

October 21, 2011

File No(s). 2011 – 330A / 348A

Shelly Pruden
Program Manager
Pease Airshed Zone Association
P.O. Box 21135
Grande Prairie, AB
T8V 6W7

Dear Ms. Pruden:

Re: Paza Ambient Air Monitoring Station Audits

Please see attached audit summary for all audit findings from the audits conducted on the Paza ambient air monitoring stations.

Please note that inspection items noted during the audit that could be addressed were done after the completion of the audit. Alberta Environment considers this audit closed. If you have any further questions please contact the undersigned at 780-427-7888.

Yours truly,



Al Clark
Monitoring Systems Auditor
Monitoring and Science

Attachment(s): Audit Summary

cc: Gary Sasseville: District Approvals Manager
Greg Smith: District Compliance Manager
Marilyn Albert: Industrial Monitoring Assessment Technologist
Janine Ross: Ambient Air Support Tech



Audit Summary

Facility / Zone	PASA
Total # of parameters that passed	19
Total # of parameters audited in the network	19
Date(s) of the audit	October 17-19, 2011
Issue Date of Audit Summary	October 21, 2011

Station Name	Valleyview
Auditor	Al Clark
Audit Date	October 17, 2011

Critical	Pass	Fail
H ₂ S	√	
SO ₂	√	
TRS		
NO / NO ₂ / NO _x		
O ₃		
CO		
THC		
TEOM/BAM PM _{2.5}		
Wind Speed / Wind Direction	√	
Wind head Orientation	√	
Manifold Fan	√	
Zero/Span Systems Operational	√	

Inspection Items	OK	Need for Improvement
Sample pump venting/scrubbing	√	
Heating / Air Conditioning	√	
Manifold	√	
Sample Lines	√	
TEOM/BAM PM _{2.5}		
Safety	√	
Site Conditions	√	

Non-critical	OK	Opportunity for Improvement
RH	√	
Ambient Temperature	√	
Solar Radiation		
TEOM 'Pump On' test		
Station Condition	√	
Station Documentation	√	

Not monitored at this location

Audit Summary

Facility / Zone	PASA		
Total # of parameters that passed	19		
Total # of parameters audited in the network	19		
Date(s) of the audit	October 17-19, 2011		
Issue Date of Audit Summary	October 21, 2011		
Station Name	Smoky Heights		
Auditor	Al Clark		
Audit Date	October 17, 2011		
Critical	Pass	Fail	
H ₂ S			
SO ₂	√		
TRS	√		
NO / NO ₂ / NO _x			
O ₃			
CO			
THC			
TEOM/BAM PM _{2.5}	√		
Wind Speed / Wind Direction	√		
Wind head Orientation	√		
Manifold Fan	√		
Zero/Span Systems Operational	√		
Inspection Items	OK	Need for Improvement	
Sample pump venting/scrubbing	√		
Heating / Air Conditioning	√		
Manifold	√		
Sample Lines	√		
TEOM/BAM PM _{2.5}	√		
Safety	√		
Site Conditions	√		
Non-critical	OK	Opportunity for Improvement	
RH			
Ambient Temperature	√		
Solar Radiation			
TEOM 'Pump On' test	√		
Station Condition		X	Leaky roof
Station Documentation	√		

Not monitored at this location

Audit Summary

Facility / Zone	PASA		
Total # of parameters that passed	19		
Total # of parameters audited in the network	19		
Date(s) of the audit	October 17-19, 2011		
Issue Date of Audit Summary	October 21, 2011		
Station Name	Beaverlodge		
Auditor	Al Clark		
Audit Date	October 18, 2011		
Critical	Pass	Fail	
H ₂ S			
SO ₂	√		
TRS			
NO / NO ₂ / NO _x	√		
O ₃	√		
CO			
THC			
TEOM/BAM PM _{2.5}	√		
Wind Speed / Wind Direction	√		
Wind head Orientation	√		
Manifold Fan	√		
Zero/Span Systems Operational	√		
Inspection Items	OK	Need for Improvement	
Sample pump venting/scrubbing	√		
Heating / Air Conditioning	√		
Manifold	√		
Sample Lines	√		
TEOM/BAM PM _{2.5}	√		
Safety	√		
Site Conditions	√		
Non-critical	OK	Opportunity for Improvement	
RH	√		
Ambient Temperature	√		
Solar Radiation			
TEOM 'Pump On' test	√		
Station Condition	√		
Station Documentation	√		

Not monitored at this location

Audit Summary

Facility / Zone	PASA
Total # of parameters that passed	19
Total # of parameters audited in the network	19
Date(s) of the audit	October 17-19, 2011
Issue Date of Audit Summary	October 21, 2011

Station Name	Evergreen
Auditor	Al Clark
Audit Date	October 18, 2011

Critical	Pass	Fail
H ₂ S		
SO ₂	√	
TRS	√	
NO / NO ₂ / NO _x		
O ₃		
CO		
THC		
TEOM/BAM PM _{2.5}	√	
Wind Speed / Wind Direction	√	
Wind head Orientation	√	
Manifold Fan	√	
Zero/Span Systems Operational	√	

Inspection Items	OK	Need for Improvement
Sample pump venting/scrubbing	√	
Heating / Air Conditioning	√	
Manifold	√	
Sample Lines	√	
TEOM/BAM PM _{2.5}		X O-rings
Safety	√	
Site Conditions	√	

Non-critical	OK	Opportunity for Improvement
RH	√	
Ambient Temperature	√	
Solar Radiation		
TEOM 'Pump On' test	√	
Station Condition	√	
Station Documentation	√	

Not monitored at this location

Audit Summary

Facility / Zone	PASA		
Total # of parameters that passed	19		
Total # of parameters audited in the network	19		
Date(s) of the audit	October 17-19, 2011		
Issue Date of Audit Summary	October 21, 2011		
Station Name	Henry Pirker		
Auditor	Al Clark		
Audit Date	October 19, 2011		
Critical	Pass	Fail	
H ₂ S			
SO ₂	√		
TRS	√		
NO / NO ₂ / NO _x	√		
O ₃	√		
CO	√		
THC	√		
TEOM/BAM PM _{2.5}	√		
Wind Speed / Wind Direction	√		
Wind head Orientation	√		
Manifold Fan	√		
Zero/Span Systems Operational	√		
Inspection Items	OK	Need for Improvement	
Sample pump venting/scrubbing	√		
Heating / Air Conditioning	√		
Manifold	√		
Sample Lines		X	Dirty
TEOM/BAM PM _{2.5}	√		
Safety	√		
Site Conditions	√		
Non-critical	OK	Opportunity for Improvement	
RH	√		
Ambient Temperature	√		
Solar Radiation	√		
TEOM 'Pump On' test	√		
Station Condition	√		
Station Documentation	√		

Not monitored at this location

STATION AUDIT

File No. 2011 - 335A / 338A

Date: October 18, 2011

Performed by: Al Clark

Station

Name: Beaverlodge

Location: Beaverlodge

Facility/Zone: Paza

Operator: Focus

Temp: 19.5 C

Barometric Press: 698 mm/hg

Location

Latitude N 55° 11' 46.6"

Longitude W 119° 23' 50.5"

Elevation 755m

Status of Site Documentation On Site - OK

Manifold Material Glass
Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	<u>5.1 kph / 201 deg</u>	<u>5-10 kph / SW</u>
Station Temperature	<u>N/A</u>	<u>N/A</u>
Relative Humidity	<u>79.8 %</u>	<u>74.3 %</u>
Ambient Temperature	<u>5.6 C</u>	<u>5.6 C</u>
Solar Radiation	<u>N/A</u>	<u>N/A</u>
Precipitation	<u>N/A</u>	<u>N/A</u>

Remarks:

SO₂ ANALYZER AUDIT

File No. 2011 - 335A

Date: October 18, 2011

Performed by: Al Clark

Station

Name: Beaverlodge

Location: Beaverlodge

Facility/Zone: Paza

Operator: Focus

Temp. 19.5 C

Barometric Press. 698 mm/hg

Monitor

Make/Model: Teco 43i-TLE Serial No: 0713021137

Inlet flow (sccm): 492 Full Scale Range ppm: 0.1

Last cal. Date: Oct 11/11 Old C.F. 0.973

Zero/Bkg 2.42

Span Coef 1.063

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CAL010583

SO₂ Concentration PPM: 9.8

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5064	0.0	5064	0.0000	0.0002		
5043	38.1	5081	0.0735	0.0723	-2%	± 15%
5077	17.3	5094	0.0333	0.0328	-2%	± 15%
5047	8.1	5055	0.0157	0.0155	-3%	± 15%
Absolute Average Percent Difference					2%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000

m (Slope)= 0.9816

b (Intercept as % of full scale)= 0.1447

LIMITS

≥ **0.995**

0.85-1.15

± **3% F.S.**

Remarks:

NO-NOx-NO2 Analyzer Audit

File No. 2011 - 336A

Date: October 18, 2011 Performed by: Al Clark

Station: Name: BVLG Location: BVLG Operator: Focus
 Facility/Zone: Paza Temp. 19.5 C BP: 698 mm/hg

Monitor: Make/Model: Teco 42i Serial No. 0906535068
 Inlet flow (sccm): 712 Range ppm: 0.5
 Last cal. Date: Oct 6/11 Old C.F.'s NO: 0.9905
 NOx: 0.9898
 NO2: 1.0008
 NO Bkg 2.0
 NOx Bkg 2.6
 NO Coef 1.344
 NOx Coef 0.999
 NO2 Coef ,997

Calibration Method: Gas Dilution / GPT
Calibrator: Make/Model: Sabio 2010 AMU# 1749
 NO cylinder # 3L9007 NO conc. ppm 50.4 NOx conc. ppm 50.5

Calibrator Flows			Calc. Conc.		Indicated Concentration		% Difference vs Audit Gas	
			NO (ppm)	NOx (ppm)	NO (ppm)	NOx (ppm)	NO	NOx
Air	Gas	Total						
4949	0.0	4949	0.0000	0.0000	-0.0001	-0.0003	Limit ± 15%	
4945	39.9	4985	0.4034	0.4042	0.3605	0.3718	-11%	-8%
4988	20.0	5008	0.2013	0.2017	0.1808	0.1872	-10%	-7%
4975	9.9	4985	0.1001	0.1003	0.0899	0.0936	-10%	-6%
Absolute Average Percent Difference							10%	7%

Linear Regression Analysis:

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

	NO	NOx	NO ₂	LIMITS
Correlation Coeff.=	<u>1.0000</u>	<u>1.0000</u>	<u>0.9999</u>	≥ 0.995
m (Slope)=	<u>0.8937</u>	<u>0.9198</u>	<u>1.0028</u>	0.85-1.15
b (Intercept as % of full scale)=	<u>0.0615</u>	<u>0.1399</u>	<u>-0.2194</u>	± 3% F.S.

O ₃ Setting	Flow Rate	Indicated Conc. (ppm)			NO Decrease	NO ₂ Increase	% Difference vs Audit Gas	
		NO	NOx	NO ₂				
0.0 V	4985	0.3634	0.3718	0.0079	0.2121	0.2118	0%	%Dif Limit
0.5 V	4985	0.1513	0.3714	0.2197	0.2121	0.2118	0%	± 15%
0.3 V	4985	0.2590	0.3701	0.1106	0.1044	0.1027	-2%	± 15%
0.25 V	4985	0.2905	0.3717	0.0806	0.0729	0.0727	0%	± 15%
Absolute Average Percent Difference							-1%	

Converter Efficiency

Average Converter Efficiency 99.3%

Remarks: _____

O₃ ANALYZER AUDIT

File No. 2011 - 337A

Date: October 18, 2011 Performed by: Al Clark

Station

Name: Beaverlodge Location: Beaverlodge
 Facility/Zone: Paza Operator: Focus
 Temp. 20.0 C Barometric Press. 697 mm/hg

Monitor

Make/Model: Teco 49C Serial No: 49C-76443-383
 Inlet flow (sccm): 764 / 711 Full Scale Range ppm: 0.5
 Last cal. Date: Oct 6/11 Old C.F. 1.025
 Zero/Bkg -1.6
 Span Coeff. 1.03

Calibrator

Calibration Method: Generator
 Make/Model: Sabio 2010 AMU # : 1749
 NO cylinder # : N/A NO concentration ppm: N/A

Ozone Setting	Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Conc. (ppm)	% Difference	
	Air	Gas	Total			vs Audit Gas	Limits
0.0 V	4978	X	4978	0.000	0.000		
0.8 V	4978	X	4978	0.424	0.410	-3%	± 15%
0.5 V	4978	X	4978	0.235	0.228	-3%	± 15%
0.25 V	4978	X	4978	0.078	0.078	0%	± 15%
Absolute Average Percent Difference						2%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000
 m (Slope)= 0.9647
 b (Intercept as % of full scale)= 0.2490

LIMITS
≥ 0.995
0.85-1.15
± 3% F.S.

Remarks:

TEOM AUDIT

Date: October 18, 2011 File #: 2011 - 338A
 Performed by: Al Clark

Station			
Name:	<u>Beaverlodge</u>	Location:	<u>Beaverlodge</u>
Facility/Zone:	<u>Paza</u>	Operator:	<u>Focus</u>
Temperature:	<u>20.0 C</u>	Barometric Press.:	<u>697 mm/hg</u>

Audit Transfer Standard			
Make/Model:	<u>DeltaCal</u>	Cell s/n:	<u>0566</u>
Serial Number:	<u>AMU 1761</u>		
Sampler Set-up and Current Readings			
Make/Model	<u>R&P 1400ab 8500</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>PM2.5</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Control unit s/n	<u>140AB252560407</u>	Filter Load (%)	<u>24</u>
Transducer s/n	<u>140AB252560407</u>	K _O Factor	<u>14287</u>
		Temp (°C)	<u>11.1</u>
		Press (ATM)	<u>0.915</u>

Conversion from mm Hg or " Hg to ATM (Atmospheres)

$ATM = (mm\ Hg) \times (1.316 \times 10^{-3})$ or $ATM = ("Hg) \times (3.34207 \times 10^{-2})$

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

Zero Flow			
Pump Off	Base	Ref	Pump On (Time to reach set points)
F-Main (l/min)	<u>-0.03 / -0.01</u>		(± 2%) <u>28</u>
F-Aux (l/min)	<u>-0.14 / -0.04</u>		(± 2%) <u>47</u>

Temperature/Pressure			
Measured Temp (± 2 °C)	<u>11.1</u>	Δ°C	<u>0.00</u>
Measured Press (± 1.5% ATM)	<u>0.917</u>	Δ% ATM	<u>0.22%</u>

Flow Audit		Δ% of Measured Flow from Set-point	
Indicated Main/Aux Flow (l/min)	<u>2.99</u> <u>13.67</u>	(± 2%)	<u>-0.3%</u> <u>0.0%</u>
Total Flow = Main + Aux (l/min)	<u>16.66</u>	(± 2%)	<u>-0.1%</u>
Δ of Measured Flow from Indicated			
Measured Total Flow (l/min)	<u>16.06</u>	(± 1.00 l/min)	<u>0.60</u>
Measured Main Flow (l/min)	<u>2.90</u>	(± 0.20 l/min.)	<u>0.09</u>

Leak Check	Base	Ref	Actual leakage = Pump On – Pump Off
Main (< 0.15 l/min)	<u>-0.09 / -0.09</u>		<u>0.06 / 0.08</u>
Aux (< 0.65 l/min)	<u>0.14 / 0.14</u>		<u>-0.28 / 0.18</u>

K_O Factor	
Measured	<u>14118</u>
K _O % Difference (± 2.5%)	<u>1.18</u>

Remarks:

Station Performance Audit Summary

Company: Paaza Facility Name: Beaverlodge
 Approval No.: N/A Site Name: Beaverlodge
 AENV Region: Northern AENV District: Peace River

Parameters audited:

H ₂ S		SO ₂	X	NO _x	X	NH ₃		O ₃	X
CO		CH ₄		NonCH ₄		THC		Ethylene	
PM _{2.5}	X	PM ₁₀		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn.Temp		RH	X	Solar Radiation	
Rainfall		Precip		VWS		Other			
All parameters monitored as per approval: Yes									

GENERAL

Has the location remained unchanged from previous audit?
 Is site secure?
 Are station operating conditions adequate?

YES NO N/A

X		
X		
X		

DATA ACQUISITION

Are strip charts in use?
 Is a telemetry system for data acquisition in use?

	X	
X		

SYSTEM COMPONENTS

Is a glass sampling manifold installed?
 Is sampling manifold clean?
 Is a manifold trap in place?
 Are spare manifold ports capped?
 Is manifold oriented so it is not exactly horizontal?
 Are manifold ports situated to prevent water entering monitors?
 Is manifold pump properly installed and operative?
 Do sample lines extend at least 3/4" into manifold?
 Are monitor sampling lines connected to manifold?
 Are sampling lines clean?
 Are monitors properly mounted and secure?
 Are monitors properly exhausted from room or scrubbed?
 Are zero and span systems operational?

X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		

WIND EQUIPMENT

Is wind sensor properly oriented?
 Does wind equipment appear to be functioning properly?
 Date of last calibration. Date: Unknown

X		
X		

COMMENTS:

AUDITOR: Al Clark

DATE: Oct 18/11

STATION AUDIT

File No. 2011 - 339A / 341A

Date: October 18, 2011

Performed by: Al Clark

Station

Name: Evergreen

Location: Evergreen Park

Facility/Zone: Paza

Operator: Focus

Temp. 19.5 C

Barometric Press. 704 mm/hg

Location

Latitude N 55° 07' 02.5"

Longitude W 118° 45' 54.1"

Elevation 645m

Status of Site Documentation On Site - OK

Manifold Material Glass
Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	<u>3.9 kph / 235 deg</u>	<u>0-5 kph / SW</u>
Station Temperature	<u>N/A</u>	<u>N/A</u>
Relative Humidity	<u>37.3 %</u>	<u>35.5 %</u>
Ambient Temperature	<u>18.4 C</u>	<u>18.7 C</u>
Solar Radiation	<u>N/A</u>	<u>N/A</u>
Precipitation	<u>N/A</u>	<u>N/A</u>

Remarks:

SO₂ ANALYZER AUDIT

File No. 2011 - 339A

Date: October 18, 2011

Performed by: Al Clark

Station

Name: Evergreen

Location: Evergreen Park

Facility/Zone: Paza

Operator: Focus

Temp. 19.5 C

Barometric Press. 704 mm/hg

Monitor

Make/Model: Teco 43i Serial No: 0701120008

Inlet flow (sccm): 454 Full Scale Range ppm: 0.5

Last cal. Date: Sep 15/11 Old C.F. 0.9946

Zero/Bkg 11.0

Span Coef 1.060

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CLM004813

SO₂ Concentration PPM: 50.2

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5048	0.0	5048	0.0000	0.0007		
5064	38.6	5103	0.3797	0.3661	-4%	± 15%
5095	17.2	5112	0.1689	0.1666	-2%	± 15%
5059	8.1	5067	0.0802	0.0789	-3%	± 15%
Absolute Average Percent Difference					3%	

Linear Regression Analysis:

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

Correlation Coeff.= 0.9999

m (Slope)= 0.9618

b (Intercept as % of full scale)= 0.3713

LIMITS

≥ **0.995**

0.85-1.15

± **3% F.S.**

Remarks:

TRS ANALYZER AUDIT

File No. 2011 - 340A

Date: October 18, 2011

Performed by: Al Clark

Station

Name: Evergreen

Location: Evergreen Park

Facility/Zone: Paza

Operator: Focus

Temp. 19.5 C

Barometric Press. 704 mm/hg

Monitor

Make/Model: Teco 43C Serial No: 0436610005

Inlet flow (sccm): 477 Full Scale Range ppm: 0.1

Last cal. Date: Sep 15/11 Old C.F. 1.0068

Zero/Bkg 19.3

Span Coef 0.952

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CAL011014

H₂S Concentration PPM: 9.6

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5048	0.0	5048	0.0000	0.0000		
5065	38.3	5103	0.0721	0.0779	8%	± 15%
5095	17.5	5112	0.0329	0.0371	13%	± 15%
5058	8.8	5067	0.0167	0.0187	12%	± 15%
Absolute Average Percent Difference					11%	

Linear Regression Analysis:

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

Correlation Coeff.= 0.9998

m (Slope)= 1.0793

b (Intercept as % of full scale)= 0.6180

LIMITS

≥ **0.995**

0.85-1.15

± **3% F.S.**

Remarks:

TEOM AUDIT

Date: October 18, 2011 File #: 2011 - 341A
 Performed by: Al Clark

Station

Name: Evergreen Location: Evergreen Park
 Facility/Zone: Paza Operator: Focus
 Temperature: 19.5 C Barometric Press.: 704 mm/hg

Audit Transfer Standard

Make/Model: DeltaCal Cell s/n: 0566
 Serial Number: AMU 1761

Sampler Set-up and Current Readings

Make/Model: <u>R&P 1400a</u>	F-Main Set Pt (l/min): <u>3.00</u>
Unit #: <u>PM2.5</u>	F-Aux Set Pt (l/min): <u>13.67</u>
Control unit s/n: <u>140AB215549705</u>	Filter Load (%): <u>34</u>
Transducer s/n: <u>140AB215549705</u>	K _O Factor: <u>16147</u>
	Temp (°C): <u>18.7</u>
	Press (ATM): <u>0.925</u>

Conversion from mm Hg or " Hg to ATM (Atmospheres)

ATM = (mm Hg) X (1.316 X 10⁻³) or ATM = ("Hg) X (3.34207 X 10⁻²)

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

Zero Flow

Pump Off

F-Main (l/min): 0.00
 F-Aux (l/min): 0.07

Pump On (Time to reach set points)

(**45-60 Sec**): 29
 (**45-60 Sec**): 50

Temperature/Pressure

Measured Temp (± 2 °C): 18.7 Δ°C: 0.00
 Measured Press (± **1.5% ATM**): 0.926 Δ% ATM: 0.11%

Flow Audit

Indicated Main/Aux Flow (l/min): 2.99 13.65
 Total Flow = Main + Aux (l/min): 16.64

Δ% of Measured Flow from Set-point

(± **2%**): -0.3% -0.1%
 (± **2%**): -0.2%

Δ of Measured Flow from Indicated

Measured Total Flow (l/min): 16.78 (± **1.00 l/min**): 0.14
 Measured Main Flow (l/min): 3.04 (± **0.20 l/min.**): 0.05

Leak Check

Main (< **0.15 l/min**): 0.02 Actual leakage = Pump On – Pump Off: 0.02
 Aux (< **0.65 l/min**): 0.08 0.01

K_O Factor

Measured: 16116
 K_O % Difference (± **2.5%**): 0.19

Remarks:

Heads dusty - cleaned after audit.
O-rings in 2.5 head worn - replaced after audit.

Station Performance Audit Summary

Company: Paza Facility Name: Evergreen Park
 Approval No.: N/A Site Name: Evergreen
 AENV Region: Northern AENV District: Peace River

Parameters audited:

TRS	X	SO ₂	X	NO _x		NH ₃		O ₃	
CO		CH ₄		NonCH ₄		THC		Ethylene	
PM _{2.5}	X	PM ₁₀		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn.Temp		RH	X	Solar Radiation	
Rainfall		Precip		VWS		Other			
All parameters monitored as per approval: Yes									

GENERAL

	YES	NO	N/A
Has the location remained unchanged from previous audit?	X		
Is site secure?	X		
Are station operating conditions adequate?	X		

DATA ACQUISITION

Are strip charts in use?		X	
Is a telemetry system for data acquisition in use?	X		

SYSTEM COMPONENTS

Is a glass sampling manifold installed?	X		
Is sampling manifold clean?	X		
Is a manifold trap in place?	X		
Are spare manifold ports capped	X		
Is manifold oriented so it is not exactly horizontal?	X		
Are manifold ports situated to prevent water entering monitors?	X		
Is manifold pump properly installed and operative?	X		
Do sample lines extend at least 3/4" into manifold?	X		
Are monitor sampling lines connected to manifold?	X		
Are sampling lines clean?	X		
Are monitors properly mounted and secure?	X		
Are monitors properly exhausted from room or scrubbed?	X		
Are zero and span systems operational?	X		

WIND EQUIPMENT

Is wind sensor properly oriented?	X		
Does wind equipment appear to be functioning properly?	X		
Date of last calibration.		Date: <u> Unknown </u>	

COMMENTS:

AUDITOR: Al Clark DATE: October 18, 2011

STATION AUDIT

File No. 2011 - 342A / 348A

Date: October 19, 2011

Performed by: Al Clark

Station

Name: Henry Pirker

Location: Grande Prairie

Facility/Zone: Paza

Operator: Focus

Temp: 23.5 C

Barometric Press: 697 mm/hg

Location

Latitude N 55° 10' 35.8"

Longitude W 118° 48' 27.8"

Elevation 662m

Status of Site Documentation On Site - OK

Manifold Material Glass
Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	<u>7.7 kph / 341 deg</u>	<u>5-10 kph / NW</u>
Station Temperature	<u>N/A</u>	<u>N/A</u>
Relative Humidity	<u>52.9 %</u>	<u>53.0 %</u>
Ambient Temperature	<u>11.7 C</u>	<u>11.0 C</u>
Solar Radiation	<u>375 w/m2</u>	<u>Cloudy @ 1130 MST</u>
Precipitation	<u>N/A</u>	<u>N/A</u>

Remarks:

Solar rad sensor positioned NE should be facing S. Corrected during audit.

CO ANALYZER AUDIT

File No. 2011 - 342A

Date: October 19, 2011 Performed by: Al Clark

Station

Name: Henry Pirker Location: Grande Prairie
 Facility/Zone: Paza Operator: Focus
 Temp. 26.0 C Barometric Press. 696 mm/hg

Monitor

Make/Model: Teco 48CTL Serial No: 0508011062
 Inlet flow (sccm): 1135 Full Scale Range ppm: 50
 Last cal. Date: Oct 12/11 Old C.F. 0.9501
 Zero/Bkg. 1.310
 Span Coeff. 1.088

Calibrator

Calibration Method: Gas Dilution AMU # : 1778
 Make/Model: Sabio 2010 CO concentration ppm: 2466
 CO cylinder # : FF23059

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
4917	0.0	4917	0.0	0.4		
4938	80.8	5019	39.7	39.2	-2%	± 15%
4954	40.7	4995	20.1	19.9	-3%	± 15%
4949	20.1	4969	10.0	10.3	-1%	± 15%
Absolute Average Percent Difference					2%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000
 m (Slope)= 0.9756
 b (Intercept as % of full scale)= 0.8668

LIMITS
≥ 0.995
0.85-1.15
± 3% F.S.

Remarks:

SO₂ ANALYZER AUDIT

File No. 2011 - 343A

Date: October 19, 2011

Performed by: Al Clark

Station

Name: Henry Pirker

Location: Grande Prairie

Facility/Zone: Paza

Operator: Focus

Temp: 23.5 C

Barometric Press: 697 mm/hg

Monitor

Make/Model: Teco 43C Serial No: 0610816292

Inlet flow (sccm): 490 Full Scale Range ppm: 0.5

Last cal. Date: Oct 13/11 Old C.F. 0.9890

Zero/Bkg 8.9

Span Coef 0.772

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CLM004813

SO₂ Concentration PPM: 50.2

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5021	0.0	5021	0.0000	-0.0005		
5055	38.3	5093	0.3775	0.3646	-3%	± 15%
5033	17.1	5050	0.1700	0.1643	-3%	± 15%
5036	8.1	5044	0.0806	0.0778	-3%	± 15%
Absolute Average Percent Difference					3%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000
m (Slope)= 0.9669
b (Intercept as % of full scale)= -0.0549

LIMITS
≥ **0.995**
0.85-1.15
± **3% F.S.**

Remarks:

TRS ANALYZER AUDIT

File No. 2011 - 344A

Date: October 19, 2011

Performed by: Al Clark

Station

Name: Henry Pirker

Location: Grande Prairie

Facility/Zone: Paza

Operator: Focus

Temp: 23.5 C

Barometric Press: 697 mm/hg

Monitor

Make/Model: Teco 45C Serial No: 0630718528

Inlet flow (sccm): 456 Full Scale Range ppm: 0.1

Last cal. Date: Oct 12/11 Old C.F. 0.9901

Zero/Bkg 11.0

Span Coef 1.086

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CAL011014

H₂S Concentration PPM: 9.6

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5021	0.0	5021	0.0000	-0.0004		
5055	38.3	5093	0.0722	0.0767	7%	± 15%
5033	17.5	5050	0.0333	0.0363	10%	± 15%
5035	8.9	5044	0.0169	0.0178	7%	± 15%
Absolute Average Percent Difference					8%	

Linear Regression Analysis:

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

Correlation Coeff.= 0.9999

m (Slope)= 1.0685

b (Intercept as % of full scale)= -0.0971

LIMITS

≥ **0.995**

0.85-1.15

± **3% F.S.**

Remarks:

HC ANALYZER AUDIT

File No. 2011 - 345A

Date: October 19, 2011

Performed by: Al Clark

Station

Name: Henry Pirker

Location: Grande Prairie

Facility/Zone: Paza

Operator: Focus

Temp. 24.5 C

Barometric Press. 696 mm/hg

Monitor

Make/Model: Teco 51CLT Serial No: 51CLT-79009-390

Inlet flow (sccm): N/A Full Scale Range ppm: 25

Last cal. Date: Oct 12/11 Old C.F. 1.0477

Calibrator

Calibration Method: Gas Dilution

Make/Model: Sabio 2010

AMU #: 1749

HC cylinder #: SG090110A

HC concentration ppm: 1052.75

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
3452	0.0	3452	0.00	0.09		
3451	60.1	3511	18.02	15.95	-12%	± 15%
3448	29.8	3478	9.02	8.02	-12%	± 15%
3459	9.9	3469	3.00	2.79	-10%	± 15%
Absolute Average Percent Difference					11%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000
 m (Slope)= 0.8787
 b (Intercept as % of full scale)= 0.4491

LIMITS
≥ 0.995
0.85-1.15
± 3% F.S.

Remarks:

NO-NOx-NO2 Analyzer Audit

File No. 2011 - 346A

Date: October 19, 2011 Performed by: Al Clark

Station: Name: Henry Pirker Location: Grande Prairie Operator: Focus
 Facility/Zone: Paza Temp. 23.5 C BP: 697 mm/hg

Monitor: Make/Model: Teco 42C Serial No. 0508011073
 Inlet flow (sccm): 761 Range ppm: 0.5
 Last cal. Date: Oct 13, 2011 Old C.F.'s NO: 0.9812
 NOx: 0.9799
 NO2: 0.9944
 NO Bkg 10.1
 NOx Bkg 10.5
 NO Coef 0.742
 NOx Coef 1.002
 NO2 Coef 1.000

Calibration Method: Gas Dilution / GPT
Calibrator: Make/Model: Sabio 2010 AMU# 1749
 NO cylinder # 3L9007 NO conc. ppm 50.4 NOx conc. ppm 50.5

Calibrator Flows			Calc. Conc.		Indicated Concentration		% Difference vs Audit Gas	
			NO (ppm)	NOx (ppm)	NO (ppm)	NOx (ppm)	NO	NOx
Air	Gas	Total						
4905	0.0	4905	0.0000	0.0000	0.0000	0.0001	Limit ± 15%	
4912	39.7	4952	0.4041	0.4049	0.3818	0.3874	-6%	-4%
4893	19.7	4913	0.2021	0.2025	0.1909	0.1940	-6%	-4%
4926	9.9	4936	0.1011	0.1013	0.0954	0.0975	-6%	-4%
Absolute Average Percent Difference							6%	4%

Linear Regression Analysis: $y=mx+b$ (where x=calculated concentration, y=indicated concentration)

	NO	NOx	NO ₂	LIMITS
Correlation Coeff.=	<u>1.0000</u>	<u>1.0000</u>	<u>1.0000</u>	≥ 0.995
m (Slope)=	<u>0.9450</u>	<u>0.9563</u>	<u>0.9968</u>	0.85-1.15
b (Intercept as % of full scale)=	<u>-0.0119</u>	<u>0.0680</u>	<u>0.0838</u>	± 3% F.S.

O ₃ Setting	Flow Rate	Indicated Conc. (ppm)			NO Decrease	NO ₂ Increase	% Difference vs Audit Gas	
		NO	NOx	NO ₂				
0.0 V	4952	0.3783	0.3849	0.0065	0.2179	0.2176	0%	%Dif Limit
0.5 V	4952	0.1604	0.3844	0.2241	0.2179	0.2176	0%	± 15%
0.3 V	4952	0.2744	0.3849	0.1106	0.1039	0.1041	0%	± 15%
0.25 V	4952	0.3058	0.3844	0.0791	0.0725	0.0726	0%	± 15%
Absolute Average Percent Difference							0%	

Converter Efficiency
 Average Converter Efficiency 100.1%

Remarks: _____

O₃ ANALYZER AUDIT

File No. 2011 - 347A

Date: October 19, 2011

Performed by: Al Clark

Station

Name: Henry Pirker

Location: Grande Prairie

Facility/Zone: Paza

Operator: Focus

Temp. 25.5 C

Barometric Press. 697 mm/hg

Monitor

Make/Model: Teco 49C Serial No: 0607415761

Inlet flow (sccm): 718 / 736 Full Scale Range ppm: 0.5

Last cal. Date: Oct 13/11 Old C.F. 1.0044

Zero/Bkg -0.6
Span Coeff. 1.011

Calibrator

Calibration Method: Generator

Make/Model: Sabio 2010

NO cylinder #: N/A

AMU #: 1778

NO concentration ppm: N/A

Ozone Setting	Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Conc. (ppm)	% Difference	
	Air	Gas	Total			vs Audit Gas	Limits
0.0 V	4951	X	4951	0.000	0.001		
0.8 V	4951	X	4951	0.426	0.398	-7%	± 15%
0.5 V	4951	X	4951	0.249	0.234	-6%	± 15%
0.25 V	4951	X	4951	0.106	0.100	-7%	± 15%
Absolute Average Percent Difference						7%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000
m (Slope)= 0.9322
b (Intercept as % of full scale)= 0.2462

LIMITS
≥ 0.995
0.85-1.15
± 3% F.S.

Remarks:

TEOM AUDIT

Date: October 19, 2011 File #: 2011 - 348A
 Performed by: Al Clark

Station			
Name:	<u>Henry Pirker</u>	Location:	<u>Grande Prairie</u>
Facility/Zone:	<u>Paza</u>	Operator:	<u>Focus</u>
Temperature:	<u>25.5 C</u>	Barometric Press.:	<u>697 mm/hg</u>

Audit Transfer Standard			
Make/Model:	<u>DeltaCal</u>	Cell s/n:	<u>0566</u>
Serial Number:	<u>AMU 1761</u>		
Sampler Set-up and Current Readings			
Make/Model	<u>R&P 1400ab 8500</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>PM2.5</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Control unit s/n	<u>140AB214219702</u>	Filter Load (%)	<u>31</u>
Transducer s/n	<u>140AB214219702</u>	K _O Factor	<u>12557</u>
		Temp (°C)	<u>6.7</u>
		Press (ATM)	<u>0.918</u>

Conversion from mm Hg or " Hg to ATM (Atmospheres)

$ATM = (mm\ Hg) \times (1.316 \times 10^{-3})$ or $ATM = ("Hg) \times (3.34207 \times 10^{-2})$

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

Zero Flow			
Pump Off	Base	Ref	Pump On (Time to reach set points)
F-Main (l/min)	<u>0.02 / 0.01</u>		(45-60 Sec) <u>36</u>
F-Aux (l/min)	<u>0.08 / 0.05</u>		(45-60 Sec) <u>45</u>

Temperature/Pressure			
Measured Temp (± 2 °C)	<u>8.7</u>	Δ°C	<u>2.00</u>
Measured Press (± 1.5% ATM)	<u>0.917</u>	Δ% ATM	<u>-0.11%</u>

Flow Audit		Δ% of Measured Flow from Set-point	
Indicated Main/Aux Flow (l/min)	<u>3.00</u> <u>13.66</u>	(± 2%)	<u>0.0%</u> <u>-0.1%</u>
Total Flow = Main + Aux (l/min)	<u>16.66</u>	(± 2%)	<u>-0.1%</u>
Δ of Measured Flow from Indicated			
Measured Total Flow (l/min)	<u>16.97</u>	(± 1.00 l/min)	<u>0.31</u>
Measured Main Flow (l/min)	<u>3.06</u>	(± 0.20 l/min.)	<u>0.06</u>

Leak Check		Actual leakage = Pump On – Pump Off	
Main (< 0.15 l/min)	<u>0.09 / 0.09</u>		<u>0.07 / 0.08</u>
Aux (< 0.65 l/min)	<u>0.26 / 0.26</u>		<u>0.16 / 0.21</u>

K_O Factor	
Measured	<u>12317</u>
K _O % Difference (± 2.5%)	<u>2.17</u>

Remarks:

Station Performance Audit Summary

Company: Paiza Facility Name: Grande Prairie
 Approval No.: N/A Site Name: Henry Pirker
 AENV Region: Northern AENV District: Peace River

Parameters audited:

TRS	X	SO ₂	X	NO _x	X	NH ₃		O ₃	X
CO	X	CH ₄		NonCH ₄		THC	X	Ethylene	
PM _{2.5}	X	PM ₁₀		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn.Temp		RH	X	Solar Radiation	X
Rainfall		Precip		VWS		Other			
All parameters monitored as per approval: Yes									

GENERAL

	YES	NO	N/A
Has the location remained unchanged from previous audit?	X		
Is site secure?	X		
Are station operating conditions adequate?	X		

DATA ACQUISITION

Are strip charts in use?		X	
Is a telemetry system for data acquisition in use?	X		

SYSTEM COMPONENTS

Is a glass sampling manifold installed?	X		
Is sampling manifold clean?	X		
Is a manifold trap in place?	X		
Are spare manifold ports capped	X		
Is manifold oriented so it is not exactly horizontal?	X		
Are manifold ports situated to prevent water entering monitors?	X		
Is manifold pump properly installed and operative?	X		
Do sample lines extend at least 3/4" into manifold?	X		
Are monitor sampling lines connected to manifold?	X		
Are sampling lines clean?		X	
Are monitors properly mounted and secure?	X		
Are monitors properly exhausted from room or scrubbed?	X		
Are zero and span systems operational?	X		

WIND EQUIPMENT

Is wind sensor properly oriented?	X		
Does wind equipment appear to be functioning properly?	X		
Date of last calibration.	Date:	<u>July 2010</u>	

COMMENTS:

AUDITOR: Al Clark

DATE: October 19, 2011

STATION AUDIT

File No. 2011 - 332A / 334A

Date: October 17, 2011

Performed by: Al Clark

Station

Name: Smokey Hts

Location: Smokey Hts

Facility/Zone: Paza

Operator: Focus

Temp: 20.0 C

Barometric Press: 706 mm/hg

Location

Latitude N 55° 24' 10.0"

Longitude W 118° 16' 52.6"

Elevation 643m

Status of Site Documentation On Site - OK

Manifold Material Glass
Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	<u>26 kph / 258 deg</u>	<u>25-30 kph / W</u>
Station Temperature	<u>N/A</u>	<u>N/A</u>
Relative Humidity	<u>N/A</u>	<u>N/A</u>
Ambient Temperature	<u>13.0 C</u>	<u>13.4 C</u>
Solar Radiation	<u>N/A</u>	<u>N/A</u>
Precipitation	<u>N/A</u>	<u>N/A</u>

Remarks:

Station's roof has a lot of leaks especially above the main power panel box.

SO₂ ANALYZER AUDIT

File No. 2011 - 332A

Date: October 17, 2011

Performed by: Al Clark

Station

Name: Smokey Hts

Location: Smokey Hts

Facility/Zone: Paza

Operator: Focus

Temp: 20.0 C

Barometric Press: 706 mm/hg

Monitor

Make/Model: Teco 43i Serial No: 0701170009

Inlet flow (sccm): 442 Full Scale Range ppm: 0.5

Last cal. Date: Sep 22/11 Old C.F. 0.9864

Zero/Bkg 9.8

Span Coef 0.969

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CLM004813

SO₂ Concentration PPM: 50.2

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5065	0.0	5065	0.0000	0.0004		
5087	37.8	5125	0.3703	0.3632	-2%	± 15%
5106	17.3	5123	0.1695	0.1671	-2%	± 15%
5046	8.1	5054	0.0805	0.0788	-3%	± 15%
Absolute Average Percent Difference					2%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000

m (Slope)= 0.9804

b (Intercept as % of full scale)= 0.0711

LIMITS

≥ **0.995**

0.85-1.15

± **3% F.S.**

Remarks:

TRS ANALYZER AUDIT

File No. 2011 - 333A

Date: October 17, 2011 Performed by: Al Clark

Station

Name: Smokey Hts Location: Smokey Hts
 Facility/Zone: Paza Operator: Focus
 Temp: 20.0 C Barometric Press: 706 mm/hg

Monitor

Make/Model: Teco 43C Serial No: 0436610004
 Inlet flow (sccm): 585 Full Scale Range ppm: 0.1
 Last cal. Date: Sep 22/11 Old C.F. 0.9911
 Zero/Bkg 17.2
 Span Coef 0.953

Calibrator

Calibration Method: GAS DILUTION
 Make/Model: R&R MFC 201 AMU #: 1691
 Cylinder #: CAL011014 H₂S Concentration PPM: 9.6

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5065	0.0	5065	0.0000	0.0002		
5111	37.5	5148	0.0699	0.0782	12%	± 15%
5106	17.5	5123	0.0328	0.0364	10%	± 15%
5045	8.8	5054	0.0167	0.0187	11%	± 15%
Absolute Average Percent Difference					11%	

Linear Regression Analysis:

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

Correlation Coeff.= 1.0000
 m (Slope)= 1.1157
 b (Intercept as % of full scale)= 0.0607

LIMITS
≥ 0.995
0.85-1.15
± 3% F.S.

Remarks:

TEOM AUDIT

Date: October 17, 2011 File #: 2011 - 334A
 Performed by: Al Clark

Station

Name: Smokey Hts Location: Smokey Hts
 Facility/Zone: Paza Operator: Focus
 Temperature: 20.0 C Barometric Press.: 706 mm/hg

Audit Transfer Standard

Make/Model: DeltaCal Cell s/n: 0566
 Serial Number: AMU1761

Sampler Set-up and Current Readings

Make/Model: <u>R&P 1400a</u>	F-Main Set Pt (l/min): <u>3.00</u>
Unit #: <u>PM2.5</u>	F-Aux Set Pt (l/min): <u>13.67</u>
Control unit s/n: <u>140AB246340305</u>	Filter Load (%): <u>27</u>
Transducer s/n: <u>140AB246340305</u>	K _O Factor: <u>12122</u>
	Temp (°C): <u>13.5</u>
	Press (ATM): <u>0.928</u>

Conversion from mm Hg or " Hg to ATM (Atmospheres)

ATM = (mm Hg) X (1.316 X 10⁻³) or ATM = ("Hg) X (3.34207 X 10⁻²)

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

Zero Flow Pump Off	Value	Pump On (Time to reach set points)	Value
F-Main (l/min)	<u>0.00</u>	(45-60 Sec)	<u>41</u>
F-Aux (l/min)	<u>0.02</u>	(45-60 Sec)	<u>49</u>

Temperature/Pressure		Δ°C	Δ% ATM
Measured Temp (± 2 °C)	<u>13.4</u>	<u>0.10</u>	
Measured Press (± 1.5% ATM)	<u>0.929</u>		<u>0.11%</u>

Flow Audit		Δ% of Measured Flow from Set-point	
Indicated Main/Aux Flow (l/min)	<u>3.00</u> <u>13.68</u>	(± 2%)	<u>0.0%</u> <u>0.1%</u>
Total Flow = Main + Aux (l/min)	<u>16.68</u>	(± 2%)	<u>0.1%</u>

Δ of Measured Flow from Indicated	
Measured Total Flow (l/min)	<u>16.11</u> (± 1.00 l/min) <u>0.57</u>
Measured Main Flow (l/min)	<u>2.96</u> (± 0.20 l/min.) <u>0.04</u>

Leak Check		Actual leakage = Pump On – Pump Off	
Main (< 0.15 l/min)	<u>0.01</u>		<u>0.01</u>
Aux (< 0.65 l/min)	<u>0.04</u>		<u>0.02</u>

K _O Factor	
Measured	<u>12201</u>
K _O % Difference (± 2.5%)	<u>0.66</u>

Remarks:

Station Performance Audit Summary

Company: Paza Facility Name: Smokey Hts
 Approval No.: N/A Site Name: Smokey Hts
 AENV Region: Northern AENV District: Peace River

Parameters audited:

TRS	X	SO ₂	X	NO _x		NH ₃		O ₃	
CO		CH ₄		NonCH ₄		THC		Ethylene	
PM _{2.5}	X	PM ₁₀		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn.Temp		RH		Solar Radiation	
Rainfall		Precip		VWS		Other			
All parameters monitored as per approval: Yes									

GENERAL

Has the location remained unchanged from previous audit?
 Is site secure?
 Are station operating conditions adequate?

YES	NO	N/A
X		
X		
X		

DATA ACQUISITION

Are strip charts in use?
 Is a telemetry system for data acquisition in use?

	X	
X		

SYSTEM COMPONENTS

Is a glass sampling manifold installed?
 Is sampling manifold clean?
 Is a manifold trap in place?
 Are spare manifold ports capped
 Is manifold oriented so it is not exactly horizontal?
 Are manifold ports situated to prevent water entering monitors?
 Is manifold pump properly installed and operative?
 Do sample lines extend at least 3/4" into manifold?
 Are monitor sampling lines connected to manifold?
 Are sampling lines clean?
 Are monitors properly mounted and secure?
 Are monitors properly exhausted from room or scrubbed?
 Are zero and span systems operational?

X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		

WIND EQUIPMENT

Is wind sensor properly oriented?
 Does wind equipment appear to be functioning properly?
 Date of last calibration. Date: July 2010

X		
X		

COMMENTS:

AUDITOR: Al Clark

DATE: October 17, 2011



STATION AUDIT

File No. 2011 - 330A / 331A

Date: October 17, 2011

Performed by: Al Clark

Station

Name: Valleyview

Location: South Sturgeon

Facility/Zone: Paza

Operator: Focus

Temp: 20.5 C

Barometric Press. 706 mm/hg

Location

Latitude N 54° 56' 25.0"

Longitude W 117° 12' 55.9"

Elevation 657m

Status of Site Documentation On site - OK

Manifold Material Glass
Manifold Condition Good

Meteorological

	Observed	Audit Value
Wind Speed Direction	<u>1.1 kph / 160 deg</u>	<u>0-5 kph / SE</u>
Station Temperature	<u>N/A</u>	<u>N/A</u>
Relative Humidity	<u>43.4 %</u>	<u>46.0 %</u>
Ambient Temperature	<u>9.4 C</u>	<u>8.5 C</u>
Solar Radiation	<u>N/A</u>	<u>N/A</u>
Precipitation	<u>N/A</u>	<u>N/A</u>

Remarks:

Tmp/RH taken at ground level.

SO₂ ANALYZER AUDIT

File No. 2011 - 330A

Date: October 17, 2011

Performed by: Al Clark

Station

Name: Valleyview

Location: South Sturgeon

Facility/Zone: Paza

Operator: Focus

Temp. 20.5 C

Barometric Press. 706 mm/hg

Monitor

Make/Model: Teco 45C Serial No: 45C-57351-313

Inlet flow (sccm): 563 Full Scale Range ppm: 0.5

Last cal. Date: Sep 26/11 Old C.F. 0.9901

Zero/Bkg 27.7

Span Coef 0.857

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CLM004813

SO₂ Concentration PPM: 50.2

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5056	0.0	5056	0.0000	0.0014		
5077	38.2	5115	0.3749	0.3682	-2%	± 15%
4992	17.3	5009	0.1734	0.1671	-4%	± 15%
5040	8.2	5048	0.0815	0.0810	-2%	± 15%
Absolute Average Percent Difference					3%	

Linear Regression Analysis:

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

Correlation Coeff.= 0.9999

m (Slope)= 0.9778

b (Intercept as % of full scale)= 0.0940

LIMITS

≥ **0.995**

0.85-1.15

± **3% F.S.**

Remarks:

H₂S ANALYZER AUDIT

File No. 2011 - 331A

Date: October 17, 2011

Performed by: Al Clark

Station

Name: Valleyview

Location: South Sturgeon

Facility/Zone: Paza

Operator: Focus

Temp. 20.5 C

Barometric Press. 706 mm/hg

Monitor

Make/Model: Teco 43i Serial No: 0701120010

Inlet flow (sccm): 424 Full Scale Range ppm: 0.1

Last cal. Date: Sep 26/11 Old C.F. 0.9880

Zero/Bkg 7.2

Span Coef 1.377

Calibrator

Calibration Method: GAS DILUTION

Make/Model: R&R MFC 201

AMU #: 1691

Cylinder #: CAL011014

H₂S Concentration PPM: 9.6

Calibrator Flow (sccm)			Calculated Conc. (ppm)	Indicated Concentration (ppm)	% Difference	
Air	Gas	Total			vs Audit Gas	Limits
5056	0.0	5056	0.0000	0.0000		
5077	38.1	5115	0.0715	0.0712	0%	± 15%
4991	17.8	5009	0.0341	0.0328	-4%	± 15%
5039	8.9	5048	0.0169	0.0170	0%	± 15%
Absolute Average Percent Difference					1%	

Linear Regression Analysis:

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

Correlation Coeff.= 0.9998

m (Slope)= 0.9935

b (Intercept as % of full scale)= -0.1889

LIMITS

≥ **0.995**

0.85-1.15

± **3% F.S.**

Remarks:

Station Performance Audit Summary

Company: Paza Facility Name: South Sturgeon
 Approval No.: N/A Site Name: Valleyview
 AENV Region: Northern AENV District: Peace River

Parameters audited:

H ₂ S	X	SO ₂	X	NO _x		NH ₃		O ₃	
CO		CH ₄		NonCH ₄		THC		Ethylene	
PM _{2.5}		PM ₁₀		TSP		BTEX		Wind Speed	X
Wind Dir	X	Amb. Temp	X	Stn. Temp		RH	X	Solar Radiation	
Rainfall		Precip		VWS		Other			
All parameters monitored as per approval: Yes									

GENERAL

Has the location remained unchanged from previous audit?
 Is site secure?
 Are station operating conditions adequate?

YES	NO	N/A
X		
X		
X		

DATA ACQUISITION

Are strip charts in use?
 Is a telemetry system for data acquisition in use?

	X	
X		

SYSTEM COMPONENTS

Is a glass sampling manifold installed?
 Is sampling manifold clean?
 Is a manifold trap in place?
 Are spare manifold ports capped
 Is manifold oriented so it is not exactly horizontal?
 Are manifold ports situated to prevent water entering monitors?
 Is manifold pump properly installed and operative?
 Do sample lines extend at least 3/4" into manifold?
 Are monitor sampling lines connected to manifold?
 Are sampling lines clean?
 Are monitors properly mounted and secure?
 Are monitors properly exhausted from room or scrubbed?
 Are zero and span systems operational?

X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		
X		

WIND EQUIPMENT

Is wind sensor properly oriented?
 Does wind equipment appear to be functioning properly?
 Date of last calibration. Date: Nov 2010

X		
X		

COMMENTS:

AUDITOR: Al Clark DATE: October 17, 2011