PM-10 High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada

General Information

Calibration Date: 06/13/06 12:10

Site Location: AM-1-PM10

Ambient Conditions		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	864	millibars	648.2	mm Hg
Actual Temperature (T_a):	66.52	°F	292.3	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: PM-10

Make/Model: Tisch Environmental TE-6070D

Serial #: Blower 1013 Inlet 0613

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 0.98871 based on actual flow rate (Q_a)

Calibrator Intercept (b_c): -0.00738 based on actual flow rate (Q_a)

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_a (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	1.103	31.5	21.15
Point #2	2.80	1.144	32.5	21.83
Point #3	3.00	1.184	34.0	22.83
Point #4	3.20	1.222	35.5	23.84
Point #5	3.40	1.260	37.0	24.85

Sampler Slope (m_s):	23.891
Sampler Intercept (b_s):	-5.3532
Correlation Coefficient (R):	0.9960
Sampler Flow Rate Set Point (SFR):	1.148
Sampler Chart Set Point (SSP):	32.88

Equations

$Q_a = 1/m_c*(Sqrt(Manometer*T_a/P_a)-b_c)$

$IC = I*Sqrt(T_a/P_a)$

$SFR = 1.13*P_s/P_a*T_a/T_s$

$SSP = (m_s*SFR+b_s)*Sqrt(P_a/T_a)$

Notes

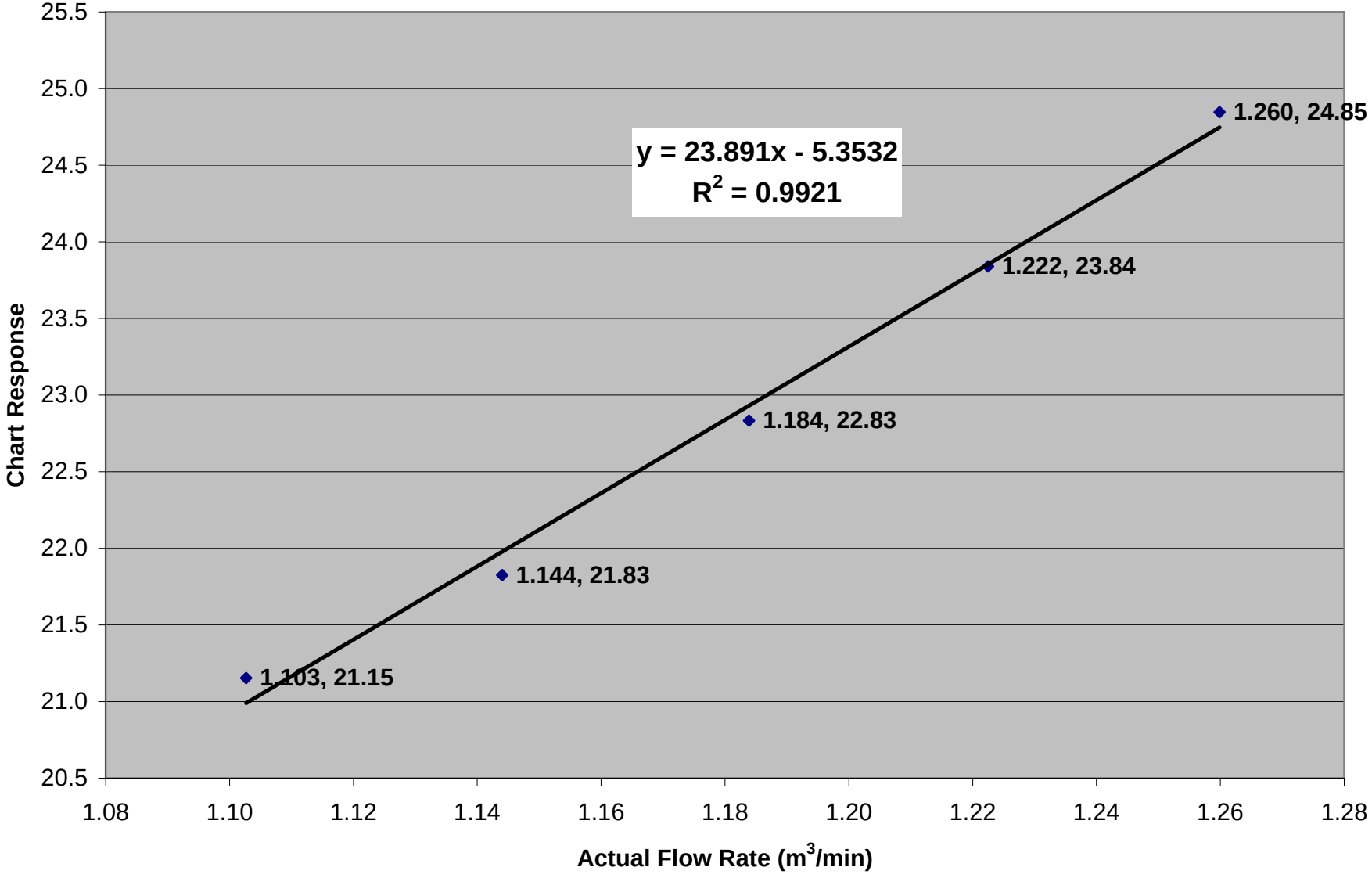
Minimum 5 calibration points required and 3 must be within 1.02 to 1.24 m^3/min.

Correlation coefficient must be greater than 0.990.

X *Joe LaPlante*	*Brown and Caldwell*	*06/13/06*
Field Technician Signature	**Company**	**Date**

AM-1-PM10 High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



PM-10 High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 12:28

Site Location: AM-1-PM10-DUP

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	864	millibars	648.2	mm Hg
Actual Temperature (T_a):	66.55	°F	292.3	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: PM-10

Make/Model: Tisch Environmental TE-6070D

Serial #: Blower 1022 Inlet 0616

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 0.98871 based on actual flow rate (Q_a)

Calibrator Intercept (b_c): -0.00738 based on actual flow rate (Q_a)

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_a (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	1.103	33.5	22.50
Point #2	2.80	1.144	34.5	23.17
Point #3	3.00	1.184	36.0	24.18
Point #4	3.20	1.223	37.0	24.85
Point #5	3.40	1.260	38.0	25.52

Sampler Slope (m_s):	19.662
Sampler Intercept (b_s):	0.7891
Correlation Coefficient (R):	0.9977
Sampler Flow Rate Set Point (SFR):	1.148
Sampler Chart Set Point (SSP):	34.80

Equations

$Q_a = 1/m_c*(Sqrt(Manometer*T_a/P_a)-b_c)$

$IC = I*Sqrt(T_a/P_a)$

$SFR = 1.13*P_s/P_a*T_a/T_s$

$SSP = (m_s*SFR+b_s)*Sqrt(P_a/T_a)$

Notes

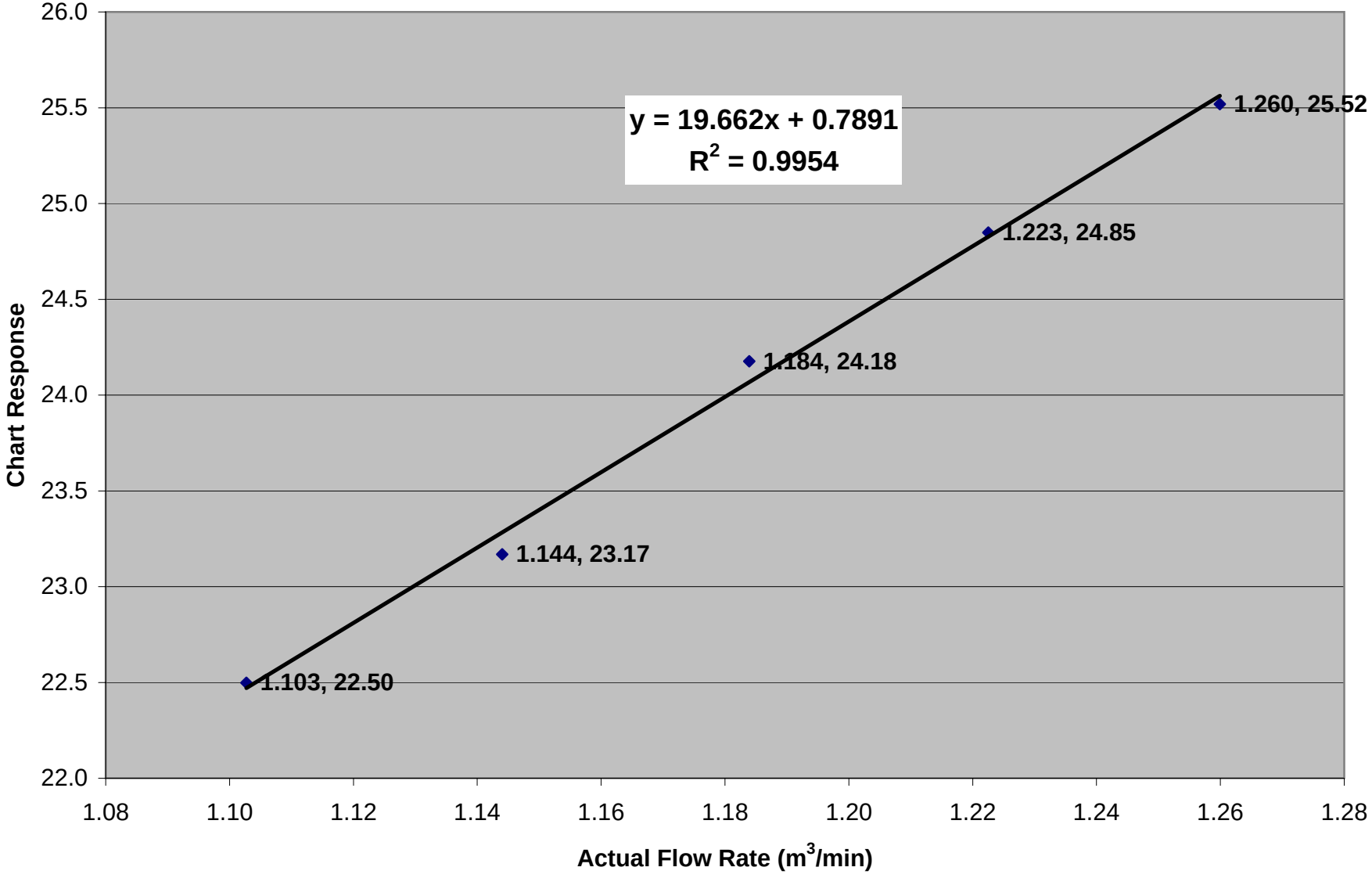
Minimum 5 calibration points required and 3 must be within 1.02 to 1.24 m^3/min.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-1-PM10-DUP High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



TSP High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 12:43

Site Location: AM-1-TSP

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	864	millibars	648.2	mm Hg
Actual Temperature (T_a):	67.76	°F	293.0	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: TSP

Make/Model: Tisch Environmental TE-5170D

Serial #: 1033

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 1.57895 based on standard flow rate (Q_{std})

Calibrator Intercept (b_c): -0.01181 based on standard flow rate (Q_{std})

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_{std} (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	0.959	30.5	28.41
Point #2	2.80	0.994	31.5	29.34
Point #3	3.00	1.029	33.0	30.73
Point #4	3.20	1.063	34.0	31.67
Point #5	3.40	1.095	35.0	32.60

Sampler Slope (m_s):	31.4
Sampler Intercept (b_s):	-1.7311
Correlation Coefficient (R):	0.9977

Equations

$Q_{std} = 1/m_c*(Sqrt(Manometer*P_a/760*298/T_a)-b_c)$

$IC = I*Sqrt(P_a/760*298/T_a)$

Notes

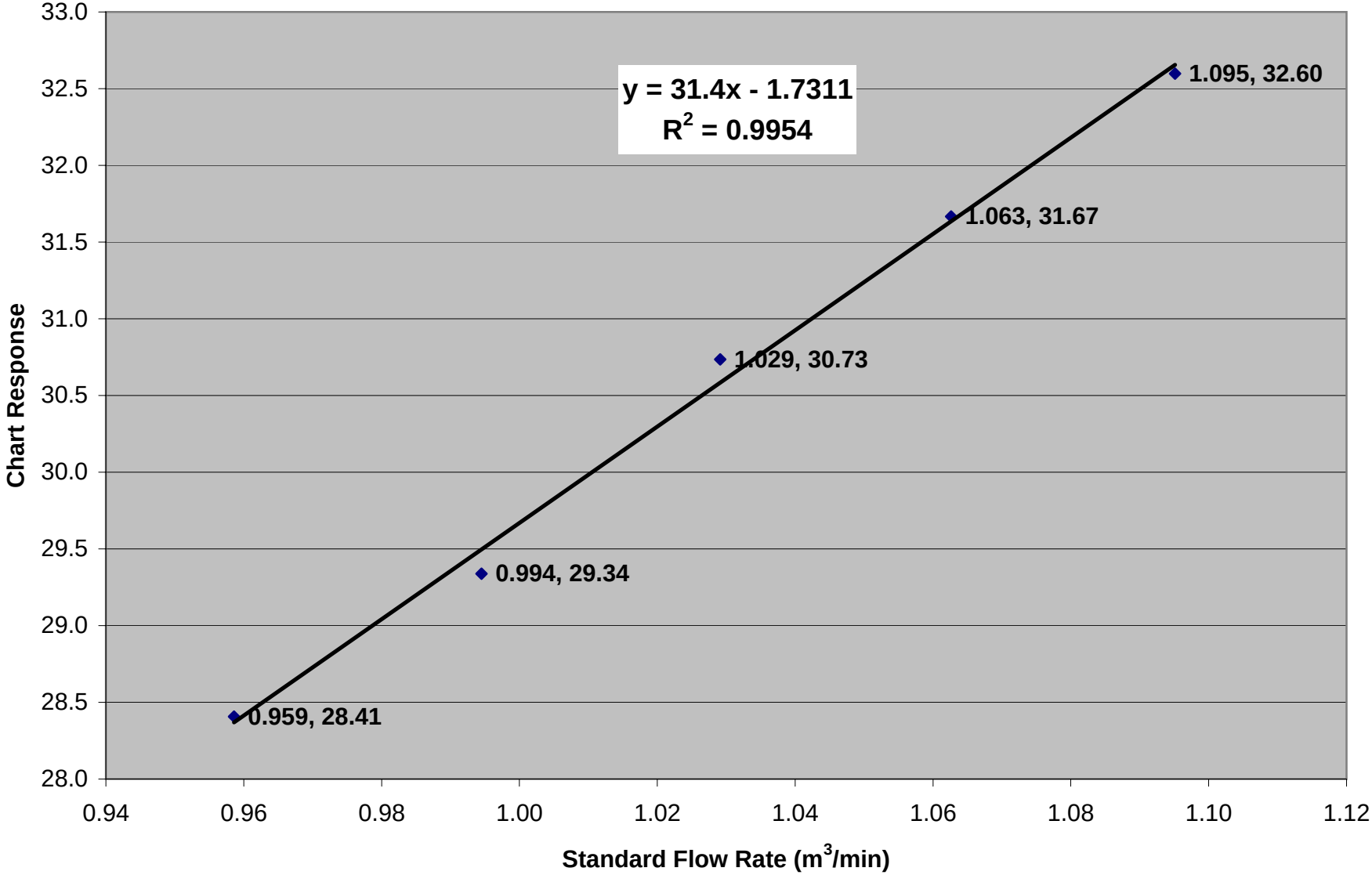
Minimum 5 calibration points required.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-1-TSP High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



PM-10 High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 10:17

Site Location: AM-2-PM10

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	865	millibars	649.0	mm Hg
Actual Temperature (T_a):	66.51	°F	292.3	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: PM-10

Make/Model: Tisch Environmental TE-6070D

Serial #: Blower 1016 Inlet 0617

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 0.98871 based on actual flow rate (Q_a)

Calibrator Intercept (b_c): -0.00738 based on actual flow rate (Q_a)

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_a (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	1.102	34.0	22.82
Point #2	2.80	1.143	35.5	23.83
Point #3	3.00	1.183	36.0	24.16
Point #4	3.20	1.222	37.0	24.83
Point #5	3.40	1.259	38.0	25.50

Sampler Slope (m_s):	16.247
Sampler Intercept (b_s):	5.0264
Correlation Coefficient (R):	0.9912
Sampler Flow Rate Set Point (SFR):	1.147
Sampler Chart Set Point (SSP):	35.26

Equations

$Q_a = 1/m_c*(Sqrt(Manometer*T_a/P_a)-b_c)$

$IC = I*Sqrt(T_a/P_a)$

$SFR = 1.13*P_s/P_a*T_a/T_s$

$SSP = (m_s*SFR+b_s)*Sqrt(P_a/T_a)$

Notes

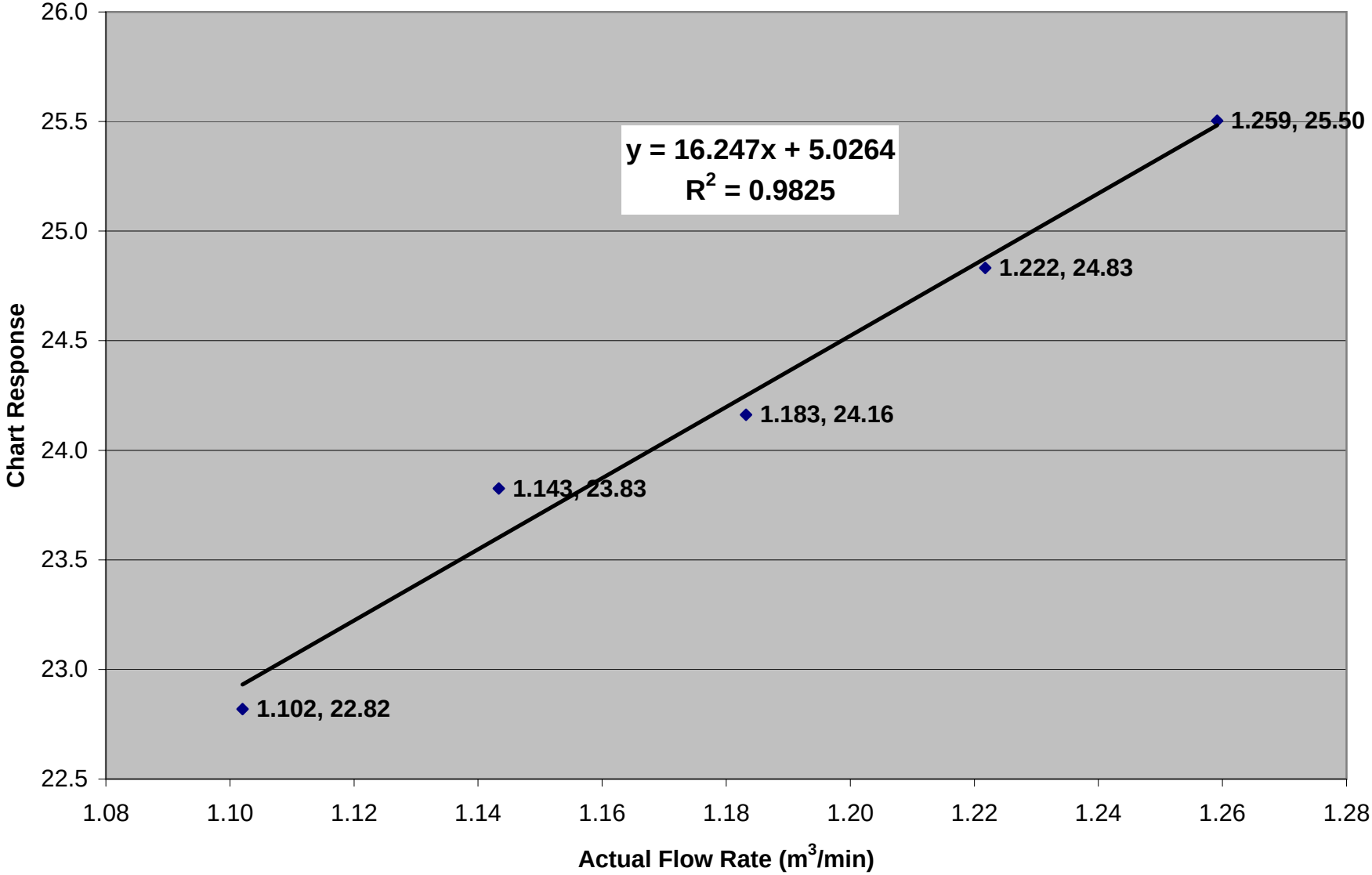
Minimum 5 calibration points required and 3 must be within 1.02 to 1.24 m^3/min.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-2-PM10 High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



TSP High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/14/06 14:20

Site Location: AM-2-TSP

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	868	millibars	651.2	mm Hg
Actual Temperature (T_a):	68.80	°F	293.6	°K
Seasonal Pressure (P_s):	868.88	millibars	651.9	mm Hg
Seasonal Temp. (T_s):	58.39	°F	287.8	°K

High Volume Sampler Information

Type: TSP

Make/Model: Tisch Environmental TE-5170D

Serial #: 1034

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 1.57895 based on standard flow rate (Q_{std})

Calibrator Intercept (b_c): -0.01181 based on standard flow rate (Q_{std})

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_{std} (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	0.960	33.5	31.24
Point #2	2.80	0.996	35.0	32.64
Point #3	3.00	1.030	36.0	33.57
Point #4	3.20	1.064	37.0	34.51
Point #5	3.40	1.097	38.5	35.90

Sampler Slope (m_s): 32.744

Sampler Intercept (b_s): -0.1325

Correlation Coefficient (R): 0.9964

Equations

$Q_{std} = 1/m_c*(Sqrt(Manometer*P_a/760*298/T_a)-b_c)$

$IC = I*Sqrt(P_a/760*298/T_a)$

Notes

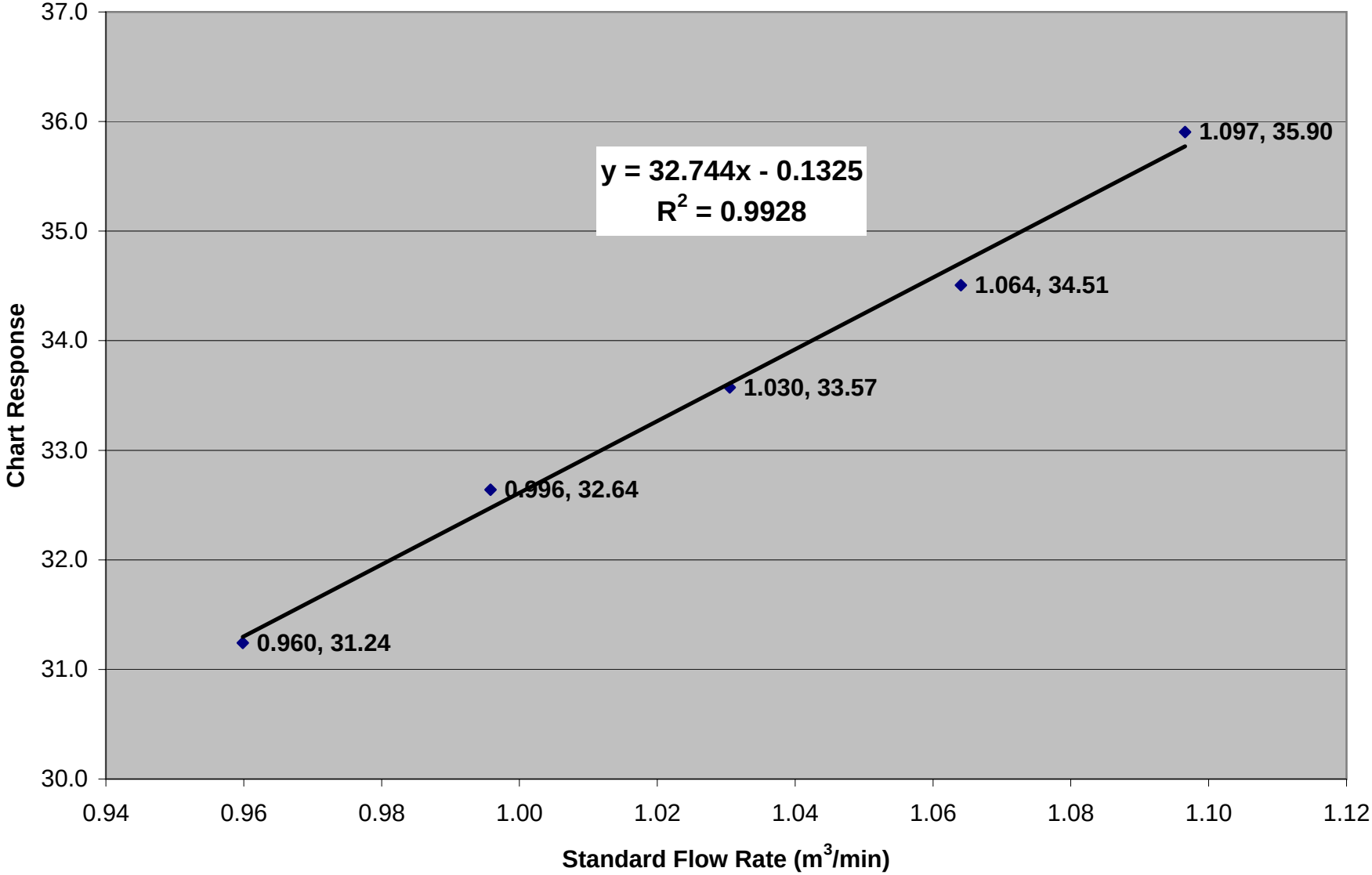
Minimum 5 calibration points required.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/14/06
Field Technician Signature	**Company**	**Date**

AM-2-TSP High Volume Air Sampler Calibration Chart (6/14/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



PM-10 High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 9:01

Site Location: AM-3-PM10

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	865	millibars	649.0	mm Hg
Actual Temperature (T_a):	65.63	°F	291.8	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: PM-10

Make/Model: Tisch Environmental TE-6070D

Serial #: Blower 1018 Inlet 0618

Calibration Orifice

Type:	Variable Resistance Orifice	
Make/Model:	Tisch Environmental TE-5028A	
Rootsmeter Serial #:	9833620	
Orifice Serial #:	0835	
Calibrator Slope (m_c):	0.98871	based on actual flow rate (Q_a)
Calibrator Intercept (b_c):	-0.00738	based on actual flow rate (Q_a)
Date Certified:	11/19/04	

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_a (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	1.101	34.0	22.80
Point #2	2.80	1.142	35.0	23.47
Point #3	3.00	1.182	36.0	24.14
Point #4	3.20	1.221	38.0	25.48
Point #5	3.60	1.294	40.0	26.82

Sampler Slope (m_s):	21.590
Sampler Intercept (b_s):	-1.1087
Correlation Coefficient (R):	0.9925
Sampler Flow Rate Set Point (SFR):	1.145
Sampler Chart Set Point (SSP):	35.21

Equations

$Q_a = 1/m_c*(Sqrt(Manometer*T_a/P_a)-b_c)$

$IC = I*Sqrt(T_a/P_a)$

$SFR = 1.13*P_s/P_a*T_a/T_s$

$SSP = (m_s*SFR+b_s)*Sqrt(P_a/T_a)$

Notes

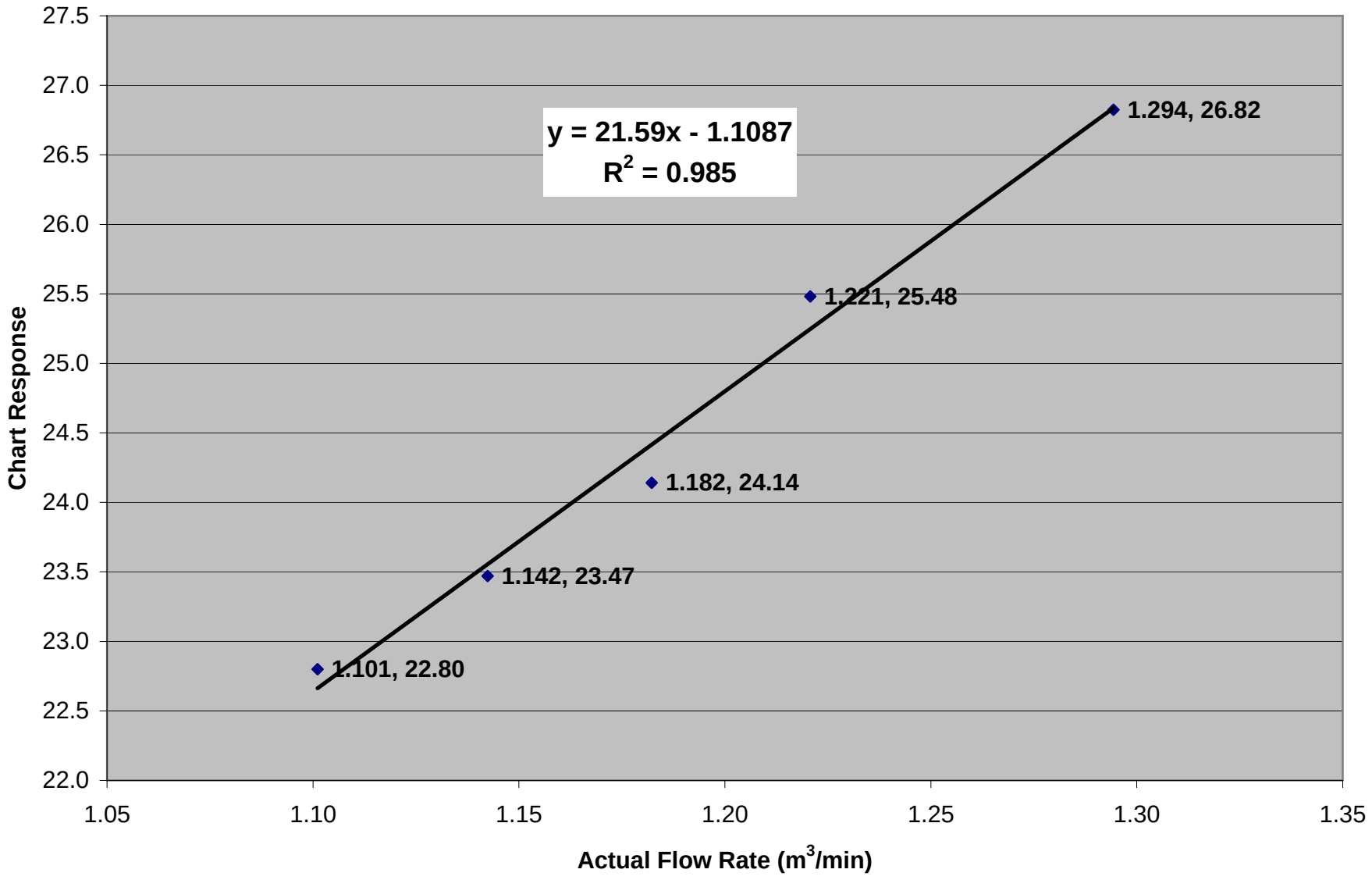
Minimum 5 calibration points required and 3 must be within 1.02 to 1.24 m^3/min.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-3-PM10 High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



TSP High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 9:37

Site Location: AM-3-TSP

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	865	millibars	649.0	mm Hg
Actual Temperature (T_a):	65.69	°F	291.9	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: TSP

Make/Model: Tisch Environmental TE-5170D

Serial #: 1018

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 1.57895 based on standard flow rate (Q_{std})

Calibrator Intercept (b_c): -0.01181 based on standard flow rate (Q_{std})

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_{std} (m^3/min)	I (chart)	IC (corrected)
Point #1	2.40	0.924	34.0	31.75
Point #2	2.60	0.961	35.5	33.15
Point #3	2.80	0.997	36.0	33.61
Point #4	3.00	1.032	37.5	35.01
Point #5	3.20	1.065	38.5	35.95

Sampler Slope (m_s): 28.988

Sampler Intercept (b_s): 5.0301

Correlation Coefficient (R): 0.9917

Equations

$Q_{std} = 1/m_c*(Sqrt(Manometer*P_a/760*298/T_a)-b_c)$

$IC = I*Sqrt(P_a/760*298/T_a)$

Notes

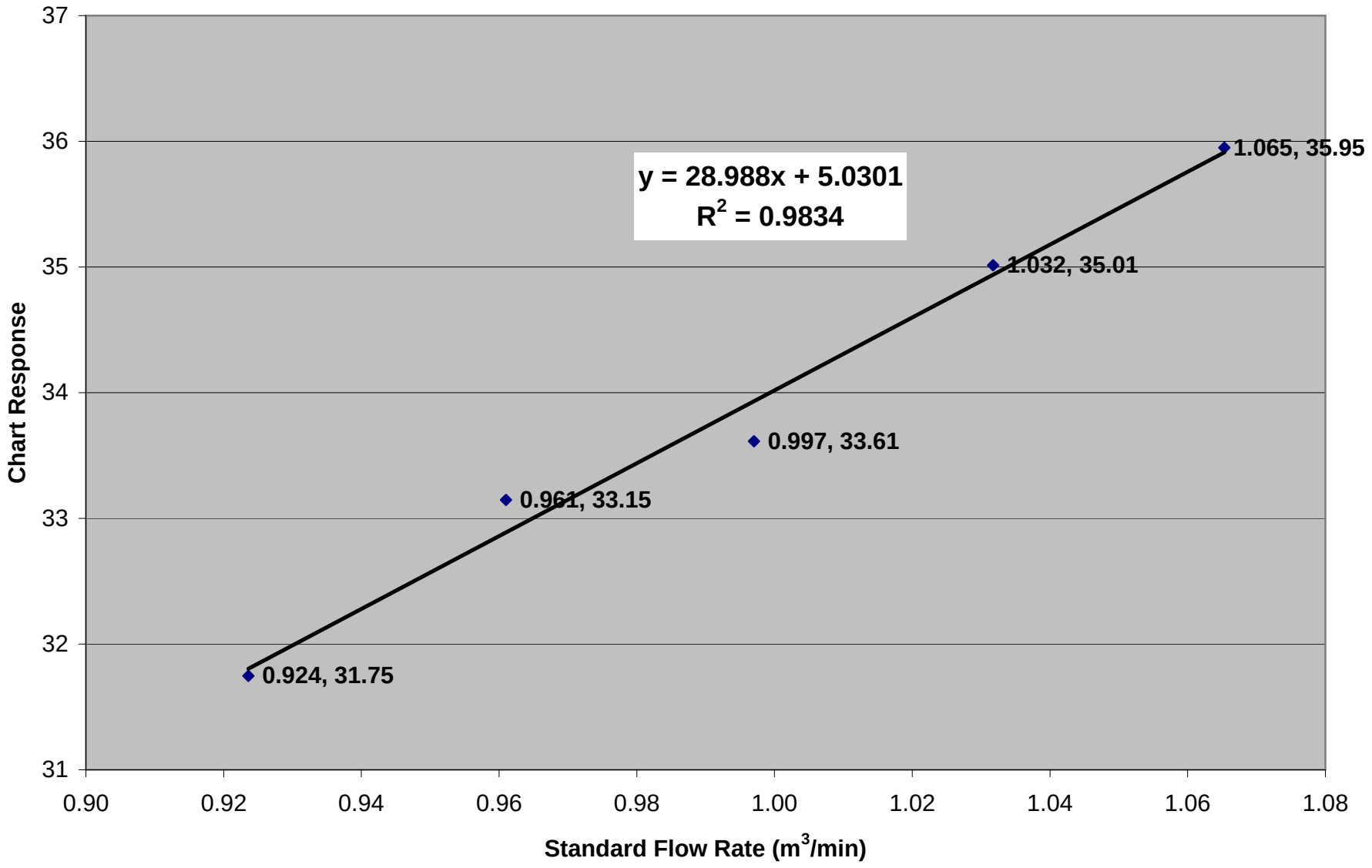
Minimum 5 calibration points required.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-3-TSP High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



PM-10 High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 14:24

Site Location: AM-4-PM10

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	865	millibars	649.0	mm Hg
Actual Temperature (T_a):	63.87	°F	290.9	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: PM-10

Make/Model: Tisch Environmental TE-6070D

Serial #: Blower 1012 Inlet 0619

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 0.98871 based on actual flow rate (Q_a)

Calibrator Intercept (b_c): -0.00738 based on actual flow rate (Q_a)

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_a (m^3/min)	I (chart)	IC (corrected)
Point #1	2.40	1.056	32.0	21.42
Point #2	2.80	1.140	34.5	23.10
Point #3	3.00	1.180	35.5	23.77
Point #4	3.20	1.219	36.5	24.44
Point #5	3.40	1.256	38.5	25.77

Sampler Slope (m_s):	20.783
Sampler Intercept (b_s):	-0.6244
Correlation Coefficient (R):	0.9910
Sampler Flow Rate Set Point (SFR):	1.141
Sampler Chart Set Point (SSP):	34.50

Equations

$Q_a = 1/m_c*(Sqrt(Manometer*T_a/P_a)-b_c)$

$IC = I*Sqrt(T_a/P_a)$

$SFR = 1.13*P_s/P_a*T_a/T_s$

$SSP = (m_s*SFR+b_s)*Sqrt(P_a/T_a)$

Notes

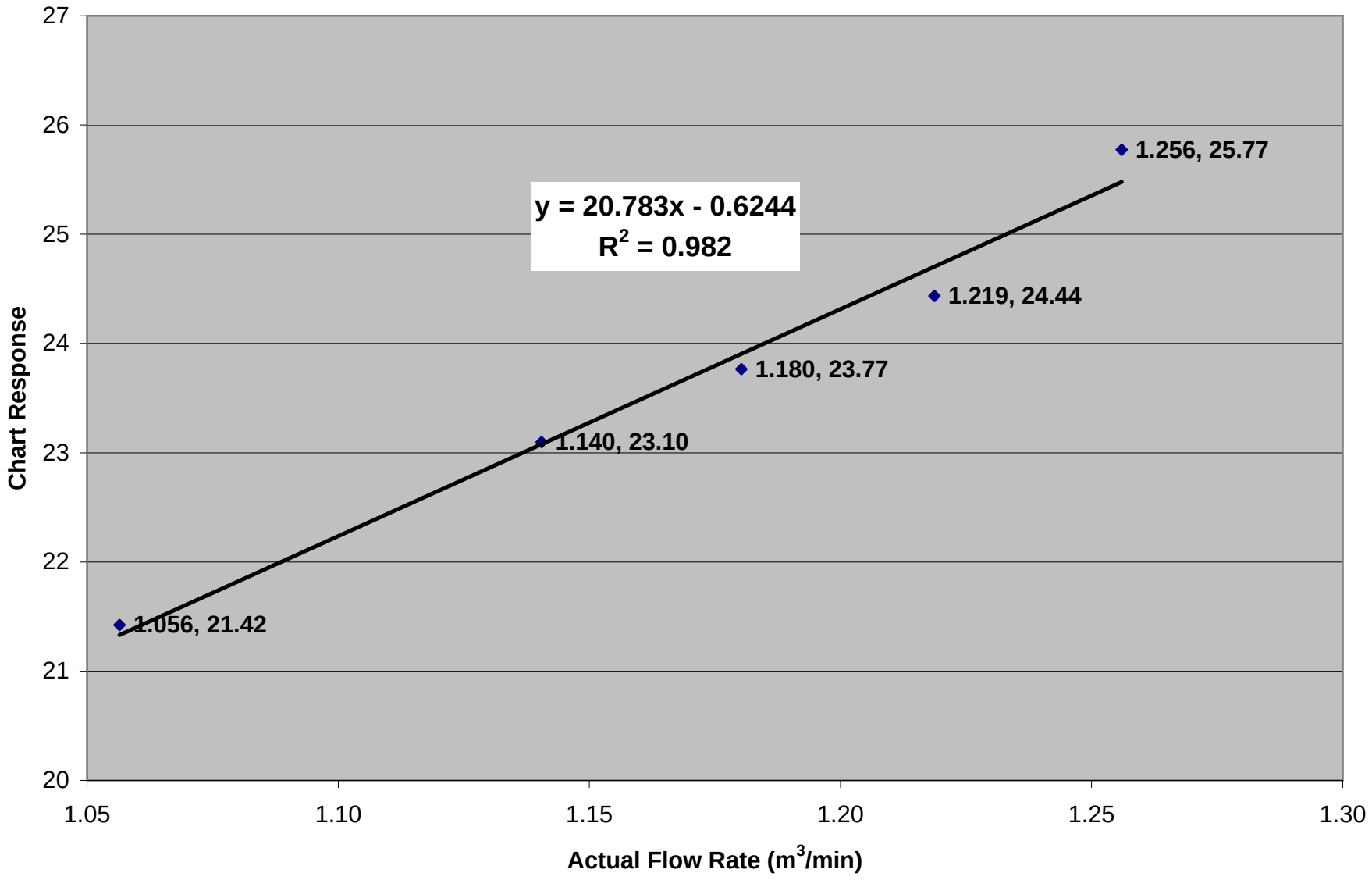
Minimum 5 calibration points required and 3 must be within 1.02 to 1.24 m^3/min.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-4-PM10 High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



TSP High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 14:43

Site Location: AM-4-TSP

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	865	millibars	649.0	mm Hg
Actual Temperature (T_a):	63.13	°F	290.4	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: TSP

Make/Model: Tisch Environmental TE-5170D

Serial #: 1015

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 1.57895 based on standard flow rate (Q_{std})

Calibrator Intercept (b_c): -0.01181 based on standard flow rate (Q_{std})

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_{std} (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	0.963	33.5	31.36
Point #2	2.80	0.999	35.0	32.76
Point #3	3.00	1.034	36.5	34.16
Point #4	3.20	1.068	37.5	35.10
Point #5	3.40	1.101	39.0	36.50

Sampler Slope (m_s): 36.859

Sampler Intercept (b_s): -4.1022

Correlation Coefficient (R): 0.9984

Equations

$Q_{std} = 1/m_c*(Sqrt(Manometer*P_a/760*298/T_a)-b_c)$

$IC = I*Sqrt(P_a/760*298/T_a)$

Notes

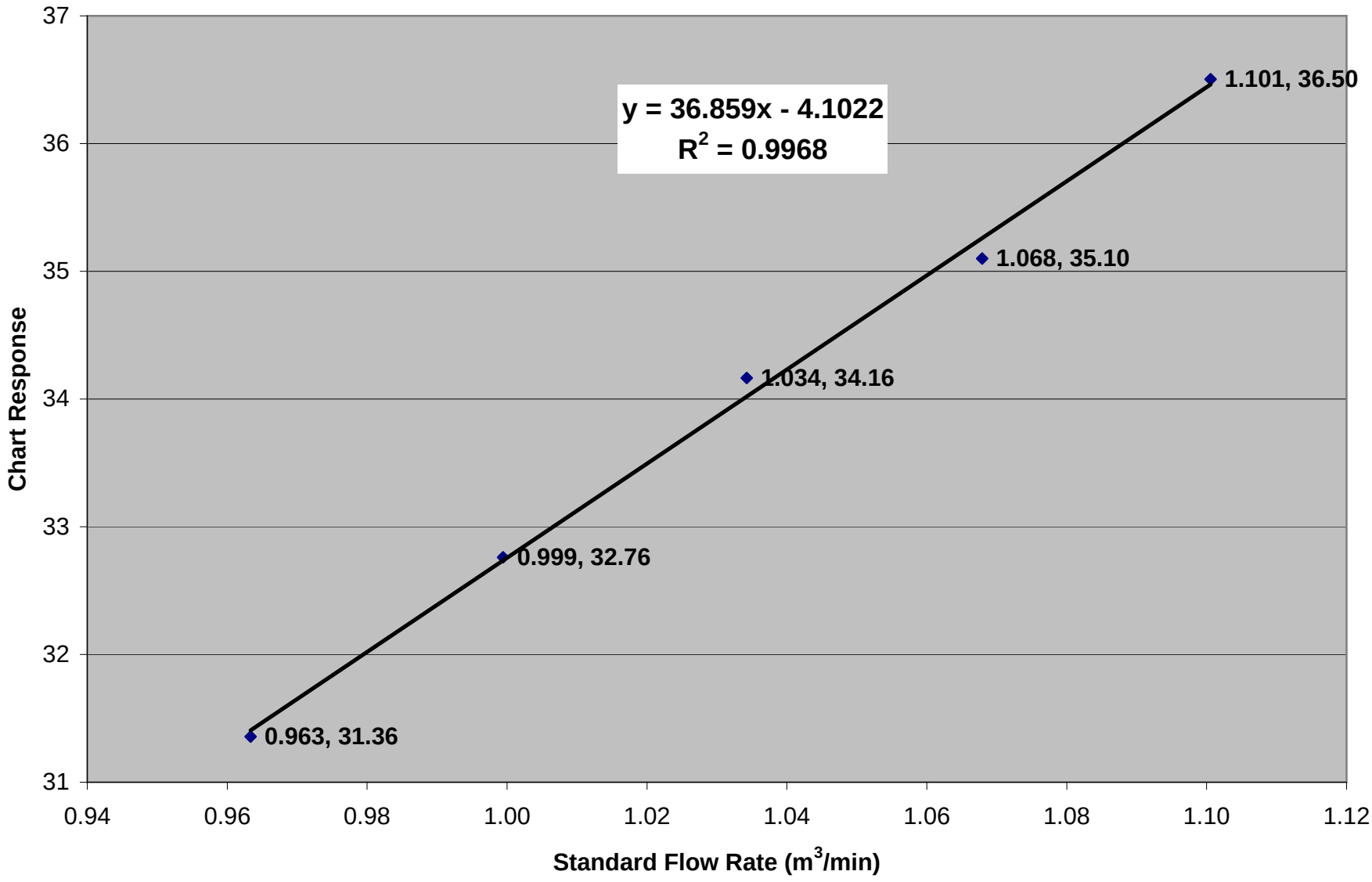
Minimum 5 calibration points required.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-4-TSP High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



PM-10 High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/14/06 8:19

Site Location: AM-5-PM10

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	871	millibars	653.5	mm Hg
Actual Temperature (T_a):	58.18	°F	287.7	°K
Seasonal Pressure (P_s):	868.88	millibars	651.9	mm Hg
Seasonal Temp. (T_s):	58.39	°F	287.8	°K

High Volume Sampler Information

Type: PM-10

Make/Model: Tisch Environmental TE-6070D

Serial #: Blower 1019 Inlet 0614

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 0.98871 based on actual flow rate (Q_a)

Calibrator Intercept (b_c): -0.00738 based on actual flow rate (Q_a)

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_a (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	1.090	33.0	21.90
Point #2	2.80	1.130	34.0	22.56
Point #3	3.00	1.170	35.5	23.55
Point #4	3.20	1.208	37.0	24.55
Point #5	3.40	1.245	38.0	25.21

Sampler Slope (m_s):	22.210
Sampler Intercept (b_s):	-2.3987
Correlation Coefficient (R):	0.9968
Sampler Flow Rate Set Point (SFR):	1.127
Sampler Chart Set Point (SSP):	34.10

Equations

$Q_a = 1/m_c*(Sqrt(Manometer*T_a/P_a)-b_c)$

$IC = I*Sqrt(T_a/P_a)$

$SFR = 1.13*P_s/P_a*T_a/T_s$

$SSP = (m_s*SFR+b_s)*Sqrt(P_a/T_a)$

Notes

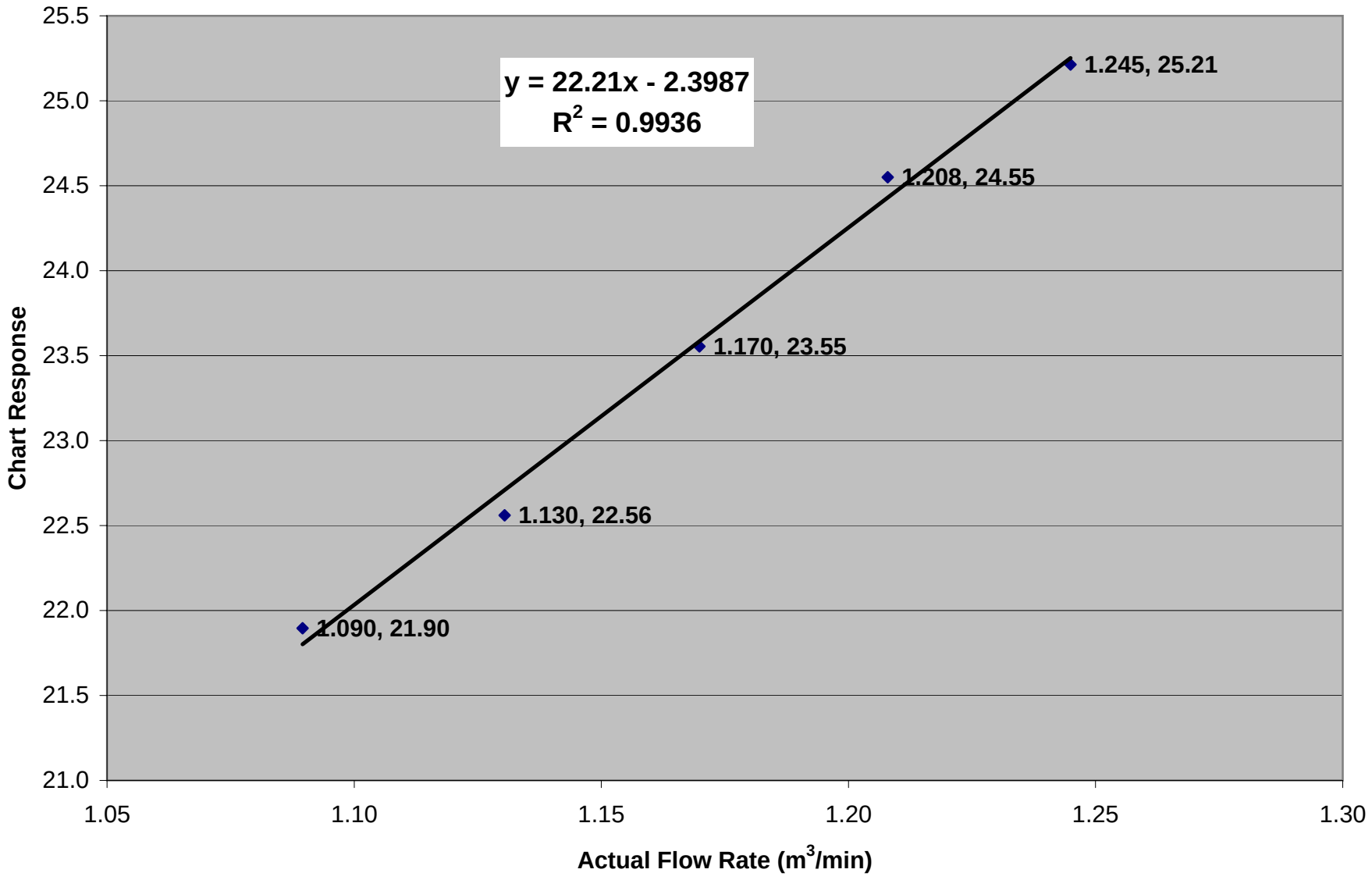
Minimum 5 calibration points required and 3 must be within 1.02 to 1.24 m^3/min.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/14/06
Field Technician Signature	**Company**	**Date**

AM-5-PM10 High Volume Air Sampler Calibration Chart (6/14/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



TSP High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/14/06 8:40

Site Location: AM-5-TSP

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	871	millibars	653.5	mm Hg
Actual Temperature (T_a):	58.27	°F	287.7	°K
Seasonal Pressure (P_s):	868.88	millibars	651.9	mm Hg
Seasonal Temp. (T_s):	58.39	°F	287.8	°K

High Volume Sampler Information

Type: TSP

Make/Model: Tisch Environmental TE-5170D

Serial #: 1017

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 1.57895 based on standard flow rate (Q_{std})

Calibrator Intercept (b_c): -0.01181 based on standard flow rate (Q_{std})

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_{std} (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	0.971	33.5	31.61
Point #2	2.80	1.008	34.5	32.56
Point #3	3.00	1.043	35.5	33.50
Point #4	3.20	1.077	37.0	34.91
Point #5	3.40	1.109	38.5	36.33

Sampler Slope (m_s): 34.038

Sampler Intercept (b_s): -1.6675

Correlation Coefficient (R): 0.9923

Equations

$Q_{std} = 1/m_c*(Sqrt(Manometer*P_a/760*298/T_a)-b_c)$

$IC = I*Sqrt(P_a/760*298/T_a)$

Notes

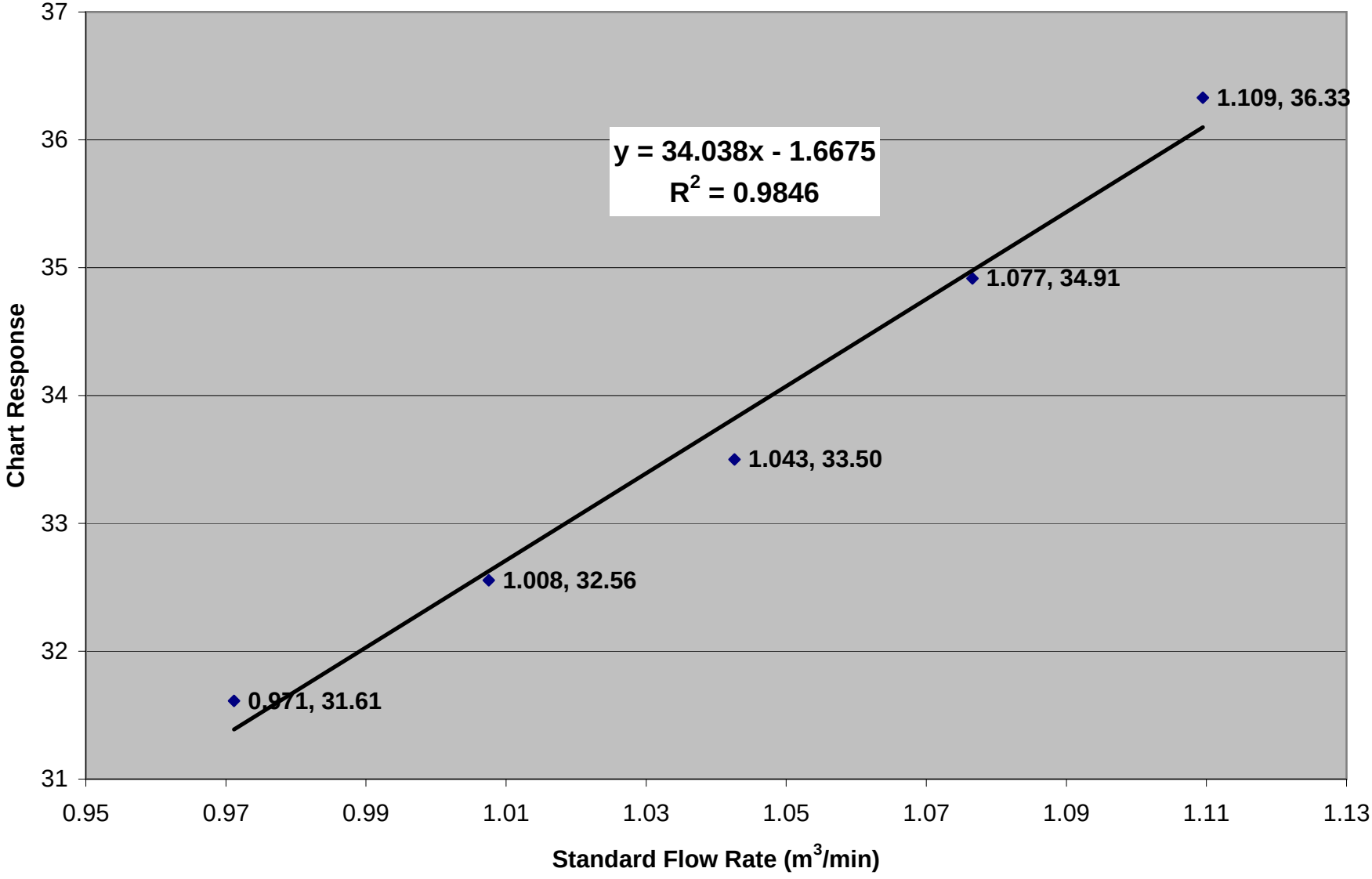
Minimum 5 calibration points required.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/14/06
Field Technician Signature	**Company**	**Date**

AM-5-TSP High Volume Air Sampler Calibration Chart (6/14/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



PM-10 High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada

General Information

Calibration Date: 06/13/06 15:11

Site Location: AM-6-PM10

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	865	millibars	649.0	mm Hg
Actual Temperature (T_a):	64.50	°F	291.2	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: PM-10

Make/Model: Tisch Environmental TE-6070D

Serial #: Blower 1013 Inlet 0613

Calibration Orifice

Type:	Variable Resistance Orifice	
Make/Model:	Tisch Environmental TE-5028A	
Rootsmeter Serial #:	9833620	
Orifice Serial #:	0835	
Calibrator Slope (m_c):	0.98871	based on actual flow rate (Q_a)
Calibrator Intercept (b_c):	-0.00738	based on actual flow rate (Q_a)
Date Certified:	11/19/04	

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_a (m^3/min)	I (chart)	IC (corrected)
Point #1	2.40	1.057	31.5	21.10
Point #2	2.60	1.100	32.5	21.77
Point #3	3.00	1.181	34.5	23.11
Point #4	3.20	1.219	36.5	24.45
Point #5	3.40	1.257	37.5	25.12

Sampler Slope (m_s):	20.417
Sampler Intercept (b_s):	-0.6314
Correlation Coefficient (R):	0.9912
Sampler Flow Rate Set Point (SFR):	1.143
Sampler Chart Set Point (SSP):	33.88

Equations

$Q_a = 1/m_c*(Sqrt(Manometer*T_a/P_a)-b_c)$

$IC = I*Sqrt(T_a/P_a)$

$SFR = 1.13*P_s/P_a*T_a/T_s$

$SSP = (m_s*SFR+b_s)*Sqrt(P_a/T_a)$

Notes

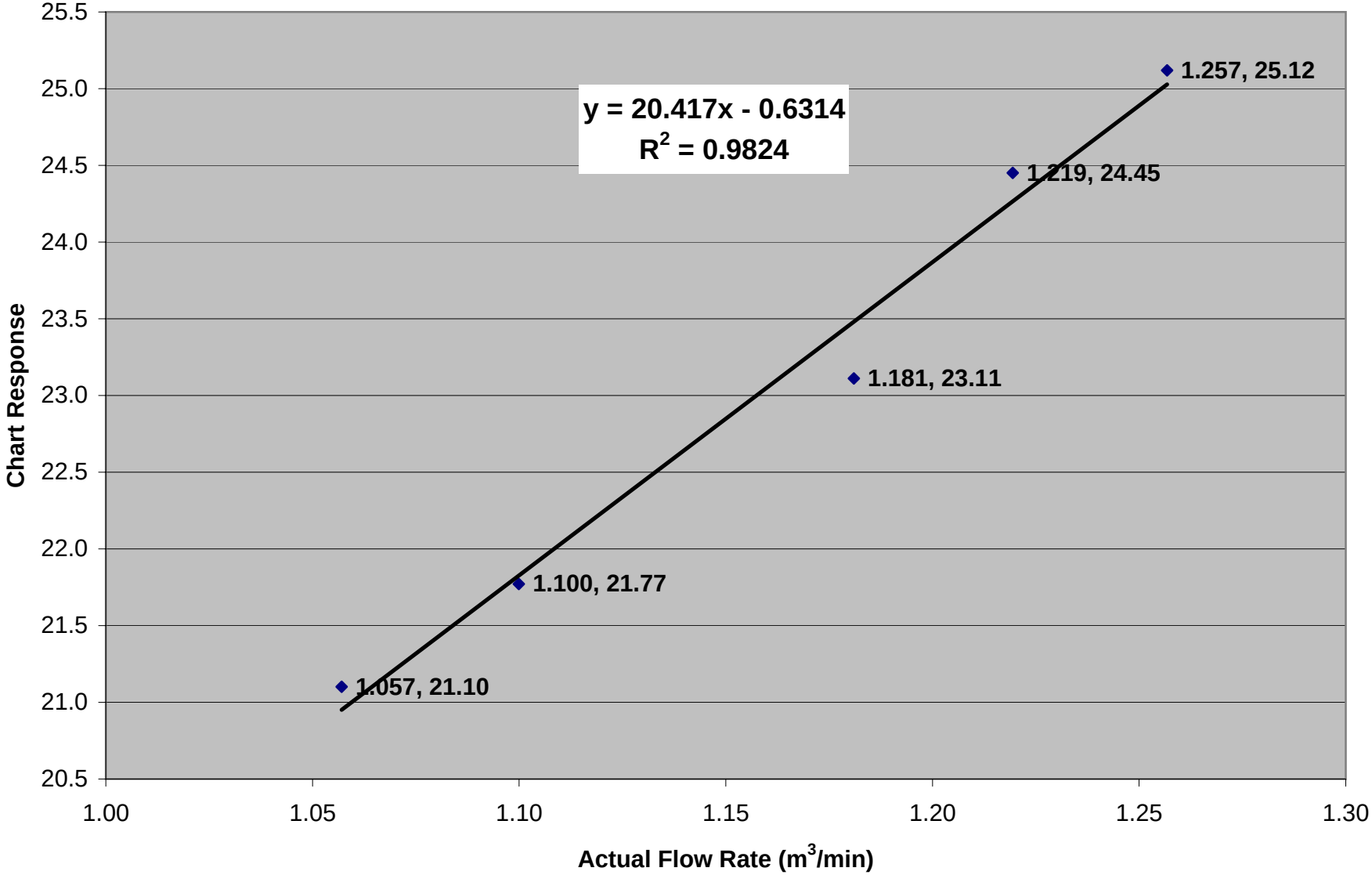
Minimum 5 calibration points required and 3 must be within 1.02 to 1.24 m^3/min.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-6-PM10 High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada



TSP High Volume Air Sampler Calibration Data Sheet

Air Quality Monitoring Program, Yerington Mine, Yerington Nevada

General Information

Calibration Date: 06/13/06 15:39

Site Location: AM-6-TSP

Ambient Conditions

		Field Equipment Units		Calculation Required Units
Actual Pressure (P_a):	865	millibars	649.0	mm Hg
Actual Temperature (T_a):	64.30	°F	291.1	°K
Seasonal Pressure (P_s):	866.07	millibars	649.8	mm Hg
Seasonal Temp. (T_s):	59.35	°F	288.3	°K

High Volume Sampler Information

Type: TSP

Make/Model: Tisch Environmental TE-5170D

Serial #: 1021

Calibration Orifice

Type: Variable Resistance Orifice

Make/Model: Tisch Environmental TE-5028A

Rootsmeter Serial #: 9833620

Orifice Serial #: 0835

Calibrator Slope (m_c): 1.57895 based on standard flow rate (Q_{std})

Calibrator Intercept (b_c): -0.01181 based on standard flow rate (Q_{std})

Date Certified: 11/19/04

Calibration Measurements and Calculations

	Manometer (in H_2O)	Q_{std} (m^3/min)	I (chart)	IC (corrected)
Point #1	2.60	0.962	33.5	31.32
Point #2	2.80	0.998	34.5	32.26
Point #3	3.00	1.033	35.5	33.19
Point #4	3.20	1.067	36.5	34.13
Point #5	3.40	1.099	38.0	35.53

Sampler Slope (m_s): 29.969

Sampler Intercept (b_s): 2.3577

Correlation Coefficient (R): 0.9942

Equations

$Q_{std} = 1/m_c*(Sqrt(Manometer*P_a/760*298/T_a)-b_c)$

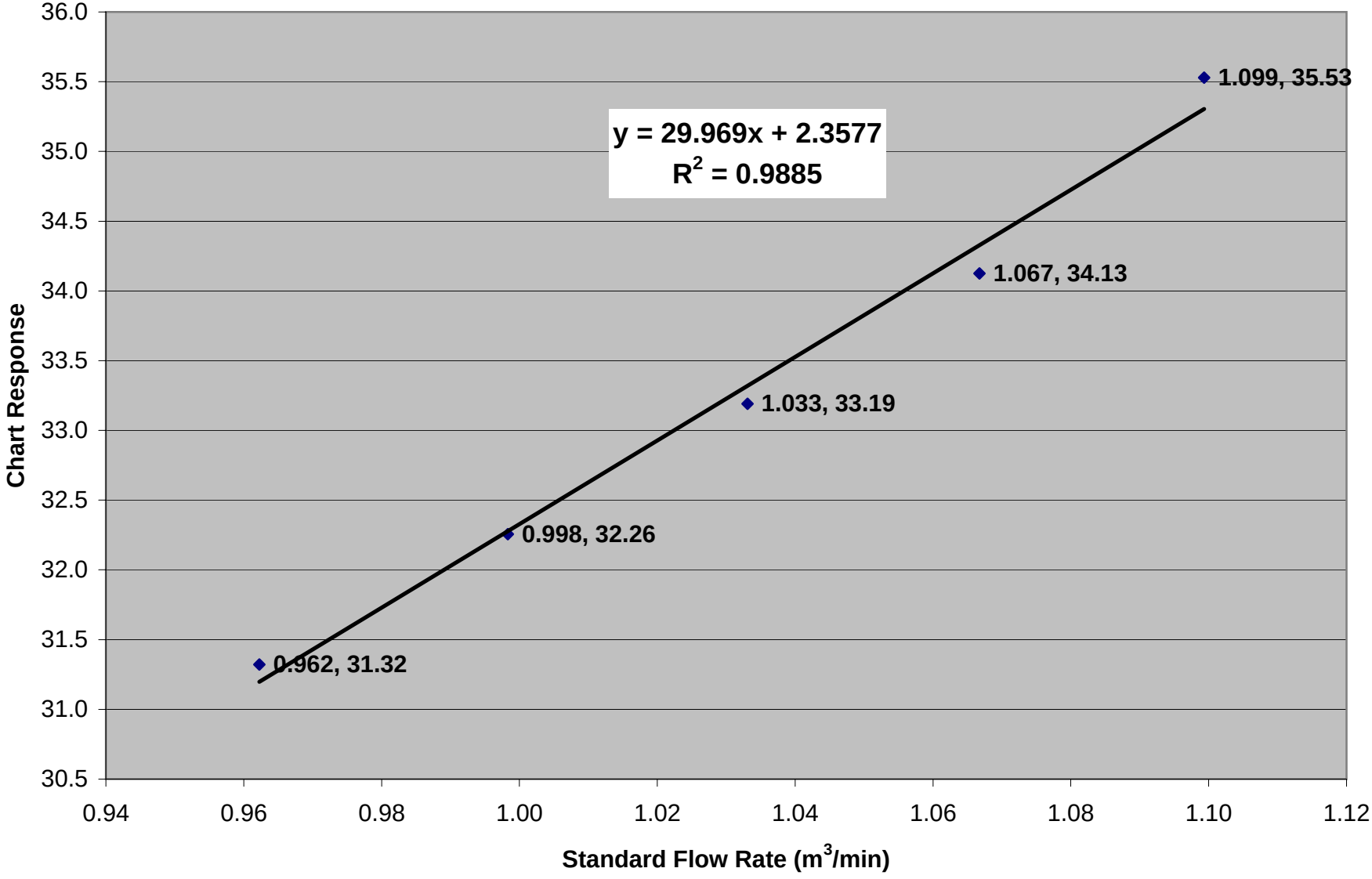
$IC = I*Sqrt(P_a/760*298/T_a)$

Notes

Minimum 5 calibration points required.

Correlation coefficient must be greater than 0.990.

X Joe LaPlante	Brown and Caldwell	06/13/06
Field Technician Signature	**Company**	**Date**

AM-6-TSP High Volume Air Sampler Calibration Chart (6/13/06)

Air Quality Monitoring Program, Yerington Mine, Yerington, Nevada