APPENDIX E

Fourth Quarter 2009 EFR Ambient Air Systems Calibration Report

AMBIENT AIR SYSTEMS CALIBRATION REPORT - FOURTH QUARTER 2009
ENERGY FUELS RESOURCES CORPORATION
URANIUM MILL LICENSING SUPPORT
PIÑON RIDGE MILL
MONTROSE COUNTY, COLORADO

December 22, 2009
Rev. 0

Prepared By:

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Table of Contents

Tables

Appendices

1.0 Introduction

Energy Fuels Resources Corporation (Energy Fuels) personnel performed calibrations on October 13 and 16, 2009. The calibrations were performed at all five of the ambient air monitoring sites at the Piñon Ridge Mill Site located approximately 15 miles from Naturita, Colorado. The five ambient air monitoring sites include two PM_{10} (particulate matter less than 10 µm) and five TSP (total suspended particulate) samplers. Audits of the air monitoring systems and the two meteorological monitoring systems located on-site were performed by Inter-Mountain Laboratories (IML) on November 18, 2009. Results of the November 18 audits are reported by IML under a separate cover. Following is a list of the air monitoring sites and associated equipment:

Site 1 – North Site (10m Tower)
- PM_{10} Sampler – Thermo FRM 2000 PM_{10}
- TSP Sampler – Tisch Hi-Vol 5170

Site 2 – East Site (30m Tower)
- PM_{10} Sampler – Thermo FRM 2000 PM_{10}
- TSP Sampler – Tisch Hi-Vol 5170

Site 3 – West Site
- TSP Sampler – Tisch Hi-Vol 5170

Site 4 – Cooper Site (Upwind Resident)
- TSP Sampler – Tisch Hi-Vol 5170

Site 5 – Carver Site (Downwind Resident)
- TSP Sampler – Tisch Hi-Vol 5170

2.0 Calibration Methodology and Accuracy Goals

2.1 Calibration References and Equipment

The calibrations were conducted in accordance with the following guideline documents:

- Ambient Monitoring Guidelines for the Prevention of Significant Deterioration (PSD), EPA-450/4-87-007, May 1987
- Ambient Air Monitoring Requirements for the Air Pollution Control Division of the Colorado Department of Public Health and Environment, Technical Services Program Air Pollution Control Division, April 2001
- Quality Assurance Handbook for Air Pollution Measurements Systems, Vol. II – Ambient Air Quality Monitoring Program, EPA-454/B-08-003, December 2008
- U.S. Nuclear Regulatory Commission Regulatory Guide, Office of Standards Development, Regulatory Guide 4.14 – Radiological Effluent and Environmental Monitoring at Uranium Mills, Revision 1, April 1980

All calibration equipment is referenced to an NIST-traceable standard at least annually. NIST-traceable certifications for the calibration equipment can be found in Appendix A. The following equipment was required for the calibrations:

- Streamline Pro MultiCal System, Model S with external temperature probe, capable of accurately measuring flow rate over a range of 2.0 to 20 liters per minute (lpm) to the nearest 0.01 lpm, measuring temperature over the range of -30 °C to 50 °C to the nearest 0.1 °C, and measuring barometric pressure over the range 0.25 to 1.1 atm to the nearest 0.002 atm.
- Variable resistance transfer standard (calibration orifice) with faceplate.
- Two digital manometers (ranges of 0-20 in. water and 0-40 in. water).

2.2 PM_{10} Samplers

The PM_{10} Sampler calibrations included a verification of the flow, barometric pressure, ambient temperature, and filter temperature. In addition, external and internal leak checks were conducted on the instrument. The calibration methods are briefly described as follows:

Flow - The flow calibration was completed by removing the inlet of the sampler and installing the Streamline Pro calibration system. The difference between the calculated flow of the Streamline Pro and the sampler flow were compared to the acceptance criteria.

Ambient Temperature - The ambient temperature calibration was completed by co-locating the Streamline Pro external thermometer with the ambient temperature sensor on the sampler. The difference between the temperature recorded by the Streamline Pro and the sampler ambient temperature was compared to the acceptance criteria.

Filter Temperature - The filter temperature calibration was completed by co-locating the Streamline Pro external thermometer with the filter temperature sensor on the sampler. The difference between the temperature recorded by the Streamline Pro and the sampler filter temperature was compared to the acceptance criteria.

Barometric Pressure - The barometric pressure calibration was completed by comparing the Streamline Pro barometric pressure reading with that of the sampler. The difference between the pressure recorded by the Streamline Pro and the sampler pressure was compared to the acceptance criteria.

External Leak Check - The external leak check was conducted by the samplers automated external leak check function. The sampler reports the results of the leak check with a “pass” or “fail” and a calculated leakage rate.

Internal Leak Check - The internal leak check was conducted by creating a vacuum within the internal components of the system using a solid disk in place of the filter. The loss of vacuum was measured over a 30 second period and compared to the acceptance criteria.

2.3 TSP Samplers

Calibrations of the TSP Samplers were completed by finding the numerical relationship between the sampler output (volumetric flow rate) and its flow indicator (stagnation pressure ratio). The stagnation pressure is measured in an area of low pressure underneath the filter caused by the resistance to airflow through the filter. The stagnation pressure ratio is a mathematical relationship of stagnation and ambient pressures. To find the numerical relationship a multiple point (multi-point) calibration was completed on the sampler. The multi-point calibration used five points to calculate the flow rates and the resulting slope and intercept for the sampler. The flow rates, calculated differences between the sampler output and flow indicator at each flow rate, and the correlation coefficient were compared to the acceptance criteria.

2.4 Calibration Thresholds

Accuracy goals of the air monitoring stations are shown in Tables 1 and 2 below:

Table 1
PM_{10} Sampler Criteria

Sensor	Specifications
Ambient Temperature	±2.0 °C
Filter Temperature	±2.0 °C
Pressure	± 10 mm Hg
Flow Rate	±2.0 percent of observed (±0.33 lpm)
External Leak Check	<5.0 in. Hg / 60 seconds
Internal Leak Check	<8.5 in. Hg / 30 seconds

Table 2
TSP Sampler Criteria

Sensor	Specifications
Flow Rate	between 1.1 to 1.7 m^3/min (min. of three points)
Difference Percentage	±2.0 percent
Correlation Coefficient	>0.990

3.0 Calibration Results

Calibration results for the PM_{10} Samplers and the TSP Samplers can be found in Appendices B and C, respectively.

4.0 Findings/Recommendations

The calibrations of the two PM_{10} samplers and five TSP samplers were within the calibration specifications during the 4th Quarter 2009 calibration event.

Appendix A

Calibration Equipment Certifications

Certificate of Calibration

This Streamline Pro™ MultiCal™ System, serial number: **S070906**
was calibrated against the following NIST-traceable Reference Standards:
Flow: Critical Flow Venturi S/Ns 10961, 10962, 10963, 18491, 30421 on date: 12/03/08
Barometric Pressure: Precision Barometer S/N 913930-M1 on date: 12/02/08
Temperature: NIST Traceable Hg-in-glass thermometers, on date: 12/02/08
S/Ns 2J3106, 2 sn 2J3106, 2Y6027, 3L9452.

Quality Assurance:

Flow:

Reference Std. Q_{ref} (l/min)	Streamline Pro Q_{SLPro} (l/min)	Absolute difference (l/min)	% Diff. F.S.
1.99	1.99	0.00	0.00%
5.00	5.00	0.00	0.00%
6.67	6.67	0.00	-0.01%
10.00	10.00	0.00	0.00%
13.68	13.69	0.01	0.03%
16.67	16.67	-0.01	-0.03%
20.01	20.01	0.00	0.01%

BP:

Reference Std. BP_{ref} (atm)	Streamline Pro BP_{SLPro} (atm)	Absolute difference (atm)	% Diff. F.S.
0.750	0.750	0.000	0.00%
0.900	0.900	0.000	-0.02%
1.050	1.050	0.000	0.00%

Temp.:

Reference Std. T_{ref} (°C)	Streamline Pro T_{SLPro} (°C)	Absolute difference (°C)	% Diff. F.S.*
0.0	0.0	0.0	0.00%
18.3	18.3	0.0	0.00%
36.4	36.4	0.0	0.01%

* based on absolute temp. scale (K)

Lab temp: 20.5 °C Lab pressure: 0.878 atm

Reviewed: [signature] Date: 12/3/08

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a division of Inter-Mountain Laboratories, Inc.

innovative measurements
555 Absaraka St., Sheridan, WY 82801 USA

Certificate of Accuracy

Transfer Standard Type: Streamline Pro™ External Temperature Probe

This Streamline Pro MultiCal™ System External Temperature Probe,

Model No. SLPRT203, SERIAL NUMBER: T070906

Was compared to:
NIST Traceable Hg-in-glass thermometers, serial numbers 2J3106, 2Y6027, 3L9452.
Miller & Weber Hg-in-glass thermometer sn 2J3106 and 2Y6027 are traceable to NIST Test No. 209621, Test Method ASTM E-77. 2J3106 is traceable through Standard No. 1S1262. 2Y6027 is traceable through Standard No. 9C8072. Miller & Weber Hg-in-glass thermometer sn 3L9452 is traceable to NIST Thermometer 40350, through Transfer Standards 3C4465 & 1Y9716.

Date: **December 2, 2008**

Lab temperature: 21.5 °C
Barometric Pressure: 660.1 mmHg

Reference Standard (°C)	Transfer Standard (°C)	Difference from Reference (°C)	Transfer Standard Correction* (°C)
0.0	0.0	0.0	0.0
18.5	18.5	0.0	0.0
40.2	40.2	0.0	0.0

Note:
If no sign is given on the correction, the true temperature is higher than the indicated temperature. If the sign is negative, the true temperature is lower than the indicated temperature.

Reviewed: [signature] Date: 12/2/08

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CERTIFICATE OF CALIBRATION

Orifice Transfer Standard - **1258**
Kleinfelder Albuquerque, NM

1258 orifice transfer standard was calibrated on the NIST traceable Dresser rootsmeter serial # 9217756 on 10-Dec-08
Calibration expires 10-Dec-09

The reference flow rate (Qr) through the orifice, in cubic meters per minute, is:

$$Q_r = A(\Delta P_o)^B \qquad r = 0.9999$$

where: A= **0.640**
B= **0.499**
ΔPo = pressure drop across orifice, in inches of water

The actual flow rate (Qa) through the orifice, in cubic meters per minute, is:

$$Q_a = \frac{\left[\left(\sqrt{(\Delta P_o)\left(\frac{T_a}{P_a}\right)}\right) - b\right]}{m} \qquad r = 0.9999$$

where: m= **0.982**
b= **-0.003**
ΔPo = pressure drop across orifice, inches of water
Ta = ambient temperature, Kelvin
Pa = ambient pressure, mm Hg

The flow rate through the orifice corrected to standard conditions (Qstd), in cubic meters per minute, is:

$$Q_{std} = \frac{\left[\left(\sqrt{\Delta P_o\left(\frac{P_a}{T_a}\right)\left(\frac{298}{760}\right)}\right) - b\right]}{m} \qquad r = 0.9999$$

where: m= **1.568**
b= **-0.004**
ΔPo = pressure drop across orifice, inches of water
Ta = ambient temperature, Kelvin
Pa = ambient pressure, mm Hg

KK
Reviewed

12-10-08
Date

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ORIFICE TRANSFER STANDARD CALIBRATION
QUALITY ASSURANCE

Orifice Transfer Standard# **1258**

The following table is a comparison of measured flow rate versus the flow rate calculated from the new calibration equation. Quality Assurance guidelines require the difference at each point to be less than 2% for a valid calibration. A minimum of three measurment points are required within the operational flow rate interval (1.019 to 1.246 m3/min for PM10 samplers and 1.1 to 1.7 m3/min for TSP samplers.

Q_a measured	Q_a calculated	difference
0.976	0.977	0.10%
1.036	1.035	-0.03%
1.138	1.142	0.31%
1.226	1.221	-0.47%
1.391	1.390	-0.12%
1.558	1.563	0.31%
1.831	1.830	-0.08%

References: 40 CFR 50, Appendix B, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method); 40 CFR 50, Appendix J, Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere; and Quality Assurance Handbook for Air Pollution Measurement Systems: Volume II. Ambient Air Specific Methods, (EPA 600/4-77/027a, June 1992), Sections 2.2.2.5 and 2.11.2.2.1.

Data Input

Roots Meter SN:	629846
DATE:	10-Dec-08
ORIFICE #:	1258
TECH:	Cory Medill
TEMP (°C):	23.60
PRES("Hg):	26.13
CLIENT:	Kleinfelder
LOCATION:	Albuquerque, NM

POINT	DELTA VOLUME m^3	TIME MIN	DELTA H roots mmHg	DELTA H orifice "H2O
1	3.3985	3.4500	5.7913	2.0500
2	3.3985	3.2500	6.4452	2.3000
3	3.3985	2.9500	7.8463	2.8000
4	3.3985	2.7333	9.0606	3.2000
5	3.3985	2.4000	11.5827	4.1500
6	3.3985	2.1333	14.6651	5.2500
7	3.3985	1.8000	20.0828	7.2000

	Actual Flow				Standard Flow		
POINT	Va m^3	Qa m^3/min	Y-AXIS	POINT	Vstd m^3	Qstd m^3/min	Y-AXIS
1	3.369	0.976	0.957	1	2.954	0.856	1.341
2	3.365	1.036	1.014	2	2.951	0.908	1.420
3	3.358	1.138	1.119	3	2.945	0.998	1.567
4	3.352	1.226	1.196	4	2.940	1.075	1.675
5	3.339	1.391	1.362	5	2.928	1.220	1.908
6	3.323	1.558	1.532	6	2.915	1.366	2.146
7	3.296	1.831	1.794	7	2.890	1.606	2.513

Certificate of Accuracy

Transfer Standard Type: Electronic Manometer Certificate No: M 112408. 02

Transfer standard, model: Dwyer Series 475-1 Mark III Digital Manometer
Serial number: N22S
submitted by/owner: ENERGY FUELS RESOURCES
KLEINFELDER
8300 Jefferson NE, Suite B
Albuquerque, NM 87113

Was compared to Chinook Engineering Streamline Pro Multi Cal System Serial Number BENCH 1.
BENCH 1 is traceable through Meriam Instrument Reference Manometers:

Model number: 30EBX25TM	Ser. No.: 131760-M1	Scale number: SC-4208-12
Model number: 30EBX25TM	Ser. No.: 158411-S1	Scale number: SC-4208-17

Certified accuracy of ± 0.02 "H_2O
Scale is NIST Traceable to Optical Comparator, SN E37618, and Gage Rod, SN 3388A

Date: 11/24/2008 Lab temperature: 68.1 °F
Lab pressure: 663.4 mm Hg

CERTIFIED ON (-) PORT

Reference Manometer ("H_2O)	Transfer Standard ("H_2O)	Difference from Reference ("H_2O)	Transfer Standard Correction* ("H_2O)
0.50	0.50	0.00	0.00
5.00	4.99	-0.01	0.01
7.50	7.51	0.01	-0.01
10.00	10.01	0.01	-0.01
19.50	19.55	0.05	-0.05

Note:
If no sign is given on the correction, the true pressure is higher than the indicated pressure. If the sign is negative, the true pressure is lower than the indicated pressure.

Transfer Standard adjustments made? YES ☐ **NO** ☒

Post-calibration measurements:

Reference Manometer ("H_2O)	Transfer Standard ("H_2O)	Difference from Reference ("H_2O)	Transfer Standard Correction* ("H_2O)

Reviewed: [signature] Date: 11/24/08

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Certificate of Accuracy

Transfer Standard Type: Electronic Manometer Certificate No: M 112408. 01

Transfer standard, model: Dwyer Series 475-2 Mark III Digital Manometer
Serial number: N19S
submitted by/owner: ENERGY FUELS RESOURCES
KLEINFELDER
8300 Jefferson NE, Suite B
Albuquerque, NM 87113

Was compared to Chinook Engineering Streamline Pro Multi Cal System Serial Number BENCH 1.
BENCH 1 is traceable through Meriam Instrument Reference Manometers:

Model number: 30EBX25TM	Ser. No.: 131760-M1	Scale number: SC-4208-12
Model number: 30EBX25TM	Ser. No.: 158411-S1	Scale number: SC-4208-17

Certified accuracy of ± 0.02 "H_2O
Scale is NIST Traceable to Optical Comparator, SN E37618, and Gage Rod, SN 3388A

Date: 11/24/2008 Lab temperature: 68.1 °F
Lab pressure: 663.4 mm Hg

CERTIFIED ON (-) PORT

Reference Manometer ("H_2O)	Transfer Standard ("H_2O)	Difference from Reference ("H_2O)	Transfer Standard Correction* ("H_2O)
0.50	0.50	0.00	0.00
5.00	4.96	-0.04	0.04
10.00	9.96	-0.04	0.04
15.00	15.00	0.00	0.00
35.00	35.10	0.10	-0.10

Note:
If no sign is given on the correction, the true pressure is higher than the indicated pressure. If the sign is negative, the true pressure is lower than the indicated pressure.

Transfer Standard adjustments made? YES ☐ NO ☒
Post-calibration measurements:

Reference Manometer ("H_2O)	Transfer Standard ("H_2O)	Difference from Reference ("H_2O)	Transfer Standard Correction* ("H_2O)

Reviewed: R L S Date: 11/24/08

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Appendix B

PM_{10} Sampler Calibration Sheets

Partisol PM_{10} FRM Monthly Verification/Maintenance

Site Name: #1
Date: 10 · 13 - 09
Time: 1017 MST
Technician Name: Jess
Sampler ID #: 1-2
Streamline Pro cal. expires:
Streamline Pro Control Unit S/N:
Streamline Pro Measurement Unit S/N:

As-Found Calibration Values

Parameter	Offset	Span
A/I	-0.0003	0.9993
Amb. T	0.0072	
Filter T	0.0066	
Pressure	-0.0363	
Flow	-0.0058	0.9656

Condition of Instrument: Good.

Sensors Verification

Sensor	Indicated	Actual	Difference	Specification
Amb. T	16.7	16.6	0.1	+/- °C verification, +/- 2 °C audit
Filter T	18.1	17.1	1.0	+/- °C verification, +/- 2 °C audit
Pressure	620	622.4	2.4	+/- 10 mmHG
Flow	16.7	16.77	0.07	16.7 L/min +/- 4.0% (+/- 0.66 l/min)

Pressure Conversion: multiply atm value from Streamline Pro Multical by 760.0 mmHg

corrected 12/21/09 JR

External Leak Check: (Pass) / Fail
34 mm Hg

Internal Leak Check: (Pass) / Fail

Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)
20	16.5

(< 8.5" Hg / 30 sec.)

Maintenance

Maintenance procedures can be found in Section 9.0 of the SOP.

Inspect & clean 1st Stage inlet:	(Yes)	No
Inspect seals on PM_{10} inlet	(Yes)	No
Replace inlet seal?	Yes	(No)

Inspect cassette seals, any replaced?	Yes	(No)
If Yes, please circle	**Upper**	**Lower**

Other monthly checks can be found on the Partisol PM_{10} inspection and Maintenance Checklist.

If any seals, fittings, or other flow-related parts were replaced, verify that the sampler is leak tight and operating at 16.7 liters/min.

External Leak Check: Pass / Fail

Internal Leak Check: Pass / Fail

Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)

(< 8.5" Hg / 30 sec.)

	indicated	actual
post-service flow check		

Notes:

Partisol PM_{10} FRM Monthly Verification/Maintenance

Site Name: #2
Date: 10/13/09
Time: 0830 MST
Technician Name: Jess
Sampler ID #: 2-2
Streamline Pro cal. expires:
Streamline Pro Control Unit S/N:
Streamline Pro Measurement Unit S/N:

As-Found Calibration Values

Parameter	Offset	Span
A/I	-0.0020	0.9996
Amb. T	-0.0003	
Filter T	-0.0032	
Pressure	-0.0075	
Flow	-0.0081	1.0000

Condition of Instrument: Good

Sensors Verification

Sensor	Indicated	Actual	Difference	Specification
Amb. T	12.9	13.1	0.2	+/- ˚C verification, +/- 2 ˚C audit
Filter T	15.1	15.4	0.3	+/- ˚C verification, +/- 2 ˚C audit
Pressure	619	620.1	1.1	+/- 10 mmHG
Flow	16.7	16.52	0.18	16.7 L/min +/- 4.0% (+/- 0.66 l/min)

Pressure Conversion: multiply atm value from Streamline Pro Multical by 760.0 mmHg

External Leak Check: Pass / Fail (Pass circled)

76 mm Hg

Internal Leak Check: Pass / Fail (Pass circled)

Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)
20.0"	17.5"

(< 8.5" Hg / 30 sec.)

Maintenance

Maintenance procedures can be found in Section 9.0 of the SOP.

Inspect & clean 1st Stage inlet:	Yes (circled)	No
Inspect seals on PM_{10} inlet	Yes (circled)	No
Replace inlet seal?	Yes	No (circled)

Inspect cassette seals, any replaced?	Yes	No (circled)
If Yes, please circle	**Upper**	**Lower**

Other monthly checks can be found on the Partisol PM_{10} Inspection and Maintenance Checklist.

If any seals, fittings, or other flow-related parts were replaced, verify that the sampler is leak tight and operating at 16.7 liters/min.

External Leak Check: Pass / Fail

Internal Leak Check: Pass / Fail

Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)

(< 8.5" Hg / 30 sec.)

	indicated	actual
post-service flow check		

Notes:

Partisol PM_{10} FRM Monthly Verification/Maintenance

Site Name: #1
Date: 10/22/09
Time: 1131 MDT
Technician Name: JW/AM
Sampler ID #: 1-2
Streamline Pro cal. expires:
Streamline Pro Control Unit S/N:
Streamline Pro Measurement Unit S/N:

As-Found Calibration Values

Parameter	Offset	Span
A/I	-0.0635	0.9998
Amb. T	0.0634	
Filter T	0.0048	
Pressure	-0.0228	
Flow	-0.0031	0.9775

Condition of Instrument:

Sensors Verification

Sensor	Indicated	Actual	Difference	Specification
Amb. T	12.2	12.3	0.1	+/- °C verification, +/- 2 °C audit
Filter T	14.3	14.0	0.3	+/- °C verification, +/- 2 °C audit
Pressure	624	623.8	0.2	+/- 10 mmHG
Flow	16.6/16.7	16.60/ 16.59	0.0%.11	16.7 L/min +/- 4.0% (+/- 0.66 l/min)

Pressure Conversion: multiply atm value from Streamline Pro Multical by 760.0 mmHg

corrected 12/21/09 JR

External Leak Check: **Pass** / Fail
21 mm Hg

Internal Leak Check: **Pass** / Fail

Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)
20.0	15.0

(< 8.5" Hg / 30 sec.)

Maintenance

Maintenance procedures can be found in Section 9.0 of the SOP.

Inspect & clean 1st Stage Inlet:	Yes	No
Inspect seals on PM_{10} Inlet	Yes	No
Replace inlet seal?	Yes	No

Inspect cassette seals, any replaced?	Yes	No
If Yes, please circle	**Upper**	**Lower**

Other monthly checks can be found on the Partisol PM_{10} Inspection and Maintenance Checklist.

If any seals, fittings, or other flow-related parts were replaced, verify that the sampler is leak tight and operating at 16.7 liters/min.

External Leak Check: Pass / Fail

Internal Leak Check: Pass / Fail

Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)

(< 8.5" Hg / 30 sec.)

	indicated	actual
post-service flow check		

Notes:

Appendix C

TSP Sampler Calibration Sheets

High Volume Sampler Flow Rate Calibration

Network:	Energy Fuels Resources		
Sampler ID:	1-1-TSP		
AIRS Site ID:	N/A	**Sampler Type:**	Tisch TE-5170-DV-BL
Sampler Calibration Date:	10/16/09	**Calibrated By:**	Jess Fulbright
Orifice ID:	1258	**Orifice Calibration Date:**	12/10/08
Ambient Temperature (°C):	14.1	**Ambient Pressure ("Hg):**	24.76
Ambient Temperature (°K):	287.3	**Ambient Pressure (mmHg):**	629

Orifice Relationship: Qa = [SQRT{(ΔP)*(Ta/Pa)}-b]*[1/m]
where m = 0.982 and b = -0.003

Sampler:

Calibration Point	ΔP	Pstg/13.6	P1	P1/Pa
1	5.4	0.40	24.37	0.9839
2	10.3	0.75	24.01	0.9695
3	14.1	1.04	23.73	0.9581
4	18.7	1.38	23.39	0.9444
5	21.8	1.60	23.16	0.9353

Orifice:

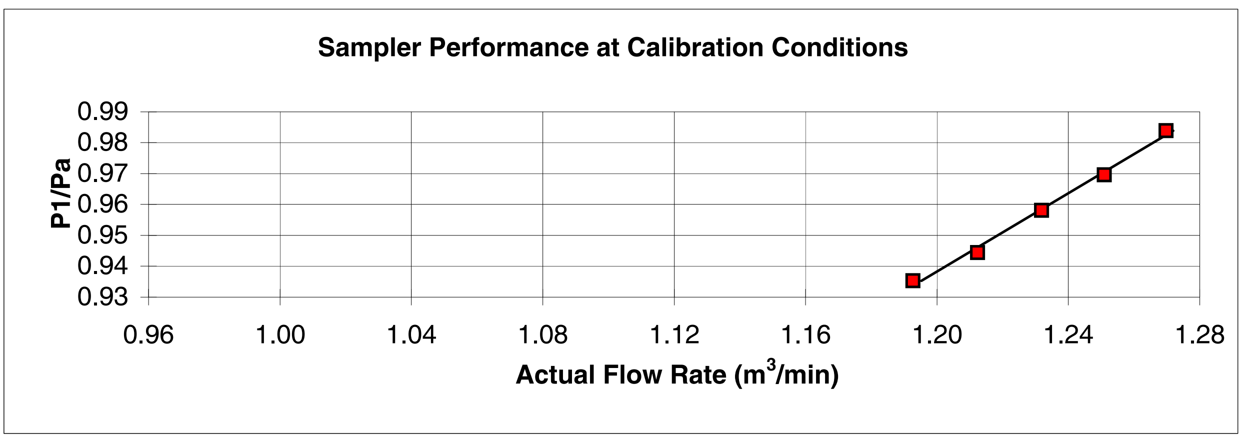
Calibration Point	ΔP	Qa(orf)	Qa/sqrt(Ta)	Qa(eq)	% diff
1	3.39	1.2698	0.0749	1.2719	0.2%
2	3.29	1.2509	0.0738	1.2492	-0.1%
3	3.19	1.2318	0.0727	1.2312	-0.1%
4	3.09	1.2124	0.0716	1.2097	-0.2%
5	2.99	1.1927	0.0704	1.1953	0.2%

Sampler Calibration:

Slope	**10.7537**
Intercept	**0.1767**
r	**0.9970**
Failure Temp (°C)	**-69.6**

Use this equation for subsequent flow calculations:

Qa = {[P1/Pa - 0.1767] * [SQRT(Ta)]} * {1/10.7537}



Notes:

High Volume Sampler Flow Rate Calibration

Network: Energy Fuels Resources
Sampler ID: 2-1-TSP
AIRS Site ID: N/A
Sampler Calibration Date: 10/16/09
Orifice ID: 1258
Ambient Temperature (°C): 14.3
Ambient Temperature (°K): 287.5

Sampler Type: Tisch TE-5170-DV-BL
Calibrated By: Jess Fulbright
Orifice Calibration Date: 12/10/08
Ambient Pressure ("Hg): 24.72
Ambient Pressure (mmHg): 628

Orifice Relationship: Qa = [SQRT{(ΔP)*(Ta/Pa)}-b]*[1/m]
where m = 0.982 and b = -0.003

Sampler:

Calibration Point	ΔP	Pstg/13.6	P1	P1/Pa
1	5.3	0.39	24.34	0.9843
2	9.0	0.66	24.06	0.9733
3	13.1	0.96	23.76	0.9611
4	17.3	1.27	23.45	0.9485
5	25.0	1.84	22.89	0.9257

Orifice:

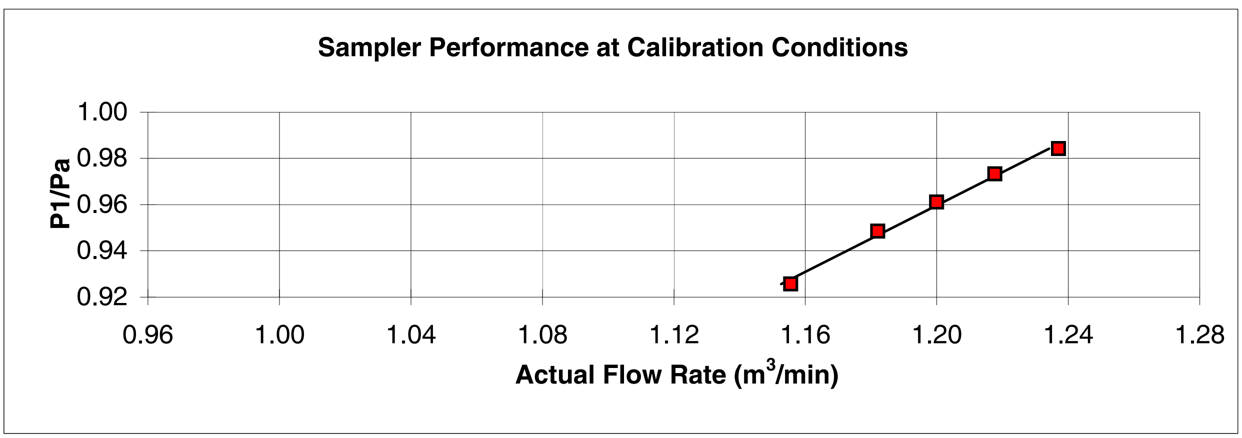
Calibration Point	ΔP	Qa(orf)	Qa/sqrt(Ta)	Qa(eq)	% diff
1	3.21	1.2371	0.0730	1.2342	-0.2%
2	3.11	1.2177	0.0718	1.2190	0.1%
3	3.02	1.2000	0.0708	1.2019	0.2%
4	2.93	1.1820	0.0697	1.1844	0.2%
5	2.80	1.1556	0.0682	1.1527	-0.2%
			2.8		

Sampler Calibration:

Slope	**12.1744**
Intercept	**0.0978**
r	**0.9966**
Failure Temp (°C)	**-58.6**

Use this equation for subsequent flow calculations:

Qa = {[P1/Pa - 0.0978] * [SQRT(Ta)]} * {1/12.1744}



Notes:

High Volume Sampler Flow Rate Calibration

Network:	Energy Fuels Resources		
Sampler ID:	3-1-TSP		
AIRS Site ID:	N/A	**Sampler Type:**	Tisch TE-5170-DV-BL
Sampler Calibration Date:	10/16/09	**Calibrated By:**	Jess Fulbright
Orifice ID:	1258	**Orifice Calibration Date:**	12/10/08
Ambient Temperature (°C):	14.8	**Ambient Pressure ("Hg):**	24.72
Ambient Temperature (°K):	288.0	**Ambient Pressure (mmHg):**	628

Orifice Relationship: Qa = [SQRT{(ΔP)*(Ta/Pa)}-b]*[1/m]
where m = 0.982 and b = -0.003

Sampler:

Calibration Point	ΔP	Pstg/13.6	P1	P1/Pa
1	5.5	0.41	24.32	0.9836
2	8.1	0.60	24.13	0.9758
3	14.0	1.03	23.70	0.9584
4	20.5	1.50	23.22	0.9392
5	23.4	1.72	23.00	0.9303

Orifice:

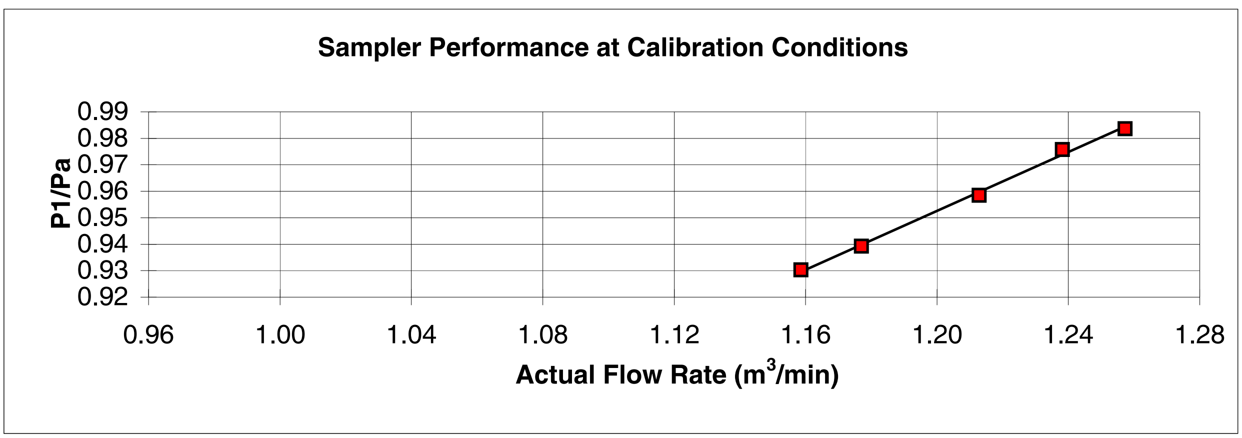
Calibration Point	ΔP	Qa(orf)	Qa/sqrt(Ta)	Qa(eq)	% diff
1	3.31	1.2573	0.0741	1.2558	-0.1%
2	3.21	1.2382	0.0730	1.2418	0.3%
3	3.08	1.2129	0.0715	1.2104	-0.2%
4	2.90	1.1770	0.0694	1.1759	-0.1%
5	2.81	1.1587	0.0683	1.1599	0.1%

Sampler Calibration:

Slope	**9.4252**
Intercept	**0.2859**
r	**0.9982**
Failure Temp (°C)	**-60.8**

Use this equation for subsequent flow calculations:

Qa = {[P1/Pa - 0.2859] * [SQRT(Ta)]} * {1/9.4252}



Notes:

High Volume Sampler Flow Rate Calibration

Network: Energy Fuels Resources
Sampler ID: 4-1-TSP
AIRS Site ID: N/A
Sampler Calibration Date: 10/16/09
Orifice ID: 1258
Ambient Temperature (°C): 15.2
Ambient Temperature (°K): 288.4

Sampler Type: Tisch TE-5170-DV-BL
Calibrated By: Jess Fulbright
Orifice Calibration Date: 12/10/08
Ambient Pressure ("Hg): 24.72
Ambient Pressure (mmHg): 628

Orifice Relationship: Qa = [SQRT{(ΔP)*(Ta/Pa)}-b]*[1/m]
where m = 0.982 and b = -0.003

Sampler:

Calibration Point	ΔP	Pstg/13.6	P1	P1/Pa
1	5.3	0.39	24.33	0.9841
2	9.9	0.72	24.00	0.9707
3	14.0	1.03	23.70	0.9584
4	18.4	1.35	23.37	0.9452
5	24.4	1.79	22.93	0.9274

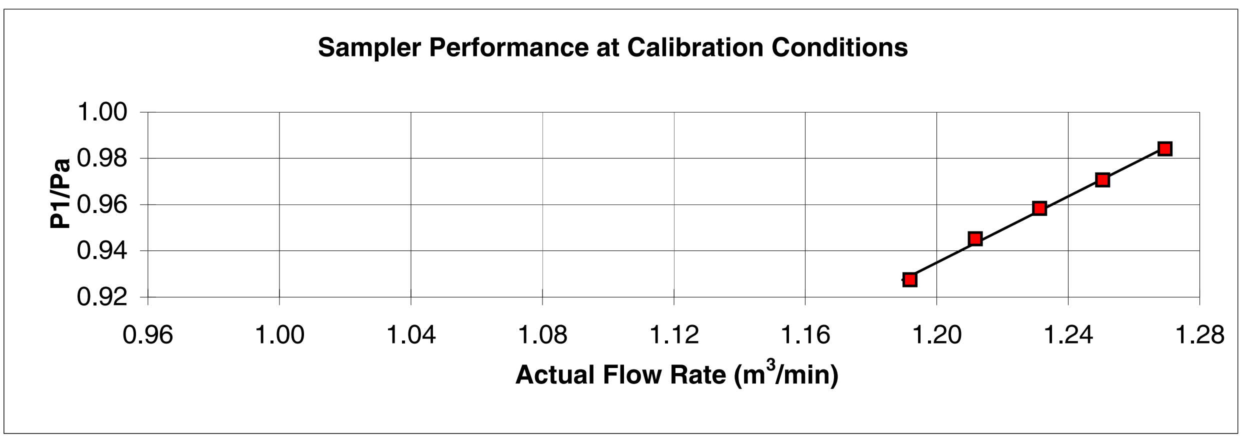
Orifice:

Calibration Point	ΔP	Qa(orf)	Qa/sqrt(Ta)	Qa(eq)	% diff
1	3.37	1.2695	0.0748	1.2686	-0.1%
2	3.27	1.2505	0.0737	1.2499	0.0%
3	3.17	1.2313	0.0725	1.2328	0.1%
4	3.07	1.2118	0.0714	1.2144	0.2%
5	2.97	1.1919	0.0702	1.1896	-0.2%

Sampler Calibration:

Slope	**12.1735**
Intercept	**0.0744**
r	**0.9979**
Failure Temp (°C)	**-70.0**

Use this equation for subsequent flow calculations:
Qa = {[P1/Pa - 0.0744] * [SQRT(Ta)]} * {1/12.1735}



Notes:

High Volume Sampler Flow Rate Calibration

Network:	Energy Fuels Resources		
Sampler ID:	5-1-TSP		
AIRS Site ID:	N/A	**Sampler Type:**	Tisch TE-5170-DV-BL
Sampler Calibration Date:	10/16/09	**Calibrated By:**	Jess Fulbright
Orifice ID:	1258	**Orifice Calibration Date:**	12/10/08
Ambient Temperature (°C):	15.1	**Ambient Pressure ("Hg):**	24.72
Ambient Temperature (°K):	288.3	**Ambient Pressure (mmHg):**	628

Orifice Relationship: Qa = [SQRT{(ΔP)*(Ta/Pa)}-b]*[1/m]
where m = 0.982 and b = -0.003

Sampler:

Calibration Point	ΔP	Pstg/13.6	P1	P1/Pa
1	5.4	0.40	24.33	0.9839
2	8.7	0.64	24.09	0.9742
3	13.0	0.95	23.77	0.9614
4	18.4	1.35	23.37	0.9453
5	23.5	1.73	23.00	0.9302

Orifice:

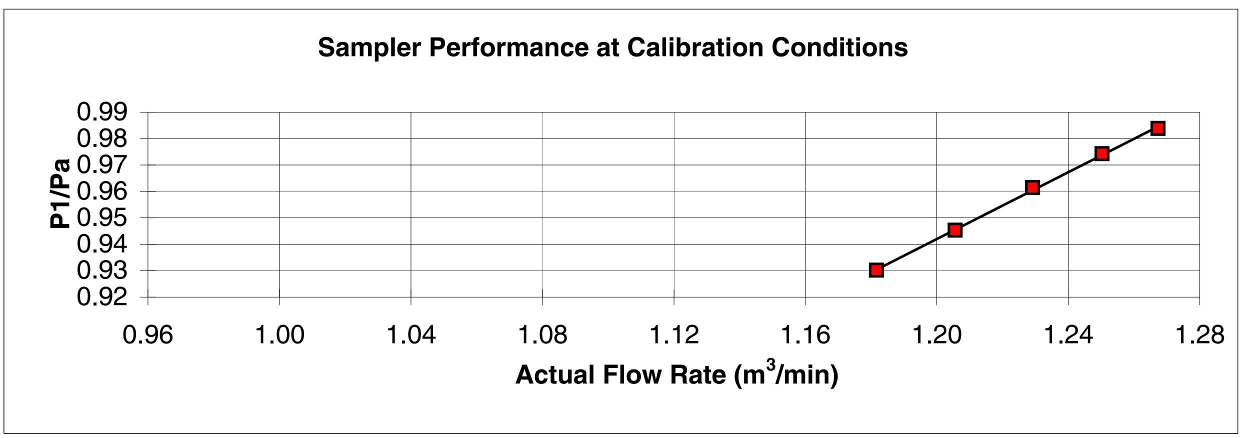
Calibration Point	ΔP	Qa(orf)	Qa/sqrt(Ta)	Qa(eq)	% diff
1	3.36	1.2674	0.0747	1.2662	-0.1%
2	3.27	1.2503	0.0737	1.2510	0.1%
3	3.16	1.2291	0.0724	1.2307	0.1%
4	3.04	1.2056	0.0710	1.2052	0.0%
5	2.92	1.1817	0.0696	1.1813	0.0%

Sampler Calibration:

Slope	**10.7234**
Intercept	**0.1839**
r	**0.9995**
Failure Temp (°C)	**-66.9**

Use this equation for subsequent flow calculations:

Qa = {[P1/Pa - 0.1839] * [SQRT(Ta)]} * {1/10.7234}



Notes: