APPENDIX A

Nomenclature and Equations

for

Calculation of Source Emissions

METCO ENVIRONMENTAL

NOMENCLATURE FOR PARTICULATE CALCULATIONS

Symbol	English Units	Metric Units	Description
A_s	$in.^2$	m^2	Stack Area
C_{an}	gr/dscf*	g/dscm*	Particulate - probe, cyclone, and filter
C_{ao}	gr/dscf*	g/dscm*	Particulate - total
C_{at}	gr/CF @ stack conditions	g/m^3	Particulate - probe, cyclone, and filter
C_{au}	gr/CF @ stack conditions	g/m^3	Particulate - total
C_{aw}	lbs/hr	kg/hr	Particulate - probe, cyclone, and filter
C_{ax}	lbs/hr	kg/hr	Particulate - total
C_p			Pitot Tube Calibration Factor
D_n	in.	m	Sampling Nozzle Diameter
%EA			Percent Excess Air at sampling point
g	32.174 ft/sec^2		Acceleration of Gravity
%I			Percent Isokinetic
%M			Percent Moisture in the stack gas by volume
M_d			Mole fraction of dry gas

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

Symbol	English Units	Metric Units	Description
m_f	mg	mg	Particulate - probe, cyclone, and filter
M_{water}	18 lb/lb-mole		Molecular Weight of water
m_t	mg	mg	Particulate - total
MW	lb/lb-mole	g/g-mole	Molecular Weight of stack gas
MW_{air}	28.96 lb/ lb-mole		Molecular Weight of air
MW_d	lb/lb-mole	g/g-mole	Molecular Weight of dry stack gas
P_b	"Hg Absolute	mm Hg	Barometric Pressure
P_m	"H_2O	mm H_2O	Orifice Pressure drop
P_s	"Hg Absolute	mm Hg	Stack Pressure
ΔP	"H_2O	mm H_2O	Velocity Head of stack gas
P_{std}	29.92 "Hg	760 mm Hg	Standard Barometric Pressure
Q_a	ACFM	m^3/hr	Stack Gas Volume at actual stack conditions
Q_s	DSCFM*	dscm/hr*	Stack Gas Volume at 29.92 "Hg, 528°R, dry
R	21.83 "Hg-ft^3/lb-mole°R		Universal Gas Constant
T_m	°F	°C	Average Gas Meter Temperature

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

Symbol	English Units	Metric Units	Description
T_t	min	min	Net time of test
T_s	°F	°C	Stack Temperature
T_{std}	528°R	293°K	Standard Temperature
V_m	ft^3	m^3	Volume of dry gas sampled @ meter conditions
Vm_{std}	dscf*	dscm*	Volume of dry gas sampled @ standard conditions
V_s	fpm	m/sec	Stack velocity @ stack conditions
V_w	ml	ml	Total water collected in impingers and silica gel
Vw_{gas}	scf*	scm*	Volume of water vapor collected @ standard conditions
ρ_{air}	0.0752 lbs/ft^3		Density of Air
ρ_{water}	1 g/ml		Density of Water
ρ_{man}	62.32 lbs/ft^3		Density of Manometer Oil

Standard Conditions: 29.92 "Hg, 68°F (760 mm Hg, 20°C)

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

METCO ENVIRONMENTAL

EXAMPLE CALCULATIONS

1. Volume of dry gas sampled at standard conditions.*

$$Vm_{std} = Vm \left(\frac{T_{std}}{T_m + 460} \right) \left[\frac{P_b + \frac{P_m}{13.6}}{P_{std}} \right]$$

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \right] = dscf$$

$$Vm_{std} = dscf \times 0.028317 = dscm$$

2. Volume of water vapor collected at standard conditions.*

$$Vw_{gas} = \frac{(V_w - gms\ SO_2 - gms\ H_2S)\ \rho_{water}\ R\ T_{std}}{P_{std}\ M_{water}\ 453.6}$$

$$Vw_{gas} = 0.0472\ (V_w - gms\ SO_2 - gms\ H_2S) = scf$$

$$Vw_{gas} = scf \times 0.028317 = scm$$

3. Percent moisture in stack gas.

$$\%M = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \%$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

4. Mole fraction of dry gas.

$$M_d = \frac{100 - \%M}{100}$$

5. Average molecular weight of dry stack gas.

$$MW_d = \left[\%CO_2 \times \frac{44}{100}\right] + \left[\%O_2 \times \frac{32}{100}\right] + \left[\%N_2 \times \frac{28}{100}\right] + \left[\%CO \times \frac{28}{100}\right] = lb/lb\text{-}mole$$

$$= g/g\text{-}mole$$

6. Molecular weight of stack gas.

$$MW = MW_d \times M_d + 18\ (1-M_d) = \frac{lb}{lb\text{-}mole} = g/g\text{-}mole$$

7. Percent excess air at sampling point.

$$\%EA = \frac{100\ [\%O_2 - (0.5\ \%CO)]}{0.265\ (\%N_2) - [\%O_2 - (0.5\ \%CO)]}$$

8. Stack Pressure.

$$P_s = P_b + \frac{Stack\ Pressure\ "H_2O}{13.6} = "Hg\ Absolute$$

$$P_s = "Hg\ Abs. \times 25.4 = mm\ Hg$$

9. Stack velocity at stack conditions.

$$V_s = C_p\ 60 \left[\frac{2g \times \rho_{man} \times P_{std} \times MW_{air} \times (T_s + 460) \times \Delta P_s}{12 \times \rho_{air} \times P_s \times MW \times T_{std}} \right]^{1/2}$$

$$V_s = 5{,}123.8\ C_p \left[\frac{(T_s + 460)}{P_s \times MW} \right]^{1/2} \sqrt{\Delta P}\ average = fpm$$

$$V_s = fpm \times 0.00508 = m/sec$$

10. Dry stack gas volume at standard conditions.*

$$Q_s = \frac{1}{144}\ V_s \times A_s \times M_d \times \frac{T_{std}}{T_s + 460} \times \frac{P_s}{P_{std}}$$

$$Q_s = \frac{0.123\ V_s \times A_s \times M_d \times P_s}{T_s + 460} = DSCFM$$

$$Q_s = DSCFM \times 1.6990 = dscm/hr$$

11. Actual stack gas volume at stack conditions.

$$Q_a = \frac{V_s \times A_s}{144} = ACFM$$

$$Q_a = ACFM \times 1.6990 = m^3/hr$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

12. Percent isokinetic.

$$\%I = \frac{Vm_{std} \times (T_s + 460) \times P_{std} \times 100 \times 144\ in^2/ft^2}{M_d \times T_{std} \times P_s \times T_t \times V_s \left(\frac{\pi \times D_n^2}{4}\right)}$$

$$\%I = \frac{1039 \times Vm_{std} \times (T_s + 460)}{M_d \times P_s \times T_t \times V_s \times D_n^2}$$

13. Particulate - probe, cyclone, and filter.

$$C_{an} = \frac{m_f}{Vm_{std}} \times \frac{1\ gr}{64.8\ mg}$$

$$C_{an} = 0.0154 \times \frac{m_f}{Vm_{std}} = gr/dscf*$$

$$C_{an} = gr/dscf \times 2.290 = g/dscm*$$

14. Particulate total.

$$C_{ao} = 0.0154 \times \frac{m_t}{Vm_{std}} = gr/dscf*$$

$$C_{ao} = gr/dscf \times 2.290 = g/dscm*$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

15. Particulate - probe, cyclone, and filter at stack conditions.

$$C_{at} = C_{an} \times \frac{P_s}{P_{std}} \times \frac{(T_{std})}{(T_s + 460)} \times M_d$$

$$C_{at} = \frac{17.65 \times C_{an} \times P_s \times M_d}{T_s + 460} = gr/CF$$

$$C_{at} = gr/CF \times 2.290 = g/m^3$$

16. Particulate - total, at stack conditions.

$$C_{au} = \frac{17.65 \times C_{ao} \times P_s \times M_d}{T_s + 460} = gr/CF$$

$$C_{au} = gr/CF \times 2.290 = g/m^3$$

17. Particulate - probe, cyclone, and filter.

$$C_{aw} = C_{an} \times Q_s \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{1 \text{ lb}}{7000 \text{ gr}}$$

$$C_{aw} = 0.00857 \times C_{an} \times Q_s = lbs/hr$$

$$C_{aw} = lbs/hr \times 0.4536 = kg/hr$$

18. Particulate - total.

$$C_{ax} = 0.00857 \times C_{ao} \times Q_s = lbs/hr$$

$$C_{ax} = lbs/hr \times 0.4536 = kg/hr$$

19. Mercury – ug/dscm

ug/dscm = ug ÷ (Vm_{std} x 0.028317m^3/ft^3)

20. Mercury – lbs/10^{12} Btu

lbs/10^{12} Btu = ug ÷ Vm_{std} x (2.205 x 10^{-9} lbs/ug) x F_d x [20.9 ÷ (20.9 – O_2)] x (1.0 x 10^6)

F_d = Oxygen based F factor of 9,780 dscf*/million Btu

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	99-186
JOB NAME:	TEXAS-NEW MEXICO POWER COMPANY
LOCATION:	BREMOND, TEXAS
UNIT TESTED:	TNP ONE - UNIT NUMBER 2 BAGHOUSE INLET DUCT

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			10/07/99	10/07/99	10/08/99
BEGIN TIME			1240	1647	0736
END TIME			1517	2000	1010
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.28 (744)	29.17 (741)	29.28 (744)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.595 (15.1)	0.694 (17.6)	0.572 (14.5)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	55.941 (1.584)	57.737 (1.635)	54.372 (1.540)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	88 (31)	93 (34)	76 (24)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	52.834 (1.496)	53.848 (1.525)	52.499 (1.487)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	202.4	172.9	197.5
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	9.553 (0.271)	8.161 (0.231)	9.322 (0.264)
%M	MOISTURE IN STACK GAS BY VOLUME	%	15.31	13.16	15.08

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

TEXAS-NEW MEXICO POWER COMPANY
BREMOND, TEXAS
TNP ONE - UNIT NUMBER 2 BAGHOUSE INLET DUCT

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.8469	0.8684	0.8492
CO2		%	14.6	14.2	15.3
O2		%	5.2	5.4	4.4
CO		%	0.0	0.0	0.0
N2		%	80.2	80.4	80.3
%EA	EXCESS AIR @ SAMPLING POINT	%	32.4	33.9	26.1
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	30.54 (30.54)	30.49 (30.49)	30.62 (30.62)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.62 (28.62)	28.84 (28.84)	28.72 (28.72)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.720 (18.3)	0.834 (21.2)	0.789 (20.0)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	363 (184)	358 (181)	351 (177)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	27.81 (706)	27.66 (703)	27.81 (706)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	3,452 (17.54)	3,761 (19.11)	3,604 (18.31)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	14,691 (9.48)	14,691 (9.48)	14,691 (9.48)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	178,509 (303,287)	199,562 (339,056)	189,641 (322,200)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	352,185 (598,362)	383,652 (651,825)	367,726 (624,766)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

TEXAS-NEW MEXICO POWER COMPANY
BREMOND, TEXAS
TNP ONE - UNIT NUMBER 2 BAGHOUSE INLET DUCT

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	135	135	135
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.200 (0.005)	0.200 (0.005)	0.200 (0.005)
%I	PERCENT ISOKINETIC	%	102.9	93.8	96.2
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----	----
Mt	PARTICULATE - TOTAL	mg	----	----	----
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----	----
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----	----
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----	----
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----	----
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----	----
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	99-186
JOB NAME:	TEXAS-NEW MEXICO POWER COMPANY
LOCATION:	BREMOND, TEXAS
UNIT TESTED:	TNP ONE - UNIT NUMBER 2 STACK

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			10/07/99	10/07/99	10/08/99
BEGIN TIME			1240	1650	0736
END TIME			1517	1922	1006
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.18 (741)	29.07 (738)	29.18 (741)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.742 (18.8)	0.727 (18.5)	0.783 (19.9)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	61.177 (1.732)	61.254 (1.735)	62.581 (1.772)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	81 (27)	87 (31)	71 (22)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	58.349 (1.652)	57.562 (1.630)	60.818 (1.722)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	190.1	166.2	201.8
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	8.973 (0.254)	7.845 (0.222)	9.525 (0.270)
%M	MOISTURE IN STACK GAS BY VOLUME	%	13.33	11.99	13.54

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

TEXAS-NEW MEXICO POWER COMPANY
BREMOND, TEXAS
TNP ONE - UNIT NUMBER 2 STACK

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.8667	0.8801	0.8646
CO2		%	13.8	14.4	15.0
O2		%	6.0	5.4	4.8
CO		%	0.0	0.0	0.0
N2		%	80.2	80.2	80.2
%EA	EXCESS AIR @ SAMPLING POINT	%	39.3	34.1	29.2
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	30.45 (30.45)	30.52 (30.52)	30.59 (30.59)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.79 (28.79)	29.02 (29.02)	28.89 (28.89)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	1.854 (47.1)	1.817 (46.2)	1.858 (47.2)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	351 (177)	352 (178)	340 (171)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.07 (738)	28.97 (736)	29.08 (739)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	5,534 (28.11)	5,468 (27.78)	5,494 (27.91)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	16,286 (10.51)	16,286 (10.51)	16,286 (10.51)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	344,391 (585,120)	343,932 (584,340)	345,882 (587,654)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	625,925 (1,063,447)	618,457 (1,050,758)	621,396 (1,055,752)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

TEXAS-NEW MEXICO POWER COMPANY
BREMOND, TEXAS
TNP ONE - UNIT NUMBER 2 STACK

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	120	120	120
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.174 (0.004)	0.174 (0.004)	0.174 (0.004)
%I	PERCENT ISOKINETIC	%	97.1	95.9	100.7
Mf	PARTICULATE - PROBE, CYCLONE AND FILTER	mg	----	----	----
Mt	PARTICULATE - TOTAL	mg	----	----	----
Can	PARTICULATE - PROBE, CYCLONE AND FILTER	gr/DSCF* (g/DSCM)	----	----	----
Cao	PARTICULATE - TOTAL	gr/DSCF* (g/DSCM)	----	----	----
Cat	PARTIC.-PROBE, CYCLONE AND FILTER @ STACK COND.	gr/CF (g/m3)	----	----	----
Cau	PARTICULATE - TOTAL @ STACK CONDITIONS	gr/CF (g/m3)	----	----	----
Caw	PARTICULATE - PROBE, CYCLONE AND FILTER	LBS/HR (Kg/HR)	----	----	----
Cax	PARTICULATE - TOTAL	LBS/HR (Kg/HR)	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

APPENDIX B

Field Data

METCO ENVIRONMENTAL

Job Number 99-186 ✓
Job Name TNP ✓
Run Number 1 ✓
Unit Unit 2 Baghouse Inlet Duct ✓
Date 10-7-99 ✓
Operator Lee / Conway / Hart / Heflyn ✓
Sample Box No. Hs 1 Meter Box No. 29-1 ✓

Hs Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 74
Assumed Moisture % 11%
Probe Length ~~5'~~ 8'
C Factor 0.12 ⇒ 0.10 to reference
Initial Leak @ 15.0 "Hg = 0.002 cfm
Final Leak @ 25.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF (ΔP_s)	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet (T_m)	Heated Line	Remarks
C 9	1240	525.490	0.~~8~~45	0.37	0.37	8.5	360	262	266	67	85	78	268	Multi Point
8	1245	527.35	0.66	0.55	0.55	11.0	364	260	264	64	85	78	268	Dut. Orsat
7	1250	529.27	0.58	0.48	0.48	11.0	369	259	265	61	86	79	272	thimble @ 23
6	1255	531.20	1.30	1.05	1.05	17.0	368	255	265	62	87	79	278	filter 47@42
5	1300	533.73	0.93	0.77	0.77	17.0	366	263	258	61	88	79	273	
4	1305	536.23	0.57	0.47	0.47	14.5	364	262	265	61	88	80	271	
3	1310	538.31	0.35	0.29	0.29	11.0	360	265	267	59	89	80	271	
2	1315	540.00	0.40	0.33	0.33	11.0	361	264	269	60	90	81	270	
1	1320	541.66	0.38	0.32	0.32	11.5	359	266	266	60	90	81	271	
End	1325	543.226	—	—	—	—	—	—	—	—	—	—	—	
B 9	1326	543.326	1.20	1.00	1.00	16.5	365	263	264	63	91	82	272	
8	1331	545.75	0.44	0.36	0.36	14.0	365	265	267	59	91	82	270	
7	1336	547.79	1.20	1.00	1.00	19.0	364	258	262	59	91	83	271	
6	1341	550.09	0.85	0.70	0.70	17.0	364	262	264	60	92	83	270	
5	1346	552.31	0.40	0.33	0.33	18.5	364	264	264	62	93	84	270	
4	1351	554.36	0.43	0.36	0.36	20.0	364	268	261	62	93	84	271	
3	1356	556.29	0.34	0.28	0.28	21.0	363	268	260	62	93	84	272	
2	1401	558.10	0.34	0.28	0.28	21.0	363	267	261	63	94	85	271	

Pitot Tube Calibration Factor C_p 0.80 ✓
Volume Collected V_m 55.941 ft³
Water Collected V_w 202.4 ml
Time of Test T_t 135 min.
Stack Pressure P_s -20.0 "H_2O

Pitot Tube No. M-2 ✓
Baro. Press. P_b 29.28 "Hg
Probe Tip Dia. D_n 0.200 ✓ in.
% CO_2 14.6 % CO 0
% O_2 5.2 % N_2 80.2
Area Stack A_s 14.691 ✓ in²

Barometer No. 19-2 ✓
Probe Tip No. TFE 1-7 ✓
Total Volume of Leak Checks After Start: ~~0436~~ ✓ ft³
V_m = Dry Gas Meter Calibration Factor 1.000 ✓ x 55.941

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. Hg 1

			Water Weight Gain		
Impinger 1	Final Weight	777.4		Impinger 1	145.6
	Initial Weight	631.8	Bmp. & final	930.9	
	Increase	145.6 ✓	init	917.6	Impinger 2 23.5
Impinger 2	Final Weight	669.2		13.3 ✓	Impinger 3 4.4
	Initial Weight	645.7			
	Increase	23.5 ✓			Impinger 4 3.3
			V_w =		
Impinger 3	Final Weight	657.6	g SO_2 = -		Impinger 5 11.9
	Initial Weight	653.2	V_w =		
	Increase	4.4 ✓			Impinger 6 -0.4
Impinger 4	Final Weight	751.7			Impinger 7 0.8
	Initial Weight	748.4			Bmp. & 13.3
	Increase	3.3 ✓			Total 202.4 ✓ = V_w
Impinger 5	Final Weight	768.4	P_b = 29.28 ✓		%CO_2 = 14.6 ✓
	Initial Weight	756.5	V_m = 55.941 ✓		%O_2 = 5.2 ✓
	Increase	11.9 ✓	V_w = 202.4 ✓		%CO = 0 ✓
			P_m = 0.595 ✓		%N_2 = 80.2 ✓
Impinger 6	Final Weight	756.1	Avg ΔP = 0.720 ✓		A_s = 14.691 ✓
	Initial Weight	756.5 ~~772.4~~			D_n = 0.200 ✓
	Increase	-0.4 ✓	Avg$\sqrt{\Delta P}$ = 0.820 ✓		T_t = 135 ✓
			C_p = 0.808 ✓		
Impinger 7	Final Weight	773.2	P_s = -20.0 ✓ "H_2O		27.81 ✓ "Hg
	Initial Weight	772.4	T_m = 88 ✓ °F		548 ✓ °R
	Increase	0.8 ✓	T_s = 363 ✓ °F		823 ✓ °R

Moisture Content: %M = 15.3% ✓ M_d = 0.8469 ✓ MW_d = 30.544 ✓ MW = 28.62 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 55.941 \left[\frac{29.28 + \frac{0.595}{13.6}}{88 + 460}\right] = \frac{52.834}{0.391} \begin{matrix} sft^3 \\ scfm \end{matrix} \checkmark$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 202.4 = 9.553 sft^3 ✓

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{9.553}{52.834 + 9.553}$ x 100 = 15.31 % ✓

V_s = 5123.8 x 0.808 $\sqrt{\frac{823}{27.81 \times 28.62}}$ x 0.82 = 3452 fpm ✓ ACFM: 352185 ✓

SCFM: 178509 ✓

%I = $\frac{1,039 \times 52.834 \times 823}{135 \times 0.8469 \times 27.81 \times 3452 \times (0.200)^2}$ = 102.9 % ✓ %EA: 32.4 ✓

Run Number 1

Unit Unit 2 Baghouse Inlet Duct

Date 10-7-99

Hg FIELD DATA

			ΔP_s			P_m	T_s					T_m		
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Inlet Line	Remarks
B 1	1406	559.71	0.38	0.32	0.32	22.0	362	263	255	64	94	85	271	
End	1411	561.104	—	—	—	—	—	—	—	—	—	—	—	leak/to 561.294; 250 > 0.005
A9	1432	561.540	1.75	1.45	1.45	17.5	360	259	265	67	93	87	272	leak/to 564.340; 16 > 0.0...
8	1437	564.12	1.20	1.00	1.00	17.5	364	262	268	61	94	87	273	D thimble Q-24
7	1442	566.37	1.30	1.05	1.05	18.0	361	259	270	60	95	88	273	
6	1447	569.02	0.95	0.79	0.79	16.0	361	254	268	60	97	88	272	
5	1452	571.59	0.90	0.75	0.75	16.0	362	261	267	61	97	89	273	
4	1457	574.09	0.83	0.69	0.69	16.0	361	257	269	62	98	90	272	
3	1502	576.48	0.54	0.44	0.44	15.0	358	254	270	62	99	91	272	
2	1507	578.53	0.40	0.33	0.33	12.5	360	252	267	64	100	91	272	
1	1512	580.32	0.36	0.30	0.30	11.0	358	254	266	65	100	91	272	
End	1517	581.867	—	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 99-186 ✓
Job Name TNP ✓
Run Number 2 ✓
Unit Unit 2 Baghouse Inlet Duct ✓
Date ~~10-6-99~~ 10-7-99 ✓
Operator Lee/Hart/Carney/Hartley ✓
Sample Box No. Hg 3 Meter Box No. 29-1 ✓

Hg Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 94
Assumed Moisture % 11
Probe Length 8'
C Factor 0.12 ⇒ 0.10 to reference
Initial Leak @ 18.0 "Hg = 0.003 cfm
Final Leak @ 20.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Heated Line	Remarks
			ΔPs			Pm	Ts						Tm	
A 9	1647	583,784	1.40	1.15	1.15	10.0	356	270	271	67	95	95	273	Multi Point
8	1652	587.01	1.10	0.91	0.91	10.5	357	269	272	65	96	94	273	Inlet Duct
7	1657	589.45	1.50	1.25	1.25	14.0	357	265	270	63	97	95	271	filter 47Q44
6	1702	592.21	1.50	1.25	1.25	18.0	355	260	270	62	98	95	271	thimble Q25
5	1707	594.77	0.92	0.76	0.76	16.0	354	261	270	62	99	95	272	
4	1712	596.834	1.30	1.10	1.10	11.0	333	268	262	65	95	95	274	pump off 1712
3	1758	600.02	0.88	0.73	0.73	10.0	349	265	260	64	95	95	273	Δ filter 47Q45
2	1803	602.49	0.45	0.37	0.37	12.5	352	266	262	62	95	94	273	leak √ to 599.500, 15.0 0.00 pump on 1753
1	1808	604.41	0.40	0.36	0.36	12.0	351	265	262	59	95	94	271	0.660
End	1813	606.097	—	—	—	—	—	—	—	—	—	—	—	
B 9	1815	606.290	1.20	1.00	1.00	14.0	359	266	265	54	95	94	272	pump off 1818, 608.000
8	1833	607.290	0.98	0.81	0.81	11.0	359	267	266	62	94	91	273	Δ thimble Q-26
7	1838	610.16	0.78	0.65	0.65	11.0	361	262	260	57	93	91	272	leak √ to 607.250 : 15.0 0.00 pump on 1831
6	1843	612.49	0.72	0.60	0.60	10.5	360	263	261	54	94	91	273	0.230
5	1848	614.70	0.50	0.42	0.42	10.0	363	268	258	54	94	90	273	
4	1853	616.67	0.63	0.52	0.52	10.0	364	270	260	53	94	90	271	
3	1858	618.63	0.91	0.75	0.75	12.0	363	269	263	54	95	89	271	
2	1903	620.85	0.93	0.77	0.77	14.0	361	270	264	56	95	89	273	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 57.737 ft³
Water Collected V_w ~~174~~ 172.9 ml
Time of Test T_t 135 min.
Stack Pressure P_s -20.5 "H_2O

Pitot Tube No. M-2 ✓
Baro. Press. P_b 29.17 "Hg
Probe Tip Dia. D_n 0.200 ✓ in.
% CO_2 14.2 % CO 0
% O_2 5.4 % N_2 80.4
Area Stack A_s 14,691 ✓ in²

Barometer No. 19-2 ✓ Probe Tip No. TFE1-7 ✓
Total Volume of Leak Checks After Start: 0.896 ✓ ft³
V_m = Dry Gas Meter Calibration Factor 1.0000 ✓ X 57.737

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. Hg 3

			Water Weight Gain		
Impinger 1	Final Weight	784.0	Imp 8	Impinger 1	128.8
	Initial Weight	655.2	Final 928.8		
	Increase	128.8	Int. 910.4	Impinger 2	18.0
			18.41		
Impinger 2	Final Weight	760.5		Impinger 3	3.7
	Initial Weight	742.5	Thimble Q25		
	Increase	18.0	Filter 47944	Impinger 4	3.3
			V_w =		
Impinger 3	Final Weight	754.6	g SO_2 = -	Impinger 5	0.2
	Initial Weight	750.9	V_w =		
	Increase	3.7		Impinger 6	0.2
Impinger 4	Final Weight	749.0		Impinger 7	0.3
	Initial Weight	745.7		Imp 8	18.4
	Increase	3.3		Total	172.9 = V_w
Impinger 5	Final Weight	753.4	P_b = 29.17 ✓	$\%CO_2$ = 14.2 ✓	
	Initial Weight	753.2	V_m = 57.737 ✓	$\%O_2$ = 5.4 ✓	
	Increase	0.2	V_w = 172.9 ✓	%CO = ✓	
			P_m = 0.694 ✓	$\%N_2$ = 80.4 ✓	
Impinger 6	Final Weight	747.6	Avg ΔP = 0.834 ✓	A_s = 14.691 ✓	
	Initial Weight	747.4		D_n = 0.200 ✓	
	Increase	0.2	Avg $\sqrt{\Delta P}$ = 0.897 ✓	T_t = 135 ✓	
			C_p = 0.808		
Impinger 7	Final Weight	754.3	P_s = -20.5 ✓ "H_2O	27.66 ✓	"Hg
	Initial Weight	754.0	T_m = 93 ✓ °F	553 ✓	°R
	Increase	0.3	T_s = 358 ✓ °F	818 ✓	°R

Moisture Content: %M = 13.16 ✓ M_d = 0.8684 ✓ MW_d = 30.488 ✓ MW = 28.84 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 57.737 \left[\frac{29.17 + \frac{0.694}{13.6}}{93 + 460}\right] = \frac{53.848}{0.399} \frac{\text{sft}^3}{\text{scfm}}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 172.9 = 8.161 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{8.161}{53.848 + 8.161}$ x 100 = 13.16 ✓ %

V_s = 5123.8 x $\frac{0.808}{\sqrt{\frac{818}{27.66 \times 28.84}}}$ x 0.897 = 3761 ✓ fpm

ACFM: 383,652 ✓

SCFM: 199,562 ✓

$\%i = \frac{1{,}039 \times 53{,}848 \times 818}{135 \times 0.8684 \times 27.66 \times 3761 \times (0.200)^2}$ = 93.8 %

%EA: 33.9 ✓

Run Number 2

Unit Unit 2 Baghouse Inlet Duct

Date ~~10-6-99~~ 10-7-99

1 of 3 FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Heated Line	Remarks
			ΔP_s			P_m	T_s						T_m	
B1	1908	623.28	0.90	0.75	0.75	15.0	363	268	265	58	94	89	273	
End	1913	625,212	—	—	—	—	—	—	—	—	—	—	—	
C9	1915	625,462	0.74	0.62	0.62	10.0	360	265	270	62	95	88	272	
8	1920	627.31	0.88	0.73	0.73	12.0	362	266	269	59	94	88	272	
7	1925	629.37	0.68	0.56	0.56	12.5	369	262	265	54	95	88	271	
6	1930	631.42	0.71	0.58	0.58	14.0	369	263	263	55	95	88	271	
5	1935	633.45	0.55	0.46	0.46	14.0	362	265	262	59	95	87	270	
4	1940	635.35	0.52	0.43	0.43	15.0	357	264	262	61	95	87	270	
3	1945	637.18	0.50	0.42	0.42	15.0	3.55	264	264	60	94	87	270	
2	1950	638.97	0.52	0.43	0.43	15.5	355	263	267	60	94	86	269	
1	1955	640.77	0.43	0.36	0.36	17.5	357	262	266	61	94	86	269	
End	2000	642.417	—	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 99-186 ✓
Job Name TNP ✓
Run Number 3 ✓
Unit Unit 2 Bagshowe Inlet Duct ✓
Date 10-8-99 ✓
Operator Lee/Hunt/Conway/Hedley ✓
Sample Box No. Hg 1 Meter Box No. 29-1 ✓

Hg Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 65
Assumed Moisture % 11%
Probe Length 8' 0.11 ⇒ 0.08
C Factor ~~0.11 ⇒ 0.08~~ to reference
Initial Leak @ 17.0 "Hg = 0.000 cfm
Final Leak @ 23.0 "Hg = 0.000 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H₂O (ΔP_s)	Orifice ΔH "H₂O Desired	Orifice ΔH "H₂O Actual	Pump Vacuum "Hg Guage (P_m)	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet	Heated Line	Remarks
C9	0736	655.934	0.38	0.28	0.28	7.0	355	271	268	59	75	67	274	filter 47Q47
8	0741	657.52	1.10	0.80	0.80	11.0	356	269	270	54	75	67	275	thimble Q27
7	0746	659.43	1.20	0.87	0.87	13.0	356	270	271	51	76	68	274	
6	0751	661.97	1.10	0.80	0.80	13.0	353	269	267	49	77	68	274	Multi-Point
5	0756	664.43	0.82	0.59	0.59	11.5	350	265	266	49	78	68	272	Pitot Offset
4	0801	666.62	0.50	0.36	0.36	9.5	352	262	267	49	79	68	270	
3	0806	668.39	0.42	0.31	0.31	9.0	350	268	266	50	80	68	271	
2	0811	669.98	0.70	0.51	0.51	11.0	352	265	265	49	80	68	270	
1	0816	671.96	0.54	0.39	0.39	10.5	351	261	269	50	81	69	270	
End	0821	673.420	—	—	—	—	—	—	—	—	—	—	—	
B9	0823	673.575	1.40	1.00	1.00	14.5	350	266	266	51	81	69	271	
8	0828	676.29	1.20	0.87	0.87	15.5	351	270	261	51	81	69	272	
7	0833	678.99	1.10	0.80	0.80	17.0	351	269	261	50	81	69	273	
6	0838	681.18	0.64	0.46	0.46	15.0	350	267	264	51	82	70	275	
5	0843	683.18	1.00	0.73	0.73	18.0	350	269	265	52	83	70	273	
4	0848	685.35	0.50	0.36	0.36	18.0	349	262	264	51	83	70	270	
3	0853	687.29	0.52	0.38	0.38	17.0	350	261	264	51	84	70	270	
2	0858	688.96	0.48	0.35	0.35	18.0	350	267	261	52	84	70	269	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 54.372 ft³
Water Collected V_w 192.5 ml
Time of Test T_t 135 min.
Stack Pressure P_s −20.0 "H₂O

Pitot Tube No. M-2 ✓
Baro. Press. P_b 29.28 "Hg
Probe Tip Dia. D_n 0.200 ✓ in.
% CO_2 15.3 % CO 0
% O_2 4.1 % N_2 80.3
Area Stack A_s 14.691 ✓ in²

Barometer No. ~~29~~ 19-2 ✓ Probe Tip No. TPE 1-7 ✓
Total Volume of Leak Checks After Start: 0.241 ✓ ft³
V_m = Dry Gas Meter Calibration Factor 1.000 ✓ X 54.372

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. Hg 1

			Water Weight Gain	
Impinger 1	Final Weight	791.6	Imp 8 Final 944.2	Impinger 1 154.6
	Initial Weight	637.0	Int. 930.4	Impinger 2 20.1
	Increase	154.6	13.8	Impinger 3 3.8
Impinger 2	Final Weight	670.1		Impinger 4 3.9
	Initial Weight	650.0	V_w =	
	Increase	20.1	g SO_2 = -	Impinger 5 0.4
Impinger 3	Final Weight	662.5	V_w =	Impinger 6 0.8
	Initial Weight	658.7		Impinger 7 0.1
	Increase	3.8		Imp. 8 13.8
Impinger 4	Final Weight	756.2		Total 197.5 = V_w
	Initial Weight	752.3		
	Increase	3.9		
Impinger 5	Final Weight	766.5	P_b = 29.28	$\%CO_2$ = 15.3
	Initial Weight	766.1	V_m = 54.372	$\%O_2$ = 4.4
	Increase	0.4	V_w = 197.5	%CO = 0
			P_m = 0.572	$\%N_2$ = 80.3
Impinger 6	Final Weight	753.4	Avg ΔP = 0.789	A_s = 14,641
	Initial Weight	752.6		D_n = 0.200
	Increase	0.8	Avg $\sqrt{\Delta P}$ = 0.864	T_t = 135
			C_p = 0.808	
Impinger 7	Final Weight	773.6	P_s = -20.0 "H_2O	27.81 "Hg
	Initial Weight	773.5	T_m = 76 °F	536 °R
	Increase	0.1	T_s = 351 °F	811 °R

Moisture Content: %M = 15.08 M_d = 0.8492 MW_d = 30.624 MW = 28.72

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 54.372 \left[\frac{29.28 + \frac{0.572}{13.6}}{76 + 460}\right] = \frac{52.499\ sft^3}{0.389\ scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 197.5 = 9.322 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{9.322}{52.499 + 9.322}$ x 100 = 15.08 %

V_s = 5123.8 x 0.808 $\sqrt{\frac{811}{27.81 \times 28.72}}$ x 0.864 = 3604 fpm

ACFM: 367,726

SCFM: 189,641

%I = $\frac{1{,}039 \times 52.499 \times 811}{135 \times 0.8492 \times 27.81 \times 3604 \times (0.20c)^2}$ = 96.2 %

%EA: 26.1

Run Number —

Unit Unit 2 Baghouse Inlet Duct

Date 10-8-99

			ΔP_s		P_m		T_s				T_m			
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Heated Line	Remarks
B1	0903	690.58	0.47	0.34	0.34	19.0	350	265	261	52	84	70	269	
End	0908	692.024	—	—	—	—	—	—	—	—	—	—	—	D thimble Q28
A9	0925	692.265	0.80	0.58	0.58	11.0	351	256	260	53	81	71	270	leak to 692.265; 15.0
8	0930	694.37	0.74	0.54	0.54	11.0	352	252	261	53	81	71	269	
7	0935	696.44	1.70	1.25	1.25	17.5	352	253	261	54	81	71	270	
6	0940	699.14	1.00	0.72	0.72	16.5	352	252	263	54	82	72	269	
5	0945	701.68	1.40	1.00	1.00	18.0	352	255	263	54	82	72	271	
4	0950	704.26	0.35	0.25	0.25	10.0	350	254	262	55	84	72	272	
3	0955	706.02	0.33	0.24	0.24	9.0	350	256	265	57	85	73	271	
2	1000	707.46	0.36	0.26	0.26	9.5	350	259	265	57	86	73	271	
1	1005	708.97	0.56	0.41	0.41	12.0	349	260	264	58	86	73	272	
End	1010	710.547	—	—	—	—	—	—	—	—	—	—	—	

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job Number 99-186

Job Name TNP

Sampling Location Un.: 2 Baghouse Inlet Duct "Primary" Stack Height — ft.

Sampling Port Height Above Ground 40 ft.

Date 10-7-99 Time 1000

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	97 1/4	97 1/4	97 1/4		97 1/4 ✓
Port & Wall Thickness (in.)	14 1/4	14 1/4	14 1/4		14 1/4 ✓
Inside Stack Diameter (in.)	83	83	83		83 ✓

Sampling Ports are 12 ✓ ft. 4 ✓ in. 1.10 ✓ equi. duct (~~1.00~~ ~~stack~~ diameters) downstream from disturbance (inlet, constriction, bend, expansion)

Sampling Ports are 2 ✓ ft. 10 in. ✓ equi. duct (0.30 ~~stack~~ diameters) upstream from disturbance (outlet, constriction, bend, expansion)

E_{qd} = 113" ✓ L3 "Y" in the Duct

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A $\Delta P/T_s\alpha$	Port B $\Delta P/T_s\alpha$	Port C $\Delta P/T_s\alpha$	Port D $\Delta P/T_s\alpha$
1			4 1/2	Ø 1350/+3	Ø 1352/+2	Ø 1350/-2	/ /
2			13 3/4	0.63/1346/+4	0.50/1354/+2	Ø 1357/-4	/ /
3			23	0.32/1355/+7	0.31/1354/+4	Ø 1360/-3	/ /
4			32 1/4	0.75/1352/+6	0.23/1360/+3	0.14/1360/-5	/ /
5			41 1/2	0.78/1360/+8	0.49/1361/+4	0.21/1359/-8	/ /
6			50 3/4	0.70/1352/+8	0.35/1361/+5	0.55/1360/-5	/ /
7			60	0.45/1352/+5	0.32/1361/+3	0.56/1361/-3	/ /
8			69 1/4	0.43/1359/+5	0.48/1360/+5	0.55/1360/-4	/ /
9			78 1/2	0.97/1352/+3	0.80/1360/+5	0.55/1360/-3	/ /
10				/ /	/ /	/ /	/ /
11				/ /	/ /	/ /	/ /
12				/ /	/ /	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ - /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. M-2 ✓

C_p = 0.808 ✓

P_b = 29.60 "Hg

P_s = -18.0 "H_2O 28.28 "Hg ✓

A_s = 14.691 ✓ in.^{2}

Average ΔP 0.412 ✓

Average $\Delta P^{1/2}$ ~~0.552~~ 0.567 ✓

Average T_s 358 ✓ °F

Average α 4.4 ✓ degrees

METCO ENVIRONMENTAL

ORSAT ANALYSIS DATA FORM

Job Number: 99-186 Sample Location: Unit 2 Baghouse Inlet Duct

Job Name: Texas New Mexico Power Analytical Method: 3B

Location: Bremond, Tx Sample Type: Single point or ~~Multi point~~; Grab or ~~Integrated~~

Date: 10/7/99 Leak Check: Time: X 4:00 (min. 4 minutes) Rate: 0.000

Operator: Hefley Ambient Air Check:

CO_2 - % Vol.	0.0
O_2 - % Vol.	20.9
N_2 - % Vol.	79.1

Run Number 1 Run Time	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	14.6	14.6	14.6	14.6
O_2 - % Vol.	5.2	5.2	5.2	5.2
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	80.2	80.2	80.2	80.2

Run Number 2 Run Time	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	14.2	14.2	14.2	14.2
O_2 - % Vol.	5.4	5.5	5.4	5.4
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	80.4	80.3	80.4	80.4

Run Number 3 Run Time	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	15.3	15.2	15.3	15.3
O_2 - % Vol.	4.4	4.4	4.3	4.4
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	80.3	80.4	80.4	80.3

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METCO ENVIRONMENTAL

ORSAT ANALYSIS DATA FORM

Job Number: 99-186 Sample Location: Unit 2 Baghouse Inlet Secondary Duct

Job Name: ~~Montana Texas~~ Texas, New Mexico Analytical Method: 3B

Location: ~~Unit 3 Scrubber Inlet~~ Unit 2 Baghouse Inlet Secondary Sample Type: Single point or Multi point; Grab or Integrated

Date: ~~9/29/99~~ 10/7/99 Leak Check: Time: ✓ (min. 4 minutes) Rate: 0.000

Operator: Hefley Ambient Air Check:

CO_2 - % Vol.	0.0
O_2 - % Vol.	20.9
N_2 - % Vol.	0.0

Run Number 1 Run Time	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	9.0	9.1	9.0	9.0
O_2 - % Vol.	10.5	10.6	10.6	10.6
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.				

Run Number 2 Run Time	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	9.0	9.0	9.0	9.0
O_2 - % Vol.	10.6	10.6	10.6	10.6
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.				

Run Number 3 Run Time	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	11.8	11.8	11.8	11.8
O_2 - % Vol.	7.6	7.6	7.6	7.6
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.				

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METCO ENVIRONMENTAL

Job Number 99 186 ✓
Job Name TNP ✓
Run Number 1 ✓
Unit Unit 2 Stack ✓
Date 10/7/99 ✓
Operator Bass / Brown / Hefley ✓
Sample Box No. Hg 2 Meter Box No. 27 2 ✓

Hg Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 70
Assumed Moisture % 13
Probe Length 10'
C Factor 10 to 122 to reference
Initial Leak @ 15.00 "Hg = 0.001 cfm
Final Leak @ 20.00 "Hg = 0.001 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F (T_s)	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet (T_m)	Dry Gas Temp. °F Outlet	Heated Line °F	Remarks
D3	1240	598.743	2.00	0.80	0.80	7.50	349	273	251	68	78	77	279	Filter 47Q90
3	1245	601.27	2.00	0.80	0.80	7.50	350	275	252	67	79	78	278	int. orsat
D2	1250	603.87	2.00	0.80	0.80	7.50	350	275	252	65	79	78	282	CDT
2	1255	606.48	1.90	0.76	0.76	7.50	350	260	252	62	79	78	280	
D1	1300	608.87	1.50	0.60	0.60	6.50	349	263	252	62	79	79	281	
1	1305	611.22	1.50	0.60	0.60	6.50	350	269	252	62	79	79	282	
END	1310	613.266	—	—	—	—	—	—	—	—	—	—	—	
C3	1317	613.266	2.10	0.84	0.84	8.00	350	287	252	66	79	79	280	
3	1322	615.83	2.10	0.84	0.84	8.00	350	287	252	62	79	79	282	
C2	1327	618.46	2.00	0.80	0.80	8.00	351	292	252	61	80	79	281	
2	1332	621.08	2.00	0.80	0.80	8.00	351	288	252	60	80	80	281	
C1	1337	623.68	1.60	0.60	0.60	7.00	350	289	252	61	80	80	281	
1	1342	625.90	1.50	0.60	0.60	7.00	350	290	252	62	80	80	281	
END	1347	628.162	—	—	—	—	—	—	—	—	—	—	—	leak check good 0.532 ✓
~~B3~~		~~628.469~~												
B3	1412	628.694	2.20	0.88	0.88	10.75	351	298	252	64	80	80	283	leak check good
3	1417	631.36	2.20	0.88	0.88	10.75	351	298	252	63	82	82	283	
B2	1422	634.09	2.00	0.80	0.80	10.00	352	300	252	57	82	82	283	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 61.177 ✓ ft³
Water Collected V_w 190.1 ✓ ml
Time of Test T_t 120 ✓ min.
Stack Pressure P_s -1.55 ✓ "H_2O

Pitot Tube No. M3 ✓
Baro. Press. P_b 29.18 ✓ "Hg
Probe Tip Dia. D_n 0.174 ✓ in.
% CO_2 13.8 ✓ % CO 0.0 ✓
% O_2 6.0 ✓ % N_2 80.2 ✓
Area Stack A_s 16286 ✓ in²

Barometer No. 19-1 ✓ Probe Tip No. TFE1-6 ✓
Total Volume of Leak Checks After Start: 0.532 ✓ ft³
V_m = Dry Gas Meter Calibration Factor 59.985 X 1.029 ✓

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. Hg 2

			Water Weight Gain		
Impinger 1	Final Weight	886.8	Imp 8 Final 956.8	Impinger 1	144.1
	Initial Weight	742.7	Int. 943.1	Impinger 2	25.6
	Increase	144.1	13.7	Impinger 3	3.5
Impinger 2	Final Weight	776.3		Impinger 4	3.8
	Initial Weight	750.7	V_w =		
	Increase	25.6	g SO_2 = —	Impinger 5	-0.5
Impinger 3	Final Weight	725.0	V_w =	Impinger 6	-0.3
	Initial Weight	721.5			
	Increase	3.5		Impinger 7	0.2
Impinger 4	Final Weight	754.2		Impinger 8	13.7
	Initial Weight	750.4		Total	190.1 = V_w
	Increase	3.8			

Impinger 5	Final Weight	747.2	P_b =	29.18 ✓	%CO_2 =	13.8 ✓	
	Initial Weight	747.7	V_m =	61.177 ✓	%O_2 =	6.0 ✓	
	Increase	-0.5	V_w =	190.1 ✓	%CO =	0.0 ✓	
			P_m =	0.742 ✓	%N_2 =	80.2 ✓	
Impinger 6	Final Weight	680.1	Avg ΔP =	1.854 ✓	A_s =	16286 ✓	
	Initial Weight	680.4			D_n =	0.174 ✓	
	Increase	-0.3	Avg$\sqrt{\Delta P}$ =	1.358 ✓	T_t =	120 ✓	
			C_p =	0.808 ✓			
Impinger 7	Final Weight	675.5	P_s =	-1.55 ✓ "H_2O		29.07 ✓ "Hg	
	Initial Weight	675.3	T_m =	81 ✓ °F		541 ✓ °R	
	Increase	0.2	T_s =	351 ✓ °F		811 ✓ °R	

Moisture Content: %M = 13.33 ✓ M_d = ~~0.8670~~ 0.8667 ✓ MW_d = 30.448 ✓ MW = 28.79 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 61.177 \left[\frac{29.18 + \frac{0.742}{13.6}}{81 + 460}\right] = \frac{58.349}{0.486} \frac{sft^3}{scfm} \checkmark$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x 190.1 = 8.973 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{8.973}{58.349 + 8.973}$ x 100 = 13.33 ✓ %

V_s = 5123.8 x 0.808 $\sqrt{\frac{811}{29.07 \times 28.79}}$ x 1.358 = 5534 ✓ fpm

ACFM: 625925 / 344,391 ✓

SCFM: ~~344,510~~

%I = $\frac{1{,}039 \times 58.349 \times 811}{5534 \times 29.07 \times \frac{\text{~~0.8670~~}}{0.8667} \times 120 \times (0.174)^2}$ = ~~97.0~~ 97.1 ✓ %

%EA: 39.3 ✓

Run Number 1 Hg FIELD DATA

Unit #2 Stack

Date 10-07-99

			ΔP_s			P_m	T_s					T_m	
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Heated Line °F Remarks
B2	1427	636.74	2.00	0.80	0.80	10.00	352	296	252	54	83	82	283
B1	1432	639.36	1.50	0.60	0.60	8.50	352	299	252	55	83	82	283
1	1437	641.67	1.50	0.60	0.60	8.50	352	300	252	54	84	82	283
END	1442	643.864	—	—	—	—	—	—	—	—	—	—	—
A3	1447	643.864	2.00	0.80	0.80	18.00	352	294	252	53	84	84	283
3	1452	646.81	2.00	0.80	0.80	18.00	352	294	252	53	84	84	283
A2	1457	648.94	2.00	0.80	0.80	18.00	352	290	252	52	84	84	281
2	1502	651.59	2.00	0.80	0.80	18.00	352	298	252	52	85	84	281
A1	1507	654.21	1.50	0.60	0.60	13.50	352	294	252	52	85	84	281
1	1512	656.52	1.50	0.60	0.60	13.50	352	294	252	54	85	84	281
END	1517	658.728	—	—	—	—	—	—	—	—	—	—	—

METCO ENVIRONMENTAL

Job Number 99-187 99-186 ✓
Job Name TNP ✓
Run Number 2 ✓
Unit Unit 2 stack ✓
Date 10-7-99 ✓
Operator BROWN/BASS/Hefley ✓
Sample Box No. Hg 4 Meter Box No. 27-2 ✓

Hg Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 70
Assumed Moisture % 13
Probe Length 10'
C Factor 1.0 TO 1.22 to reference
Initial Leak @ 15.00 "Hg = 0.001 cfm
Final Leak @ 17.00 "Hg = 0.001 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H2O	Orifice ΔH "H2O Desired	Orifice ΔH "H2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Heated Line °F	Remarks
			ΔPs			Pm		Ts					Tm	
A3	1650	665.371	2.10	0.84	0.84	10.00	354	280	253	66	88	88	270	Init. Orsat
3	1655	668.03	2.10	0.84	0.84	10.00	354	280	253	62	88	88	270	COT
A2	1700	670.64	1.80	0.72	0.72	9.00	353	280	252	56	86	86	270	
2	1705	673.12	1.80	0.72	0.72	9.00	353	286	252	56	87	87	268	
A1	1710	675.59	1.40	0.56	0.56	7.50	353	290	252	55	87	87	268	
1	1715	677.84	1.40	0.56	0.56	7.50	353	290	252	55	87	87	268	
END	1720	679.909	—	—	—	—	—	—	—	—	—	—	—	
B3	1725	679.909	2.00	0.80	0.80	10.00	352	292	253	55	87	87	274	
3	1730	682.48	2.00	0.80	0.80	10.00	353	294	253	52	87	87	274	
B2	1735	685.09	2.00	0.80	0.80	10.00	353	295	253	52	88	88	276	
2	1740	687.69	2.00	0.80	0.80	10.00	353	295	253	52	88	88	276	
B1	1745	690.31	1.50	0.60	0.60	8.50	353	295	253	52	88	88	278	leak ✓ good
1	1750	692.63	1.50	0.60	0.60	8.50	353	295	253	52	87	87	279	leak ✓ good
END	1755	694.845	—	—	—	—	—	—	—	—	—	—	—	
		~~694.845~~												0.449 ✓
~~C3~~	~~1807~~	~~695.294~~												
C3	1815	695.294	2.00	0.80	0.80	12.50	353	286	252	66	87	87	281	
3	1820	697.89	2.00	0.80	0.80	12.50	353	297	252	65	87	87	281	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 61.254 ft³
Water Collected V_w 166.2 ml
Time of Test T_t 120 min.
Stack Pressure P_s -1.30 "H_2O

Pitot Tube No. M3 ✓
Baro. Press. P_b 29.07 "Hg
Probe Tip Dia. D_n 0.174 ✓ in.
% CO_2 14.4 % CO 0.0
% O_2 5.4 % N_2 80.2
Area Stack A_s 16,286 ✓ in²

Barometer No. 19-1 ✓
Probe Tip No. TFE1-6 ✓
Total Volume of Leak Checks After Start: 0.449 ✓ ft³ ✓
V_m = Dry Gas Meter Calibration Factor 59.877 X 1.029

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. 1 & 4

			Water Weight Gain		
Impinger 1	Final Weight	884.3	Imp 8 Final 985.7	Impinger 1	136.1
	Initial Weight	748.2	Int. 974.4	Impinger 2	14.6
	Increase	136.1		Impinger 3	2.6
Impinger 2	Final Weight	769.4	Filter 47043	Impinger 4	2.2
	Initial Weight	754.8	V_w =		
	Increase	14.6	g SO_2 = -	Impinger 5	0.2
Impinger 3	Final Weight	661.0	V_w =	Impinger 6	-0.5
	Initial Weight	658.4		Impinger 7	-0.3
	Increase	2.6		Impinger 8	11.3
Impinger 4	Final Weight	757.4		Total	166.2 = V_w
	Initial Weight	755.2			
	Increase	2.2			
Impinger 5	Final Weight	755.2	P_b = 29.07	$\%CO_2$ = 14.4	
	Initial Weight	755.0	V_m = ~~166.2~~ 61.254	$\%O_2$ = 5.4	
	Increase	0.2	V_w = 166.2	%CO = 0.0	
			P_m = 0.727	$\%N_2$ = 80.2	
Impinger 6	Final Weight	757.6	Avg ΔP = ~~1.816~~ 1.817	A_s = 16286	
	Initial Weight	758.1		D_n = 0.174	
	Increase	-0.5	Avg $\sqrt{\Delta P}$ = 1.344	T_t = 120	
			C_p = 0.808		
Impinger 7	Final Weight	759.8	P_s = -1.30 "H_2O	28.97 "Hg	
	Initial Weight	760.1	T_m = 87 °F	547 °R	
	Increase	-0.3	T_s = 352 °F	812 °R	

Moisture Content: %M = 11.99 M_d = 0.8801 MW_d = 30.520 MW = 29.02

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 61.254 \left[\frac{29.07 + \frac{0.727}{13.6}}{87 + 460}\right] = \frac{57.562\ sft^3}{0.480\ scfm}$$

$Vw_{gas} = 0.0472 \times Vw = 0.0472 \times 166.2 = 7.845\ sft^3$

$$\%\ Moisture = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{7.845}{57.562 + 7.845} \times 100 = 11.99\ \%$$

$$V_s = 5123.8 \times 0.808 \sqrt{\frac{812}{28.97 \times 29.02}} \times 1.344 = 5468\ fpm$$

ACFM: 618457

SCFM: 343932

$$\%I = \frac{1{,}039 \times 57.562 \times 812}{28.97 \times 0.8801 \times 5468 \times 120 \times (0.174)^2} = 95.9\ \%$$

%EA: 34.1

Run Number 11-101

Unit Unit 2 stack

Date 10-7-99

Hg FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	ΔP_s "Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg Guage	T_s Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	T_m Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Heated Line °F	Remarks
C2	1825	700.53	2.00	0.80	0.80	12.50	352	300	252	58	87	87	281	
2	1830	703.17	2.00	0.80	0.80	12.50	352	300	252	57	87	87	281	
C1	1835	705.81	1.50	0.60	0.60	10.00	351	300	252	55	87	87	281	
1	1840	708.16	1.50	0.60	0.60	10.00	351	300	252	55	87	87	281	
END	1845	710.332	—	—	—	—	—	—	—	—	—	—	—	
D3	1852	710.332	2.00	0.80	0.80	14.50	352	280	252	60	86	87	281	
3	1857	712.91	2.00	0.80	0.80	15.00	352	280	252	55	86	86	281	
D2	1902	715.53	2.00	0.80	0.80	15.50	352	270	252	54	86	86	281	
2	1907	718.15	2.00	0.80	0.80	15.50	352	270	252	54	86	86	281	
D1	1912	720.78	1.50	0.60	0.60	12.50	351	270	252	54	85	85	281	
1	1917	723.09	1.50	0.60	0.60	12.50	351	270	252	54	85	85	281	
END	1922	725.348	—	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number ~~99-187~~ 99-182 ✓
Job Name TNP ✓
Run Number 3 ✓
Unit Unit stack 2 ✓
Date 10-8-99 ✓
Operator BROWN/BASS/HEFLEY ✓
Sample Box No. Hg-2 Meter Box No. 27-2 ✓

Hg Field Data

Read and record at the start of each test point.

Purge to: —
Purge time: —
Pitot Leak Check Initial ✓ Final ✓

Ambient Temp. °F 68
Assumed Moisture % 12
Probe Length 10'
C Factor 1.0 to 1.29 to reference
Initial Leak @ 15.00 "Hg = 0.001 cfm
Final Leak @ 14.50 "Hg = 0.001 cfm

Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H₂O ΔP_s	Orifice ΔH "H₂O Desired	Orifice ΔH "H₂O Actual	Pump Vacuum "Hg Guage P_m	Stack Temp °F T_s	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet T_m	Dry Gas Temp. °F Outlet	Heated Line °F	Remarks
D3	0736	763.674	2.00	0.84	0.84	8.00	340	283	252	49	64	65	309	int. orsat
3	0741	766.29	2.00	0.84	0.84	8.00	339	280	252	49	66	66	311	CDT
D2	0746	768.91	2.00	0.84	0.84	8.00	339	280	252	48	67	67	311	
2	0751	771.55	2.00	0.84	0.84	8.00	339	270	252	46	67	67	313	
D1	0756	774.30	1.50	0.64	0.64	6.50	339	270	252	46	67	67	313	
1	0801	776.56	1.50	0.64	0.64	6.50	339	270	252	46	67	67	313	
END	0806	778.734	—	—	—	—	—	—	—	—	—	—	—	
C3	0812	778.734	2.10	0.88	0.88	11.00	339	270	252	48	69	68	315	
3	0817	781.35	2.10	0.88	0.88	11.00	340	278	252	48	69	69	315	
C2	0822	784.00	2.00	0.84	0.84	11.50	340	280	252	47	69	69	315	
2	0827	786.62	2.00	0.84	0.84	11.50	340	280	252	47	69	69	315	
C1	0832	788.73	1.50	0.64	0.64	9.50	340	281	252	49	69	69	315	
1	0837	791.55	1.50	0.64	0.64	9.50	340	281	252	49	69	69	315	leak ✓ good
END	0842	793.769	—	—	—	—	—	—	—	—	—	—	—	0.445 ✓
B3	0901	794.214	2.10	0.88	0.88	11.50	340	270	252	56	74	74	315	
3	0906	796.92	2.10	0.88	0.88	11.50	340	270	252	56	74	74	315	leak ✓ good
B2	0911	799.63	2.00	0.84	0.84	11.00	340	270	252	51	74	74	315	
2	0916	802.30	2.00	0.84	0.84	11.00	340	270	252	51	74	74	315	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 62.581 ✓ ft³
Water Collected V_w 201.8 ✓ ml
Time of Test T_t 120 ✓ min.
Stack Pressure P_s -1.30 "H_2O

Pitot Tube No. M3 ✓ 29.18 ✓
Baro. Press. P_b ~~29.20~~ "Hg
Probe Tip Dia. D_n 0.174 ✓ in.
% CO_2 15.0 ✓ % CO 0.0 ✓
% O_2 4.8 ✓ % N_2 80.2 ✓
Area Stack A_s 16,286 ✓ in²

Barometer No. 19-1 ✓
Probe Tip No. TFE1-6 ✓
Total Volume of Leak Checks After Start: 0.445 ✓ ft³
V_m = Dry Gas Meter Calibration Factor 61.262 X 1.029 ✓

[Dry Gas Meter Reading — ft³ - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. #1 & 2

			Water Weight Gain		
Impinger 1	Final Weight	897.5	Imp 8 Final 971.1	Impinger 1	150.0
	Initial Weight	747.8	Int. 956.9	Impinger 2	32.8
	Increase	150.0	14.2	Impinger 3	2.0
Impinger 2	Final Weight	783.7		Impinger 4	2.9
	Initial Weight	750.9	V_w =		
	Increase	32.8	g SO_2 =	Impinger 5	0.4
Impinger 3	Final Weight	727.5	V_w =	Impinger 6	-0.3
	Initial Weight	725.5		Impinger 7	-0.2
	Increase	2.0		Impinger 8	14.2
Impinger 4	Final Weight	760.9		Total	201.8 = V_w
	Initial Weight	758.0			
	Increase	2.9			
Impinger 5	Final Weight	745.8	P_b = 29.18 ✓	$\%CO_2$ = 15.0 ✓	
	Initial Weight	745.4	V_m = 62.581 ✓	$\%O_2$ = 4.2 ✓	
	Increase	0.4	V_w = 201.8 ✓	%CO = 0.0 ✓	
			P_m = 0.783 ✓	$\%N_2$ = 80.2 ✓	
Impinger 6	Final Weight	681.0	Avg ΔP = 1.858 ✓	A_s = 16286 ✓	
	Initial Weight	681.3		D_n = 0.174 ✓	
	Increase	-0.3	Avg $\sqrt{\Delta P}$ = 1.360 ✓	T_t = 120 ✓	
			C_p = 0.808 ✓		
Impinger 7	Final Weight	671.9	P_s = -1.30 "H_2O	29.08 ✓	"Hg
	Initial Weight	672.1	T_m = 71 ✓ °F	531 ✓	°R
	Increase	-0.2	T_s = 340 °F	800 ✓	°R

Moisture Content: %M = 13.54 ✓ M_d = ~~0.8650~~ 0.8648 ✓ MW_d = 30.592 ✓ MW = 28.89 ✓

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 62.581 \left[\frac{29.18 + \frac{0.783}{13.6}}{71 + 460}\right] = \frac{60.818}{0.507} \text{ sft}^3 \text{ scfm}$$ ✓

Vw_{gas} = 0.0472 x Vw = 0.0472 x 201.8 = 9.525 ✓ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{9.525}{60.818 + 9.525}$ x 100 = 13.54 ✓ %

V_s = 5123.8 x 0.808 $\sqrt{\frac{800}{29.08 \times 28.89}}$ x 1.360 = 5494 ✓ fpm

ACFM: 621,396 ✓ / 345,882 ✓

SCFM: ~~346,042~~

%I = $\frac{1{,}039 \times 60.818 \times 800}{29.08 \times 0.8650 \times 5494 \times 120 \times (0.174)^2}$ = 100.7 ✓ %
0.8648

%EA: 29.2 ✓

Run Number 3

Unit Unit 2 stack

Date 10-8-99

Hg FIELD DATA

			ΔP_s			P_m	T_s					T_m	
Point	Clock Time	Dry Gas Meter, CF	"Pitot" "H_2O	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg Guage	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp. °F Inlet	Dry Gas Temp. °F Outlet	Heated Line °F Remarks
B1	0921	804.96	1.50	0.64	0.64	9.00	340	270	252	51	76	75	315
1	0926	807.36	1.50	0.64	0.64	9.00	340	270	252	51	76	76	315
END	0931	809.581	—	—	—	—	—	—	—	—	—	—	—
A3	0936	809.581	2.10	0.88	0.88	12.60	342	281	252	52	76	76	315
3	0941	812.25	2.10	0.88	0.88	12.60	342	281	252	51	76	76	315
A2	0946	814.96	2.00	0.84	0.84	12.00	342	282	252	50	76	76	315
2	0951	817.62	2.00	0.84	0.84	12.00	342	285	252	51	76	76	315
A1	0956	820.28	1.50	0.64	0.64	10.00	342	285	252	51	76	76	315
1	1001	822.68	1.50	0.64	0.64	10.00	342	285	252	51	76	76	315
END	1006	824.936	—	—	—	—	—	—	—	—	—	—	—

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job Number 99-187U2C
Job Name TNP
Sampling Location #2 Stack
Date 10-4-99 Time 1553

Stack Height 350 ✓ ft.
Sampling Port Height Above Ground 246 ✓ ft.

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)					
Port & Wall Thickness (in.)					33½ ✓
Inside Stack Diameter (in.)					141" ✓

Sampling Ports are 197 ✓ ft. 0 in. (16.42 ✓ stack diameters) downstream from disturbance (inlet, constriction, bend, expansion)

Sampling Ports are 94 ✓ ft. 0 in. (7.53 ✓ stack diameters) upstream from disturbance (outlet, constriction, bend, expansion)

Point Number	Percent Diameter	Distance from Ref. Point (decimal in.)	Distance from Ref. Point (fractional in.)	Port A $\Delta P/T_s/\alpha$	Port B $\Delta P/T_s/\alpha$	Port C $\Delta P/T_s/\alpha$	Port D $\Delta P/T_s/\alpha$
1	4.4 ✓	6.336 ✓	6 5/16" ✓	1 1 -5	1 1 2	1 1 8	1 1 5
2	14.6 ✓	21.024 ✓	21" ✓	1 1 0	1 1 -2	1 1 -5	1 1 0
3	29.6 ✓	42.624 ✓	42 5/8" ✓	1 1 5	1 1 0	1 1 2	1 1 -2
4				/ /	/ /	/ /	/ /
5				/ /	/ /	/ /	/ /
6				/ /	/ /	/ /	/ /
7				/ /	/ /	/ /	/ /
8				/ /	/ /	/ /	/ /
9				/ /	/ /	/ /	/ /
10	* Calculated as 1/2 of			/ /	/ /	/ /	/ /
11	a 6 point traverse.			/ /	/ /	/ /	/ /
12				/ /	/ /	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. 31-5-2 ✓
C_p = 0.807 ✓
P_b = 29.39 "Hg
P_s = -1.10 "H_2O 29.31 ✓ "Hg
A_s = 162.96 ✓ in.²

Average ΔP -
Average $\Delta P^{1/2}$ -
Average T_s - °F
Average α 3.0 ✓ degrees

METCO ENVIRONMENTAL

ORSAT ANALYSIS DATA FORM

Job Number: 99-186 Sample Location: Unit 2 Stack

Job Name: Texas New Mexico Power Analytical Method: 3B

Location: Bremond, TX Sample Type: Single point or Multi point; Grab or Integrated

Date: 10-7-99 Leak Check: Time: 4.00 X (min. 4 minutes) Rate: 0.000

Operator: Hefley Ambient Air Check:

CO_2 - % Vol.	0.0
O_2 - % Vol.	20.9
N_2 - % Vol.	79.1

Run Number 1 Run Time 1240-1517	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	13.8	13.8	13.8	13.8
O_2 - % Vol.	6.0	6.0	6.0	6.0
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	80.2	80.2	80.2	80.2

Run Number 2 Run Time _____	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	14.4	14.3	14.4	14.4
O_2 - % Vol.	5.4	5.4	5.4	5.4
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	80.2	80.3	80.2	80.2

Run Number 3 Run Time 0736-1006	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	15.0	15.0	15.0	15.0
O_2 - % Vol.	4.8	4.8	4.8	4.8
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	80.2	80.2	80.2	80.2

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METCO ENVIRONMENTAL

APPENDIX C

Calibration Data

Equipment	Calibration Factor	Calibration Date
Pitot Tube #M-2	0.808	10/04/99
Pitot Tube #M-3	0.808	10/04/99
Pitot Tube #31-5-2	0.807	08/04/99
Probe Tip #TFE-1-6	0.174	10/04/99
Probe Tip #TFE-1-7	0.200	10/04/99
Dry Gas Meter #27-2	1.029	08/13/99
Stack Unit Orifice #27-2		08/14/99
Digital Temperature Indicator #27-2		08/13/99
Dry Gas Meter #29-1	1.000	10/04/99
Stack Unit Orifice #29-1		10/05/99
Digital Temperature Indicator #29-1		10/04/99
Barometer #19-1		10/04/99
Barometer #19-2		10/04/99

METCO ENVIRONMENTAL

APPENDIX C

Post Test

Calibration Data

Equipment	Calibration Factor	Calibration Date
Pitot Tube #M-2	0.810	11/12/99
Pitot Tube #M-3	0.808	11/22/99
Pitot Tube #31-5-2	0.806	11/05/99
Probe Tip #TFE-1-6	0.174	11/19/99
Probe Tip #TFE-1-7	0.199	11/19/99
Dry Gas Meter #27-2	1.015	11/07/99
Stack Unit Orifice #27-2		11/08/99
Digital Temperature Indicator #27-2		11/07/99
Dry Gas Meter #29-1	1.000	11/22/99
Stack Unit Orifice #29-1		11/22/99
Digital Temperature Indicator #29-1		11/22/99
Barometer #19-1		11/22/99
Barometer #19-2		11/22/99

PITOT TUBE CALIBRATION

Date: 10-4-99 Time: 1030

Pitot No.: M2 T_s: 72 °F

Pitot Dimensions: 3/8" hps C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
7	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
14	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
20	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
50	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
62	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.808			0.808

Summary of Results:

Normal high side calibration factor 0.808

variation + 0.00%

variation - 0.00%

Normal low side calibration factor 0.808

variation + 0.00%

variation - 0.00%

Calibrator: Jason Brown 274

Checked By: Jason Conway #273

PITOT TUBE CALIBRATION

Date: 10-4-99 Time: 1130

Pitot No.: M3 T_s: 72 °F

Pitot Dimensions: 3/8" tips C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
7	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
14	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
20	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
50	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
62	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.808			0.808

Summary of Results:

Normal high side calibration factor 0.808

variation + 0.00%

variation - 0.00%

Normal low side calibration factor 0.808

variation + 0.00%

variation - 0.00%

Calibrator: Jason Brown 274

Checked By: Jason Conway #273

PITOT TUBE CALIBRATION

Date: 5 4-99 Time: 1100

Pitot No.: 31-5-2 T_s: 71 °F

Pitot Dimensions: 5' × 1/4" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
7	20	0.10	0.11	0.324	0.16	0.400	0.802	0.16	0.400	0.802
14	30	0.22	0.23	0.474	0.34	0.583	0.805	0.35	0.592	0.794
20	40	0.34	0.34	0.583	0.51	0.714	0.813	0.52	0.721	0.801
28	50	0.54	0.54	0.735	0.81	0.900	0.803	0.82	0.906	0.803
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
50	80	1.30	1.30	1.140	1.95	1.396	0.808	2.00	1.414	0.798
62	90	1.60	1.60	1.265	2.90	1.549	0.815	2.90	1.749	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.82	0.906	0.803
28	50	0.54	0.54	0.735	0.81	0.900	0.803	0.82	0.906	0.803
Average							0.807			0.803

Summary of Results:

Normal high side calibration factor 0.807

variation + 0.12 %

variation - 0.62 %

Normal low side calibration factor 0.803

variation + 0.62 %

variation - 1.12 %

Calibrator: Steve Dotensen

Checked By: Mike Bass

METCO ENVIRONMENTAL

✓ AM107

NOZZLE CALIBRATION

Nozzle Set No. TFE-1

Date [illegible] Calibrator: [illegible]

	4	6	7	8	10	12
Reading 1	0.114	0.175	0.199	0.226	0.310	0.362
Reading 2	0.116	0.176	0.198	0.227	0.309	0.363
Reading 3	0.114	0.173	0.199	0.226	0.309	0.363
Reading 4	0.114	0.173	0.200	0.226	0.310	0.362
Reading 5	0.116	0.175	0.200	0.227	0.308	0.364
Reading 6	0.117	0.175	0.200	0.227	0.309	0.364
Reading 7	0.118	0.174	0.202	0.226	0.309	0.364
Reading 8	0.116	0.173	0.200	0.225	0.310	0.363
Reading 9	0.118	0.175	0.200	0.226	0.309	0.363
Reading 10	0.118	0.175	0.199	0.227	0.309	0.363
Average	0.116 ✓	0.174 ✓	0.200 ✓	0.226 ✓	0.309	0.363

	14	—	—	—	—	—
Reading 1	0.430					
Reading 2	0.432					
Reading 3	0.430					
Reading 4	0.430					
Reading 5	0.432					
Reading 6	0.431					
Reading 7	0.432					
Reading 8	0.432					
Reading 9	0.432					
Reading 10	0.431					
Average	0.431 ✓					

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter No.: 27-2

Date: 8-13-99

ΔH ("H_2O)	C_{DG}
0.5	1.036
1.0	1.023
1.5	1.025
2.0	1.033
3.0	1.034
4.0	1.024
Average	1.029

Variation: + 0.68% ✓

- 0.58% ✓

Calibrator: Shane Lee 261

Checked By: Mike Bass 243

C_{DG} @ 2 liters/min. = 1.033

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: Shane Lee

Date: 5-13-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 0.5 4.0 P_b: 29.20 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1512	5315 cf	73 °F	-1.20 "H_2O	312.440 cf	73 °F	73 °F	0.50 "H_2O
Start	1500	0.000 cf	73 °F	-1.20 "H_2O	307.333 cf	72 °F	72 °F	0.50 "H_2O
Avg.	12	5.315 cf	73 °F	-1.20 "H_2O	5.107 cf		73 °F	0.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.315 \left[\frac{29.20 + \frac{-1.20}{13.6}}{73 + 460} \right] \times 1.000\ (C_f) = 5.124 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.107 \left[\frac{29.20 + \frac{0.50}{13.6}}{73 + 460} \right] = 4.944 \text{ dcsf}$$

$$C_{DG} = \frac{5.124}{4.944} = \boxed{1.036}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2

Calibrator: Shane Lee

Date: 8-13-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.0 "H2O

P_b: 29.20 "Hg

Control Module Vacuum: 5 0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1419	5.168 cf	73 °F	-1.80 "H_2O	307.007 cf	73 °F	72 °F	1.00 "H_2O
Start	1412	0.000 cf	73 °F	-1.80 "H_2O	301.998 cf	72 °F	71 °F	1.00 "H_2O
Avg.	9'	5.168' cf	73 °F	-1.80 "H_2O	5.009 cf	72 °F		1.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.168 \left[\frac{29.20 + \frac{-1.80}{13.6}}{73 + 460} \right] \times 1.000 \quad (C_f) = 4.975 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.009 \left[\frac{29.20 + \frac{1.00}{13.6}}{72 + 460} \right] = 4.865 \text{ dcsf}$$

$$C_{DG} = \frac{4.975}{4.865} = \boxed{1.023}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: Shane Lee

Date: 8-13-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.5 "H_2O

P_b: 29.20 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1529	10.355 cf	73 °F	-2.20 "H_2O	322.948 cf	77 °F	73 °F	1.50 "H_2O
Start	1515	0.000 cf	73 °F	-2.20 "H_2O	312.925 cf	73 °F	73 °F	1.50 "H_2O
Avg.	14	10.355 cf	73 °F	-2.20 "H_2O	10.023 cf	74 °F		1.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.355 \left[\frac{29.20 + \frac{-2.20}{13.6}}{73 + 460} \right] \times 1.000\ (C_f) = 9.957 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.023 \left[\frac{29.20 + \frac{1.50}{13.6}}{74 + 460} \right] = 9.710 \text{ dcsf}$$

$$C_{DG} = \frac{9.957}{9.710} = \boxed{1.025}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2

Date: 8-13-99

Calibrator: Shane Lee

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 20 4.0

P_b: 29 20 "Hg

Control Module Vacuum: 5.0 "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading	Temp.	P_m
End	1605	10.514 cf	73 °F	-2.60 "H_2O
Start	1552	0000 cf	73 °F	-2.60 "H_2O
Avg.	13	10.514 cf	73 °F	-2.60 "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
End	343.568 cf	80 °F	76 °F	2.00 "H_2O
Start	333.427 cf	77 °F	73 °F	2.00 "H_2O
Avg.	10.141 cf	77 °F		2.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.514 \left[\frac{29\,20 + \frac{-2.60}{13.6}}{73 + 460}\right] \times 1.000\ (C_f) = 10.100 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.141 \left[\frac{29\,20 + \frac{2.00}{13.6}}{77 + 460}\right] = 9.782 \text{ dcsf}$$

$$C_{DG} = \frac{10.100}{9.782} = \boxed{1.033}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2

Calibrator: Shane Lee

Date: 5-13-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 30 "H_2O

P_b: 29.20 "Hg

Control Module Vacuum: 5 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1618	11.961 cf	73 °F	-3.60 "H_2O	355.643 cf	83 °F	75 °F	3.00 "H_2O
Start	1607	0.000 cf	73 °F	-3.60 "H_2O	344.157 cf	78 °F	74 °F	3.00 "H_2O
Avg.	11	11.961 cf	73 °F	-3.60 "H_2O	11.486 cf	78 °F		3.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 11.961 \left[\frac{29.20 + \frac{-3.60}{13.6}}{73 + 460} \right] \times 1.000\ (C_f) = 11.461 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 11.486 \left[\frac{29.20 + \frac{3.00}{13.6}}{78 + 460} \right] = 11.086 \text{ dcsf}$$

$$C_{DG} = \frac{11.461}{11.086} = \boxed{1.034}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: Shane Lee

Date: 8-13-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 4.0 L.O P_b: 29.20 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1630	10.708 cf	93 °F	-4.30 "H_2O	366.588 cf	84 °F	95 °F	4.00 "H_2O
Start	1620	0.000 cf	93 °F	-4.30 "H_2O	356.234 cf	81 °F	95 °F	4.00 "H_2O
Avg.	10	10.708 cf	93 °F	-4.30 "H_2O	10.354 cf	79 °F		4.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.708 \left[\frac{29.20 + \frac{-4.30}{13.6}}{93 + 460} \right] \times 1.000 \ (C_f) = 10.242 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.354 \left[\frac{29.20 + \frac{4.00}{13.6}}{79 + 460} \right] = 10.000 \text{ dcsf}$$

$$C_{DG} = \frac{10.242}{10.000} = \boxed{1.024}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2

Calibrator: Shane Lee

Date: 8-13-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.0 l/min.

P_b: 29.20 "Hg

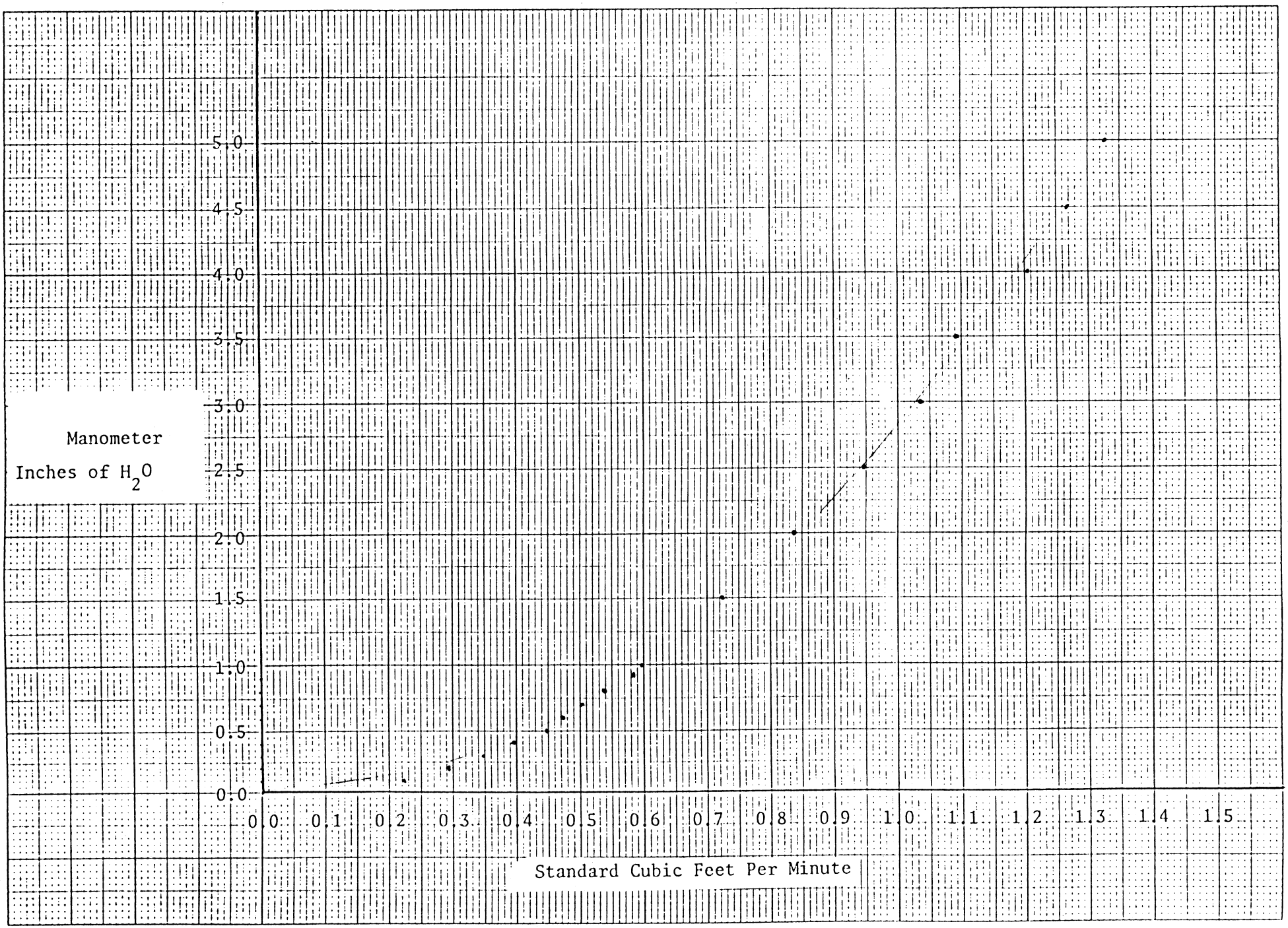
Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1711	2.700 cf	73 °F	-0.20 "H_2O	369.641 cf	73 °F	72 °F	0.02 "H_2O
Start	1636	0.000 cf	73 °F	-0.20 "H_2O	367.018 cf	79 °F	75 °F	0.02 "H_2O
Avg.	35	2.700 cf	73 ✓ °F	-0.20 ✓ "H_2O	2.623 ✓ cf	75 ✓ °F	0.02 ✓	"H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 2.700 \left[\frac{29.20 + \frac{-0.20}{13.6}}{73 + 460} \right] \times 1.000 \ (C_f) = 2.609 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 2.623 \left[\frac{29.20 + \frac{0.02}{13.6}}{75 + 460} \right] = 2.527 \text{ dcsf}$$

$$C_{DG} = \frac{2.609}{2.527} = \boxed{1.033}$$


Manometer
Inches of H_2O
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
Standard Cubic Feet Per Minute

METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 27-2

CALIBRATION DATA

Date: 8-13-99

Media	Time	Mercury Temperature (°F)	DTI (°F)
Ambient Air	0944	72	72
Ice Bath	0947	32	33
Boiling Water	0958	212	211
Oven	1003	250	250
Oven	1007	300	300
Oven	1010	350	351
Oven	1014	375	375

Meter Adjusted? Yes _____ No ✓

Calibrator: Shane Lee 261

Checked By: Mike Bass 263

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter No.: 29-1

Date: 10-21-99

ΔH ("H_2O)	C_{DG}
0.5	1.000
1.0	1.001
1.5	0.999
2.0	0.995
3.0	0.998
4.0	1.009
Average	1.000

Variation: + 0.90%

- 0.50%

Calibrator: Shane Lee 261

Checked By: Bill Lipsey #107

C_{DG} @ 2 liters/min. = 1.017

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1

Calibrator: Shane Lee

Date: 10-4-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 0.5" H_2O

P_b: 29.28 "Hg

Control Module Vacuum: 5 "Hg

Wet Test Meter (No. 3)					Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1423	5.380 cf	75 °F	-1.10 "H_2O"	377.116 cf	75 °F	73 °F	0.50 "H_2O"
Start	1409	0.000 cf	75 °F	-1.10 "H_2O"	371.767 cf	74 °F	72 °F	0.50 "H_2O"
Avg.	14	5.380 cf	75 °F	-1.10 "H_2O"	5.349 cf	74 °F		0.50 "H_2O"

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.380 \left[\frac{29.28 + \frac{-1.10}{13.6}}{75 + 460}\right] \times 1.000\ (C_f) = \overset{5.183}{\cancel{5.192}}\ \text{dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.349 \left[\frac{29.28 + \frac{0.50}{13.6}}{74 + 460}\right] = 5.183\ \text{dcsf}$$

$$C_{DG} = \frac{\overset{5.183}{\cancel{5.192}}}{5.183} = \boxed{\overset{1.000}{\cancel{1.002}}}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Shane Lee

Date: 10-4-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.0" H_2O P_b: 29.28 "Hg

Control Module Vacuum: 5.0 "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading		Temp.		P_m	
End	1436	5.400	cf	75	°F	-1.60	"H_2O
Start	1426	0.000	cf	75	°F	-1.60	"H_2O
Avg.	10	5.400	cf	75	°F	-1.60	"H_2O

Dry Gas Meter

	Meter Reading		Temp. In		Temp. Out		P_m	
End	383.463	cf	75	°F	73	°F	1.00	"H_2O
Start	378.114	cf	76	°F	73	°F	1.00	"H_2O
Avg.	5.349	cf	74	°F			1.00	"H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.400 \left[\frac{29.28 + \frac{-1.60}{13.6}}{75 + 460} \right] \times 1.000\ (C_f) = 5.195 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.349 \left[\frac{29.28 + \frac{1.00}{13.6}}{74 + 460} \right] = 5.190 \text{ dcsf}$$

$$C_{DG} = \frac{5.195}{5.190} = \boxed{1.001}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Stevie Lee

Date: 15-4-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.5 "H2O P_b: 29.28 "Hg

Control Module Vacuum: 5 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1454	10.668 cf	75 °F	-2.10 "H_2O	394.790 cf	73 °F	74 °F	1.50 "H_2O
Start	1438	0.000 cf	75 °F	-1.90 "H_2O	384.223 cf	72 °F	73 °F	1.50 "H_2O
Avg.	16	10.668 cf	75 °F	-2.00 "H_2O	10.567 cf		74 °F	1.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.668 \left[\frac{29.28 + \frac{-2.00}{13.6}}{75 + 460} \right] \times 1.000 \ (C_f) = 10.253 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.567 \left[\frac{29.28 + \frac{1.50}{13.6}}{74 + 460} \right] = 10.265 \text{ dcsf}$$

$$C_{DG} = \frac{10.253}{10.265} = \boxed{0.999} \ \checkmark$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Shane Lee

Date: 10-4-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.0 "H2O P_b: 29.28 "Hg

Control Module Vacuum: 5 0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1510	11.395 cf	75 °F	-2.40 "H_2O	406.546 cf	70 °F	76 °F	2.00 "H_2O
Start	1456	0.000 cf	75 °F	-2.40 "H_2O	395.246 cf	75 °F	75 °F	2.00 "H_2O
Avg.	14	11.395 cf	75 °F	-2.40 "H_2O	11.300 cf	74 °F		2.00 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 11.395 \left[\frac{29.28 + \frac{-2.40}{13.6}}{75 + 460}\right] \times 1.000\ (C_f) = 10.941 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 11.300 \left[\frac{29.28 + \frac{2.00}{13.6}}{74 + 460}\right] = 10.991 \text{ dcsf}$$

$$C_{DG} = \frac{10.941}{10.991} = \boxed{0.995}\ \checkmark$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Shane Lee

Date: 12-4-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 30 "H2O P_b: 29.28 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1524	10,800 cf	75 °F	-3.00 "H_2O	417.690 cf	67 °F	77 °F	3.00 "H_2O
Start	1513	0.000 cf	75 °F	-3.00 "H_2O	409.045 cf	75 °F	76 °F	3.00 "H_2O
Avg.	11	10.800 cf	75 °F	-3.00 "H_2O	10.645 cf	74 °F		3.00 "H_2O

$$Vm_{std} = 17.65 \times 10.800 \left[\frac{29.28 + \frac{-3.00}{13.6}}{75 + 460}\right] \times 1.000 \ (C_f) = 10.354 \text{ dcsf}$$

$$Vm_{std} = 17.65 \times 10.645 \left[\frac{29.28 + \frac{3.00}{13.6}}{74 + 460}\right] = \cancel{10.360} \ 10.380 \text{ dcsf}$$

$$C_{DG} = \frac{10.354}{\cancel{10.360} \ 10.380} = \boxed{\cancel{0.999} \ 0.998}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Shane Lee

Date: 10-4-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 4.0" H2O P_b: 29.28 "Hg

Control Module Vacuum: 5.0 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1547	10.947 cf	75 °F	-4.00 "H_2O	430.335 cf	68 °F	77 °F	4.00 "H_2O
Start	1537	0.000 cf	75 °F	-3.60 "H_2O	419.698 cf	78 °F	77 °F	4.00 "H_2O
Avg.	10	10.947 cf	75 °F	-3.90 "H_2O	10.637 cf	75	°F	4.00 "H_2O

$$Vm_{std} = 17.65 \times 10.947 \left[\frac{29.28 + \frac{-3.90}{13.6}}{75 + 460}\right] \times 1.000 \; (C_f) = 10.471 \text{ dcsf}$$

$$Vm_{std} = 17.65 \times 10.637 \left[\frac{29.28 + \frac{4.00}{13.6}}{75 + 460}\right] = 10.378 \text{ dcsf}$$

$$C_{DG} = \frac{10.471}{10.378} = \boxed{1.009}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Shane Lee

Date: 10-4-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.5 L/min P_b: 29.28 "Hg

Control Module Vacuum: 5 "Hg

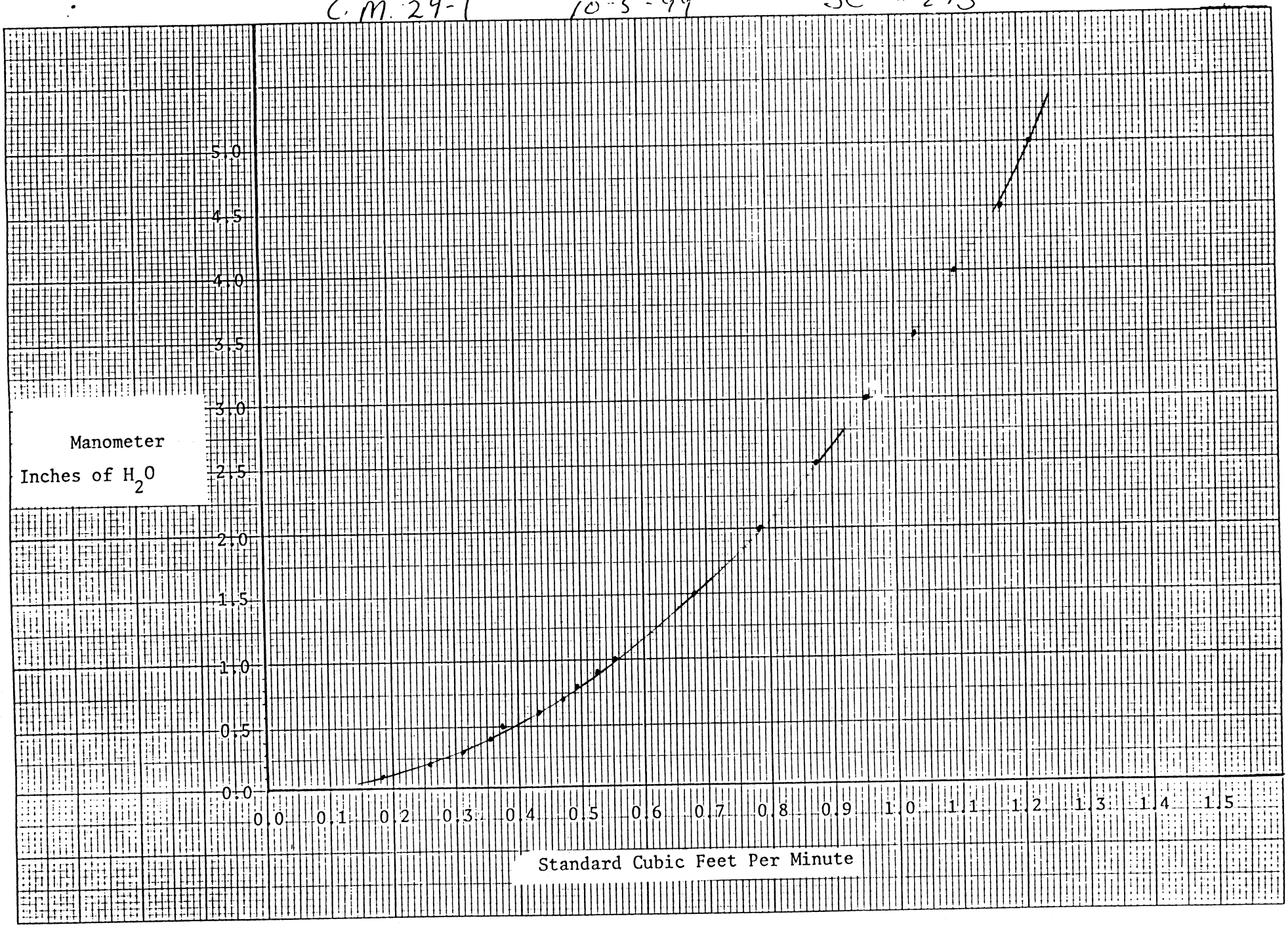
Wet Test Meter (No. 3)					Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1622	2.210 cf	75 °F	-0.20 "H_2O	432.153 cf	81 °F	76 °F	0.01 "H_2O
Start	1606	0.000 cf	75 °F	-0.20 "H_2O	430.968 cf	78 °F	76 °F	0.01 "H_2O
Avg.	16	2.210 cf	75 °F	-0.20 "H_2O	1.185 cf	78 °F		0.01 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 2.210 \left[\frac{29.28 + \frac{-0.20}{13.6}}{75 + 460} \right] \times 1.000\ (C_f) = 2.134 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 1.185 \left[\frac{29.28 + \frac{0.01}{13.6}}{75 + 460} \right] = 2.099 \text{ dcsf}$$

$$C_{DG} = \frac{2.134}{2.099} = \boxed{1.017}\ \checkmark$$

C.M. 29-1 10-5-99 JC # 273



METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 29-1

CALIBRATION DATA

Date: 10-4-99

Media	Time	Mercury Temperature (°F)	DTI (°F)
Ambient Air	1330	70	70
Ice Bath	1337	32	32
Boiling Water	1345	212	212
Oven	1353	250	250
Oven	1355	300	301
Oven	1358	350	350
Oven	1359	375	376

Meter Adjusted? Yes _____ No ✓

Calibrator: Shane Lee #261

Checked By: Bill Hughey #101

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 19-1

Date: 10-11-99

Time: 1520

Barometric Pressure @ Addison Airport @ 719 ft.	=	30.210
	-	0.719
Absolute Pressure @ Addison Airport	=	29.491
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.574
Barometer Reading	=	29.610
Variation	=	0.036

Barometer Adjusted? Yes ✓ No _____

Shane Lee 261

Signature of Calibrator

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 19-2

Date: 10-4-99

Time: 1504

Barometric Pressure @ Addison Airport @ 719 ft.	=	30.210
	-	0.719
Absolute Pressure @ Addison Airport	=	29.491
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.574
Barometer Reading	=	29.520
Variation	=	- 0.054

Barometer Adjusted? Yes ✓ No _____

Shane Lee 261

Signature of Calibrator

PITOT TUBE CALIBRATION

Date: 11-12-99

Time: 1500

Pitot No.: M2

T_s: 75 °F

Pitot Dimensions: 3/8" tips

C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	End	$\sqrt{\text{Standard Average}}$	High	$\sqrt{\text{High}}$	Cal. Factor	Low	$\sqrt{\text{Low}}$	Cal. Factor
7	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
14	30	0.22	0.22	0.469	0.33	0.574	0.808	0.33	0.574	0.808
20	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.00	1.00	1.000	1.45	1.204	0.822	1.45	1.204	0.822
50	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
62	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.810			0.810

Summary of Results:

Normal high side calibration factor 0.810

variation + 1.48%

variation - 0.25%

Normal low side calibration factor 0.810

variation + 1.48%

variation - 0.25%

Calibrator: Jason Brown #274

Checked By: Jason Conway #273

PITOT TUBE CALIBRATION

Date: 11-22-99 Time: 1330

Pitot No.: M3 T_s: 68 °F

Pitot Dimensions: 3/8" tips C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
7	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
14	30	0.23	0.23	0.469	0.33	0.574	0.808	0.33	0.574	0.808
20	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
50	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
62	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.808			0.808

Summary of Results:

Normal high side calibration factor 0.808

variation + 0.00%

variation - 0.00%

Normal low side calibration factor 0.808

variation + 0.00%

variation - 0.00%

Calibrator: Scott Hart #248

Checked By: Jason Conway #273

PITOT TUBE CALIBRATION

Date: 11-5-99 Time: 1000

Pitot No.: 31-5-2 T_s: 70 °F

Pitot Dimensions: 5' x 1/4" C_{pstd}: 0.990

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
7	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
14	30	0.22	0.22	0.469	0.34	0.583	0.796	0.34	0.583	0.796
20	40	0.34	0.34	0.583	0.52	0.721	0.801	0.52	0.721	0.801
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
50	80	1.30	1.30	1.140	1.95	1.396	0.808	1.95	1.396	0.808
62	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
28	50	0.54	0.54	0.735	0.81	0.900	0.808	0.81	0.900	0.808
Average							0.806			0.806

Summary of Results:

Normal high side calibration factor 0.806

variation + ~~0.24~~ 0.25%

variation - 1.24%

Normal low side calibration factor 0.806

variation + ~~0.806 0.24~~ 0.25%

variation - 1.24%

Calibrator: Jason Chessher 275

Checked By: Steve Bronsen #193

METCO ENVIRONMENTAL

NOZZLE CALIBRATION

Nozzle Set No. TFE-1

Date 11-19-99 Calibrator: Shane Dec 261

	4	6	7	8	10	12
Reading 1	0.117	0.175	0.200	0.234	0.309	0.362
Reading 2	0.116	0.174	0.200	0.236	0.308	0.360
Reading 3	0.118	0.173	0.198	0.236	0.308	0.359
Reading 4	0.118	0.173	0.196	0.235	0.307	0.363
Reading 5	0.120	0.174	0.199	0.235	0.308	0.362
Reading 6	0.119	0.173	0.200	0.235	0.306	0.359
Reading 7	0.117	0.173	0.199	0.234	0.306	0.360
Reading 8	0.116	0.174	0.199	0.236	0.308	0.359
Reading 9	0.117	0.175	0.200	0.235	0.308	0.361
Reading 10	0.118	0.175	0.200	0.236	0.306	0.360
Average	0.118 ✓	0.174 ✓	0.199 ✓	0.235 ✓	0.307 ✓	0.361 ✓

	14	—	—	—	—	—
Reading 1	0.429					
Reading 2	0.429					
Reading 3	0.430					
Reading 4	0.429					
Reading 5	0.431					
Reading 6	0.428					
Reading 7	0.429					
Reading 8	0.429					
Reading 9	0.431					
Reading 10	0.430					
Average	0.430 ✓					

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter No.: 27-2

Date: 11-07-99

ΔH ("H_2O)	C_{DG}
0.5	~~1.012~~ 1.015
1.0	1.018
1.5	1.022
2.0	1.019
3.0	1.011
4.0	1.002
Average	1.015

Variation: + 0.69%

- 1.28%

Calibrator: M. Buss

Checked By: Sam Brown

C_{DG} @ 2 liters/min. = _____

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: M. Buss

Date: 11-07-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 0.5 " H_2O P_b: 29.32 "Hg

Control Module Vacuum: 2.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1310	5.015 cf	74 °F	-0.90 "H_2O	572.057 cf	77 °F	76 °F	0.50 "H_2O
Start	1257	0.000 cf	74 °F	-0.90 "H_2O	567.114 cf	76 °F	75 °F	0.50 "H_2O
Avg.	13	5.015 cf	74 °F	-0.900 "H_2O	4.943 cf	76 °F		0.500 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.015 \left[\frac{29.32 + \frac{-0.900}{13.6}}{74 + 460}\right] \times 1.000 \ (C_f) = 4.849 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 4.943 \left[\frac{29.32 + \frac{0.500}{13.6}}{76 + 460}\right] = 4.778 \text{ dcsf}$$

$$C_{DG} = \frac{4.849}{4.778} = \boxed{1.015}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: M. Bass

Date: 11-07-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.0" H_2O P_b: 29.32 "Hg

Control Module Vacuum: 2.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1323	5.122 cf	74 °F	-1.30 "H_2O	577.407 cf	78 °F	77 °F	1.00 "H_2O
Start	1314	0.000 cf	74 °F	-1.30 "H_2O	572.377 cf	77 °F	76 °F	1.00 "H_2O
Avg.	9	5.122 cf	74 °F	-1.300 "H_2O	5.030 cf	77 °F		1.000 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.122 \left[\frac{29.32 + \frac{-1.300}{13.6}}{74 + 460}\right] \times 1.000 \quad (C_f) = 4.948 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.030 \left[\frac{29.32 + \frac{1.000}{13.6}}{77 + 460}\right] = 4.859 \text{ dcsf}$$

$$C_{DG} = \frac{4.948}{4.859} = \boxed{1.018}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: M. Bass

Date: 11-07-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.5" H_2O P_b: 29.32 "Hg

Control Module Vacuum: 2.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1341	10.295 cf	74 °F	-1.60 "H_2O	587.724 cf	82 °F	77 °F	1.50 "H_2O
Start	1326	0.000 cf	74 °F	-1.60 "H_2O	577.653 cf	78 °F	76 °F	1.50 "H_2O
Avg.	15	10.295 cf	74 °F	-1.600 "H_2O	10.071 cf	78 °F		1.500 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.295 \left[\frac{29.32 + \frac{-1.600}{13.6}}{74 + 460}\right] \times 1.000 \quad (C_f) = 9.937 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.071 \left[\frac{29.32 + \frac{1.500}{13.6}}{78 + 460}\right] = 9.724 \text{ dcsf}$$

$$C_{DG} = \frac{9.937}{9.724} = \boxed{1.022}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: M. Bass

Date: 11-07-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.0" H_2O P_b: 29.32 "Hg

Control Module Vacuum: 2.50 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1356	10.300 cf	74 °F	-2.50 "H_2O	598.026 cf	86 °F	78 °F	2.00 "H_2O
Start	1344	0.000 cf	74 °F	-2.50 "H_2O	587.902 cf	81 °F	77 °F	2.00 "H_2O
Avg.	12	10.300 cf ✓	74 °F ✓	-2.500 "H_2O ✓	10.124 cf ✓	81 °F ✓		2.000 "H_2O ✓

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.300 \left[\frac{29.32 + \frac{-2.500}{13.6}}{74 + 460}\right] \times 1.000\,(C_f) = 9.919 \text{ dcsf} \checkmark$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.124 \left[\frac{29.32 + \frac{2.000}{13.6}}{81 + 460}\right] = 9.733 \text{ dcsf} \checkmark$$

$$C_{DG} = \frac{9.919}{9.733} = \boxed{1.019} \checkmark$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: M. Bass

Date: 11-07-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 3.0 "H_2O P_b: 29.32 "Hg

Control Module Vacuum: 3.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1408	10.330 cf	74 °F	-2.40 "H_2O	606.602 cf	89 °F	79 °F	3.00 "H_2O
Start	1358	0.000 cf	74 °F	-2.40 "H_2O	598.364 cf	85 °F	78 °F	3.00 "H_2O
Avg.	10	10.330 cf ✓	74 °F ✓	-2.900 "H_2O ✓	10.238 cf ✓	83 °F ✓		3.000 "H_2O ✓

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.330 \left[\frac{29.32 + \frac{-2.40}{13.6}}{74 + 460}\right] \times 1.000\ (C_f) = 9.938 \text{ dcsf} \checkmark$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 10.238 \left[\frac{29.32 + \frac{3.000}{13.6}}{83 + 460}\right] = 9.831 \text{ dcsf} \checkmark$$

$$C_{DG} = \frac{9.938}{9.831} = \boxed{1.011} \checkmark$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 27-2 Calibrator: M. Bass

Date: 11-07-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 4.0" H_2O P_b: 29.32 "Hg

Control Module Vacuum: 3.00 "Hg

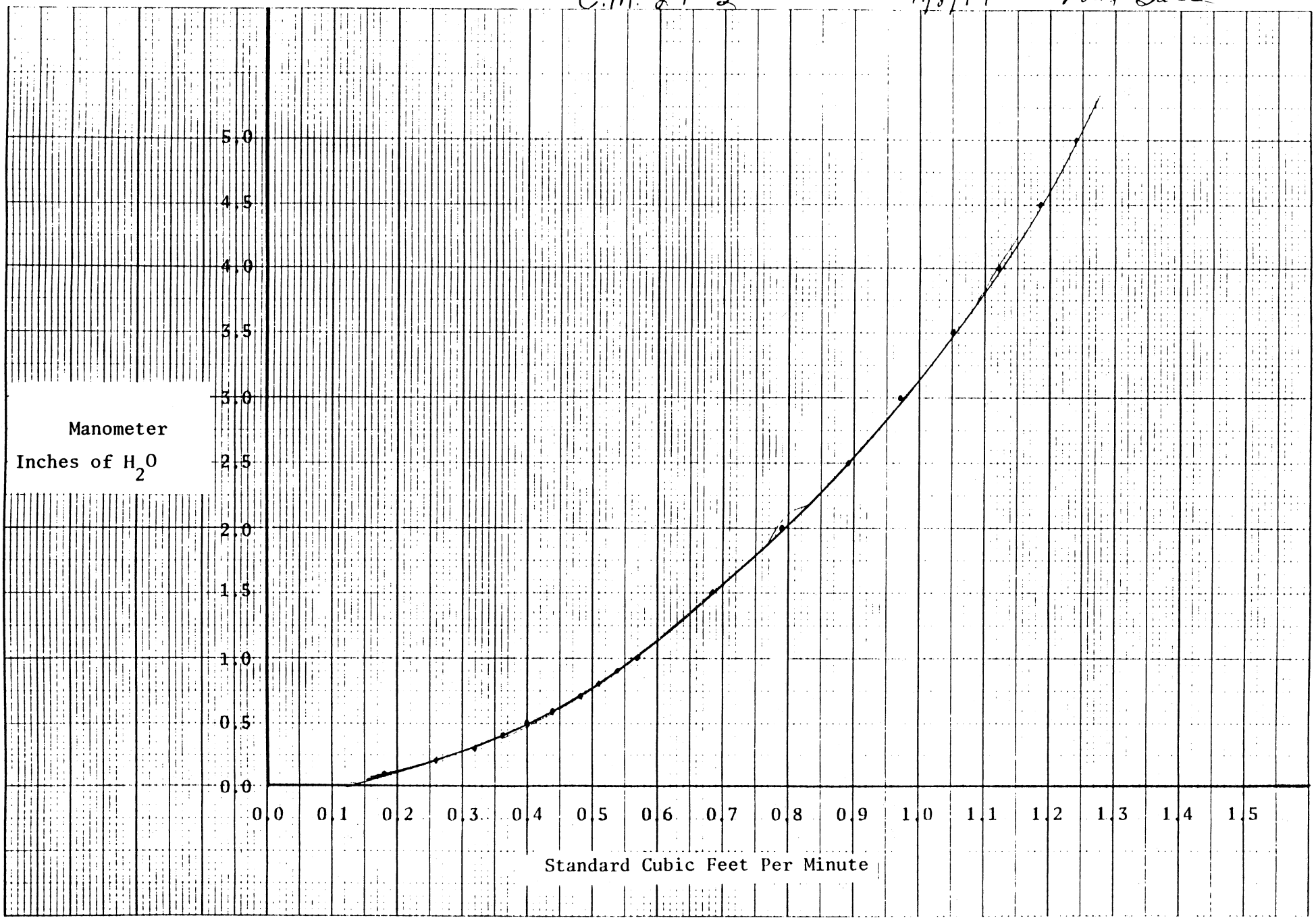
	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1419	10.130 cf	74 °F	-3.70 "H_2O	619.031 cf	91 °F	80 °F	4.00 "H_2O
Start	1410	0.000 cf	74 °F	-3.70 "H_2O	608.926 cf	87 °F	79 °F	4.00 "H_2O
Avg.	9	10.130 cf ✓	74 °F ✓	-3.700 "H_2O ✓	10.105 cf ✓	84 ✓ °F	4.000	"H_2O ✓

$$Wet\ Test\ Meter\ Vm_{std} = 17.65 \times 10.130 \left[\frac{29.32 + \frac{-3.700}{13.6}}{74 + 460}\right] \times 1000 \quad (C_f) = 9.726\ dcsf \checkmark$$

$$Dry\ Gas\ Meter\ Vm_{std} = 17.65 \times 10.105 \left[\frac{29.32 + \frac{4.000}{13.6}}{84 + 460}\right] = 9.709\ dcsf \checkmark$$

$$C_{DG} = \frac{9.726}{9.709} = \boxed{1.002} \checkmark$$

C.M. 27-2 11/8/99 Mihi Baza



METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 27-2

CALIBRATION DATA

Date: 11-07-99

Media	Time	Mercury Temperature (°F)	DTI (°F)	
Ambient Air	1248	77	75	✓
Ice Bath	1250	36	36	✓
Boiling Water	1300	210	211	✓
Oven	1302	250	250	✓
Oven	1304	300	301	✓
Oven	1306	352	351	✓
Oven	1308	376	378	✓

Meter Adjusted? Yes _____ No ✓

Calibrator: Mike Bass

Checked By: John Brown

METCO ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter No.: 29-1

Date: 11-22-99

ΔH ("H_2O)	C_{DG}
0.5	1.005 ✓
1.0	0.999 ✓
1.5	1.003 ✓
2.0	1.000 ✓
3.0	0.994 ✓
4.0	0.999 ✓
Average	1.000 ✓

Variation: + 0.5 % ✓

- 0.6 % ✓

Calibrator: Jason Conway #273

Checked By: Scott Hart #268

C_{DG} @ 2 liters/min. = 1.013

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Jason Conway

Date: 11-22-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 0.50 "H2O P_b: 29.24 "Hg

Control Module Vacuum: 0.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	0935	5.003 cf	69 °F	-0.8 "H_2O	738522 cf	87 °F	71 °F	0.5 "H_2O
Start	0922	0.000 cf	69 °F	-0.8 "H_2O	733.505 cf	72 °F	71 °F	0.5 "H_2O
Avg.	13 ✓	5.0031 ✓ cf	69 ✓ °F	-0.8 ✓ "H_2O	5.017 ✓ cf	75 ✓ °F	✓ 0.5 "H_2O	

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 5.003 \left[\frac{29.24 + \frac{-0.8}{13.6}}{69 + 460} \right] \times 1.000 \quad (C_f) = 4.871 \text{ ✓ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 5.017 \left[\frac{29.24 + \frac{0.5}{13.6}}{75 + 460} \right] = 4.846 \text{ ✓ dcsf}$$

$$C_{DG} = \frac{4.871}{4.846} = \boxed{1.005 \text{ ✓}}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Jason Conway

Date: 11-22-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.00 "H2O P_b: 29.24 "Hg

Control Module Vacuum: 0.06 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1031	5.004 cf	69 °F	-13 "H_2O	744.777 cf	68 °F	71 °F	1.0 "H_2O
Start	1021	0.000 cf	69 °F	-13 "H_2O	739.786 cf	70 °F	71 °F	1.0 "H_2O
Avg.	10 ✓	5.004 ✓ cf	69 ✓ °F	-13 ✓ "H_2O	4.991 ✓ cf	70 ✓ °F	✓ 1.0	"H_2O

$$Wet\ Test\ Meter\ Vm_{std} = 17.65 \times 5.004 \left[\frac{29.24 + \frac{-13}{13.6}}{69 + 460}\right] \times 1.000\ (C_f) = 4.866\ \checkmark\ dcsf$$

$$Dry\ Gas\ Meter\ Vm_{std} = 17.65 \times 4.991 \left[\frac{29.24 + \frac{1.0}{13.6}}{70 + 460}\right] = 4.872\ \checkmark\ dcsf$$

$$C_{DG} = \frac{4.866}{4.872} = \boxed{0.999\ \checkmark}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Jason Conway

Date: 11-22-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 1.50 "H2O P_b: 29.24 "Hg

Control Module Vacuum: 0.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1049	10.009 cf	69 °F	-1.6	755.874 cf	65 °F	71 °F	1.50 "H_2O
Start	1034	0.000 cf	69 °F	-1.6	745.977 cf	69 °F	71 °F	1.50 "H_2O
Avg.	15 ✓	10.009 ✓ cf	69 ✓ °F	-1.6 ✓	9.897 ✓ cf	69 ✓ °F	✓	1.50 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.009 \left[\frac{29.24 + \frac{-1.6}{13.6}}{69 + 460}\right] \times 1.000 \ (C_p) = 9.725 \text{ dcsf} \ ✓$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 9.897 \left[\frac{29.24 + \frac{1.50}{13.6}}{69 + 460}\right] = 9.692 \text{ dcsf} \ ✓$$

$$C_{DG} = \frac{9.725}{9.692} = \boxed{1.003 \ ✓}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29.1 Calibrator: Jason Conway

Date: 11-22-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2.00 "H2O P_b: 29.24 "Hg

Control Module Vacuum: 8.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1103	10.088 cf	69 °F	-26 "H_2O	766.667 cf	69 °F	72 °F	2.0 "H_2O
Start	1051	0.000 cf	69 °F	-20 "H_2O	756.663 cf	68 °F	72 °F	2.0 "H_2O
Avg.	12	10.088 ✓ cf	69 ✓ °F	-26 ✓ "H_2O	10.004 ✓ cf	70 ✓ °F		✓2.0 "H_2O

$$Vm_{std} = 17.65 \times 10.088 \left[\frac{29.24 + \frac{-2.0}{13.6}}{69 + 460}\right] \times 1.000\ (C_f) = 9.792^{\checkmark}\ dcsf$$

$$Vm_{std} = 17.65 \times 10.004 \left[\frac{29.24 + \frac{2.0}{13.6}}{70 + 460}\right] = 9.790^{\checkmark}\ dcsf$$

$$C_{DG} = \frac{9.792}{9.790} = \boxed{1.000^{\checkmark}}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1

Calibrator: Jason Conway

Date: 11-22-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 3.00 "H2O

P_b: 29.24 "Hg

Control Module Vacuum: 0.00 "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading	Temp.	P_m
End	1134	10.011 cf	69 °F	-3.0 "H_2O
Start	1124	0.000 cf	69 °F	-3.0 "H_2O
Avg.	10.0	10.011 cf	69 ✓ °F	-3.0 ✓ "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
End	789.042 cf	69 °F	73 °F	3.0 "H_2O
Start	779.107 cf	69 °F	73 °F	3.0 "H_2O
	9.935 ✓ cf	70 ✓ °F		✓ 3.0 "H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.011 \left[\frac{29.24 + \frac{-3.0}{13.6}}{69 + 460}\right] \times 1.000\ (C_f) = 9.693\ \checkmark \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 9.935 \left[\frac{29.24 + \frac{3.0}{13.6}}{70 + 460}\right] = 9.747\ \checkmark \text{ dcsf}$$

$$C_{DG} = \frac{9.693}{9.747} = \boxed{0.994\ \checkmark}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Jason Conway

Date: 11-21-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 2 @ 4.00 "H2O P_b: 29.24 "Hg

Control Module Vacuum: 0.00 "Hg

	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1311	10.002 cf	70 °F	-3.8 "H_2O	817.238 cf	68 °F	72 °F	4.0 "H_2O
Start	1302	0.000 cf	70 °F	-3.8 "H_2O	807.425 cf	70 °F	72 °F	4.0 "H_2O
Avg.	9 ✓	10.002 ✓ cf	70 ✓ °F	-3.8 ✓ "H_2O	9.813 ✓ cf	71 ✓ °F	✓ 4.0	"H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.002 \left[\frac{29.24 + \frac{-3.8}{13.6}}{70 + 460}\right] \times 1.000\ (C_f) = 9.646\ ✓ \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 9.813 \left[\frac{29.24 + \frac{4.0}{13.6}}{71 + 460}\right] = \frac{9.633\ ✓}{\cancel{9.651}\ ✓} \text{ dcsf}$$

$$C_{DG} = \frac{9.646}{9.651} = \boxed{0.999\ ✓}$$

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 29-1 Calibrator: Jason Conway

Date: 11-22-99

$$\text{Calibration Factor } (C_{DG}) = \frac{\text{Wet Test Meter } Vm_{std}}{\text{Dry Gas Meter } Vm_{std}}$$

Run No.: 1 @ 2 L/min P_b: 29.15 "Hg

Control Module Vacuum: 0.00 "Hg

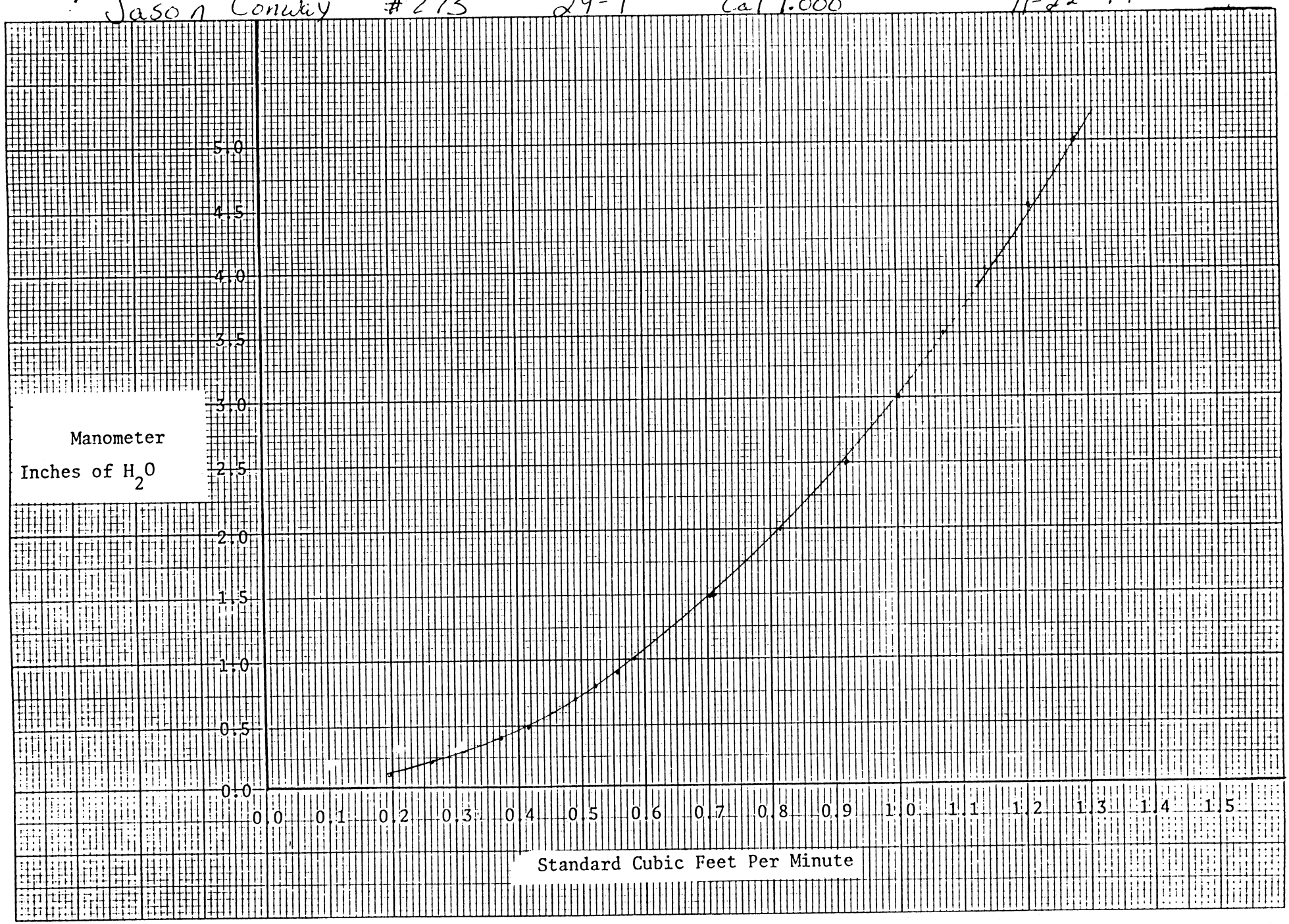
	Wet Test Meter (No. 1)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1637	2.229 cf	70 °F	-0.6 "H_2O	873.468 cf	77 °F	72 °F	0.04 "H_2O
Start	1605	0.000 cf	70 °F	-0.6 "H_2O	871.246 cf	72 °F	72 °F	0.04 "H_2O
Avg.	32 ✓	2.229 ✓ cf	70 ✓ °F	-0.6 ✓ "H_2O	2.222 ✓ cf	73 ✓ °F	✓ 0.04	"H_2O

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 2.229 \left[\frac{29.15 + \frac{-0.6}{13.6}}{70 + 460}\right] \times 1.006\,(C_f) = 2.173 \text{ dcsf}$$

$$\text{Dry Gas Meter } Vm_{std} = 17.65 \times 2.222 \left[\frac{29.15 + \frac{0.04}{13.6}}{73 + 460}\right] = 2.145 \text{ dcsf}$$

$$C_{DG} = \frac{2.173}{2.145} = \boxed{1.013}$$

Jason County #273 29-1 Cal 1.000 11-22-99



METCO ENVIRONMENTAL

DIGITAL TEMPERATURE INDICATOR NO. 29-1

CALIBRATION DATA

Date: 11-22 99

Media	Time	Mercury Temperature (°F)	DTI (°F)
Ambient Air	1025	70	70
Ice Bath	1112	35	36
Boiling Water	1050	212	212
Oven	1130	250	251
Oven	1141	300	300
Oven	1153	350	353
Oven	1200	375	375

Meter Adjusted? Yes _____ No ✓

Calibrator: Jason Conway #273

Checked By: Scott Hall #268

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 19-1

Date: 11-23-99

Time: 1115

Barometric Pressure @ Addison Airport @ 719 ft.	=	29.86
	-	0.719
Absolute Pressure @ Addison Airport	=	29.141
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.224
Barometer Reading	=	29.18
Variation	=	0.044

Barometer Adjusted? Yes ✓ No _____

Scott Herr #268 ✓

Signature of Calibrator

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 19-2

Date: 11-22-91

Time: 1050

Barometric Pressure @ Addison Airport @ 719 ft.	=	29.86
	-	0.719
Absolute Pressure @ Addison Airport	=	29.141
	+	0.083
Absolute Pressure @ METCO @ 636 ft.	=	29.224
Barometer Reading	=	29.37
Variation	=	0.146

Barometer Adjusted? Yes ✓ No _____

Scott Hall #368
Signature of Calibrator

APPENDIX D

Analytical Data

TestAmerica
INCORPORATED

December 6, 1999

Doug Saathoff
METCO Environmental
P.O. Box 598
Addison, Texas 75001

Dear Doug,

Please find included with this letter the analytical report and data package for the Texas-New Mexico Power Company samples submitted to TestAmerica for analysis. The samples were analyzed following the SOPs based on the Ontario-Hydro Method and ASTM 6414-99.

Case Narrative

TestAmerica unpacked the samples on November 11, 1999. All samples were intact when received. The following items were noted:

- The thimble for Unit 2 Baghouse inlet Duct Run #1 was mislabeled as Container #2.
- The thimble and 47 mm filter for Unit 2 Baghouse inlet Duct Run #2 was mislabeled as Container #2.
- Some particulate matter was lost during sample preparation of the filter labeled as 47Q45. The amount of particulate lost was insignificant.

No problems were noted during analysis. If you have any questions or need additional information about this data package, please feel free to contact me at 937-294-6856.

Sincerely,

James A. Davis

James A. Davis
QA Coordinator

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX: 937-294-7816

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas

Hg Analysis
Ontario Hydro Method

Summary Report

	Unit 2 Stack Run 1	Unit 2 Stack Run 2	Unit 2 Stack Run 3	Unit 2 Baghouse Inlet Duct Run 1	Unit 2 Baghouse Inlet Duct Run 2	Unit 2 Baghouse Inlet Duct Run 3
Particle Bound Hg (ug)	0.053	0.045	0.076	28.42	14.07	38.55
Oxidized Hg (ug)	16.70	9.59	21.00	11.40	5.96	18.90
Elemental Hg (ug)	6.53	4.16	7.85	9.74	8.05	9.65
Total Hg (ug)	23.28	13.80	28.93	49.56	28.08	67.10

	Unit 2 Stack Blank Train	Unit 2 Baghouse Inlet Duct Blank Train
Particle Bound Hg (ug)	0.000	0.000
Oxidized Hg (ug)	0.00	0.00
Elemental Hg (ug)	0.00	0.00
Total Hg (ug)	0.00	0.00

	Reagent Blanks
Container # 7 (ug/L)	<0.2
Container # 8 (ug/L)	<2.0
Container # 9 (ug/L)	<2.0
Container # 10 (ug/L)	<4.0
Container # 11 (ug/L)	<0.2
Container # 12 (ug)	<0.01

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas

Hg Analysis
Ontario Hydro Method

Duplicate Summary Report

	Unit 2 Stack Run 1	Unit 2 Stack Run 2	Unit 2 Stack Run 3	Unit 2 Baghouse Inlet Duct Run 1	Unit 2 Baghouse Inlet Duct Run 2	Unit 2 Baghouse Inlet Duct Run 3
Particle Bound Hg (ug)	0.052	0.046	0.076	28.32	13.83	37.81
Oxidized Hg (ug)	16.52	9.67	21.02	11.17	5.99	19.10
Elemental Hg (ug)	6.53	4.19	7.80	9.84	7.75	9.70
Total Hg (ug)	23.10	13.91	28.90	49.33	27.57	66.61

	Unit 2 Stack Blank Train	Unit 2 Baghouse Inlet Duct Blank Train
Particle Bound Hg (ug)	0.000	0.000
Oxidized Hg (ug)	0.00	0.00
Elemental Hg (ug)	0.00	0.00
Total Hg (ug)	0.00	0.00

	Reagent Blanks
Container # 7 (ug/L)	<0.2
Container # 8 (ug/L)	<2.0
Container # 9 (ug/L)	<2.0
Container # 10 (ug/L)	<4.0
Container # 11 (ug/L)	<0.2
Container # 12 (ug)	<0.01

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Unit 2 Stack Run 1

Hg Analysis
Ontario Hydro Method

Collected On: 10/0799
Collected By: METCO

Container # 1A - Main Filter
Container # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A	FTX-7	11/12/99	11/15/99	jpp	0.053	0.052	1.0	---	---	ug		(47Q40)
Container # 1B		Not Provided		jpp	---	---	---	---	---	ug		
Container # 2	2TX-4	11/12/99	11/12/99	jpp	<0.088	<0.088	0	---	---	ug		
Container # 3	3TX-6	11/12/99	11/12/99	jpp	16.7	16.52	1.0	---	---	ug		
Container # 4	4TX-6	11/13/99	11/13/99	jpp	<0.560	<0.560	0	---	---	ug		
Container # 5	5TX-6	11/13/99	11/13/99	jpp	6.53	6.53	0	---	---	ug		

Particle Bound Hg (ug) 0.053
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) 16.70
(Containers 3)

Elemental Hg (ug) 6.53
(Containers 4 and 5)

Total Hg (ug) 23.28
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) 0.052
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) 16.52
(Containers 3)

Dup. Elemental Hg (ug) 6.53
(Containers 4 and 5)

Dup. Total Hg (ug) 23.10
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes:

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Unit 2 Stack Run 2

Hg Analysis
Ontario Hydro Method

Collected On: 10/0799
Collected By: METCO

Container # 1A - Main Filter
Container # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A	FTX-8	11/19/99	11/20/99	jpp	0.045	0.046	1.8	0.046	1.8	ug		(47Q43)
Container # 1B		Not Provided		jpp	---	---	---	---	---	ug		
Container # 2	2TX-5	11/12/99	11/12/99	jpp	<0.066	<0.066	0	---	---	ug		
Container # 3	3TX-7	11/12/99	11/12/99	jpp	9.59	9.67	0.8	9.59	0	ug		
Container # 4	4TX-7	11/13/99	11/13/99	jpp	<0.600	<0.600	0	---	---	ug		
Container # 5	5TX-7	11/13/99	11/13/99	jpp	4.16	4.19	0.7	---	---	ug		

Particle Bound Hg (ug) 0.045
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) 9.59
(Containers 3)

Elemental Hg (ug) 4.16
(Containers 4 and 5)

Total Hg (ug) 13.80
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) 0.046
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) 9.67
(Containers 3)

Dup. Elemental Hg (ug) 4.19
(Containers 4 and 5)

Dup. Total Hg (ug) 13.91
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes:

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Unit 2 Stack Run 3

Hg Analysis
Ontario Hydro Method

Collected On: 10/08/99
Collected By: METCO

Container # 1A - Main Filter
Container # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A	FTX-9	11/19/99	11/20/99	jpp	0.076	0.076	0	---	---	ug		(47Q46)
Container # 1B		Not Provided		jpp	---	---	---	---	---	ug		
Container # 2	2TX-6	11/12/99	11/12/99	jpp	<0.068	<0.068	0	---	---	ug		
Container # 3	3TX-8	11/12/99	11/12/99	jpp	21.0	21.02	0.3	---	---	ug		
Container # 4	4TX-8	11/13/99	11/13/99	jpp	<0.640	<0.640	0	---	---	ug		
Container # 5	5TX-8	11/13/99	11/13/99	jpp	7.85	7.80	0.6	---	---	ug		

Particle Bound Hg (ug) 0.076
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) 21.00
(Containers 3)

Elemental Hg (ug) 7.85
(Containers 4 and 5)

Total Hg (ug) 28.93
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) 0.076
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) 21.02
(Containers 3)

Dup. Elemental Hg (ug) 7.80
(Containers 4 and 5)

Dup. Total Hg (ug) 28.90
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes:

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Unit 2 Baghouse Inlet Duct Run 1

Hg Analysis
Ontario Hydro Method

Collected On: 10/0799
Collected By: METCO

Container # 1A - Main Filter
Container # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A	FTX-1	11/12/99	11/15/99	jpp	28.4	28.3	0.2	---	---	ug	*1, *2	(Q23,Q24)
Container # 1B	FTX-2	11/12/99	11/15/99	jpp	0.022	0.023	2.5	---	---	ug	*1	(47Q42)
Container # 2	2TX-1	11/12/99	11/12/99	jpp	<0.270	<0.270	0	---	---	ug		
Container # 3	3TX-2	11/12/99	11/12/99	jpp	11.4	11.17	2	---	---	ug		
Container # 4	4TX-2	11/13/99	11/13/99	jpp	<0.580	<0.580	0	---	---	ug		
Container # 5	5TX-2	11/13/99	11/13/99	jpp	9.74	9.84	1.0	---	---	ug		

Particle Bound Hg (ug) **28.42**
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) **11.40**
(Containers 3)

Elemental Hg (ug) **9.74**
(Containers 4 and 5)

Total Hg (ug) **49.56**
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) **28.32**
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) **11.17**
(Containers 3)

Dup. Elemental Hg (ug) **9.84**
(Containers 4 and 5)

Dup. Total Hg (ug) **49.33**
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes: *1 - Filter # (ID) not written on Chain of Custody. Filter # recorded off of actual filter.
*2 - Particulate rom both filters was composited prior to removing an aliquot for analysis.

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Unit 2 Baghouse Inlet Duct Run 2

Hg Analysis
Ontario Hydro Method

Collected On: 10/0799
Collected By: METCO

Container # 1A - Main Filter
Container # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A	FTX-3	11/12/99	11/15/99	jpp	14.0	13.76	1.4	---	---	ug	*1, *2	(Q25,Q26)
Container # 1B	FTX-4	11/12/99	11/15/99	jpp	0.065	0.065	0.8	---	---	ug	*1	(47Q45)
Container # 2	2TX-2	11/12/99	11/12/99	jpp	<0.320	<0.320	0	<0.320	0	ug		
Container # 3	3TX-3	11/12/99	11/12/99	jpp	5.96	5.99	0.5	---	---	ug		
Container # 4	4TX-3	11/13/99	11/13/99	jpp	<0.700	<0.700	0	---	---	ug		
Container # 5	5TX-3	11/13/99	11/13/99	jpp	8.05	7.75	3.8	---	---	ug		

Particle Bound Hg (ug) **14.07**
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) **5.96**
(Containers 3)

Elemental Hg (ug) **8.05**
(Containers 4 and 5)

Total Hg (ug) **28.08**
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) **13.83**
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) **5.99**
(Containers 3)

Dup. Elemental Hg (ug) **7.75**
(Containers 4 and 5)

Dup. Total Hg (ug) **27.57**
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes:
*1 - Filter # (ID) not written on Chain of Custody. Filter # recorded off of actual filter.
*2 - Particulate rom both filters was composited prior to removing an aliquot for analysis.

TestAmerica
INCORPORATED

Sample ID: **Texas-New-Mexico Power Company**
TNP-ONE Plant
Bremond, Texas
Unit 2 Baghouse Inlet Duct Run 3

Hg Analysis
Ontario Hydro Method

Collected On: 10/08/99
Collected By: METCO

Container # 1A - Main Filter
Container # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A	FTX-5	11/12/99	11/15/99	jpp	38.5	37.76	2.0	---	---	ug	*1, *2	(Q27,Q28)
Container # 1B	FTX-6	11/12/99	11/15/99	jpp	0.053	0.052	1.9	---	---	ug	*1	(47W47)
Container # 2	2TX-3	11/12/99	11/12/99	jpp	<0.146	<0.146	0	---	---	ug		
Container # 3	3TX-4	11/12/99	11/12/99	jpp	18.9	19.1	0.8	---	---	ug		
Container # 4	4TX-4	11/13/99	11/13/99	jpp	<0.680	<0.680	0	---	---	ug		
Container # 5	5TX-4	11/13/99	11/13/99	jpp	9.65	9.70	0.5	---	---	ug		

Particle Bound Hg (ug) **38.55**
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) **18.90**
(Containers 3)

Elemental Hg (ug) **9.65**
(Containers 4 and 5)

Total Hg (ug) **67.10**
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) **37.81**
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) **19.10**
(Containers 3)

Dup. Elemental Hg (ug) **9.70**
(Containers 4 and 5)

Dup. Total Hg (ug) **66.61**
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes: *1 - Filter # (ID) not written on Chain of Custody. Filter # recorded off of actual filter.
*2 - Particulate rom both filters was composited prior to removing an aliquot for analysis.

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Unit 2 Stack Blank Train

Hg Analysis
Ontario Hydro Method

Collected On: 10/08/99
Collected By: METCO

Container # 1A - Main Filter
Container # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A		Not Provided		jpp	---	---	---	---	---	ug		
Container # 1B		Not Provided		jpp	---	---	---	---	---	ug		
Container # 2		Not Provided		jpp	---	---	---	---	---	ug		
Container # 3	3TX-5	11/12/99	11/12/99	jpp	<0.840	<0.840	0	---	---	ug		
Container # 4	4TX-5	11/13/99	11/13/99	jpp	<0.560	<0.560	0	---	---	ug		
Container # 5	5TX-5	11/13/99	11/13/99	jpp	<0.920	<0.920	0	---	---	ug		

Particle Bound Hg (ug) 0.00
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) 0.00
(Containers 3)

Elemental Hg (ug) 0.00
(Containers 4 and 5)

Total Hg (ug) 0.0
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) 0.00
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) 0.00
(Containers 3)

Dup. Elemental Hg (ug) 0.00
(Containers 4 and 5)

Dup. Total Hg (ug) 0.0
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes:

TestAmerica
INCORPORATED

S nple ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Unit 2 Baghouse Inlet Duct Blank Train

Hg Analysis
Ontario Hydro Method

Collected On: 10/08/99
C llected By: METCO

Container # 1A - Main Filter
C tainer # 1B - Backup Filter
Container # 2 - 0.1 N HNO3 Rinse
Container # 3 - KCl Impingers (1,2,3)/10 %HNO3 Rinse
Container # 4 - HNO3/H2O2 Impinger (4)/0.1 N HNO3 Rinse
Container # 5 - H2SO4/KMnO4 Impinger (5,6,7)/0.1 N HNO3 Rinse

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 1A		Not Provided		jpp	---	---	---	---	---	ug		
C tainer # 1B		Not Provided		jpp	---	---	---	---	---	ug		
C tainer # 2		Not Provided		jpp	---	---	---	---	---	ug		
Container # 3	3TX-1	11/12/99	11/12/99	jpp	<0.930	<0.930	0	---	---	ug		
C tainer # 4	4TX-1	11/13/99	11/13/99	jpp	<0.540	<0.540	0	<0.540	0	ug		
C tainer # 5	5TX-1	11/13/99	11/13/99	jpp	<0.910	<0.910	0	---	---	ug		

P ticle Bound Hg (ug) 0.00
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) 0.00
(Containers 3)

Elemental Hg (ug) 0.00
(Containers 4 and 5)

Total Hg (ug) 0.0
(Containers 1A, 1B, 2, 3, 4, and 5)

D). Part. Bound Hg (ug) 0.00
(Containers 1A, 1B, and 2)

Dup. Oxidized Hg (ug) 0.00
(Containers 3)

Dup. Elemental Hg (ug) 0.00
(Containers 4 and 5)

Dup. Total Hg (ug) 0.0
(Containers 1A, 1B, 2, 3, 4, and 5)

N es:

TestAmerica
INCORPORATED

Sample ID: Texas-New-Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Reagent Blanks

Hg Analysis
Ontario Hydro Method

Collected On: 10/08/99
Collected By: METCO

Container # 7 - 0.1 N HNO_3 Blank
Container # 8 - 1 N KCl Blank
Container # 9 - 5 % HNO_3/10 % H_2O_2 Blank
Container # 10 - H_2SO_4-/$KMnO_4$ Blank
Container # 11 - 10 % Hydroxylamine Sulfate/Sodium Chloride Blank
Container # 12 Filter Blank

	ID	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Triplicate Result	RPD	Units	Flags	Notes
Container # 7	RBTX-1	---	11/13/99	jpp	<0.2	<0.2	0	<0.2	0	ug/L		
Container # 8	RBTX-2	11/12/99	11/12/99	jpp	<2.0	<2.0	0	---	---	ug/L		
Container # 9	RBTX-3	11/13/99	11/13/99	jpp	<2.0	<2.0	0	---	---	ug/L		
Container # 10	RBTX-4	11/13/99	11/13/99	jpp	<4.0	<4.0	0	---	---	ug/L		
Container # 11	RBTX-5	---	11/13/99	jpp	<0.2	<0.2	0	---	---	ug/L		
Container # 12	FBTX-2	11/12/99	11/15/99	jpp	<0.01	<0.01	0	---	---	ug		(47Q48)

Mercury Sample Train Receipt

Mercury Sample Train Receipt Record

Client ID
TX-NM
INP ONE
Bremond, TX

Location ID/Run #
Unit 2
Baghouse
Inlet Duct
Run #1

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	135 + — + — = 135.	2TX-1	
☑ 3 (2)	500 + 265 + — = 765.	3TX2 ATB	
☑ 4 (1)	145 + — + — = 145.	4TX2	
☑ 5 (1)	510 + — + — = 510.	5TX-2	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A (2)	THIMBLE Q23, Q24	FTX 1ATB	*
☑ 1B (1)	47Q42 (Q24)	FTX-2	
☐ 12A ( )			
☐ 12B ( )			

Notes: * THIMBLE LABELLED AS CONTAINER #2

Checked By: DBP

Date: 11/11/15

TestAmerica

Mercury Sample Train Receipt Record

Client ID
+x NM Power
TNP ONE
Bremond, TX

Location ID/Run #
Unit 2 Baghouse
Inlet Duct
Run #2

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	160 + — + — = 160.	2TX-2	#2
☑ 3 (2)	490 + 270 + — = 760.	3TX-3 AB	
☑ 4 (1)	175 + — + — = 175.	4TX-3	
☑ 5 (1)	— + — + — = —.	5TX-3	
☐ 7 ( )	— + — + — = —.		
☐ 8 ( )	— + — + — = —.		
☐ 9 ( )	— + — + — = —.		
☐ 10 ( )	— + — + — = —.		
☐ 11 ( )	— + — + — = —.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A ( )	THIMBLE Q25 Q26	FTX-3 A BB	* 1
☑ 1B ( )	47Q45 (G26)	FTX-4	* 1
☐ 12A ( )			
☐ 12B ( )			

Notes: 1 ea THIMBLE 426 AND FILTER 47Q45 LABELLED AS CONTAINER #2
ea NO CONTAINER 2A RECOVERED PER COC

Checked By: BR
Date: 11/11/12

TestAmerica

Mercury Sample Train Receipt Record

Client ID
TX Nm
TNPONE
Bremond, TX

Location ID/Run #
Unit 2
Baghouse
Inlet Duct
Run #3

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	73 + — + — = 73.	2TX-3	
☑ 3 (2)	490 + 295 + — = 785.	3TX4ATB	
☑ 4 (1)	170 + — + — = 170.	4TX4	
☑ 5 (1)	505 + — + — = 505.	5TX4	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A (2)	THIMBLES Q28, Q27	FTX-5ATB	
☐ 1B (1)	47247 (Q27)	FTX-6	
☐ 12A ( )			
☐ 12B ( )			

Notes: _____

Checked By: MRP

Date: 1/11/19

TestAmerica

Mercury Sample Train Receipt Record

Client ID
TX-NM
INP-ONE
Bremond, TX

Location ID/Run #
Unit 2
Stack
Blank Train

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☐ 2 ( )	___ + ___ + ___ = ___.		* 2A
☑ 3 (1)	420 + - + - = 420.	3TX-S	
☑ 4 (1)	140 + - + - = 140.	4TX-S	
☑ 5 (1)	485 + - + - = 485.	5TX.S	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☐ 1A ( )			*
☐ 1B ( )			*
☐ 12A ( )			
☐ 12B ( )			

Notes: * container 2A not recovered per C.O.C., no filters 1A, 1B recovered per C.O.C.

Checked By: EPK/JSP
Date: 11/11/99

TestAmerica

Mercury Sample Train Receipt Record

Client ID
TX·NM
TNP-ONE
Brennand, TX

Location ID/Run #
Unit 2
STACK
Run #1

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	44 + — + — = 44.	2TX-4	※2A
☑ 3 (2)	490 + 320 + — = 810.	3TX6 A+B	
☑ 4 (1)	140 + — + — = 140.	4TX-6	
☑ 5 (1)	510 + — + — = 510.	5TX-6	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☐ 1A ( )	47240	FTX-7	
☐ 1B ( )			
☐ 12A ( )			
☐ 12B ( )			

Notes: ※ container 2A not recovered per C.O.C.

Checked By: BK 1/15

Date: 11/4/14

TestAmerica

Mercury Sample Train Receipt Record

Client ID	Location ID/Run #
TX-NM	Unit 2
TNP-One	Stack
Bremond, TX	Run #2

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	33 + – + – = 33.	2TX-5	✱ 2A
☑ 3 (2)	490 + 290 + – = 780.	3TX 7 ATB	
☑ 4 (1)	150 + – + – = 150.	4TX-7	
☑ 5 (1)	505 + – + – = 505.	5TX-7	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A (1)	47Q43	FTX-8	
☐ 1B ( )			
☐ 12A ( )			
☐ 12B ( )			

Notes: ✱ container 2A not recovered per C.O.C.

Checked By: EPK/DPP

Date: 11/11/99

TestAmerica

Mercury Sample Train Receipt Record

Client ID	Location ID/Run #
TX-NM	Unit 2 Stack
TNP One	
Bremond, TX	Run #3

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	34 + — + — = 34.	2TX-6	* 2A
☑ 3 (2)	510 + 220 + — = 730	3TX 8 A+B	
☑ 4 (1)	160 + — + — = 160.	4TX-8	
☑ 5 (1)	510 + — + — = 510.	5TX-8	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A (1)	47Q46	FTX-9	
☐ 1B ( )			
☐ 12A ( )			
☐ 12B ( )			

Notes: * container 2A not recovered per C.O.C.

Checked By: JP12/JPP

Date: 11/11/88

TestAmerica

Mercury Sample Train Receipt Record

Client ID
Texas-N. Mex Power Company
TNP-one
Bremand, TX

Location ID/Run #
Unit 2 stack
Reagent Blank

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☐ 2 ( )	___ + ___ + ___ = ___.		
☐ 3 ( )	___ + ___ + ___ = ___.		
☐ 4 ( )	___ + ___ + ___ = ___.		
☐ 5 ( )	___ + ___ + ___ = ___.		
☑ 7 (1)	49 + — + — = 49.	RBTX-1	
☑ 8 (1)	54 + — + — = 54.	RBTX-2	
☑ 9 (1)	50 + — + — = 50.	RBTX-3	
☑ 10 (1)	49 + — + — = 49.	RBTX-4	
☑ 11 (1)	93 + — + — = 93.	RBTX-5	

Filters:

Cont. ID/(#)	Filter ID(s)		
☐ 1A ( )			
☐ 1B ( )			
☑ 12A (3)	Q29, Q30, Q31	FBTX-1A, 1B, 1C	
☑ 12B (3)	47Q48, 47Q49, 47Q50	FBTX-2A, 2B, 2C	

Notes: _____

Checked By: EPK/JPP
Date: 11/11/99

TestAmerica

Mercury Sample Train Receipt Record

Client ID
TX-NM
TNP-ONE
Bremond, TX

Location ID/Run #
UNIT 2
Baghouse Inlet Duct
Blank Train
Run #3

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☐ 2 ( )	___ + ___ + ___ = ___.		~~2A~~
☑ 3 (1)	465 + ___ + ___ = 465.	3TX-1	
☑ 4 (1)	135 + ___ + ___ = 135.	4TX-1	
☑ 5 (1)	455 + ___ + ___ = 455.	5TX-1	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☐ 1A ( )			~~1A~~
☐ 1B ( )			~~1B~~
☐ 12A ( )			
☐ 12B ( )			

Notes: ~~2A~~ container 2A not recovered per C.O.C., filters 1A, 1B not recovered per C.O.C.

Checked By: AM

Date: 11/14/08

TestAmerica

Sample Preparation Batch Sheet

COALS

NONAQUEOUS MERCURY BATCH SHEET

Analyst: JMP Date: 11/11/99 Water Bath: start mid end

Standard Reference: 65-32-9 temp: _____

ICV Reference: 65-32-10 date: _____

	Sample # / Client	Weight	MS	MSD
	BLANK			
1	LCS			
* 2	NIST 1630A	1.2942	38.63	MB
~~**~~ 3	NIST 1630A	1.0265	48.71	
4	MT 1	1.1525	43.38	
5	MT 2	1.0163	49.20	
* 6	MT 3	1.0116	49.43	ICV
* 7	TXNM1	1.0416	48.00	
8	TXNM2	1.0679	46.82	
9	TXNM3	1.0477	47.72	
				MS
				MSD
				RPD
				FLAG

HNO3 - 65-35-15
HCl 65-34-2
$KMnO_4$ 65-34-1
NH_2OH - 65-30-11
$SnCl_2$ - 65-36-15

SECONDARY DATA CHECK: analyst:
date:

Comments: ~~**~~ NIST 1630A USED IN RUN BOTH

TX · NM / MT FILTERS / ASH

NONAQUEOUS MERCURY BATCH SHEET

Analyst: [illegible] Date: 11/12/99 Water Bath: start mid end

Standard Reference: 65-32-9 11/13/99 temp: _____

ICV Reference: 65-32-10 date: _____

Carousel position #

	Sample # / Client	Weight	MS	MSD
* 1	BLANK			
* 2	NIST 1633B	0.5372	93.08	
3	MTF-4 (88QH40)			MB
4	MTF-7 (47Q37)			
5	MTF-10 (88QH37)			
6	MTF-11 (88QH38)			
7	MTF-12 (88QH39)			ICV
8	MTF-13 (Q13)	0.5641	88.64	
9	MTF-14 (47Q34)			
10	MTF-15 (Q14, Q21)	0.5084	87.97	
11	MTF-16 (47Q35)			MS
12	MTF-17 (Q15)	0.5836	85.68	
1 13	MTF-18 (47Q36)			
2 14	ST-44 (47Q32)			
3 15	FBTX-2A (47Q48)			MSD
4 16	FBTX-1A+B (Q23, 24)	0.5175	96.62	
5 17	FTX-2 (47Q42)			
6 18	FTX-3A+B (Q25, 26)	0.5137	97.33	
** 7 19	FTX-4 (47Q45)			RPD
8 20	FTX-5A+B (Q27, 28)	0.5279	94.71	
9 21	FTX-6 (47Q47)			
10 22	FTX-7 (47Q40)			
11	NIST 1633B	0.5266	94.95	FLAG
	SECONDARY DATA CHECK:	analyst:		
12 BLANK		date:		

HNO3 65-35-15
HCl 65-34-2
HF - 65-27-17
11/12 BORIC ACID - 65-36-5
$SnCl_2$ - 65-36-14
$SnCl_2$ - 65-36-17
11/13 BORIC ACID - 65-36-15

11/12/99

11/13/99

Comments: * Reversed positions of Blank + NIST for pressure valve placement with actual sample present.

** 47045 some sample lost out of container loose ash

*** MUST STILL DIGEST MTF 8, 9

FILTERS

NONAQUEOUS MERCURY BATCH SHEET

Analyst: JJP Date: 11/19/99 Water Bath: start mid end

Standard Reference: 65-32-9 temp: _____

ICV Reference: 65-32-10 date: _____

	Sample # / Client	Weight	MS	MSD
12	BLANK			
11	NIST 1633B	0.5000	~~50.00~~ 100	
1	FTX 8 47Q43			MB
2	FTX 9 47Q46			
3	WB 1A 47Q53			
4	WB-2 47Q51			
5	WB-3 47Q52		97.83	ICV
6	WB-4 47Q56			
7	GB-5 Q 39	0.5111	~~49.61~~	
8	GB-2 Q 33	0.5468	~~45.72~~ 91.44	
9	GB-3 Q 34	0.5976	83.67	MS
10	GB-6 Q 40	0.5543	90.20	
				MSD
				RPD
				FLAG

HF 65-27-17
HNO_3 65-39-12
HCl 65-37-11
$SnCl_2$ 65-39-13
Boric Acid 65-39-14
65-39-15

SECONDARY DATA CHECK: analyst:
date:

Comments: _____

Mercury in Flue Gas
Aqueous Preparation Batch Log

Analyst(s) DBP Preparation Date 11/13/97

Reagent Reference #'s

HCl	65-34-2	$SnCl_2$	65-36-17
$NH_2OH*HCl$	65-32-11	Calibration Standards	65-32-9
$KMnO_4$	65-34-17	ICV Standard	65-32-10
HNO_3	65-35-15		

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
MT3	9	REAGENT BLANK	50	25	50
MT13	4	INLET RUN#3 BLANK TRAIN	160	2.5	50
MT33	4	INLET RUN#1	150	2.5	50
MT34	4	INLET RUN# 2	150	2.5	50
MT35	4	INLET RUN#3	200	2.5	50
MT16	4	STACK BLANK TRAIN	140	2.5	50
MT30	4	STACK RUN#1	165	2.5	50
MT31	4	STACK RUN#2	185	2.5	50
MT32	4	STACK RUN #3	165	2.5	50
RBTX3	9	REAGENT BLANK	50	2.5	50
TX1	4	BLANK TRAIN INLET RUN#3	135	2.5	50
TX2	4	INLET RUN#1	145	2.5	50
TX3	4	INLET RUN#2	175	2.5	50
TX4	4	INLET RUN#3	170	2.5	50
TX5	4	STACK BLANK TRAIN	140	2.5	50
TX6	4	STACK RUN#1	140	2.5	50
TX7	4	STACK RUN#2	150	2.5	50
TX8	4	STACK RUN#3	160	2.5	50
[illegible]	blk				
MT1	7	REAGENT BLANK		—	—

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
MT5	11	REAGENT BLANK			
RBTX1	7	REAGENT BLANK	49		
RBTX5	11	REAGENT BLANK	93		

NOTES Containers 7+11 not digested, analyzed straight

Mercury in Flue Gas
Aqueous Preparation Batch Log

Analyst(s) [illegible] Preparation Date 11/13/99

Reagent Reference #'s

HCl	65-34-2	$SnCl_2$	65-36-17
$NH_2OH*HCl$	65-32-11	Calibration Standards	65-32-9
$KMnO_4$	65-34-17	ICV Standard	65-32-10
HNO_3	65-35-15		

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
MT4	10	Reagent Blank	47	5.0	50
MT14	5	Blank Train Inlet Run #3	480	5.0	50
MT17	5	Blank Train Stack	490	5.0	50
MT36	5	STACK RUN #1	505	5.0	50
MT37	5	STACK RUN #2	505	5.0	50
MT33	5	STACK RUN #3	510	5.0	50
MT39	5	INLET RUN #1	470	5.0	50
MT40	5	INLET RUN #2	495	5.0	50
MT41	5	INLET RUN #3	505	5.0	50
~~MT[illegible]~~					
RBTX4	10	REAGENT BLANK	49	5.0	50
TX1	5	BLANK TRAIN RUN #3 INLET	495	5.0	50
TX2	5	INLET RUN #1	510	5.0	50
TX3	5	INLET RUN #2	500	5.0	50
TX4	5	INLET RUN #3	505	5.0	50
TX5	5	STACK BLANK TRAIN	485	5.0	50
TX6	5	STACK RUN #1	510	5.0	50
TX7	5	STACK RUN #2	505	50	50
TX8	5	STACK RUN #3	510	5.0	50

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
~~MT36~~	5				
~~MT37~~	12/2				
~~MT[illegible]~~					

NOTES

Mercury in Flue Gas
Aqueous Preparation Batch Log

Analyst(s) BBP Preparation Date 11/12/99

Reagent Reference #'s

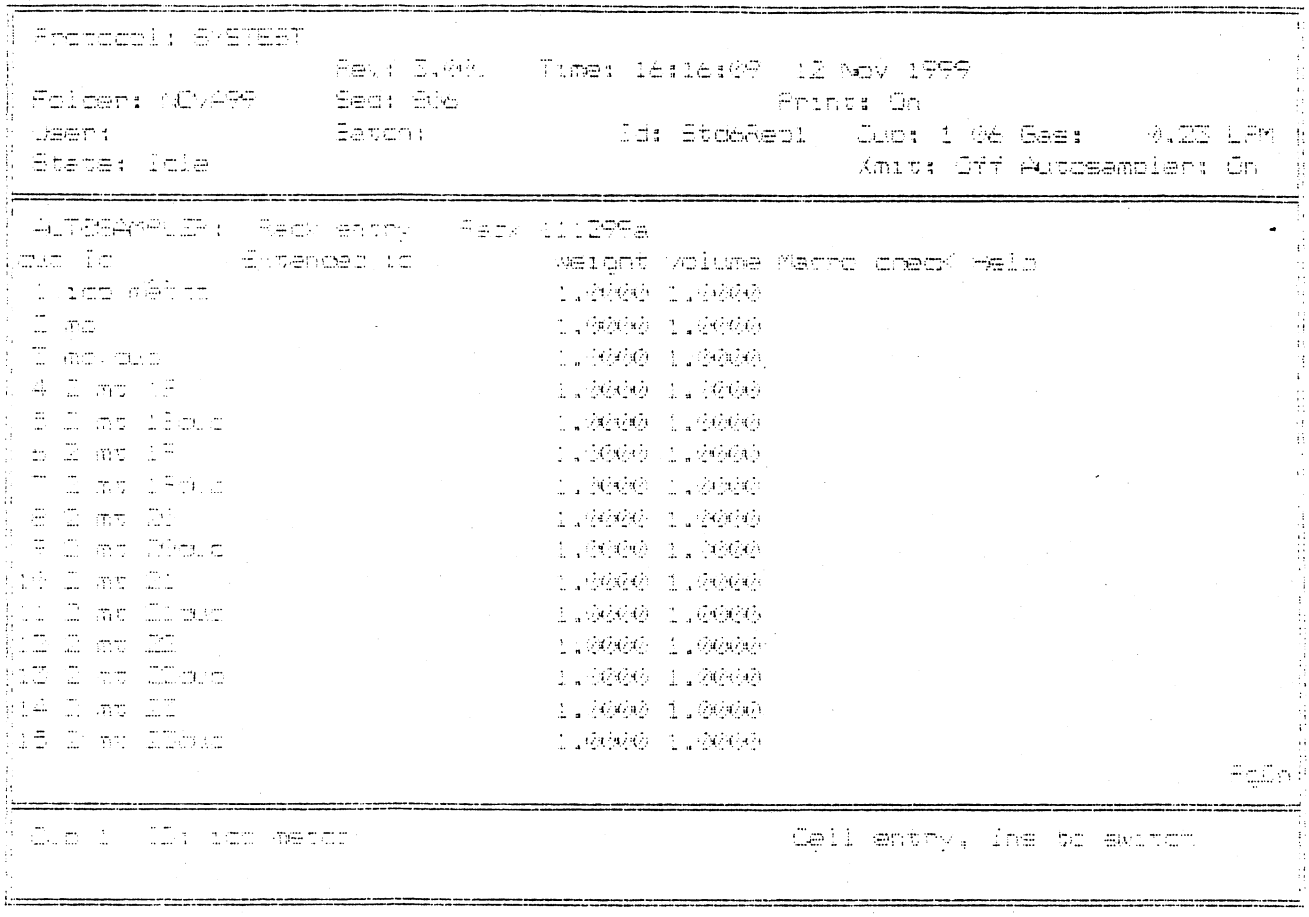
HCl	65-34-2	$SnCl_2$	65-36-14 BBP 12/3/99
$NH_2OH*HCl$	65-32-11	Calibration Standards	65-32-9
$KMnO_4$	65-34-17	ICV Standard	65-32-10
HNO_3	65-35-15		

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
MT18	2	STACK RUN #1	155	5.0	50
MT19	2	STACK RUN #2	195	5.0	50
MT20	2	STACK RUN #3	135	5.0	50
MT21	2	INLET #1	107	5.0	50
MT22	2	INLET #2	63	5.0	50
MT23	2	INLET #3	65	5.0	50
TX1	2	INLET #1	135	5.0	50
TX2	2	TRP INLET #2	160	5.0	50
TX3	2	SPK INLET #3	73	5.0	50
TX4	2	STACK RUN #1	44	5.0	50
TX5	2	STACK RUN #2	33	5.0	50
TX6	2	STACK RUN #3	34	5.0	50
MT12	3	BLANK TRAIN SCRUB. WHET #3	500	5.0	50
MT15	3	STACK BLANK TRAIN	495	5.0	50
MT24	3	STACK RUN #1 A+B	740	5.0	50
MT25	3	STACK RUN #2 A+B	820	5.0	50
MT26	3	STACK RUN #3 A+B	760	5.0	50
MT27	3	INLET RUN #1 A+B TRP	720	5.0	50
MT28	3	INLET #2 A+B SPK	700	5.0	50
MT29	3	INLET #3 A+B	820	5.0	50

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
TX1	3	BLANK TRAIN INLET RUN #3	465	5.0	50
TX2	3	INLET RUN #1 A+B	765	5.0	50
TX3	3	INLET RUN #2 A+B	760	5.0	50
TX4	3	INLET RUN #3 A+B	785	5.0	50
TX5	3	BLANK TRAIN STACK	420	5.0	50
TX6	3	STACK RUN #1 A+B	810	5.0	50
TX7	3	STACK RUN #2 A+B	780	5.0	50
TX8	3	STACK RUN #3 A+B	730	5.0	50
MT2	8	REAGENT BLANK	51	5.0	50
RBTX2	8	REAGENT BLANK	54	5.0	50

NOTES

11/12/99 Analytical Run



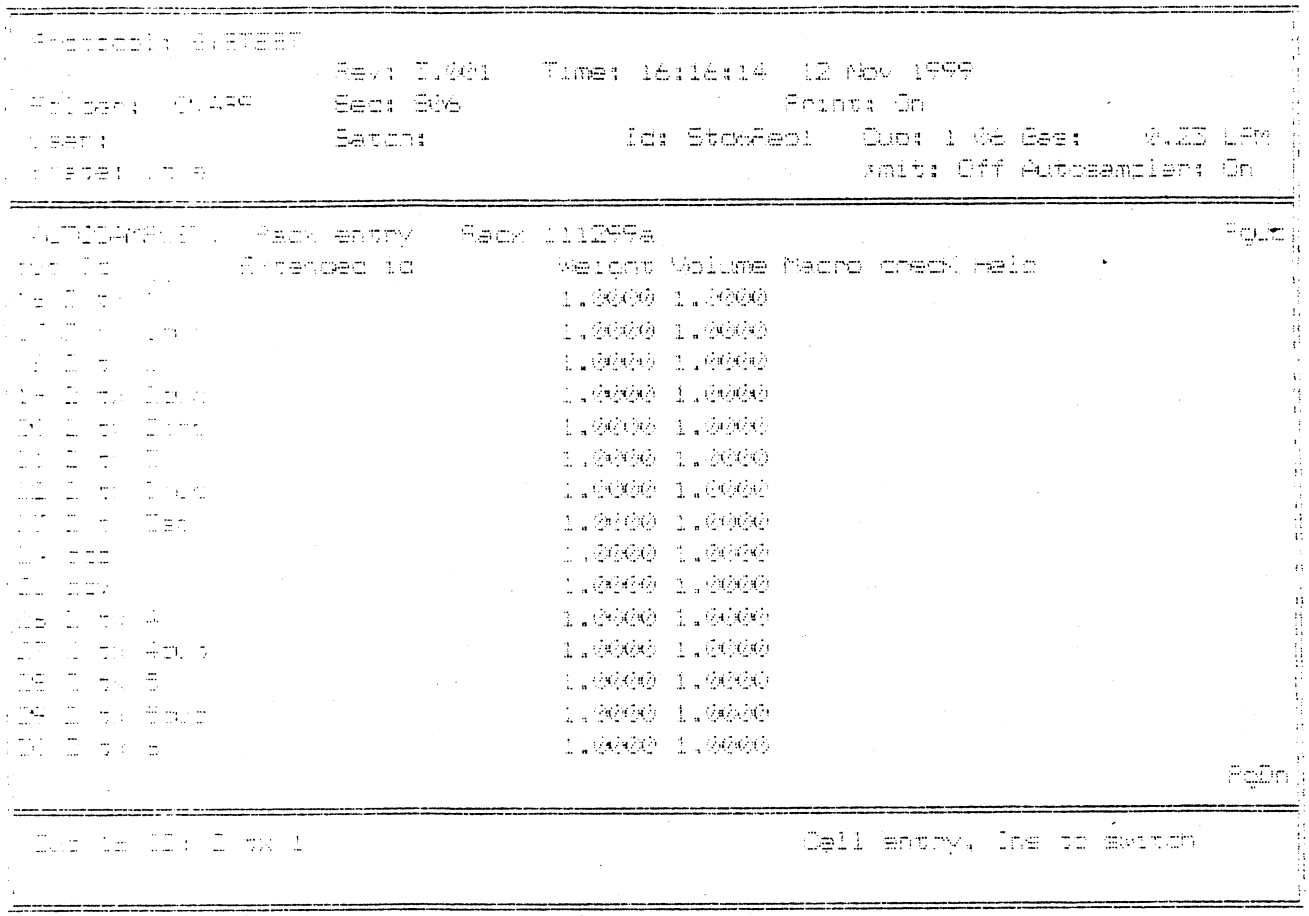
```
Protocol: SYSTEST
                    Rev: 3.00    Time: 16:16:09  12 Nov 1999
Folder: NOVA99      Seq: 506                    Print: On
User:               Batch:            Id: Std6Rep1   Cup: 1 06 Gas:    0.23 LPM
State: Idle                                          Xmit: Off Autosampler: On
```

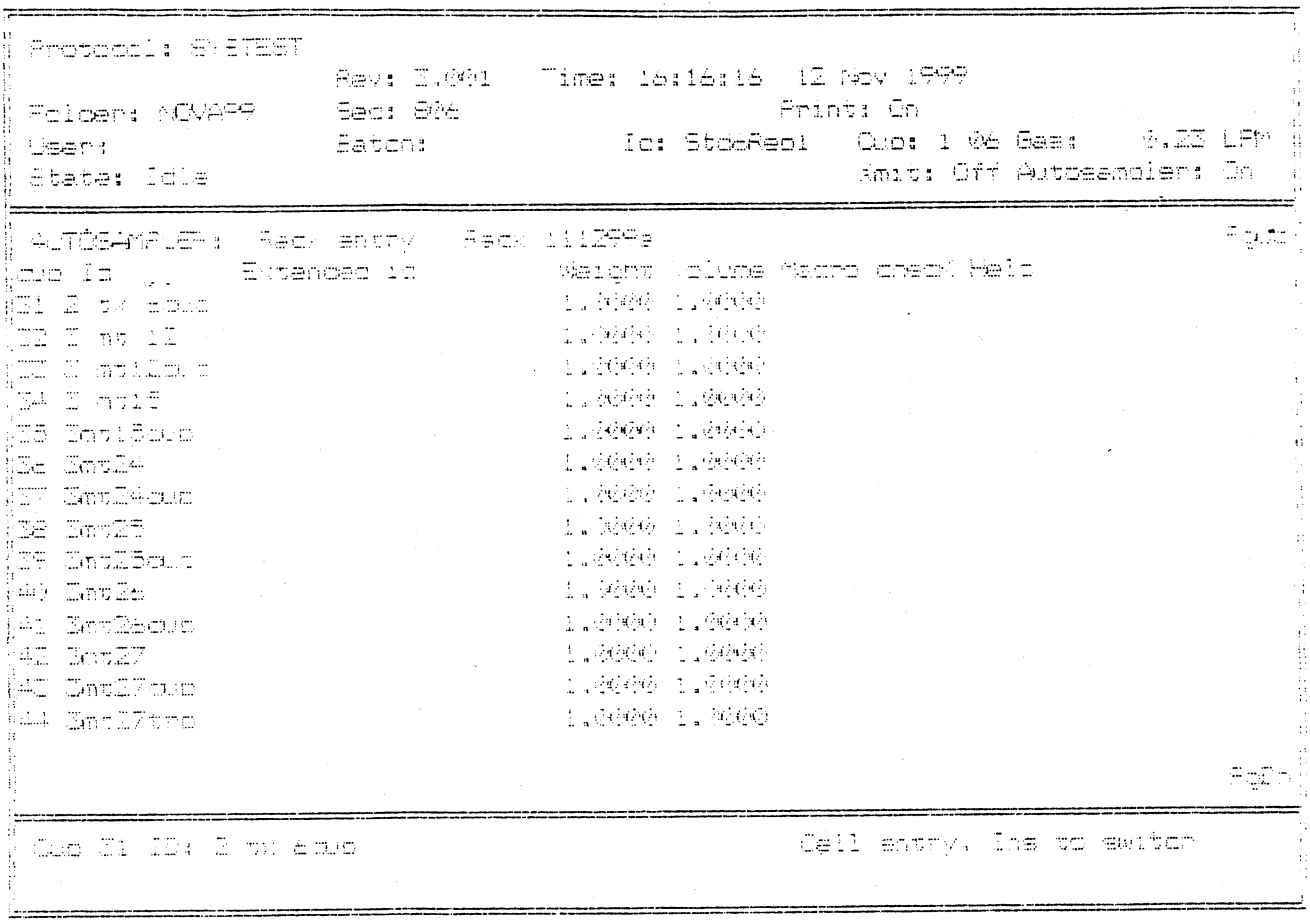
AUTOSAMPLER: Rack entry Rack 111299a

Cup Id	Extended Id	Weight	Volume	Macro check	Help
1 ice metro		1.0000	1.0000		
2 mo		1.0000	1.0000		
3 mo-cup		1.0000	1.0000		
4 2 mt 18		1.0000	1.0000		
5 2 mt 18cup		1.0000	1.0000		
6 2 mt 19		1.0000	1.0000		
7 2 mt 19cup		1.0000	1.0000		
8 2 mt 20		1.0000	1.0000		
9 2 mt 20cup		1.0000	1.0000		
10 2 mt 21		1.0000	1.0000		
11 2 mt 21cup		1.0000	1.0000		
12 2 mt 22		1.0000	1.0000		
13 2 mt 22cup		1.0000	1.0000		
14 2 mt 23		1.0000	1.0000		
15 2 mt 23cup		1.0000	1.0000		

PgDn

Cup 1 ID: ice metro Cell entry, Ins to switch





Protocol: SYSTEST

Rev: 3.001 Time: 16:16:16 12 Nov 1999

Folder: NOVAP9 Sec: 806 Print: On

User: Batch: Id: Std6Rep1 Cup: 1 06 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry Rack 111299a Pgup

Cup Id	Extended Id	Weight	Volume	Macro check	Help
31 2 tx 6cup		1.0000	1.0000		
32 3 mt 12		1.0000	1.0000		
33 3 mt12cup		1.0000	1.0000		
34 3 mt15		1.0000	1.0000		
35 3mt15cup		1.0000	1.0000		
36 3mt24		1.0000	1.0000		
37 3mt24cup		1.0000	1.0000		
38 3mt25		1.0000	1.0000		
39 3mt25cup		1.0000	1.0000		
40 3mt26		1.0000	1.0000		
41 3mt26cup		1.0000	1.0000		
42 3mt27		1.0000	1.0000		
43 3mt27cup		1.0000	1.0000		
44 3mt27trp		1.0000	1.0000		

PgDn

Cup 31 ID: 2 tx 6cup Cell entry, Ins to switch

Protocol: SYSTEST

Rev: I.001 Time: 18:07:34 12 Nov 1999

Folder: AD/A99 Sec: 851 Print: On

User: Batch: Id: Smt27tro Cup: 1 44 Res: 0.03 uAM

State: Idle Xmit: Off Autosampler: On.

AUTOSAMPLER: Rack entry Rack 111299a

Cup	Id	Extended Id	Weight	Volume	Macro	check	Help
1	I mt28		1.0000	1.0000			
2	I mt28out		1.0000	1.0000			
3	I mt28sc.		1.0000	1.0000			
4	[illegible]		1.0000	1.0000			
5	[illegible]		1.0000	1.0000			
6	I mt29		1.0000	1.0000			
7	I mt29 out		1.0000	1.0000			
8	I tx1		1.0000	1.0000			
9	I tx1out		1.0000	1.0000			
10	I tx2		1.0000	1.0000			
11	I tx2out		1.0000	1.0000			
12	I tx3		1.0000	1.0000			
13	I tx3out		1.0000	1.0000			
14	I tx4		1.0000	1.0000			
15	I tx4out		1.0000	1.0000			

PgDn

Cup 1 ID: I mt28 Cell entry. Ins to switch

Protocol: 3:STEST

Rev: 3.001 Time: 18:02:55 12 Nov 1999

Folder: NOV499 Seq: 551 Print: On

User: Batch: Id: Ims27tro Cup: 1 44 Gas: 0.22 LPM

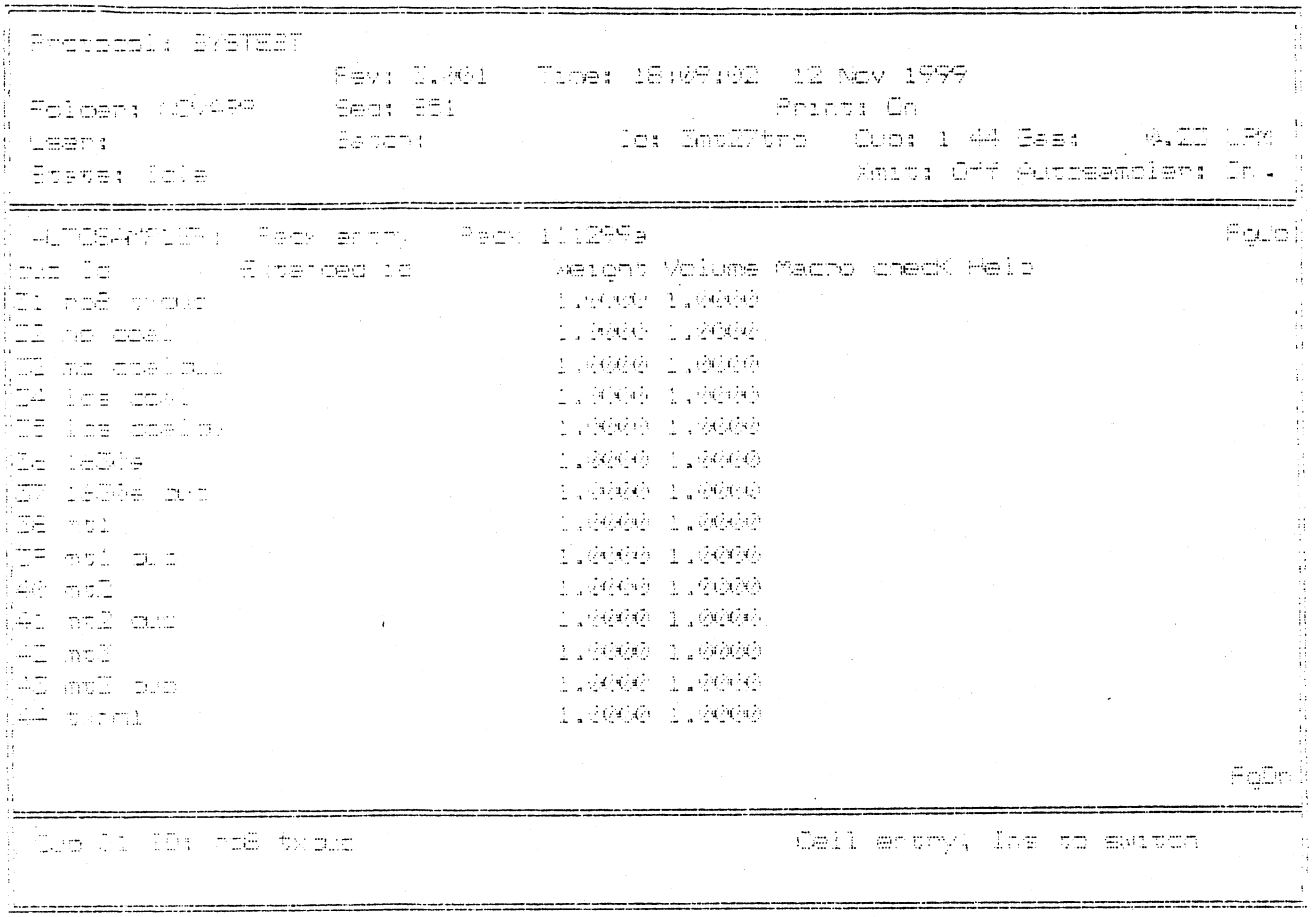
State: Idle Xmit: Off Autosampler: On.

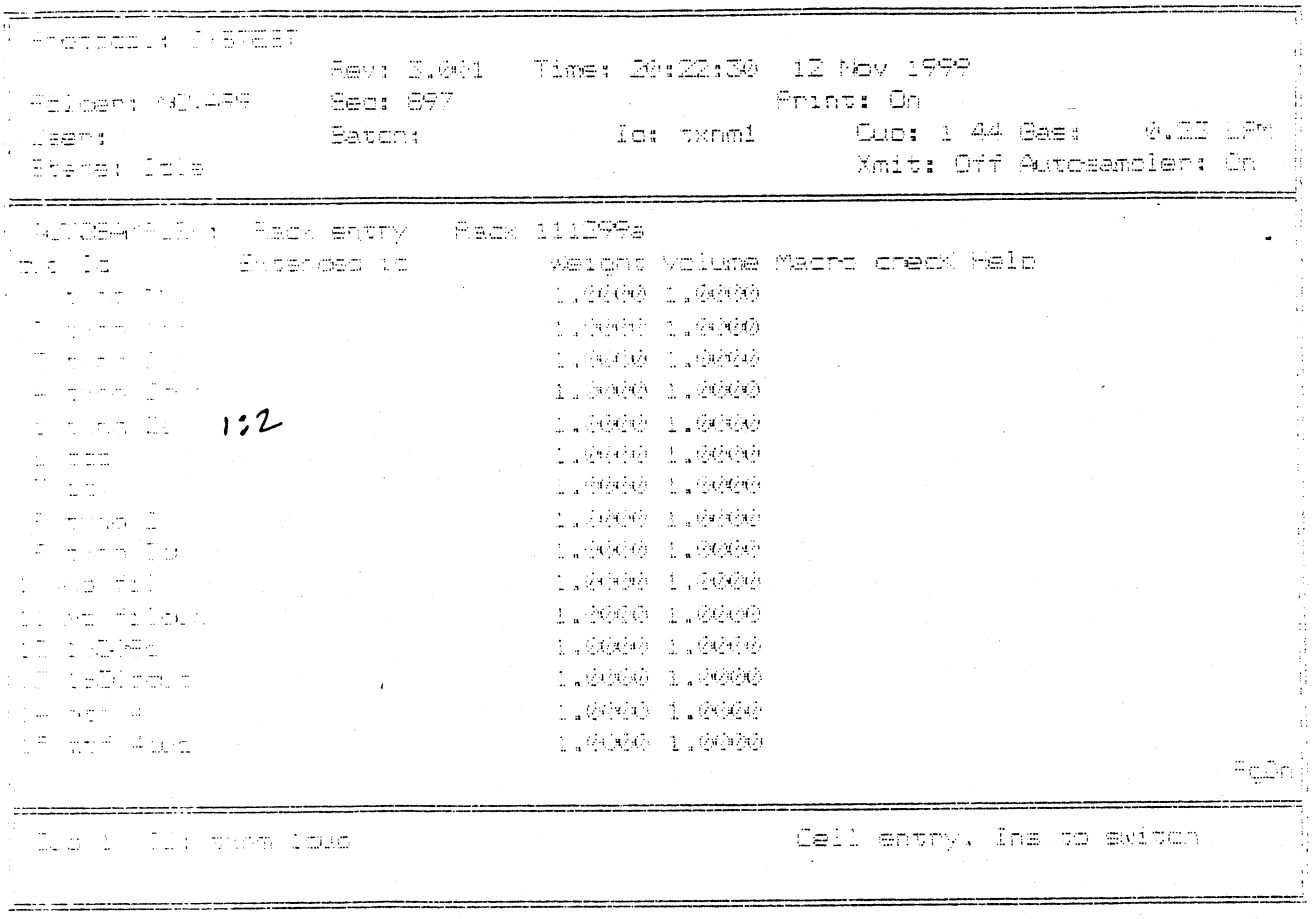
AUTOSAMPLER: Rack entry Rack 111299a PgUp

Cup Id	Extended id	Weight	Volume	Macro	check	Help
16 I tx6		1.0000	1.0000			
17 I tx6out		1.0000	1.0000			
18 I tx[illegible]		1.0000	1.0000			
19 I t[illegible]out		1.0000	1.0000			
20 I tx7		1.0000	1.0000			
21 I tx7out		1.0000	1.0000			
22 I tx7 tro		1.0000	1.0000			
23 I tx8		1.0000	1.0000			
24 I tx8out		1.0000	1.0000			
25 I tx8ssv 1:2		1.0000	1.0000			
26 ccc		1.0000	1.0000			
27 ccv		1.0000	1.0000			
28 S mdl		1.0000	1.0000			
29 S mdl out		1.0000	1.0000			
30 mdF tx		1.0000	1.0000			

PgDn

Cup 16 ID: I tx6 Cell entry. Ins to switch




Rev: 3.001 Time: 20:22:30 12 Nov 1999
Sec: 897
Print: On
Batch:
Id: txnm1
Cue: 1 44 Bae: 0.22 LPM
Xmit: Off Autosampler: On
Pack entry Pack 111299a
Entered Id
Weight Volume Macro Check Help
1.0000 1.0000
1:2
Cell entry. Ins to switch

Protocol: SYSTEST

Rev: 3.001 Time: 20:22:05 12 Nov 1999

Folder: NOV499 Seq: 397 Print: On

User: Batch: Id: txmnl Cup: 1 44 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry, Rack 111299a PgUp

Cup Id	Extended Id	Weight	Volume	Macro check help
16 mrf 7..		1.0000	1.0000	
17 mrf 7dup		1.0000	1.0000	
18 mrf 10		1.0000	1.0000	
19 mrf 10dup		1.0000	1.0000	
20 mrf 11		1.0000	1.0000	
21 mrf 11dup		1.0000	1.0000	
22 mrf 12		1.0000	1.0000	
23 mrf 12dup		1.0000	1.0000	
24 mrf 13		1.0000	1.0000	
25 mrf 13dup		1.0000	1.0000	
26 mrf 13trn		1.0000	1.0000	
27 mrf 14		1.0000	1.0000	
28 mrf 14dup		1.0000	1.0000	
29 mrf 14spk		1.0000	1.0000	
30 ccs		1.0000	1.0000	

PgDn

Cup is 13: mrf 7 Del entry, Ins to switch

```
Protocol: SYSTEST
                    Rev: 2.001   Time: 20:22:38  12 Nov 1999
Folder: NOVA99      Seq: 897                    Print: On
User:               Batch:              Id: txnn1     Cup: 1 44 Gas:    0.23 LPM
State: Idle                                           Xmit: Off Autosampler: On
```

AUTOSAMPLER: Rack entry Rack 111299a Pgup

Cup Id	Extended id	Weight	Volume	Macro check	Help
31 ccv	--	1.0000	1.0000		
32 mtf 15		1.0000	1.0000		
33 mtf 15cup		1.0000	1.0000		
34 mtf 16		1.0000	1.0000		
35 mtf 16cup		1.0000	1.0000		
36 mtf 17		1.0000	1.0000		
37 mtf 17cup		1.0000	1.0000		
38 ccp	< 3+x8 SPK #1 NODATA wrong sample	1.0000	1.0000		
39 ccv	3+x8 SPK 1/2 #2 USE	1.0000	1.0000		
40		1.0000	1.0000		
41		1.0000	1.0000		
42		1.0000	1.0000		
43		1.0000	1.0000		
44		1.0000	1.0000		

PgDn

Cup 31 ID: ccv Cell entry, Ins to switch

*** Standard: 1 Rep: 1 Ser: 900 15:47:34 12 Nov 1999 HG

Hg .000 ug/L -169
Ave. Int. = -169 S. D. = 0

*** Standard: 2 Rep: 1 Ser: 901 15:49:58 12 Nov 1999 HG

Hg .200 ug/L 9251
Ave. Int. = 9251 S. D. = 0

*** Standard: 3 Rep: 1 Ser: 902 15:52:26 12 Nov 1999 HG

Hg .500 ug/L 22988
Ave. Int. = 22988 S. D. = 0

*** Standard: 4 Rep: 1 Ser: 903 15:54:42 12 Nov 1999 HG

Hg 1.00 ug/L 46504
Ave. Int. = 46504 S. D. = 0

*** Standard: 5 Rep: 1 Ser: 904 15:57:06 12 Nov 1999 HG

Hg 2.00 ug/L 92231
Ave. Int. = 92231 S. D. = 0

*** Standard: 6 Rep: 1 Ser: 905 15:59:34 12 Nov 1999 HG

Hg 5.00 ug/L 135357
Ave. Int. = 135357 S. D. = 0

Protocol: SYSTEST

Rev: 3.001 Time: 16:08:18 12 Nov 1999

Folder: NOVA99 Seq: 806 Print: On

User: Batch: Id: Std6Rep1 Cup: 1 06 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

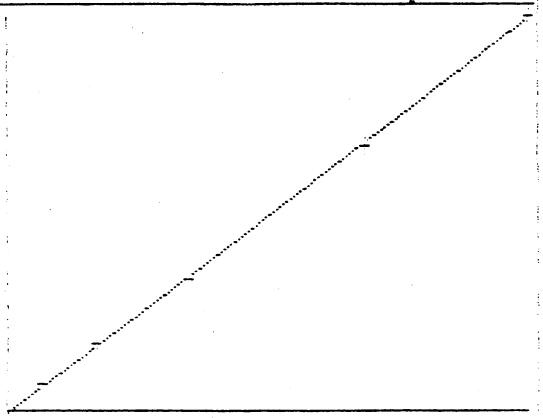
CALIBRATION: Line Calibration

Line: Hg Conc.	Calc.	Dev.	Accepted LiNear
S1 .000	-.013	-.013	Quadratic
S2 .200	.195	-.005	WtdLinear
S3 .500	.498	-.002	
S4 1.00	1.02	.017	Accept
S5 2.00	2.03	.027	
S6 3.00	2.98	-.024	StdAdd

A .0000000 r .999869

B 2.28569e-5 C -9.18928e-3

	Mean	%RSD	
S1	-169	0	-169
S2	9251	0	9251
S3	22985	0	22985
S4	46584	0	46584
S5	92331	0	92331
S6	135357	0	135357



New calibration coefficients stored

Line Corr. Units SD/RSD 1 2 3 4 5

*** Cont. Standard: 2 CK2 Seq: 806 16:17:50 12 Nov 1999 HG
Line [illegible] [illegible] Found True Units SD/RSD
Hg [illegible] .522 .504 ug/L .000

*** Sample ID: [illegible] metod Seq: 807 16:20:29 12 Nov 1999 HG
Hg -.014 ug/L .000 -.014 <0.2 ug

*** Sample ID: [illegible] Seq: 808 16:22:46 12 Nov 1999 HG
Hg .008 ug/L .000 .008 <0.2 ug

*** Sample ID: [illegible] dup Seq: 809 16:25:03 12 Nov 1999 HG
Hg .006 ug/L .000 .006 <0.2 ug

155mL ~~*** Sample ID: 2 mt 18 Seq: 810 16:27:20 12 Nov 1999 HG~~
Hg .155 ug/L .000 .155 <0.31 ug

*** Sample ID: 2 mt 18dup Seq: 811 16:29:37 12 Nov 1999 HG RPD- N/A
Hg .155 ug/L .000 .155 <0.31 ug

195mL *** Sample ID: 2 mt 19 Seq: 812 16:31:54 12 Nov 1999 HG
Hg .008 ug/L .000 .008 <0.39 ug

*** Sample ID: 2 mt 19dup Seq: 813 16:34:11 12 Nov 1999 HG RPD- N/A
Hg .008 ug/L .000 .008 <0.39 ug

135mL *** Sample ID: 2 mt 20 Seq: 814 16:36:29 12 Nov 1999 HG
Hg .008 ug/L .000 .008 <0.27 ug

*** Sample ID: 2 mt 20dup Seq: 815 16:38:46 12 Nov 1999 HG RPD N/A
Hg .007 ug/L .000 .007 <0.27 ug

110mL *** Sample ID: 2 mt 21 Seq: 816 16:41:04 12 Nov 1999 HG
Hg .018 ug/L .000 .018 <0.220 ~~<0.214~~ ug JAD 1/14

*** Sample ID: 2 mt 21dup Seq: 817 16:43:22 12 Nov 1999 HG RPD- N/A
~~Hg .018 ug/L .000 .018~~ <0.220 ~~<0.214~~ ug JAD 1/14

Folder: NOVA99 Page 119

16:45:39 12 Nov 1999 Protocol: SYSTEST

Line	Conc.	Units	SD/RSD	1	2	3	4	5

65mL ~~*** Sample ID: 2 sv 22 Seq: 818 16:45:39 12 Nov 1999 HG~~

~~Hg .055 ug/L .000 .055~~ <0.13 ~~<0.126 ug~~ JAD 1/4

~~*** Sample ID: 2 sv 22dup Seq: 819 16:47:55 12 Nov 1999 HG~~ RPD-N/A

~~Hg .060 ug/L .000 .060~~ <0.13 ~~<0.126 ug~~ JAD 1/4

5mL ~~*** Sample ID: 2 sv 23 Seq: 820 16:50:12 12 Nov 1999 HG~~

~~Hg .010 ug/L .000 .010~~ <0.13 ug

~~*** Sample ID: 2 sv 23dup Seq: 821 16:52:29 12 Nov 1999 HG~~ RPD- N/A

~~Hg .010 ug/L .000 .010~~ ~~<0.13 ug~~

135mL *** Sample ID: 2 sv 1 Seq: 822 16:54:46 12 Nov 1999 HG

Hg .025 ug/L .000 .025 <0.27 ug

*** Sample ID: 2 sv 1dup Seq: 823 16:57:03 12 Nov 1999 HG RPD-N/A

Hg .025 ug/L .000 .025 <0.27 ug

160mL *** Sample ID: 2 sv 2 Seq: 824 16:59:20 12 Nov 1999 HG

Hg .060 ug/L .000 .060 <0.32 ug

*** Sample ID: 2 sv 2dup Seq: 825 17:01:38 12 Nov 1999 HG RPD- N/A

Hg .061 ug/L .000 .061 <0.32 ug

*** Sample ID: 2 sv 2trd Seq: 826 17:03:56 12 Nov 1999 HG RPD- N/A

Hg .059 ug/L .000 .059 <0.32 ug ~~<0.146 ug~~ JDPP 12/2/99

73mL *** Sample ID: 2 sv 3 Seq: 827 17:06:14 12 Nov 1999 HG

Hg .040 ug/L .000 .040 <0.146 ug

*** Sample ID: 2 sv 3dup Seq: 828 17:08:32 12 Nov 1999 HG

Hg .039 ug/L .000 .039 <0.146 ug

*** Sample ID: 2 sv 3spk Seq: 829 17:10:50 12 Nov 1999 HG

Hg .960 ug/L .000 .960 97%

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: ccb Seq: 830 17:13:14 12 Nov 1999 HG

Hg -.015 ug/L .000 -.015 <0.20ug

*** Sample ID: ccv Seq: 831 17:15:22 12 Nov 1999 HG

Hg 1.89 ug/L .010 1.89 95%

14mL *** Sample ID: 1 tx 4 Seq: 832 17:18:02 12 Nov 1999 HG

Hg .009 ug/L .000 .009 <0.088ug

*** Sample ID: 1 tx 4dup Seq: 833 17:20:20 12 Nov 1999 HG RPD- N/A

Hg .013 ug/L .000 .013 <0.088ug

33mL *** Sample ID: 2 tx 5 Seq: 834 17:22:32 12 Nov 1999 HG

Hg .017 ug/L .000 .017 <0.066ug

*** Sample ID: 2 tx 5dup Seq: 835 17:24:56 12 Nov 1999 HG RPD- N/A

Hg .015 ug/L .000 .015 <0.066ug

24mL *** Sample ID: 2 tx 6 Seq: 836 17:27:14 12 Nov 1999 HG

Hg .029 ug/L .000 .029 <0.068ug

*** Sample ID: 2 tx 6dup Seq: 837 17:29:32 12 Nov 1999 HG RPD= N/A

Hg .027 ug/L .000 .027 <0.068ug

10mL ~~*** Sample ID: 2 tx 12 Seq: 838 17:31:48 12 Nov 1999 HG~~

~~Hg .009 ug/L .000 .009 <1.0ug~~

~~*** Sample ID: 3 mt15dup Seq: 839 17:34:10 12 Nov 1999 HG~~ RPD- N/A

~~Hg .011 ug/L .000 .011 <1.0ug~~

495mL ~~*** Sample ID: 3 mt15 Seq: 840 17:36:30 12 Nov 1999 HG~~

~~Hg -.003 ug/L .000 -.003 <1.0ug~~

~~*** Sample ID: 3mt15dup Seq: 841 17:38:50 12 Nov 1999 HG~~ RPD- N/A

~~Hg -.001 ug/L .000 -.001 <1.0ug~~

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17:41:10 12 Nov 1999 Protocol: SYSTEST

	Line	Conc.	Units	SD/RSD	1	2	3	4	5	
740mL	*** Sample ID: 3mt24				Sec: 842	17:41:10 12 Nov 1999 HG				
	Hg	.052	ug/L	.000	.052					<1.48 ug
	*** Sample ID: 3mt24dup				Sec: 843	17:43:30 12 Nov 1999 HG				RPD- N/A
	Hg	.052	ug/L	.000	.052					<1.48 ug
720mL	*** Sample ID: 3mt25				Sec: 844	17:45:50 12 Nov 1999 HG				
	Hg	.007	ug/L	.000	.007					<1.64 ug
	*** Sample ID: 3mt25dup				Sec: 845	17:48:10 12 Nov 1999 HG				RPD- N/A
	Hg	.005	ug/L	.000	.005					<1.64 ug
760mL	*** Sample ID: 3mt26				Sec: 846	17:50:30 12 Nov 1999 HG				
	Hg	.021	ug/L	.000	.021					<1.52 ug
	*** Sample ID: 3mt26dup				Sec: 847	17:52:50 12 Nov 1999 HG				RPD - N/A
	Hg	.022	ug/L	.000	.022					<1.52 ug
720mL	*** Sample ID: 3mt27				Sec: 848	17:55:10 12 Nov 1999 HG				
	Hg	.430	ug/L	.000	.430					3.10 ug
	*** Sample ID: 3mt27dup				Sec: 849	17:57:30 12 Nov 1999 HG				RPD = 2.35%
	Hg	.420	ug/L	.001	.420					3.02 ug
	*** Sample ID: 3mt27trp				Sec: 850	17:59:50 12 Nov 1999 HG				RPD = 2.11%
	Hg	.421	ug/L	.000	.421					3.03 ug

Folder: NOV499 Page 122
18:10:34 12 Nov 1999 Protocol: SYSTEST

	Line	Conc.	Units	SD/PSD	1	2	3	4	5	
700mL	+i									
	*** Sample ID: 1 mt2s				Seq: 851	18:10:34 12 Nov 1999 HG				
	Hg	.463	ug/L	.000	.463					3.24ug
	*** Sample ID: 2 mt2sdup				Seq: 852	18:12:51 12 Nov 1999 HG				RPD = 0.87%
	Hg	.459	ug/L	.000	.460					3.21ug
	*** Sample ID: 3 mt2sdu				Seq: 853	18:15:08 12 Nov 1999 HG				
	Hg	[illegible]	ug/L	.000	[illegible]					88%
	*** Sample ID: ccc				Seq: 854	18:17:31 12 Nov 1999 HG				
	Hg	-.020	ug/L	.000	-.020					<0.2 ug
	*** Sample ID: cc.				Seq: 855	18:19:48 12 Nov 1999 HG				
	Hg	1.39	ug/L	.000	1.39					95%
20mL	*** Sample ID: 3 mt2s				Seq: 856	18:22:15 12 Nov 1999 HG				
	Hg	.486	ug/L	.000	.486					3.98ug
	*** Sample ID: 3 mt2s dup				Seq: 857	18:24:33 12 Nov 1999 HG				RPD- N/A
	Hg	.486	ug/L	.000	.486					3.98ug
465mL	*** Sample ID: 3 tx1				Seq: 858	18:26:50 12 Nov 1999 HG				
	Hg	-.003	ug/L	.000	-.003					<0.93ug
	*** Sample ID: 3 tx1dup				Seq: 859	18:29:08 12 Nov 1999 HG				RPD- N/A
	Hg	-.001	ug/L	.000	-.001					<0.93ug
765mL	*** Sample ID: 3 tx2				Seq: 860	18:31:26 12 Nov 1999 HG				
	Hg	1.49	ug/L	.000	1.49					11.40ug
	*** Sample ID: 3 tx2dup				Seq: 861	18:33:48 12 Nov 1999 HG				RPD = 2.03%
	Hg	1.46	ug/L	.000	1.46					11.17 ug
60mL	*** Sample ID: 3 tx3				Seq: 862	18:36:09 12 Nov 1999 HG				
	Hg	.784	ug/L	.000	.784					5.96ug

	Line	Cont.	Units	SD/RSD	1	2	3	4	5	
	*** Sample ID: 3 tx3cup				Seq: 863		18:38:27 12 Nov 1999 HG			RPD = 0.57 %
	Hg	.788	ug/L	.000	.788			5.99 ug		
85mL	*** Sample ID: 3 tx4				Seq: 864		18:40:44 12 Nov 1999 HG			
	Hg	2.41	ug/L	.000	2.41			~~18.92~~ 18.9 ug JAO 12/4		
	*** Sample ID: 3 tx4cup				Seq: 865		18:43:12 12 Nov 1999 HG			RPD = 0.83%
	Hg	2.43	ug/L	.000	2.43			19.10 ug		
420mL	*** Sample ID: 3 tx5				Seq: 866		18:45:40 12 Nov 1999 HG			
	Hg	-.009	ug/L	.000	-.009			<0.84 ug		
	*** Sample ID: 3 tx5cup				Seq: 867		18:47:57 12 Nov 1999 HG			RPD = N/A
	Hg	-.002	ug/L	.000	-.002			<0.84 ug		
710mL	*** Sample ID: 3 tx6				Seq: 868		18:50:15 12 Nov 1999 HG			
	Hg	2.06	ug/L	.000	2.06			~~16.69~~ 16.7 ug JAO 12/4		
	*** Sample ID: 3 tx6cup				Seq: 869		18:52:43 12 Nov 1999 HG			RPD = 0.97%
	Hg	2.04	ug/L	.000	2.04			16.52 ug		
780mL	*** Sample ID: 3 tx7				Seq: 870		18:55:12 12 Nov 1999 HG			
	Hg	1.23	ug/L	.000	1.23			9.59 ug		
	*** Sample ID: 3 tx7cup				Seq: 871		18:57:36 12 Nov 1999 HG			RPD = 0.81%
	Hg	1.24	ug/L	.000	1.24			9.67 ug		
~~730mL~~ 11/12/99	*** Sample ID: 3 tx7 trp				Seq: 872		18:59:58 12 Nov 1999 HG			RPD = N/A
	Hg	1.23	ug/L	.000	1.23			9.59 ug		
730mL	*** Sample ID: 3 tx8				Seq: 873		19:02:19 12 Nov 1999 HG			
	Hg	2.87	ug/L	.000	2.87			~~20.95~~ 21.0 ug JAO 12/4		
	*** Sample ID: 3 tx8cup				Seq: 874		19:04:48 12 Nov 1999 HG			RPD = 0.347%
	Hg	2.88	ug/L	.000	2.88			21.02 ug		

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: 3 txSeak				Seq: 875		19:07:17 12 Nov 1999 HG			
Hg	3.80	ug/L	.000	3.80					NO DATA, SEE PG 129 2x DIL.
*** Sample ID: ccc				Seq: 876		19:09:49 12 Nov 1999 HG			
Hg	-.024	ug/L	.000	-.024					<0.20 ug
*** Sample ID: ccv				Seq: 877		19:12:07 12 Nov 1999 HG			
Hg	1.84	ug/L	.000	1.84					92%
5/mL ~~*** Sample ID: 5 mt2~~				~~Seq: 878~~		~~19:14:33 12 Nov 1999 HG~~			
Hg	-.016	ug/L	.000	-.016					<2.0 ug/L
*** Sample ID: 5 mt2 dup				Seq: 879		19:16:53 12 Nov 1999 HG			RPD-N/A
~~Hg~~	~~-.005~~	~~ug/L~~	~~.000~~	~~-.005~~					~~<2.0 ug/L~~
1mL *** Sample ID: ~~rb2 tx~~ rb2 Tx				Seq: 880		19:19:11 12 Nov 1999 HG			
Hg	.006	ug/L	.000	.006					<2.0 ug/L
*** Sample ID: ~~rb2 tx dup~~ rb2TX dup				Seq: 881		19:21:29 12 Nov 1999 HG			RPD-N/A
Hg	.005	ug/L	.000	.005					<2.0 ug/L
*** Sample ID: mo coal				Seq: 882		19:23:46 12 Nov 1999 HG			
Hg	.040	ug/L	.000	.040					<0.2 ug/L
*** Sample ID: mo coalcup				Seq: 883		19:26:07 12 Nov 1999 HG			
Hg	.042	ug/L	.000	.042					<0.2 ug/L
*** Sample ID: lcs coal				Seq: 884		19:28:27 12 Nov 1999 HG			
Hg	.957	ug/L	.000	.957					96%
*** Sample ID: lcs coalcu				Seq: 885		19:30:48 12 Nov 1999 HG			RPD=1.58%
Hg	.942	ug/L	.000	.942					94%
*** Sample ID: 1630a				Seq: 886		19:33:11 12 Nov 1999 HG			
Hg	1.95	ug/L	.000	1.95					

0.076 ug/g wet

0.077 ug/g D.W.

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: 1630a dup				Sec: 887	19:35:41 12 Nov 1999 HG				RPD=0.506
Hg	1.97	ug/L	.000	1.97					0.076 ug/g W.W. 0.077 ug/g D.W.
*** Sample ID: 1630a				Sec: 888	19:41:33 12 Nov 1999 HG				
Hg	1.64	ug/L	.000	1.64					0.080 ug/g WW ~~NO DATA~~ JPP 11/12/99 0.081 DW ug/g
*** Sample ID: 1630a dup				Sec: 889	19:44:03 12 Nov 1999 HG				
Hg	1.63	ug/L	.000	1.63					0.081 ug/g D.W. 0.080 ug/g WW ~~NO DATA~~ JPP 11/12/99
*** Sample ID: mt1				Sec: 890	19:46:25 12 Nov 1999 HG				RPD=0.611%
Hg	1.33	ug/L	.000	1.33					0.065 ug D.W. 0.058 ug/g WW
*** Sample ID: mt1 dup				Sec: 891	19:48:51 12 Nov 1999 HG				
Hg	1.34	ug/L	.000	1.34					0.065 ug DW 0.058 ug ~~/g~~ JPP W.W.
*** Sample ID: mt2				Sec: 892	19:51:13 12 Nov 1999 HG				RPD= 0.74%
Hg	1.14	ug/L	.000	1.14					0.064 ug/g DW 0.056 ug/g WW
*** Sample ID: mt2 dup				Sec: 893	19:53:34 12 Nov 1999 HG				RPD = N/A
Hg	1.14	ug/L	.000	1.14					0.064 ug/g D.W. 0.056 ug/g ~~0.057 ug/g~~ JPP 12/3/99
*** Sample ID: mt3				Sec: 894	19:55:55 12 Nov 1999 HG				
Hg	1.15	ug/L	.000	1.15					0.064 ug/g D.W. 0.057 ug/g W.W.
*** Sample ID: mt3 dup				Sec: 895	19:58:16 12 Nov 1999 HG				RPD- N/A
Hg	1.15	ug/L	.000	1.15					~~0.064 ug/g D.W. 0.057 ug/g W.W.~~
*** Sample ID: tynm1				Sec: 896	20:00:37 12 Nov 1999 HG				
Hg	1.67	ug/L	.000	1.67					0.080 ug/g W.W. 0.115 ug/g D.W.

Folder: NOV12?? Page 12?

20:24:18 12 Nov 1999 Protocol: SYSTEST

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: trnn 1dup Seq: 297 20:24:18 12 Nov 1999 HG RPD - N/A

0.115 ug/g D.W.
0.080 ug/g W.W.

Hg 1.67 ug/L .000 1.67

*** Sample ID: trnn 1rep Seq: 298 20:26:45 12 Nov 1999 HG RPD = 0.60%

0.115 ug/g D.W.
0.080 ug/g W.W.

Hg 1.66 ug/L .000 1.66

*** Sample ID: trnn 2 Seq: 299 20:29:07 12 Nov 1999 HG

0.142 ug/g DW
0.100 ug/g W.W.

Hg 2.14 ug/L .000 2.14

*** Sample ID: trnn 2dup Seq: 300 20:31:35 12 Nov 1999 HG RPD = 0.47%

0.142 ug/g D.W.
0.100 ug/g W.W.

Hg 2.13 ug/L .000 2.13

*** Sample ID: trnn 2spk 1:2 Seq: 301 20:34:03 12 Nov 1999 HG

Hg 1.84 ug/L .000 1.84

94%

*** Sample ID: ccb Seq: 302 20:36:29 12 Nov 1999 HG

Hg -.022 ug/L .000 -.022

<0.2 ug/L

*** Sample ID: ccv Seq: 303 20:38:40 12 Nov 1999 HG

Hg 1.81 ug/L .000 1.81

91%

*** Sample ID: trnn 3 Seq: 304 20:41:17 12 Nov 1999 HG

0.157 ug/g D.W.
0.111 ug/g W.W.

Hg 2.32 ug/L .000 2.32

*** Sample ID: trnn 3dup Seq: 305 20:43:41 12 Nov 1999 HG RPD = 2.55%

0.161 ug/g D.W.
0.114 ug/g W.W.

Hg 2.38 ug/L .000 2.38

*** Sample ID: mb 41 Seq: 306 20:46:09 12 Nov 1999 HG

Hg .068 ug/L .000 .068

<0.2 ug/L

*** Sample ID: mb 41dup Seq: 307 20:48:25 12 Nov 1999 HG

Hg .070 ug/L .000 .070

<0.2 ug/L

*** Sample ID: ~~[illegible]~~ NIST 1633B Seq: 308 20:50:45 12 Nov 1999 HG

JPP 12/3/99

Hg 1.30 ug/L .000 1.30

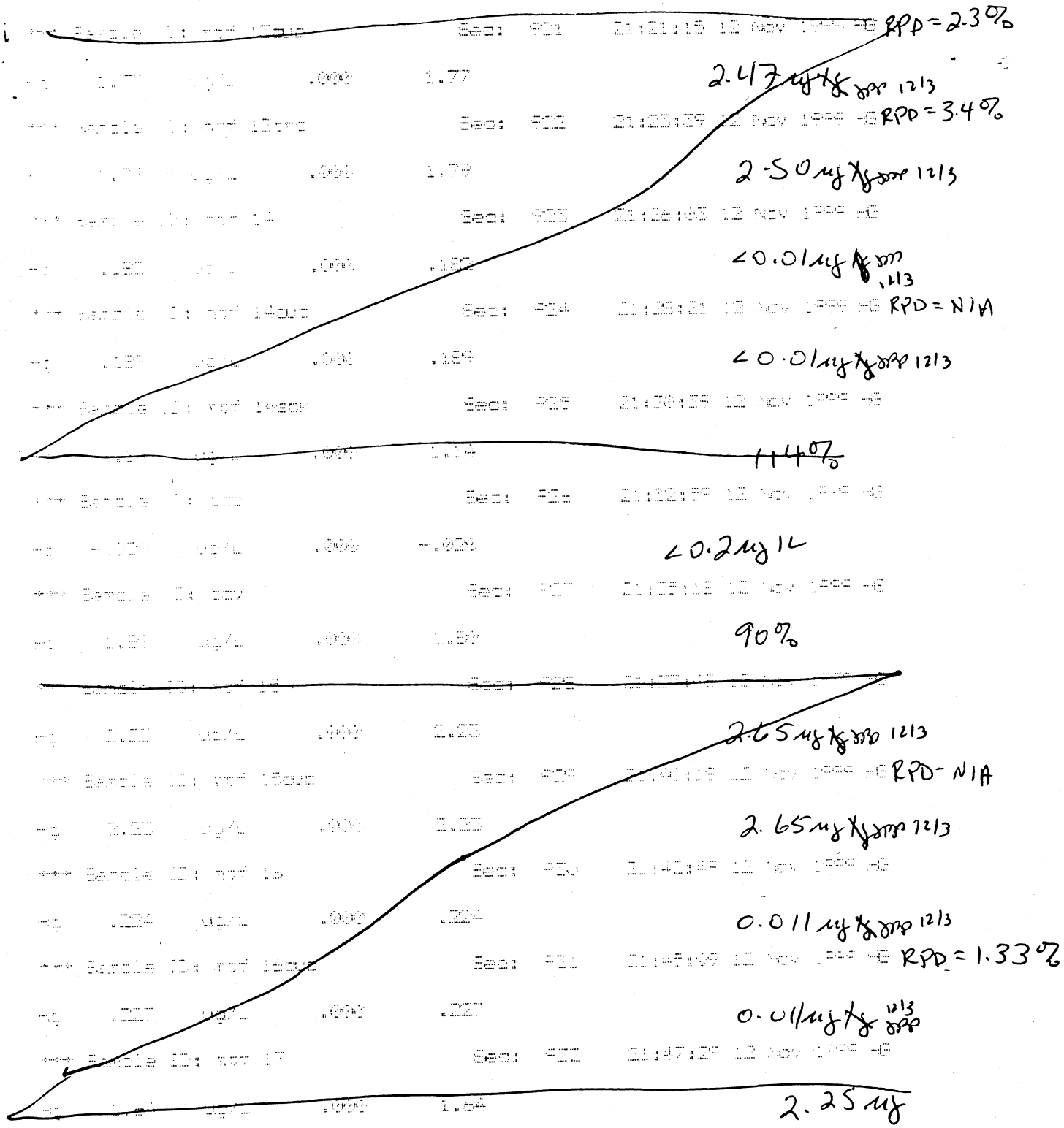
SEE 2nd NIST SAMPLE RUN WITH THIS PEED BATCH ON 11/15/99

0.121 ug/g WET WT. JPP 12/3
0.121 ug/g DRY WT.

TV = 0.141

14:47

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: ~~[illegible]~~ NIST1633B DUP				Sec:	[illegible]	20:53:12 12 Nov 1999 HG			RPD=2.33%
Hg	1.27	ug/L	.000	1.27					0.118 ug ~~Xg~~ 1213 ppp WT.WT 0.119 ug ~~Xg~~ DRY WT.
~~*** Sample ID: mtf [illegible]~~				~~Sec:~~	~~[illegible]~~	~~20:55:[illegible] 12 Nov 1999 HG~~			
Hg	.077	ug/L	.000	.077					<0.01 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 4duo				Sec:	[illegible]	20:57:56 12 Nov 1999 HG			RPD-N/A
Hg	.086	ug/L	.000	.086					<0.01 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 7				Sec:	[illegible]	21:00:13 12 Nov 1999 HG			RPD-N/A
Hg	.042	ug/L	.000	.042					<0.01 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 7duo				Sec:	[illegible]	21:02:30 12 Nov 1999 HG			RPD-N/A
Hg	.042	ug/L	.000	.042					<0.01 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 10				Sec:	[illegible]	21:04:47 12 Nov 1999 HG			
Hg	1.71	ug/L	.000	1.71					0.09 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 10duo				Sec:	[illegible]	21:07:15 12 Nov 1999 HG			RPD=0.583%
Hg	1.72	ug/L	.000	1.72					0.09 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 11				Sec:	[illegible]	21:09:37 12 Nov 1999 HG			
Hg	.934	ug/L	.000	.934					0.050 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 11duo				Sec:	[illegible]	21:11:56 12 Nov 1999 HG			RPD-N/A
Hg	.934	ug/L	.000	.934					0.050 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 12				Sec:	[illegible]	21:14:15 12 Nov 1999 HG			
Hg	.708	ug/L	.000	.708					0.04 ug ~~Xg~~ 1213 ppp
*** Sample ID: mtf 12duo				Sec:	[illegible]	21:16:34 12 Nov 1999 HG			RPD=0.14%
Hg	.707	ug/L	.000	.707					0.04 ug ~~Xg~~ 1213 ppp
~~*** Sample ID: mtf 13~~				~~Sec:~~	~~[illegible]~~	~~21:18:53 12 Nov 1999 HG~~			
Hg	1.72	ug/L	.000	1.72					~~2.47 ug Xg~~ ppp 1213 kg 2.41 ug ~~Xg~~ 1213 ppp


RPD = 2.3%
2.47 mg/kg dup 1213
RPD = 3.4%
2.50 mg/kg dup 1213
< 0.01 mg/kg dup 1213
RPD = N/A
< 0.01 mg/kg dup 1213
114%
< 0.2 mg/L
90%
2.65 mg/kg dup 1213
RPD = N/A
2.65 mg/kg dup 1213
0.011 mg/kg dup 1213
RPD = 1.33%
0.011 mg/kg dup 1213
2.25 mg

```
                                   Folder:    NOV499                                   Page  129
21:49:55 12 Nov 1999               Protocol: SYSTEST

Line    Conc.  Units      SD/RSD        1           2           3           4           5
------------------------------------------------------------------------------------------------

*** Sample ID: ... 1:000                      Seq:   #33     21:49:55 12 Nov 1999 HG   RPD N/A

Hg     1.64    ug/L       .000        1.64                                  2.25 ug

*** Sample ID: I m/Spk                        Seq:   #34     21:52:55 12 Nov 1999 HG

Hg     1.62    ug/L       .001        1.62                    NO DATA, WRONG SAMPLE

*** Sample ID: I m/Spk 1:2                    Seq:   #35     21:55:26 12 Nov 1999 HG

Hg     2.03    ug/L       .000        2.03                        89%

*** Sample ID: ccb                            Seq:   #36     21:57:59 12 Nov 1999 HG

Hg    -.022    ug/L       .000       -.022                       <0.2 ug/L

*** Sample ID: ccv                            Seq:   #37     22:00:10 12 Nov 1999 HG

Hg     1.81    ug/L       .001        1.81                         91%
```

11/13/99 Analytical Run

Protocol: SYSTEST
Rev: 3.001 Time: 12:25:42 13 Nov 1999
Folder: NOV99 Seq: 944 Print: On
User: Batch: Id: StdRecl Cup: 1 39 Gas: 0.33 LPM
State: Idle Unit: Off Autosampler: On

AUTOSAMPLER: Rack entry Rack 111399a

Cup	Id	Extended id	Weight	Volume	Macro check	Help
1	tcp		1.0000	1.0000		
2	10mt4		1.0000	1.0000		
3	10mt4dup		1.0000	1.0000		
4	10mt4spk		1.0000	1.0000		
5	5mt14		1.0000	1.0000		
6	5mt14dup		1.0000	1.0000		
7	5mt14spk		1.0000	1.0000		
8	5mt17		1.0000	1.0000		
9	5mt17dup		1.0000	1.0000		
10	5mt26 ~~1:2~~ 1:5		1.0000	1.0000		
11	5mt26dup ~~1:2~~ 1:5		1.0000	1.0000		
12	5mt27 1:5		1.0000	1.0000		
13	5mt27dup 1:5 ↓		1.0000	1.0000		
14	5mt28		1.0000	1.0000		
15	5mt28dup		1.0000	1.0000		

PgDn

Cup 1 ID: tcp Cell entry, Ins to switch

Protocol: 3-STEST

Rev: 3.0A1   Time: 10:25:45   13 Nov 1999

Folder: \0\4P4   Seq: All   Print: On

User: Batch: Id: StdsRep1   Cups: 1 29 Gas: 0.23 LPM

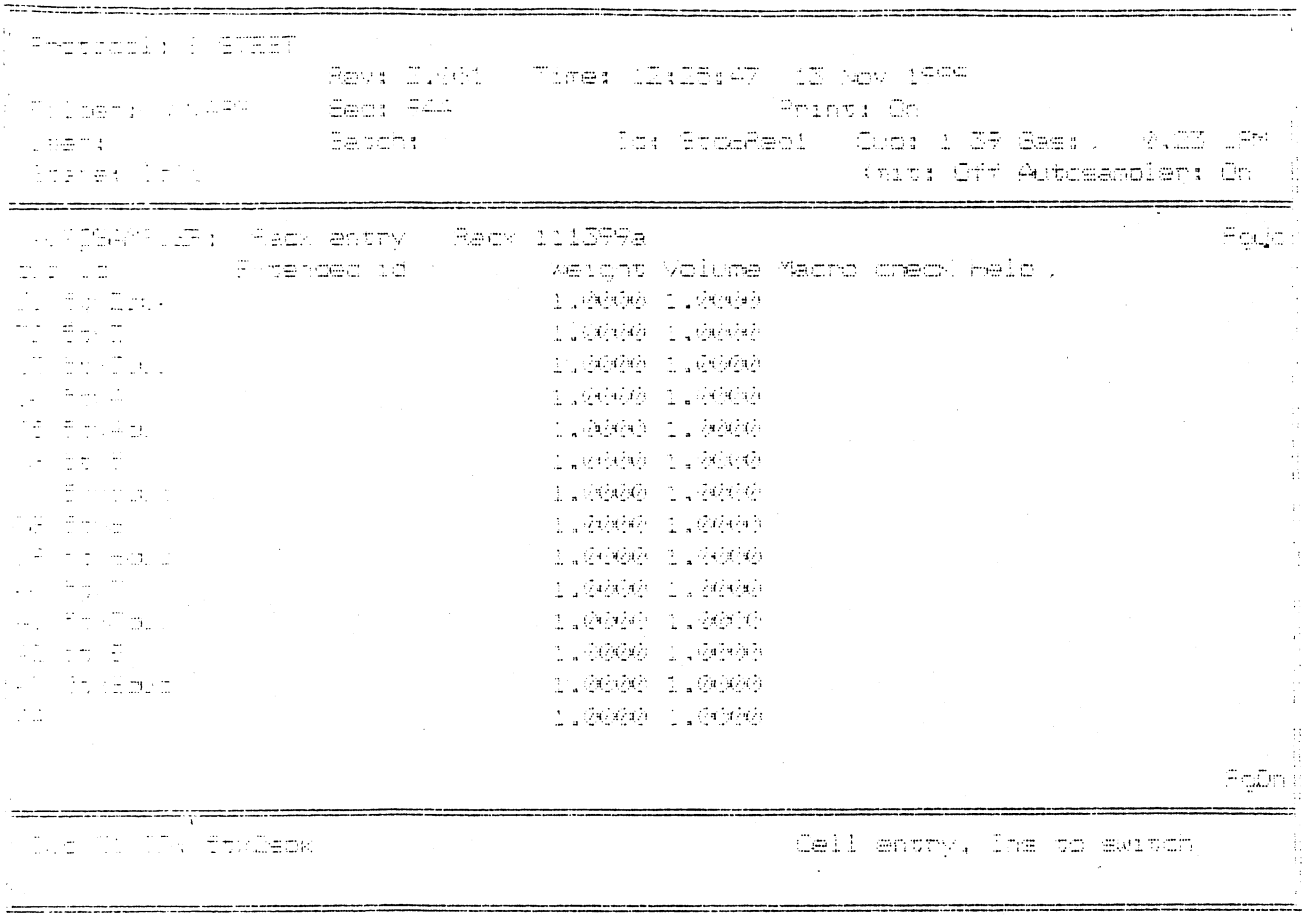
State: Idle   Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry   Rack 111099a   Pg Up

Cup ID	Extended ID	Weight	Volume	Macro	Check	Help
16 5mt2P NO DIL		1.0000	1.0000			
17 5mt2Pdup NO DIL		1.0000	1.0000			
18 5mt41		1.0000	1.0000			
19 5mt41dup		1.0000	1.0000			
20 5mt41		1.0000	1.0000			
21 5mt41dup		1.0000	1.0000			
22 mbtx4		1.0000	1.0000			
23 mbtx4dup		1.0000	1.0000			
24 ccc		1.0000	1.0000			
25 ccv		1.0000	1.0000			
26 5tx1		1.0000	1.0000			
27 5tx1dup		1.0000	1.0000			
28 5tx1spk		1.0000	1.0000			
29 5tx2		1.0000	1.0000			
30 5tx2dup		1.0000	1.0000			

PgDn

Cup 16 ID: 5mt2P   Cell entry. Ins to switch



Protocol: SYSTEST
Rev: 2.301 Time: 14:24:55 13 Nov 1999
Folder: NOV998 Seq: 22 Print: On
User: Batch: Id: Std6oud Cup: 1 42 Gas: 0.22 LPM
State: Idle Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry Rack 111994

Cup	Id	Extended id	Weight	Volume
1	5mt26	:8	1.0000	1.0000
2	5mt26oup	:8	1.0000	1.0000
3	5mt27	:8	1.0000	1.0000
4	5mt27oup	:8	1.0000	1.0000
5	[illegible]		1.0000	1.0000
6	[illegible]		1.0000	1.0000
7	5mt2		1.0000	1.0000
8	5mt2 dup		1.0000	1.0000
9	5mt2 spk		1.0000	1.0000
10	4mt13		1.0000	1.0000
11	4mt13oup		1.0000	1.0000
12	4mt13spk		1.0000	1.0000
13	4mt33		1.0000	1.0000
14	4mt33 dup		1.0000	1.0000
15	4 mt34		1.0000	1.0000

Macro check help

PgDn

Cup 1 ID: 5mt26 Cell entry, Ins to switch

Protocol: SYSTEST

Rev: 1.001   Time: 14:25:09   13 Nov 1999

Folder: NOV993   Seq: 23   Print: On

User: Batch: Id: Std6cup   Cup: 1 43 Gas: 0.20 LPM

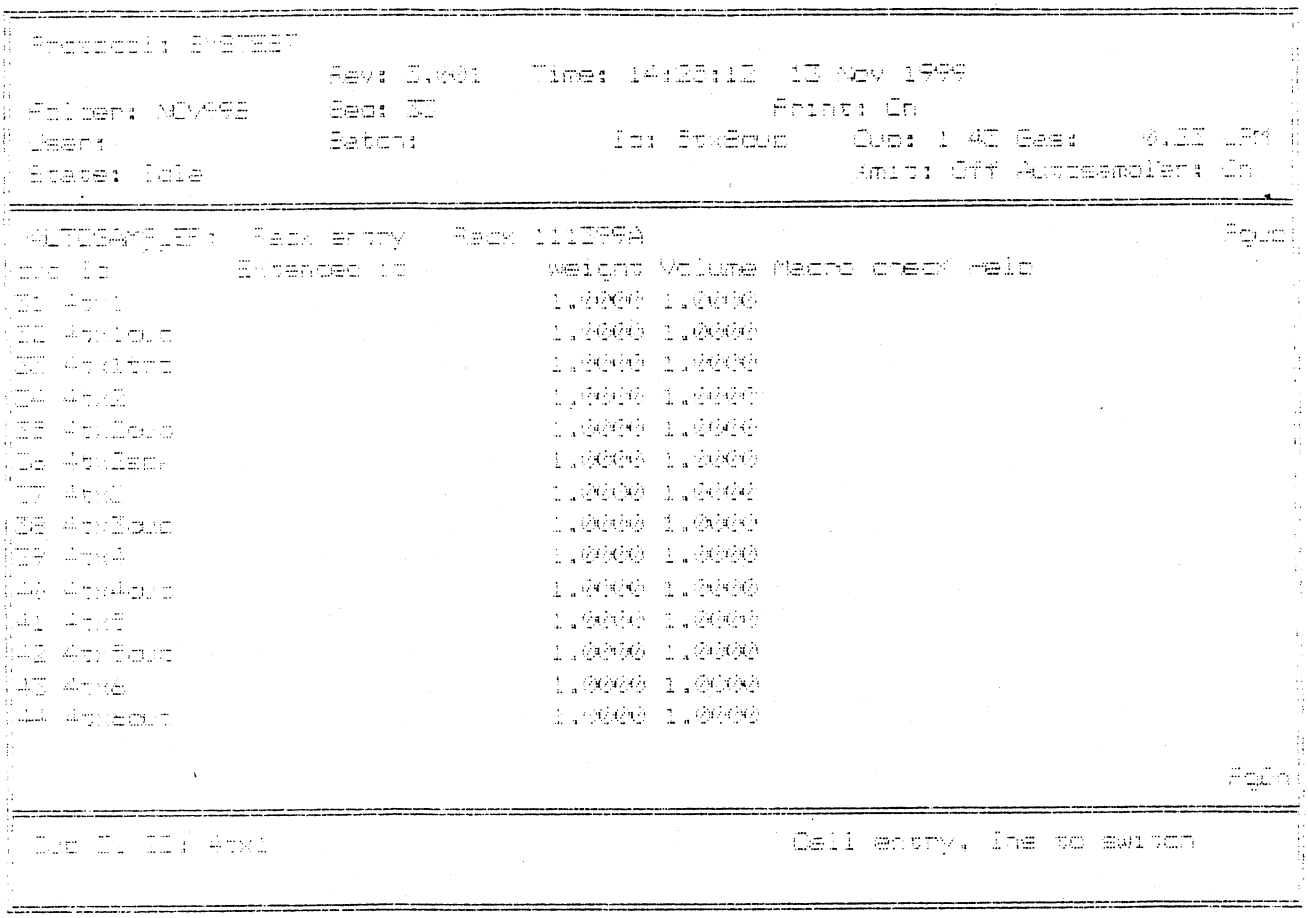
State: Idle   Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry   Rack: 1112994   Equ

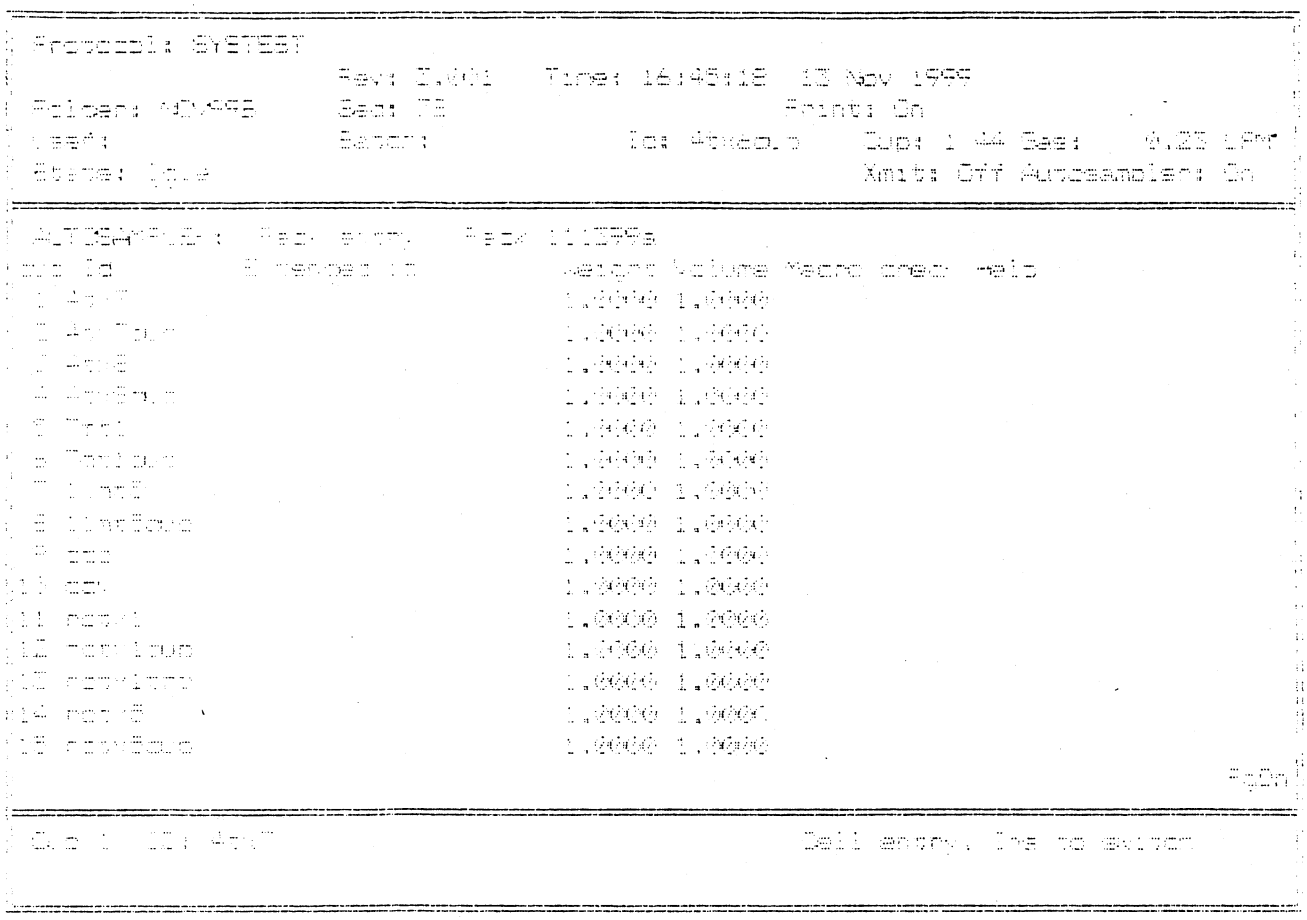
Cup Id	Extended id	Weight	Volume	Macro check	Help
16 4mt24 cup		1.0000	1.0000		
17 4mt25		1.0000	1.0000		
18 4mt25 cup		1.0000	1.0000		
19 4mtic		1.0000	1.0000		
20 4mtic cup		1.0000	1.0000		
21 4mt20		1.0000	1.0000		
22 4mt20cup		1.0000	1.0000		
23 4mt21		1.0000	1.0000		
24 4mt21cup		1.0000	1.0000		
25 4mt22		1.0000	1.0000		
26 4mt22cup		1.0000	1.0000		
27 mstx2		1.0000	1.0000		
28 mstx2cup		1.0000	1.0000		
29 ccm		1.0000	1.0000		
30 ccv		1.0000	1.0000		

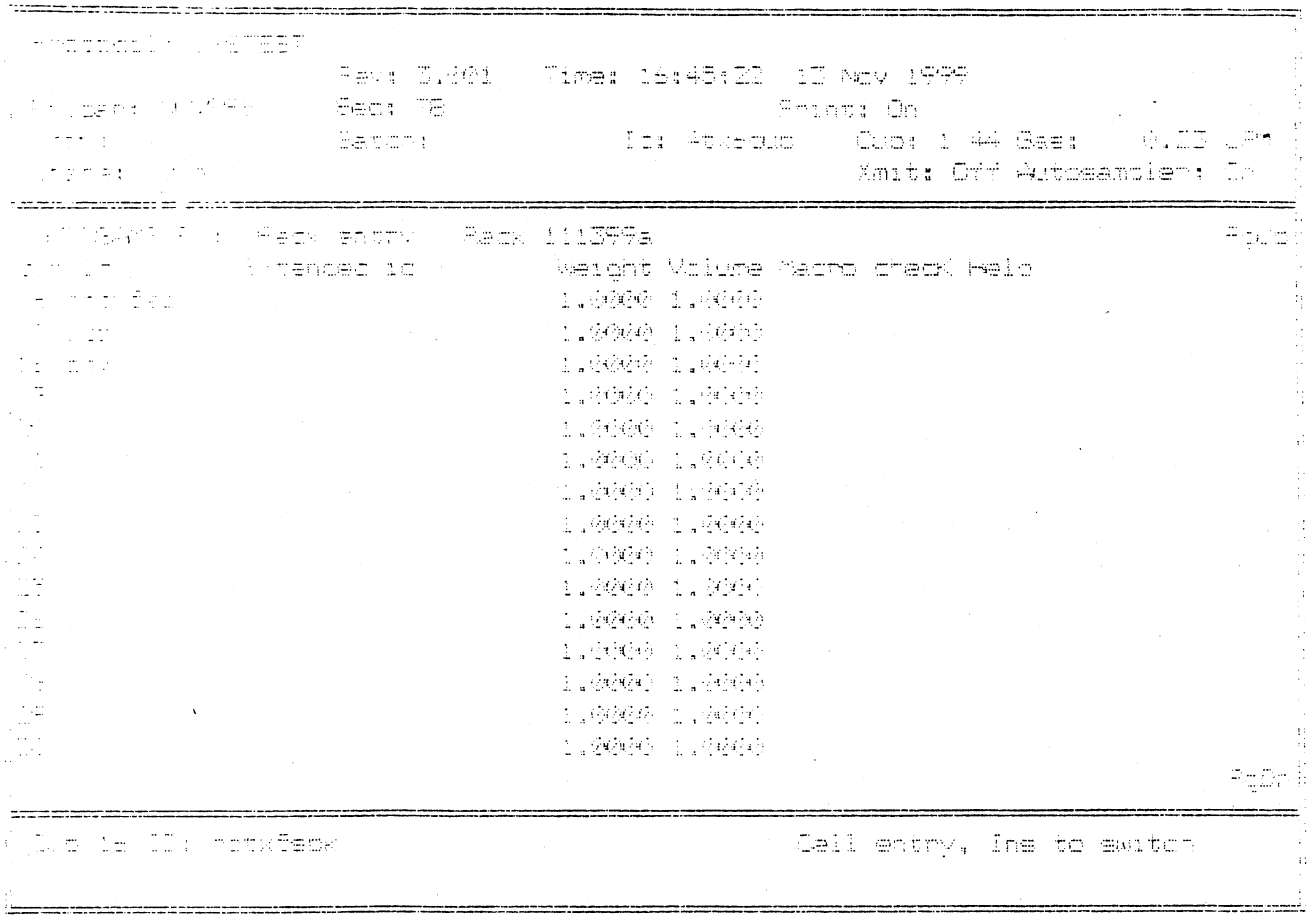
Eqdn

Cup 16 ID: 4mt24 cup   Cell entry, Ins to switch



Pre	Id	Extended Id	Weight	Volume	Macro	Check	Help
01	Anl		1.0000	1.0000			
02	Anlout		1.0000	1.0000			
03	Anlstrt		1.0000	1.0000			
04	Anl2		1.0000	1.0000			
05	Anl2out		1.0000	1.0000			
06	Anl2strt		1.0000	1.0000			
07	Anl3		1.0000	1.0000			
08	Anl3out		1.0000	1.0000			
09	Anl4		1.0000	1.0000			
10	Anl4out		1.0000	1.0000			
11	Anl5		1.0000	1.0000			
12	Anl5out		1.0000	1.0000			
13	Anl6		1.0000	1.0000			
14	Anl6out		1.0000	1.0000			





*** Standard: 1 Rep: 1 Seq: 938 12:02:50 13 Nov 1999 HG

Hg .000 ug/L 89
Ave. Int. = 89 S. D. = 0

*** Standard: 2 Rep: 1 Seq: 939 12:05:12 13 Nov 1999 HG

Hg .200 ug/L 9337
Ave. Int. = 9337 S. D. = 0

*** Standard: 3 Rep: 1 Seq: 940 12:07:34 13 Nov 1999 HG

Hg .500 ug/L 23136
Ave. Int. = 23136 S. D. = 0

*** Standard: 4 Rep: 1 Seq: 941 12:09:56 13 Nov 1999 HG

Hg 1.00 ug/L 45261
Ave. Int. = 452e3 S. D. = 0

*** Standard: 5 Rep: 1 Seq: 942 12:12:18 13 Nov 1999 HG

Hg 2.00 ug/L 91316
Ave. Int. = 91316 S. D. = 0

Line	Conc/	Units	SD/RSD	1	2	3	4	5

*** Standard: 6 Rep: 1 Seq: 943 12:19:27 13 Nov 1999 HG

Hg 5.00 ug/L 134756
Ave. Int. = 134756 S. D. = 0

Protocol: SYSTEST
Rev: 3.001 Time: 12:19:48 13 Nov 1999
Folder: NOVA99 Seq: 944 Print: On
User: Batch: Id: Std6Rep1 Cup: 1 39 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On

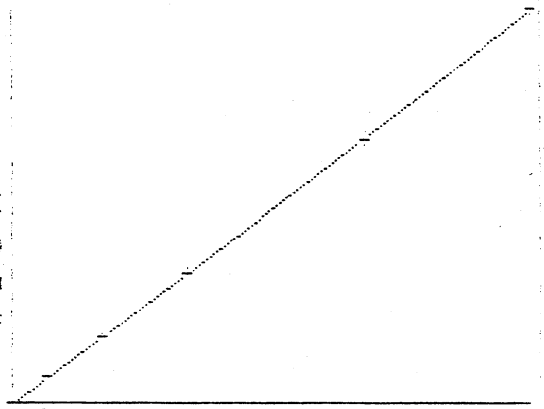
CALIBRATION: Line Calibration

Line: Hg

	Conc.	Calc.	Dev.	Accepted LiNear
S1	.000	-.007	-.007	Quadratic
S2	.200	.198	-.002	WtdLinear
S3	.500	.505	.005	C
S4	1.00	.997	-.003	Accept o
S5	2.00	2.02	.020	n
S6	3.00	2.99	-.013	StdAdd c

A .0000000 r .999950
B 2.22252e-5 C -9.13483e-3

	Mean	%RSD	
S1	89	0	89
S2	9337	0	9337
S3	23136	0	23136
S4	45262	0	45262
S5	91316	0	91316
S6	134786	0	134786



New calibration coefficients stored

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 2 Ck2 Seq: 944 12:27:13 13 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.	.614	.604	ug/L	.000

*** Sample ID: 1cb Seq: 945 12:29:33 13 Nov 1999 HG

Hg -.018 ug/L .000 -.018 <0.2 ug/L

*** Sample ID: 10mt4 Seq: 946 12:31:50 13 Nov 1999 HG

Hg -.001 ug/L .000 -.001 <2.0 ug/L 3PP12/3

*** Sample ID: 10mt4dup Seq: 947 12:34:07 13 Nov 1999 HG RPD-N/A

Hg -.000 ug/L .000 -.000 <2.0 ug/L 3PP12/3

*** Sample ID: 10mt4trp Seq: 948 12:36:49 13 Nov 1999 HG RPD-N/A

Hg -.003 ug/L .000 -.003 <2.0 ug/L 3PP12/3

*** Sample ID: 5mt14 Seq: 949 12:39:06 13 Nov 1999 HG

Hg -.001 ug/L .000 -.001 <0.96 ug/L 3PP12/3

*** Sample ID: 5mt14dup Seq: 950 12:41:23 13 Nov 1999 HG RPD-N/A

Hg -.003 ug/L .000 -.003 <0.96 ug/L 3PP12/3

*** Sample ID: 5mt14sok Seq: 951 12:43:40 13 Nov 1999 HG

Hg .996 ug/L .000 .996 100%

*** Sample ID: 5mt17 Seq: 952 12:46:01 13 Nov 1999 HG

Hg .024 ug/L .000 .024 <0.98 ug/L 3PP12/3

*** Sample ID: 5mt17dup Seq: 953 12:48:19 13 Nov 1999 HG RPD-N/A

Hg .029 ug/L .000 .029 <0.98 ug/L 3PP12/3

*** Sample ID: 5mt36 Seq: 954 12:50:37 13 Nov 1999 HG

Hg 3.28 ug/L .000 3.28 SEEPG 136 NO DATA, > LR

*** Sample ID: 5mt36dup Seq: 955 12:53:10 13 Nov 1999 HG

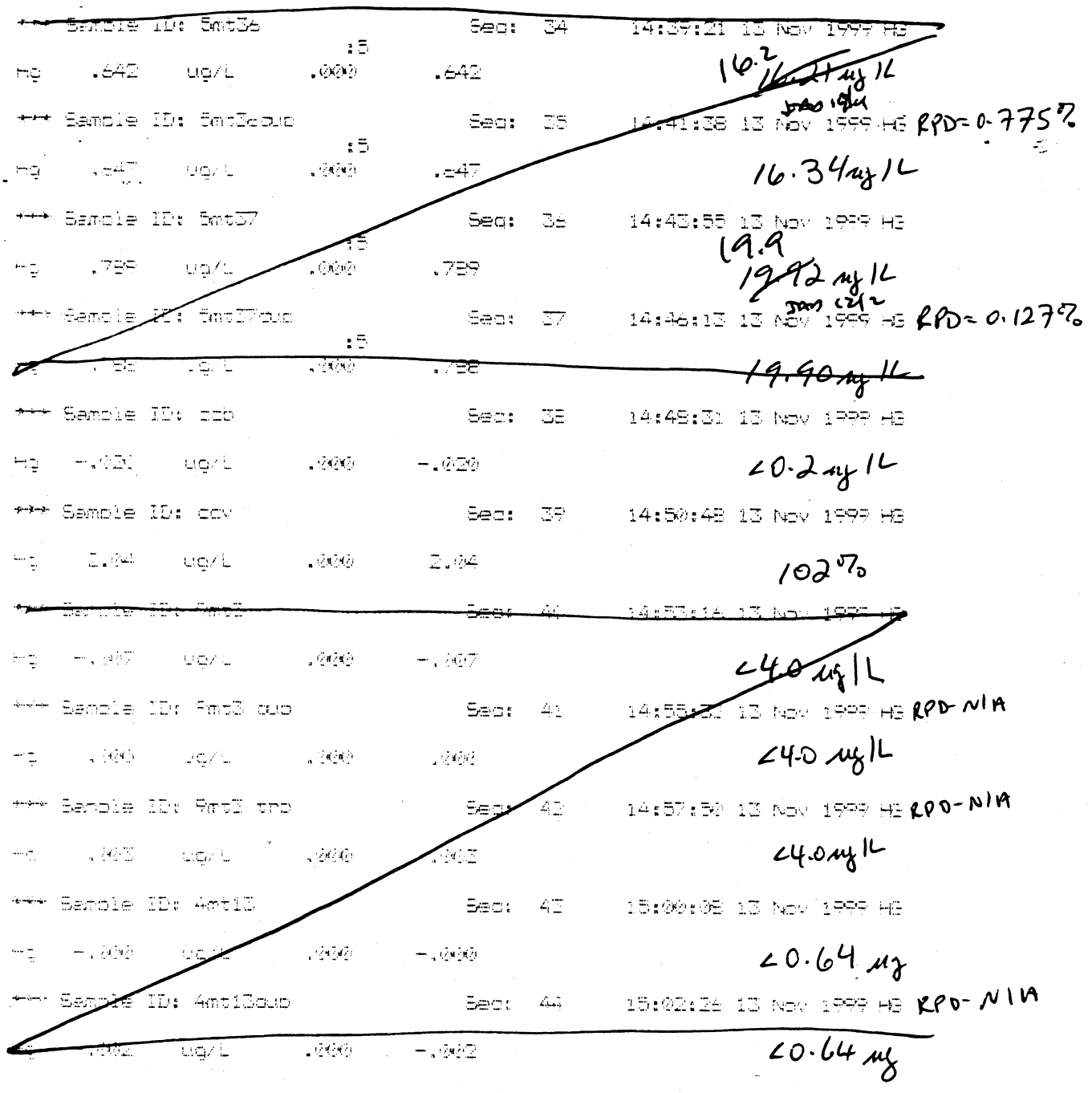
Hg 3.30 ug/L .000 3.30 NO DATA, > LR

Folder: NOV99 Page 1[illegible]
12:56:50 13 Nov 1999 Protocol: SYSTEST

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
~~*** Sample ID: 5mt37~~				~~Sec: 0~~		~~13:56:50 13 Nov 1999 HG~~			
Hg	4.02	ug/L	.000	4.02					NO DATA, SEE PG 135
*** Sample ID: 5mt37sub				Sec: 1		13:59:21 13 Nov 1999 HG			
Hg	4.03	ug/L	.000	4.03					NO DATA, SEE PG 135
*** Sample ID: 5mt38				Sec: 2		13:01:51 13 Nov 1999 HG			
Hg	.813	ug/L	.000	.813					4.15 ug/L ppp 12/3
*** Sample ID: 5mt38sub				Sec: 3		13:04:13 13 Nov 1999 HG			RPD = 0.617%
Hg	.808	ug/L	.000	.808					4.12 ug/L ppp 12/3
*** Sample ID: 5mt39				Sec: 4		13:06:31 13 Nov 1999 HG			
Hg	.048	ug/L	.000	.048					NO DATA, MISSED TUBE 12/3/99 ppp
*** Sample ID: 5mt39				Sec: 5		13:08:48 13 Nov 1999 HG			
Hg	.309	ug/L	.000	.309					1.45 ug/L ppp 12/3
*** Sample ID: 5mt39sub				Sec: 6		13:11:05 13 Nov 1999 HG			RPD = 0.324%
Hg	.308	ug/L	.000	.308					1.45 ug/L ppp 12/3
*** Sample ID: 5mt40				Sec: 7		13:13:22 13 Nov 1999 HG			
Hg	1.76	ug/L	.000	1.76					8.70 ug/L ppp 12/3
*** Sample ID: 5mt40sub				Sec: 8		13:15:45 13 Nov 1999 HG			RPD = 0.57%
Hg	1.75	ug/L	.000	1.75					8.66 ug/L ppp 12/3
*** Sample ID: 5mt41				Sec: 9		13:18:08 13 Nov 1999 HG			
Hg	1.49	ug/L	.000	1.49					7.52 ug/L ppp 12/3
*** Sample ID: 5mt41sub				Sec: 10		13:20:32 13 Nov 1999 HG			RPD = 2.72%
~~Hg~~	~~1.45~~	~~ug/L~~	~~.000~~	~~1.45~~					~~7.32 ug/L ppp 12/3~~
*** Sample ID: mctx4				Sec: 11		13:22:54 13 Nov 1999 HG			
Hg	-.017	ug/L	.000	-.017					<2.0 ug/L ppp 12/3

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: rctx4cup				Seq: 12	13:25:12 13 Nov 1999 HG RPD-N/A			
Hg	-.006	ug/L	.000	-.006				< 2.0 ug/L ppp 12/3/99
*** Sample ID: ccc				Seq: 13	13:27:30 13 Nov 1999 HG			
Hg	-.014	ug/L	.000	-.014				< 0.2 ug/L ppp 12/3/99
*** Sample ID: rcv				Seq: 14	13:29:48 13 Nov 1999 HG			
Hg	2.03	ug/L	.000	2.03				101%
*** Sample ID: 5tx1				Seq: 15	13:32:17 13 Nov 1999 HG			
Hg	-.010	ug/L	.000	-.010				< 0.91 ug/L ppp 12/3
*** Sample ID: 5tx1cup				Seq: 16	13:34:35 13 Nov 1999 HG RPD-N/A			
Hg	.004	ug/L	.000	.004				< 0.91 ug/L ppp 12/3
*** Sample ID: 5tx1tro				Seq: 17	13:36:53 13 Nov 1999 HG RPD-N/A			
Hg	-.002	ug/L	.000	-.002				< 0.91 ug/L ppp 12/3
*** Sample ID: 5tx2				Seq: 18	13:39:11 13 Nov 1999 HG			
Hg	1.91	ug/L	.000	1.91				9.74 ug/L ppp 12/3
*** Sample ID: 5tx2cup				Seq: 19	13:41:40 13 Nov 1999 HG RPD-1.04%			
Hg	1.93	ug/L	.000	1.93				9.84 ug/L ppp 12/3
*** Sample ID: 5tx2sox				Seq: 20	13:44:04 13 Nov 1999 HG			
Hg	2.69	ug/L	.000	2.69				78%
*** Sample ID: 5tx3				Seq: 21	13:46:34 13 Nov 1999 HG			
Hg	1.61	ug/L	.000	1.61				8.05 ug
*** Sample ID: 5tx3cup				Seq: 22	13:48:55 13 Nov 1999 HG RPD = 3.8%			
Hg	1.55	ug/L	.000	1.55				7.75 ug
*** Sample ID: 5tx4				Seq: 23	13:51:20 13 Nov 1999 HG			
Hg	1.91	ug/L	.000	1.91				9.65 ug

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: 5tx4dup				Sec: 24		13:53:46 13 Nov 1999 HG			RPD = 0.522%
Hg	1.92	ug/L	.000	1.92			9.70 ug		
*** Sample ID: 5tx5				Sec: 25		13:56:11 13 Nov 1999 HG			
Hg	-.020	ug/L	.000	-.020			< 0.97 ug		
*** Sample ID: 5tx5dup				Sec: 26		13:58:31 13 Nov 1999 HG			RPD - N/A
Hg	-.005	ug/L	.000	-.005			< 0.97 ug		
*** Sample ID: 5tx6				Sec: 27		14:00:51 13 Nov 1999 HG			
Hg	1.28	ug/L	.000	1.28			6.53 ug		
*** Sample ID: DPP 11/13/99 5tx6dup				Sec: 28		14:03:14 13 Nov 1999 HG			RPD - N/A
Hg	1.28	ug/L	.000	1.28			6.53 ug		
*** Sample ID: 5tx7				Sec: 29		14:05:35 13 Nov 1999 HG			
Hg	.824	ug/L	.000	.824			4.16 ug		
*** Sample ID: 5tx7dup				Sec: 30		14:07:57 13 Nov 1999 HG			RPD = 0.726%
Hg	.830	ug/L	.000	.830			4.19 ug		
*** Sample ID: 5tx8				Sec: 31		14:10:18 13 Nov 1999 HG			
Hg	1.54	ug/L	.000	1.54			7.85 ug		
*** Sample ID: 5tx8dup				Sec: 32		14:12:43 13 Nov 1999 HG			RPD = 0.65%
Hg	1.53	ug/L	.000	1.53			7.80 ug		



*** Sample ID: 5mt36 Seq: 34 14:39:21 13 Nov 1999 HG

Hg .642 ug/L .000 .642 :5

16.2 16.24 ug/L

*** Sample ID: 5mt36dup Seq: 35 14:41:38 13 Nov 1999 HG RPD=0.775%

Hg .647 ug/L .000 .647 :5

16.34 ug/L

*** Sample ID: 5mt37 Seq: 36 14:43:55 13 Nov 1999 HG

Hg .789 ug/L .000 .789 :5

19.9 19.92 ug/L

*** Sample ID: 5mt37dup Seq: 37 14:46:13 13 Nov 1999 HG RPD=0.127%

Hg .782 ug/L .000 .782 :5

19.90 ug/L

*** Sample ID: ccb Seq: 38 14:48:31 13 Nov 1999 HG

Hg -.020 ug/L .000 -.020

<0.2 ug/L

*** Sample ID: ccv Seq: 39 14:50:48 13 Nov 1999 HG

Hg 2.04 ug/L .000 2.04

102%

*** Sample ID: 5mt3 Seq: 40 14:53:16 13 Nov 1999 HG

Hg -.007 ug/L .000 -.007

<4.0 ug/L

*** Sample ID: 5mt3 dup Seq: 41 14:55:32 13 Nov 1999 HG RPD-N/A

Hg .000 ug/L .000 .000

<4.0 ug/L

*** Sample ID: 5mt3 trp Seq: 42 14:57:50 13 Nov 1999 HG RPD-N/A

Hg .003 ug/L .000 .003

<4.0 ug/L

*** Sample ID: 4mt13 Seq: 43 15:00:08 13 Nov 1999 HG

Hg -.000 ug/L .000 -.000

<0.64 ug

*** Sample ID: 4mt13dup Seq: 44 15:02:24 13 Nov 1999 HG RPD-N/A

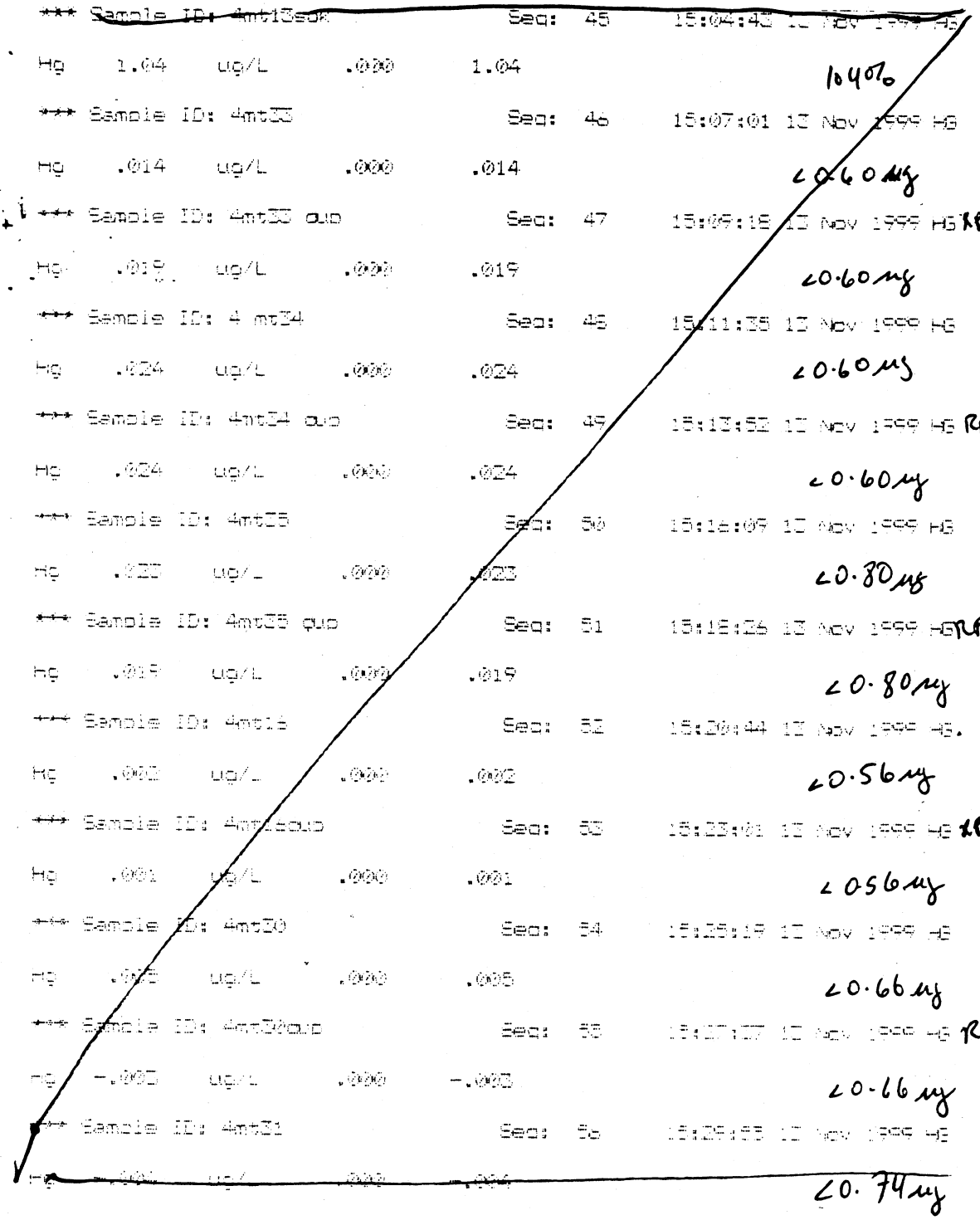
Hg -.002 ug/L .000 -.002

<0.64 ug

Folder: NOV99B Page 13a

15:04:43 13 Nov 1999 Protocol: SYSTEST

Life Conc. Units SD/RSD 1 2 3 4 5



*** Sample ID: 4mt13sdup Seq: 45 15:04:42 13 Nov 1999 HG

Hg 1.04 ug/L .000 1.04

1040%

*** Sample ID: 4mt33 Seq: 46 15:07:01 13 Nov 1999 HG

Hg .014 ug/L .000 .014

<0.60 ug

*** Sample ID: 4mt33 dup Seq: 47 15:09:18 13 Nov 1999 HG RPD-N/A

Hg .019 ug/L .000 .019

<0.60 ug

*** Sample ID: 4 mt34 Seq: 48 15:11:35 13 Nov 1999 HG

Hg .024 ug/L .000 .024

<0.60 ug

*** Sample ID: 4mt34 dup Seq: 49 15:13:52 13 Nov 1999 HG RPD-N/A

Hg .024 ug/L .000 .024

<0.60 ug

*** Sample ID: 4mt35 Seq: 50 15:16:09 13 Nov 1999 HG

Hg .023 ug/L .000 .023

<0.80 ug

*** Sample ID: 4mt35 dup Seq: 51 15:18:26 13 Nov 1999 HG RPD-N/A

Hg .019 ug/L .000 .019

<0.80 ug

*** Sample ID: 4mt16 Seq: 52 15:20:44 13 Nov 1999 HG.

Hg .002 ug/L .000 .002

<0.56 ug

*** Sample ID: 4mt16dup Seq: 53 15:23:01 13 Nov 1999 HG RPD-N/A

Hg .001 ug/L .000 .001

<0.56 ug

*** Sample ID: 4mt30 Seq: 54 15:25:19 13 Nov 1999 HG

Hg .005 ug/L .000 .005

<0.66 ug

*** Sample ID: 4mt30dup Seq: 55 15:27:37 13 Nov 1999 HG RPD

Hg -.003 ug/L .000 -.003

<0.66 ug

*** Sample ID: 4mt31 Seq: 56 15:29:53 13 Nov 1999 HG

Hg -.004 ug/L .000 -.004

<0.74 ug

15:30:10 13 Nov 1999 Folder: NOV99 Page 17
Protocol: SYSTEST

Line Conc. Units SD/RSD 1 2 3 4 5

~~*** Sample ID: 4mt31dup Seq: 57 15:32:13 13 Nov 1999 HG~~ RPD-N/A

Hg .002 ug/L .000 .002 <0.74 ug

~~*** Sample ID: 4mt32 Seq: 58 15:34:31 13 Nov 1999 HG~~

Hg .058 ug/L .000 .058 <0.66 ug

~~*** Sample ID: 4mt32dup Seq: 59 15:36:49 13 Nov 1999 HG~~

~~Hg .058 ug/L .000 .058 <0.66 ug~~

*** Sample ID: rptx3 Seq: 60 15:39:07 13 Nov 1999 HG

Hg -.001 ug/L .000 -.001 <4.0 ~~<2.0~~ ug/L JDD 12/4

*** Sample ID: rptx3dup Seq: 61 15:41:25 13 Nov 1999 HG RPD-N/A

Hg .001 ug/L .000 .001 <4.0 ~~<2.0~~ ug/L JDD 12/4

*** Sample ID: ccc Seq: 62 15:43:43 13 Nov 1999 HG

Hg -.009 ug/L .000 -.009 <0.2 ug/L

*** Sample ID: ccv Seq: 63 15:46:01 13 Nov 1999 HG

Hg 2.04 ug/L .000 2.04 102%

*** Sample ID: 4tx1 Seq: 64 15:48:30 13 Nov 1999 HG

Hg -.010 ug/L .000 -.010 <0.54 ug ~~<0.27 ug x2~~ = JDD 12/4/99

*** Sample ID: 4tx1dup Seq: 65 15:50:48 13 Nov 1999 HG RPD-N/A

Hg -.009 ug/L .000 -.009 <0.54 ug ~~<0.27 ug~~ JDD 12/3/99

*** Sample ID: 4tx1trp Seq: 66 15:53:07 13 Nov 1999 HG RPD-N/A

Hg -.001 ug/L .000 -.001 <0.54 ug ~~<0.27 ug~~ JDD 12/3/99

*** Sample ID: 4tx2 Seq: 67 15:55:27 13 Nov 1999 HG

Hg .016 ug/L .000 .016 <0.58 ug ~~<0.29 ug~~ JDD 12/3/99

*** Sample ID: 4tx2dup Seq: 68 15:57:47 13 Nov 1999 HG RPD-N/A

Hg .020 ug/L .000 .020 <0.58 ug ~~<0.29 ug~~ JDD 12/3/99

16:00:07 13 Nov 1999 Folder: NOV99B Page 138
Protocol: SYSTEST

Line Conc. Units SD/RSD 1 2 3 4 5

D-72

*** Sample ID: [illegible] Seq: 69 16:00:07 13 Nov 1999 HG

Hg .[illegible] ug/L .000 .963 96%

*** Sample ID: [illegible] Seq: 70 16:02:33 13 Nov 1999 HG

Hg .[illegible] ug/L .000 .003 <0.70ug ~~<0.35ug~~ 12/3/99

*** Sample ID: [illegible] Seq: 71 16:04:53 13 Nov 1999 HG RPD N/A

Hg .[illegible] ug/L .000 .006 <0.70ug ~~<0.35ug~~ 12/3/99

*** Sample ID: [illegible] Seq: 72 16:07:13 13 Nov 1999 HG

Hg .[illegible] ug/L .000 .029 <0.68ug ~~<0.34ug~~ 12/3/99

*** Sample ID: [illegible] Seq: 73 16:09:33 13 Nov 1999 HG RPD N/A

Hg .[illegible] ug/L .000 .030 <0.68ug ~~<0.34ug~~ 12/3/99

*** Sample ID: [illegible] Seq: 74 16:11:53 13 Nov 1999 HG

Hg -.[illegible] ug/L .000 -.004 <0.56ug ~~<0.28ug~~

*** Sample ID: [illegible] Seq: 75 16:14:13 13 Nov 1999 HG RPD N/A

Hg -.[illegible] ug/L .000 -.004 <0.56ug ~~<0.28ug~~

*** Sample ID: [illegible] Seq: 76 16:16:33 13 Nov 1999 HG

Hg .[illegible] ug/L .000 .032 <0.56ug ~~<0.28ug~~ 12/3

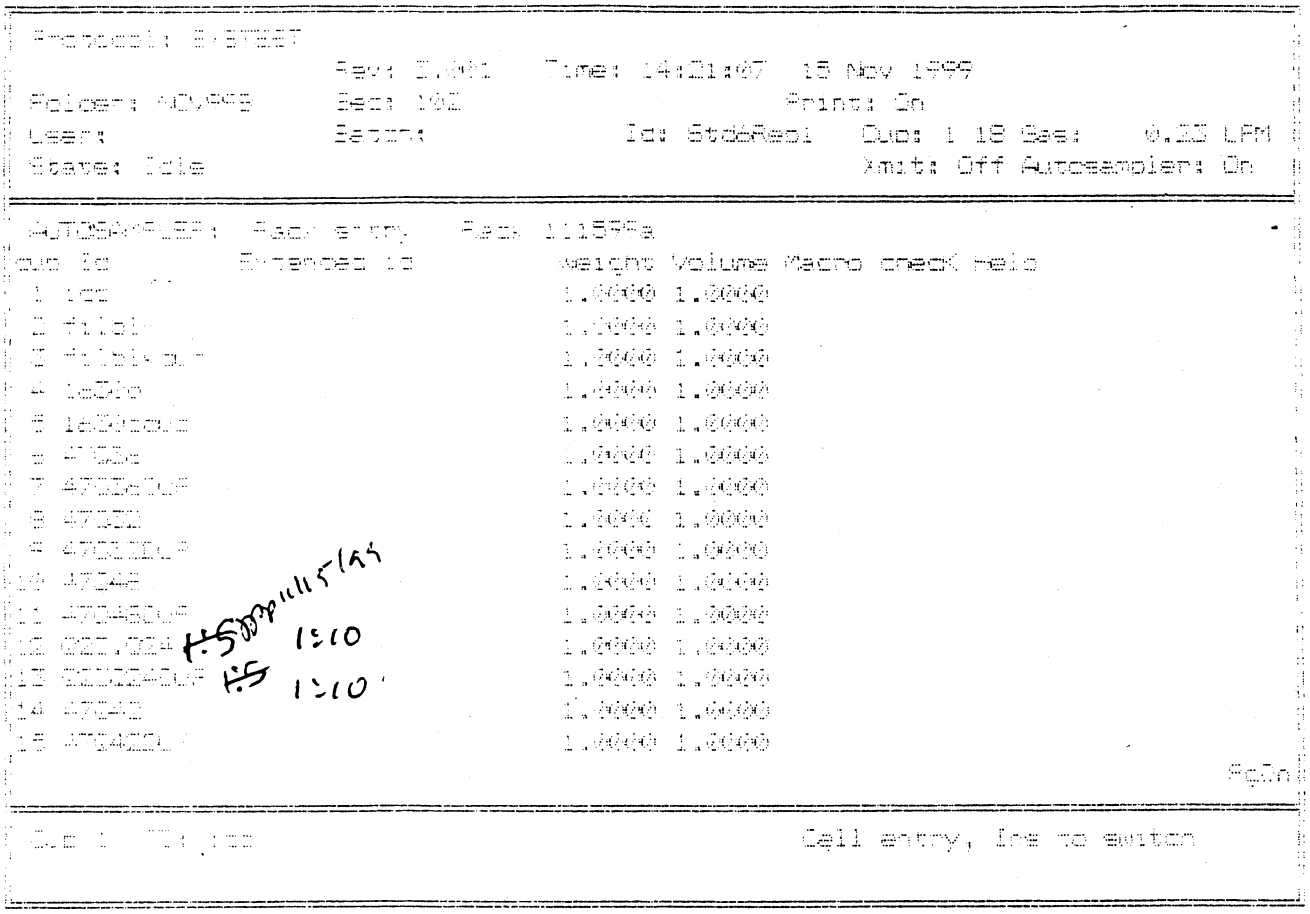
*** Sample ID: [illegible] Seq: 77 16:18:53 13 Nov 1999 HG RPD-N/A

Hg .[illegible] ug/L .000 .031 <0.56ug ~~<0.28ug~~ 12/3

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: 4tx7					Seq: 78	16:48:51 13 Nov 1999 HG			
Hg	.021	ug/L	.000	.021		<0.60 ug	~~<0.30 ug~~ 12/3		
*** Sample ID: 4tx7dup					Seq: 79	16:51:08 13 Nov 1999 HG			RPD - N/A
Hg	.019	ug/L	.000	.019		<0.60 ug	~~<0.30 ug~~ 12/3		
*** Sample ID: 4tx8					Seq: 80	16:53:25 13 Nov 1999 HG			
Hg	.058	ug/L	.000	.058		<0.64 ug	~~<0.32 ug~~ 12/3		
*** Sample ID: 4tx8dup					Seq: 81	16:55:42 13 Nov 1999 HG			RPD - N/A
Hg	.056	ug/L	.000	.056		<0.64 ug	~~<0.32 ug~~ 12/3		
~~*** Sample ID: 7mt1~~					~~Seq: 82~~	~~16:57:59 13 Nov 1999 HG~~			
Hg	-.010	ug/L	.000	-.010		<0.2 ug/L			
*** Sample ID: 7mt1dup					Seq: 83	17:00:16 13 Nov 1999 HG			RPD - N/A
Hg	-.012	ug/L	.000	-.012		<0.2 ug/L			
*** Sample ID: 11mt5					Seq: 84	17:02:33 13 Nov 1999 HG			
Hg	-.004	ug/L	.000	-.004		<0.2 ug/L			
*** Sample ID: 11mt5dup					Seq: 85	17:04:50 13 Nov 1999 HG			RPD - N/A
~~Hg~~	~~-.003~~	~~ug/L~~	~~.000~~	~~-.003~~		~~<0.2 ug/L~~			
*** Sample ID: ccb					Seq: 86	17:07:07 13 Nov 1999 HG			
Hg	-.003	ug/L	.000	-.003		<0.2 ug/L			
*** Sample ID: ccv					Seq: 87	17:09:25 13 Nov 1999 HG			
Hg	2.06	ug/L	.000	2.06		103%			
*** Sample ID: rotx1					Seq: 88	17:11:54 13 Nov 1999 HG			
Hg	-.021	ug/L	.000	-.021		<0.2 ug/L			
*** Sample ID: rotx1dup					Seq: 89	17:14:11 13 Nov 1999 HG			RPD - N/A
Hg	-.015	ug/L	.000	-.015		<0.2 ug/L			

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: rbtx1trp				Seq: 90		17:18:02 13 Nov 1999 HG			RPD-N 17
Hg	-.007	ug/L	.000	-.007					<0.2 ug/L
*** Sample ID: rbtx5				Seq: 91		17:20:19 13 Nov 1999 HG			
Hg	-.001	ug/L	.000	-.001					<0.2 ug/L
*** Sample ID: rbtx5dup				Seq: 92		17:22:36 13 Nov 1999 HG			
Hg	-.007	ug/L	.000	-.007					<0.2 ug/L
*** Sample ID: rbtx5spk				Seq: 93		17:24:53 13 Nov 1999 HG			
Hg	1.02	ug/L	.000	1.02					102%
*** Sample ID: ccb				Seq: 94		17:27:15 13 Nov 1999 HG			
Hg	-.021	ug/L	.000	-.021					<0.2 ug/L
*** Sample ID: ccv				Seq: 95		17:29:32 13 Nov 1999 HG			
Hg	2.08	ug/L	.000	2.08					104%

11/15/99 Analytical Run


Protocol: STREET
Rev: E.04I Time: 14:21:07 18 Nov 1999
Folder: ADVOCG Sec: 102 Print: On
User: Server: Id: StdGRec1 Cup: 1 18 Gas: 0.10 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Each entry Path: 1115PPa
Cup Id Extracted Id Weight Volume Macro check Help
1 ICC 1.00000 1.00000
2 Filbl 1.00000 1.00000
3 Filblout 1.00000 1.00000
4 IcCln 1.00000 1.00000
5 IcCircle 1.00000 1.00000
6 PTCR 1.00000 1.00000
7 ATOCalUP 1.00000 1.00000
8 ATCCC 1.00000 1.00000
9 ATCCCLP 1.00000 1.00000
10 ATCAP 1.00000 1.00000
11 ATCAECUP 1.00000 1.00000
12 CCC.CC4 1.00000 1.00000
13 CCCCCACUP 1.00000 1.00000
14 ATCAC 1.00000 1.00000
15 ATCACCL 1.00000 1.00000
Page
Call entry, Ins to switch

Protocol: B-ETEST

Rev: 3.001 Time: 14:21:14 15 Nov 1999

Folder: 101995 Seq: 102 Print: On

User: Batch: Id: EtobRep1 Inj: 1 19 Gas: 0.22 LPM

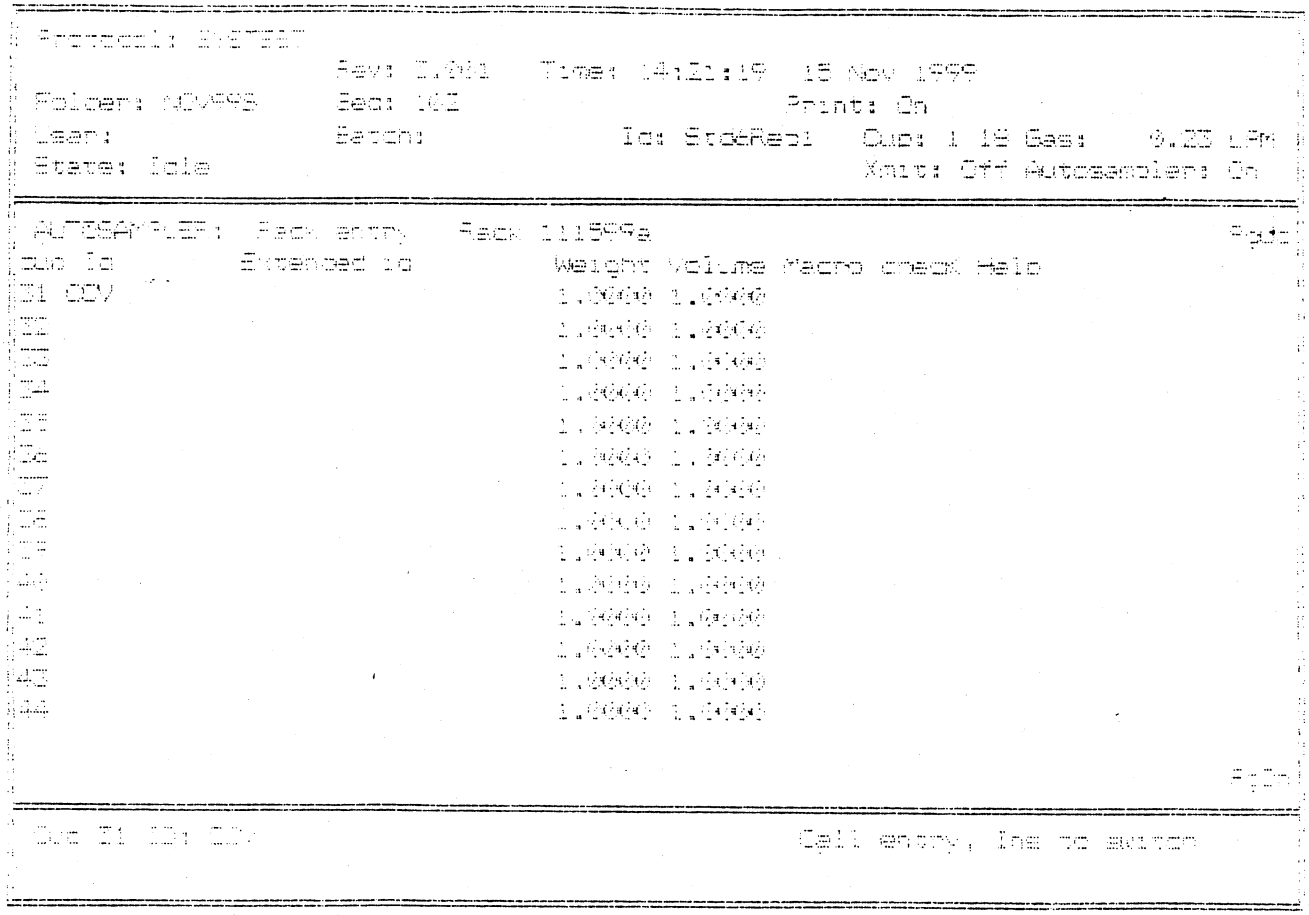
State: Idle Amit: Off Autosampler: On

[illegible] Rack entry Rack 111599a Page

Id	Extended id	Weight	Volume	Macro check	Help
[illegible]	~~1:5~~ 1:10	1.0000	1.0000		
[illegible]	~~1:5~~ 1:10	1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]	11/15 dag	1.0000	1.0000		
[illegible]	~~1:5~~ 1:10	1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]	~~1:5~~ 1:10	1.0000	1.0000		
[illegible]	~~1:5~~ 1:10	1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]		1.0000	1.0000		
[illegible]		1.0000	1.0000		

[illegible]

Cell entry. Ins to switch



Protocol: [illegible]

Rev: [illegible] Time: 14:21:19 15 Nov 1999

Folder: NOV99S Seq: 102 Print: On

Lear: Batch: Id: Std&Rep1 Cup: 1 18 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry Rack 111599a Pgdn

Cup Id	Extended Id	Weight	Volume	Macro check	Help
31 CCV		1.0000	1.0000		
32		1.0000	1.0000		
33		1.0000	1.0000		
34		1.0000	1.0000		
35		1.0000	1.0000		
36		1.0000	1.0000		
37		1.0000	1.0000		
38		1.0000	1.0000		
39		1.0000	1.0000		
40		1.0000	1.0000		
41		1.0000	1.0000		
42		1.0000	1.0000		
43		1.0000	1.0000		
44		1.0000	1.0000		

PgDn

Cup 31 ID: CCV Call entry, Ins to switch

*** Standard: 1 Rep: 1 Seq: 96 13:53:10 15 Nov 1999 HG

Hg .000 ug/L -367
Ave. Int. = -367 S. D. = 0

*** Standard: 2 Rep: 1 Seq: 97 13:55:31 15 Nov 1999 HG

Hg .200 ug/L 8703
Ave. Int. = 8703 S. D. = 0

*** Standard: 3 Rep: 1 Seq: 98 13:57:53 15 Nov 1999 HG

Hg .500 ug/L 21512
Ave. Int. = 21512 S. D. = 0

*** Standard: 4 Rep: 1 Seq: 99 14:00:15 15 Nov 1999 HG

Hg 1.00 ug/L 44241
Ave. Int. = 44241 S. D. = 0

*** Standard: 5 Rep: 1 Seq: 100 14:02:39 15 Nov 1999 HG

Hg 2.00 ug/L 87339
Ave. Int. = 87339 S. D. = 0

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Standard: 6 Rep: 1 Seq: 101 14:10:28 15 Nov 1999 HG

Hg 3.00 ug/L 133413
Ave. Int. = 133413 S. D. = 0

Protocol: SYSTEST

Rev: 3.001 Time: 14:12:16 15 Nov 1999

Folder: NOV99B Seq: 102 Print: On

User: Batch: Id: Std6Rep1 Cup: 1 18 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

CALIBRATION: Line Calibration

Line: Hg

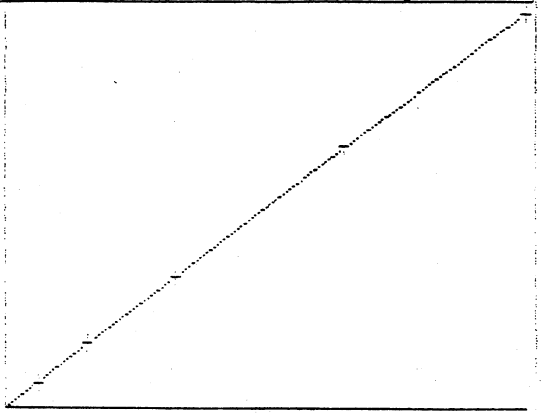
	Conc.	Calc.	Dev.	Accepted
S1	.000	.002	.002	LiNear
S2	.200	.205	.006	Quadratic
S3	.500	.495	-.005	WtdLinear
S4	1.00	1.01	.006	Accept
S5	2.00	1.98	-.023	
S6	3.00	3.01	.014	StdAdd

A .0000000 r .999937

B 2.25104e-5 C 1.05038e-2

	Mean	%RSD	
S1	-367	0	-367
S2	8703	0	8703
S3	21512	0	21512
S4	44241	0	44241
S5	87339	0	87339
S6	133413	0	133413

Concentration



Relative Absorbance

337

New calibration coefficients stored

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: [illegible] Seq: 102 14:37:47 15 Nov 1999 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg [illegible] [illegible] [illegible] ug/L .000

*** Sample ID: [illegible] Seq: 103 14:40:15 15 Nov 1999 HG
Hg .004 ug/L .000 .004 <0.2ug/L

*** Sample ID: [illegible] Seq: 104 14:42:32 15 Nov 1999 HG
Hg .061 ug/L .000 .061 <0.2ug/L

*** Sample ID: [illegible]DUP Seq: 105 14:44:49 15 Nov 1999 HG RPD-N/A
Hg .061 ug/L .000 .061 <0.2ug/L

*** Sample ID: ~~[illegible]~~ 1633B Seq: 106 14:47:06 15 Nov 1999 HG
Hg 1.60 ug/L .000 1.60 0.152 ug/g

*** Sample ID: ~~[illegible]~~DUP 1633B DUP Seq: 107 14:49:24 15 Nov 1999 HG RPD-N/A
Hg 1.60 ug/L .000 1.60 0.152 ug/g

~~*** Sample ID: 47036 Seq: 108 14:51:42 15 Nov 1999 HG~~ MTF18
Hg .601 ug/L .000 .601 ~~0.03ug~~

*** Sample ID: 47036DUP MTF18DUP Seq: 109 14:54:00 15 Nov 1999 HG RPD-N/A
Hg .601 ug/L .000 .601 0.03ug

*** Sample ID: 47032 ST44 Seq: 110 14:56:17 15 Nov 1999 HG
Hg .129 ug/L .000 .129 <0.01ug

*** Sample ID: 47032DUP ST44DUP Seq: 111 14:58:24 15 Nov 1999 HG RPD ~~0.72%~~ N/A
~~Hg .140 ug/L .000 .140~~ <0.01ug

*** Sample ID: 47046 FBTX-2A Seq: 112 15:00:52 15 Nov 1999 HG
Hg .097 ug/L .000 .097 <0.01ug

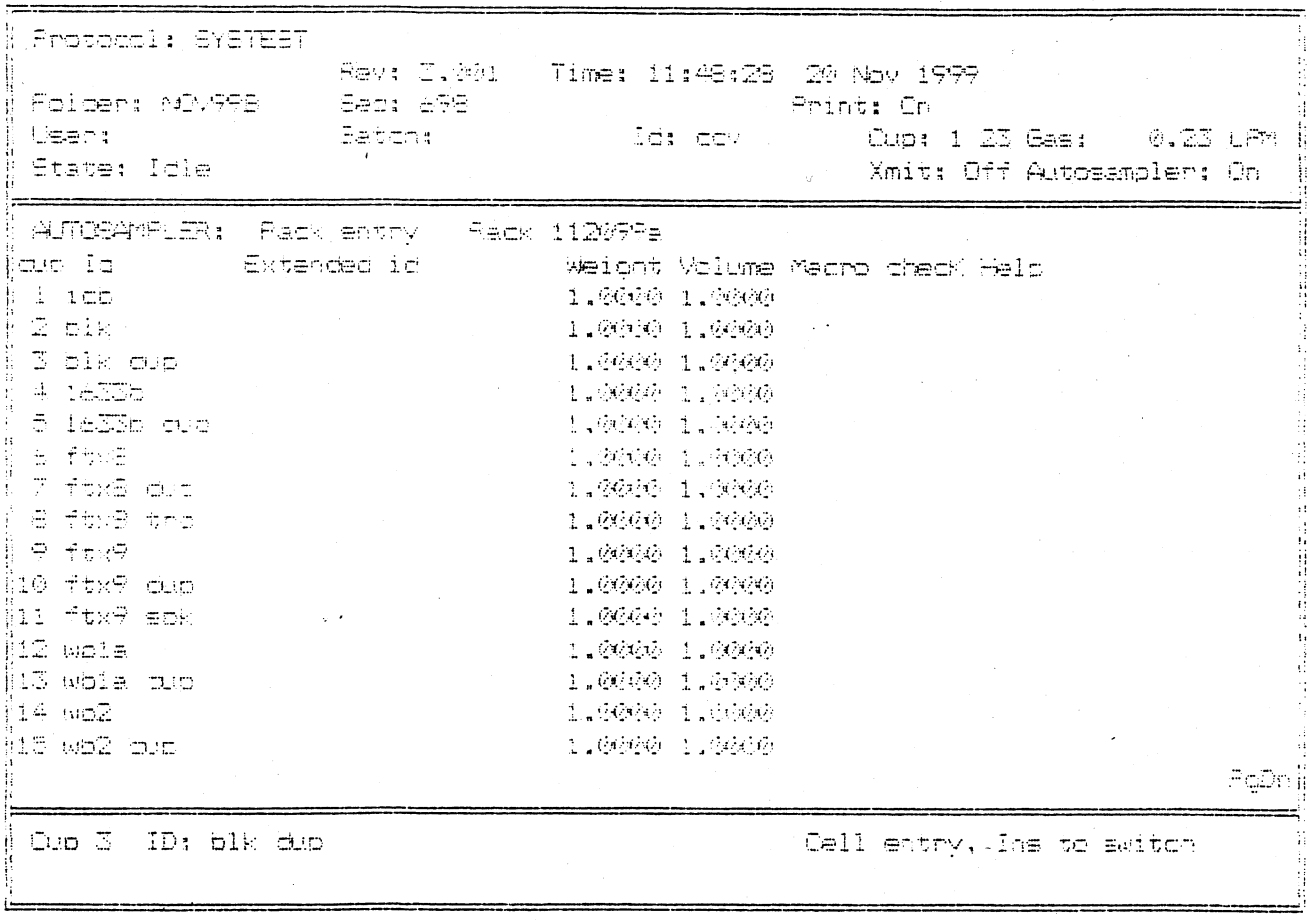
*** Sample ID: 47046DUP FBTX2ADUP Seq: 113 15:03:11 15 Nov 1999 HG RPD-NA
Hg .094 ug/L .000 .094 <0.01ug

Line	Conc.	Units	SD/RED	1	2	3	4	5	
*** Sample ID: 023.024 FTX-1				Seq: 114		15:05:28 15 Nov 1999 HG			
Hg	4.45	ug/L	.000	4.45		NO DATA, >RL			
*** Sample ID: 023024DUP				Seq: 115		15:07:55 15 Nov 1999 HG			
Hg	4.49	ug/L	.000	4.49		NO DATA, >RL			
*** Sample ID: 47042 FTX-2				Seq: 116		15:10:22 15 Nov 1999 HG			
Hg	.443	ug/L	.000	.443		0.022 ug			
*** Sample ID: 47042DUP				Seq: 117		15:12:40 15 Nov 1999 HG			RPD=2.45%
Hg	.454	ug/L	.000	.454		0.023 ug			
*** Sample ID: 025.026 FTX-3				Seq: 118		15:14:57 15 Nov 1999 HG			
Hg	3.52	ug/L	.000	3.52		NO DATA >RL			
*** Sample ID: 025.026DUP				Seq: 119		15:17:24 15 Nov 1999 HG			
Hg	3.56	ug/L	.000	3.56		NO DATA >LR			
*** Sample ID: 47045 FTX-4				Seq: 120		15:19:46 15 Nov 1999 HG			
Hg	1.30	ug/L	.000	1.30		0.065 ug			
*** Sample ID: 47045DUP				Seq: 121		15:22:05 15 Nov 1999 HG			RPD-N/A
Hg	1.30	ug/L	.000	1.30		0.065 ug			
*** Sample ID: 47045TRP				Seq: 122		15:24:24 15 Nov 1999 HG			RPD=0.77%
Hg	1.31	ug/L	.000	1.31		0.066 ug			
*** Sample ID: 027.028 FTX-5				Seq: 123		15:26:43 15 Nov 1999 HG			
Hg	6.66	ug/L	.000	6.66		NO DATA >LR			
*** Sample ID: 027.028DUP				Seq: 124		15:29:14 15 Nov 1999 HG			
Hg	6.62	ug/L	.000	6.62		NO DATA >LR			
*** Sample ID: 027.028SPK				Seq: 125		15:31:43 15 Nov 1999 HG			
Hg	7.54	ug/L	.000	7.54		NO DATA, >LR			

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: C08				Seq: 126	15:34:16 15 Nov 1999 HG			
Hg	.001	ug/L	.000	.001		<0.2 ug/L		
*** Sample ID: C07				Seq: 127	15:36:34 15 Nov 1999 HG			
Hg	1.94	ug/L	.000	1.94		97%		
*** Sample ID: 47Q47 FTX-6				Seq: 128	15:38:59 15 Nov 1999 HG			
Hg	1.05	ug/L	.000	1.05		0.053 ug		
*** Sample ID: 47Q47DUP FTX6DUP				Seq: 129	15:41:17 15 Nov 1999 HG			RPD = 1.92%
Hg	1.03	ug/L	.000	1.03		0.052 ug		
*** Sample ID: 47Q40 FTX7				Seq: 130	15:43:36 15 Nov 1999 HG			
Hg	1.05	ug/L	.000	1.05		0.053 ug		
*** Sample ID: 47Q40DUP FTX7DUP				Seq: 131	15:45:56 15 Nov 1999 HG			RPD = 0.96%
Hg	1.04	ug/L	.000	1.04		0.052 ug		
*** Sample ID: Q23,Q24 1:10 FTX1				Seq: 132	15:49:37 15 Nov 1999 HG			
Hg	.463	ug/L	.000	.463		28.4 ug		
*** Sample ID: Q23Q24DUP 1:10 FTX1				Seq: 133	15:51:53 15 Nov 1999 HG			RPD = 0.22%
Hg	.462	ug/L	.000	.462		28.3 ug		
*** Sample ID: Q25,Q26 FTX3 1:10				Seq: 134	15:59:02 15 Nov 1999 HG			
Hg	.370	ug/L	.000	.370		14.0 ~~13.95~~ ug JAO 12/4		
*** Sample ID: Q25,Q26DUP FTX3 1:10				Seq: 135	16:01:19 15 Nov 1999 HG			RPD = 1.36%
Hg	.365	ug/L	.000	.365		13.76 ug		
*** Sample ID: Q27,Q28 FTX5 1:10				Seq: 136	16:03:36 15 Nov 1999 HG			
Hg	.709	ug/L	.000	.709		38.5 ~~38.52~~ ug JAO 12/4		
*** Sample ID: Q27,Q28DUP FTX5 1:10				Seq: 137	16:05:54 15 Nov 1999 HG			RPD = 1.99%
Hg	.695	ug/L	.000	.695		37.76 ug		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 027.0288PK FTX S 1:10				Seq: 138		16:08:12 15 Nov 1999 HG		
Hg	.810	ug/L	.000	.810			101%	
*** Sample ID: CCB				Seq: 139		16:10:31 15 Nov 1999 HG		
Hg	.007	ug/L	.000	.007			<0.2 ug/L	
*** Sample ID: CCV				Seq: 140		16:12:49 15 Nov 1999 HG		
Hg	1.95	ug/L	.000	1.95			98%	

11/20/99 Analytical Run


Protocol: SYSTEST
Rev: E.001 Time: 11:48:28 20 Nov 1999
Folder: NOV99S Seq: s98 Print: On
User: Setup: Id: ccv Cup: 1 23 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 112099s
Cup Id Extended id Weight Volume Macro check Help
1 icc 1.0000 1.0000
2 blk 1.0000 1.0000
3 blk dup 1.0000 1.0000
4 ics2a 1.0000 1.0000
5 ics2a dup 1.0000 1.0000
6 ftx8 1.0000 1.0000
7 ftx8 dup 1.0000 1.0000
8 ftx9 trip 1.0000 1.0000
9 ftx9 1.0000 1.0000
10 ftx9 dup 1.0000 1.0000
11 ftx9 sdk 1.0000 1.0000
12 wcls 1.0000 1.0000
13 wcls dup 1.0000 1.0000
14 wc2 1.0000 1.0000
15 wc2 dup 1.0000 1.0000
PgDn
Cup 3 ID: blk dup Call entry, Ins to switch

```
*** Standard: 1 Rep: 1                    Seq:  668      10:05:36 20 Nov 1999 HG

Hg     .000     ug/L      -281
                         Ave. Int. =       -281 S. D. =          0

*** Standard: 2 Rep: 1                    Seq:  669      10:07:58 20 Nov 1999 HG

Hg     .200     ug/L      9077
                         Ave. Int. =       9077 S. D. =          0

*** Standard: 3 Rep: 1                    Seq:  670      10:10:20 20 Nov 1999 HG

Hg     .500     ug/L      22309
                         Ave. Int. =      22309 S. D. =          0

*** Standard: 4 Rep: 1                    Seq:  671      10:12:43 20 Nov 1999 HG

Hg     1.00     ug/L      46590
                         Ave. Int. =      46590 S. D. =          0

*** Standard: 5 Rep: 1                    Seq:  672      10:15:10 20 Nov 1999 HG

Hg     2.00     ug/L      90105
                         Ave. Int. =      90105 S. D. =          0

*** Standard: 6 Rep: 1                    Seq:  673      10:32:15 20 Nov 1999 HG

Hg     3.00     ug/L      130620
                         Ave. Int. =     130620 S. D. =          0
```

Protocol: SYSIEST

Rev: 3.001 Time: 10:32:37 20 Nov 1999

Folder: NOV99B Seq: 674 Print: On

User: Batch: Id: Std6Rep1 Cup: 1 37 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

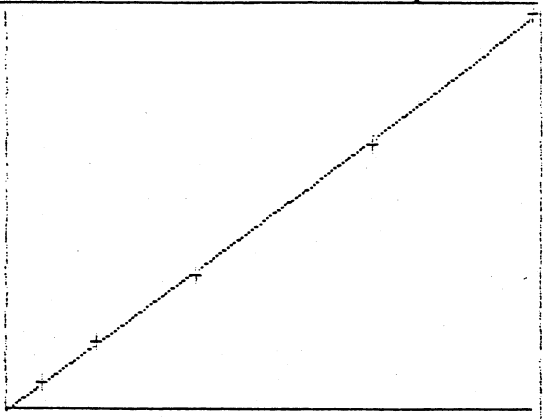
CALIBRATION: Line Calibration

Line: Hg	Conc.	Calc.	Dev.	Accepted LiNear
S1	.000	-.024	-.024	Quadratic
S2	.200	.190	-.010	WtdLinear
S3	.500	.491	-.009	
S4	1.00	1.04	.045	Accept
S5	2.00	2.04	.037	
S6	3.00	2.96	-.039	StdAdd

A .0000000 r .999583

B 2.27976e-5 C -1.72078e-2

Concentration



Relative Absorbance

	Mean	%RSD	
S1	-281	0	-281
S2	9077	0	9077
S3	22389	0	22389
S4	46590	0	46590
S5	90105	0	90105
S6	130620	0	130620

33?

New calibration coefficients stored

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 2 Ck2 Seq: 674 10:37:46 20 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		99.7	.602	.604	ug/L	.000

*** Check Standard: 2 Ck2 Seq: 699 11:53:44 20 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		97.6	.589	.604	ug/L	.0000

*** Sample ID: icb Seq: 700 11:56:03 20 Nov 1999 HG

Hg	-.027	ug/L	.000	-.027	<0.2 ug/L

*** Sample ID: blk Seq: 701 11:58:20 20 Nov 1999 HG

Hg	.087	ug/L	.000	.087	<0.2 ug/L

*** Sample ID: blk dup Seq: 702 12:00:37 20 Nov 1999 HG

Hg	.081	ug/L	.000	.081	<0.2 ug/L

*** Sample ID: 1633b Seq: 703 12:02:54 20 Nov 1999 HG

Hg	1.55	ug/L	.000	1.55	0.155 ug/g

*** Sample ID: 1633b dup Seq: 704 12:05:15 20 Nov 1999 HG RPD = 1.29%

Hg	1.53	ug/L	.000	1.53	0.153 ug/g

*** Sample ID: ftx8 Seq: 705 12:07:38 20 Nov 1999 HG

Hg	.906	ug/L	.000	.906	0.045 ug

*** Sample ID: ftx8 dup Seq: 706 12:10:00 20 Nov 1999 HG RPD = 1.75%

Hg	.922	ug/L	.000	.922	0.046 ug

*** Sample ID: ftx8 trp Seq: 707 12:12:19 20 Nov 1999 HG

Hg	.922	ug/L	.000	.922	0.046 ug

*** Sample ID: ftx9 Seq: 708 12:14:39 20 Nov 1999 HG

Hg	1.52	ug/L	.000	1.52	0.076 ug

*** Sample ID: ftx9 dup Seq: 709 12:17:03 20 Nov 1999 HG RPD = N/A

Hg	1.52	ug/L	.000	1.52	0.076 ug

*** Sample ID: [illegible] Seq: 710 12:19:25 20 Nov 1999 HG

Hg 2.50 ug/L .000 2.50

987.

*** Sample ID: wb1a Seq: 711 12:21:53 20 Nov 1999 HG

Hg .022 ug/L .000 .022

*** Sample ID: wb1a dup Seq: 712 12:24:09 20 Nov 1999 HG

Hg .029 ug/L .000 .029

*** Sample ID: wb2 Seq: 713 12:26:25 20 Nov 1999 HG

Hg .064 ug/L .000 .064

*** Sample ID: wb2 dup Seq: 714 12:28:42 20 Nov 1999 HG

Hg .063 ug/L .000 .063

*** Sample ID: wb3 Seq: 715 12:30:59 20 Nov 1999 HG

Hg .080 ug/L .000 .080

*** Sample ID: wb3 dup Seq: 716 12:33:16 20 Nov 1999 HG

Hg .081 ug/L .000 .081

*** Sample ID: wb4 Seq: 717 12:35:34 20 Nov 1999 HG

Hg .306 ug/L .000 .306

*** Sample ID: wb4 dup Seq: 718 12:37:52 20 Nov 1999 HG

Hg .305 ug/L .000 .305

*** Sample ID: qb5 Seq: 719 12:40:10 20 Nov 1999 HG

Hg 32.8 ug/L .000 32.8

*** Sample ID: qb5 dup Seq: 720 12:43:08 20 Nov 1999 HG

Hg 32.9 ug/L .000 32.9

*** Sample ID: qb2 Seq: 721 12:46:09 20 Nov 1999 HG

Hg 1.40 ug/L .000 1.40

Dry Weight Results

Dry Weight/Total Volatile Solids (TVS) Notebook # 5

Sample Number	572238	572213	572216	572128	572292	572293
Client/Pan #	[redacted] 22	[redacted] 23	[redacted] 24	[redacted] 25	[redacted] 26	[redacted] 27
Wt of Pan + Sample	25.5232	24.2557	22.3020	25.6160	24.0387	22.4923
Wt after Drying	22.7840	22.8400	16.9486	21.4937	21.8974	19.8317
Wt of Pan or Wt After Ignition	1.0043	1.0050	1.0055	1.0035	0.9979	1.0047
Difference	21.7797	21.8350	15.9431	20.4902	20.8995	18.8270
Sample amount g	24.5189	23.2507	21.2965	24.6125	23.0388	21.4876
Result	88.8%	93.9%	74.9%	83.3%	90.7%	87.6%

Sample Number	572294	I.D. RUN1	RUN2	RUN3	RUN3	
Client/Pan #	[redacted] 28	[redacted] 29 RUN 1	[redacted] 30 RUN 2	[redacted] 11-11-99 CC ~~31~~ DUP 3	[redacted] 11-11-99 CC ~~RUN 3 (3) DUP~~ 31	[redacted] - 1 32
Wt of Pan + Sample	23.1603	21.8601	22.5004	10.2193	22.0079	21.5485
Wt after Drying	20.4049	19.4433	19.8475	9.0985	19.6366	18.8178
Wt of Pan or Wt After Ignition	1.0080	1.0027	0.9999	0.9970	0.9966	0.9983
Difference	19.3969	18.4406	18.8476	8.1015	18.6400	17.8195
Sample amount g	22.1523	20.8574	21.5005 ~~21.5004~~ 11-11-99 CC	9.2223	21.0113	20.5502
Result	87.6%	88.4%	87.7%	87.8%	88.7%	86.7%

Sample Number					Batch Number:
Client/Pan #	[redacted] 33	[redacted] 34	TMP-1 35	TMP-2 36	
Wt of Pan + Sample	21.1665	23.6819	21.3736	21.9284	Note:
Wt after Drying	18.5963	20.7818	15.2255	15.7792	Cont
Wt of Pan or Wt After Ignition	0.9969	0.9929	0.9882	0.9867	
Difference	17.5994	19.7889	14.2373	14.7925	
Sample amount g	20.1696	22.6890	20.3854	20.9417	
Result	87.3%	87.2%	~~14%~~ 69.8% QCB	70.6%	

11/12

Analyst: CDC Date: 11-11-99

TestAmerica

Dry Weight/Total Volatile Solids (TVS) Notebook # 5

Sample Number						571734
Client/Pan #	TMP-3 37	[redacted] 38	[redacted] 39	[redacted] 40	[redacted] 45 DUP 4	[redacted]
Wt of Pan + Sample	21.7810	22.6238	22.4113	21.2743	24.3875	36.1030
Wt after Drying	15.6973	19.0506	19.0366	18.0224	~~18.0224~~ 20.2478	14.7991
Wt of Pan or Wt After Ignition	0.9873	0.9901	0.9871	0.9824	0.9799 DOB 11/12/99	0.9845
Difference	14.7100	18.0605	18.0495	17.0390	19.8679	13.8146
Sample amount g	20.7937	21.6337	21.9242	20.2909	23.4076	35.1185
Result	70.7%	83.5%	84.0%	~~83.9~~ 84.0% DOB 11/12	84.9%	39.3%

Sample Number	571735	571736	571737			
Client/Pan #	[redacted] 42	[redacted]	AVG			
Wt of Pan + Sample	34.8182	38.8901				
Wt after Drying	14.4472	18.9149				
Wt of Pan or Wt After Ignition	0.9849	0.9873				
Difference	13.4623	14.9276				
Sample amount g	33.8333	37.8928				
Result	39.8%	39.4%	AVG 39.5%			

Sample Number				Batch Number:
Client/Pan #				
Wt of Pan + Sample				Note:
Wt after Drying				CONTINUED
Wt of Pan or Wt After Ignition				
Difference				
Sample amount g				
Result				

Analyst: CDC Date: 11-11-99

TestAmerica

METCO Particulate Analysis Record

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 99-186 Location Bremond, Tx.

Job Name TNMP Unit Tested #2 Stack

Desiccator Time In	1400 10/12					
Desiccator Time Out	SOS 10/15	1520 10/15				

Run No. 1	Filter No. 470 40 cut edge				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.1740	0.1720			

Filter & Particulate Average (g) 0.1720

Initial Filter Weight (g) 0.1052

Total Particulate (mg) 66.8

Run No. 2	Filter No. 470 43				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.1595	0.1586			

Filter & Particulate Average (g) 0.1586

Initial Filter Weight (g) 0.1044

Total Particulate (mg) 54.2

Run No. 3	Filter No. 4704				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.1790	0.1778			

Filter & Particulate Average (g) 0.1778

Initial Filter Weight (g) 0.1051

Total Particulate (mg) 72.7

MB

Analyst

METCO Environmental

Particulate Analysis EPA Method 17

Thimbles and Backup Filters

Job Number 99-186 Location Bremond, Tx.

Job Name TNMP Unit Tested #2 Baghouse Outlet

Desiccator Time In	1400 10/12				
Desiccator Time Out	1630 10/14	805 10/15			

Run No. 1 10/2	Thimble No. Q23		Filter No. 47042		
Thimble Final Weight (g)	46.5946	46.5971	✓ <1%		
Thimble Initial Weight (g)	3.1661	3.1661			
Particulate (g)	43.4285	43.4210			
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.1016	0.1013	✓		

Filter and Particulate Average (g) 0.1015

Initial Filter Weight (g) 0.1059

Filter Particulate Average (mg) 0

Thimble Particulate Average (mg) 43,424.8

Total Particulate (mg)

Run No. 1 2 of 2	Thimble No. Q24		Filter No. –		
Thimble Final Weight (g)	22.8534	22.8538	✓		
Thimble Initial Weight (g)	2.8792	2.8792			
Particulate (g)	19.9742	19.9746			
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter and Particulate Average (g)

Initial Filter Weight (g)

Filter Particulate Average (mg)

Thimble Particulate Average (mg) 19,974.4

Total Particulate (mg) 63,399.2

Run No. 2 1 of 2	Thimble No. Q26		Filter No. 47045		
Thimble Final Weight (g)	39.5241	39.5248	✓		
Thimble Initial Weight (g)	3.1384	3.1384			
Particulate (g)	36.3857	36.3864			
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.2219	0.2218	✓		

Filter and Particulate Average (g) 0.2219

Initial Filter Weight (g) 0.1047

Filter Particulate Average (mg) 117.2

Thimble Particulate Average (mg) 36,386.1

SUB-Total Particulate (mg) 36,503.3

subtotal ↑

ML

Analyst

METCO Environmental

Particulate Analysis EPA Method 17

Thimbles and Backup Filters

Job Number [illegible]86 Location Bremond, Tx

Job Name [illegible] Unit Tested #2 Baghouse Inlet

Desiccator Time In	1400 10/12				
Desiccator Time Out	1635 10/14	828 10/15	1530 10/15		

Run No. 2 2 of 2	Thimble No. Q25		Filter No. –		
Thimble Final Weight (g)	5.2254	5.2236	5.2231	✓	
Thimble Initial Weight (g)	2.9898	2.9898	2.9898		
Particulate (g)	2.2356	2.2338	2.2333		
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter and Particulate Average (g) _____

Initial Filter Weight (g) _____

Filter Particulate Average (mg) _____

Thimble Particulate Average (mg) 2,233.6

Total Particulate (mg) 38,736.9

Run No. 3 1 of 2	Thimble No. Q27		Filter No. 47Q47 cuts in filte		
Thimble Final Weight (g)	41.5398	41.5414	✓		
Thimble Initial Weight (g)	2.9525	2.9525			
Particulate (g)	38.5873	38.5889			
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.0988	0.0987	✓		

Filter and Particulate Average (g) 0.0988

Initial Filter Weight (g) 0.1050

Filter Particulate Average (mg) 0

Thimble Particulate Average (mg) 38,588.1

Total Particulate (mg) _____

Run No. [illegible]	Thimble No. Q28		Filter No. –		
Thimble Final Weight (g)	22.2029	22.2035	✓		
Thimble Initial Weight (g)	3.4193	3.4193			
Particulate (g)	18.7836	18.7842			
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter and Particulate Average (g) _____

Initial Filter Weight (g) _____

Filter Particulate Average (mg) _____

Thimble Particulate Average (mg) 18,783.9

Total Particulate (mg) 57,372.0

MG

Analyst

PHILIP
ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

• EPA/NVLAP 101262-0 • NY DOH 10903 • NJ DEP 77678
• AIHA ACCREDITATION NO 100439 • PA DER 06-353

ANALYTICAL REPORT

Client: METCO Environmental

Report to: Doug Saathoff
METCO Environmental
P. O. Box 598
Addison TX 75001

Project: 188433
Received: 24-NOV-99
Reported: 16-DEC-99

PURCHASE ORDER: 99-186

Project Description: Tex-Mex Power Co. Unit 2

	AS RECEIVED BASIS	DRY BASIS	UNITS	METHOD	DATE	ANALYST
Run 1 Composite (Texas-NM Power Co., Lignite Hg Analysis)						
Lab Sample: 1384801						
sampled: 07-OCT-99						
Moisture, Total	29.4		%	D 3302	01-DEC-99	GLB
SHORT PROX - COAL						
Ash	18.4	26.1	%	D 3174	08-DEC-99	VJO
Sulfur	0.90	1.27	%	D 4239	08-DEC-99	VJO
Heating Value	6720	9520	BTU/lb	D 3286	07-DEC-99	VJO
Chloride, Total	0.02	0.03	%	E776/300.0	14-DEC-99	DRK
Run 2 Composite (Texas-NM Power Co., Lignite Hg Analysis)						
Lab Sample: 1384802						
sampled: 07-OCT-99						
Moisture, Total	28.5		%	D 3302	01-DEC-99	GLB
SHORT PROX - COAL						
Ash	16.5	23.1	%	D 3174	08-DEC-99	VJO
Sulfur	0.90	1.26	%	D 4239	08-DEC-99	VJO
Heating Value	7010	9810	BTU/lb	D 3286	07-DEC-99	VJO
Chloride, Total	< 0.01	< 0.01	%	E776/300.0	14-DEC-99	DRK
Run 3 Composite (Texas-NM Power Co., Lignite Hg Analysis)						
Lab Sample: 1384803						
sampled: 08-OCT-99						
Moisture, Total	30.2		%	D 3302	01-DEC-99	GLB
SHORT PROX - COAL						
Ash	21.4	30.7	%	D 3174	08-DEC-99	VJO
Sulfur	1.00	1.43	%	D 4239	08-DEC-99	VJO
Heating Value	6280	9000	BTU/lb	D 3286	07-DEC-99	VJO

PHILIP ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

• EPA NVLAP 101262-0 • NY DOH 10903 • NJ DEP 77678
• AIHA ACCREDITATION NO. 100439 • PA DER 06-353

Client: METCO Environmental
Project: 188433

Run 3 Composite (Texas-NM Power Co., Lignite Hg Analysis)

Lab Sample: 1384803 - continued

	AS RECEIVED BASIS	DRY BASIS	UNITS	METHOD	DATE	ANALYST
Chloride, Total	< 0.01	< 0.01	%	E776/300.0	14-DEC-99	DRK

< Indicates less than the limit of quantitation.

Philip Analytical Services
Quality Assurance Protocol

PAS Sample#: All Projects Listed

Client Name: Metco

PAS Project#: 188433,188435,188427,188429,188431

Job ID :

Units: %, BTU/lb

O1 SUMMARY FORM

Sample # & Parameter	Matrix Spike				Matrix Spike Duplicate				Laboratory Control Sample		
	Sample Conc.	Spike Conc.	Matrix Spike Conc.	Matrix Spike Recovery	Matrix Spike Dup Conc	Matrix Spike Dup Recovery	Precision RPD	Method Blank	Spikes Conc.	Found Conc.	Recovery

Sample # & Parameter	Matrix Spike				Duplicate			Laboratory Control Sample			Method Blank	Detection Limits
	Sample Conc.	Spike Conc.	Matrix Spike Conc.	Matrix Spike Recovery	Sample Conc.	Sample Duplicate Conc.	Precision RPD	Spikes Conc.	Found Conc.	Recovery		
1384796-Ash					12.2	12.0	1.7	11.8	11.9	101	N/A	0.01
1384797-Sulfur					4.52	4.58	1.32	1.78	1.77	99	N/A	0.01
1384797-Heating Value					13710	13686	0.17	13350	13410	100	N/A	50
1384797-Chlorine					0.07	0.08	13	2.00	1.87	94	0.01	0.01

Matrix Spike	75 - 125
Laboratory Control Sample	80 - 120
Duplicate	0 - 20

PHILIP ANALYTICAL SERVICES

Chain of Custody Record

4418 Pottsville Pike Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Sample Container Information

Bottle Type (G P H)	
# of Containers	
Preserved? (Y/N)	

188433

Report Results To:
PO # 99-186 Job ID TEX-MEX. POWER CO. UNIT 2
Name DOUG SPOTHOFF
Company METCO ENVIRONMENTAL
Mailing Address P.O. BOX 598
City ADDISON State TX Zip 75025
Telephone # 972/931/7127 Fax # 972/931/3398

Send Invoice To:
Name SAME Telephone #
Company Dept.
Mailing Address
City State Zip
Credit Card # Exp. Date

Analysis Requested

Page 1 of 1
PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	BTU CONTENT ASTM-D-3286	FLY ASH ASTM-D-3174	SULFUR ASTM-D-5016	CHLORIDE ASTM-?
1.	RUN1 COMPOSITE			10/7/99		X	X	X	X
2	RUN2 COMPOSITE			10/7/99		X	X	X	X
3	RUN3. COMPOSITE			10/8/99		X	X	X	X
4									
5									
6	*SEE ATTACHED								
7	INSTRUCTIONS								
8	→								
9									
10									

Comments/Hazards/Location Details

ATTN: CHRIS WEATHINGTON
TEST AMERICA, INC.
3601 S. DIXIE DRIVE
DAYTON, OH 45439
PH: 1-800-572-9839
* AFTER SAMPLE HAS BEEN PREPPED. PLEASE RETURN A 4 oz. JAR SAMPLE TO TEST AMERICA AT THE ABOVE ADDRESS! THANK YOU!

Special Instructions (including Data Deliverables and Turn Around Time):

		Date	Time
Samples relinquished to shipper or courier by:	[signature]	11-19-99	1600
Samples received by:			

		Date	Time
Samples Relinquished by:	Samples Relinquished to:		
Samples Relinquished by:	Samples Relinquished to Laboratory: [signature]	11/24	1600

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank — Sample Temp. —
Samples rec'd intact? (Y N) Custody seals intact? (Y N n/a) ID on samples match COC? (Y N)
VOC Samples have zero headspace? (Y N n/a) Samples properly preserved? (Y N n/a)

Notes:

Bags labelled Texas-New Mexico Power Co, Lignite Mercury Analysis
[signature] 11-24-99

^ 12/13/99 + page 1
Metco
188433
#138480

SAMPLE ID:		INPUT AIR DRY	AS RECEIVED	DRY BASIS
AIR DRY LOSS:	%	26.00	26.00 >29.4	****
MOISTURE:	%	4.63	3.43	****
VOLATILE MATTER:	%	0.00	0.00	0.00
FIXED CARBON:	%	****	52.15	73.89
ASH:	%	24.90	18.43	26.11
PROXIMATE TOTAL:	%	****	100.00	100.00
HEATING VALUE:	BTU/LB	9079	6720	9520
SULFUR:	%	1.22	0.90	1.28
CARBON:	%	0.00	0.00	0.00
HYDROGEN EXCL WATER:	%	0.00	-0.38	-0.54
HYDROGEN INCL WATER:	%	0.00	2.91	****
NITROGEN:	%	0.00	0.00	0.00
CHLORINE:	%	0.00	0.00	0.00
OXYGEN EXCL WATER:	%	****	51.63	73.16
OXYGEN INCL WATER:	%	73.88	77.76	****
ULT TOTAL EXCL WATER:	%	****	100.00	100.00
ULT TOTAL INCL WATER:	%	100.00	100.00	****

^ 12/13/99 + page 1

Meter
188433
138403

SAMPLE ID:		INPUT AIR DRY	AS RECEIVED	DRY BASIS
AIR DRY LOSS:	%	6.58	6.58	****
MOISTURE:	%	23.50	21.95	****
VOLATILE MATTER:	%	0.00	0.00	0.00
FIXED CARBON:	%	****	54.93	76.86
ASH:	%	17.70	16.54	23.14
PROXIMATE TOTAL:	%	****	100.00	100.00
HEATING VALUE:	BTU/LB	7501	7010	9810
SULFUR:	%	0.96	0.90	1.25
CARBON:	%	0.00	0.00	0.00
HYDROGEN EXCL WATER:	%	0.00	-2.46	-3.44
HYDROGEN INCL WATER:	%	0.00	0.74	****
NITROGEN:	%	0.00	0.00	0.00
CHLORINE:	%	0.00	0.00	0.00
OXYGEN EXCL WATER:	%	****	56.49	79.05
OXYGEN INCL WATER:	%	81.34	81.83	****
ULT TOTAL EXCL WATER:	%	****	100.00	100.00
ULT TOTAL INCL WATER:	%	100.00	100.00	****

28.5

^ 12/13/99 + page 1

Metso
18433
1384803

SAMPLE ID:		INPUT AIR DRY	AS RECEIVED	DRY BASIS
AIR DRY LOSS:	%	8.07	8.07 > 30.2	****
MOISTURE:	%	24.10	22.16	****
VOLATILE MATTER:	%	0.00	0.00	0.00
FIXED CARBON:	%	****	48.36	69.30
ASH:	%	23.30	21.42	30.70
PROXIMATE TOTAL:	%	****	100.00	100.00
HEATING VALUE:	BTU/LB	6830	6280	9000
SULFUR:	%	1.09	1.00	1.44
CARBON:	%	0.00	0.00	0.00
HYDROGEN EXCL WATER:	%	0.00	-2.48	-3.55
HYDROGEN INCL WATER:	%	0.00	0.90	****
NITROGEN:	%	0.00	0.00	0.00
CHLORINE:	%	0.00	0.00	0.00
OXYGEN EXCL WATER:	%	****	49.83	71.42
OXYGEN INCL WATER:	%	75.61	76.68	****
ULT TOTAL EXCL WATER:	%	****	100.00	100.00
ULT TOTAL INCL WATER:	%	100.00	100.00	****

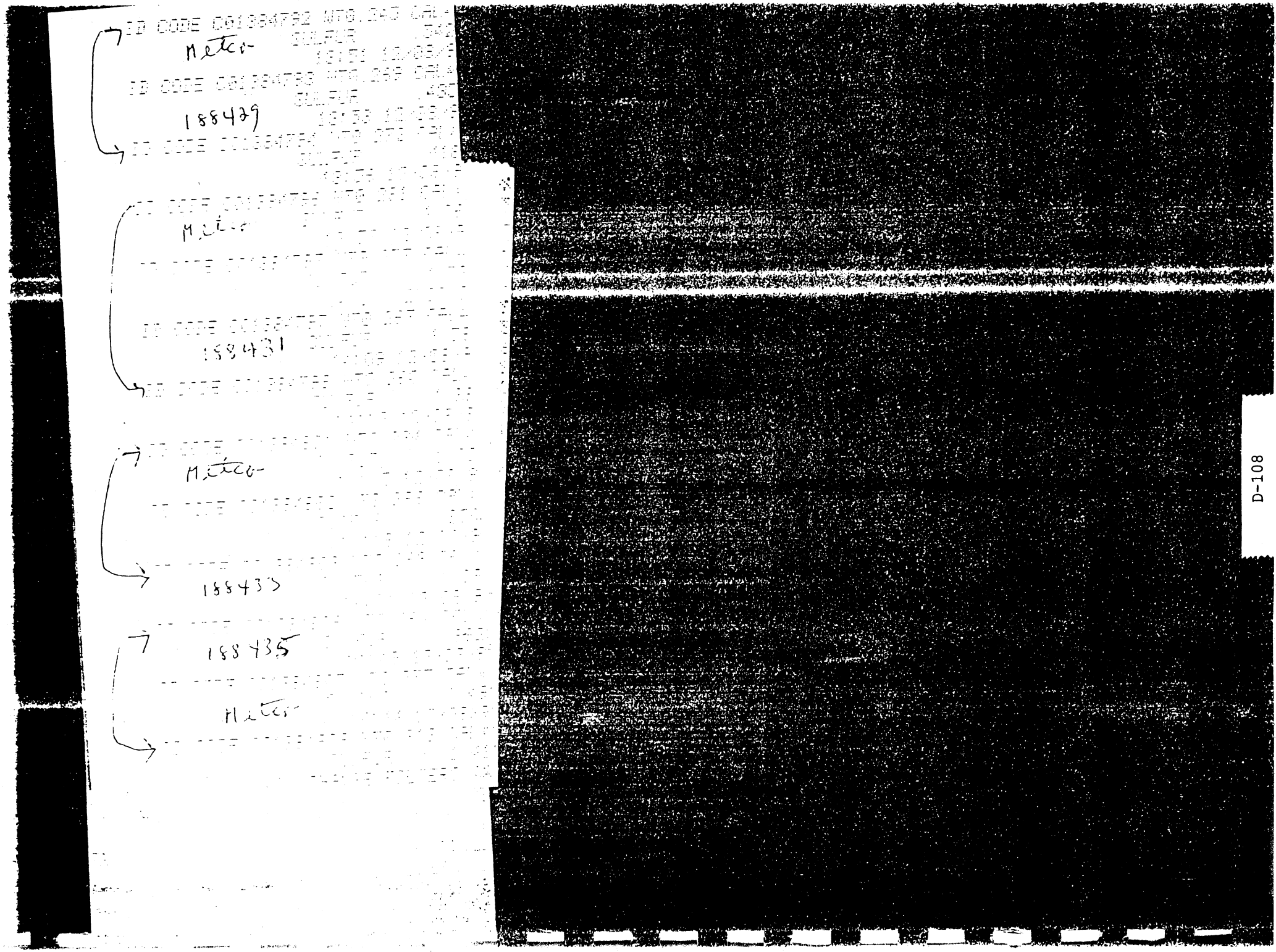
Moisture

Metco

rev 1.0 - 3/10/99

Sample #	Tare wt. of Dish (g)	Wet Wt. Sample + Dish (g)	Dry Wt. Sample + Dish	% Moisture	
1383831	429.7	1664.5	1575	7.25	11/23/99
1383832	426	1806.5	1703.3	7.48	
1383833	429	1718.4	1612.4	8.22	
1384771	425.9	1726.9	1669.4	4.42	
1384772	428.9	1683.7	1615.1	5.47	12/1/99
1384773	421.5	1749.6	1671.3	5.90	
1384774	428	1292	1234.8	6.62	
1384775	461.7	1305.4	1250.4	6.52	12/1/99
1384776	434.3	1271.6	1211.1	7.23	
1387777	433.1	1897.4	1836.2	4.18	
1384778	423.3	1767	1704.1	4.68	12/1/99
1384779	436.4	1884.1	1817.9	4.57	
1384792	427.1	757.3	718.8	11.7	
1384793	427.9	742.2	701.2	13.0	12/1/99
1384794	431.3	738.8	695.6	14.0	
1384796	431.1	1155.9	1120.1	4.94	
1384797	429.3	1286.3	1239.1	5.51	12/1/99
1384798	429.3	1386.2	1338.7	4.96	
1384801	431.9	1827.8	1464.7	26.0	
1384802	429.6	1826.6	1734.7	6.58	12/1/99
1384803	425.9	1593.4	1499.2	8.07	

#DIV/0!


Meter
188429
Meter
188431
Meter
188433
188435
Meter

Coal/RDF Proximate Analysis

DATE: 12/8/99

Signature: V. O'Neill

CLIENT	Meter							
Laboratory Number	1384797	1384798	1384801	1384802	1384803	1384806	1384807	1384807 DUP
all weights in grams								
% Air-dry Loss	5.51	4.96	26.0	6.58	8.07	3.38	3.49	
Weight of Crucible and Sample	21.2133	22.3748	19.2626	19.0073	20.9261	22.2092	21.4895	21.6164
Weight of Crucible	20.2322	21.3946	18.2756	17.8545	19.8604	21.1674	20.4825	20.6332
Weight of Sample	.9811	.9802	.9870	1.1528	1.0657	1.0418	1.0070	.983
Weight of Crucible and Sample	21.2133	22.3748	19.2626	19.0073	20.9261	22.2092	21.4895	21.6164
Weight after 105 deg. C	21.2084	22.3701	19.2169	18.7369	20.6687	22.1880	21.4764	21.6040
Weight loss (moisture)	.0049	.0047	.0457	.2704	.2574	.0212	.0131	.0124
% Residual Moisture	0.50	0.48	4.63	23.5	24.1	2.63	1.30	1.26
Weight of Crucible and Sample				19.8906	19.5878			
Weight of Crucible				18.9000	18.6807			
Weight of Sample				.9906	.9071			
Weight of Crucible and Sample				19.8906	19.5878			
Weight after 950 deg. C for 7 min.				19.6572	19.3806			
Weight loss (Volatiles)				.2334	.2072			
% Volatiles				23.5	22.8			
% Residual Moisture								
% Volatile Matter	20.3159							
Weight after 750 deg. C	~~21.9328~~	21.5038	18.5209	18.0588	20.1092	21.3449	20.5749	20.7245
Weight of Crucible	20.2322	21.3946	18.2756	17.8545	19.8604	21.1674	20.4825	20.6332
Weight of Ash	.0837	.1092	.2453	.2043	.2488	.1775	.0924	.0913
% Ash	8.53	11.1	24.9	17.7	23.3	17.0	9.18	9.27
% Sulfur	4.52	4.58	1.22	0.96	1.09	0.89	1.49	@
BTU per pound	13712	13281	9107	7523	6855	11971	13451	
BTU sulfur correction	104	105	28	22	25	20	34	
BTU per pound, corrected	13608	13176	9079	7501	6830	11951	13417	
BTU per pound, Moisture Ash Free								
	188431		188433			188435		

D-109

80

Date	Lab No.	Client	BTU/Lbs	BTU/Lbs Sulfur	BTU/Gals	Remarks	Oper.
12/2/99	1384787	Metco	12330			188427	Mike
	1384792	"	11562			"	
	1384793	"	11524			188429	
	1384794	"	11843			"	
	1384796	"	13184			188431	
	1384797	"	13712			"	
Dup.	1384797	"	13486			"	
	1384798	"	13281			"	
	1384795	Kimberly C	09200			188430	
	1384801	Metco	09107			188433	
12/7/99							
	1384755	C.E.R.	7240			188418	Phil
	1384756	"	7736			"	
	1384757	"	7493			"	
	1384694	Lehigh Univ	18345	18327		188398	
	1384695	"	18437	18418		"	
	1384802	Metco	7523	7513		188433	
	1384803	"	6855			"	
(Dup.)	1384803	"	6822			"	
	1384805	"	11971			188435	
	1384807	"	13451			"	
	1384808	"	13407			"	
	1384812	"	10743			188437	
	1384813	"	9924			"	
	1384814	"	10155			"	
(Dup)	1384814	"	10155			"	
	1384908	"	9970			188461	
	1384909	"	10141			"	
	1384910	"	10516			"	
	1384815	Raytheon	Raytheon	18176		188439	
(Dup)	1384910	[illegible]	10535			188461	
	1384816	Raytheon	18772			188439	
	1384817	"	19556			"	
	1384818	"	19602			"	
	1384819	"	18617			"	
	1385280	Maine Env.	18813			188536	
	1385377	Merck	19399			188553	
	1385401	Budd Co.	Kimberly	18723		188541	
	1385410	Kimberly Cl.	9257			188565	
(Dup)	1385280	Maine Env.	18378			188536	

CHLORINE, BOMBING TITRATION

DATE/ TIME	SAMPLE #	SAMPLE WT. (g)	ANALYST	DATE/ TIME	$AgNO_3$ (ml)	mv readings	1st DERIV-ATIVE	2nd DERIV-ATIVE	END POINT (ml)	NORMALITY of $AgNO_3$ and Standardization Reference	BLANK CORRECT	% CHLORINE	ANALYST
12/8/99	1384801 188433	50/0.5769	RHS		1.866 mg/l					x 50/0.5769 x .0001 = 0.02 % Chlorine			
	1384802	50/0.5146			< 1.00					x 50/0.5146 x .0001 = <0.01 % Chlorine			
	1384803	50/~~0.5543~~ 0.5543			< 1.00					x 50/0.5543 x .0001 = <0.01% Chlorine			
	1384806 188435	50/0.5422			13.232					x 50/0.5422 x .0001 = 0.12% Chlorine			
12/9/99	1384806 Dup	50/0.5654			13.245					x 50/0.5654 x .0001 = 0.12% Chlorine			

D-111

TestAmerica
INCORPORATED

Sample ID: Texas-New Mexico Power Company
TNP-ONE Plant
Bremond, Texas
Coal Samples

Hg Analysis
ASTM D6414-99

Collected On: 10/7/99 for Run 1 and Run 2, 10/8/99 for Run 3 Composite
Collected By: METCO

	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Units	Dry Weight (%)	Flags	Notes
un 1 Composite	12/20/99	12/21/99	jpp	0.222	0.208	3.3	ug/g	95.1	*1	
Run 2 Composite	12/20/99	12/21/99	jpp	0.180	0.180	<1.0	ug/g	76.3		
Run 3 Composite	12/20/99	12/21/99	jpp	0.362	0.365	<1.0	ug/g	76.8		

Notes: *1 - Sample was analyzed in triplicate. The triplicate result was 0.225 ug/g with an RPD of <1.0 %.

Sample Receipt Record

Chain of Custody Provided? Yes ☐ No ☒ Job #: _____

If no Chain of Custody is provided, the following section should be completed.

Client: METCO
Received by: James A Davis Date: 12/6/99 Time: 9 AM
Samples Shipped UPS (FEDEX) US Mail Other _____
Custody Seal(s) Intact ~~Yes ☐ No ☐~~
Containers Provided by TestAmerica Yes ☐ No ☒
Cooler Temperature _____ °C Ice (Ambient) Cool Packs

Deviations Noted

None	☐
Insufficient Volume	☐
Samples Broken	☐
Incorrect Containers/ Preservatives	☐
Volatile Headspace	☐
Holding Time Exceeeded upon receipt	☐
Insufficient sample information	☐
COC and sample labels disagree	☐

Comments

FROM PHILIP ANAL.

COAL FROM:
OWENSVILLE, EAST CHINA, COLSTRIP
WEST TERRE HAUTE, STEVENSON,
SHIPPINGPORT, STRAITON, BREMOND
PADUCAH, LAWRENCE, FAIRFIELD

Other _____ Initials _____ Date _____

Issues to Clarify with Client

Corrective Action

Client Contacted by: N/A Date: N/A

TestAmerica INCORPORATED

METCO ENVIRONMENTAL

CHAIN OF CUSTODY RECORD

Job No: 99-186
Job Name: Texas-New Mexico Power Company
Location: Bremond, TX
Unit: Unit 2

Collected By/Company: TNP

SAMPLE ANALYSIS REQUIRED

SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# of CONTAINERS	RECOVERED BY	PART	HCL	CL2	METALS	PCDD/PCDF	SEMI-VOC	VOST	HEXCHROME	Hg	Flyash	Btu	REMARKS (Specific Compounds/Methods) Analyze according to ASTM D6414-99 A D-3286 D-5016 D-3174
Run 1 Composite	10/7/99				X		I	EY BB			X						X	X	X	Time Not recorded DPS
Run 2 Composite	10/7/99				X		I	BB			X						X	X	X	1645-2000 DPS
Run 3 Composite	10/8/99				X		I	BB			X						X	X	X	0745-1045 DPS
Grab Flyash	10/7/99					X	I ~~EX~~	EY			X						X			Archive for analyze if high Hg in fuel.
Grab Flyash	10/8/99					X	I ~~BB~~	BB			X						X			archived @ Metco DPS

Relinquished By/Sign:	Date/Time	Received By/Sign:	Relinquished By/Sign:	Date/Time	Received By/Sign:
		Bill Kelly 10/8/99		10/11/99 0900	[signature]
Relinquished By/Sign:	Date/Time	Received By/Sign:	Relinquished By/Sign:	Date/Time	Received By/Sign:
Received for Laboratory By/Signature:		Date/Time DBP 11/11/99	Send Samples to: TestAmerica Phone:	Fax:	

PHILIP ANALYTICAL SERVICES

Chain of Custody Record

4418 Pottsville Pike Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Sample Container Information

Bottle Type (G P IH)														
# of Containers														
Preserved? (Y/N)														

Report Results To:

PO # 99-186 Job ID TEX-MEX. POWER CO. UNIT 2
Name DOUG SAATHOFF
Company METCO ENVIRONMENTAL
Mailing Address P.O. Box 598
City ADDISON State TX ZIP 75025
Telephone # 972/931/7127 Fax # 972/931/3398

Send Invoice To:

Name SAME Telephone #
Company Dept.
Mailing Address
City State ZIP
Credit Card # Exp. Date

Analysis Requested

BTU CONTENT ASTM-D-3286
FLY ASH ASTM-D-3174
SULFUR ASTM-D-3176
CHLORIDE ASTM-?

Page 1 of 1
PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or m/n)	Matrix Type	Date Sampled	Time Sampled																
1.	RUN1 COMPOSITE			10/7/99		X	X	X	X												
2	RUN2 COMPOSITE			10/7/99		X	X	X	X												
3	RUN3. COMPOSITE			10/8/99		X	X	X	X												
4																					
5																					
6	*SEE ATTACHED																				
7	INSTRUCTIONS																				
8	→																				
9																					
10																					

Comments/Hazard/Location Details

ATTN: CHRIS WEATHINGTON
TEST AMERICA, INC.
3601 S. DIXIE DRIVE
DAYTON, OH 45439
PH: 1-800-572-9839
* AFTER SAMPLE HAS BEEN PREPPED. PLEASE RETURN A 4 oz. JAR SAMPLE TO TEST AMERICA AT THE ABOVE ADDRESS! THANK YOU!

Special Instructions (including Data Deliverables and Turn Around Time):

Samples relinquished to shipper or courier by:		Date 11-19-99	Time 1600
Samples received by:		Date	Time

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) . Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes:

NOV-19-1999 11:18 FROM TO 19372947816500000 P.06
D-115 TOTAL P.06

HSRAL# 122199Y

COALS

NONAQUEOUS MERCURY BATCH SHEET

Analyst: JRP Date: 12/10/99 (12/21/99) Water Bath: start mid end

Standard Reference: 65-41-17 temp:

ICV Reference: 65-41-18 date:

% DW	Sample # / Client	Weight	MS	MSD
95.1	1384801 np Tex-NM	1.0729 g		
76.7	1384802 SAL	1.0031 g		
76.8	1384803	1.0423 g		
84.2	1384908 [redacted]	1.0150 g		
88.2	1384909	1.0678 g		
88.7	1384910	1.0018 g		
95.0 ~~96.5~~	1384787 [redacted]	1.0110 g		
96.5	1384788	1.0059 g		
97.0	1384789	1.0816 g		
100	1384796 [redacted]	1.0090 g		
100	1384797 TRI	1.0203 g		
99.9	1384798 SAL	1.0674 g		
92.9	1384774 [redacted]	1.0772 g		
93.8	1384775	1.0734 g		
94.2	1384776	1.0350 g		
36.5	13865554 [redacted]	1.0768 g		
83.5	1386555	1.0290 g		
83.4	13865556	1.0095 g		
	NIST 1630 A	1.0044 g		
	Blank			

MB

ICV

MS

MSD

RPD

FLAG

HNO_3 - 65-48-14

HCl - 65-46-1

$KMnO_4$ - 65-33-1

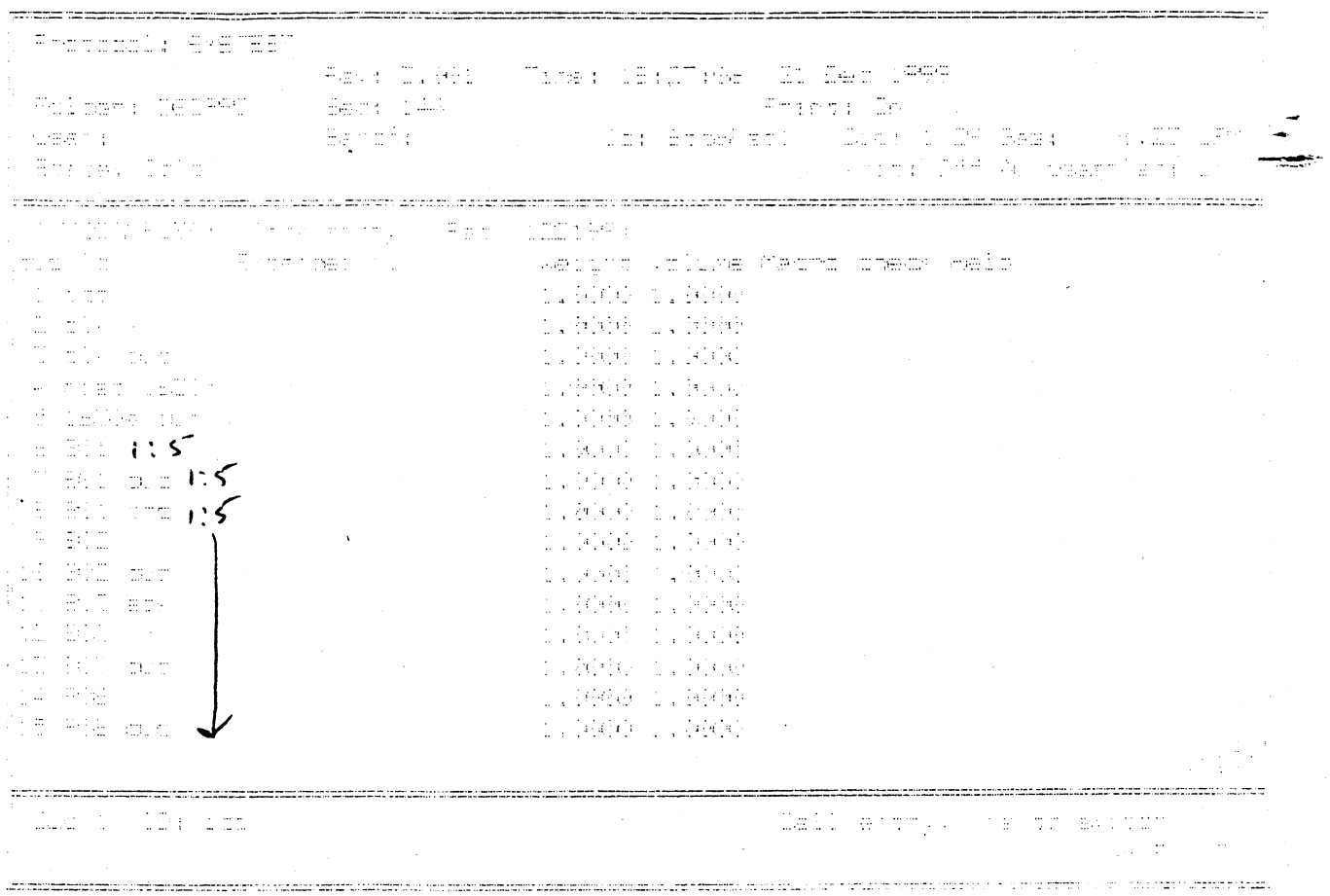
12/21 ~~$SnCl_2$ - 65-50-6~~

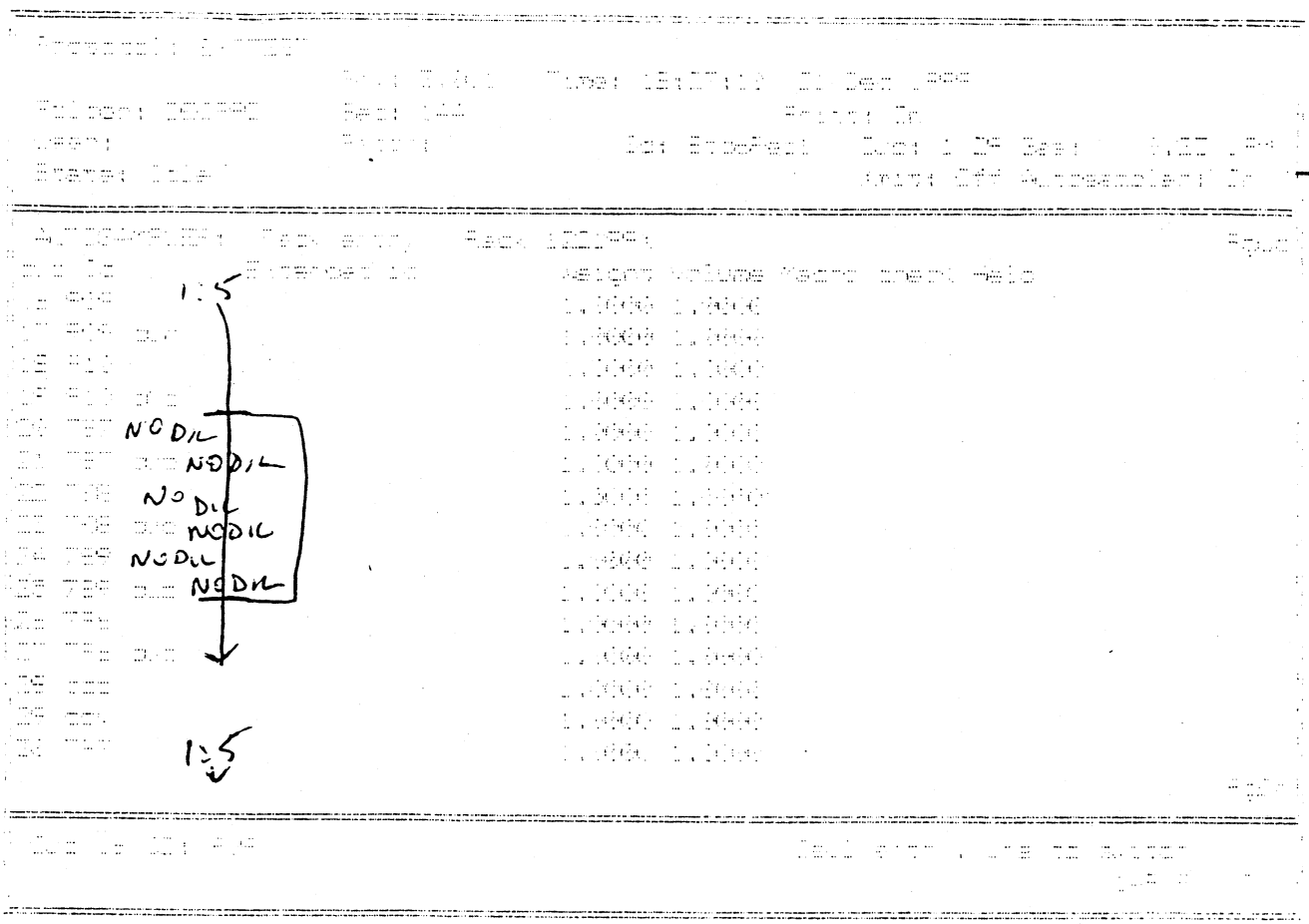
$MgSO_4$ - 65-50-6

$SnCl_2$ - 65-50-16

SECONDARY DATA CHECK: analyst:
date:

Comments:


1:5
1:5
1:5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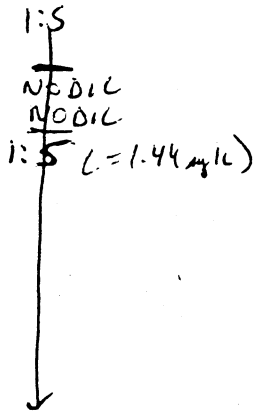
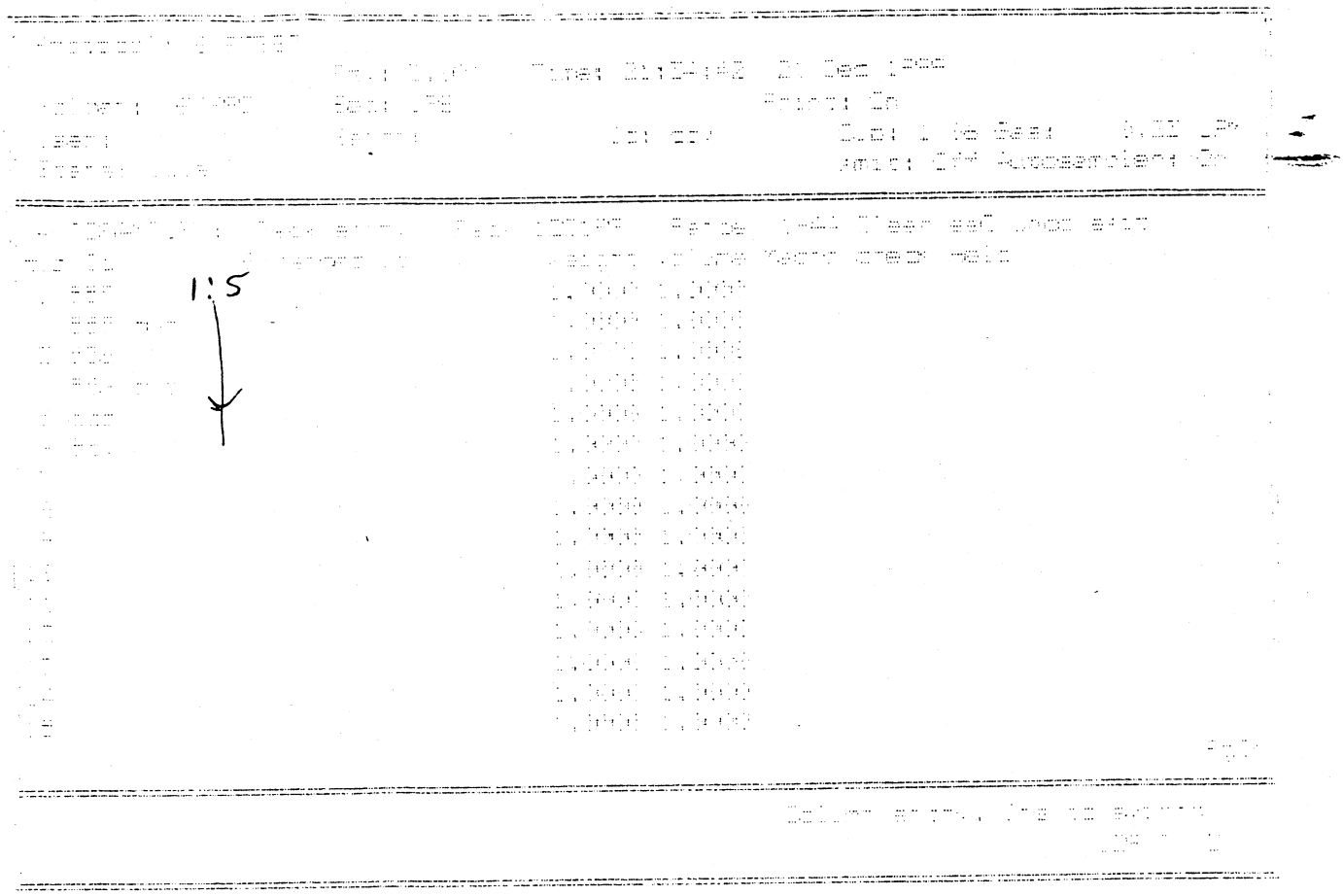
NO DIL
NO DIL
NO DIL
NO DIL
NO DIL
1:5


1:5
NODIC
NODIC
1:5 (= 1.44 mg/L)


1:5

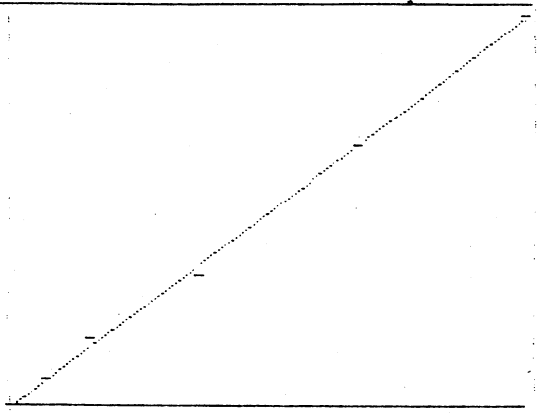
```
Protocol: SYSTEST
                    Rev: 3.001   Time: 18:21:11  21 Dec 1999
Folder: DEC99C      Seq: 144                    Print: On
User:               Batch:          Id: Std6Rep1  Cup: 1 29 Gas:    0.23 LPM
State: Idle                                     Xmit: Off Autosampler: On
```

CALIBRATION: Line Calibration

Line: Hg	Conc.	Calc.	Dev.	Accepted LiNear
S1	.000	-.005	-.005	Quadratic
S2	.200	.192	-.008	WtdLinear
S3	.500	.456	-.044	
S4	1.00	1.00	.007	Accept
S5	2.00	2.00	.001	
S6	3.00	2.98	-.021	StdAdd

A .0000000 r .999363

B 2.39812e-5 C -3.11681e-2



	Mean	%RSD	
S1	1096	0	1096
S2	9335	0	9335
S3	28394	0	28394
S4	46366	0	46366
S5	85828	0	85828
S6	125926	0	125926

337

New calibration coefficients stored 149 2 5

Folder: [illegible] Page [illegible]
[illegible] Dec [illegible] Protocol: [illegible]

[illegible]

*** Check Standard [illegible] Seq: [illegible] [illegible] Dec [illegible]

*** Sample ID: [illegible] Seq: [illegible] [illegible] Dec [illegible]

<0.0002 mg/L

*** Sample ID: [illegible] Seq: [illegible] [illegible] Dec [illegible]

<0.0002 mg/L

*** Sample ID: [illegible] Seq: [illegible] [illegible] Dec [illegible]

<0.0002 mg/L

*** Sample ID: [illegible] Seq: [illegible] [illegible] Dec [illegible]

TV = 0.106 ± 0.032 0.091 mg/kg

*** Sample ID: [illegible] Seq: [illegible] [illegible] Dec [illegible]

TV = 0.106 ± 0.032 0.090 µg/g

*** Sample ID: [illegible] TX-NM Seq: [illegible] [illegible] Dec [illegible]

NO DATA

*** Sample ID: [illegible] 1:5 Seq: [illegible] [illegible] Dec [illegible]

0.222 µg/g

*** Sample ID: [illegible] 1:5 Seq: [illegible] [illegible] Dec [illegible] RPD = 3.3%

0.208 µg/g

*** Sample ID: [illegible] 1:5 Seq: [illegible] [illegible] Dec [illegible] RPD = <1.0%

0.225 µg/g

*** Sample ID: [illegible] TX-NM 1:5 Seq: [illegible] [illegible] Dec [illegible]

0.180 µg/kg

*** Sample ID: [illegible] 1:5 Seq: [illegible] [illegible] Dec [illegible] RPD = <1.0%

0.180 µg/g

1:5

TV=1.0 99.8%

TX-NM 1:5

0.362 mg/g

1:5 RPD = 21.0%

0.365 mg/g

[redacted]

0.110 mg/g

1:5 RPD = 2.6%

0.113 mg/g

[redacted]

0.102 mg/g

1:5 RPD = 3.8%

0.106 mg/g

[redacted]

0.098 mg/g

1:5 RPD = 1.7%

0.099 mg/g

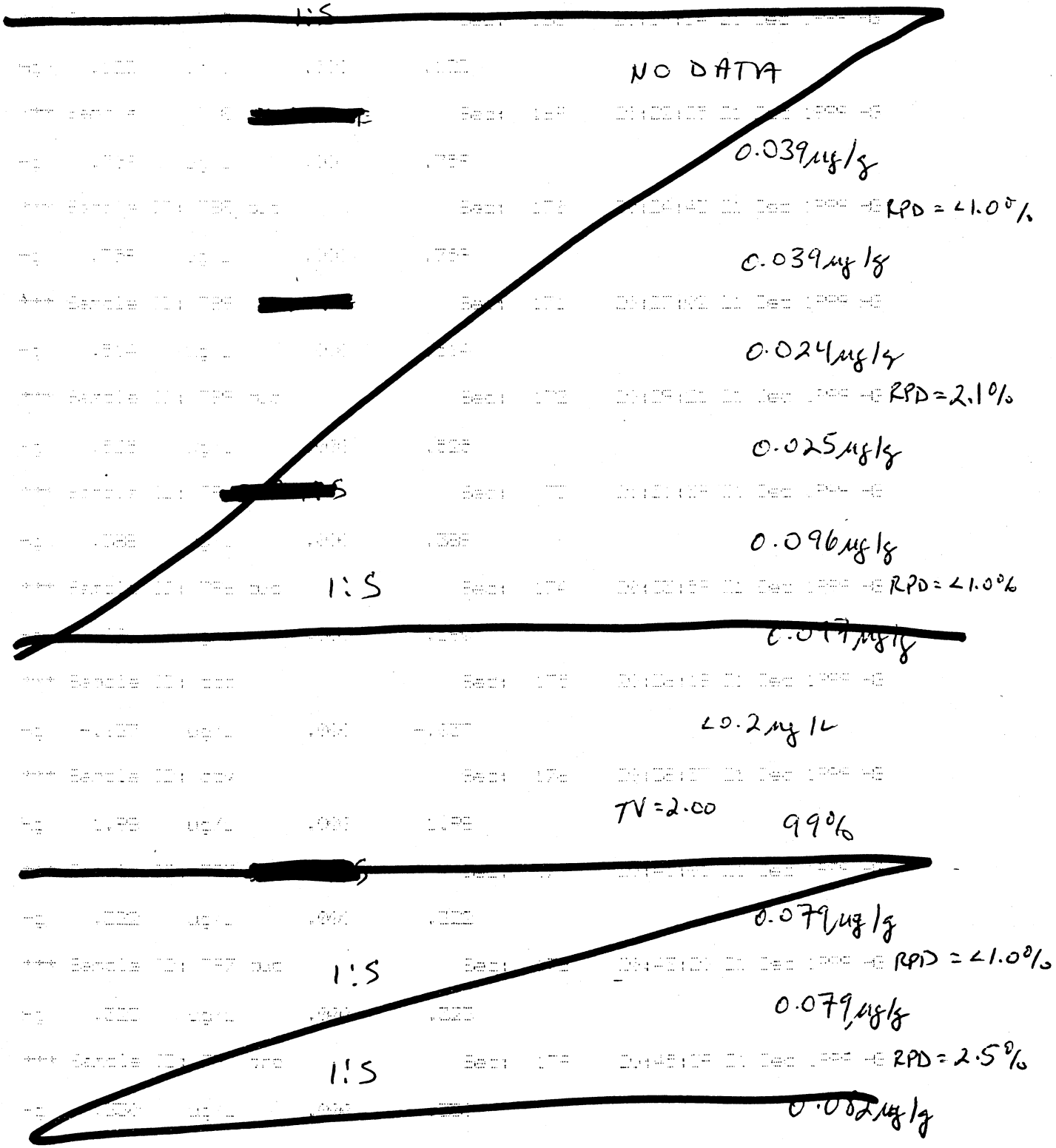
[redacted]

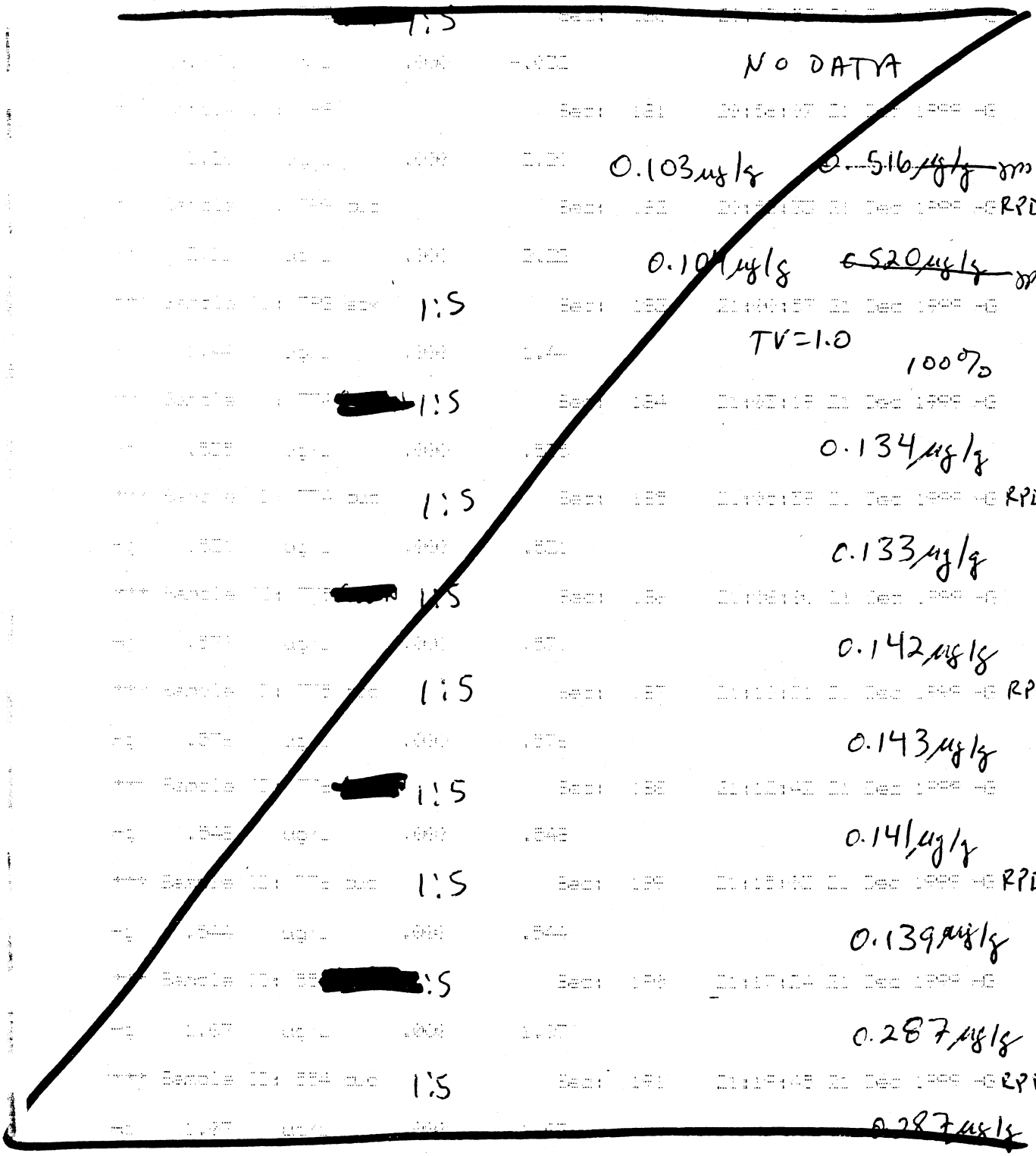
NO DATA

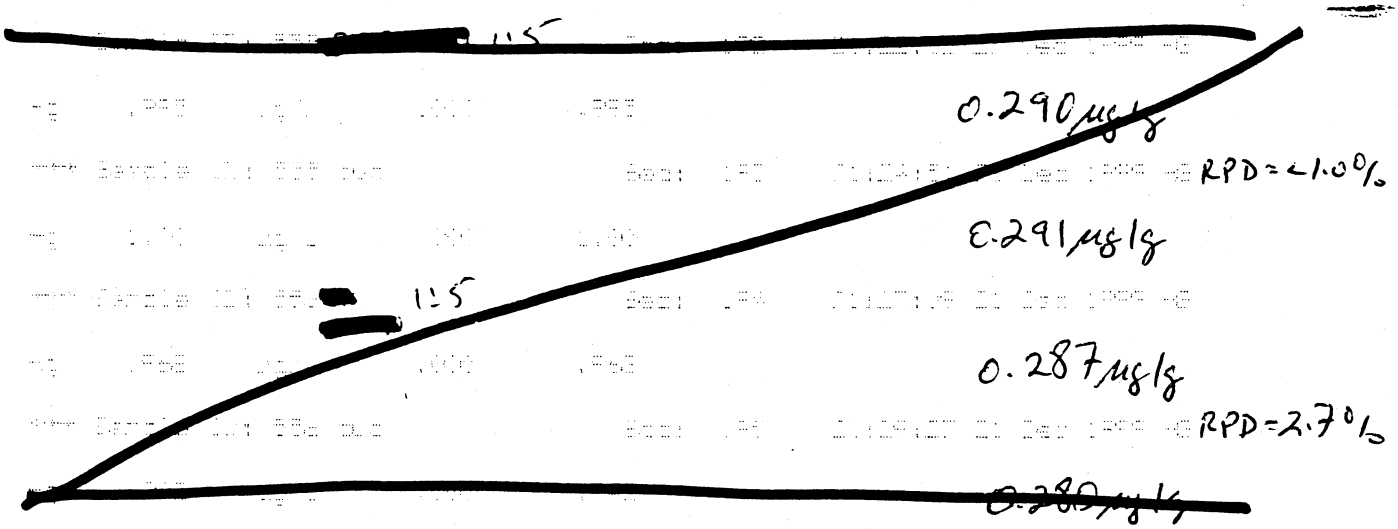
0.022 mg/g

RPD = 21.0%

0.022 mg/g


1:5
NO DATA
0.039 µg/g
RPD = <1.0%
0.039 µg/g
0.024 µg/g
RPD = 2.1%
0.025 µg/g
0.096 µg/g
1:5
RPD = <1.0%
<0.2 µg/L
TV = 2.00
99%
0.079 µg/g
1:5
RPD = <1.0%
0.079 µg/g
1:5
RPD = 2.5%
0.082 µg/g


[redacted] 1:5
NO DATA
0.103 µg/g
0.516 µg/g mm 1/6/00
RPD = <1.0%
0.104 µg/g
0.520 µg/g mm 1/6/00
1:5
TV=1.0
100%
[redacted] 1:5
0.134 µg/g
1:5
RPD = <1.0%
0.133 µg/g
[redacted] 1:5
0.142 µg/g
1:5
RPD = 1.0%
0.143 µg/g
[redacted] 1:5
0.141 µg/g
1:5
RPD = <1.0%
0.139 µg/g
[redacted] :5
0.287 µg/g
1:5
RPD = <1.0%
0.287 µg/g



0.290 µg/g

RPD = 1.0%

0.291 µg/g

0.287 µg/g

RPD = 2.7%

~~0.289 µg/g~~

< 0.0002 mg/L

TV = 2.00 100%

Dry Weight(DW)/Total Volatile Solids (TVS) Notebook # 6

Sample Number/ Test (DW/TVS)	1384773	1384787	1384788	1384789	1384801	1384802
Client/Pan #	CINERGY 33 R3	SHAWNEE 34 R1	35 R2	36 R3	TXNM 37 R1	38 R2
Wt of Pan + Sample	9.0350	8.3805	10.3079	9.3575	8.7531	10.5154
Wt after Drying	8.2347	8.0144	9.1785	9.1045	8.3732	EQUIP 12/22/14 AP
Wt of Pan or Wt After Ignition	0.9866	0.9861	0.9835	0.9852	0.9797	0.9781
Difference	7.2481	7.0276	8.1950	8.1193	7.3935	
Sample amount g	8.0484	7.3937	9.3224	8.3723	7.7734	9.5373
Result	[illegible]%	95.0%	96.5%	97.0%	95.1%	

Sample Number/ Test (DW/TVS)	1384803	1384803				
Client/Pan #	TXNM 39 R1	40 DUP R3				
Wt of Pan + Sample	10.8145	9.8011				
Wt after Drying	8.5361	7.7567				
Wt of Pan or Wt After Ignition	0.9771	0.9737				
Difference	7.5590	6.7830				
Sample amount g	9.8374	8.8274				
Result	76.8%	76.8%				

Sample Number/ Test (DW/TVS)					Batch Number — TVS - DW - 3395
Client/Pan #					
Wt of Pan + Sample					Note: METCO COALS
Wt after Drying					
Wt of Pan or Wt After Ignition					
Difference					
Sample amount g					
Result					

Analyst: RP Date: 12/21/14

TestAmerica INCORPORATED

Dry Weight (DW)/Total Volatile Solids (TVS) Notebook

Sample Number Test (DW TVS)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Client Pan #	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wt of Pan + Sample	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wt after Drying	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wt of Pan + Wt After Ignition	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Difference	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sample Amount	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Result	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sample Number Test (DW TVS)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Client Pan #	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wt of Pan + Sample	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wt after Drying	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wt of Pan + Wt After Ignition	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Difference	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sample Amount	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Result	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sample Number Test (DW TVS)			
Client Pan #			
Wt of Pan + Sample			
Wt after Drying			
Wt of Pan + Wt After Ignition			
Difference			
Sample Amount			
Result			

Batch Number: [illegible]

Note:

Analyst: [illegible]

TestAmerica

APPENDIX E

Unit Operational Data

C.S.T.

Run 1

Point	02_Tem_ID	02_MW_ID	02_[illegible]_ID	02_CO2c-_ID	02_NOx#-mBtu_ID	02_SO2#-mBtu_ID	02_Coal-_Flow_ID
Date	[illegible]	MW	scfh	%	lbs/mmBtu	lbs/mmBtu	Tons/hr
Full Scale	[illegible]	[illegible]	34500000	20.00	10.000	10.000	300.0
[illegible]	[illegible]	160	24678120	12.74	0.215	0.583	115.8
[illegible]	[illegible]	160	24661800	12.64	0.212	0.585	119.11
[illegible]	749	160	25304760	12.69	0.211	0.593	119.2
[illegible]	[illegible]	[illegible]	24766440	12.73	0.215	0.562	119.0
[illegible]	[illegible]	160	24492340	12.58	0.215	0.557	118.0
[illegible]	[illegible]	[illegible]	24529960	12.63	[illegible]	0.5[illegible]	118.[illegible]
[illegible]	[illegible]	160	24631860	12.66	0.217	[illegible].56[illegible]	117.5
[illegible]	[illegible]	160	24930960	12.55	0.219	0.577	[illegible]
[illegible]	751	160	24553020	12.57	0.220	0.539	116.6
[illegible]	751	160	24490500	12.55	0.214	0.542	117.1
[illegible]	751	160	24498660	12.57	0.220	0.560	116.8
[illegible]	[illegible]	160	24427980	12.57	0.218	0.576	116.5
[illegible]	751	160	24689980	12.47	0.217	0.581	117.4
Average	749	160	24669106	12.62	0.216	0.565	117.8
Minimum	74[illegible]	160	24427980	12.47	0.211	0.537	116.5
Maximum	751	160	25304760	12.74	0.220	0.593	119.2
Missing (%)	[illegible]	0.00	0.00	0.00	0.00	0.00	0.00
Invalid (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O-O Cal (%)	[illegible]	0.00	0.00	0.00	0.00	0.00	0.00
In Cal (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Valid (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Available(%)	NA	NA	NA	NA	NA	NA	NA

M MissingData   F PowerFailure   P InPurge   # DiscreteMissing   D Downed   C InCalibration   0 Part60-000
7 Part75-000   N NoSamples   , TooFewSamples   r Reserved_1   u Reserved_2   A HighAlarm   a LowAlarm
m EPA_MinCO2MaxO2   G EPA_App6_O32   EnoughSamples   E Edited   S StackOffline   ! PrimaryMonitor   € BackupMonitor
= Alternate $ ReferenceMethod   % Parametric   ^ Average(HB/HA)   & Init_QA_Hrs_Avg   * 90thPercentile   (95thPercentile
) BinMaximum   - BinAverage   + MaxPotential   ] Other

C.S.T. Run 2

Point	PC_Tsk_-10	U2_GMW_-12	U2_Qsk_-12	U2_CO2c-_12	U2_NOxm-mBtu_12	U2_SO2m-mBtu_12	U2_Coal-_Flow_12
Units	Deg F	Mw	scfm	%	lbs/mmBtu	lbs/mmBtu	lbs/m
Full Scale	450	200	34800000	20.00	10.000	10.000	500.0
10/07/99 15:45	352	160	24700240	12.48	0.216	0.601	114.1
10/07/99 16:00	350	160	23828460	12.55	0.219	0.587	112.9
10/07/99 16:15	350	160	23936200	12.46	0.224	0.587	112.4
10/07/99 16:30	349	160	21282360	12.41	0.220	0.570	112.8
10/07/99 16:45	349	160	23917240	12.41	0.221	0.570	112.1
10/07/99 17:00	348	160	23825760	12.45	0.223	0.560	111.6
10/07/99 17:15	348	160	24066600	12.43	0.227	0.574	111.4
10/07/99 17:30	349	160	24309720	12.51	0.221	0.566	111.2
10/07/99 17:45	349	160	24080680	12.31	0.231	0.576	111.9
10/07/99 18:00	347	160	24001140	12.43	0.223	0.587	111.1
10/07/99 18:15	347	160	23802880	12.45	0.226	0.564	110.7
10/07/99 18:30	347	160	24010620	12.34	0.222	0.566	110.9
10/07/99 18:45	347	160	23858400	12.44	0.222	0.577	110.1
10/07/99 19:00	345	157	23927700	12.27	0.232	0.581	105.6
Average	349	160	23833534	12.42	0.223	0.577	111.3
Minimum	345	157	21282360	12.27	0.216	0.557	105.6
Maximum	352	160	24700240	12.55	0.232	0.601	114.1
Missing (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Invalid (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0 C Cal (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
In Cal (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Valid (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Available(%)	NA	NA	NA	NA	NA	NA	NA

M MissingData F PowerFailure P InPurge f DiscreteMissing D Downed C InCalibration G Part60-00(
@ Part75-00(B NoSamples < TooFewSamples r Reserved_1 u Reserved_2 A HighAlarm a LowAlarm
m EPA_Min002Max02 G EPA_App8_002 > EnoughSamples E Edited S StackOffline ! PrimaryMonitor & Back-upMonitor
Alternate R ReferenceMethod % Parametric ` Average(HB/HA) & Init_QA_Hrs_Avg # 90thPercentile (95thPercentile
\ BinMaximum - BinAverage + MaxPotential) Other

C.S.T. Run 3

Point	P2_Tsk_-10	U2_GMW_-12	U2_Qsk_-12	U2_CO2c-_12	U2_NOx#-mBtu_12	U2_SO2#-mBtu_12	U2_Coal-_Flow_12
Units	Deg F	MW	scfm	%	lbs/mmBtu	lbs/mmBtu	Tns/hr
Full Scale	450	200	34800000	20.00	10.000	10.000	300.0
10/08/99 06:30	335	161	24869760	12.44	0.200	0.549	120.0
10/08/99 06:45	334	161	24853440	12.44	0.199	0.551	121.1
10/08/99 07:00	334	161	25144380	12.43	0.196	0.569	122.4
10/08/99 07:15	334	161	25075020	12.52	0.199	0.575	122.5
10/08/99 07:30	334	161	24924300	12.49	0.200	0.553	121.0
10/08/99 07:45	335	161	25039680	12.56	0.201	0.561	122.3
10/08/99 08:00	336	161	25102200	12.53	0.203	0.551	122.0
10/08/99 08:15	336	160	24792300	12.45	0.200	0.550	122.5
10/08/99 08:30	338	161	24992820	12.48	0.200	0.574	124.5
10/08/99 08:45	339	161	25242240	12.58	0.195	0.608	126.2
10/08/99 09:00	339	161	24864300	12.51	0.194	0.631	126.6
10/08/99 09:15	340	161	24634620	12.83	0.195	0.613	126.3
Average	336	161	24943740	12.52	0.199	0.574	123.1
Minimum	334	160	24634620	12.43	0.194	0.549	120.0
Maximum	340	161	25242240	12.83	0.203	0.631	126.6
Missing (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Invalid (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O.O.Cal (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
In Cal (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Valid (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Available(%)	NA	NA	NA	NA	NA	NA	NA

M MissingData F PowerFailure P InPurge f DiscreteMissing D Downed C InCalibration 0 Part60-000
0 Part75-000 B NoSamples < TooFewSamples r Reserved_1 u Reserved_2 A HighAlarm a LowAlarm
% EPA_MinCO2MaxO2 G EPA_AppG_CO2 > EnoughSamples E Edited S StackOffline ! PrimaryMonitor @ BackupMonitor
# Alternate R ReferenceMethod % Parametric ^ Average(HB/HA) & Init_QA_Hrs_Avg * 90thPercentile (95thPercentile
) BinMaximum - BinAverage + MaxPotential ; Other

Historical Tabular Trend 1 16:29:59 11-Oct-99

Time	Date		MSOFSPR KPPH ACTUAL VAL	BHP216 INWC ACTUAL VAL	SGT251 DEG F ACTUAL VAL	SGT254 DEG F ACTUAL VAL	SGT257 DEG F ACTUAL VAL	BHT217 DEG F ACTUAL VAL	BHT219 DEG F ACTUAL VAL
12:30:00	07-Oct-99	1	1037.2	4.5	600	365	331	348	331
12:40:00	07-Oct-99	2	1029.0	4.5	600	365	331	348	331
12:50:00	07-Oct-99	3	1033.1	5.0	600	365	331	348	331
13:00:00	07-Oct-99	4	1029.0	5.6	600	365	331	348	331
13:10:00	07-Oct-99	5	1029.0	5.0	600	365	331	348	331
13:20:00	07-Oct-99	6	1028.6	4.5	600	365	331	348	331
13:30:00	07-Oct-99	7	1032.7	3.9	600	365	331	348	331
13:40:00	07-Oct-99	8	1028.6	4.4	600	365	331	352	335
13:50:00	07-Oct-99	9	1032.7	4.4	600	365	331	352	335
14:00:00	07-Oct-99	10	1028.6	4.4	600	365	331	352	335
14:10:00	07-Oct-99	11	1029.0	5.0	600	365	331	352	335
14:20:00	07-Oct-99	12	1029.0	5.5	600	365	334	352	335
14:30:00	07-Oct-99	13	1029.0	5.0	600	365	334	352	335
14:40:00	07-Oct-99	14	1029.0	4.4	600	365	334	352	335
14:50:00	07-Oct-99	15	1029.0	3.9	600	365	334	352	335
15:00:00	07-Oct-99	16	1029.0	4.4	600	365	334	352	335
15:10:00	07-Oct-99	17	1029.0	4.4	600	365	334	352	335
15:20:00	07-Oct-99	18	1029.0	4.9	600	365	334	352	335
15:30:00	07-Oct-99	19	1029.0	4.9	600	365	334	352	335
15:40:00	07-Oct-99	20	1029.0	5.4	600	361	340	352	335
15:50:00	07-Oct-99	21	1029.0	4.9	603	349	369	352	335
16:00:00	07-Oct-99	22	1025.0	4.4	603	343	385	352	335
16:10:00	07-Oct-99	23	1025.0	4.4	603	340	394	352	335
16:20:00	07-Oct-99	24	1016.4	4.4	603	334	403	356	339
16:30:00	07-Oct-99	25	1011.9	4.4	603	334	406	356	339
16:40:00	07-Oct-99	26	1015.9	5.4	603	346	388	356	339
16:50:00	07-Oct-99	27	1007.4	4.8	603	355	372	356	339
17:00:00	07-Oct-99	28	1007.8	4.3	600	355	366	356	339
17:10:00	07-Oct-99	29	1004.2	3.8	600	359	359	356	339
17:20:00	07-Oct-99	30	1008.3	4.3	600	359	359	356	339
17:30:00	07-Oct-99	31	1004.2	4.3	600	359	355	356	339
17:40:00	07-Oct-99	32	1008.3	4.3	600	359	353	352	339
17:50:00	07-Oct-99	33	1008.3	4.3	600	359	353	352	339
18:00:00	07-Oct-99	34	1008.3	4.8	600	359	353	352	339
18:10:00	07-Oct-99	35	1004.2	4.8	600	359	353	352	339
18:20:00	07-Oct-99	36	1008.3	5.8	600	359	353	352	339
18:30:00	07-Oct-99	37	1004.2	4.7	600	359	353	352	339
18:40:00	07-Oct-99	38	1008.3	4.2	600	359	353	352	339
18:50:00	07-Oct-99	39	1004.2	4.2	600	359	353	352	339
19:00:00	07-Oct-99	40	1008.3	4.2	603	360	350	352	339
19:10:00	07-Oct-99	41	1003.8	4.2	603	360	350	352	339
19:20:00	07-Oct-99	42	1008.3	4.2	603	360	350	352	339
19:30:00	07-Oct-99	43	1004.2	4.2	603	360	350	352	339
19:40:00	07-Oct-99	44	1008.3	4.7	603	360	350	352	335
19:50:00	07-Oct-99	45	1004.2	4.7	603	360	347	352	335
20:00:00	07-Oct-99	46	1004.7	5.2	603	360	347	352	335
20:10:00	07-Oct-99	47	974.4	4.7	603	360	347	352	335
20:20:00	07-Oct-99	48	950.9	3.7	600	356	347	352	335
20:30:00	07-Oct-99	49	950.5	3.7	600	355	350	347	335
20:40:00	07-Oct-99	50	946.0	3.7	600	355	353	347	335

Run 1 Avg = 4.7

Run 2 Avg = 4.5

Avg = 365

Avg = 359

Avg = 332

Avg = 354

Avg = 334

Avg = 338

Time	Date		MSOFSPR KPPH ACTUAL VAL	BHP216 INWC ACTUAL VAL	SGT251 DEG F ACTUAL VAL	SGT254 DEG F ACTUAL VAL	SGT257 DEG F ACTUAL VAL	BHT217 DEG F ACTUAL VAL	BHT219 DEG F ACTUAL VAL
20:50:00	07-Oct-99	51	946.0 ,	4.2 ,	600 ,	355 ,	353 ,	347 ,	335 ,
21:00:00	07-Oct-99	52	941.5 ,	4.2 ,	597 ,	352 ,	353 ,	347 ,	335 ,
21:10:00	07-Oct-99	53	941.5 ,	4.2 ,	597 ,	351 ,	353 ,	347 ,	335 ,
21:20:00	07-Oct-99	54	918.4 ,	4.7 ,	597 ,	351 ,	353 ,	347 ,	331 ,
21:30:00	07-Oct-99	55	922.5 ,	4.7 ,	597 ,	351 ,	356 ,	347 ,	331 ,
21:40:00	07-Oct-99	56	926.6 ,	4.7 ,	597 ,	351 ,	356 ,	347 ,	331 ,
21:50:00	07-Oct-99	57	922.1 ,	5.7 ,	600 ,	354 ,	356 ,	347 ,	331 ,
22:00:00	07-Oct-99	58	926.1 ,	4.7 ,	600 ,	354 ,	356 ,	347 ,	331 ,
22:10:00	07-Oct-99	59	904.6 ,	3.7 ,	600 ,	354 ,	356 ,	347 ,	331 ,
22:20:00	07-Oct-99	60	887.3 ,	3.7 ,	587 ,	354 ,	360 ,	352 ,	331 ,
22:30:00	07-Oct-99	61	883.3 ,	4.2 ,	575 ,	351 ,	360 ,	347 ,	331 ,
22:40:00	07-Oct-99	62	887.7 ,	4.2 ,	575 ,	345 ,	355 ,	343 ,	331 ,
22:50:00	07-Oct-99	63	849.5 ,	4.2 ,	572 ,	342 ,	352 ,	339 ,	327 ,
23:00:00	07-Oct-99	64	849.5 ,	4.8 ,	572 ,	339 ,	349 ,	335 ,	327 ,
23:10:00	07-Oct-99	65	849.0 ,	4.8 ,	572 ,	333 ,	349 ,	335 ,	323 ,
23:20:00	07-Oct-99	66	849.0 ,	5.3 ,	572 ,	333 ,	349 ,	335 ,	323 ,
23:30:00	07-Oct-99	67	849.0 ,	4.3 ,	572 ,	336 ,	345 ,	335 ,	323 ,
23:40:00	07-Oct-99	68	822.8 ,	3.8 ,	572 ,	336 ,	342 ,	335 ,	323 ,
23:50:00	07-Oct-99	69	813.0 ,	3.8 ,	572 ,	336 ,	341 ,	335 ,	323 ,
00:00:00	08-Oct-99	70	811.2 ,	3.8 ,	572 ,	336 ,	341 ,	335 ,	318 ,
00:10:00	08-Oct-99	71	810.3 ,	4.0 ,	572 ,	334 ,	342 ,	332 ,	318 ,
00:20:00	08-Oct-99	72	810.8 ,	4.3 ,	572 ,	334 ,	342 ,	332 ,	318 ,
00:30:00	08-Oct-99	73	806.8 ,	4.3 ,	572 ,	334 ,	342 ,	332 ,	318 ,
00:40:00	08-Oct-99	74	810.8 ,	4.3 ,	572 ,	334 ,	344 ,	332 ,	318 ,
00:50:00	08-Oct-99	75	809.5 ,	4.8 ,	575 ,	334 ,	344 ,	332 ,	318 ,
01:00:00	08-Oct-99	76	824.1 ,	4.8 ,	575 ,	334 ,	344 ,	332 ,	318 ,
01:10:00	08-Oct-99	77	824.1 ,	5.4 ,	575 ,	334 ,	344 ,	332 ,	318 ,
01:20:00	08-Oct-99	78	820.1 ,	4.2 ,	575 ,	334 ,	344 ,	332 ,	318 ,
01:30:00	08-Oct-99	79	824.1 ,	3.7 ,	575 ,	334 ,	344 ,	332 ,	318 ,
01:40:00	08-Oct-99	80	808.1 ,	3.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
01:50:00	08-Oct-99	81	808.1 ,	3.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
02:00:00	08-Oct-99	82	775.1 ,	3.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
02:10:00	08-Oct-99	83	779.7 ,	4.2 ,	578 ,	334 ,	344 ,	332 ,	318 ,
02:20:00	08-Oct-99	84	773.4 ,	4.2 ,	578 ,	334 ,	344 ,	332 ,	318 ,
02:30:00	08-Oct-99	85	768.4 ,	4.2 ,	578 ,	334 ,	344 ,	332 ,	318 ,
02:40:00	08-Oct-99	86	768.4 ,	4.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
02:50:00	08-Oct-99	87	768.4 ,	4.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
03:00:00	08-Oct-99	88	768.4 ,	5.3 ,	578 ,	334 ,	344 ,	332 ,	318 ,
03:10:00	08-Oct-99	89	768.4 ,	4.8 ,	578 ,	334 ,	344 ,	332 ,	318 ,
03:20:00	08-Oct-99	90	768.4 ,	4.3 ,	578 ,	334 ,	344 ,	332 ,	318 ,
03:30:00	08-Oct-99	91	768.4 ,	3.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
03:40:00	08-Oct-99	92	768.4 ,	3.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
03:50:00	08-Oct-99	93	768.4 ,	3.7 ,	578 ,	334 ,	344 ,	332 ,	318 ,
04:00:00	08-Oct-99	94	768.4 ,	4.2 ,	578 ,	334 ,	344 ,	332 ,	318 ,
04:10:00	08-Oct-99	95	768.4 ,	4.2 ,	578 ,	334 ,	344 ,	332 ,	318 ,
04:20:00	08-Oct-99	96	768.4 ,	4.2 ,	578 ,	334 ,	344 ,	332 ,	318 ,
04:30:00	08-Oct-99	97	768.4 ,	4.8 ,	578 ,	334 ,	344 ,	332 ,	318 ,
04:40:00	08-Oct-99	98	768.8 ,	4.8 ,	578 ,	334 ,	344 ,	332 ,	318 ,
04:50:00	08-Oct-99	99	769.3 ,	5.3 ,	581 ,	334 ,	344 ,	332 ,	318 ,
05:00:00	08-Oct-99	100	769.3 ,	4.7 ,	581 ,	334 ,	344 ,	332 ,	318 ,
05:10:00	08-Oct-99	101	769.7 ,	3.8 ,	581 ,	339 ,	344 ,	332 ,	318 ,
05:20:00	08-Oct-99	102	769.7 ,	3.8 ,	581 ,	339 ,	344 ,	332 ,	318 ,

Time	Date		MSOFSPR KPPH ACTUAL VAL	BHP216 INWC ACTUAL VAL	SGT251 DEG F ACTUAL VAL	SGT254 DEG F ACTUAL VAL	SGT257 DEG F ACTUAL VAL	BHT217 DEG F ACTUAL VAL	BHT219 DEG F ACTUAL VAL
05:30:00	08-Oct-99	103	813.0	4.3	581	339	344	332	318
05:40:00	08-Oct-99	104	821.0	4.3	587	342	347	332	318
05:50:00	08-Oct-99	105	817.0	4.3	587	342	347	339	318
06:00:00	08-Oct-99	106	817.0	4.8	587	345	347	339	318
06:10:00	08-Oct-99	107	863.7	5.3	587	345	350	339	318
06:20:00	08-Oct-99	108	900.1	5.8	578	348	354	343	323
06:30:00	08-Oct-99	109	958.6	4.8	575	348	354	343	323
06:40:00	08-Oct-99	110	1015.5	4.3	575	345	354	343	323
06:50:00	08-Oct-99	111	1025.9	4.9	578	345	354	339	323
07:00:00	08-Oct-99	112	1006.9	5.4	581	345	354	339	323
07:10:00	08-Oct-99	113	1015.0	5.4	581	342	354	339	323
07:20:00	08-Oct-99	114	1015.0	4.9	584	345	347	339	323
07:30:00	08-Oct-99	115	1019.1	5.4	584	345	335	339	323
07:40:00	08-Oct-99	116	1015.0	4.3	584	348	335	339	323
07:50:00	08-Oct-99	117	1019.1	4.8	584	348	335	339	323
08:00:00	08-Oct-99	118	1019.1	4.8	584	348	335	339	323
08:10:00	08-Oct-99	119	1019.1	5.8	587	348	335	339	323
08:20:00	08-Oct-99	120	1015.0	5.3	587	348	332	339	323
08:30:00	08-Oct-99	121	1019.1	4.3	587	348	332	339	323
08:40:00	08-Oct-99	122	1014.1	4.9	587	348	332	339	323
08:50:00	08-Oct-99	123	1022.3	5.4	587	348	332	339	323
09:00:00	08-Oct-99	124	1022.3	5.3	587	351	332	339	323
09:10:00	08-Oct-99	125	1018.2	5.3	590	351	332	339	323
09:20:00	08-Oct-99	126	1022.3	4.8	590	351	329	339	323
09:30:00	08-Oct-99	127	1021.8	4.8	590	351	329	339	323
09:40:00	08-Oct-99	128	1025.9	5.8	590	354	329	339	323
09:50:00	08-Oct-99	129	1021.8	5.2	590	354	329	339	323
10:00:00	08-Oct-99	130	1021.8	4.7	593	354	329	344	323
10:10:00	08-Oct-99	131	1021.8	4.7	593	357	329	344	327
10:20:00	08-Oct-99	132	1021.4	5.3	593	357	329	344	327
10:30:00	08-Oct-99	133	1025.4	5.3	593	357	329	348	327
10:40:00	08-Oct-99	134	1021.8	4.8	593	357	329	348	327
10:50:00	08-Oct-99	135	1021.8	4.8	593	357	329	348	331
11:00:00	08-Oct-99	136	1025.9	4.8	593	357	329	348	331
11:10:00	08-Oct-99	137	1018.2	5.2	596	360	329	348	331
11:20:00	08-Oct-99	138	1026.3	5.2	596	360	329	348	331
11:30:00	08-Oct-99	139	1021.8	5.2	596	362	329	352	331
11:40:00	08-Oct-99	140	1021.8	5.2	596	362	329	352	335
11:50:00	08-Oct-99	141	1021.8	5.2	596	362	329	352	335
12:00:00	08-Oct-99	142	1025.9	5.2	596	362	329	352	335
12:10:00	08-Oct-99	143	1017.8	5.2	596	362	329	352	335
12:20:00	08-Oct-99	144	1021.8	5.2	596	362	329	352	335
12:30:00	08-Oct-99	145	1021.8	5.3	593	365	332	356	335
12:40:00	08-Oct-99	146	1017.3	4.7	583	365	332	356	335
12:50:00	08-Oct-99	147	1025.0	4.7	580	362	332	352	335
13:00:00	08-Oct-99	148	1020.5	4.2	580	359	332	352	335
13:10:00	08-Oct-99	149	1024.5	4.7	580	359	332	348	335
13:20:00	08-Oct-99	150	1024.5	4.7	580	355	332	348	335
13:30:00	08-Oct-99	151	1024.5	5.8	580	355	332	348	335
13:40:00	08-Oct-99	152	1024.5	5.2	584	355	329	348	335
13:50:00	08-Oct-99	153	1020.5	4.7	584	355	326	348	335
14:00:00	08-Oct-99	154	1020.5	4.2	584	355	326	348	335

Avg = 5.0

Avg = 350

Avg = 332

Avg = 323

MAINSCREEN: 2269 VER: 0 SUBSCREEN: 299 VER: 100 WINDOW: 0 VER: 0

DATE: 10/11/99 TIME: 12:59:18

12:59:17

BAGHOUSE OVERVIEW 2269

11/OCT/99

BAGHOUSE CLEANING CYCLE COUNT TODAY

BAGHOUSE CLEANING CYCLE COUNT 0 YESTERDAY

BHP216

DP 5.3"

BHT219

BYPASS DAMPERS

360 °F

BHT214

INLET FROM AIR PREHEATERS

DEFLATION FANS

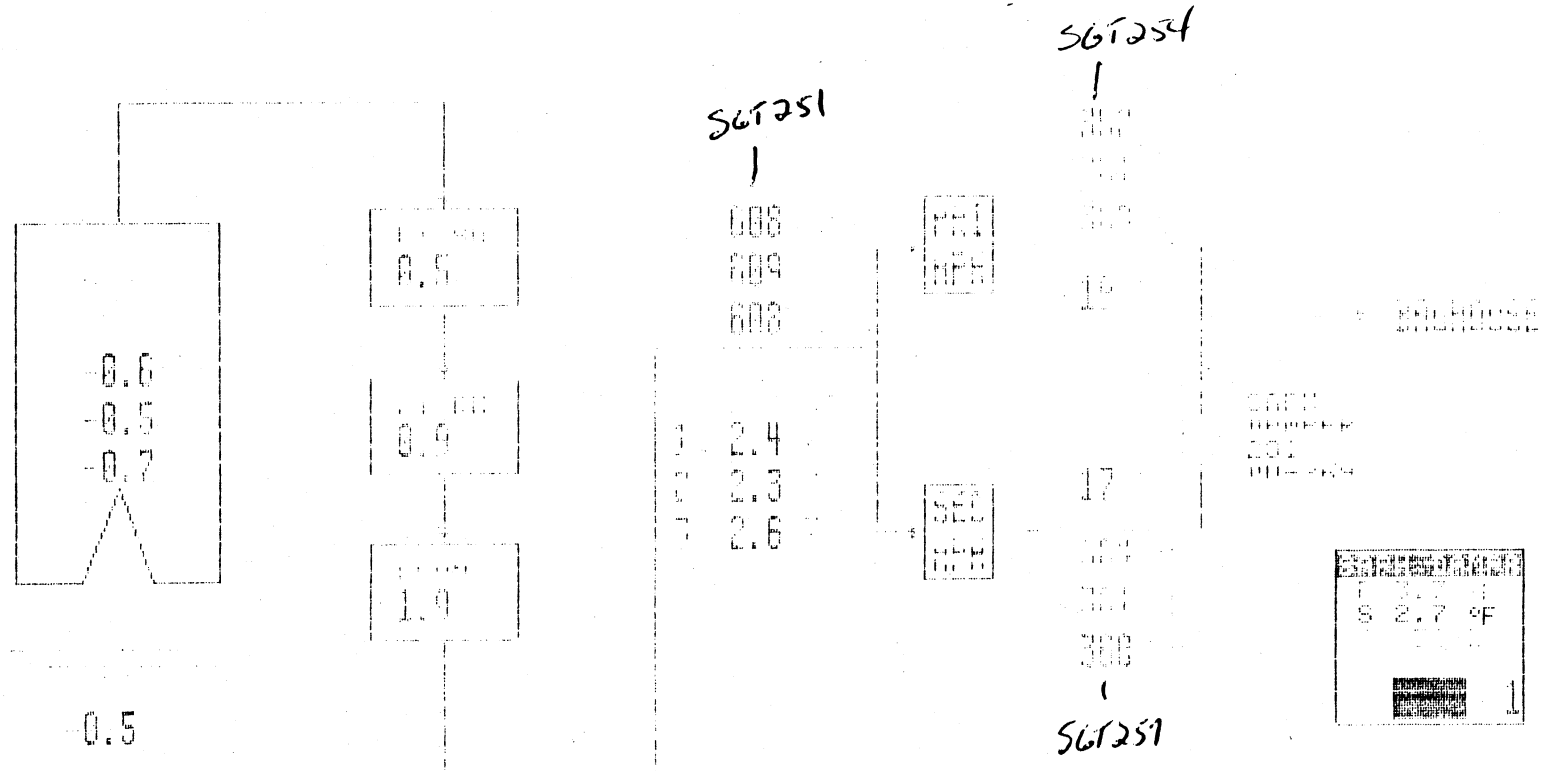
9.7 KCFM

MAINSCREEN: 2255 VER: 0 SUBSCREEN: 299 VER: 100 WINDOW: 0 VER: 0
DATE: 10/11/99 TIME: 12:58:33

12:58:33

FLUE GAS 2255 MW-168

11/OCT/99



METCO ENVIRONMENTAL

APPENDIX F

Chain of Custody Records

Job# 99-186 Unit Tested Unit 2

CHAIN OF CUSTODY RECORD

Page # 1/1

Facility Name/Location: Texas-New Mexico Power Company TNP-ONE Bremond, TX

Collected By/Company: METCO Environmental

Unit 2 Baghouse Inlet Duct

SAMPLE I.D. Run 3	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
Container 1 Filter	10/8/99	1148	X				III	BH									X			Analyze according to the Ontario Hydro Method. Thimbles Filter
Container 2 0.1 N HNO_3 F.W.	10/8/99	1152	X				I	BH									X			Container 2A not recovered.
Container 3 10% HNO_3 ~~HNO_3~~ Rinse Imp 1,2,3	10/8/99	1202	X				II	BH									X			
Container 4 0.1 N HNO_3 Rinse Imp 4	10/8/99	1206	X				I	BH									X			
Container 5 0.1 N HNO_3 Rinse Imp 5,6,7	10/8/99	1217	X				I	BH									X			Used Hydroxylamine Sulfate / Sodium Chloride

Received by:	Date:	Time:	Transported by: BH	Date: 10/8/99	Time: 1100	Received at Lab by: Douglas R. Scatboff	Date: 10/11/99	Time: 0900
Analyzed by:	Date:	Time:	Data Reviewed by: [illegible]	Date: 11/11/99	Time:	Remarks: pm/Metco M. Ganter 10/15/99		

Ship to: Test America

METCO ENVIRONMENTAL

Job# 99-186 Unit Tested Unit 2 CHAIN OF CUSTODY RECORD Page # 1/1

Facility Name/Location
Texas-New Mexico Power Company
TNP-ONE Plant
Bremond, Texas

Collected By/Company
METCO Environmental

SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
Unit 2 Stack Run 1																				Analyze according to the Ontario Hydro Method.
Container 1 Filter	10/7/99	1700	X				I	BH									X			Filter 47 @ 40
Container 2 0.1 N HNO_3 F.w.	10/7/99	1702	X				I	BH									X			Container 2A not recovered.
Container 3 10% HNO_3 Rinse Imp 1,2,3	10/7/99	1711	X				II	BH									X			
Container 4 0.1 N HNO_3 Rinse Imp 4	10/7/99	1720	X				I	BH									X			
Container 5 0.1 N HNO_3 Rinse Imp 5,6,7	10/7/99	1715	X				I	BH									X			Used Hydroxylamine Sulfate / Sodium Chloride

Received by:	Date:	Time:	Transported by: BH	Date: 10/8	Time: 1100	Received at lab by: DR Saathoff	Date: 10/11/99	Time: 0900
Analyzed by:	Date:	Time:	Data Reviewed by:	Date: 11/11/99	Time:	Remarks: PM/Metco M. Gantner 10/15/99		

Ship to: TestAmerica

METCO ENVIRONMENTAL

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Job# 99-186 Unit Tested Unit 2

CHAIN OF CUSTODY RECORD

Page # 1/1

Facility Name/Location
Texas-New Mexico Power Company
TNP-ONE
Bremond, TX

Collected By/Company
METCO Environmental

Unit 2 Stack Run 3 SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED: RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
Container 1 Filter	10/8/99	1109	X				I	BH									X			Analyze according to the Ontario Hydro Method. Filter 47044
Container 2 0.1 N HNO_3 F.W.	10/8/99	1111	X				I	BH									X			Container 2A not recovered.
Container 3 10% HNO_3 Rinse Imp. 1,2,3	10/8/99	1123	X				II	BH												
Container 4 0.1 N HNO_3 Rinse Imp 4	10/8/99	1126	X				I	BH												
Container 5 0.1 N HNO_3 Rinse Imp 5,6,7	10/8/99	1139	X				I	BH												Used Hydroxylamine Sulfate / Sodium Chloride

Received by:	Date:	Time:	Transported by: BH	Date: 10/8/99	Time: 1100	Received at Lab by: [signature]	Date: 10/11/99	Time: 0900
Analyzed by:	Date:	Time:	Data Reviewed by: [signature]	Date: 11/11/99	Time:	Remarks: PM/Metco M. Hunter 10/15/99		

Ship to: Test America

METCO ENVIRONMENTAL

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Job# 99-186 Unit Tested ~~Number 2 Stack~~ Unit 2

CHAIN OF CUSTODY RECORD

Page # 1/1

Facility Name/Location: TNP-One Texas New Mexico Power, Bremond, TX

Collected By/Company: METCO Environmental

Unit 2 Stack Run 2

SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
																				Analyze according to the Ontario Hydro Method
Container 1 Filter	10/7/99	2011	X				I	BH									X			Filter 47Q43
Container 2 0.1 N HNO_3 FW	10/7/99	2015	X				I	BH									X			Container 2A not recovered
Container 3 10% HNO_3 Rinse Imp. 1,2,3	10/7/99	2023	X				II	BH									X			
Container 4 0.1 N HNO_3 Rinse Imp. 4	10/7/99	2027	X				I	BH									X			
Container 5 0.1 N HNO_3 Rinse Imp. 5,6,7	10/7/99	2034	X				I	BH									X			Used Hydroxylamine sulfate/sodium chloride

Received by:	Date:	Time:	Transported by: BH	Date: 10/8/99	Time: 1100	Received at Lab by: [signature]	Date: 10/11/99	Time: 0900
Analyzed by:	Date:	Time:	Data Reviewed by: [initials]	Date: 11/11/99	Time:	Remarks: PM/Metco M. Baxter 10/15/99		

Ship to: Test America

METCO ENVIRONMENTAL

Job# 99-186 Unit Tested Unit 2

CHAIN OF CUSTODY RECORD

Page # 1/1

Facility Name/Location
Texas New Mexico Power Company
TNP-One Plant
Bremond, Texas

Collected By/Company
METCO Environmental

Unit 2 Baghouse Inlet Duct SAMPLE I.D. Run 2	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
Container 1 Filter	10/7/99	2044	X				III	BH									X			Analyze according to the Ontario-Hydro Method
Container 2 0.1 N HNO_3 F.W.	10/7/99	2047	X				I	BH									X			Container 2A not recovered
Container 3 10% HNO_3 Rinse Imp. 1,2,3	10/7/99	2055	X				II	BH									X			
Container 4 0.1 N HNO_3 Rinse Imp. 4	10/7/99	2058	X				I	BH									X			
Container 5 0.1 N HNO_3 Rinse Imp. 5,6,7	10/7/99	2106	X				I	BH									X			Used Hydroxylamine sulfate / sodium chloride

Received by:	Date:	Time:	Transported by: BH	Date: 10/8/99	Time: 0800	Received at Lab by: Douglas R Scattaffy	Date: 10/8/99	Time: 0900
Analyzed by:	Date:	Time:	Data Reviewed by: DDP	Date: 1/11/99	Time:	Remarks: pm/Metco M. Ganter 10/15/99		

Ship to: Test America

METCO ENVIRONMENTAL

Job# 99-186 Unit Tested Unit 2 — CHAIN OF CUSTODY RECORD — Page # 1/1

Facility Name/Location: Texas-New Mexico Power Company, TNP-ONE, Bremand, TX

Collected By/Company: METCO Environmental

Unit 2 Stack Blank Train SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
																				Analyze according to the Ontario Hydro Method.
Container 1 Filter	10/8/99		X																	Not Recovered.
Container 2 0.1 N HNO_3 F.W.	10/8/99		X																	Not Recovered.
Container 2A Acetone F.W.	10/8/99		X																	Not Recovered.
Container 3 10% HNO_3 Rinse Imp 1,2,3	10/8/99	0930	X				I	BH									X			
Container 4 0.1 N HNO_3 Rinse Imp 4	10/8/99	0932	X				I	BH									X			
Container 5 0.1 N HNO_3 Rinse Imp 5,6,7	10/8/99	0942	X				I	BH									X			Used Hydroxylamine sulfate / Sodium Chloride

SAMPLE ANALYSIS REQUIRED

Received by:	Date:	Time:	Transported by: BH	Date: 10/8/99	Time: 1100	Received at Lab by:	Date: 10/11/99	Time: 0900
Analyzed by:	Date:	Time:	Data Reviewed by: MB	Date: 11/11/99	Time:	Remarks:		

Ship to: Test America.

METCO ENVIRONMENTAL

Job# 99-186 Unit Tested Unit 2 **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location: Texas-New Mexico Power Company TNP-ONE Brennand, TX

Collected By/Company: METCO Environmental

Unit 2 Baghouse Inlet Duct Blank Train SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED: RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
																				Analyze according to the Ontario Hydro Method. Blank Train Run Time 0645-0830 10-8-99
Container 1 Filter	10/8/99		X																	Not recovered.
Container 2 0.1 N HNO_3 F.W.	10/8/99		X																	Not recovered
Container 2A Acetone F.W.	10/8/99		X																	Not recovered
Container 3 10% HNO_3 Rinse Imp 1,2,3	10/8/99	0847	X				I	BH									X			
Container 4 0.1 N HNO_3 Rinse Imp 4	10/8/99	0854	X				I	BH									X			
Container 5 0.1 N HNO_3 Rinse Imp 5,6,7	10/8/99	0901	X				I	BH									X			Used Hydroxylamine Sulfate / Sodium Chloride

Received by:	Date:	Time:	Transported by: BH	Date: 10/8/99	Time: 1100	Received at Lab by:	Date: 10/11/99	Time: 0900
Analyzed by:	Date:	Time:	Data Reviewed by:	Date: 11/11/99	Time:	Remarks:		

Ship to: TestAmerica

METCO ENVIRONMENTAL

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Job# 99-186 Unit Tested Unit 2 — CHAIN OF CUSTODY RECORD — Page # 1/1

Facility Name/Location: Texas-New Mexico Power Company, TNP-ONE, Bremond, TX

Collected By/Company: METCO Environmental

SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	METALS	Hg			REMARKS (Specific Compounds/Methods)
Reagent Blanks																				Analyze according to the procedure in the Ontario Hydro Method.
Container 7 0.1 N HNO_3 Blank	10/8/99	1052					I	BH									X			Vol. = 50 ml
Container 8 1 M KCl Blank	10/8/99	1054					I	BH									X			Vol. = 50ml
Container 9 5% HNO_3 - 10% H_2O_2 Blank	10/8/99	1036					I	BH									X			Vol. = 50 ml
Container 10 H_2SO_4 - $KMnO_4$ Blank	10/8/99	1051					I	BH									X			Vol. = 50 ml
Container 4 Hydroxylamine Sulfate/ Sodium Chloride	10/8/99	1030	X				I	BH									√			Vol. = 100 ml.
Container 12 Filter Blank	10/8/99	1044					II	BH									X			Thimbles: Q29, Q30, Q31 Filters: 47Q48, 47Q49, 47Q50

Received by:	Date:	Time:	Transported by:	Date:	Time:	Received at Lab by:	Date:	Time:
			BP	10/8/99	1100	[signature]	10/11/99	0900
Analyzed by:	**Date:**	**Time:**	**Data Reviewed by:**	**Date:**	**Time:**	**Remarks:**		
			[signature]	11/11/99				

Ship to: TestAmerica

METCO ENVIRONMENTAL

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MACTEC ENVIRONMENTAL

CHAIN OF CUSTODY RECORD

Job No: 99-186
Job Name: Texas-New Mexico Power Company
Location: Bremond, TX
Unit: Unit 2

Collected By/Company: TNP

SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# of CONTAINERS	SAMPLE ANALYSIS REQUIRED: RECOVERED BY	PART	HCL	CL2	METALS	PCDD/PCDF	SEMI--VOC	VOST	HEXCHROME	Hg	Flyash	BTU	*REMARKS (Specific Compounds/Methods)
Run 1 Composite	10/7/99				X		I	EY BB			X						X	X	X	Time not recorded DRB
Run 2 Composite	10/7/99				X		I	BB			X						X	X	X	1645-2000 DRB
Run 3 Composite	10/8/99				X		I	BB			X						X	X	X	0745-1045 DRB
Grab Flyash	10/7/99					X	I EX	EY			X						X			Archive for analyze if high Hg in fuel.
Grab Flyash	10/8/99					X	I BB	BB			X						X			archived @ Metco DRB

*REMARKS (Specific Compounds/Methods): Analyze according to ASTM D6414-99 A, D-3286, D-5016, D-3174

Relinquished By/Sign:	Date/Time	Received By/Sign: Bill Lufty 10/8/99	Relinquished By/Sign:	Date/Time 10/11/990900	Received By/Sign: DRSalbaff
Relinquished By/Sign:	Date/Time	Received By/Sign:	Relinquished By/Sign:	Date/Time	Received By/Sign:
Received for Laboratory By/Signature:		Date/Time DRP 11/11/99	Send Samples to: TestAmerica Phone:		Fax:

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APPENDIX G

Resumes

BILLY J. MULLINS, JR.; President

Education	Post Graduate Study Environmental Engineering at Southern Methodist University; Dallas, Texas 1970. M.S. 1969, New York University; New York, New York, in Civil Engineering (Air Resources). B.S. 1968, Texas Tech University; Lubbock, Texas, in Civil Engr. (Water Resources). Studies in Engineering at U.S. Naval Academy; Annapolis, Maryland, 1963-1964.
Professional Training Courses	Attended Short Course on Air Pollution Engineering at the University of Texas at Austin, February 1970. Attended four-week management course presented by the American Management Association, 1976.
Certification	Registered Professional Engineer Certified Visible Emissions Evaluator Licensed Private Pilot (Multi-Engine-Land, Instrument) Diplomat in the American Academy of Environmental Engineers Inductee into the Stack Sampling Hall of Fame Certified as Qualified Environmental Professional (QEP)
Professional Memberships	**Air & Waste Management Association** - Past Chairman, Past Vice Chairman, and Past Board of Directors of North Texas Chapter and Southwest Section; Past Chairman, Consultants Committee; Past Chairman, Source Measurement Committee **Source Evaluation Society** - Past President, Past Board of Directors **American Management Association**

MULLINS

Publications

Co-authored "Sulfur Compound Emissions of the Petroleum Production Industry," December 1974.

Co-authored "Field Procedure for Stabilizing Hydrogen Sulfide Samples to be Analyzed Using Modified Methylene Blue Technique," presented at the Conference on Ambient Air Quality Measurements, Austin, Texas, March 1975.

Co-authored "Atmospheric Emissions Survey of the Sour Gas Industry," October 1975.

Co-authored "Technique for Insuring the Validity of Samples for High Concentrations of Sulfur Dioxide Using the EPA Method 5 Sampling Train," presented at the Third National Conference on Energy and the Environment, College Corner, Ohio, September 1975.

Teaching Experience

Conducted training seminars on sampling methods periodically since 1974 to present.

Conducted a one-day seminar on Part 75 Testing over ten times in 1993 and 1994.

Served as a lecturer in the Environmental Protection Agency's training course number 450, "Source Sampling for Particulate Pollutants," for two years from January 1974 to October 1975 and in March, 1992.

Conducted a two-day training course entitled "Technical Assistance in Source Sampling" at Iowa State University, Ames, Iowa, for the Environmental Protection Agency, October 1974.

Conducted EPA's training course number 450, "Source Sampling for Particulate Pollutants," for the EPA at Research Triangle Park, North Carolina, September 1975.

MULLINS

Teaching Experience (Cont'd)

Conducted a two-day short course entitled "Performing and Observing Source Sampling" at Dallas, Texas; July 1976, May 1977, October 1977, November 1987 and November 1988; at Lake Charles, Louisiana, May 1977; at Casper, Wyoming, May 1977; and at Point Comfort, Texas, November 1992.

Served as a lecturer in the Environmental Protection Agency's two-day seminar entitled "Asphalt Industry Environmental Solutions," presented in Dallas, Texas, on March 21 and 22, 1979.

Conducted a two-day short course entitled "Performing and Observing Source Sampling" in Phoenix, Arizona in August, 1990 for the State of Arizona, Department of Environmental Quality; in Lincoln, Nebraska, in March 1980 for the State of Nebraska, Air Quality Control Division.

Technical Experience

Directed and performed stack sampling on over 2000 sources of which over 500 were sampled simultaneously using more than one sampling train at several points in the flue gas stream; 1972-present.

Directed and performed over 200 short-term ambient air studies using mobile sampling vans and various ambient air sampling equipment; 1972-present.

Designed, directed and operated over 20 permanent ambient air networks of various size and duration for a variety of parameters; 1972-present.

Designed surface and underground drainage systems for residential subdivisions, public works projects, and shopping centers; 1969-1972.

Designed several residential subdivisions including lot layout, street design, drainage design, and utility design; 1969-1972.

MULLINS

Research Projects

Supervised and conducted a study made by the Hawaiian Sugar Planters' Association to characterize the emissions for several bagasse-fired boilers. April-May 1976.

Supervised and conducted a study made by the Rio Grande Valley Sugar Growers, Inc. to determine the area affected by the burning of sugarcane fields prior to harvesting. November 1974-April 1975.

Supervised and conducted a study by a lightweight aggregate manufacturer to develop a material balance around the process through sampling and analysis of several parameters. November 1973.

Conducted a study in New York City to attempt to develop a correlation in the ambient air between carbon dioxide and sulfur dioxide to provide a tool for predicting air pollution episodes. January-May 1969.

Related Projects

Served as Chairman of the Engineering Foundation Conference on Stack Sampling and Source Evaluation in Santa Barbara, California, 1985.

Served as Session Chairman at the Engineering Foundation Conference on Stack Sampling and Source Evaluation in Hershey, Pennsylvania, 1984; in San Diego, California, 1993; and in Palm Coast, Florida, 1994.

BILLY L. HEFLEY; Project Supervisor II

Education	B.S. 1991, East Central University; Ada, Oklahoma, in Environmental Science with a concentration in Environmental Management.
Professional Training Course	Attended 40-hour Occupational and Environmental Training Program on Hazardous Materials (CFR 1910.120) Dallas, Texas, April 1993. Also attended an 8-hour refresher course January 1994, February 1995, and January 1996. Attended 8-hour Safe Hazardous Materials Transportation Training Program (HM-126F and HM-181) Dallas, Texas, October 1994. Attended Bill Mullins' Performing and Observing Source Sampling Short Course; Dallas, Texas, January 1995.
Certification	Certified Visible Emissions Evaluator
Technical Experience	Participated in the sampling of over 150 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 1992-present. Participated in an auditing program for a permanent eight-station sulfur dioxide ambient air network in East Texas. 1992-1993. Participated in a semi-monthly ambient air monitoring survey for organic compounds at a petrochemical facility located in South Texas. 1992-1993.

HEFLEY

Thoroughly trained in all EPA testing procedures, 1991 - Present

Experienced in the analysis of commercial calibration gas cylinders for CO_2, O_2, NO_x, and SO_2.

Experienced with calibration techniques for all field testing equipment.

Thoroughly trained in the operation and routine maintenance of the following:

Thermo Environmental Model 10AR Oxides of Nitrogen Analyzer

Thermo Environmental Model 48 Carbon Monoxide Analyzer

Teledyne Model 326 Oxygen Analyzer

Western Research Model 721A Sulfur Dioxide Analyzer

Anarad Model AR880 Oxides of Nitrogen Analyzer

Anarad Model AR23 Oxygen Analyzer

Anarad Model AR30C2 Sulfur Dioxide Analyzer

Anarad Model AR50-C Carbon Dioxide Analyzer

SHANE LEE; Environmental Technician II

Education	B. S. - Environmental Science-Biology, December 20, 1997; Sul Ross State University; Alpine, Texas.
Technical Experience	Participated in the sampling of over 50 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 1998-present.

MICHAEL BASS; Environmental Technician III

Education	B. S. Geography, August 1998; Texas A&M University, College Station, Texas
Technical Experience	Participated in the sampling of over 100 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 1998-present.

SCOTT HART; Environmental Technician II

Education	Associate Degree-Environmental Science, March 1999; Texas State Technical College, Breckenridge, Texas
Technical Experience	Participated in the sampling of over 50 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA procedures, 1999-present.

JASON CONWAY; Environmental Technician II

Education	B.S. Biology, July 1999; Southeastern Oklahoma State University; Durant, Oklahoma.
Technical Experience	Participated in the sampling of over 50 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 1999-present.

JASON BROWN; Environmental Technician II

Education	B. S. in Zoology, 1995; University of Oklahoma, Norman, Oklahoma.
Technical Experience	Participated in the sampling of over 50 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 1999-present.