Calibration Data

Airtech Environmental Services, Inc.
Meter Box Full Test Calibration

Date: 5/2/2011

Operator: J Burton

Meter Box ID M-16				Meter Box ΔH@			1.845	Meter Box Y_d			0.9907	Barometric Pressure (in. Hg.)			29.55
Time	Orifice Data				Meter Box Data								Results		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	ΔH	T_i	T_o	T_{avg}	V_{mstd}	Q	Y_d	ΔH@
5.0	0.3445	23.0	72	2.207	150.60	152.86	2.26	0.67	68	66	67	2.239	0.441	0.9856	1.901
5.0	0.3445	23.0	72	2.207	152.86	155.13	2.27	0.67	69	66	67.5	2.247	0.441	0.9822	1.886
5.0	0.3445	23.0	72	2.207	155.13	157.40	2.27	0.67	70	67	68.5	2.243	0.441	0.9840	1.890
5.0	0.4436	21.0	72	2.842	157.70	160.62	2.92	1.10	71	67	69.0	2.885	0.568	0.9849	1.877
5.0	0.4436	21.0	72	2.842	160.62	163.55	2.93	1.10	72	68	70.0	2.890	0.568	0.9834	1.867
5.0	0.4436	21.0	72	2.842	163.55	166.46	2.91	1.10	74	69	71.5	2.862	0.568	0.9930	1.899
5.0	0.5885	20.0	72	3.770	167.00	170.87	3.87	1.85	76	70	73.0	3.802	0.754	0.9915	1.810
5.0	0.5885	20.0	72	3.770	170.87	174.73	3.86	1.85	77	70	73.5	3.789	0.754	0.9950	1.822
5.0	0.5885	20.0	72	3.770	174.73	178.61	3.88	1.85	78	71	74.5	3.801	0.754	0.9917	1.806
5.0	0.7954	17.0	72	5.095	179.20	184.41	5.21	3.3	80	72	76.0	5.108	1.019	0.9974	1.792
5.0	0.7954	17.0	72	5.095	184.41	189.62	5.21	3.3	82	72	77.0	5.099	1.019	0.9993	1.795
5.0	0.7954	17.0	72	5.095	189.62	194.84	5.22	3.3	84	73	78.5	5.094	1.019	1.0001	1.793
													Average	0.9907	1.845

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (scf)
V_d	Gas Meter Volume (ft^3)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (scf)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Gauge (in. Hg.)		Thermometers (°F)				Equations
Standard	Vacuum Gauge	Standard	Ch. No 1	Ch. No 2	Ch. No 3	
5	5.0	32	33	32	33	$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)^{0.5}}$
10	10.0	50	51	51	50	
15	15.0	100	101	101	101	$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{avg} + 460)}$
20	20.0	150	152	152	152	
25	25.0	212	213	214	214	$Q = V_{cr} / \theta$
		250	251	252	251	
		300	301	301	302	$Y_d = V_{cr} / V_{mstd}$
		350	351	352	351	
		400	401	402	402	$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta^2}{P_b * Y_d^2 * V_m^2}$
		500	502	501	502	
		600	601	601	602	

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	1.500	Date	8/9/2011
Highest Field Vacuum (inches Hg)	10	Client	BREC
Critical Orifice ID	AA-63	Project No.	3648
Orifice Flow Rate (cfm)	0.772	Meter ID	M-16

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	627.50	631.36	635.21
Final Volume (ft^3)	631.36	635.21	639.08
Volume Metered (ft^3)	3.86	3.85	3.87
DGM Inlet Temperature (^oF)	86	87	88
DGM Outlet Temperature (^oF)	82	82	82
Average DGM Temperature (^oF)	84.0	84.5	85.0
Ambient Temperature (^oF)	88	87	87
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	1.80	1.80	1.80
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	20	20	20
K'	0.5885	0.5885	0.5885
Vcr (ft^3)	3.708	3.711	3.711
Vmstd (ft^3)	3.709	3.696	3.712
Post Test Yc	0.9998	1.0042	0.9999
Full Test Yd	0.9907	0.9907	0.9907
% Difference	-0.91	-1.36	-0.93
Average % Difference			-1.07

Airtech Environmental Services, Inc.
Meter Box Full Test Calibration

Date: 12/14/2010

Operator: j burton

Meter Box ID M-17				Meter Box ΔH@			1.772	Meter Box Y_d			1.0141	Barometric Pressure (in. Hg.)		29.50
Time	Orifice Data				Meter Box Data							Results		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	ΔH	T_i	T_o	T_{avg}	V_{mstd}	Q	Y_d	ΔH@
5.0	0.3455	22.0	76	2.201	780.30	782.52	2.22	0.63	72	68	70	2.183	0.440	1.0083	1.781
5.0	0.3455	22.0	76	2.201	782.52	784.73	2.21	0.63	73	69	71.0	2.169	0.440	1.0147	1.801
5.0	0.3455	22.0	76	2.201	784.73	786.94	2.21	0.63	73	69	71.0	2.169	0.440	1.0147	1.801
5.0	0.4434	20.0	75	2.828	787.30	790.15	2.85	1.05	74	69	71.5	2.798	0.566	1.0107	1.806
5.0	0.4434	20.0	75	2.828	790.15	793.01	2.86	1.05	74	70	72.0	2.805	0.566	1.0081	1.795
5.0	0.4434	20.0	75	2.828	793.01	795.86	2.85	1.05	75	70	72.5	2.792	0.566	1.0126	1.810
5.0	0.5926	18.0	76	3.775	796.20	800.01	3.81	1.8	76	70	73.0	3.736	0.755	1.0104	1.737
5.0	0.5926	18.0	76	3.775	800.01	803.81	3.80	1.8	78	71	74.5	3.716	0.755	1.0159	1.751
5.0	0.5926	18.0	76	3.775	803.81	807.63	3.82	1.8	79	71	75.0	3.732	0.755	1.0116	1.735
5.0	0.7965	16.0	78	5.065	808.20	813.27	5.07	3.2	81	72	76.5	4.957	1.013	1.0218	1.756
5.0	0.7965	16.0	78	5.065	813.27	818.37	5.10	3.2	83	73	78.0	4.972	1.013	1.0187	1.740
5.0	0.7965	16.0	78	5.065	818.37	823.46	5.09	3.2	84	73	78.5	4.958	1.013	1.0216	1.748
													Average	1.0141	1.772

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (scf)
V_d	Gas Meter Volume (ft^3)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (scf)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Gauge (in. Hg.)		Thermometers (°F)				Equations
Standard	Vacuum Gauge	Standard	Ch. No. 1	Ch. No. 2	Ch. No. 3	
5	5.0	32	33	33	33	$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)^{0.5}}$
10	10.0	50	51	51	51	$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{avg} + 460)}$
15	15.0	100	101	102	102	
20	20.0	150	151	152	152	$Q = V_{cr} / \theta$
25	25.0	212	213	214	214	
		250	251	252	252	$Y_d = V_{cr} / V_{mstd}$
		300	301	303	303	
		350	352	353	353	$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta^2}{P_b * Y_d^2 * V_m^2}$
		400	401	402	403	
		500	501	503	503	
		600	601	602	603	

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	1.500	Date	8/8/2011
Highest Field Vacuum (inches Hg)	10	Client	BREC
Critical Orifice ID	AA-63	Project No.	3648
Orifice Flow Rate (cfm)	0.754	Meter ID	M-17

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	267.50	271.27	275.05
Final Volume (ft^3)	271.27	275.05	278.81
Volume Metered (ft^3)	3.77	3.78	3.76
DGM Inlet Temperature (°F)	93	93	94
DGM Outlet Temperature (°F)	86	86	87
Average DGM Temperature (°F)	89.5	89.5	90.5
Ambient Temperature (°F)	85	85	86
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	1.80	1.80	1.80
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	19	19	19
K'	0.5885	0.5885	0.5885
Vcr (ft^3)	3.718	3.718	3.715
Vmstd (ft^3)	3.586	3.596	3.570
Post Test Yc	1.0368	1.0341	1.0405
Full Test Yd	1.0141	1.0141	1.0141
% Difference	-2.24	-1.97	-2.60
Average % Difference			-2.27

Airtech Environmental Services, Inc.
Meter Box Full Test Calibration

Date: 11/1/2010

Operator: j burton

Meter Box ID M-20				Meter Box ΔH@			1.785	Meter Box Y_d			0.9952	Barometric Pressure (in. Hg.)		29.50
Time	Orifice Data				Meter Box Data							Results		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	ΔH	T_i	T_o	T_{avg}	V_{mstd}	Q	Y_d	ΔH@
5.0	0.3455	22.0	67	2.220	956.60	958.89	2.29	0.64	73	67	70	2.252	0.444	0.9857	1.766
5.0	0.3455	22.0	67	2.220	958.89	961.17	2.28	0.64	75	69	72.0	2.234	0.444	0.9938	1.788
5.0	0.3455	22.0	67	2.220	961.17	963.46	2.29	0.64	77	70	73.5	2.237	0.444	0.9922	1.777
5.0	0.4434	20.0	67	2.849	963.70	966.67	2.97	1.05	79	72	75.5	2.894	0.570	0.9845	1.740
5.0	0.4434	20.0	67	2.849	966.67	969.63	2.96	1.05	80	72	76.0	2.881	0.570	0.9888	1.753
5.0	0.4434	20.0	67	2.849	969.63	972.59	2.96	1.05	82	74	78.0	2.871	0.570	0.9925	1.760
5.0	0.5926	18.0	68	3.804	993.00	997.01	4.01	1.9	90	81	85.5	3.843	0.761	0.9897	1.759
5.0	0.5926	18.0	68	3.804	997.01	1001.01	4.00	1.9	93	82	87.5	3.820	0.761	0.9958	1.775
5.0	0.5926	18.0	68	3.804	1001.01	1005.05	4.04	1.9	94	83	88.5	3.851	0.761	0.9878	1.743
5.0	0.7995	16.0	68	5.132	1005.70	1011.05	5.35	3.5	95	84	89.5	5.111	1.026	1.0042	1.834
5.0	0.7995	16.0	69	5.127	1011.05	1016.36	5.31	3.5	98	85	91.5	5.054	1.025	1.0145	1.869
5.0	0.7995	16.0	69	5.127	1016.36	1021.69	5.33	3.5	99	86	92.5	5.064	1.025	1.0125	1.858
													Average	0.9952	1.785

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (scf)
V_d	Gas Meter Volume (ft^3)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (scf)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Gauge (in. Hg.)		Thermometer (°F)				Equations
Manifold	Vacuum Gauge	Standard	Ch. No. 1	Ch. No. 2	Ch. No. 3	
5	5.0	32	33	31	31	$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)^{0.5}}$
10	10.0	50	51	50	49	$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{avg} + 460)}$
15	15.0	100	101	100	100	$Q = V_{cr} / \theta$
20	20.0	150	151	151	150	$Y_d = V_{cr} / V_{mstd}$
25	25.0	212	213	213	213	$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta^2}{P_b * Y_d^2 * V_m^2}$
		250	251	251	251	
		300	300	301	301	
		350	350	352	351	
		400	400	402	402	
		500	501	502	501	
		600	601	602	602	

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	1.500	Date	8/8/2011
Highest Field Vacuum (inches Hg)	5	Client	BREC
Critical Orifice ID	AA-63	Project No.	3648
Orifice Flow Rate (cfm)	0.766	Meter ID	M-20

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	825.60	829.43	833.26
Final Volume (ft^3)	829.43	833.26	837.08
Volume Metered (ft^3)	3.83	3.83	3.82
DGM Inlet Temperature (°F)	90	90	90
DGM Outlet Temperature (°F)	84	84	84
Average DGM Temperature (°F)	87.0	87.0	87.0
Ambient Temperature (°F)	90	89	88
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	1.80	1.80	1.80
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	18	18	18
K'	0.5885	0.5885	0.5885
Vcr (ft^3)	3.701	3.705	3.708
Vmstd (ft^3)	3.660	3.660	3.650
Post Test Yc	1.0113	1.0122	1.0158
Full Test Yd	0.9952	0.9952	0.9952
% Difference	-1.62	-1.71	-2.07
	Average % Difference		-1.80

Meter Box Full Test Calibration

DATE: 7/15/2011

Operator: Joe Ward

Meter Box No: 2142 M-27				Meter Box H@: 1.9109						Meter Box Yd 1.0034						Barometric Pressure: 29.82		
				Standard Meter Gas Volume			Meter Box Gas Volume (ft‹)			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.93	-0.60	3.00	1.0000	0.0	5.000	5.000	59.042	64.130	5.088	74.0	74.0	74.0	86.0	80.0	83.0	5.32	1.0082	1.9186
0.92	-0.60	3.00	1.0000	0.0	5.005	5.005	64.130	69.231	5.101	74.0	74.0	74.0	86.0	80.0	83.0	5.35	1.0066	1.9364
0.38	-0.30	0.50	1.0000	0.0	5.000	5.000	72.320	77.390	5.070	74.0	74.0	74.0	82.0	79.0	80.5	13.01	1.0002	1.9158
0.38	-0.30	0.50	1.0000	0.0	5.005	5.005	77.390	82.471	5.081	74.0	74.0	74.0	82.0	79.0	80.5	13.09	0.9990	1.9356
0.66	-0.40	1.50	1.0000	0.0	5.000	5.000	93.758	98.850	5.092	74.0	74.0	74.0	86.0	79.0	82.5	7.45	1.0022	1.8847
0.66	-0.40	1.50	1.0000	0.0	6.965	6.965	98.850	105.929	7.079	74.0	74.0	74.0	86.0	79.0	82.5	10.35	1.0042	1.8746
															AVERAGE		1.0034	1.9109

Millennium Instruments Inc.
2402 Springridge Drive unit A
Spring Grove IL. 60081
PHONE#(815)675-3225
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E-mail millennium@millinst.com
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Vacuum Gauge

(in. Hg)	Gauge
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0
25.0	25.0

Pyrometer Calibration Sheet

Pyrometer No.:001

Office: Spring Grove
Client: Airtech Environmental
Job or Reference No.:2142 M-27

Temperature Scale Used ☑ Fahrenheit ☐ Celsius

☑ Full Test ☐ Post Test

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading	Calibration Reference Settings for Celsius Scale
50° F	50° F	10°C
100° F	100° F	38°C
150° F	150° F	66°C
200° F	200° F	93°C
250° F	250° F	121°C
300° F	300° F	149°C
350° F	350° F	177°C
400° F	400° F	204°C
450° F	450° F	232°C
500° F	500° F	260°C
550° F	550° F	288°C
600° F	600° F	316°C

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	1.750	Date	8/2/2011
Highest Field Vacuum (inches Hg)	13	Client	BREC
Critical Orifice ID	AA-63	Project No.	3648
Orifice Flow Rate (cfm)	0.792	Meter ID	M-27

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	534.00	537.96	541.91
Final Volume (ft^3)	537.96	541.91	545.87
Volume Metered (ft^3)	3.96	3.95	3.96
DGM Inlet Temperature (°F)	87	88	89
DGM Outlet Temperature (°F)	85	85	86
Average DGM Temperature (°F)	86.0	86.5	87.5
Ambient Temperature (°F)	88	88	89
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	2.00	2.00	2.00
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	20	20	20
K'	0.5885	0.5885	0.5885
Vcr (ft^3)	3.708	3.708	3.705
Vmstd (ft^3)	3.793	3.780	3.783
Post Test Yc	0.9776	0.9810	0.9794
Full Test Yd	1.0034	1.0034	1.0034
% Difference	2.57	2.23	2.39
Average % Difference			2.40

Meter Box Full Test Calibration

DATE: 7/15/2011

Operator: Joe Ward

Meter Box No: 2143 M-2B				Meter Box H@: 1.8295						Meter Box Yd 0.9976						Barometric Pressure: 29.79		
				Standard Meter Gas Volume			Meter Box Gas Volume (ft‹)			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.96	-0.70	3.00	1.0000	0.0	5.000	5.000	71.639	76.825	5.186	74.0	74.0	74.0	96.0	86.0	91.0	5.15	1.0039	1.7799
0.95	-0.70	3.00	1.0000	0.0	5.000	5.000	76.825	82.002	5.177	74.0	74.0	74.0	96.0	86.0	91.0	5.18	1.0057	1.8007
0.67	-0.60	1.50	1.0000	0.0	5.005	5.005	88.458	93.637	5.179	74.0	74.0	74.0	91.0	86.0	88.5	7.32	0.9978	1.7944
0.68	-0.60	1.50	1.0000	0.0	5.005	5.005	93.637	98.827	5.190	74.0	74.0	74.0	91.0	86.0	88.5	7.28	0.9957	1.7748
0.38	-0.40	0.50	1.0000	0.0	5.000	5.000	102.295	107.455	5.160	74.0	74.0	74.0	86.0	83.0	84.5	13.07	0.9902	1.9213
0.38	-0.40	0.50	1.0000	0.0	5.005	5.005	107.455	112.609	5.154	74.0	74.0	74.0	86.0	83.0	84.5	13.03	0.9924	1.9057
															AVERAGE		0.9976	1.8295

Millennium Instruments Inc.
2402 Springridge Drive unit A
Spring Grove IL. 60081
PHONE#(815)675-3225
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E-mail millennium@millinst.com
www.millinst.com

Vacuum Gauge

(in. Hg)	Gauge
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0
25.0	25.0

Pyrometer Calibration Sheet

Pyrometer No.:001

Office: Spring Grove
Client: Airtech Environmental
Job or Reference No.:2143

Temperature Scale Used ☑ Fahrenheit ☐ Celsius

☑ Full Test ☐ Post Test

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading	Calibration Reference Settings for Celsius Scale
50° F	50° F	10°C
100° F	100° F	38°C
150° F	150° F	66°C
200° F	200° F	93°C
250° F	250° F	121°C
300° F	300° F	149°C
350° F	350° F	177°C
400° F	400° F	204°C
450° F	450° F	232°C
500° F	500° F	260°C
550° F	550° F	288°C
600° F	600° F	316°C

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	2.250	Date	8/2/2011
Highest Field Vacuum (inches Hg)	9	Client	BREC
Critical Orifice ID	AA-63	Project No.	3648
Orifice Flow Rate (cfm)	0.8	Meter ID	M-28

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	281.00	285.00	289.00
Final Volume (ft^3)	285.00	289.00	293.00
Volume Metered (ft^3)	4.00	4.00	4.00
DGM Inlet Temperature (°F)	88	89	90
DGM Outlet Temperature (°F)	85	86	86
Average DGM Temperature (°F)	86.5	87.5	88.0
Ambient Temperature (°F)	91	91	91
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	1.90	1.90	1.90
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	20	20	20
K'	0.5885	0.5885	0.5885
Vcr (ft^3)	3.698	3.698	3.698
Vmstd (ft^3)	3.827	3.820	3.816
Post Test Yc	0.9663	0.9681	0.9690
Full Test Yd	0.9976	0.9976	0.9976
% Difference	3.14	2.96	2.87
Average % Difference			**2.99**

Airtech Environmental Services, Inc.
30B Meter Box Full Test Calibration

Date: 1/5/2011

Operator: S. Behanish

Meter Box	M-25 A							Meter Box Y_d		0.9994	Barometric Pressure (in. Hg.)		24.57	
Time	Orifice Data				Meter Box Data							Results		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	LPM		T_m	V_{mstd}	Q	Y_d	ΔH@
10.0	0.012	15.0	75	3.610	0.00	4.84	4.84	0.48		115	3.654	0.361	0.9880	1.544
10.0	0.012	15.0	75	3.610	4.84	9.63	4.79	0.48		115	3.616	0.361	0.9983	1.560
10.0	0.012	15.0	75	3.610	9.63	14.47	4.84	0.48		116	3.647	0.361	0.9897	1.547
10.0	0.028	14.0	75	8.422	0.00	10.95	10.95	1.10		115	8.281	0.842	1.0171	0.683
10.0	0.028	14.0	75	8.422	10.95	22.03	11.08	1.11		115	8.379	0.842	1.0051	0.675
10.0	0.028	14.0	75	8.422	22.03	33.00	10.97	1.10		116	8.282	0.842	1.0170	0.683
10.0	0.051	12.5	76	15.326	0.00	20.30	20.30	2.03		116	15.368	1.533	0.9973	0.369
10.0	0.051	12.5	77	15.312	20.30	40.68	20.38	2.04		116	15.429	1.531	0.9925	0.367
10.0	0.051	12.5	78	15.298	40.68	61.10	20.42	2.04		116	15.459	1.530	0.9896	0.367
												Average	0.9994	0.866

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (L)
V_d	Gas Meter Volume (L)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (L)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Gauge (in. Hg.)		Thermometers (°F)			
Sensaire	Vacuum Gauge	Standard	Ch No Stack	Ch No Aux 1	Ch No Aux 2
5	5.0	32	33	34	34
10	10.0	50	50	51	51
15	15.0	100	101	102	102
20	20.0	150	151	152	152
25	25.0	212	213	214	214
		250	251	252	252
		300	300	302	302
		350	350	352	352
		400	401	402	402
		500	502	502	502
		600	601	602	602

Equations

$$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)^{0.5}}$$

$$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{avg} + 460)}$$

$$Q = V_{cr} / \theta$$

$$Y_d = V_{cr} / V_{mstd}$$

$$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta^2}{P_b * Y_d^2 * V_m^2}$$

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (lpm)	0.500	Date	8/12/2011
Highest Field Vacuum (inches Hg)	10	Client	BREC
Critical Orifice ID	.5LPM	Project No.	3648
Orifice Flow Rate (lpm)	0.4486	Meter ID	M-25-A

	Run 1	Run 2	Run 3
Initial Volume (l)	0.00	4.486	9.072
Final Volume (l)	4.486	9.072	13.869
Volume Metered (l)	4.486	4.586	4.797
DGM Inlet Temperature (°F)	94	99	104
DGM Outlet Temperature (°F)	94	99	104
Average DGM Temperature (°F)	94.0	99.0	104.0
Ambient Temperature (°F)	79	78	79
Elapsed Time (min.)	10	10	10
ΔH (inches H_2O)	0.40	0.40	0.40
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	18	18	18
K'	0.0120	0.0120	0.0120
Vcr (l)	4.318	4.322	4.318
Vmstd (l)	4.218	4.273	4.430
Post Test Yc	1.0237	1.0113	0.9746
Full Test Yd	0.9994	0.9994	0.9994
% Difference	-2.43	-1.19	2.48
Average % Difference			-0.38

Airtech Environmental Services, Inc.
30B Meter Box Full Test Calibration

Date: 3/29/2011

Operator: j burton

Meter Box	M-25B							Meter Box Y_d			1.0017	Barometric Pressure (in. Hg.)		29.50
Time	Orifice Data				Meter Box Data							Results		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	LPM			T_m	V_{mstd}	Q	Y_d	ΔH@
10.0	0.012	21.0	70	4.354	0.000	4.634	4.634	0.46			100	4.311	0.435	1.0100	1.293
10.0	0.012	21.0	70	4.354	4.634	9.253	4.619	0.46			99	4.305	0.435	1.0115	1.299
10.0	0.012	21.0	70	4.354	9.253	13.827	4.574	0.46			98	4.271	0.435	1.0196	1.322
10.0	0.019	20.0	68	6.907	0.000	7.530	7.530	0.75			97	7.048	0.691	0.9800	0.794
10.0	0.019	20.0	69	6.901	7.530	14.961	7.431	0.74			96	6.968	0.690	0.9904	0.803
10.0	0.019	20.0	70	6.894	14.961	22.428	7.467	0.75			96	7.002	0.689	0.9846	0.806
10.0	0.028	20.0	69	10.169	0.000	10.753	10.753	1.08			96	10.091	1.017	1.0078	0.560
10.0	0.028	20.0	69	10.169	10.753	21.576	10.823	1.08			96	10.157	1.017	1.0012	0.552
10.0	0.028	20.0	68	10.179	21.576	32.297	10.721	1.07			95	10.079	1.018	1.0099	0.557
10.0	0.041	19.0	68	14.905	0.000	15.482	15.482	1.55			95	14.572	1.491	1.0228	0.387
10.0	0.041	19.0	68	14.905	15.482	30.965	15.483	1.55			95	14.573	1.491	1.0228	0.387
10.0	0.041	19.0	68	14.905	30.985	46.450	15.465	1.55			95	14.556	1.491	1.0240	0.388
													Average	1.0017	0.887

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (L)
V_d	Gas Meter Volume (L)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (L)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Guage (in. Hg)		Thermometers (°F)				Equations
Standard	Vacuum Gauge	Standard	Ch. No 1	Ch. No probe	Ch. No:	
5	5.0	32	32	32		$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)^{0.5}}$
10	10.0	50	50	49		$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{avg} + 460)}$
15	15.0	100	100	101		$Q = V_{cr} / \theta$
20	20.0	150	152	152		$Y_d = V_{cr} / V_{mstd}$
25	25.0	212	213	213		$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta^2}{P_b * Y_d^2 * V_m^2}$
		250	250	251		
		300	299	301		
		350	350	351		
		400	401	400		
		500	501	501		
		600	601	599		

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (lpm)	0.500	Date	8/12/2011
Highest Field Vacuum (inches Hg)	10	Client	BREC
Critical Orifice ID	.5LPM	Project No.	3648
Orifice Flow Rate (lpm)	0.4864	Meter ID	M-25-B

	Run 1	Run 2	Run 3
Initial Volume (l)	0.00	4.864	9.786
Final Volume (l)	4.864	9.786	14.644
Volume Metered (l)	4.864	4.922	4.858
DGM Inlet Temperature (°F)	113	115	116
DGM Outlet Temperature (°F)	113	115	116
Average DGM Temperature (°F)	113.0	115.0	116.0
Ambient Temperature (°F)	82	81	81
Elapsed Time (min.)	10	10	10
ΔH (inches H_2O)	0.40	0.40	0.40
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	19	19	19
K'	0.0120	0.0120	0.0120
Vcr (l)	4.306	4.310	4.310
Vmstd (l)	4.422	4.459	4.393
Post Test Yc	0.9738	0.9666	0.9810
Full Test Yd	1.0017	1.0017	1.0017
% Difference	2.79	3.51	2.07
Average % Difference			2.79

Meter Box Full Test Calibration

DATE: 7/8/2011 M26-

Operator: Joe Ward

Meter Box No: DB30B-0711-2018				Meter Box H@: 0.0000						Meter Box Yd 0.9958						Barometric Pressure: 29.78		
#1				Standard Meter Gas Volume			Meter Box Gas Volume (ft( )			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.04	-0.30	0.00	1.0000	0.0	1.000	1.000	.000	1.015	1.015	76.0	76.0	76.0	81.0	81.0	81.0	27.04	0.9951	0.0000
0.04	-0.30	0.00	1.0000	0.0	1.000	1.000	0.000	1.014	1.014	76.0	76.0	76.0	80.0	80.0	80.0	27.06	0.9943	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.503	.503	77.0	77.0	77.0	80.0	80.0	80.0	29.91	1.0003	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.502	.502	77.0	77.0	77.0	80.0	80.0	80.0	29.52	1.0023	0.0000
0.03	-0.30	0.00	1.0000	0.0	.500	.500	.000	.507	.507	78.0	78.0	78.0	81.0	81.0	81.0	17.92	0.9924	0.0000
0.03	-0.30	0.00	1.0000	0.0	.500	.500	.000	.508	.508	78.0	78.0	78.0	81.0	81.0	81.0	17.79	0.9905	0.0000
															AVERAGE		0.9958	0.0000

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Vacuum Gauge

(in. Hg)	Gauge
5.0	5.5
10.0	10.5
15.0	16.0
20.0	21.0
25.0	26.0

Meter Box Full Test Calibration

DATE: 7/10/2011 M-26 —

Operator: Joe Ward

Meter Box No: DB30B-0711-2018				Meter Box H@: 0.0000						Meter Box Yd 0.9902						Barometric Pressure: 29.75		
#2				Standard Meter Gas Volume			Meter Box Gas Volume (ft‹)			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.01	-0.30	0.00	1.0000	0.0	.280	.280	.000	.294	.294	75.0	75.0	75.0	92.0	92.0	92.0	18.66	0.9834	0.0000
0.01	-0.30	0.00	1.0000	0.0	.285	.285	0.000	.299	.299	75.0	75.0	75.0	92.0	92.0	92.0	18.64	0.9842	0.0000
0.03	-0.30	0.00	1.0000	0.0	1.000	1.000	.000	1.033	1.033	75.0	75.0	75.0	93.0	93.0	93.0	29.14	1.0014	0.0000
0.03	-0.30	0.00	1.0000	0.0	1.000	1.000	.000	1.032	1.032	75.0	75.0	75.0	93.0	93.0	93.0	29.10	1.0023	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.527	.527	75.0	75.0	75.0	95.0	95.0	95.0	22.89	0.9850	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.527	.527	75.0	75.0	75.0	95.0	95.0	95.0	22.80	0.9850	0.0000
															AVERAGE		0.9902	0.0000

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Vacuum Gauge

(in. Hg)	Gauge
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0

Pyrometer Calibration Sheet

Pyrometer No.:001

Office: Spring Grove
Client: Airtech Environmental
Job or Reference No.:DB30B-0711-2018

Temperature Scale Used
- [x] Fahrenheit
- [ ] Celsius

- [x] Full Test
- [ ] Post Test

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading	Calibration Reference Settings for Celsius Scale
50° F	50° F	10°C
100° F	100° F	38°C
150° F	150° F	66°C
200° F	200° F	93°C
250° F	250° F	121°C
300° F	300° F	149°C
350° F	350° F	177°C
400° F	400° F	204°C
450° F	450° F	232°C
500° F	500° F	260°C
550° F	550° F	288°C
600° F	600° F	316°C

Method 30B Post-Test Meter Calibration

Average Field Sample Rate (lpm)	0.5	Date	8/8/2011
Highest Field Vacuum (inches Hg)	10.0	Client	BREC
Critical Orifice ID	.5LPM	Project No.	3648
Orifice Flow Rate (lpm)	0.479	Meter ID	M-26 A

	Run 1	Run 2	Run 3	
Initial Volume (l^3)	0.000	4.798	9.564	
Final Volume (l^3)	4.798	9.564	14.362	
Volume Metered (l^3)	4.798	4.766	4.798	
DGM Temperature (^oF)	104	105	107	
Ambient Temperature (^oF)	88	87	88	
Elapsed Time (min.)	10.0	10.0	10.0	
Setting (l/min)	0.4	0.4	0.4	
Barometric Pressure (inches Hg)	29.50	29.50	29.50	
Pump Vacuum (inches Hg)	19.0	19.0	19.0	
K'	0.012	0.012	0.012	
Vcr (l^3)	4.281	4.285	4.281	
Vmstd (l^3)	4.431	4.394	4.408	
Post Test Yc	0.96609	0.97519	0.97123	
Full Test Yd	0.9958	0.9958	0.9958	
% Difference	2.98	2.07	2.47	
	Average Difference		2.51	

Method 30B Post-Test Meter Calibration

Average Field Sample Rate (lpm)	0.5	Date	8/8/2011
Highest Field Vacuum (inches Hg)	10.0	Client	BREC
Critical Orifice ID	.5LPM	Project No	3648
Orifice Flow Rate (lpm)	0.480	Meter ID	M-26 B

	Run 1	Run 2	Run 3	
Initial Volume (l^3)	0.000	4.802	9.592	
Final Volume (l^3)	4.802	9.592	14.401	
Volume Metered (l^3)	4.802	4.790	4.809	
DGM Temperature (^oF)	106	108	107	
Ambient Temperature (^oF)	88	87	88	
Elapsed Time (min.)	10.0	10.0	10.0	
Setting (l/min)	0.4	0.4	0.4	
Barometric Pressure (inches Hg)	29.50	29.50	29.50	
Pump Vacuum (inches Hg)	20.0	20.0	20.0	
K'	0.012	0.012	0.012	
Vcr (l^3)	4.281	4.285	4.281	
Vmstd (l^3)	4.419	4.393	4.418	
Post Test Yc	0.96871	0.97546	0.96901	
Full Test Yd	0.9902	0.9902	0.9902	
% Difference	2.17	1.49	2.14	
	Average Difference		1.93	

R-20028

Meter Box Full Test Calibration

DATE: 7/10/2011

Operator: Joe Ward

Meter Box No: DB30B-0711-2019				Meter Box H@: 0.0000						Meter Box Yd 1.0072						Barometric Pressure: 29.79		
#1				Standard Meter Gas Volume			Meter Box Gas Volume (ft( )			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.04	-0.30	0.00	1.0000	0.0	1.000	1.000	.000	1.018	1.018	75.0	75.0	75.0	91.0	91.0	91.0	26.40	1.0124	0.0000
0.04	-0.30	0.00	1.0000	0.0	1.000	1.000	0.000	1.019	1.019	75.0	75.0	75.0	91.0	91.0	91.0	26.38	1.0115	0.0000
0.02	-0.30	0.00	1.0000	0.0	.520	.520	.000	.536	.536	75.0	75.0	75.0	93.0	93.0	93.0	22.14	1.0035	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.516	.516	75.0	75.0	75.0	94.0	94.0	94.0	22.09	1.0041	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.523	.523	76.0	76.0	76.0	104.0	104.0	104.0	32.22	1.0067	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.524	.524	76.0	76.0	76.0	104.0	104.0	104.0	32.20	1.0048	0.0000
															AVERAGE		1.0072	0.0000

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Vacuum Gauge

(in. Hg)	Gauge
5.0	5.5
10.0	10.5
15.0	16.0
20.0	21.0

New Ashtead

R-20078

Meter Box Full Test Calibration

DATE: 7/11/2011

Operator: Joe Ward

Meter Box No:DB30B-0711-2019				Meter Box H@: 0.0000						Meter Box Yd 0.9985						Barometric Pressure: 29.69		
#2				Standard Meter Gas Volume			Meter Box Gas Volume (ft( )			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.03	-0.30	0.00	1.0000	0.0	1.000	1.000	.000	1.024	1.024	75.0	75.0	75.0	92.0	92.0	92.0	30.56	1.0083	0.0000
0.03	-0.30	0.00	1.0000	0.0	1.000	1.000	0.000	1.025	1.025	75.0	75.0	75.0	92.0	92.0	92.0	30.48	1.0074	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.518	.518	75.0	75.0	75.0	94.0	94.0	94.0	22.10	1.0003	0.0000
0.02	-0.30	0.00	1.0000	0.0	.500	.500	.000	.518	.518	75.0	75.0	75.0	94.0	94.0	94.0	21.90	1.0003	0.0000
0.01	-0.30	0.00	1.0000	0.0	.500	.500	.000	.528	.528	76.0	76.0	76.0	98.0	98.0	98.0	38.94	0.9866	0.0000
0.01	-0.30	0.00	1.0000	0.0	.500	.500	.000	.527	.527	76.0	76.0	76.0	98.0	98.0	98.0	38.85	0.9884	0.0000
															AVERAGE		0.9985	0.0000

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Vacuum Gauge

(in. Hg)	Gauge
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0

R-20078

Pyrometer Calibration Sheet

Pyrometer No.:001

Office: Spring Grove
Client: Ashtead Technology Rentals
Job or Reference No.:DB30B-0711-2019

Temperature Scale Used
☑ Fahrenheit
☐ Celsius

☑ Full Test
☐ Post Test

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading	Calibration Reference Settings for Celsius Scale
50° F	50° F	10°C
100° F	100° F	38°C
150° F	150° F	66°C
200° F	200° F	93°C
250° F	250° F	121°C
300° F	300° F	149°C
350° F	350° F	177°C
400° F	400° F	204°C
450° F	450° F	232°C
500° F	500° F	260°C
550° F	550° F	288°C
600° F	600° F	316°C

Method 30B Post-Test Meter Calibration

Average Field Sample Rate (lpm)	0.5	Date	8/8/2011
Highest Field Vacuum (inches Hg)	10.0	Client	BREC
Critical Orifice ID	.5LPM	Project No.	3648
Orifice Flow Rate (lpm)	0.473	Meter ID	R-20078A

	Run 1	Run 2	Run 3	
Initial Volume (l^3)	0.000	4.676	9.411	
Final Volume (l^3)	4.676	9.411	14.181	
Volume Metered (l^3)	4.676	4.735	4.770	
DGM Temperature (°F)	106	108	112	
Ambient Temperature (°F)	87	88	88	
Elapsed Time (min.)	10.0	10.0	10.0	
Setting (l/min)	0.4	0.4	0.4	
Barometric Pressure (inches Hg)	29.50	29.50	29.50	
Pump Vacuum (inches Hg)	20.0	20.0	20.0	
K'	0.012	0.012	0.012	
Vcr (l^3)	4.285	4.281	4.281	
Vmstd (l^3)	4.303	4.342	4.344	
Post Test Yc	0.99572	0.98589	0.98555	
Full Test Yd	1.0072	1.0072	1.0072	
% Difference	1.14	2.12	2.15	
	Average Difference		1.80	

Method 30B Post-Test Meter Calibration

Average Field Sample Rate (lpm)	0.5	Date	8/8/2011
Highest Field Vacuum (inches Hg)	10.0	Client	BREC
Critical Orifice ID	.5LPM	Project No.	3648
Orifice Flow Rate (lpm)	0.487	Meter ID	R-20078B

	Run 1	Run 2	Run 3	
Initial Volume (l^3)	0.000	4.891	9.779	
Final Volume (l^3)	4.891	9.779	14.623	
Volume Metered (l^3)	4.891	4.888	4.844	
DGM Temperature (°F)	116	116	115	
Ambient Temperature (°F)	87	87	86	
Elapsed Time (min.)	10.0	10.0	10.0	
Setting (l/min)	0.5	0.5	0.5	
Barometric Pressure (inches Hg)	29.50	29.50	29.50	
Pump Vacuum (inches Hg)	18.0	18.0	18.0	
K'	0.012	0.012	0.012	
Vcr (l^3)	4.285	4.285	4.289	
Vmstd (l^3)	4.424	4.422	4.389	
Post Test Yc	0.96853	0.96912	0.97712	
Full Test Yd	0.9985	0.9985	0.9985	
% Difference	3.00	2.94	2.14	
	Average Difference		2.69	

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date 1/25/11
Pitot ID AE5-6-2
Operator EA

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.356	NA
Base To Opening Distance - Pb (inches)	0.356	NA
Pa/Dt	1.42	1.05-1.50
Pb/Dt	1.42	1.05-1.50
Angle α1(°)	2.7	10
Angle α2(°)	2.6	10
Angle B1(°)	4	5
Angle B1(°)	0.6	5
Opening to Opening Distance Pa+Pb (inches)	0.712	NA
Angle Z (°)	0.4	NA
z (inches)	0.0050	0.125
Angle W (°)	0	NA
w (inches)	0.000	0.031

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly Yes
If Yes, Complete the Section Below

Pitot	Measured	Minimum
Distance From Nozzle (inches)	0.75	0.75 in.
Pitot to Thermocouple Distance (inches)	2	2 in.
Pitot to Sample Probe Distance (inches)	6.25	3 in.

Does the Pitot Tube Meet the Above Requirements Yes
Is the Pitot Tube Free of Damage Yes

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned
If No to Either, then the Pitot Tube Must be Calibrated

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date 1/25/11
Pitot ID AE-5-6-4WC
Operator EA

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.329	NA
Base To Opening Distance - Pb (inches)	0.329	NA
Pa/Dt	1.32	1.05-1.50
Pb/Dt	1.32	1.05-1.50
Angle α1(°)	2.3	10
Angle α2(°)	1.7	10
Angle B1(°)	3.9	5
Angle B1(°)	3.5	5
Opening to Opening Distance Pa+Pb (inches)	0.658	NA
Angle Z (°)	2.5	NA
z (inches)	0.0287	0.125
Angle W (°)	0.3	NA
w (inches)	0.003	0.031

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly Yes
If Yes, Complete the Section Below

Pitot	Measured	Minimum
Distance From Nozzle (inches)	0.75	0.75 in.
Pitot to Thermocouple Distance (inches)	2	2 in.
Pitot to Sample Probe Distance (inches)	5	3 in.

Does the Pitot Tube Meet the Above Requirements Yes
Is the Pitot Tube Free of Damage Yes

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned
If No to Either, then the Pitot Tube Must be Calibrated

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date	1/25/11
Pitot ID	AE5-6-11
Operator	EA

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.37	NA
Base To Opening Distance - Pb (inches)	0.37	NA
Pa/Dt	1.48	1.05-1.50
Pb/Dt	1.48	1.05-1.50
Angle α1(°)	0.7	10
Angle α2(°)	1	10
Angle B1(°)	2.2	5
Angle B1(°)	1	5
Opening to Opening Distance Pa+Pb (inches)	0.740	NA
Angle Z (°)	1.3	NA
z (inches)	0.017	0.125
Angle W (°)	0.6	NA
w (inches)	0.008	0.031

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly? Yes

If Yes, Complete the Section Below

Pitot	Measured	Minimum
Distance From Nozzle (inches)	0.75	0.75 in.
Pitot to Thermocouple Distance (inches)	2.5	2 in.
Pitot to Sample Probe Distance (inches)	6.25	3 in.

Does the Pitot Tube Meet the Above Requirements?	Yes
Is the Pitot Tube Free of Damage?	Yes

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned
If No to Either, then the Pitot Tube Must be Calibrated

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date January 26, 2011
Pitot ID AE5-12-3
Operator EA

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.338	NA
Base To Opening Distance - Pb (inches)	0.338	NA
Pa/Dt	1.35	1.05-1.50
Pb/Dt	1.35	1.05-1.50
Angle α1(°)	1.1	10
Angle α2(°)	1.1	10
Angle β1(°)	2.1	5
Angle β2(°)	3.5	5
Opening to Opening Distance Pa+Pb (inches)	0.676	NA
Angle Z (°)	4.3	NA
z (inches)	0.05	0.125
Angle W (°)	0.9	NA
w (inches)	0.01	0.031

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly Yes
If Yes, Complete the Section Below

	Measured	Allowed
Distance From Nozzle,X (inches)	0.75	0.75 in.
Pitot to Thermocouple Distance,W (inches)	2.25	2 in.
Pitot to Sample Probe Distance,Y (inches)	3.500	3 in.

Does the Pitot Tube Meet the Above Requirements **Yes**
Is the Pitot Tube Free of Damage **Yes**

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned
If No to Either, then the Pitot Tube Must be Calibrated

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date	January 17, 2011
Pitot ID	AE5-12-4
Operator	A. Kienitz

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.356	NA
Base To Opening Distance - Pb (inches)	0.356	NA
Pa/Dt	1.424	1.05-1.50
Pb/Dt	1.424	1.05-1.50
Angle, α1(°)	1	10
Angle, α2(°)	0	10
Angle, B1(°)	0	5
Angle, B1(°)	3	5
Opening to Opening Distance Pa+Pb (inches)	0.712	NA
Angle, Z (°)	89	NA
z (inches)	0.030	0.125
Angle, W (°)	90	NA
w (inches)	0.003	0.031
Pitot to Thermocouple Distance,W (inches)	2.50	≥ 2

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly **Yes**

If Yes, Complete the Section Below

Pitot	Measured	Minimum
Distance From Nozzle,X (inches)	0.75	0.75
Pitot to Sample Probe Distance,Y(inches)	4.50	3

Does the Pitot Tube Meet the Above Requirements **Yes**

Is the Pitot Tube Free of Damage **Yes**

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned

If No to Either, then the Pitot Tube Must be Calibrated