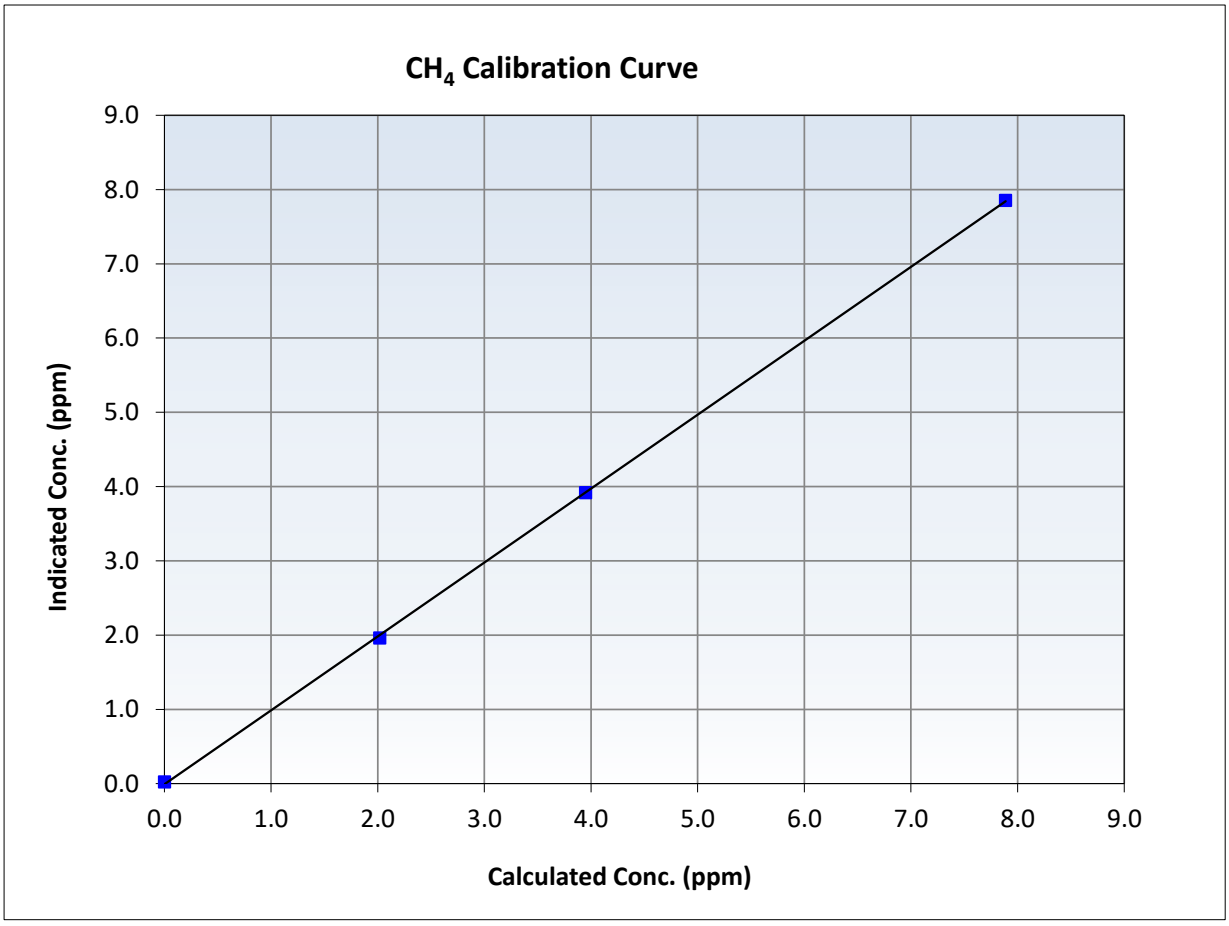
CH_4 Calibration Summary

Station Information

Calibration Date:	May 23, 2025	Previous Calibration:	May 20, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:28	End Time (MST):	14:03
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.02	----	Correlation Coefficient	0.999919	≥0.995
7.89	7.85	1.0043	Slope	0.995401	0.90 - 1.10
3.95	3.92	1.0074			
2.02	1.96	1.0299	Intercept	-0.008966	+/-0.5



Wood Buffalo Environmental Association

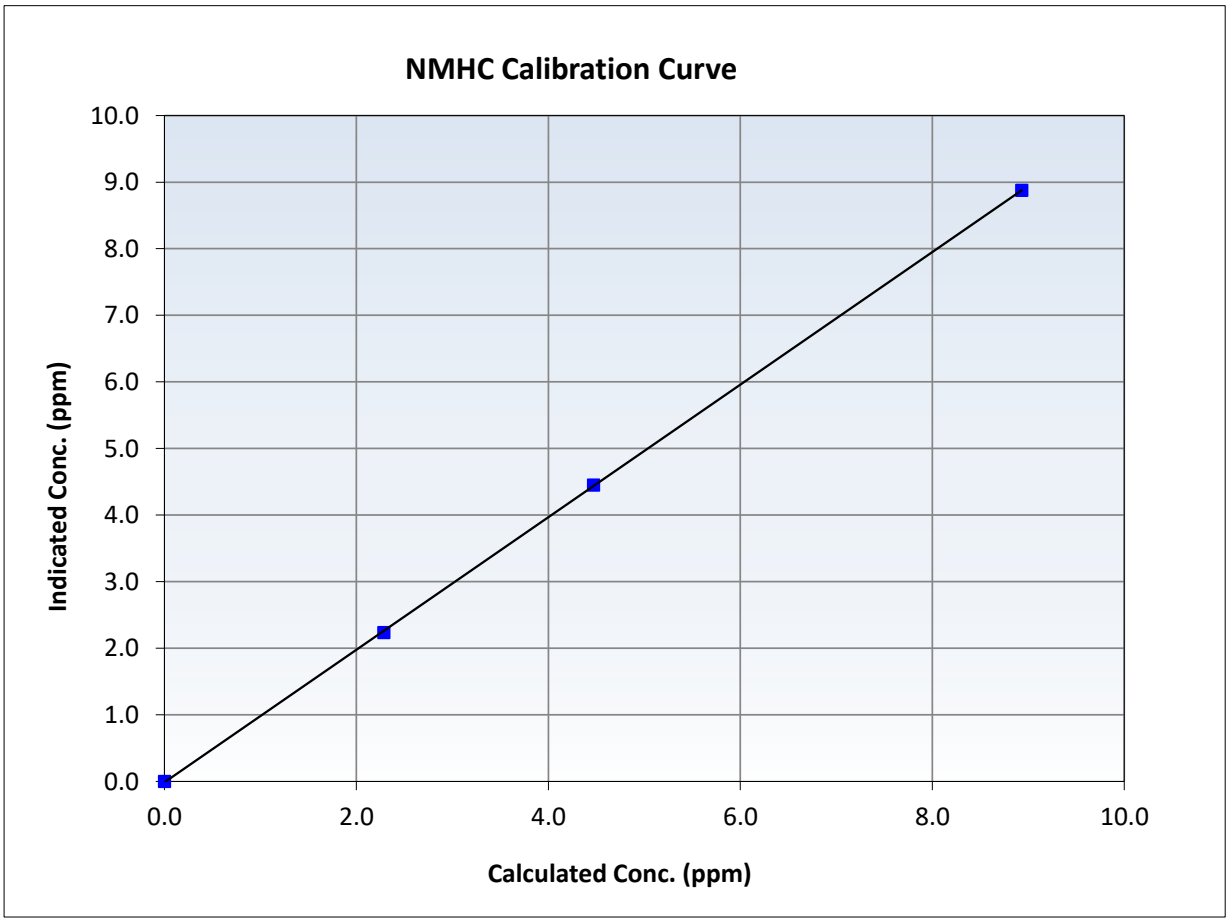
NMHC Calibration Summary

Station Information

Calibration Date:	May 23, 2025	Previous Calibration:	May 20, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:28	End Time (MST):	14:03
Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999977	≥0.995
8.93	8.88	1.0061	Slope	0.995385	0.90 - 1.10
4.47	4.45	1.0049	Intercept	-0.013284	+/-0.5
2.29	2.24	1.0223			



NMHC Calibration Plot Date: May 23, 2025 Location: Stony Mountain

Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 28, 2025	Last Cal Date:	May 23, 2025
Start time (MST):	11:30	End time (MST):	N/A
Reason:	Removal		

Calibration 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:	281
Zero Air Gen model:	Teledyne API T751	Serial Number:	529

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1218153355
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.39E-04	N/A	NMHC SP Ratio:	4.17E-05	N/A
CH4 Retention time:	15.4	N/A	NMHC Peak Area:	213900	N/A
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	0.01	----
As found High point	4921	78.1	16.82	17.03	0.988
As found Mid point	4960	39.1	8.42	8.53	0.989
As found Low point	4980	20.0	4.31	4.30	1.005
New cylinder response					
Baseline Corr AF:	17.02	Prev response	16.72	*% change	1.7%
Baseline Corr 2nd AF:	8.52	AF Slope:	1.013241	AF Intercept:	-0.017093
Baseline Corr 3rd AF:	4.28	AF Correlation:	0.999977	* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

Notes: Instrument still showing dips, used portable calibration system for removal calibration.

Wood Buffalo Environmental Association

THC / CH_4 / 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	78.1	8.93	9.12	0.979
As found Mid point	4960	39.1	4.47	4.57	0.979
As found Low point	4980	20.0	2.29	2.30	0.993
New cylinder response					
Baseline Corr AF:	9.12	Prev response	8.88	*% change	2.6%
Baseline Corr 2nd AF:	4.57	AF Slope:	1.022147	AF Intercept:	-0.011510
Baseline Corr 3rd AF:	2.30	AF Correlation:	0.999984	* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

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	0.01	----
As found High point	4921	78.1	7.89	7.91	0.999
As found Mid point	4960	39.1	3.95	3.96	1.001
As found Low point	4980	20.0	2.02	1.99	1.022
New cylinder response					
Baseline Corr AF:	7.90	Prev response	7.84	*% change	0.7%
Baseline Corr 2nd AF:	3.95	AF Slope:	1.002953	AF Intercept:	-0.005375
Baseline Corr 3rd AF:	1.98	AF Correlation:	0.999963	* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.995454	
THC Cal Offset:	-0.022452	
CH4 Cal Slope:	0.995401	
CH4 Cal Offset:	-0.008966	
NMHC Cal Slope:	0.995385	
NMHC Cal Offset:	-0.013284	

Calibration Performed By: Aswin Sasi Kumar

NMHC Calibration Plot Date: May 28, 2025 Location: Stony Mountain

Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 28, 2025	Last Cal Date:	May 23, 2025
Start time (MST):	11:30	End time (MST):	13:15
Reason:	Install		

Calibration 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:	281
Zero Air Gen model:	Teledyne API T751	Serial Number:	529

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	1170050130
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	N/A	2.62E-04	NMHC SP Ratio:	N/A	4.72E-05
CH4 Retention time:	N/A	14.8	NMHC Peak Area:	N/A	189009
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 initiates 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	16.81	1.001
Mid point	4960	39.1	8.42	8.39	1.003
Low point	4980	20.0	4.31	4.29	1.004
As left zero					
As left span					

Average Correction Factor: 1.003

Notes: Span adjusted. No as lefts done due to time constraints.

Wood Buffalo Environmental Association

THC / CH_4 / 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					

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 initiates 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	78.1	8.93	8.94	1.000
Mid point	4960	39.1	4.47	4.47	1.000
Low point	4980	20.0	2.29	2.29	1.000
As left zero					
As left span					

Average Correction Factor: 1.000

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					
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 initiates 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	4921	78.1	7.89	7.88	1.001
Mid point	4960	39.1	3.95	3.93	1.006
Low point	4980	20.0	2.02	2.00	1.009
As left zero					
As left span					

Average Correction Factor: 1.005

Calibration Statistics

	Start	*Finish*
THC Cal Slope:		0.999584
THC Cal Offset:		-0.010709
CH4 Cal Slope:		0.998976
CH4 Cal Offset:		-0.009600
NMHC Cal Slope:		1.000479
NMHC Cal Offset:		-0.001516

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

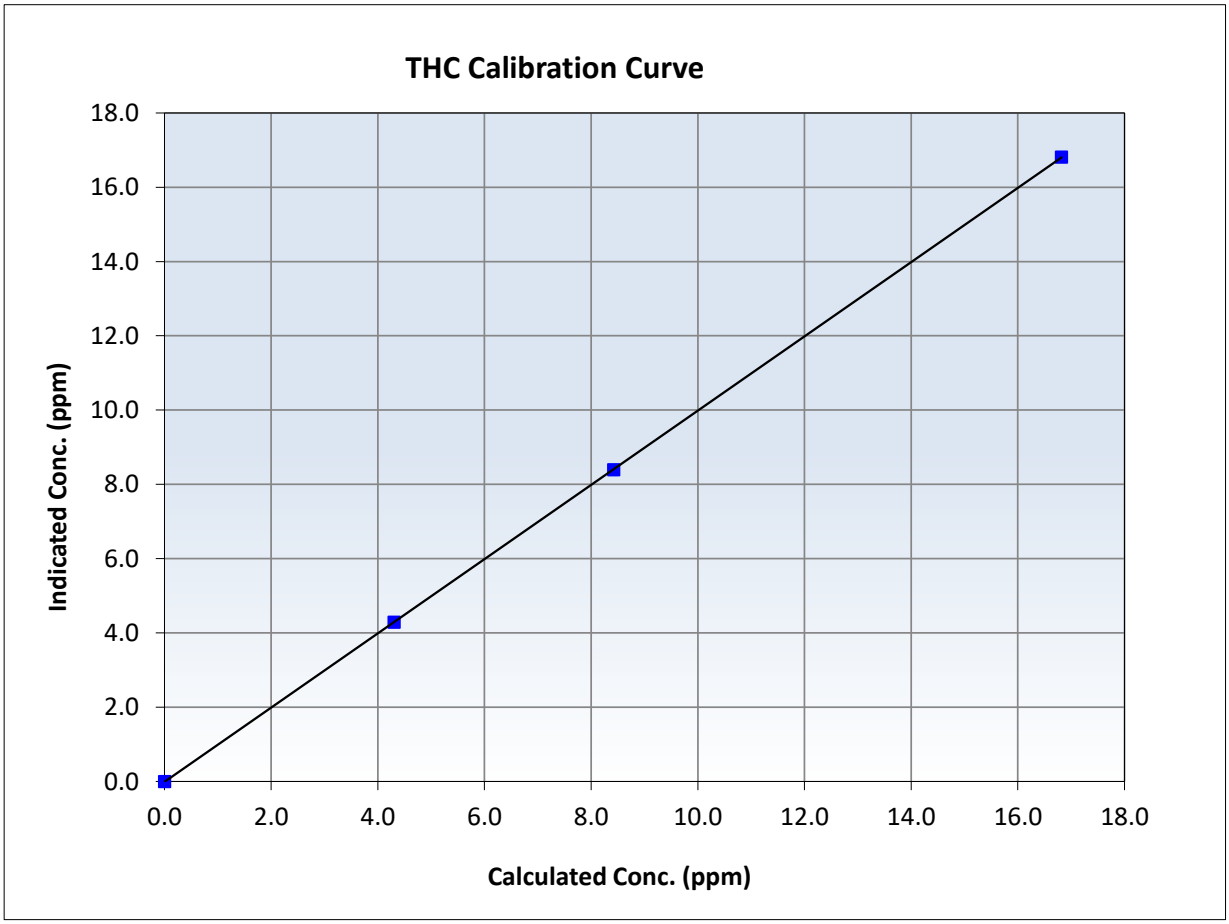
THC Calibration Summary

Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	May 23, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:30	End Time (MST):	13:15
Analyzer make:	Thermo 55i	Analyzer serial #:	1170050130

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999998	≥0.995
16.82	16.81	1.0006	Slope	0.999584	0.90 - 1.10
8.42	8.39	1.0032	Intercept	-0.010709	+/-0.5
4.31	4.29	1.0043			



Wood Buffalo Environmental Association

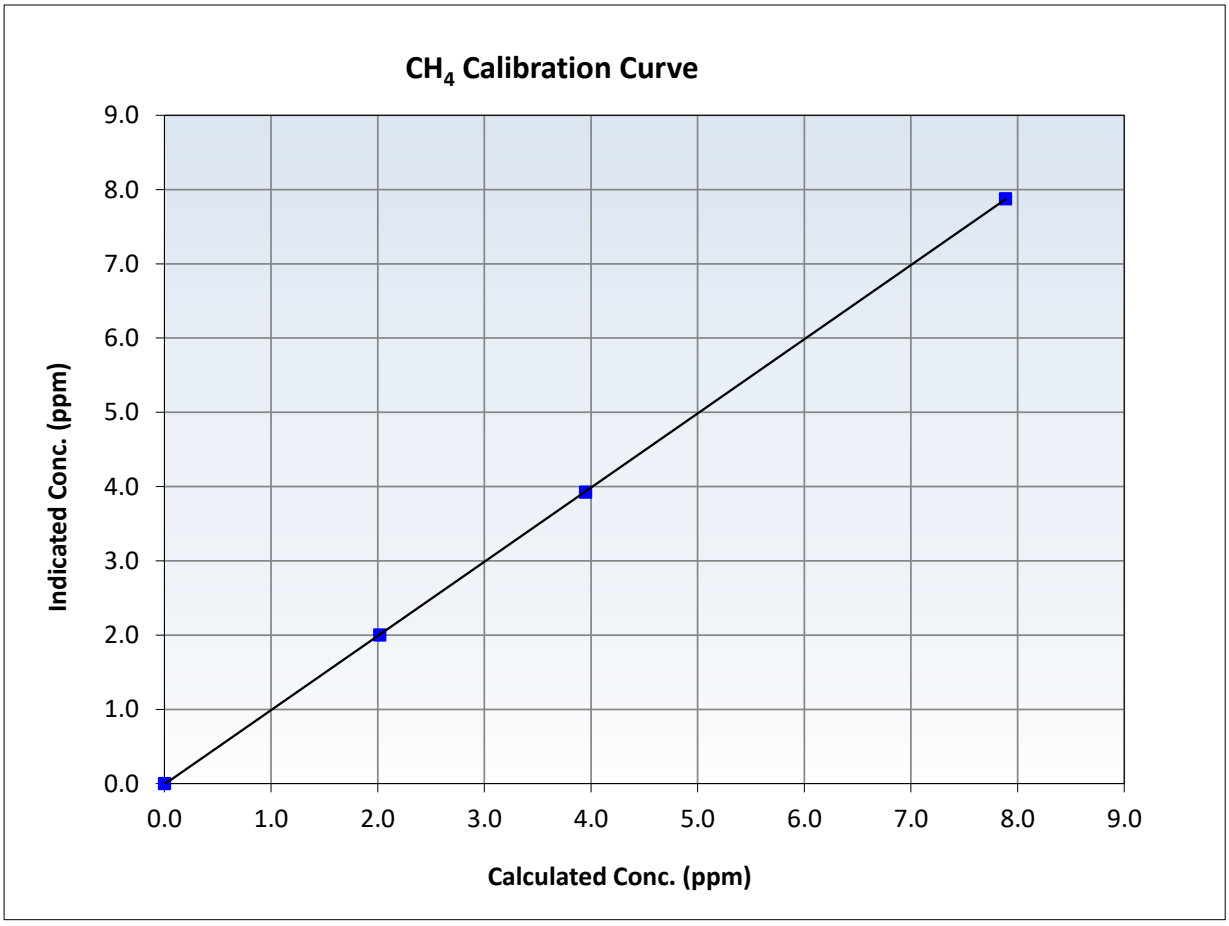
CH_4 Calibration Summary

Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	May 23, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:30	End Time (MST):	13:15
Analyzer make:	Thermo 55i	Analyzer serial #:	1170050130

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999992	≥0.995
7.89	7.88	1.0014	Slope	0.998976	0.90 - 1.10
3.95	3.93	1.0061			
2.02	2.00	1.0088	Intercept	-0.009600	+/-0.5



Wood Buffalo Environmental Association

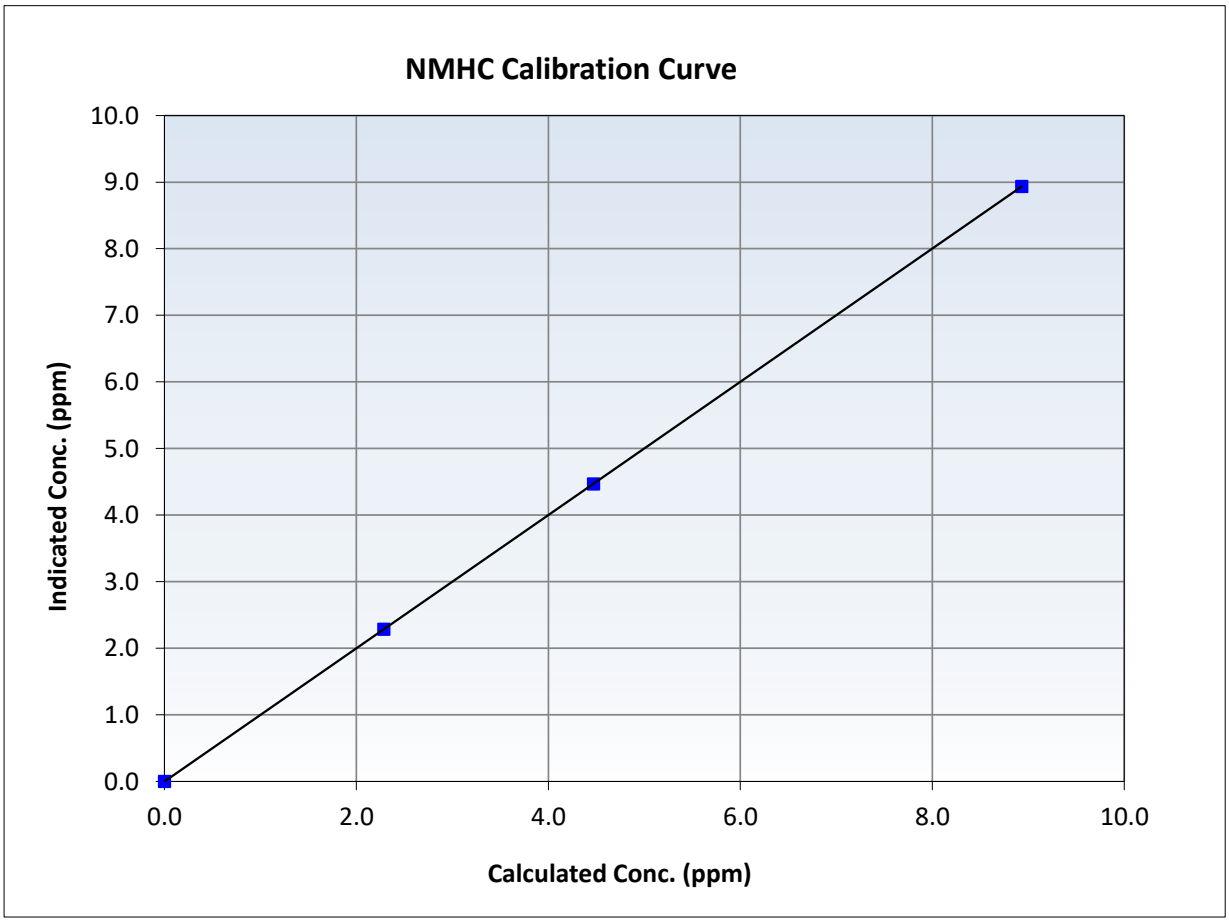
NMHC Calibration Summary

Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	May 23, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:30	End Time (MST):	13:15
Analyzer make:	Thermo 55i	Analyzer serial #:	1170050130

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	1.000000	≥0.995
8.93	8.94	0.9995	Slope	1.000479	0.90 - 1.10
4.47	4.47	1.0004	Intercept	-0.001516	+/-0.5
2.29	2.29	1.0004			



NMHC Calibration Plot Date: May 28, 2025 Location: Stony Mountain

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Stony Mountain
Station number:	AMS 18
Calibration Date:	May 29, 2025
Last Cal Date:	April 24, 2025
Start time (MST):	10:45
End time (MST):	15:40
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0045516	Cal Gas Expiry Date:	November 17, 2026
NOX Cal Gas Conc:	60.30 ppm	NO Cal Gas Conc:	60.10 ppm
Removed Cylinder #:	N/A	Removed Gas Exp Date:	N/A
Removed Gas NOX Conc:	60.30 ppm	Removed Gas NO Conc:	60.10 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	2658
ZAG make/model:	Teledyne API 701	Serial Number:	4890

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	-4.7	-5.3	0.5	----	----
AF High point	4933	66.6	803.3	800.6	2.7	797.0	797.5	-0.5	1.0019	0.9973
AF Mid point										
AF Low point										
New cyl resp										

Previous Respo	4933	NO_X =	797.5 ppb	NO =	800.2 ppb		
Baseline Corr 1st pt		NO_X =	801.7 ppb	NO =	802.8 ppb	*Percent Change	NO_X = 0.5%
Baseline Corr 2nd pt		NO_X =	NA ppb	NO =	NA ppb	*Percent Change	NO = 0.3%
Baseline Corr 3rd pt		NO_X =	NA ppb	NO =	NA ppb		

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero							
As found high GPT point							
As found mid GPT point							
As found low GPT point							

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Teledyne API T200 Serial Number: 1035

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.949	0.947	NO bkgnd or offset:	-25.9	-27.8
NOX coeff or slope:	0.941	0.947	NOX bkgnd or offset:	-25.4	-27.6
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	7.3	7.3

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.995141	0.993871
NO_X Cal Offset:	-1.829828	0.491276
NO Cal Slope:	1.002849	1.002748
NO Cal Offset:	-2.669053	-2.108590
NO_2 Cal Slope:	0.990662	0.999696
NO_2 Cal Offset:	-1.030634	0.730835

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	-0.4	0.0	----	----
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	400.4	397.9	2.5	1.0029	1.0059
Low point	4983	16.6	200.2	199.5	0.7	200.0	196.6	3.4	1.0011	1.0150
As left zero	5000	0.0	0.0	0.0	0.0	0.7	1.3	-0.7	----	----
As left span	4933	66.6	803.3	392.8	410.5	799.1	392.8	406.4	1.0052	1.0000
								Average Correction Factor	1.0034	1.0065

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	0.0	----	----
High GPT point	800.0	394.3	408.4	408.7	0.9992	100.1%
Mid GPT point	800.0	604.7	198.0	198.7	0.9963	100.4%
Low GPT point	800.0	698.3	104.4	106.0	0.9846	101.6%
				Average Correction Factor	0.9933	100.7%

Notes: Zero and Span adjusted.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

NO_X Calibration Summary

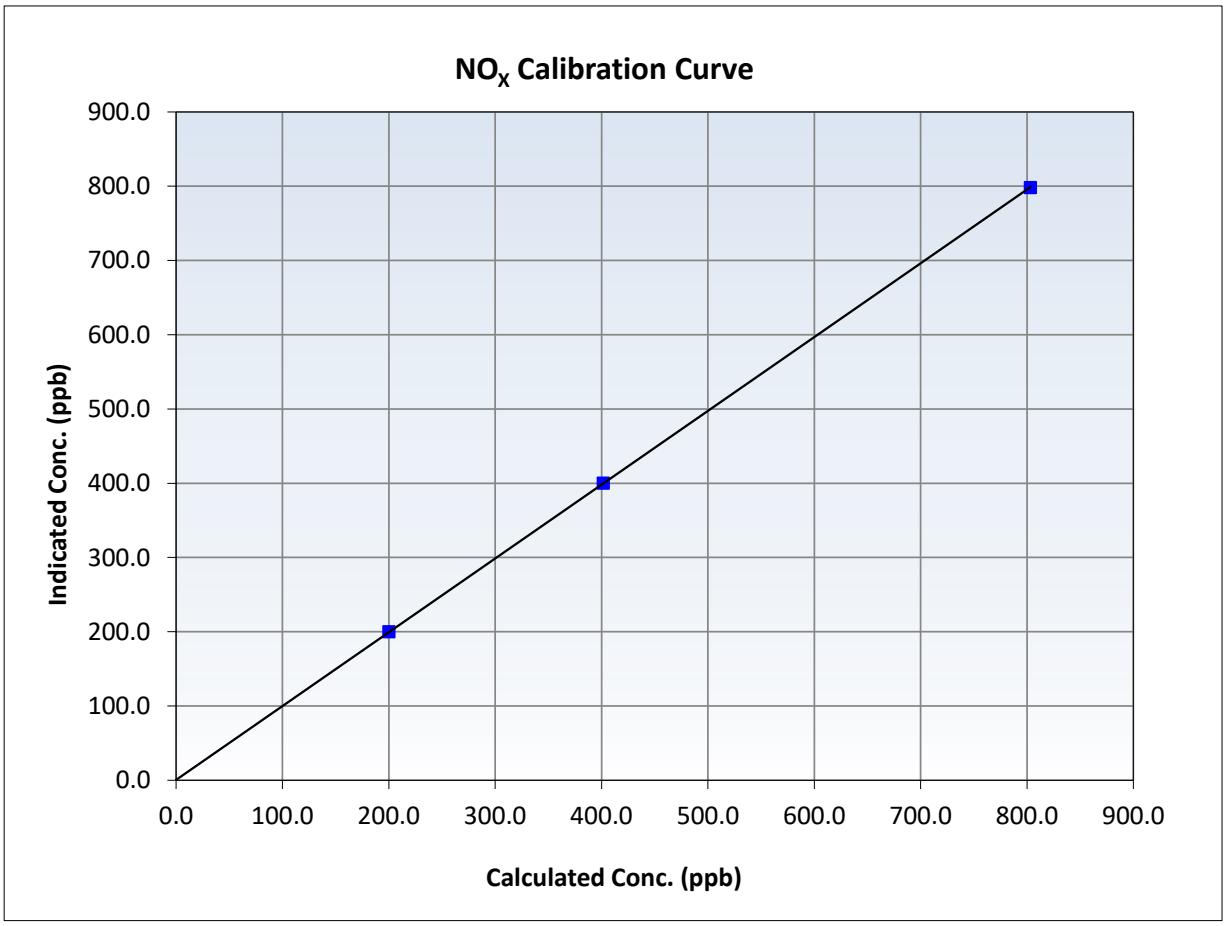
Station Information

Calibration Date:	May 29, 2025	Previous Calibration:	April 24, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:45	End Time (MST):	15:40
Analyzer make:	Teledyne API T200	Analyzer serial #:	1035

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
803.3	798.3	1.0062
401.6	400.4	1.0029
200.2	200.0	1.0011

Statistical Evaluation		Limits
Correlation Coefficient	0.999995	≥0.995
Slope	0.993871	0.90 - 1.10
Intercept	0.491276	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

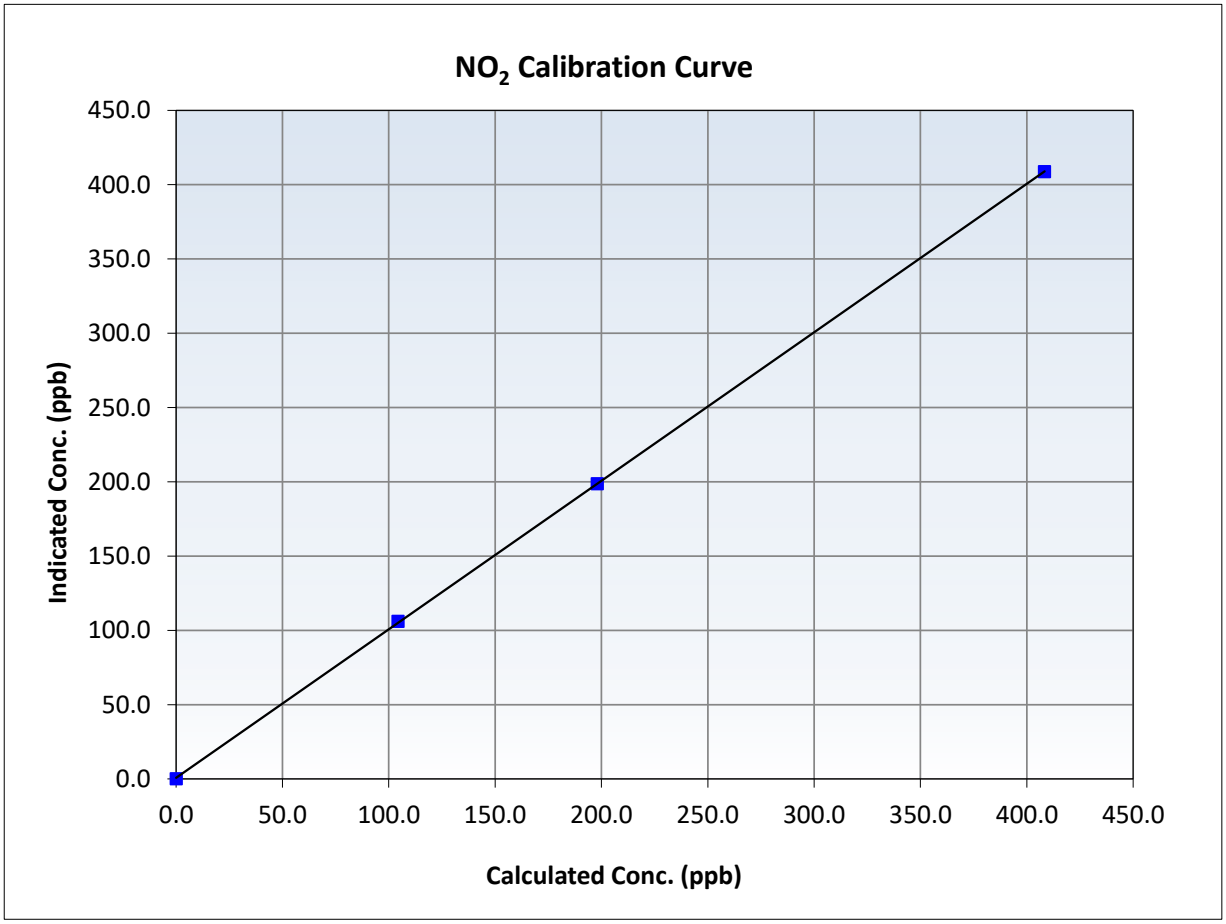
Station Information

Calibration Date:	May 29, 2025	Previous Calibration:	April 24, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:45	End Time (MST):	15:40
Analyzer make:	Teledyne API T200	Analyzer serial #:	1035

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
408.4	408.7	0.9992
198.0	198.7	0.9963
104.4	106.0	0.9846

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999984	*≥0.995*
Slope	0.999696	*0.90 - 1.10*
Intercept	0.730835	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

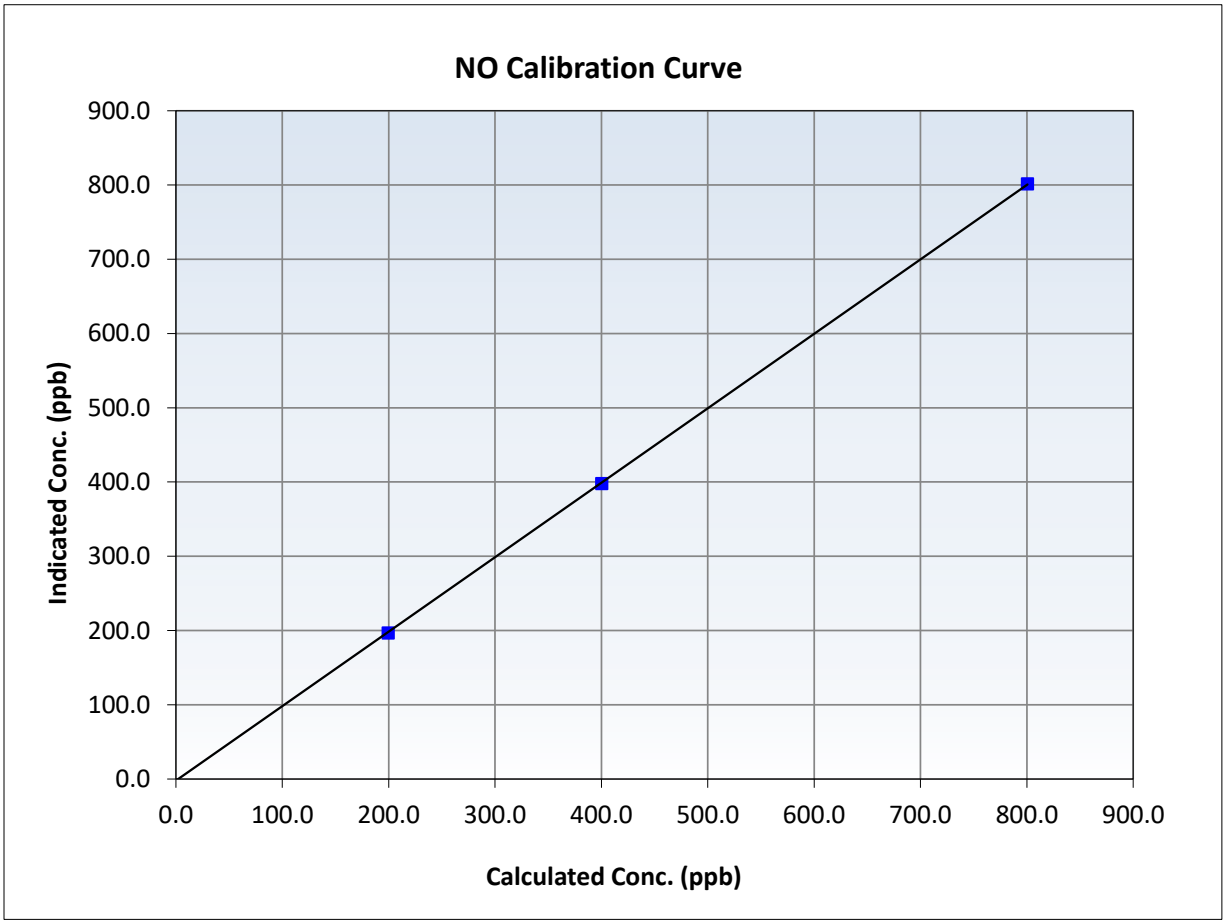
Station Information

Calibration Date:	May 29, 2025	Previous Calibration:	April 24, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	10:45	End Time (MST):	15:40
Analyzer make:	Teledyne API T200	Analyzer serial #:	1035

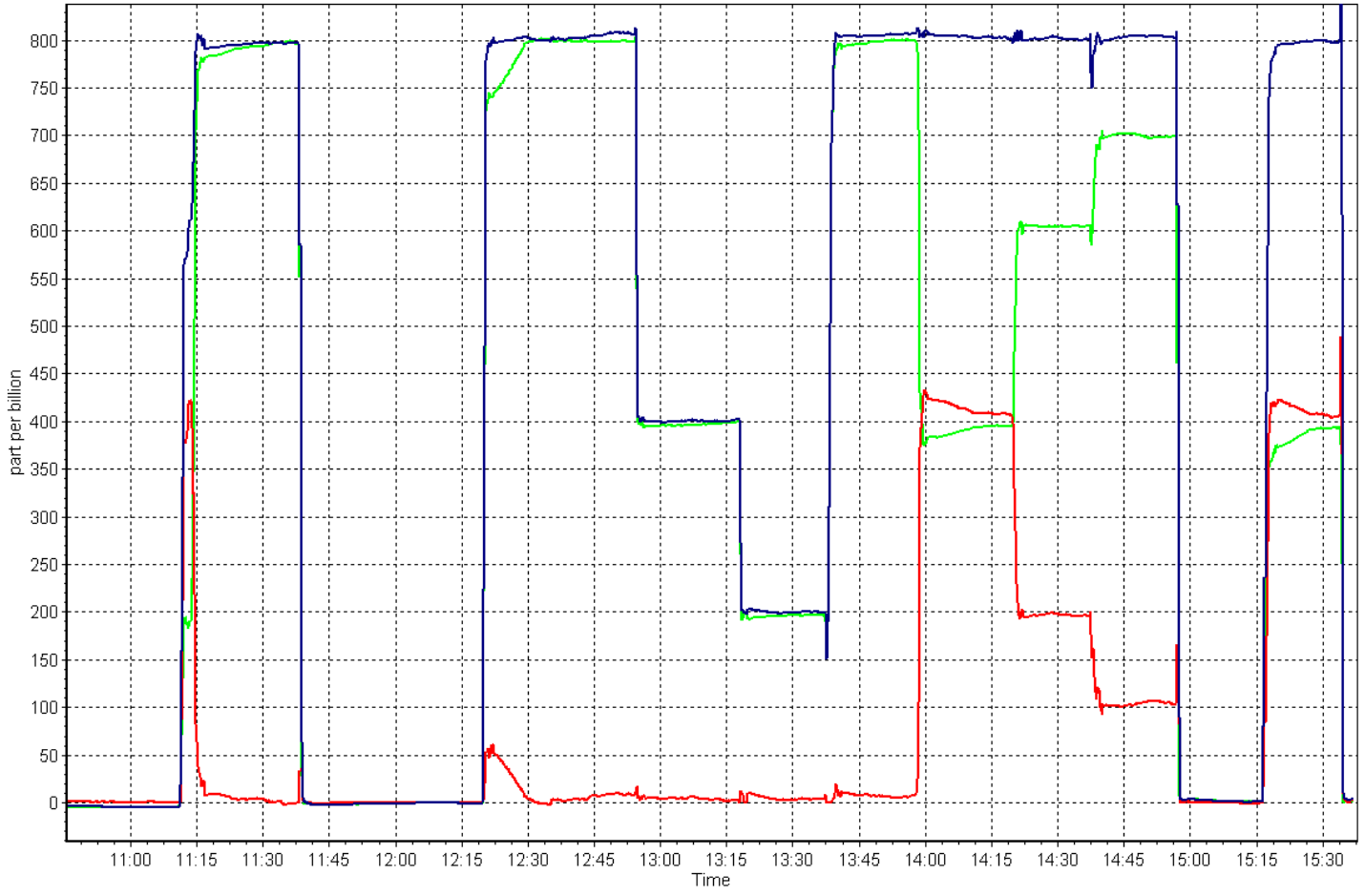
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.4	----
800.6	801.7	0.9986
400.2	397.9	1.0059
199.5	196.6	1.0150

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999978	*≥0.995*
Slope	1.002748	*0.90 - 1.10*
Intercept	-2.108590	*+/-20*



NO_X Calibration Plot Date: May 29, 2025 Location: Stony Mountain



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 14, 2025	Last Cal Date:	April 16, 2025
Start time (MST):	11:00	End time (MST):	14:23
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	Teledyne API T700	Serial Number:	2658
ZAG Make/Model:	Teledyne API 701H	Serial Number:	355

Analyzer Information

Analyzer make:	API T400		Analyzer serial #:	825	
Analyzer Range	0 - 500 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.997657	0.996886	Backgd or Offset:	2.0	2.0
Calibration intercept:	0.960000	0.420000	Coeff or Slope:	1.012	1.024

O_3 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	0.1	----
As found High point	4888	1138.1	400.0	398.2	1.005
As found Mid point					
As found Low point					
Baseline Corr As found:	398.1	Previous response	400.0	*% change	-0.5%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

O_3 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	399.1	1.002
Mid point	4888	884.5	200.0	200.0	1.000
Low point	4888	741.4	100.0	100.0	1.000
As left zero	5000	NA	0.0	0.3	----
As left span	4812	1097.9	400.0	399.8	1.001
				Average Correction Factor	1.001

Notes: Span adjusted.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

O_3 Calibration Summary

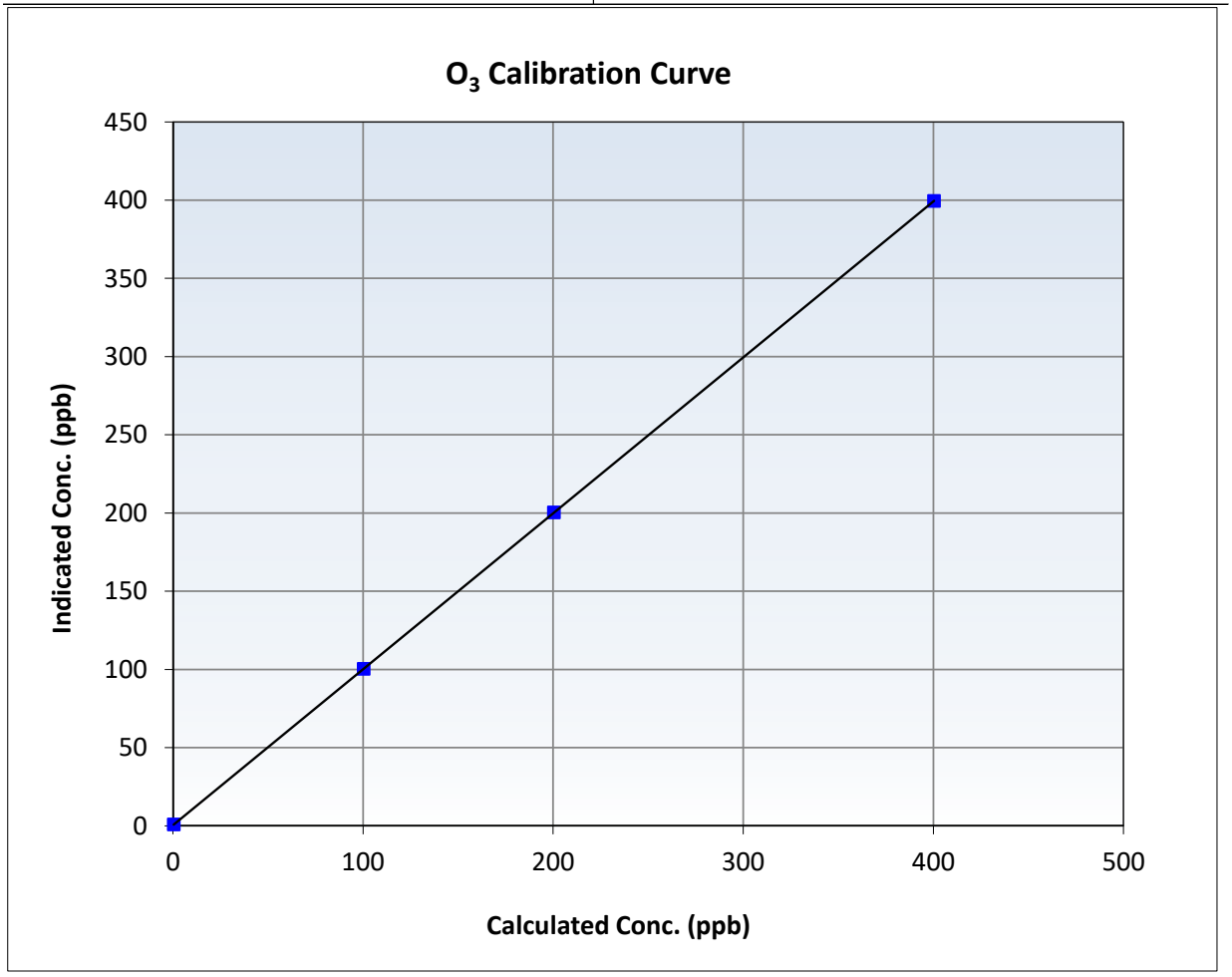
Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 16, 2025
Station Name:	Stony Mountain	Station Number:	AMS 18
Start Time (MST):	11:00	End Time (MST):	14:23
Analyzer make:	API T400	Analyzer serial #:	825

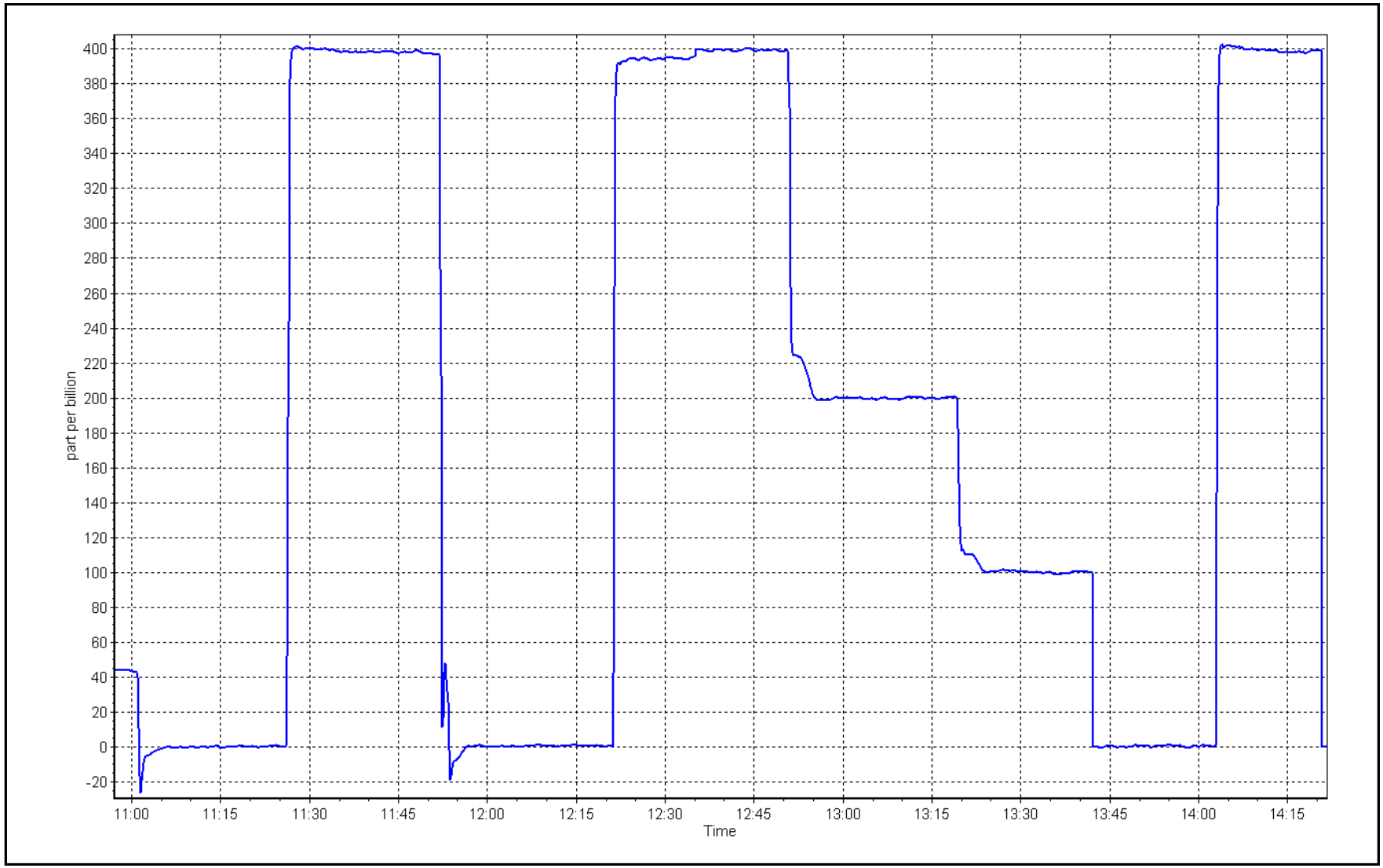
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
400.0	399.1	1.0023
200.0	200.0	1.0000
100.0	100.0	1.0000

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	0.996886	*0.90 - 1.10*
Intercept	0.420000	*+/- 5*



O_3 Calibration Plot Date: May 14, 2025 Location: Stony Mountain



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 29, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	13:40	End time (MST):	14:50
Analyzer Make:	API T640	S/N:	324
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388749
Temp/RH standard:	Alicat FP-25BT	S/N:	388749

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	30.4	30.3	30.4	☐	+/- 2 °C
P (mmHg)	695.6	697.20	695.6	☐	+/- 10 mmHg
Flow (LPM)	5.04	4.98	5.04	☐	+/- 0.25 LPM
PW% (pump)	63	-----	71	☐	>80%
Zero Verification	PM w/o HEPA:	6.6	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: October 10, 2024 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test	11.0	11	11.0	☐	+/- 0.5

Date Optical Chamber Cleaned: February 27, 2025

Date Disposable Filter Changed: December 20, 2024

Post- maintenance Zero Verification: PM w/ HEPA: 0.0 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: July 4, 2024

Date RH/T Sensor Cleaned: July 4, 2024

Notes: Flow, temp and pressure checked. Leak check passed.

Calibration by: Aswin Sasi Kumar

Wood Buffalo Environmental Association

CO Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 28, 2025	Last Cal Date:	April 23, 2025
Start time (MST):	13:10	End time (MST):	N/A
Reason:	Removal		

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 T750		Serial Number:	281
ZAG Make/Model:	Teledyne API T751H		Serial Number:	529

Analyzer Information

Analyzer make:	Teledyne API T300		Analyzer serial #:	3504
Analyzer Range:	0 - 50 ppm			

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.002362		Backgd or Offset:	-0.012	n/a
Calibration intercept:	0.201757		Coeff or Slope:	0.907	n/a

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	0.3	----
As found High point	4933	66.7	41.1	42.2	0.983
As found Mid point	4966	33.3	20.5	21.5	0.968
As found Low point	4983	16.7	10.3	11.0	0.962
New cylinder response					

Baseline Corr As found:	41.82	Prev response:	41.39	*% change:	1.0%
Baseline Corr 2nd AF pt:	21.2	AF Slope:	1.016828	AF Intercept:	0.481749
Baseline Corr 3rd AF pt:	10.7	AF Correlation:	0.999919	* = > +/-5% change initiates investigation	

CO Calibration Data

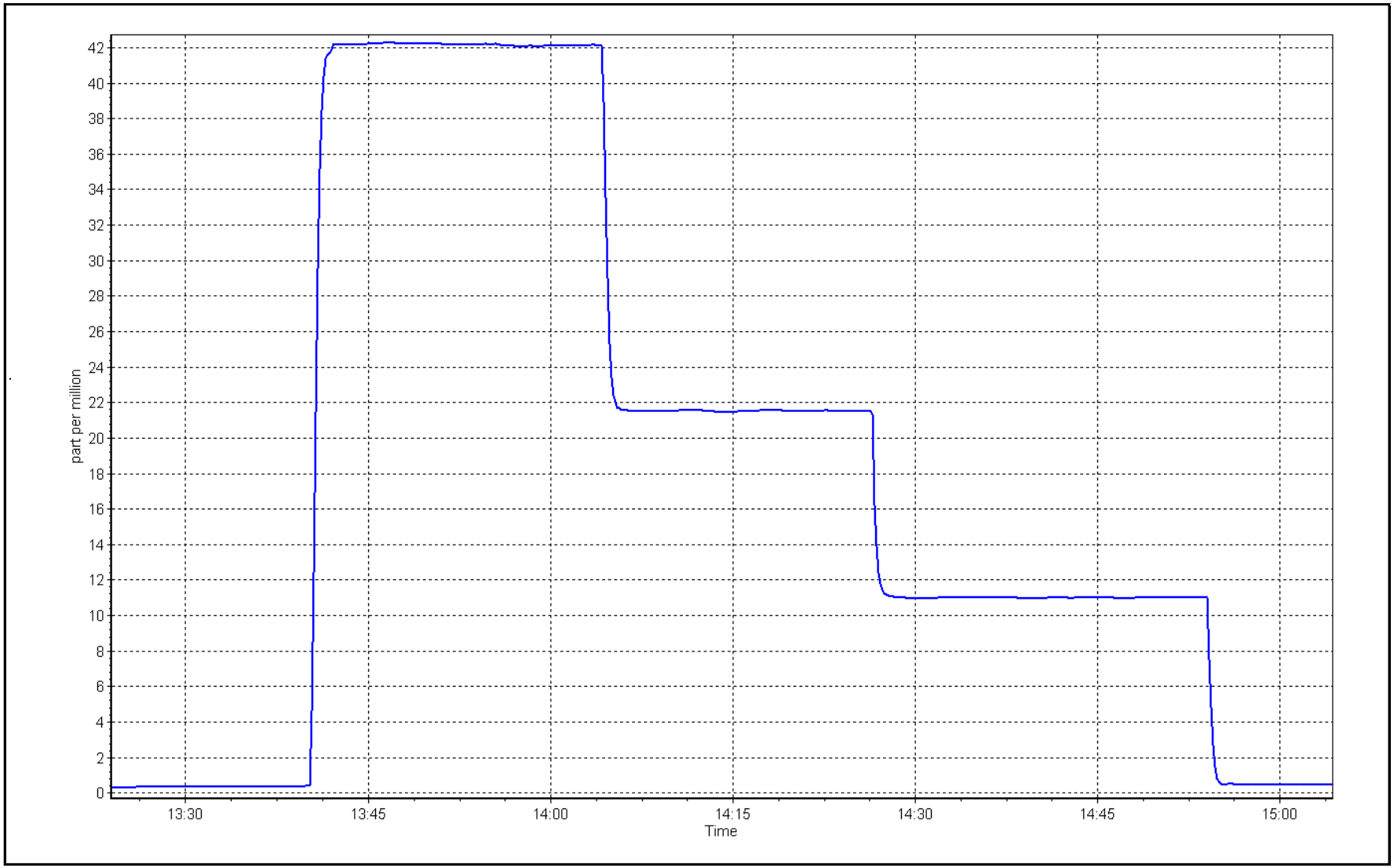
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero					
High point					
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor

Notes: Used portable calibration system for removal calibration.

Calibration Performed By: Aswin Sasi Kumar

CO Calibration Plot Date: May 28, 2025 Location: Stony Mountain



Wood Buffalo Environmental Association

CO_2 Calibration Report

Station Information

Station Name:	Stony Mountain	Station number:	AMS 18
Calibration Date:	May 21, 2025	Last Cal Date:	April 22, 2025
Start time (MST):	11:13	End time (MST):	N/A
Reason:	Removal		

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 make:	API T360		Analyzer serial #:	489	
Analyzer Range	0 - 2,000 ppm				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.001298	1.001298	Backgd or Offset:	-0.068	N/A
Calibration intercept:	-2.520000	-2.520000	Coeff or Slope:	0.960	N/A

CO_2 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	0.2	----
As found High Point	2920	80.0	1576.0	1572.8	1.002
As found Mid Point	2960	40.0	788.0	776.4	1.015
As found Low Point	2980	20.0	394.0		
New cylinder response					

Baseline Corr As found:	1572.6	Prev response:	1575.5	*% change:	-0.2%
Baseline Corr 2nd AF pt:	776.2	AF Slope:	0.997843	AF Intercept:	-3.2
Baseline Corr 3rd AF pt:	NA	AF Correlation:	0.999945	* = > +/-5% change initiates investigation	

CO_2 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	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
				Average Correction Factor	1.004

Notes: Removal calibration.

Calibration Performed By: Aswin Sasi Kumar

Wood Buffalo Environmental Association

CO_2 Calibration Summary

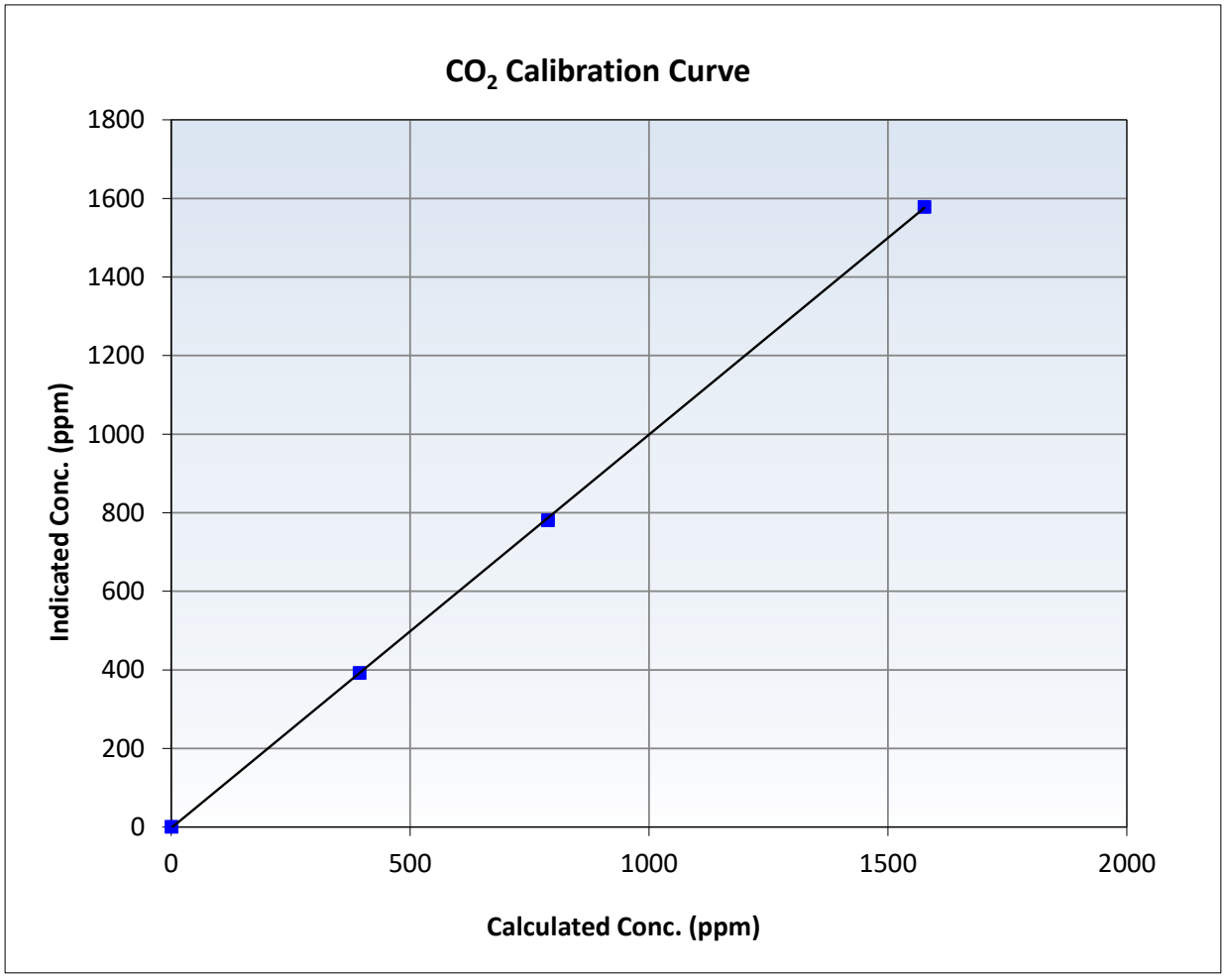
Station Information

Calibration Date	May 21, 2025	Previous Calibration	April 22, 2025
Station Name	Stony Mountain	Station Number	AMS 18
Start Time (MST)	11:13	End Time (MST)	
Analyzer make	API T360	Analyzer serial #	489

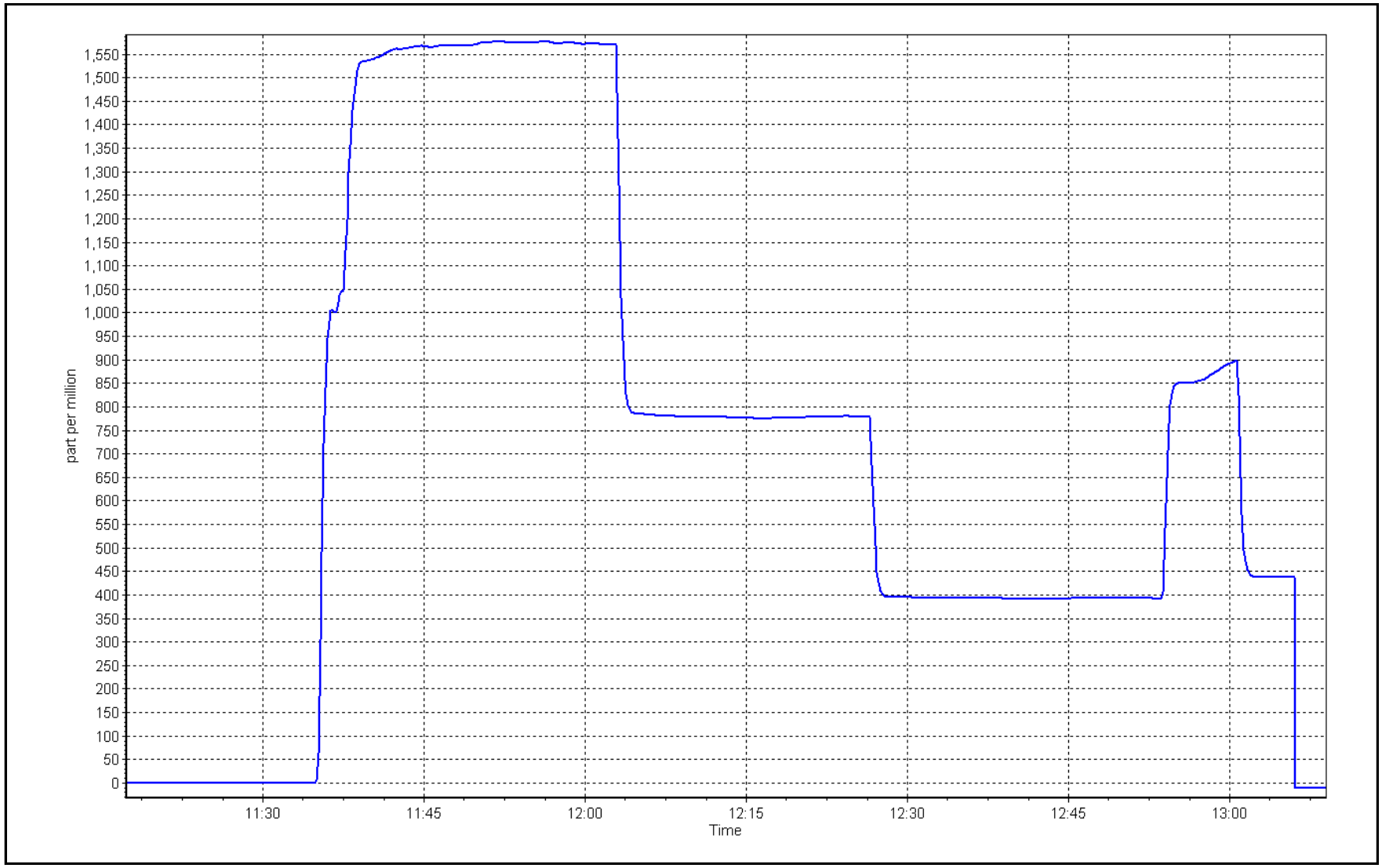
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
1576.0	1578.5	0.9984
788.0	780.5	1.0096
394.0	392.1	1.0048

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999961	*≥0.995*
Slope	1.001298	*0.90 - 1.10*
Intercept	-2.5	*+/-20*



CO_2 Calibration Plot Date: May 21, 2025 Location: Stony Mountain



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS19
FIREBAG
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Firebag	Station number:	AMS 19
Calibration Date:	May 6, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	10:15	End time (MST):	13:50
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.97	ppm	Cal Gas Exp Date:	October 9, 2032
Cal Gas Cylinder #:	CC705799			
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 T701H		Serial Number:	201

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1410661308	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.994511	0.997800	Backgd or Offset:	10.8	11.5
Calibration intercept:	0.940000	0.540000	Coeff or Slope:	1.005	1.014

SO_2 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	4922	78.4	799.2	791.8	1.010
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	791.5	Previous response	795.8	*% change	-0.5%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	-0.2	----
High point	4922	78.4	799.2	797.4	1.002
Mid point	4961	39.2	399.6	400.3	0.998
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	796.5	1.003
				Average Correction Factor:	1.000

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

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

SO_2 Calibration Summary

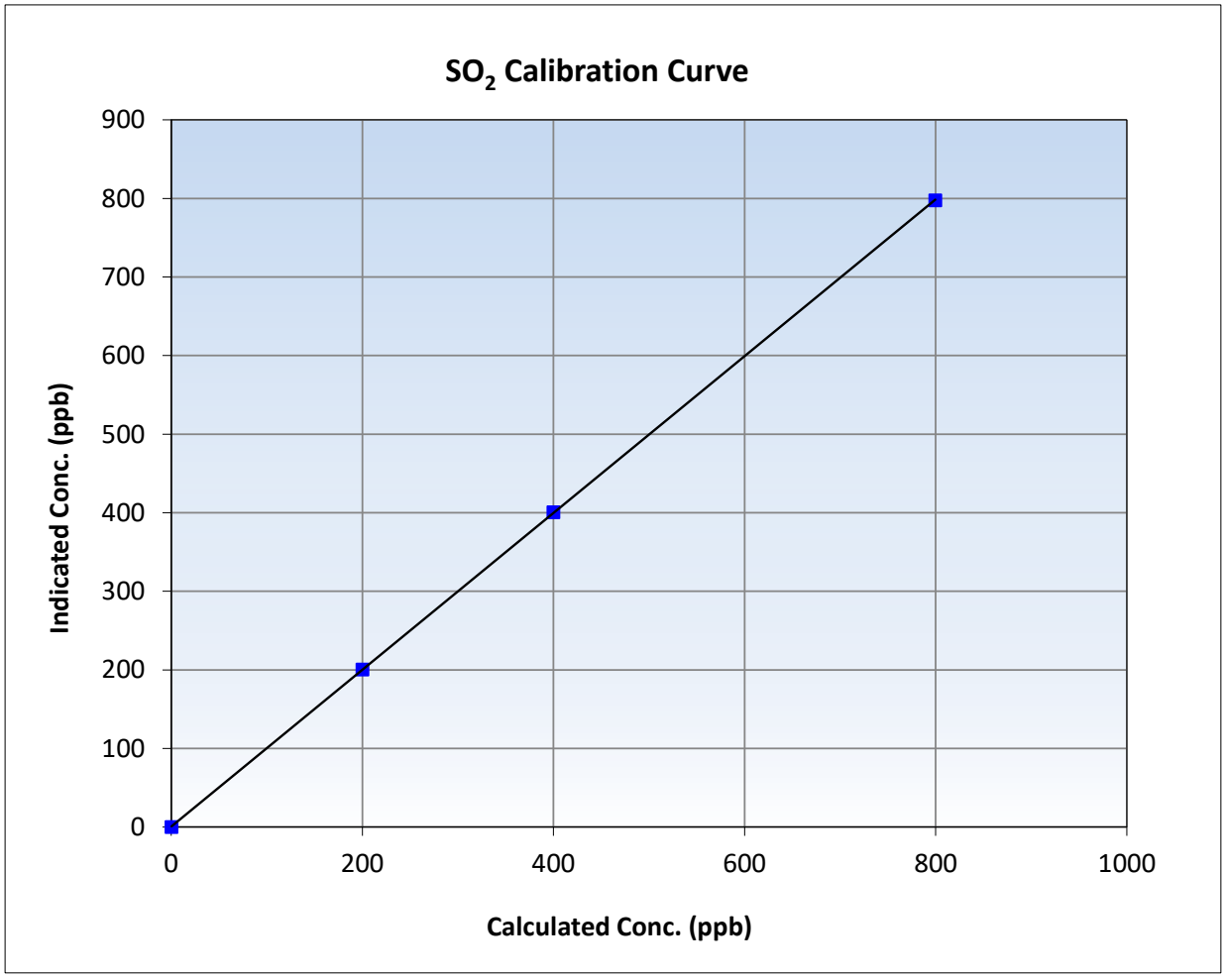
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	April 28, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	10:15	End Time (MST):	13:50
Analyzer make:	Thermo 43i	Analyzer serial #:	1410661308

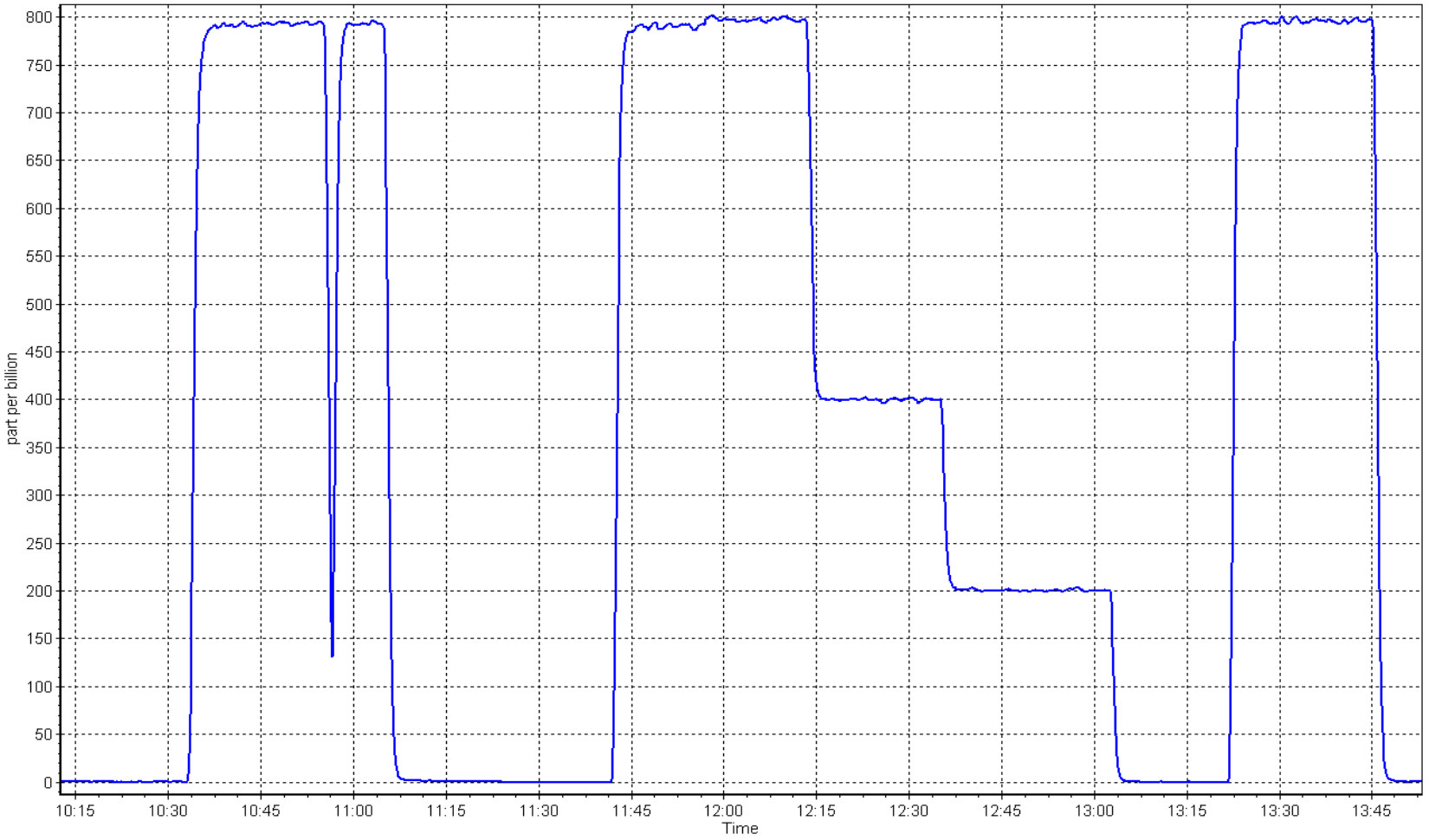
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
799.2	797.4	1.0023
399.6	400.3	0.9983
199.8	200.2	0.9980

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999994	*≥0.995*
Slope	0.997800	*0.90 - 1.10*
Intercept	0.540000	*+/-30*



SO2 Calibration Plot Date: May 6, 2025 Location: Firebag



Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Firebag	Station number:	AMS 19
Calibration Date:	May 15, 2025	Last Cal Date:	April 29, 2025
Start time (MST):	10:09	End time (MST):	15:45
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.29	ppm	Cal Gas Exp Date:	March 19, 2027
Cal Gas Cylinder #:	DT0010492			
Removed Cal Gas Conc:	5.29	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		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

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.007763	1.000333	Backgd or Offset:	3.09	2.86
Calibration intercept:	-0.040000	-0.180000	Coeff or Slope:	1.214	1.202

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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	-0.2	----
As found High point	4924	75.6	80.0	81.8	0.975
As found Mid point	4962	37.8	40.0	41.0	0.971
As found Low point	4981	18.9	20.0	20.3	0.975
New cylinder response					

Baseline Corr As found:	82.0	Prev response:	80.57	*% change:	1.7%
Baseline Corr 2nd AF pt:	41.2	AF Slope:	1.025481	AF Intercept:	-0.160000
Baseline Corr 3rd AF pt:	20.5	AF Correlation:	0.999992	* = > +/-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) *Limit = 0.95-1.05*
Calibrator zero	5000	0.0	0.0	-0.1	----
High point	4924	75.6	80.0	79.9	1.001
Mid point	4962	37.8	40.0	39.7	1.007
Low point	4981	18.9	20.0	19.8	1.010
As left zero	5000	0.0	0.0	0.2	----
As left span	4924	75.6	80.0	77.8	1.028
SO2 Scrubber Check	4922	78.4	784.0	0.1	----

Date of last scrubber change:	18-Jan-23	Ave Corr Factor	1.006
Date of last converter efficiency test:	November 26, 2024	106.2%	efficiency

Notes: Changed sample inlet filter after as founds. Adjusted zero and span. SOx scrubber check done after cal zero.

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

H2S Calibration Summary

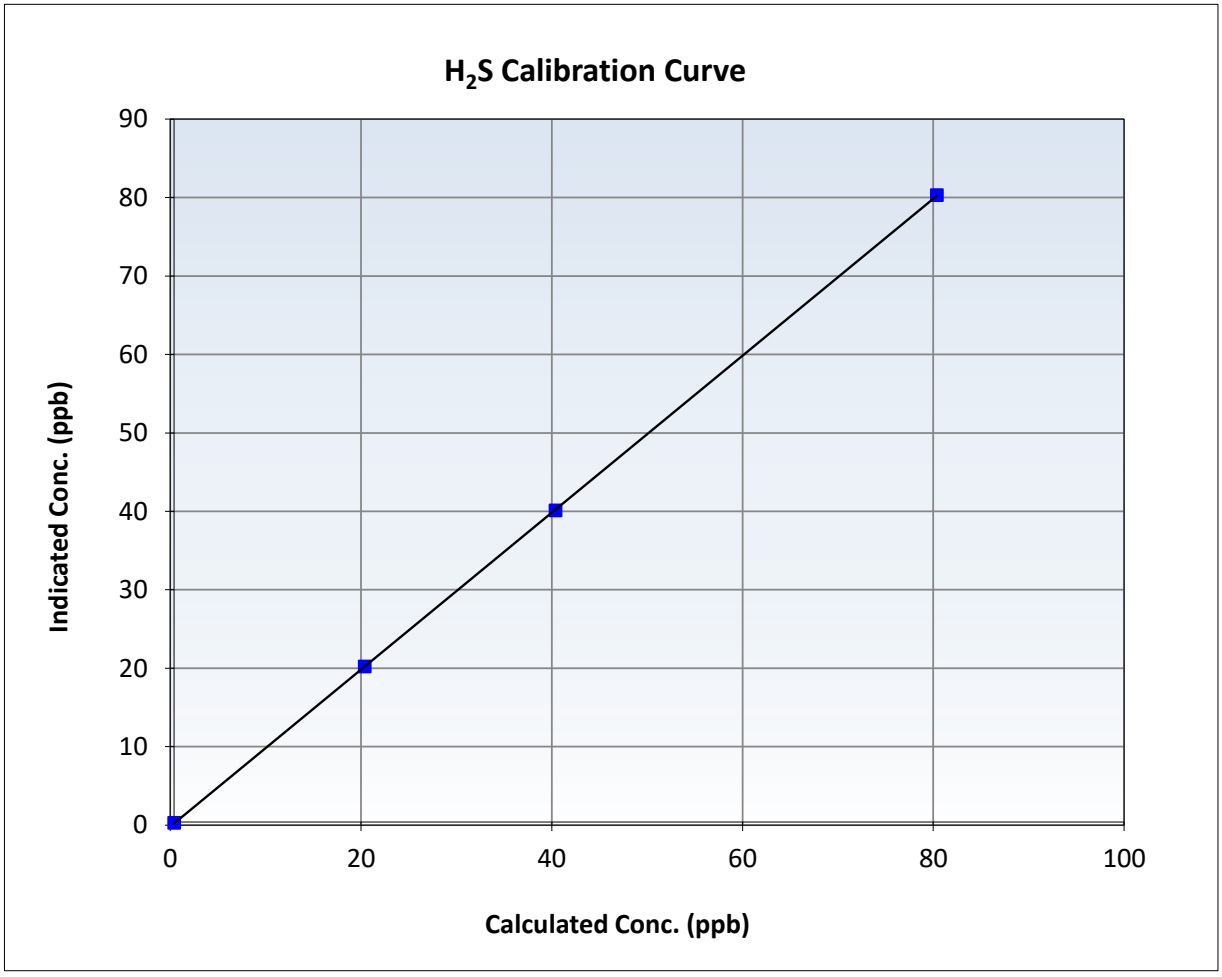
Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	April 29, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	10:09	End Time (MST):	15:45
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1151680032

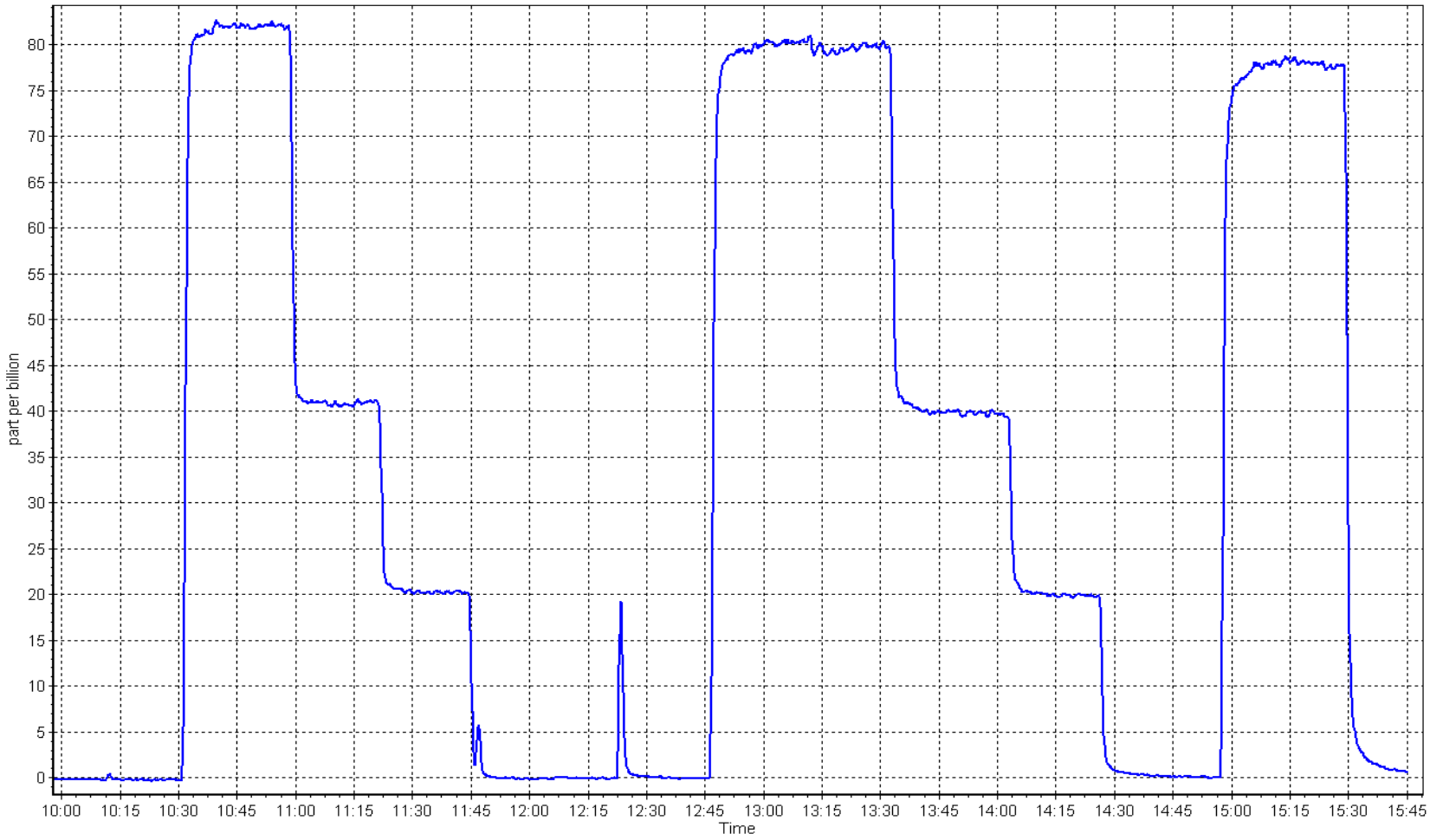
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	79.9	1.0011
40.0	39.7	1.0074
20.0	19.8	1.0099

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999992	*≥0.995*
Slope	1.000333	*0.90 - 1.10*
Intercept	-0.180000	*+/-3*



H2S Calibration Plot Date: May 15, 2025 Location: Firebag



Wood Buffalo Environmental Association

THC Calibration Report

Station Information

Station Name:	Firebag	Station number:	AMS 19
Calibration Date:	May 6, 2025	Last Cal Date:	April 28, 2025
Start time (MST):	10:17	End time (MST):	13:50
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	CC705799		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:		
Removed CH4 Conc.	505.1	ppm	CH4 Equiv Conc.	1066.9	ppm
Removed C3H8 Conc.	204.3	ppm	Diff between cyl:		
Calibrator Make/Model:	Teledyne API T700		Serial Number:	1607	
ZAG Make/Model:	Teledyne API T701H		Serial Number:	201	

Analyzer Information

Analyzer make:	Thermo 51i-LT		Analyzer serial #:	1336160089	
Analyzer Range:	0 - 20 ppm				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.993468	0.993762	Background:	2.04	2.16
Calibration intercept:	0.013867	0.023468	Coefficient:	3.818	3.813

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	4999	0.0	0.00	0.07	----
As found High point	4922	78.4	16.73	16.77	1.002
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	16.70	Previous response	16.63	*% change	0.4%
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)	Source gas flow rate (sccm)	Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero	4999	0.0	0.00	0.04	----
High point	4922	78.4	16.73	16.65	1.005
Mid point	4961	39.2	8.36	8.35	1.002
Low point	4980	19.6	4.18	4.15	1.009
As left zero	4999	0.0	0.00	0.04	----
As left span	4922	78.4	16.73	16.79	0.996
				Average Correction Factor	1.005

Notes: Changed sample inlet filter and hydrogen cylinder after as founds. Adjusted zero and span.

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

THC Calibration Summary

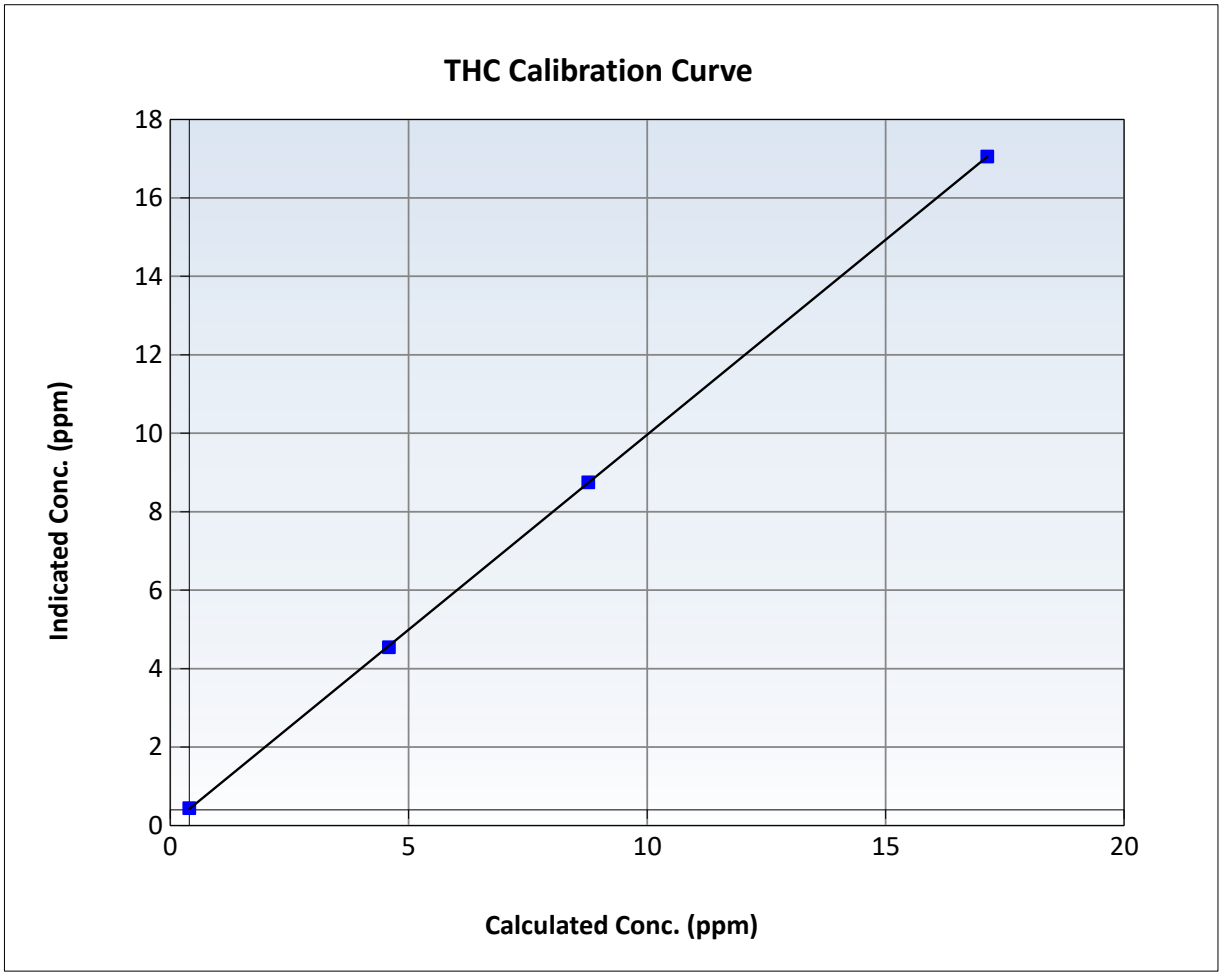
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	April 28, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	10:17	End Time (MST):	13:50
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1336160089

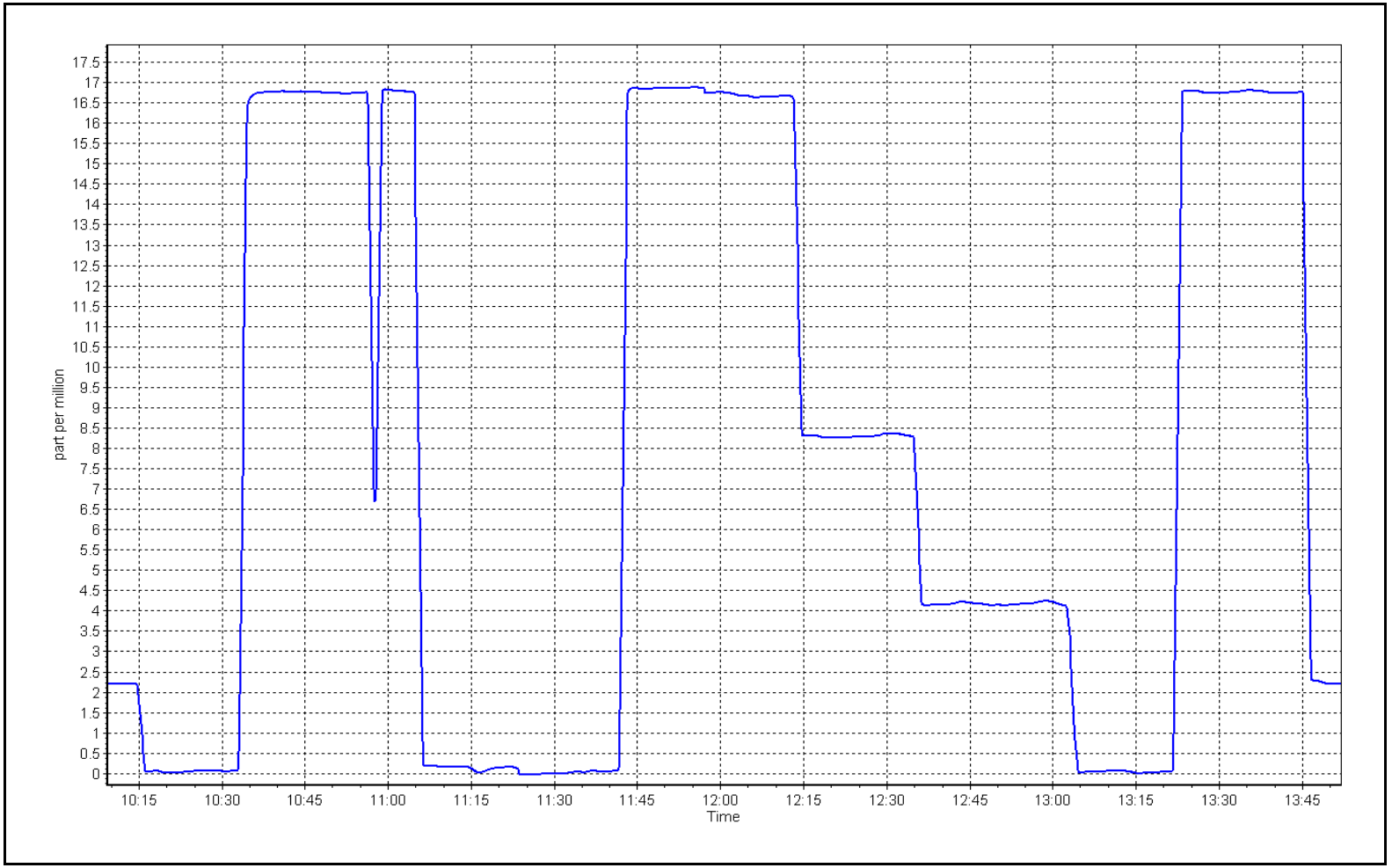
Calibration Data

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.04	----
16.73	16.65	1.0048
8.36	8.35	1.0018
4.18	4.15	1.0088

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999989	*≥0.995*
Slope	0.993762	*0.90 - 1.10*
Intercept	0.023468	*+/-1.5*



THC Calibration Plot Date: May 6, 2025 Location: Firebag



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Firebag
Station number:	AMS 19
Calibration Date:	May 21, 2025
Last Cal Date:	April 1, 2025
Start time (MST):	9:39
End time (MST):	13:53
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0044018	Cal Gas Expiry Date:	November 3, 2031
NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.70 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.70 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	1607
ZAG make/model:	Teledyne API T701H	Serial Number:	201

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	0.1	0.0	----	----
AF High point	4918	82.1	802.9	799.7	3.3	798.0	795.4	2.6	1.0061	1.0055
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 802.6 ppb	NO = 801.3 ppb
Baseline Corr 1st pt	NO_X = 798.1 ppb	NO = 795.3 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

*Percent Change	NO_X = -0.6%
*Percent Change	NO = -0.8%

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1410661309

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.916	0.916	NO bkgnd or offset:	4.6	4.6
NOX coeff or slope:	0.993	0.993	NOX bkgnd or offset:	4.6	4.6
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	160.8	164.8

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.998046	0.993022
NO_X Cal Offset:	1.240021	1.280145
NO Cal Slope:	1.001402	0.994371
NO Cal Offset:	0.500049	0.360033
NO_2 Cal Slope:	0.997186	1.001125
NO_2 Cal Offset:	-0.688529	-0.213333

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	4918	82.1	802.9	799.7	3.3	798.0	795.4	2.6	1.0062	1.0053
Mid point	4959	41.1	402.0	400.3	1.6	400.9	398.5	2.4	1.0026	1.0046
Low point	4980	20.5	200.5	199.7	0.8	201.9	199.2	2.6	0.9930	1.0024
As left zero	5000	0	0.0	0.0	0.0	0.1	0.0	0.1	----	----
As left span	4918	82.1	802.9	385.7	417.2	794.8	385.7	409.1	1.0102	1.0000
							Average Correction Factor		1.0006	1.0041

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	0.0	----	----
High GPT point	790.7	386.3	407.7	408.1	0.9990	100.1%
Mid GPT point	790.7	590.3	203.7	203.4	1.0014	99.9%
Low GPT point	790.7	693.2	100.8	100.6	1.0018	99.8%
				Average Correction Factor	1.0007	99.9%

Notes: No adjustments made.

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

NO_X Calibration Summary

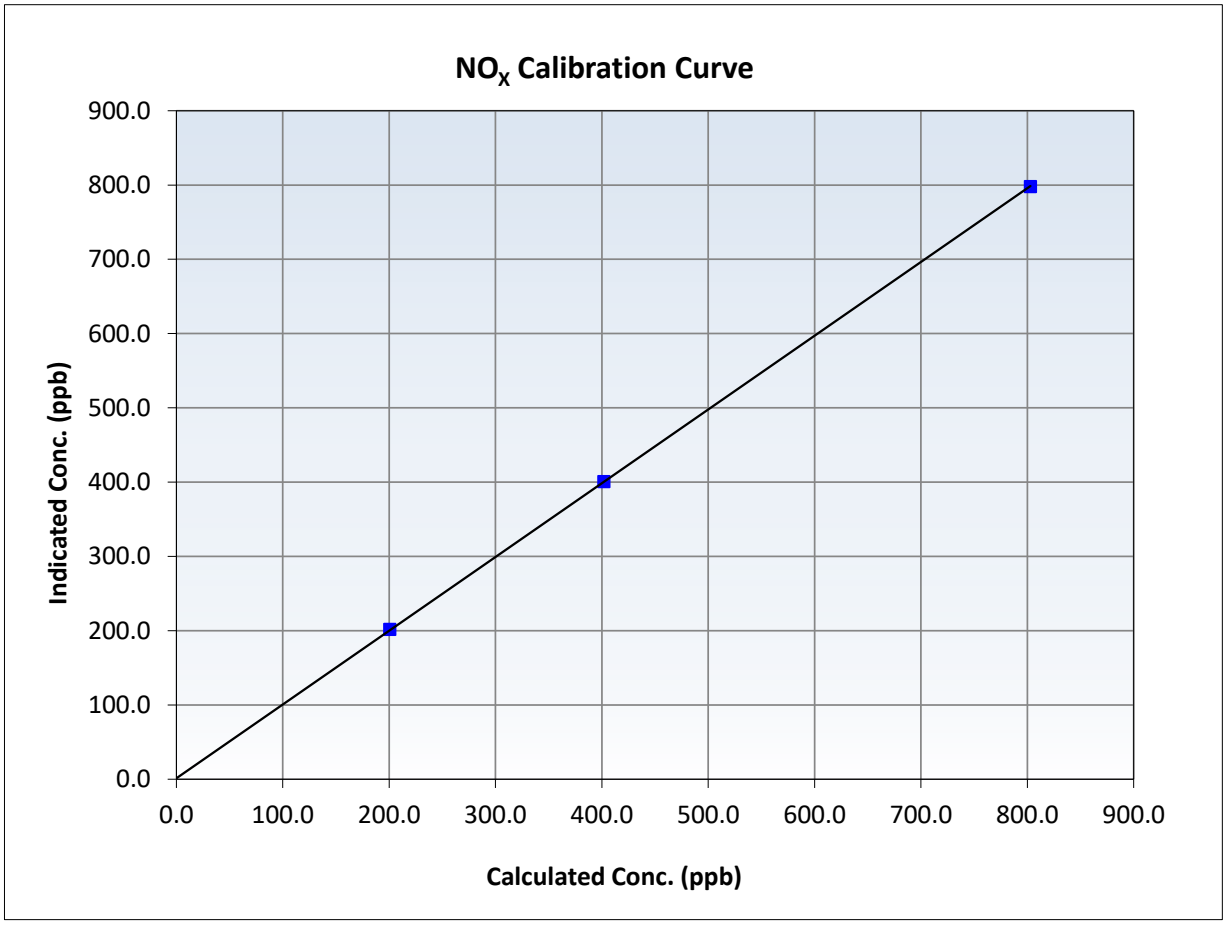
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 1, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	9:39	End Time (MST):	13:53
Analyzer make:	Thermo 42i	Analyzer serial #:	1410661309

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
802.9	798.0	1.0062
402.0	400.9	1.0026
200.5	201.9	0.9930

Statistical Evaluation		Limits
Correlation Coefficient	0.999986	≥0.995
Slope	0.993022	0.90 - 1.10
Intercept	1.280145	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

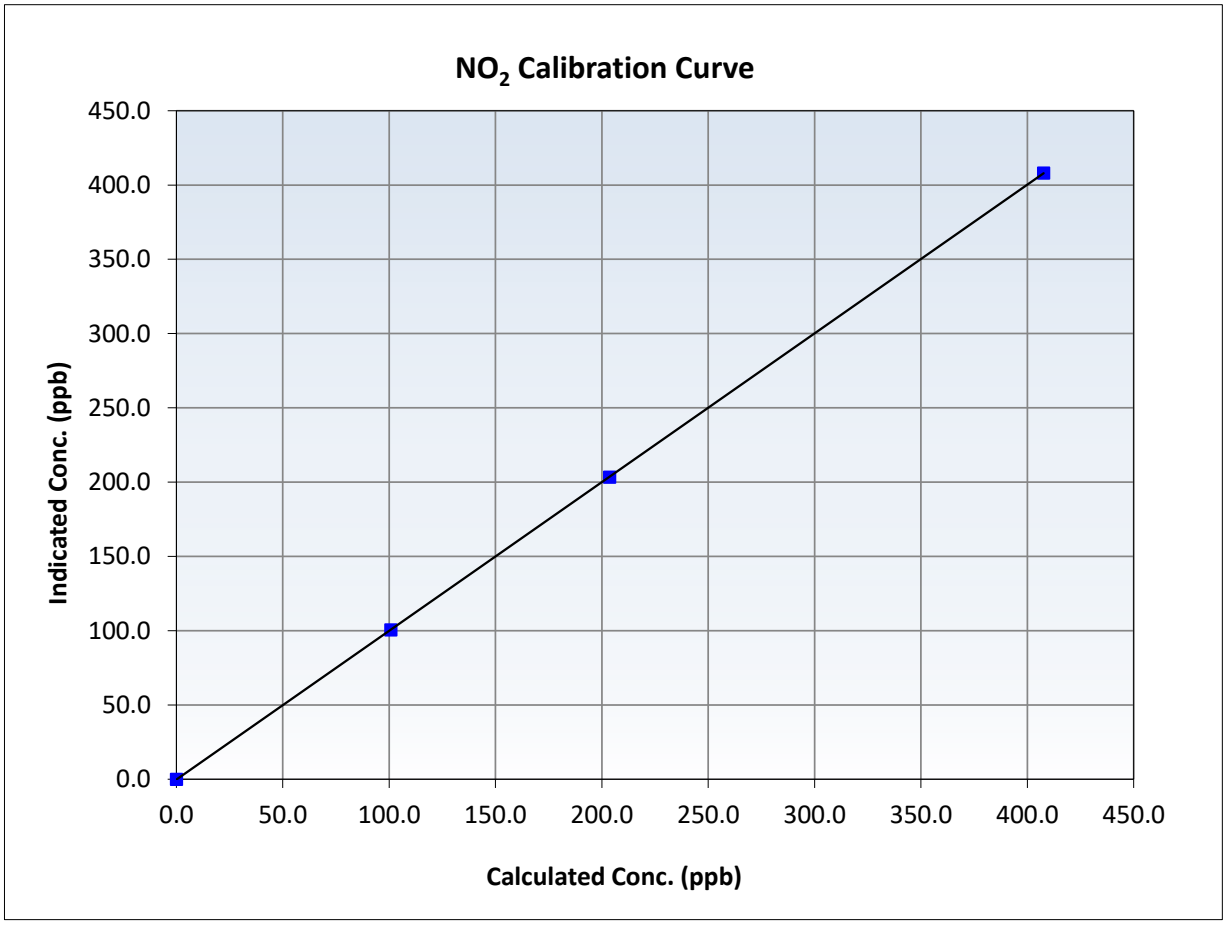
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 1, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	9:39	End Time (MST):	13:53
Analyzer make:	Thermo 42i	Analyzer serial #:	1410661309

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
407.7	408.1	0.9990
203.7	203.4	1.0014
100.8	100.6	1.0018

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999998	*≥0.995*
Slope	1.001125	*0.90 - 1.10*
Intercept	-0.213333	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

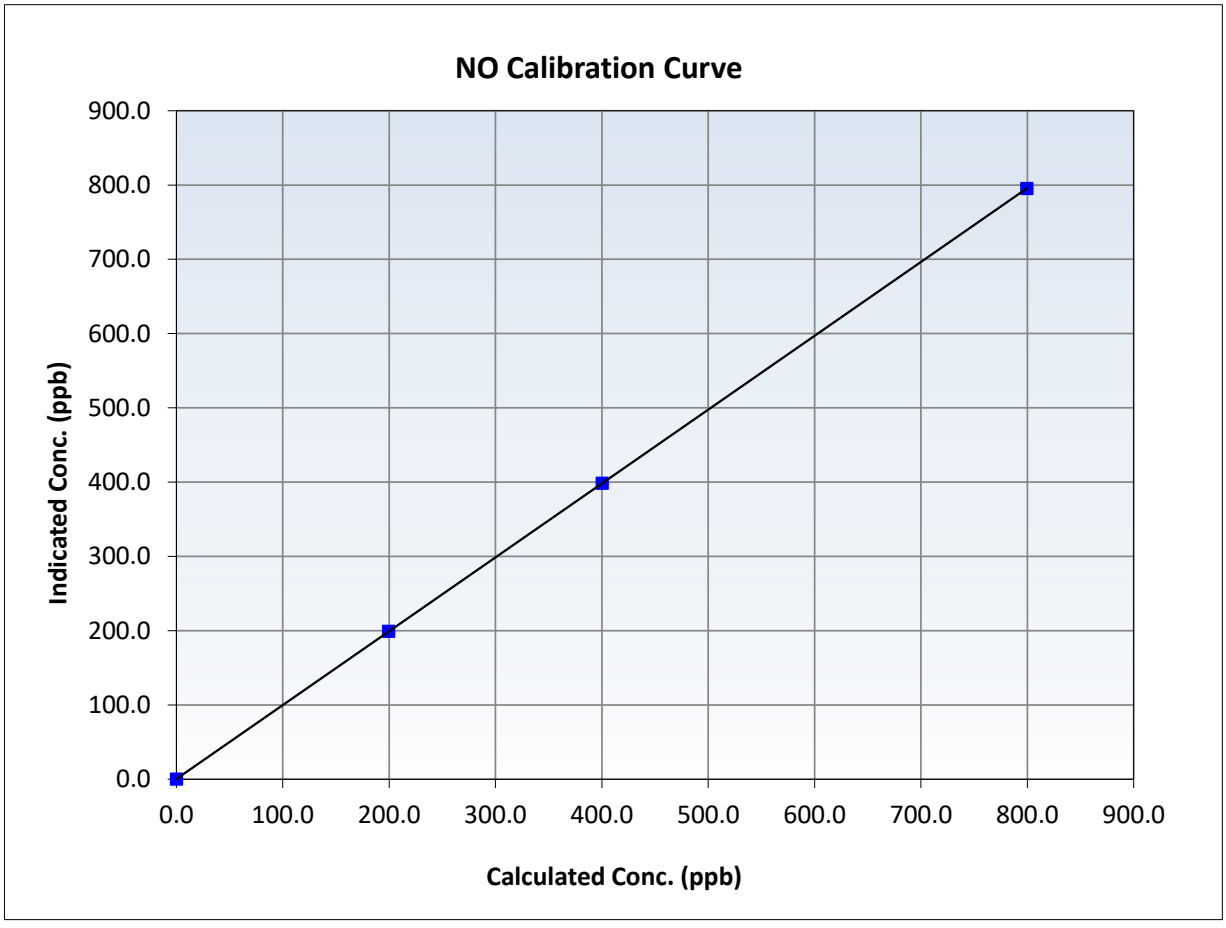
Station Information

Calibration Date:	May 21, 2025	Previous Calibration:	April 1, 2025
Station Name:	Firebag	Station Number:	AMS 19
Start Time (MST):	9:39	End Time (MST):	13:53
Analyzer make:	Thermo 42i	Analyzer serial #:	1410661309

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
799.7	795.4	1.0053
400.3	398.5	1.0046
199.7	199.2	1.0024

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	0.994371	*0.90 - 1.10*
Intercept	0.360033	*+/-20*



NO_X Calibration Plot Date: May 21, 2025 Location: Firebag

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS20
MACKAY RIVER
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	MacKay River	Station number:	AMS 20
Calibration Date:	May 13, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	7:14	End time (MST):	10:00
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	49.15	ppm	Cal Gas Exp Date:	October 9, 2032
Cal Gas Cylinder #:	CC409669			
Removed Cal Gas Conc:	49.15	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:			Diff between cyl:	
Calibrator Model:	API T700		Serial Number:	5706
Zero Air Gen Model:	API 701		Serial Number:	4522

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1501301450	
Analyzer Range:	0-1000ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.997962	1.003801	Backgd or Offset:	19.9	19.9
Calibration intercept:	-0.196724	-0.115275	Coeff or Slope:	0.945	0.945

SO_2 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	4919	81.4	800.1	800.1	1.000
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	799.8	Previous response	798.3	*% change	0.2%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	4919	81.4	800.1	803.7	0.996
Mid point	4959	40.7	400.1	400.0	1.000
Low point	4980	20.3	199.5	200.5	0.995
As left zero	5000	0.0	0.0	0.4	----
As left span	4919	81.4	800.1	805.9	0.993
				Average Correction Factor:	0.997

Notes: No maintenance or adjustments done.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

SO_2 Calibration Summary

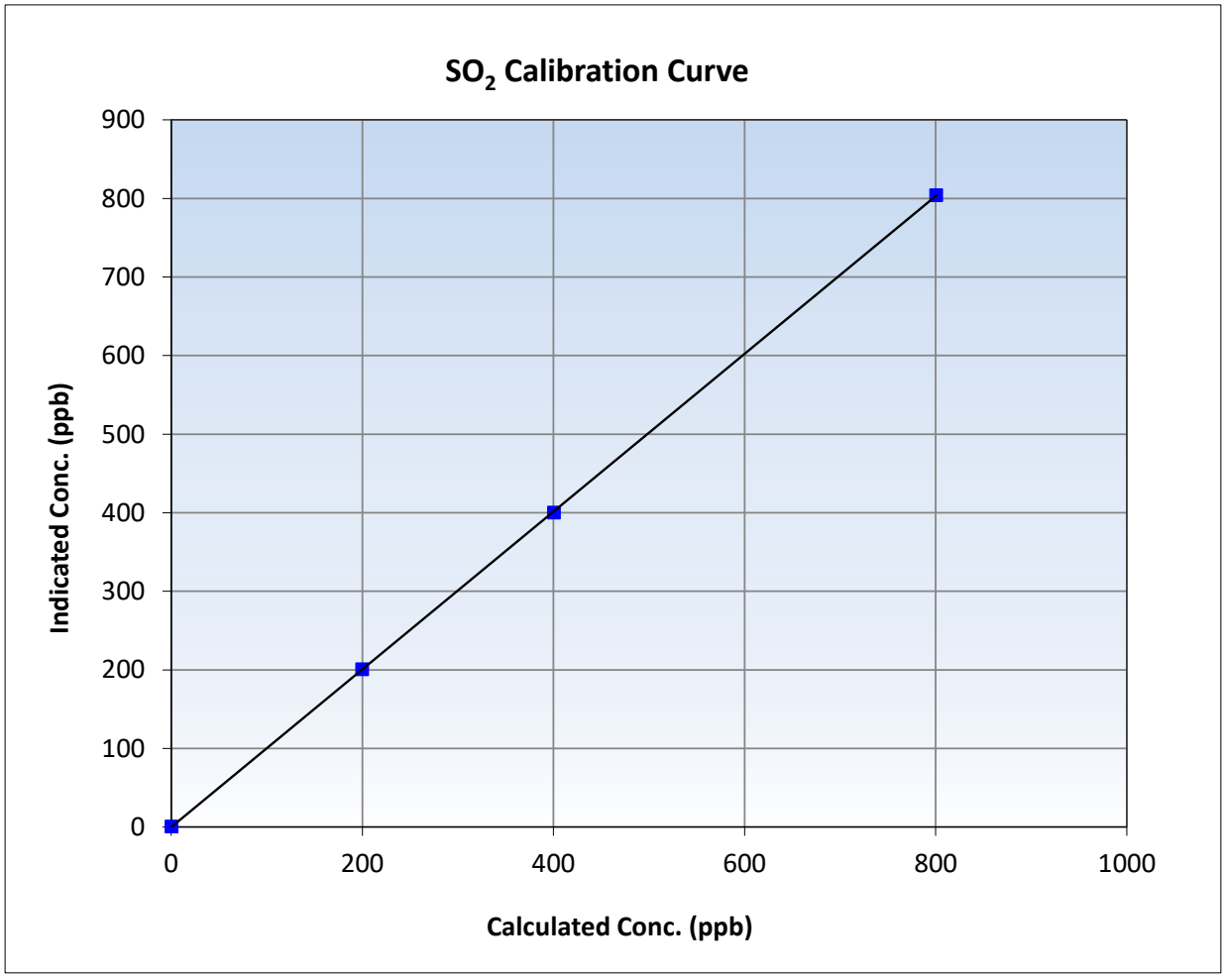
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 14, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:14	End Time (MST):	10:00
Analyzer make:	Thermo 43i	Analyzer serial #:	1501301450

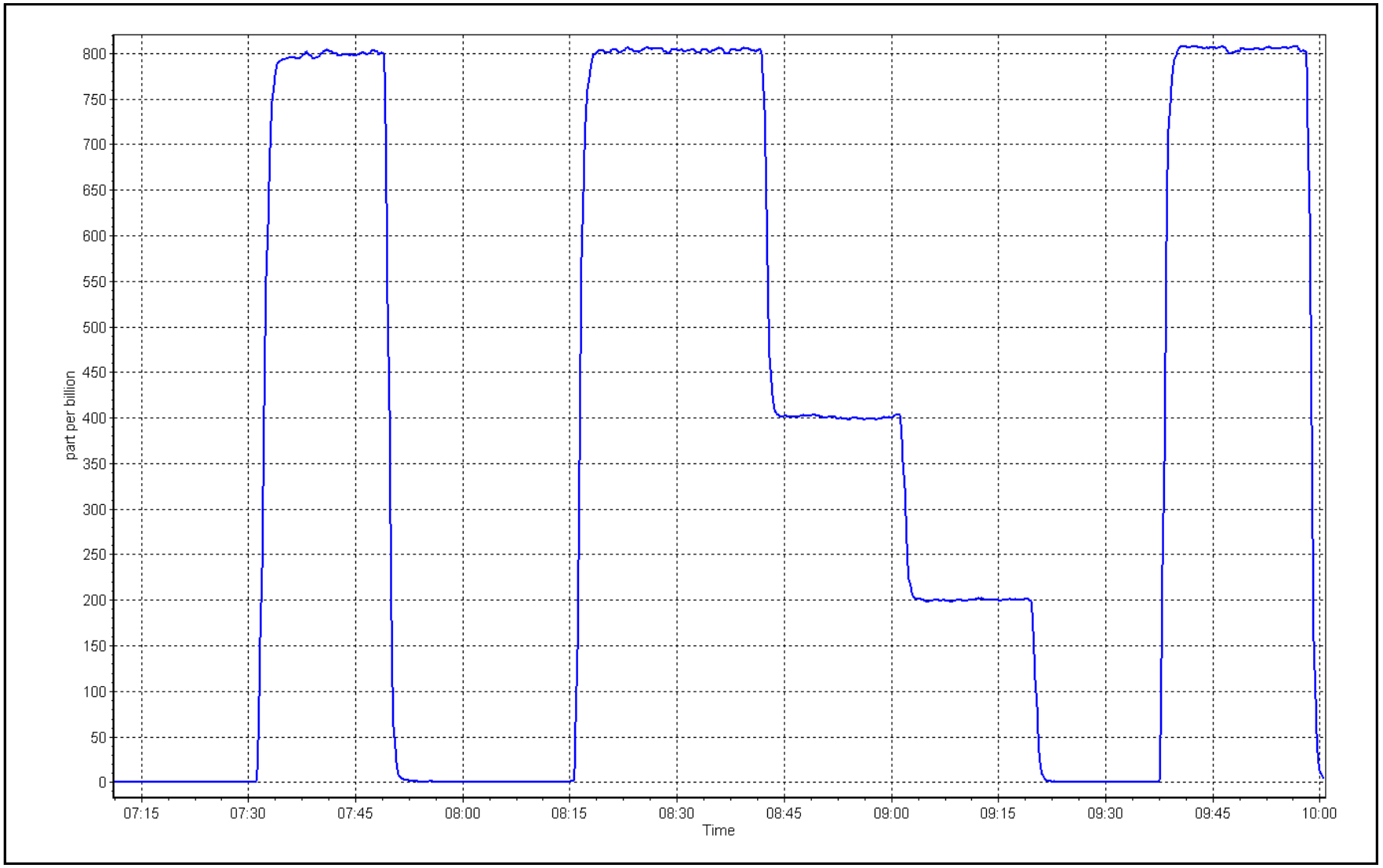
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
800.1	803.7	0.9955
400.1	400.0	1.0003
199.5	200.5	0.9952

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999991	*≥0.995*
Slope	1.003801	*0.90 - 1.10*
Intercept	-0.115275	*+/-30*



SO2 Calibration Plot Date: May 13, 2025 Location: MacKay River



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	MacKay River	Station number:	AMS 20
Calibration Date:	May 8, 2025	Last Cal Date:	April 3, 2025
Start time (MST):	7:05	End time (MST):	11:05
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.12	ppm	Cal Gas Exp Date:	January 3, 2026
Cal Gas Cylinder #:	CC515997			
Removed Cal Gas Conc:	5.12	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:			Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	5706
ZAG Make/Model:	API 701		Serial Number:	4522

Analyzer Information

Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1236656117	
Converter make:	Global		Converter serial #:	2022-226	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.999883	0.996310	Backgd or Offset:	3.84	3.77
Calibration intercept:	-0.040619	-0.040674	Coeff or Slope:	1.086	1.071

H_2S 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	4922	78.1	80.0	81.2	0.984
As found Mid point	4961	39.0	39.9	40.5	0.984
As found Low point	4980	19.5	20.0	20.2	0.984
New cylinder response					

Baseline Corr As found:	81.3	Prev response:	79.92	*% change:	1.7%
Baseline Corr 2nd AF pt:	40.6	AF Slope:	1.016603	AF Intercept:	-0.100317
Baseline Corr 3rd AF pt:	20.3	AF Correlation:	1.000000	* = > +/-5% change initiates investigation	

H_2S 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	79.6	1.005
Mid point	4961	39.0	39.9	39.8	1.003
Low point	4980	19.5	20.0	19.9	1.004
As left zero	5000	0.0	0.0	0.1	----
As left span	4922	78.1	80.0	78.9	1.014
SO2 Scrubber Check	4982	81.3	802.8	0.0	----
Date of last scrubber change:		25-May-23		Ave Corr Factor	1.004
Date of last converter efficiency test:					

Notes: Sox scrubber checked after the calibrator zero. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

H_2S Calibration Summary

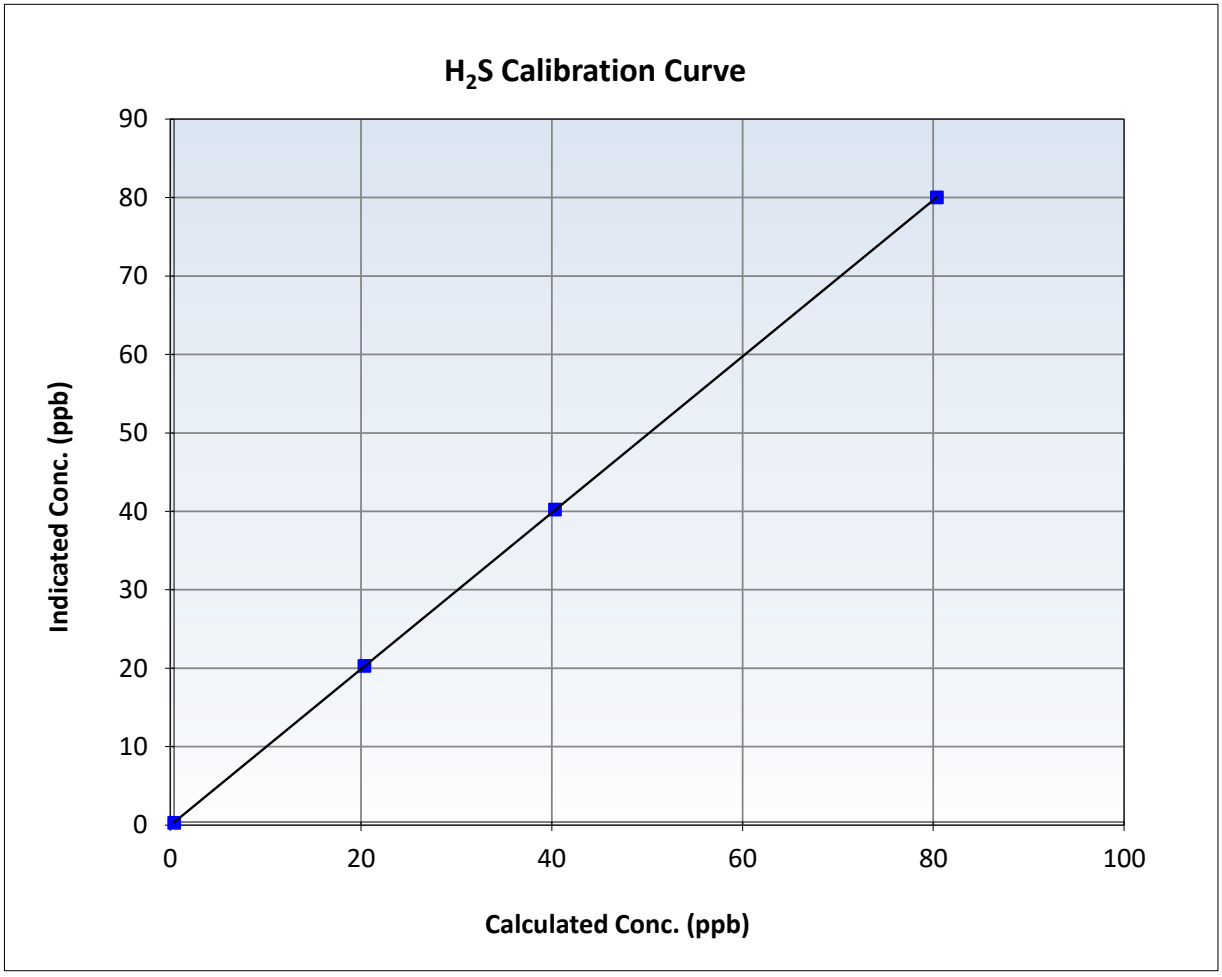
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 3, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:05	End Time (MST):	11:05
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1236656117

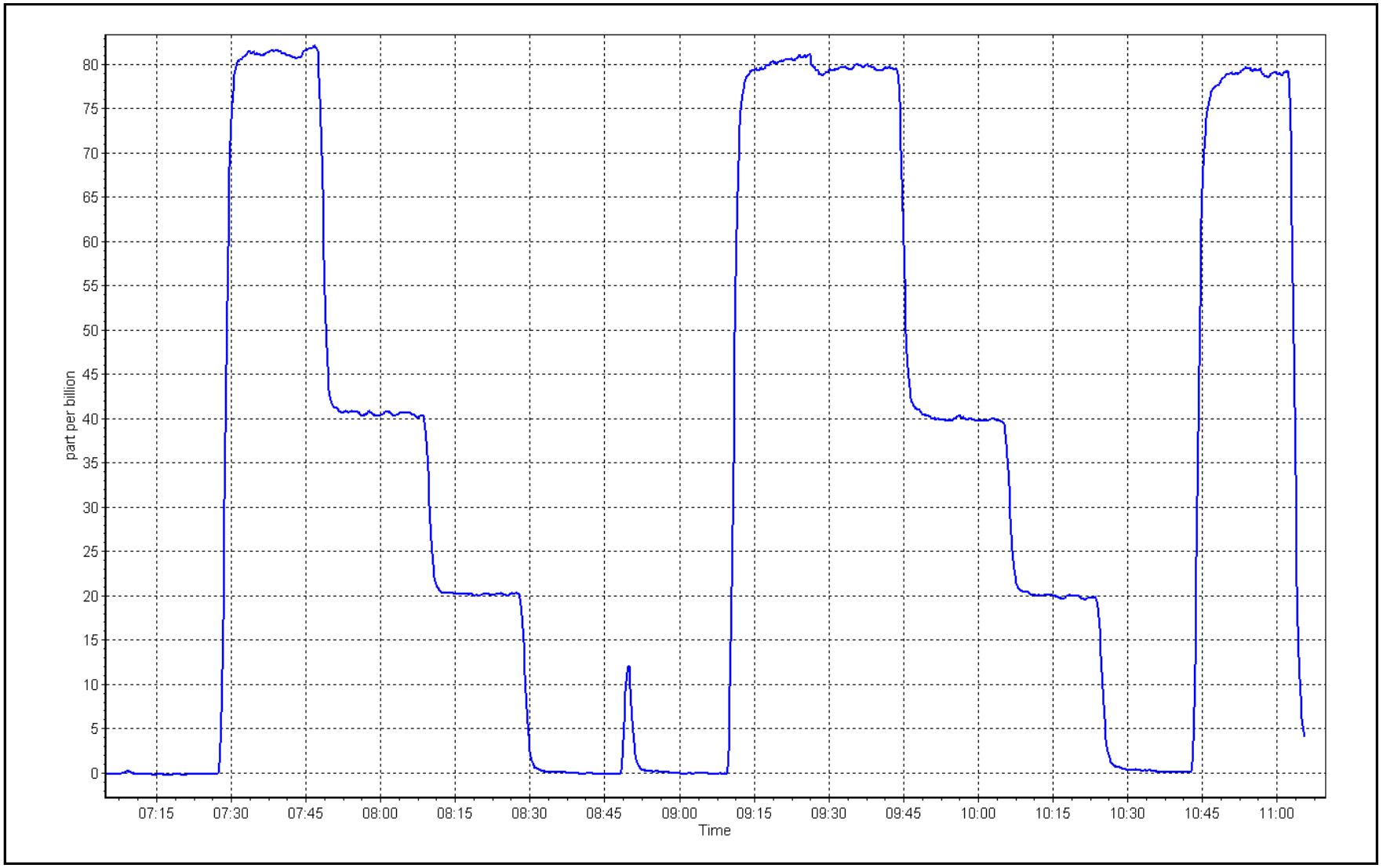
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	79.6	1.0047
39.9	39.8	1.0034
20.0	19.9	1.0035

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999997	*≥0.995*
Slope	0.996310	*0.90 - 1.10*
Intercept	-0.040674	*+/-3*



H_2S Calibration Plot Date: May 8, 2025 Location: MacKay River



Wood Buffalo Environmental Association

THC Calibration Report

Station Information

Station Name:	MacKay River	Station number:	AMS 20
Calibration Date:	May 13, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	7:14	End time (MST):	9:59
Reason:	Routine		

Calibration Standards

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 Information

Analyzer make: Thermo 51i-LT Analyzer serial #: 1501663727

Analyzer Range: 0 - 20 ppm

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.997991	0.993801	Background:	2.990	2.920
Calibration intercept:	0.016001	0.055006	Coefficient:	4.871	4.900

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	-0.12	----
As found High point	4919	81.4	17.46	17.14	1.012
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	17.26	Previous response	17.44	*% change	-1.1%
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)	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	0.04	----
High point	4919	81.4	17.46	17.41	1.003
Mid point	4959	40.7	8.73	8.71	1.003
Low point	4980	20.3	4.35	4.42	0.985
As left zero	5000	0.0	0.00	0.10	----
As left span	4919	81.4	17.46	17.56	0.994
				Average Correction Factor	0.997

Notes: Zero and Span adjusted. No maintenance done.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

THC Calibration Summary

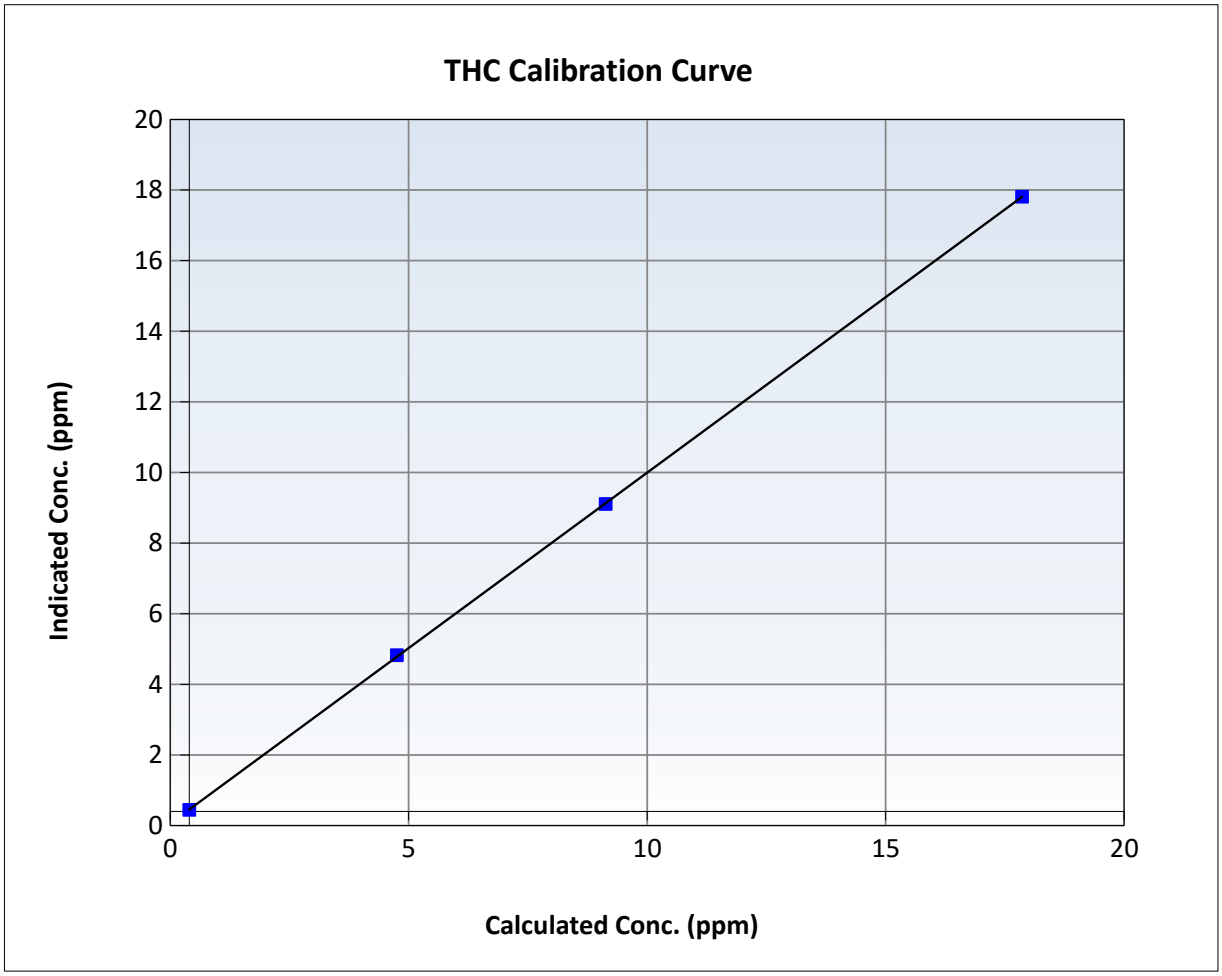
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 14, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:14	End Time (MST):	9:59
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1501663727

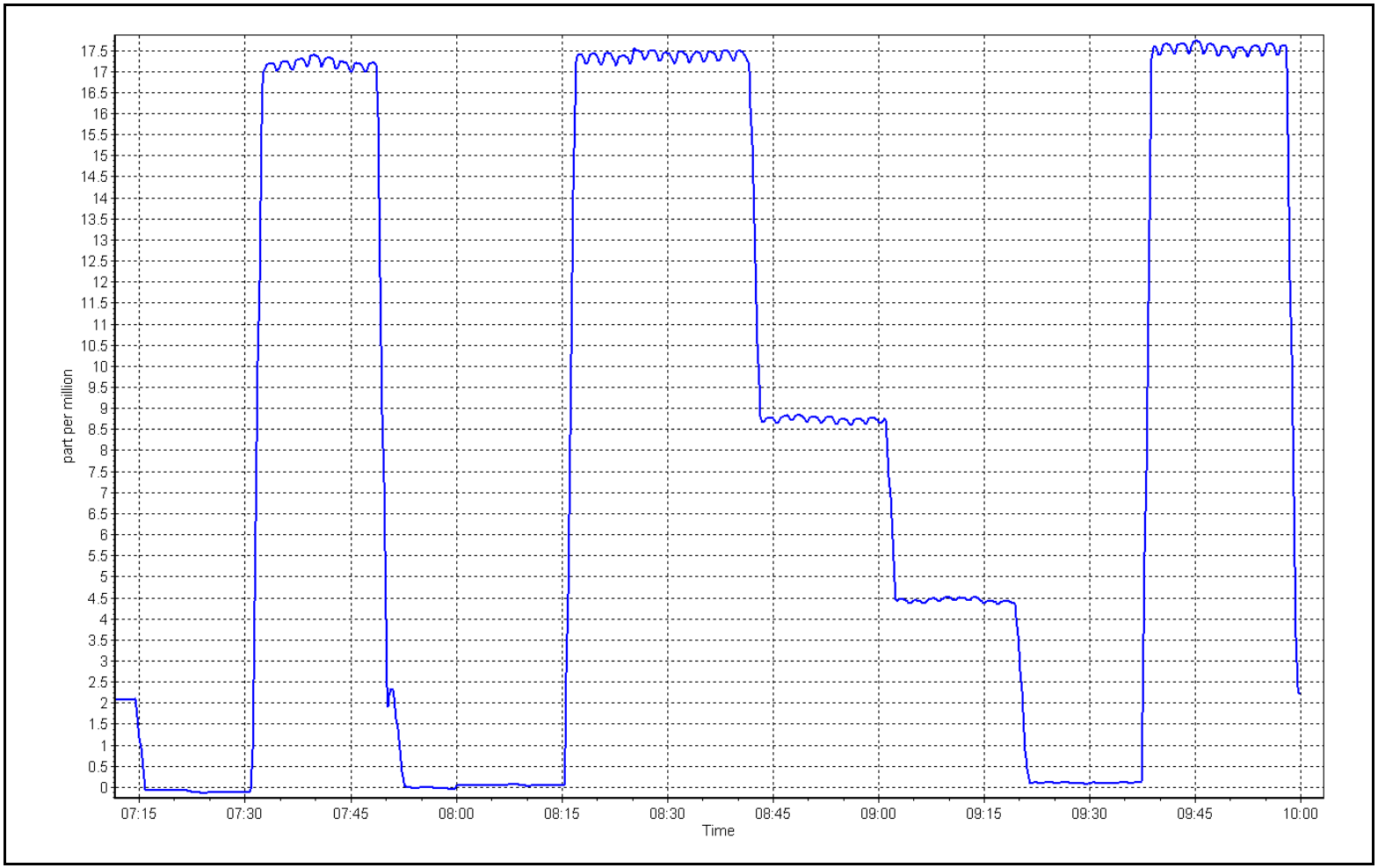
Calibration Data

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.04	----
17.46	17.41	1.0029
8.73	8.71	1.0028
4.35	4.42	0.9850

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999986	*≥0.995*
Slope	0.993801	*0.90 - 1.10*
Intercept	0.055006	*+/-1.5*



THC Calibration Plot Date: May 13, 2025 Location: MacKay River



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	MacKay River
Station number:	AMS 20
Calibration Date:	May 12, 2025
Last Cal Date:	April 2, 2025
Start time (MST):	7:15
End time (MST):	11:53
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0037393	Cal Gas Expiry Date:	July 22, 2032
NOX Cal Gas Conc:	62.00 ppm	NO Cal Gas Conc:	61.90 ppm
Removed Cylinder #:	T376265	Removed Gas Exp Date:	April 13, 2025
Removed Gas NOX Conc:	49.19 ppm	Removed Gas NO Conc:	48.04 ppm
NOX gas Diff:	-1.1%	NO gas Diff:	-1.0%
Calibrator Model:	API T700	Serial Number:	5706
ZAG make/model:	API T701	Serial Number:	4522

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	4917	83.3	819.5	800.3	19.2	817.2	797.2	20.0	1.0028	1.0040
AF Mid point										
AF Low point										
New cyl resp	4935	64.6	801.1	799.8	1.3	790.5	788.8	1.7	0.9803	1.0034

Previous Response	NO_X =	824.6 ppb	NO =	805.4 ppb			
Baseline Corr 1st pt	NO_X =	817.2 ppb	NO =	797.1 ppb			
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb			
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb			

* = > +/-5% change initiates investigation

*Percent Change NO_X = -0.9%

*Percent Change NO = -1.0%

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1505164379

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	Finish		Start	Finish
NO coeff or slope:	1.002	1.016	NO bkgnd or offset:	2.8	2.8
NOX coeff or slope:	0.991	1.000	NOX bkgnd or offset:	3.0	3.0
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	160.3	160.3

Calibration Statistics

	Start	Finish
NO_X Cal Slope:	1.005402	0.997571
NO_X Cal Offset:	0.721954	0.133756
NO Cal Slope:	1.006853	1.002067
NO Cal Offset:	-0.357714	-0.926076
NO_2 Cal Slope:	0.997243	0.996009
NO_2 Cal Offset:	-1.552636	-1.573384

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	0.2	-0.2	----	----
High point	4935	64.6	801.1	799.8	1.3	798.9	800.7	-1.9	1.0028	0.9989
Mid point	4968	32.3	400.5	399.9	0.6	400.7	400.4	0.3	0.9995	0.9986
Low point	4984	16.2	200.9	200.5	0.3	200.0	198.1	1.9	1.0044	1.0124
As left zero	5000	0.0	0.0	0.0	0.0	0.1	0.2	-0.1	----	----
As left span	4935	64.6	801.1	405.7	395.4	797.8	405.7	392.1	1.0041	1.0000
								Average Correction Factor	1.0022	1.0033

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	-0.2	----	----
High GPT point	797.9	404.5	394.7	392.3	1.0061	99.4%
Mid GPT point	797.9	599.6	199.6	196.4	1.0163	98.4%
Low GPT point	797.9	696.3	102.9	99.6	1.0331	96.8%
				Average Correction Factor	1.0185	98.2%

Notes: Calibration Gas changed out. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

NO_X Calibration Summary

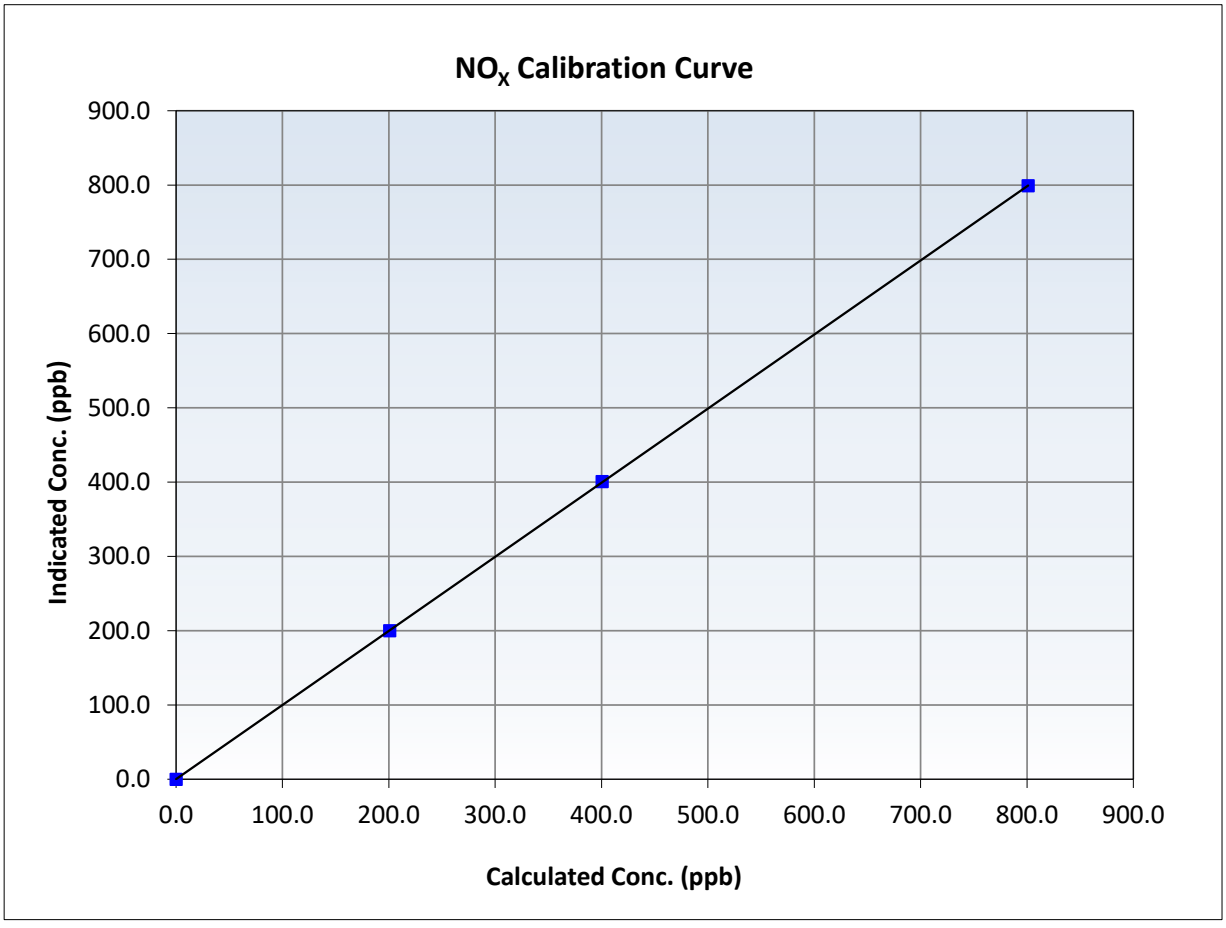
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 2, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:15	End Time (MST):	11:53
Analyzer make:	Thermo 42i	6:50:00 AM	1505164379

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
801.1	798.9	1.0028
400.5	400.7	0.9995
200.9	200.0	1.0044

Statistical Evaluation		Limits
Correlation Coefficient	0.999996	≥0.995
Slope	0.997571	0.90 - 1.10
Intercept	0.133756	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

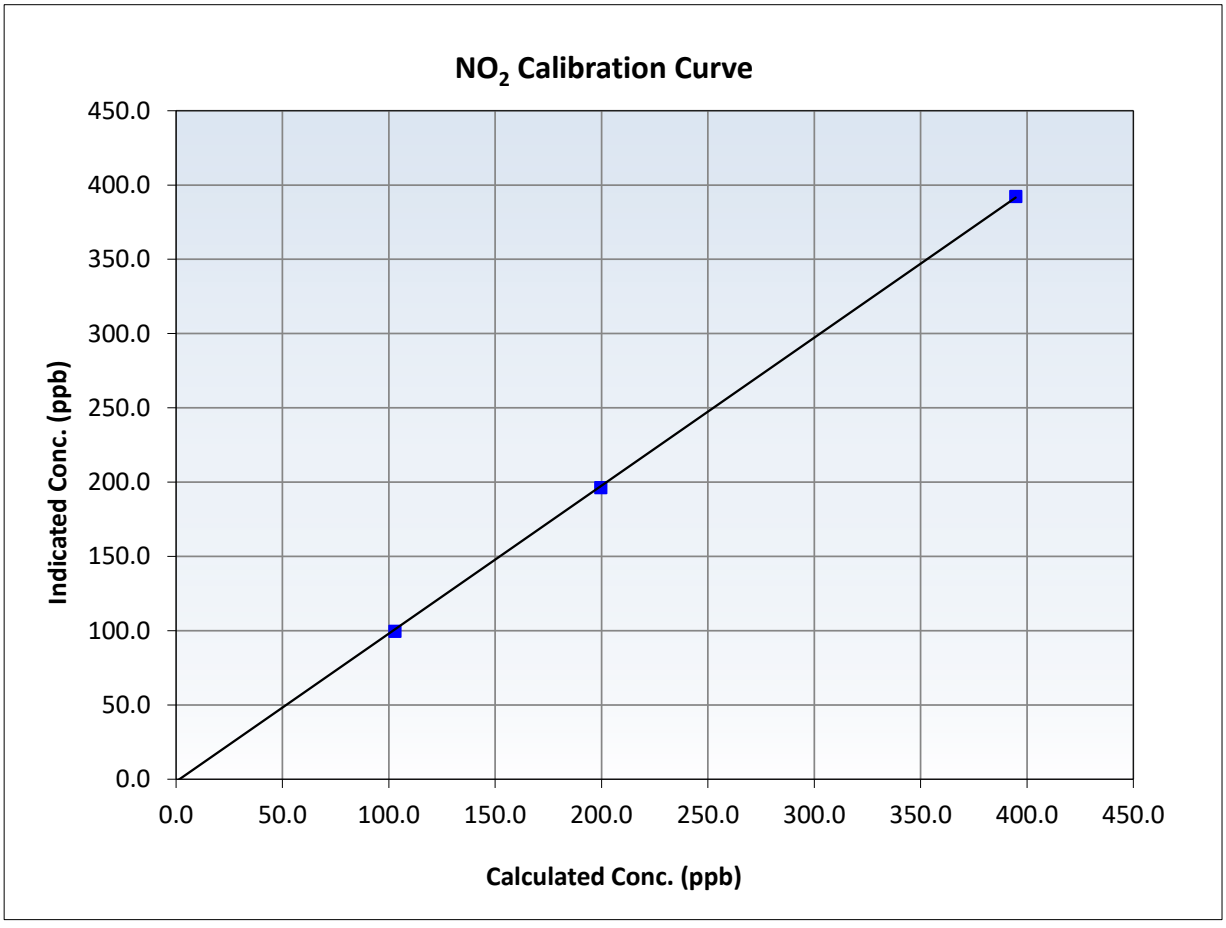
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 2, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:15	End Time (MST):	11:53
Analyzer make:	Thermo 42i	6:50:00 AM	1505164379

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
394.7	392.3	1.0061
199.6	196.4	1.0163
102.9	99.6	1.0331

Statistical Evaluation		Limits
Correlation Coefficient	0.999942	≥0.995
Slope	0.996009	0.90 - 1.10
Intercept	-1.573384	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

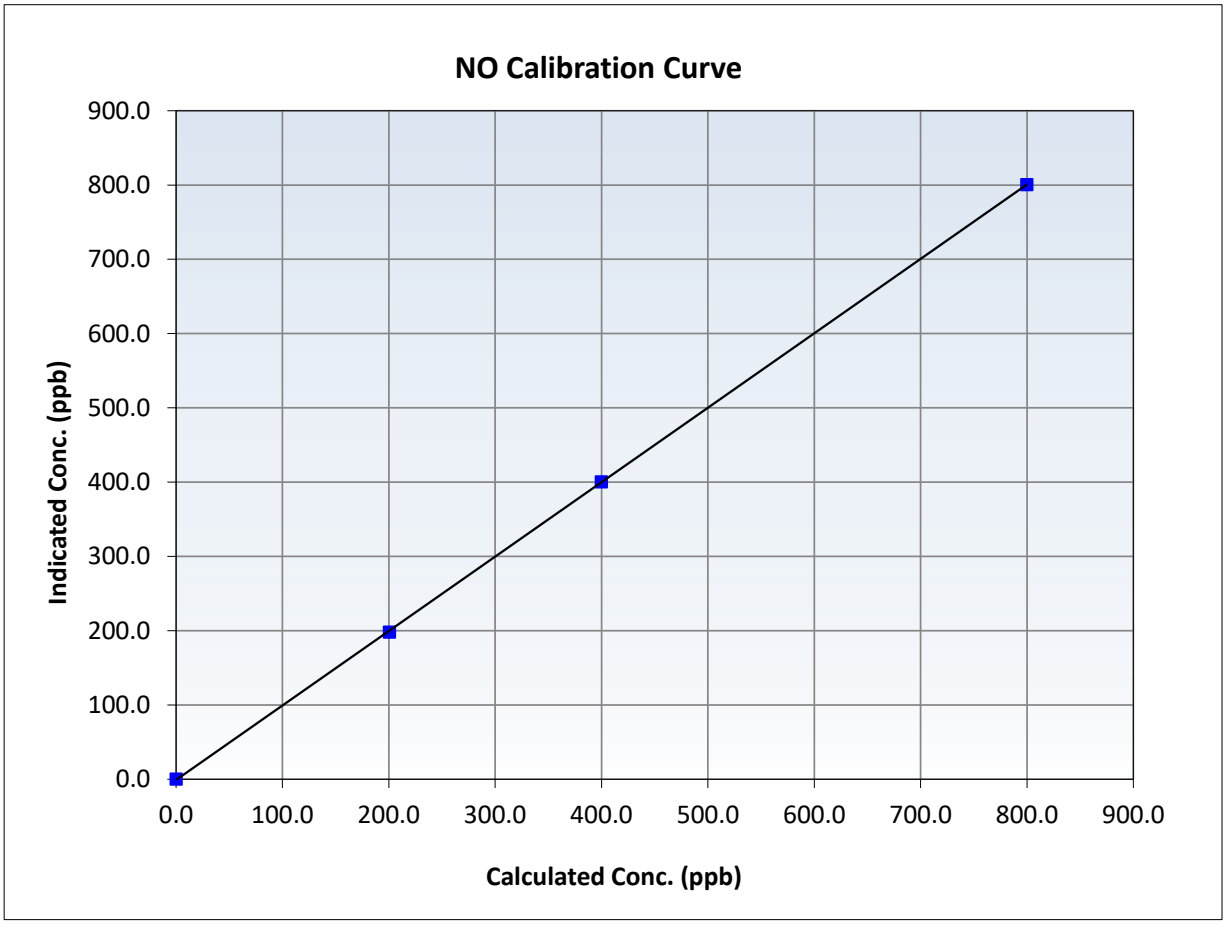
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 2, 2025
Station Name:	MacKay River	Station Number:	AMS 20
Start Time (MST):	7:15	End Time (MST):	11:53
Analyzer make:	Thermo 42i	6:50:00 AM	1505164379

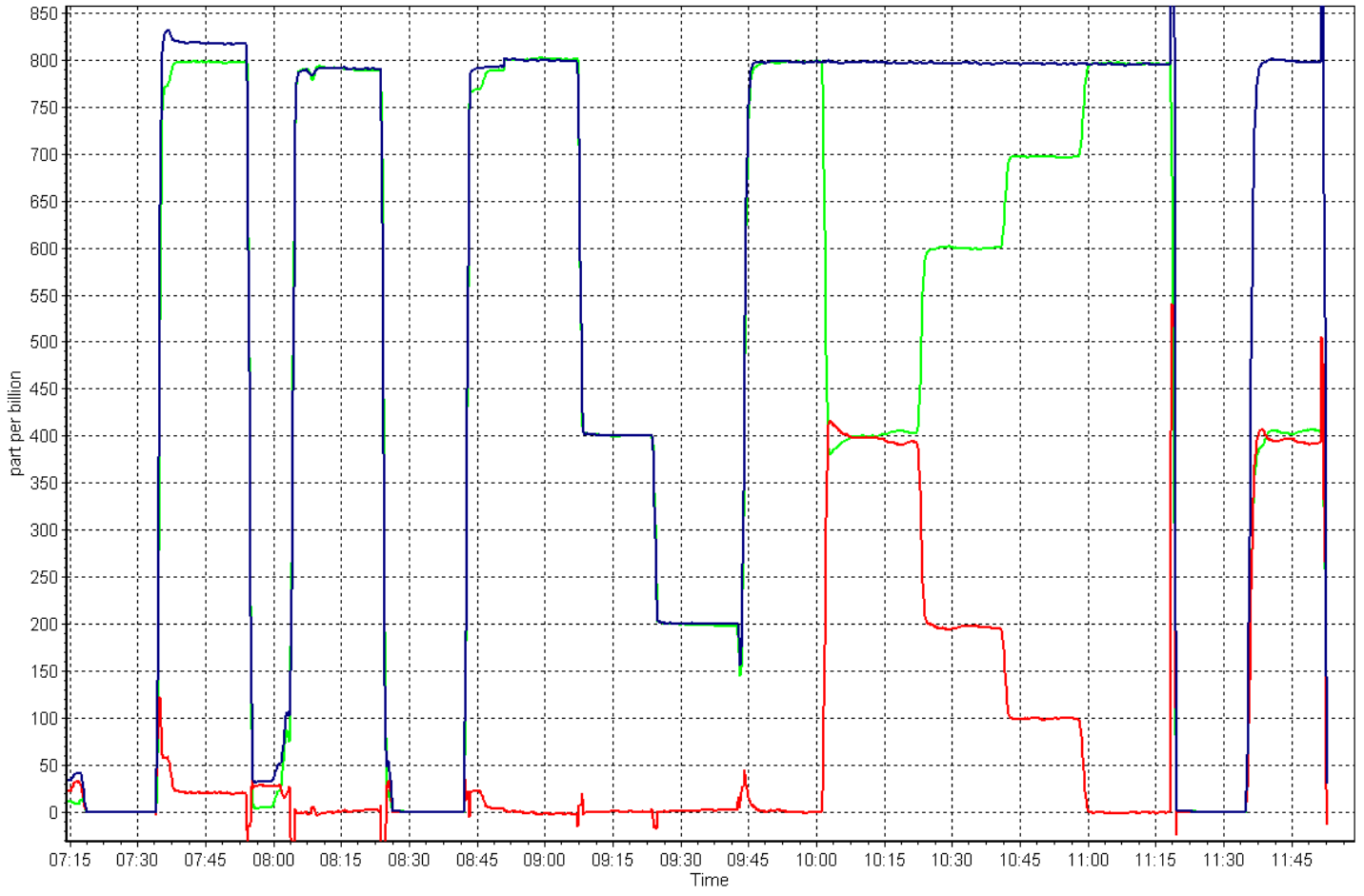
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
799.8	800.7	0.9989
399.9	400.4	0.9986
200.5	198.1	1.0124

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999984	*≥0.995*
Slope	1.002067	*0.90 - 1.10*
Intercept	-0.926076	*+/-20*



NO_X Calibration Plot Date: May 12, 2025 Location: MacKay River



Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Station Information

Station Name:	MacKay River	Station Number:	AMS 20
Calibration Date:	May 28, 2025	Prev Cal Date:	October 3, 2024
Start Time (MST):	7:09	End Time (MST):	8:20
Tower Height (m):	10m	Reason:	Routine

Wind Speed Calibration

Sensor make/model:	Met One 010C-1	Serial Number:	P15103
WS Calibrator:	MetOne 053	Serial Number:	R10866

Shaft RPM (Hz)	Calculated Speed (K/hr) (Cv)	Indicated Speed (K/hr) (Iv)	% Error *Limit = +/- 1.5%*
0	0.0	0.0	---
200	20.2	20.1	-0.3%
400	39.4	39.4	0.1%
600	58.6	58.5	-0.1%
800	77.8	77.8	0.1%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999999	0.999999	*≥0.9995*
Calculated slope	0.998960	0.999473	*0.98 - 1.02*
Calculated intercept	0.026359	0.026227	*+/- 2*

Wind Direction Calibration

Sensor make/model:	Met One 020C-1	Serial Number:	N9937
As Found Declination (deg east of True North):	14	As Left Declination (deg east of True North):	14
Solar noon (MST):	12:24:58	Calc Declination*:	13.89 Degrees
WD Calibrator:	Met One 040		* - calculated declination as per NOAA website

Physical Direction (Degrees) (Cv)	Indicated Direction (Degrees) (Iv)	% Error (based on 360° FS) *Limit = +/- 1%*
10	13.5	1.0%
90	91.4	0.4%
180	180.2	0.1%
270	271.0	0.3%
350	348.9	-0.3%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999907	0.999983	*≥0.9995*
Calculated slope	1.014362	1.011119	*0.97 - 1.03*
Calculated intercept	-1.440414	-3.008427	*+/- 5*

Notes: WS Torque test Failed. Replaced the Bearings. WS checked before and after bearings replaced.

Calibration Performed By: Melissa Lemay

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS21
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Conklin	Station number:	AMS 21
Calibration Date:	May 12, 2025	Last Cal Date:	April 4, 2025
Start time (MST):	10:16	End time (MST):	13:20
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.34	ppm	Cal Gas Exp Date:	October 9, 2032
Cal Gas Cylinder #:	CC340840			
Removed Cal Gas Conc:	50.34	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Model:	Teledyne API T700P		Serial Number:	2659
Zero Air Gen Model:	Teledyne API T701		Serial Number:	953

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1428701363	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000944	1.002828	Backgd or Offset:	29.3	30.4
Calibration intercept:	-1.182060	-2.342312	Coeff or Slope:	0.899	0.891

SO_2 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	4921	79.5	800.3	800.0	1.002
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	799.0	Previous response	799.9	*% change	-0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	79.5	800.3	800.7	1.000
Mid point	4960	39.8	400.7	400.4	1.001
Low point	4980	19.9	200.4	195.0	1.027
As left zero	5000	0.0	0.0	-0.4	----
As left span	4921	79.5	800.3	800.6	1.000
				Average Correction Factor:	1.009

Notes: Sample inlet filter was changed after as founds. Adjusted zero and span.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

SO_2 Calibration Summary

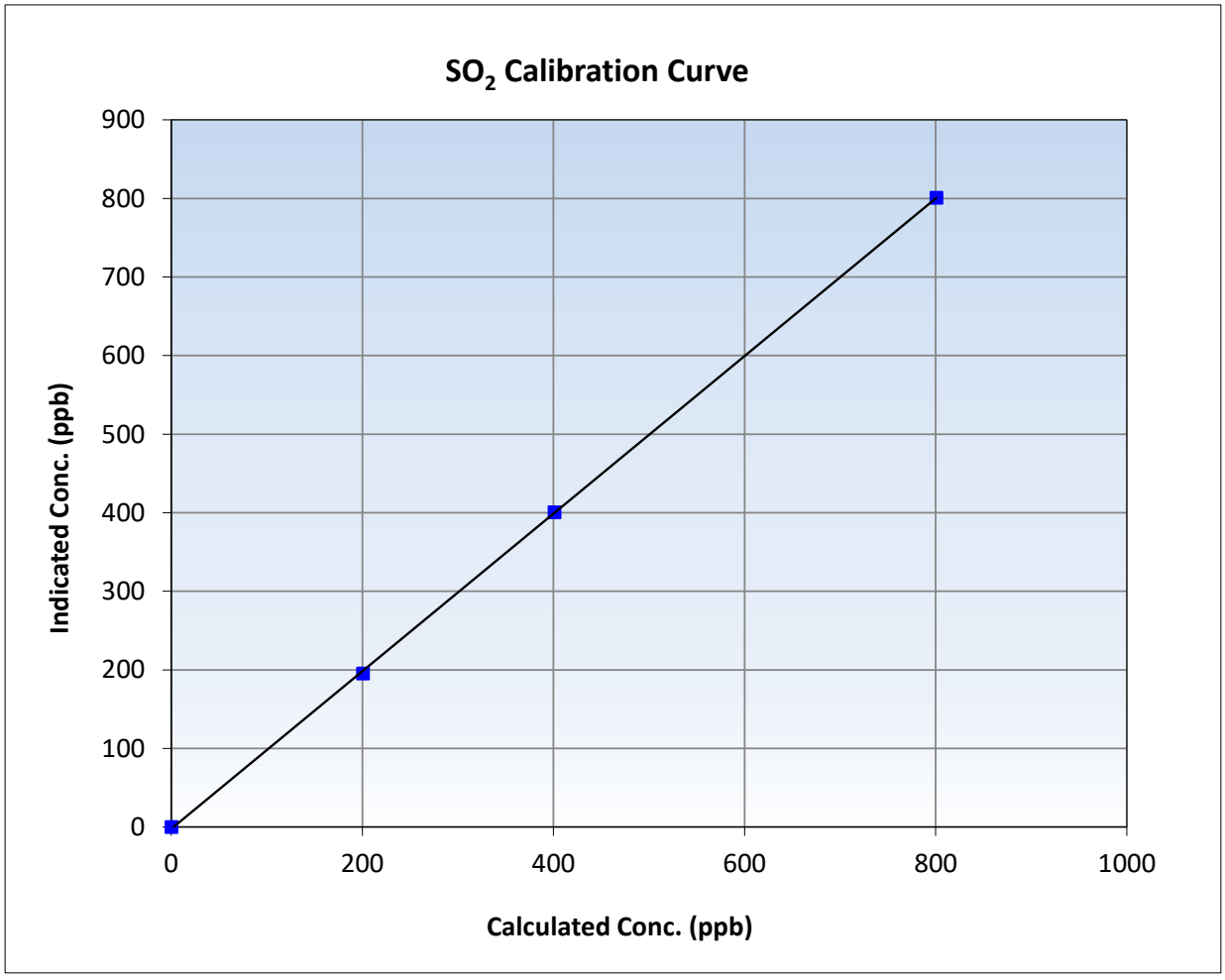
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 4, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	10:16	End Time (MST):	13:20
Analyzer make:	Thermo 43i	Analyzer serial #:	1428701363

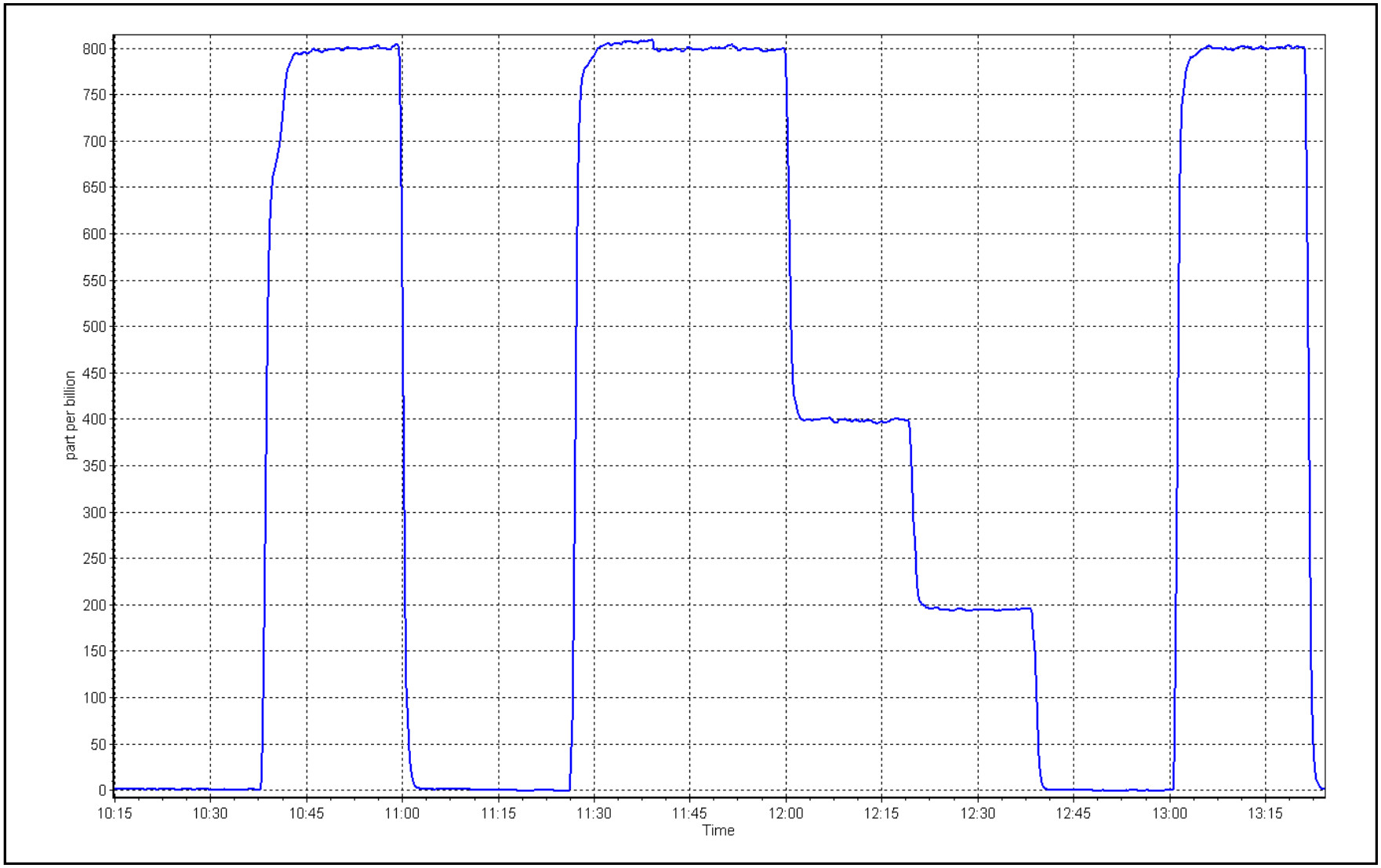
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
800.3	800.7	0.9995
400.7	400.4	1.0008
200.4	195.0	1.0275

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999946	*≥0.995*
Slope	1.002828	*0.90 - 1.10*
Intercept	-2.342312	*+/-30*



SO2 Calibration Plot Date: May 12, 2025 Location: Conklin



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Conklin	Station number:	AMS 21
Calibration Date:	May 29, 2025	Last Cal Date:	April 9, 2025
Start time (MST):	9:44	End time (MST):	13:22
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.14	ppm	Cal Gas Exp Date:	January 3, 2026
Cal Gas Cylinder #:	CC501204			
Removed Cal Gas Conc:	5.14	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne T700P		Serial Number:	2659
ZAG Make/Model:	Teledyne T701		Serial Number:	953

Analyzer Information

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

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000789	1.006604	Backgd or Offset:	3.3	3.3
Calibration intercept:	-0.061610	-0.141621	Coeff or Slope:	1.571	1.539

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	-0.2	----
As found High point	4922	78.4	80.6	82.4	0.976
As found Mid point	4961	39.2	40.3	41.4	0.969
As found Low point	4980	19.6	20.2	20.1	0.993
New cylinder response					

Baseline Corr As found:	82.6	Prev response:	80.59	*% change:	2.4%
Baseline Corr 2nd AF pt:	41.6	AF Slope:	1.026883	AF Intercept:	-0.281650
Baseline Corr 3rd AF pt:	20.3	AF Correlation:	0.999947	* = > +/-5% change initiates 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	4922	78.4	80.6	81.0	0.995
Mid point	4961	39.2	40.3	40.4	0.997
Low point	4980	19.6	20.2	20.1	1.003
As left zero	5000	0.0	0.0	-0.2	----
As left span	4922	78.4	80.6	81.0	0.995
SO2 Scrubber Check	4921	79.5	794.9	-0.1	----

Date of last scrubber change:	November 13, 2024	Ave Corr Factor	0.998
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

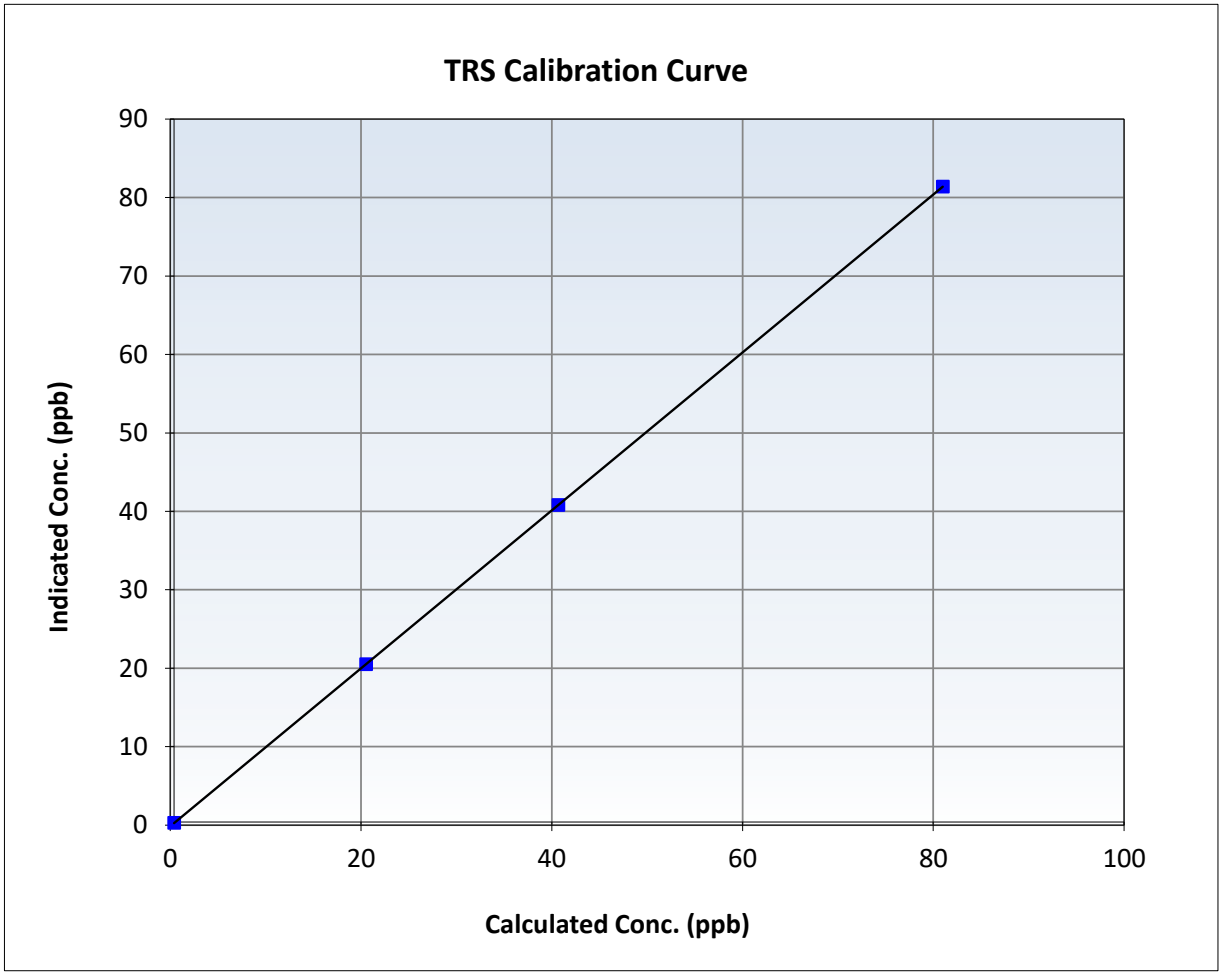
Station Information

Calibration Date:	May 29, 2025	Previous Calibration:	April 9, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:44	End Time (MST):	13:22
Analyzer make:	Thermo 43i-QTL	Analyzer serial #:	12228021058

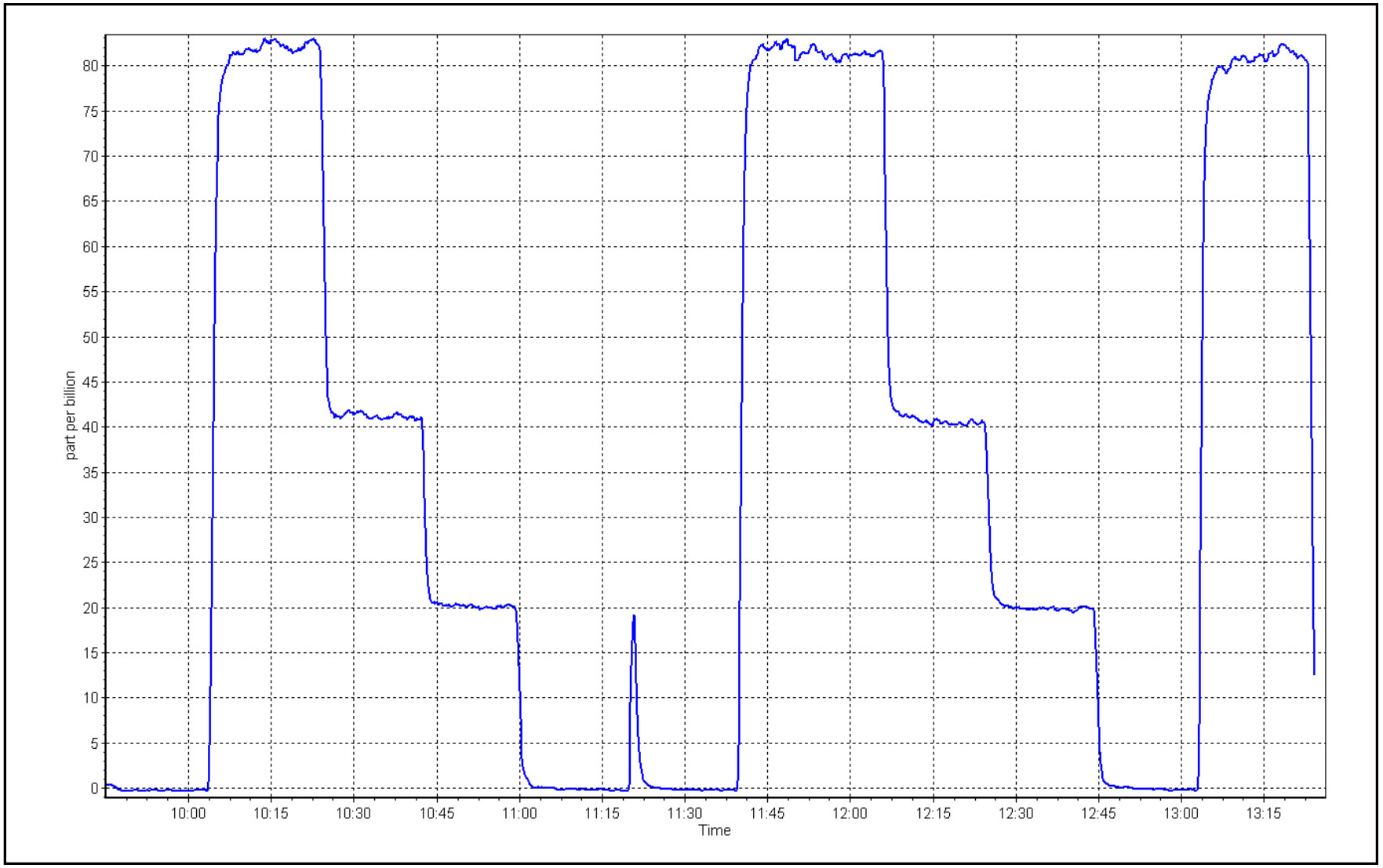
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.6	81.0	0.9949
40.3	40.4	0.9974
20.2	20.1	1.0025

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	1.006604	*0.90 - 1.10*
Intercept	-0.141621	*+/-3*



TRS Calibration Plot Date: May 29, 2025 Location: Conklin



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Conklin	Station number:	AMS 21
Calibration Date:	May 12, 2025	Last Cal Date:	April 4, 2025
Start time (MST):	10:16	End time (MST):	13:20
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	Analyzer serial #:	1180320039
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	2.30E-04	2.31E-04	NMHC SP Ratio:	4.73E-05	4.86E-05
CH4 Retention time:	15.2	15.2	NMHC Peak Area:	190954	184528
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	16.85	1.007
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.85	Prev response	17.06	*% change	-1.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	79.5	16.97	16.97	1.000
Mid point	4960	39.8	8.50	8.45	1.005
Low point	4980	19.9	4.25	4.16	1.021
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.5	16.97	16.97	1.000
				Average Correction Factor	1.009

Notes: Sample inlet filter was changed after as founds. Adjusted span only.

Wood Buffalo Environmental Association

THC / CH_4 / 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	79.5	8.96	8.83	1.015
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.83	Prev response	9.00	*% change	-1.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	8.96	1.001
Mid point	4960	39.8	4.49	4.47	1.004
Low point	4980	19.9	2.24	2.21	1.015
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.5	8.96	8.95	1.001
				Average Correction Factor	1.007

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	4921	79.5	8.01	8.02	0.999
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.02	Prev response	8.06	*% change	-0.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4921	79.5	8.01	8.02	0.999
Mid point	4960	39.8	4.01	3.98	1.007
Low point	4980	19.9	2.01	1.95	1.028
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.5	8.01	8.02	0.999
				Average Correction Factor	1.011

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	1.007955	1.001503
THC Cal Offset:	-0.042932	-0.044497
CH4 Cal Slope:	1.009706	1.003028
CH4 Cal Offset:	-0.029831	-0.029415
NMHC Cal Slope:	1.005229	1.000140
NMHC Cal Offset:	-0.011299	-0.015082

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

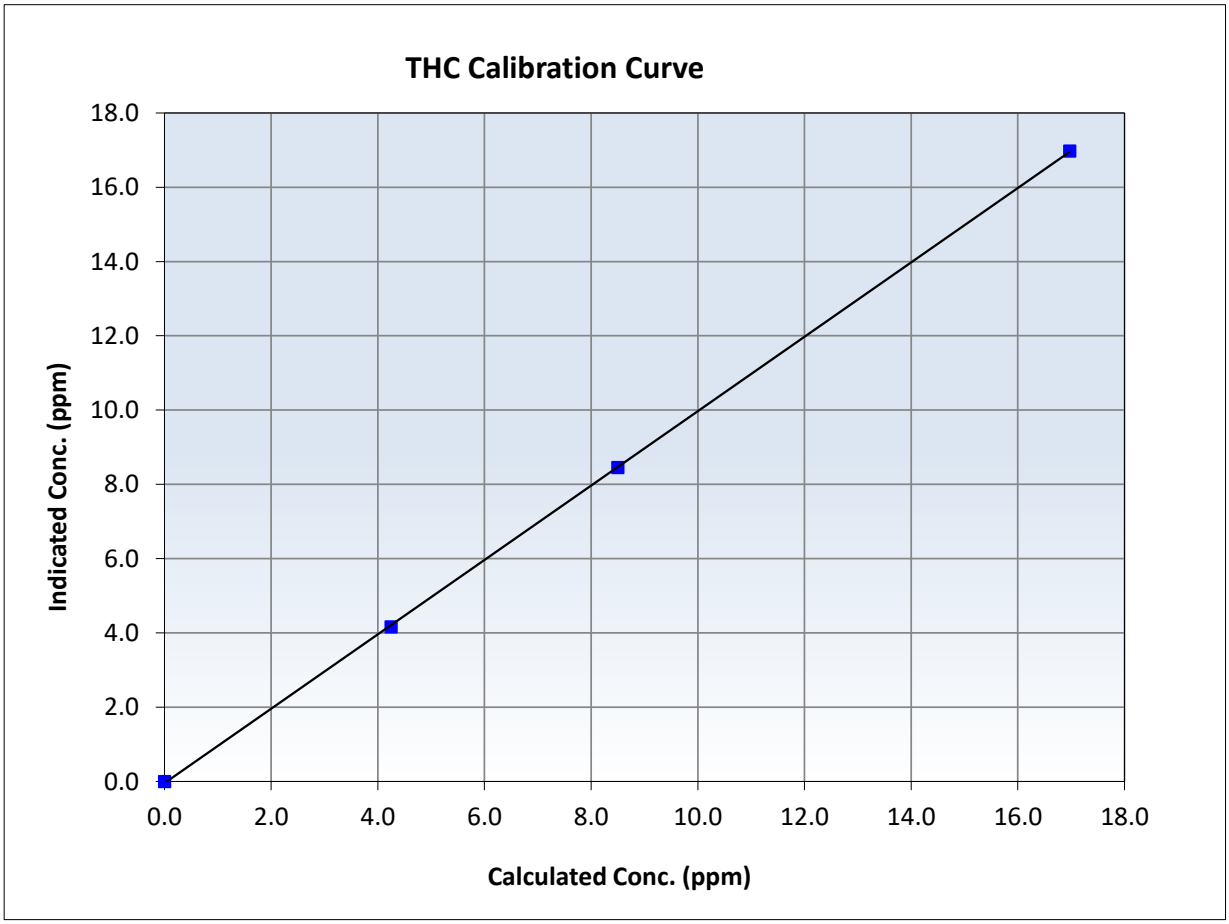
THC Calibration Summary

Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 4, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	10:16	End Time (MST):	13:20
Analyzer make:	Thermo 55i	Analyzer serial #:	1180320039

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999968	≥0.995
16.97	16.97	1.0000	Slope	1.001503	0.90 - 1.10
8.50	8.45	1.0054			
4.25	4.16	1.0211	Intercept	-0.044497	+/-0.5



Wood Buffalo Environmental Association

CH_4 Calibration Summary

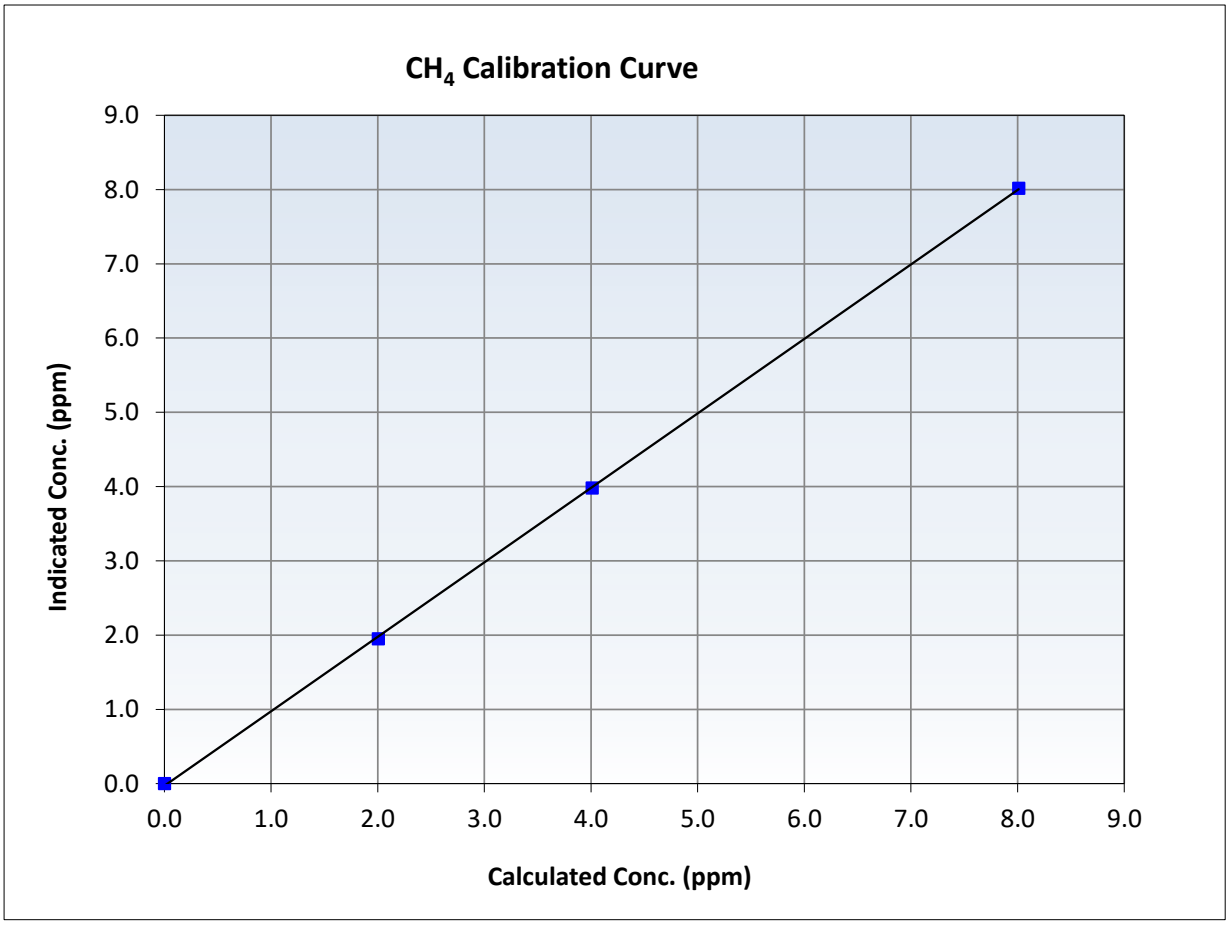
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 4, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	10:16	End Time (MST):	13:20
Analyzer make:	Thermo 55i	Analyzer serial #:	1180320039

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.01	8.02	0.9990
4.01	3.98	1.0071
2.01	1.95	1.0283

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999938	*≥0.995*
Slope	1.003028	*0.90 - 1.10*
Intercept	-0.029415	*+/-0.5*



Wood Buffalo Environmental Association

NMHC Calibration Summary

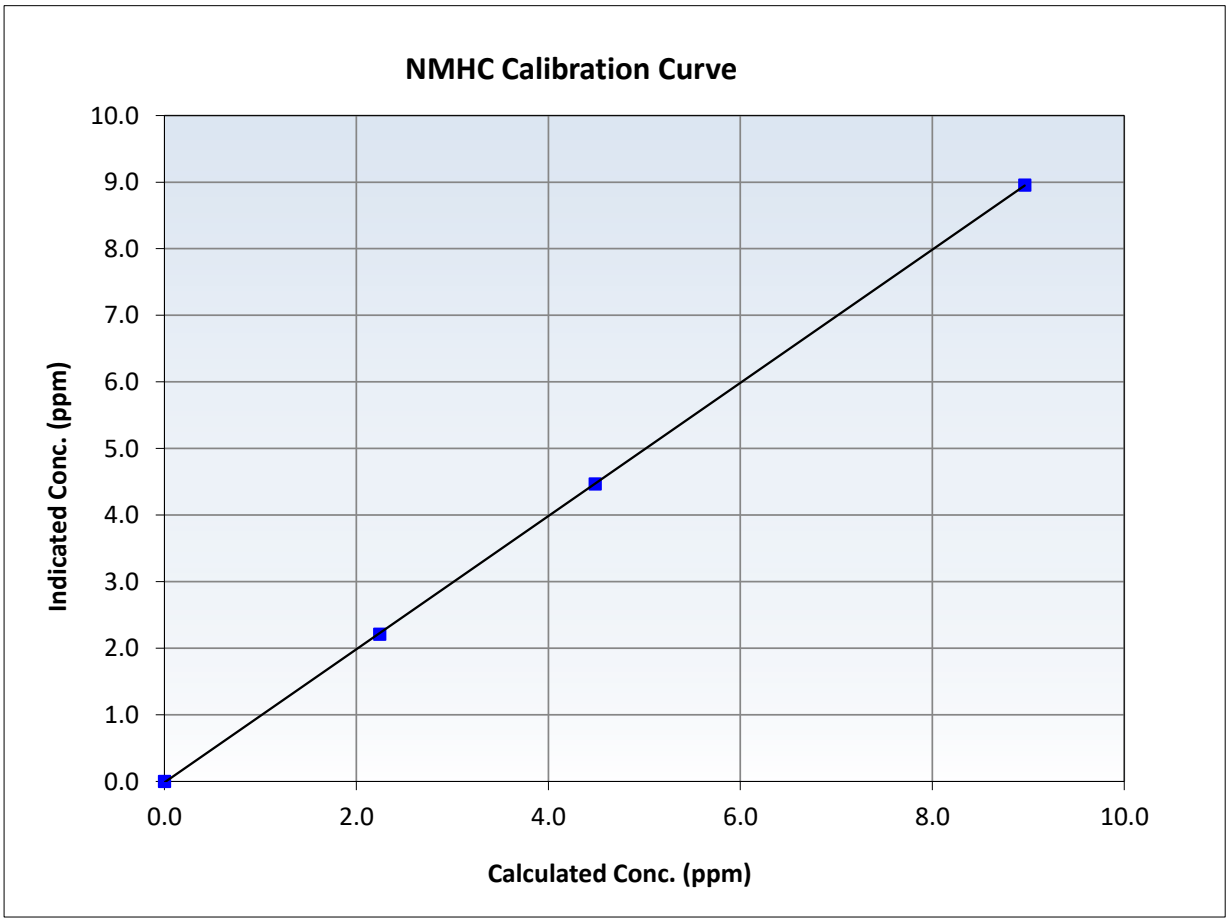
Station Information

Calibration Date:	May 12, 2025	Previous Calibration:	April 4, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	10:16	End Time (MST):	13:20
Analyzer make:	Thermo 55i	Analyzer serial #:	1180320039

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.96	8.96	1.0009
4.49	4.47	1.0039
2.24	2.21	1.0148

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999986	*≥0.995*
Slope	1.000140	*0.90 - 1.10*
Intercept	-0.015082	*+/-0.5*



NMHC Calibration Plot Date: May 12, 2025 Location: Conklin

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Conklin
Station number:	AMS 21
Calibration Date:	May 2, 2025
Last Cal Date:	April 24, 2025
Start time (MST):	11:18
End time (MST):	16:02
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	SA18828	Cal Gas Expiry Date:	November 3, 2031
NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.80 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.80 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700P	Serial Number:	2659
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	-0.2	0.0	----	----
AF High point	4918	82.0	802.0	800.3	1.6	888.7	884.3	4.4	0.9022	0.9048
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 800.1 ppb	NO = 798.3 ppb
Baseline Corr 1st pt	NO_X = 888.9 ppb	NO = 884.5 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

*Percent Change	NO_X =	10.0%
*Percent Change	NO =	9.7%

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1501663731

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.060	0.962	NO bkgnd or offset:	10.3	9.4
NOX coeff or slope:	0.995	0.995	NOX bkgnd or offset:	10.3	9.3
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	150.0	147.3

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.998189	1.002949
NO_X Cal Offset:	-0.392024	0.088013
NO Cal Slope:	0.999592	1.004218
NO Cal Offset:	-1.692057	-1.612024
NO_2 Cal Slope:	0.996573	1.002809
NO_2 Cal Offset:	-0.812981	-1.115535

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	-0.1	0.1	----	----
High point	4918	82.0	802.0	800.3	1.6	803.6	802.1	1.7	0.9980	0.9978
Mid point	4959	41.0	401.0	400.2	0.8	404.6	401.7	3.0	0.9911	0.9962
Low point	4980	20.5	200.5	200.1	0.4	199.7	196.3	3.4	1.0039	1.0192
As left zero	5000	0.0	0.0	0.0	0.0	0.0	-0.2	0.2	----	----
As left span	4918	82.0	802.0	407.3	394.7	800.6	407.3	393.2	1.0017	1.0000
								Average Correction Factor	0.9976	1.0044

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	0.1	----	----
High GPT point	800.7	406.8	395.5	396.0	0.9988	100.1%
Mid GPT point	800.7	605.4	196.9	196.2	1.0038	99.6%
Low GPT point	800.7	703.3	99.0	96.7	1.0242	97.6%
				Average Correction Factor	1.0089	99.1%

Notes: Investigation was made; the diagnostics matched previous calibration results. No issues noted with setup. Continued with calibration; sample inlet filter changed and adjusted span only.

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

NO_X Calibration Summary

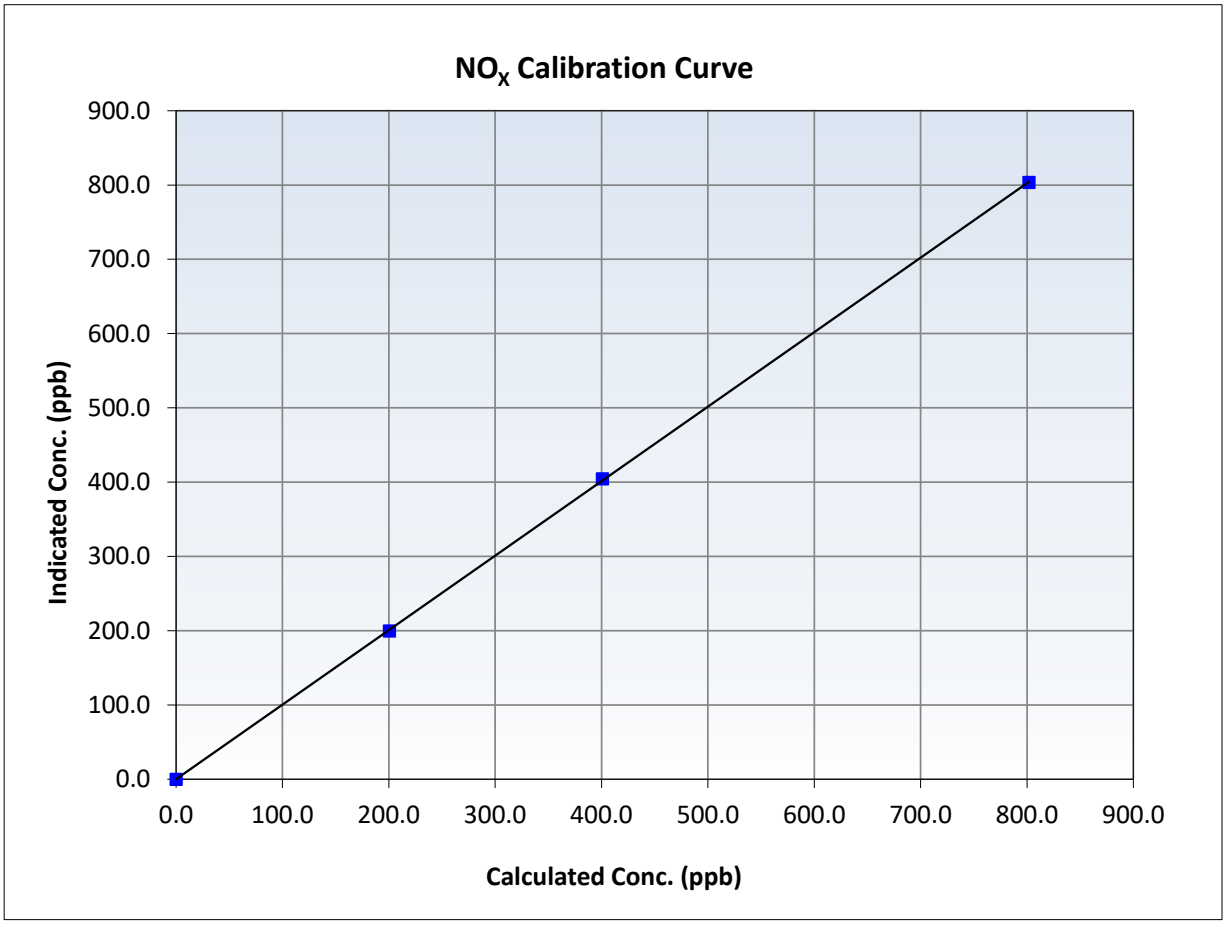
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 24, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	11:18	End Time (MST):	16:02
Analyzer make:	Thermo 42i	Analyzer serial #:	1501663731

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
802.0	803.6	0.9980
401.0	404.6	0.9911
200.5	199.7	1.0039

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999977	*≥0.995*
Slope	1.002949	*0.90 - 1.10*
Intercept	0.088013	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

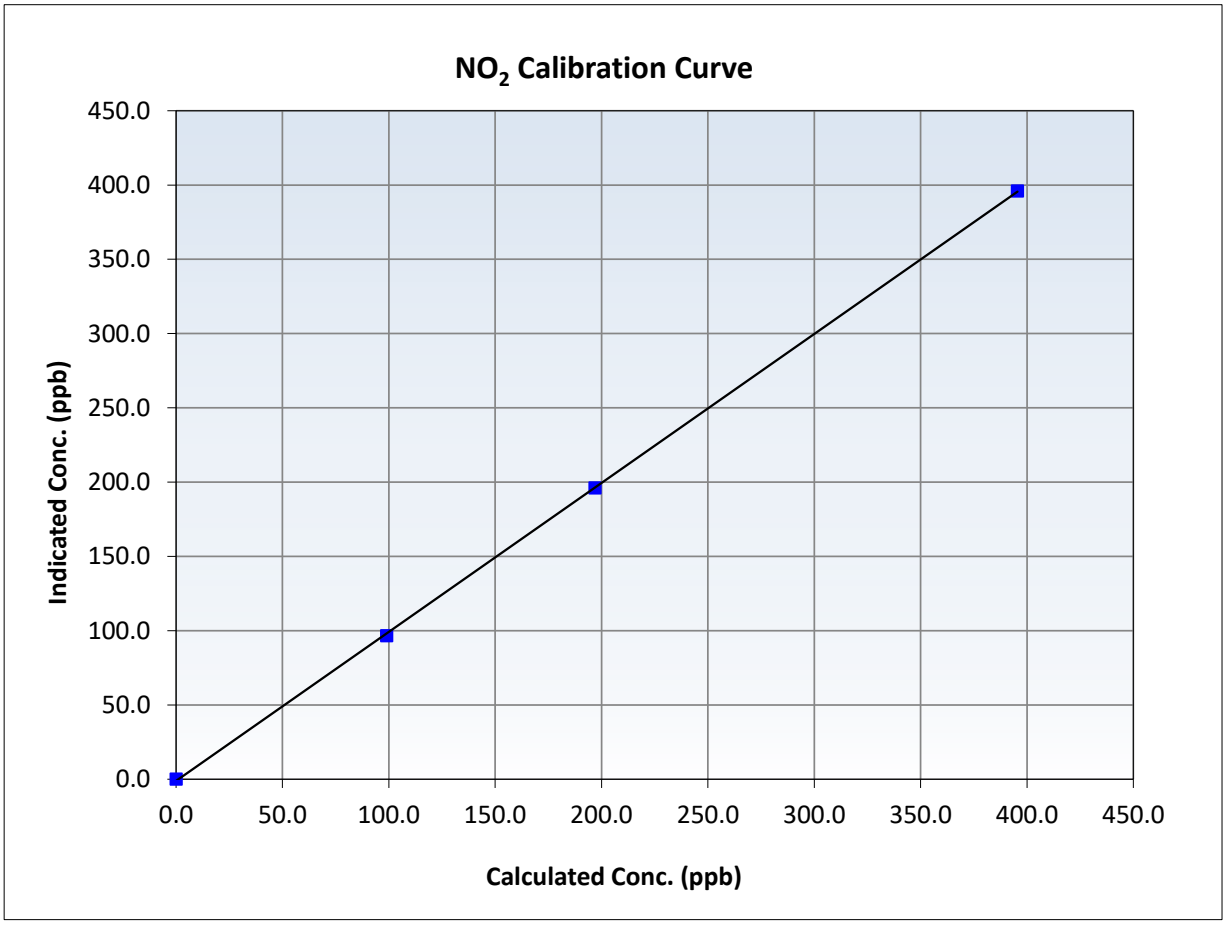
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 24, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	11:18	End Time (MST):	16:02
Analyzer make:	Thermo 42i	Analyzer serial #:	1501663731

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
395.5	396.0	0.9988
196.9	196.2	1.0038
99.0	96.7	1.0242

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999954	*≥0.995*
Slope	1.002809	*0.90 - 1.10*
Intercept	-1.115535	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

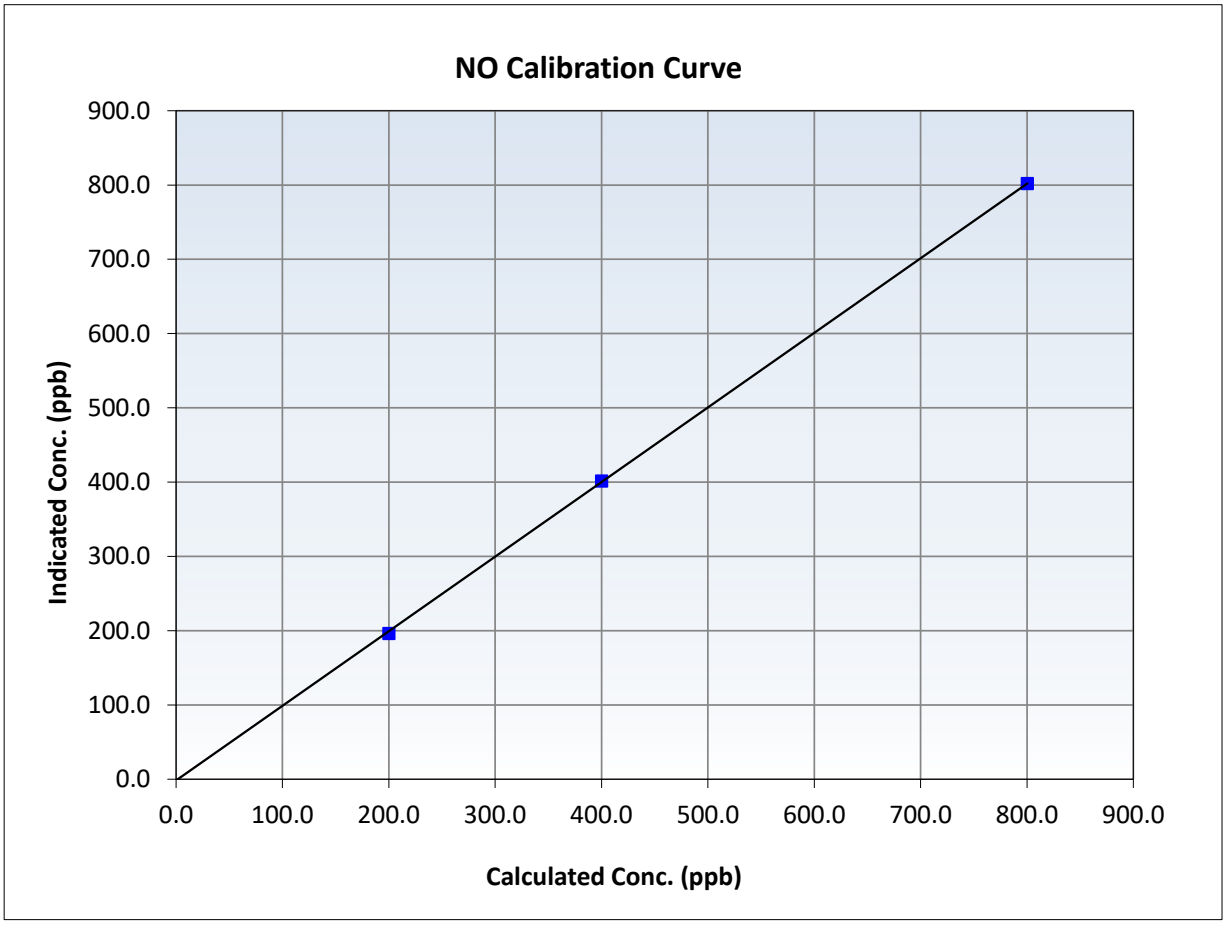
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 24, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	11:18	End Time (MST):	16:02
Analyzer make:	Thermo 42i	Analyzer serial #:	1501663731

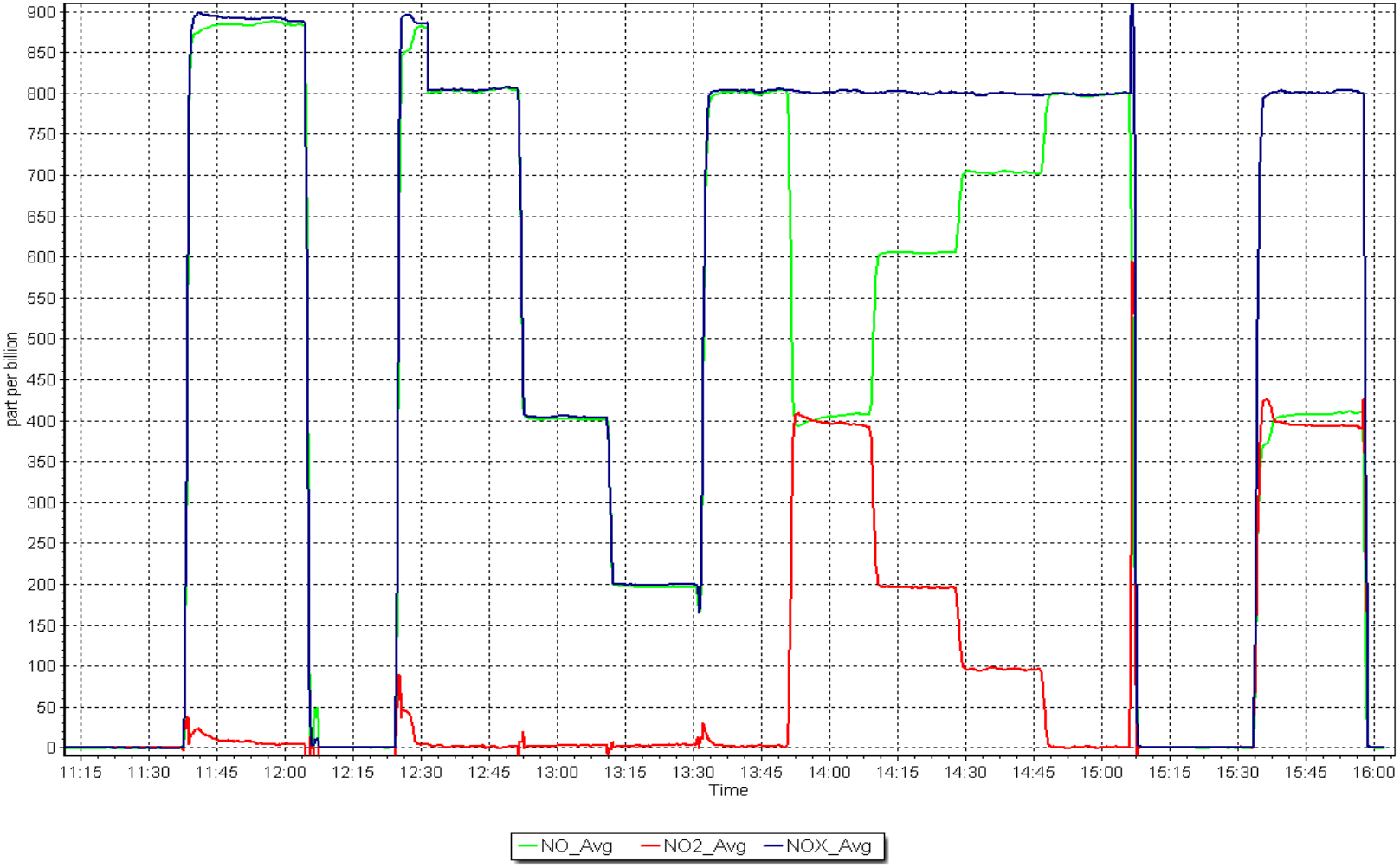
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
800.3	802.1	0.9978
400.2	401.7	0.9962
200.1	196.3	1.0192

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999962	*≥0.995*
Slope	1.004218	*0.90 - 1.10*
Intercept	-1.612024	*+/-20*



NO_X Calibration Plot Date: May 2, 2025 Location: Conklin



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Conklin
Station number:	AMS 21
Calibration Date:	May 6, 2025
Last Cal Date:	May 2, 2025
Start time (MST):	10:48
End time (MST):	11:32
Reason:	Removal

Calibration Standards

NO Gas Cylinder #:	SA18828	Cal Gas Expiry Date:	November 3, 2031
NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.80 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.80 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700P	Serial Number:	2659
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	-0.1	-0.2	0.1	----	----
AF High point	4918	82.0	802.0	800.3	1.6	720.9	716.6	4.2	1.1123	1.1165
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X =	804.4 ppb	NO =	802.1 ppb	* = > +/-5% change initiates investigation	*Percent Change	NO_X = -11.6%
Baseline Corr 1st pt	NO_X =	721.0 ppb	NO =	716.8 ppb	As Found Statistics	*Percent Change	NO = -11.9%
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO_X r^2:	Nx Sl:	Nx Int:
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO r^2:	NO Sl:	NO Int:
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1501663731

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.962	NA	NO bkgnd or offset:	9.4	NA
NOX coeff or slope:	0.995	NA	NOX bkgnd or offset:	9.3	NA
NO2 coeff or slope:	1.000	NA	Reaction cell Press:	147.3	NA

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.002949	
NO_X Cal Offset:	0.088013	
NO Cal Slope:	1.004218	
NO Cal Offset:	-1.612024	
NO_2 Cal Slope:	1.002809	
NO_2 Cal Offset:	-1.115535	

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										
High point										
Mid point										
Low point										
As left zero										
As left span										
Average Correction Factor										

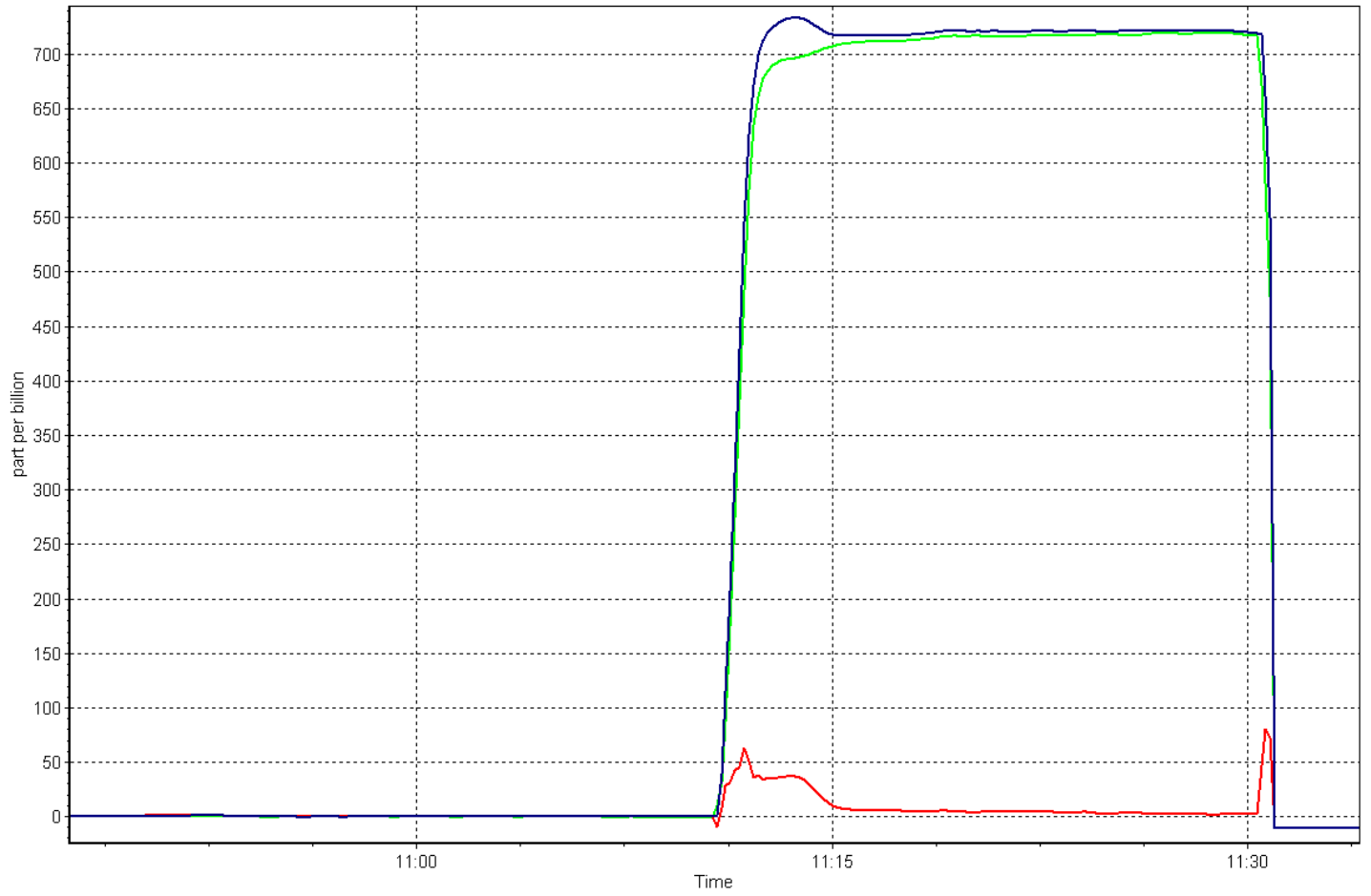
GPT Calibration Data

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						
High GPT point						
Mid GPT point						
Low GPT point						
Average Correction Factor						

Notes: Removal was done and will do further troubleshooting at the repair shop.

Calibration Performed By: Jan Castro

NO_X Calibration Plot Date: May 6, 2025 Location: Conklin



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Conklin
Station number:	AMS 21
Calibration Date:	May 6, 2025
Last Cal Date:	NA
Start time (MST):	11:51
End time (MST):	15:33
Reason:	Install

Calibration Standards

NO Gas Cylinder #:	SA18828	Cal Gas Expiry Date:	November 3, 2031
NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.80 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.80 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700P	Serial Number:	2659
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										
AF High point										
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = NA	ppb	NO = NA	ppb	* = > +/-5% change initiates investigation	*Percent Change	NO_X =	NA
Baseline Corr 1st pt	NO_X = NA	ppb	NO = NA	ppb	As Found Statistics	*Percent Change	NO =	NA
Baseline Corr 2nd pt	NO_X = NA	ppb	NO = NA	ppb	As found NO_X r^2:	Nx Sl:	Nx Int:	
Baseline Corr 3rd pt	NO_X = NA	ppb	NO = NA	ppb	As found NO r^2:	NO Sl:	NO Int:	
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:	

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1218153356

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	Finish		Start	Finish
NO coeff or slope:	NA	0.773	NO bkgnd or offset:	NA	4.3
NOX coeff or slope:	NA	0.996	NOX bkgnd or offset:	NA	4.3
NO2 coeff or slope:	NA	1.000	Reaction cell Press:	NA	164.1

Calibration Statistics

	Start	Finish
NO_X Cal Slope:		1.000483
NO_X Cal Offset:		-0.772003
NO Cal Slope:		1.000877
NO Cal Offset:		-2.292051
NO_2 Cal Slope:		1.000609
NO_2 Cal Offset:		-0.036161

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	4918	82.0	802.0	800.3	1.6	801.6	799.2	2.3	1.0004	1.0014
Mid point	4959	41.0	401.0	400.2	0.8	401.0	398.8	2.2	1.0000	1.0034
Low point	4980	20.5	200.5	200.1	0.4	198.5	194.9	3.7	1.0099	1.0265
As left zero	5000	0.0	0.0	0.0	0.0	-0.4	-0.5	0.1	----	----
As left span	4918	82.0	802.0	401.9	400.1	800.0	401.9	398.3	1.0025	1.0000
								Average Correction Factor	1.0034	1.0104

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	0.2	----	----
High GPT point	795.6	398.3	398.9	399.3	0.9991	100.1%
Mid GPT point	795.6	598.0	199.2	199.1	1.0007	99.9%
Low GPT point	795.6	698.5	98.7	98.6	1.0014	99.9%
				Average Correction Factor	1.0004	100.0%

Notes: Install calibrations. Sample inlet filter was changed before calibrator zero. Adjusted zero and span.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

NO_X Calibration Summary

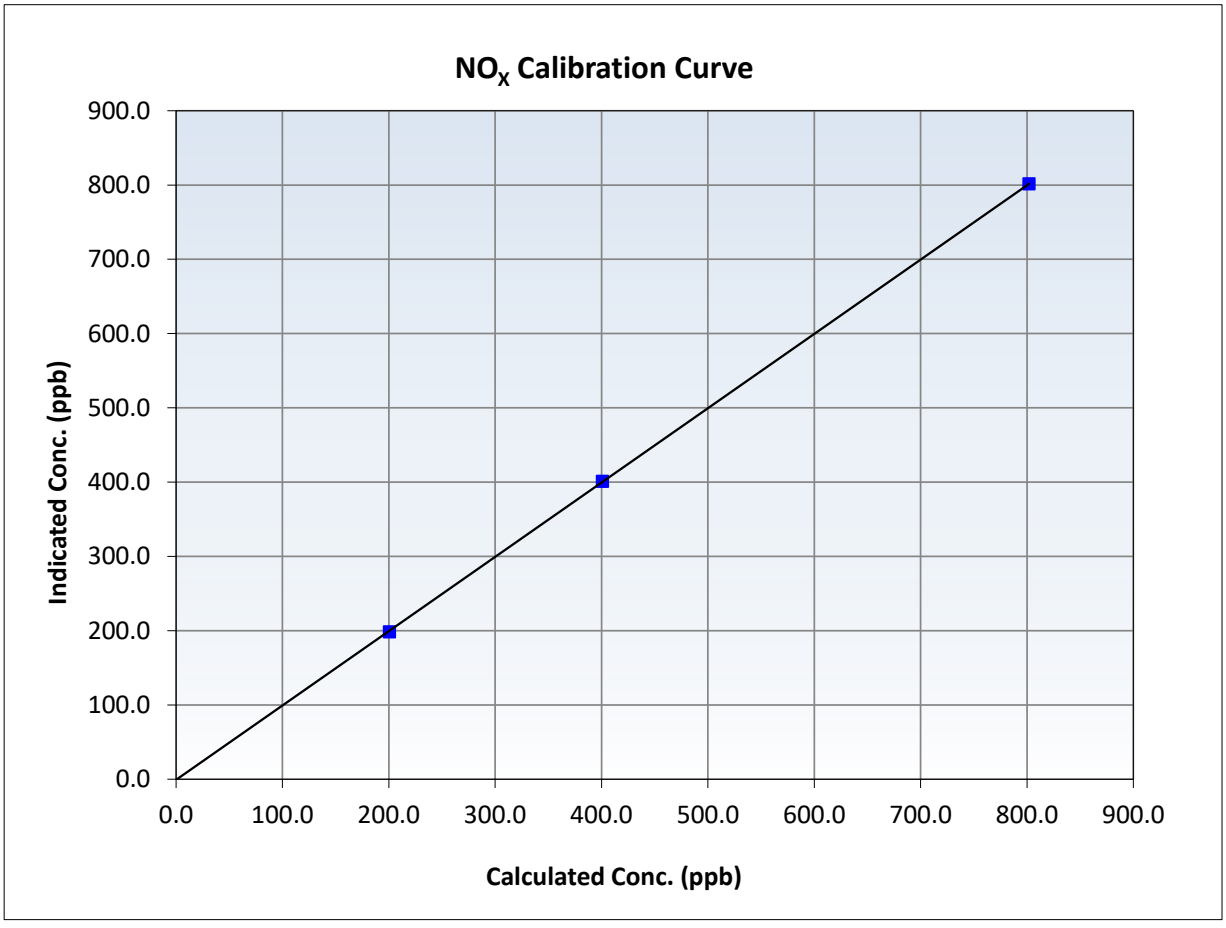
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	NA
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	11:51	End Time (MST):	15:33
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153356

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
802.0	801.6	1.0004
401.0	401.0	1.0000
200.5	198.5	1.0099

Statistical Evaluation		Limits
Correlation Coefficient	0.999993	≥0.995
Slope	1.000483	0.90 - 1.10
Intercept	-0.772003	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

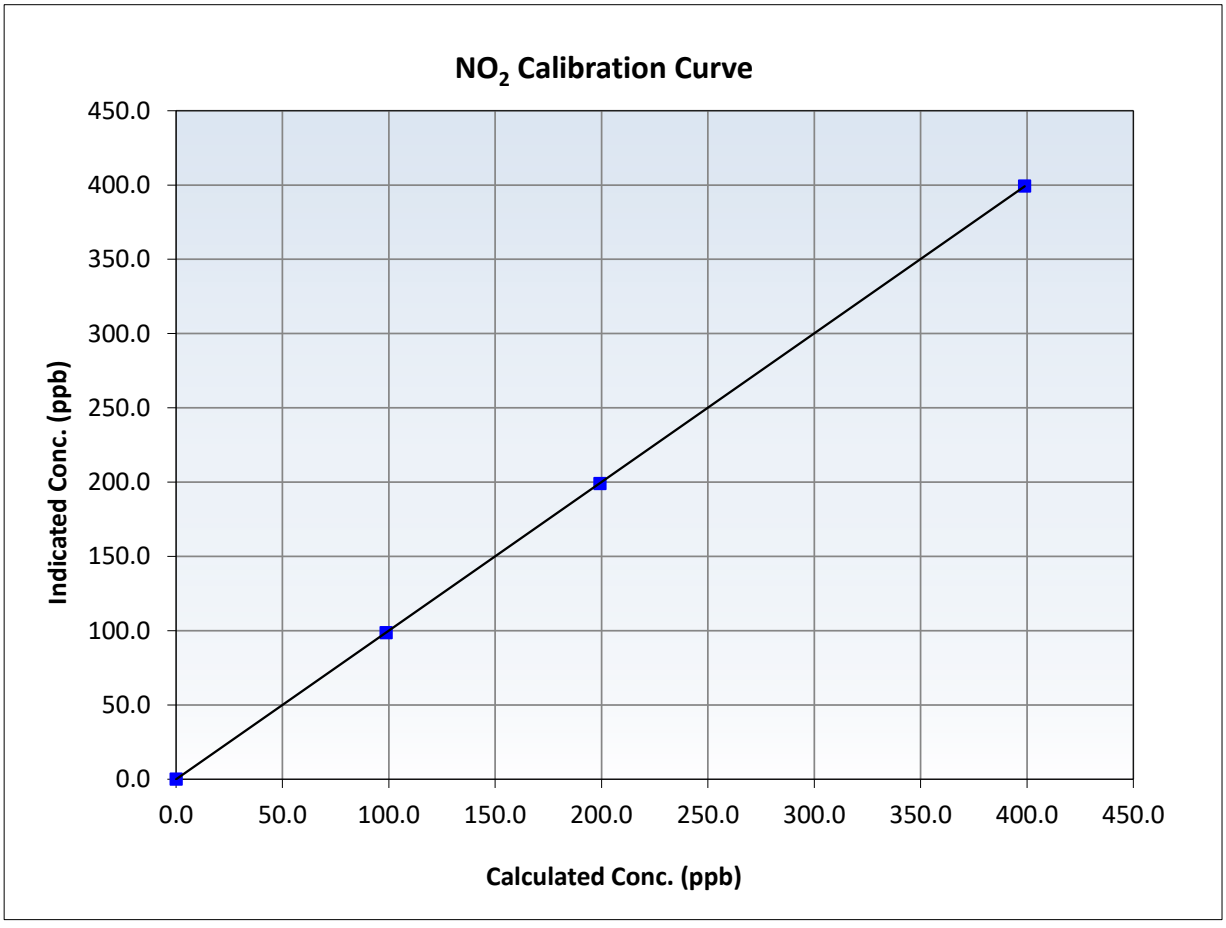
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	NA
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	11:51	End Time (MST):	15:33
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153356

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
398.9	399.3	0.9991
199.2	199.1	1.0007
98.7	98.6	1.0014

Statistical Evaluation		Limits
Correlation Coefficient	0.999998	≥0.995
Slope	1.000609	0.90 - 1.10
Intercept	-0.036161	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

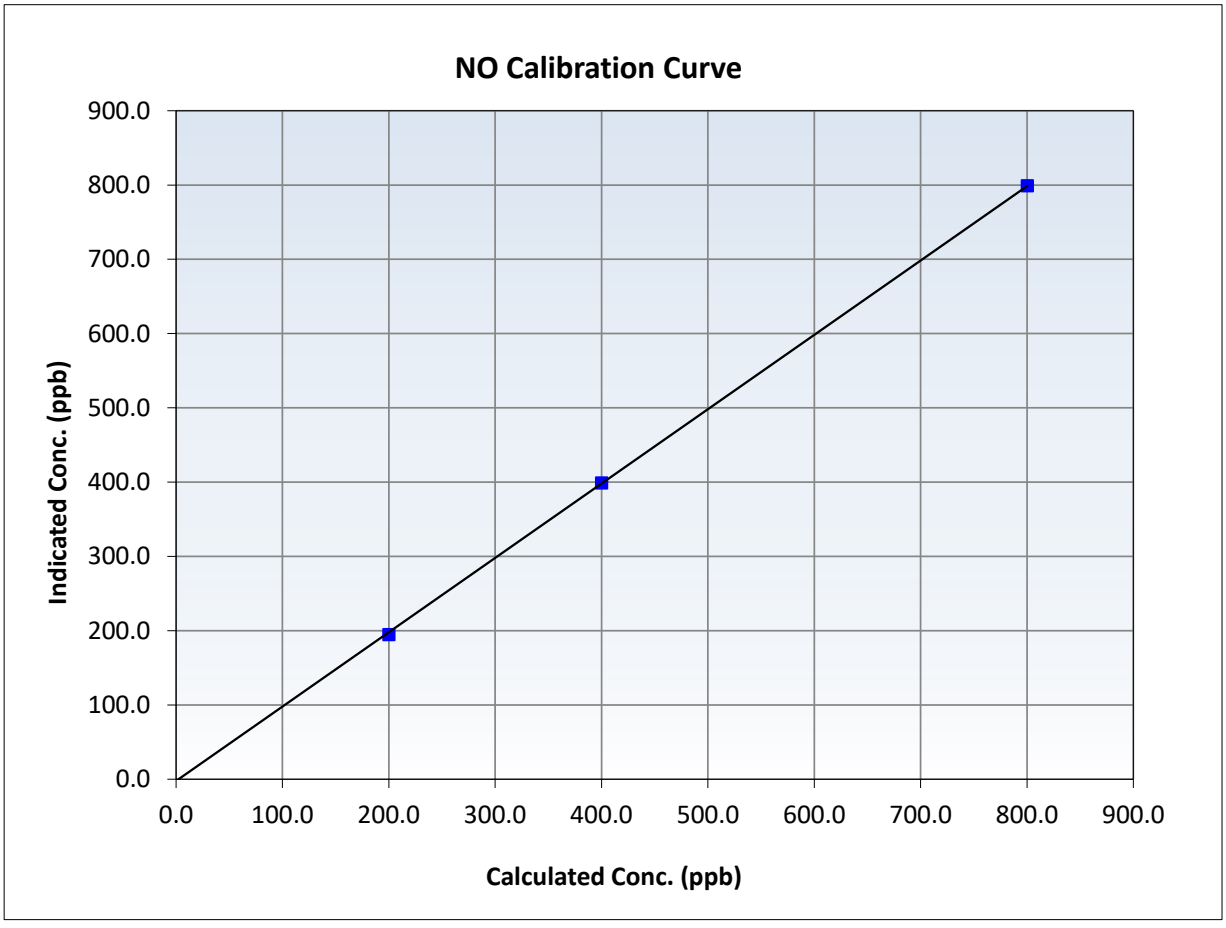
Station Information

Calibration Date:	May 6, 2025	Previous Calibration:	NA
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	11:51	End Time (MST):	15:33
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153356

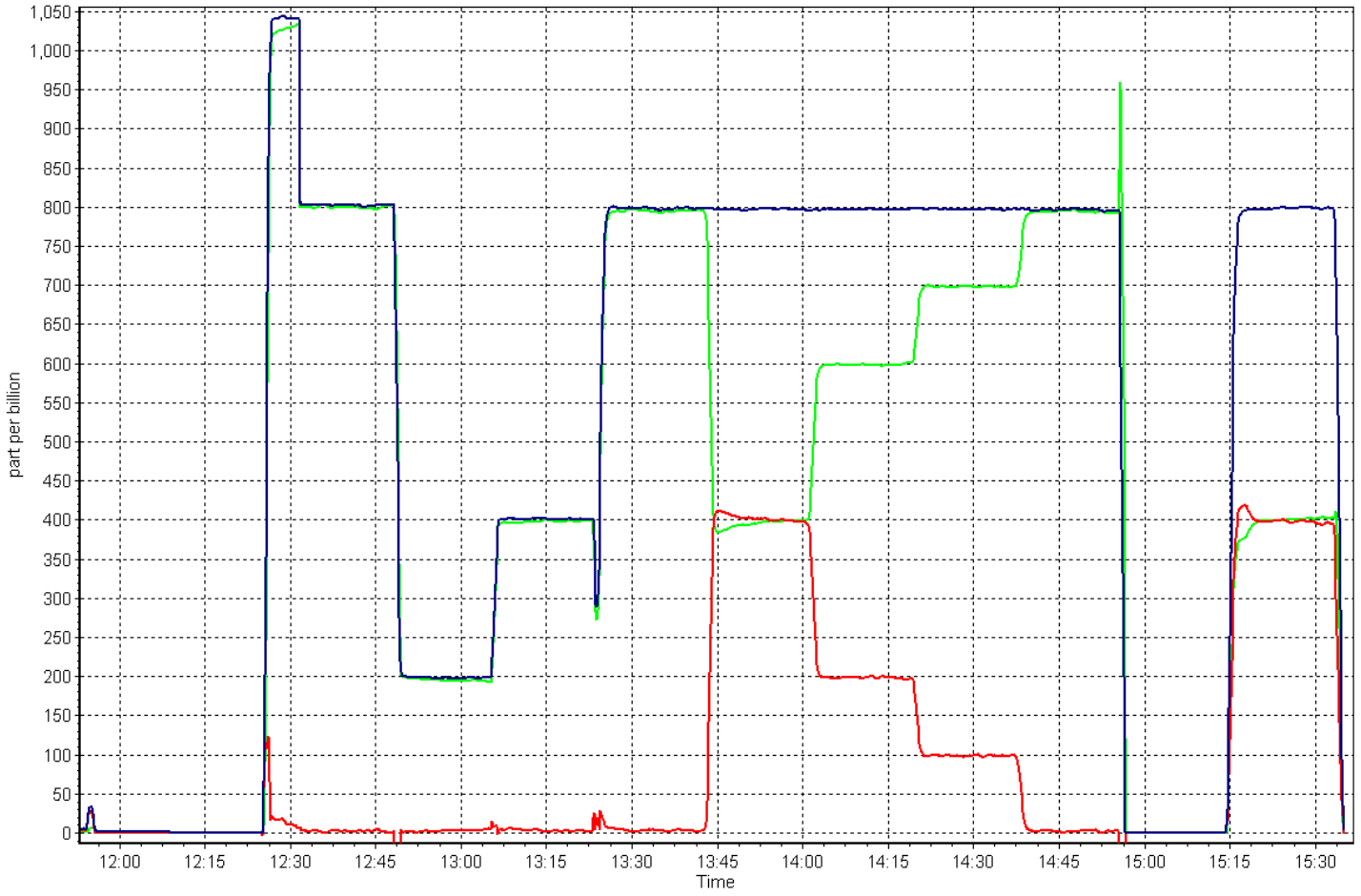
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
800.3	799.2	1.0014
400.2	398.8	1.0034
200.1	194.9	1.0265

Statistical Evaluation		Limits
Correlation Coefficient	0.999961	≥0.995
Slope	1.000877	0.90 - 1.10
Intercept	-2.292051	+/-20



NO_X Calibration Plot Date: May 6, 2025 Location: Conklin



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Conklin	Station number:	AMS 21
Calibration Date:	May 8, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	9:56	End time (MST):	12:39
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	Teledyne API T700P	Serial Number:	2659
ZAG Make/Model:	Teledyne API T701	Serial Number:	953

Analyzer Information

Analyzer make:	Thermo 49i		Analyzer serial #:	1501663734	
Analyzer Range	0 - 500 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.005686	1.005971	Backgd or Offset:	2.0	1.9
Calibration intercept:	-0.120000	-1.120000	Coeff or Slope:	1.113	1.091

O_3 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	920.3	400.0	406.7	0.984
As found Mid point					
As found Low point					
Baseline Corr As found:	406.7	Previous response	402.2	*% change	1.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

O_3 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	921.0	400.0	401.5	0.996
Mid point	5000	761.1	200.0	200.1	1.000
Low point	5000	653.1	100.0	98.5	1.015
As left zero	5000	800.0	0.0	-1.1	----
As left span	5000	923.5	400.0	412.0	0.971
				Average Correction Factor	1.004

Notes: Sample inlet filter and head was changed after as founds. Adjusted span only.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

O_3 Calibration Summary

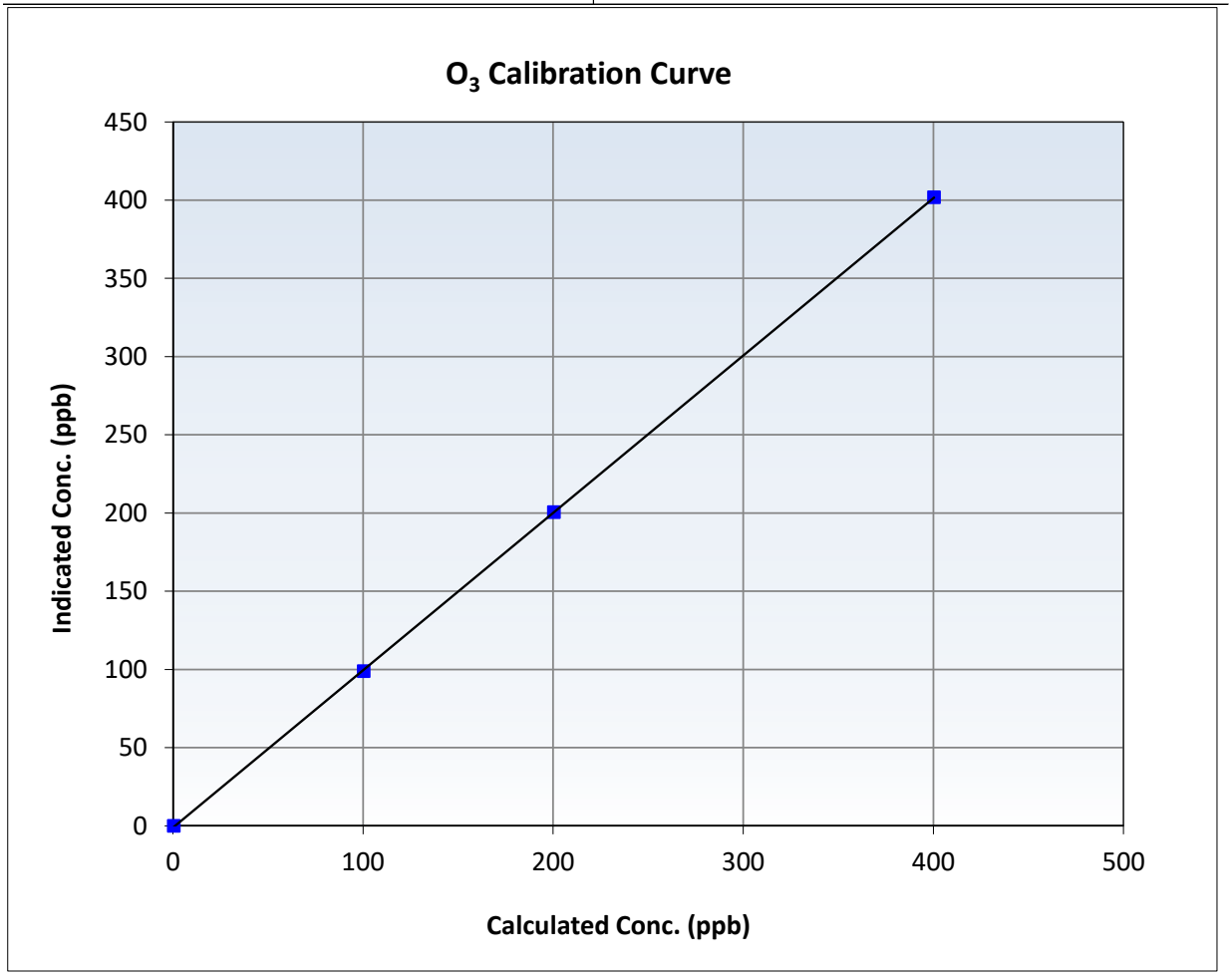
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 14, 2025
Station Name:	Conklin	Station Number:	AMS 21
Start Time (MST):	9:56	End Time (MST):	12:39
Analyzer make:	Thermo 49i	Analyzer serial #:	1501663734

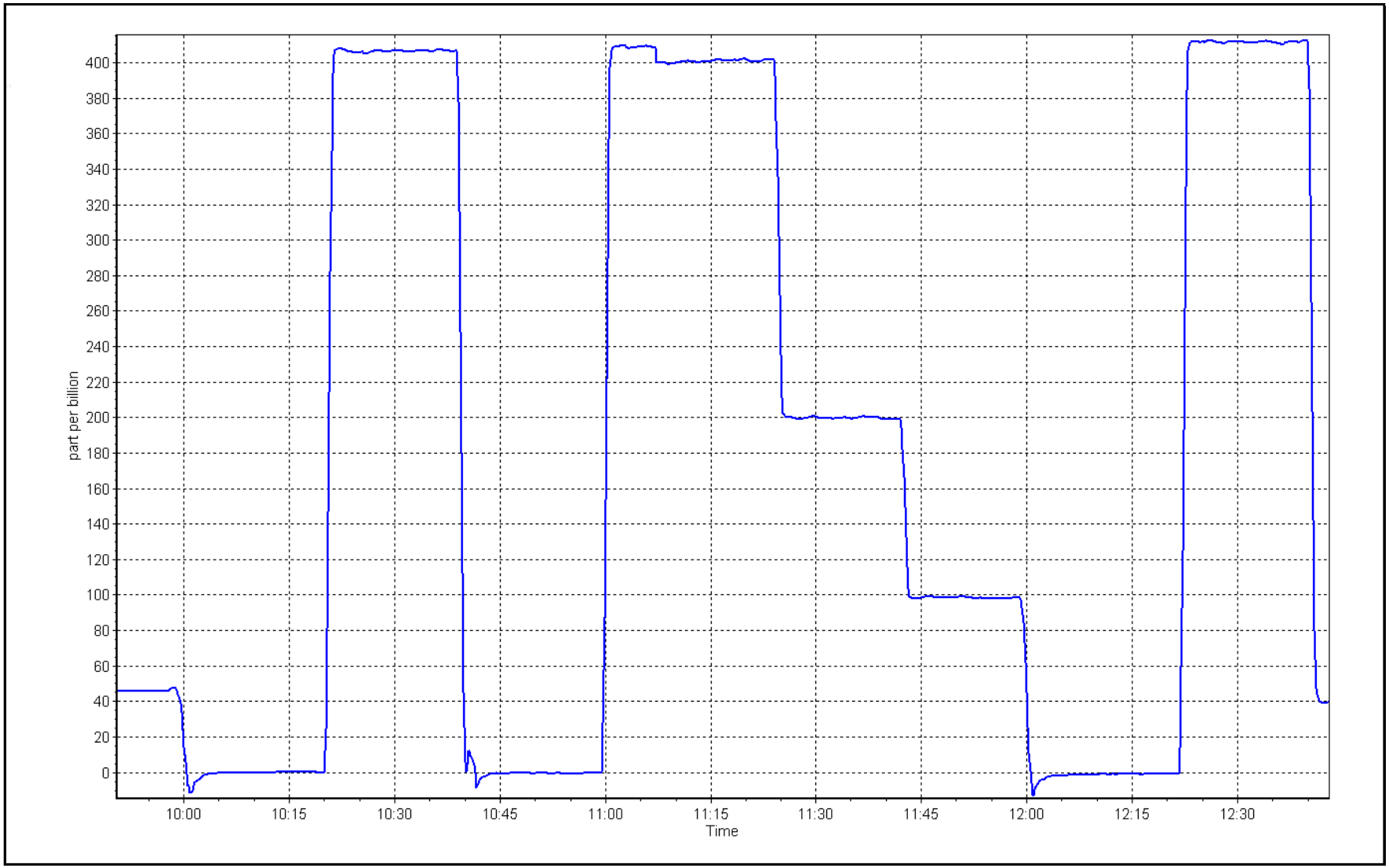
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.4	----
400.0	401.5	0.9963
200.0	200.1	0.9995
100.0	98.5	1.0152

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999983	*≥0.995*
Slope	1.005971	*0.90 - 1.10*
Intercept	-1.120000	*+/- 5*



O_3 Calibration Plot Date: May 8, 2025 Location: Conklin



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Conklin	Station number:	AMS 21
Calibration Date:	May 12, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	11:13	End time (MST):	12:16
Analyzer Make:	API T640	S/N:	326
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388754
Temp/RH standard:	Alicat FP-25BT	S/N:	388754

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	16.60	16.34	16.60	☐	+/- 2 °C
P (mmHg)	700.90	702.31	700.90	☐	+/- 10 mmHg
Flow (LPM)	5.02	5.04	5.02	☐	+/- 0.25 LPM
PW% (pump)	37	-----	37	☐	>80%

Zero Verification — PM w/o HEPA: 5.30 — PM w/ HEPA: 0.00 — <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: 10.90 — Expiry Date: July 16, 2026 — Lot No.: 100128-050-040

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test	9.20	10.10	10.70	☑	+/- 0.5

Date Optical Chamber Cleaned: May 12, 2025

Date Disposable Filter Changed: May 12, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0.00 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: August 9, 2024

Date RH/T Sensor Cleaned: August 9, 2024

Notes: Verified flow, pressure, temperature and pump power. PMT adjusted. Leak check passed.

Calibration by: Jan Castro

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS22
JANVIER
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Janvier	Station number:	AMS 22
Calibration Date:	May 9, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	11:50	End time (MST):	14:56
Reason:	Routine		

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

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1152430006	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.999692	0.999536	Backgd or Offset:	26.4	25.8
Calibration intercept:	0.304361	1.283974	Coeff or Slope:	1.017	1.006

SO_2 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	4920	79.8	799.8	808.5	0.990
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	808.1	Previous response	799.8	*% 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	

SO_2 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	4920	79.8	799.8	800.3	0.999
Mid point	4960	39.9	399.9	401.3	0.996
Low point	4980	20.0	200.4	202.6	0.989
As left zero	5000	0.0	0.0	0.4	----
As left span	4920	79.8	799.8	798.5	1.002
				Average Correction Factor:	0.995

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

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

SO_2 Calibration Summary

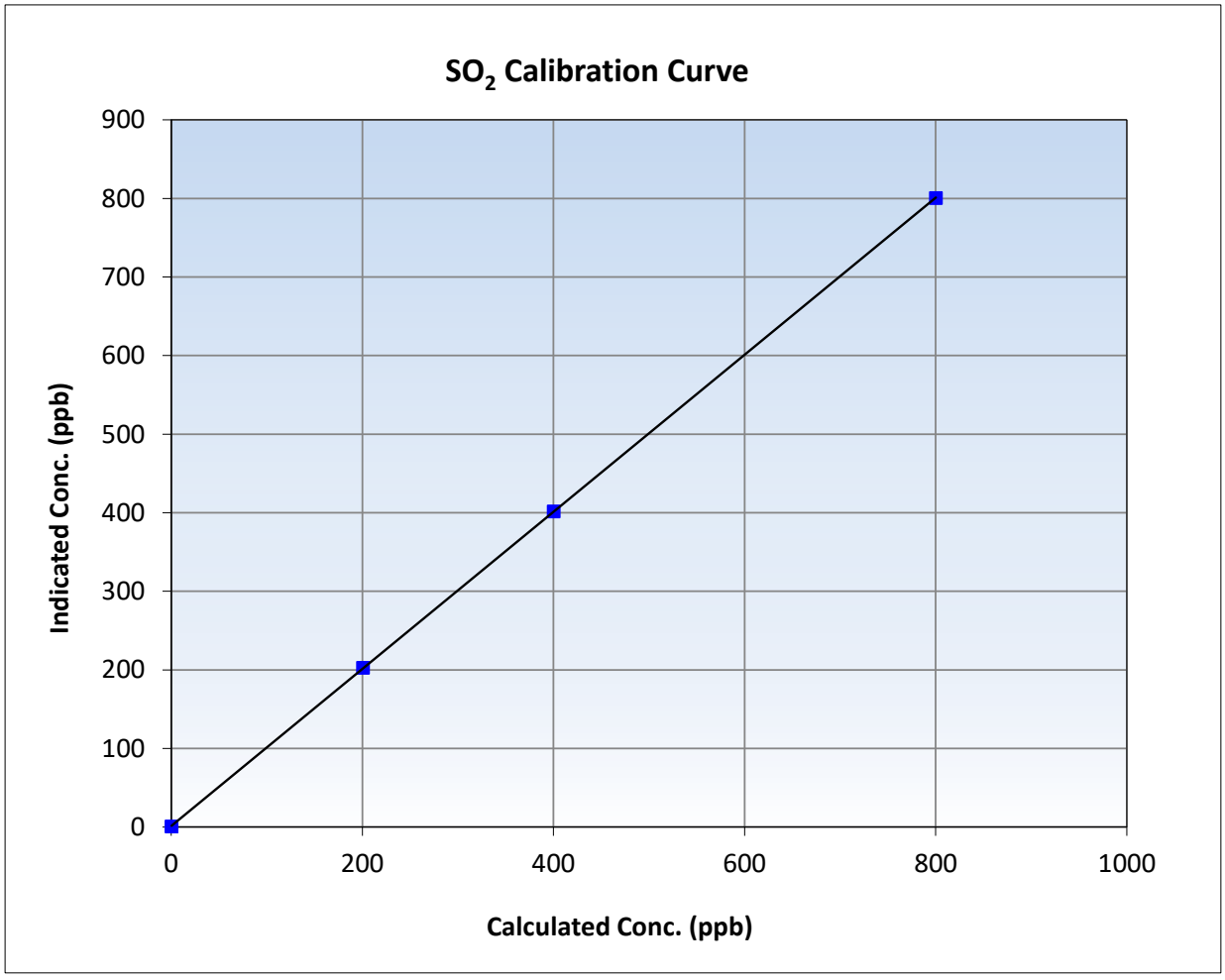
Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 11, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:50	End Time (MST):	14:56
Analyzer make:	Thermo 43i	Analyzer serial #:	1152430006

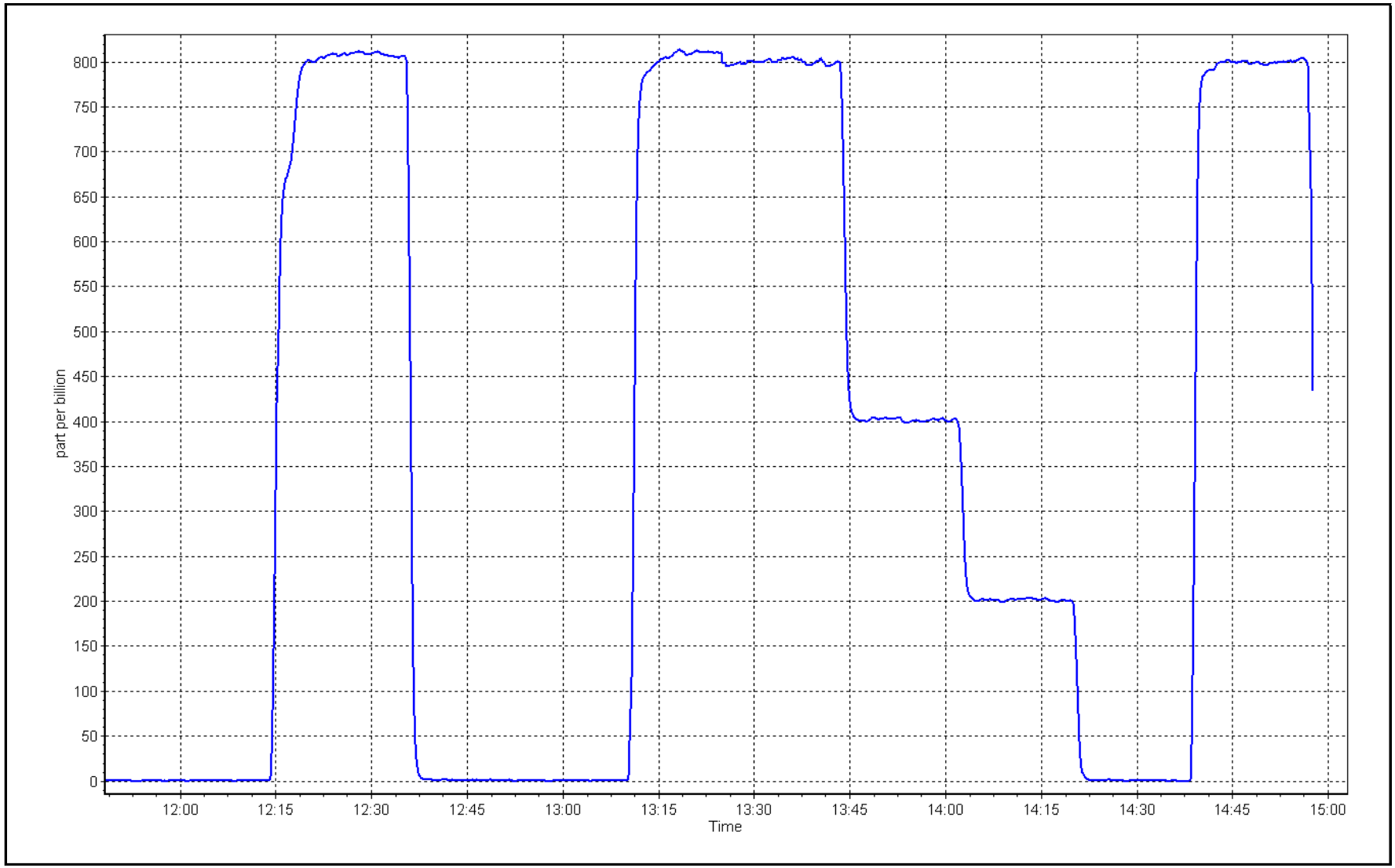
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
799.8	800.3	0.9994
399.9	401.3	0.9965
200.4	202.6	0.9893

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999994	*≥0.995*
Slope	0.999536	*0.90 - 1.10*
Intercept	1.283974	*+/-30*



SO2 Calibration Plot Date: May 9, 2025 Location: Janvier



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Janvier	Station number:	AMS 22
Calibration Date:	May 29, 2025	Last Cal Date:	April 29, 2025
Start time (MST):	11:27	End time (MST):	16:00
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.02	ppm	Cal Gas Exp Date:	November 15, 2026
Cal Gas Cylinder #:	CC424047			
Removed Cal Gas Conc:	5.02	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	3806
ZAG Make/Model:	Teledyne API T701		Serial Number:	691

Analyzer Information

Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1151680031
Converter make:	CDN-101		Converter serial #:	620
Analyzer Range	0 - 100 ppb		Converter Temp:	850 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.999093	1.007662	Backgd or Offset:	3.98	3.93
Calibration intercept:	0.140635	-0.059202	Coeff or Slope:	1.251	1.228

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	4920	79.7	80.0	82.9	0.962
As found Mid point	4960	39.8	40.0	41.6	0.954
As found Low point	4980	19.9	20.0	20.5	0.961
New cylinder response					

Baseline Corr As found:	83.2	Prev response:	80.09	*% change:	3.7%
Baseline Corr 2nd AF pt:	41.9	AF Slope:	1.040079	AF Intercept:	-0.218501
Baseline Corr 3rd AF pt:	20.8	AF Correlation:	0.999977	* = > +/-5% change initiates 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	4920	79.7	80.0	80.5	0.994
Mid point	4960	39.8	40.0	40.3	0.992
Low point	4980	19.9	20.0	20.2	0.989
As left zero	5000	0.0	0.0	0.0	----
As left span	4920	79.7	80.0	79.9	1.002
SO2 Scrubber Check	4920	79.8	798.0	0.2	----
Date of last scrubber change:				Ave Corr Factor	0.992
Date of last converter efficiency test:					

Notes: Changed the inlet filter after as founds. Scrubber test performed after zero point, no issues. Adjusted span only.

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

TRS Calibration Summary

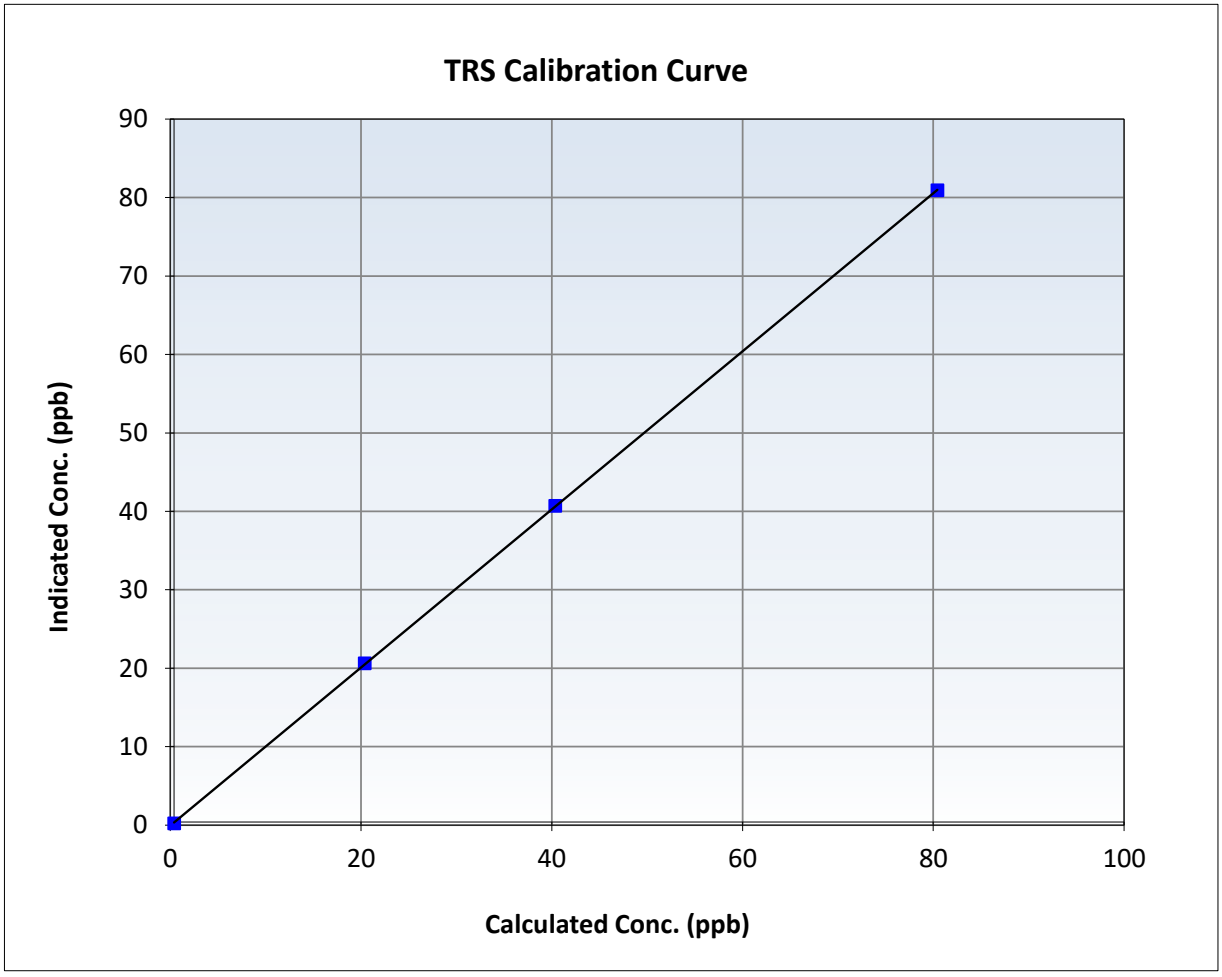
Station Information

Calibration Date:	May 29, 2025	Previous Calibration:	April 29, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:27	End Time (MST):	16:00
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1151680031

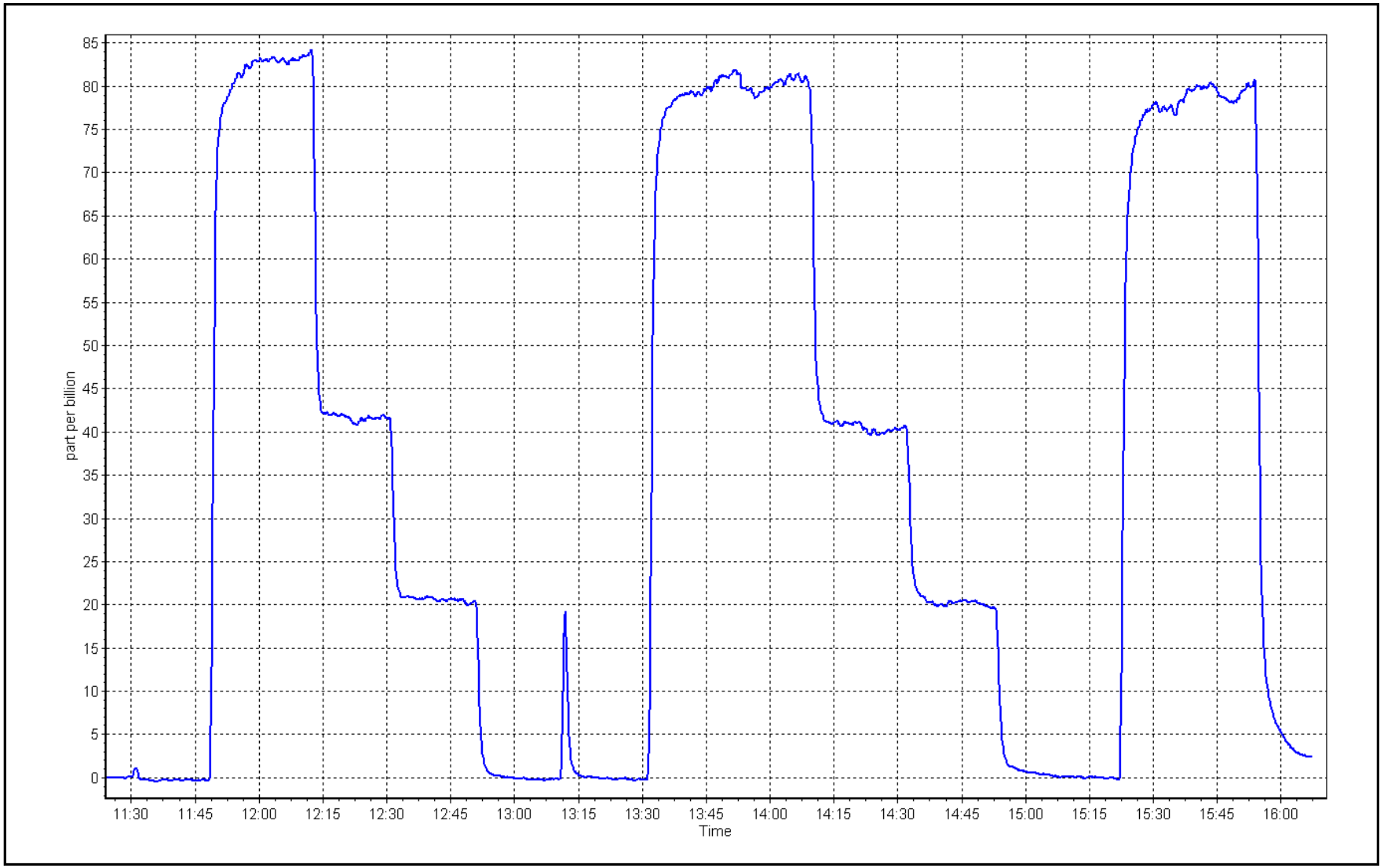
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
80.0	80.5	0.9941
40.0	40.3	0.9916
20.0	20.2	0.9891

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999986	*≥0.995*
Slope	1.007662	*0.90 - 1.10*
Intercept	-0.059202	*+/-3*



TRS Calibration Plot Date: May 29, 2025 Location: Janvier



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Janvier	Station number:	AMS 22
Calibration Date:	May 9, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	11:50	End time (MST):	14:56
Reason:	Routine		

Calibration Standards

Gas Cert Reference:		CC281519	Cal Gas Expiry Date:	January 18, 2029	
CH4 Cal Gas Conc.	502.8	ppm	CH4 Equiv Conc.	1075.9	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.	1075.9	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	

Analyzer Information

Analyzer make:	Thermo 55i		Analyzer serial #:	1317958219	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	2.54E-04	2.53E-04	NMHC SP Ratio:	6.12E-05	6.02E-05
CH4 Retention time:	11.6	11.6	NMHC Peak Area:	149432	152112
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	17.17	17.20	0.999
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	17.20	Prev response	17.16	*% change	0.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	17.17	17.15	1.002
Mid point	4960	39.9	8.59	8.46	1.015
Low point	4980	20.0	4.30	4.24	1.016
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	17.17	16.97	1.012
				Average Correction Factor	1.011

Notes: Changed the inlet filter and N2 cylinder after as founds. Adjusted span only.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.8	9.15	9.14	1.001
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.14	Prev response	9.14	*% change	0.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	9.15	9.11	1.004
Mid point	4960	39.9	4.57	4.51	1.014
Low point	4980	20.0	2.29	2.27	1.011
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	9.15	8.99	1.017
				Average Correction Factor	1.010

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	4920	79.8	8.03	8.06	0.996
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.06	Prev response	8.03	*% change	0.4%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4920	79.8	8.03	8.03	0.999
Mid point	4960	39.9	4.01	3.95	1.017
Low point	4980	20.0	2.01	1.97	1.021
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.03	7.98	1.006
				Average Correction Factor	1.013

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	1.001574	0.998871
THC Cal Offset:	-0.034204	-0.047389
CH4 Cal Slope:	1.003860	1.001481
CH4 Cal Offset:	-0.028964	-0.031359
NMHC Cal Slope:	0.999793	0.996343
NMHC Cal Offset:	-0.005640	-0.015829

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

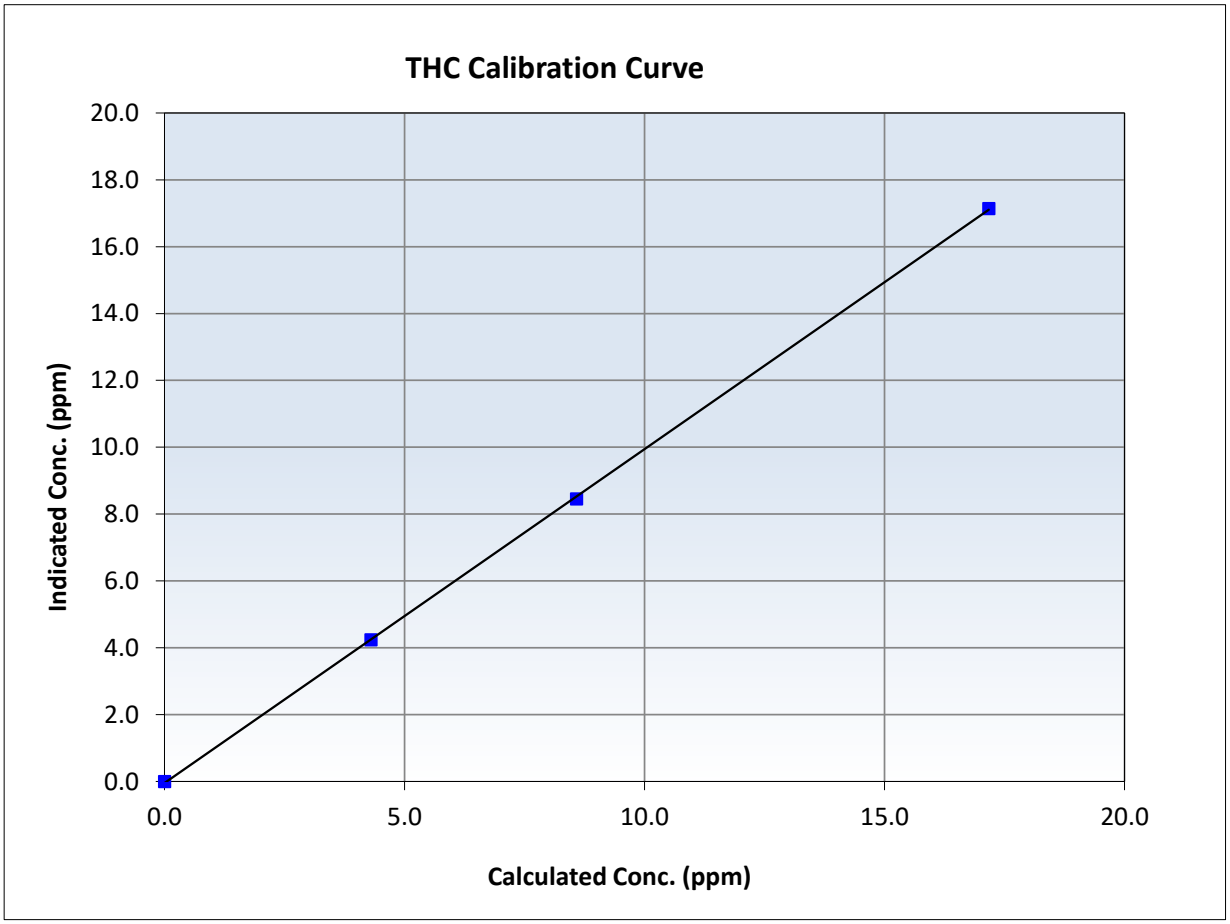
THC Calibration Summary

Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 11, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:50	End Time (MST):	14:56
Analyzer make:	Thermo 55i	Analyzer serial #:	1317958219

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999943	≥0.995
17.17	17.15	1.0016	Slope	0.998871	0.90 - 1.10
8.59	8.46	1.0152			
4.30	4.24	1.0160	Intercept	-0.047389	+/-0.5



Wood Buffalo Environmental Association

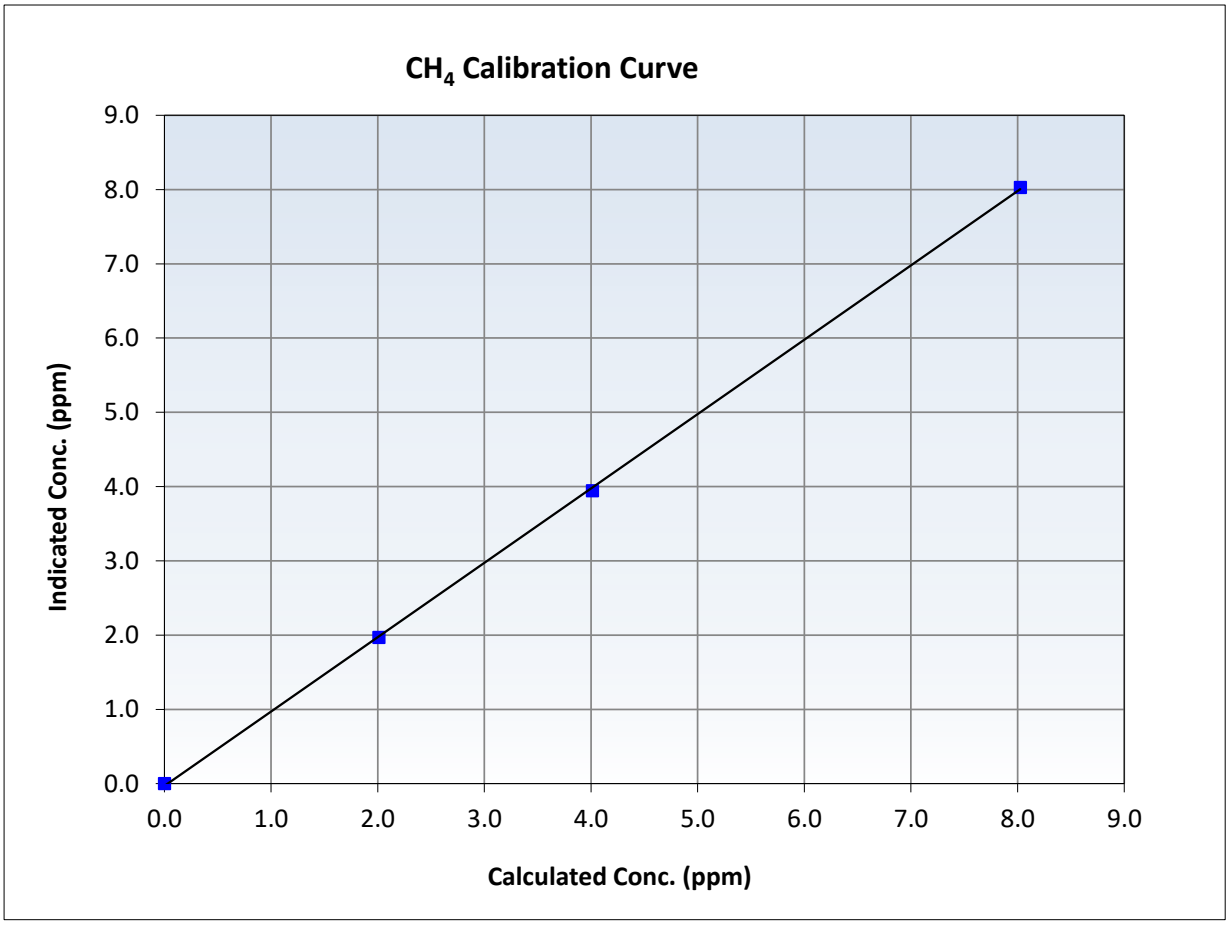
CH_4 Calibration Summary

Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 11, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:50	End Time (MST):	14:56
Analyzer make:	Thermo 55i	Analyzer serial #:	1317958219

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999900	*≥0.995*
8.03	8.03	0.9994	Slope	1.001481	*0.90 - 1.10*
4.01	3.95	1.0171			
2.01	1.97	1.0214	Intercept	-0.031359	*+/-0.5*



Wood Buffalo Environmental Association

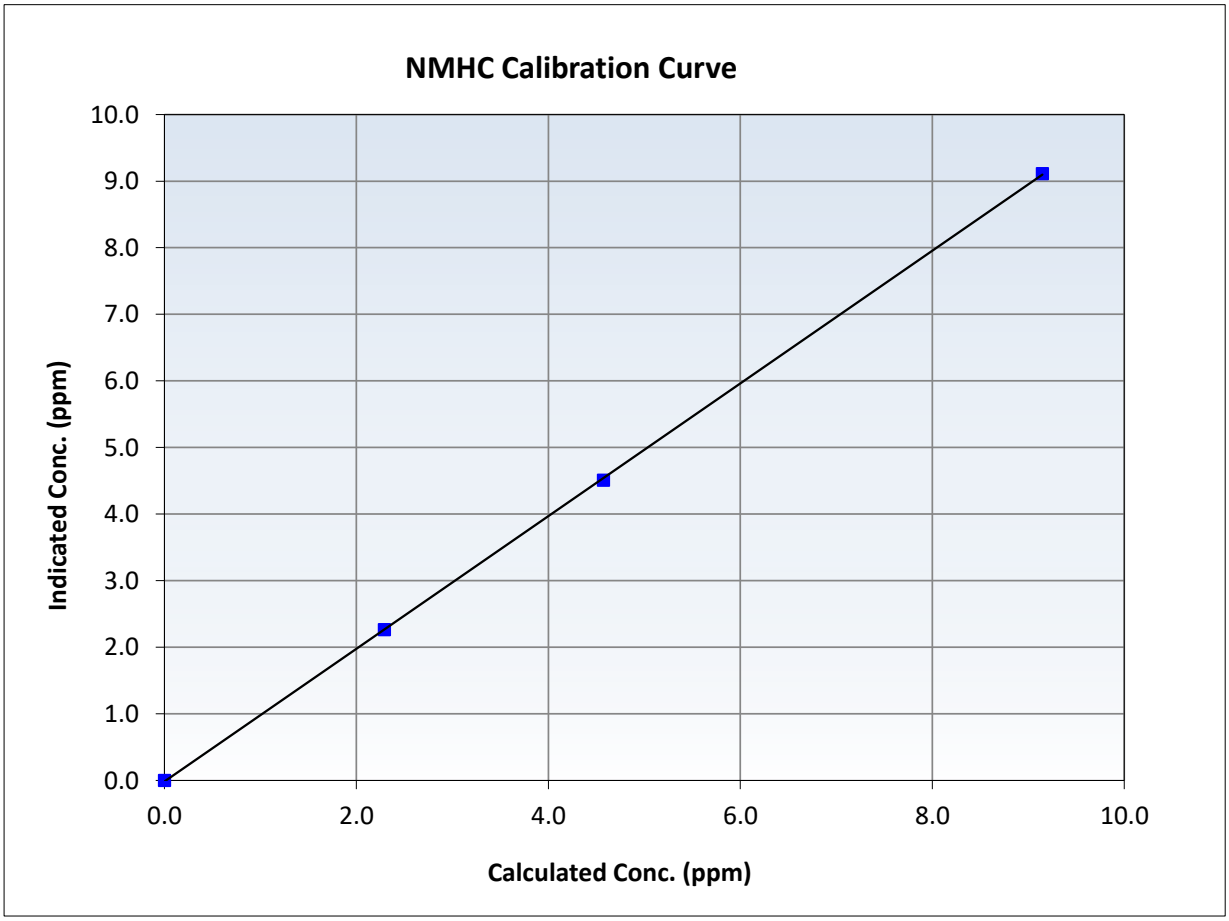
NMHC Calibration Summary

Station Information

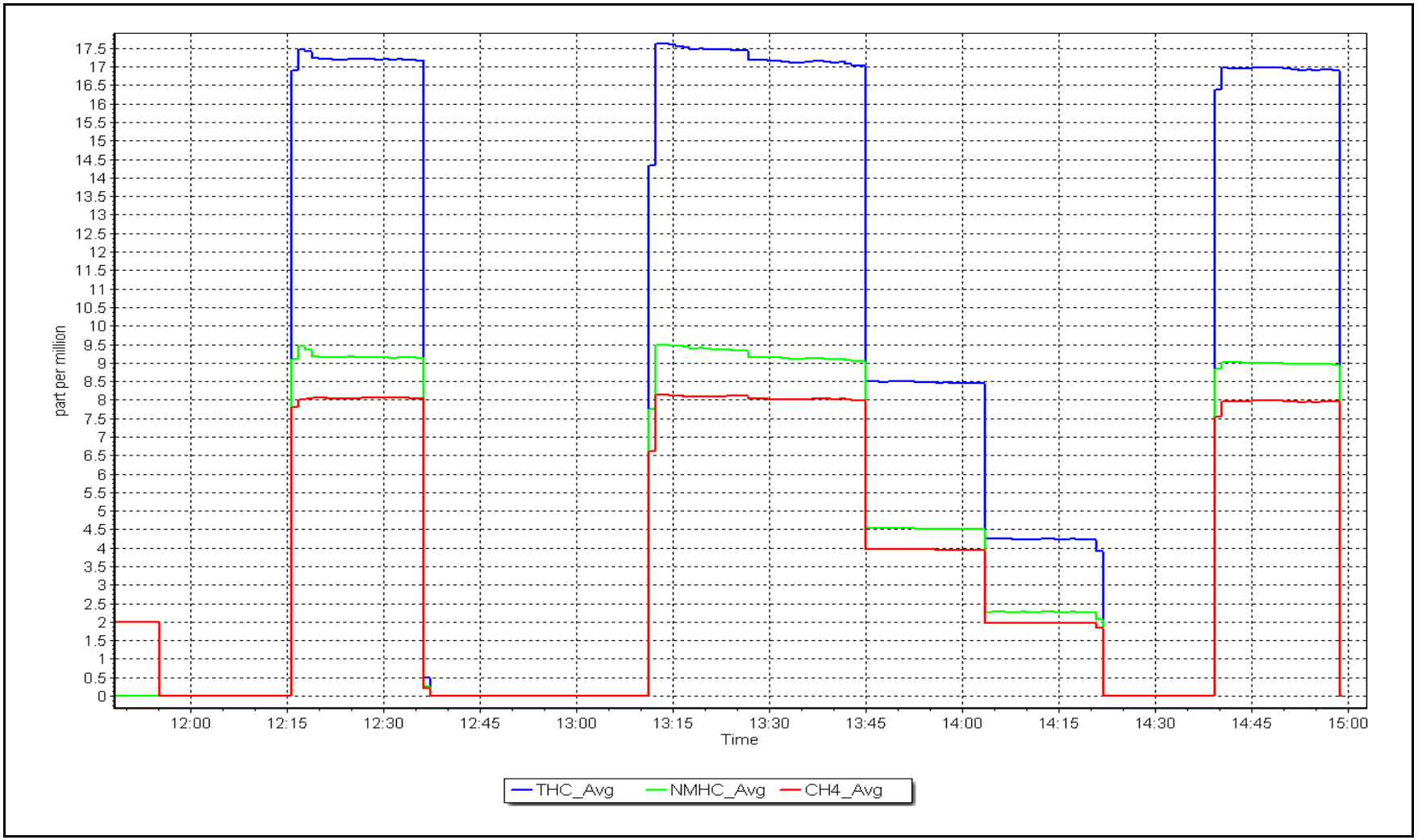
Calibration Date:	May 9, 2025	Previous Calibration:	April 11, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:50	End Time (MST):	14:56
Analyzer make:	Thermo 55i	Analyzer serial #:	1317958219

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999970	≥0.995
9.15	9.11	1.0037	Slope	0.996343	0.90 - 1.10
4.57	4.51	1.0138			
2.29	2.27	1.0112	Intercept	-0.015829	+/-0.5



NMHC Calibration Plot Date: May 9, 2025 Location: Janvier



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Janvier	Station number:	AMS 22
Calibration Date:	May 16, 2025	Last Cal Date:	May 9, 2025
Start time (MST):	11:16	End time (MST):	12:56
Reason:	Cylinder Change		

Calibration Standards

Gas Cert Reference:	CC281519		Cal Gas Expiry Date:	January 18, 2029	
CH4 Cal Gas Conc.	502.8	ppm	CH4 Equiv Conc.	1075.9	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.	1075.9	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	

Analyzer Information

Analyzer make:	Thermo 55i		Analyzer serial #:	1317958219	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	2.53E-04	2.53E-04	NMHC SP Ratio:	6.02E-05	6.02E-05
CH4 Retention time:	11.6	11.6	NMHC Peak Area:	152112	152112
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	17.17	16.92	1.015
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.92	Prev response	17.11	*% change	-1.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	17.17	16.84	1.020
				Average Correction Factor	

Notes: Changed the H2 cylinder after as founds.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4920	79.8	9.15	9.04	1.012
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.04	Prev response	9.10	*% change	-0.7%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	9.15	8.98	1.018
				Average Correction Factor	

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	4920	79.8	8.03	7.89	1.017
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.89	Prev response	8.01	*% change	-1.5%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

CH4 Calibration Data

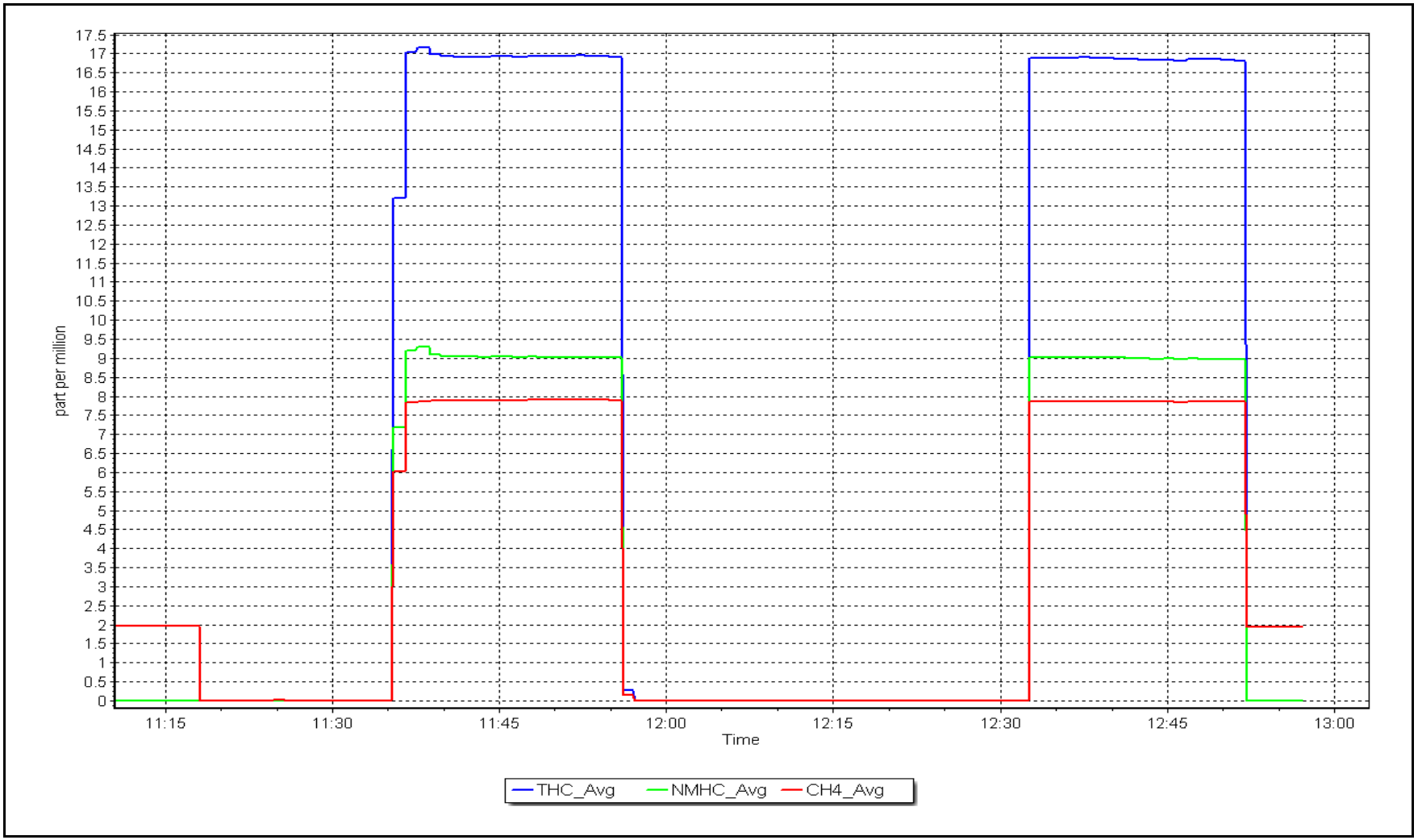
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero					
High point					
Mid point					
Low point					
As left zero	5000	0.0	0.00	0.00	----
As left span	4920	79.8	8.03	7.86	1.021
				Average Correction Factor	

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.998871	
THC Cal Offset:	-0.047389	
CH4 Cal Slope:	1.001481	
CH4 Cal Offset:	-0.031359	
NMHC Cal Slope:	0.996343	
NMHC Cal Offset:	-0.015829	

Calibration Performed By: Rene Chamberland

NMHC Calibration Plot Date: May 16, 2025 Location: Janvier



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Janvier
Station number:	AMS 22
Calibration Date:	May 28, 2025
Last Cal Date:	April 30, 2025
Start time (MST):	10:59
End time (MST):	15:32
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0047765	Cal Gas Expiry Date:	March 11, 2031
NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.80 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.80 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	3806
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	797.5	788.8	8.7	1.0053	1.0143
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 803.2 ppb	NO = 799.6 ppb
Baseline Corr 1st pt	NO_X = 797.7 ppb	NO = 789.0 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = -0.7%
As found	NO r^2:	*Percent Change	NO = -1.3%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1229254994

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.988	0.998	NO bkgnd or offset:	2.7	2.7
NOX coeff or slope:	0.998	0.998	NOX bkgnd or offset:	2.8	2.8
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	172.9	174.1

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.001321	1.001848
NO_X Cal Offset:	0.204103	0.444139
NO Cal Slope:	1.000003	1.000203
NO Cal Offset:	-0.716024	-1.036039
NO_2 Cal Slope:	1.004611	1.005193
NO_2 Cal Offset:	0.607262	1.321239

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	0.1	----	----
High point	4918	82.0	802.0	800.3	1.6	803.6	799.9	3.7	0.9980	1.0005
Mid point	4960	41.0	400.9	400.1	0.8	402.5	398.8	3.7	0.9960	1.0032
Low point	4980	20.5	200.5	200.1	0.4	201.6	197.9	3.7	0.9944	1.0109
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	394.2	407.8	803.6	394.2	409.4	0.9980	1.0000
								Average Correction Factor	0.9961	1.0049

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	0.1	----	----
High GPT point	797.4	392.3	406.7	409.6	0.9930	100.7%
Mid GPT point	797.4	597.2	201.8	204.7	0.9860	101.4%
Low GPT point	797.4	696.1	102.9	106.1	0.9702	103.1%
				Average Correction Factor	0.9831	101.7%

Notes: Inlet filter was changed after as founds. Adjusted the span.

Calibration Performed By: Rene Chamberland

Wood Buffalo Environmental Association

NO_X Calibration Summary

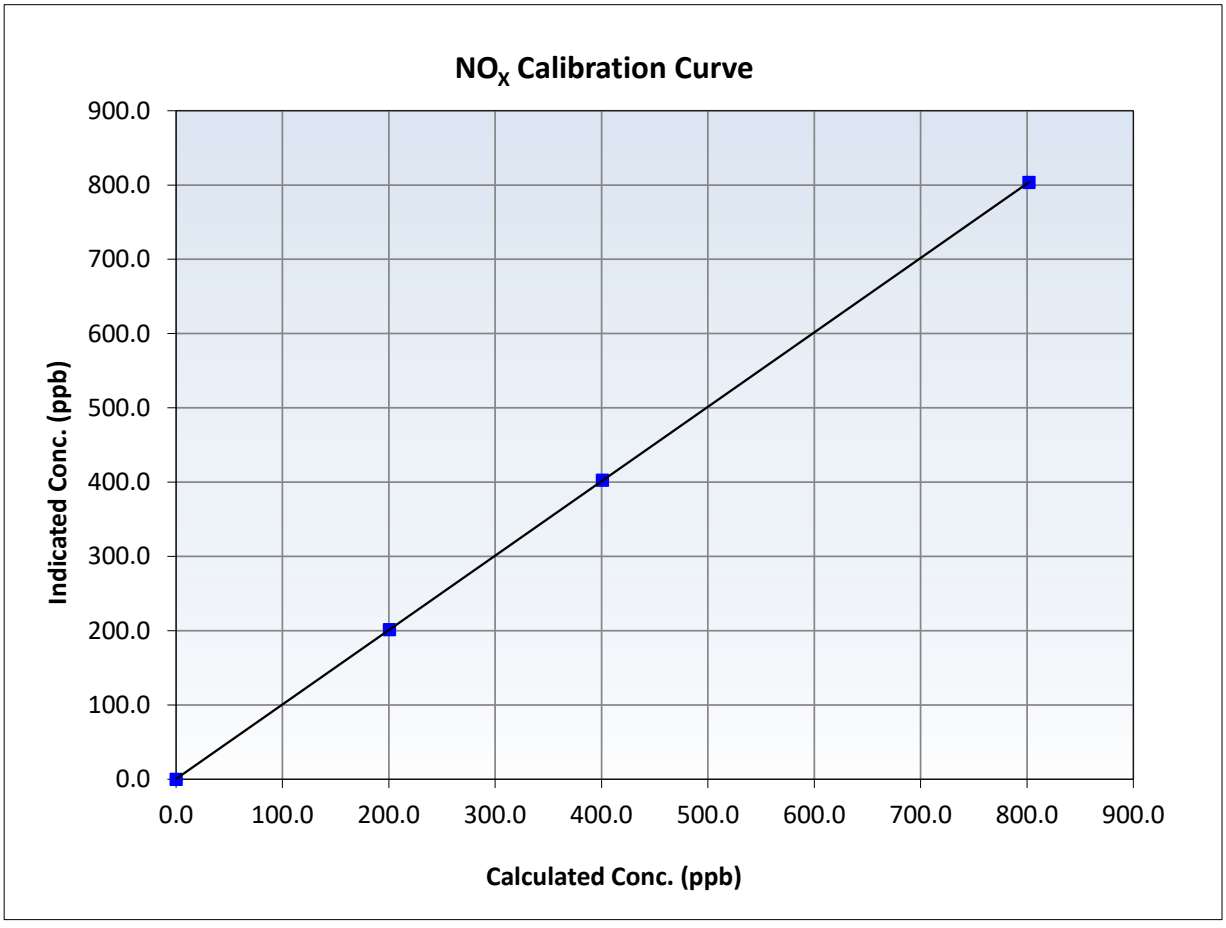
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 30, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	10:59	End Time (MST):	15:32
Analyzer make:	Thermo 42i	Analyzer serial #:	1229254994

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
802.0	803.6	0.9980
400.9	402.5	0.9960
200.5	201.6	0.9944

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999998	*≥0.995*
Slope	1.001848	*0.90 - 1.10*
Intercept	0.444139	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

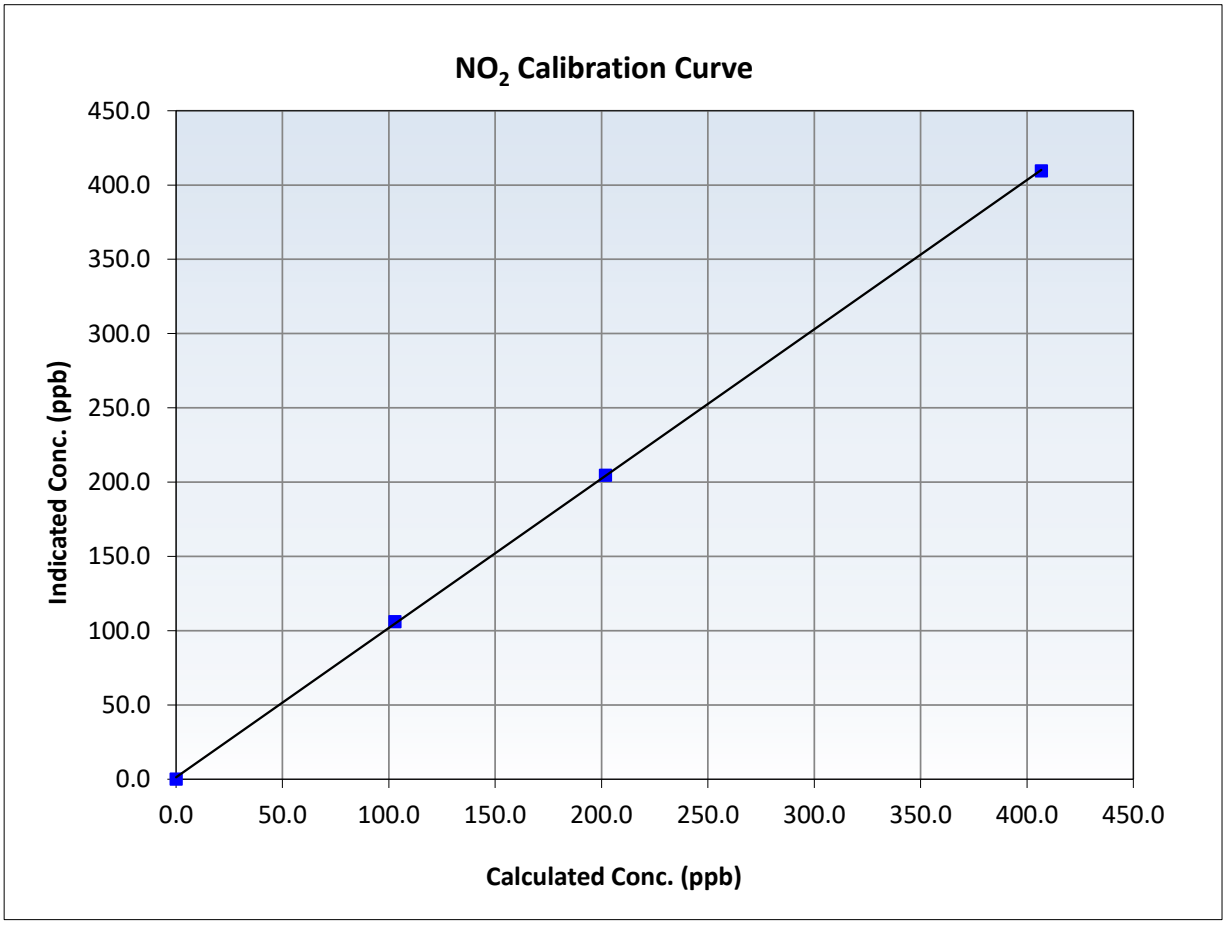
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 30, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	10:59	End Time (MST):	15:32
Analyzer make:	Thermo 42i	Analyzer serial #:	1229254994

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
406.7	409.6	0.9930
201.8	204.7	0.9860
102.9	106.1	0.9702

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999959	*≥0.995*
Slope	1.005193	*0.90 - 1.10*
Intercept	1.321239	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

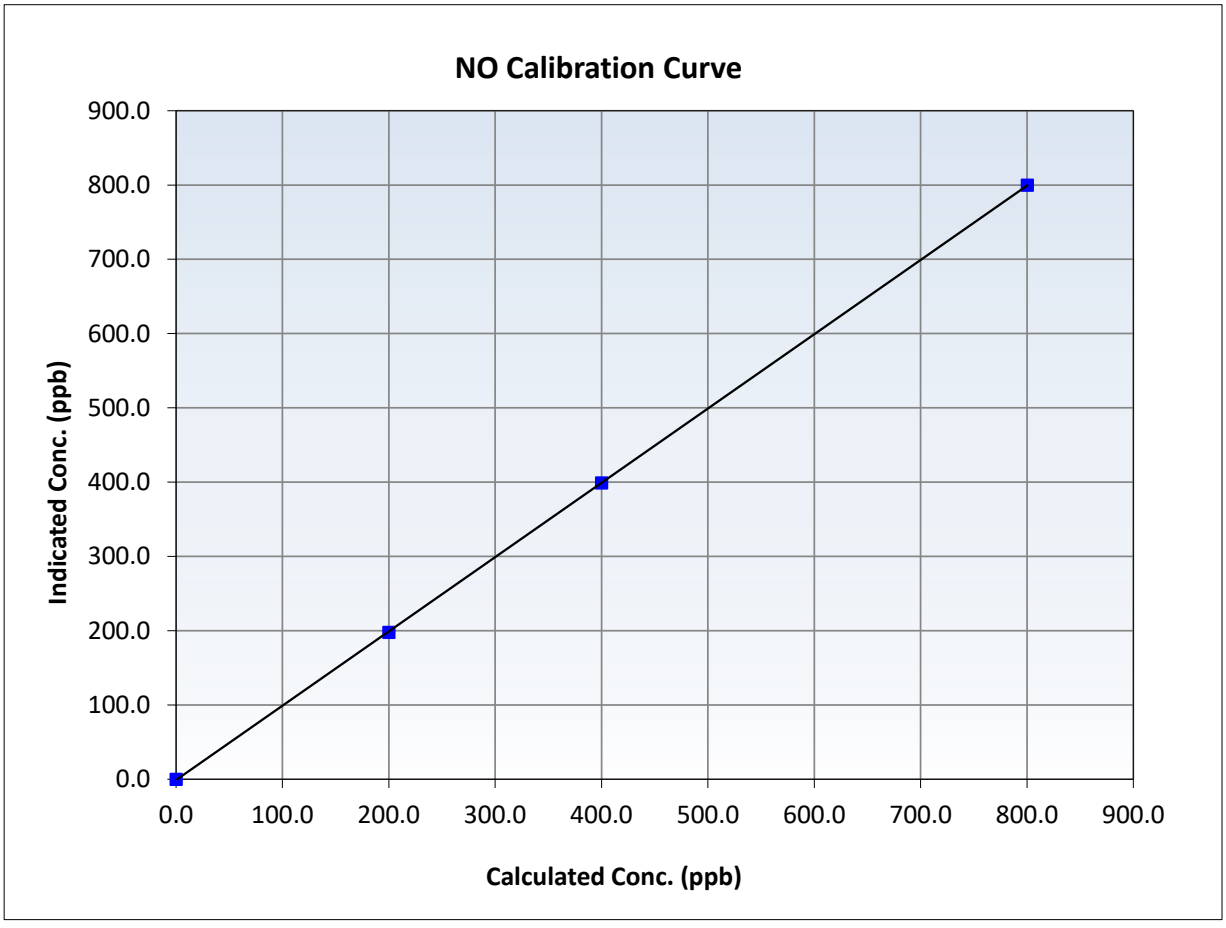
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 30, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	10:59	End Time (MST):	15:32
Analyzer make:	Thermo 42i	Analyzer serial #:	1229254994

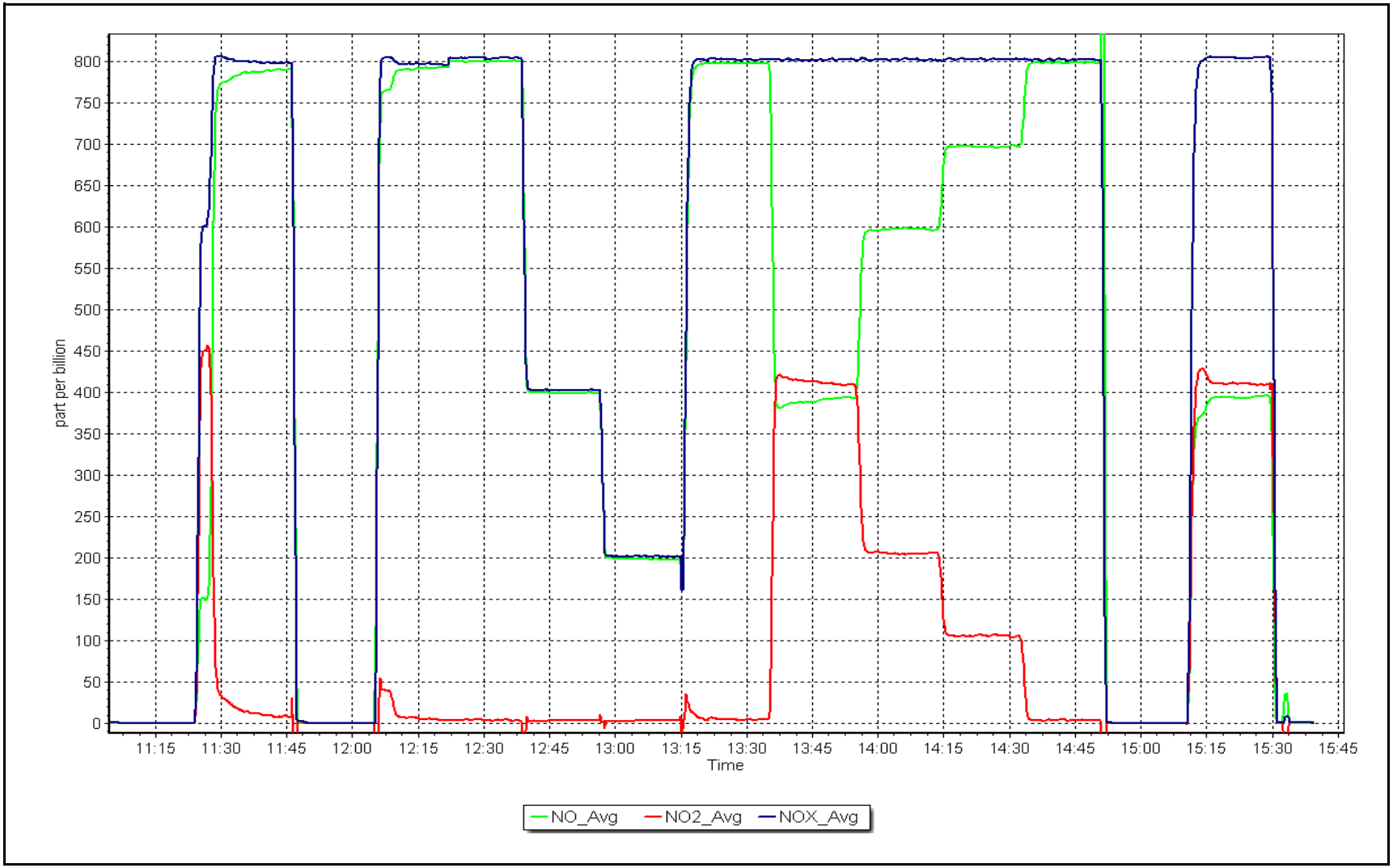
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
800.3	799.9	1.0005
400.1	398.8	1.0032
200.1	197.9	1.0109

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999992	*≥0.995*
Slope	1.000203	*0.90 - 1.10*
Intercept	-1.036039	*+/-20*



NO_X Calibration Plot Date: May 28, 2025 Location: Janvier



Wood Buffalo Environmental Association

O_3 Calibration Report

Station Information

Station Name:	Janvier	Station number:	AMS 22
Calibration Date:	May 27, 2025	Last Cal Date:	April 22, 2025
Start time (MST):	11:38	End time (MST):	14:32
Reason:	Routine		

Calibration Standards

O3 generation mode:	Photometer		
Calibrator Make/Model:	Teledyne API T700	Serial Number:	3806
ZAG Make/Model:	Teledyne API T701H	Serial Number:	691

Analyzer Information

Analyzer make:	Teledyne API T400	Analyzer serial #:	7046
Analyzer Range	0 - 500 ppb		

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.996029	0.994829	Backgd or Offset:	1.5	1.5
Calibration intercept:	1.320000	1.480000	Coeff or Slope:	1.011	1.011

O_3 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	-0.6	----
As found High point	5000	926.2	400.0	399.3	1.000
As found Mid point					
As found Low point					
Baseline Corr As found:	399.9	Previous response	399.7	*% change	0.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

O_3 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	926.2	400.0	398.8	1.003
Mid point	5000	768.9	200.0	200.9	0.996
Low point	5000	666.4	100.0	102.5	0.976
As left zero	5000	800.0	0.0	0.3	----
As left span	5000	926.2	400.0	401.2	0.997
				Average Correction Factor	0.991

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

Calibration Performed By: Caiden Morice, Louis Janvier, Rene Chamberland

Wood Buffalo Environmental Association

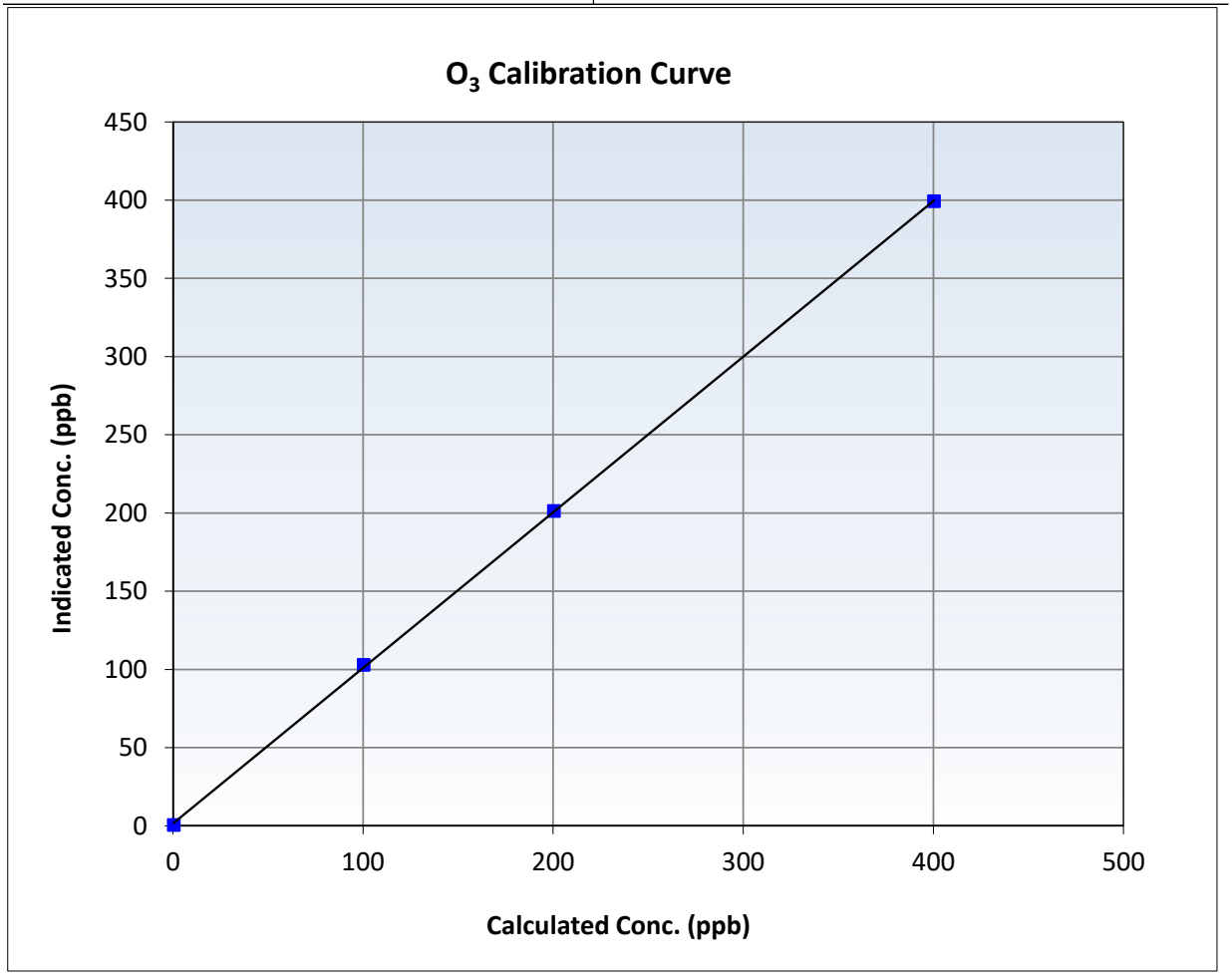
O_3 Calibration Summary

Station Information

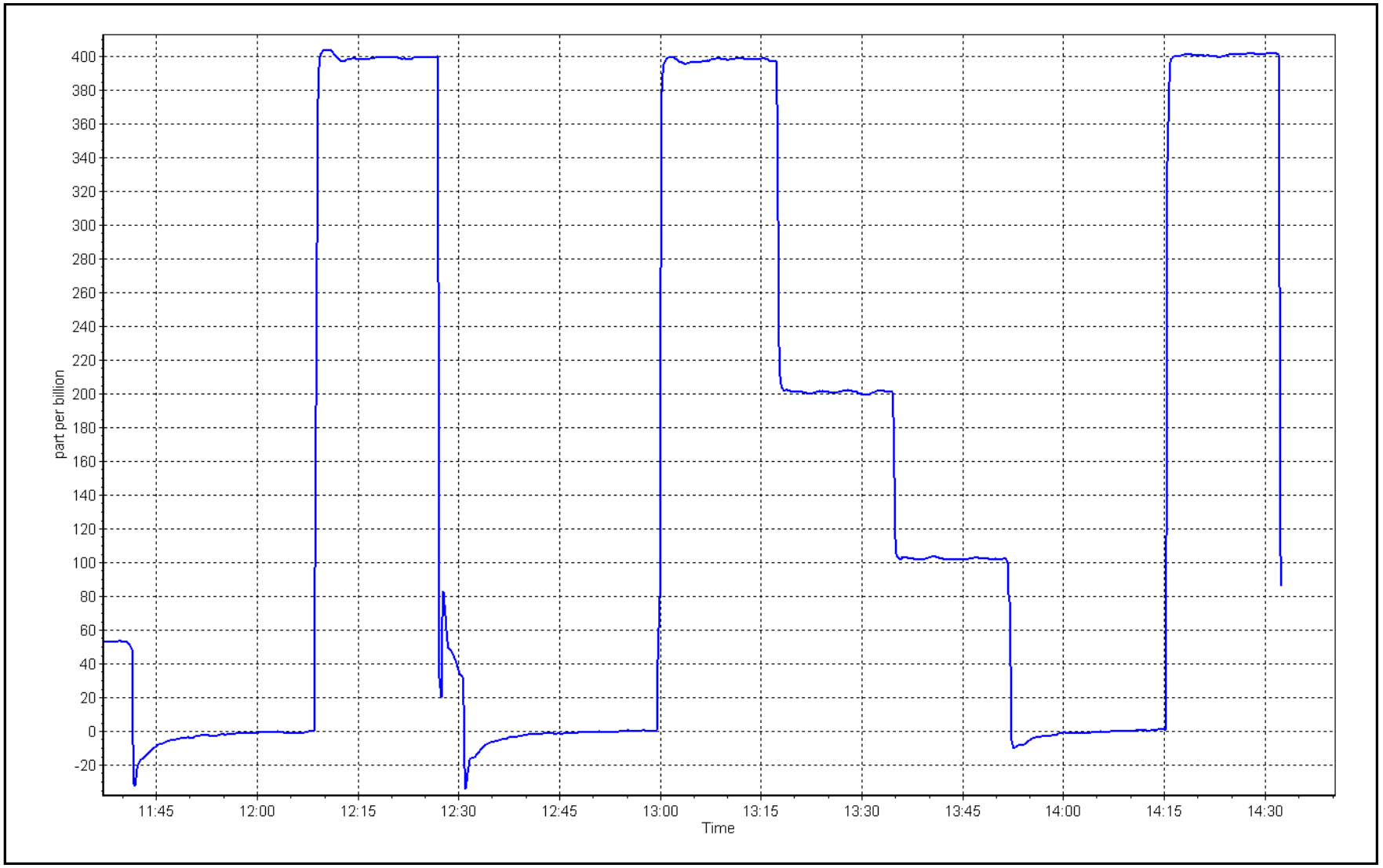
Calibration Date:	May 27, 2025	Previous Calibration:	April 22, 2025
Station Name:	Janvier	Station Number:	AMS 22
Start Time (MST):	11:38	End Time (MST):	14:32
Analyzer make:	Teledyne API T400	Analyzer serial #:	7046

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.0	0.1	----	Correlation Coefficient	0.999944	≥0.995
400.0	398.8	1.0030	Slope	0.994829	0.90 - 1.10
200.0	200.9	0.9955			
100.0	102.5	0.9756	Intercept	1.480000	+/- 5



O_3 Calibration Plot Date: May 27, 2025 Location: Janvier



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Janvier	Station number:	AMS 22
Calibration Date:	May 28, 2025	Last Cal Date:	April 30, 2025
Start time (MST):	11:14	End time (MST):	13:01
Analyzer Make:	Teledyne API T640	S/N:	325
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388754
Temp/RH standard:	Alicat FP-25BT	S/N:	388754

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	26.9	26.83	26.9	☐	+/- 2 °C
P (mmHg)	718.9	720.15	718.9	☐	+/- 10 mmHg
Flow (LPM)	5.01	5.034	5.01	☐	+/- 0.25 LPM
PW% (pump)	34	-----	34	☐	>80%
Zero Verification	PM w/o HEPA:	1.8	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: June 10, 2024 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test	11.1	11.8	10.9	☑	10.9 +/- 0.5

Date Optical Chamber Cleaned: May 28, 2025

Date Disposable Filter Changed: May 28, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: May 28, 2025

Date RH/T Sensor Cleaned: May 28, 2025

Notes: Verified flow, temperature, and pressure. Leak checks passed. PMT peak voltage adjusted. Optical chamber and RH/T sensor cleaned. Disposable filter changed.

Calibration by: Rene Chamberland

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS23
FORT HILLS
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Fort Hills	Station number:	AMS 23
Calibration Date:	May 22, 2025	Last Cal Date:	April 17, 2025
Start time (MST):	8:20	End time (MST):	10:50
Reason:	Routine		

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:	1222
Zero Air Gen Model:	API T701		Serial Number:	1117

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1160290012	
Analyzer Range:	0-1000ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.998705	1.000076	Backgd or Offset:	18.9	19.0
Calibration intercept:	0.080120	-0.299485	Coeff or Slope:	1.071	1.092

SO_2 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	4921	79.4	799.5	781.1	1.024
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	780.8	Previous response	798.5	*% change	-2.3%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	79.4	799.5	799.6	1.000
Mid point	4960	39.7	399.8	399.0	1.002
Low point	4980	19.8	199.4	198.8	1.003
As left zero	5000	0.0	0.0	0.1	----
As left span	4921	79.4	799.5	801.0	0.998
				Average Correction Factor:	1.002

Notes: No Maintenance done. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

SO_2 Calibration Summary

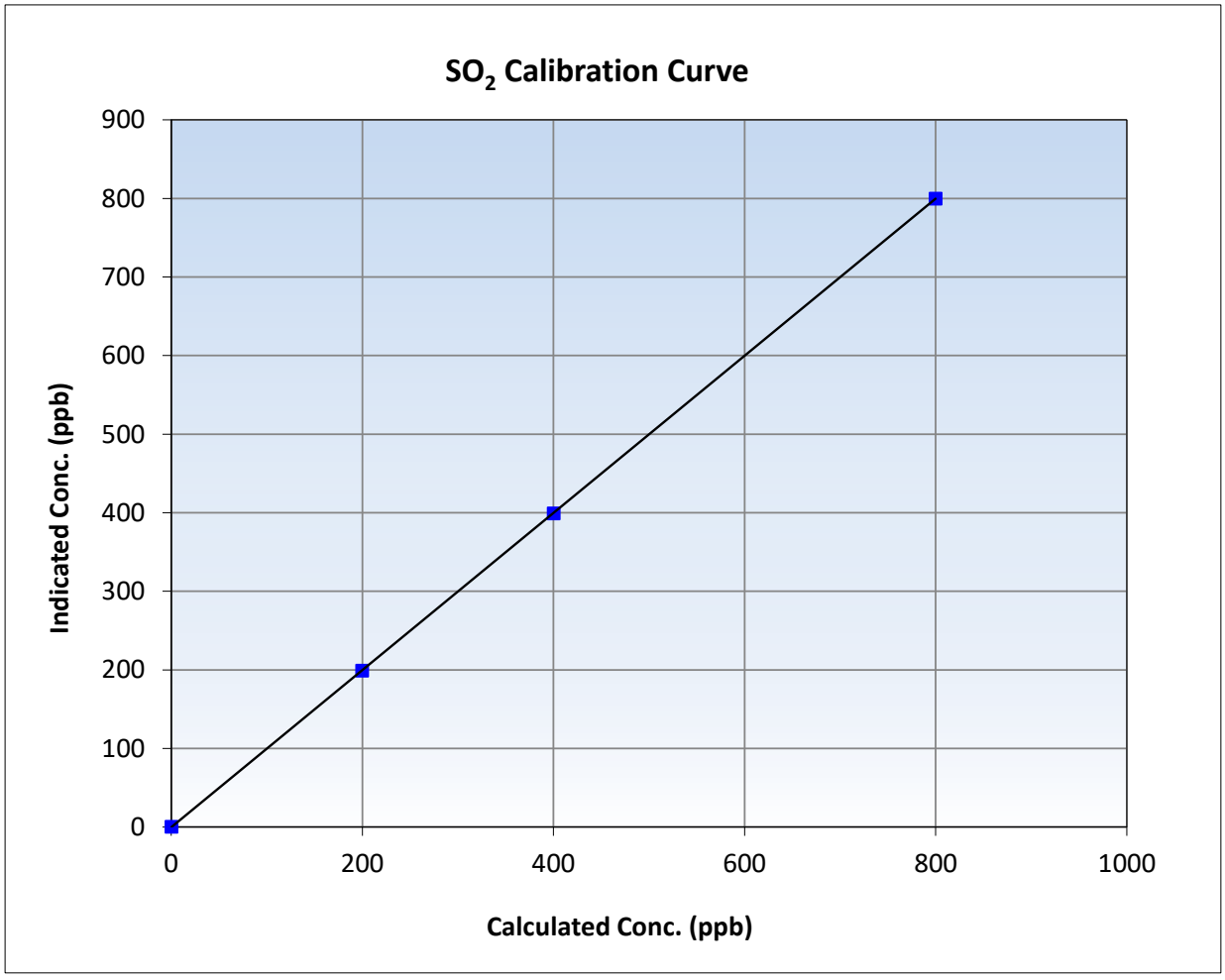
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	8:20	End Time (MST):	10:50
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290012

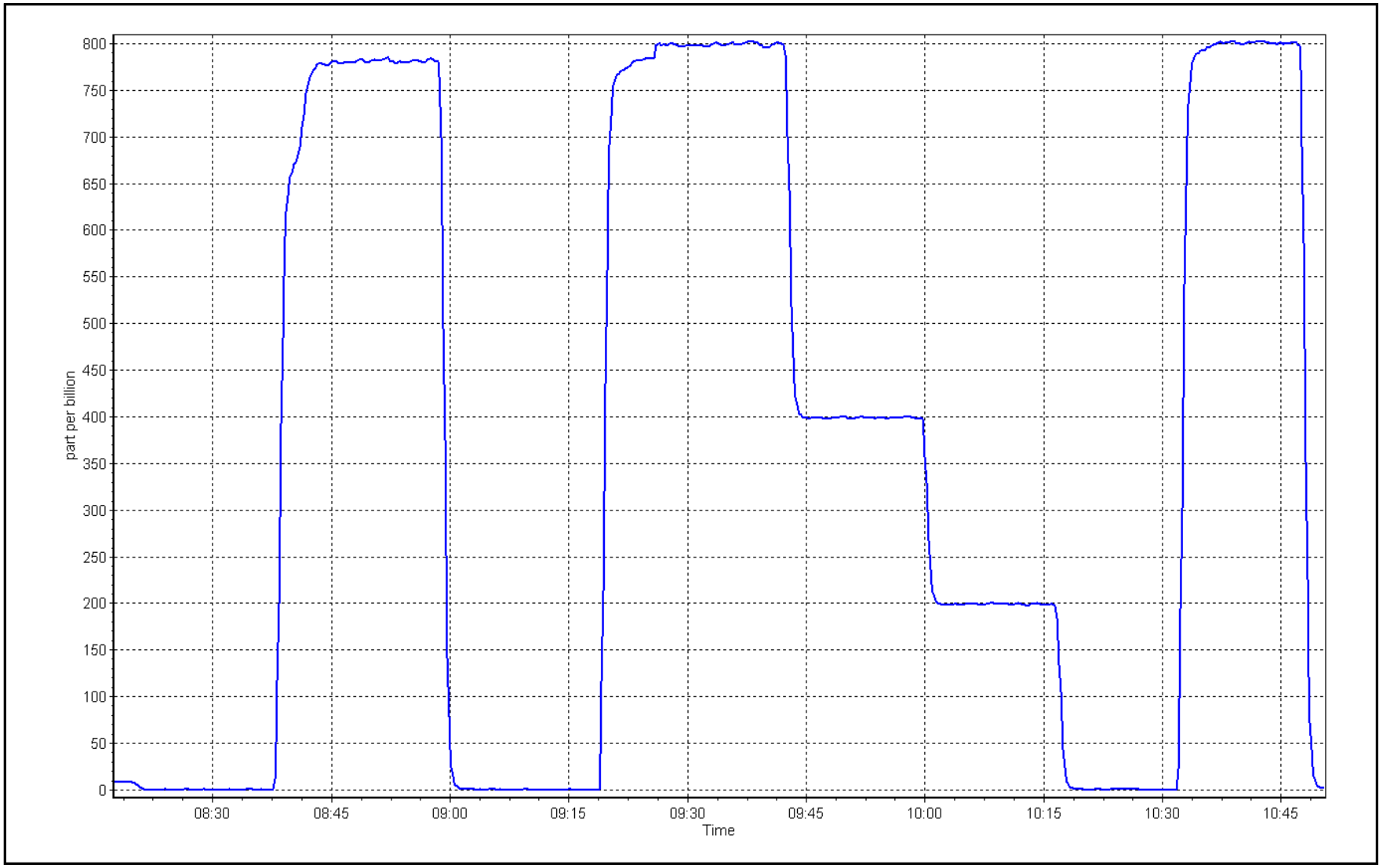
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
799.5	799.6	0.9999
399.8	399.0	1.0020
199.4	198.8	1.0030

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999998	*≥0.995*
Slope	1.000076	*0.90 - 1.10*
Intercept	-0.299485	*+/-30*



SO2 Calibration Plot Date: May 22, 2025 Location: Fort Hills



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Fort Hills	Station number:	AMS 23
Calibration Date:	May 21, 2025	Last Cal Date:	April 16, 2025
Start time (MST):	7:16	End time (MST):	10:43
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.84	ppm	Cal Gas Exp Date:	August 28, 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:	1222
ZAG Make/Model:	API T701		Serial Number:	1117

Analyzer Information

Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1300156232	
Converter make:	CDN-101		Converter serial #:	594	
Analyzer Range	0 - 100 ppb		Converter Temp:	800	degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.002388	1.004530	Backgd or Offset:	2.06	1.99
Calibration intercept:	-0.078072	-0.078031	Coeff or Slope:	1.160	1.137

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	4917	82.6	80.0	81.2	0.984
As found Mid point	4959	41.3	40.0	40.4	0.987
As found Low point	4979	20.7	20.0	20.1	0.992
New cylinder response					

Baseline Corr As found:	81.3	Prev response:	80.08	*% change:	1.5%
Baseline Corr 2nd AF pt:	40.5	AF Slope:	1.017256	AF Intercept:	-0.198356
Baseline Corr 3rd AF pt:	20.2	AF Correlation:	0.999993	* = > +/-5% change initiates 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	80.2	0.997
Mid point	4959	41.3	40.0	40.3	0.992
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	80.7	0.991
SO2 Scrubber Check	4920	80.3	803.0	-0.1	----
Date of last scrubber change:				Ave Corr Factor	1.000
Date of last converter efficiency test:		March 13, 2024		110.3%	efficiency

Notes: SOx scrubber checked after the calibrator zero. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

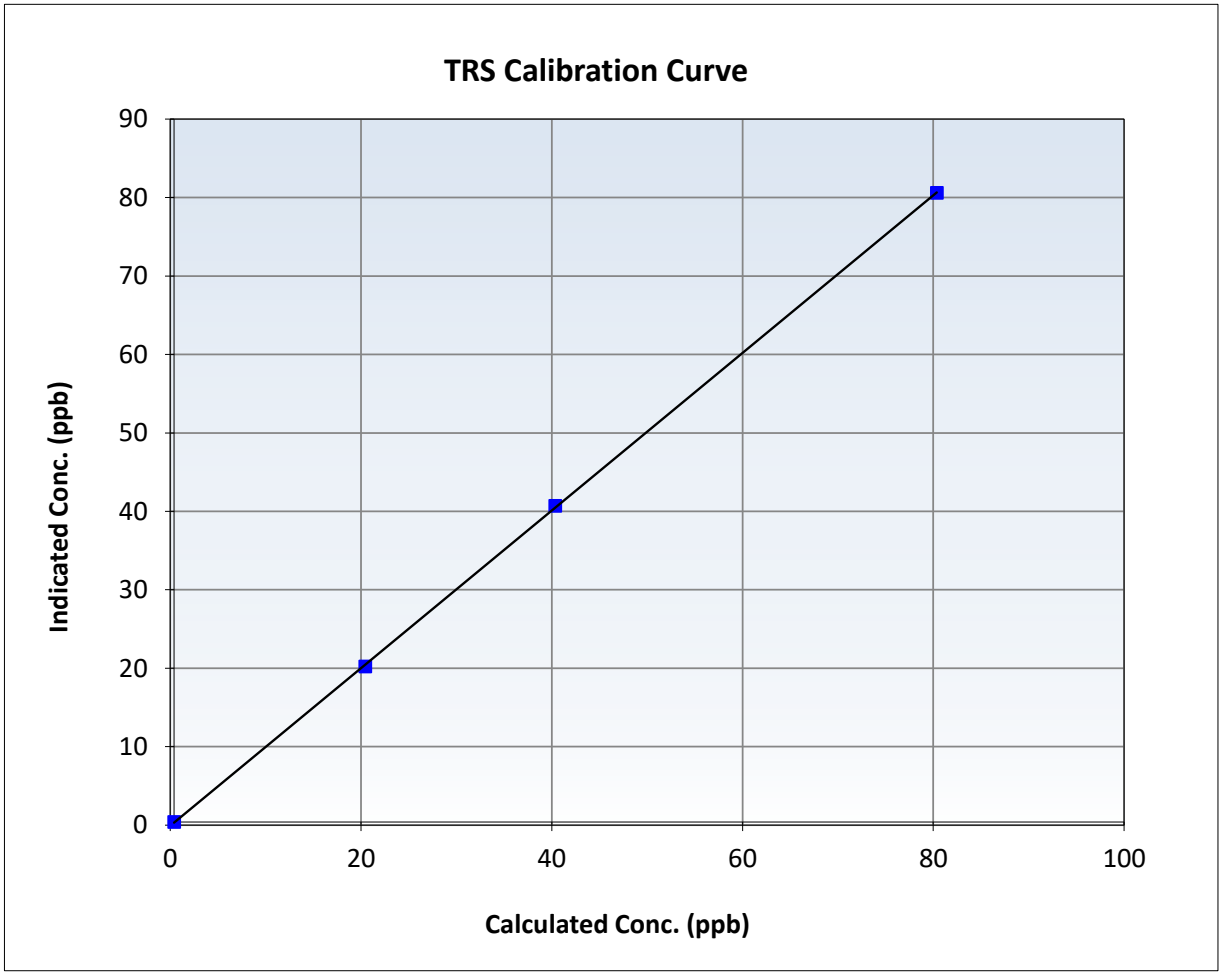
TRS Calibration Summary

Station Information

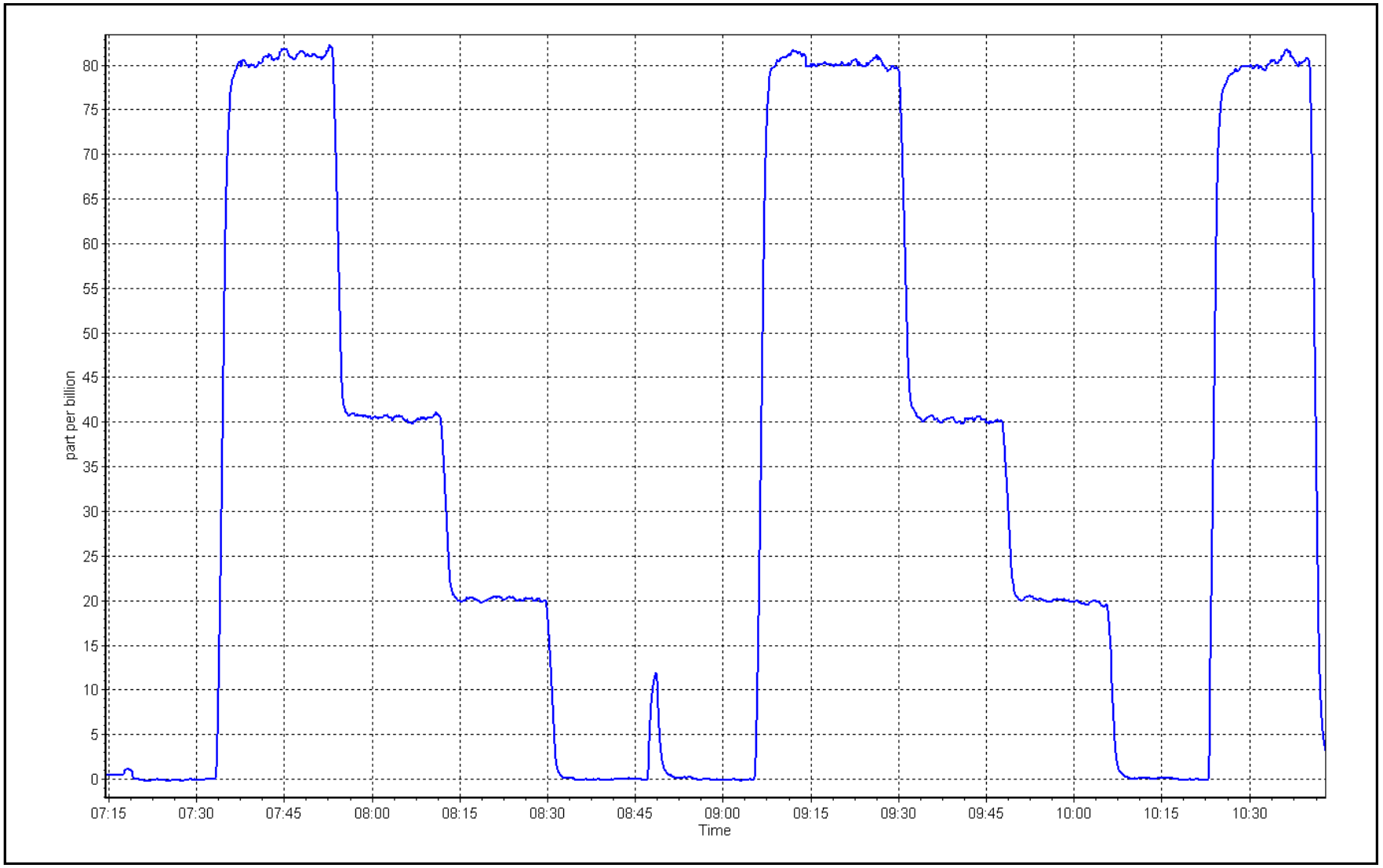
Calibration Date:	May 21, 2025	Previous Calibration:	April 16, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	7:16	End Time (MST):	10:43
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1300156232

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.0	----	Correlation Coefficient	0.999966	*≥0.995*
80.0	80.2	0.9970	Slope	1.004530	*0.90 - 1.10*
40.0	40.3	0.9920			
20.0	19.8	1.0121	Intercept	-0.078031	*+/-3*



TRS Calibration Plot Date: May 21, 2025 Location: Fort Hills



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Fort Hills	Station number:	AMS 23
Calibration Date:	May 22, 2025	Last Cal Date:	April 17, 2025
Start time (MST):	8:20	End time (MST):	10:49
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:	1222
Zero Air Gen model:	API T701	Serial Number:	1117

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	3.55E-04	3.65E-04	NMHC SP Ratio:	5.42E-05	5.51E-05
CH4 Retention time:	15.2	15.2	NMHC Peak Area:	164497	161613
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	16.68	1.014
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.68	Prev response	16.88	*% change	-1.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	79.4	16.92	16.84	1.005
Mid point	4960	39.7	8.46	8.36	1.012
Low point	4980	19.8	4.22	4.20	1.006
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.4	16.92	16.81	1.006
				Average Correction Factor	1.008

Notes: No maintenance done. Span adjusted.

Wood Buffalo Environmental Association

THC / CH_4 / 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	79.4	8.91	8.83	1.009
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.83	Prev response	8.95	*% change	-1.3%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	8.87	1.005
Mid point	4960	39.7	4.46	4.43	1.007
Low point	4980	19.8	2.22	2.23	0.995
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.4	8.91	8.85	1.008
				Average Correction Factor	1.003

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	4921	79.4	8.01	7.85	1.020
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	7.85	Prev response	7.94	*% change	-1.1%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4921	79.4	8.01	7.98	1.004
Mid point	4960	39.7	4.00	3.93	1.018
Low point	4980	19.8	2.00	1.96	1.018
As left zero	5000	0.0	0.00	0.00	----
As left span	4921	79.4	8.01	7.97	1.005
				Average Correction Factor	1.013

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.998551	0.995073
THC Cal Offset:	-0.012778	-0.014789
CH4 Cal Slope:	0.993810	0.996307
CH4 Cal Offset:	-0.020604	-0.021599
NMHC Cal Slope:	1.003055	0.993747
NMHC Cal Offset:	0.006627	0.007409

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

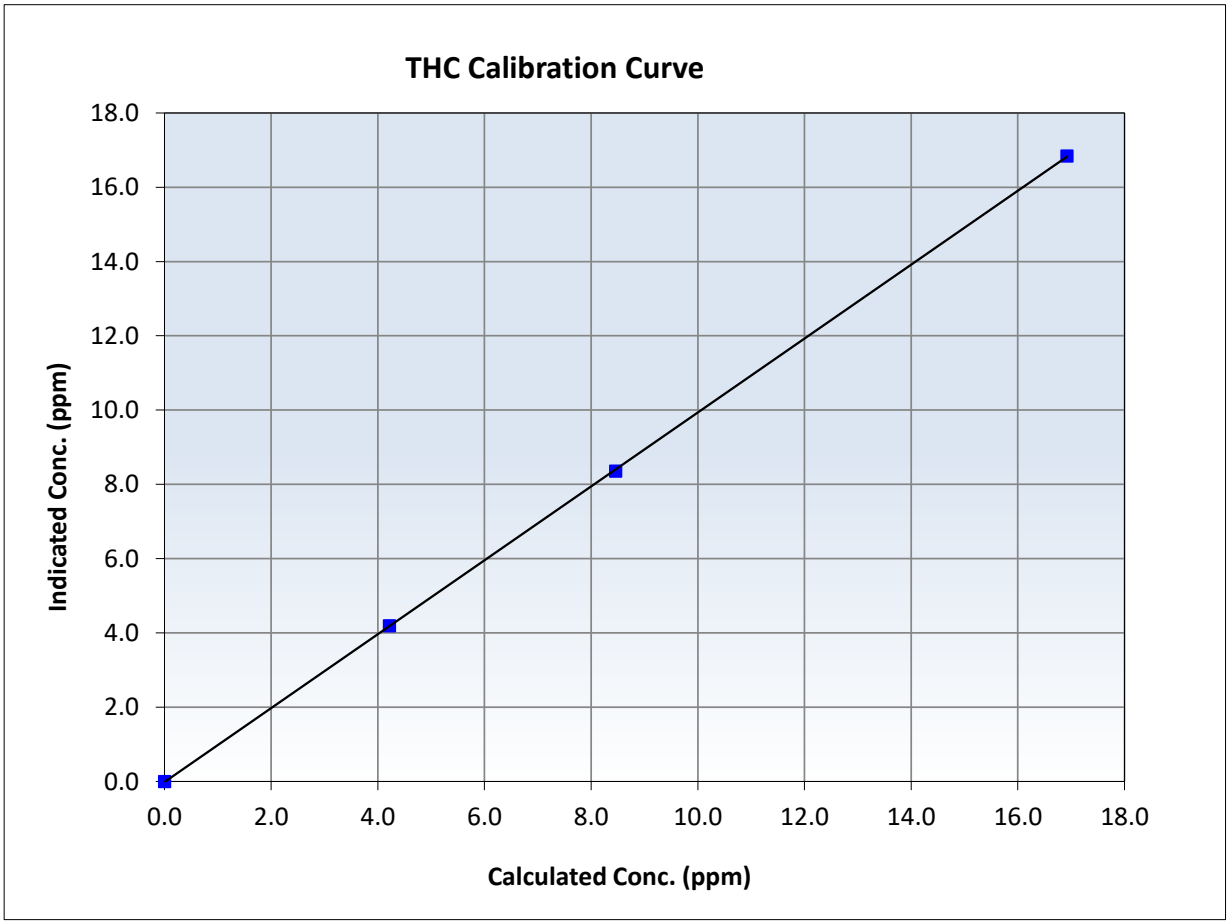
THC Calibration Summary

Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	8:20	End Time (MST):	10:49
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999982	≥0.995
16.92	16.84	1.0046	Slope	0.995073	0.90 - 1.10
8.46	8.36	1.0122	Intercept	-0.014789	+/-0.5
4.22	4.20	1.0059			



Wood Buffalo Environmental Association

CH_4 Calibration Summary

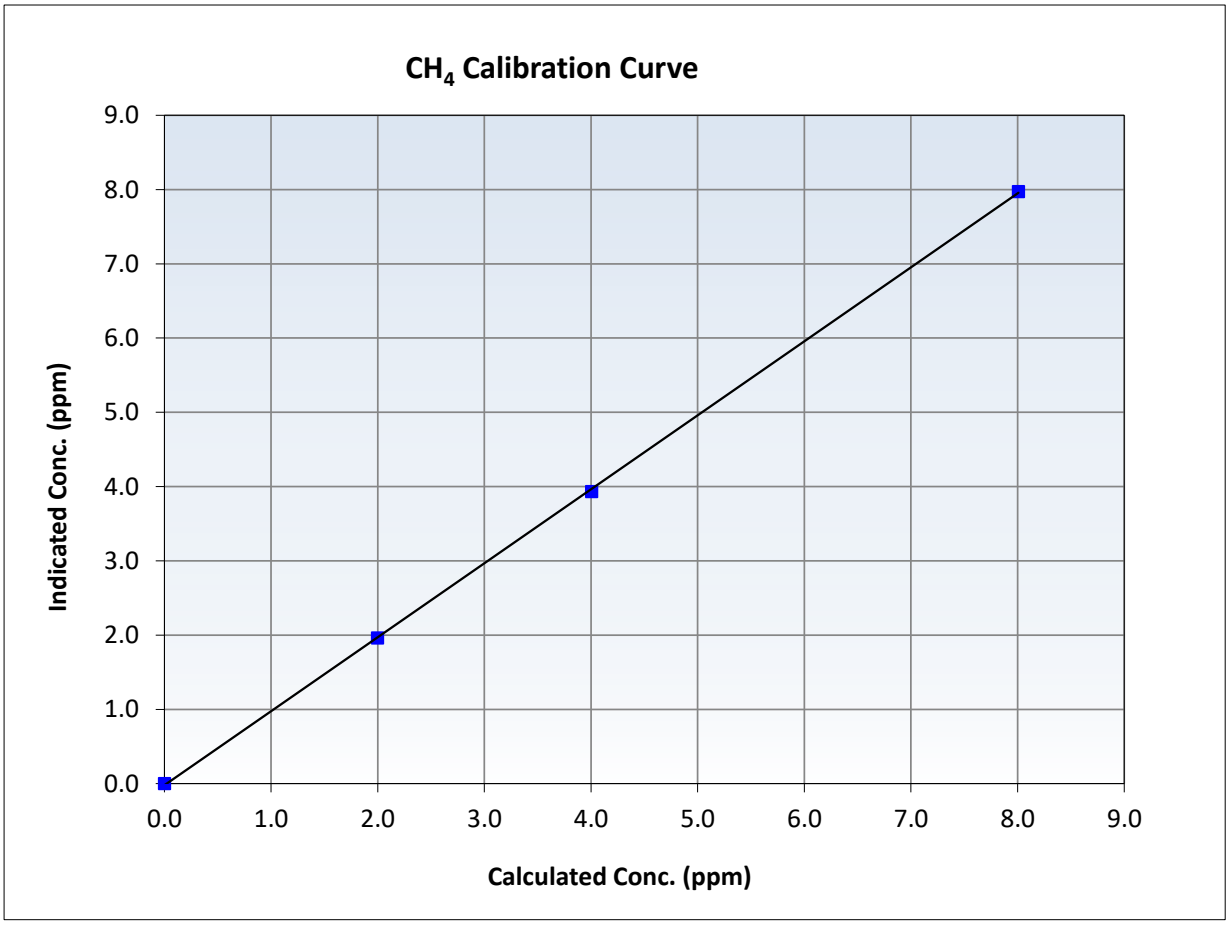
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	8:20	End Time (MST):	10:49
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.01	7.98	1.0041
4.00	3.93	1.0179
2.00	1.96	1.0179

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999942	*≥0.995*
Slope	0.996307	*0.90 - 1.10*
Intercept	-0.021599	*+/-0.5*



Wood Buffalo Environmental Association

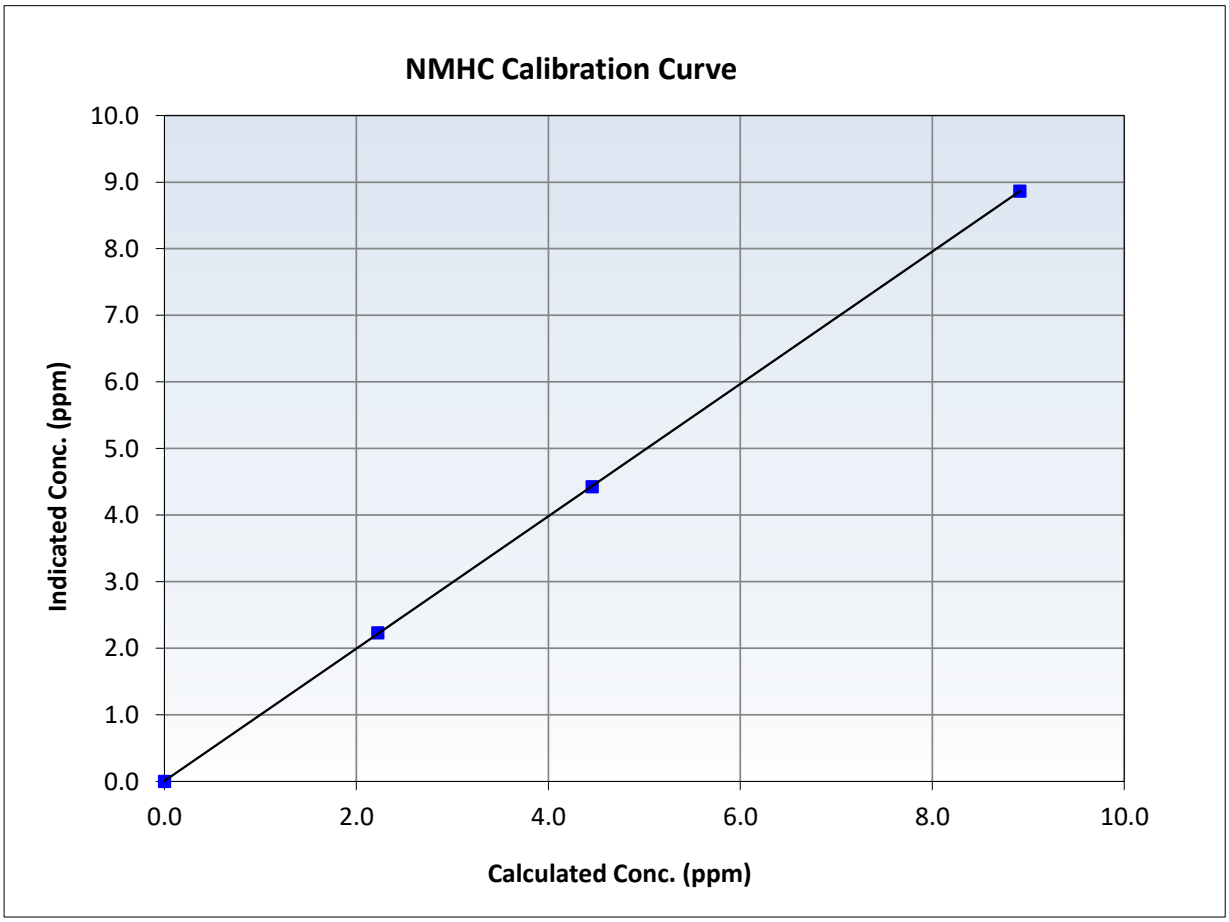
NMHC Calibration Summary

Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 17, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	8:20	End Time (MST):	10:49
Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.00	0.00	----	Correlation Coefficient	0.999990	*≥0.995*
8.91	8.87	1.0053	Slope	0.993747	*0.90 - 1.10*
4.46	4.43	1.0070	Intercept	0.007409	*+/-0.5*
2.22	2.23	0.9954			



NMHC Calibration Plot Date: May 22, 2025 Location: Fort Hills

Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Fort Hills	Station number:	AMS 23
Calibration Date:	May 27, 2025	Last Cal Date:	May 22, 2025
Start time (MST):	8:20	End time (MST):	9:50
Reason:	Cylinder Change		

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:	1222
Zero Air Gen model:	API T701	Serial Number:	1117

Analyzer Information

Analyzer make:	Thermo 55i	Analyzer serial #:	12227620777
THC Range:	0 - 20 ppm	NMHC/CH4 Range:	0 - 10 ppm

	Start	*Finish*		*Start*	*Finish*
CH4 SP Ratio:	3.65E-04	3.65E-04	NMHC SP Ratio:	5.51E-05	5.51E-05
CH4 Retention time:	15.2	15.2	NMHC Peak Area:	161613	161613
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	16.98	0.997
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	16.98	Prev response	16.82	*% change	0.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	79.4	16.92	16.72	1.012
Mid point					
Low point					
As left zero					
As left span					

Average Correction Factor: 1.012

Notes: Nitrogen Cylinder Change.

Wood Buffalo Environmental Association

THC / CH_4 / 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	79.4	8.91	8.95	0.996
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.95	Prev response	8.86	*% change	1.0%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	8.82	1.011
Mid point					
Low point					
As left zero					
As left span					
				Average Correction Factor	1.011

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	4921	79.4	8.01	8.03	0.998
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.03	Prev response	7.96	*% change	0.9%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

CH4 Calibration Data

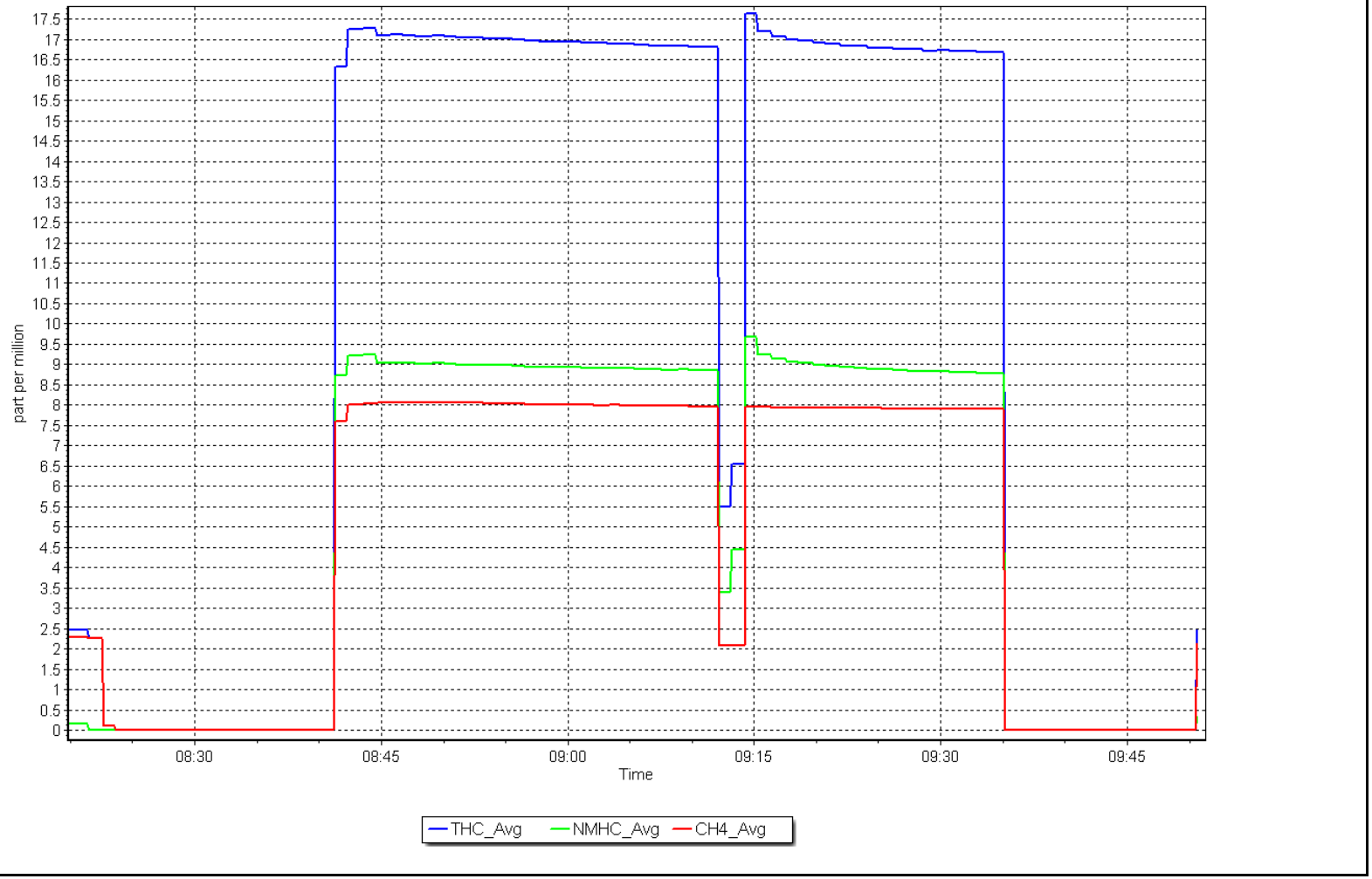
Set Point	Dilution air flow rate (sccm)	Source gas flow rate (sccm)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic) *Limit = 0.95-1.05*
Calibrator zero	5000	0.0	0.00	0.00	----
High point	4921	79.4	8.01	7.91	1.013
Mid point					
Low point					
As left zero					
As left span					
				Average Correction Factor	1.013

Calibration Statistics

	Start	***Finish***
THC Cal Slope:	0.995073	0.988358
THC Cal Offset:	-0.014789	0.000000
CH4 Cal Slope:	0.996307	0.987556
CH4 Cal Offset:	-0.021599	0.000000
NMHC Cal Slope:	0.993747	0.989191
NMHC Cal Offset:	0.007409	0.000000

Calibration Performed By: Melissa Lemay

NMHC Calibration Plot Date: May 27, 2025 Location: Fort Hills



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Fort Hills
Station number:	AMS 23
Calibration Date:	May 15, 2025
Last Cal Date:	April 15, 2025
Start time (MST):	6:30
End time (MST):	10:43
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	CC358149	Cal Gas Expiry Date:	January 5, 2032
NOX Cal Gas Conc:	60.30 ppm	NO Cal Gas Conc:	60.10 ppm
Removed Cylinder #:		Removed Gas Exp Date:	
Removed Gas NOX Conc:	60.30 ppm	Removed Gas NO Conc:	60.10 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	API T700	Serial Number:	451
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	0.0	0.2	-0.1	----	----
AF High point	4934	66.3	799.5	796.9	2.7	805.0	800.6	4.3	0.9932	0.9956
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 799.4 ppb	NO = 797.4 ppb
Baseline Corr 1st pt	NO_X = 805.0 ppb	NO = 800.4 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

*Percent Change	NO_X = 0.7%		
*Percent Change	NO = 0.4%		

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1152430007

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.970	0.970	NO bkgnd or offset:	2.5	2.5
NOX coeff or slope:	0.990	0.990	NOX bkgnd or offset:	2.7	2.7
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	148.4	148.4

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.999841	1.006531
NO_X Cal Offset:	0.026011	-0.015572
NO Cal Slope:	1.002405	1.009433
NO Cal Offset:	-1.432704	-1.534354
NO_2 Cal Slope:	0.997503	0.999395
NO_2 Cal Offset:	-1.163127	-0.734154

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	-0.1	----	----
High point	4934	66.3	799.5	796.9	2.7	804.8	803.8	1.1	0.9935	0.9914
Mid point	4967	33.2	400.4	399.0	1.3	403.0	400.3	2.6	0.9935	0.9969
Low point	4983	16.6	200.2	199.5	0.7	201.2	198.1	3.1	0.9951	1.0073
As left zero	5000	0.0	0.0	0.0	0.0	0.2	0.3	-0.1	----	----
As left span	4934	66.3	799.5	411.3	388.2	803.8	411.3	392.6	0.9947	1.0000
							Average Correction Factor		0.9940	0.9985

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	-0.1	----	----
High GPT point	800.5	410.6	392.6	391.8	1.0019	99.8%
Mid GPT point	800.5	605.2	198.0	197.1	1.0043	99.6%
Low GPT point	800.5	701.8	101.4	99.7	1.0166	98.4%
				Average Correction Factor	1.0076	99.2%

Notes: No Adjustments or maintenance done.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

NO_X Calibration Summary

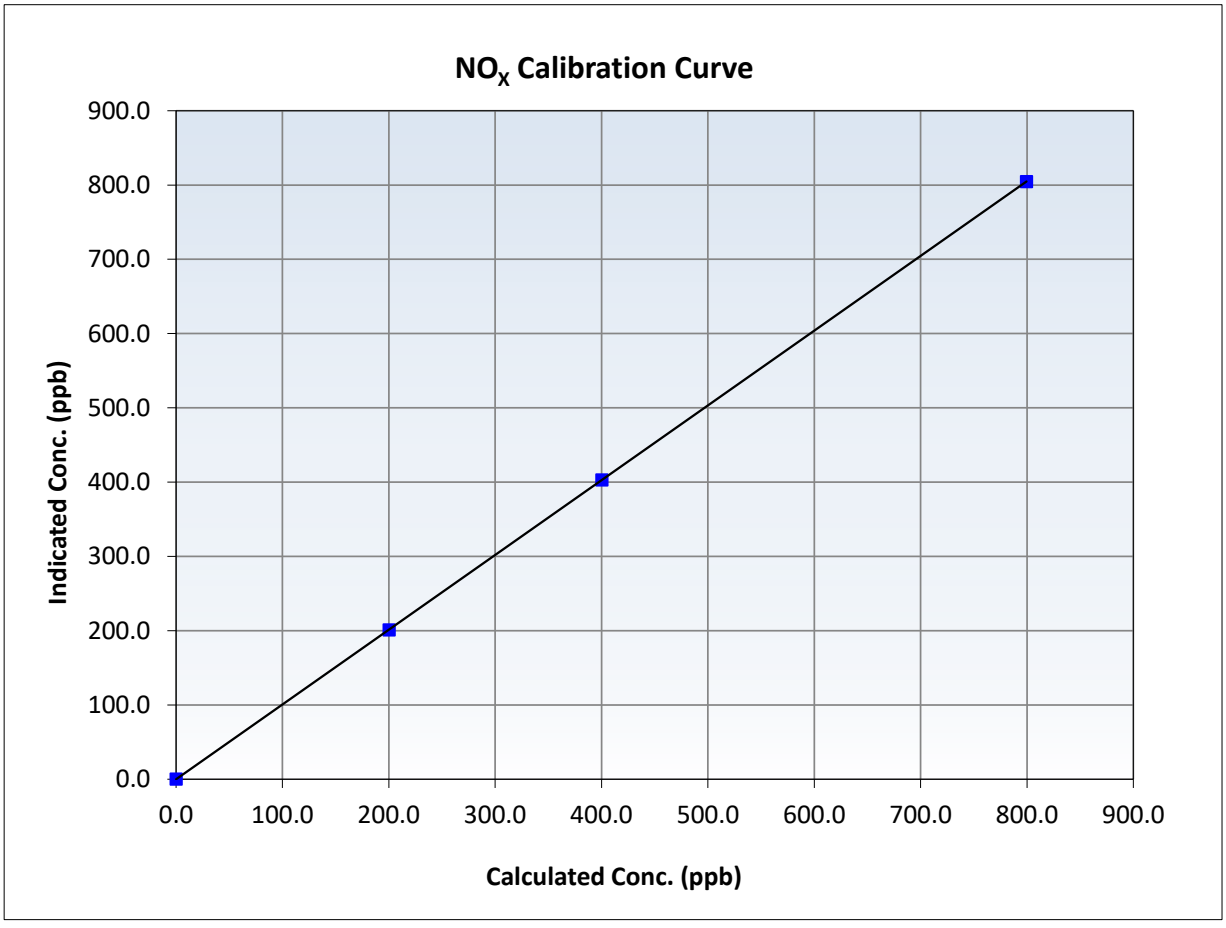
Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	April 15, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:30	End Time (MST):	10:43
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430007

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
799.5	804.8	0.9935
400.4	403.0	0.9935
200.2	201.2	0.9951

Statistical Evaluation		Limits
Correlation Coefficient	1.000000	≥0.995
Slope	1.006531	0.90 - 1.10
Intercept	-0.015572	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

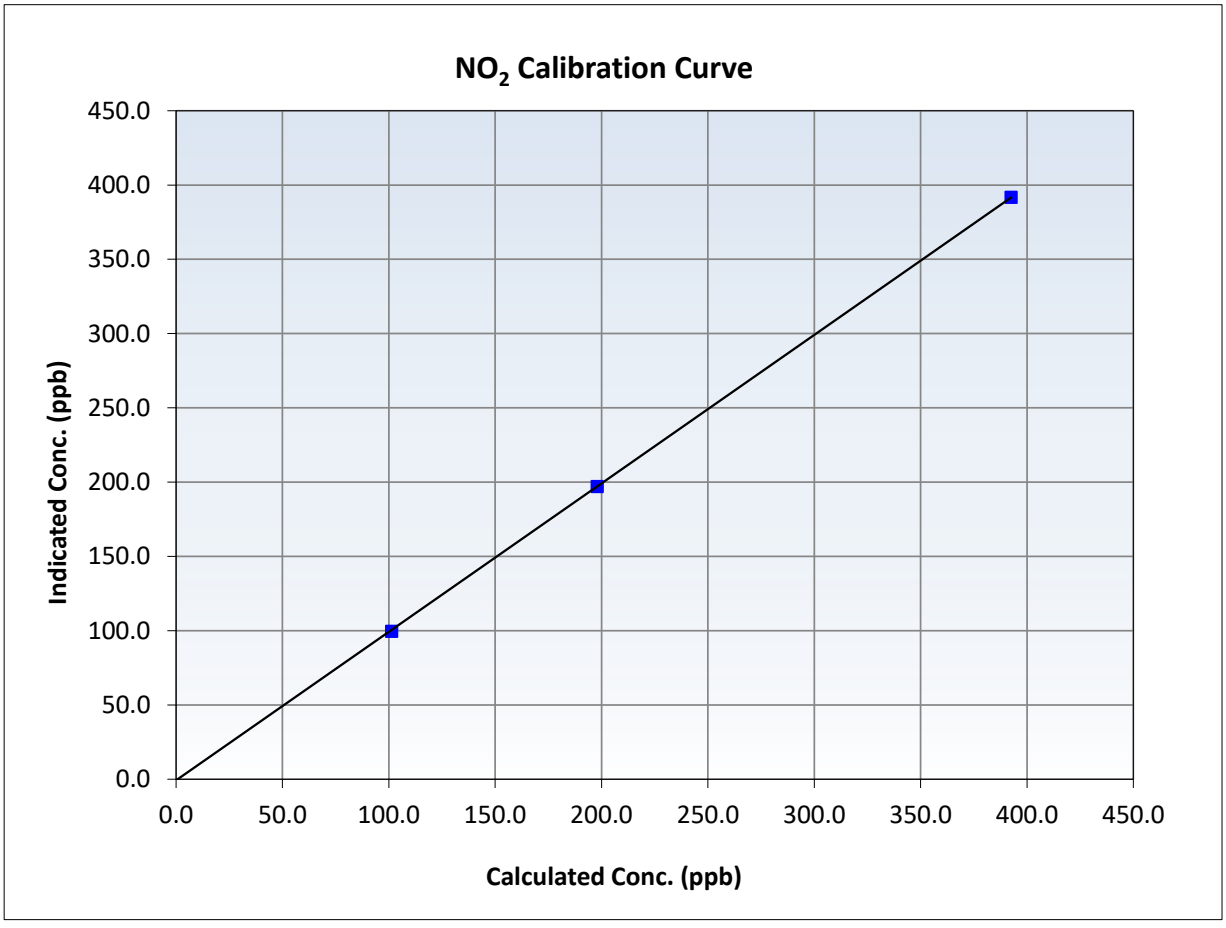
Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	April 15, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:30	End Time (MST):	10:43
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430007

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
392.6	391.8	1.0019
198.0	197.1	1.0043
101.4	99.7	1.0166

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999986	*≥0.995*
Slope	0.999395	*0.90 - 1.10*
Intercept	-0.734154	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

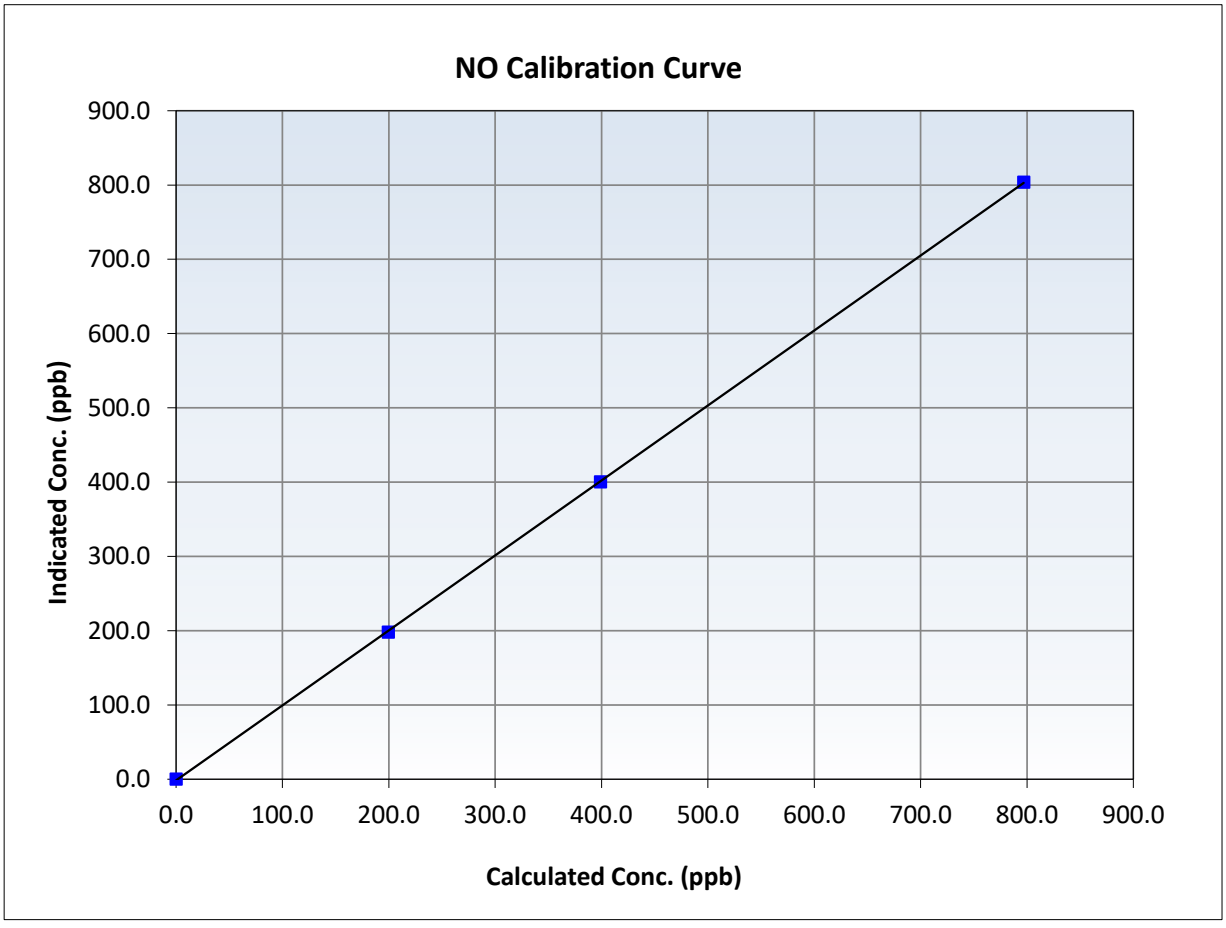
Station Information

Calibration Date:	May 15, 2025	Previous Calibration:	April 15, 2025
Station Name:	Fort Hills	Station Number:	AMS 23
Start Time (MST):	6:30	End Time (MST):	10:43
Analyzer make:	Thermo 42i	Analyzer serial #:	1152430007

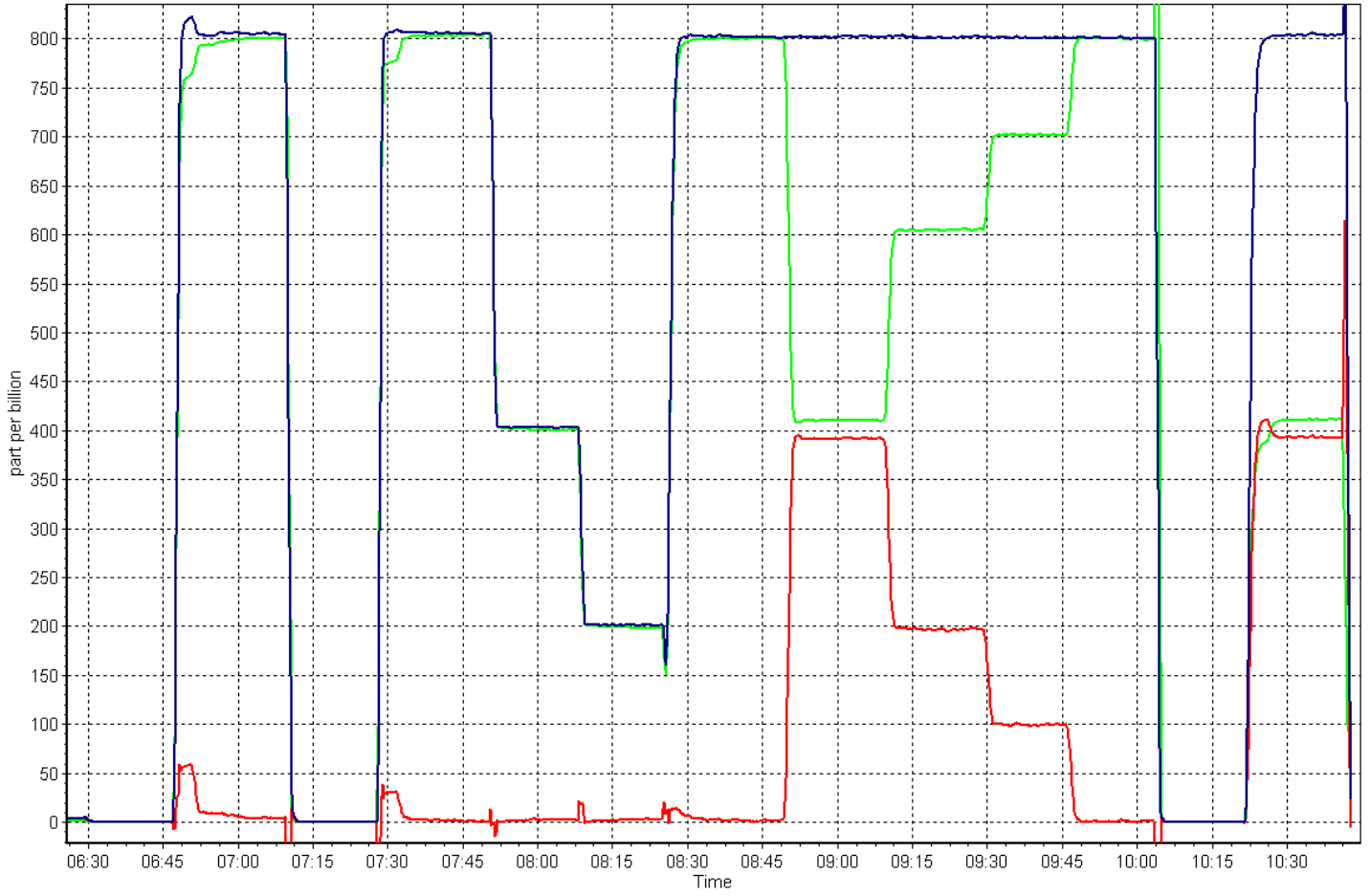
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.3	----
796.9	803.8	0.9914
399.0	400.3	0.9969
199.5	198.1	1.0073

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999976	*≥0.995*
Slope	1.009433	*0.90 - 1.10*
Intercept	-1.534354	*+/-20*



NO_X Calibration Plot Date: May 15, 2025 Location: Fort Hills



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Fort Hills	Station number:	AMS 23
Calibration Date:	May 22, 2025	Last Cal Date:	April 17, 2025
Start time (MST):	7:03	End time (MST):	8:19
Analyzer Make:	API T640	S/N:	320
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388744
Temp/RH standard:	Alicat FP-25BT	S/N:	388744

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	10.5	10.2	10.5	☐	+/- 2 °C
P (mmHg)	737.8	737.2	737.8	☐	+/- 10 mmHg
Flow (LPM)	4.98	4.77	4.98	☐	+/- 0.25 LPM
PW% (pump)	49	-----	50	☐	>80%
Zero Verification	PM w/o HEPA:	7.3	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 — Lot No.: 100128-050-050

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test	6.8	11.1	11.1	☐	+/- 0.5

Date Optical Chamber Cleaned: May 22, 2025

Date Disposable Filter Changed: May 22, 2025

Post- maintenance Zero Verification: PM w/ HEPA: 0 <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: May 22, 2025

Date RH/T Sensor Cleaned: May 22, 2025

Notes: No adjustments done. Leak Check, Flow and PMT checked before and after cleaning.

Calibration by: Melissa Lemay

Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Version-10-2022

Station Information

Station Name:	Fort Hills	Station Number:	AMS 23
Calibration Date:	May 27, 2025	Prev Cal Date:	October 2, 2024
Start Time (MST):	7:06	End Time (MST):	8:10
Tower Height (m):	10m	Reason:	Routine

Wind Speed Information

Sensor make/model:	Met One 010C-1	Serial Number:	B17268
WS Calibrator:	MetOne 053	Serial Number:	R10866

Shaft RPM	Calculated Speed (K/hr) (Cv)	Indicated Speed (K/hr) (Iv)	% Error *Limit = +/- 1.5%*
0	0.0	0.0	---
200	20.2	20.1	-0.3%
400	39.4	39.4	0.1%
600	58.6	58.5	-0.1%
800	77.8	77.8	0.1%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999998	0.999999	*≥0.9995*
Calculated slope	0.998443	0.999473	*0.90 - 1.10*
Calculated intercept	0.026636	0.026227	*+/- 2*

Wind Direction Information

Sensor make/model:	Met One 020C-1	Serial Number:	B14267
As Found Declination (deg east of True North):	14	As Left Declination (deg east of True North):	14
Solar noon time (MST):	12:13:40	Calc Declination*:	13.76 Degrees
Deadband calc:	-0.9 degrees (*Limit 4 deg*)		* - calculated declination as per NOAA website

Physical Direction (Degrees) (Cv)	Indicated Direction (Degrees) (Iv)	% Error (based on 357° FS) *Limit = +/- 1.0%*
0	0.1	---
90	90.5	0.1%
180	179.9	0.0%
270	271.6	0.4%
357	358.0	0.3%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999980	0.999993	*≥0.9995*
Calculated slope	0.999337	0.996746	*0.90 - 1.10*
Calculated intercept	0.036935	-0.034243	*+/- 4*

Notes: Barings replaced in WS. Speed checked before and after baring change.

Calibration Performed By: Melissa Lemay

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS25
WASKŌW OHCI PIMÂTISIWIN
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Waskow ohci Pimatisiwin	Station number:	AMS 25
Calibration Date:	May 26, 2025	Last Cal Date:	April 9, 2025
Start time (MST):	7:52	End time (MST):	10:30
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 Information

Analyzer make:	Thermo 43i		Serial Number:	1118148497	
Analyzer Range:	0-1000ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.007511	1.003471	Backgd or Offset:	11.3	11.0
Calibration intercept:	0.109107	-0.652309	Coeff or Slope:	1.065	1.038

SO_2 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	4920	80.5	800.1	823.1	0.972
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	823.4	Previous response	806.2	*% change	2.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	80.5	800.1	802.8	0.997
Mid point	4960	40.2	399.6	399.3	1.001
Low point	4980	20.1	199.8	199.5	1.001
As left zero	5000	0.0	0.0	0.0	----
As left span	4920	80.5	800.1	804.0	0.995
				Average Correction Factor:	1.000

Notes: No maintenance done. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

SO_2 Calibration Summary

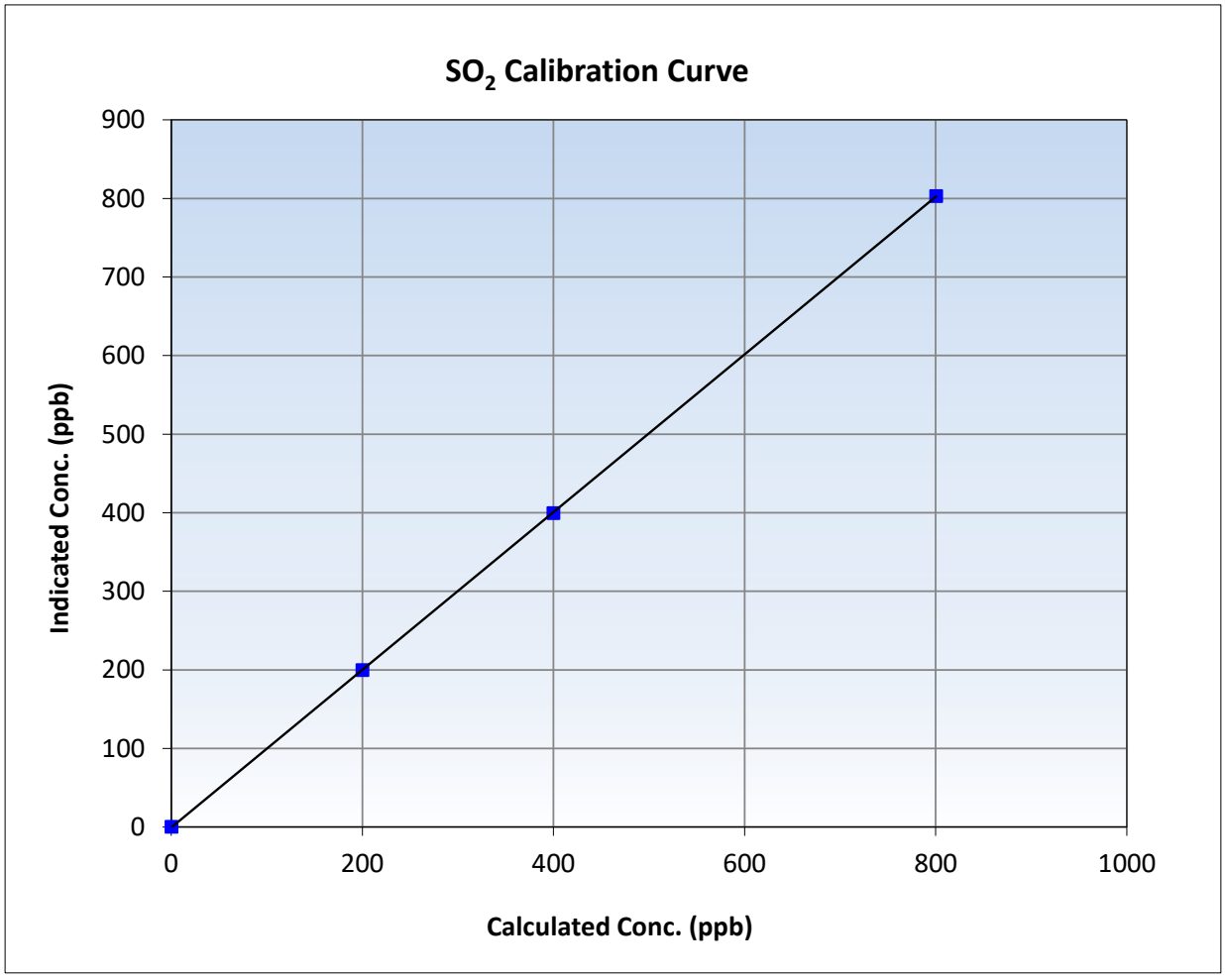
Station Information

Calibration Date:	May 26, 2025	Previous Calibration:	April 9, 2025
Station Name:	Waskow ohci Pimatisiwin	Station Number:	AMS 25
Start Time (MST):	7:52	End Time (MST):	10:30
Analyzer make:	Thermo 43i	Analyzer serial #:	1118148497

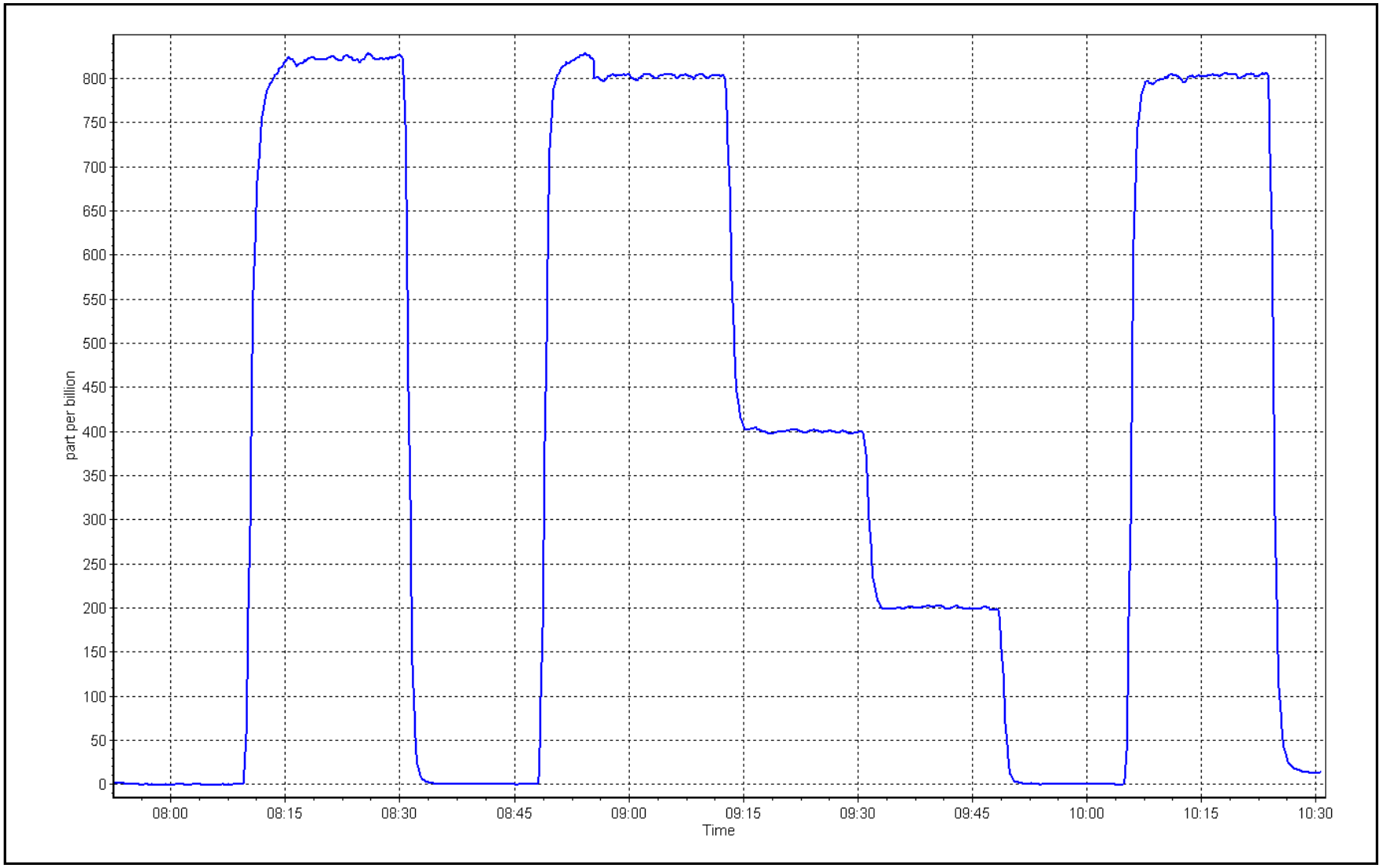
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
800.1	802.8	0.9966
399.6	399.3	1.0007
199.8	199.5	1.0015

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999994	*≥0.995*
Slope	1.003471	*0.90 - 1.10*
Intercept	-0.652309	*+/-30*



SO2 Calibration Plot Date: May 26, 2025 Location: Waskow ohci Pimatisiwin



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Waskow ohci Pimatisiwin	Station number:	AMS 25
Calibration Date:	May 23, 2025	Last Cal Date:	April 23, 2025
Start time (MST):	6:33	End time (MST):	10:29
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.97	ppm	Cal Gas Exp Date:	January 3, 2026
Cal Gas Cylinder #:	CC517099			
Removed Cal Gas Conc:	4.97	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:			Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	747
ZAG Make/Model:	API T701		Serial Number:	261

Analyzer Information

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

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.007473	0.994940	Backgd or Offset:	3.50	3.50
Calibration intercept:	0.000000	-0.037775	Coeff or Slope:	1.086	1.086

H_2S 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	4919	80.5	80.0	80.6	0.992
As found Mid point	4960	40.3	40.1	40.0	0.999
As found Low point	4980	20.1	20.0	20.0	0.994
New cylinder response					

Baseline Corr As found:	80.7	Prev response:	80.62	*% change:	0.1%
Baseline Corr 2nd AF pt:	40.1	AF Slope:	1.008216	AF Intercept:	-0.177641
Baseline Corr 3rd AF pt:	20.1	AF Correlation:	0.999983	* = > +/-5% change initiates investigation	

H_2S 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	4919	80.5	80.0	79.6	1.005
Mid point	4960	40.3	40.1	39.8	1.006
Low point	4980	20.1	20.0	19.8	1.009
As left zero	5000	0.0	0.0	0.0	----
As left span	4920	80.0	800.0	806.1	0.992
SO2 Scrubber Check	4920	80.0	800.0	0.0	----
Date of last scrubber change:				Ave Corr Factor	1.007
Date of last converter efficiency test:		February 12, 2025		111.0%	efficiency

Notes: SOx Scrubber checked after the calibrator zero. No adjustments done.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

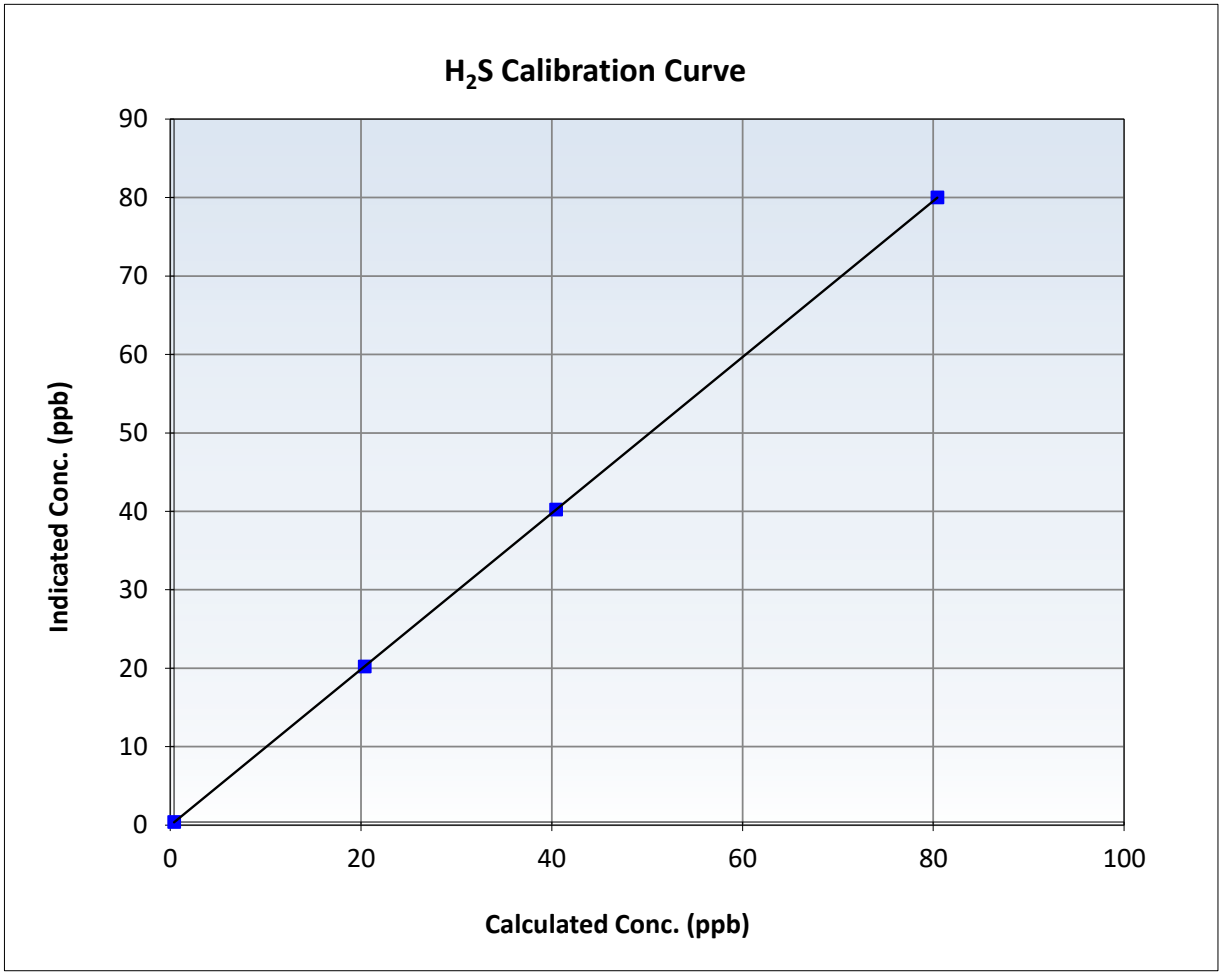
H_2S Calibration Summary

Station Information

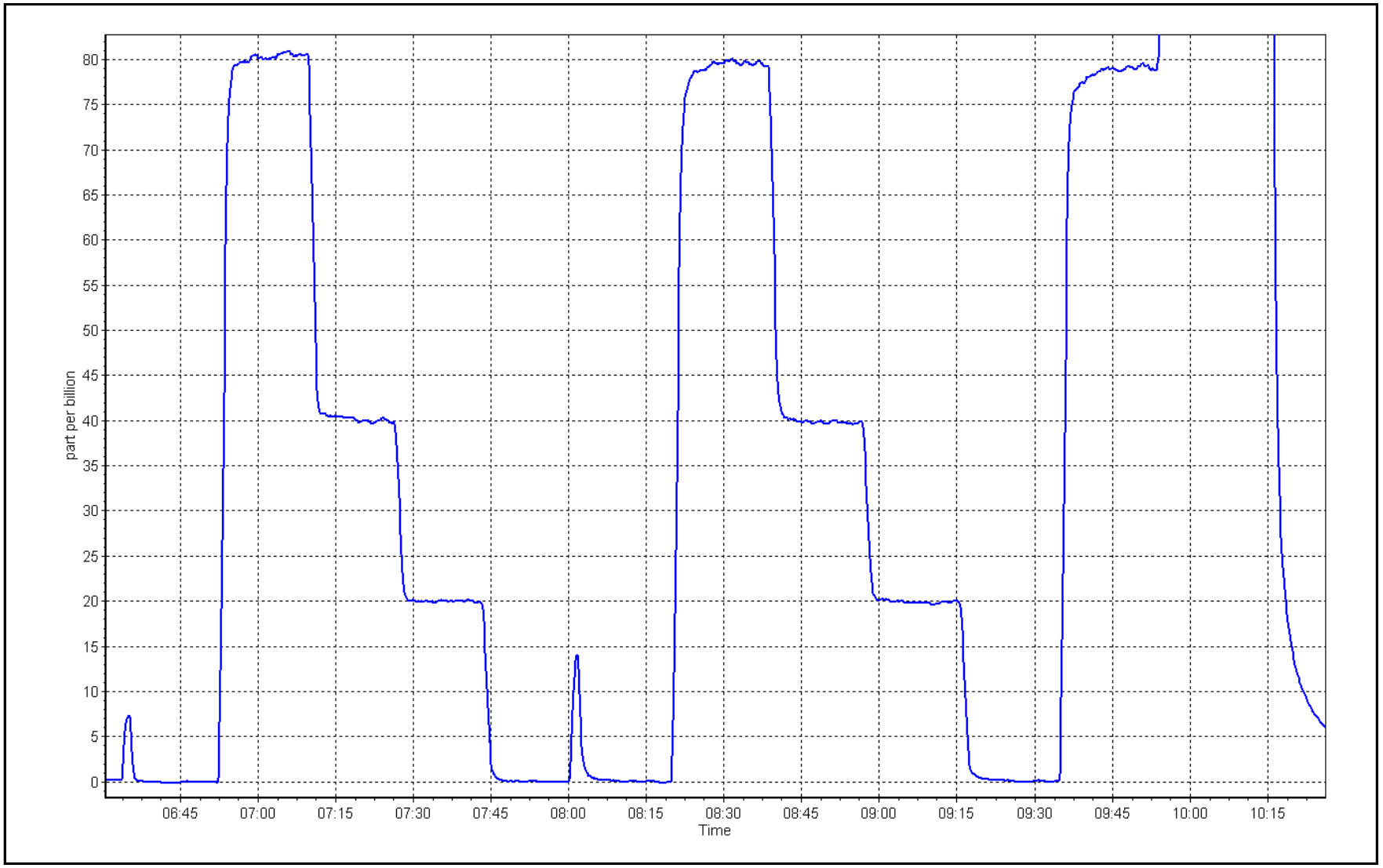
Calibration Date:	May 23, 2025	Previous Calibration:	April 23, 2025
Station Name:	Waskow ohci Pimatisiwin	Station Number:	10:47:00 AM
Start Time (MST):	6:33	End Time (MST):	10:29
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1170050146

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.0	----	Correlation Coefficient	0.999999	*≥0.995*
80.0	79.6	1.0053	Slope	0.994940	*0.90 - 1.10*
40.1	39.8	1.0064			
20.0	19.8	1.0090	Intercept	-0.037775	*+/-3*



H_2S Calibration Plot Date: May 23, 2025 Location: Waskow ohci Pimatisiwin



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS27
JACKFISH 2/3
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Jackfish 2/3	Station number:	AMS 27
Calibration Date:	May 14, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	11:25	End time (MST):	14:24
Reason:	Routine		

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 make:	Thermo 43iQ-TL		Serial Number:	12124313138	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.010079	1.000203	Backgd or Offset:	8.4	8.2
Calibration intercept:	0.842963	0.822607	Coeff or Slope:	0.947	0.923

SO_2 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	1.5	----
As found High point	4913	78.9	799.4	821.1	0.975
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	819.6	Previous response	808.3	*% change	1.4%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	1.5	----
High point	4913	78.9	799.4	800.9	0.998
Mid point	4955	39.5	400.0	400.2	1.000
Low point	4971	19.7	199.7	200.1	0.998
As left zero	5000	0.0	0.0	1.4	----
As left span	4913	78.9	799.4	800.2	0.999
				Average Correction Factor:	0.999

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

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

SO_2 Calibration Summary

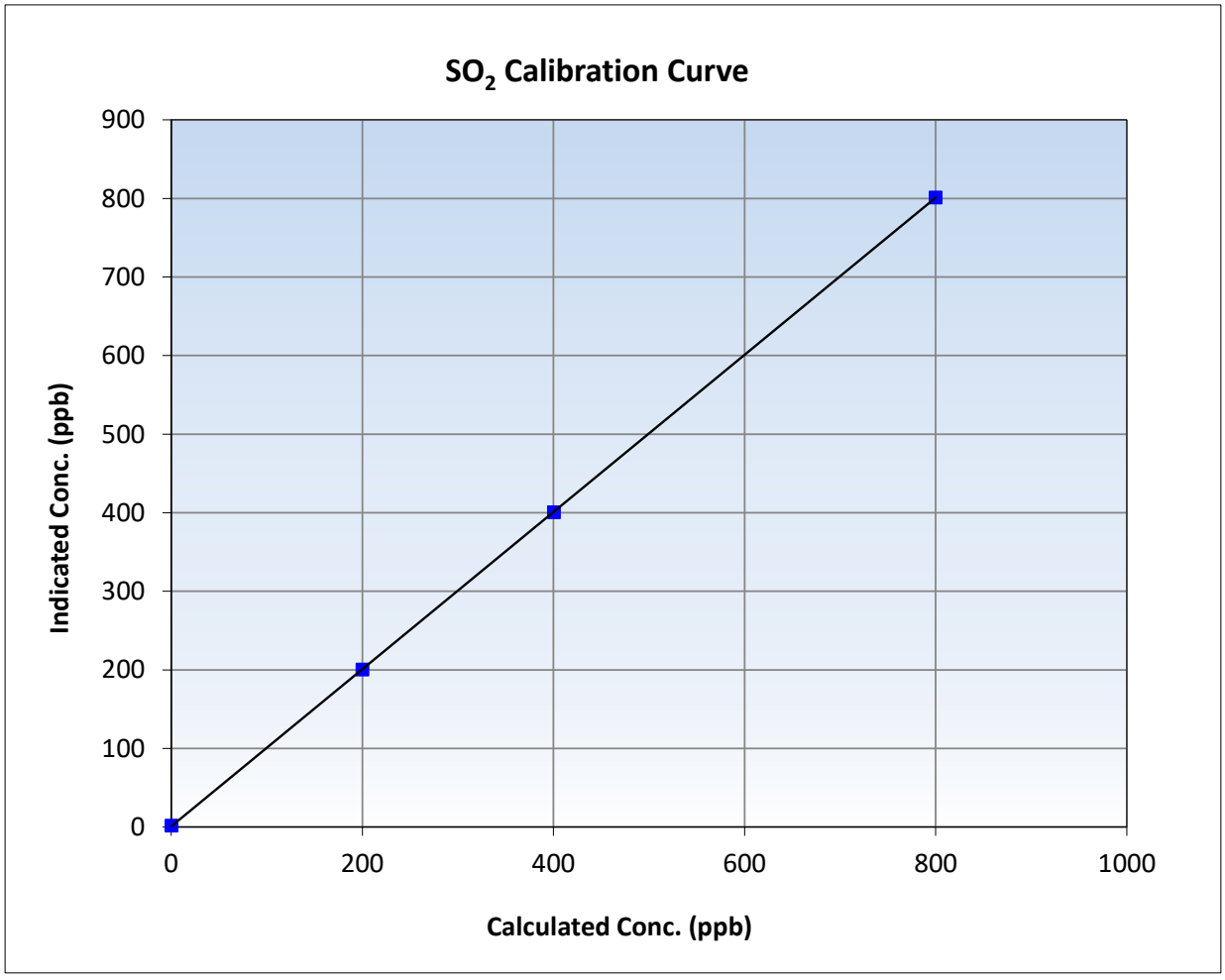
Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 11, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:25	End Time (MST):	14:24
Analyzer make:	Thermo 43iQ-TL	Analyzer serial #:	12124313138

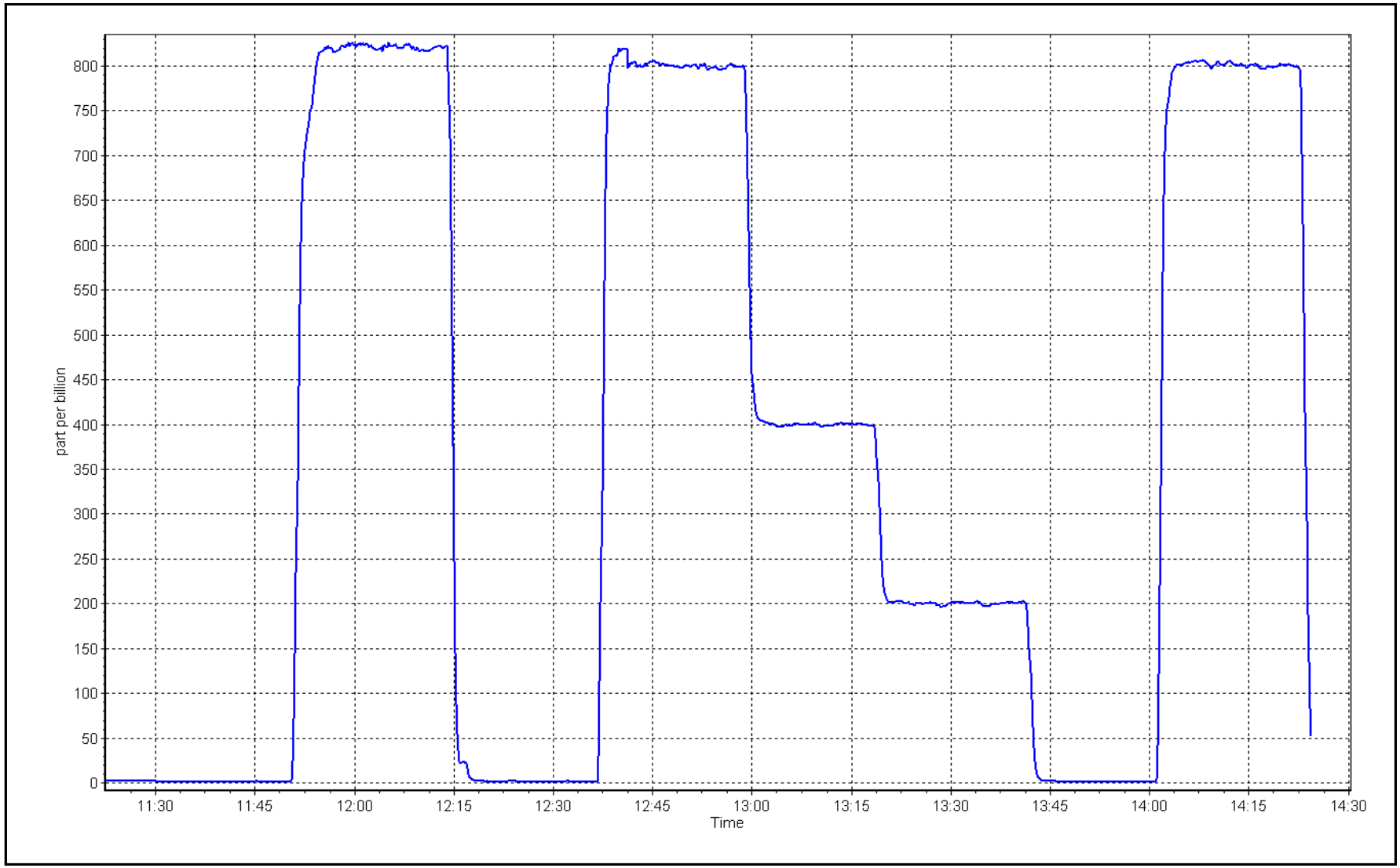
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	1.5	----
799.4	800.9	0.9982
400.0	400.2	0.9996
199.7	200.1	0.9978

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999996	*≥0.995*
Slope	1.000203	*0.90 - 1.10*
Intercept	0.822607	*+/-30*



SO2 Calibration Plot Date: May 14, 2025 Location: Jackfish 2/3



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Jackfish 2/3	Station number:	AMS 27
Calibration Date:	May 21, 2025	Last Cal Date:	April 23, 2025
Start time (MST):	9:33	End time (MST):	14:46
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.87	ppm	Cal Gas Exp Date:	September 5, 2027
Cal Gas Cylinder #:	CC523090			
Removed Cal Gas Conc:	4.87	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	5252
ZAG Make/Model:	API T701H		Serial Number:	268

Analyzer Information

Analyzer make:	Thermo 43iQ		Analyzer serial #:	12228021055	
Converter make:	Global G150		Converter serial #:	2022-195	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.004231	1.010662	Backgd or Offset:	3.6	3.6
Calibration intercept:	0.159197	0.059171	Coeff or Slope:	1.150	1.150

H_2S 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	4911	82.0	80.0	82.4	0.968
As found Mid point	4951	41.0	40.0	41.2	0.966
As found Low point	4973	20.5	20.0	20.2	0.980
New cylinder response					

Baseline Corr As found:	82.6	Prev response:	80.48	*% change:	2.6%
Baseline Corr 2nd AF pt:	41.4	AF Slope:	1.033953	AF Intercept:	-0.280842
Baseline Corr 3rd AF pt:	20.4	AF Correlation:	0.999984	* = > +/-5% change initiates investigation	

H_2S 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	4911	82.0	80.0	80.8	0.990
Mid point	4951	41.0	40.0	40.7	0.983
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	83.5	0.958
SO2 Scrubber Check	4915	78.9	790.0	-0.1	----

Date of last scrubber change:	21-Feb-25	Ave Corr Factor	0.987	
Date of last converter efficiency test:	April 23, 2025	91.4%	efficiency	

Notes: Changed sample inlet filter after as founds. Ran scrubber check after calibrator zero and it passed. No adjustments made.

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

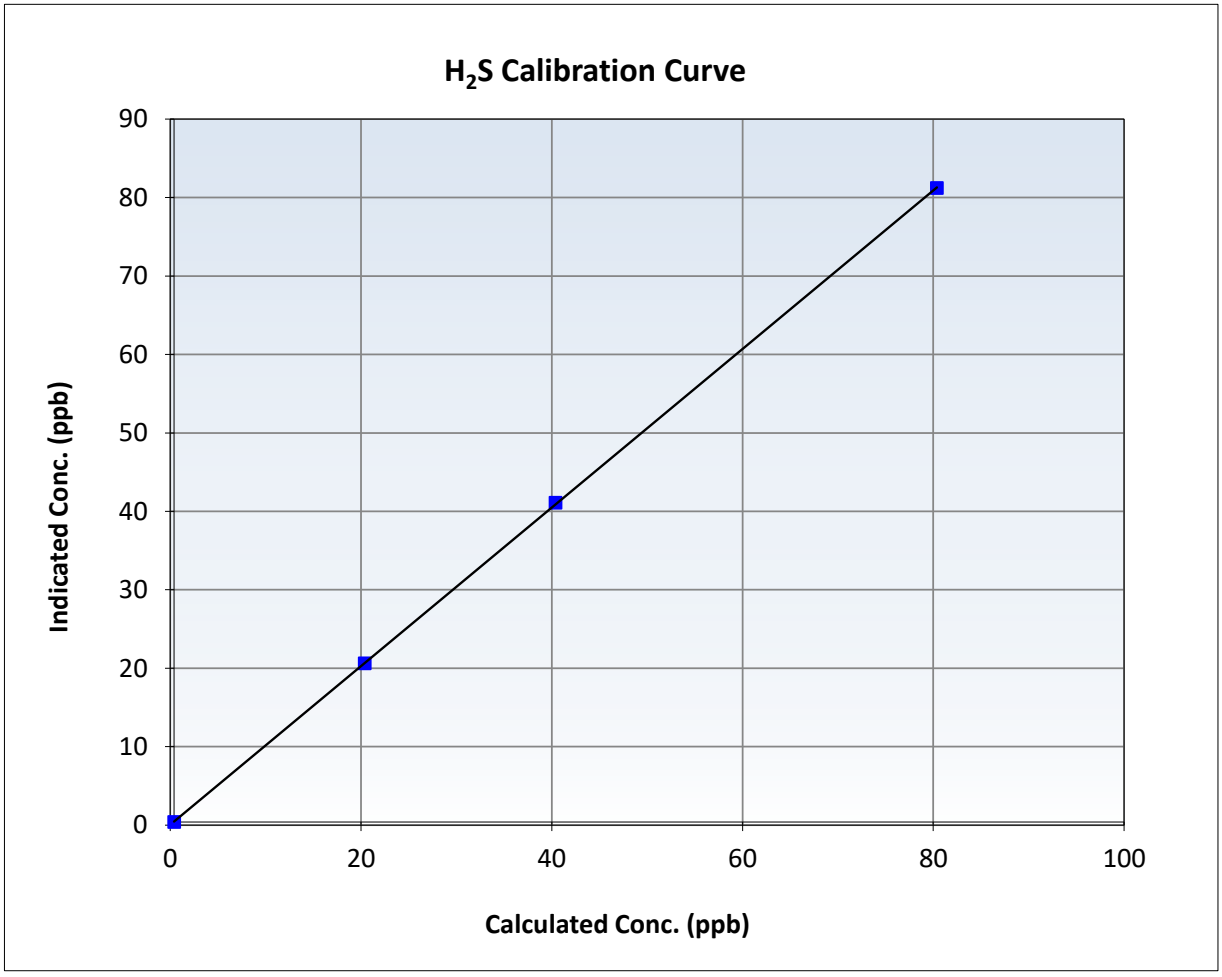
H_2S Calibration Summary

Station Information

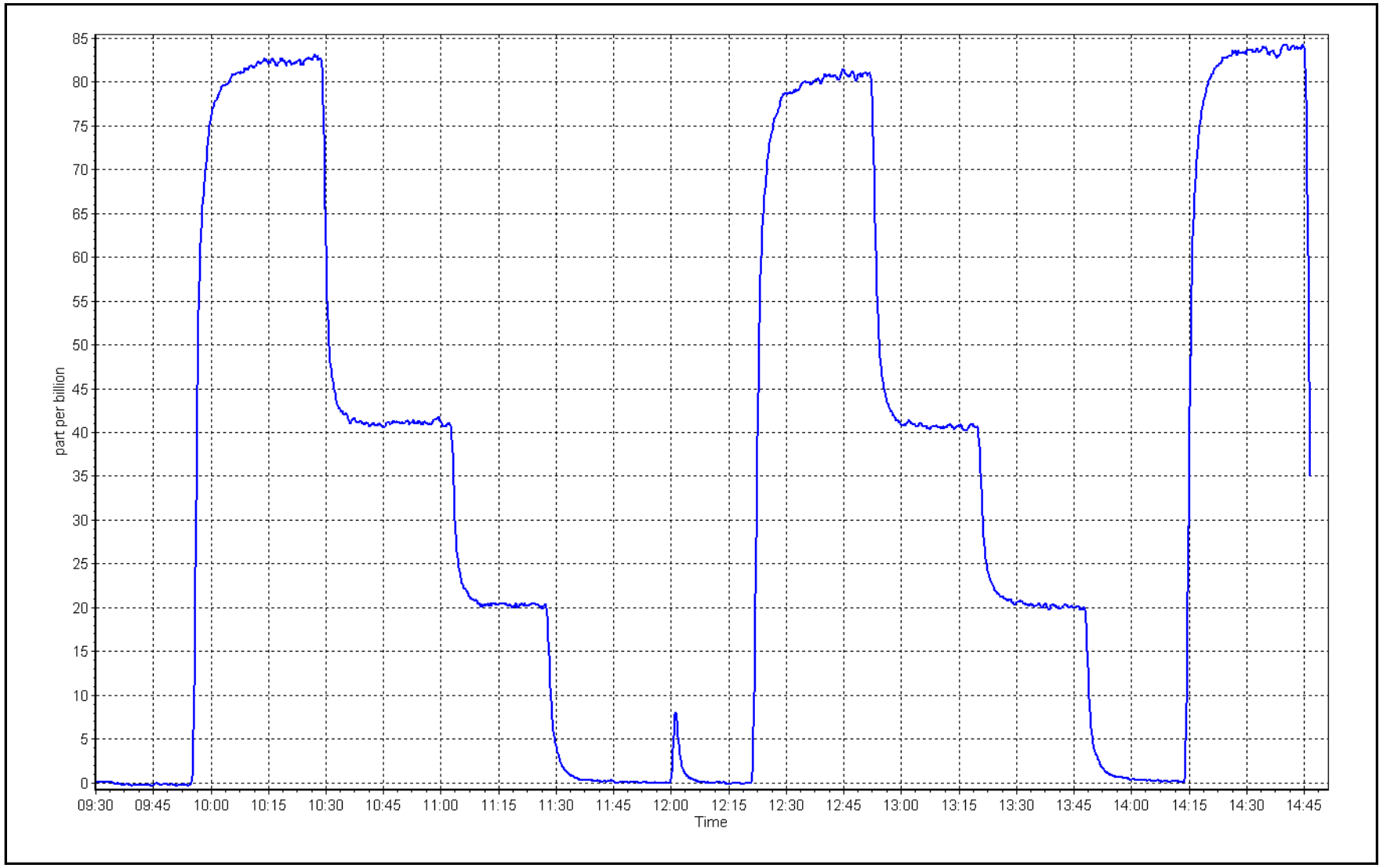
Calibration Date:	May 21, 2025	Previous Calibration:	April 23, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	9:33	End Time (MST):	14:46
Analyzer make:	Thermo 43iQ	Analyzer serial #:	12228021055

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.0	----	Correlation Coefficient	0.999982	*≥0.995*
80.0	80.8	0.9899	Slope	1.010662	*0.90 - 1.10*
40.0	40.7	0.9828			
20.0	20.2	0.9898	Intercept	0.059171	*+/-3*



H_2S Calibration Plot Date: May 21, 2025 Location: Jackfish 2/3



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Jackfish 2/3
Station number:	AMS 27
Calibration Date:	May 20, 2025
Last Cal Date:	April 14, 2025
Start time (MST):	11:47
End time (MST):	16:51
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	CC757838	Cal Gas Expiry Date:	January 9, 2032
NOX Cal Gas Conc:	60.30 ppm	NO Cal Gas Conc:	60.20 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	60.30 ppm	Removed Gas NO Conc:	60.20 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	5252
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	0.7	0.6	0.1	----	----
AF High point	4924	66.3	801.1	799.8	1.3	781.9	777.4	4.5	1.0255	1.0296
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X =	799.8 ppb	NO =	798.4 ppb	* = > +/-5% change initiates investigation	*Percent Change	NO_X = -2.4%
Baseline Corr 1st pt	NO_X =	781.2 ppb	NO =	776.8 ppb	As Found Statistics	*Percent Change	NO = -2.8%
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO_X r^2:	Nx Sl:	Nx Int:
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO r^2:	NO Sl:	NO Int:
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i

Serial Number: 1218153357

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.272	1.306	NO bkgnd or offset:	4.3	4.4
NOX coeff or slope:	0.996	0.996	NOX bkgnd or offset:	4.4	4.5
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	159.3	163.1

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.996775	0.997331
NO_X Cal Offset:	1.250382	1.730087
NO Cal Slope:	0.999158	0.997930
NO Cal Offset:	-0.729210	0.250656
NO_2 Cal Slope:	0.999829	1.002553
NO_2 Cal Offset:	0.510255	1.102035

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	1.0	0.7	0.2	----	----
High point	4924	66.3	801.1	799.8	1.3	800.5	798.6	1.9	1.0008	1.0015
Mid point	4958	33.2	401.1	400.4	0.7	401.7	399.7	2.0	0.9985	1.0018
Low point	4976	16.6	200.5	200.2	0.3	202.7	199.5	3.2	0.9891	1.0033
As left zero	5000	0.0	0.0	0.0	0.0	1.9	0.8	1.1	----	----
As left span	4924	66.3	801.1	372.1	429.0	799.5	372.1	427.4	1.0020	1.0000
								Average Correction Factor	0.9961	1.0022

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	0.2	----	----
High GPT point	795.5	373.0	423.8	425.5	0.9961	100.4%
Mid GPT point	795.5	578.2	218.6	220.9	0.9897	101.0%
Low GPT point	795.5	692.7	104.1	106.3	0.9796	102.1%
				Average Correction Factor	0.9885	101.2%

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

Calibration Performed By: Mohammed Kashif

Wood Buffalo Environmental Association

NO_X Calibration Summary

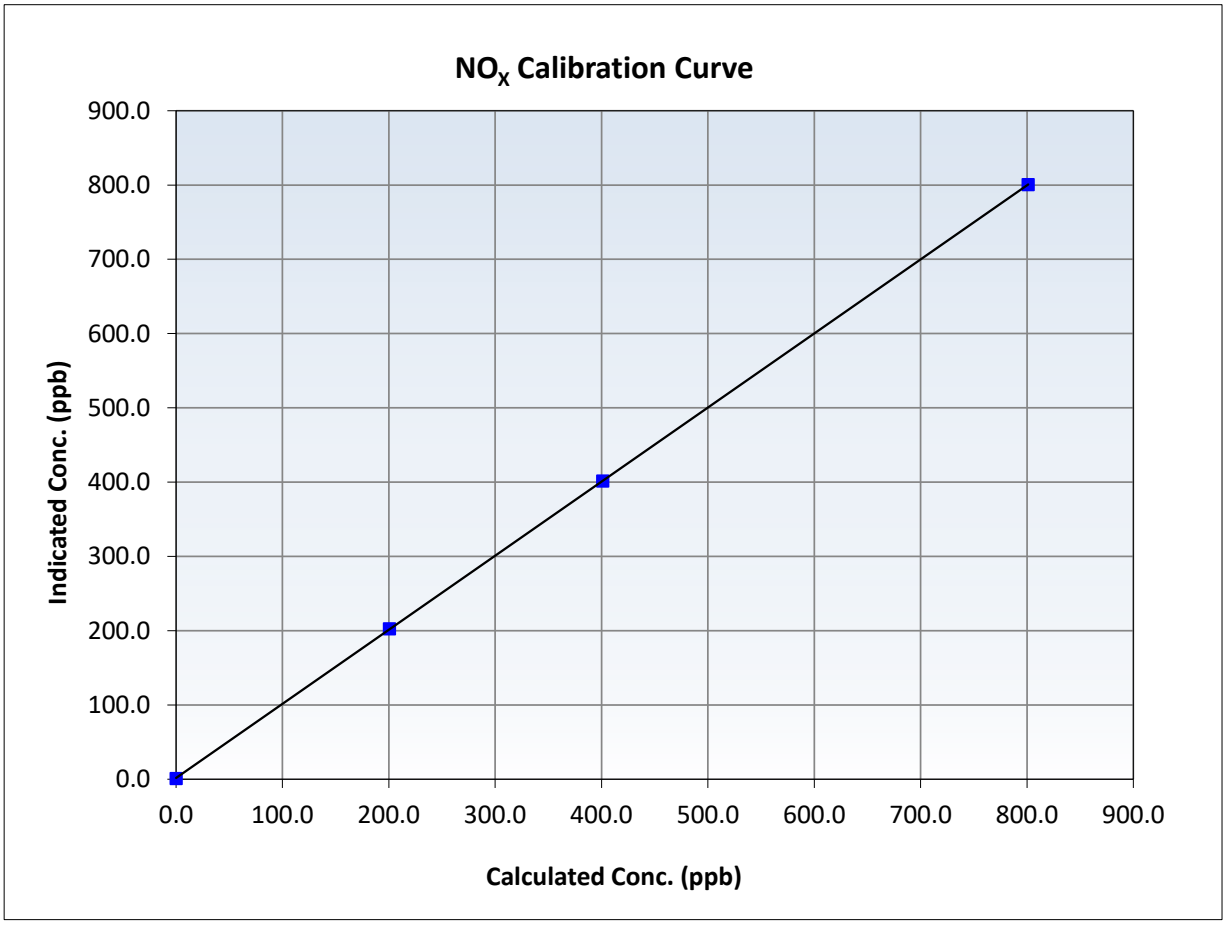
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 14, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:47	End Time (MST):	16:51
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153357

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	1.0	----
801.1	800.5	1.0008
401.1	401.7	0.9985
200.5	202.7	0.9891

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999995	*≥0.995*
Slope	0.997331	*0.90 - 1.10*
Intercept	1.730087	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

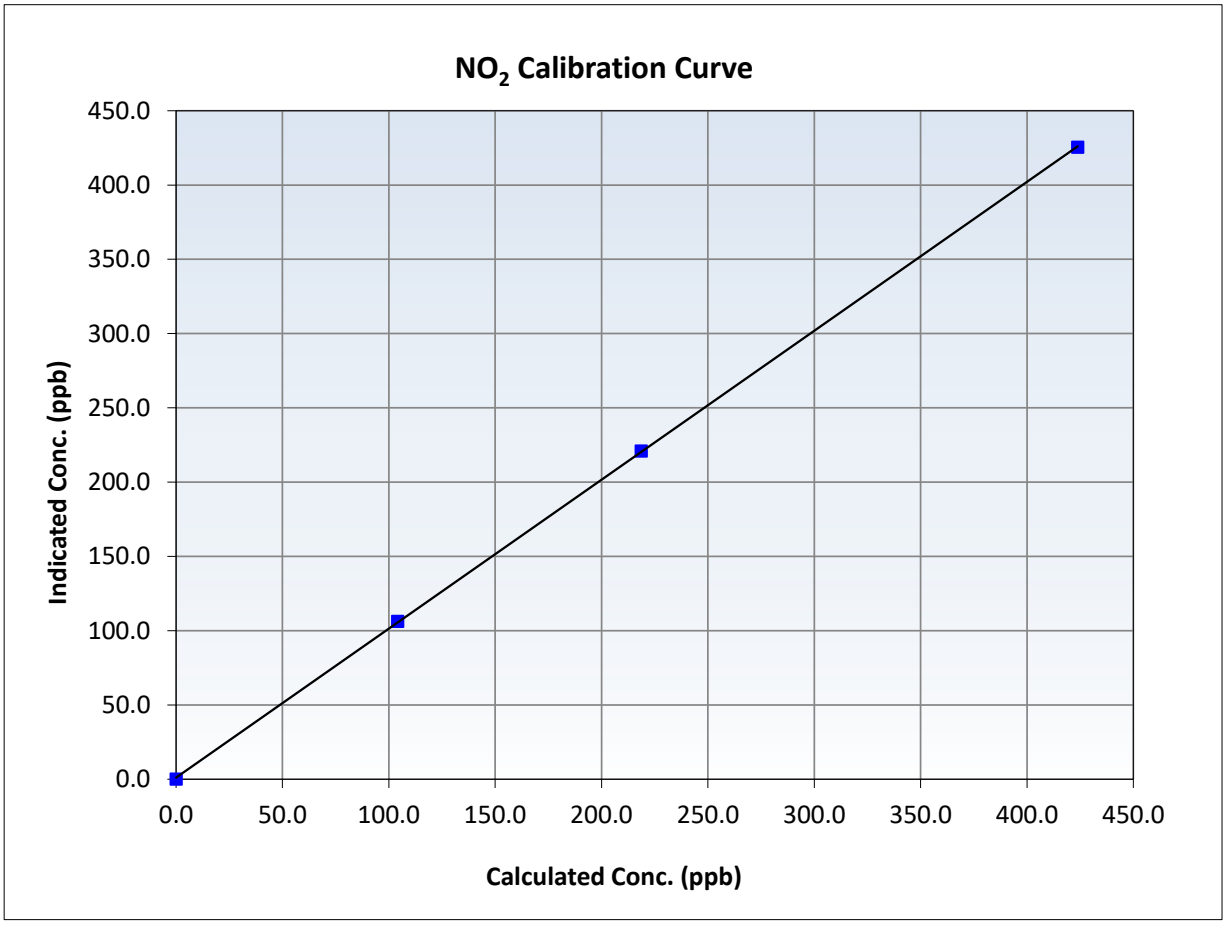
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 14, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:47	End Time (MST):	16:51
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153357

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
423.8	425.5	0.9961
218.6	220.9	0.9897
104.1	106.3	0.9796

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999979	*≥0.995*
Slope	1.002553	*0.90 - 1.10*
Intercept	1.102035	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

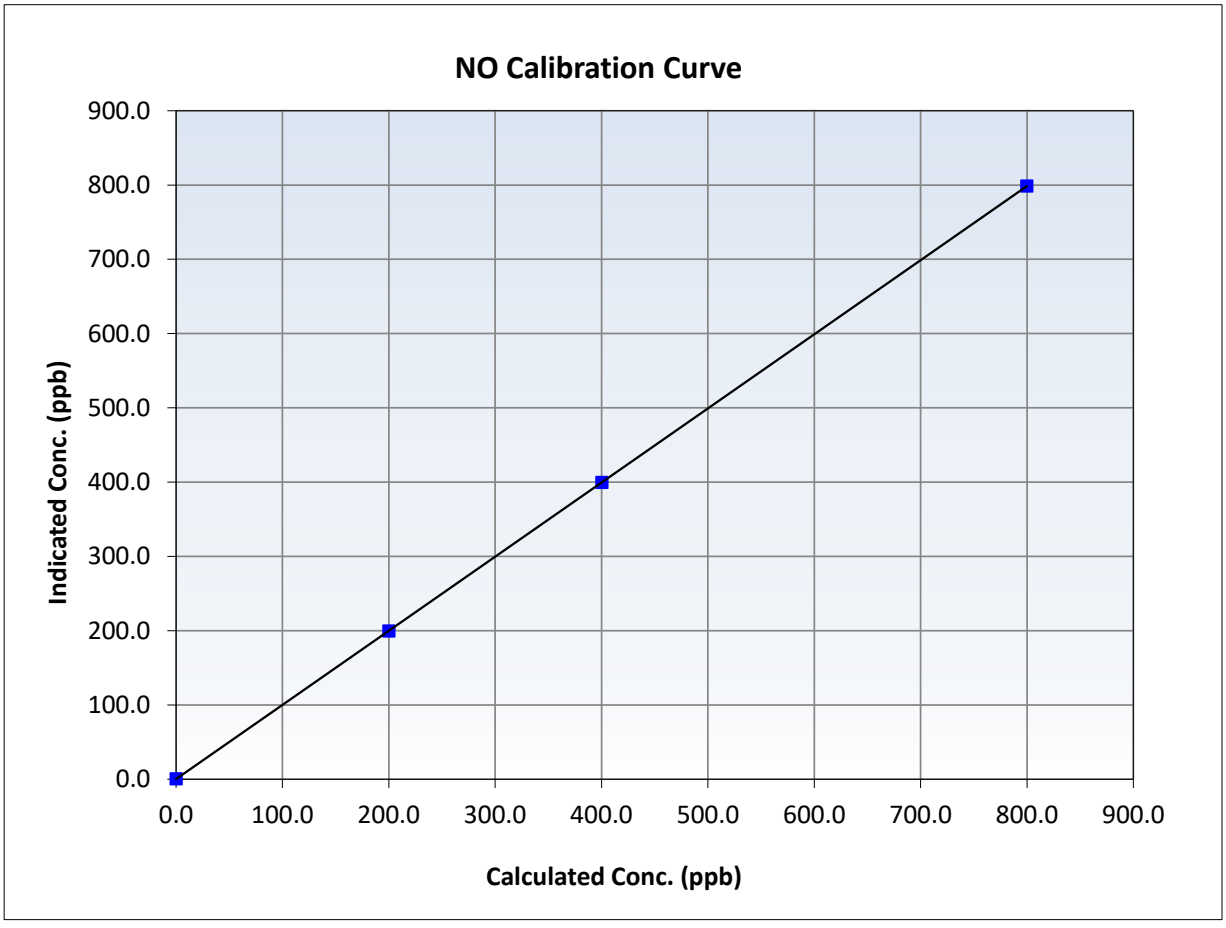
Station Information

Calibration Date:	May 20, 2025	Previous Calibration:	April 14, 2025
Station Name:	Jackfish 2/3	Station Number:	AMS 27
Start Time (MST):	11:47	End Time (MST):	16:51
Analyzer make:	Thermo 42i	Analyzer serial #:	1218153357

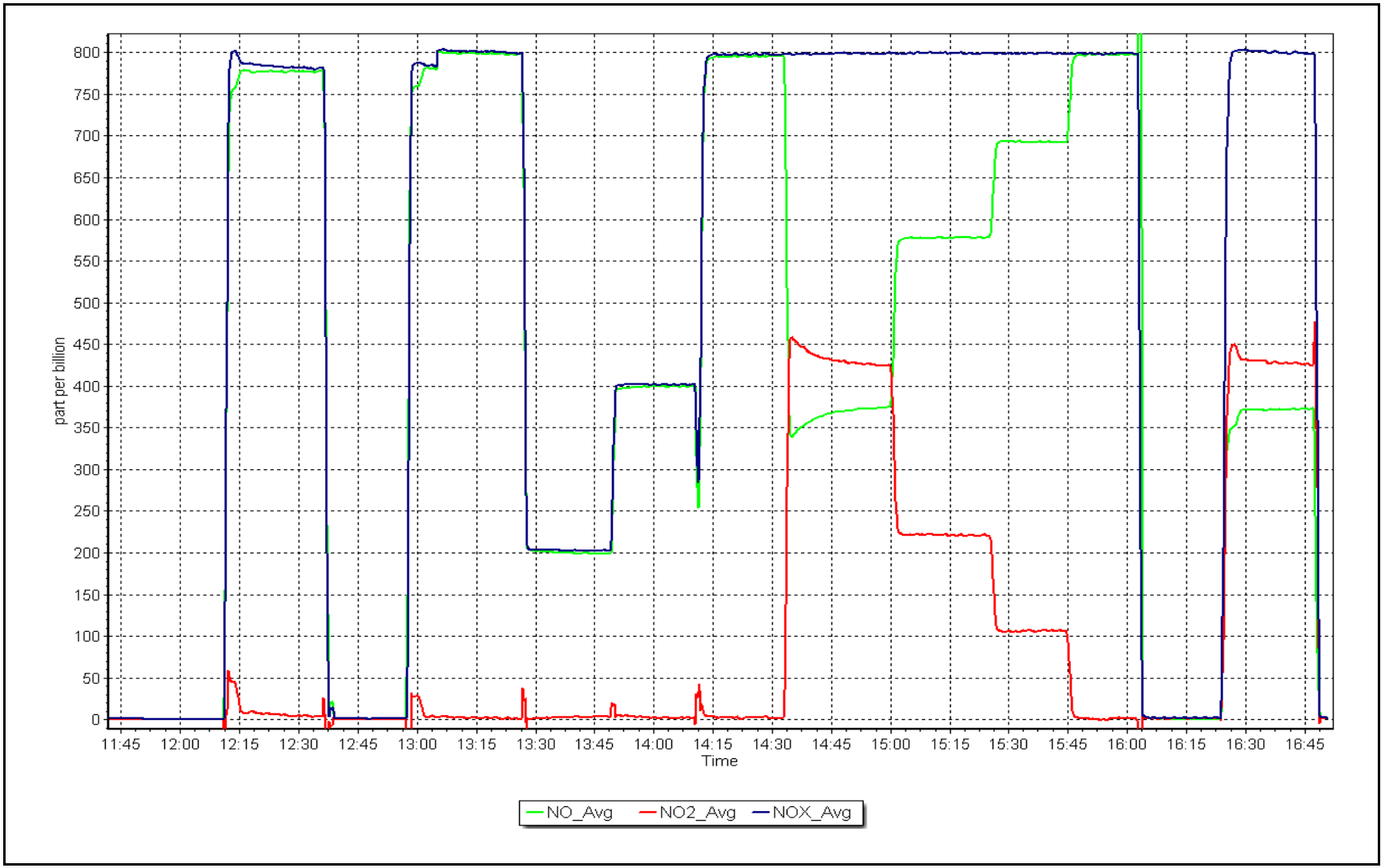
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.7	----
799.8	798.6	1.0015
400.4	399.7	1.0018
200.2	199.5	1.0033

Statistical Evaluation		Limits
Correlation Coefficient	0.999999	≥0.995
Slope	0.997930	0.90 - 1.10
Intercept	0.250656	+/-20



NO_X Calibration Plot Date: May 20, 2025 Location: Jackfish 2/3



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS29
SURMONT 2
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Surmont 2	Station number:	AMS 29
Calibration Date:	May 13, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	10:07	End time (MST):	13:10
Reason:	Routine		

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

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1170050150	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.006144	0.999960	Backgd or Offset:	14.3	14.3
Calibration intercept:	-1.799656	-1.560602	Coeff or Slope:	0.956	0.956

SO_2 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	4919.9	80.1	800.2	803.0	0.996
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	803.5	Previous response	803.3	*% change	0.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	80.1	800.2	799.0	1.002
Mid point	4960	40.0	399.6	398.1	1.004
Low point	4980	20.0	199.8	196.5	1.017
As left zero	5000	0.0	0.0	-0.2	----
As left span	4920	80.1	800.2	802.0	0.998
				Average Correction Factor:	1.007

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

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

SO_2 Calibration Summary

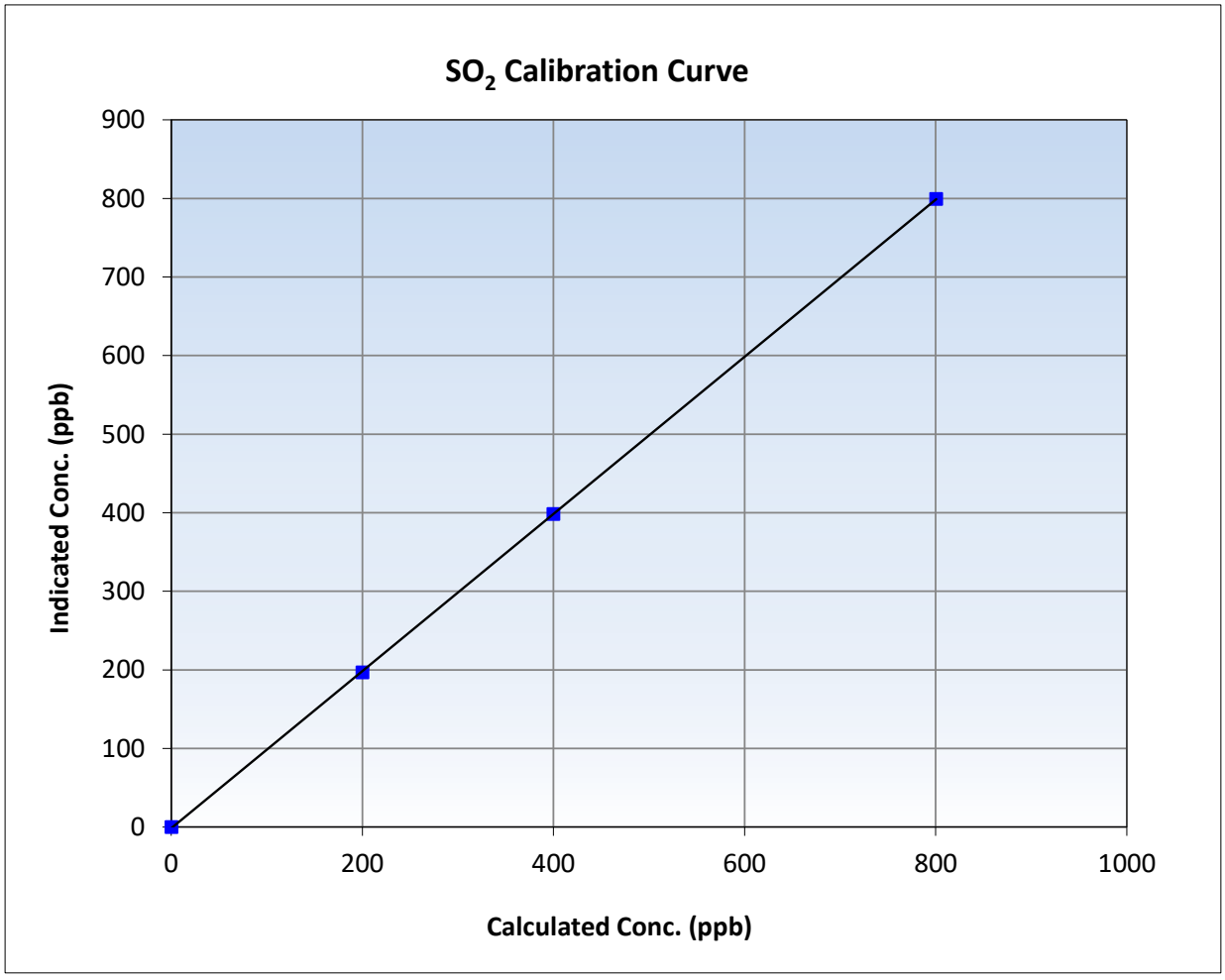
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 14, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:07	End Time (MST):	13:10
Analyzer make:	Thermo 43i	Analyzer serial #:	1170050150

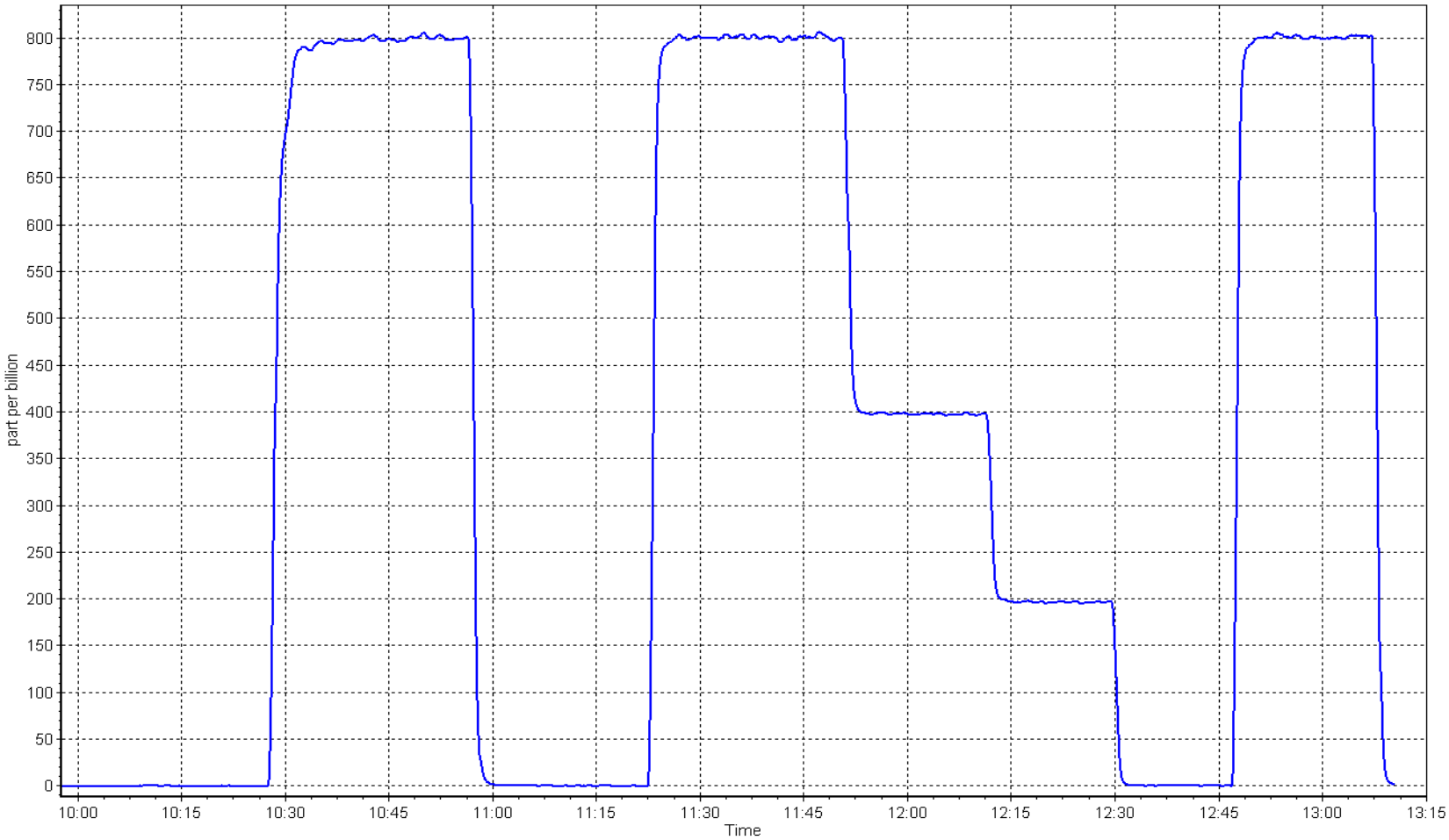
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
800.2	799.0	1.0015
399.6	398.1	1.0038
199.8	196.5	1.0168

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999986	*≥0.995*
Slope	0.999960	*0.90 - 1.10*
Intercept	-1.560602	*+/-30*



SO2 Calibration Plot Date: May 13, 2025 Location: Surmont 2



Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Surmont 2	Station number:	AMS 29
Calibration Date:	May 14, 2025	Last Cal Date:	April 8, 2025
Start time (MST):	10:27	End time (MST):	15:45
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.750	ppm	Cal Gas Exp Date:	August 28, 2027
Cal Gas Cylinder #:	CC737848			
Removed Cal Gas Conc:	4.750	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne API T700		Serial Number:	5472
ZAG Make/Model:	Teledyne API T701		Serial Number:	4428

Analyzer Information

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

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.003882	0.995309	Backgd or Offset:	0.95	0.95
Calibration intercept:	-0.180480	-0.180476	Coeff or Slope:	1.031	1.031

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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	0.0	----
As found High point	4916	84.2	80.0	80.7	0.991
As found Mid point	4958	42.1	40.0	40.1	0.997
As found Low point	4979	21.1	20.0	19.7	1.015
New cylinder response					

Baseline Corr As found:	80.7	Prev response:	80.12	*% change:	0.7%
Baseline Corr 2nd AF pt:	40.1	AF Slope:	1.010598	AF Intercept:	-0.240482
Baseline Corr 3rd AF pt:	19.7	AF Correlation:	0.999959	* = > +/-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) *Limit = 0.95-1.05*
Calibrator zero	5000	0.0	0.0	-0.1	----
High point	4916	84.2	80.0	79.5	1.006
Mid point	4958	42.1	40.0	39.5	1.013
Low point	4979	21.1	20.0	19.7	1.015
As left zero	5000	0.0	0.0	0.0	----
As left span	4916	84.2	80.0	78.4	1.020
SO2 Scrubber Check	4919	81.3	813.0	0.1	----

Date of last scrubber change:				Ave Corr Factor	1.011
Date of last converter efficiency test:		December 5, 2024		108.1%	efficiency

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

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

H2S Calibration Summary

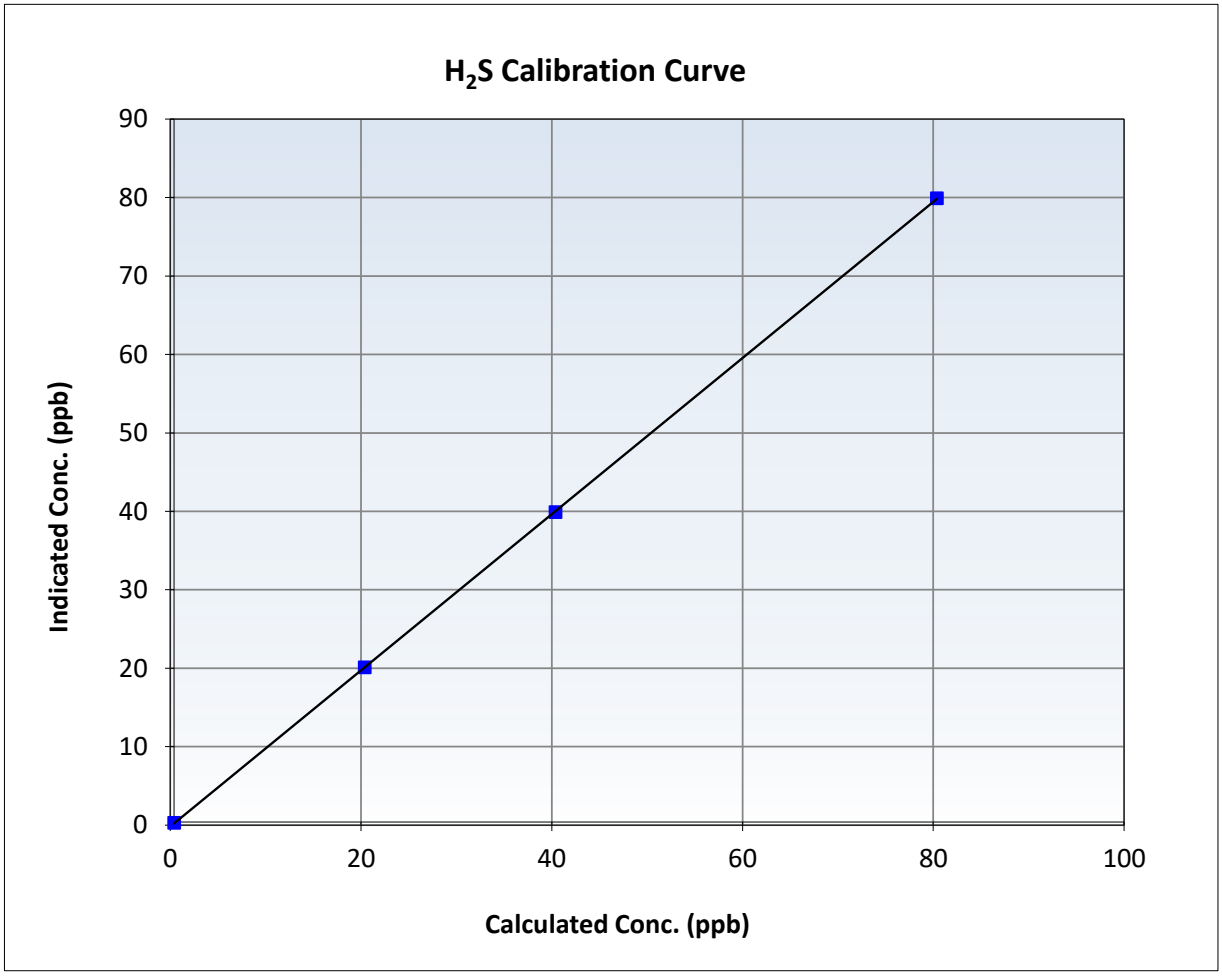
Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 8, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:27	End Time (MST):	15:45
Analyzer make:	Thermo 43iQ-TLE	Analyzer serial #:	1200326170

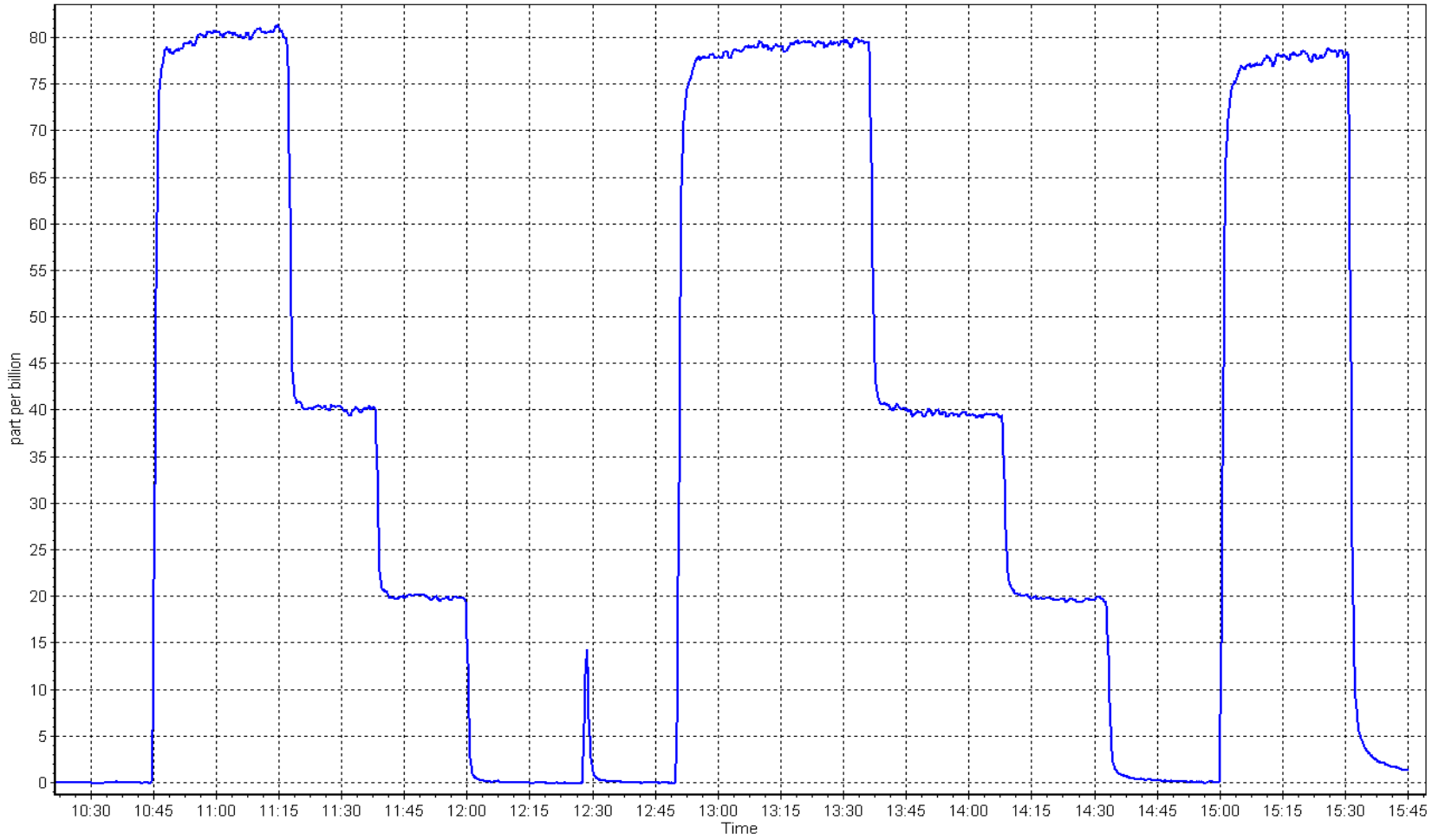
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	79.5	1.0061
40.0	39.5	1.0125
20.0	19.7	1.0151

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999992	*≥0.995*
Slope	0.995309	*0.90 - 1.10*
Intercept	-0.180476	*+/-3*



H2S Calibration Plot Date: May 14, 2025 Location: Surmont 2



Wood Buffalo Environmental Association

THC Calibration Report

Station Information

Station Name:	Surmont 2	Station number:	AMS 29
Calibration Date:	May 13, 2025	Last Cal Date:	April 14, 2025
Start time (MST):	10:07	End time (MST):	13:10
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	CC356229		Cal Gas Expiry Date:	October 9, 2032	
CH4 Cal Gas Conc.	503.7	ppm	CH4 Equiv Conc.	1066.9	ppm
C3H8 Cal Gas Conc.	204.8	ppm			
Removed Gas Cert:	NA		Removed Gas Expiry:	NA	
Removed CH4 Conc.	503.7	ppm	CH4 Equiv Conc.	1066.9	ppm
Removed C3H8 Conc.	204.8	ppm	Diff between cyl:		
Calibrator Make/Model:	Teledyne API T700		Serial Number:	5472	
ZAG Make/Model:	Teledyne API T701		Serial Number:	4428	

Analyzer Information

Analyzer make: Thermo 51i-LT Analyzer serial #: 1170050149

Analyzer Range: 0 - 20 ppm

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	1.001408	1.005894	Background:	3.54	3.65
Calibration intercept:	-0.029160	-0.067933	Coefficient:	3.872	3.991

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	-0.04	----
As found High point	4920	80.1	17.09	16.56	1.029
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	16.60	Previous response	17.09	*% change	-2.9%
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)	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	-0.01	----
High point	4920	80.1	17.09	17.15	0.997
Mid point	4960	40.0	8.54	8.50	1.004
Low point	4980	20.0	4.27	4.16	1.026
As left zero	5000	0.0	0.00	-0.06	----
As left span	4920	80.1	17.09	17.17	0.995
				Average Correction Factor	1.009

Notes: Changed sample inlet filter after as founds. Adjusted span.

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

THC Calibration Summary

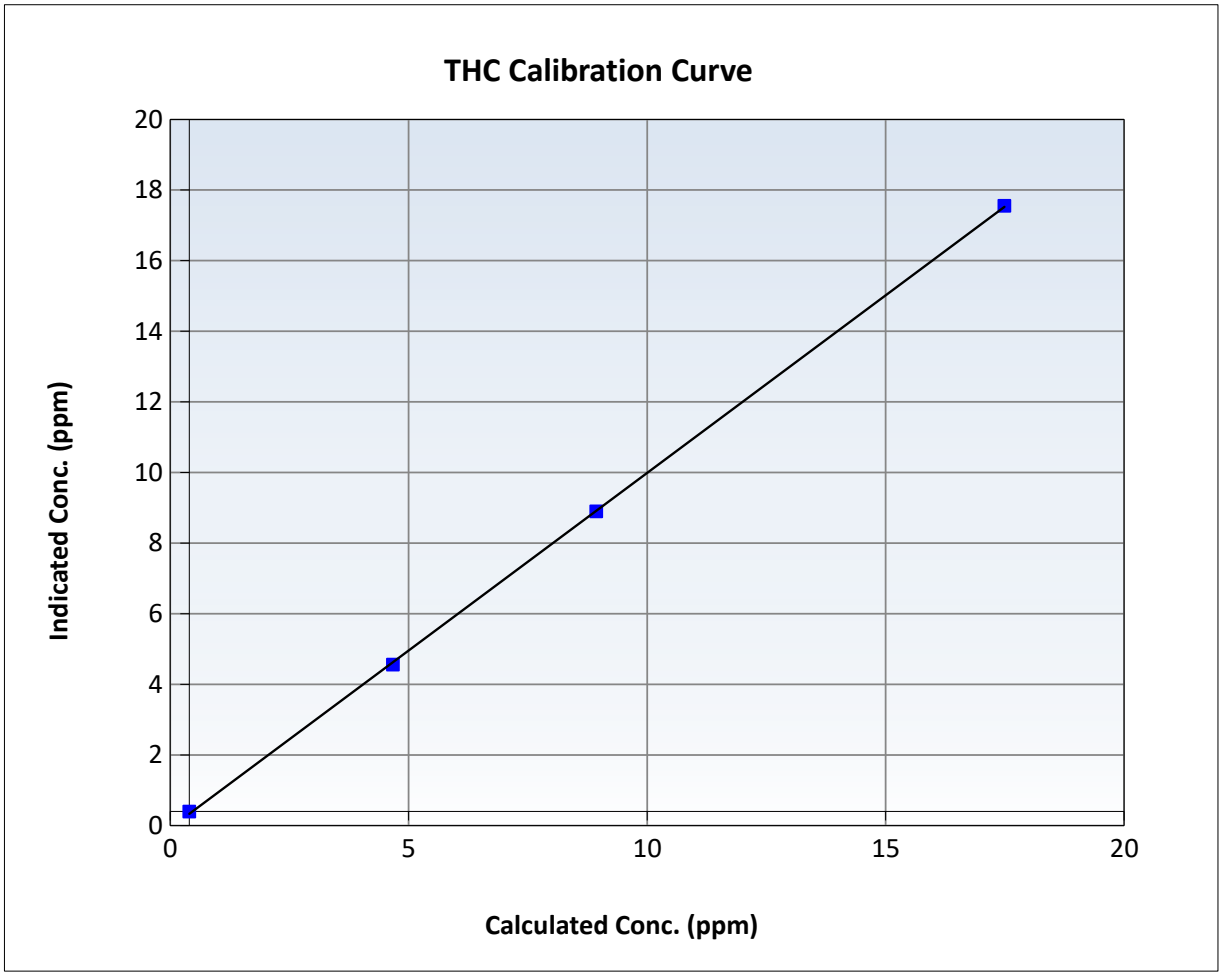
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 14, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:07	End Time (MST):	13:10
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1170050149

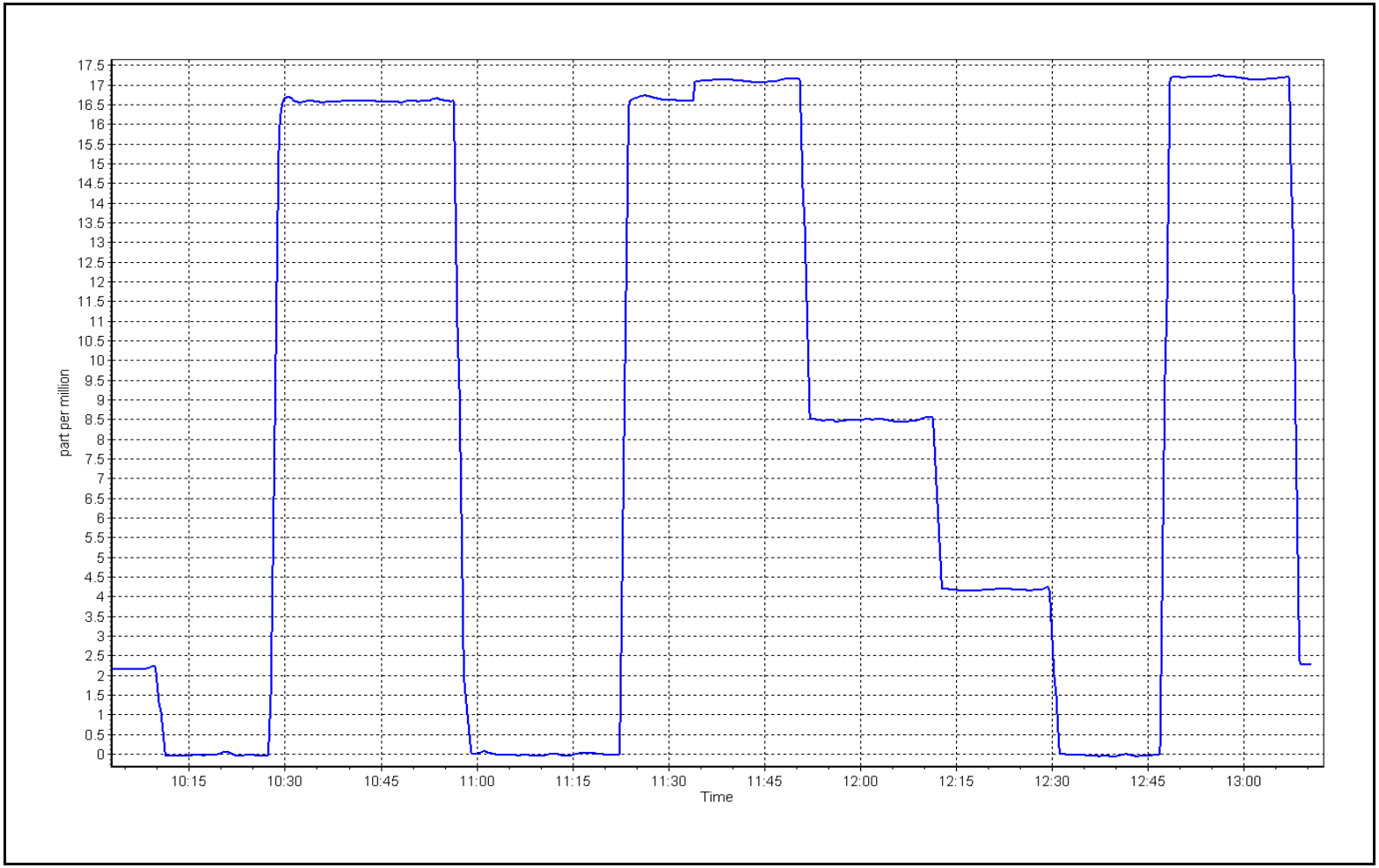
Calibration Data

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	-0.01	----
17.09	17.15	0.9966
8.54	8.50	1.0041
4.27	4.16	1.0264

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999945	*≥0.995*
Slope	1.005894	*0.90 - 1.10*
Intercept	-0.067933	*+/-1.5*



THC Calibration Plot Date: May 13, 2025 Location: Surmont 2



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Surmont 2
Station number:	AMS 29
Calibration Date:	May 1, 2025
Last Cal Date:	April 7, 2025
Start time (MST):	10:20
End time (MST):	15:24
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	CC218007	Cal Gas Expiry Date:	January 9, 2032
NOX Cal Gas Conc:	60.20 ppm	NO Cal Gas Conc:	60.00 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	60.20 ppm	Removed Gas NO Conc:	60.00 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	5472
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)) *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	-0.1	0.1	----	----
AF High point	4933	66.7	803.1	800.4	2.7	789.3	787.3	2.1	1.0175	1.0166
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X =	799.9 ppb	NO =	794.3 ppb	* = > +/-5% change initiates investigation	*Percent Change	NO_X = -1.3%
Baseline Corr 1st pt	NO_X =	789.3 ppb	NO =	787.4 ppb	As Found Statistics	*Percent Change	NO = -0.9%
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO_X r^2:	Nx Sl:	Nx Int:
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO r^2:	NO Sl:	NO Int:
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1170050148

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.001	1.017	NO bkgnd or offset:	1.2	1.2
NOX coeff or slope:	0.989	0.989	NOX bkgnd or offset:	1.2	1.2
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	148.7	149.9

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.997004	0.996519
NO_X Cal Offset:	-0.809963	-0.128231
NO Cal Slope:	0.994903	1.003658
NO Cal Offset:	-2.049505	-2.189709
NO_2 Cal Slope:	1.002832	0.994528
NO_2 Cal Offset:	0.553598	-0.374266

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	0.0	0.2	----	----
High point	4933	66.7	803.1	800.4	2.7	799.5	802.0	-2.1	1.0045	0.9981
Mid point	4967	33.3	400.9	399.6	1.3	401.8	398.6	3.2	0.9978	1.0024
Low point	4983	16.7	201.1	200.4	0.7	198.2	196.2	2.0	1.0145	1.0215
As left zero	5000	0.0	0.0	0.0	0.0	0.2	0.2	0.1	----	----
As left span	4933	66.7	803.1	408.9	394.2	794.7	408.9	385.7	1.0106	1.0000
								Average Correction Factor	1.0056	1.0073

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	0.2	----	----
High GPT point	793.2	411.1	384.8	382.5	1.0059	99.4%
Mid GPT point	793.2	613.9	182.0	180.5	1.0081	99.2%
Low GPT point	793.2	703.4	92.5	90.9	1.0173	98.3%
				Average Correction Factor	1.0104	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

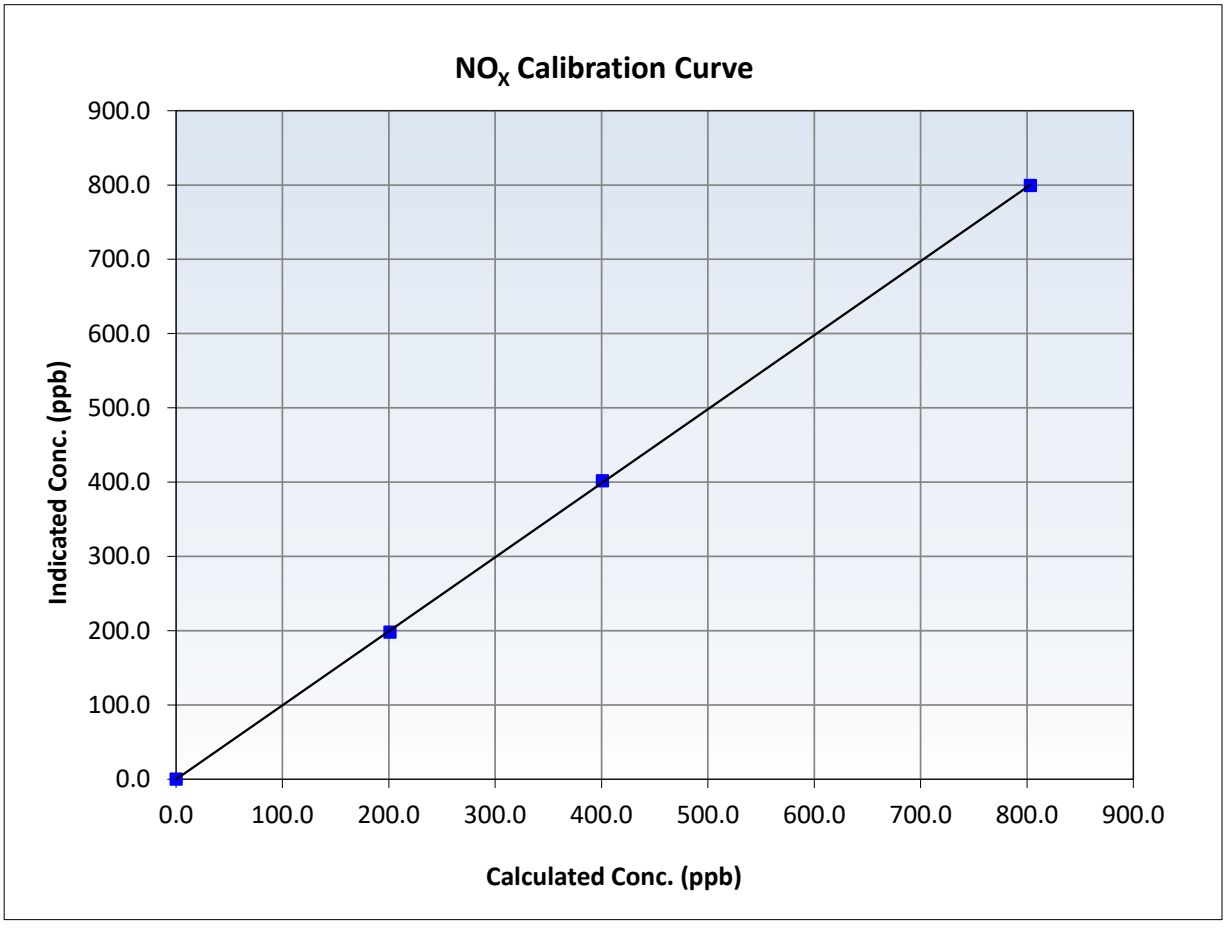
Station Information

Calibration Date:	May 1, 2025	Previous Calibration:	April 7, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:20	End Time (MST):	15:24
Analyzer make:	Thermo 42i	Analyzer serial #:	1170050148

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
803.1	799.5	1.0045
400.9	401.8	0.9978
201.1	198.2	1.0145

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999970	*≥0.995*
Slope	0.996519	*0.90 - 1.10*
Intercept	-0.128231	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

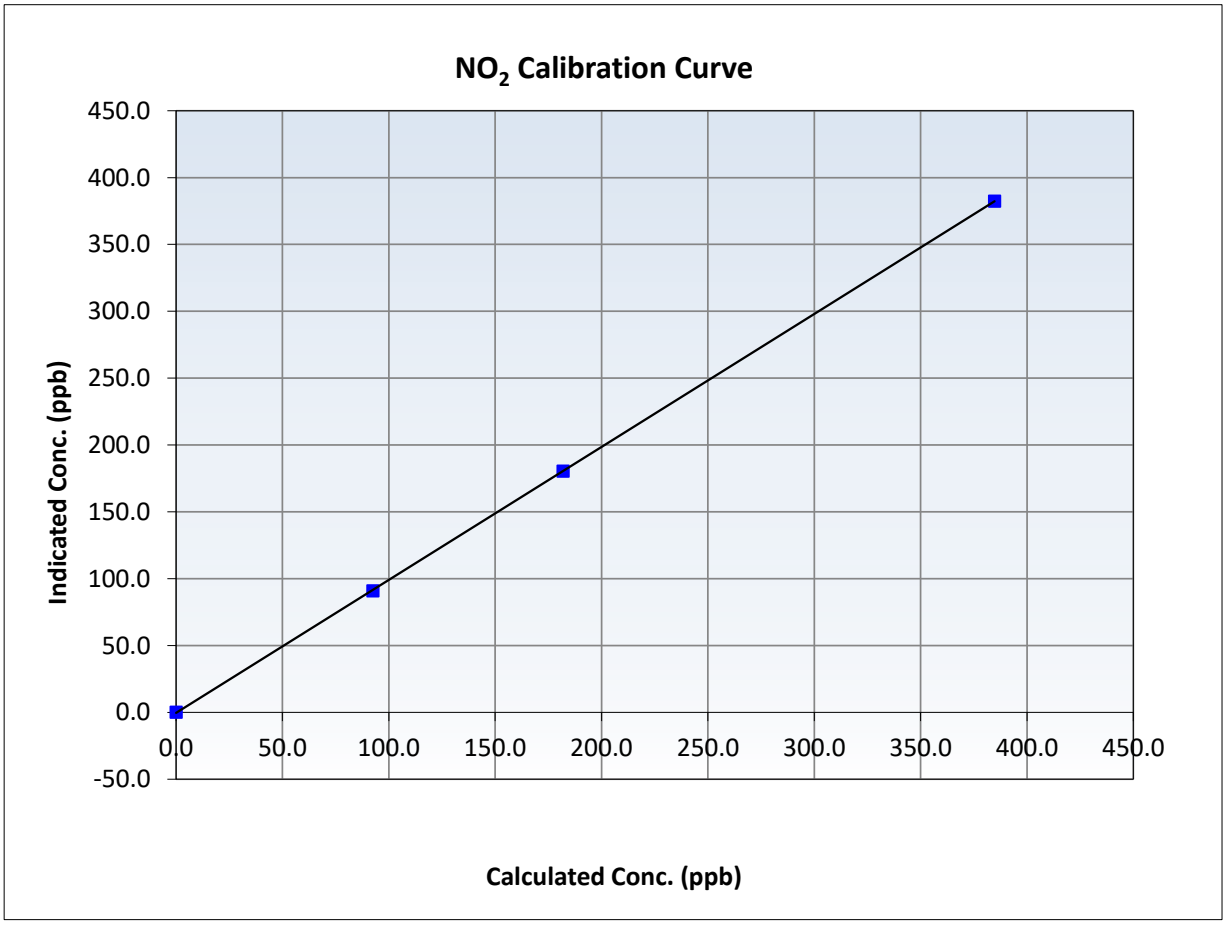
Station Information

Calibration Date:	May 1, 2025	Previous Calibration:	April 7, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:20	End Time (MST):	15:24
Analyzer make:	Thermo 42i	Analyzer serial #:	1170050148

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
384.8	382.5	1.0059
182.0	180.5	1.0081
92.5	90.9	1.0173

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999989	*≥0.995*
Slope	0.994528	*0.90 - 1.10*
Intercept	-0.374266	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

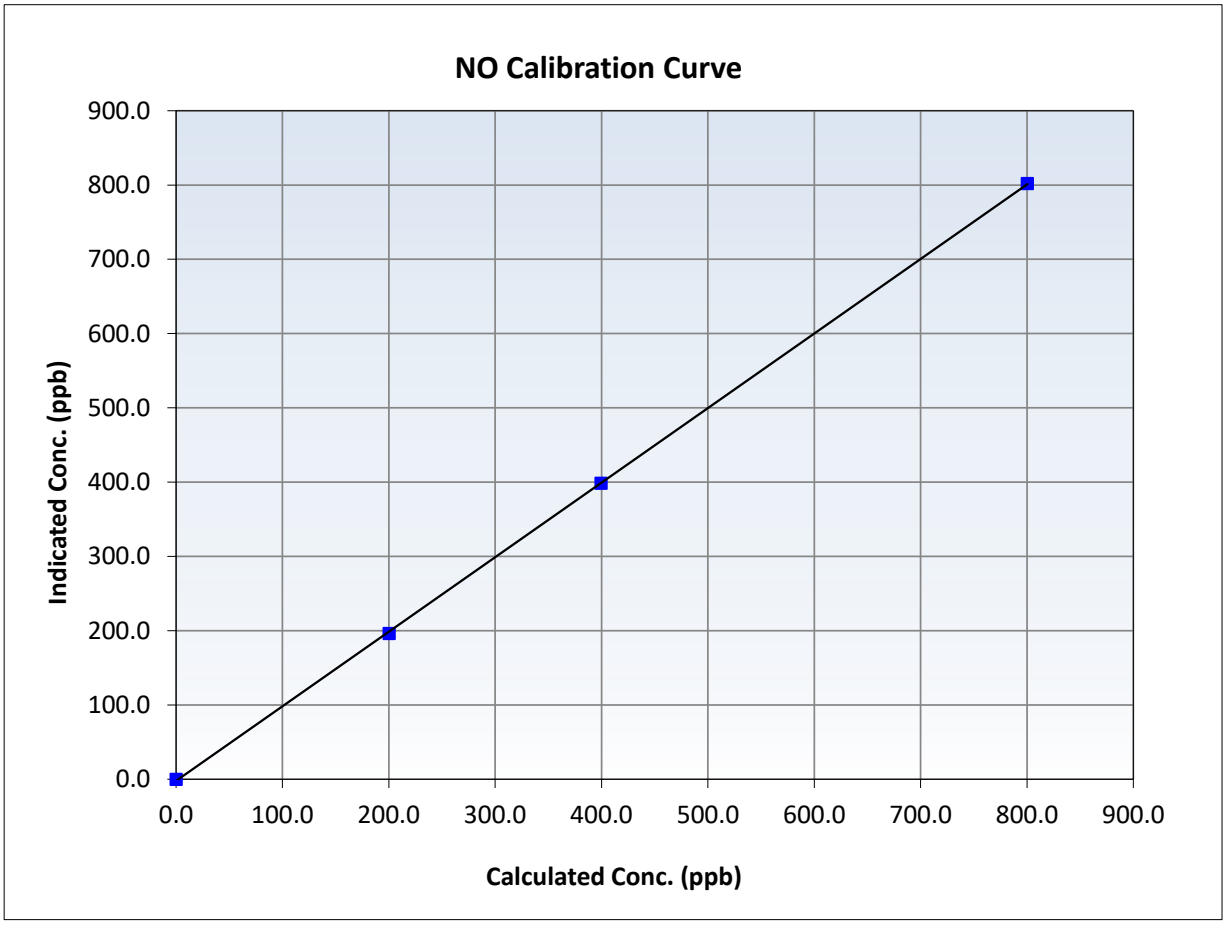
Station Information

Calibration Date:	May 1, 2025	Previous Calibration:	April 7, 2025
Station Name:	Surmont 2	Station Number:	AMS 29
Start Time (MST):	10:20	End Time (MST):	15:24
Analyzer make:	Thermo 42i	Analyzer serial #:	1170050148

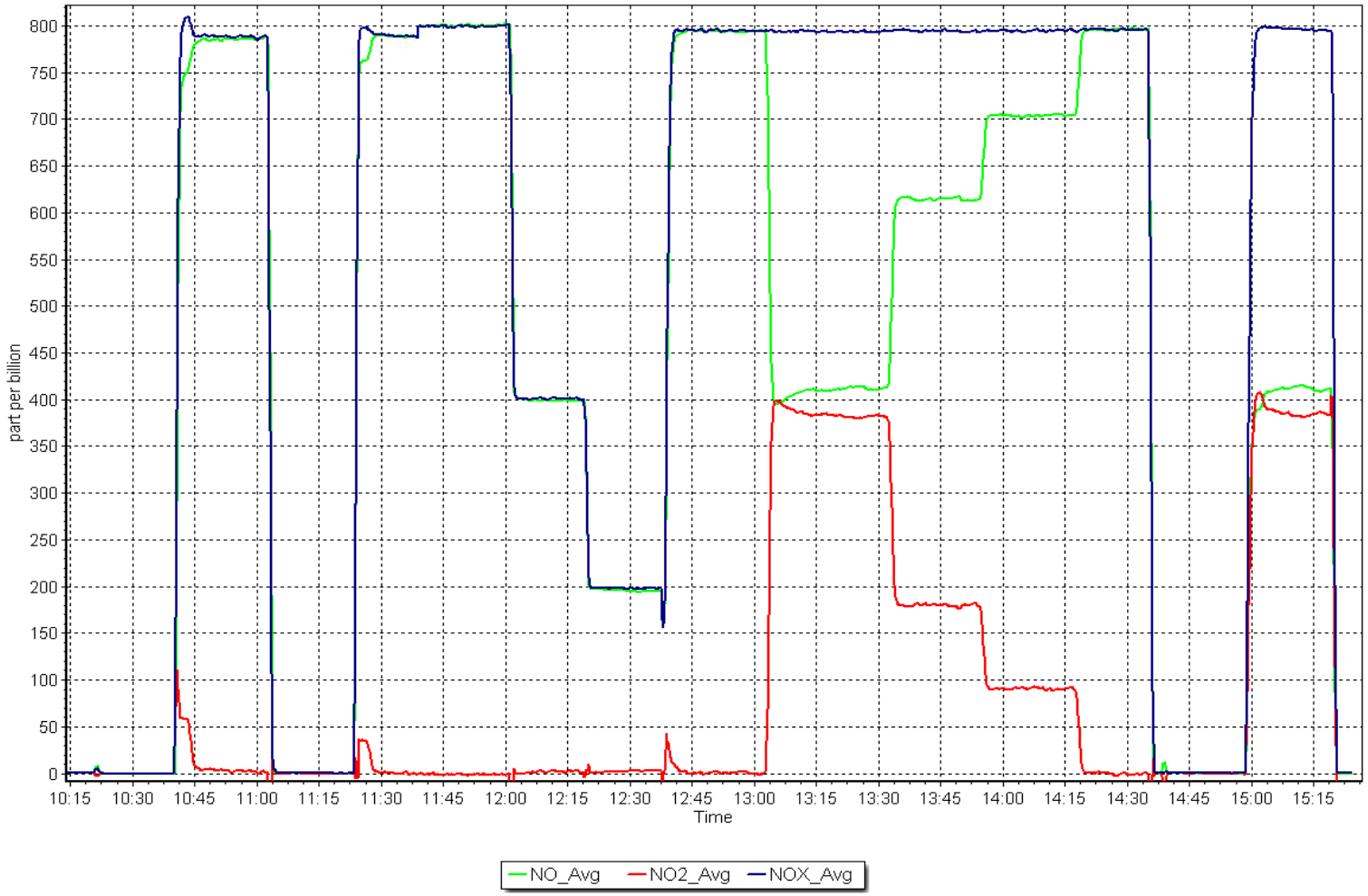
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
800.4	802.0	0.9981
399.6	398.6	1.0024
200.4	196.2	1.0215

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999963	*≥0.995*
Slope	1.003658	*0.90 - 1.10*
Intercept	-2.189709	*+/-20*



NO_X Calibration Plot Date: May 1, 2025 Location: Surmont 2



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Surmont 2	Station number:	AMS 29
Calibration Date:	May 1, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	10:26	End time (MST):	12:07
Analyzer Make:	API T640	S/N:	2236
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388754
Temp/RH standard:	Alicat FP-25BT	S/N:	388754

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (°C)	14.2	14.62	14.2	☐	+/- 2 °C
P (mmHg)	713.3	711.58	713.3	☐	+/- 10 mmHg
Flow (LPM)	5.02	5.010	5.02	☐	+/- 0.25 LPM
PW% (pump)	31	-----	31	☐	>80%
Zero Verification	PM w/o HEPA:	3.0	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: June 10, 2024 — Lot No.: 100128-050-042

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test				☐	+/- 0.5

Date Optical Chamber Cleaned: April 15, 2025

Date Disposable Filter Changed: April 15, 2025

Post- maintenance Zero Verification: PM w/ HEPA: _____ <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: April 14, 2025

Date RH/T Sensor Cleaned: October 30, 2024

Notes: Verified temperature, pressure and flow. Leak check passed. No adjustments made.

Calibration by: Braiden Boutilier

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS30
ELLS RIVER
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Ells River	Station number:	AMS 30
Calibration Date:	May 5, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	9:31	End time (MST):	14:37
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	48.75	ppm	Cal Gas Exp Date:	March 10, 2031
Cal Gas Cylinder #:	CC350110			
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:	3061
Zero Air Gen Model:	API T701H		Serial Number:	358

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1008841397	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000403	1.002332	Backgd or Offset:	10.1	10.0
Calibration intercept:	-2.892063	-2.692038	Coeff or Slope:	0.991	0.991

SO_2 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	4918	82.0	799.5	796.4	1.004
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	796.5	Previous response	796.9	*% change	-0.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	800.0	0.999
Mid point	4959	41.0	399.8	396.6	1.008
Low point	4980	20.5	199.9	195.1	1.024
As left zero	5000	0.0	0.0	0.0	----
As left span	4918	82.0	799.5	798.7	1.001
				Average Correction Factor:	1.011

Notes: Sample inlet filter replaced and No adjustment made.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

SO_2 Calibration Summary

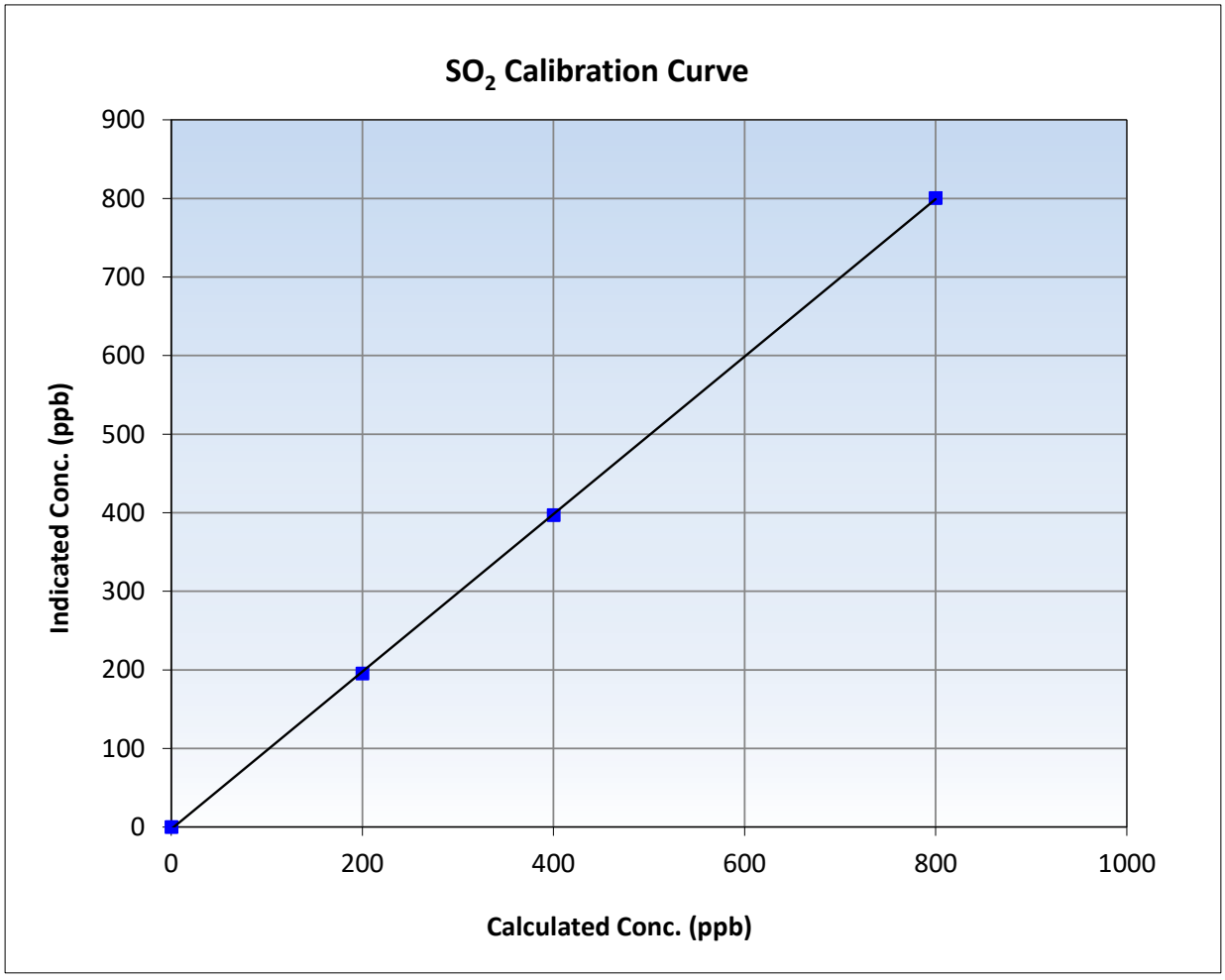
Station Information

Calibration Date:	May 5, 2025	Previous Calibration:	April 11, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:31	End Time (MST):	14:37
Analyzer make:	Thermo 43i	Analyzer serial #:	1008841397

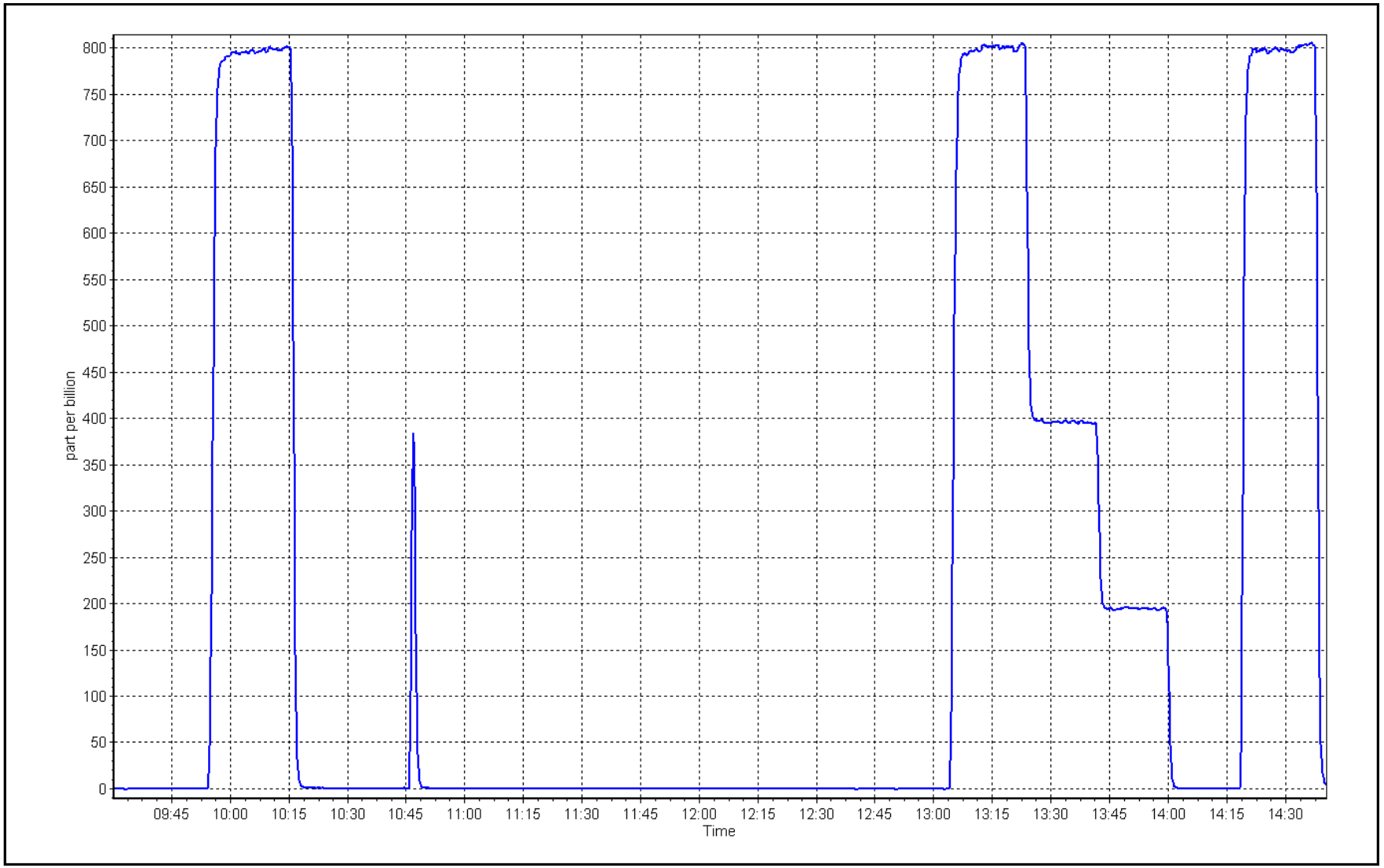
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
799.5	800.0	0.9994
399.8	396.6	1.0079
199.9	195.1	1.0244

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999952	*≥0.995*
Slope	1.002332	*0.90 - 1.10*
Intercept	-2.692038	*+/-30*



SO2 Calibration Plot Date: May 5, 2025 Location: Ells River



Wood Buffalo Environmental Association

TRS Calibration Report

Station Information

Station Name:	Ells River	Station number:	AMS 30
Calibration Date:	May 20, 2025	Last Cal Date:	April 1, 2025
Start time (MST):	9:39	End time (MST):	13:23
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.99	ppm	Cal Gas Exp Date:	November 15, 2026
Cal Gas Cylinder #:	CC505806			
Removed Cal Gas Conc:	4.99	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	3061
ZAG Make/Model:	API 701H		Serial Number:	358

Analyzer Information

Analyzer make:	Thermo 43i TLE		Analyzer serial #:	1410661331
Converter make:	CDN- 101		Converter serial #:	562
Analyzer Range	0 - 100 ppb		Converter Temp:	800 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.999336	1.006190	Backgd or Offset:	1.7	1.7
Calibration intercept:	-0.180614	-0.220528	Coeff or Slope:	1.080	1.089

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	4920	80.2	80.0	78.3	1.021
As found Mid point	4960	40.1	40.0	38.9	1.026
As found Low point	4980	20.0	20.0	19.2	1.034
New cylinder response					

Baseline Corr As found:	78.4	Prev response:	79.80	*% change:	-1.8%
Baseline Corr 2nd AF pt:	39.0	AF Slope:	0.980348	AF Intercept:	-0.240965
Baseline Corr 3rd AF pt:	19.3	AF Correlation:	0.999985	* = > +/-5% change initiates 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	80.4	0.995
Mid point	4960	40.1	40.0	40.0	1.000
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	80.6	0.993
SO2 Scrubber Check	4918	82.0	820.0	0.1	----

Date of last scrubber change:	14-Mar-25	Ave Corr Factor	1.005
Date of last converter efficiency test:			

Notes: Changed sample inlet filter 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

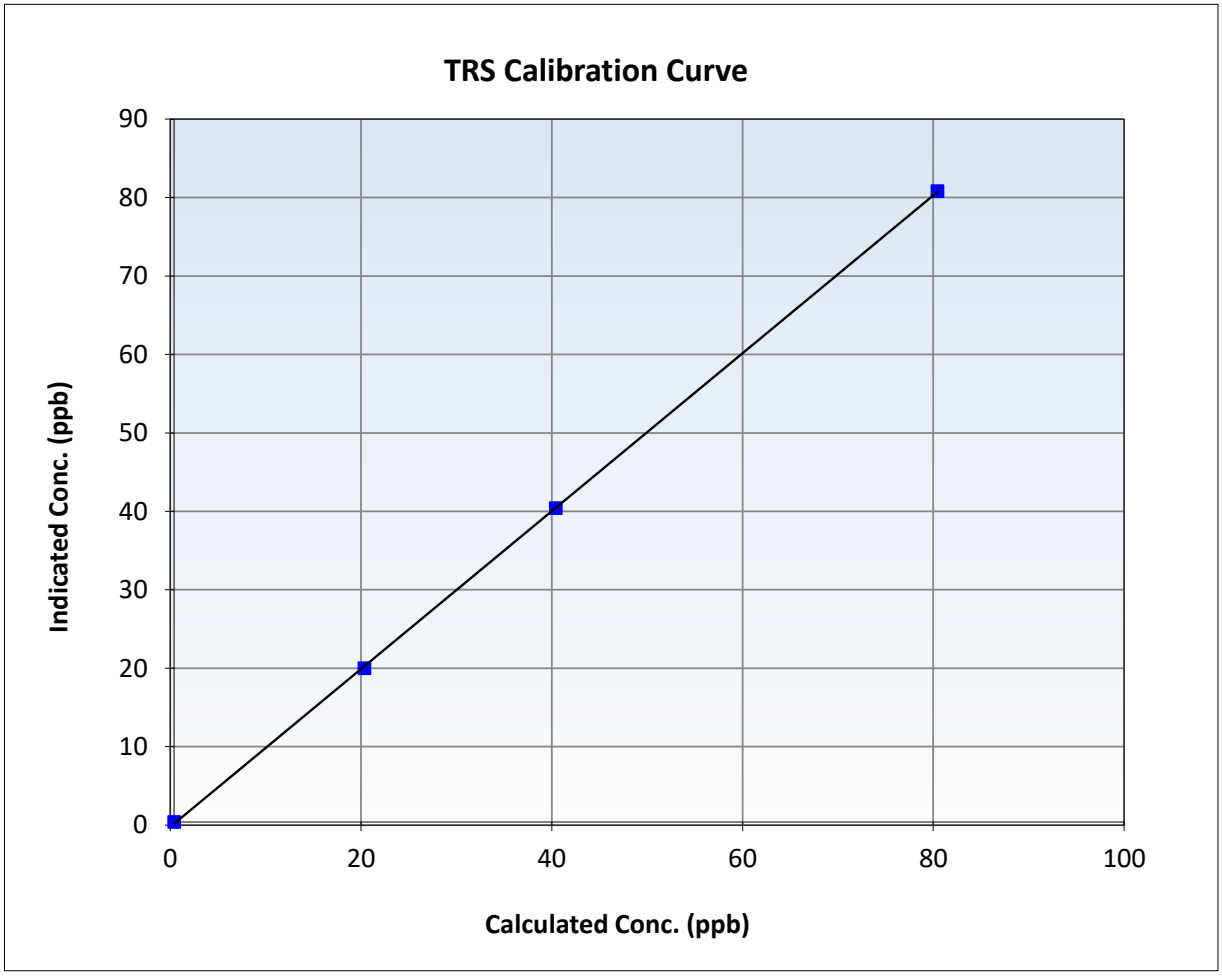
TRS Calibration Summary

Station Information

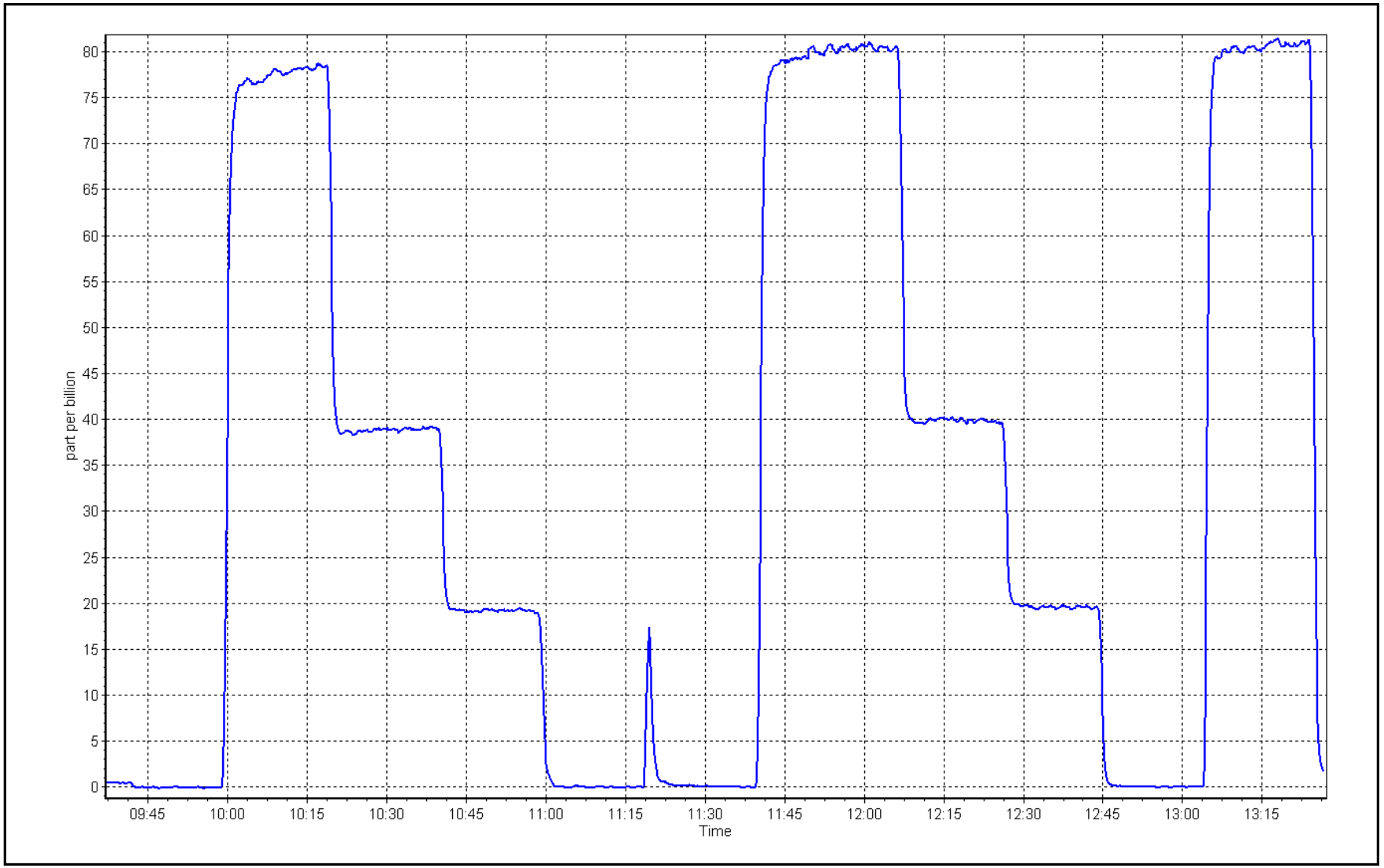
Calibration Date:	May 20, 2025	Previous Calibration:	April 1, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:39	End Time (MST):	13:23
Analyzer make:	Thermo 43i TLE	Analyzer serial #:	1410661331

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.0	----	Correlation Coefficient	0.999964	*≥0.995*
80.0	80.4	0.9955	Slope	1.006190	*0.90 - 1.10*
40.0	40.0	1.0005			
20.0	19.6	1.0184	Intercept	-0.220528	*+/-3*



TRS Calibration Plot Date: May 20, 2025 Location: Ells River



Wood Buffalo Environmental Association

THC / CH_4 / NMHC Calibration Report

Station Information

Station Name:	Ells River	Station number:	AMS 30
Calibration Date:	May 5, 2025	Last Cal Date:	April 11, 2025
Start time (MST):	9:31	End time (MST):	14:37
Reason:	Routine		

Calibration Standards

Gas Cert Reference:		CC350110	Cal Gas Expiry Date:	March 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:	NA	
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:	3061	
Zero Air Gen model:	API T701H		Serial Number:	358	

Analyzer Information

Analyzer make:	Thermo 55i		Analyzer serial #:	1152430011	
THC Range:	0 - 20 ppm		NMHC/CH4 Range:	0 - 10 ppm	
	Start	***Finish***		***Start***	***Finish***
CH4 SP Ratio:	3.11E-04	3.11E-04	NMHC SP Ratio:	5.96E-05	5.96E-05
CH4 Retention time:	17.4	17.4	NMHC Peak Area:	156612	156612
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	4918	82.0	17.49	17.61	0.993
As found Mid point					
As found Low point					
New cylinder response					

Baseline Corr AF:	17.61	Prev response	17.40	*% change	1.2%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	82.0	17.49	17.55	0.997
Mid point	4959	41.0	8.74	8.72	1.003
Low point	4980	20.5	4.37	4.31	1.015
As left zero	5000	0.0	0.00	0.00	----
As left span	4918	82.0	17.49	17.51	0.999
				Average Correction Factor	1.005

Notes: Sample inlet filter and H2 cylinder was changed after as founds. No adjustment made.

Wood Buffalo Environmental Association

THC / CH_4 / 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	4918	82.0	9.34	9.45	0.989
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	9.45	Prev response	9.30	*% change	1.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	9.39	0.996
Mid point	4959	41.0	4.67	4.68	0.998
Low point	4980	20.5	2.34	2.33	1.002
As left zero	5000	0.0	0.00	0.00	----
As left span	4918	82.0	9.34	9.38	0.996
				Average Correction Factor	0.998

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	4918	82.0	8.14	8.17	0.997
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr AF:	8.17	Prev response	8.11	*% change	0.8%
Baseline Corr 2nd AF:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF:	NA	AF Correlation:		* = > +/-5% change initiates 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	4918	82.0	8.14	8.16	0.998
Mid point	4959	41.0	4.07	4.03	1.010
Low point	4980	20.5	2.04	1.98	1.030
As left zero	5000	0.0	0.00	0.00	----
As left span	4918	82.0	8.14	8.13	1.002
				Average Correction Factor	1.013

Calibration Statistics

	Start	*Finish*
THC Cal Slope:	0.998643	1.004681
THC Cal Offset:	-0.060426	-0.043625
CH4 Cal Slope:	1.000159	1.004214
CH4 Cal Offset:	-0.040119	-0.035319
NMHC Cal Slope:	0.997542	1.004806
NMHC Cal Offset:	-0.020707	-0.007906

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

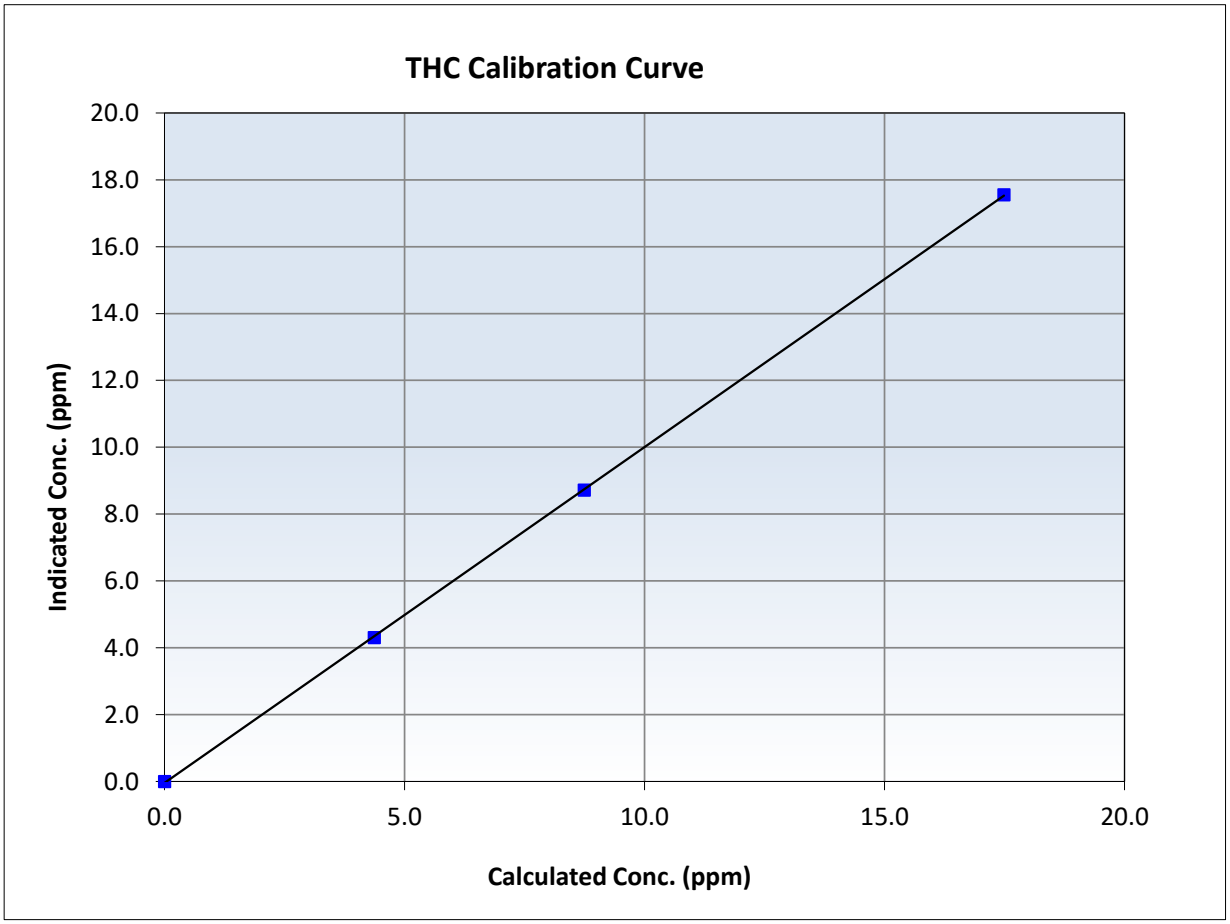
THC Calibration Summary

Station Information

Calibration Date:	May 5, 2025	Previous Calibration:	April 11, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:31	End Time (MST):	14:37
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430011

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		Limits
0.00	0.00	----	Correlation Coefficient	0.999972	≥0.995
17.49	17.55	0.9965	Slope	1.004681	0.90 - 1.10
8.74	8.72	1.0032	Intercept	-0.043625	+/-0.5
4.37	4.31	1.0150			



Wood Buffalo Environmental Association

CH_4 Calibration Summary

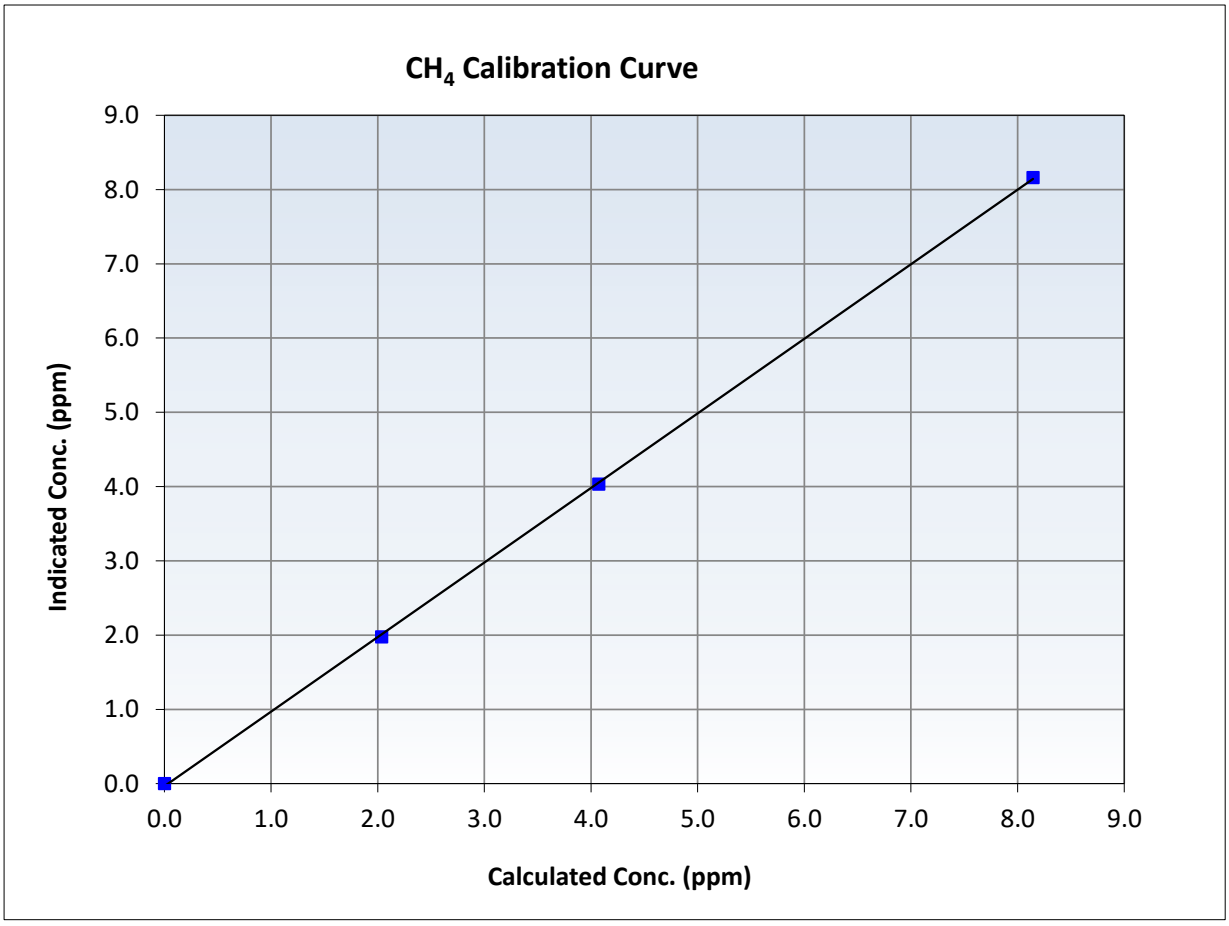
Station Information

Calibration Date:	May 5, 2025	Previous Calibration:	April 11, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:31	End Time (MST):	14:37
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430011

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
8.14	8.16	0.9978
4.07	4.03	1.0097
2.04	1.98	1.0303

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999914	*≥0.995*
Slope	1.004214	*0.90 - 1.10*
Intercept	-0.035319	*+/-0.5*



Wood Buffalo Environmental Association

NMHC Calibration Summary

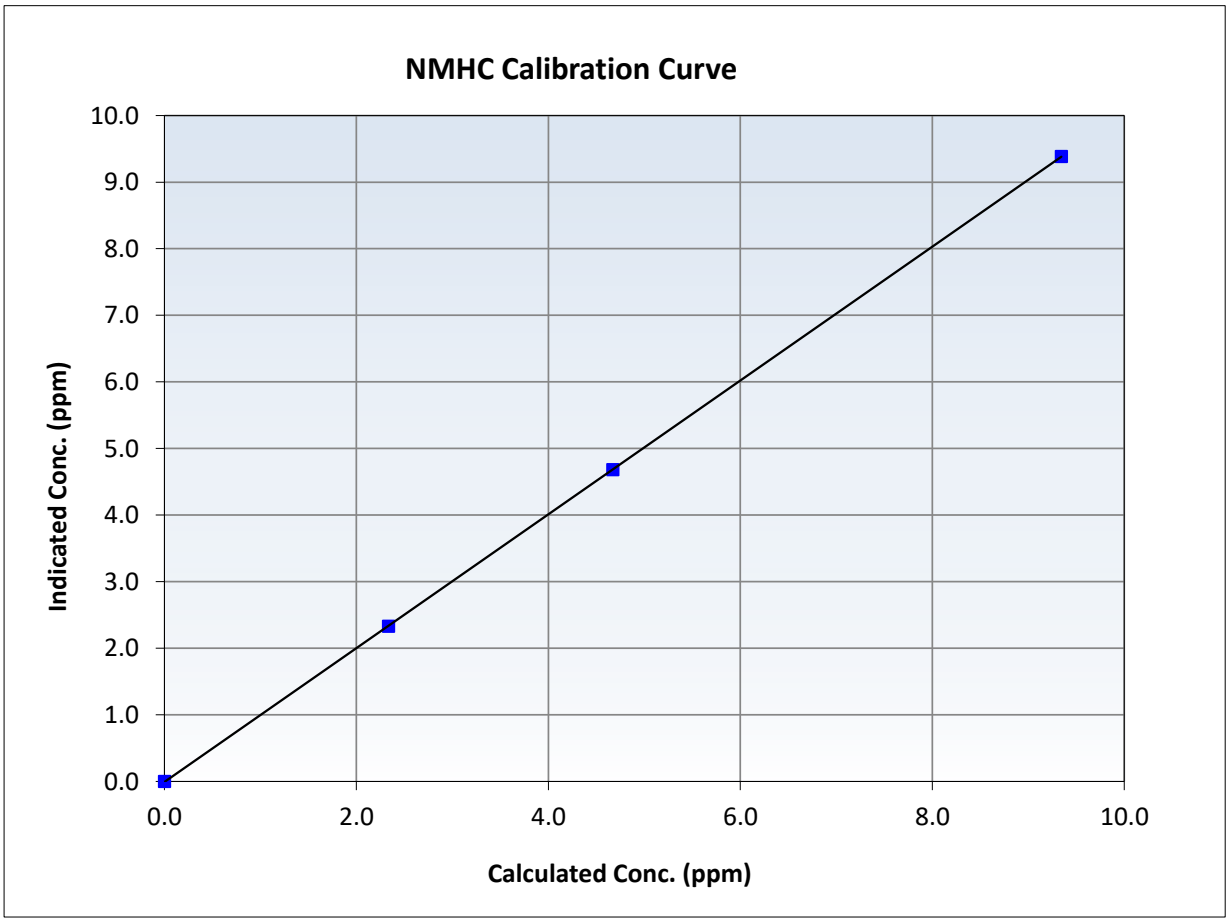
Station Information

Calibration Date:	May 5, 2025	Previous Calibration:	April 11, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:31	End Time (MST):	14:37
Analyzer make:	Thermo 55i	Analyzer serial #:	1152430011

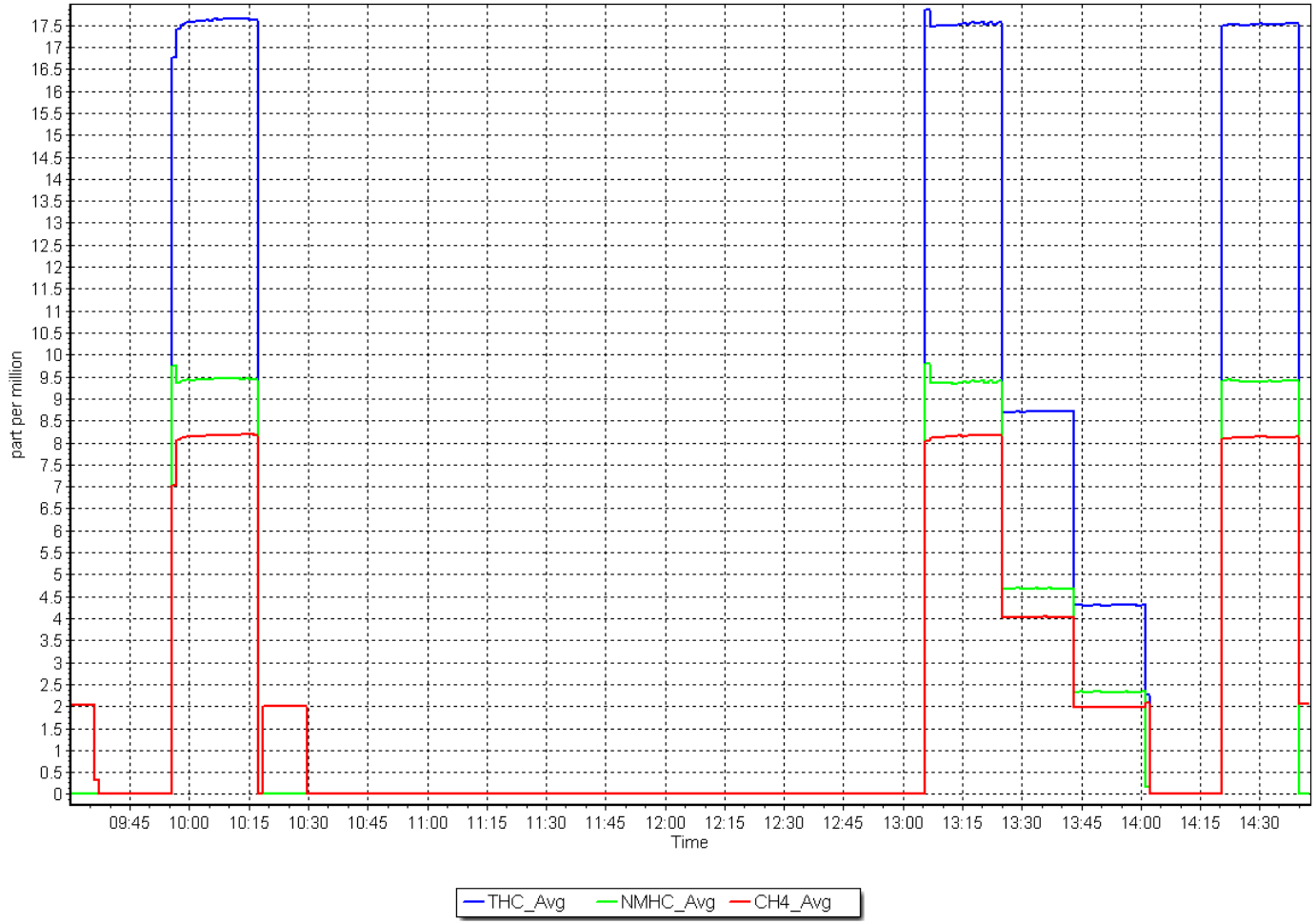
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	0.00	----
9.34	9.39	0.9956
4.67	4.68	0.9979
2.34	2.33	1.0017

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999997	*≥0.995*
Slope	1.004806	*0.90 - 1.10*
Intercept	-0.007906	*+/-0.5*



NMHC Calibration Plot Date: May 5, 2025 Location: Ells River



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Ells River
Station number:	AMS 30
Calibration Date:	May 9, 2025
Last Cal Date:	April 16, 2025
Start time (MST):	9:03
End time (MST):	13:15
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0027487	Cal Gas Expiry Date:	January 9, 2032
NOX Cal Gas Conc:	59.30 ppm	NO Cal Gas Conc:	59.10 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	59.30 ppm	Removed Gas NO Conc:	59.10 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	API T700	Serial Number:	3061
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)) *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	-0.1	----	----
AF High point	4932	67.7	803.0	800.3	2.7	749.0	743.0	6.0	1.0723	1.0774
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 802.5 ppb	NO = 800.4 ppb
Baseline Corr 1st pt	NO_X = 748.8 ppb	NO = 742.8 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

*Percent Change	NO_X =	-7.2%
*Percent Change	NO =	-7.8%

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 710321429

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.092	1.176	NO bkgnd or offset:	12.7	13.5
NOX coeff or slope:	0.993	0.993	NOX bkgnd or offset:	12.7	13.6
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	186.3	193.6

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.001140	0.999191
NO_X Cal Offset:	-1.398323	-1.639162
NO Cal Slope:	1.003617	1.000305
NO Cal Offset:	-2.779401	-2.920549
NO_2 Cal Slope:	1.001702	0.999921
NO_2 Cal Offset:	-0.164440	-0.518055

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	0.4	0.0	----	----
High point	4932	67.7	803.0	800.3	2.7	801.5	799.1	2.4	1.0018	1.0015
Mid point	4966	33.8	400.9	399.5	1.4	398.5	395.5	3.1	1.0060	1.0102
Low point	4983	16.9	200.4	199.8	0.7	196.2	193.3	2.8	1.0216	1.0334
As left zero	5000	0.0	0.0	0.0	0.0	0.4	0.5	-0.1	----	----
As left span	4932	67.7	803.0	429.4	373.6	802.0	429.4	372.5	1.0012	1.0000
							Average Correction Factor		1.0098	1.0150

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	0.0	----	----
High GPT point	797.1	425.4	374.4	374.1	1.0008	99.9%
Mid GPT point	797.1	611.7	188.1	187.4	1.0038	99.6%
Low GPT point	797.1	702.4	97.4	96.3	1.0115	98.9%
				Average Correction Factor	1.0054	99.5%

Notes: Sample inlet filter changed after as founds. Adjusted span only.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

NO_X Calibration Summary

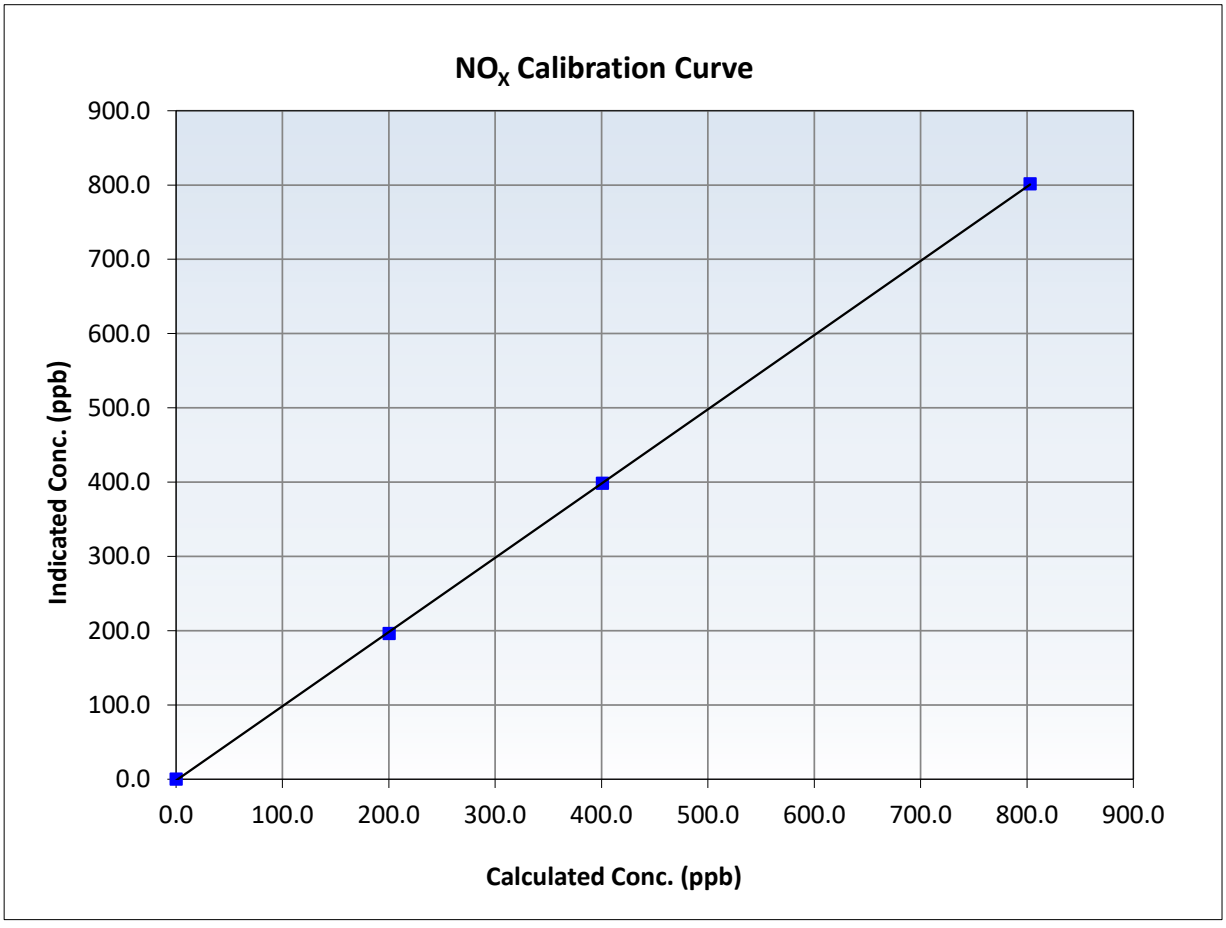
Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 16, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:03	End Time (MST):	13:15
Analyzer make:	Thermo 42i	Analyzer serial #:	710321429

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
803.0	801.5	1.0018
400.9	398.5	1.0060
200.4	196.2	1.0216

Statistical Evaluation		Limits
Correlation Coefficient	0.999969	≥0.995
Slope	0.999191	0.90 - 1.10
Intercept	-1.639162	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

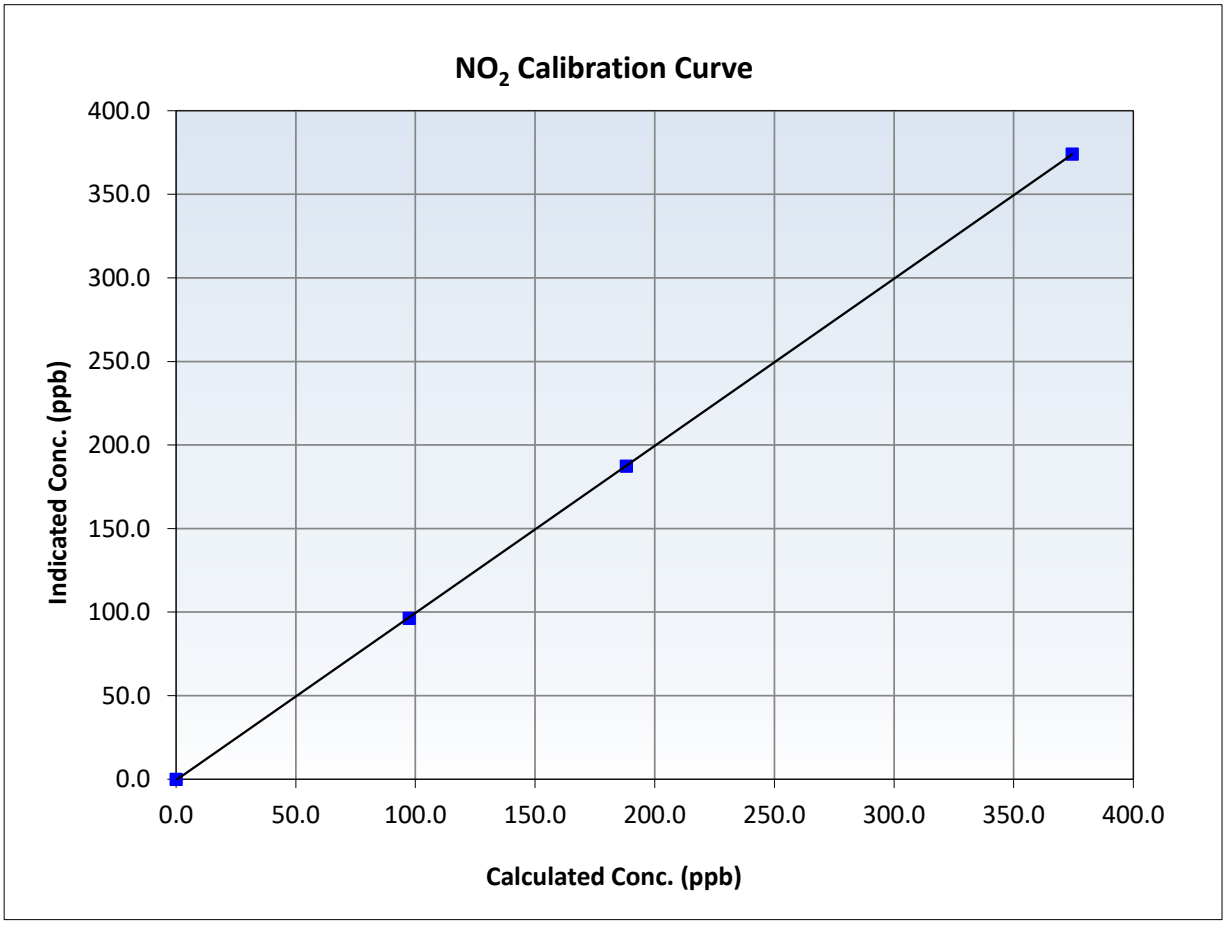
Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 16, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:03	End Time (MST):	13:15
Analyzer make:	Thermo 42i	Analyzer serial #:	710321429

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
374.4	374.1	1.0008
188.1	187.4	1.0038
97.4	96.3	1.0115

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999991	*≥0.995*
Slope	0.999921	*0.90 - 1.10*
Intercept	-0.518055	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

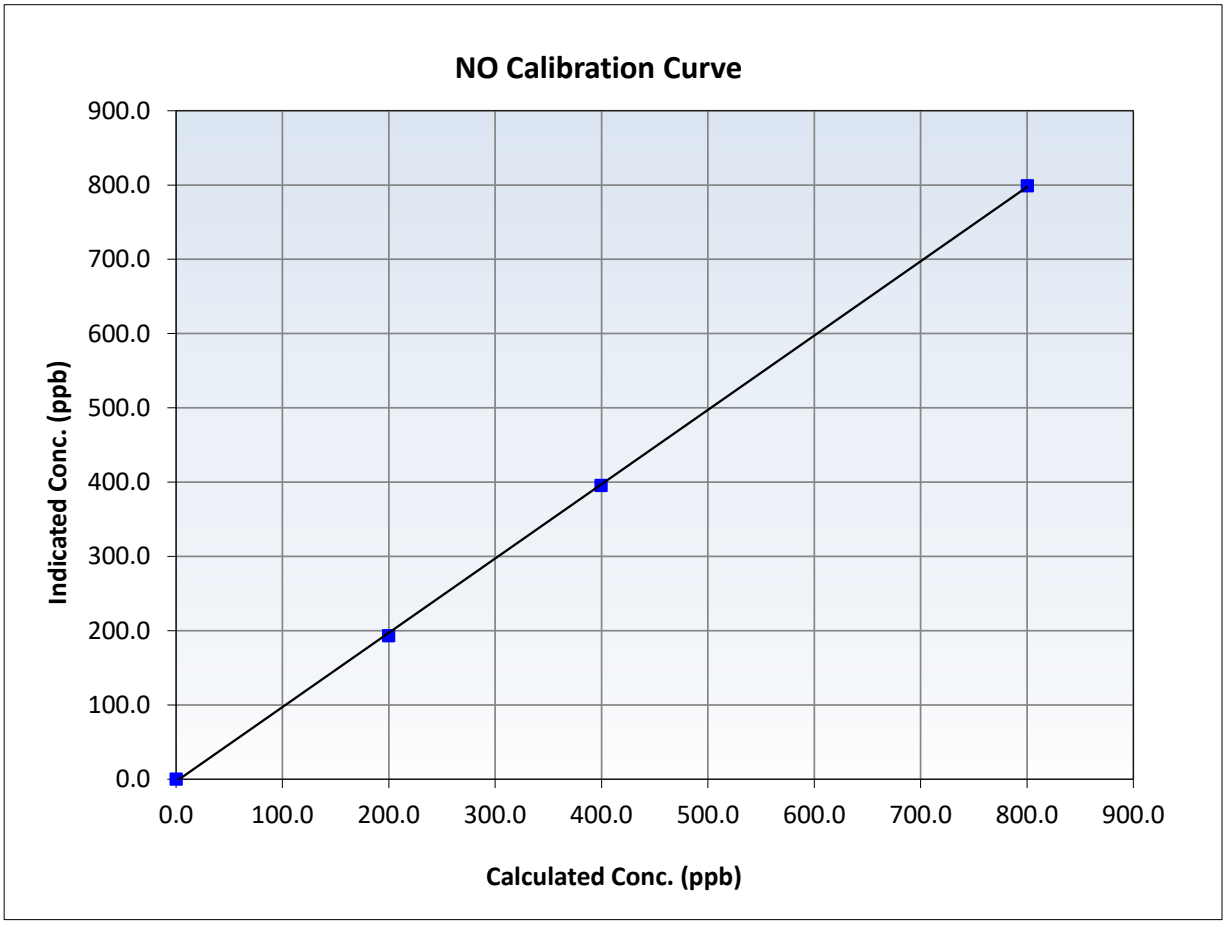
Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 16, 2025
Station Name:	Ells River	Station Number:	AMS 30
Start Time (MST):	9:03	End Time (MST):	13:15
Analyzer make:	Thermo 42i	Analyzer serial #:	710321429

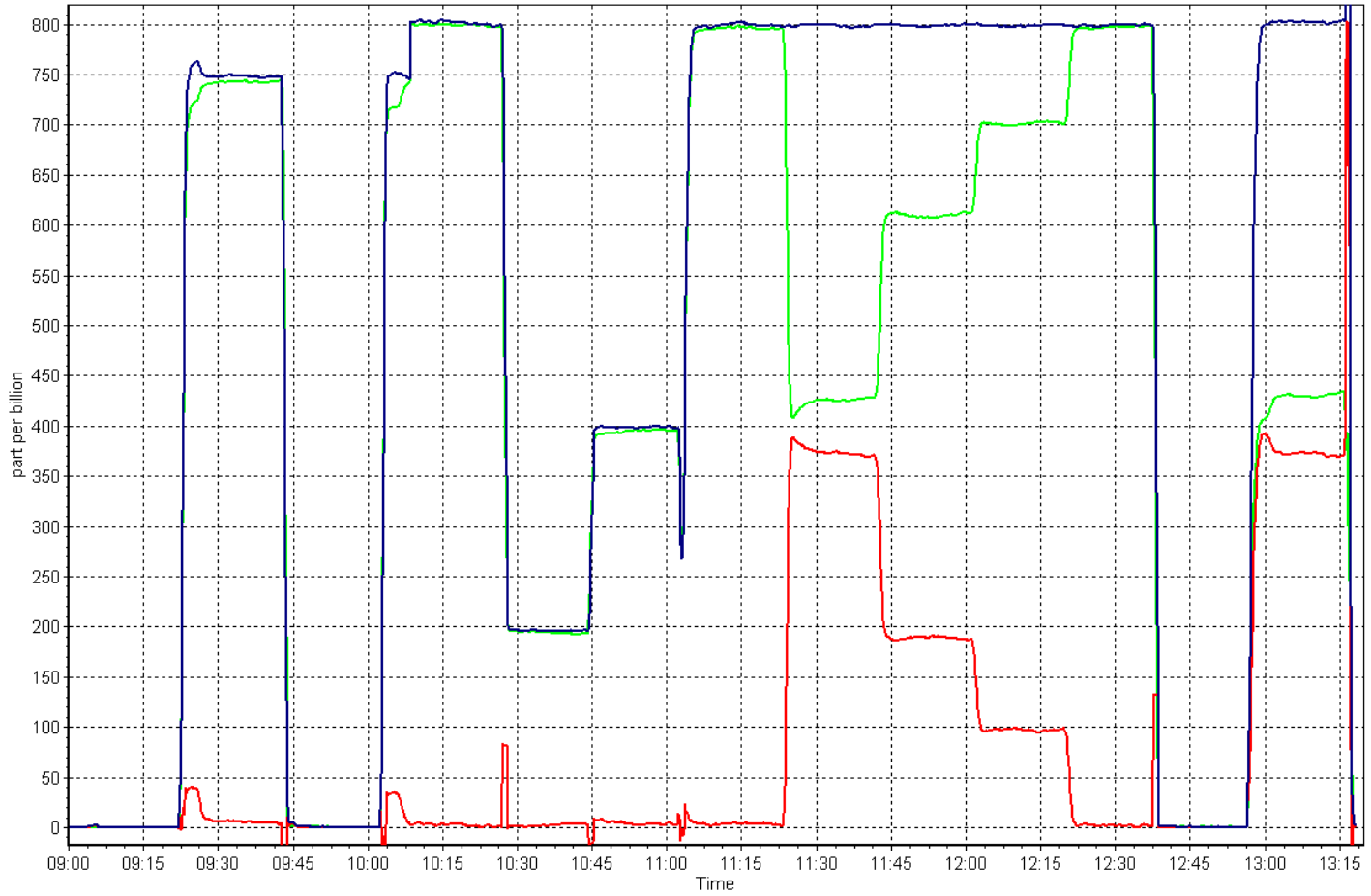
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
800.3	799.1	1.0015
399.5	395.5	1.0102
199.8	193.3	1.0334

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999921	*≥0.995*
Slope	1.000305	*0.90 - 1.10*
Intercept	-2.920549	*+/-20*



NO_X Calibration Plot Date: May 9, 2025 Location: Ells River



Wood Buffalo Environmental Association

T640 $PM_{2.5}$ CALIBRATION

Version-01-2024

Station Information

Station Name:	Ells River	Station number:	AMS 30
Calibration Date:	May 9, 2025	Last Cal Date:	April 16, 2025
Start time (MST):	10:48	End time (MST):	11:05
Analyzer Make:	API T640	S/N:	875
Particulate Fraction:	PM2.5		
Flow Meter Make/Model:	Alicat FP-25BT	S/N:	388754
Temp/RH standard:	Alicat FP-25BT	S/N:	388754

Monthly Calibration Test

Parameter	As found	Measured	As left	Adjusted	*(Limits)*
T (^{o}C)	17.80	16.87	17.80	☐	+/- 2 ^{o}C
P (mmHg)	734.20	736.40	734.20	☐	+/- 10 mmHg
Flow (LPM)	5.00	5.00	5.00	☐	+/- 0.25 LPM
PW% (pump)	30	-----	30	☐	>80%
Zero Verification	PM w/o HEPA:	3.20	PM w/ HEPA:	0.00	<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: 10.90 — Expiry Date: January 30, 2027 — Lot No.: 100128-050-040

Parameter	As found	Post maintenance	As left	Adjusted	*(Limits)*
PMT Peak Test				☐	+/- 0.5

Date Optical Chamber Cleaned: April 16, 2025

Date Disposable Filter Changed: April 16, 2025

Post- maintenance Zero Verification: PM w/ HEPA: _____ <0.2 ug/m3

Annual Maintenance

Date Sample Tube Cleaned: December 6, 2024

Date RH/T Sensor Cleaned: February 23, 2024

Notes: Verified flow, temperature, pump power and pressure No adjustment made. Leak check passed.

Calibration by: Jan Castro

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS31
BLACKROD
MAY 2025

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

June 21, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Blackrod	Station number:	AMS 31
Calibration Date:	May 27, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	10:05	End time (MST):	12:49
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.25	ppm	Cal Gas Exp Date:	March 10, 2031
Cal Gas Cylinder #:	CC327023			
Removed Cal Gas Conc:	50.25	ppm	Rem Gas Exp Date:	N/A
Removed Gas Cyl #:	N/A		Diff between cyl:	
Calibrator Model:	Teledyne T700		Serial Number:	5762
Zero Air Gen Model:	Teledyne N701H		Serial Number:	72

Analyzer Information

Analyzer make:	Thermo 43i		Serial Number:	1160290014	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.998942	1.001056	Backgd or Offset:	39.5	37.6
Calibration intercept:	0.007990	-0.431982	Coeff or Slope:	1.019	0.980

SO_2 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	-0.9	----
As found High point	4920	79.6	800.0	832.1	0.960
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	833.0	Previous response	799.2	*% change	4.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	4920	79.6	800.0	800.1	1.000
Mid point	4960	39.8	400.0	401.0	0.998
Low point	4980	19.9	200.0	199.2	1.004
As left zero	5000	0.0	0.0	-0.5	----
As left span	4920	79.6	800.0	803.0	0.996
				Average Correction Factor:	1.000

Notes: Sample inlet filter was changed after as founds. Adjusted span only.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

SO_2 Calibration Summary

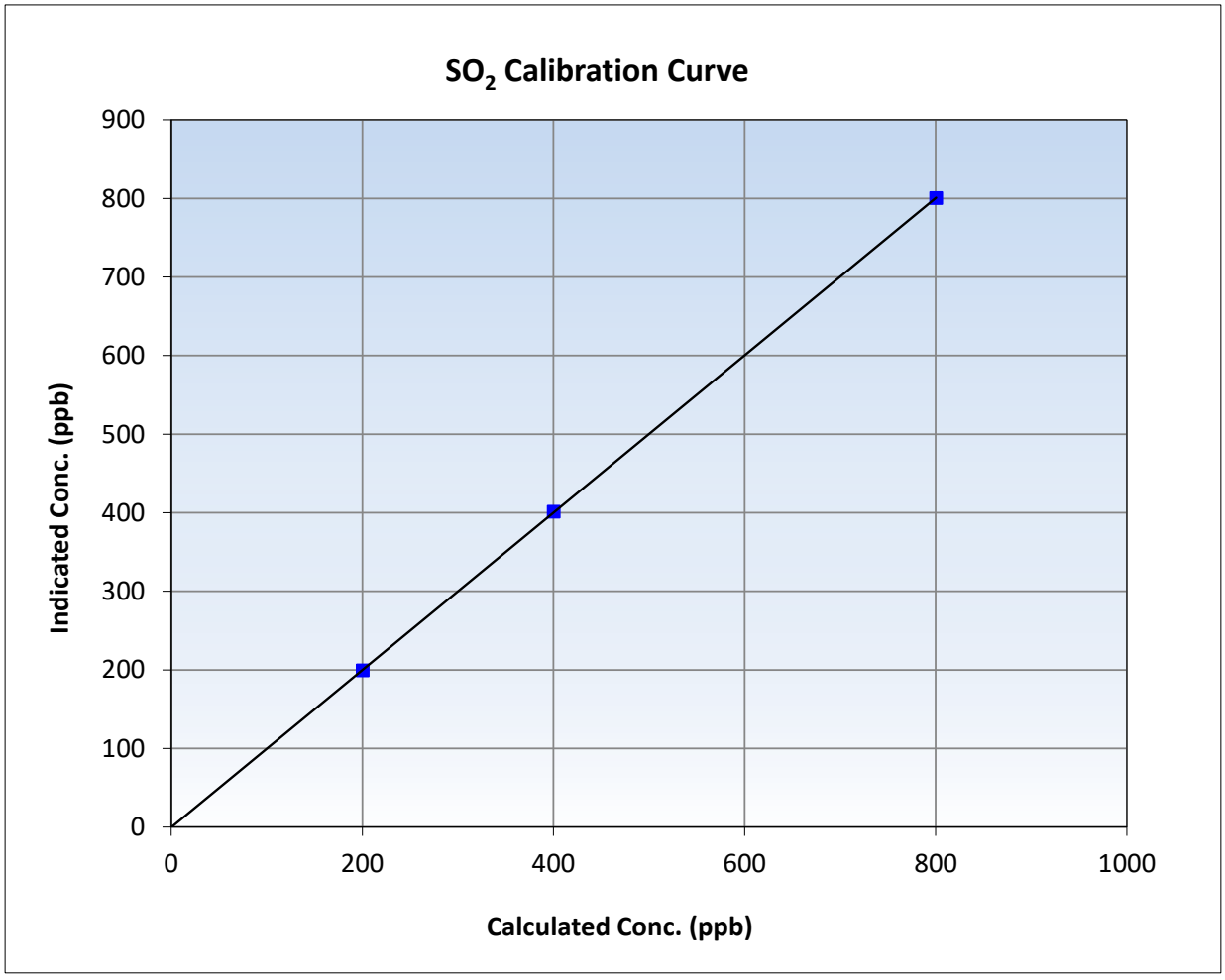
Station Information

Calibration Date:	May 27, 2025	Previous Calibration:	April 7, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	10:05	End Time (MST):	12:49
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290014

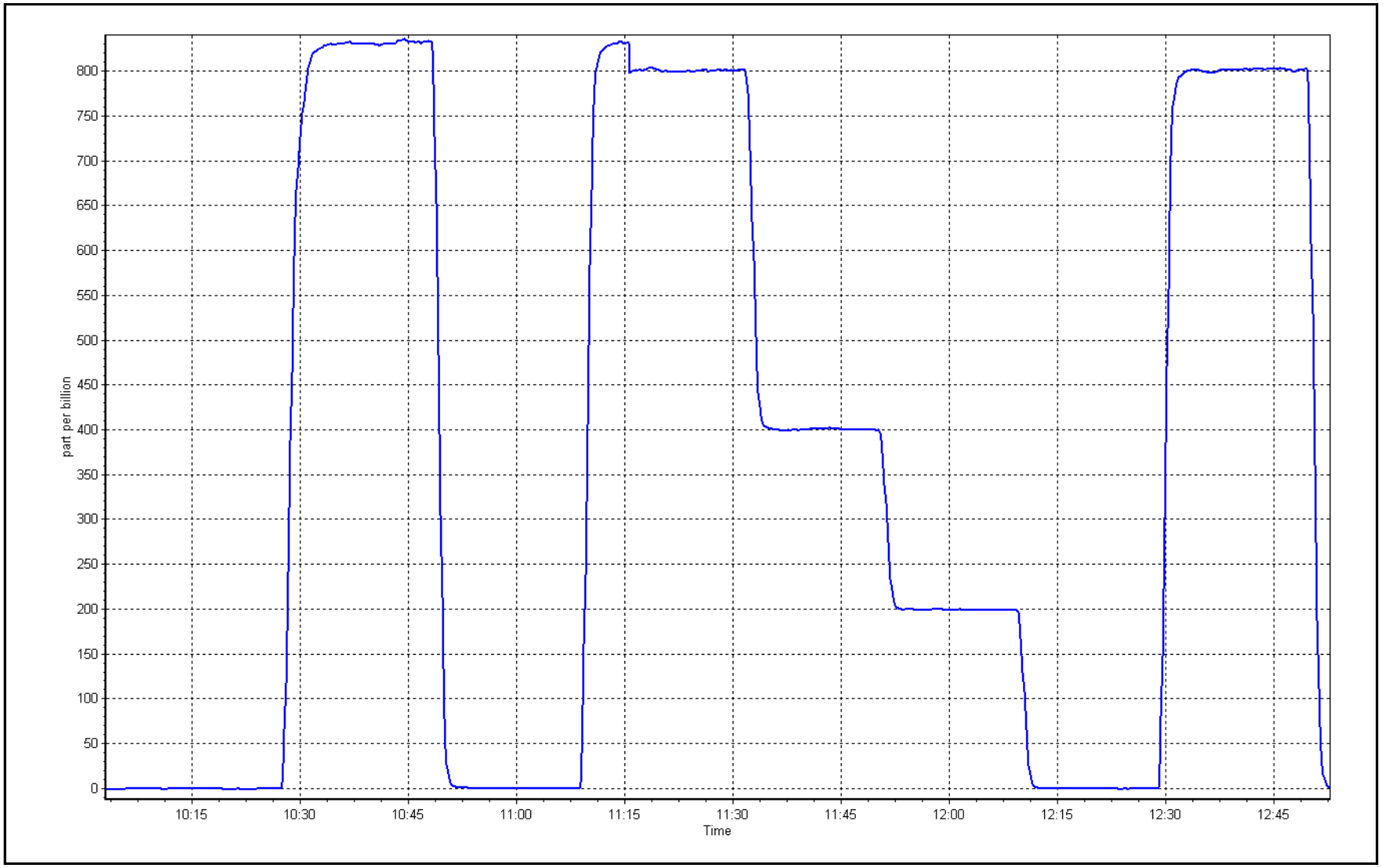
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.5	----
800.0	800.1	0.9999
400.0	401.0	0.9975
200.0	199.2	1.0040

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999996	*≥0.995*
Slope	1.001056	*0.90 - 1.10*
Intercept	-0.431982	*+/-30*



SO2 Calibration Plot Date: May 27, 2025 Location: Blackrod



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Blackrod	Station number:	AMS 31
Calibration Date:	May 28, 2025	Last Cal Date:	April 7, 2025
Start time (MST):	9:46	End time (MST):	13:41
Reason:	Routine		

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 N701H		Serial Number:	72

Analyzer Information

Analyzer make:	Thermo 43iQTL		Analyzer serial #:	12228021056	
Converter make:	Global		Converter serial #:	2023-266	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.007906	1.014478	Backgd or Offset:	2.77	2.69
Calibration intercept:	-0.140523	-0.220631	Coeff or Slope:	1.030	1.000

H_2S 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	4926	73.8	80.0	84.0	0.949
As found Mid point	4963	36.9	40.0	42.2	0.941
As found Low point	4982	18.5	20.1	20.7	0.955
New cylinder response					

Baseline Corr As found:	84.3	Prev response:	80.49	*% change:	4.5%
Baseline Corr 2nd AF pt:	42.5	AF Slope:	1.054771	AF Intercept:	-0.281426
Baseline Corr 3rd AF pt:	21.0	AF Correlation:	0.999968	* = > +/-5% change initiates investigation	

H_2S 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	81.0	0.988
Mid point	4963	36.9	40.0	40.3	0.993
Low point	4982	18.5	20.1	20.0	1.003
As left zero	5000	0.0	0.0	0.0	----
As left span	4926	73.8	80.0	80.0	1.000
SO2 Scrubber Check	4920	79.6	796.1	0.0	----
Date of last scrubber change:				Ave Corr Factor	0.994
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

H_2S Calibration Summary

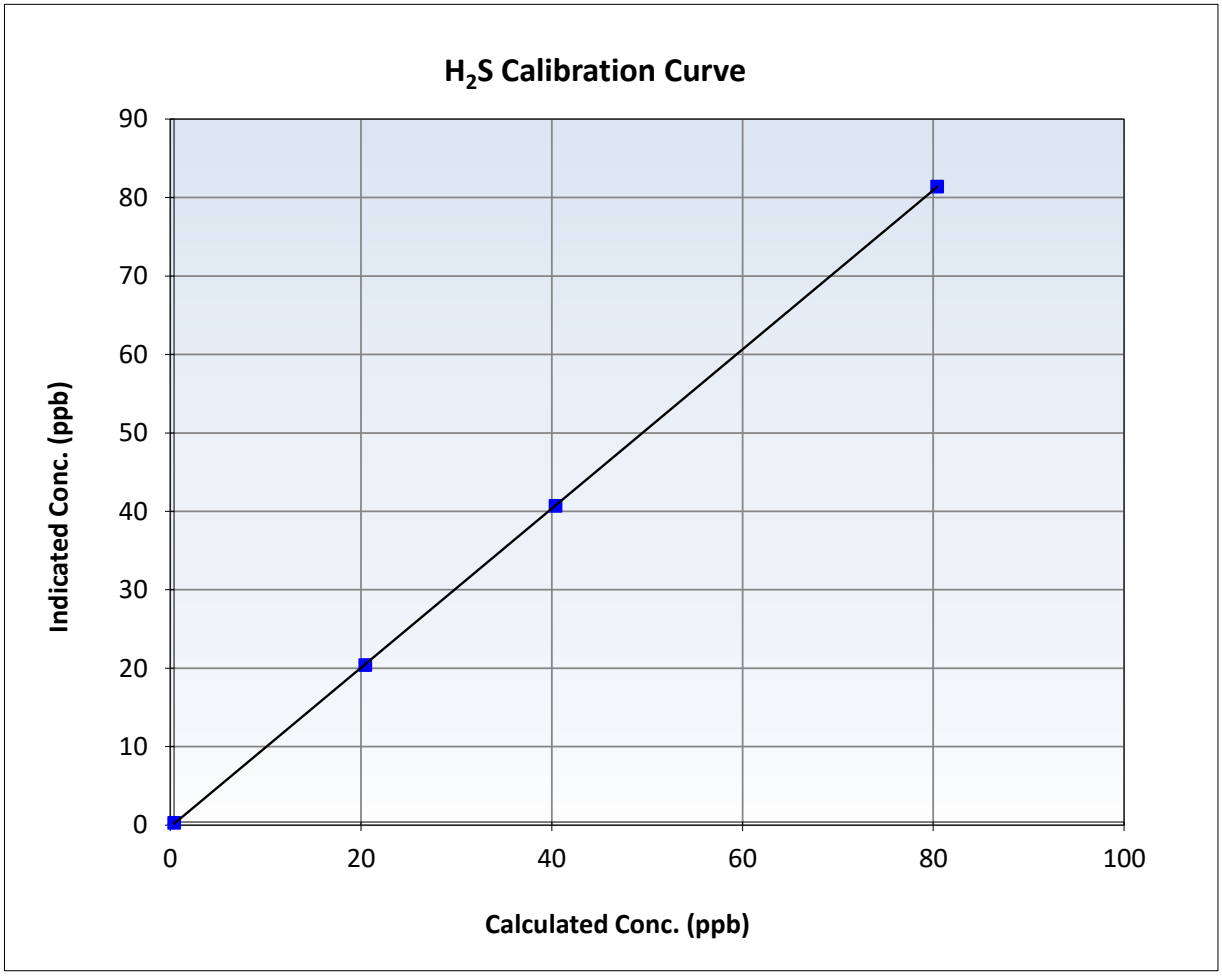
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 7, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	9:46	End Time (MST):	13:41
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12228021056

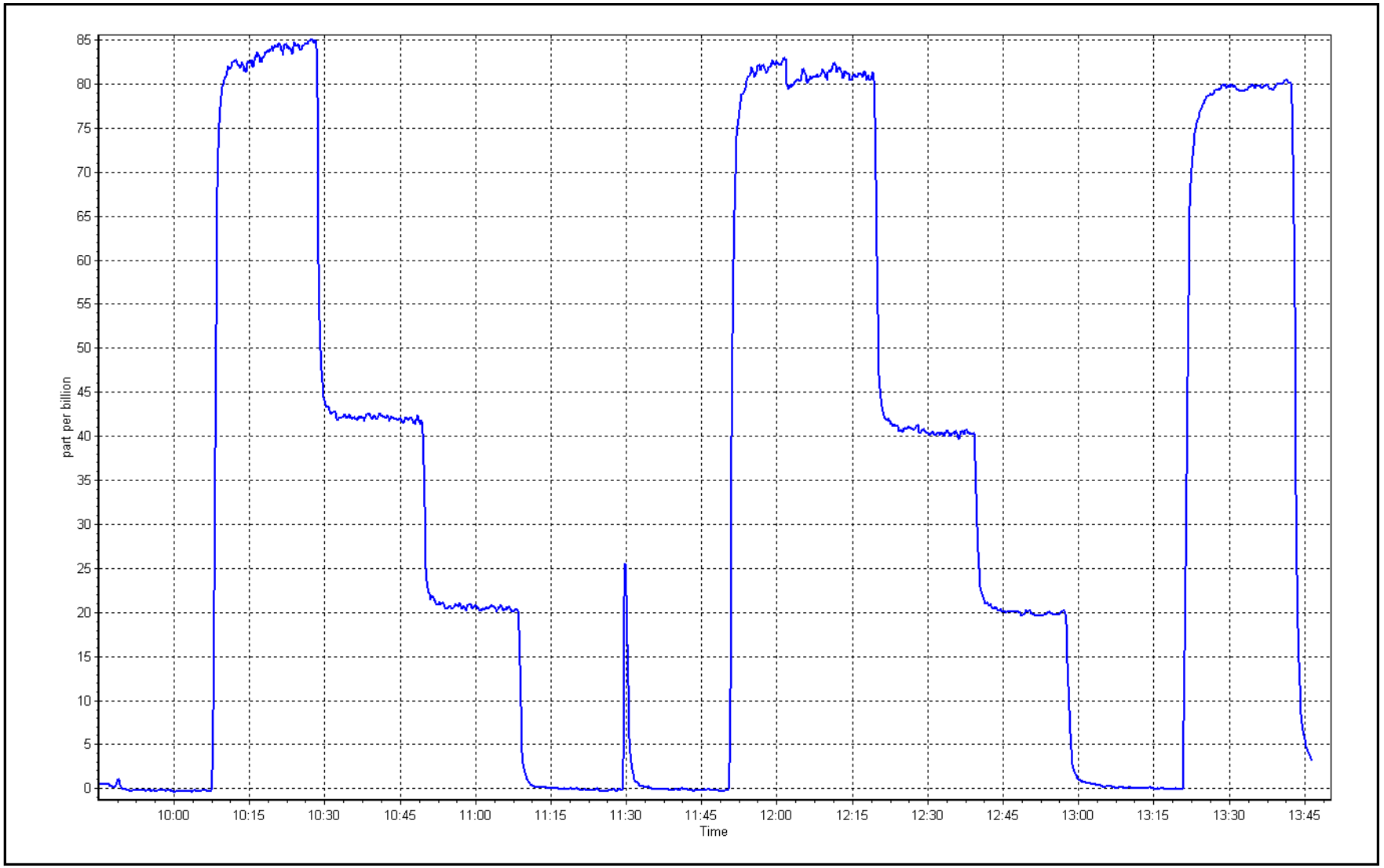
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	81.0	0.9877
40.0	40.3	0.9926
20.1	20.0	1.0026

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999990	*≥0.995*
Slope	1.014478	*0.90 - 1.10*
Intercept	-0.220631	*+/-3*



H_2S Calibration Plot Date: May 28, 2025 Location: Blackrod



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Blackrod
Station number:	AMS 31
Calibration Date:	May 22, 2025
Last Cal Date:	April 8, 2025
Start time (MST):	9:28
End time (MST):	13:46
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0035071	Cal Gas Expiry Date:	January 9, 2032
NOX Cal Gas Conc:	59.30 ppm	NO Cal Gas Conc:	59.10 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	59.30 ppm	Removed Gas NO Conc:	59.10 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	5762
ZAG make/model:	Teledyne API N701H	Serial Number:	72

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	0.6	-0.3	----	----
AF High point	4932	67.7	803.0	800.3	2.7	777.6	771.3	6.2	1.0330	1.0384
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 805.9 ppb	NO = 803.1 ppb
Baseline Corr 1st pt	NO_X = 777.3 ppb	NO = 770.7 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = -3.7%
As found	NO r^2:	*Percent Change	NO = -4.2%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1426262592

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	Finish		Start	Finish
NO coeff or slope:	0.974	1.015	NO bkgnd or offset:	12.5	13.6
NOX coeff or slope:	0.998	0.993	NOX bkgnd or offset:	12.9	13.9
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	192.8	183.4

Calibration Statistics

	Start	Finish
NO_X Cal Slope:	1.002729	0.994902
NO_X Cal Offset:	0.743770	-0.158354
NO Cal Slope:	1.003697	0.998542
NO Cal Offset:	-0.157471	-0.878892
NO_2 Cal Slope:	1.005362	1.001222
NO_2 Cal Offset:	0.109061	-1.142773

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	-0.1	----	----
High point	4932	67.7	803.0	800.3	2.7	798.0	798.0	0.0	1.0062	1.0028
Mid point	4966	33.8	400.9	399.5	1.4	401.0	399.6	1.4	0.9997	0.9998
Low point	4983	16.9	200.4	199.8	0.7	197.5	196.4	1.1	1.0149	1.0171
As left zero	5000	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	----	----
As left span	4932	67.7	803.0	400.6	402.4	788.7	400.6	388.1	1.0181	1.0000
							Average Correction Factor		1.0069	1.0066

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	-0.1	----	----
High GPT point	789.2	396.1	395.8	396.2	0.9990	100.1%
Mid GPT point	789.2	593.9	198.0	195.0	1.0154	98.5%
Low GPT point	789.2	693.1	98.8	97.8	1.0103	99.0%
				Average Correction Factor	1.0082	99.2%

Notes: Sample inlet filter was changed after as founds. Adjusted zero and span. Used 2nd high NO point because of drift.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

NO_X Calibration Summary

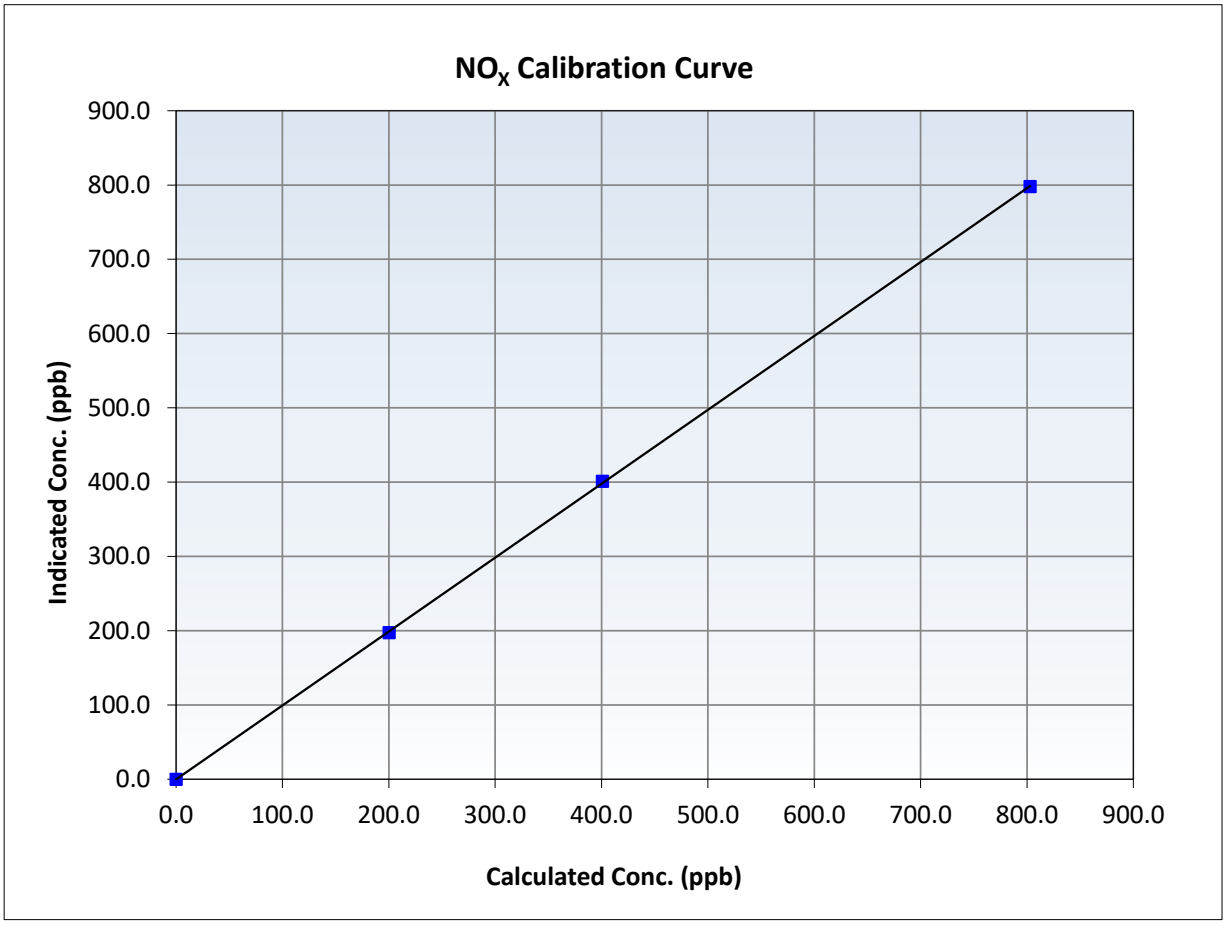
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 8, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	9:28	End Time (MST):	13:46
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262592

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
803.0	798.0	1.0062
400.9	401.0	0.9997
200.4	197.5	1.0149

Statistical Evaluation		Limits
Correlation Coefficient	0.999974	≥0.995
Slope	0.994902	0.90 - 1.10
Intercept	-0.158354	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

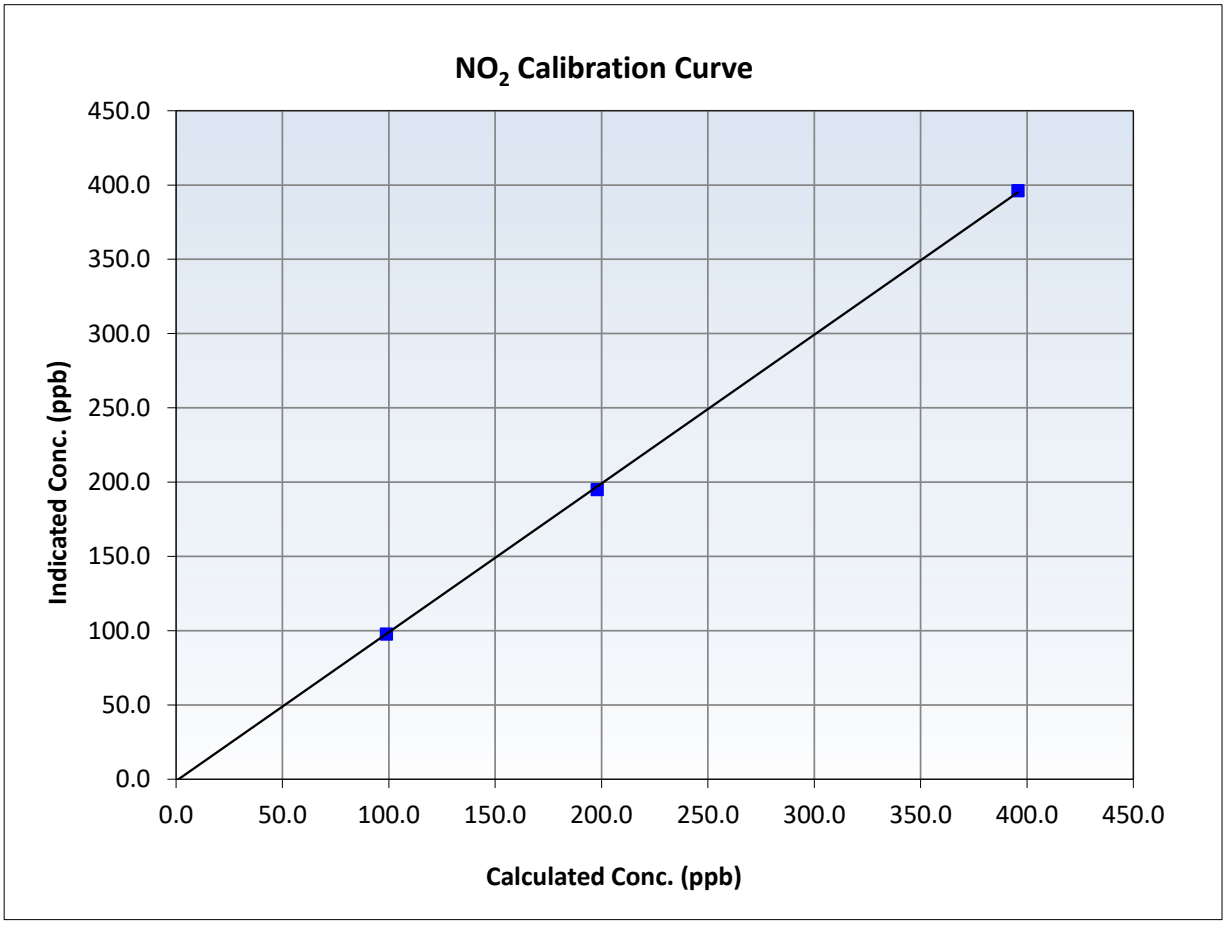
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 8, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	9:28	End Time (MST):	13:46
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262592

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
395.8	396.2	0.9990
198.0	195.0	1.0154
98.8	97.8	1.0103

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999923	*≥0.995*
Slope	1.001222	*0.90 - 1.10*
Intercept	-1.142773	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

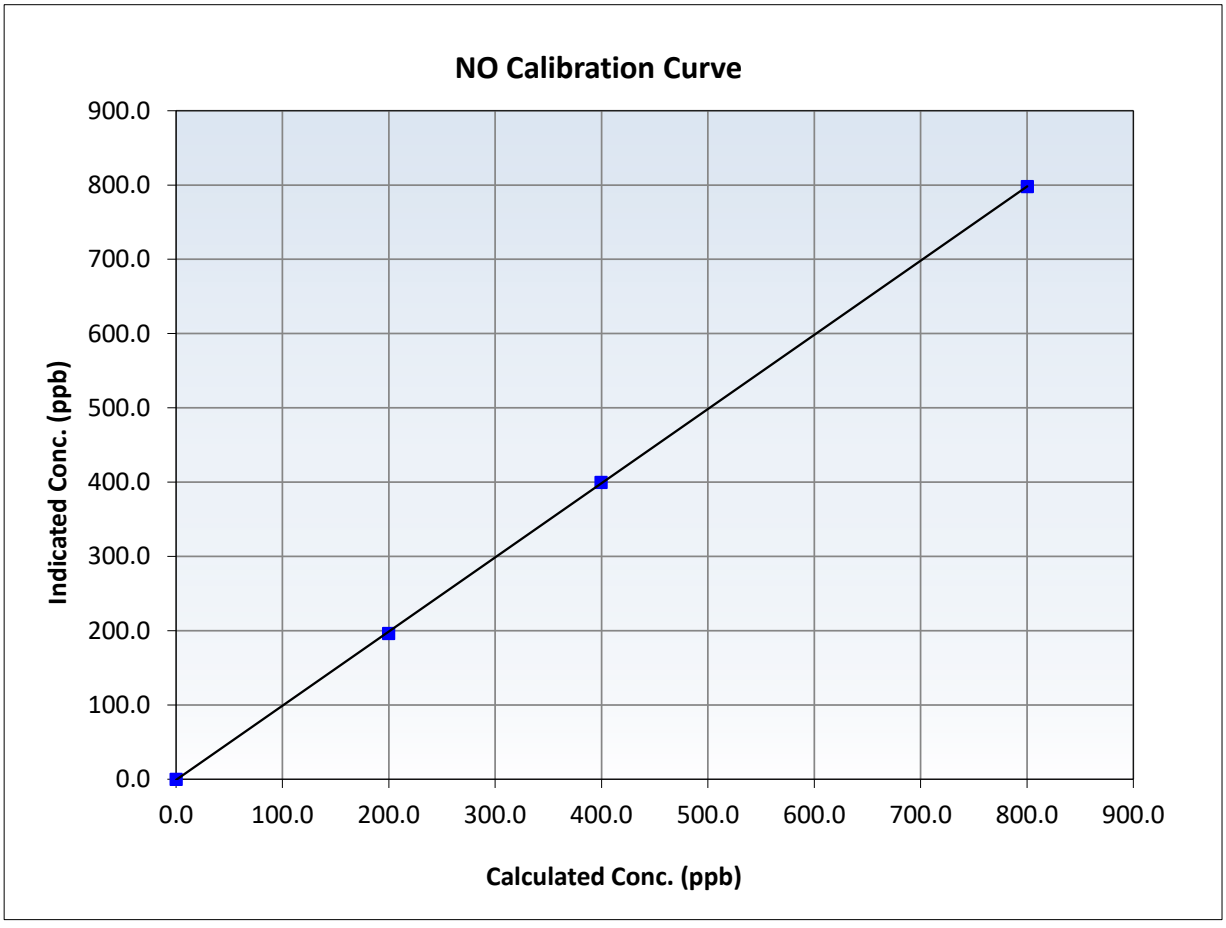
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 8, 2025
Station Name:	Blackrod	Station Number:	AMS 31
Start Time (MST):	9:28	End Time (MST):	13:46
Analyzer make:	Thermo 42i	Analyzer serial #:	1426262592

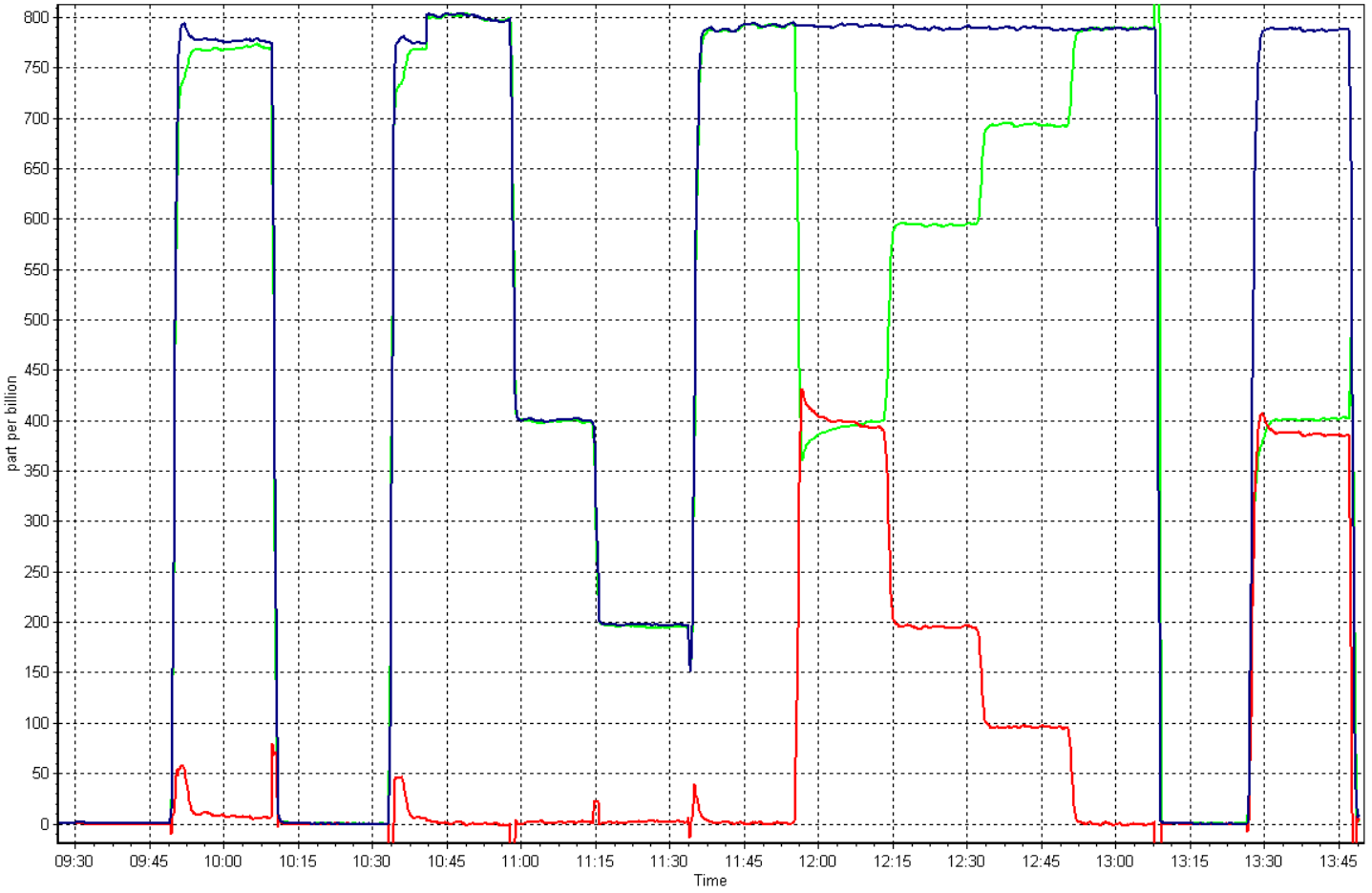
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
800.3	798.0	1.0028
399.5	399.6	0.9998
199.8	196.4	1.0171

Statistical Evaluation		Limits
Correlation Coefficient	0.999977	≥0.995
Slope	0.998542	0.90 - 1.10
Intercept	-0.878892	+/-20



NO_X Calibration Plot Date: May 22, 2025 Location: Blackrod



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS33
MONDAY CREEK
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Monday Creek	Station number:	AMS 33
Calibration Date:	May 7, 2025	Last Cal Date:	April 2, 2025
Start time (MST):	10:03	End time (MST):	12:49
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.62	ppm	Cal Gas Exp Date:	March 10, 2031
Cal Gas Cylinder #:	EB0008522			
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 Information

Analyzer make:	Thermo 43i		Serial Number:	1152430005	
Analyzer Range:	0- 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.005166	1.007037	Backgd or Offset:	31.2	30.9
Calibration intercept:	-0.537953	-0.618257	Coeff or Slope:	1.001	0.991

SO_2 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	4921	79.1	800.8	809.1	0.989
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	809.7	Previous response	804.4	*% change	0.7%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	79.1	800.8	806.0	0.994
Mid point	4961	39.5	399.9	402.0	0.995
Low point	4980	19.8	200.5	200.6	0.999
As left zero	5000	0.0	0.0	-0.3	----
As left span	4921	79.1	800.8	806.1	0.993
				Average Correction Factor:	0.996

Notes: Sample inlet filter was changed after as founds. Adjusted span only.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

SO_2 Calibration Summary

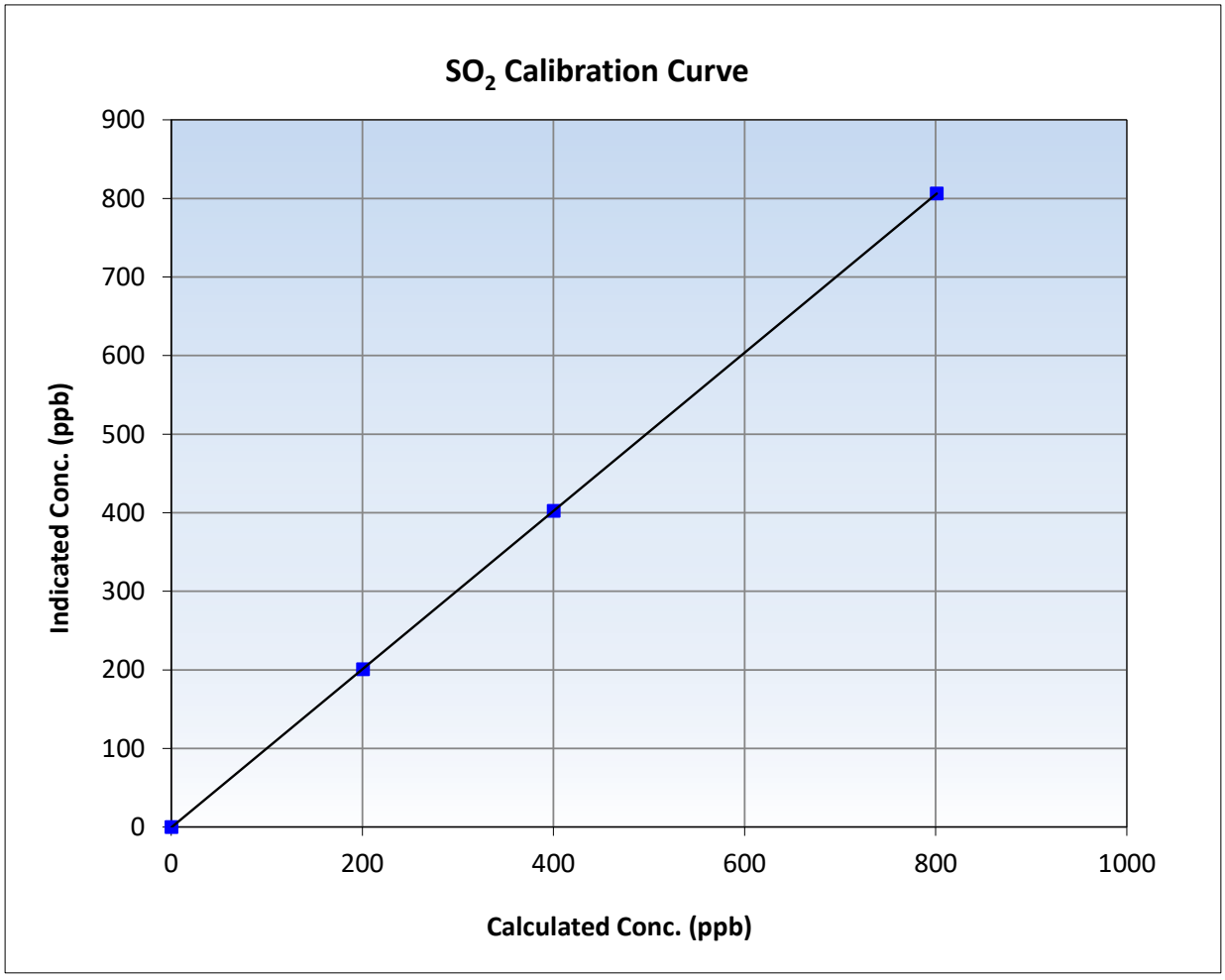
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 2, 2025
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	10:03	End Time (MST):	12:49
Analyzer make:	Thermo 43i	Analyzer serial #:	1152430005

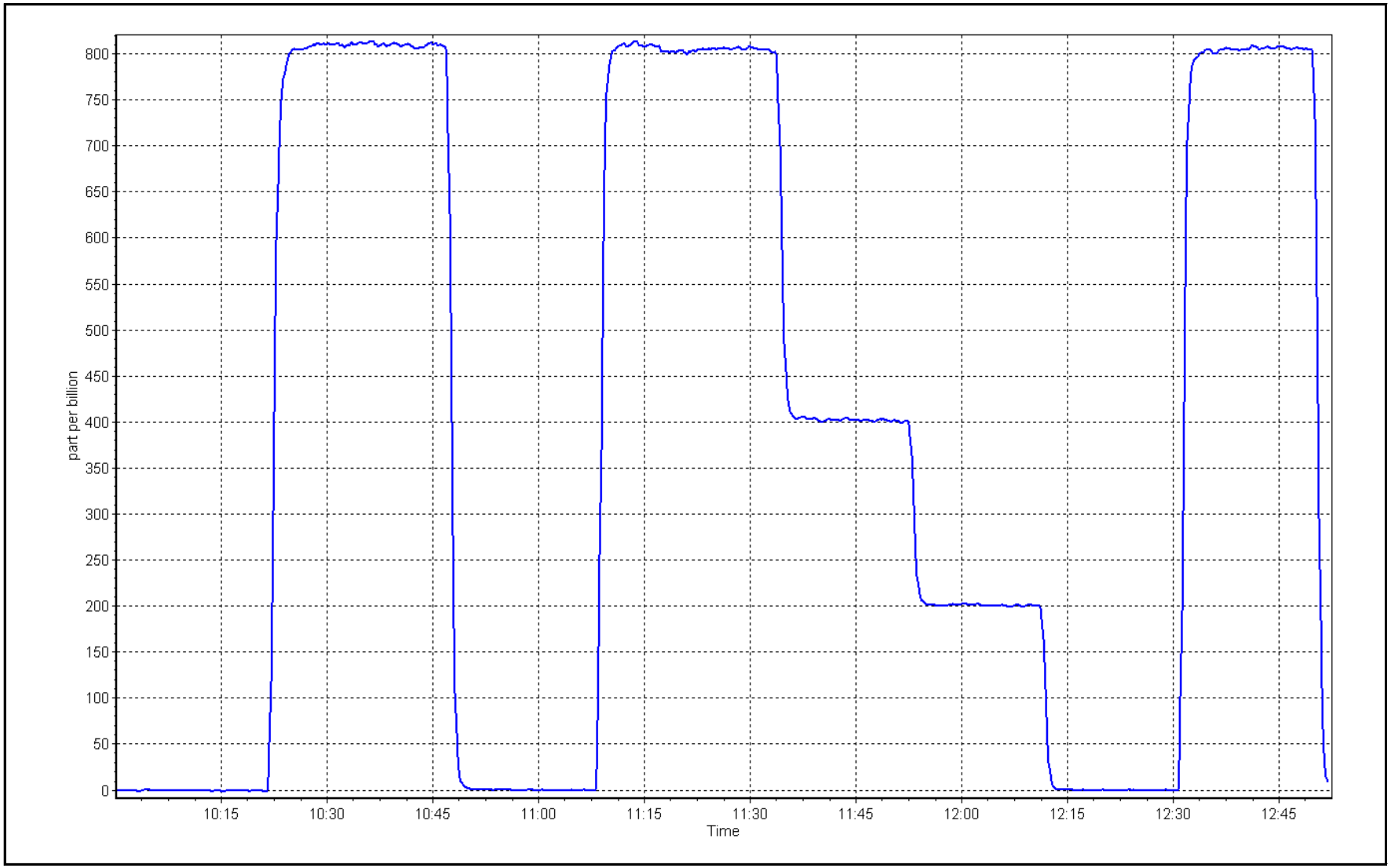
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
800.8	806.0	0.9935
399.9	402.0	0.9947
200.5	200.6	0.9993

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999998	*≥0.995*
Slope	1.007037	*0.90 - 1.10*
Intercept	-0.618257	*+/-30*



SO2 Calibration Plot Date: May 7, 2025 Location: Monday Creek



Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Monday Creek	Station number:	AMS 33
Calibration Date:	May 14, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	10:35	End time (MST):	14:12
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.05	ppm	Cal Gas Exp Date:	November 15, 2026
Cal Gas Cylinder #:	DT0014831			
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 Information

Analyzer make:	Thermo 43iQTL		Analyzer serial #:	12333331547	
Converter make:	Global 150		Converter serial #:	2022-196	
Analyzer Range	0 - 100 ppb		Converter Temp:	325	degC
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.999283	1.004283	Backgd or Offset:	1.6	1.6
Calibration intercept:	-0.021599	-0.121607	Coeff or Slope:	1.076	1.076

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)) *Limit = 0.90-1.10*
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	40.0	0.995
As found Low point	4980	19.8	20.0	20.1	0.985
New cylinder response					

Baseline Corr As found:	80.3	Prev response:	79.91	*% change:	0.5%
Baseline Corr 2nd AF pt:	40.2	AF Slope:	1.002998	AF Intercept:	-0.101606
Baseline Corr 3rd AF pt:	20.3	AF Correlation:	0.999991	* = > +/-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) *Limit = 0.95-1.05*
Calibrator zero	5000	0.0	0.0	-0.2	----
High point	4921	79.2	80.0	80.2	0.997
Mid point	4960	39.6	40.0	40.0	1.000
Low point	4980	19.8	20.0	20.1	0.995
As left zero	5000	0.0	0.0	-0.1	----
As left span	4921	79.2	80.0	80.0	1.000
SO2 Scrubber Check	4921	79.1	791.0	0.0	----

Date of last scrubber change:	11-Apr-24	Ave Corr Factor	0.997
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

Wood Buffalo Environmental Association

H2S Calibration Summary

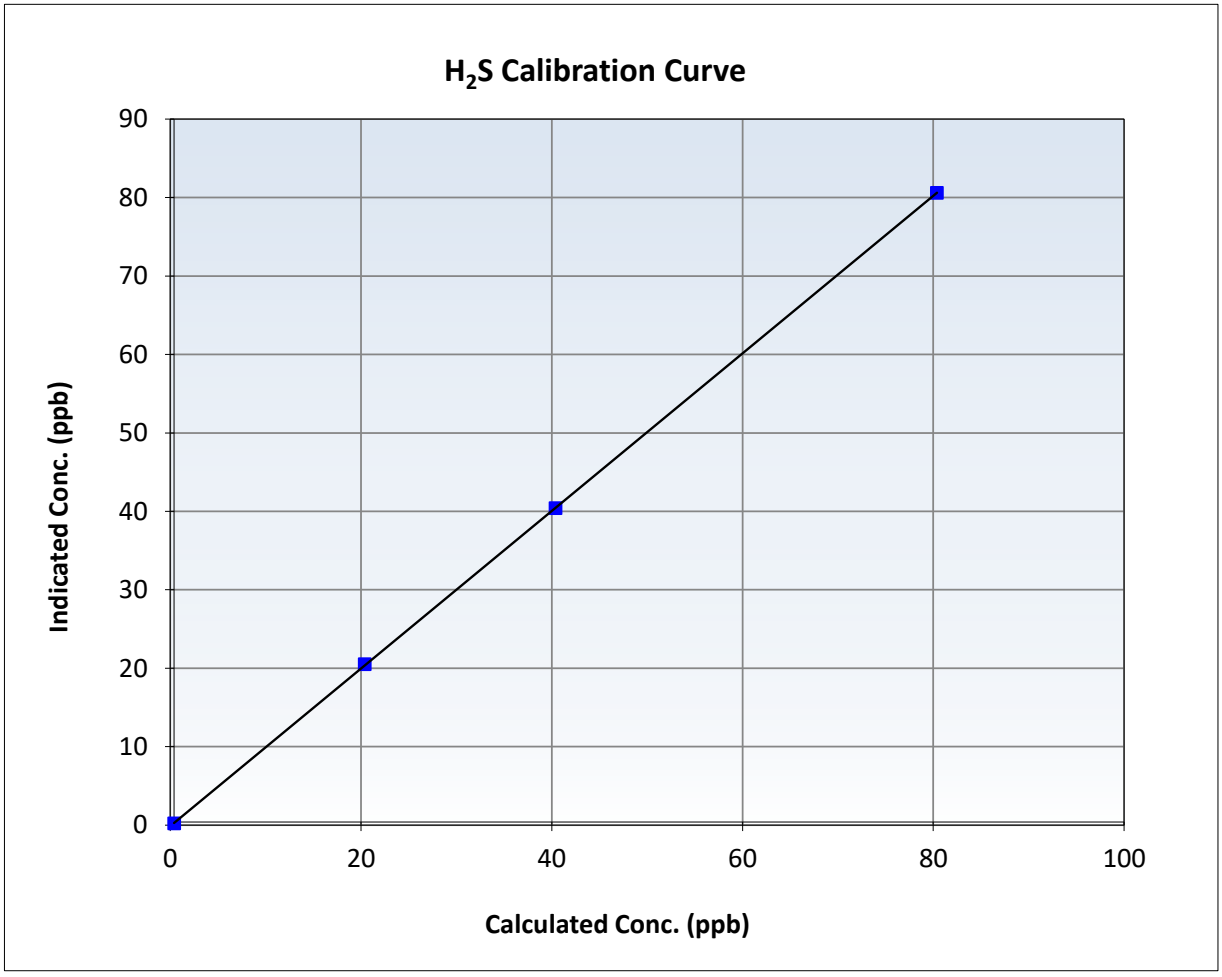
Station Information

Calibration Date:	May 14, 2025	Previous Calibration:	April 15, 2025
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	10:35	End Time (MST):	14:12
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12333331547

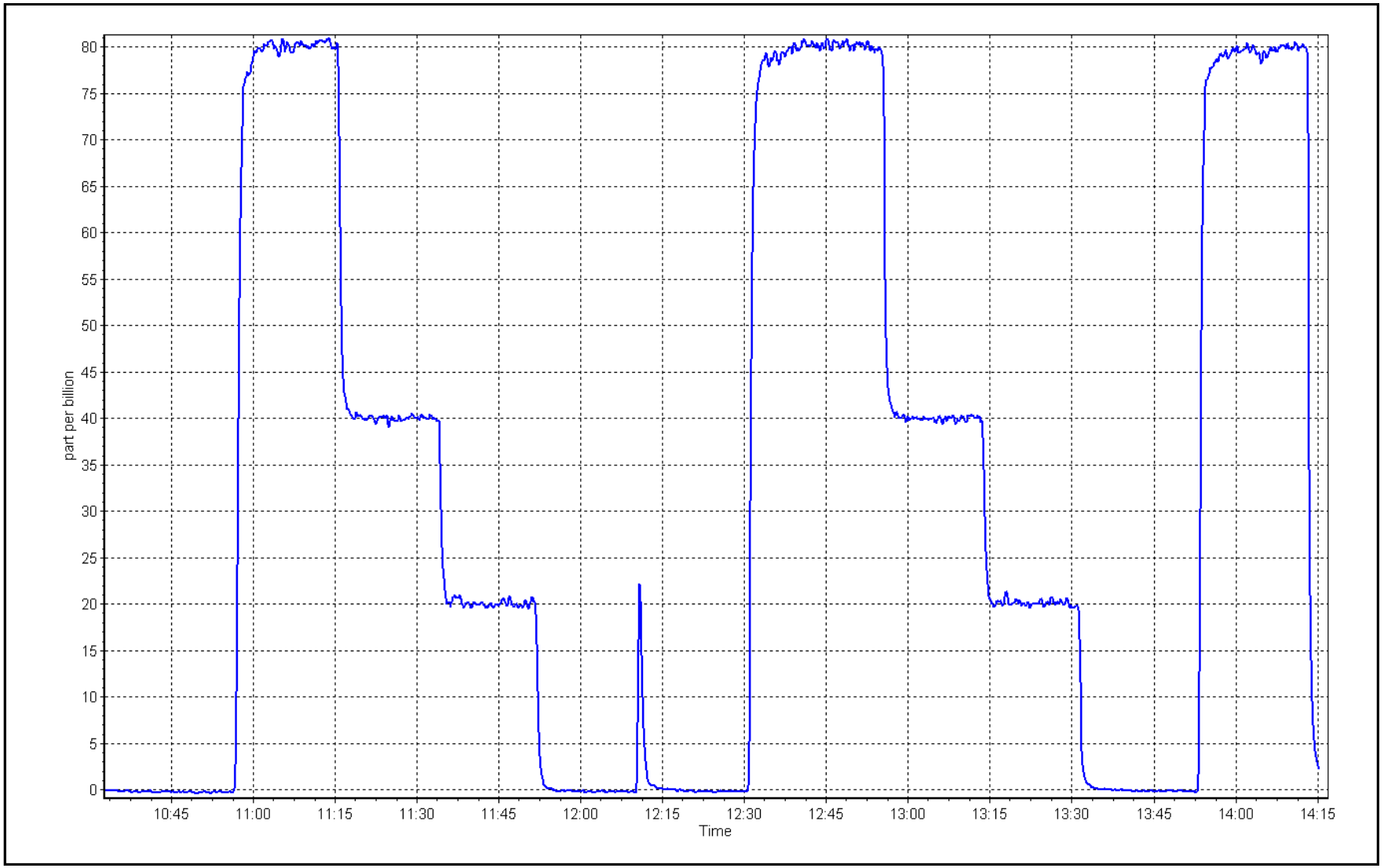
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
80.0	80.2	0.9974
40.0	40.0	1.0000
20.0	20.1	0.9950

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999992	*≥0.995*
Slope	1.004283	*0.90 - 1.10*
Intercept	-0.121607	*+/-3*



H2S Calibration Plot Date: May 14, 2025 Location: Monday Creek



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Monday Creek
Station number:	AMS 33
Calibration Date:	May 13, 2025
Last Cal Date:	April 3, 2025
Start time (MST):	10:38
End time (MST):	14:57
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	CC755290	Cal Gas Expiry Date:	March 11, 2031
NOX Cal Gas Conc:	48.90 ppm	NO Cal Gas Conc:	48.70 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	48.90 ppm	Removed Gas NO Conc:	48.70 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T750	Serial Number:	281
ZAG make/model:	Teledyne API T701H	Serial Number:	832

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	0.0	-0.1	----	----
AF High point	4918	82.1	802.9	799.6	3.3	829.0	829.4	-0.4	0.9684	0.9641
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 802.4 ppb	NO = 802.2 ppb
Baseline Corr 1st pt	NO_X = 829.1 ppb	NO = 829.4 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	Nx Sl:	Nx Int:
As found	NO r^2:	NO Sl:	NO Int:
As found	NO_2 r^2:	NO2 Sl:	NO_2 Int:

*Percent Change	NO_X = 3.2%
*Percent Change	NO = 3.3%

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42iQ

Serial Number: 12426335704

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.096	1.059	NO bkgnd or offset:	1.6	1.5
NOX coeff or slope:	0.998	1.002	NOX bkgnd or offset:	1.7	1.7
NO2 coeff or slope:	0.990	0.990	Reaction cell Press:	149.0	148.4

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.999496	0.995357
NO_X Cal Offset:	-0.133286	1.910845
NO Cal Slope:	1.004314	0.999059
NO Cal Offset:	-0.933140	1.270918
NO_2 Cal Slope:	0.975877	0.979285
NO_2 Cal Offset:	0.255076	2.259632

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	4918	82.1	802.9	799.6	3.3	800.3	799.7	0.5	1.0033	0.9999
Mid point	4959	41.1	401.9	400.3	1.6	402.3	401.1	1.1	0.9991	0.9980
Low point	4979	20.5	200.5	199.7	0.8	204.1	202.8	1.3	0.9824	0.9847
As left zero	5000	0.0	0.0	0.0	0.0	-0.3	-0.3	-0.1	----	----
As left span	4918	82.1	802.9	391.5	411.4	784.5	391.5	393.0	1.0235	1.0000
								Average Correction Factor	0.9949	0.9942

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	0.0	----	----
High GPT point	794.7	394.3	403.7	396.7	1.0176	98.3%
Mid GPT point	794.7	597.8	200.2	198.7	1.0075	99.3%
Low GPT point	794.7	697.5	100.5	103.4	0.9718	102.9%
				Average Correction Factor	0.9990	100.1%

Notes: Calibrated with portable calibrator. Sample inlet filter was changed after as founds. Adjusted span only.

Calibration Performed By: Jan Castro

Wood Buffalo Environmental Association

NO_X Calibration Summary

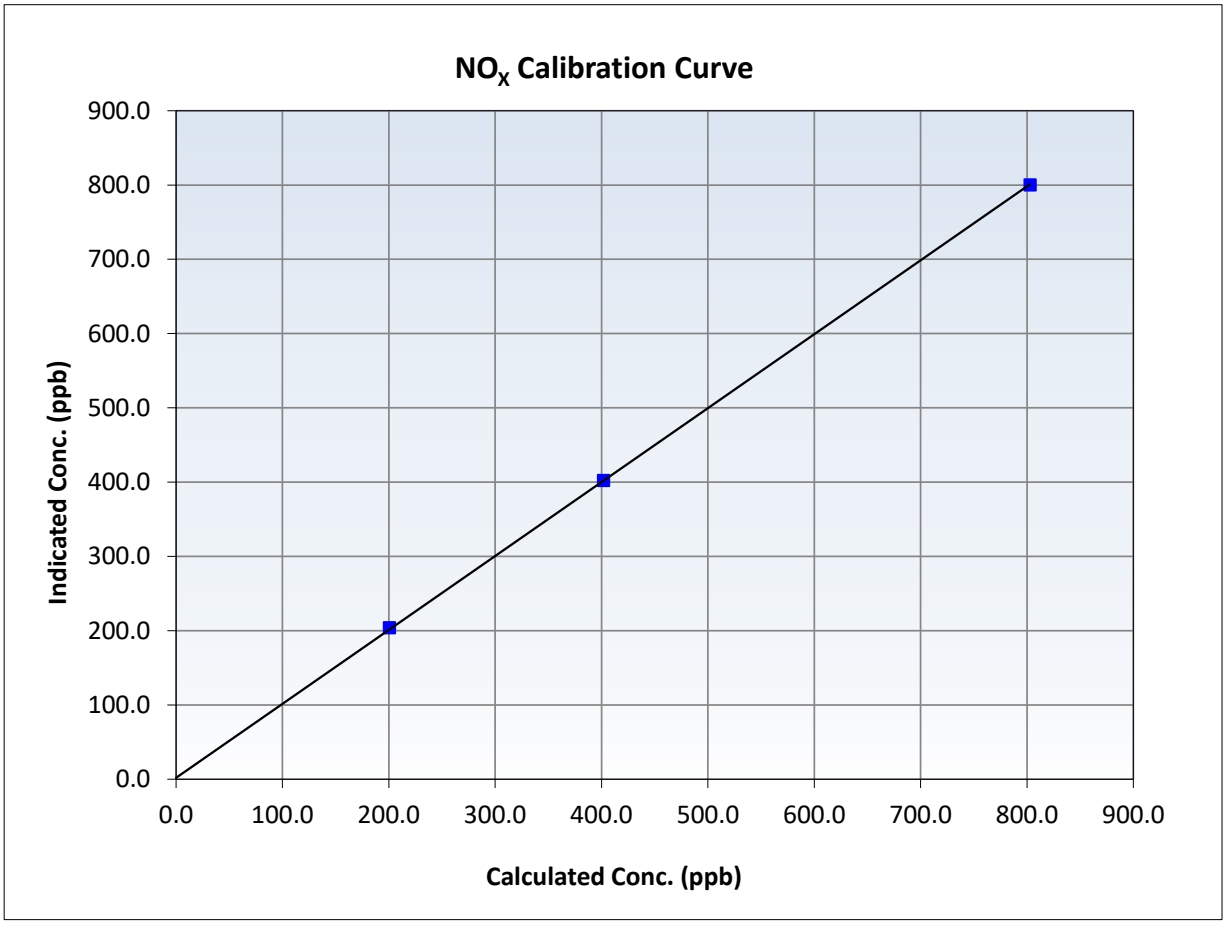
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 3, 2025
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	10:38	End Time (MST):	14:57
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12426335704

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
802.9	800.3	1.0033
401.9	402.3	0.9991
200.5	204.1	0.9824

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999966	*≥0.995*
Slope	0.995357	*0.90 - 1.10*
Intercept	1.910845	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

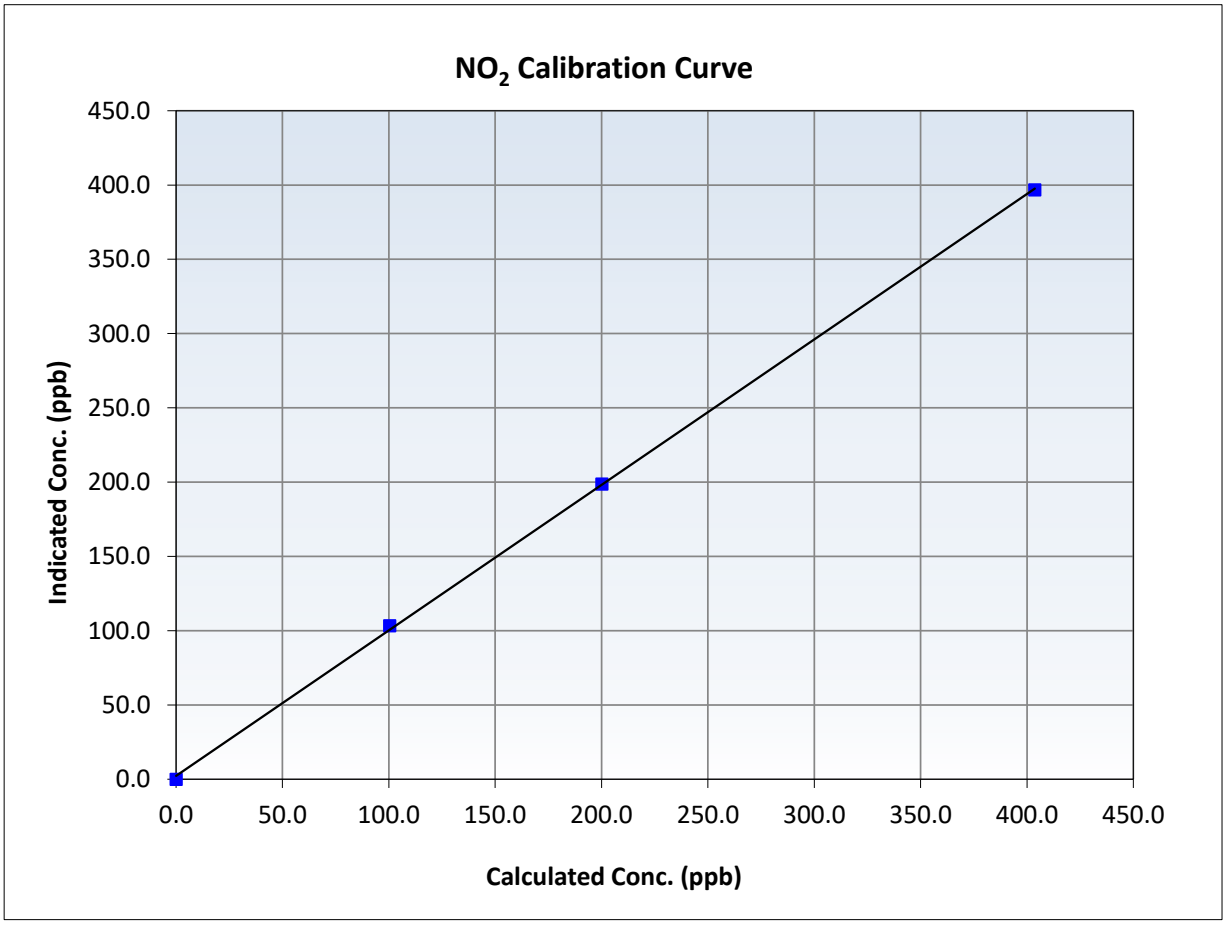
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 3, 2025
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	10:38	End Time (MST):	14:57
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12426335704

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
403.7	396.7	1.0176
200.2	198.7	1.0075
100.5	103.4	0.9718

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999842	*≥0.995*
Slope	0.979285	*0.90 - 1.10*
Intercept	2.259632	*+/-20*



Wood Buffalo Environmental Association

NO Calibration Summary

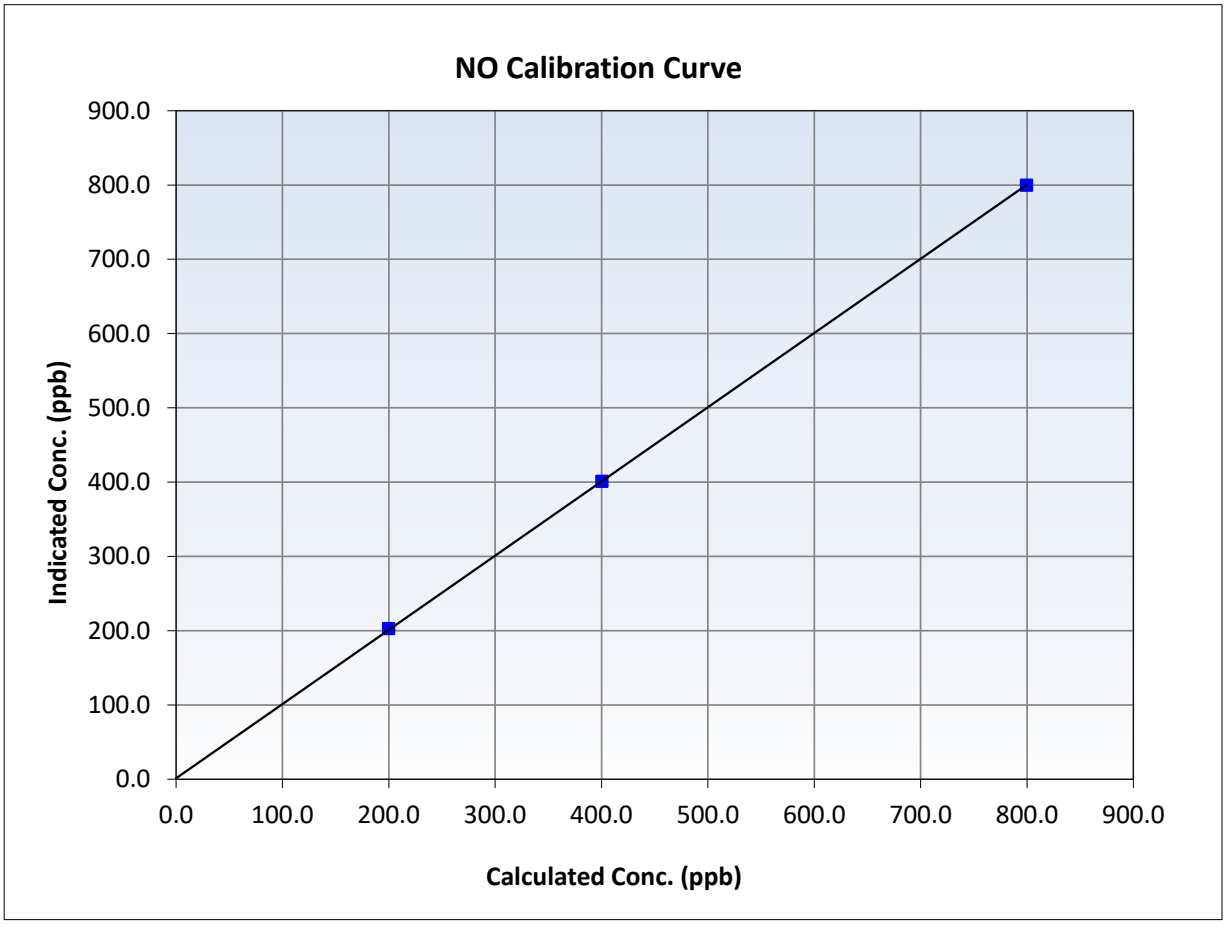
Station Information

Calibration Date:	May 13, 2025	Previous Calibration:	April 3, 2025
Station Name:	Monday Creek	Station Number:	AMS 33
Start Time (MST):	10:38	End Time (MST):	14:57
Analyzer make:	Thermo 42iQ	Analyzer serial #:	12426335704

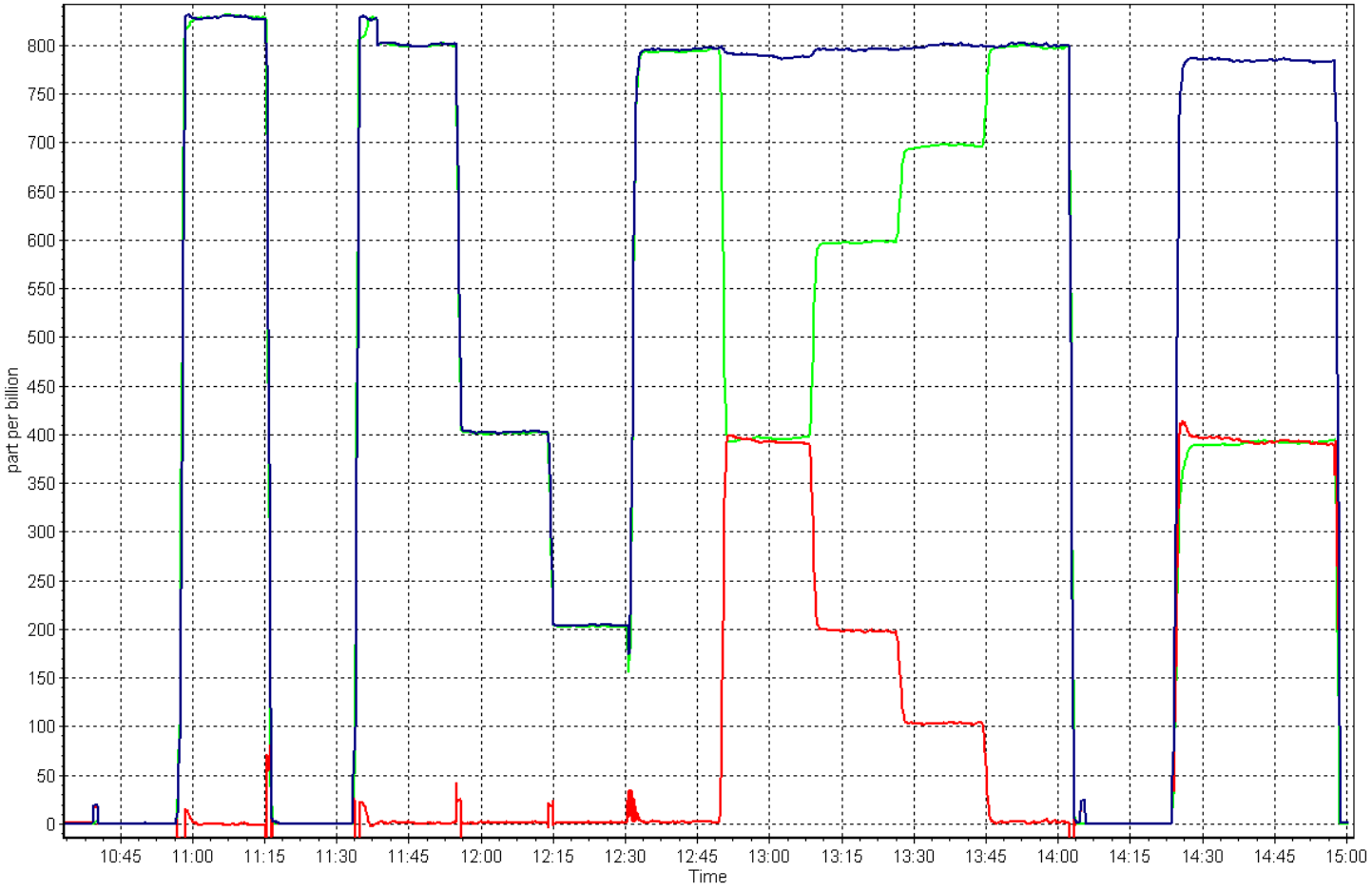
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
799.6	799.7	0.9999
400.3	401.1	0.9980
199.7	202.8	0.9847

Statistical Evaluation		Limits
Correlation Coefficient	0.999981	≥0.995
Slope	0.999059	0.90 - 1.10
Intercept	1.270918	+/-20



NO_X Calibration Plot Date: May 13, 2025 Location: Monday Creek



Wood Buffalo Environmental Association

Wind Speed/Direction Calibration Report

Station Information

Station Name:	Monday Creek	Station Number:	AMS 33
Calibration Date:	May 14, 2025	Prev Cal Date:	November 7, 2024
Start Time (MST):	11:26	End Time (MST):	13:04
Tower Height (m):	10.0	Reason:	Routine

Wind Speed Calibration

Sensor make/model:	Met One 010C-1	Serial Number:	P22395
WS Calibrator:	MetOne 053	Serial Number:	CA 03988

Shaft RPM (Hz)	Calculated Speed (K/hr) (Cv)	Indicated Speed (K/hr) (Iv)	% Error *Limit = +/- 1.5%*
0	0.0	0.0	---
200	20.2	20.3	0.7%
400	39.4	39.4	0.1%
600	58.6	58.5	-0.1%
800	77.8	77.8	0.1%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999999	0.999997	*≥0.9995*
Calculated slope	0.998858	1.000482	*0.98 - 1.02*
Calculated intercept	0.034341	-0.053275	*+/- 2*

Wind Direction Calibration

Sensor make/model:	Met One 020C-1	Serial Number:	N13744
As Found Declination (deg east of True North):	13	As Left Declination (deg east of True North):	13
Solar noon (MST):	13:19	Calc Declination*:	12.76 Degrees
WD Calibrator:	Met One 040		* - calculated declination as per NOAA website

Physical Direction (Degrees) (Cv)	Indicated Direction (Degrees) (Iv)	% Error (based on 360° FS) *Limit = +/- 1%*
10	12.5	0.7%
90	90.1	0.0%
180	180.1	0.0%
270	270.2	0.1%
350	348.9	-0.3%

	Start	***Finish***	*Limits*
Correl Coeff (r^2)	0.999988	0.999987	*≥0.9995*
Calculated slope	1.006945	1.008188	*0.97 - 1.03*
Calculated intercept	-0.813300	-1.836873	*+/- 5*

Notes: Bearings all good. No issues. Verified true north using a compass.

Calibration Performed By: Jan Castro

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS505
SAWBONES BAY
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Sawbones Bay	Station number:	AMS 505
Calibration Date:	May 29, 2025	Last Cal Date:	April 25, 2025
Start time (MST):	8:09	End time (MST):	12:31
Reason:	Routine		

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

Analyzer make:	Thermo 43i		Serial Number:	710321323	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000238	1.002625	Backgd or Offset:	19.8	21.6
Calibration intercept:	-0.072137	-0.632684	Coeff or Slope:	1.020	1.084

SO_2 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	4922	77.8	799.8	779.2	1.026
As found Mid point	4961	38.9	399.9	385.7	1.035
As found Low point	4981	19.5	200.4	198.1	1.009
New cylinder response					
Baseline Corr As found:	779.7	Previous response	799.9	*% change	-2.6%
Baseline Corr 2nd AF pt:	386.2	AF Slope:	0.972960	AF Intercept:	0.050930
Baseline Corr 3rd AF pt:	198.6	AF Correlation:	0.999933	* = > +/-5% change initiates investigation	

SO_2 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	77.8	799.8	801.2	0.998
Mid point	4961	38.9	399.9	401.1	0.997
Low point	4981	19.5	200.4	199.1	1.007
As left zero	5000	0.0	0.0	-0.1	----
As left span	4922	77.8	799.8	802.4	0.997
				Average Correction Factor:	1.001

Notes: Changed inelt filter after as founds. Replaced lamp and socket. Adjusted zero and span.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

SO_2 Calibration Summary

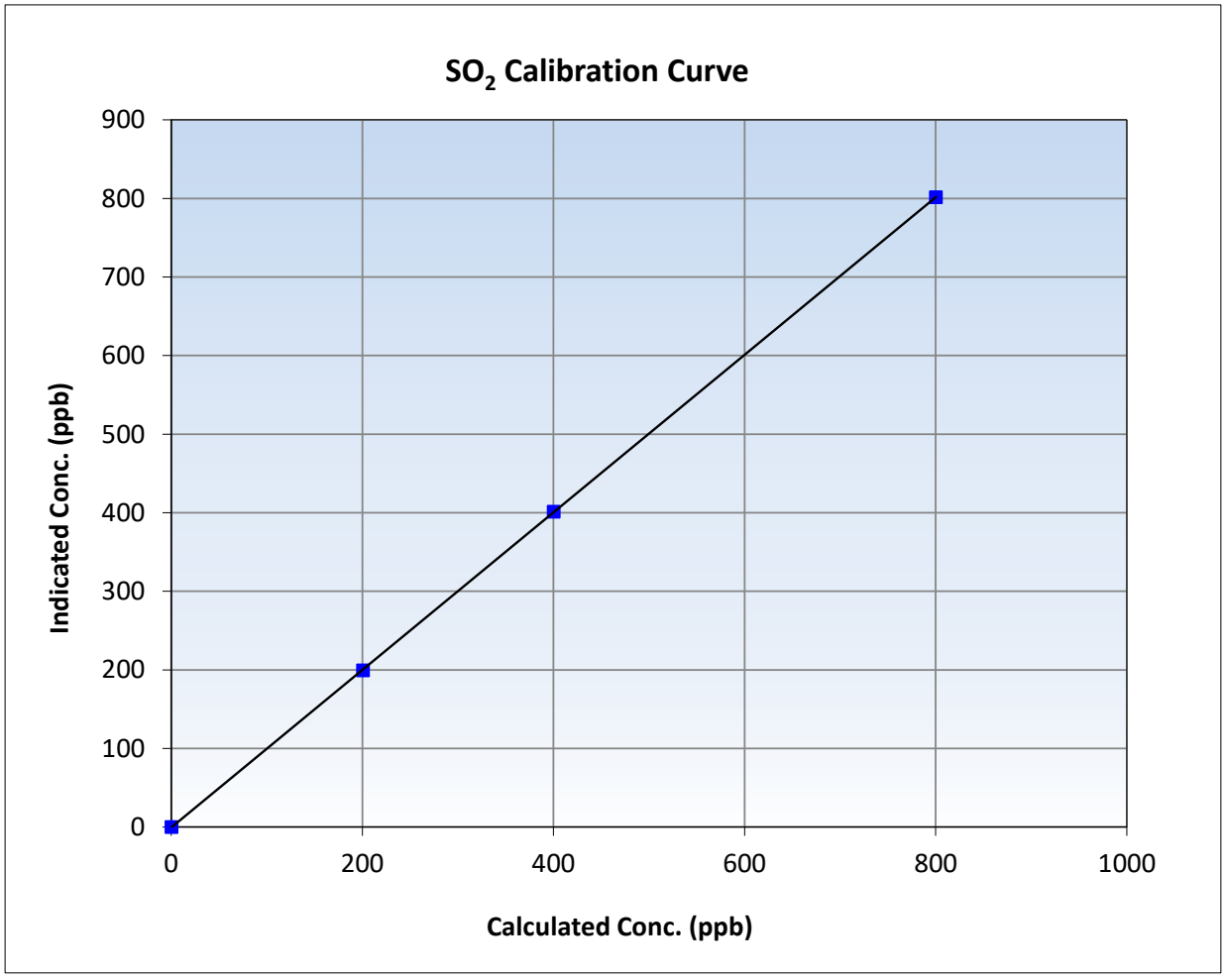
Station Information

Calibration Date:	May 29, 2025	Previous Calibration:	April 25, 2025
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:09	End Time (MST):	12:31
Analyzer make:	Thermo 43i	Analyzer serial #:	710321323

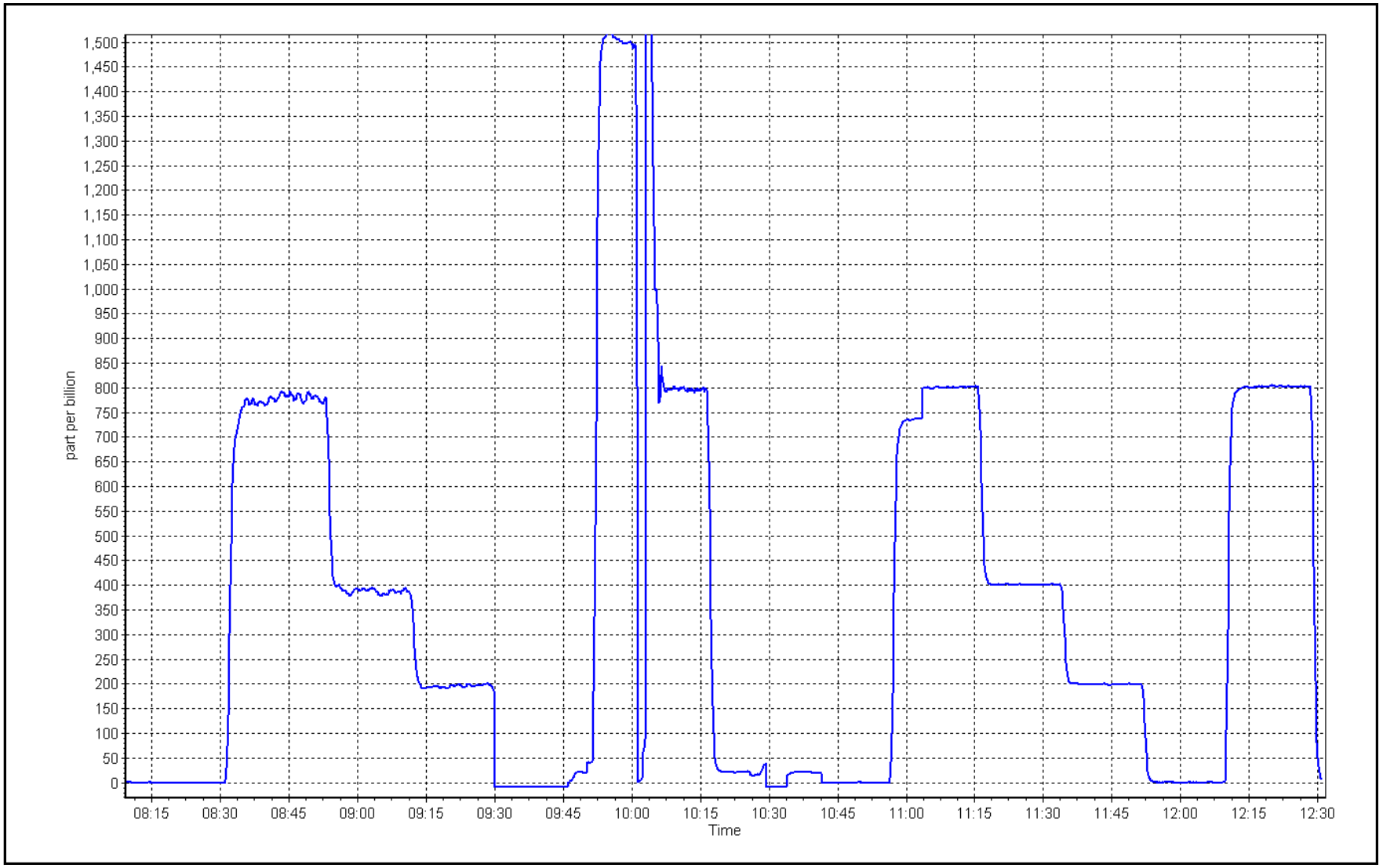
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
799.8	801.2	0.9983
399.9	401.1	0.9970
200.4	199.1	1.0067

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999993	*≥0.995*
Slope	1.002625	*0.90 - 1.10*
Intercept	-0.632684	*+/-30*



SO2 Calibration Plot Date: May 29, 2025 Location: Sawbones Bay



Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Sawbones Bay	Station number:	AMS 505
Calibration Date:	May 27, 2025	Last Cal Date:	April 24, 2025
Start time (MST):	8:23	End time (MST):	12:26
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 T751H		Serial Number:	321

Analyzer Information

Analyzer make:	Thermo 43iQTL		Analyzer serial #:	12113311965
Converter make:	Global 150		Converter serial #:	2022-224
Analyzer Range	0 - 100 ppb		Converter Temp:	325 degC

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.994025	0.993596	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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	0.0	----
As found High point	4924	76.0	80.0	79.9	1.001
As found Mid point	4962	38.0	40.0	39.7	1.007
As found Low point	4981	19.0	20.0	19.7	1.015
New cylinder response					

Baseline Corr As found:	79.9	Prev response:	79.45	*% change:	0.6%
Baseline Corr 2nd AF pt:	39.7	AF Slope:	1.000172	AF Intercept:	-0.160000
Baseline Corr 3rd AF pt:	19.7	AF Correlation:	0.999981	* = > +/-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) *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	19.8	1.009
As left zero	5000	0.0	0.0	0.2	----
As left span	4924	76.0	80.0	78.9	1.013
SO2 Scrubber Check	4922	77.8	778.0	-0.1	----
Date of last scrubber change:				Ave Corr Factor	1.007
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

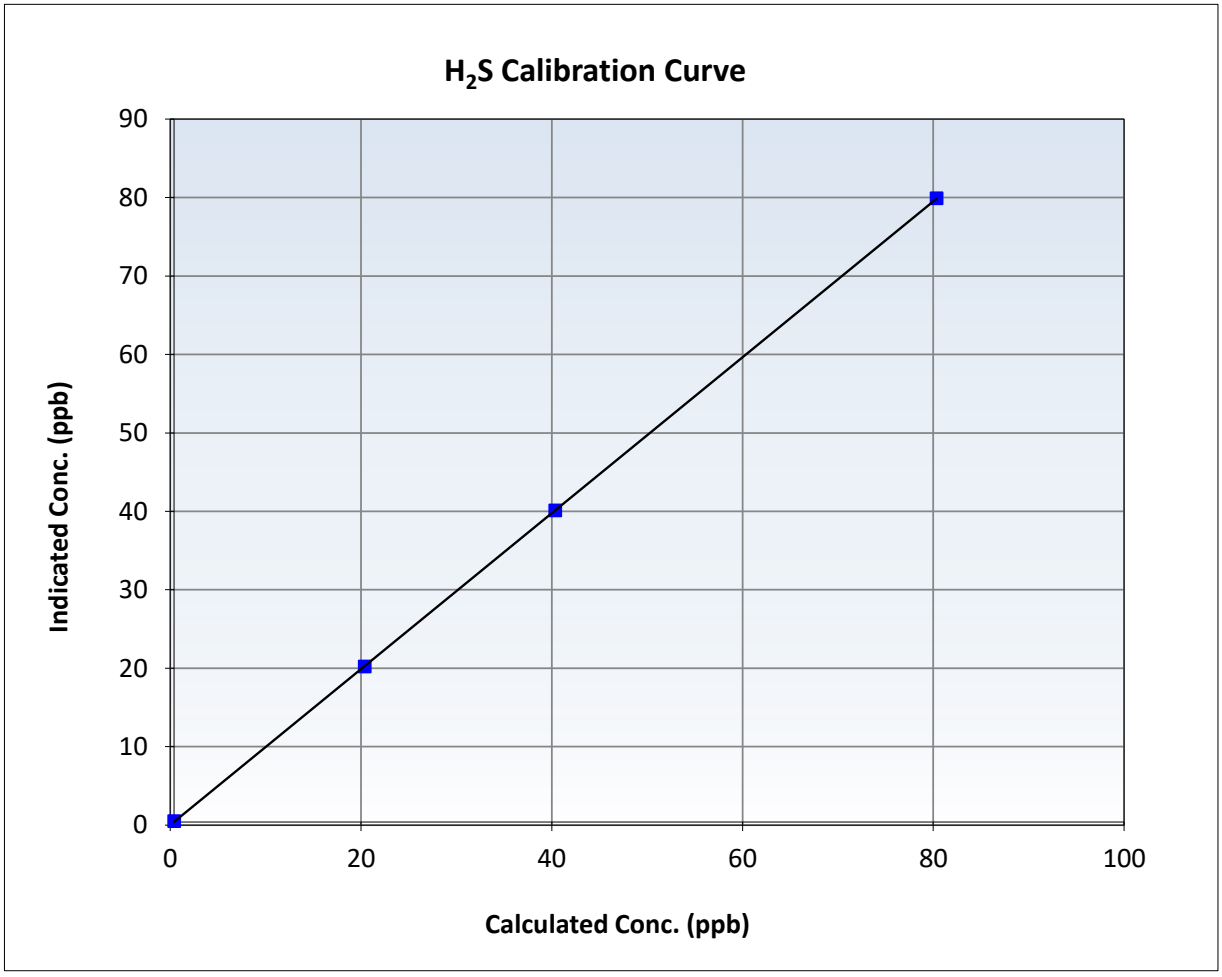
Station Information

Calibration Date:	May 27, 2025	Previous Calibration:	April 24, 2025
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:23	End Time (MST):	12:26
Analyzer make:	Thermo 43iQTL	Analyzer serial #:	12113311965

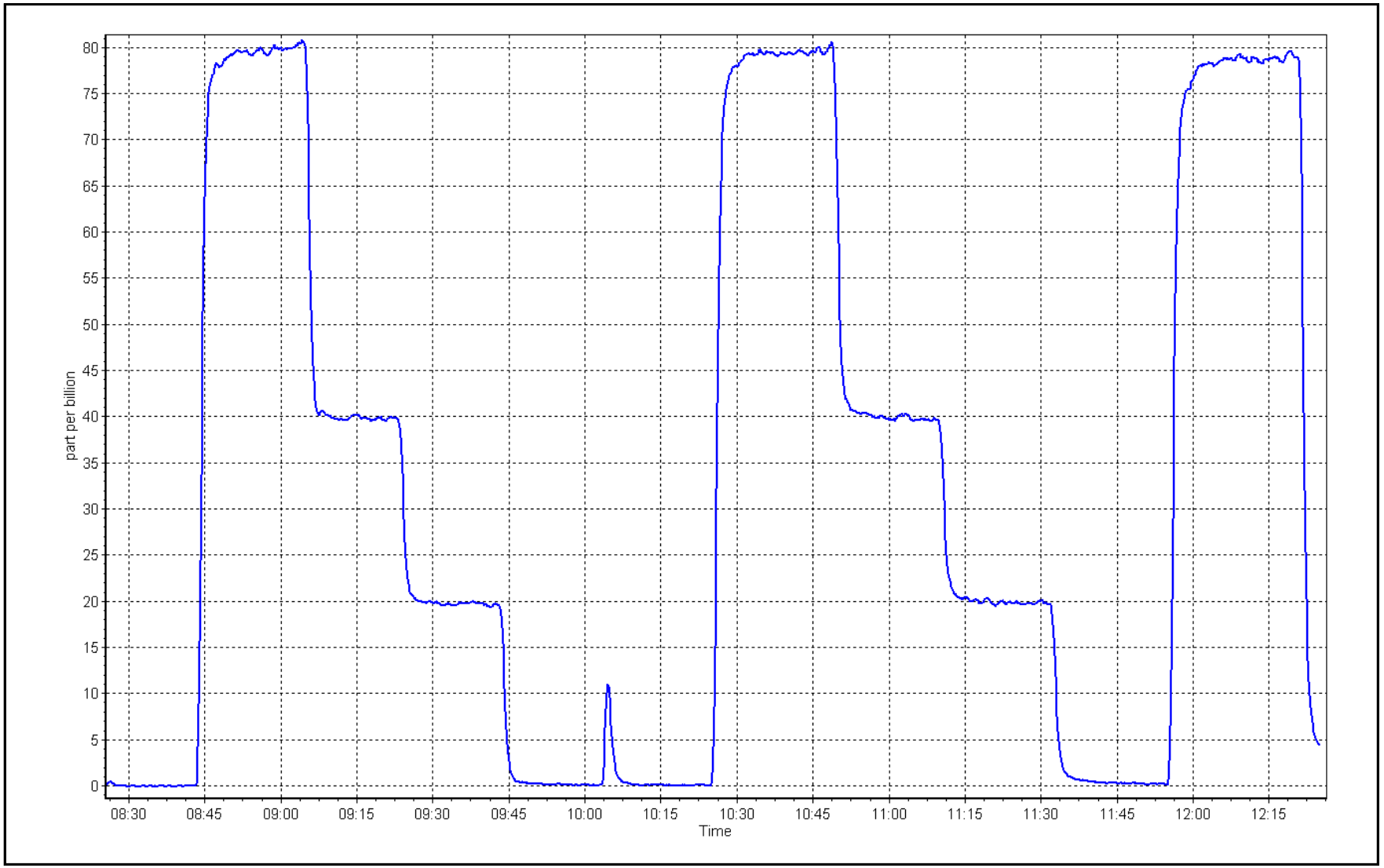
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
80.0	79.5	1.0057
40.0	39.7	1.0070
20.0	19.8	1.0095

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999995	*≥0.995*
Slope	0.993596	*0.90 - 1.10*
Intercept	0.020000	*+/-3*



H2S Calibration Plot Date: May 27, 2025 Location: Sawbones Bay



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Sawbones Bay
Station number:	AMS 505
Calibration Date:	May 28, 2025
Last Cal Date:	April 2, 2025
Start time (MST):	8:31
End time (MST):	12:41
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0009786	Cal Gas Expiry Date:	January 5, 2032
NOX Cal Gas Conc:	60.10 ppm	NO Cal Gas Conc:	60.00 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	60.10 ppm	Removed Gas NO Conc:	60.00 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	API T700	Serial Number:	5112
ZAG make/model:	API T701H	Serial Number:	690

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	-1.6	-1.7	0.1	----	----
AF High point	4933	66.7	801.8	800.4	1.3	803.5	799.3	4.2	0.9959	0.9993
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 800.8 ppb	NO = 798.7 ppb
Baseline Corr 1st pt	NO_X = 805.1 ppb	NO = 801.0 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = 0.5%
As found	NO r^2:	*Percent Change	NO = 0.3%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: API T200 Serial Number: 4259

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.941	0.940	NO bkgnd or offset:	3.4	0.8
NOX coeff or slope:	0.941	0.940	NOX bkgnd or offset:	3.8	1.3
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	3.8	3.8

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.003271	1.003339
NO_X Cal Offset:	-3.589772	-1.588566
NO Cal Slope:	1.003045	1.003556
NO Cal Offset:	-4.150059	-2.128938
NO_2 Cal Slope:	0.998577	0.997549
NO_2 Cal Offset:	0.523117	-0.157575

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	-0.3	-0.1	----	----
High point	4933	66.7	801.8	800.4	1.3	802.8	801.5	1.2	0.9987	0.9987
Mid point	4967	33.3	400.2	399.6	0.7	401.5	399.7	1.8	0.9969	0.9997
Low point	4983	16.7	200.7	200.4	0.3	197.1	196.0	1.1	1.0185	1.0225
As left zero	5000	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.1	----	----
As left span	4933	66.7	801.8	355.1	446.7	795.8	355.1	440.7	1.0075	1.0000
							Average Correction Factor		1.0047	1.0070

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	-0.1	----	----
High GPT point	797.0	350.8	447.5	446.3	1.0028	99.7%
Mid GPT point	797.0	551.5	246.8	246.1	1.0030	99.7%
Low GPT point	797.0	647.2	151.1	150.5	1.0042	99.6%
				Average Correction Factor	1.0033	99.7%

Notes: Adjusted zero only.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

NO_X Calibration Summary

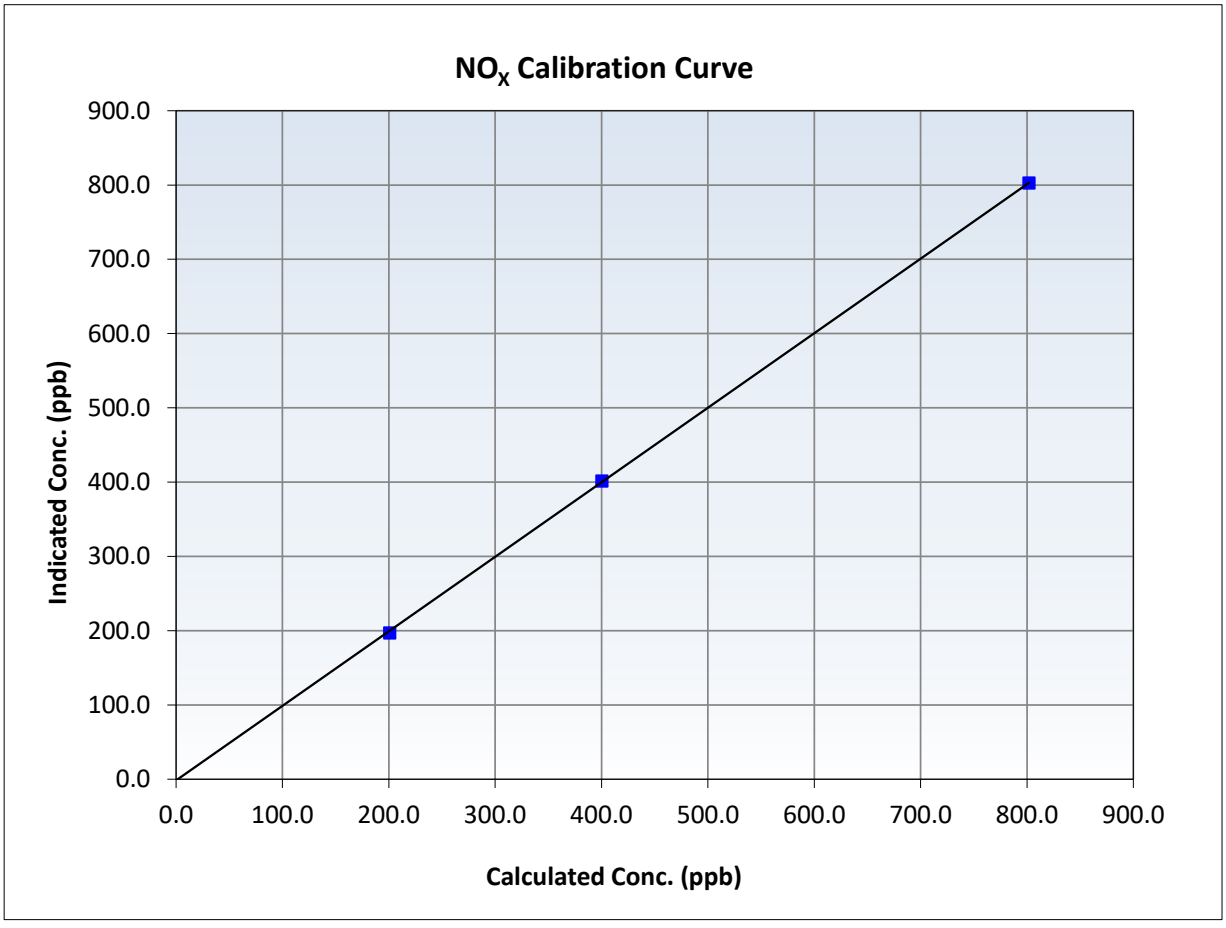
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 2, 2025
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:31	End Time (MST):	12:41
Analyzer make:	API T200	Analyzer serial #:	4259

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
801.8	802.8	0.9987
400.2	401.5	0.9969
200.7	197.1	1.0185

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999968	*≥0.995*
Slope	1.003339	*0.90 - 1.10*
Intercept	-1.588566	*+/-20*



Wood Buffalo Environmental Association

NO_2 Calibration Summary

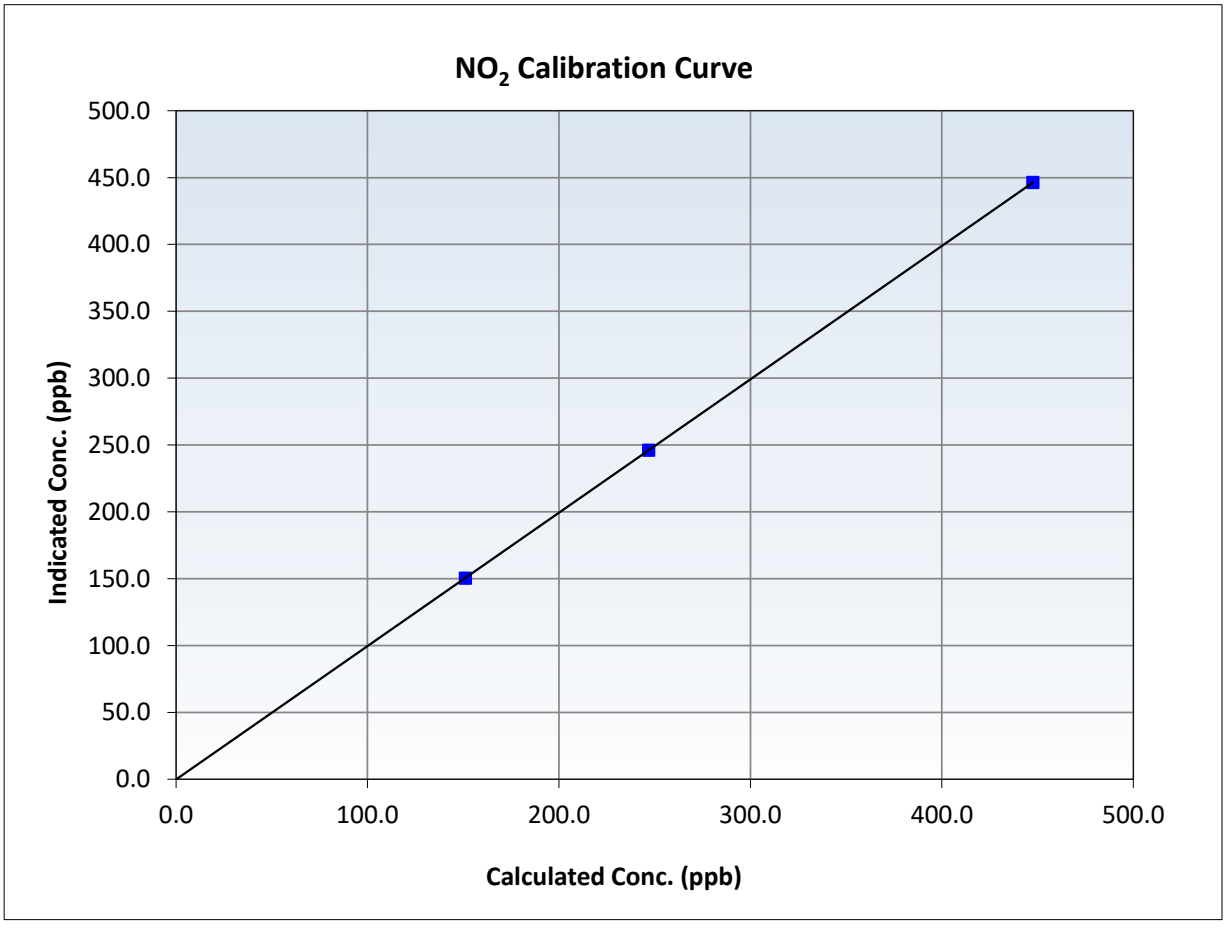
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 2, 2025
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:31	End Time (MST):	12:41
Analyzer make:	API T200	Analyzer serial #:	4259

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
447.5	446.3	1.0028
246.8	246.1	1.0030
151.1	150.5	1.0042

Statistical Evaluation		Limits
Correlation Coefficient	1.000000	≥0.995
Slope	0.997549	0.90 - 1.10
Intercept	-0.157575	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

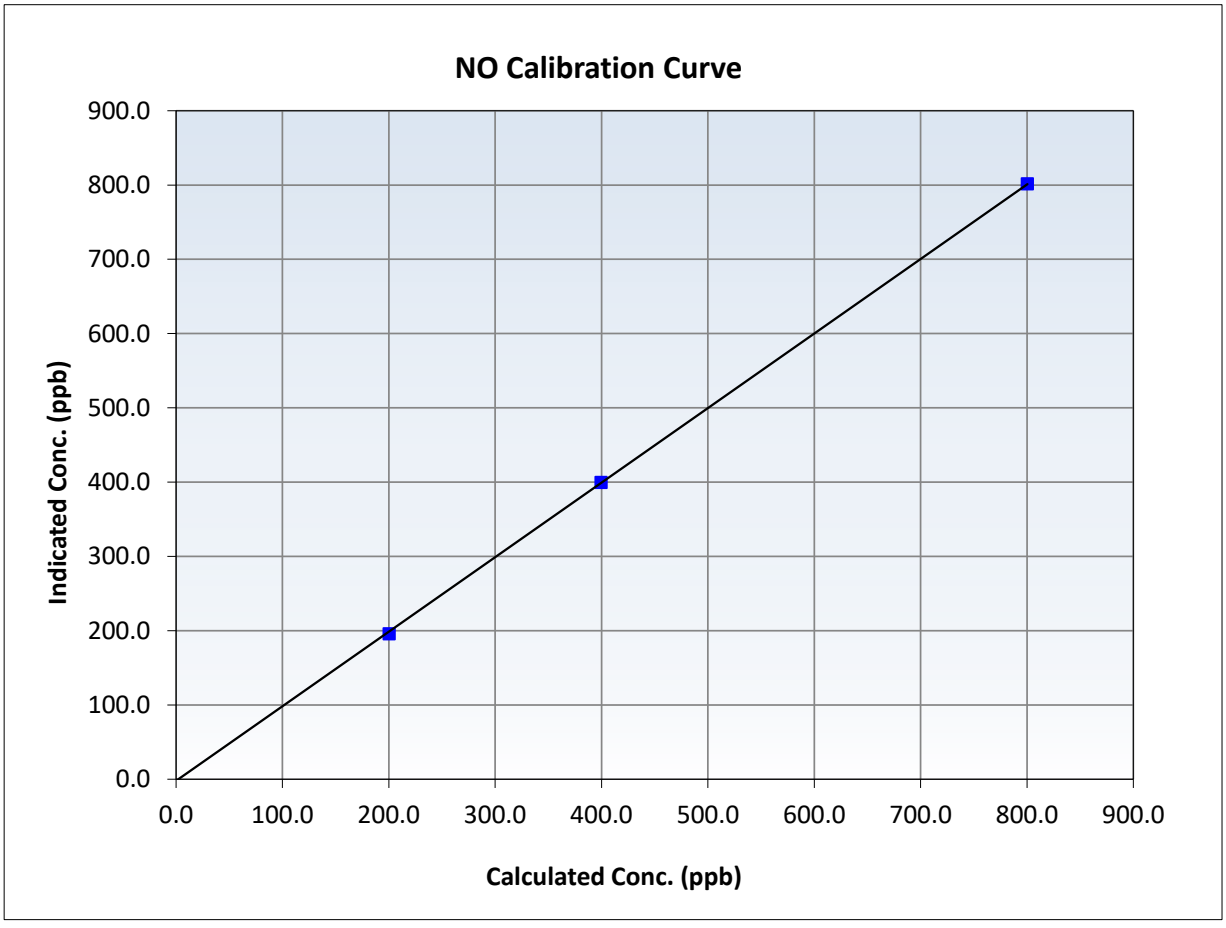
Station Information

Calibration Date:	May 28, 2025	Previous Calibration:	April 2, 2025
Station Name:	Sawbones Bay	Station Number:	AMS 505
Start Time (MST):	8:31	End Time (MST):	12:41
Analyzer make:	API T200	Analyzer serial #:	4259

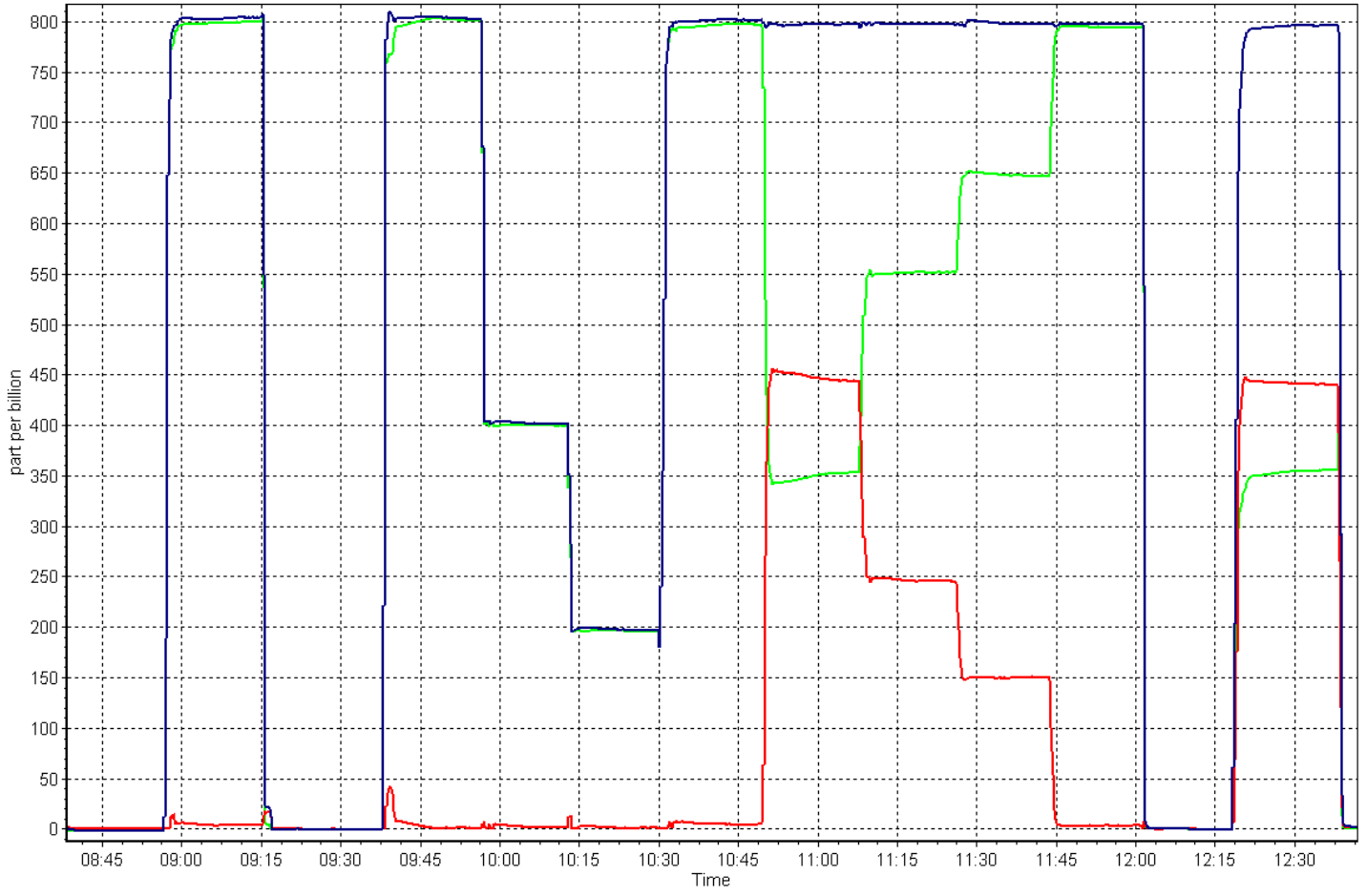
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.3	----
800.4	801.5	0.9987
399.6	399.7	0.9997
200.4	196.0	1.0225

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999963	*≥0.995*
Slope	1.003556	*0.90 - 1.10*
Intercept	-2.128938	*+/-20*



NO_X Calibration Plot Date: May 28, 2025 Location: Sawbones Bay



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS506
JACKFISH 1
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Jackfish 1	Station number:	AMS 506
Calibration Date:	May 8, 2025	Last Cal Date:	April 23, 2025
Start time (MST):	8:21	End time (MST):	11:20
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.52	ppm	Cal Gas Exp Date:	December 29, 2028
Cal Gas Cylinder #:	CC274266			
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

Analyzer make:	Thermo 43i		Serial Number:	1160290011	
Analyzer Range:	0-1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	0.999944	0.998402	Backgd or Offset:	20.2	20.2
Calibration intercept:	0.664017	1.104028	Coeff or Slope:	0.985	0.985

SO_2 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	4921	79.2	800.2	792.3	1.010
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	792.2	Previous response	800.8	*% change	-1.1%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	79.2	800.2	800.0	1.000
Mid point	4960	39.6	400.2	400.0	1.000
Low point	4980	19.8	200.1	202.2	0.989
As left zero	5000	0.0	0.0	0.1	----
As left span	4921	79.2	800.2	800.0	1.000
				Average Correction Factor:	0.997

Notes: Changed inlet filter after as founds. Adjusted span only.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

SO_2 Calibration Summary

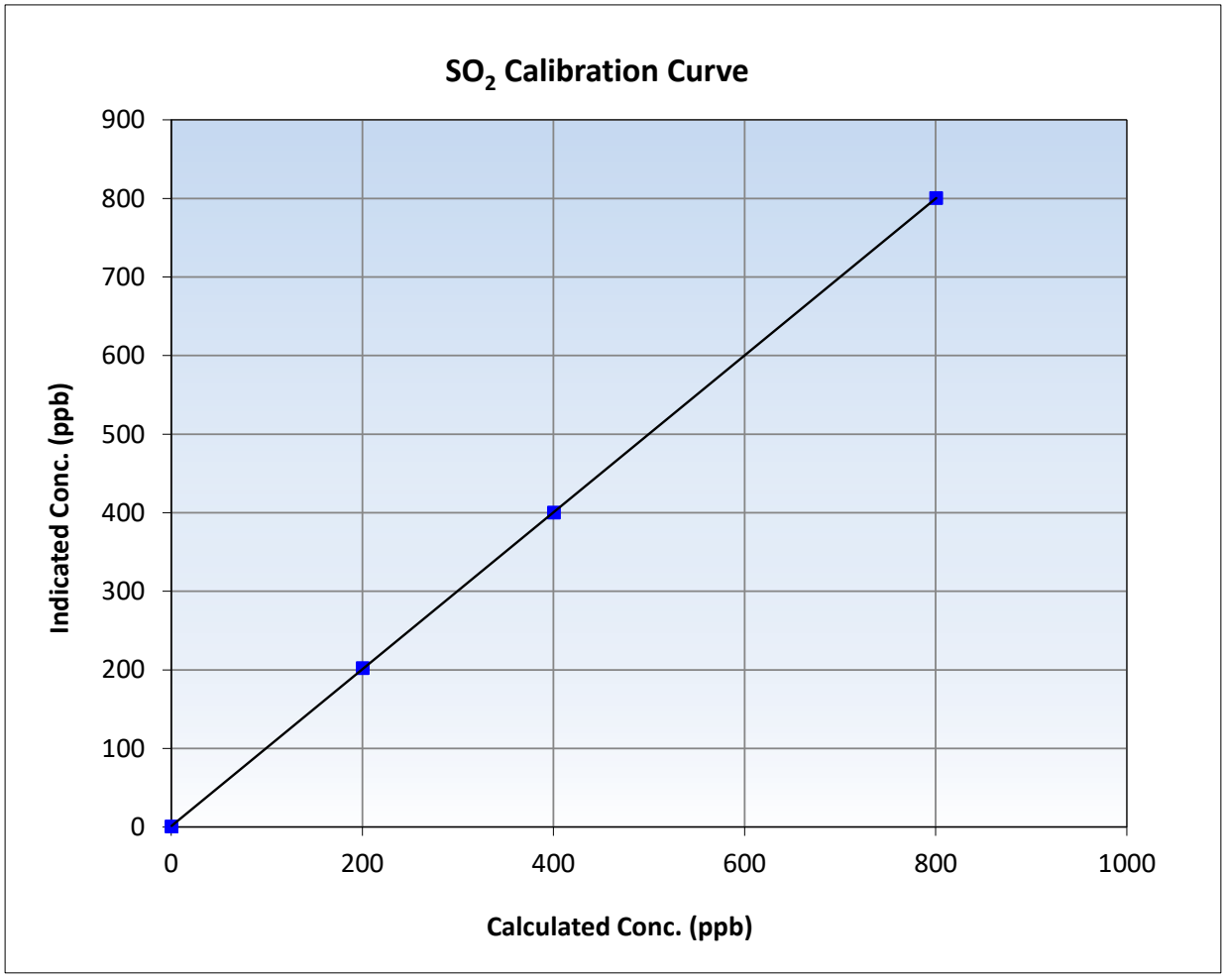
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 23, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:21	End Time (MST):	11:20
Analyzer make:	Thermo 43i	Analyzer serial #:	1160290011

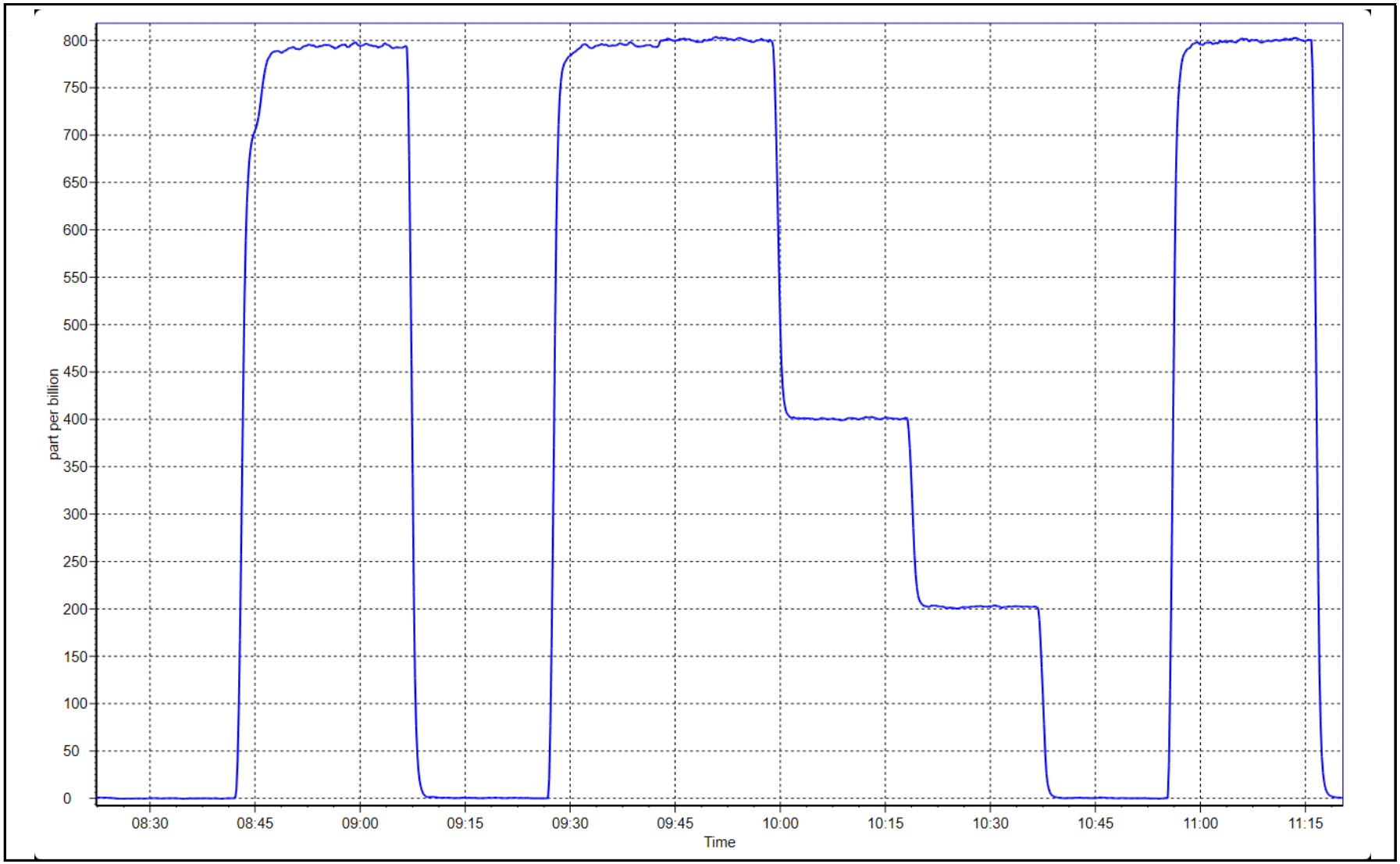
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.4	----
800.2	800.0	1.0003
400.2	400.0	1.0004
200.1	202.2	0.9895

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999992	*≥0.995*
Slope	0.998402	*0.90 - 1.10*
Intercept	1.104028	*+/-30*



SO2 Calibration Plot Date: May 8, 2025 Location: Jackfish 1



Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Jackfish 1	Station number:	AMS 506
Calibration Date:	May 7, 2025	Last Cal Date:	April 15, 2025
Start time (MST):	8:20	End time (MST):	12:12
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	4.89	ppm	Cal Gas Exp Date:	September 5, 2027
Cal Gas Cylinder #:	CC737971			
Removed Cal Gas Conc:	4.89	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	Teledyne 750		Serial Number:	282
ZAG Make/Model:	Teledyne 751H		Serial Number:	321

Analyzer Information

Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1180540020
Converter make:	Global G150		Converter serial #:	2022-218
Analyzer Range	0 - 100 ppb		Converter Temp:	325.0 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.993022	0.992736	Backgd or Offset:	3.66	3.66
Calibration intercept:	0.080592	0.040608	Coeff or Slope:	1.156	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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	-0.3	----
As found High point	4918	81.8	80.0	79.5	1.003
As found Mid point	4959	40.9	40.0	39.8	0.998
As found Low point	4980	20.4	19.9	19.8	0.993
New cylinder response					

Baseline Corr As found:	79.8	Prev response:	79.53	*% change:	0.3%
Baseline Corr 2nd AF pt:	40.1	AF Slope:	0.996879	AF Intercept:	-0.179338
Baseline Corr 3rd AF pt:	20.1	AF Correlation:	0.999989	* = > +/-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) *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	39.8	1.005
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	80.4	0.995
SO2 Scrubber Check	4921	79.2	800.2	0.0	----
Date of last scrubber change:				Ave Corr Factor	1.003
Date of last converter efficiency test:					

Notes: Changed inlet filter after as founds. No adjustment made.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

H2S Calibration Summary

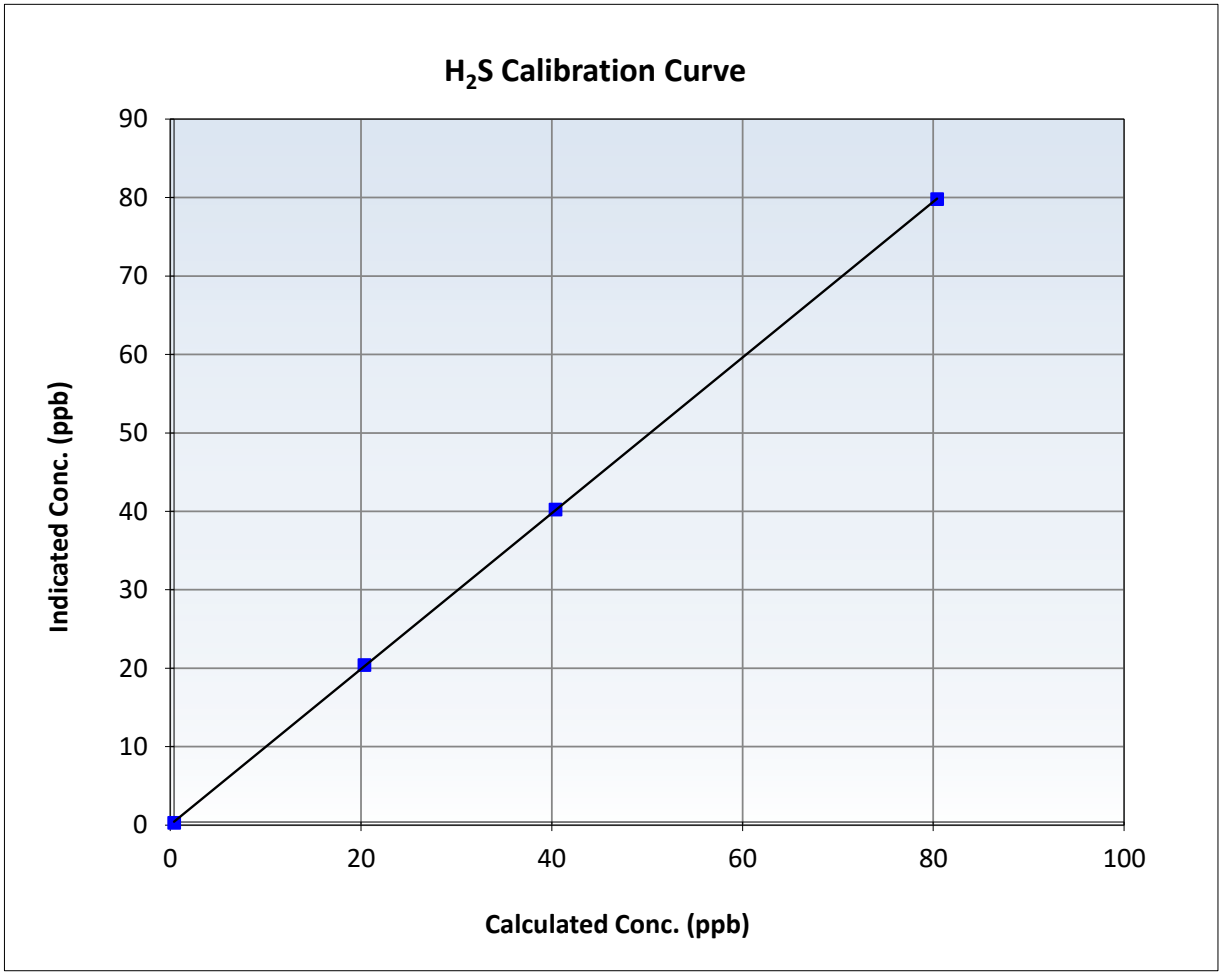
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 15, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:20	End Time (MST):	12:12
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1180540020

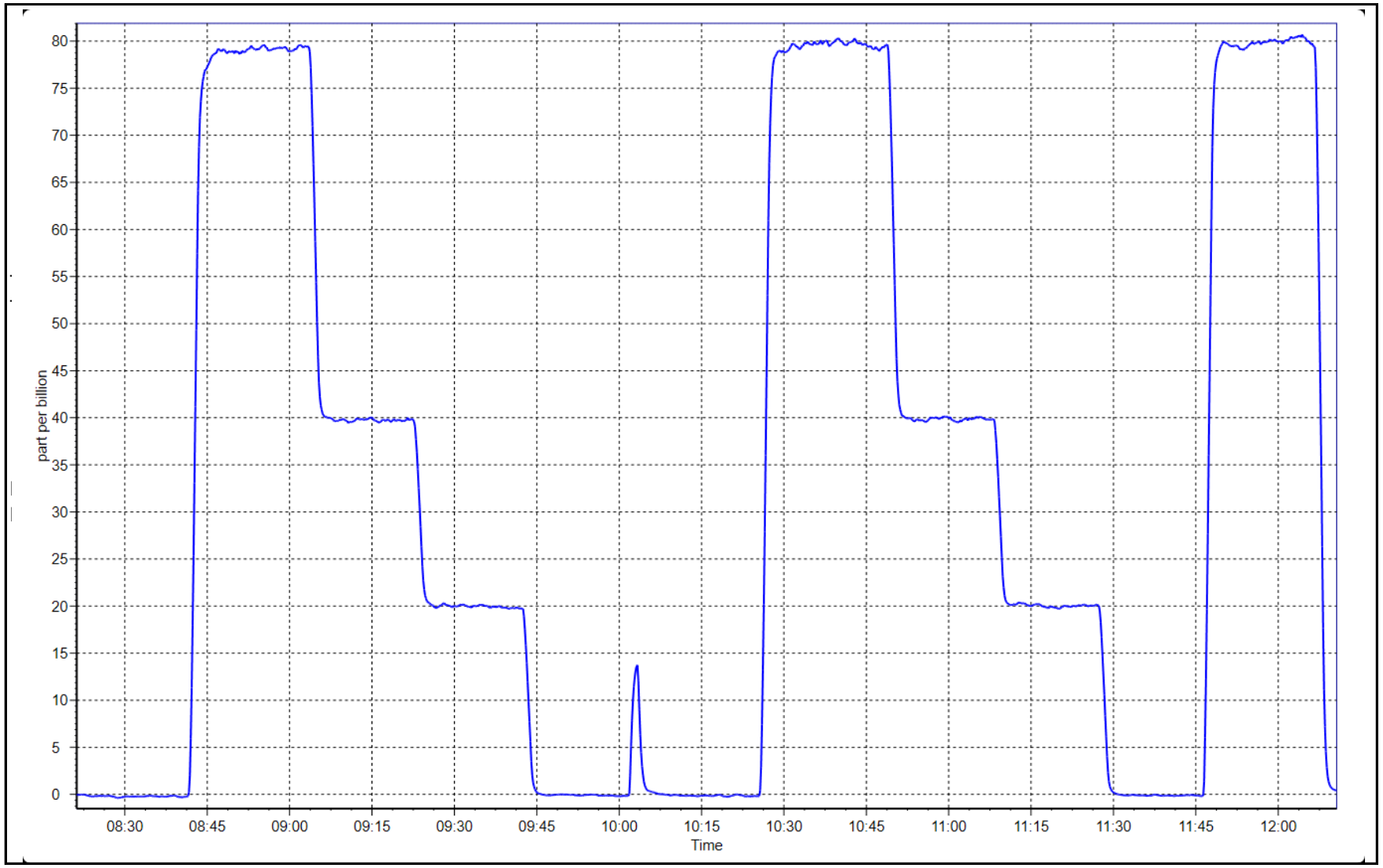
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	79.4	1.0076
40.0	39.8	1.0051
19.9	20.0	0.9975

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999985	*≥0.995*
Slope	0.992736	*0.90 - 1.10*
Intercept	0.040608	*+/-3*



H2S Calibration Plot Date: May 7, 2025 Location: Jackfish 1



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Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Jackfish 1
Station number:	AMS 506
Calibration Date:	May 22, 2025
Last Cal Date:	April 16, 2025
Start time (MST):	8:27
End time (MST):	12:51
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0022706	Cal Gas Expiry Date:	January 5, 2032
NOX Cal Gas Conc:	60.20 ppm	NO Cal Gas Conc:	60.10 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	60.20 ppm	Removed Gas NO Conc:	60.10 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	3252
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)	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	0.0	-0.1	----	----
AF High point	4933	66.6	801.9	800.6	1.3	782.2	773.9	8.2	1.0251	1.0345
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X =	800.6 ppb	NO =	798.2 ppb	* = > +/-5% change initiates investigation	*Percent Change	NO_X = -2.3%
Baseline Corr 1st pt	NO_X =	782.3 ppb	NO =	773.9 ppb	As Found Statistics	*Percent Change	NO = -3.1%
Baseline Corr 2nd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO_X r^2:	Nx Sl:	Nx Int:
Baseline Corr 3rd pt	NO_X =	NA ppb	NO =	NA ppb	As found NO r^2:	NO Sl:	NO Int:
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i

Serial Number: 12400232071

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.912	0.942	NO bkgnd or offset:	0.7	0.7
NOX coeff or slope:	0.993	0.990	NOX bkgnd or offset:	0.9	0.9
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	192.9	194.3

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.995577	0.998954
NO_X Cal Offset:	2.172098	1.712797
NO Cal Slope:	0.996708	1.001447
NO Cal Offset:	0.231152	0.072024
NO_2 Cal Slope:	0.985570	0.987045
NO_2 Cal Offset:	1.533148	0.913727

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	-0.1	----	----
High point	4933	66.6	801.9	800.6	1.3	802.0	802.0	0.6	0.9999	0.9982
Mid point	4967	33.3	400.9	400.2	0.7	403.0	400.5	2.4	0.9948	0.9994
Low point	4983	16.6	199.9	199.5	0.3	203.0	200.0	3.0	0.9846	0.9977
As left zero	5000	0.0	0.0	0.0	0.0	0.1	0.1	-0.1	----	----
As left span	4933	66.6	801.9	385.3	416.6	792.7	385.3	407.4	1.0116	1.0000
							Average Correction Factor		0.9931	0.9984

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	-0.1	----	----
High GPT point	797.7	384.5	414.5	409.4	1.0125	98.8%
Mid GPT point	797.7	597.9	201.1	200.5	1.0032	99.7%
Low GPT point	797.7	692.9	106.1	106.3	0.9984	100.2%
				Average Correction Factor	1.0047	99.5%

Notes: Changed inlet filter. Adjusted span only.

Calibration Performed By: Sean Bala

Wood Buffalo Environmental Association

NO_X Calibration Summary

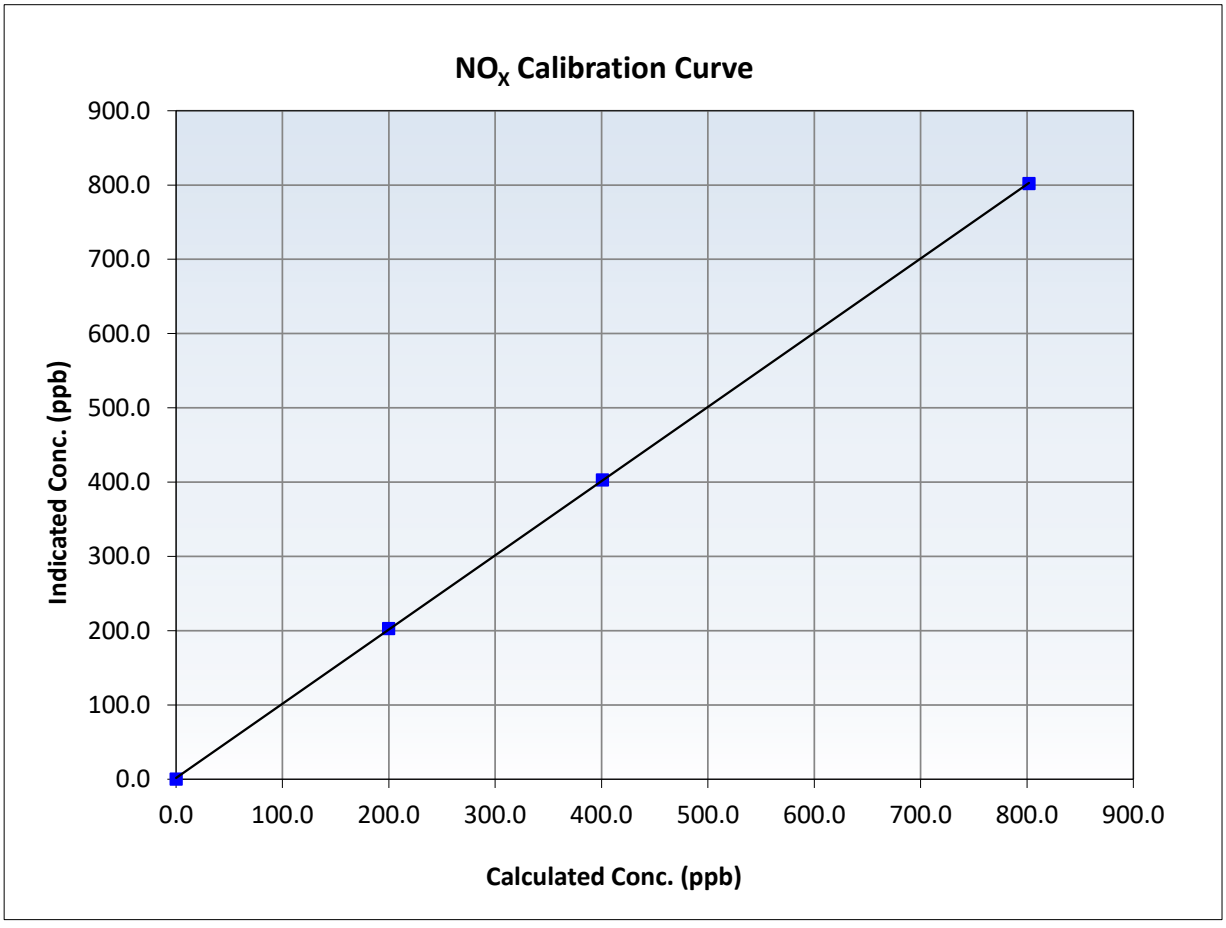
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 16, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:27	End Time (MST):	12:51
Analyzer make:	Thermo 42i	Analyzer serial #:	12400232071

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
801.9	802.0	0.9999
400.9	403.0	0.9948
199.9	203.0	0.9846

Statistical Evaluation		Limits
Correlation Coefficient	0.999982	≥0.995
Slope	0.998954	0.90 - 1.10
Intercept	1.712797	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

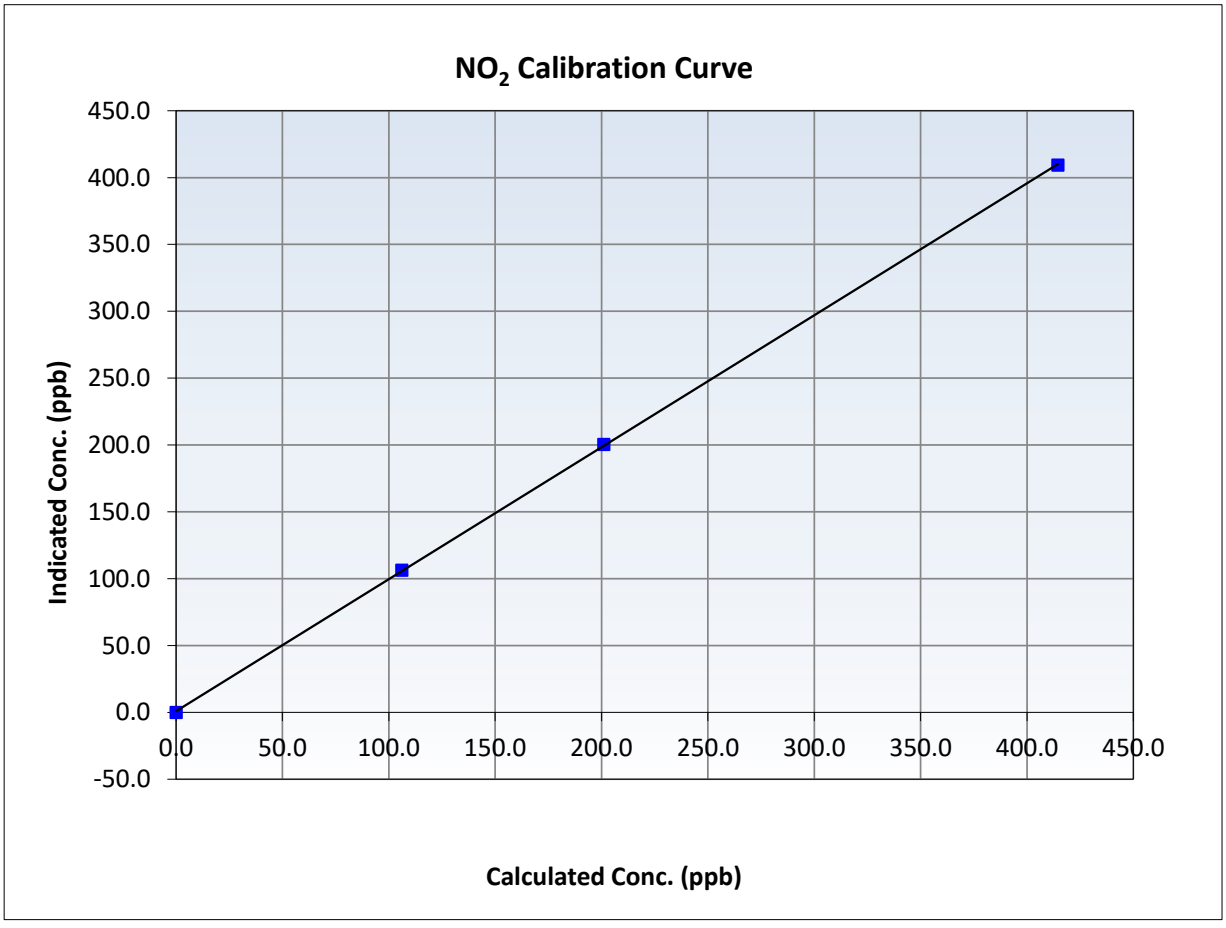
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 16, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:27	End Time (MST):	12:51
Analyzer make:	Thermo 42i	Analyzer serial #:	12400232071

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
414.5	409.4	1.0125
201.1	200.5	1.0032
106.1	106.3	0.9984

Statistical Evaluation		Limits
Correlation Coefficient	0.999967	≥0.995
Slope	0.987045	0.90 - 1.10
Intercept	0.913727	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

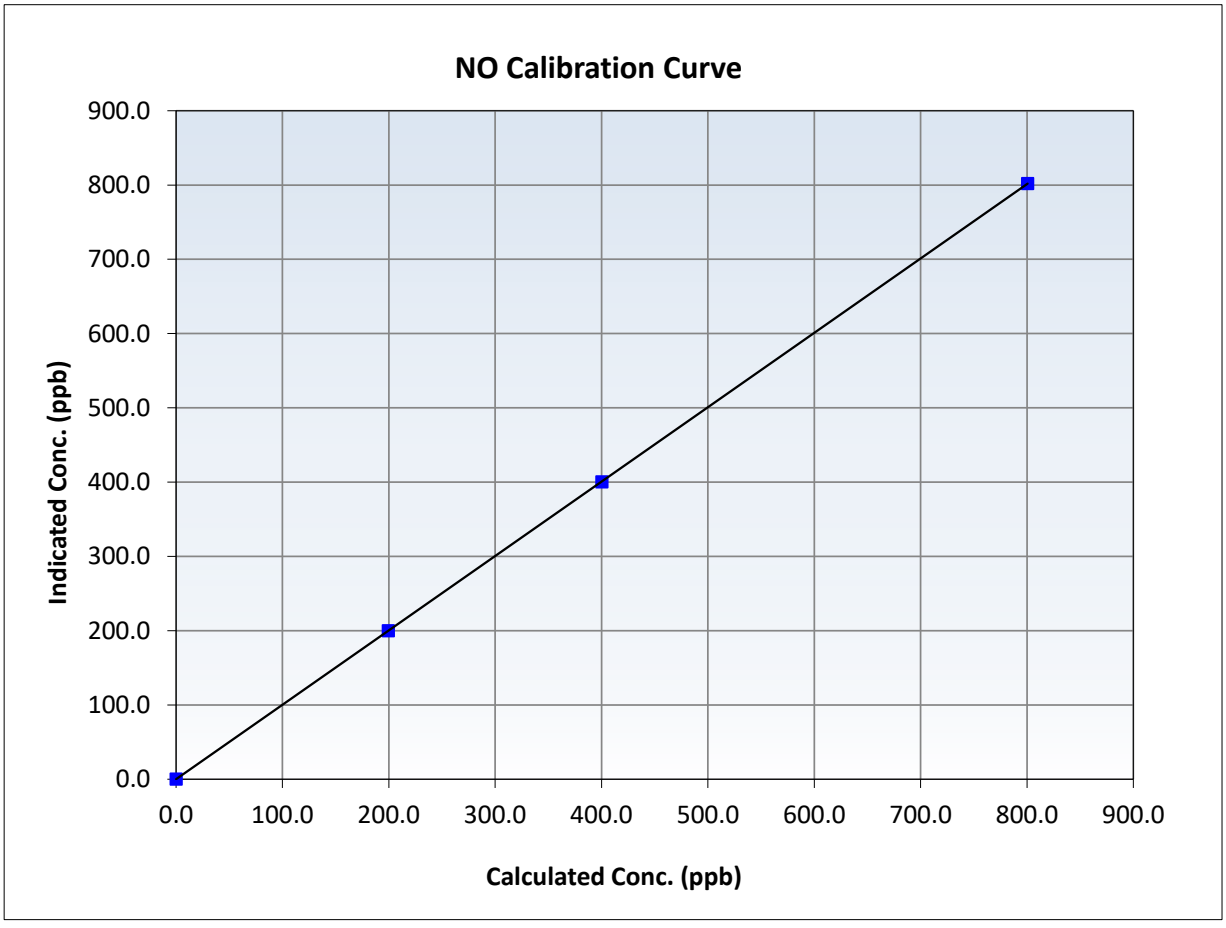
Station Information

Calibration Date:	May 22, 2025	Previous Calibration:	April 16, 2025
Station Name:	Jackfish 1	Station Number:	AMS 506
Start Time (MST):	8:27	End Time (MST):	12:51
Analyzer make:	Thermo 42i	Analyzer serial #:	12400232071

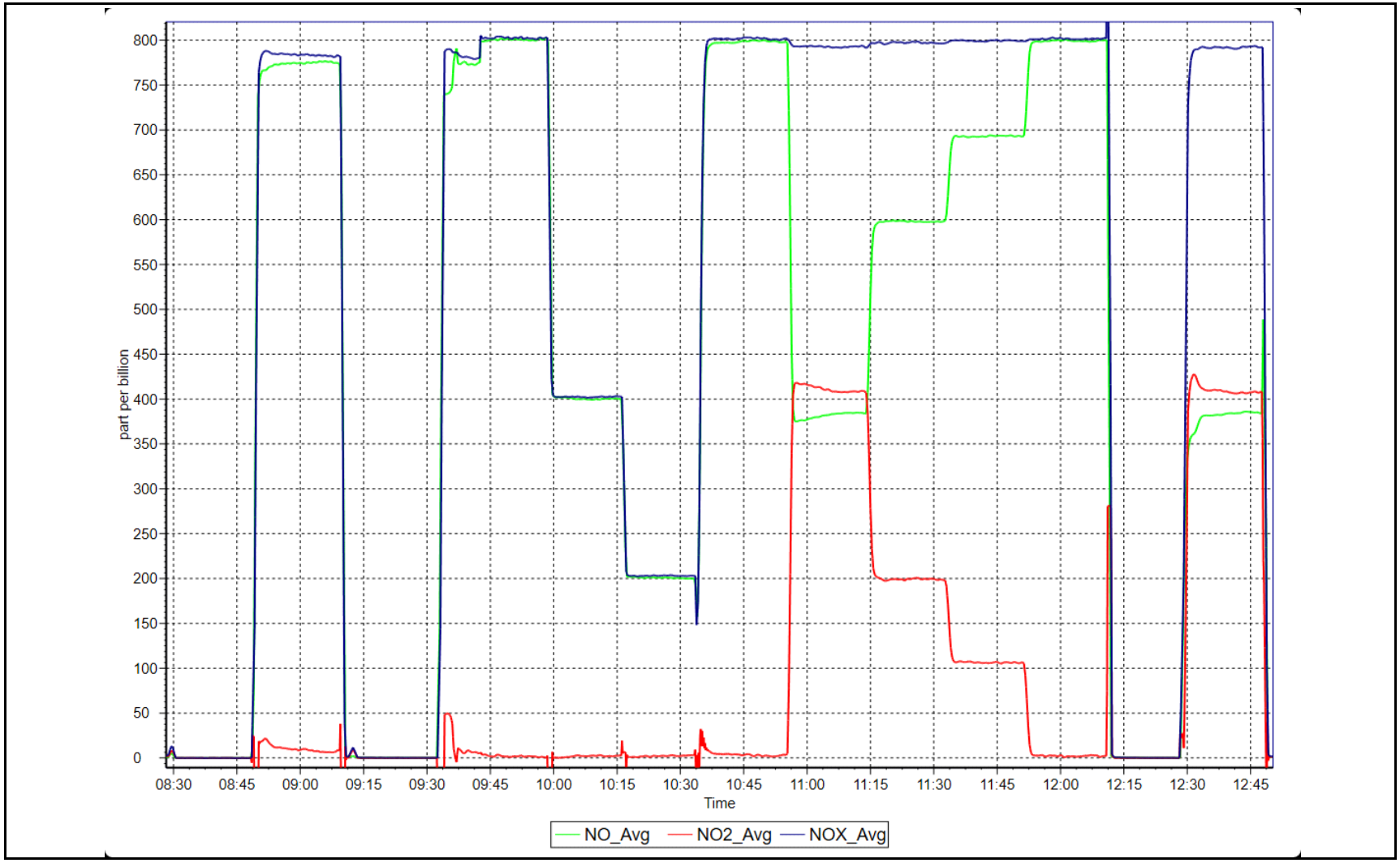
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.2	----
800.6	802.0	0.9982
400.2	400.5	0.9994
199.5	200.0	0.9977

Statistical Evaluation		Limits
Correlation Coefficient	0.999999	≥0.995
Slope	1.001447	0.90 - 1.10
Intercept	0.072024	+/-20



NO_X Calibration Plot Date: May 22, 2025 Location: Jackfish 1



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS508
KIRBY NORTH
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Kirby North	Station number:	AMS 508
Calibration Date:	May 8, 2025	Last Cal Date:	April 3, 2025
Start time (MST):	8:00	End time (MST):	12:53
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	50.74	ppm	Cal Gas Exp Date:	October 9, 2032
Cal Gas Cylinder #:	CC255918			
Removed Cal Gas Conc:	50.74	ppm	Rem Gas Exp Date:	
Removed Gas Cyl #:			Diff between cyl:	
Calibrator Model:	Teledyne API T750		Serial Number:	281
Zero Air Gen Model:	Teledyne API T751H		Serial Number:	529

Analyzer Information

Analyzer make:	Thermo 43iQ		Serial Number:	1182340007	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.002663	0.997390	Backgd or Offset:	29.0	29.0
Calibration intercept:	-0.512059	2.607957	Coeff or Slope:	1.117	1.117

SO_2 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	4921	78.8	799.7	801.0	0.998
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	801.2	Previous response	801.3	*% change	0.0%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	78.8	799.7	799.3	1.000
Mid point	4961	39.4	399.8	401.3	0.996
Low point	4980	19.7	199.9	205.8	0.971
As left zero	5000	0.0	0.0	-0.3	----
As left span	4921	78.8	799.7	807.0	0.991
				Average Correction Factor:	0.989

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

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

SO_2 Calibration Summary

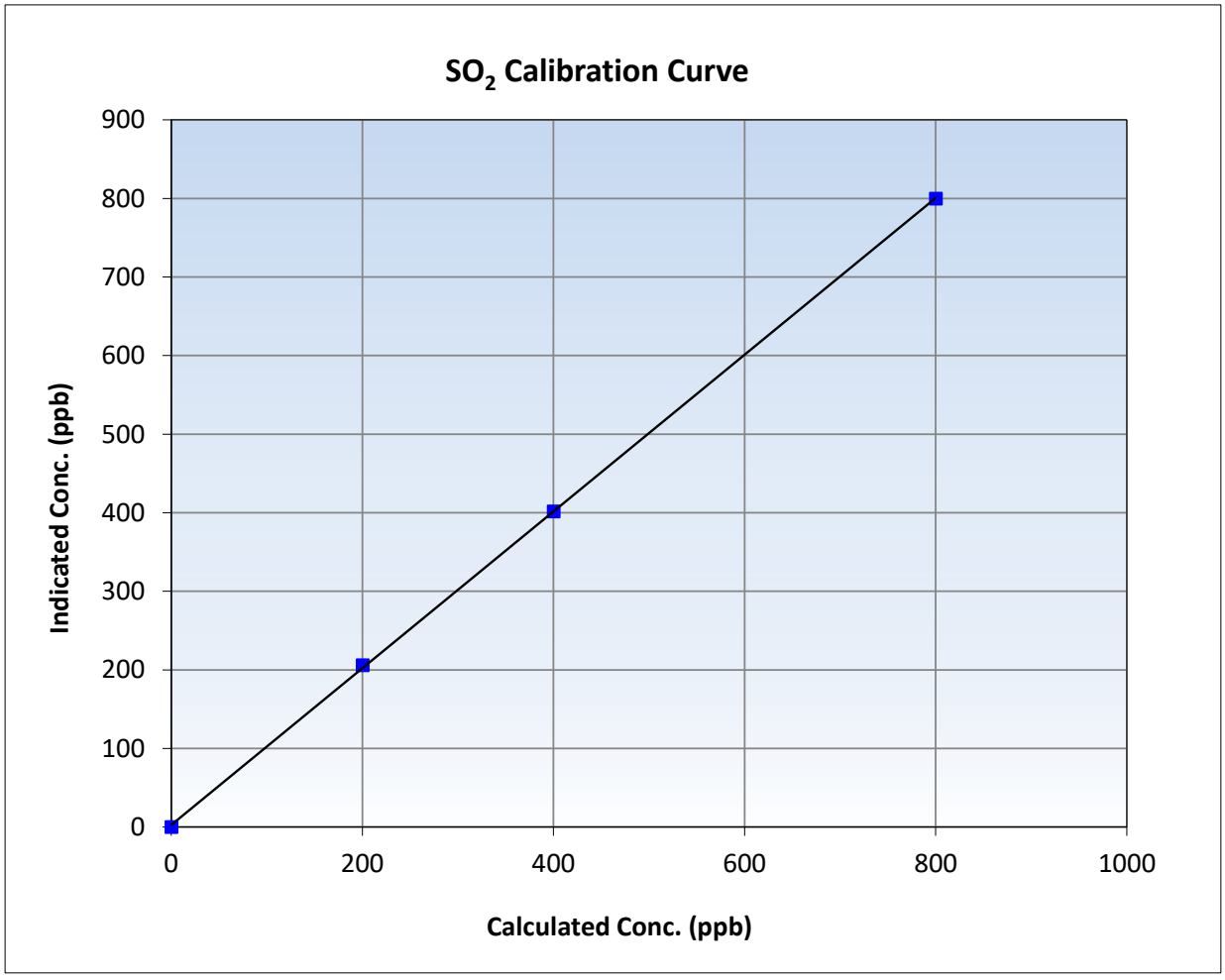
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 3, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	8:00	End Time (MST):	12:53
Analyzer make:	Thermo 43iQ	Analyzer serial #:	1182340007

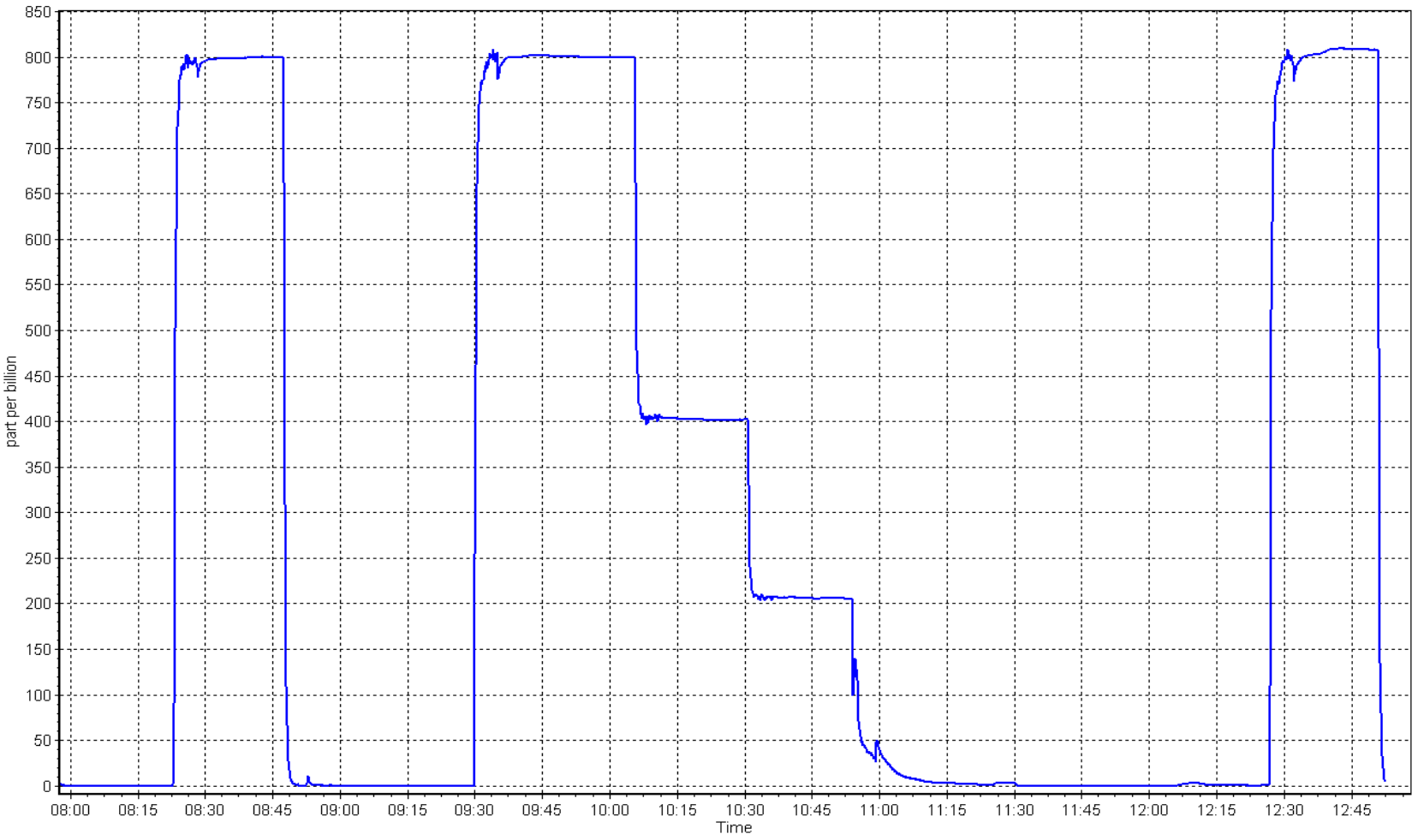
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
799.7	799.3	1.0005
399.8	401.3	0.9963
199.9	205.8	0.9715

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999934	*≥0.995*
Slope	0.997390	*0.90 - 1.10*
Intercept	2.607957	*+/-30*



SO2 Calibration Plot Date: May 8, 2025 Location: Kirby North



Wood Buffalo Environmental Association

H2S Calibration Report

Station Information

Station Name:	Kirby North	Station number:	AMS 508
Calibration Date:	May 7, 2025	Last Cal Date:	April 2, 2025
Start time (MST):	11:23	End time (MST):	17:25
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 T700		Serial Number:	5240
ZAG Make/Model:	Teledyne API T701H		Serial Number:	880

Analyzer Information

Analyzer make:	Thermo 43i-TLE		Analyzer serial #:	1150840012
Converter make:	Global		Converter serial #:	2022-197
Analyzer Range	0 - 100 ppb		Converter Temp:	325 degC

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.999956	0.996813	Backgd or Offset:	1.76	1.80
Calibration intercept:	-0.120959	-0.160956	Coeff or Slope:	1.043	1.073

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)) *Limit = 0.90-1.10*
As found zero	5000	0.0	0.0	-0.1	----
As found High point	4921	79.2	80.0	79.0	1.011
As found Mid point	4960	39.6	40.0	39.0	1.023
As found Low point	4980	19.8	20.0	19.2	1.036
New cylinder response					

Baseline Corr As found:	79.1	Prev response:	79.87	*% change:	-1.0%
Baseline Corr 2nd AF pt:	39.1	AF Slope:	0.990240	AF Intercept:	-0.380942
Baseline Corr 3rd AF pt:	19.3	AF Correlation:	0.999939	* = > +/-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) *Limit = 0.95-1.05*
Calibrator zero	5000	0.0	0.0	-0.1	----
High point	4921	79.2	80.0	79.6	1.005
Mid point	4960	39.6	40.0	39.7	1.008
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	79.3	1.009
SO2 Scrubber Check	4919	80.0	800.2	0.0	----
Date of last scrubber change:		July 25, 2023		Ave Corr Factor	1.009
Date of last converter efficiency 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

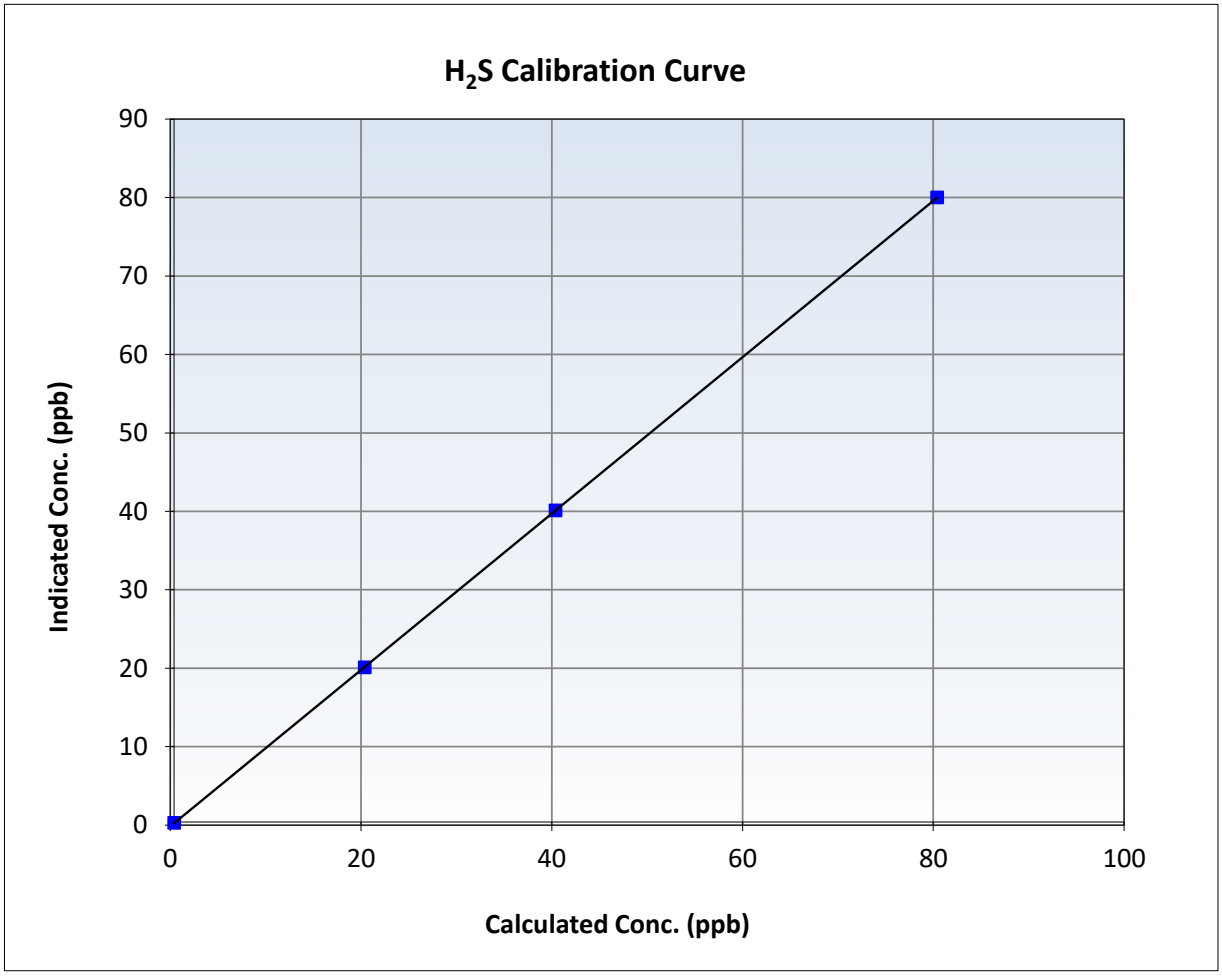
Station Information

Calibration Date:	May 7, 2025	Previous Calibration:	April 2, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	11:23	End Time (MST):	17:25
Analyzer make:	Thermo 43i-TLE	Analyzer serial #:	1150840012

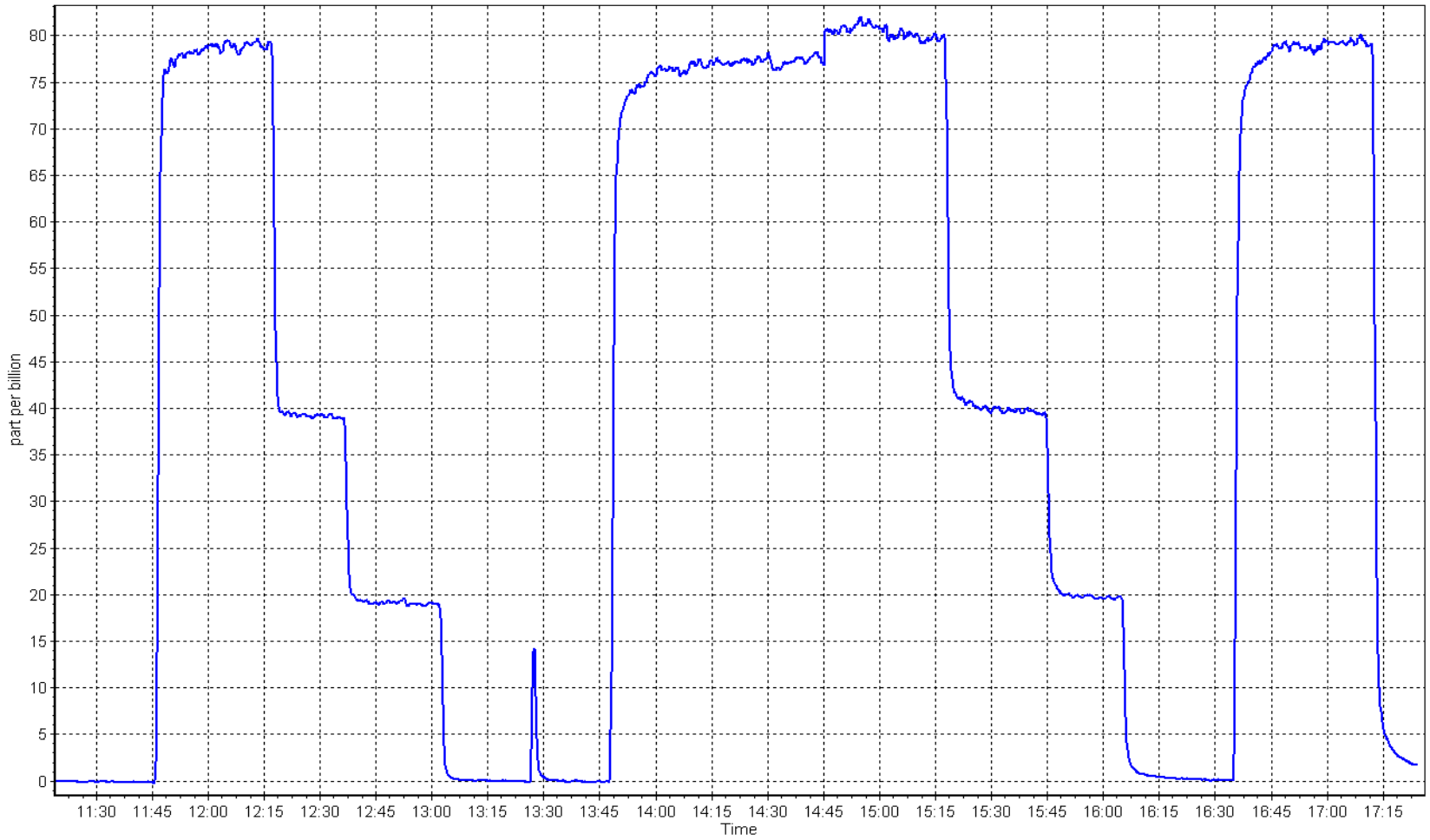
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
80.0	79.6	1.0049
40.0	39.7	1.0075
20.0	19.7	1.0152

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999997	*≥0.995*
Slope	0.996813	*0.90 - 1.10*
Intercept	-0.160956	*+/-3*



H2S Calibration Plot Date: May 7, 2025 Location: Kirby North



Wood Buffalo Environmental Association

THC Calibration Report

Station Information

Station Name:	Kirby North	Station number:	AMS 508
Calibration Date:	May 8, 2025	Last Cal Date:	April 3, 2025
Start time (MST):	8:00	End time (MST):	12:53
Reason:	Routine		

Calibration Standards

Gas Cert Reference:	CC255918		Cal Gas Expiry Date:	October 9, 2032	
CH4 Cal Gas Conc.	506.4	ppm	CH4 Equiv Conc.	1070.2	ppm
C3H8 Cal Gas Conc.	205.0	ppm			
Removed Gas Cert:			Removed Gas Expiry:		
Removed CH4 Conc.	506.4	ppm	CH4 Equiv Conc.	1070.2	ppm
Removed C3H8 Conc.	205.0	ppm	Diff between cyl:		
Calibrator Make/Model:	Teledyne API T750		Serial Number:	281	
ZAG Make/Model:	Teledyne API T751H		Serial Number:	529	

Analyzer Information

Analyzer make: Thermo 51i-LT Analyzer serial #: 1182340005

Analyzer Range: 0 - 20 ppm

	Start	*Finish*		*Start*	*Finish*
Calibration slope:	0.994170	1.001861	Background:	1.96	2.17
Calibration intercept:	0.019768	0.022769	Coefficient:	3.644	3.663

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	0.21	----
As found High point	4921	78.8	16.87	17.01	1.004
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	16.80	Previous response	16.79	*% change	0.0%
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)	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	-0.01	
High point	4921	78.8	16.87	16.91	0.997
Mid point	4961	39.4	8.43	8.47	0.996
Low point	4980	19.7	4.22	4.29	0.983
As left zero	5000	0.0	0.00	-0.08	----
As left span	4921	78.8	16.87	16.76	1.006
				Average Correction Factor	0.992

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

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

THC Calibration Summary

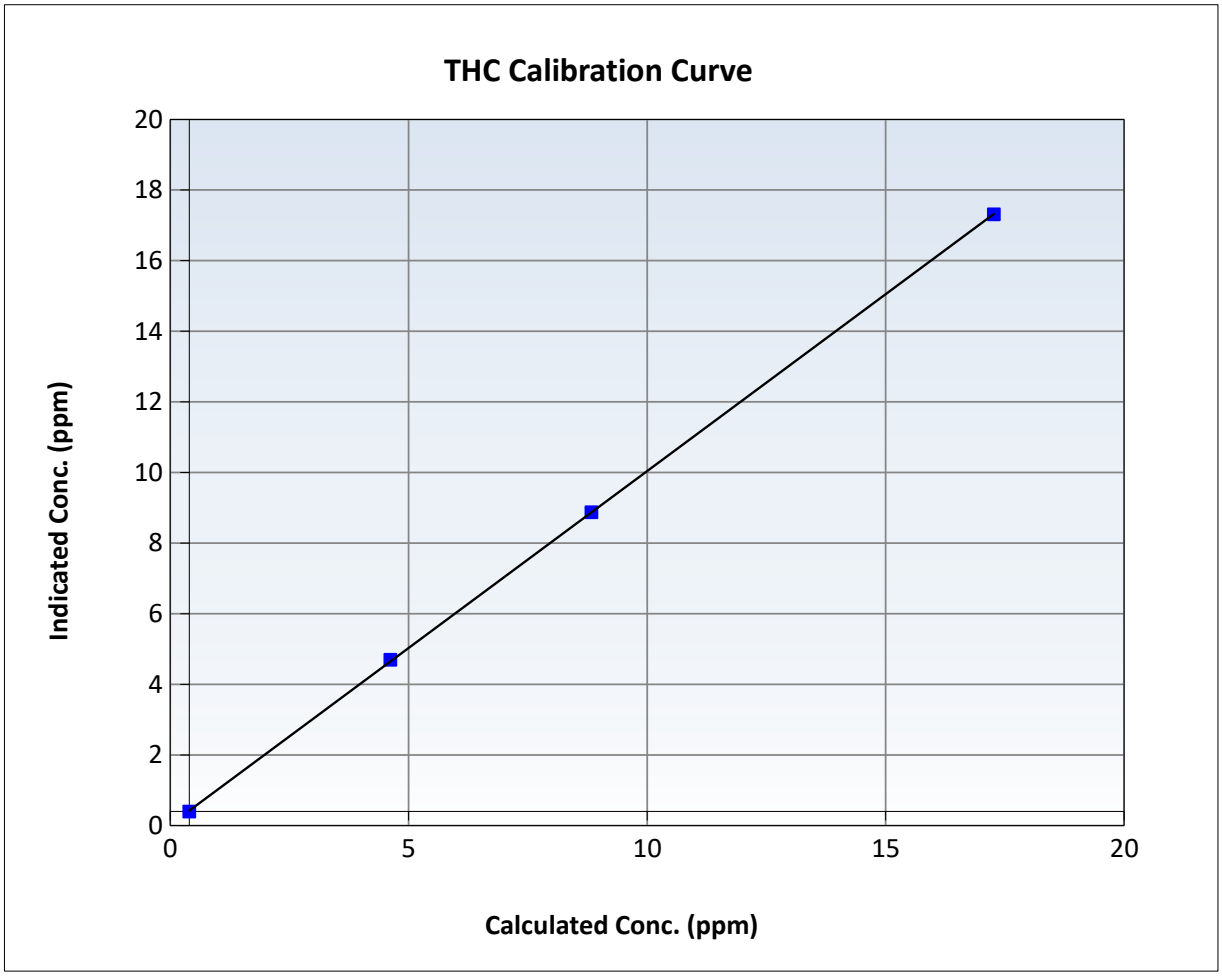
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 3, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	8:00	End Time (MST):	12:53
Analyzer make:	Thermo 51i-LT	Analyzer serial #:	1182340005

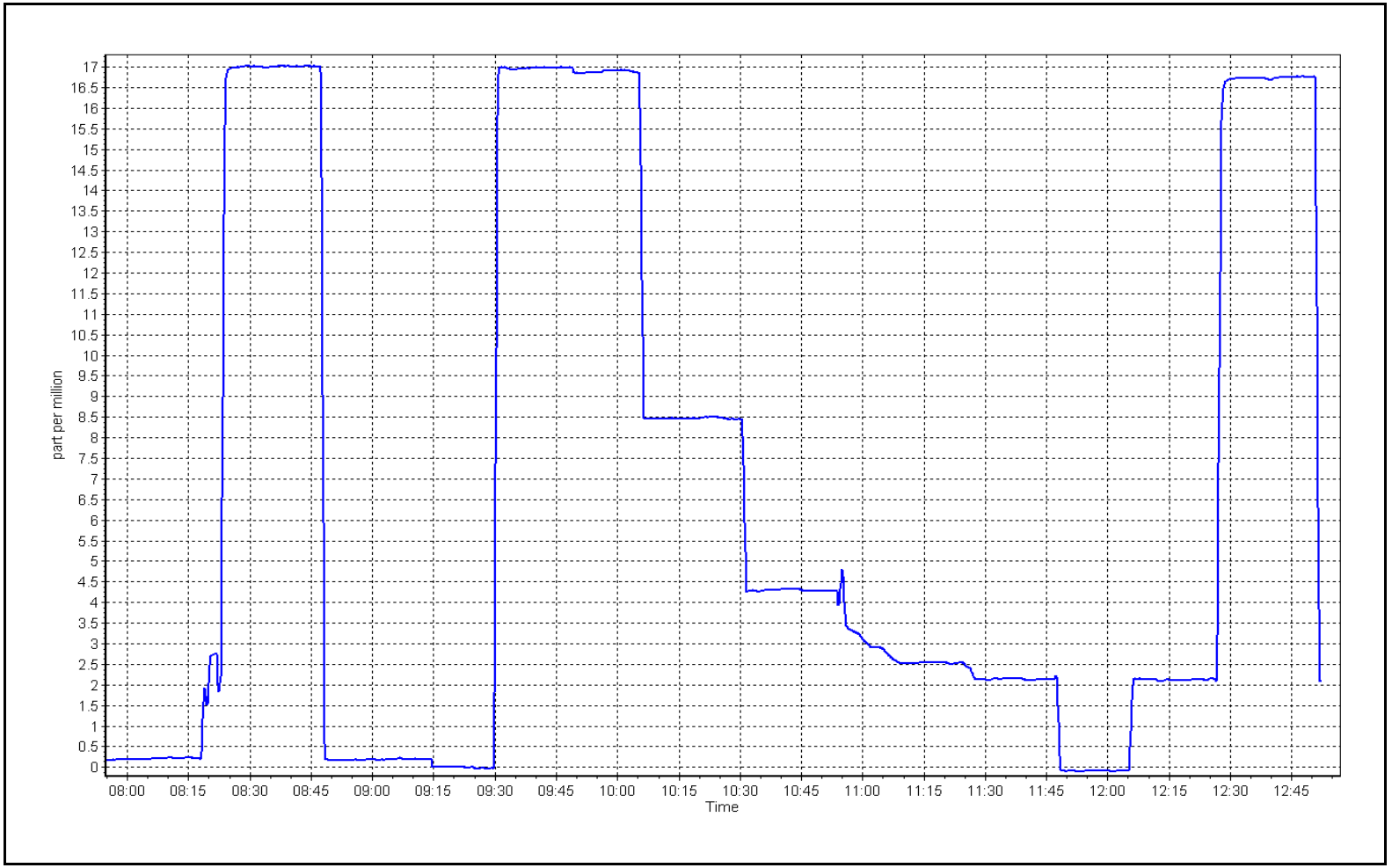
Calibration Data

Calculated Concentration (ppm) (Cc)	Indicated Concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0.00	-0.01	----
16.87	16.91	0.9974
8.43	8.47	0.9955
4.22	4.29	0.9829

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999981	*≥0.995*
Slope	1.001861	*0.90 - 1.10*
Intercept	0.022769	*+/-1.5*



THC Calibration Plot Date: May 8, 2025 Location: Kirby North



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Kirby North
Station number:	AMS 508
Calibration Date:	May 7, 2025
Last Cal Date:	April 2, 2025
Start time (MST):	11:30
End time (MST):	14:45
Reason:	As Found

Calibration Standards

NO Gas Cylinder #:	DT0019572	Cal Gas Expiry Date:	January 5, 2032
NOX Cal Gas Conc:	60.00 ppm	NO Cal Gas Conc:	59.90 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	60.00 ppm	Removed Gas NO Conc:	59.90 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T750	Serial Number:	281
ZAG make/model:	Teledyne API T751H	Serial Number:	529

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	4933	66.8	801.6	800.3	1.3	789.7	791.9	-2.2	1.0149	1.0103
AF Mid point	4967	33.4	400.8	400.1	0.7	398.4	398.1	0.3	1.0055	1.0046
AF Low point	4983	16.7	200.4	200.1	0.3	202.9	202.0	0.9	0.9867	0.9894
New cyl resp										

Previous Response	NO_X = 796.1 ppb	NO = 797.6 ppb
Baseline Corr 1st pt	NO_X = 789.9 ppb	NO = 792.1 ppb
Baseline Corr 2nd pt	NO_X = 398.6 ppb	NO = 398.3 ppb
Baseline Corr 3rd pt	NO_X = 203.1 ppb	NO = 202.2 ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2: 0.999934	*Percent Change	NO_X = -0.8%
As found	NO r^2: 0.999966	*Percent Change	NO = -0.7%
As found	NO_2 r^2: 0.999994	Nx Sl: 0.983478	Nx Int: 2.786
		NO Sl: 0.988290	NO Int: 1.926
		NO2 Sl: 0.982855	NO_2 Int: 0.210

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero	----	----	0.0	0.0	----	----
As found high GPT point	788.0	399.0	390.3	383.9	1.0168	98.4%
As found mid GPT point	788.0	597.6	191.7	188.3	1.0182	98.2%
As found low GPT point	788.0	691.9	97.4	96.5	1.0097	99.0%

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i Serial Number: 1118148496

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	0.703	0.703	NO bkgnd or offset:	8.0	8.0
NOX coeff or slope:	0.991	0.991	NOX bkgnd or offset:	8.1	8.1
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	146.2	146.5

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	0.993215	
NO_X Cal Offset:	-0.053616	
NO Cal Slope:	0.997815	
NO Cal Offset:	-0.933611	
NO_2 Cal Slope:	0.977286	
NO_2 Cal Offset:	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										
High point										
Mid point										
Low point										
As left zero										
As left span										
								Average Correction Factor		

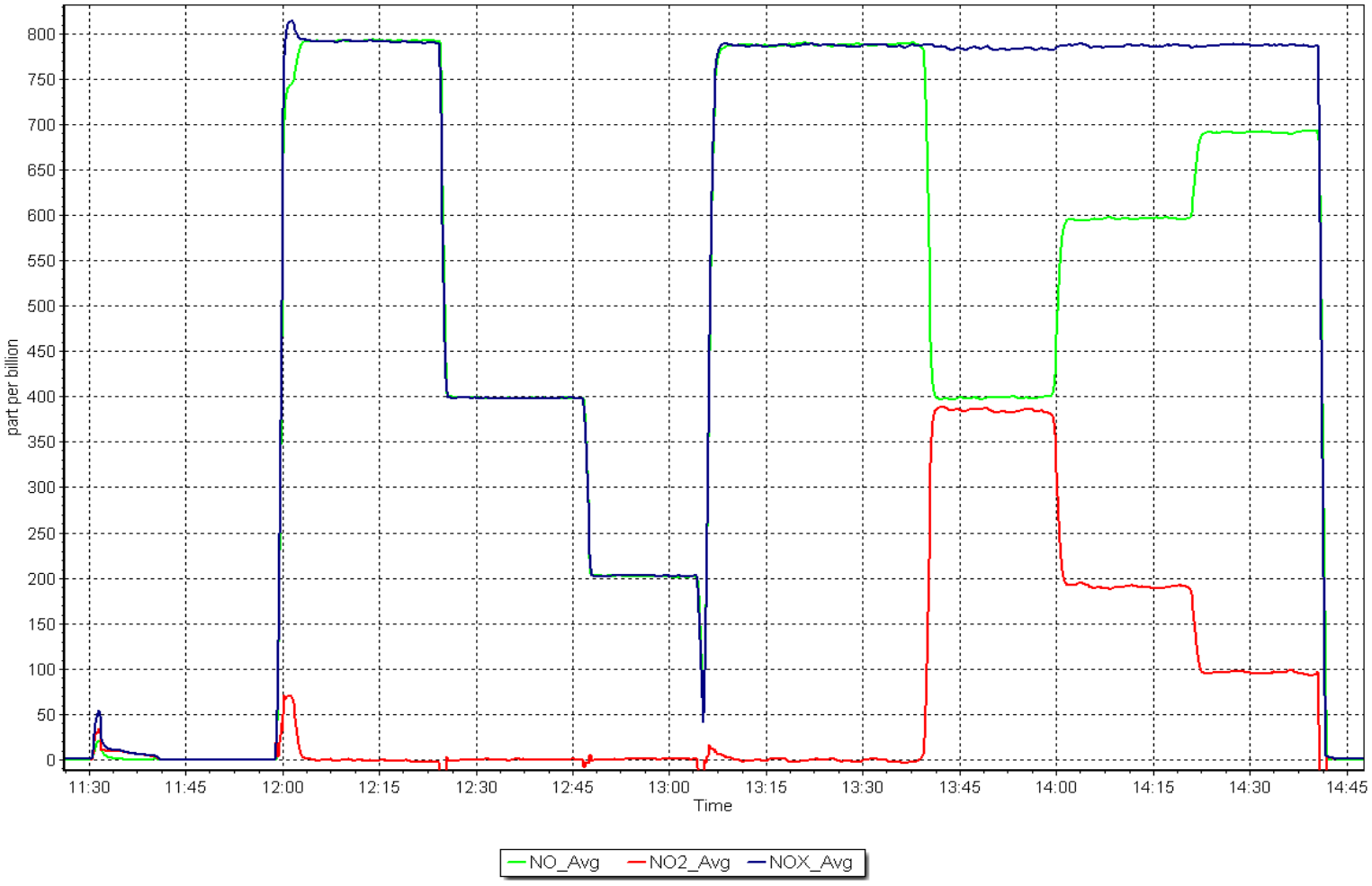
GPT Calibration Data

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						
High GPT point						
Mid GPT point						
Low GPT point						
				Average Correction Factor		

Notes: Noted a large dip in NOx during the high ozone GPT point during last month's calibration. Planned to swap the analyzer this month, but when running the removal points using a portable calibrator the NOx dip not occur. Concluded that the issue may be calibrator related. Will look into the issue during next month's calibration.

Calibration Performed By: Braiden Boutilier

NO_X Calibration Plot Date: May 7, 2025 Location: Kirby North



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Kirby North
Station number:	AMS 508
Calibration Date:	May 8, 2025
Last Cal Date:	April 2, 2025
Start time (MST):	7:50
End time (MST):	12:29
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	DT0019572	Cal Gas Expiry Date:	January 5, 2032
NOX Cal Gas Conc:	60.00 ppm	NO Cal Gas Conc:	59.90 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	60.00 ppm	Removed Gas NO Conc:	59.90 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	5240
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)) *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	* = > +/-5% change initiates investigation	*Percent Change	NO_X =	NA
Baseline Corr 1st pt	NO_X = NA	ppb	NO = NA	ppb	As Found Statistics	*Percent Change	NO =	NA
Baseline Corr 2nd pt	NO_X = NA	ppb	NO = NA	ppb	As found NO_X r^2:	Nx Sl:	Nx Int:	
Baseline Corr 3rd pt	NO_X = NA	ppb	NO = NA	ppb	As found NO r^2:	NO Sl:	NO Int:	
					As found NO_2 r^2:	NO2 Sl:	NO_2 Int:	

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make: Thermo 42i

Serial Number: 1118148496

NOX Range (ppb): 0 - 1000 ppb

Instrument Settings

	Start	Finish		Start	Finish
NO coeff or slope:	0.703	0.710	NO bkgnd or offset:	8.0	8.1
NOX coeff or slope:	0.991	0.994	NOX bkgnd or offset:	8.1	8.2
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	146.2	147.7

Calibration Statistics

	Start	Finish
NO_X Cal Slope:	0.993215	1.000230
NO_X Cal Offset:	-0.053616	-0.713582
NO Cal Slope:	0.997815	1.003827
NO Cal Offset:	-0.933611	-1.813588
NO_2 Cal Slope:	0.977286	0.980589
NO_2 Cal Offset:	0.360528	1.720166

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	66.8	801.6	800.3	1.3	801.0	802.0	-0.5	1.0008	0.9979
Mid point	4967	33.4	400.8	400.1	0.7	401.0	400.1	0.8	0.9995	1.0001
Low point	4983	16.7	200.4	200.1	0.3	198.5	196.7	1.8	1.0096	1.0171
As left zero	5000	0.0	0.0	0.0	0.0	0.2	0.1	0.1	----	----
As left span	4933	66.8	801.6	397.4	404.2	795.4	397.4	398.0	1.0078	1.0000
							Average Correction Factor		1.0033	1.0050

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	0.0	----	----
High GPT point	796.5	397.4	400.4	393.9	1.0166	98.4%
Mid GPT point	796.5	610.6	187.2	185.1	1.0115	98.9%
Low GPT point	796.5	700.9	96.9	99.2	0.9772	102.3%
				Average Correction Factor	1.0018	99.9%

Notes: Calibration completed after as founds done May 7. Noted NOx dip during GPT high point. Likely calibrator related. Will troubleshoot during next month's calibration. Adjusted span.

Calibration Performed By: Braiden Boutilier

Wood Buffalo Environmental Association

NO_X Calibration Summary

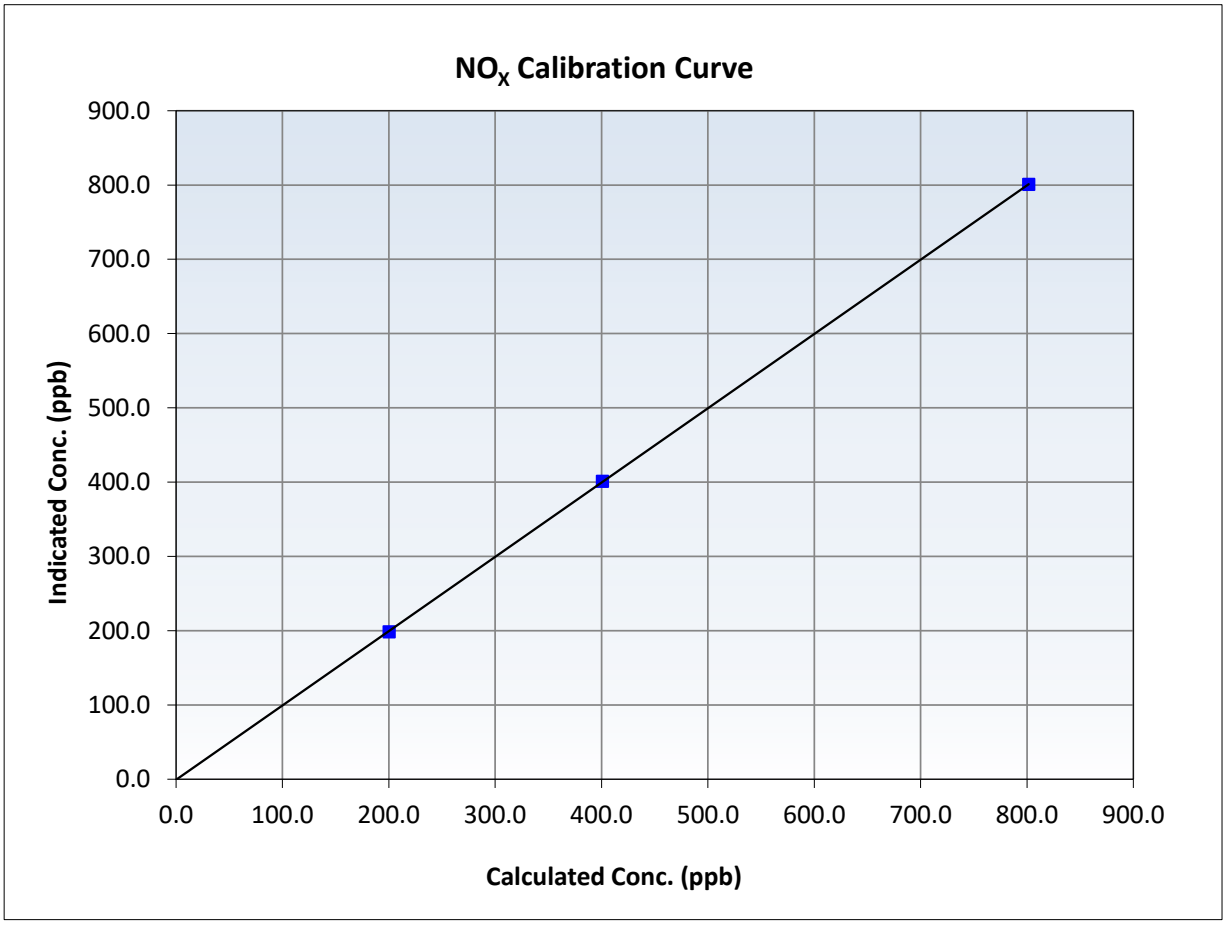
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 2, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	7:50	End Time (MST):	12:29
Analyzer make:	Thermo 42i	Analyzer serial #:	1118148496

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
801.6	801.0	1.0008
400.8	401.0	0.9995
200.4	198.5	1.0096

Statistical Evaluation		Limits
Correlation Coefficient	0.999993	≥0.995
Slope	1.000230	0.90 - 1.10
Intercept	-0.713582	+/-20



Wood Buffalo Environmental Association

NO_2 Calibration Summary

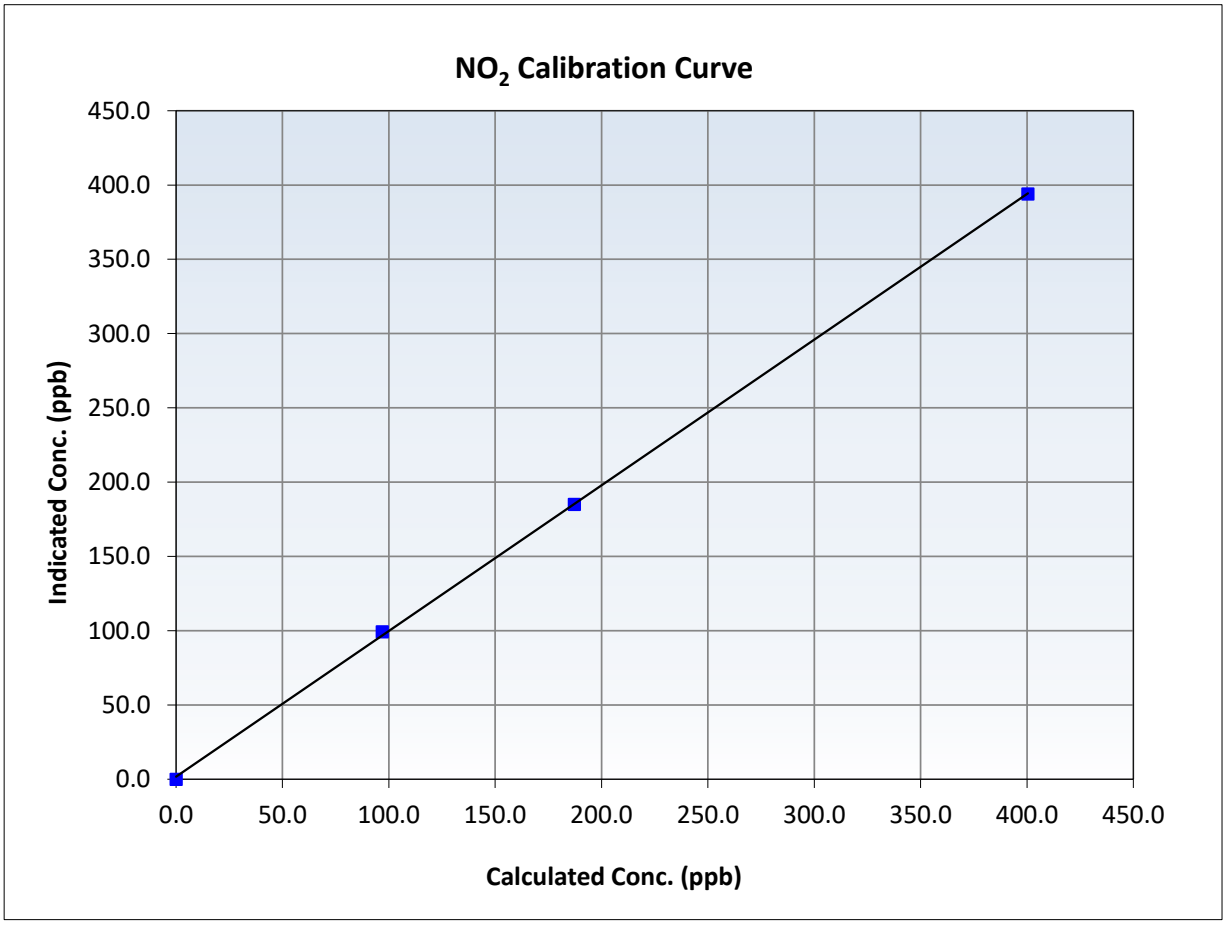
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 2, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	7:50	End Time (MST):	12:29
Analyzer make:	Thermo 42i	Analyzer serial #:	1118148496

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
400.4	393.9	1.0166
187.2	185.1	1.0115
96.9	99.2	0.9772

Statistical Evaluation		Limits
Correlation Coefficient	0.999892	≥0.995
Slope	0.980589	0.90 - 1.10
Intercept	1.720166	+/-20



Wood Buffalo Environmental Association

NO Calibration Summary

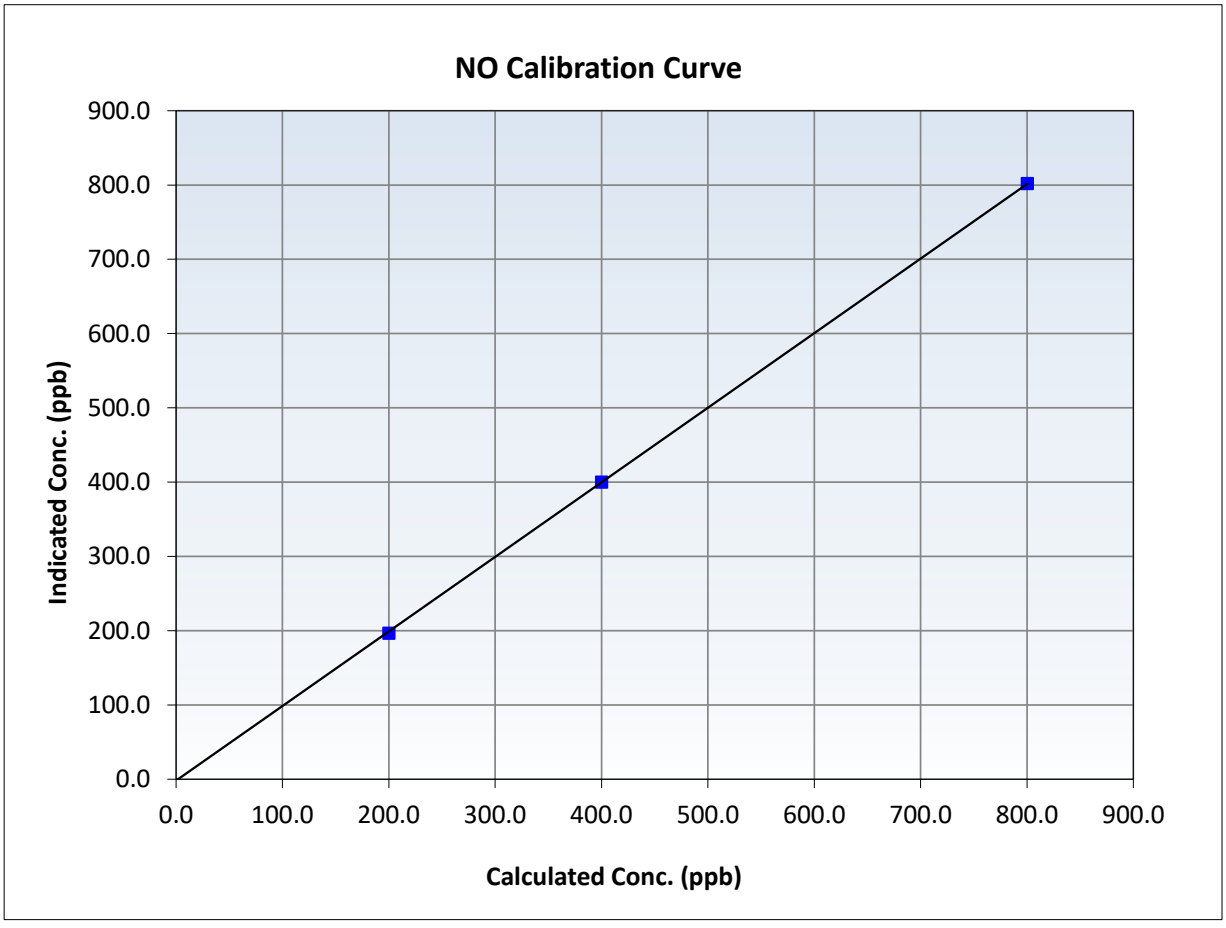
Station Information

Calibration Date:	May 8, 2025	Previous Calibration:	April 2, 2025
Station Name:	Kirby North	Station Number:	AMS 508
Start Time (MST):	7:50	End Time (MST):	12:29
Analyzer make:	Thermo 42i	Analyzer serial #:	1118148496

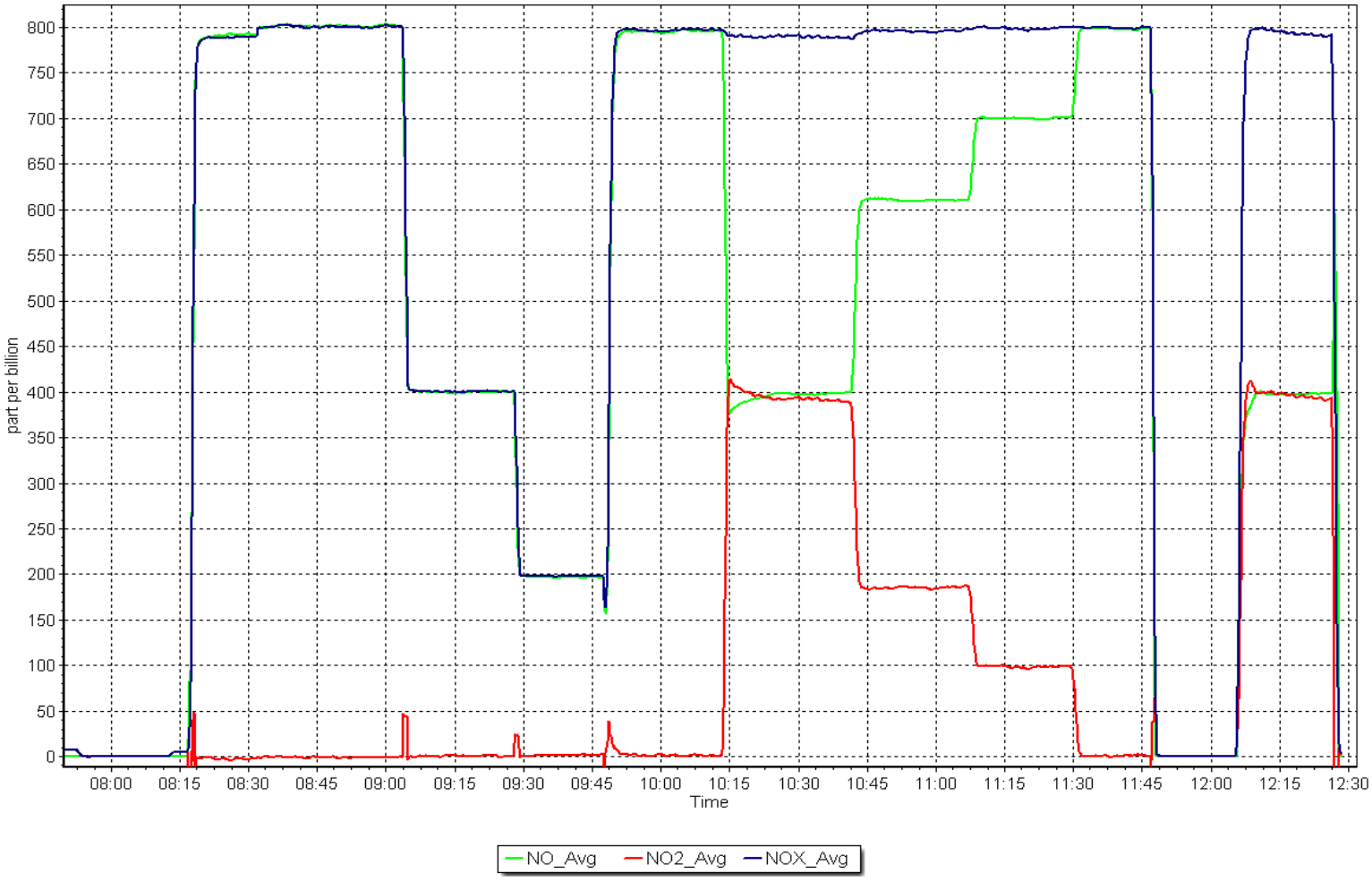
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.2	----
800.3	802.0	0.9979
400.1	400.1	1.0001
200.1	196.7	1.0171

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999977	*≥0.995*
Slope	1.003827	*0.90 - 1.10*
Intercept	-1.813588	*+/-20*



NO_X Calibration Plot Date: May 8, 2025 Location: Kirby North



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
CALIBRATION REPORT

AMS512
HANGINGSTONE EXPANSION
MAY 2025

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

June 27, 2025

Wood Buffalo Environmental Association

SO_2 Calibration Report

Station Information

Station Name:	Hangingstone Expansion	Station number:	AMS 512
Calibration Date:	May 9, 2025	Last Cal Date:	April 10, 2025
Start time (MST):	7:00	End time (MST):	9:52
Reason:	Routine		

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

Analyzer make:	Thermo scientific		Serial Number:	1173410001	
Analyzer Range:	0 - 1000 ppb				
	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.009553	1.003058	Backgd or Offset:	14.2	14.2
Calibration intercept:	-1.623881	-1.903381	Coeff or Slope:	1.175	1.156

SO_2 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	4920	79.8	799.0	811.1	0.985
As found Mid point					
As found Low point					
New cylinder response					
Baseline Corr As found:	811.0	Previous response	805.0	*% change	0.7%
Baseline Corr 2nd AF pt:	NA	AF Slope:		AF Intercept:	
Baseline Corr 3rd AF pt:	NA	AF Correlation:		* = > +/-5% change initiates investigation	

SO_2 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	79.8	799.0	800.7	0.998
Mid point	4960	39.9	399.5	397.3	1.006
Low point	4987	20.0	200.0	197.0	1.015
As left zero	5000	0.0	0.0	0.2	----
As left span	4920	79.8	799.0	802.0	0.996
				Average Correction Factor:	1.006

Notes: No maintenance done. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

SO_2 Calibration Summary

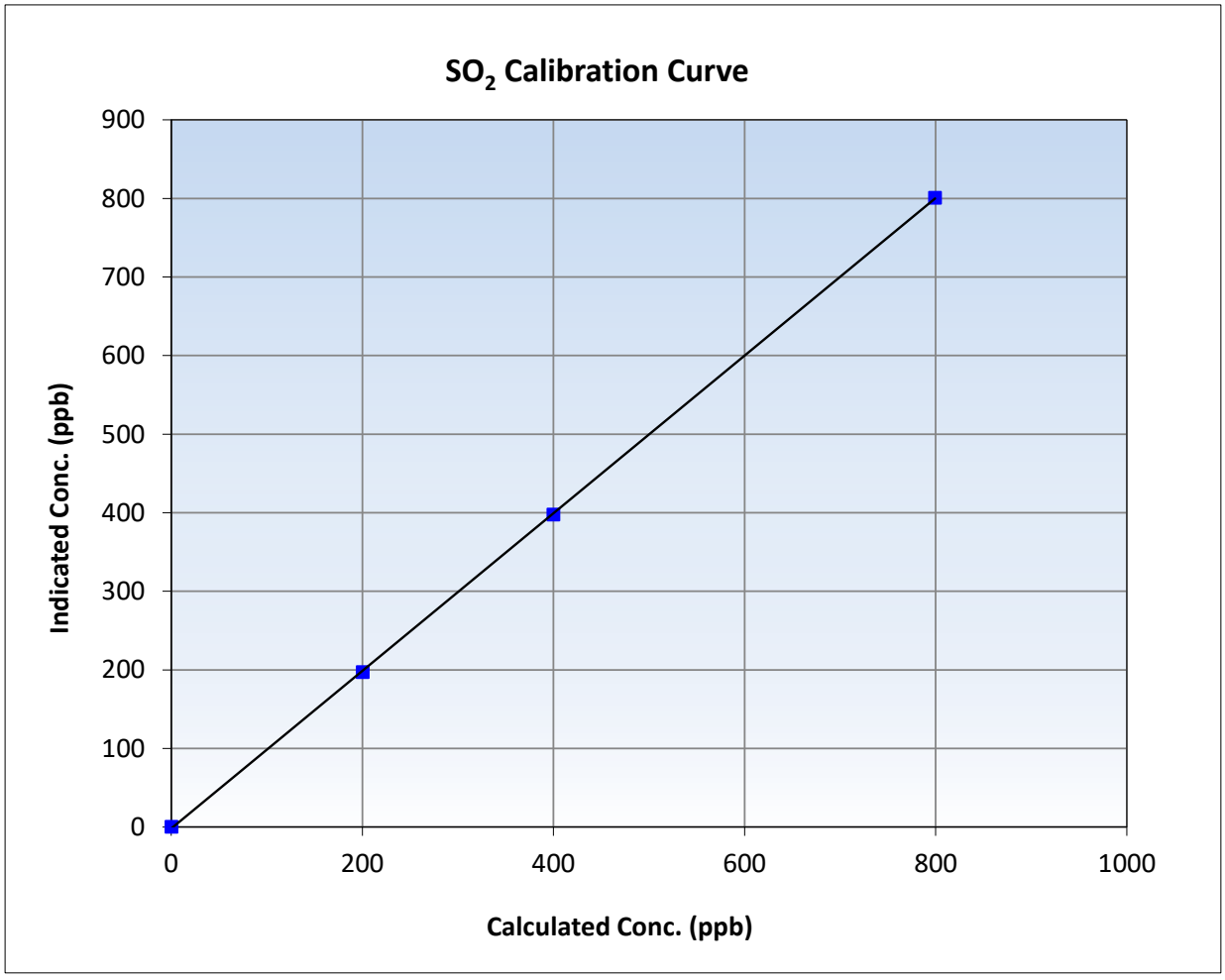
Station Information

Calibration Date:	May 9, 2025	Previous Calibration:	April 10, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	7:00	End Time (MST):	9:52
Analyzer make:	Thermo scientific	Analyzer serial #:	1173410001

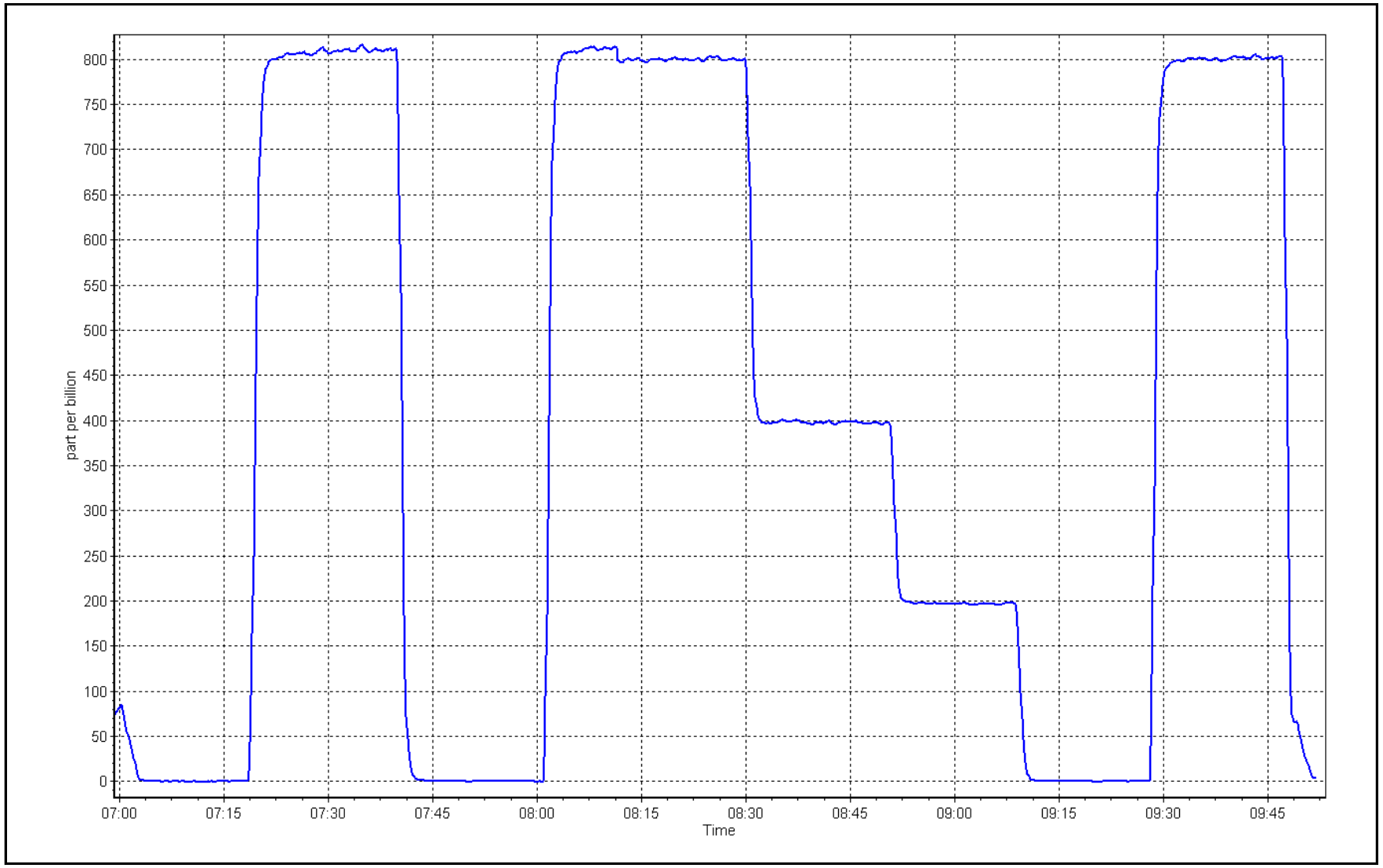
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.1	----
799.0	800.7	0.9979
399.5	397.3	1.0055
200.0	197.0	1.0150

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999970	*≥0.995*
Slope	1.003058	*0.90 - 1.10*
Intercept	-1.903381	*+/-30*



SO2 Calibration Plot Date: May 9, 2025 Location: Hangingstone Expansion



Wood Buffalo Environmental Association

H_2S Calibration Report

Station Information

Station Name:	Hangingstone Expansion	Station number:	AMS 512
Calibration Date:	May 1, 2025	Last Cal Date:	April 4, 2025
Start time (MST):	6:30	End time (MST):	10:31
Reason:	Routine		

Calibration Standards

Cal Gas Concentration:	5.139	ppm	Cal Gas Exp Date:	January 3, 2026
Cal Gas Cylinder #:	CC511397			
Removed Cal Gas Conc:	5.139	ppm	Rem Gas Exp Date:	NA
Removed Gas Cyl #:	NA		Diff between cyl:	
Calibrator Make/Model:	API T700		Serial Number:	2445
ZAG Make/Model:	API T701		Serial Number:	138

Analyzer Information

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

	Start	***Finish***		***Start***	***Finish***
Calibration slope:	1.000488	0.992054	Backgd or Offset:	3.56	3.57
Calibration intercept:	0.160819	0.181007	Coeff or Slope:	1.235	1.219

H_2S 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	4922	77.8	80.0	81.9	0.978
As found Mid point	4961	38.9	40.0	41.0	0.978
As found Low point	4981	19.5	20.0	20.1	1.002
New cylinder response					

Baseline Corr As found:	81.8	Prev response:	80.17	*% change:	2.0%
Baseline Corr 2nd AF pt:	40.9	AF Slope:	1.025074	AF Intercept:	-0.099590
Baseline Corr 3rd AF pt:	20.0	AF Correlation:	0.999953	* = > +/-5% change initiates investigation	

H_2S 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	79.5	1.006
Mid point	4961	38.9	40.0	40.0	1.000
Low point	4981	19.5	20.0	19.8	1.012
As left zero	5000	0.0	0.0	0.3	----
As left span	4922	77.8	80.0	79.9	1.001
SO2 Scrubber Check	4920	80.0	800.0	-0.1	----
Date of last scrubber change:				Ave Corr Factor	1.006
Date of last converter efficiency test:					

Notes: Sox scrubber checked after the calibrator zero. Span adjusted.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

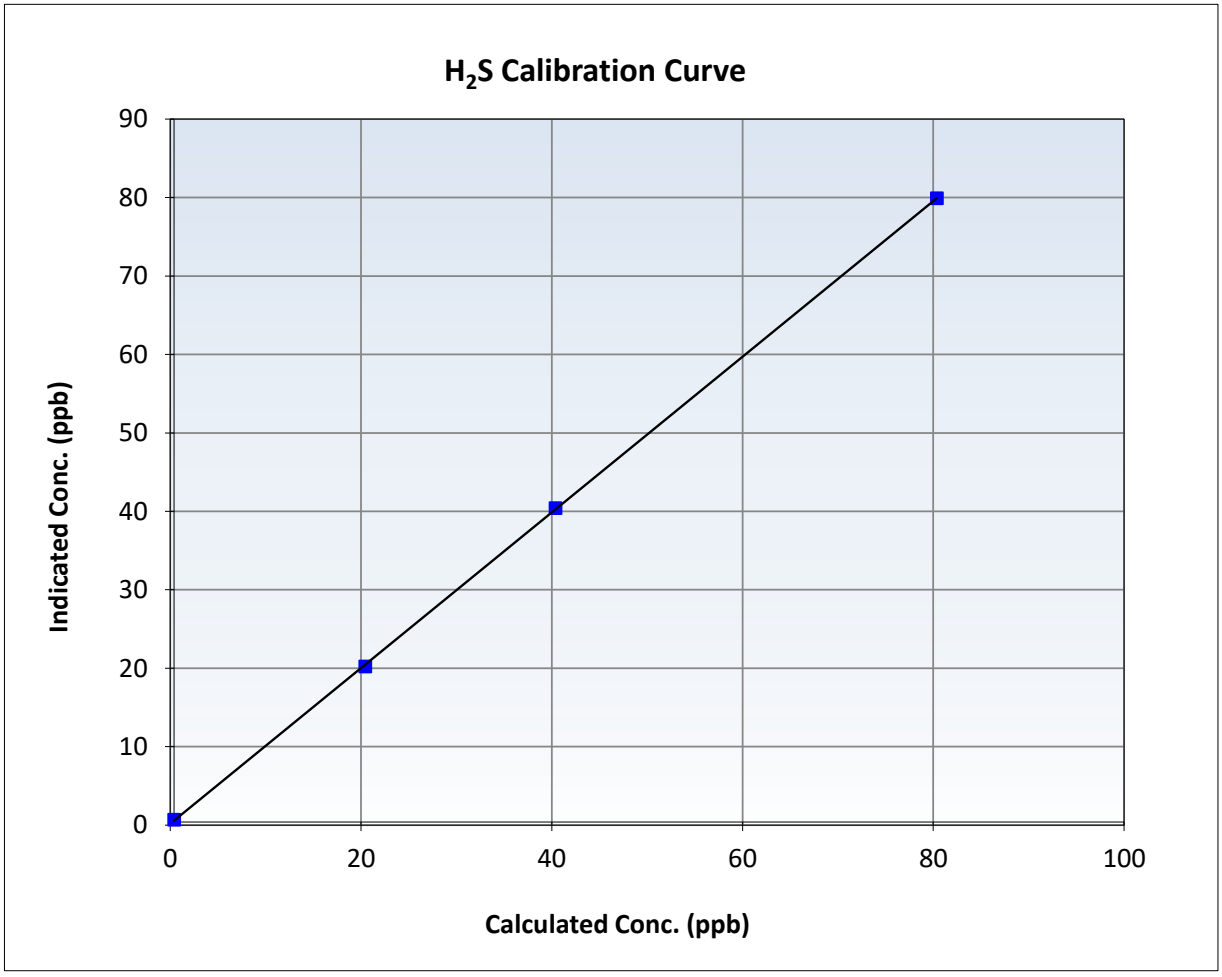
H_2S Calibration Summary

Station Information

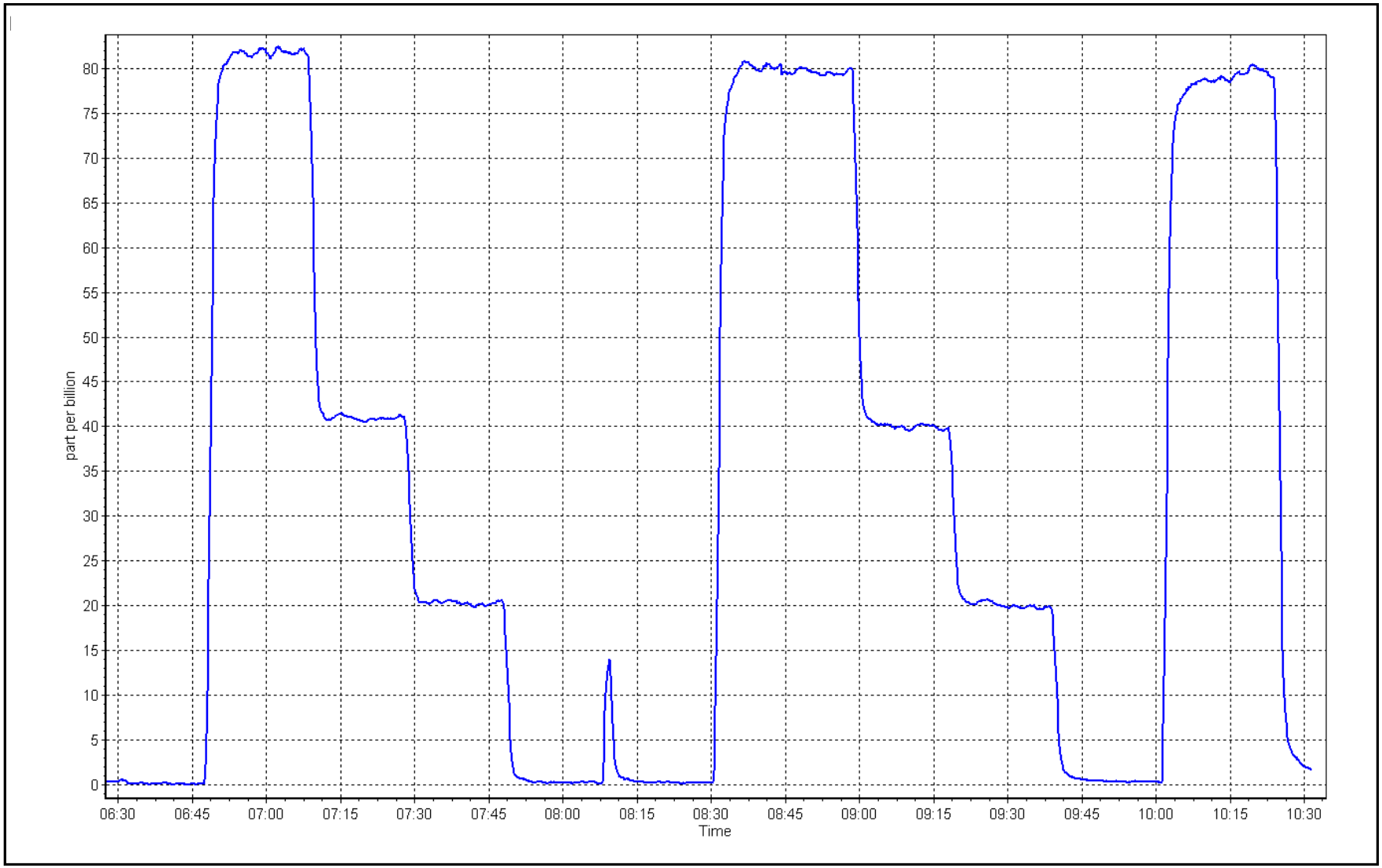
Calibration Date:	May 1, 2025	Previous Calibration:	April 4, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:30	End Time (MST):	10:31
Analyzer make:	Thermo 43i-LTE	Analyzer serial #:	1336160090

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation		*Limits*
0.0	0.3	----	Correlation Coefficient	0.999969	*≥0.995*
80.0	79.5	1.0059	Slope	0.992054	*0.90 - 1.10*
40.0	40.0	0.9996			
20.0	19.8	1.0121	Intercept	0.181007	*+/-3*



H_2S Calibration Plot Date: May 1, 2025 Location: Hangingstone Expansion



Wood Buffalo Environmental Association

NO_X \ NO \ NO_2 Calibration Report

Station Information

Station Name:	Hangingstone Expansion
Station number:	AMS 512
Calibration Date:	May 2, 2025
Last Cal Date:	April 1, 2025
Start time (MST):	6:44
End time (MST):	10:53
Reason:	Routine

Calibration Standards

NO Gas Cylinder #:	T0F8P52	Cal Gas Expiry Date:	August 16, 2026
NOX Cal Gas Conc:	47.43 ppm	NO Cal Gas Conc:	47.43 ppm
Removed Cylinder #:	NA	Removed Gas Exp Date:	NA
Removed Gas NOX Conc:	47.43 ppm	Removed Gas NO Conc:	47.43 ppm
NOX gas Diff:		NO gas Diff:	
Calibrator Model:	Teledyne API T700	Serial Number:	2445
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)) *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	-0.1	0.0	----	----
AF High point	4916	84.4	800.6	800.6	0.0	801.0	800.7	0.5	0.9993	0.9997
AF Mid point										
AF Low point										
New cyl resp										

Previous Response	NO_X = 804.0 ppb	NO = 803.5 ppb
Baseline Corr 1st pt	NO_X = 801.1 ppb	NO = 800.8 ppb
Baseline Corr 2nd pt	NO_X = NA ppb	NO = NA ppb
Baseline Corr 3rd pt	NO_X = NA ppb	NO = NA ppb

* = > +/-5% change initiates investigation

As Found Statistics

As found	NO_X r^2:	*Percent Change	NO_X = -0.4%
As found	NO r^2:	*Percent Change	NO = -0.3%
As found	NO_2 r^2:	Nx Sl:	Nx Int:
		NO Sl:	NO Int:
		NO2 Sl:	NO_2 Int:

As Found 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)	Baseline Adjusted NO2 Correction factor (Cc/(Ic-AFzero)) *Limit = 0.90 - 1.10*	Converter Efficiency *Limit = 96-104%*
As Found GPT zero						
As found high GPT point						
As found mid GPT point						
As found low GPT point						

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NO_X \ NO \ NO_2 Calibration Report

Analyzer Information

Analyzer Make:	Teledyne API T200	Serial Number:	7029
NOX Range (ppb):	0 - 1000 ppb		

Instrument Settings

	Start	*Finish*		*Start*	*Finish*
NO coeff or slope:	1.056	1.056	NO bkgnd or offset:	0.2	0.2
NOX coeff or slope:	1.052	1.052	NOX bkgnd or offset:	0.4	0.4
NO2 coeff or slope:	1.000	1.000	Reaction cell Press:	4.7	4.7

Calibration Statistics

	Start	*Finish*
NO_X Cal Slope:	1.005306	1.002251
NO_X Cal Offset:	-0.812870	-0.492823
NO Cal Slope:	1.005634	1.001994
NO Cal Offset:	-1.552843	-1.152821
NO_2 Cal Slope:	0.999674	1.001950
NO_2 Cal Offset:	0.103787	-0.222735

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	0.0	-0.1	----	----
High point	4916	84.4	800.6	800.6	0.0	802.1	801.2	0.8	0.9981	0.9992
Mid point	4958	42.2	400.3	400.3	0.0	400.4	400.5	-0.1	0.9998	0.9995
Low point	4979	21.1	200.2	200.2	0.0	199.8	197.5	2.3	1.0018	1.0134
As left zero	5000	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	----	----
As left span	4916	84.4	800.6	405.5	395.1	797.0	405.5	391.5	1.0045	1.0000
							Average Correction Factor		0.9999	1.0041

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	-0.1	----	----
High GPT point	800.0	407.5	392.5	393.0	0.9987	100.1%
Mid GPT point	800.0	621.5	178.5	178.9	0.9978	100.2%
Low GPT point	800.0	709.0	91.0	90.6	1.0044	99.6%
				Average Correction Factor	1.0003	100.0%

Notes: No adjustments and maintenance done.

Calibration Performed By: Melissa Lemay

Wood Buffalo Environmental Association

NO_X Calibration Summary

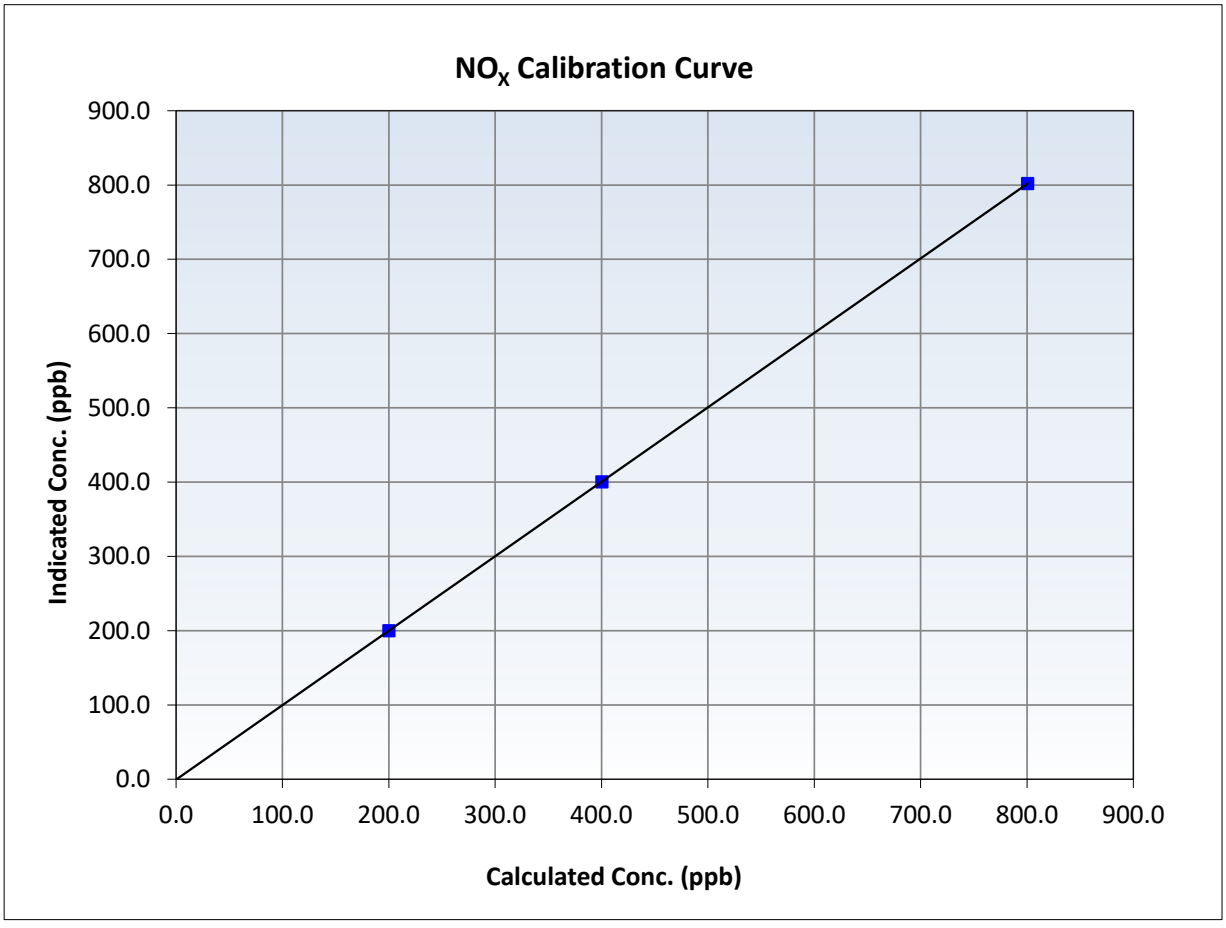
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 1, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:44	End Time (MST):	10:53
Analyzer make:	Teledyne API T200	Analyzer serial #:	7029

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
800.6	802.1	0.9981
400.3	400.4	0.9998
200.2	199.8	1.0018

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999999	*≥0.995*
Slope	1.002251	*0.90 - 1.10*
Intercept	-0.492823	*+/-20*



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NO_2 Calibration Summary

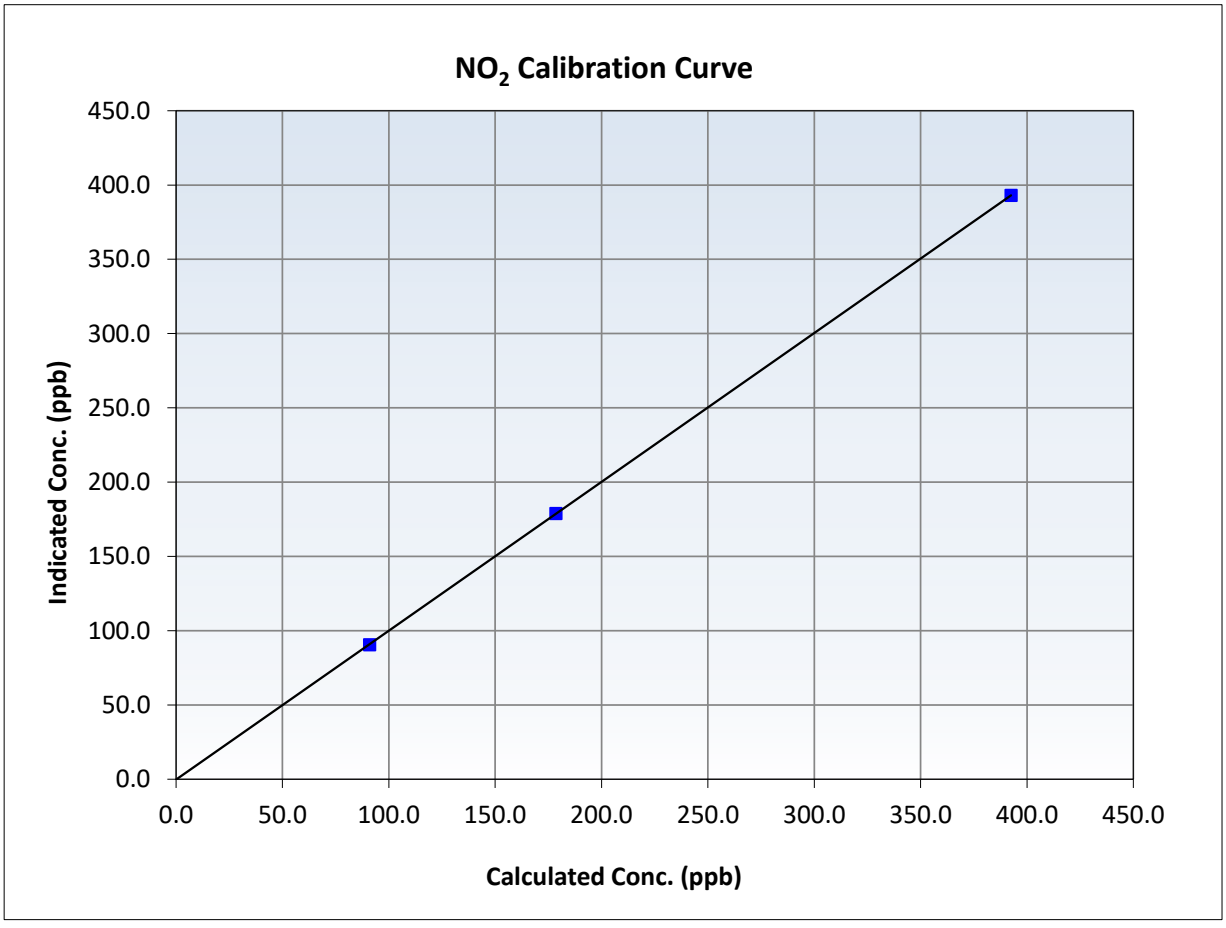
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 1, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:44	End Time (MST):	10:53
Analyzer make:	Teledyne API T200	Analyzer serial #:	7029

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	-0.1	----
392.5	393.0	0.9987
178.5	178.9	0.9978
91.0	90.6	1.0044

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999997	*≥0.995*
Slope	1.001950	*0.90 - 1.10*
Intercept	-0.222735	*+/-20*



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NO Calibration Summary

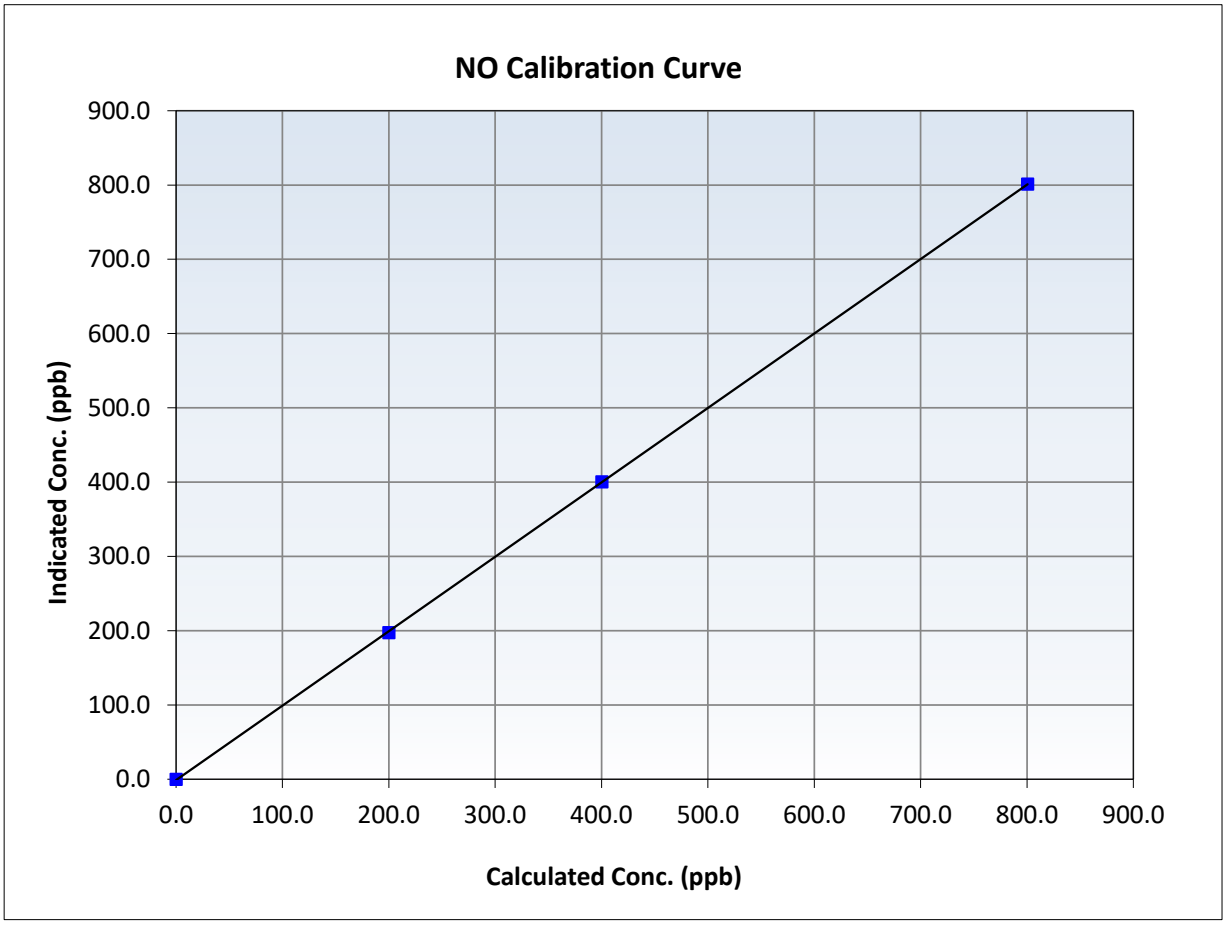
Station Information

Calibration Date:	May 2, 2025	Previous Calibration:	April 1, 2025
Station Name:	Hangingstone Expansion	Station Number:	AMS 512
Start Time (MST):	6:44	End Time (MST):	10:53
Analyzer make:	Teledyne API T200	Analyzer serial #:	7029

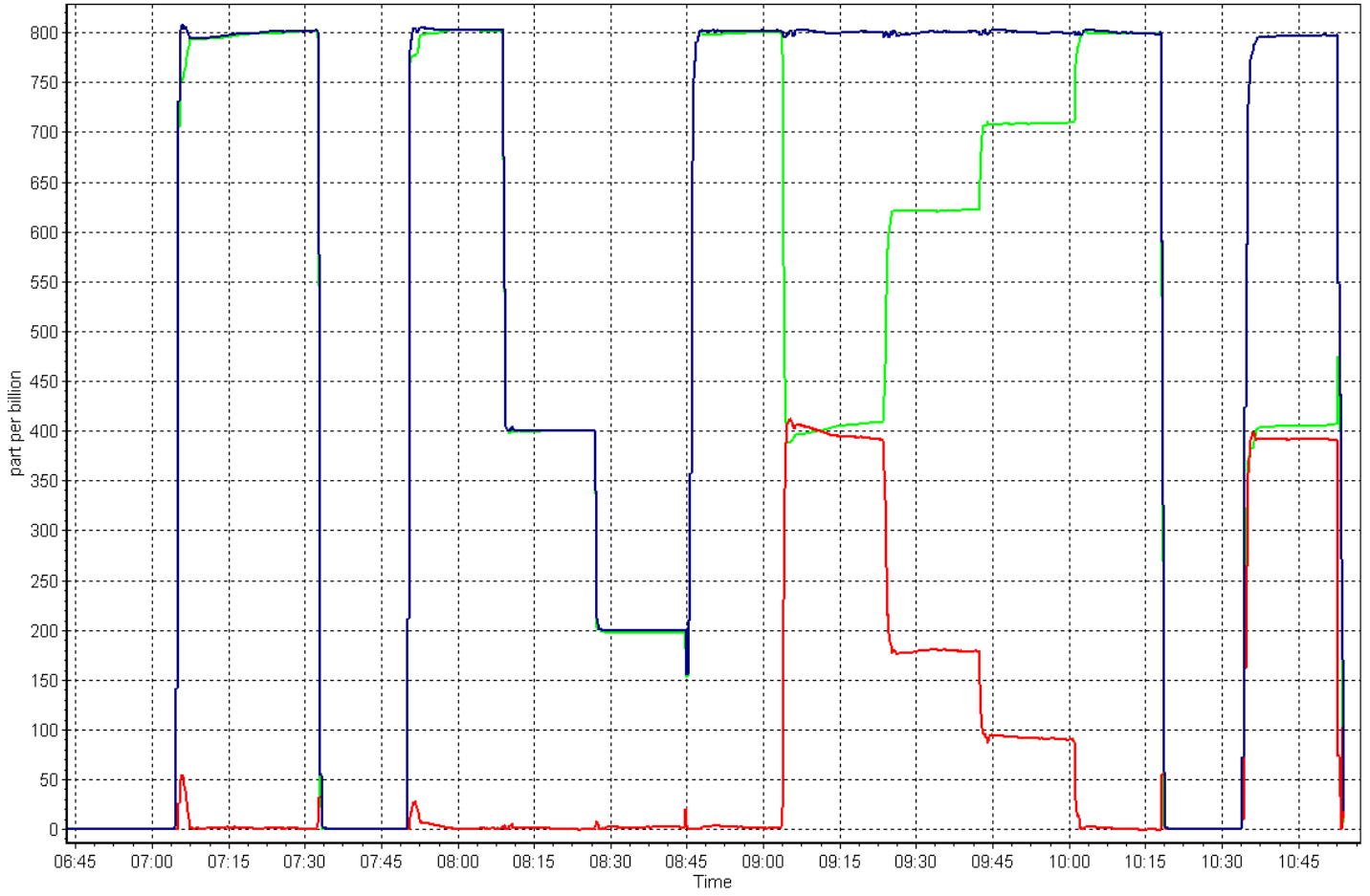
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
0.0	0.0	----
800.6	801.2	0.9992
400.3	400.5	0.9995
200.2	197.5	1.0134

Statistical Evaluation		*Limits*
Correlation Coefficient	0.999985	*≥0.995*
Slope	1.001994	*0.90 - 1.10*
Intercept	-1.152821	*+/-20*



NO_X Calibration Plot Date: May 2, 2025 Location: Hangingstone Expansion



End of Report