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/hr

lbs/hr = ug ÷ Vm_{std} x 2.205 x 10^{-9} lbs/ug x Qs x 60 min/hr

21. Mercury – lbs/10^{12} Btu

lbs/10^{12} Btu = lbs/hr ÷ 10^{12} Btu/hr

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER:	99-95WAB
JOB NAME:	CINERGY CORPORATION
LOCATION:	WEST TERRE HAUTE, INDIANA
UNIT TESTED:	WABASH RIVER HRSG STACK

SOURCE EMISSION CALCULATIONS

SYMBOL	DESCRIPTION	UNITS			
RUN #			1	2	3
DATE			10/12/99	10/12/99	10/12/99
BEGIN TIME			0900	1210	1525
END TIME			1125	1438	1827
P(b)	BAROMETRIC PRESSURE	"Hg Abs. (mm Hg)	29.49 (749)	29.46 (748)	29.36 (746)
P(m)	ORIFICE PRESSURE DROP	"H2O (mm H2O)	0.852 (21.6)	0.842 (21.4)	0.817 (20.8)
V(m)	VOLUME DRY GAS SAMPLED @ METER CONDITIONS	ft.^3 (m^3)	70.372 (1.993)	69.150 (1.958)	71.448 (2.023)
T(m)	AVERAGE GAS METER TEMPERATURE	DEG.F (DEG.C)	65 (18.00)	82 (28.00)	78 (26.00)
V(m[std])*	VOLUME DRY GAS SAMPLED @ STANDARD CONDITIONS*	DSCF (DSCM)	69.917 (1.980)	66.479 (1.882)	68.960 (1.953)
V(w)	TOTAL WATER COLLECTED, IMPINGERS & SILICA GEL	ml	250.7	238.0	233.7
V(w[gas])	VOLUME WATER VAPOR COLLECTED @ STANDARD CONDITIONS*	SCF (SCM)	11.833 (0.335)	11.234 (0.318)	11.031 (0.312)
%M	MOISTURE IN STACK GAS BY VOLUME	%	14.47	14.46	13.79
Tt	NET TIME OF TEST	MINUTES	128	128	128

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

SOURCE EMISSION CALCULATIONS

CINERGY CORPORATION
WEST TERRE HAUTE, INDIANA
WABASH RIVER HRSG STACK

SYMBOL	DESCRIPTION	UNITS			
Md	MOL FRACTION OF DRY GAS		0.8553	0.8554	0.8621
CO2		%	9.2	9.0	9.2
O2		%	13.6	14.0	13.6
CO		%	0.0	0.0	0.0
N2		%	77.2	77.0	77.2
%EA	EXCESS AIR @ SAMPLING POINT	%	198.3	218.6	198.3
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	30.02 (30.02)	30.00 (30.00)	30.02 (30.02)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.28 (28.28)	28.26 (28.26)	28.36 (28.36)
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	2.075 (52.7)	2.063 (52.4)	1.991 (50.6)
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	359 (182)	335 (168)	353 (178)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg)	29.41 (747)	29.34 (745)	29.25 (743)
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	5,895 (29.95)	5,793 (29.43)	5,754 (29.23)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	36,263 (23.40)	36,263 (23.40)	36,263 (23.40)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR)	807,574 (1,372,068)	815,708 (1,385,888)	796,034 (1,352,462)
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	1,484,607 (2,522,347)	1,458,829 (2,478,550)	1,449,109 (2,462,036)

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

SOURCE EMISSION CALCULATIONS

CINERGY CORPORATION
WEST TERRE HAUTE, INDIANA
WABASH RIVER HRSG STACK

SYMBOL	DESCRIPTION	UNITS			
Tt	NET TIME OF TEST	MINUTES	128	128	128
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.174 (0.004)	0.172 (0.004)	0.174 (0.004)
%I	PERCENT ISOKINETIC	%	103.5	99.7	103.6
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 99-95 WAB ✓
Job Name EPRI ✓
Run Number 1 ✓
Unit Wabash River HRSG Stack ✓
Date 10-12-99 ✓
Operator Brown / Conway / Hefley ✓
Sample Box No. Hg2 Meter Box No. ~~27~~
ΔP_s 27.2 P_m

Hg Field Data

Read and record at the start of each test point.

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

Ambient Temp. °F 65
Assumed Moisture % 12.8
Probe Length 8'
C Factor 0.39 to 0.05 to reference
Initial Leak @ 15.00 "Hg = 0.001 cfm
Final Leak @ 12.00 "Hg = 0.001 cfm

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
A4	0900	854.701	2.40	0.99	0.99	9.00	358	274	253	61	60	60	315	filter 47Q51
4	0904	857.14	2.40	0.99	0.99	9.00	356	274	253	58	60	60	315	
A3	0908	859.41	2.20	0.91	0.91	8.00	357	285	253	55	60	60	315	Integrated
3	0912	861.64	2.30	0.95	0.95	8.50	358	290	253	54	61	61	315	Orsat
A2	0916	863.86	2.10	0.86	0.86	8.00	358	290	253	53	61	61	315	
2	0920	866.02	2.10	0.86	0.86	8.00	358	290	253	53	61	61	315	
A1	0924	868.17	1.50	0.62	0.62	6.50	358	290	253	53	61	61	315	
1	0928	870.09	1.50	0.62	0.62	6.50	358	290	253	53	61	61	315	
END	0932	871.840	—	—	—	—	—	—	—	—	—	—	—	
B4	0935	871.840	2.40	0.99	0.99	8.00	358	290	253	53	61	61	315	
4	0939	874.04	2.40	0.99	0.99	8.00	358	290	253	53	61	61	315	
B3	0943	876.33	2.20	0.91	0.91	7.50	358	288	253	51	61	61	315	
3	0947	878.55	2.20	0.91	0.91	7.50	366	288	253	51	61	61	315	
B2	0951	880.76	2.10	0.86	0.86	7.50	366	285	253	53	62	62	315	
2	0955	882.91	2.10	0.86	0.86	7.50	366	285	253	53	62	62	315	
B1	0959	885.09	1.50	0.62	0.62	6.00	366	285	253	54	62	62	315	
1	1003	886.89	1.50	0.62	0.62	6.00	366	285	253	54	62	62	315	leak √good
END	1007	888.712	—	—	—	—	—	—	—	—	—	—	—	

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 70.372 ✓ ft^3
Water Collected V_w ~~250.8~~ 250.7 ml
Time of Test T_t 128 min.
Stack Pressure P_s -1.10 H_2O

Pitot Tube No. M-2 ✓
Baro. Press. P_b 29.49 "Hg
Probe Tip Dia. D_n 0.174 ✓ in.
% CO_2 9.2 % CO 0.0
% O_2 13.6 % N_2 77.2
Area Stack A_s 36,263 ✓ in^2

Barometer No. 19-2 ✓
Probe Tip No. TFE1-6 ✓
Total Volume of Leak Checks After Start: 0.338 ft^3
V_m = Dry Gas Meter Calibration Factor ~~68.727~~ 68.389 X 1.029 ✓

[Dry Gas Meter Reading — ft^3 - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. Hs 2

			Water Weight Gain		
Impinger 1	Final Weight	862.3	Imp. 8	Impinger 1	117.8
	Initial Weight	744.5	final 923.7	Impinger 2	~~98.4~~ 98.8
	Increase	117.8	2nd t. 910.2	Impinger 3	11.5
Impinger 2	Final Weight	848.7	13.5	Impinger 4	5.2
	Initial Weight	749.9	V_w =	Impinger 5	2.0
	Increase	~~98.9~~ 98.8	g SO_2 = -	Impinger 6	1.2
Impinger 3	Final Weight	734.8	V_w =	Impinger 7	0.7
	Initial Weight	723.3		Imp 8	13.5
	Increase	11.5		Total	~~250.8~~ 250.7 = V_w
Impinger 4	Final Weight	759.5			
	Initial Weight	754.3			
	Increase	5.2			
Impinger 5	Final Weight	677.2	P_b = ~~70.372~~ 29.49 (DB)	$\%CO_2$ =	9.2
	Initial Weight	675.2	V_m = 70.372	$\%O_2$ =	13.6
	Increase	2.0	V_w = ~~250.8~~ 250.7	%CO =	0.0
			P_m = 0.852	$\%N_2$ =	77.2
Impinger 6	Final Weight	752.0	Avg ΔP = 2.075	A_s =	36,263
	Initial Weight	750.8		D_n =	0.174
	Increase	1.2	Avg $\sqrt{\Delta P}$ = 1.435	T_t =	128
			C_p = 0.808		
Impinger 7	Final Weight	684.5	P_s = -1.10 "H_2O		29.41 "Hg
	Initial Weight	683.8	T_m = 65 °F		525 °R
	Increase	0.7	T_s = 359 °F		819 °R

Moisture Content: %M = ~~14.5~~ ~~14.48~~ 14.47 (BH) M_d = ~~0.8553~~ 0.8550 (BH) MW_d = 30.016 MW = ~~28.28~~ 28.28

0.8553

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 70.372 \left[\frac{29.49 + \frac{0.852}{13.6}}{65 + 460}\right] = \frac{69.917}{0.546}\ \text{sft}^3/\text{scfm}$$

$Vw_{gas} = 0.0472 \times Vw = 0.0472 \times$ ~~250.8~~ 250.7 = ~~11.838~~ 11.833 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{11.838}{69.917 + 11.838} \times 100 =$ ~~14.5~~ (BH) ~~14.48~~ 14.47 %

$V_s = 5123.8 \times 0.808 \sqrt{\frac{819}{29.41 \times 28.28}} \times 1.435 =$ ~~5896~~ 5895 fpm

ACFM: ~~142,486~~ 142,467

SCFM: ~~807,428~~ 807,574

%I = $\frac{1{,}039 \times 69.917 \times 819}{29.41 \times 0.8550 \times 5896 \times 128 \times (0.174)^2} =$ ~~103.6~~ 103.5 (BH) %

0.8553 5895

%EA: 198.3

Run Number 1 — Hg — FIELD DATA

Unit Wabash River HRSG Stack

Date 10-12-99

			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
~~C4~~		~~888.712~~												leak ✓ good
C4	1019	889.050	2.40	0.99	0.99	8.00	362	294	253	56	65	65	312	@ 15" Hg
4	1023	891.30	2.40	0.99	0.99	8.00	362	296	253	56	65	65	312	0.338 ✓
C3	1027	893.64	2.20	0.91	0.91	7.50	362	300	253	53	66	66	312	
3	1031	895.87	2.20	0.91	0.91	7.50	362	300	253	53	66	66	312	
C2	1035	898.10	2.10	0.86	0.86	7.50	362	300	253	53	68	68	312	
2	1039	900.27	2.10	0.86	0.86	7.50	364	300	253	53	68	68	315	
C1	1043	902.42	1.50	0.62	0.62	6.00	360	300	253	53	68	68	315	
1	1047	904.30	1.50	0.62	0.62	6.00	360	300	253	56	68	68	315	
END	1051	906.084	—	—	—	—	—	—	—	—	—	—	—	
D4	1053	906.084	2.50	1.00	1.00	8.00	355	300	253	56	69	69	315	
4	1057	908.36	2.50	1.00	1.00	8.00	355	300	253	56	69	69	315	
D3	1101	910.70	2.50	1.00	1.00	8.00	355	300	253	56	70	70	315	
3	1105	913.01	2.40	0.99	0.99	8.00	355	300	253	56	70	70	315	
D2	1109	915.33	2.10	0.86	0.86	7.50	350	300	253	56	70	70	315	
2	1113	917.53	2.10	0.86	0.86	7.50	350	300	253	56	71	71	315	
D1	1117	919.72	1.50	0.62	0.62	6.00	350	300	253	60	72	72	315	
1	1121	421.64	1.50	0.62	0.62	6.00	350	300	253	60	72	72	315	
END	1125	923.428	—	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 99-95 WAB ✓
Job Name EPRI ✓
Run Number 2 ✓
Unit Wabash River HRSG Stack ✓
Date 10-12-99 ✓
Operator Hart | ~~Conway~~ | Hosley ✓
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 75
Assumed Moisture % 13
Probe Length 8'
C Factor 0.39 to 0.05 to reference
Initial Leak @ 15.00 "Hg = 0.002 cfm
Final Leak @ 19.00 "Hg = 0.003 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	
D4	1210	927.005	2.50	1.00	1.00	10.0	328	279	251	58	77	77	288	filter 47Q52
4	1214	929.245	2.50	1.00	1.00	10.0	315	292	251	56	77	78	289	
D3	1218	931.515	2.50	1.00	1.00	10.0	316	305	252	55	77	76	296	Integrated
3	1222	933.800	2.50	1.00	1.00	10.0	317	301	251	54	77	78	299	Orsat
D2	1226	936.135	2.00	0.82	0.82	9.0	316	290	252	54	77	79	300	
2	1230	938.075	2.00	0.82	0.82	9.0	318	280	252	53	78	79	303	
D1	1234	940.410	1.50	0.62	0.62	7.0	313	270	252	54	78	80	303	
1	1238	942.290	1.50	0.62	0.62	7.0	313	267	252	54	78	79	303	
End	1242	944.140	—	—	—	—	—	—	—	—	—	—	—	
C4	1245	943.140	2.50	1.00	1.00	9.0	350	303	251	59	81	80	300	
4	1249	945.255	2.50	1.00	1.00	10.0	352	312	251	54	80	81	300	
C3	1253	947.575	2.20	0.90	0.90	9.5	363	319	251	53	81	80	298	
3	1257	949.850	2.20	0.90	0.90	9.5	360	310	252	53	81	81	298	
C2	1301	952.055	1.90	0.81	0.81	9.0	362	290	252	52	81	82	297	
2	1305	954.285	1.90	081	0.81	9.0	363	273	251	53	80	81	295	
C1	1309	956.400	1.70	0.70	0.70	8.0	361	285	251	52	80	80	296	
1	1313	958.430	1.70	0.70	0.70	8.0	360	288	251	52	80	81	296	
End	1317	960.491	—	—	—	—	—	—	—	—	—	—	—	leak ✓ good

Pitot Tube Calibration Factor C_p 0.808 ✓
Volume Collected V_m 69.150 ✓ ft³
Water Collected V_w 238.0 ✓ ml
Time of Test T_t 128 ✓ min.
Stack Pressure P_s −1.70 "H_2O"

Pitot Tube No. M2 ✓
Baro. Press. P_b 29.48 ✓ "Hg
Probe Tip Dia. D_n 0.172 ✓ in.
% CO_2 9.0 ✓ % CO 0.0 ✓
% O_2 14.0 ✓ % N_2 77.0
Area Stack A_s 36,263 ✓ in²

Barometer No. 19-2 ✓ Probe Tip No. TFE II-6a ✓
Total Volume of Leak Checks After Start: 0.267 ft³
V_m = Dry Gas Meter Calibration Factor ~~67.460~~ 67.201 X 1.029 ✓

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

Impinger Box No. Hs 4

			Water Weight Gain		
Impinger 1	Final Weight	~~842.8~~ 939.7 (BH)	Imp. 8	Impinger 1	~~95.0~~ 192.5 (BH)
	Initial Weight	742.2	final 858.2	Impinger 2	28.1
	Increase	~~95.0~~ 192.5	init 850.7	Impinger 3	5.2
Impinger 2	Final Weight	784.3	7.5	Impinger 4	4.3
	Initial Weight	756.2	V_w =	Impinger 5	-0.7
	Increase	28.1	g SO_2 = -	Impinger 6	1.1
Impinger 3	Final Weight	664.9	V_w =	Impinger 7	0.0
	Initial Weight	659.7		Impinger 8	7.5
	Increase	5.2		Total	~~111.1~~ 238.0 = V_w (BH)
Impinger 4	Final Weight	760.0			
	Initial Weight	755.7			
	Increase	4.3			
Impinger 5	Final Weight	753.1	P_b = 29.46	%CO_2 = 9.0	
	Initial Weight	753.8	V_m = 69.150	%O_2 = 14.0	
	Increase	-0.7	V_w = ~~111.1~~ 238.0	%CO = 0.0	
			P_m = 0.842	%N_2 = 77.0	
Impinger 6	Final Weight	763.2	Avg ΔP = 2.063	A_s = 36.263	
	Initial Weight	762.1		D_n = 0.172	
	Increase	1.1	Avg$\sqrt{\Delta P}$ = 1.429	T_t = 128	
			C_p = 0.808		
Impinger 7	Final Weight	762.4	P_s = -1.70 "H_2O	29.34 "Hg	
	Initial Weight	762.4	T_m = 82 °F	542 °R	
	Increase	0	T_s = 335 °F	795 °R	

Moisture Content: %M = ~~9.11~~ (BH) 14.46 M_d = 0.8554 MW_d = 30.000 MW = 28.26

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times 69.150 \left[\frac{29.46 + \frac{0.842}{13.6}}{82 + 460}\right] = \frac{66.479}{0.554}\ \frac{sft^3}{scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x ~~111.1~~ 238.0 (BH) = ~~6.660~~ 11.234 sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{\text{~~6.660~~ 11.234}}{\text{66.479 ~~+6.660~~ 11.234}}$ x 100 = ~~9.11~~ 14.46 %

V_s = 5123.8 x $\sqrt{\frac{0.808}{\frac{795}{29.34 \times 28.26}}}$ x 1.429 = 5793 fpm

ACFM: 1,458,829

SCFM: 815,708

%I = $\frac{1{,}039 \times 66.479 \times 795}{29.34 \times 0.8554 \times 5793 \times 128 \times (0.172)^2}$ = 99.7 %

%EA: 218.6

Run Number 2 — Hg — FIELD DATA

Unit Wabash River HRSG Stack

Date 10-12-99

			ΔP_s		P_m		T_s					T_m		
Point	Clock Time	960.758 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
B4	1330	~~960.758~~	2.50	1.00	1.00	14.0	339	256	252	58	82	81	295	leak ✓ good
4	1334	962.955	2.50	1.00	1.00	14.0	330	261	252	54	83	82	296	@ 10" Hg
B3	1338	965.235	2.10	~~1.00~~ 0.90	~~1.00~~ 0.90	13.5	330	270	251	55	81	83	295	0.247 ✓
3	1342	967.510	2.10	0.90	0.90	13.5	322	266	252	54	85	84	295	
B2	1346	969.725	1.90	0.79	0.79	13.0	316	266	252	52	83	83	296	
2	1350	971.830	1.90	0.79	0.79	12.0	319	263	252	53	85	83	292	
B1	1354	973.930	1.30	0.54	0.54	9.5	323	260	251	52	84	84	295	
1	1358	975.750	1.40	0.54	0.54	9.0	328	258	251	54	84	85	296	
End	1402	977.457	—	—	—	—	—	—	—	—	—	—	—	
A4	1406	977.457	2.50	1.00	1.00	15.5	322	280	252	57	86	87	297	
4	1410	979.550	2.50	1.00	~~0.83~~ 1.00	17.0	328	287	252	55	85	85	297	
A3	1414	981.775	2.40	0.99	0.99	16.0	349	305	251	53	87	86	294	
3	1418	984.140	2.40	0.99	0.99	16.0	351	322	251	51	85	86	295	
A2	1422	986.445	2.00	0.82	0.82	14.0	322	297	251	53	85	86	297	
2	1426	988.785	2.10	0.82	0.82	14.0	327	277	251	54	85	86	296	
A1	1430	990.825	1.40	0.58	0.58	11.0	351	266	252	54	86	85	299	
1	1434	992.720	1.40	0.58	0.58	10.0	344	260	252	55	85	86	304	
End	1438	994.473	—	—	—	—	—	—	—	—	—	—	—	

METCO ENVIRONMENTAL

Job Number 99-95WAB
Job Name EPRI
Run Number 3
Unit Wabash River HRSG Stack
Date 10-12-99
Operator Conway / 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 75
Assumed Moisture % 13
Probe Length 8'
C Factor 0.39 to 0.05 to reference
Initial Leak @ 15.00 "Hg = 0.001 cfm
Final Leak @ 11.00 "Hg = 0.001 cfm

Point	Clock Time	Dry Gas Meter, CF	ΔP_s "Pitot" "H_2O	Orifice ΔH "H_2O Desired	P_m Orifice ΔH "H_2O Actual	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
A4	1525	996.377	2.10	0.86	0.86	8.00	353	289	251 ~~60~~	68	84	85	Filter 47 Q 56
4	1529	998.89	2.10	0.86	0.86	8.00	357	316	253	60	83	84	302
A3	1533	001.15	2.10	0.86	0.86	8.00	361	292	252	56	82	85	301
3	1537	003.22	2.10	0.86	0.86	8.00	352	272	250	54	84	85	303
A2	1541	005.37	2.10	0.86	0.86	8.00	355	261	254	55	82	85	299
2	1545	007.54	2.10	0.86	0.86	8.00	354	262	252	55	83	84	300
A1	1549	009.69	1.40	0.58	0.58	6.00	350	254	252	55	82	83	292
1	1553	011.61	1.40	0.58	0.58	6.00	351	250	251	55	82	83	287
END	1557	013.337	—	—	—	—	—	—	—	—	—	—	—
B4	1601	013.337	2.30	0.94	0.94	8.50	353	251	250	56	81	83	284
4	1605	015.36	2.30	0.94	0.94	8.50	354	252	253	54	81	82	281
B3	1609	017.59	2.10	0.86	0.86	8.00	351	260	252	54	81	83	282
3	1613	019.82	2.20	0.90	0.90	8.00	356	255	256	55	80	83	281
B2	1617	022.04	1.90	0.78	0.78	7.50	353	258	253	55	79	82	278
2	1621	024.14	1.90	0.78	0.78	7.50	358	253	251	54	80	82	278
B1	1625	026.21	1.40	0.58	0.58	6.00	360	250	254	55	80	81	274
1	1629	028.05	1.40	0.58	0.58	6.00	358	254	252	54	79	81	276
END	1633	029.706	—	—	—	—	—	—	—	—	—	—	— Leak ✓ Good at 10.50" Hg

Pitot Tube Calibration Factor C_p 0.808
Volume Collected V_m ~~71.00~~ ~~71.036~~ ft^3 71.448
Water Collected V_w ~~2337~~ 2337 ml
Time of Test T_t 128 min.
Stack Pressure P_s -1.50 "H_2O

Pitot Tube No. M2
Baro. Press. P_b 29.36 "Hg
Probe Tip Dia. D_n 0.174 in.
% CO_2 9.2 % CO 0.0
% O_2 13.6 % N_2 77.2
Area Stack A_s 36,263 in^2

Barometer No. 19.2
Probe Tip No. TFE 1-6
Total Volume of Leak Checks After Start: 0.640 ft^3
V_m = Dry Gas Meter Calibration Factor ~~69.674~~ 69.434 X 1.029

[Dry Gas Meter Reading — ft^3 - (T_t — min. X Leak Rate — cfm)]

Impinger Box No. Hg 2

Impinger 1	Final Weight	840.5
	Initial Weight	746.7
	Increase	93.8
Impinger 2	Final Weight	873.3
	Initial Weight	750.1
	Increase	123.2
Impinger 3	Final Weight	728.0
	Initial Weight	725.4
	Increase	2.6
		755.4
Impinger 4	Final Weight	~~750~~ 755.
	Initial Weight	754.2
	Increase	1.2
Impinger 5	Final Weight	672.1
	Initial Weight	671.5
	Increase	0.6
Impinger 6	Final Weight	747.0
	Initial Weight	746.7
	Increase	0.3
Impinger 7	Final Weight	682.2
	Initial Weight	682.4
	Increase	-0.2

Water Weight Gain

Imp. 8
final 935.8
Init. 923.6
12.2

V_w =
g SO_2 = -
V_w =

Impinger 1	93.8
Impinger 2	123.2
Impinger 3	2.6
Impinger 4	1.2
Impinger 5	0.6
Impinger 6	0.3
Impinger 7	-0.2
Imp 8	12.2
Total	~~233.1~~ 233.7 = V_w

P_b = 29.36 / $\%CO_2$ = 9.2 ✓
V_m = ~~71.036~~ 71.448 $\%O_2$ = 13.6 ✓
V_w = ~~233.1~~ 233.7 $\%CO$ = 0.0 ✓
P_m = 0.817 ✓ $\%N_2$ = 77 ✓
Avg ΔP = 1.991 ✓ A_s = 36,263 ✓
D_n = 0.174 ✓
Avg $\sqrt{\Delta P}$ = 1.404 ✓ ~~1.528~~ T_t = 128 ✓
C_p = 0.808
P_s = -1.50 "H_2O 29.25 ✓ "Hg
T_m = 78 ✓ °F 538 ✓ °R
T_s = 353 ✓ °F 813 ✓ °R

12.79 ✓ 0.8621 ✓

Moisture Content: %M = ~~13.76~~ M_d = ~~0.8624~~ MW_d = 30.016 ✓ MW = 28.36 ✓

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65 \times \frac{71.448}{71.036}\left[\frac{29.36 + \frac{0.817}{13.6}}{78 + 460}\right] = \frac{68.960}{\sim\sim 68.562 \sim\sim} \text{ sft}^3 \checkmark$$
$$\frac{\sim\sim 0.536 \sim\sim}{0.539} \text{ scfm} \checkmark$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x ~~233.1~~ 233.7 = ~~11.002~~ 11.031 sft³ ✓

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{11.002}{68.960 \sim\sim 68.562 \sim\sim + 11.002}$ x 100 = ~~13.76~~ 13.77 %

V_s = 5123.8 x $\sqrt{\frac{0.808}{\frac{813}{29.25 \times 28.36}}}$ x 1.404 = 5754 fpm ✓

ACFM: 1,449,109 ✓ 796,034 ✓

SCFM: ~~796,311~~

%EA: 198.3 ✓

%I = $\frac{1,039 \times \sim\sim 68.562 \sim\sim \times 813}{29.25 \times 0.8624 \times 5754 \times 128 \times (0.174)^2}$ = 103.6 % ✓

0.8621

Run Number 3 Hg FIELD DATA

Unit Wabash River HRSG Stack

Date 10-12-99

			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 0.1= Remarks
C4	~~1644~~ 1707	030.346	2.40	0.98	0.98	8.50	350	251	253	62	75	76	Leak ✓ Good at 12" Hg
C4	1710	031.884	—	—	—	—	—	—	—	—	—	—	— Lost Power
~~C4~~	~~1715~~	~~031.884~~	~~2.40~~	~~0.98~~	—	—	—	—	—	—	—	—	— Lost Power
C4	1718	~~031.884~~ 032.71	2.40	0.98	0.98	8.50	351	253	~~255~~	62	75	76	276
4	1719	32.71	2.40	0.98	0.98	8.50	350	253	256	61	75	76	275 0.640 ✓
C3	1723	035.00	2.20	0.90	0.90	8.00	349	256	254	60	75	76	276
3	1727	037.26	2.20	0.90	0.90	8.00	346	255	253	55	74	76	281
C2	1731	039.49	1.90	0.78	0.78	7.50	353	256	257	57	74	75	283
2	1735	041.09	2.00	0.81	0.81	7.50	353	254	257	56	74	75	280
C1	1739	043.85	1.50	0.61	0.61	6.50	355	251	259	53	74	75	281
1	1743	045.67	1.30	0.57	0.57	6.00	356	253	260	54	73	74	279
END	1747	047.294	—	—	—	—	—	—	—	—	—	—	—
D4	1751	047.294	2.40	~~0.86~~ 0.98	0.98	8.50	354	250	265	52	73	75	277
4	1755	049.50	2.50	1.02	1.02	9.00	350	252	263	50	73	74	276
D3	1759	051.86	2.40	0.98	0.98	9.00	353	253	261	49	73	74	274
3	1803	054.18	2.40	0.98	0.98	9.00	354	251	262	50	73	74	275
D2	1807	056.50	1.80	0.74	0.74	7.50	356	253	260	51	73	74	273
2	1811	058.70	1.80	0.74	0.74	7.50	352	252	259	50	73	72	270
D1	1815	060.61	1.40	0.58	0.58	6.50	351	251	257	51	74	73	272
1	1819	062.44	1.40	0.58	0.58	6.50	348	255	256	51	72	72	270
1	1823	064.23	2.40	0.98	0.98	9.00	350	256	254	51	72	73	278
END	1827	066.451	—	—	—	—	—	—	—	—	—	—	—

PRELIMINARY VELOCITY TRAVERSE DATA
AND
SAMPLING LOCATION DATA

Job Number 99-95 W17B

Job Name Cinergy

Sampling Location Wabash River HRSG Stack

Date 10-11-99 Time 1730

Stack Height ~228 4" ft.

Sampling Port Height Above Ground ~191'2" ft.

	Port A	Port B	Port C	Port D	Average
Port & Inside Diameter (in.)	223 7/8" ~~206.9~~	~~20~~ 223 7/8"	223 7/8"	223 7/8"	223 7/8"
Port & Wall Thickness (in.)	~~8~~ 9"	~~8~~ 9	8 9"	8 9"	9"
Inside Stack Diameter (in.)	214 7/8" ~~198.9~~	214 7/8"	214 7/8"	214 7/8"	214 7/8"

Sampling Ports are 120 ft. 11 in.

Sampling Ports are 36 ft. 11 in.

(6.75 stack diameters) downstream from disturbance (inlet, constriction, bend, expansion)

(2.06 stack diameters) upstream from disturbance (outlet, constriction, bend, expansion)

Point Number	Percent of 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	3.2	6.876	6 7/8	1.40 /330/ +2°	1.30 /341/ 0°	1.30 /336/ -5°	1.40 /325/ -8°
2	10.5	22.562	22 9/16	2.00 /335/ +4°	1.90 /346/ -2°	2.10 /340/ -5°	2.00 /332/ -8°
3	19.4	41.686	41 11/16	2.40 /337/ +4°	2.00 /347/ -5°	2.10 /341/ -8°	2.20 /333/ -5°
4	32.3	69.405	69 3/8	2.50 /339/ +4°	2.20 /346/ -5°	2.10 /341/ -5°	2.30 /334/ -5°
5				/ /	/ /	/ /	/ /
6				/ /	/ /	/ /	/ /
7				/ /	/ /	/ /	/ /
8				/ /	/ /	/ /	/ /
9	* Calculated as 1/2			/ /	/ /	/ /	/ /
10	of an eight point			/ /	/ /	/ /	/ /
11	Traverse.			/ /	/ /	/ /	/ /
12				/ /	/ /	/ /	/ /
13				/ /	/ /	/ /	/ /
14				/ /	/ /	/ /	/ /
15				/ /	/ /	/ /	/ /
16				/ /	/ /	/ /	/ /
17				/ /	/ /	/ /	/ /
18				/ /	/ /	/ /	/ /
19				/ /	/ /	/ /	/ /
20				/ /	/ /	/ /	/ /
21				/ /	/ /	/ /	/ /
22				/ /	/ /	/ /	/ /
23				/ /	/ /	/ /	/ /
24				/ /	/ /	/ /	/ /

Pitot Tube No. M4

C_p = 0.808

P_b = 29.57 "Hg

P_s = -1.5 "H_2O 29.46 "Hg

A_s = 36,263 in.²

Average ΔP 1.944

Average $\Delta P^{1/2}$ 1.387

Average T_x ~~317~~ 338 °F

Average α ~~3.0~~ 4.7 degrees

METCO ENVIRONMENTAL

ORSAT ANALYSIS DATA FORM

Job Number: 9995WAB3 Sample Location: Wabash River HRSG Stack

Job Name: EPRI - Cinergy Analytical Method: 3B

Location: West Terre Haute, IN Sample Type: Single point or ~~Multi point~~ Grab or ~~Integrated~~

Date: 10-12-99 Leak Check: Time: 4:00 (min. 4 minutes) Rate: 0.000

Operator: Hefley / Lee Ambient Air Check:

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

Run Number 1 Run Time 0900-1125	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	9.2	9.1	9.2	9.2
O_2 - % Vol.	13.6	13.6	13.6	13.6
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	77.2	77.3	77.2	77.2

Fo = 0.79

Run Number 2 Run Time 1210-1438	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	9.0	9.0	9.0	9.0
O_2 - % Vol.	14.0	14.0	14.0	14.0
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	77.0	77.0	77.0	77.0

Fo = 0.767

Run Number 3 Run Time 1525-1827	Analysis 1	Analysis 2	Analysis 3	Average - % Vol.
CO_2 - % Vol.	9.2	9.2	9.2	9.2
O_2 - % Vol.	13.6	13.6	13.6	13.6
CO - % Vol.	0.0	0.0	0.0	0.0
N_2 - % Vol.	77.2	77.2	77.2	77.2

Fo = 0.792

c:\win\wpwin\misc\orsatanl.jp

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-4	0.807	11/19/99
Probe Tip #TFE-1-6	0.174	11/19/99
Probe Tip #TFE-2-6a	0.172	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
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" tips C_{psId}: 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: 1300

Pitot No.: P14 T_s: 72 °F

Pitot Dimensions: 3/8" fps 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

METCO ENVIRONMENTAL

✓ AM107

NOZZLE CALIBRATION

Nozzle Set No. TFE-1

Date 10-4-99 Calibrator: Jason Brown 374

	4	6	7	8	10	12
Reading 1	0.114	0.175	0.199	0.226	0.310	0.362
Reading 2	0.116	0.175	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

NOZZLE CALIBRATION

Nozzle Set No. TFE-2

Date 10-11-99 Calibrator: Shane Lee

	1 (6a)	2	3	4	5	6
Reading 1	0.173					
Reading 2	0.169					
Reading 3	0.173					
Reading 4	0.173					
Reading 5	0.170					
Reading 6	0.173					
Reading 7	0.173					
Reading 8	0.173					
Reading 9	0.169					
Reading 10	0.169					
Average	0.172					

	7	8	9	10	11	12
Reading 1						
Reading 2						
Reading 3						
Reading 4						
Reading 5						
Reading 6						
Reading 7						
Reading 8						
Reading 9						
Reading 10						
Average						

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: 8-13-99

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

Run No.: 1 @ 0.5" H.O P_b: 29.20 "Hg

Control Module Vacuum: 5.0 "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading	Temp.	P_m
End	1512	5.315 cf	73 °F	-1.20 "H_2O
Start	1500	0.000 cf	73 °F	-1.20 "H_2O
Avg.	12	5.315 cf	73 °F	-1.20 "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
	312.440 cf	73 °F	73 °F	0.50 "H_2O
	307.333 cf	72 °F	72 °F	0.50 "H_2O
	5.107 cf	73 °F		0.50 "H_2O

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

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

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

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 "H_2O

P_b: 29.20 "Hg

Control Module Vacuum: 5 0 "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading	Temp.	P_m
End	1419	5.168 cf	73 °F	-1.80 "H_2O
Start	1410	0.000 cf	73 °F	-1.80 "H_2O
Avg.	9	5.168 cf	73 °F	-1.80 "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
	307.007 cf	73 °F	72 °F	1.00 "H_2O
	301.998 cf	72 °F	71 °F	1.00 "H_2O
	5.009 cf	72 °F		1.00 "H_2O

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

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

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

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: 50 "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading	Temp.	P_m
End	1529	10.355 cf	73 °F	-2.20 "H_2O
Start	1515	0.000 cf	73 °F	-2.20 "H_2O
Avg.	14	10.355 cf	73 °F	-2.20 "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
	322.948 cf	77 °F	73 °F	1.50 "H_2O
	312.925 cf	73 °F	73 °F	1.50 "H_2O
	10.023 cf	74 °F		1.50 "H_2O

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

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

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

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" H.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	1605	10.514 cf	73 °F	-2.60 "H_2O	343.568 cf	80 °F	76 °F	2.00 "H_2O
Start	1552	0.000 cf	73 °F	-2.60 "H_2O	333.427 cf	77 °F	73 °F	2.00 "H_2O
Avg.	13	10.514 cf	73 °F	-2.60 "H_2O	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: 8-13-99

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

Run No.: 1 @ 30 "H2O

P_b: 29.20 "Hg

Control Module Vacuum: 5 o "Hg

Wet Test Meter (No. 3)

	Time	Meter Reading	Temp.	P_m
End	1618	11.961 cf	73 °F	-3.60 "H_2O
Start	1607	0.000 cf	73 °F	-3.60 "H_2O
Avg.	11	11.961 cf	73 °F	-3.60 "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
End	355.643 cf	83 °F	75 °F	3.00 "H_2O
Start	344.157 cf	78 °F	74 °F	3.00 "H_2O
Avg.	11.486 cf	78 °F		3.00 "H_2O

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

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

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

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 " 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	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)

	Time	Meter Reading	Temp.	P_m
End	1711	2.700 cf	73 °F	-0.20 "H_2O
Start	1636	0.000 cf	73 °F	-0.20 "H_2O
Avg.	35'	2.700 cf	73 ✓ °F	-0.20 ✓ "H_2O

Dry Gas Meter

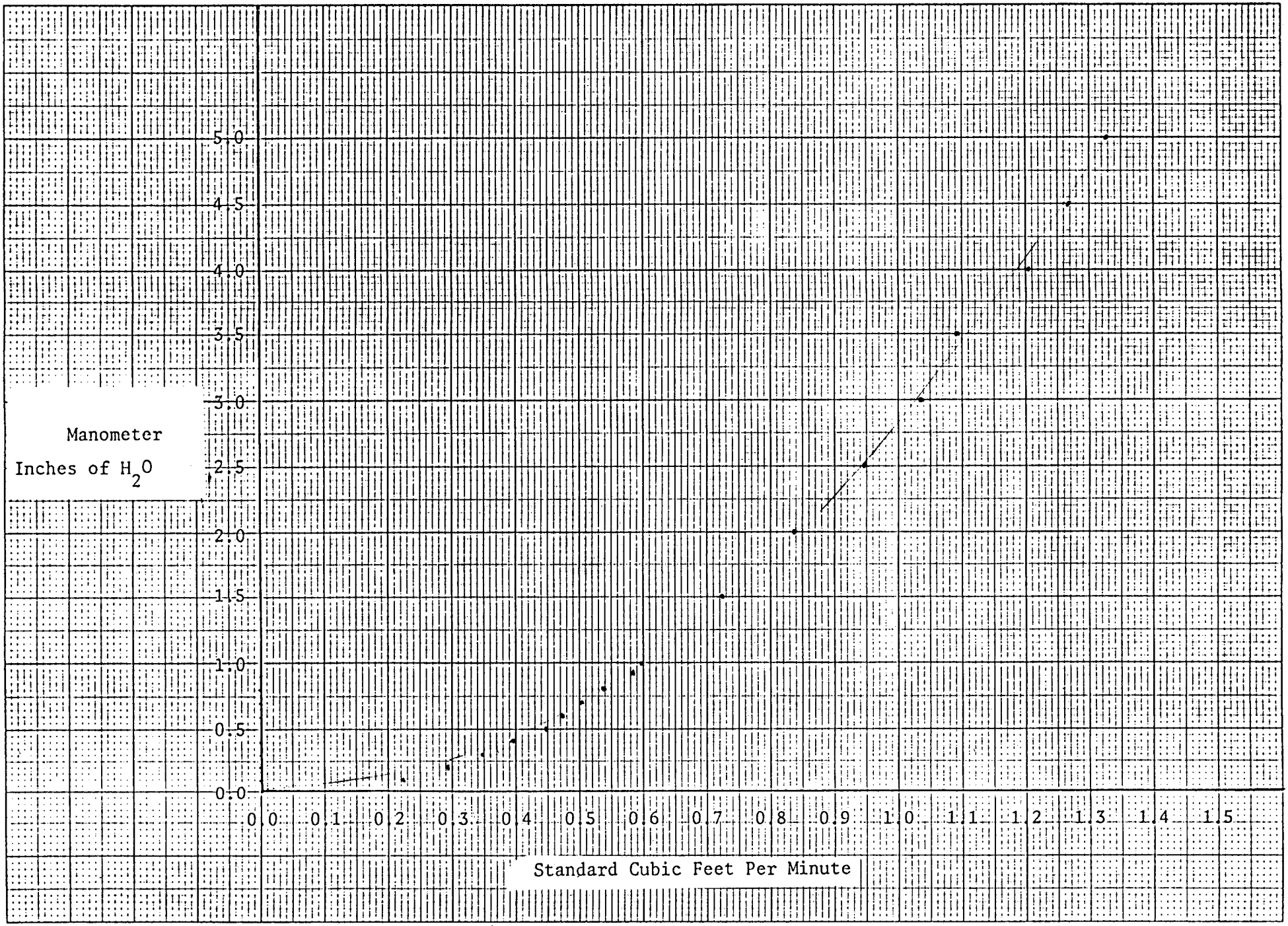
	Meter Reading	Temp. In	Temp. Out	P_m
End	369.641 cf	73 °F	72 °F	0.02 "H_2O
Start	367.018 cf	79 °F	75 °F	0.02 "H_2O
Avg.	2.623 ✓ cf	75 ✓ °F		0.02 ✓ "H_2O

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

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

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

CM 27-2 1029


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

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" fips 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	1.45	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 Brem #274

Checked By: Jason Conway #273

PITOT TUBE CALIBRATION

Date: 11-19-99 Time: 1425

Pitot No.: M4 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	0.22	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	0900	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	1.55	1.245	0.795
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	2.45	1.565	0.800	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							0.807			0.806

Summary of Results:

Normal high side calibration factor 0.807

variation + 0.12% ✓

variation - 0.87% ✓

Normal low side calibration factor 0.806

variation + 0.25% ✓

variation - 1.36% ✓

Calibrator: Scott Hart

Checked By: Mike Bass

METCO ENVIRONMENTAL

NOZZLE CALIBRATION

Nozzle Set No. TFE-1

Date 11-19-99 Calibrator: Shane Dee 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	0.232	0.308	0.360
Reading 3	0.118	0.173	0.198	0236	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

NOZZLE CALIBRATION

Nozzle Set No. TFE-2

Date 11-19-99 Calibrator: Mike Bass VJ.

	4	6a	7	8	10	12
Reading 1	0.116	0.174	0.193	0.235	0.309	0.363
Reading 2	0.115	0.170	0.195	0.232	0.309	0.362
Reading 3	0.114	0.170	0.195	0.232	0.310	0.363
Reading 4	0.114	0.172	0.194	0.234	0.309	0.363
Reading 5	0.115	0.174	0.197	0.235	0.308	0.361
Reading 6	0.115	0.173	0.196	0.235	0.309	0.361
Reading 7	0.115	0.172	0.197	0.235	0.311	0.362
Reading 8	0.114	0.174	0.195	0.234	0.310	0.362
Reading 9	0.116	0.171	0.196	0.234	0.309	0.363
Reading 10	0.115	0.172	0.195	0.233	0.309	0.363
Average	0.115	0.172	0.195	0.234	0.309	0.362

	14	—	—	—	—	—
Reading 1	0.435					
Reading 2	0.433					
Reading 3	0.434					
Reading 4	0.435					
Reading 5	0.433					
Reading 6	0.434					
Reading 7	0.433					
Reading 8	0.432					
Reading 9	0.433					
Reading 10	0.432					
Average	0.433					

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. Bass

Checked By: Pam 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)

	Time	Meter Reading	Temp.	P_m
End	1310	5.015 cf	74 °F	-0.90 "H_2O
Start	1257	0.000 cf	74 °F	-0.90 "H_2O
Avg.	13	5.015 cf	74 °F	-0.900 "H_2O

Dry Gas Meter

	Meter Reading	Temp. In	Temp. Out	P_m
End	572.057 cf	77 °F	76 °F	0.50 "H_2O
Start	567.114 cf	76 °F	75 °F	0.50 "H_2O
Avg.	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	1324	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

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

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

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

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	-2.90 "H_2O	608.602 cf	89 °F	79 °F	3.00 "H_2O
Start	1358	0.000 cf	74 °F	-2.90 "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 ✓

$$\text{Wet Test Meter } Vm_{std} = 17.65 \times 10.330 \left[\frac{29.32 + \frac{-2.90}{13.6}}{74 + 460}\right] \times 1.000\ (C_f) = 9.938 \text{ dcsf} \checkmark$$

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

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

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

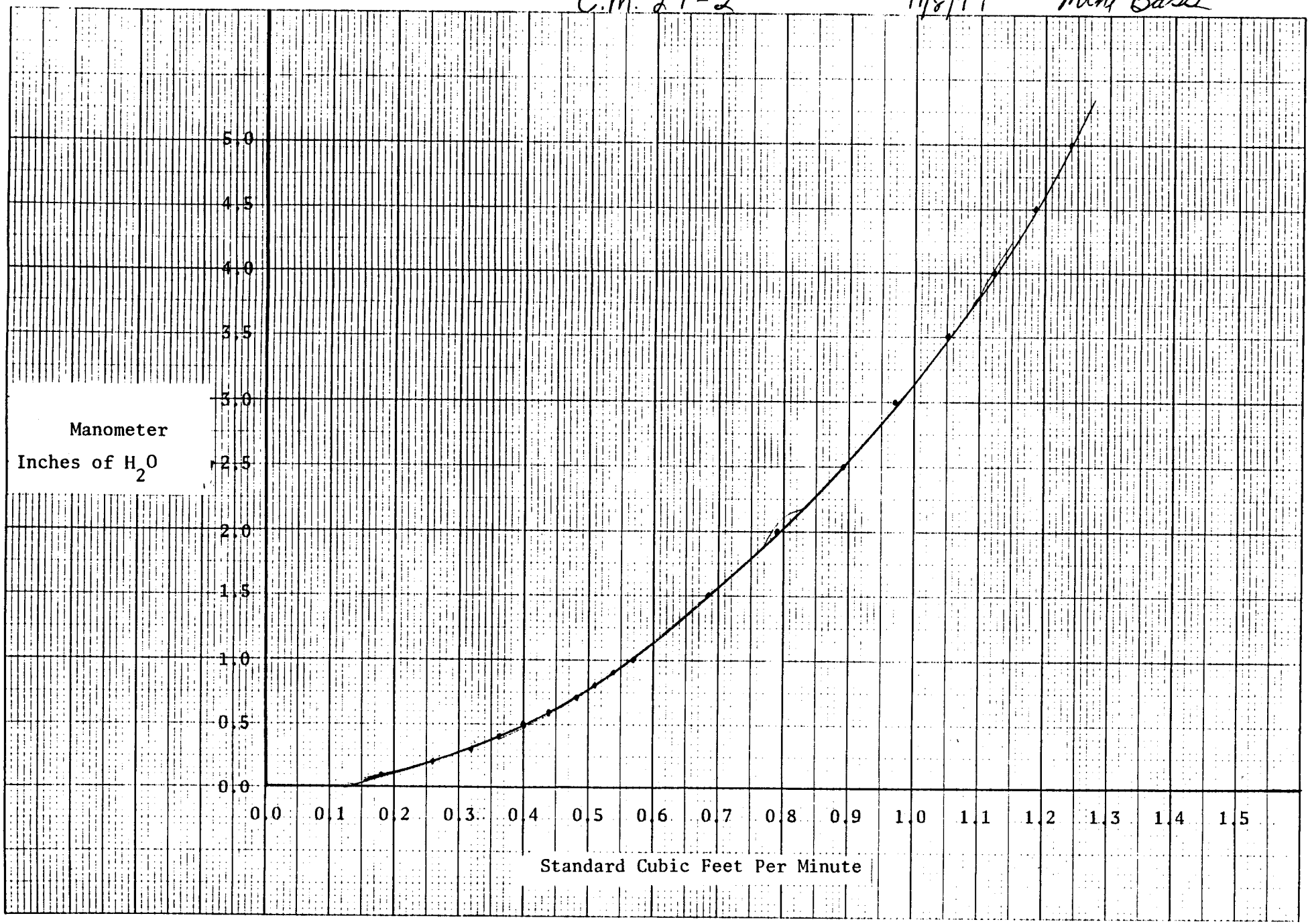
	Wet Test Meter (No. 3)				Dry Gas Meter			
	Time	Meter Reading	Temp.	P_m	Meter Reading	Temp. In	Temp. Out	P_m
End	1419	10.130 cf	74 °F	-3.70 "H_2O	619.031 cf	91 °F	80 °F	4.00 "H_2O
Start	1410	0.000 cf	74 °F	-3.70 "H_2O	608.926 cf	87 °F	79 °F	4.00 "H_2O
Avg.	9	10.130 cf ✓	74 °F ✓	-3.700 "H_2O ✓	10.105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

$$Vm_{std} = 17.65 \times 10.130 \left[\frac{29.32 + \frac{-3.700}{13.6}}{74 + 460}\right] \times 1.000 \quad (C_f) = 9.726 \text{ dcsf} \checkmark$$

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

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

C.M. 27-2 11/8/99 Mike Bassa



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: Jason Brown

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Barometer No. 9-2

Date: 11-22-99

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 _____

David Hunt #368
Signature of Calibrator

APPENDIX D

Analytical Data

TestAmerica
INCORPORATED

December 13, 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 Wabash River Repowering Project samples submitted to TestAmerica for analysis. The samples were analyzed following the SOP based on the Ontario-Hydro Method.

Case Narrative

TestAmerica received the samples on October 16, 1999. All samples were intact when received. The following items were noted:

- Samples Identified as Container #2A were received separately from the other containers on November 4, 1999. There was no mention of a Container #2A on the original chain of custodies.
- Container #2A and Container #2 were not able to be combined prior to analysis. TestAmerica attempted to analyze Container #2A separately but the samples were lost during the sample preparation step.
- All Duplicate and Triplicate sample results had a Relative Percent Difference of <10 %.
- All Matrix Spike sample results had a % Recovery between 75 % and 125 %.
- All other Quality Control Indicators were within acceptance limits.

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: Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Hg Analysis
Ontario Hydro Method

Summary Report

	HRSG Stack Run 1	HRSG Stack Run 2	HRSG Stack Run 3
Particle Bound Hg (ug)	0.00	0.00	0.02
Oxidized Hg (ug)	0.00	0.00	0.00
Elemental Hg (ug)	5.10	4.90	5.39
Total Hg (ug)	5.10	4.90	5.41

	HRSG Stack Blank Train
Particle Bound Hg (ug)	0.00
Oxidized Hg (ug)	0.00
Elemental Hg (ug)	0.00
Total Hg (ug)	0.00

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

TestAmerica
INCORPORATED

Sample ID: Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Hg Analysis
Ontario Hydro Method

Duplicate Summary Report

	HRSG Stack Run 1	HRSG Stack Run 2	HRSG Stack Run 3
Particle Bound Hg (ug)	0.00	0.00	0.02
Oxidized Hg (ug)	0.00	0.00	0.00
Elemental Hg (ug)	5.20	4.95	5.44
Total Hg (ug)	5.20	4.95	5.46

	HRSG Stack Blank Train
Particle Bound Hg (ug)	0.00
Oxidized Hg (ug)	0.00
Elemental Hg (ug)	0.00
Total Hg (ug)	0.00

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

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TestAmerica
INCORPORATED

Sample ID: **Cinergy**
Wabash River Repowering Project
West Terre Haute, Indiana
HRSG Stack Run 1

Hg Analysis
Ontario Hydro Method

Collected On: 10/12/99
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	WB-2	11/19/99	11/20/99	jpp	<0.01	<0.01	0	---	---	ug		(47Q51)
Container # 1B		Not Provided		jpp	---	---	---	---	---	ug		
Container # 2	2WB-1	11/17/99	11/18/99	jpp	<0.08	<0.08	0	---	---	ug	*1	
Container # 3	3WB-2	11/17/99	11/18/99	jpp	<1.67	<1.67	0	---	---	ug		
Container # 4	4WB-2	11/19/99	11/19/99	jpp	<0.78	<0.78	0	---	---	ug		
Container # 5	5WB-2	11/19/99	11/19/99	jpp	5.10	5.20	2.0	---	---	ug		

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

Oxidized Hg (ug) **0.00**
(Containers 3)

Elemental Hg (ug) **5.10**
(Containers 4 and 5)

Total Hg (ug) **5.10**
(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) **5.20**
(Containers 4 and 5)

Dup. Total Hg (ug) **5.20**
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes: *1 - Container #2A was received separately from the rest of the containers. Container #2A was not noted on the original chain of custodies. The analysis was completed prior to discovery of Container #2A. TestAmerica attempted to analyze Container #2A separately but the sample was lost during the sample preparation step.

TestAmerica
INCORPORATED

Sample ID: **Cinergy**
Wabash River Repowering Project
West Terre Haute, Indiana
HRSG Stack Run 2

Hg Analysis
Ontario Hydro Method

Collected On: 10/12/99
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	WB-3	11/19/99	11/20/99	jpp	<0.01	<0.01	0	---	---	ug		(47Q52)
Container # 1B		Not Provided		jpp	---	---	---	---	---	ug		
Container # 2	2WB-2	11/17/99	11/18/99	jpp	<0.09	<0.09	0	---	---	ug	*1	
Container # 3	3WB-3	11/17/99	11/18/99	jpp	<1.68	<1.68	0	---	---	ug		
Container # 4	4WB-3	11/19/99	11/19/99	jpp	<0.64	<0.64	0	---	---	ug		
Container # 5	5WB-3	11/19/99	11/19/99	jpp	4.90	4.95	1.1	---	---	ug		

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

Oxidized Hg (ug) **0.00**
(Containers 3)

Elemental Hg (ug) **4.90**
(Containers 4 and 5)

Total Hg (ug) **4.90**
(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) **4.95**
(Containers 4 and 5)

Dup. Total Hg (ug) **4.95**
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes: *1 - Container #2A was received separately from the rest of the containers. Container #2A was not noted on the original chain of custodies. The analysis was completed prior to discovery of Container #2A. TestAmerica attempted to analyze Container #2A separately but the sample was lost during the sample preparation step.

TestAmerica
INCORPORATED

Sample ID: **Cinergy**
Wabash River Repowering Project
West Terre Haute, Indiana
HRSG Stack Run 3

Hg Analysis
Ontario Hydro Method

Collected On: 10/12/99
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	WB-4	11/19/99	11/20/99	jpp	0.02	0.02	0.3	—	—	ug		(47Q56)
Container # 1B		Not Provided		jpp	—	—	—	—	—	ug		
Container # 2	2WB-3	11/17/99	11/18/99	jpp	<0.06	<0.06	0	—	—	ug	*1	
Container # 3	3WB-4	11/17/99	11/18/99	jpp	<1.76	<1.76	0	—	—	ug		
Container # 4	4WB-4	11/19/99	11/19/99	jpp	<0.60	<0.60	0	—	—	ug		
Container # 5	5WB-4	11/19/99	11/19/99	jpp	5.39	5.44	0.8	—	—	ug		

Particle Bound Hg (ug) **0.02**
(Containers 1A, 1B, and 2)

Oxidized Hg (ug) **0.00**
(Containers 3)

Elemental Hg (ug) **5.39**
(Containers 4 and 5)

Total Hg (ug) **5.41**
(Containers 1A, 1B, 2, 3, 4, and 5)

Dup. Part. Bound Hg (ug) **0.02**
(Containers 1A, 1B, and 2)

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

Dup. Elemental Hg (ug) **5.44**
(Containers 4 and 5)

Dup. Total Hg (ug) **5.46**
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes: *1 - Container #2A was received separately from the rest of the containers. Container #2A was not noted on the original chain of custodies. The analysis was completed prior to discovery of Container #2A. TestAmerica attempted to analyze Container #2A separately but the sample was lost during the sample preparation step.

TestAmerica
INCORPORATED

Sample ID: **Cinergy**
Wabash River Repowering Project
West Terre Haute, Indiana
HRSG Stack Blank Train

Hg Analysis
Ontario Hydro Method

Collected On: 10/12/99
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	3WB-1	11/17/99	11/18/99	jpp	<0.81	<0.81	0	—	—	ug		
Container # 4	4WB-1	11/19/99	11/19/99	jpp	<0.68	<0.68	0	—	—	ug		
Container # 5	5WB-1	11/19/99	11/19/99	jpp	<0.93	<0.93	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) **0.00**
(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) **0.00**
(Containers 1A, 1B, 2, 3, 4, and 5)

Notes:

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TestAmerica
INCORPORATED

Sample ID: **Cinergy**
Wabash River Repowering Project
West Terre Haute, Indiana
Reagent Blanks

Hg Analysis
Ontario Hydro Method

Collected On: 10/12/99
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	RBWB-1	—	11/18/99	jpp	<0.2	<0.2	0	—	—	ug/L		
Container # 8	RBWB-2	11/17/99	11/18/99	jpp	<2.0	<2.0	0	—	—	ug/L		
Container # 9	RBWB-3	11/19/99	11/19/99	jpp	<4.0	<4.0	0	<4.0	0	ug/L		
Container # 10	RBWB-4	11/19/99	11/19/99	jpp	<2.0	<2.0	0	<2.0	0	ug/L		
Container # 11	RBWB-5	—	11/18/99	jpp	<0.2	<0.2	0	—	—	ug/L		
Container # 12	WB-1	11/19/99	11/20/99	jpp	<0.01	<0.01	0	—	—	ug		(47Q53)

*1 It was not necessary to analyze a thimble blank as only the particulate matter was digested.

Mercury Sample Train Receipt Records

Mercury Sample Train Receipt Record

Client ID
WABASH RIVER REPOWERING PROJECT
WEST TERRA HAUTE, IN

Location ID/Run #
HRSG STACK
BLANK TRAIN

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☐ 2 ( )	___ + ___ + ___ = ___.		#1
☑ 3 (1)	405 + — + — = 405.	3WB-1	
☑ 4 (1)	170 + — + — = 170.	4WB-1	
☑ 5 (1)	465 + — + — = 465.	5WB-1	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

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

Notes: #1 NOT RECOVERED PER COC.

Checked By: DPP
Date: 11/17/09

TestAmerica

Mercury Sample Train Receipt Record

Client ID
CINERGY
WABASH RIVER REPOWERING PROJECT
W. TERRA HAUTE, IN

Location ID/Run #
MRS6
STACK
RUN #1

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	40 + — + — = 40.	2WB-1	
☑ 3 (2)	495 + 340 + — = 835.	3WB-2(A+B)	
☑ 4 ( )	195 + — + — = 195.	4WB-2	
☑ 5 ( )	505 + — + — = 505.	5WB-2	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A ( )	47951	WB2	#1
☐ 1B ( )			
☐ 12A ( )			
☐ 12B ( )			

Notes: #1 ~~DOT~~ RECOVERED - ADHERED TO FILT
JAN 14

Checked By: DM
Date: 1/17/06

TestAmerica

Mercury Sample Train Receipt Record

Client ID	Location ID/Run #
CINERGY	HRSG
WABASH RIVER REPOWERING PROJECT	STACK
WEST TERRA HAUTE, IN	RUN #2

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	45 + — + — = 45.	2WB-2	
☑ 3 (3)	485 + 355 + — = 840.	3WB3 (A+B)	
☑ 4 (1)	160 + — + — = 160.	4WB-3	
☑ 5 (1)	490 + — + — = 490.	5WB-3	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A ( )	47052	WB 3	
☐ 1B ( )			
☐ 12A ( )			
☐ 12B ( )			

Notes: _____

Checked By: 4/17/08

Date: MP

TestAmerica

Mercury Sample Train Receipt Record

Client ID	Location ID/Run #
CINERGY	HRSG
WABASH RIVER REPOWERING PROJECT	STACK
WEST TERRA HAUTE, IN	RUN #3

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☑ 2 (1)	29 + – + – = 29.	2WB-3	
☑ 3 (2)	480 + 400 + – = 880.	3WB4 (A+B)	
☑ 4 (1)	150 + – + – = 150.	4WB-4	
☑ 5 (1)	465 + – + – = 465.	5WB-4	
☐ 7 ( )	___ + ___ + ___ = ___.		
☐ 8 ( )	___ + ___ + ___ = ___.		
☐ 9 ( )	___ + ___ + ___ = ___.		
☐ 10 ( )	___ + ___ + ___ = ___.		
☐ 11 ( )	___ + ___ + ___ = ___.		

Filters:

Cont. ID/(#)	Filter ID(s)		
☑ 1A ( )	47056	WB 4	
~~☑ 1B~~ ( )	~~47056~~ 4/19 las		
☐ 12A ( )			
☐ 12B ( )			

Notes: _____

Checked By: MM

Date: 4/17/09

TestAmerica

Mercury Sample Train Receipt Record

Client ID
CINERGY
WABASH RIVER REPOWERING PROJECT
WEST TERRA HAUTE, IN

Location ID/Run #
HRSG
STACK
REAGENT BLANKS

Solutions:

Cont. ID/(#)	Volumes (mL)	TestAmerica ID(s)	Comments
☐ 2 ( )	___ + ___ + ___ = ___ .		
☐ 3 ( )	___ + ___ + ___ = ___ .		
☐ 4 ( )	___ + ___ + ___ = ___ .		
☐ 5 ( )	___ + ___ + ___ = ___ .		
☑ 7 ( )	50 + ~ + ~ = 50 .	RBWB-1	¥ 1
☑ 8 ( )	50 + ~ + ~ = 50 .	RBWB-2	¥ 1
☑ 9 ( )	50 + ~ + ~ = 50 .	RBWB-3	¥ 1
☑ 10 ( )	50 + ~ + ~ = 50 .	RBWB-4	¥ 1
☑ 11 ( )	50 + ~ + ~ = 50 .	RBWB-5	¥ 1

Filters:

Cont. ID/(#)	Filter ID(s)		
☐ 1A ( )			
☐ 1B ( )			
☑ 12A (3)	47Q53,	WB1A	
☐ 12B ( )	47Q54	WB1B	
	47Q55	WB1C	

Notes: ¥ 1 VOLUMES TAKEN FROM C.O.C.

Checked By: JPP
Date: 1/17/09

TestAmerica

Sample Preparation Batch Sheets

FILTERS

NONAQUEOUS MERCURY BATCH SHEET

Analyst: DBP 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	FTX8 47Q43			MB
2	FTX9 47Q46			
3	WB1A 47Q53			
4	WB-2 47Q51			
5	WB-3 47Q52			ICV
6	WB-4 47Q56		97.83	
7	GB-5 Q 39	0.5111	~~48.41~~ 11/19	
8	GB-2 Q 33	0.5468	~~45.72~~ 91.44	
9	GB-3 Q 34	0.5976	83.67	MS
10	GB-6 Q40	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) MR Preparation Date 11/17/99

Reagent Reference #'s

HCl	—	$SnCl_2$	65-39-3
$NH_2OH*HCl$	65-30-11	Calibration Standards	65-32-9
$KMnO_4$	65-37-4	ICV Standard	65-32-10
HNO_3	65-37-20	H_2SO_4	65-38-9
$K_2S_2O_8$	65-34-5		

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
RBWB2	8	HRSG STACK REAGENT BLANK	50	5.0	50
2WB1	2	STACK RUN#1	40	5.0	50
2WB2	2	STACK RUN#2	45	5.0	50
2WB3	2	STACK RUN#3	29	50	50
WB1	3	HRSG STACK BLANK TRAIN	405	5.0	50
3WB2	3 A+B	STACK RUN#1	835	5.0	50
3WB3	3 A+B	STACK RUN#2	840	5.0	50
3WB4	3 A+B	STACK RUN#3	880	5.0	50
rbgb2	8	UNIT #3 REAGENT BLK	52	5.0	50
* 2gb1	2	INLET RUN#1	90	5.0	50
26B2	2	INLET RUN#3	52	5.0	50
26B3	2	INLET RUN#4	81	5.0	50
* 26B4	2	STACK RUN#1	47	5.0	50
26B5	2	STACK RUN#3	82	5.0	50
26B6	2,2A	STACK RUN#4	47	5.0	50
36B1	3	INLET BLANK TRAIN	415	5.0	50
36B2	3 A+B	INLET RUN#1	770	5.0	50
36B3	3 A+B	INLET RUN#3	790	5.0	50
36B4	3 A+B	INLET RUN#4	705	5.0	50

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
3GB5	3 A+B	STACK RUN#1	745	5.0	50
3GB6	3	STACK BLANK TRAIN	440	5.0	50
3GB7	3 A+B	STACK RUN#3	790	5.0	50
3GB8	3 A+B	STACK RUN#4	760	5.0	50
				12/4/99	
rbgb1	7	Reagent Blank	50	~~5.0~~	~~50~~
rbgb5	11	Reagent Blank	107	~~5.0~~	~~50~~
				12/4/99	
rbwb1	7	Reagent Blank	50	~~5.0~~	~~50~~
rbwb5	11	Reagent Blank	50	~~5.0~~	~~50~~

NOTES *Gibson Run #2 aborted.

Mercury in Flue Gas
Aqueous Preparation Batch Log

Analyst(s) JBP Preparation Date 11/19/97

Reagent Reference #'s

HCl	65-37-11	$SnCl_2$	65-39-13
$NH_2OH*HCl$	65-30-11	Calibration Standards	65-32-9
$KMnO_4$	65-37-4	ICV Standard	65-32-10
HNO_3	—		

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
rbwb3	9	Reagent Blank	50	2.5	50
4wb1	4	Stack Blank Train	170	2.5 5.0	50
4wb2	4	Stack Run #1	195	2.5	50
4wb3	4	Stack Run #2	160	2.5	50
4wb4	4	Stack Run #3	150	2.5	50
rbgb3	9	Reagent Blank	51	2.5	50
4GB1	4	Inlet Blank Train	130	2.5	50
4GB2	4	Inlet Run #1	170	2.5	50
4GB3	4	Inlet Run #3	190	2.5	50
4GB4	4	Inlet Run #4	195	2.5	50
4GB5	4	STACK BLANK TRAIN	155	2.5	50
4GB6	4	STACK RUN #1	150	2.5	50
4GB7	4	STACK RUN #3	170	2.5	50
4GB8	4	STACK RUN #4	180	2.5	50

Lab ID	Cont. #	Sample Description	Init Cont Vol (mL)	Init Prep Vol (mL)	Final Vol (mL)
RBWB4	10	REAGENT BLANK	50	5.0	50
5WB1	5	STACK BLANK TRAIN	465	5.0	50
5WB2	5	STACK RUN #1	505	5.0	50
5WB3	5	STACK RUN #2	490	5.0	50
5WB4	5	STACK RUN #3	465	5.0	50
RBGB4	10	REAGENT BLANK	50	5.0	50
5GB1	5	INLET BLANK TRAIN	450	5.0	50
5GB2	5	INLET RUN #1	460	5.0	50
5GB3	5	INLET RUN #3	510	5.0	50
5GB4	5	INLET RUN #4	600	5.0	50
5GB5	5	STACK BLANK TRAIN	480	5.0	50
5GB6	5	STACK RUN #1	505	5.0	50
5GB7	5	STACK RUN #3	510	5.0	50
5GB8	5	STACK RUN #4	490	5.0	50

NOTES _____

11/18/99 Analytical Run

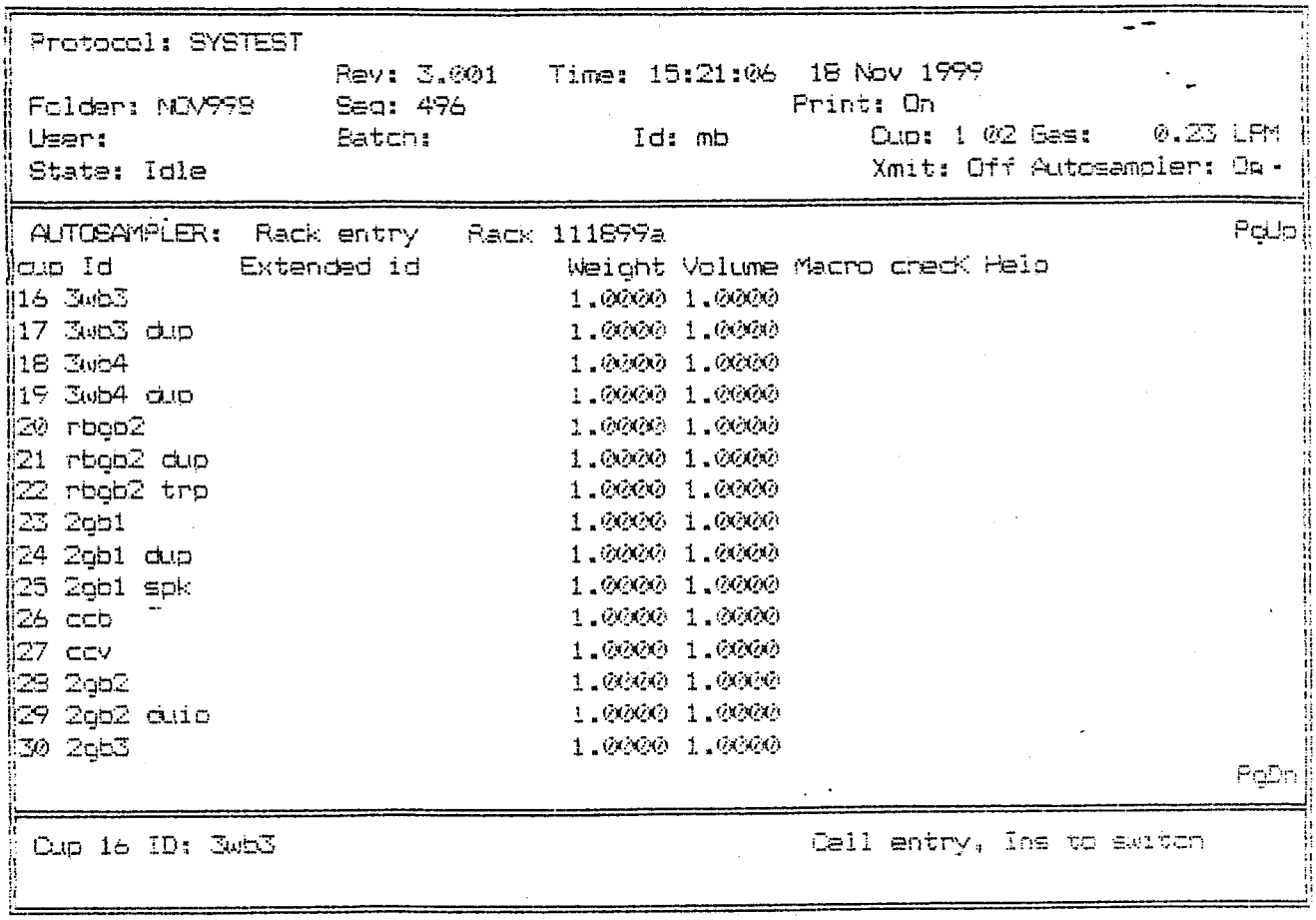
```
Protocol: SYSTEST
                    Rev: 3.001   Time: 15:21:02  18 Nov 1999
Folder: NOV99B      Seq: 496                    Print: On
User:               Batch:          Id: mb      Cup: 1 02 Gas:    0.23 LPM
State: Idle                                     Xmit: Off Autosampler: On
```

AUTOSAMPLER: Rack entry Rack 111899a

Cup	Id	Extended id	Weight	Volume	Macro check	Help
1	icb		1.00000	1.00000		
2	mb		1.00000	1.00000		
3	mb dup		1.00000	1.00000		
4	rbwb2		1.00000	1.00000		
5	rbwb2 dup		1.00000	1.00000		
6	2wb1		1.00000	1.00000		
7	2wb1 dup		1.00000	1.00000		
8	2wb2		1.00000	1.00000		
9	2wb2 dup		1.00000	1.00000		
10	2wb3		1.00000	1.00000		
11	2wb3 dup		1.00000	1.00000		
12	23wb1		1.00000	1.00000		
13	3wb1 dup		1.00000	1.00000		
14	3wb2		1.00000	1.00000		
15	3wb2 dup		1.00000	1.00000		

PgDn

```
Cup 1  ID: icb                                  Call entry, Ins to switch
```


Protocol: SYSTEST
Rev: 3.001 Time: 15:21:06 18 Nov 1999
Folder: NOV99B Seq: 496 Print: On
User: Batch: Id: mb Cup: 1 @2 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 111899a PgUp
Cup Id Extended id Weight Volume Macro creck Help
16 3wb3 1.0000 1.0000
17 3wb3 dup 1.0000 1.0000
18 3wb4 1.0000 1.0000
19 3wb4 dup 1.0000 1.0000
20 rbgb2 1.0000 1.0000
21 rbgb2 dup 1.0000 1.0000
22 rbgb2 trp 1.0000 1.0000
23 2gb1 1.0000 1.0000
24 2gb1 dup 1.0000 1.0000
25 2gb1 spk 1.0000 1.0000
26 ccb 1.0000 1.0000
27 ccv 1.0000 1.0000
28 2gb2 1.0000 1.0000
29 2gb2 duio 1.0000 1.0000
30 2gb3 1.0000 1.0000
PgDn
Cup 16 ID: 3wb3
Cell entry, Ins to switch

```
Protocol: SYSTEST
                    Rev: 3.001   Time: 15:21:08  18 Nov 1999
Folder: NOV99B      Seq: 496                    Print: On
User:               Batch:          Id: mb      Cup: 1 02 Gas:    0.23 LPM
State: Idle                                     Xmit: Off Autosampler: On
```

AUTOSAMPLER: Rack entry Rack 111899a PgUp

Cup	Id	Extended id	Weight	Volume	Macro	check	Help
31	2gb3 dup		1.0000	1.0000			
32	2gb4		1.0000	1.0000			
33	2gb4 dup		1.0000	1.0000			
34	2gb5		1.0000	1.0000			
35	2gb5 dup		1.0000	1.0000			
36	2gb6		1.0000	1.0000			
37	2gb6 dup		1.0000	1.0000			
38	3gb1		1.0000	1.0000			
39	3gb1 dup		1.0000	1.0000			
40	3gb2		1.0000	1.0000			
41	3gb2 dup		1.0000	1.0000			
42	3gb3		1.0000	1.0000			
43	3gb3 dup		1.0000	1.0000			
44			1.0000	1.0000			

PgDn

```
Cup 31 ID: 2gb3 dup                    Cell entry, Ins to switch
```

Protocol: SYSTEST

Rev: 3.001 Time: 17:06:59 18 Nov 1999

Folder: NOV99B Seq: 540 Print: On

User: Batch: Id: 3gb3 dup Cup: 1 43 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry Rack 111899a

Cup	Id	Extended id	Weight	Volume	Macro	Check	Help
1	icb		1.0000	1.0000			
2	3gb4		1.0000	1.0000			
3	3gb4 dup		1.0000	1.0000			
4	3gb4 trp		1.0000	1.0000			
5	3gb5		1.0000	1.0000			
6	3gb5 dup		1.0000	1.0000			
7	3gb5 spk		1.0000	1.0000			
8	ccb		1.0000	1.0000			
9	ccv		1.0000	1.0000			
10	3gb6		1.0000	1.0000			
11	3gb6 dup		1.0000	1.0000			
12	3gb7		1.0000	1.0000			
13	3gb7 dup		1.0000	1.0000			
14	3gb8		1.0000	1.0000			
15	3gb8 dup		1.0000	1.0000			

PgDn

Cup 1 ID: icb Call entry, Ins to switch

Protocol: SYSTEST

Rev: 3.001 Time: 17:07:05 18 Nov 1999

Folder: NOV99B Seq: 540 Print: On

User: Batch: Id: 3gb3 dup Cup: 1 43 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry Rack 111899a PgUp

Cup	Id	Extended id	Weight	Volume	Macro	cneck	Help
16	ccb		1.0000	1.0000			
17	ccv		1.0000	1.0000			
18	rbgb1	DRP	1.0000	1.0000			
19	rbgb5	11/18/99	1.0000	1.0000			
20	rbwb1		1.0000	1.0000			
21	rbwb5		1.0000	1.0000			
22	ccb		1.0000	1.0000			
23	ccv		1.0000	1.0000			
24			1.0000	1.0000			
25			1.0000	1.0000			
26			1.0000	1.0000			
27			1.0000	1.0000			
28			1.0000	1.0000			
29			1.0000	1.0000			
30			1.0000	1.0000			

PgDn

Cup 16 ID: ccb Cell entry, Ins to switch

*** Standard: 1 Rep: 1 Seq: 488 14:32:47 18 Nov 1999 HG

Hg .000 ug/L -213
Ave. Int. = -213 S. D. = 0

*** Standard: 2 Rep: 1 Seq: 489 14:35:09 18 Nov 1999 HG

Hg .200 ug/L 9270
Ave. Int. = 9270 S. D. = 0

*** Standard: 3 Rep: 1 Seq: 490 14:37:31 18 Nov 1999 HG

Hg .500 ug/L 21829
Ave. Int. = 21829 S. D. = 0

*** Standard: 4 Rep: 1 Seq: 491 14:39:53 18 Nov 1999 HG

Hg 1.00 ug/L 42988
Ave. Int. = 42988 S. D. = 0

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

*** Standard: 5 Rep: 1 Seq: 492 14:42:16 18 Nov 1999 HG

Hg 2.00 ug/L 85028
Ave. Int. = 85028 S. D. = 0

*** Standard: 6 Rep: 1 Seq: 493 14:47:04 18 Nov 1999 HG

Hg 3.00 ug/L 125934
Ave. Int. = 125934 S. D. = 0

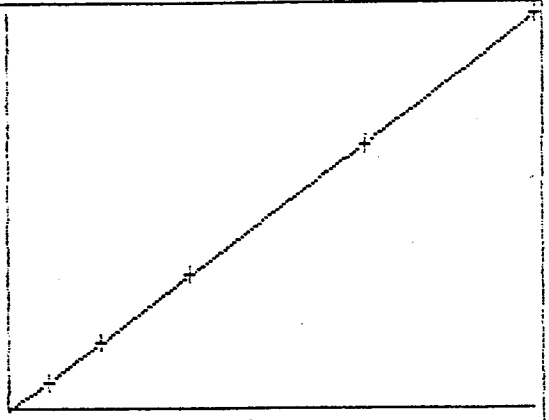
Protocol: SYSTEST
Rev: 3.081 Time: 14:47:29 18 Nov 1999
Folder: NOV99B Seq: 494 Print: On
User: Batch: Id: Std6Rep1 Cup: 1 18 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On

CALIBRATION: Line Calibration

Line: Hg

	Conc.	Calc.	Dev.	Accepted LiNear
S1	.000	-.020	-.020	Quadratic
S2	.200	.206	.006	WtdLinear
S3	.500	.505	.005	C
S4	1.00	1.01	.010	Accept o
S5	2.00	2.01	.012	n
S6	3.00	2.99	-.013	StdAdd c

A .0000000 r .999936
B 2.30400e-5 C -1.50825e-2



Relative Absorbance

	Mean	%RSD	
S1	-213	0	-213
S2	9270	0	9270
S3	21829	0	21829
S4	42988	0	42988
S5	85028	0	85028
S6	125934	0	125934

33?

New calibration coefficients stored

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

*** Check Standard: 2 Ck2 Seq: 496 15:22:35 18 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.	.624	.604	ug/L	.000

*** Sample ID: icb Seq: 497 15:24:55 18 Nov 1999 HG

Hg -.029 ug/L .000 -.029 <0.2ug/L

*** Sample ID: mb Seq: 498 15:27:12 18 Nov 1999 HG

Hg -.003 ug/L .000 -.003 <0.2ug/L

*** Sample ID: mb dup Seq: 499 15:29:29 18 Nov 1999 HG

Hg -.011 ug/L .000 -.011 <0.2ug/L

*** Sample ID: rbwb2 Seq: 500 15:31:46 18 Nov 1999 HG

Hg -.013 ug/L .000 -.013 <2.0ug/L

*** Sample ID: rbwb2 dup Seq: 501 15:34:03 18 Nov 1999 HG RPD-N/A

Hg -.016 ug/L .000 -.016 <2.0ug/L

*** Sample ID: 2wb1 Seq: 502 15:36:20 18 Nov 1999 HG

Hg -.006 ug/L .000 -.006 <0.08ug

*** Sample ID: 2wb1 dup Seq: 503 15:38:37 18 Nov 1999 HG RPD-N/A

Hg -.013 ug/L .000 -.013 <0.08ug

*** Sample ID: 2wb2 Seq: 504 15:40:55 18 Nov 1999 HG

Hg -.010 ug/L .000 -.010 <0.09ug

*** Sample ID: 2wb2 dup Seq: 505 15:43:12 18 Nov 1999 HG RPD-N/A

Hg -.013 ug/L .000 -.013 <0.09ug

*** Sample ID: 2wb3 Seq: 506 15:45:30 18 Nov 1999 HG

Hg -.012 ug/L .000 -.012 <0.06ug

*** Sample ID: 2wb3 dup Seq: 507 15:47:48 18 Nov 1999 HG RPD-N/A

Hg -.008 ug/L .000 -.008 <0.06ug

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

*** Sample ID: 3wb1 Seq: 508 15:50:05 18 Nov 1999 HG
< 0.81 ug
Hg -.011 ug/L .000 -.011

*** Sample ID: 3wb1 dup Seq: 509 15:52:21 18 Nov 1999 HG RPD-N/A
< 0.81 ug
Hg -.013 ug/L .000 -.013

*** Sample ID: 3wb2 Seq: 510 15:54:37 18 Nov 1999 HG
< 1.67 ug
Hg .023 ug/L .000 .023

*** Sample ID: 3wb2 dup Seq: 511 15:56:54 18 Nov 1999 HG RPD-N/A
< 1.67 ug
Hg .028 ug/L .000 .028

*** Sample ID: 3wb3 Seq: 512 15:59:11 18 Nov 1999 HG
< 1.68 ug
Hg .008 ug/L .000 .008

*** Sample ID: 3wb3 dup Seq: 513 16:01:28 18 Nov 1999 HG RPD-N/A
< 1.68 ug
Hg .012 ug/L .000 .012

*** Sample ID: 3wb4 Seq: 514 16:03:46 18 Nov 1999 HG
< 1.76 ug
Hg .008 ug/L .000 .008

*** Sample ID: 3wb4 dup Seq: 515 16:06:04 18 Nov 1999 HG RPD-N/A
< 1.76 ug
Hg -.001 ug/L .000 -.001

~~*** Sample ID: rbgb2 Seq: 516 16:08:22 18 Nov 1999 HG~~
< 2.0 ug/L
~~Hg -.010 ug/L .000 -.010~~

~~*** Sample ID: rbgb2 dup Seq: 517 16:10:40 18 Nov 1999 HG~~ RPD-N/A
< 2.0 ug/L
~~Hg -.013 ug/L .000 -.013~~

~~*** Sample ID: rbgb2 trp Seq: 518 16:12:58 18 Nov 1999 HG~~ RPD-N/A
< 2.0 ug/L
~~Hg -.017 ug/L .000 -.017~~

~~*** Sample ID: 2gb1 Seq: 519 16:15:16 18 Nov 1999 HG~~
< 0.18 ug
~~Hg -.008 ug/L .000 -.008~~

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 2gb1 dup				Seq: 520	16:17:34 18 Nov 1999 HG			
Hg	-.010	ug/L	.000	-.010				
*** Sample ID: 2gb1 spk				Seq: 521	16:19:52 18 Nov 1999 HG			
Hg	1.03	ug/L	.000	1.03				
*** Sample ID: ccb				Seq: 522	16:22:11 18 Nov 1999 HG			
Hg	-.025	ug/L	.000	-.025				
*** Sample ID: ccv				Seq: 523	16:24:29 18 Nov 1999 HG			
Hg	2.01	ug/L	.000	2.01				
*** Sample ID: 2gb2				Seq: 524	16:26:58 18 Nov 1999 HG			
Hg	-.020	ug/L	.000	-.020				
*** Sample ID: 2gb2 dup				Seq: 525	16:29:16 18 Nov 1999 HG			
Hg	-.014	ug/L	.000	-.014				
*** Sample ID: 2gb3				Seq: 526	16:31:34 18 Nov 1999 HG			
Hg	-.013	ug/L	.000	-.013				
*** Sample ID: 2gb3 dup				Seq: 527	16:33:53 18 Nov 1999 HG			
Hg	-.014	ug/L	.000	-.014				
*** Sample ID: 2gb4				Seq: 528	16:36:12 18 Nov 1999 HG			
Hg	-.007	ug/L	.000	-.007				
*** Sample ID: 2gb4 dup				Seq: 529	16:38:31 18 Nov 1999 HG			
Hg	-.004	ug/L	.000	-.004				
*** Sample ID: 2gb5				Seq: 530	16:40:51 18 Nov 1999 HG			
Hg	.036	ug/L	.000	.036				
*** Sample ID: 2gb5 dup				Seq: 531	16:43:11 18 Nov 1999 HG			
Hg	.048	ug/L	.000	.048				

RPD-N/A
< 0.18 ug
103%
< 0.2 ug/L
101%
< 0.104 ug
RPD-N/A
< 0.104 ug
< 0.162 ug
RPD-N/A
< 0.162 ug
< 0.094 ug
RPD-N/A
< 0.094 ug
< 0.164 ug
RPD-N/A
< 0.164 ug

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: 2gb6					Seq: 532	16:45:31 18 Nov 1999 HG			
Hg	.125	ug/L	.000	.125					<0.094µg
*** Sample ID: 2gc6 dup					Seq: 533	16:47:51 18 Nov 1999 HG			RPD-N/A
Hg	.117	ug/L	.000	.117					<0.094µg
*** Sample ID: 3gb1					Seq: 534	16:50:11 18 Nov 1999 HG			
Hg	-.007	ug/L	.000	-.007					<0.83µg
*** Sample ID: 3gb1 dup					Seq: 535	16:52:31 18 Nov 1999 HG			RPD-N/A
Hg	-.006	ug/L	.000	-.006					<0.83µg
*** Sample ID: 3gb2					Seq: 536	16:54:51 18 Nov 1999 HG			
Hg	2.64	ug/L	.000	2.64					20.33µg
*** Sample ID: 3gb2 dup					Seq: 537	16:57:23 18 Nov 1999 HG			RPD-1.14%
Hg	2.61	ug/L	.000	2.61					20.10µg
*** Sample ID: 3gb3					Seq: 538	16:59:54 18 Nov 1999 HG			
Hg	.697	ug/L	.000	.697					5.51µg
*** Sample ID: 3gb3 dup					Seq: 539	17:02:17 18 Nov 1999 HG			RPD=2.83%
Hg	.717	ug/L	.000	.717					5.66µg

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

*** Check Standard: 2 Ck2 Seq: 540 17:08:36 18 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.	.633	.604	ug/L	.000

*** Sample ID: icb Seq: 541 17:10:57 18 Nov 1999 HG

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

~~*** Sample ID: 3gb4 Seq: 542 17:13:14 18 Nov 1999 HG~~

Hg 2.31 ug/L .000 2.31 16.3 ug

*** Sample ID: 3gb4 dup Seq: 543 17:15:44 18 Nov 1999 HG RPD = 0.434%

Hg 2.30 ug/L .000 2.30 16.2 ug

*** Sample ID: 3gb4 trp Seq: 544 17:18:14 18 Nov 1999 HG RPD = 1.31%

Hg 2.28 ug/L .000 2.28 16.1 ug

*** Sample ID: 3gb5 Seq: 545 17:20:44 18 Nov 1999 HG

Hg 1.67 ug/L .000 1.67 12.4 ug

*** Sample ID: 3gb5 dup Seq: 546 17:23:23 18 Nov 1999 HG RPD = 2.42%

Hg 1.63 ug/L .000 1.63 12.14 ug

*** Sample ID: 3gb5 spk Seq: 547 17:26:11 18 Nov 1999 HG

~~Hg 2.63 ug/L .000 2.63~~ 86%

*** Sample ID: ccb Seq: 548 17:28:59 18 Nov 1999 HG

Hg -.035 ug/L .000 -.035 < 0.2 ug/L

*** Sample ID: ccv Seq: 549 17:31:17 18 Nov 1999 HG

Hg 1.98 ug/L .000 1.98 99%

~~*** Sample ID: 3gb6 Seq: 550 17:33:48 18 Nov 1999 HG~~

Hg .009 ug/L .000 .009 < 0.88 ug

*** Sample ID: 3gb6 dup Seq: 551 17:36:03 18 Nov 1999 HG RPD = N/A

Hg .021 ug/L .000 .021 < 0.88 ug

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 3gb7				Seq: 552	17:38:20 18 Nov 1999 HG			
Hg	1.90	ug/L	.000	1.90				
*** Sample ID: 3gb7 dup				Seq: 553	17:41:00 18 Nov 1999 HG			
Hg	1.88	ug/L	.000	1.88				
*** Sample ID: 3gb8				Seq: 554	17:44:36 18 Nov 1999 HG			
Hg	2.96	ug/L	.000	2.96				
*** Sample ID: 3gb8 dup				Seq: 555	17:47:07 18 Nov 1999 HG			
Hg	2.95	ug/L	.000	2.95				
*** Sample ID: rbgb1				Seq: 556	17:49:36 18 Nov 1999 HG			
Hg	-.031	ug/L	.000	-.031				
*** Sample ID: rbgb1 dup				Seq: 557	17:51:53 18 Nov 1999 HG			
Hg	-.015	ug/L	.000	-.015				
*** Sample ID: rbgb5				Seq: 558	17:54:11 18 Nov 1999 HG			
Hg	-.014	ug/L	.000	-.014				
*** Sample ID: rbgb5 dup				Seq: 559	17:56:29 18 Nov 1999 HG			
Hg	-.019	ug/L	.000	-.019				
*** Sample ID: rbwb1				Seq: 560	17:58:47 18 Nov 1999 HG			
Hg	-.015	ug/L	.000	-.015				
*** Sample ID: rbwb1 dup				Seq: 561	18:01:05 18 Nov 1999 HG			
Hg	-.017	ug/L	.000	-.017				
*** Sample ID: rbwb5				Seq: 562	18:03:23 18 Nov 1999 HG			
Hg	-.014	ug/L	.000	-.014				
*** Sample ID: rbwb5 dup				Seq: 563	18:05:41 18 Nov 1999 HG			
Hg	-.016	ug/L	.000	-.016				

15.0 µg

RPD = 1.07%

14.9 µg

22.5 µg

RPD = 0.333%

22.4 µg

< 0.2 µg/L

RPD - N/A

< 0.2 µg/L

< 0.2 µg/L

RPD - N/A

< 0.2 µg/L

< 0.2 µg/L

RPD - N/A

< 0.2 µg/L

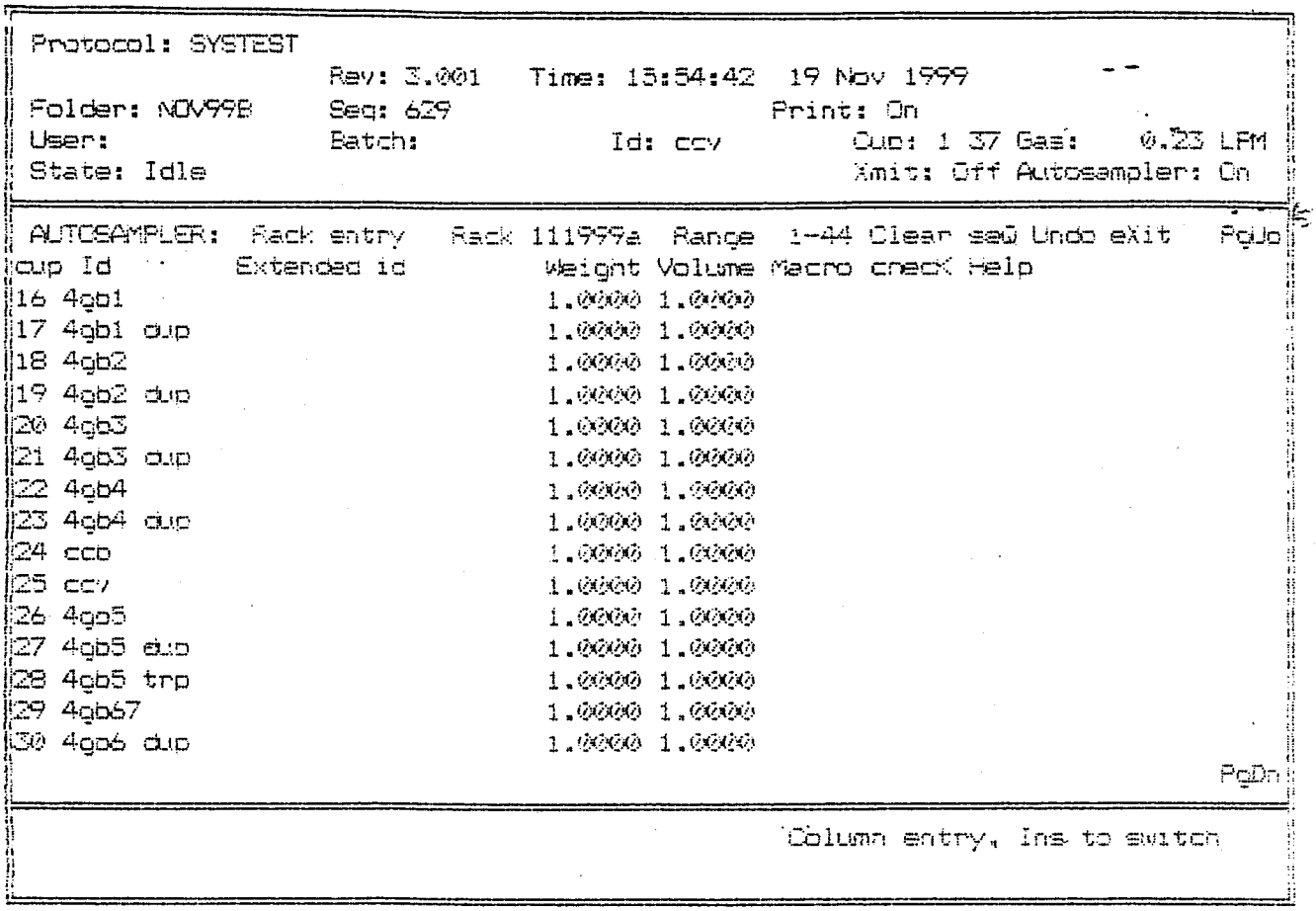
Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ccb				Seq: 564	18:07:59 18 Nov 1999 HG			
Hg	-.017	ug/L	.000	-.017			<0.2 ug/L	
*** Sample ID: ccv				Seq: 565	18:10:17 18 Nov 1999 HG			
Hg	2.05	ug/L	.000	2.05			103%	

11/19/99 Analytical Run

```
Protocol: SYSTEST
                    Rev: 3.001   Time: 15:54:41  19 Nov 1999
Folder: NOV99B      Seq: 629                    Print: On
User:               Batch:            Id: ccv        Cup: 1 37 Gas:    0.23 LPM
State: Idle                                          Xmit: Off Autosampler: On

AUTOSAMPLER:  Rack entry   Rack 111999a  Range  1-44 Clear seQ Undo eXit
cup Id        Extended id          Weight Volume Macro checK Help
 1 icb                             1.0000 1.0000
 2 rbwb3                           1.0000 1.0000
 3 rbwb3 dup                       1.0000 1.0000
 4 rbwb3 trp                       1.0000 1.0000
 5 4wb1                            1.0000 1.0000
 6 4wb1 dup                        1.0000 1.0000
 7 4wb1 spk                        1.0000 1.0000
 8 4wb2                            1.0000 1.0000
 9 4wb2 dup                        1.0000 1.0000
10 4wb3                            1.0000 1.0000
11 4wb3 dup                        1.0000 1.0000
12 4wb4                            1.0000 1.0000
13 4wb4 dup                        1.0000 1.0000
14 rbgb3                           1.0000 1.0000
15 rbgb3 dup                       1.0000 1.0000
                                                                          PgDn

                                                  Column entry, Ins to switch
```


Protocol: SYSTEST
Rev: 3.001 Time: 15:54:42 19 Nov 1999
Folder: NOV99B Seq: 629 Print: On
User: Batch: Id: ccv Cup: 1 37 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 111999a Range 1-44 Clear seQ Undo eXit PgUp
cup Id Extended id Weight Volume Macro cneck Help
16 4gb1 1.0000 1.0000
17 4gb1 dup 1.0000 1.0000
18 4gb2 1.0000 1.0000
19 4gb2 dup 1.0000 1.0000
20 4gb3 1.0000 1.0000
21 4gb3 dup 1.0000 1.0000
22 4gb4 1.0000 1.0000
23 4gb4 dup 1.0000 1.0000
24 ccb 1.0000 1.0000
25 ccv 1.0000 1.0000
26 4gb5 1.0000 1.0000
27 4gb5 dup 1.0000 1.0000
28 4gb5 trp 1.0000 1.0000
29 4gb67 1.0000 1.0000
30 4gb6 dup 1.0000 1.0000
PgDn
Column entry, Ins to switch

```
Protocol: SYSTEST
                    Rev: 3.001   Time: 15:54:43  19 Nov 1999
Folder: NOV99B      Seq: 629                    Print: On
User:               Batch:           Id: ccv      Cup: 1 37 Gas:   0.23 LPM
State: Idle                                       Xmit: Off Autosampler: On

 AUTOSAMPLER:  Rack entry   Rack 111999a  Range  1-44 Clear seQ Undo eXit   PgUp
cup Id      Extended id          Weight Volume Macro checK Help
31 4gb6 spk                      1.0000 1.0000
32 4gb7                          1.0000 1.0000
33 4go7 dup                      1.0000 1.0000
34 4gb8                          1.0000 1.0000
35 4gb8 dup                      1.0000 1.0000
36 ccb                           1.0000 1.0000
37 ccv                           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

                                                  Column entry, Ins to switch
```

```
Protocol: SYSTEST
                        Rev: 3.001    Time: 16:18:39  19 Nov 1999
Folder: NOV99B          Seq: 630                      Print: On
User:                   Batch:              Id: rbwb4       Cup: 1 02 Gas:    0.23 LPM
State: Idle                                                 Xmit: Off Autosampler: On

AUTOSAMPLER:  Rack entry    Rack 111999a
Cup Id          Extended id             Weight Volume Macro check Help
 1 ico                                  1.0000 1.0000
 2 rbwb4                                1.0000 1.0000
 3 rbwo4 cup                            1.0000 1.0000
 4 rbwb4 trp                            1.0000 1.0000
 5 Swb1                                 1.0000 1.0000
 6 Swb1 dup                             1.0000 1.0000
 7 Swb1 spk                             1.0000 1.0000
 8 Swb2                                 1.0000 1.0000
 9 Swb2 dup                             1.0000 1.0000
10 Swb3                                 1.0000 1.0000
11 Swb3 dup                             1.0000 1.0000
12 Swb4                                 1.0000 1.0000
13 Swb4 dup                             1.0000 1.0000
14 rbgb4                                1.0000 1.0000
15 rbgb4 cup                            1.0000 1.0000
                                                                        PgDn

Cup 1  ID: ico                                  Cell entry, Ins to switch
```

```
Protocol: SYSTEST
                        Rev: 3.001   Time: 16:18:49  19 Nov 1999
Folder: NOV99B          Seq: 630                    Print: On
User:                   Batch:            Id: rbwb4      Cup: 1 02 Gas:    0.23 LPM
State: Idle                                              Xmit: Off Autosampler: On

 AUTOSAMPLER:  Rack entry   Rack 111999a                                    PgUp
Cup Id          Extended id          Weight Volume Macro check Help
16 5gb1                              1.0000 1.0000
17 5gb1 dup                          1.0000 1.0000
18 5gb2                              1.0000 1.0000
19 5gb2 dup                          1.0000 1.0000
20 5gb3                              1.0000 1.0000
21 5gb3 dup                          1.0000 1.0000
22 5gb4                              1.0000 1.0000
23 5gb4 dup                          1.0000 1.0000
24 ccb                               1.0000 1.0000
25 ccv                               1.0000 1.0000
26 5gb5                              1.0000 1.0000
27 5gb5 dup                          1.0000 1.0000
28 5gb5 trp                          1.0000 1.0000
29 5gb6                              1.0000 1.0000
30 5gb6 dup                          1.0000 1.0000
                                                                          PgDn

Cup 16 ID: 5gb1                                  Cell entry, Ins to switch
```

Protocol: SYSTEST

Rev: 3.001 Time: 16:18:52 19 Nov 1999

Folder: NOV99B Seq: 630 Print: On

User: Batch: Id: rbwb4 Cup: 1 02 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

AUTOSAMPLER: Rack entry Rack 111999a PgUp

cup	Id	Extended id	Weight	Volume	Macro check	Help
31	5gb6 spk		1.0000	1.0000		
32	5gb7		1.0000	1.0000		
33	5gb7 dup		1.0000	1.0000		
34	5gb8		1.0000	1.0000		
35	5gb8 dup		1.0000	1.0000		
36	ccb		1.0000	1.0000		
37	ccv		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: 5gb6 spk Cell entry, Ins to switch

*** Standard: 1 Rep: 1 Seq: 585 13:48:00 19 Nov 1999 HG

Hg .000 ug/L -522
Ave. Int. = -522 S. D. = 0

*** Standard: 2 Rep: 1 Seq: 586 13:50:22 19 Nov 1999 HG

Hg .200 ug/L 8546
Ave. Int. = 8546 S. D. = 0

*** Standard: 3 Rep: 1 Seq: 587 13:52:45 19 Nov 1999 HG

Hg .500 ug/L 21538
Ave. Int. = 21538 S. D. = 0

*** Standard: 4 Rep: 1 Seq: 588 13:55:09 19 Nov 1999 HG

Hg 1.00 ug/L 44741
Ave. Int. = 44741 S. D. = 0

*** Standard: 5 Rep: 1 Seq: 589 13:57:35 19 Nov 1999 HG

Hg 2.00 ug/L 88336
Ave. Int. = 88336 S. D. = 0

*** Standard: 6 Rep: 1 Seq: 590 14:00:46 19 Nov 1999 HG

Hg 3.00 ug/L 131285
Ave. Int. = 131285 S. D. = 0

Protocol: SYSTEST
Rev: 3.001 Time: 14:01:18 19 Nov 1999
Folder: NOV99B Seq: 591 Print: On
User: Batch: Id: Std6Rep1 Cup: 1 07 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On

CALIBRATION: Line Calibration

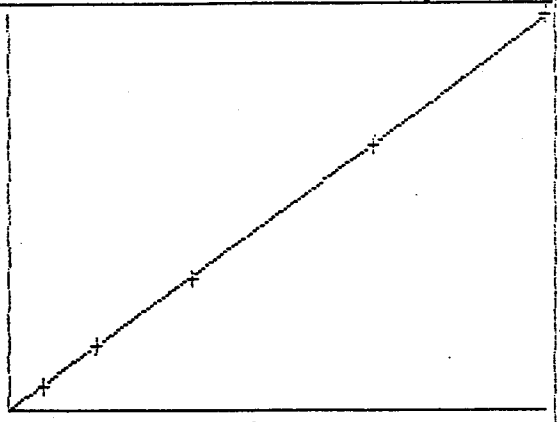
Line: Hg

	Conc.	Calc.	Dev.	Accepted LiNear
S1	.000	-.009	-.009	Quadratic
S2	.200	.198	-.002	WtdLinear
S3	.500	.493	-.007	
S4	1.00	1.02	.020	Accept
S5	2.00	2.01	.011	
S6	3.00	2.99	-.013	StdAdd

A .0000000 r .999939
B 2.27272e-5 C 3.32071e-3

Corrected

	Mean	%RSD	
S1	-522	0	-522
S2	8546	0	8546
S3	21538	0	21538
S4	44741	0	44741
S5	88336	0	88336
S6	131285	0	131285



Relative Absorbance

33?

New calibration coefficients stored

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

*** Check Standard: 2 Ck2 Seq: 591 14:10:52 19 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.	.617	.604	ug/L	.000

*** Sample ID: icb Seq: 592 14:16:50 19 Nov 1999 HG

Hg -.002 ug/L .000 -.002 <0.20ug/L

*** Sample ID: rbwb3 Seq: 593 14:19:07 19 Nov 1999 HG

Hg .011 ug/L .000 .011 <4.0ug/L

*** Sample ID: rbwb3 dup Seq: 594 14:21:24 19 Nov 1999 HG RPD-N/A

Hg .006 ug/L .000 .006 <4.0ug/L

*** Sample ID: rbwb3 trp Seq: 595 14:23:41 19 Nov 1999 HG RPD-N/A

Hg .004 ug/L .000 .004 <4.0ug/L

*** Sample ID: 4wb1 Seq: 596 14:25:58 19 Nov 1999 HG

Hg .006 ug/L .000 .006 <0.68ug

*** Sample ID: 4wb1 dup Seq: 597 14:28:15 19 Nov 1999 HG RPD-N/A

Hg .004 ug/L .000 .004 <0.68ug

*** Sample ID: 4wb1 spk Seq: 598 14:30:33 19 Nov 1999 HG

Hg .964 ug/L .000 .964 96%

*** Sample ID: 4wb2 Seq: 599 14:33:00 19 Nov 1999 HG

Hg -.008 ug/L .000 -.008 <0.78ug

*** Sample ID: 4wb2 dup Seq: 600 14:35:18 19 Nov 1999 HG RPD-N/A

Hg .011 ug/L .000 .011 <0.78ug

*** Sample ID: 4wb3 Seq: 601 14:43:18 19 Nov 1999 HG

Hg .011 ug/L .000 .011 <0.64ug

*** Sample ID: 4wb3 dup Seq: 602 14:45:36 19 Nov 1999 HG RPD-N/A

Hg .006 ug/L .000 .006 <0.64ug

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 4wb4				Seq: 603	14:47:54 19 Nov 1999 HG			
Hg	.008	ug/L	.000	.008				
*** Sample ID: 4wb4 dup				Seq: 604	14:50:10 19 Nov 1999 HG			
Hg	.007	ug/L	.000	.007				
*** Sample ID: rbgb3				Seq: 605	14:52:27 19 Nov 1999 HG			
Hg	.004	ug/L	.000	.004				
*** Sample ID: rbgb3 dup				Seq: 606	14:54:44 19 Nov 1999 HG			
Hg	.007	ug/L	.000	.007				
*** Sample ID: 4gb1				Seq: 607	14:57:01 19 Nov 1999 HG			
Hg	.003	ug/L	.000	.003				
*** Sample ID: 4gb1 dup				Seq: 608	14:59:18 19 Nov 1999 HG			
Hg	.005	ug/L	.000	.005				
*** Sample ID: 4gb2				Seq: 609	15:01:36 19 Nov 1999 HG			
Hg	.054	ug/L	.000	.054				
*** Sample ID: 4gb2 dup				Seq: 610	15:03:54 19 Nov 1999 HG			
Hg	.053	ug/L	.000	.053				
*** Sample ID: 4gb3				Seq: 611	15:06:12 19 Nov 1999 HG			
Hg	.040	ug/L	.000	.040				
*** Sample ID: 4gb3 dup				Seq: 612	15:08:30 19 Nov 1999 HG			
Hg	.039	ug/L	.000	.039				
*** Sample ID: 4gb4				Seq: 613	15:10:48 19 Nov 1999 HG			
Hg	.086	ug/L	.000	.086				
*** Sample ID: 4gb4 dup				Seq: 614	15:13:06 19 Nov 1999 HG			
Hg	.086	ug/L	.000	.086				

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ccb				Seq: 615	15:15:25 19 Nov 1999 HG			
Hg	.001	ug/L	.000	.001				
*** Sample ID: ccv				Seq: 616	15:17:43 19 Nov 1999 HG			
Hg	2.02	ug/L	.000	2.02				
*** Sample ID: 4gb5				Seq: 617	15:20:06 19 Nov 1999 HG			
Hg	-.004	ug/L	.000	-.004				
*** Sample ID: 4gb5 dup				Seq: 618	15:22:24 19 Nov 1999 HG			
Hg	.004	ug/L	.000	.004				
*** Sample ID: 4gb5 trp				Seq: 619	15:24:42 19 Nov 1999 HG			
Hg	.004	ug/L	.000	.004				
*** Sample ID: 4gb67				Seq: 620	15:27:00 19 Nov 1999 HG			
Hg	.039	ug/L	.000	.039				
*** Sample ID: 4gb6 dup				Seq: 621	15:29:18 19 Nov 1999 HG			
Hg	.037	ug/L	.000	.037				
*** Sample ID: 4gb6 spk				Seq: 622	15:31:37 19 Nov 1999 HG			
Hg	1.05	ug/L	.000	1.05				
*** Sample ID: 4gb7				Seq: 623	15:33:57 19 Nov 1999 HG			
Hg	.174	ug/L	.000	.174				
*** Sample ID: 4gb7 dup				Seq: 624	15:36:16 19 Nov 1999 HG			
Hg	.180	ug/L	.000	.180				
*** Sample ID: 4gb8				Seq: 625	15:38:36 19 Nov 1999 HG			
Hg	.174	ug/L	.000	.174				
*** Sample ID: 4gb8 dup				Seq: 626	15:40:56 19 Nov 1999 HG			
Hg	.174	ug/L	.000	.174				

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ccb				Seq: 627	15:43:16 19 Nov 1999 HG			
Hg	.004	ug/L	.000	.004				
*** Sample ID: ccv				Seq: 628	15:45:36 19 Nov 1999 HG			
Hg	1.99	ug/L	.000	1.99				

c0.2ug/L

99%

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

*** Check Standard: 2 Ck2 Seq: 630 16:20:20 19 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		98.8	.597	.604	ug/L	.000

*** Sample ID: icb Seq: 631 16:22:46 19 Nov 1999 HG

Hg -.003 ug/L .000 -.003 < 0.20 ug/L

*** Sample ID: rbwb4 Seq: 632 16:25:03 19 Nov 1999 HG

Hg .005 ug/L .000 .005 < 2.0 ug/L

*** Sample ID: rbwb4 dup Seq: 633 16:27:20 19 Nov 1999 HG RPD-N/A

Hg .010 ug/L .000 .010 < 2.0 ug/L

*** Sample ID: rbwb4 trp Seq: 634 16:29:37 19 Nov 1999 HG RPD-N/A

Hg .005 ug/L .000 .005 < 2.0 ug/L

*** Sample ID: 5wb1 Seq: 635 16:31:54 19 Nov 1999 HG

Hg .003 ug/L .000 .003 < 0.93 ug

*** Sample ID: 5wb1 dup Seq: 636 16:34:11 19 Nov 1999 HG RPD-N/A

Hg .003 ug/L .000 .003 < 0.93 ug

*** Sample ID: 5wb1-spk Seq: 637 16:36:28 19 Nov 1999 HG

Hg 1.02 ug/L .000 1.02 102%

*** Sample ID: 5wb2 Seq: 638 16:38:47 19 Nov 1999 HG

Hg 1.01 ug/L .000 1.01 5.1 ug

*** Sample ID: 5wb2 dup Seq: 639 16:41:08 19 Nov 1999 HG RPD = 1.96%

Hg 1.03 ug/L .000 1.03 5.2 ug

*** Sample ID: 5wb3 Seq: 640 16:43:26 19 Nov 1999 HG

Hg .999 ug/L .000 .999 4.90 ug

*** Sample ID: 5wb3 dup Seq: 641 16:45:46 19 Nov 1999 HG RPD = 1.09%

Hg 1.01 ug/L .000 1.01 4.95 ug

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: 5wb4				Seq: 642	16:48:04 19 Nov 1999 HG				5.39µg
Hg	1.16	ug/L	.000	1.16					
*** Sample ID: 5wb4 dup				Seq: 643	16:50:25 19 Nov 1999 HG				RPD=0.858% 5.44µg
Hg	1.17	ug/L	.000	1.17					
*** Sample ID: rbgb4				Seq: 644	16:52:44 19 Nov 1999 HG				<2.0µg/L
Hg	-.006	ug/L	.000	-.006					
*** Sample ID: rbgb4 dup				Seq: 645	16:55:01 19 Nov 1999 HG				RPD NA <2.0µg/L
Hg	.003	ug/L	.000	.003					
*** Sample ID: 5gb1				Seq: 646	16:57:18 19 Nov 1999 HG				<0.90µg
Hg	.004	ug/L	.000	.004					
*** Sample ID: 5gb1 dup				Seq: 647	16:59:35 19 Nov 1999 HG				<0.90µg
Hg	.007	ug/L	.000	.007					
*** Sample ID: 5gb2				Seq: 648	17:01:53 19 Nov 1999 HG				4.6µg
Hg	1.00	ug/L	.000	1.00					
*** Sample ID: 5gb2 dup				Seq: 649	17:04:12 19 Nov 1999 HG				RPD=1.0% 4.55µg
Hg	.990	ug/L	.000	.990					
*** Sample ID: 5gb3				Seq: 650	17:06:30 19 Nov 1999 HG				1.82µg
Hg	.357	ug/L	.000	.357					
*** Sample ID: 5gb3 dup				Seq: 651	17:08:48 19 Nov 1999 HG				RPD=1.39% 1.84µg
Hg	.362	ug/L	.000	.362					
*** Sample ID: 5gb4				Seq: 652	17:11:07 19 Nov 1999 HG				2.34µg
Hg	.390	ug/L	.000	.390					
*** Sample ID: 5gb4 dup				Seq: 653	17:13:25 19 Nov 1999 HG				RPD=1.02% 2.36µg
Hg	.394	ug/L	.000	.394					

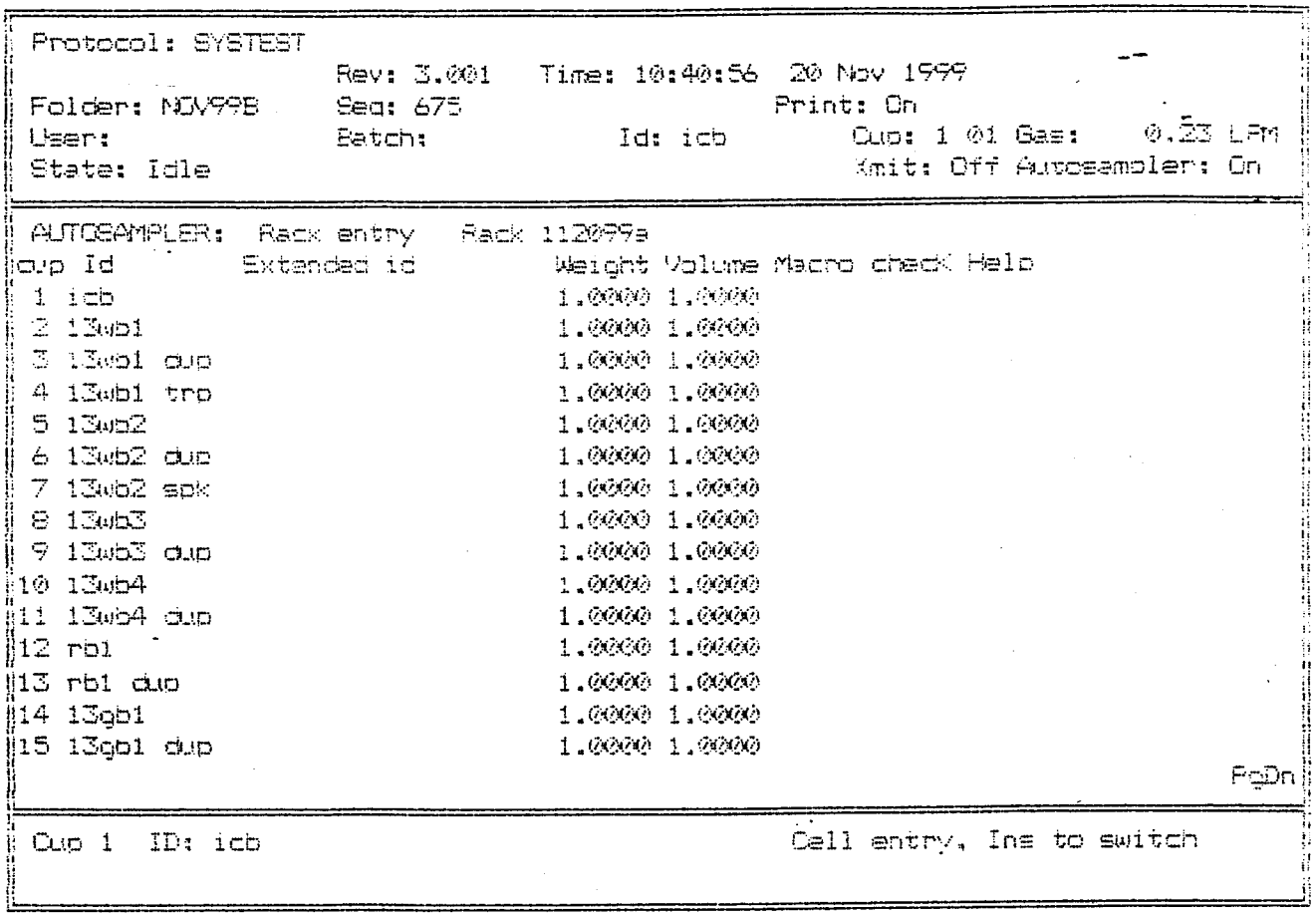
Line	Conc.	Units	SD/RSD	1	2	3	4	5	-
*** Sample ID: ccb				Seq:	654	17:15:43 19 Nov 1999 HG			
Hg	-.001	ug/L	.000	-.001					
*** Sample ID: ccv				Seq:	655	17:18:01 19 Nov 1999 HG			
Hg	1.95	ug/L	.000	1.95					
*** Sample ID: 5gb5				Seq:	656	17:20:30 19 Nov 1999 HG			
Hg	-.005	ug/L	.000	-.005					
*** Sample ID: 5gb5 dup				Seq:	657	17:22:48 19 Nov 1999 HG			
Hg	.004	ug/L	.000	.004					
*** Sample ID: 5gb5 trp				Seq:	658	17:25:06 19 Nov 1999 HG			
Hg	.004	ug/L	.000	.004					
*** Sample ID: 5gb6				Seq:	659	17:27:24 19 Nov 1999 HG			
Hg	2.04	ug/L	.000	2.04					
*** Sample ID: 5gb6 dup				Seq:	660	17:29:47 19 Nov 1999 HG			
Hg	2.04	ug/L	.000	2.04					
*** Sample ID: 5gb6 sok				Seq:	661	17:32:17 19 Nov 1999 HG			
Hg	1.74	ug/L	.000	1.74					
*** Sample ID: 5gb7				Seq:	662	17:34:51 19 Nov 1999 HG			
Hg	1.75	ug/L	.000	1.75					
*** Sample ID: 5gb7 dup				Seq:	663	17:37:16 19 Nov 1999 HG			
Hg	1.77	ug/L	.000	1.77					
*** Sample ID: 5gb8				Seq:	664	17:39:44 19 Nov 1999 HG			
Hg	1.94	ug/L	.000	1.94					
*** Sample ID: 5gb8 dup				Seq:	665	17:42:08 19 Nov 1999 HG			
Hg	1.91	ug/L	.000	1.91					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ccb				Seq: 666		17:44:39 19 Nov 1999 HG		
Hg	-.009	ug/L	.000	-.009				
*** Sample ID: ccv				Seq: 667		17:47:00 19 Nov 1999 HG		
Hg	1.96	ug/L	.000	1.96				

<0.2 ug/L

98%

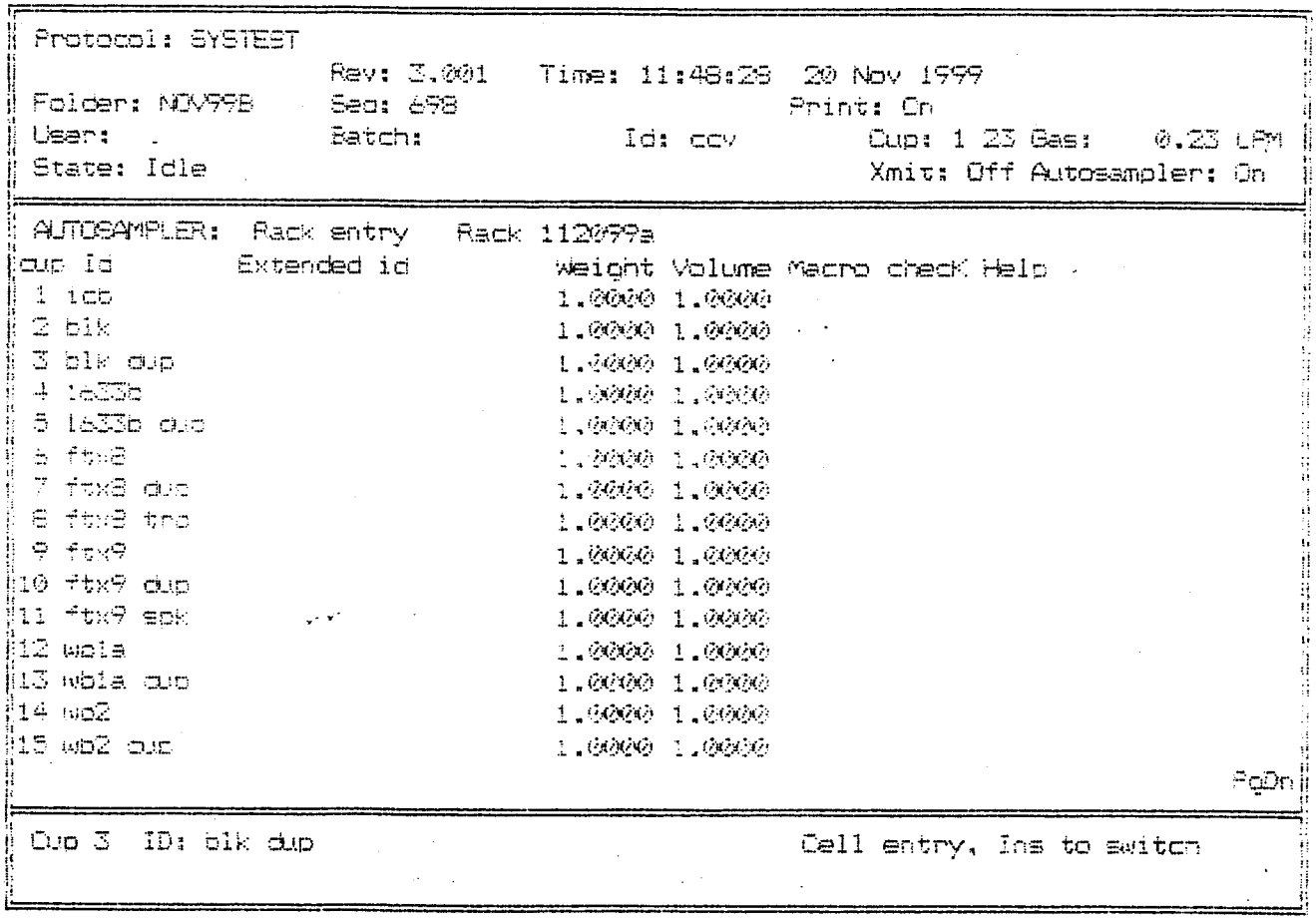
11/20/99 Analytical Run

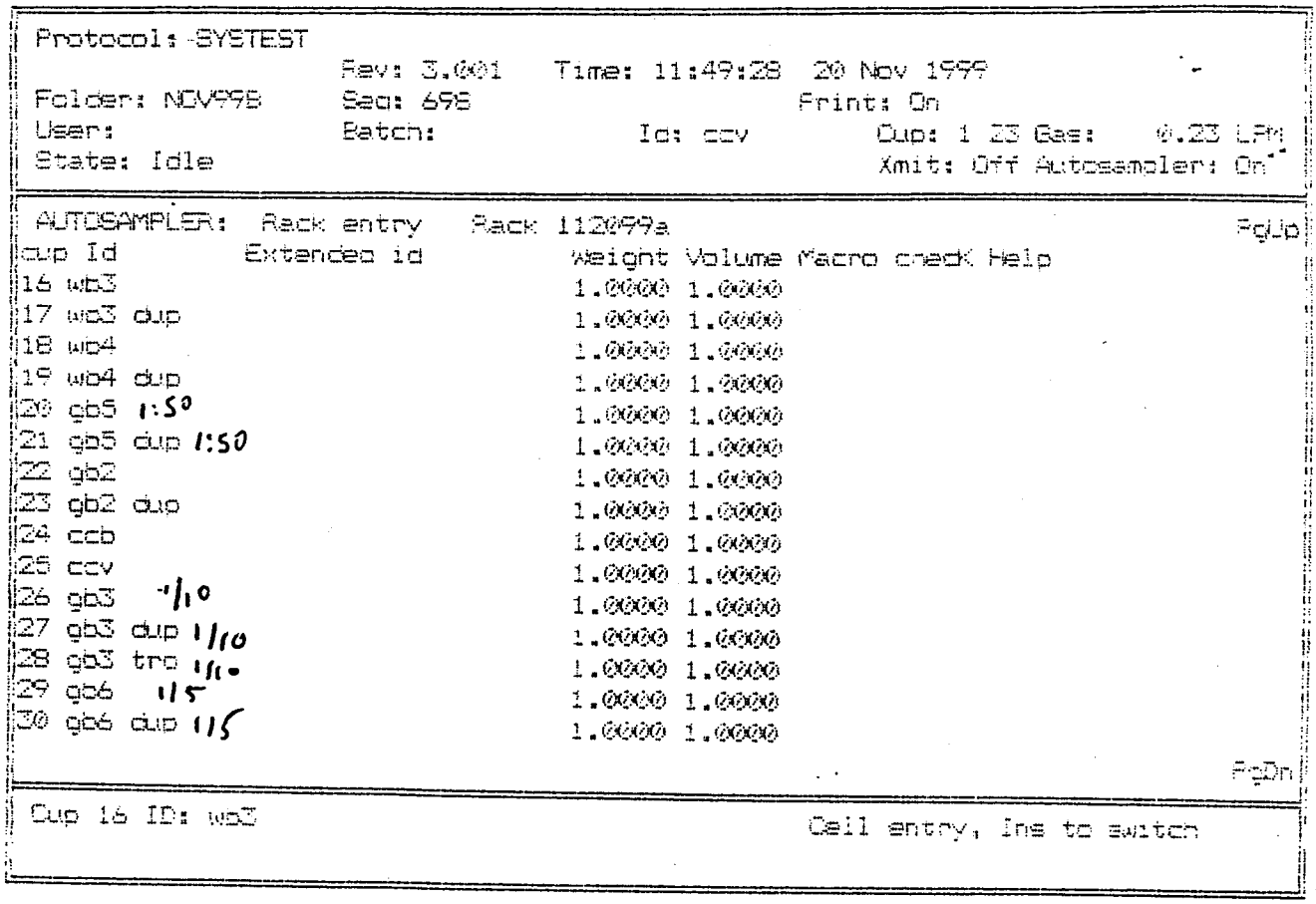

Protocol: SYSTEST
Rev: 3.001 Time: 10:40:56 20 Nov 1999
Folder: NOV99B Seq: 675 Print: On
User: Batch: Id: icb Cup: 1 01 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 112099a
Cup Id Extended id Weight Volume Macro check Help
1 icb 1.0000 1.0000
2 13wb1 1.0000 1.0000
3 13wb1 cup 1.0000 1.0000
4 13wb1 trp 1.0000 1.0000
5 13wb2 1.0000 1.0000
6 13wb2 cup 1.0000 1.0000
7 13wb2 spk 1.0000 1.0000
8 13wb3 1.0000 1.0000
9 13wb3 cup 1.0000 1.0000
10 13wb4 1.0000 1.0000
11 13wb4 cup 1.0000 1.0000
12 rb1 1.0000 1.0000
13 rb1 cup 1.0000 1.0000
14 13gb1 1.0000 1.0000
15 13gb1 cup 1.0000 1.0000
PgDn
Cup 1 ID: icb
Cell entry, Ins to switch

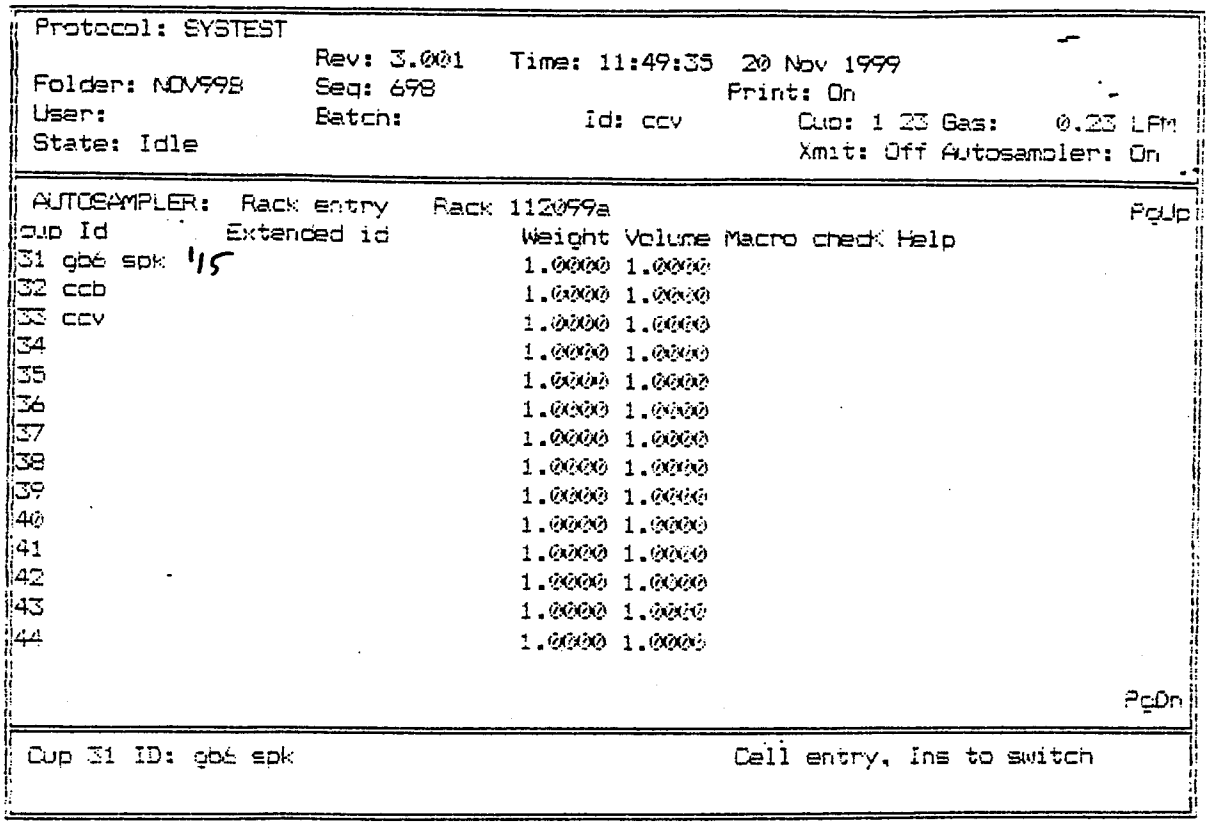
```
Protocol: SYSTEST
                    Rev: 3.001   Time: 10:41:06  20 Nov 1999
Folder: NOV99B      Seq: 675                    Print: On
User:               Batch:            Id: icb       Cup: 1 01 Gas:    0.23 LPM
State: Idle                                           Xmit: Off Autosampler: On
```

```
AUTOSAMPLER:  Rack entry   Rack 112099a                                    PgUp
Cup Id        Extended id          Weight Volume Macro check Help
16 13gb2                           1.0000 1.0000
17 13gb2 dup                       1.0000 1.0000
18 13gb3                           1.0000 1.0000
19 13gb3 dup                       1.0000 1.0000
20 13gb4                           1.0000 1.0000
21 13gb4 dup                       1.0000 1.0000
22 ccb                             1.0000 1.0000
23 ccv                             1.0000 1.0000
24                                 1.0000 1.0000
25                                 1.0000 1.0000
26                                 1.0000 1.0000
27                                 1.0000 1.0000
28                                 1.0000 1.0000
29                                 1.0000 1.0000
30                                 1.0000 1.0000
                                                                          PgDn
```

```
Cup 16 ID: 13gb2                                  Call entry, Ins to switch
```

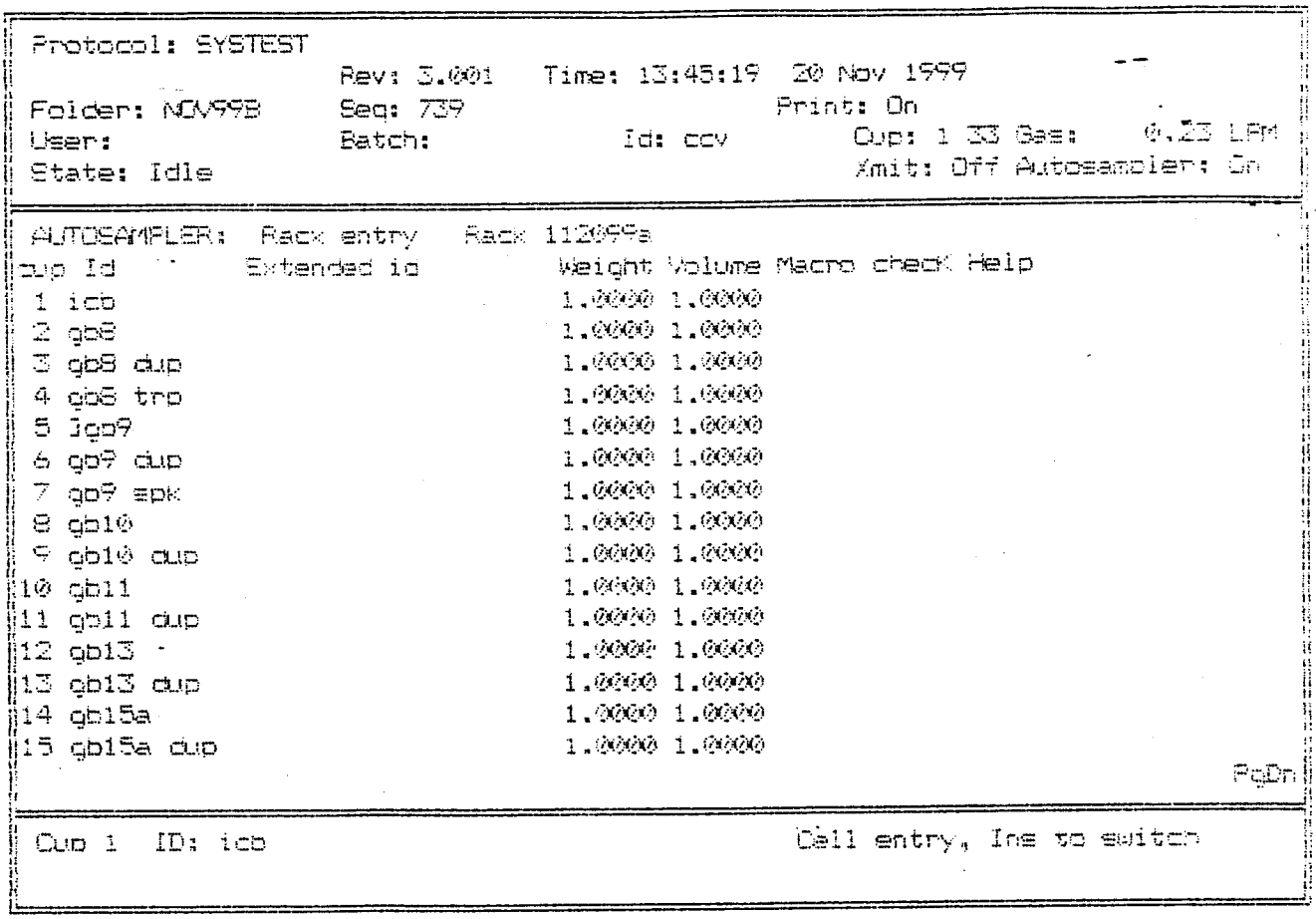

Protocol: SYSTEST
Rev: 3.001 Time: 11:48:29 20 Nov 1999
Folder: NOV99B Seq: 698 Print: On
User: Batch: Id: ccv Cup: 1 23 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 112099a
Cup Id Extended id Weight Volume Macro check Help
1 icb 1.0000 1.0000
2 blk 1.0000 1.0000
3 blk dup 1.0000 1.0000
4 ic33b 1.0000 1.0000
5 ic33b dup 1.0000 1.0000
6 ftx2 1.0000 1.0000
7 ftx3 dup 1.0000 1.0000
8 ftx3 trp 1.0000 1.0000
9 ftx9 1.0000 1.0000
10 ftx9 dup 1.0000 1.0000
11 ftx9 spk 1.0000 1.0000
12 wc1a 1.0000 1.0000
13 wc1a dup 1.0000 1.0000
14 wc2 1.0000 1.0000
15 wc2 dup 1.0000 1.0000
PgDn
Cup 3 ID: blk dup
Cell entry, Ins to switch

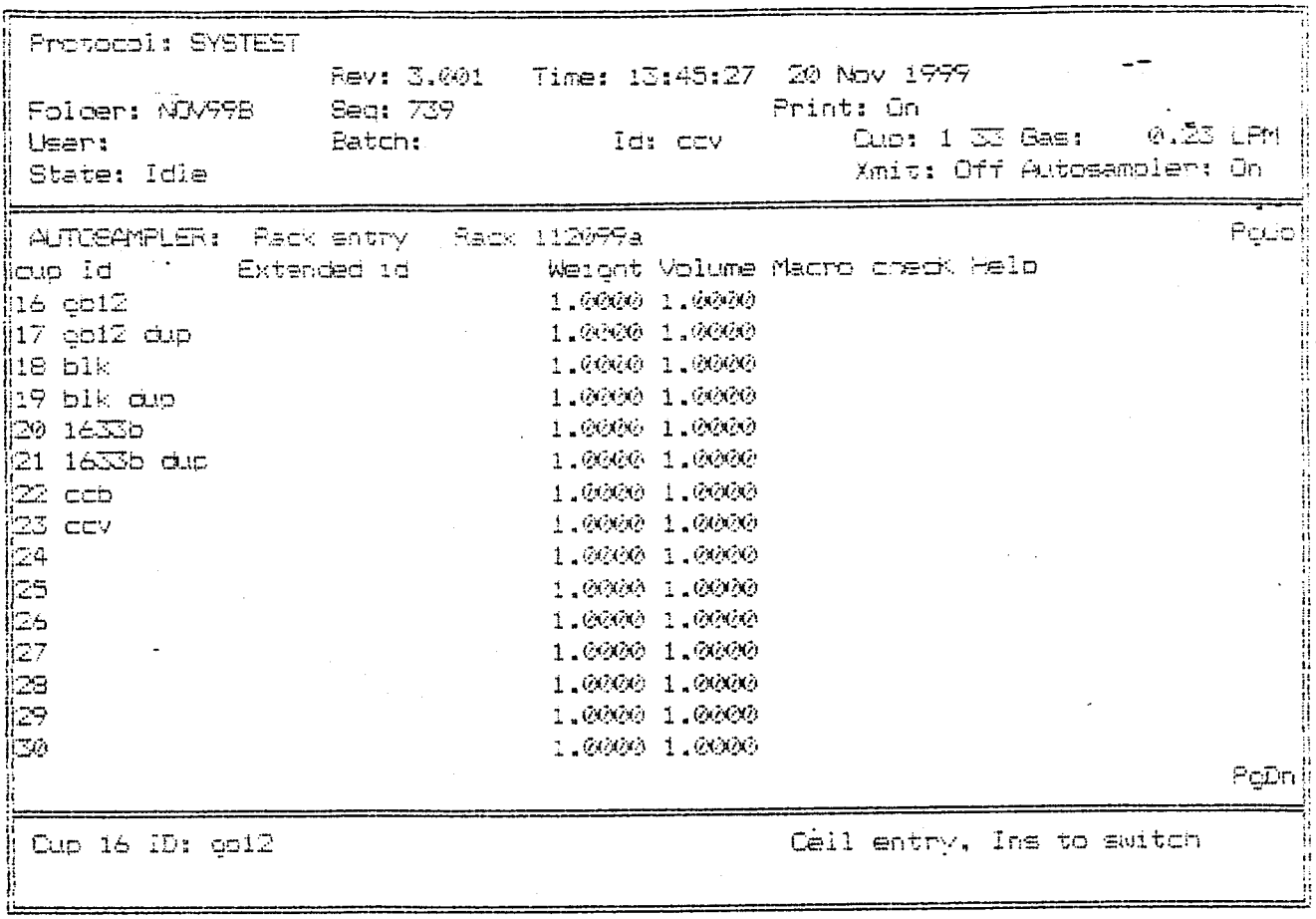

Protocol: SYSTEST
Rev: 3.001 Time: 11:49:28 20 Nov 1999
Folder: NOV99B Seq: 698 Print: On
User: Batch: Id: ccv Cup: 1 23 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 112099a PgUp
Cup Id Extended id Weight Volume Macro Check Help
16 wb3 1.0000 1.0000
17 wb3 dup 1.0000 1.0000
18 wb4 1.0000 1.0000
19 wb4 dup 1.0000 1.0000
20 gb5 1:50 1.0000 1.0000
21 gb5 dup 1:50 1.0000 1.0000
22 gb2 1.0000 1.0000
23 gb2 dup 1.0000 1.0000
24 ccb 1.0000 1.0000
25 ccv 1.0000 1.0000
26 gb3 1/10 1.0000 1.0000
27 gb3 dup 1/10 1.0000 1.0000
28 gb3 trp 1/10 1.0000 1.0000
29 gb6 1:5 1.0000 1.0000
30 gb6 dup 1:5 1.0000 1.0000
PgDn
Cup 16 ID: wb3
Cell entry, Ins to switch



11:51:03 20 Nov 1999 Folder: NOV998 Page 207
Protocol: SYSTEST

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


Protocol: SYSTEST
Rev: 3.001 Time: 13:45:19 20 Nov 1999
Folder: NOV99B Seq: 739 Print: On
User: Batch: Id: ccv Cup: 1 33 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 112099a
Cup Id Extended id Weight Volume Macro check Help
1 icb 1.0000 1.0000
2 gb8 1.0000 1.0000
3 gb8 dup 1.0000 1.0000
4 gb8 trp 1.0000 1.0000
5 lgb9 1.0000 1.0000
6 gb9 dup 1.0000 1.0000
7 gb9 spk 1.0000 1.0000
8 gb10 1.0000 1.0000
9 gb10 dup 1.0000 1.0000
10 gb11 1.0000 1.0000
11 gb11 dup 1.0000 1.0000
12 gb13 1.0000 1.0000
13 gb13 dup 1.0000 1.0000
14 gb15a 1.0000 1.0000
15 gb15a dup 1.0000 1.0000
PgDn
Cup 1 ID: icb
Call entry, Ins to switch


Protocol: SYSTEST
Rev: 3.001 Time: 13:45:27 20 Nov 1999
Folder: NOV99B Seq: 739 Print: On
User: Batch: Id: ccv Cup: 1 33 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On
AUTOSAMPLER: Rack entry Rack 112099a PgUp
Cup Id Extended id Weight Volume Macro check Help
16 gp12 1.0000 1.0000
17 gp12 dup 1.0000 1.0000
18 blk 1.0000 1.0000
19 blk dup 1.0000 1.0000
20 1633b 1.0000 1.0000
21 1633b dup 1.0000 1.0000
22 ccb 1.0000 1.0000
23 ccv 1.0000 1.0000
24 1.0000 1.0000
25 1.0000 1.0000
26 1.0000 1.0000
27 1.0000 1.0000
28 1.0000 1.0000
29 1.0000 1.0000
30 1.0000 1.0000
PgDn
Cup 16 ID: gp12
Cell 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: SYSTEST

Rev: 3.001 Time: 10:32:37 20 Nov 1999

Folder: NOV99B Seq: 674 Print: On

User: Batch: Id: Std6Rep1 Cup: 1 37 Gas: 8.23 LPM

State: Idle Xmit: Off Autosampler: On

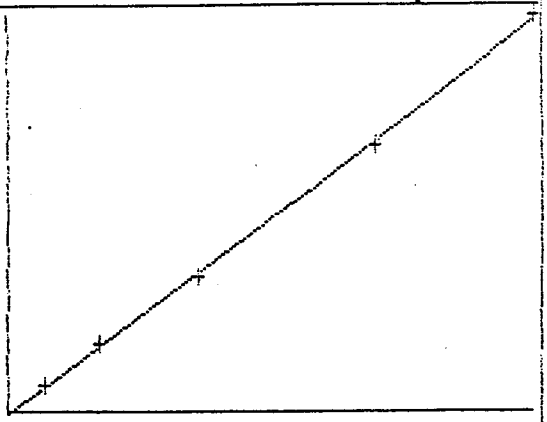
CALIBRATION: Line Calibration

Line: Hg

	Conc.	Calc.	Dev.	Accepted LiNear
S1	.000	-.024	-.024	Quadratic
S2	.200	.190	-.010	WtdLinear
S3	.500	.491	-.009	C
S4	1.00	1.04	.045	Accept o
S5	2.00	2.04	.037	n
S6	3.00	2.96	-.039	StdAdd c

A .0000000 r .999583

B 2.27976e-5 C -1.72878e-2



Relative Absorbance

	Mean	%RSD	
S1	-281	0	-281
S2	9077	0	9077
S3	22389	0	22389
S4	46590	0	46590
S5	90185	0	90185
S6	138620	0	138620

337

New calibration coefficients stored

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

*** Check Standard: 2 Ck2 Seq: 674 10:37:48 20 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		99.7	.602	.604	ug/L	.000

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: icb				Seq: 675	10:43:13 20 Nov 1999 HG			
Hg	-.020	ug/L	.000	-.020				
*** Sample ID: 13wb1				Seq: 676	10:45:30 20 Nov 1999 HG			
Hg	.085	ug/L	.000	.085				
*** Sample ID: 13wb1 dup				Seq: 677	10:47:47 20 Nov 1999 HG			
Hg	.084	ug/L	.000	.084				
*** Sample ID: 13wb1 trp				Seq: 678	10:50:04 20 Nov 1999 HG			
Hg	.085	ug/L	.000	.085				
*** Sample ID: 13wb2				Seq: 679	10:52:21 20 Nov 1999 HG			
Hg	.195	ug/L	.000	.195				
*** Sample ID: 13wb2 dup				Seq: 680	10:54:38 20 Nov 1999 HG			
Hg	.193	ug/L	.000	.193				
*** Sample ID: 13wb2 spk				Seq: 681	10:56:55 20 Nov 1999 HG			
Hg	1.21	ug/L	.000	1.21				
*** Sample ID: 13wb3				Seq: 682	10:59:15 20 Nov 1999 HG			
Hg	.075	ug/L	.000	.075				
*** Sample ID: 13wb3 dup				Seq: 683	11:01:33 20 Nov 1999 HG			
Hg	.084	ug/L	.000	.084				
*** Sample ID: 13wb4				Seq: 684	11:03:51 20 Nov 1999 HG			
Hg	.651	ug/L	.000	.651				
*** Sample ID: 13wb4 dup				Seq: 685	11:06:11 20 Nov 1999 HG			
Hg	.656	ug/L	.000	.656				
*** Sample ID: rb1				Seq: 686	11:08:30 20 Nov 1999 HG			
Hg	-.007	ug/L	.000	-.007				

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: rpl dup				Seq: 687	11:10:46 20 Nov 1999 HG			
Hg	-.001	ug/L	.000	-.001				
*** Sample ID: 13gb1				Seq: 688	11:13:03 20 Nov 1999 HG			
Hg	.621	ug/L	.000	.621				
*** Sample ID: 13gb1 dup				Seq: 689	11:15:20 20 Nov 1999 HG			
Hg	.603	ug/L	.000	.603				
*** Sample ID: 13gb2				Seq: 690	11:17:40 20 Nov 1999 HG			
Hg	.068	ug/L	.000	.068				
*** Sample ID: 13gb2 dup				Seq: 691	11:19:57 20 Nov 1999 HG			
Hg	.065	ug/L	.000	.065				
*** Sample ID: 13gb3				Seq: 692	11:22:15 20 Nov 1999 HG			
Hg	.641	ug/L	.000	.641				
*** Sample ID: 13gb3 dup				Seq: 693	11:24:33 20 Nov 1999 HG			
Hg	.640	ug/L	.000	.640				
*** Sample ID: 13gb4				Seq: 694	11:26:52 20 Nov 1999 HG			
Hg	.150	ug/L	.000	.150				
*** Sample ID: 13gb4 dup				Seq: 695	11:29:10 20 Nov 1999 HG			
Hg	.158	ug/L	.000	.158				
*** Sample ID: ccb				Seq: 696	11:31:28 20 Nov 1999 HG			
Hg	-.018	ug/L	.000	-.018				
*** Sample ID: ccv				Seq: 697	11:33:46 20 Nov 1999 HG			
Hg	2.00	ug/L	.000	2.00				

*** 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	.000

*** Sample ID: icb Seq: 700 11:56:03 20 Nov 1999 HG

Hg -.027 ug/L .000 -.027 < 0.2 ng/L

*** Sample ID: blk Seq: 701 11:58:20 20 Nov 1999 HG

Hg .087 ug/L .000 .087 < 0.2 ng/L

*** Sample ID: blk dup Seq: 702 12:00:37 20 Nov 1999 HG

< 0.2 ng/L

Hg .081 ug/L .000 .081

*** Sample ID: 1633b Seq: 703 12:02:54 20 Nov 1999 HG

TV = 0.141 0.155 µg/g DW 110%

Hg 1.55 ug/L .000 1.55

*** Sample ID: 1633b dup Seq: 704 12:05:15 20 Nov 1999 HG RPD = 1.29%

TV = 0.141 0.153 µg/g DW 109%

Hg 1.53 ug/L .000 1.53

*** Sample ID: ftx8 Seq: 705 12:07:38 20 Nov 1999 HG

8/18/99

Hg .906 ug/L .000 .906

*** Sample ID: ftx8 dup Seq: 706 12:10:00 20 Nov 1999 HG

Hg .922 ug/L .000 .922

*** Sample ID: ftx8 trp Seq: 707 12:12:19 20 Nov 1999 HG

Hg .922 ug/L .000 .922

*** Sample ID: ftx9 Seq: 708 12:14:39 20 Nov 1999 HG

Hg 1.52 ug/L .000 1.52

*** Sample ID: ftx9 dup Seq: 709 12:17:03 20 Nov 1999 HG

Hg 1.52 ug/L .000 1.52

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

Hg 2.50 ug/L .000 2.50 11/18/99

*** Sample ID: wb1a 47Q53 Seq: 711 12:21:53 20 Nov 1999 HG
<0.01 ug

Hg .022 ug/L .000 .022

*** Sample ID: wb1a dup 47Q53DUP Seq: 712 12:24:09 20 Nov 1999 HG RPD- N/A
<0.01 ug

Hg .029 ug/L .000 .029

*** Sample ID: wb2 47Q51 Seq: 713 12:26:25 20 Nov 1999 HG
<0.01 ug

Hg .064 ug/L .000 .064

*** Sample ID: wb2 dup 47Q51DUP Seq: 714 12:28:42 20 Nov 1999 HG RPD- N/A
<0.01 ug

Hg .063 ug/L .000 .063

*** Sample ID: wb3 47Q52 Seq: 715 12:30:59 20 Nov 1999 HG
<0.01 ug

Hg .080 ug/L .000 .080

*** Sample ID: wb3 dup 47Q52 DUP Seq: 716 12:33:16 20 Nov 1999 HG RPD- N/A
<0.01 ug

Hg .081 ug/L .000 .081

*** Sample ID: wb4 47Q56 Seq: 717 12:35:34 20 Nov 1999 HG
0.02 ug

Hg .306 ug/L .000 .306

*** Sample ID: wb4 dup 47Q56DUP Seq: 718 12:37:52 20 Nov 1999 HG RPD=0.33%
0.02 ug

Hg .305 ug/L .000 .305

~~*** Sample ID: qb5 Q39 Seq: 719 12:40:10 20 Nov 1999 HG~~

Hg 32.8 ug/L .000 32.8 No data, >LR

*** Sample ID: qb5 dup Q39DUP Seq: 720 12:43:08 20 Nov 1999 HG

Hg 32.9 ug/L .000 32.9 No data, >LR

~~*** Sample ID: qb2 Q33 Seq: 721 12:46:08 20 Nov 1999 HG~~

Hg 1.40 ug/L .000 1.40 1.18 ug

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

Hg 1.42 ug/L .000 1.42 1.20ug

*** Sample ID: gb5 1:50 Seq: 723 12:52:07 20 Nov 1999 HG

Hg .804 ug/L .000 .804 40.11ug

*** Sample ID: gb5 dup 1:50 Seq: 724 12:54:26 20 Nov 1999 HG RPD=0.87%

Hg .811 ug/L .000 .811 40.46ug

*** Sample ID: ccb Seq: 725 13:02:38 20 Nov 1999 HG

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

*** Sample ID: ccv Seq: 726 13:04:56 20 Nov 1999 HG

Hg 1.96 ug/L .000 1.96 98%

*** Sample ID: gb3 Seq: 727 13:07:25 20 Nov 1999 HG

Hg 8.32 ug/L .000 8.32 NO DATA, >LR

*** Sample ID: gb3 dup Seq: 728 13:10:05 20 Nov 1999 HG

Hg 8.23 ug/L .000 8.23 NO DATA, >LR

*** Sample ID: gb3 trp Seq: 729 13:12:39 20 Nov 1999 HG

Hg 8.34 ug/L .000 8.34 NO DATA, >LR

*** Sample ID: gb3 1:10 Seq: 730 13:17:17 20 Nov 1999 HG

Hg .877 ug/L .000 .877 9.65ug

*** Sample ID: gb3 dup 1:10 Seq: 731 13:19:35 20 Nov 1999 HG RPD=0.114%

Hg .876 ug/L .000 .876 9.64ug

*** Sample ID: gb3 trp 1:10 Seq: 732 13:21:54 20 Nov 1999 HG RPD=0.114%

Hg .876 ug/L .000 .876 9.64ug

*** Sample ID: gb6 Seq: 733 13:24:13 20 Nov 1999 HG

Hg 5.94 ug/L .000 5.94 NO DATA, >LR

Hg 1.20 ug/L .000 1.20 4.8 µg

*** Sample ID: gb6 dup 1:5 Seq: 735 13:31:41 20 Nov 1999 HG RPD -N/A

Hg 1.20 ug/L .000 1.20 4.8 µg =

*** Sample ID: gb6 spk 1:5 Seq: 736 13:34:02 20 Nov 1999 HG

~~Hg 2.17 ug/L .000 2.17~~ ~~97%~~

*** Sample ID: ccb Seq: 737 13:36:23 20 Nov 1999 HG

Hg -.031 ug/L .000 -.031 20.2 µg IC

*** Sample ID: ccv Seq: 738 13:38:42 20 Nov 1999 HG

Hg 1.98 ug/L .000 1.98 99%

METCO Particulate Analysis Record

METCO Environmental

Particulate Analysis EPA Method 5

Front Wash

Job Number 99-95 WAB Location Terre Haute, Ind.

Job Name EPRI Unit Tested Unit 1 Stack

Desiccator Time In	1630 10/29				
Desiccator Time Out	835 11/1	1645 11/1			

Run No. 1	Volume (ml) 70				
Final Weight (g)	164.4048	164.4053	✓		
Initial Weight (g)	164.4020	164.4020			
Particulate Weight (g)	0.0028	0.0033			

Particulate Average (mg) 3.1 ✓

Less Acetone Blank (mg) 0.6

Total Particulate (mg) 2.5 ✓

Run No. 2	Volume (ml) 54				
Final Weight (g)	174.6874	174.6877	✓		
Initial Weight (g)	174.6848	174.6848			
Particulate Weight (g)	0.0026	0.0029			

Particulate Average (mg) 2.8 ✓

Less Acetone Blank (mg) 0.4

Total Particulate (mg) 2.4 ✓

Run No. 3	Volume (ml) 26				
Final Weight (g)	126.8481	126.8482	✓		
Initial Weight (g)	126.8465	126.8465			
Particulate Weight (g)	0.0016	0.0017			

Particulate Average (mg) 1.7 ✓

Less Acetone Blank (mg) 0.2

Total Particulate (mg) 1.5 ✓

Acetone Blank ✓	Volume (ml) 200				
Final Weight (g)	164.3926	164.3925	✓		
Initial Weight (g)	164.3891	164.3891			
Difference (g)	0.0035	0.0034			

Average (mg) 3.5 ✓

* mg/l 17.5

* Note: If greater than 7.9 mg/l, use 7.9 mg/l.

MH

Analyst

METCO Environmental

Particulate Analysis EPA Method 5

Stack Filters

Job Number 99-95WAB

Job Name Cinergy

Location W. Terre Haute, Ind

Unit Tested Wabash #1 Stack

Desiccator Time In	10/25					
Desiccator Time Out	1412 10/28	1042 10/29				

Run No. 1	Filter No. (47) Q51 in pieces				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.1069	0.1073			

Filter & Particulate Average (g) 0.1071 ✓

Initial Filter Weight (g) 0.1089 ✓

Total Particulate (mg) 0 ✓

Run No. 2	Filter No. Q52				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.1052	0.1053	✓		

Filter & Particulate Average (g) 0.1053 ✓

Initial Filter Weight (g) 0.1069 ✓

Total Particulate (mg) 0 ✓

Run No. 3	Filter No. Q56				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)	0.1081	0.1080	✓		

Filter & Particulate Average (g) 0.1081 ✓

Initial Filter Weight (g) 0.1083 ✓

Total Particulate (mg) 0 ✓

Run No. _____	Filter No. _____				
Filter & Particulate + Tare Weight (g)					
Tare Weight (g)					
Filter & Particulate (g)					

Filter & Particulate Average (g) _____

Initial Filter Weight (g) _____

Total Particulate (mg) _____

Analyst

METCO Environmental

Particulate Analysis Summary

Job Number 99-95 WAB
Job Name Cinergy
Location W. Terre Haute, Ind.

Date Analysis Completed 11-2-99
Unit Tested Wabash #1 Stack

Run No.	1	2	3		
Particulate on Filter (mg)	0 ✓	0 ✓	0 ✓		
Particulate in Front Wash (mg)*	2.5 ✓	2.4 ✓	1.5 ✓		
MF (mg)	2.5 ✓	2.4 ✓	1.5 ✓		
Particulate in Impinger #1 (mg)**					
MT (mg)					

M. Gantes
Analyst

* Less Acetone Residue

** Less Ammonium Sulfate

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: 188422
Received: 24-NOV-99
Reported: 16-DEC-99

PURCHASE ORDER: 99-95-WAB

Project Description: WAB. River HR56
BTU, Ash, Sulfur, Chloride

	AS RECEIVED BASIS	DRY BASIS	UNITS	METHOD	DATE	ANALYST
Run 1 Fuel Comp. (Cinergy Repowering)						
Lab Sample: 1384771						
sampled: 12-OCT-99 03:30						
Moisture, Total	14.8		%	D 3302	01-DEC-99	GLB
SHORT PROX - COAL						
Ash	11.1	13.0	%	D 3174	08-DEC-99	VJO
Sulfur	2.32	2.72	%	D 4239	08-DEC-99	VJO
Heating Value	10510	12350	BTU/lb	D 3286	02-DEC-99	VJO
Chloride, Total	0.05	0.06	%	E776/300.0	14-DEC-99	DRK
Run 2 Fuel Comp. (Cinergy Repowering)						
Lab Sample: 1384772						
sampled: 12-OCT-99 07:00						
Moisture, Total	15.7		%	D 3302	01-DEC-99	GLB
SHORT PROX - COAL						
Ash	10.7	12.7	%	D 3174	08-DEC-99	VJO
Sulfur	2.32	2.75	%	D 4239	08-DEC-99	VJO
Heating Value	10570	12530	BTU/lb	D 3286	02-DEC-99	VJO
Chloride, Total	0.05	0.06	%	E776/300.0	14-DEC-99	DRK
Run 3 Fuel Comp. (Cinergy Repowering)						
Lab Sample: 1384773						
sampled: 12-OCT-99 12:00						
Moisture, Total	15.9		%	D 3302	01-DEC-99	GLB
SHORT PROX - COAL						
Ash	11.0	13.1	%	D 3174	08-DEC-99	VJO
Sulfur	2.43	2.89	%	D 4239	08-DEC-99	VJO
Heating Value	10550	12540	BTU/lb	D 3286	08-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: 188422

	AS RECEIVED BASIS	DRY BASIS	UNITS	METHOD	DATE	ANALYST
Run 3 Fuel Comp. (Cinergy Repowering)						
Lab Sample: 1384773 - continued						
Chloride, Total	0.05	0.06	%	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 #: 188425,188261,188422,188423

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		
1383833-Ash					5.24	5.28	0.80	11.8	11.7	99	N/A	0.01
1384773-Sulfur					2.58	2.56	0.77	1.78	1.77	99	N/A	0.01
1384773-Heating Value					11271	11279	0.10	13350	13410	100	N/A	50
1383833-Chlorine					0.02	0.02	0	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) ⇨													

188422

Report Results To:
PO # 99-95-WAG Job ID WAB. RIVER HRSG
Name DOUG SAOTHOFF
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
BIU CONTENT — ASTM-D-3286
FLY ASH — ASTM-D-3174
SULFUR — ASTM-D-5016
CHLORIDE — ASTM-?

Page 1 of 1
PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled					Comments/Hazards/Location Details
1	RUN1 FUEL COMP.			10/12/99	0000-0330	X	X	X	X	ATTN CHRIS WEATHINGTON
2	RUN2 FUEL COMP.			10/12/99	0400-0700	X	X	X	X	TEST AMERICA, INC.
3	RUN3. FUEL COMP.			10/12/99	0730-1100	X	X	X	X	3601 S. DIXIE DRIVE
4										DAYTON, OH 45439
5										PH: 1-800-572-9839
6	*SEE ATTACHED									* AFTER SAMPLE HAS BEEN
7	INSTRUCTIONS									PREPPED. PLEASE RETURN A
8	⟶									4 oz. JAR SAMPLE TO TEST
9										AMERICA AT THE ABOVE
10										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 11/24	Time 1000

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:

Samples Cancelled Cinergy Repowering. 11-24-99

D-76

TOTAL P.06

TestAmerica
INCORPORATED

Sample ID: Cinergy
Wabash River Repowering Project
West Terre Haute
Coal Samples

Hg Analysis
ASTM D6414-99

Collected On:10/12/99
Collected By: METCO

	Digestion Date	Analysis Date	Analyst	Results	Duplicate Result	RPD	Units	Dry Weight (%)	Flags	Notes
Run 1 Composite	12/20/99	12/24/99	jpp	0.064	0.065	1.7	ug/g	91.5		
Run 2 Composite	12/20/99	12/24/99	jpp	0.068	0.068	<1.0	ug/g	89.8	*1	
Run 3 Composite	12/20/99	12/24/99	jpp	0.070	0.069	<1.0	ug/g	90.1		

Notes: *1 - Sample was analyzed in triplicate. The triplicate result was 0.070 ug/g with an RPD of 3.2 %.

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: 12/6/09 Time: 9:30 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

Job# 9995WABUnit Tested Wabash River HRSG **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location
Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Collected By/Company
Dynegy Power Corp. / Cinergy

Fuel & Slag Samples SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	Cl2 METALS	Hg	FLY ASH	BTU CONTENT	REMARKS (Specific Compounds/Methods)
Run 1 Fuel Composite	10/12/99	0000-0330			X		I	TO								X	X	X	X	Pull an aliquote to ship to EERC for Analysis. 3075.8 grams
Run 2 Fuel Composite	10/12/99	0400-0700			X		I	TO								X	X	X	X	3488.1 grams
Run 3 Fuel Composite	10/12/99	0730-1200			X		I	TO								X	X	X	X	4073.0 grams
Slag Grab	10/12/99	1400				X	I	TO												Ship to EERC of the University of North Dakota

Analyze according to ASTM methods:
D6414-99 Test Method A
D-3286
D-5016
D-3174

Received by:	Date:	Time:	Transported by: Shane Lee	Date: 10/15/99	Time: 2215	Received at Lab by:	Date: 10/16/99	Time: 14:00
Analyzed by:	Date:	Time:	Data Reviewed by:	Date:	Time:	Remarks:		

Ship to: TestAmerica / METCO

METCO ENVIRONMENTAL

D-79

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 # 99-95-WAG Job ID WAB. RIVER HR56
Name DOUG SAOTHOFF
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.	RUN 1 FUEL COMP.			10/12/99	0000-0330	X	X	X	X
2	RUN 2 FUEL COMP.			10/12/99	0400-0700	X	X	X	X
3	RUN 3. FUEL COMP.			10/12/99	0730-1200	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):

Samples relinquished to shipper or courier by: [signature]	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:

TOTAL P.06

NONAQUEOUS MERCURY BATCH SHEET

Analyst: JRP Date: 12/20/24 12/24/24 Water Bath: start mid end

Standard Reference: 65-417 temp: _____

ICV Reference: 65-41-18 date: _____

%DW		Sample # / Client	Weight	MS	MSD
83.1	3	1383831 [redacted]	1.0083 g		
82.6	4	1383832	1.0242 g		
83.7	5	1383833	1.0469 g		
95.1	6	1384792 [redacted]	1.0235 g		
94.1	7	1384793	1.0080 g		
96.0	8	1384794	1.0522 g		
93.7	9	1384812 TRP [redacted]	1.0296 g		
93.7	10	1384813 SPK	1.0235 g		
94.5	11	1384814	1.0070 g		
95.3	12	1384777 [redacted]	1.0644 g		
95.4	13	1384778	1.0445 g		
95.5	14	1384779	1.0288 g		
98.2	15	1384806 [redacted]	1.0170 g		
98.9	16	1384807	1.0099 g		
98.9	17	1384808	1.0222 g		
~~99.3~~ 97.5	18	1384771 Cinergy Repower.	1.0139 g		
89.8	19	1384772 TRP	1.0105 g		
90.1	20	1384773 SPK	1.0365 g		
	2	NIST 1630 A	1.0390 g	=0.077 mg/kg	
	1	Blank			

JRP 1/6

MB

ICV

MS

MSD

RPD

FLAG

HNO3 65-48-14

HCl 65-46-1

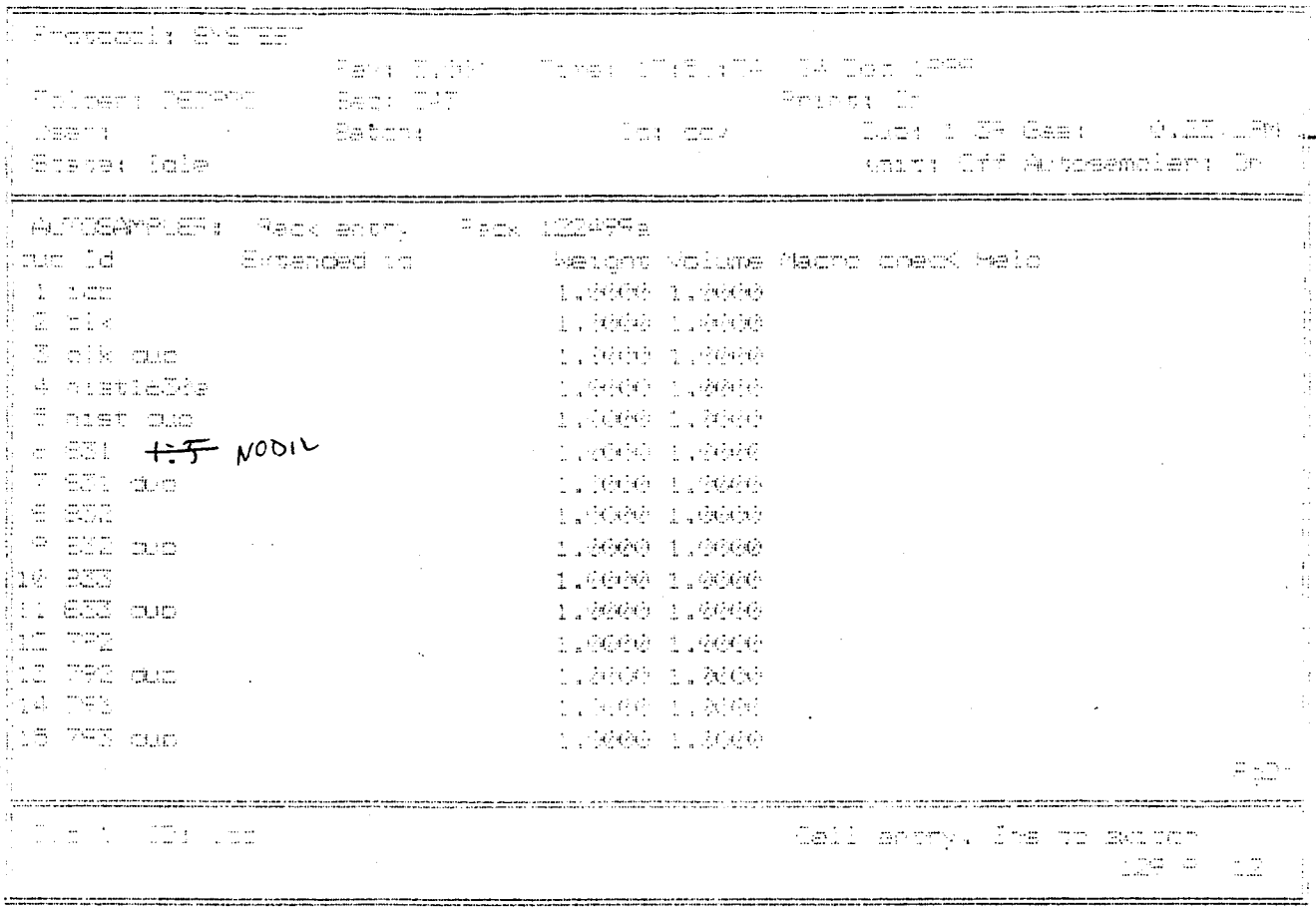
KMnO4 -65-33-1

~~SnCl2 65-50-6~~

SnCl2 - 66-31-19

SECONDARY DATA CHECK: analyst:
date:

Comments: V_F = 50mL NIST 1630A = 0.106 ± ~~0.023~~ 0.032 mg/kg JRP 1/6



Protocol: SYSTEST

Rev: 3.001 Time: 17:53:37 24 Dec 1999

Folder: IEC99C Seq: 343 Print: In

User: Batch: Id: ICC Cup: 1 39 Gas: 0.23 LPM

State: Idle Xmit: Off Autosampler: On

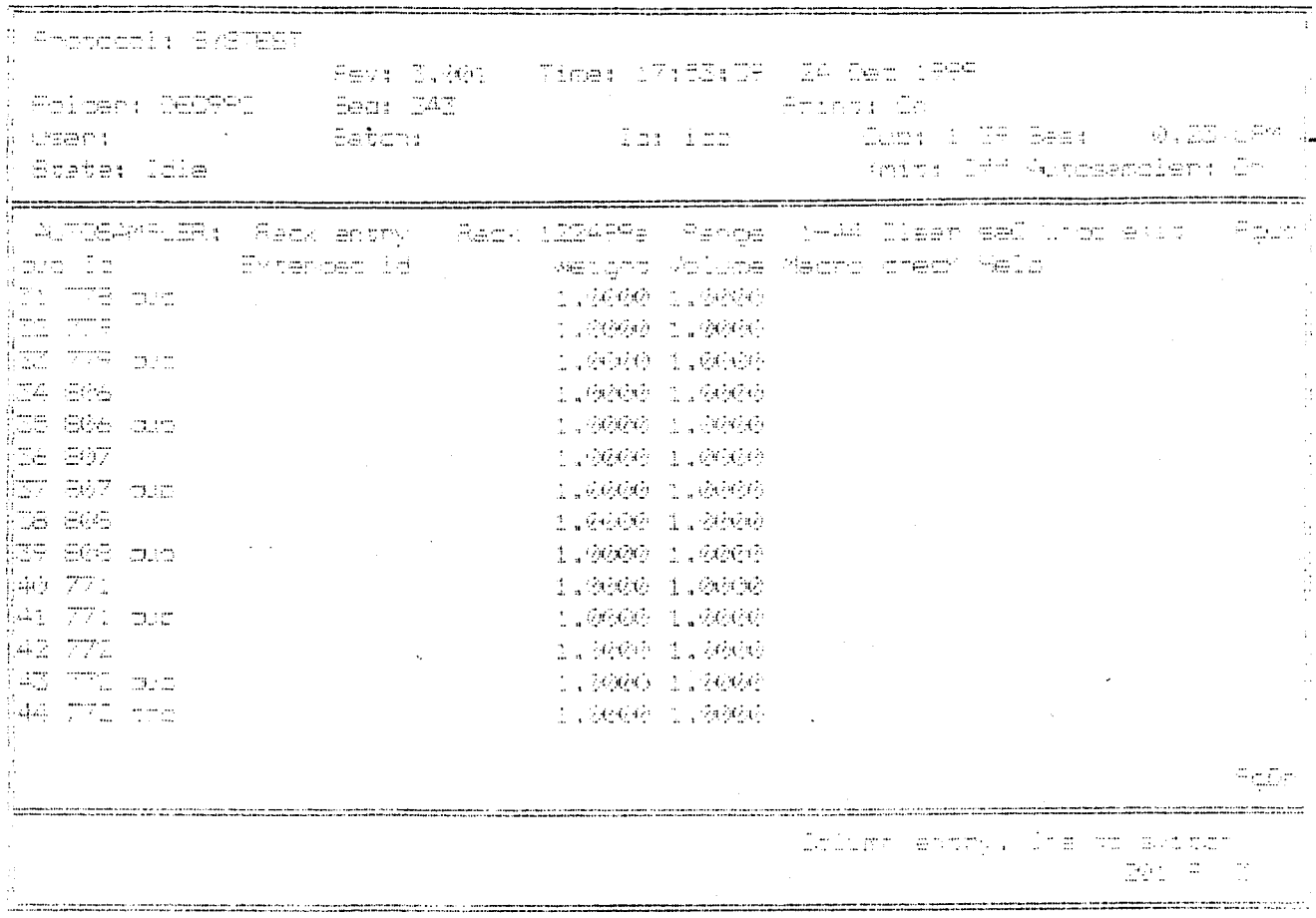
AUTOSAMPLER: Rack entry Rack 122499a Range 1-44 Clear sa2 Lnoo exit Pgup

Cup Id	Extended id	Weight	Volume	Macro check Held
16 794		1.0000	1.0000	
17 794 cup		1.0000	1.0000	
18 812		1.0000	1.0000	
19 812 cup		1.0000	1.0000	
20 812 tmp		1.0000	1.0000	
21 813		1.0000	1.0000	
22 813 cup		1.0000	1.0000	
23 813 sdk		1.0000	1.0000	
24 ccc		1.0000	1.0000	
25 ccv		1.0000	1.0000	
26 814		1.0000	1.0000	
27 814 cup		1.0000	1.0000	
28 777		1.0000	1.0000	
29 777 cup		1.0000	1.0000	
30 778		1.0000	1.0000	

PgDn

Column entry, Ins to switch

201 P 3



*** Standard: 1 Rep: 1 Seq: 292 15:35:21 24 Dec 1999 HB

Hg .000 ug/L 172
Ave. Int. = 172 S. D. = 0

Folder: DEC99C Page 258
15:37:42 24 Dec 1999 Protocol: SYSTEST

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

*** Standard: 2 Rep: 1 Seq: 293 15:37:43 24 Dec 1999 HB

Hg .200 ug/L 8051
Ave. Int. = 8051 S. D. = 0

*** Standard: 3 Rep: 1 Seq: 294 15:40:05 24 Dec 1999 HB

Hg .500 ug/L 20247
Ave. Int. = 20347 S. D. = 0

*** Standard: 4 Rep: 1 Seq: 295 15:42:27 24 Dec 1999 HB

Hg 1.00 ug/L 40126
Ave. Int. = 40134 S. D. = 0

*** Standard: 5 Rep: 1 Seq: 296 15:44:54 24 Dec 1999 HB

Hg 2.00 ug/L 81928
Ave. Int. = 81928 S. D. = 0

*** Standard: 6 Rep: 1 Seq: 297 15:47:23 24 Dec 1999 HB

Hg 3.00 ug/L 120049
Ave. Int. = 120049 S. D. = 0

Protocol: SYSTEST
Rev: 3.001 Time: 15:48:16 24 Dec 1999
Folder: DEC99C Seq: 298 Print: On
User: Batch: Id: Std6Rep1 Cup: 1 29 Gas: 0.23 LPM
State: Idle Xmit: Off Autosampler: On

CALIBRATION: Line Calibration

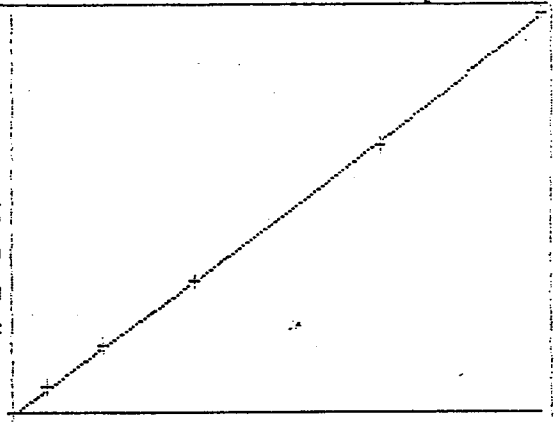
Line: Hg

	Conc.	Calc.	Dev.
S1	.000	-.001	-.001
S2	.200	.195	-.005
S3	.500	.501	.001
S4	1.00	.993	-.007
S5	2.00	2.03	.032
S6	3.00	2.98	-.019

Accepted
LiNear
Quadratic
UtdLinear
Accept
StdAdd

Correlation

A .0000000 r .999889
B 2.48732e-5 C -5.41651e-3



	Mean	%RSD	
S1	172	0	172
S2	8051	0	8051
S3	28347	0	28347
S4	48126	0	48126
S5	81928	0	81928
S6	120849	0	120849

33?

New calibration coefficients stored 149 2 5

Line	Conc.	Units	SD/REP	1	2	3	4	5
*** Sample ID: 1SS				Sec: 343	17:53:12 24 Dec 1999 HG			
Hg	-.006	ug/L	.000	-.006				
*** Sample ID: 1SX				Sec: 344	17:58:26 24 Dec 1999 HG			
Hg	.010	ug/L	.000	.010				
*** Sample ID: 1SX dup				Sec: 345	18:04:44 24 Dec 1999 HG			
Hg	.005	ug/L	.000	.005				
*** Sample ID: NIST1Ø1a				Sec: 346	18:09:02 24 Dec 1999 HG			
Hg	1.64	ug/L	.000	1.64				
*** Sample ID: NIST dup				Sec: 347	18:13:20 24 Dec 1999 HG			
Hg	1.60	ug/L	.000	1.60				
*** Sample ID: 331				Sec: 348	18:17:46 24 Dec 1999 HG			
Hg	.173	ug/L	.000	.173				
*** Sample ID: 3S1				Sec: 349	18:11:05 24 Dec 1999 HG			
Hg	1.01	ug/L	.000	1.01				
*** Sample ID: 3S1 dup				Sec: 350	18:15:22 24 Dec 1999 HG			
Hg	1.02	ug/L	.000	1.02				
*** Sample ID: 3S2				Sec: 351	18:19:46 24 Dec 1999 HG			
Hg	.938	ug/L	.000	.938				
*** Sample ID: 3S2 dup				Sec: 352	18:18:04 24 Dec 1999 HG			
Hg	.917	ug/L	.000	.917				
*** Sample ID: 3S3				Sec: 353	-15:29:22 24 Dec 1999 HG			
Hg	1.21	ug/L	.000	1.21				
*** Sample ID: 3S3 dup				Sec: 354	18:22:41 24 Dec 1999 HG			
Hg	1.20	ug/L	.000	1.20				

TV = 0.106 ± ~~0.023~~ 0.032 mg/kg JAO 1/4

0.078 mg/kg RPD = <1.0%

0.078 mg/kg

NO DATA

0.060 µg/g RPD = <1.0%

0.061 µg/g

0.055 µg/g RPD = 2.3%

0.054 µg/g

0.069 µg/g RPD = <1.0%

0.068 µg/g

18:25:04 24 Dec 1999 Folder: DEO99C Page 264
Protocol: SYSTEST

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: [redacted]									
Hg	1.02	ug/L	.000	1.02					0.052 µg/g
*** Sample ID: 792 dup					Seq: 356	18:27:24 24 Dec 1999 HG			RPD = <1.0%
Hg	1.02	ug/L	.000	1.02					0.052 µg/g
*** Sample ID: 793					Seq: 357	18:29:44 24 Dec 1999 HG			
Hg	.844	ug/L	.000	.844					0.044 µg/g
*** Sample ID: 793 dup					Seq: 358	18:32:03 24 Dec 1999 HG			RPD = 1.6%
Hg	.858	ug/L	.000	.858					0.045 µg/g
*** Sample ID: 794					Seq: 359	18:34:22 24 Dec 1999 HG			
Hg	.947	ug/L	.000	.947					0.047 µg/g
*** Sample ID: 794 dup					Seq: 360	18:36:41 24 Dec 1999 HG			RPD = <1.0%
Hg	.950	ug/L	.000	.950					0.047 µg/g ~~0.048 µg/g~~ JJP 12/28/99
*** Sample ID: 812 [redacted]					Seq: 361	18:39:01 24 Dec 1999 HG			
Hg	1.21	ug/L	.000	1.21					0.063 µg/g
*** Sample ID: 812 dup					Seq: 362	18:41:19 24 Dec 1999 HG			RPD = <1.0%
Hg	1.20	ug/L	.000	1.20					0.062 µg/g
*** Sample ID: 812 trc					Seq: 363	18:43:38 24 Dec 1999 HG			RPD = 2.5%
Hg	1.18	ug/L	.000	1.18					0.061 µg/g
*** Sample ID: 813					Seq: 364	18:45:57 24 Dec 1999 HG			
Hg	1.26	ug/L	.000	1.26					0.066 µg/g
*** Sample ID: 813 dup					Seq: 365	18:48:21 24 Dec 1999 HG			RPD = 2.4%
Hg	1.29	ug/L	.000	1.29					0.067 µg/g
*** Sample ID: 813 spk					Seq: 366	18:50:41 24 Dec 1999 HG			
[illegible]									TV = ~~2.0~~ 1.0 JJP 12/28/99 90%

Line	Conc.	Units	SD/RSD	1	2	3	4	5	
*** Sample ID: ccb				Sec: 267	18:52:12 24 Dec 1999 -6				
Hg	-.029	ug/L	.000	-.029					
*** Sample ID: ccv				Sec: 268	18:55:31 24 Dec 1999 -6				
Hg	2.06	ug/L	.000	2.06					
*** Sample ID: 814				Sec: 269	18:58:01 24 Dec 1999 -6				
Hg	1.28	ug/L	.000	1.28					
*** Sample ID: 814 dup				Sec: 270	19:00:21 24 Dec 1999 -6				
Hg	1.28	ug/L	.000	1.28					
*** Sample ID: 777				Sec: 271	19:02:41 24 Dec 1999 -6				
Hg	.595	ug/L	.000	.595					
*** Sample ID: 777 dup				Sec: 272	19:05:00 24 Dec 1999 -6				
Hg	.590	ug/L	.000	.590					
*** Sample ID: 778				Sec: 273	19:07:19 24 Dec 1999 -6				
Hg	.484	ug/L	.000	.484					
*** Sample ID: 778 dup				Sec: 274	19:09:39 24 Dec 1999 -6				
Hg	.487	ug/L	.000	.487					
*** Sample ID: 779				Sec: 275	19:11:58 24 Dec 1999 -6				
Hg	.404	ug/L	.000	.404					
*** Sample ID: 779 dup				Sec: 276	19:14:17 24 Dec 1999 -6				
Hg	.412	ug/L	.000	.412					
*** Sample ID: 806				Sec: 277	19:16:37 24 Dec 1999 -6				
Hg	1.62	ug/L	.000	1.62					
*** Sample ID: 806 dup				Sec: 278	19:18:02 24 Dec 1999 -6				
Hg	1.61	ug/L	.000	1.61					

<20.2 µg/L

TV = 2.0

103%

0.067 µg/g

RPD = <1.0%

0.067 µg/g

0.029 µg/g

RPD = 1.3%

0.029 µg/g

0.024 µg/g

RPD = <1.0%

0.024 µg/g

0.021 µg/g

RPD = 1.9%

0.021 µg/g

0.081 µg/g

RPD = <1.0%

0.081 µg/g

19:21:26 24 Dec 1999 Folder: [illegible] Page [illegible]
Protocol: SYSTEST

Line	Conc.	Units	SD RSD	1	2	3	4	5	
*** [illegible]				Seq: [illegible]					
Hg	2.39	ug/L	.000	2.39					0.120 µg/g
*** Sample ID: 807 dup				Seq: 380	19:23:52 24 Dec 1999 HG				RPD = 1.2%
Hg	2.42	ug/L	.000	2.42					0.121 µg/g
*** Sample ID: 808				Seq: 381	19:26:24 24 Dec 1999 HG				
Hg	2.37	ug/L	.000	2.37					0.117 µg/g
*** Sample ID: 808 dup				Seq: 382	19:28:51 24 Dec 1999 HG				RPD = <1.0%
Hg	2.36	ug/L	.000	2.36					0.117 µg/g
*** Sample ID: 771				Seq: 383	19:31:18 24 Dec 1999 HG				
Hg	1.19	ug/L	.000	1.19					0.064 ~~0.065~~ µg/g JAO '16
*** Sample ID: 771 dup				Seq: 384	19:33:45 24 Dec 1999 HG				RPD = 1.7%
Hg	1.21	ug/L	.000	1.21					0.065 ~~0.066~~ µg/g ~~0.067~~ JAO '16
*** Sample ID: 772				Seq: 385	19:36:09 24 Dec 1999 HG				
Hg	1.23	ug/L	.000	1.23					0.068 µg/g
*** Sample ID: 772 dup				Seq: 386	19:38:32 24 Dec 1999 HG				RPD = <1.0%
Hg	1.24	ug/L	.000	1.24					0.068 µg/g
*** Sample ID: 772 trp				Seq: 387	19:40:54 24 Dec 1999 HG				RPD = 3.2%
Hg	1.27	ug/L	.000	1.27					0.070 µg/g
*** Sample ID: 773				Seq: 388	19:44:42 24 Dec 1999 HG				
Hg	1.31	ug/L	.000	1.31					0.070 µg/g
*** Sample ID: 773 dup				Seq: 389	19:47:01 24 Dec 1999 HG				RPD = <1.0%
Hg	1.30	ug/L	.000	1.30					0.069 µg/g
*** Sample ID: 773 spk				Seq: 390	19:49:22 24 Dec 1999 HG				
Hg	2.28	ug/L	.000	2.28					

WEST TERRE HAUTE

TV = 1.0

97%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ccc				Sec: 391	19:51:45 24 Dec 1999 HG			
Hg	-.025	ug/L	.000	-.025				
*** Sample ID: ccv				Sec: 392	19:54:03 24 Dec 1999 HG			
Hg	2.05	ug/L	.000	2.05				

<0.2 ug/L

TV=2.0

103%

Dry Weight(DW)/Total Volatile Solids (TVS) Notebook # 6

Sample Number/ Test (DW/TVS)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Client/Pan #	LAWRENCE 17 R1	18 R2	19 R3	MICHIGAN 20 R1	21 DUP R1	22 R2
Wt of Pan + Sample	8.9951	9.2612	8.5994	9.1860	6.0610	8.7108
Wt after Drying	8.5997	8.7743	8.2963	7.[illegible]795	8.5074	7.3659
Wt of Pan or Wt After Ignition	0.9808	0.9770	0.[illegible]05	0.9772	0.7776	0.9794
Difference	7.6189	7.7973	7.3158	6.8223	7.5498	6.3895
Sample amount g	8.0143	8.2842	7.6189	8.2088	9.0834	7.7314
Result	[illegible]	94.1 %	96.0 %	83.1 %	83.1 %	[illegible] %

Sample Number/ Test (DW/TVS)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1384797
Client/Pan #	MICHIGAN 23 R3	LACYGNE 24 R1	25 R2	26 R3	BMP #4 27 R1	R2
Wt of Pan + Sample	11.1414	8.6880	8.6140	8.6025	6.[illegible]006	9.2582
Wt after Drying	9.4834	7.4730	7.7521	7.[illegible]775	6.3018	9.2572
Wt of Pan or Wt After Ignition	0.9827	0.9800	0.[illegible]78	0.9789	0.9820	6.9842
Difference	8.5005	6.4930	6.7743	6.7586	5.3198	8.2730
Sample amount g	10.1587	7.7080	7.6362	7.6236	5.3186	8.2740
Result	[illegible]	84.2 %	88.7 %	88.7 %	100.0 %	[illegible]

Sample Number/ Test (DW/TVS)	[illegible]	1384771	1384771	1384772
Client/Pan #	BMP #6 29 R3	CINERGY 30 R1	31 DUP R1	32 R2
Wt of Pan + Sample	8.2005	9.0194	8.7925	7.3404
Wt after Drying	8.1950	8.3329	7.9414	6.6936
Wt of Pan or Wt After Ignition	0.[illegible]863	0.9840	0.9868	0.9865
Difference	7.2087	7.3489	6.9546	5.7071
Sample amount g	7.2142	8.0354	7.8057	6.3539
Result	99.9 %	91.5 %	89.1 %	89.8 %

Batch Number ——
TVS -
DW - 3395

Note:
METCO CORES
- CONTD -

TestAmerica INCORPORATED

Analyst: RP Date: 12/21/99

Dry Weight(DW)/Total Volatile Solids (TVS) Notebook # 6

Sample Number/ Test (DW/TVS)	1384773	1384787	1384788	1384789	1384801	1384802
Client/Pan #	CINERGY 33 A3	SHAWNEE 34 A1	→ 35 A2	→ 36 A3	TXNM 37 A1	→ 38 A2
Wt of Pan + Sample	9.0350	8.3805	10.3059	9.3575	8.7531	10.5154
Wt after Drying	8.2347	8.0144	9.9785	9.1045	8.3732	ERROR 12/22/14 AP
Wt of Pan or Wt After Ignition	0.9866	0.9868	0.9835	0.9852	0.9797	0.9781
Difference	7.2481	7.0276	8.9950	8.1193	7.3935	
Sample amount g	8.0484	7.1937	9.3224	8.3723	7.7734	9.5373
Result	90.1%	95.0%	96.5%	97.0%	95.1%	

Sample Number/ Test (DW/TVS)	1384803	1384803
Client/Pan #	TXNM 39 A3	→ 40 AP A3
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)					
Client/Pan #					
Wt of Pan + Sample					
Wt after Drying					
Wt of Pan or Wt After Ignition					
Difference					
Sample amount g					
Result					

Batch Number
TVS -
DW - 3395

Note:
METCO COALS

Analyst: AP Date: 12/21/14

TestAmerica INCORPORATED

APPENDIX E

Unit Operational Data

Run 1

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Data Averaging Type: 1m

Time of Report: 10/12/99 14:06

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	09:00	23.7	8.2	977.	16.7	10.2	32.4	180.1	347.8	117.2
	09:01	23.6	8.2	975.	17.0	11.6	32.4	180.7	349.1	117.4
	09:02	23.3	8.2	975.	17.1	11.7	32.4	182.6	349.2	117.1
	09:03	23.5	8.2	975.	16.9	11.2	32.5	181.5	349.1	117.3
	09:04	23.9	8.2	974.	16.7	11.6	32.5	180.3	349.0	117.2
	09:05	23.5	8.2	970.	17.0	12.5	32.5	181.8	347.7	117.4
	09:06	23.5	8.2	970.	17.3	11.5	32.5	182.3	347.7	117.3
	09:07	23.8	8.2	970.	17.2	11.4	32.6	180.1	347.8	117.0
	09:08	23.5	8.2	969.	17.5	12.0	32.6	180.6	347.9	117.3
	09:09	23.0	8.2	961.	17.7	11.3	32.8	182.4	349.5	116.9
	09:10	23.4	8.2	959.	17.7	9.8	32.9	180.6	349.3	117.7
	09:11	23.5	8.2	950.	18.1	12.4	32.9	180.2	348.0	117.1
	09:12	23.3	8.2	949.	18.6	12.4	32.5	180.4	348.0	117.2
	09:13	23.2	8.2	939.	18.5	12.0	32.9	182.1	348.9	117.2
	09:14	23.5	8.2	940.	18.2	11.1	32.8	180.3	348.8	117.2
	09:15	23.6	8.2	949.	18.5	11.7	32.8	180.4	348.4	117.2
	09:16	23.4	8.2	950.	19.0	10.2	32.8	182.1	348.4	117.3
	09:17	23.6	8.2	950.	19.3	12.0	33.8	181.1	348.5	117.4
	09:18	23.6	8.2	949.	19.2	11.3	35.1	180.5	348.4	117.2
	09:19	22.7	8.2	949.	18.8	11.6	35.4	180.4	348.5	117.3
	09:20	22.3	8.2	966.	19.1	12.3	35.4	182.6	348.4	117.6
	09:21	22.4	8.2	972.	19.2	11.7	35.0	181.2	348.3	117.1
	09:22	22.6	8.2	973.	19.1	12.5	34.8	180.7	350.2	117.1
	09:23	22.6	8.2	974.	18.9	12.8	32.9	182.1	350.4	117.4
	09:24	23.1	8.2	981.	18.9	11.9	32.3	182.5	351.0	117.2
	09:25	24.1	8.2	981.	19.1	10.4	32.1	180.3	350.4	117.2
	09:26	24.2	8.2	980.	19.2	10.2	32.1	180.4	348.4	117.1
	09:27	24.0	8.1	975.	19.2	10.8	32.1	182.4	348.5	117.3
	09:28	24.1	8.1	965.	18.8	11.7	32.1	180.4	348.5	117.3
	09:29	24.2	8.1	960.	18.7	12.0	32.1	180.1	348.3	117.5
	09:30	24.0	8.2	952.	18.6	10.9	32.2	180.7	347.8	117.1
	09:31	24.1	8.2	953.	18.9	11.7	32.5	182.5	349.3	117.4
	09:32	24.3	8.2	954.	19.1	11.1	32.9	180.5	351.0	117.2
	09:33	24.1	8.2	959.	19.2	10.7	34.7	180.4	350.4	117.4
	09:34	23.3	8.2	963.	19.3	10.1	35.0	182.3	349.2	117.1
	09:35	22.9	8.2	969.	19.3	11.6	34.9	181.4	349.5	117.3
	09:36	23.1	8.2	974.	19.4	11.7	35.2	180.1	349.9	117.2
	09:37	22.7	8.2	975.	19.6	12.0	35.0	181.0	350.4	117.3
	09:38	22.4	8.2	976.	19.5	12.6	34.7	182.1	350.7	117.2
	09:39	22.8	8.2	979.	19.0	11.8	34.7	181.0	349.6	117.3
	09:40	22.9	8.2	979.	18.8	11.7	33.9	180.7	349.3	117.5
	09:41	22.7	8.2	977.	19.1	12.2	32.7	182.0	349.6	116.9
	09:42	23.3	8.2	977.	19.4	12.1	32.5	181.7	349.6	117.4
	09:43	23.8	8.2	977.	19.7	11.5	32.4	180.1	348.8	117.1
	09:44	23.6	8.2	977.	19.8	11.3	32.4	180.8	348.8	117.3
	09:45	23.3	8.2	976.	20.2	11.5	32.5	182.1	348.4	117.1
	09:46	23.6	8.1	975.	19.9	11.8	32.5	180.7	348.6	117.4
	09:47	23.8	8.1	975.	19.2	12.2	32.5	180.1	349.4	117.2
	09:48	23.6	8.2	972.	19.1	11.5	32.5	181.5	349.6	117.4
	09:49	23.5	8.2	968.	19.4	11.4	32.6	182.2	349.8	117.3

Run 1

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 14:06

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	09:50	23.8	8.2	971.	19.5	10.8	33.6	180.5	350.2	117.1
	09:51	23.6	8.1	974.	19.5	11.4	34.7	180.2	350.7	117.2
	09:52	22.7	8.2	974.	19.3	11.6	34.6	181.0	351.0	117.4
	09:53	22.5	8.2	973.	19.1	12.6	34.6	180.7	351.1	117.2
	09:54	22.7	8.2	976.	19.1	11.7	34.6	180.2	350.2	117.4
	09:55	22.3	8.2	976.	19.8	12.4	34.7	180.3	350.1	117.2
	09:56	22.2	8.2	970.	19.9	12.9	34.6	181.4	351.5	117.2
	09:57	22.4	8.1	969.	19.5	12.9	34.5	180.3	350.8	117.1
	09:58	22.5	8.1	968.	19.4	10.8	34.2	180.2	349.8	117.2
	09:59	22.3	8.1	970.	19.1	13.1	34.1	180.5	350.6	117.4
	10:00	22.7	8.1	972.	19.0	11.3	33.3	180.5	351.0	117.3
	10:01	23.1	8.1	971.	18.9	11.6	32.8	180.2	350.6	117.2
	10:02	23.3	8.1	970.	19.4	12.0	32.8	180.1	350.6	117.2
	10:03	23.2	8.1	964.	19.5	11.1	32.9	181.0	348.6	117.5
	10:04	23.3	8.1	964.	19.4	12.1	32.7	180.4	348.8	117.1
	10:05	23.6	8.1	962.	19.3	10.7	32.6	180.1	350.1	117.3
	10:06	23.4	8.1	964.	19.6	11.3	32.7	180.5	350.2	117.2
	10:07	23.5	8.2	969.	19.8	12.1	32.7	181.0	350.6	117.2
	10:08	23.7	8.2	971.	20.0	11.9	32.9	180.2	350.1	117.4
	10:09	23.8	8.1	976.	19.6	11.4	32.8	180.1	348.9	117.1
	10:10	23.4	8.2	975.	19.6	12.2	32.8	180.2	349.2	117.2
	10:11	23.5	8.2	973.	19.4	11.1	32.9	180.2	350.3	117.4
	10:12	23.6	8.2	968.	19.9	10.7	32.9	180.2	350.2	117.4
	10:13	23.4	8.2	964.	20.2	10.2	33.0	180.3	350.3	117.0
	10:14	23.2	8.2	962.	20.5	11.9	33.0	181.9	350.8	117.4
	10:15	23.7<	8.2<	962.	20.3<	10.8	33.1	180.3	351.0	117.1
	10:16	21.5<	3.3<	962.	19.2<	11.8	33.3	180.2	349.3	117.3
	10:17	5.0<	0.4<	962.	11.1<	11.4	33.3	180.6	349.0	117.2
	10:18	12.4<	2.8<	962.	8.8<	12.0	33.6	181.3	349.1	117.3
	10:19	37.2<	0.2<	962.	4.3<	11.6	34.8	180.1	349.1	117.2
	10:20	41.6<	0.2<	968.	0.3<	11.6	35.4	180.1	350.5	117.5
	10:21	42.7<	0.2<	974.	-0.2<	11.6	35.4	182.1	352.1	117.2
	10:22	42.9<	0.1<	979.	-0.3<	12.2	35.4	181.4	351.4	117.2
	10:23	43.1<	0.1<	982.	-0.3<	11.6	35.4	180.1	351.1	117.3
	10:24	43.2<	0.1<	981.	-0.3<	12.6	35.3	180.5	351.0	117.3
	10:25	43.2<	0.2<	981.	-0.3<	11.9	35.0	181.3	351.0	117.3
	10:26	43.3<	0.1<	971.	-0.3<	11.3	34.9	180.1	350.0	117.3
	10:27	43.3<	0.1<	966.	-0.3<	10.9	34.0	180.1	349.5	117.2
	10:28	43.4<	0.1<	963.	-0.3<	11.3	33.6	180.3	349.1	117.3
	10:29	43.4<	0.1<	962.	-0.3<	11.8	33.5	180.2	349.0	117.2
	10:30	43.5<	0.1<	968.	-0.3<	12.0	33.7	180.1	351.5	117.3
	10:31	43.5<	0.2<	968.	-0.3<	11.1	33.4	180.1	351.9	117.1
	10:32	43.4<	0.2<	970.	-0.2<	12.8	33.4	180.3	350.2	117.3
	10:33	34.2<	0.5<	964.	0.2<	11.2	33.3	180.1	349.4	117.2
	10:34	3.8<	0.2<	958.	0.2<	11.3	33.3	180.1	348.4	117.5
	10:35	0.5<	0.2<	958.	-0.2<	11.1	33.4	181.0	349.1	117.0
	10:36	0.4<	0.2<	956.	-0.3<	12.0	33.6	180.3	350.9	117.3
	10:37	0.4<	0.2<	957.	-0.3<	12.7	33.7	180.2	350.3	117.1
	10:38	0.4<	0.2<	958.	-0.3<	13.1	33.5	180.1	349.8	117.2
	10:39	0.3<	0.2<	963.	-0.4<	12.8	33.7	181.4	349.8	117.3

Calibration

Calibration

Calibration

Run 1

Plant Name: WRRP

Page: 3

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 14:06

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	10:40	0.3<	0.2<	968.	-0.4<	12.1	33.6	180.4	349.9	117.2
	10:41	0.4<	0.2<	970.	-0.3<	11.8	34.0	179.3	349.7	117.4
	10:42	0.3<	0.2<	971.	-0.3<	11.3	33.9	180.2	349.4	117.2
	10:43	0.3<	0.2<	971.	-0.3<	11.0	34.0	180.2	350.3	117.1
	10:44	0.3<	0.2<	971.	-0.4<	12.3	34.0	180.0	350.7	117.5
	10:45	0.3<	0.2<	972.	-0.4<	10.9	34.0	180.0	350.6	117.2
	10:46	0.2<	0.0<	972.	-0.4<	10.8	34.0	180.2	350.5	117.1
	10:47	-0.3<	0.0<	970.	-0.8<	12.0	36.0	180.3	351.0	117.3
	10:48	-0.3<	0.0<	969.	-0.9<	11.5	36.2	180.1	351.1	117.2
	10:49	-0.3<	0.0<	965.	-0.9<	11.8	36.4	179.9	351.8	117.2
	10:50	-0.3<	0.0<	964.	-0.9<	10.9	36.1	181.5	352.1	117.1
	10:51	2.4<	4.6<	960.	0.5<	11.8	36.2	180.1	350.3	117.4
	10:52	18.9<	8.1<	960.	13.6<	11.8	36.1	179.9	350.5	116.9
	10:53	22.6<	8.1<	957.	21.1<	12.3	36.0	180.1	351.6	117.8
	10:54	22.8<	8.1<	959.	22.0<	11.4	35.2	180.1	351.6	116.9
	10:55	23.1<	8.1<	964.	21.8<	11.5	35.0	179.7	351.8	117.2
	10:56	22.9	8.1	964.	21.1	12.2	34.7	180.1	351.7	117.5
	10:57	22.6	8.1	961.	21.2	13.2	34.6	180.1	351.7	117.3
	10:58	22.7	8.1	962.	21.4	10.9	34.3	180.2	351.7	117.0
	10:59	23.0	8.1	963.	21.4	12.1	34.1	179.6	351.6	117.4
	11:00	22.9	8.1	962.	21.2	11.6	34.2	180.6	351.1	117.3
	11:01	22.9	8.1	960.	21.4	12.1	34.3	180.3	349.9	117.5
	11:02	23.2	8.1	961.	21.8	10.9	34.1	179.4	349.8	117.1
	11:03	23.0	8.1	963.	21.7	11.3	34.5	180.0	349.8	117.3
	11:04	22.6	8.1	962.	22.1	11.2	34.3	180.2	349.9	117.0
	11:05	22.7	8.1	960.	22.1	11.9	34.2	180.1	350.5	117.3
	11:06	22.9	8.1	961.	22.1	10.8	34.2	180.1	350.4	117.3
	11:07	22.8	8.1	962.	22.0	11.6	34.1	180.1	350.2	117.3
	11:08	22.7	8.1	963.	22.2	11.9	34.2	180.5	352.1	117.6
	11:09	23.0	8.1	963.	22.2	11.9	34.4	180.1	352.6	117.1
	11:10	23.1	8.1	964.	22.3	12.3	34.4	179.9	350.2	117.2
	11:11	22.5	8.1	965.	22.4	11.3	34.5	180.2	350.4	117.3
	11:12	22.5	8.1	967.	22.5	11.5	34.5	180.3	350.8	117.3
	11:13	22.9	8.1	967.	22.2	11.1	34.4	180.0	350.4	117.2
	11:14	22.8	8.1	967.	22.1	11.8	34.5	180.3	350.1	117.3
	11:15	22.6	8.1	962.	22.5	12.5	34.5	181.9	350.8	117.3
	11:16	23.0	8.1	959.	22.1	12.5	34.7	180.3	351.3	117.2
	11:17	23.2	8.1	959.	22.2	11.4	35.5	180.1	351.3	117.2
	11:18	22.7	8.1	959.	22.2	11.8	36.3	180.1	351.3	117.3
	11:19	22.4	8.1	959.	22.2	10.9	36.2	180.2	351.3	117.1
	11:20	22.4	8.1	958.	22.0	12.5	36.2	179.0	351.1	117.0
	11:21	22.3	8.1	958.	22.0	11.3	36.2	179.8	351.0	117.3
	11:22	21.9	8.1	955.	22.1	11.2	36.2	180.2	351.6	117.2
	11:23	22.1	8.1	955.	22.3	11.5	36.2	180.1	351.6	117.2
	11:24	22.4	8.1	961.	21.9	12.2	35.6	179.0	350.5	117.3
	11:25	22.2	8.1	962.	22.5	11.4	34.7	180.2	350.7	117.2
Average =		23.1	8.2	966.	19.8	11.6	33.9	180.6	350.0	117.3
Maximum =		24.3	8.2	982.	22.5	13.2	36.4	182.6	352.6	117.8
Minimum =		21.9	8.1	939.	16.7	9.8	32.1	179.0	347.7	116.9
Possible Values =		146	146	146	146	146	146	146	146	146
Included Values =		105	105	146	105	146	146	146	146	146
Total =		2429.1	856.1	141044.	2081.3	1699.8	4951.7	26367.2	51102.0	17119.0

* - excluded values (missing, OOC, invalid, suspect)

< - missing

T - out-of-control

Plant Name: WRRP

General Average Report

Run 2

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:02

Data Averaging Type: 1m

Rolling Average Interval: 1

Stack

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	12:10	23.1	8.1	963.	24.4	11.7	34.7	180.1	349.0	117.3
	12:11	23.1	8.1	965.	24.2	10.4	34.5	180.1	350.0	117.2
	12:12	23.0	8.1	969.	24.6	11.6	34.5	180.1	351.3	117.3
	12:13	22.9	8.1	967.	24.2	12.1	34.5	180.2	350.9	117.1
	12:14	23.0	8.2	965.	24.1	12.2	34.6	180.1	350.5	117.3
	12:15	23.0	8.1	966.	24.4	12.3	34.6	180.1	352.1	117.3
	12:16	22.8	8.1	966.	24.2	11.3	34.6	180.2	351.9	117.2
	12:17	22.8	8.1	963.	24.0	11.7	34.5	180.1	349.0	117.3
	12:18	22.8	8.1	963.	24.2	11.6	34.5	180.1	349.0	117.1
	12:19	22.8	8.1	963.	24.8	12.4	34.6	180.1	349.0	117.2
	12:20	22.9	8.1	965.	25.2	13.6	34.6	180.0	349.8	117.3
	12:21	22.9	8.1	969.	25.0	11.3	34.7	180.1	351.9	117.3
	12:22	22.9	8.1	970.	24.6	11.5	34.6	180.0	350.7	117.2
	12:23	22.9	8.1	970.	24.7	11.5	34.6	180.0	349.6	117.4
	12:24	22.9	8.1	975.	24.5	11.4	34.6	180.1	350.7	117.1
	12:25	23.0	8.1	976.	24.4	11.7	34.6	180.0	351.0	117.2
	12:26	23.1	8.1	966.	24.7	11.5	34.6	179.8	350.5	117.3
	12:27	23.0	8.1	965.	25.1	11.6	34.6	178.4	350.0	117.4
	12:28	23.0	8.1	960.	24.9	11.5	34.6	178.6	348.2	117.1
	12:29	23.0	8.1	958.	24.3	12.0	34.5	178.4	349.9	117.2
	12:30	22.9	8.1	956.	24.5	11.8	34.6	178.2	351.7	117.3
	12:31	23.0	8.1	956.	24.3	11.7	34.6	178.6	351.5	117.4
	12:32	23.1	8.1	957.	23.8	12.0	34.6	178.4	351.1	117.1
	12:33	23.1	8.1	956.	23.1	11.1	34.6	178.5	350.7	117.3
	12:34	23.0	8.1	956.	23.0	11.4	34.6	178.4	350.2	117.3
	12:35	23.1	8.1	950.	22.9	10.6	34.6	178.5	350.8	117.3
	12:36	23.0	8.1	946.	22.7	11.7	34.3	178.2	351.3	117.2
	12:37	23.1	8.1	947.	22.8	11.7	34.0	178.2	351.2	117.3
	12:38	23.1	8.1	947.	22.7	11.7	33.2	178.2	351.1	117.4
	12:39	23.4	8.1	948.	23.0	11.8	32.8	177.9	351.6	117.3
	12:40	23.5	8.1	949.	22.7	11.8	32.7	178.1	352.1	117.1
	12:41	23.6	8.1	951.	22.6	10.5	32.8	177.8	350.2	117.2
	12:42	23.5	8.1	952.	22.4	11.9	32.7	177.9	349.3	117.2
	12:43	23.5	8.1	953.	22.6	11.3	32.7	178.3	350.1	117.3
	12:44	23.5	8.1	954.	23.0	12.0	32.7	178.3	350.4	117.1
	12:45	23.5	8.1	949.	22.7	12.0	33.1	178.1	349.5	117.4
	12:46	23.6	8.1	948.	22.5	11.3	33.0	178.0	349.3	117.2
	12:47	23.6	8.1	953.	22.4	11.2	33.3	177.9	350.5	117.1
	12:48	23.6	8.1	953.	22.5	11.1	34.9	178.0	350.5	117.2
	12:49	23.2	8.1	944.	22.5	12.1	36.1	178.4	349.9	117.3
	12:50	22.6	8.1	945.	22.2	11.6	36.2	179.1	350.0	117.2
	12:51	22.3	8.1	946.	22.4	13.2	36.2	178.4	350.0	117.2
	12:52	22.2	8.1	945.	22.7	11.0	36.2	179.6	350.6	117.3
	12:53	22.4	8.1	944.	22.5	12.1	35.6	178.5	351.3	117.3
	12:54	22.5	8.1	948.	22.3	12.8	35.4	179.6	350.5	117.3
	12:55	22.7	8.2	950.	22.1	11.5	34.7	178.8	350.2	117.1
	12:56	22.9	8.1	950.	22.5	12.4	34.6	178.1	349.2	117.2
	12:57	23.0	8.1	951.	22.6	12.3	34.0	177.8	348.9	117.5
	12:58	23.0	8.1	946.	22.4	12.0	34.0	177.9	349.3	117.0
	12:59	23.0	8.1	946.	22.8	11.7	34.0	177.9	349.5	117.4

Run 2

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Data Averaging Type: 1m

Time of Report: 10/12/99 18:02

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	13:00	23.2	8.1	946.	22.6	11.5	34.0	177.8	350.5	117.2
	13:01	23.3	8.1	947.	21.9	11.5	33.0	177.7	350.4	117.2
	13:02	23.3	8.1	950.	21.9	12.8	32.1	177.8	350.2	117.3
	13:03	23.7	8.1	950.	22.6	12.5	32.0	177.8	350.0	117.1
	13:04	23.9	8.1	947.	22.6	11.8	32.2	177.8	349.4	117.4
	13:05	23.8	8.1	948.	22.4	11.9	32.2	177.8	349.9	117.2
	13:06	23.7<	7.1<	949.	22.0<	12.8	32.2	177.8	350.4	117.2
	13:07	13.7<	0.2<	947.	15.4<	11.1	32.4	177.8	350.1	117.4
	13:08	0.0<	0.0<	943.	2.1<	11.0	32.5	177.8	349.7	117.4
	13:09	-0.3<	0.1<	940.	-0.6<	11.7	33.5	177.7	349.3	117.2
	13:10	7.5<	7.1<	939.	3.8<	12.3	35.4	177.8	349.0	117.2
	13:11	22.0<	8.1<	937.	18.2<	11.7	36.2	177.8	349.5	117.3
	13:12	22.5<	8.1<	936.	21.6<	12.6	36.0	177.8	349.6	117.2
	13:13	22.3<	8.1<	939.	22.1<	11.2	35.9	177.8	350.2	117.3
	13:14	22.2<	8.1<	940.	22.3<	11.3	35.5	177.8	350.2	117.3
	13:15	22.2	8.1	957.	22.3	12.1	35.7	177.7	350.4	117.0
	13:16	22.2	8.1	957.	22.1	12.3	35.4	177.9	350.4	117.5
	13:17	22.1	8.1	957.	21.9	11.7	35.9	177.8	350.3	117.1
	13:18	22.0	8.1	957.	22.2	12.7	36.4	178.3	350.4	117.3
	13:19	22.0	8.1	957.	22.6	11.9	39.8	180.0	350.4	117.3
	13:20	21.4	8.1	959.	21.9	11.3	40.5	180.0	351.5	117.2
	13:21	20.3	8.1	961.	22.1	12.1	40.6	180.0	352.7	117.3
	13:22	20.3	8.1	961.	22.6	12.2	40.7	180.0	352.3	117.2
	13:23	20.0	8.1	961.	22.7	12.1	40.6	178.2	351.7	117.4
	13:24	19.6	8.1	959.	23.0	10.4	38.9	177.8	351.6	117.1
	13:25	19.3	8.1	954.	22.9	12.1	36.9	177.7	351.1	117.1
	13:26	20.1	8.1	952.	22.5	11.8	36.6	176.1	351.7	117.4
	13:27	20.0	8.1	951.	23.1	11.3	36.7	176.8	352.2	117.1
	13:28	19.6	8.1	952.	23.4	12.9	36.7	177.5	351.8	117.4
	13:29	19.7	8.1	954.	23.1	12.9	36.5	176.4	351.6	117.2
	13:30	19.8	8.1	954.	22.8	12.5	36.7	175.3	351.6	117.6
	13:31	19.7	8.1	955.	23.2	11.6	36.7	175.5	351.6	117.1
	13:32	19.7	8.1	947.	22.9	12.6	36.7	177.8	350.5	117.0
	13:33	20.2	8.1	946.	22.0	12.2	36.6	177.8	350.3	117.5
	13:34	20.8	8.1	939.	21.9	10.9	36.6	177.8	347.5	117.0
	13:35	20.9	8.1	939.	22.1	10.6	36.2	177.7	347.7	117.1
	13:36	20.9	8.1	941.	23.1	12.6	36.5	177.8	351.6	117.3
	13:37	20.9	8.1	945.	23.4	11.9	36.9	177.7	351.8	117.2
	13:38	20.6	8.1	948.	23.2	11.9	36.9	177.7	352.1	117.2
	13:39	20.6	8.1	953.	23.3	11.5	37.1	177.6	352.4	117.3
	13:40	20.6	8.1	958.	23.5	13.0	37.2	175.7	352.7	117.2
	13:41	20.2	8.1	958.	23.6	11.8	36.9	175.3	351.4	117.2
	13:42	19.9	8.1	958.	22.6	10.9	37.0	175.4	351.1	117.2
	13:43	19.9	8.1	961.	21.7	12.6	36.9	177.5	349.9	117.4
	13:44	20.1	8.2	959.	21.2	11.7	36.8	177.8	350.3	117.1
	13:45	20.5	8.2	958.	20.8	11.5	36.9	177.7	350.7	117.5
	13:46	20.6	8.2	955.	20.9	12.3	36.8	177.8	349.5	117.1
	13:47	20.7	8.2	954.	21.1	12.0	37.0	177.8	348.7	117.3
	13:48	20.7	8.2	951.	21.2	11.8	36.8	177.8	351.7	117.2
	13:49	20.2	8.2	951.	21.4	11.4	36.8	177.8	351.9	117.2

General Average Report

Run 2

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:02

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR.)
10/12/99	13:50	20.2	8.2	950.	21.3	12.9	36.8	177.8	351.0	117.1
	13:51	20.5	8.2	949.	21.5	12.6	36.6	177.8	350.6	117.3
	13:52	20.5	8.2	947.	21.8	12.2	36.7	177.5	349.6	117.4
	13:53	20.5	8.2	947.	22.3	11.5	36.8	177.8	349.5	117.3
	13:54	20.5	8.2	947.	22.1	12.0	36.0	177.7	349.3	117.3
	13:55	20.8	8.2	946.	22.4	13.4	35.6	177.8	349.0	117.2
	13:56	21.0	8.1	946.	22.3	12.4	35.6	177.8	348.9	117.5
	13:57	21.2	8.1	952.	22.2	10.5	35.4	177.8	349.0	117.1
	13:58	21.4	8.1	956.	21.9	10.8	35.3	177.8	349.0	117.1
	13:59	21.5	8.1	960.	21.9	11.9	35.4	177.7	349.4	117.4
	14:00	21.5	8.1	959.	21.6	11.9	35.4	177.8	349.7	117.2
	14:01	21.6	8.1	957.	21.6	11.9	35.2	177.8	350.5	117.1
	14:02	21.8	8.1	955.	21.5	11.3	35.4	177.8	350.2	117.1
	14:03	21.9	8.1	953.	21.6	10.1	35.3	177.8	349.9	117.4
	14:04	21.9	8.1	954.	21.6	11.2	35.5	177.8	350.2	117.4
	14:05	22.2	8.1	955.	21.6	11.5	35.4	177.8	350.4	117.3
	14:06	22.2	8.1	950.	21.8	12.7	34.9	177.5	348.6	117.3
	14:07	22.0	8.1	950.	21.8	12.3	34.0	176.7	348.3	117.1
	14:08	22.0	8.1	953.	21.7	12.9	34.2	175.9	348.9	117.3
	14:09	22.0	8.1	952.	22.0	11.0	34.0	175.9	349.5	117.3
	14:10	22.1	8.1	950.	21.5	12.3	34.2	176.9	351.0	117.0
	14:11	22.1	8.1	951.	21.2	12.5	34.1	176.5	350.1	117.2
	14:12	21.9	8.1	951.	21.7	12.4	34.0	175.6	349.2	117.4
	14:13	22.0	8.1	949.	21.8	12.6	34.0	175.5	350.4	117.2
	14:14	22.0	8.1	948.	21.6	12.4	34.0	175.8	351.3	117.2
	14:15	21.9	8.1	944.	21.4	11.4	34.0	175.7	351.0	117.5
	14:16	21.9	8.1	943.	21.9	12.5	34.1	176.7	350.8	117.2
	14:17	22.0	8.1	943.	21.5	13.3	34.0	177.2	350.8	117.2
	14:18	21.9	8.1	943.	21.3	12.1	34.1	177.7	350.8	117.0
	14:19	21.5	8.1	943.	21.6	11.9	34.3	175.8	350.9	117.6
	14:20	20.7	8.1	947.	21.5	11.6	34.3	173.1	350.2	117.2
	14:21	19.4	8.1	951.	22.3	11.9	34.2	174.6	349.6	117.3
	14:22	18.8	8.1	950.	22.5	11.1	34.2	174.2	350.1	117.3
	14:23	19.0	8.1	949.	22.7	11.4	34.3	174.5	350.4	117.2
	14:24	19.3	8.1	948.	22.8	11.1	34.2	175.0	350.5	117.0
	14:25	19.5	8.1	947.	22.1	11.4	34.1	175.6	350.5	117.3
	14:26	19.7	8.1	948.	21.8	11.9	34.0	177.7	350.4	117.4
	14:27	20.3	8.1	948.	21.5	11.5	34.0	177.7	350.3	117.0
	14:28	21.0	8.1	946.	21.4	11.5	34.4	177.2	349.7	117.4
	14:29	21.1	8.1	948.	21.7	12.0	34.2	176.5	349.7	117.2
	14:30	21.2	8.1	950.	21.7	12.8	34.1	177.4	350.1	117.2
	14:31	21.5	8.1	951.	21.5	11.9	34.1	176.6	351.0	117.7
	14:32	21.4	8.1	952.	21.3	11.6	34.0	176.0	351.9	116.9
	14:33	21.4	8.1	952.	21.4	12.6	33.6	175.4	350.3	117.3
	14:34	21.5	8.1	953.	21.4	12.0	33.3	175.3	349.3	117.3
	14:35	21.8	8.1	953.	21.3	11.8	32.7	175.3	349.4	117.3
	14:36	22.0	8.1	952.	21.2	12.7	32.6	175.4	349.3	117.2
	14:37	22.5	8.1	949.	21.5	12.2	32.6	175.5	348.0	117.3
	14:38	22.4	8.1	948.	22.0	12.7	32.5	176.1	348.3	117.1
	14:39	22.1	8.1	947.	22.6	12.5	32.5	176.5	351.0	117.2

General Average Report

Run 2

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:02

Data Averaging Type: 1m

Rolling Average Interval: 1

Stack

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	14:40	22.1	8.1	945.	23.1	10.7	32.5	176.0	349.5	117.5
Average =		21.8	8.1	952.	22.6	11.9	35.0	177.7	350.3	117.2
Maximum =		23.9	8.2	976.	25.2	13.6	40.7	180.2	352.7	117.7
Minimum =		18.8	8.1	936.	20.8	10.1	32.0	173.1	347.5	116.9
Possible Values =		151	151	151	151	151	151	151	151	151
Included Values =		142	142	151	142	151	151	151	151	151
Total =		3095.7	1153.6	143797.	3203.1	1790.3	5284.9	26833.9	52898.6	17704.5

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
V - invalid for state
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 3

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:31

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	15:25	23.4	8.0	909.	21.6	11.8	28.9	174.7	349.7	117.1
	15:26	23.3	8.1	915.	21.8	13.5	28.9	174.6	350.8	117.5
	15:27	23.2	8.0	919.	22.1	12.5	28.9	173.9	351.5	117.4
	15:28	23.3	8.0	918.	22.0	12.3	29.0	174.1	348.6	117.0
	15:29	23.4	8.0	917.	22.0	11.9	29.2	173.4	348.5	117.4
	15:30	23.5	8.0	914.	21.7	11.0	29.2	173.9	348.0	117.0
	15:31	23.5	8.0	913.	21.8	12.3	29.5	174.9	347.9	117.6
	15:32	23.6	8.0	905.	22.2	12.3	31.8	175.3	347.7	117.1
	15:33	23.2	8.1	905.	22.3	12.1	32.4	175.4	347.8	117.3
	15:34	22.5	8.0	905.	22.2	13.0	32.5	175.3	348.1	117.2
	15:35	22.3	8.0	907.	22.1	12.6	32.4	175.3	348.7	117.3
	15:36	22.3	8.1	910.	22.0	11.5	32.3	175.3	349.5	117.1
	15:37	22.4	8.1	914.	21.7	12.3	32.5	175.3	349.6	117.2
	15:38	22.4	8.1	917.	21.5	14.1	32.3	175.4	349.8	117.3
	15:39	22.6	8.1	913.	22.0	11.2	31.1	175.2	349.1	117.3
	15:40	23.0	8.1	908.	22.1	12.4	31.0	175.2	348.5	117.2
	15:41	23.3	8.1	914.	22.1	12.0	30.5	175.0	349.3	117.0
	15:42	23.4	8.1	918.	21.9	13.1	30.6	174.0	349.9	117.6
	15:43	23.5	8.1	928.	21.9	12.3	30.3	173.2	349.5	117.3
	15:44	23.6	8.1	929.	21.7	13.1	29.1	172.6	349.3	117.0
	15:45	23.7	8.1	942.	22.0	12.5	28.9	172.6	348.8	117.5
	15:46	24.3	8.1	944.	21.7	12.2	28.9	172.8	348.7	117.1
	15:47	24.4	8.0	946.	21.6	10.9	29.0	172.7	349.9	117.3
	15:48	24.3	8.1	946.	21.7	11.4	29.0	172.6	349.8	117.3
	15:49	24.3	8.1	944.	21.8	12.0	29.0	172.6	346.8	117.2
	15:50	24.4	8.0	944.	21.7	11.0	29.0	172.7	347.0	117.4
	15:51	24.4	8.1	945.	22.0	11.6	29.1	172.6	349.5	117.3
	15:52	24.4	8.1	943.	21.9	12.3	29.0	172.7	349.1	117.3
	15:53	24.5	8.1	939.	21.5	10.9	28.9	172.7	347.5	117.1
	15:54	24.6	8.1	941.	21.4	11.0	28.9	172.9	347.6	117.1
	15:55	24.5	8.1	944.	21.8	12.4	29.4	172.7	347.8	117.6
	15:56	24.4	8.1	943.	22.0	12.3	29.4	172.7	347.8	117.1
	15:57	24.5	8.1	940.	22.0	13.1	30.0	172.8	347.8	117.0
	15:58	24.6	8.1	940.	21.9	11.8	31.6	173.9	347.7	117.2
	15:59	23.9	8.1	940.	21.7	11.4	32.2	173.3	347.3	117.3
	16:00	23.1	8.1	942.	22.1	11.8	32.2	174.5	348.5	117.1
	16:01	22.9	8.1	943.	22.1	11.3	32.2	174.9	349.5	117.6
	16:02	23.1	8.1	943.	21.9	11.6	32.2	174.8	349.3	117.1
	16:03	23.0	8.1	943.	22.3	11.8	32.2	174.2	349.2	117.2
	16:04	23.1	8.1	943.	21.9	11.8	32.1	175.1	348.3	117.2
	16:05	23.1	8.1	943.	21.6	12.9	31.8	174.8	348.1	117.2
	16:06	23.2	8.1	937.	21.9	12.4	31.9	174.7	349.0	117.4
	16:07	23.4	8.1	937.	22.2	13.2	31.7	173.3	349.6	117.1
	16:08	23.4	8.1	940.	22.2	11.1	31.5	173.6	351.5	117.3
	16:09	23.5	8.1	940.	22.1	12.3	31.1	173.2	350.9	117.4
	16:10	23.4	8.1	938.	21.8	11.7	30.7	173.1	348.7	117.0
	16:11	23.7	8.1	936.	21.7	11.6	30.8	172.8	348.7	117.6
	16:12	23.8	8.1	933.	21.5	11.7	30.7	172.8	348.6	117.4
	16:13	23.7	8.1	931.	21.7	11.3	30.6	172.7	348.9	117.1
	16:14	23.6	8.1	930.	21.9	12.1	30.5	172.9	349.1	117.1

General Average Report

Run 3

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:31

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	16:15	23.9	8.1	930.	21.6	11.6	30.8	172.7	348.2	117.4
	16:16	24.0	8.1	930.	21.7	11.8	30.8	172.6	347.8	117.1
	16:17	23.9	8.1	930.	21.7	11.4	30.3	172.8	347.8	117.4
	16:18	23.8	8.1	930.	21.7	13.4	30.8	173.6	347.8	117.5
	16:19	23.6	8.1	930.	21.4	12.3	30.6	173.2	347.8	117.0
	16:20	23.6	8.1	934.	21.2	12.3	30.7	173.6	348.4	117.3
	16:21	23.6	8.1	935.	21.5	11.5	30.5	173.2	348.7	117.3
	16:22	23.8	8.1	934.	21.5	11.7	30.5	173.2	348.9	117.3
	16:23	23.9	8.1	933.	21.2	12.1	30.6	174.0	348.9	117.2
	16:24	23.8	8.1	937.	21.3	11.6	30.6	174.4	350.1	117.2
	16:25	23.8	8.1	937.	21.9	11.1	30.6	174.6	350.4	117.4
	16:26	23.8	8.1	938.	22.1	12.1	30.7	174.1	350.3	117.0
	16:27	23.9	8.1	939.	21.9	11.0	30.7	174.5	350.2	117.2
	16:28	23.8	8.1	938.	21.7	12.9	30.6	173.8	349.6	117.4
	16:29	23.7	8.1	938.	21.6	11.5	30.6	173.9	349.3	117.1
	16:30	23.7	8.1	937.	21.9	11.8	30.7	173.7	349.1	117.3
	16:31	23.6	8.1	937.	22.1	13.0	30.8	174.0	349.0	117.5
	16:32	23.7	8.1	930.	21.7	11.8	30.7	173.7	350.0	116.9
	16:33	23.7	8.1	929.	21.6	11.9	30.9	174.0	350.1	117.5
	16:34	23.8	8.1	931.	21.8	12.2	30.9	174.5	349.2	117.2
	16:35	23.7	8.1	931.	21.8	12.3	30.8	173.5	349.5	117.5
	16:36	23.7	8.1	931.	21.5	11.5	30.8	173.8	350.5	117.0
	16:37	23.8	8.1	933.	21.3	11.8	31.0	174.6	350.1	117.4
	16:38	23.8	8.1	937.	21.3	12.4	31.1	174.8	349.2	117.2
	16:39	23.6	8.1	944.	21.8	12.5	31.1	175.3	349.6	117.3
	16:40	23.6	8.1	948.	22.4	11.2	31.7	175.3	349.9	117.3
	16:41	23.6	8.1	950.	22.4	11.6	31.8	175.4	350.6	117.4
	16:42	23.4	8.1	950.	21.9	11.5	32.4	175.3	350.8	116.9
	16:43	23.3	8.1	949.	21.8	11.1	33.4	175.3	350.1	117.3
	16:44	22.9	8.1	949.	22.2	12.2	33.3	175.3	350.3	117.3
	16:45	22.7	8.1	951.	21.8	10.5	33.5	175.3	351.1	117.1
	16:46	22.7	8.1	950.	22.0	12.3	33.6	175.4	350.9	117.6
	16:47	22.6	8.1	945.	21.9	11.0	33.4	175.4	349.6	117.4
	16:48	22.7	8.1	944.	21.9	12.2	33.3	175.3	349.9	117.1
	16:49	22.7	8.1	944.	21.9	11.1	33.3	175.4	350.5	117.2
	16:50	22.6	8.1	940.	21.6	11.9	33.2	175.3	350.8	117.2
	16:51	22.7	8.1	936.	21.5	13.3	32.8	175.4	351.2	117.3
	16:52	22.8	8.1	940.	21.6	11.6	31.9	175.1	350.4	117.3
	16:53	22.9	8.1	941.	22.0	12.0	31.5	175.0	350.1	117.4
	16:54	23.3	8.1	943.	22.0	12.3	31.3	174.8	350.8	117.2
	16:55	23.5	8.1	943.	21.3	11.2	31.3	175.1	351.0	117.2
	16:56	23.5	8.1	940.	20.9	12.6	31.1	175.2	350.7	117.4
	16:57	23.5	8.1	943.	21.4	11.4	31.1	175.0	350.8	117.2
	16:58	23.5	8.1	947.	21.7	11.8	31.1	174.8	351.0	117.3
	16:59	23.5	8.1	947.	21.8	11.9	31.1	175.3	350.9	117.4
	17:00	23.4	8.1	949.	21.9	11.7	31.1	175.3	350.8	117.0
	17:01	23.4	8.1	954.	21.7	11.0	31.1	175.3	350.7	117.2
	17:02	23.5	8.1	959.	21.6	11.8	31.1	175.1	350.5	117.3
	17:03	23.4	8.1	955.	21.5	11.7	31.0	175.1	350.9	117.0
	17:04	23.3	8.1	954.	21.8	12.1	31.1	175.0	350.9	117.4

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Run 2

Site Name: HRSG

Time of Report: 10/12/99 18:31

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	Stack TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	17:05	23.5	8.1	952.	22.1	10.8	31.1	174.7	349.9	117.4
	17:06	23.5	8.0	951.	21.8	11.7	31.1	175.3	349.9	117.1
	17:07	23.5	8.1	946.	21.8	11.8	31.3	175.3	349.8	117.1
	17:08	23.4	8.1	942.	22.1	12.0	31.3	175.3	349.9	117.4
	17:09	23.5	8.1	940.	22.1	11.9	31.6	175.3	349.9	117.3
	17:10	23.5	8.0	937.	21.5	11.8	31.6	175.3	350.5	117.4
	17:11	23.3	8.1	936.	21.2	11.6	31.8	175.3	350.3	117.4
	17:12	23.3	8.1	932.	21.5	12.3	31.8	175.4	349.0	117.1
	17:13	23.2	8.1	933.	21.7	10.6	32.3	175.3	349.1	117.0
	17:14	23.1	8.1	935.	21.9	11.8	32.7	175.3	349.1	117.3
	17:15	23.0	8.1	936.	21.7	11.3	32.3	175.3	349.3	117.3
	17:16	23.0	8.1	937.	21.6	11.3	32.4	175.4	349.5	117.4
	17:17	23.1	8.1	937.	22.0	11.9	32.4	175.3	349.5	117.2
	17:18	23.0	8.1	937.	21.9	11.2	32.4	175.4	349.5	117.0
	17:19	23.0	8.1	937.	22.0	12.2	32.5	175.4	349.5	117.2
	17:20	23.0	8.1	935.	22.4	12.1	32.6	175.3	350.1	117.3
	17:21	22.9	8.1	936.	22.2	12.0	32.5	175.3	350.3	117.2
	17:22	22.6	8.0	939.	22.0	11.0	32.4	175.3	350.7	117.2
	17:23	22.7	8.1	939.	21.5	12.2	32.4	175.3	350.6	117.1
	17:24	23.0	8.1	940.	21.5	12.2	32.4	175.1	350.5	117.4
	17:25	22.9	8.1	937.	21.7	11.7	32.6	175.3	350.3	117.4
	17:26	22.7	8.1	937.	22.2	12.7	32.5	175.4	350.3	117.1
	17:27	23.1	8.1	935.	22.3	11.5	32.4	175.2	350.2	117.3
	17:28	23.2	8.1	935.	22.2	11.2	32.4	174.0	350.3	117.4
	17:29	22.8	8.0	937.	21.9	12.4	32.4	175.3	350.4	117.2
	17:30	22.7	8.1	939.	21.6	10.5	32.4	175.4	349.8	117.2
	17:31	23.1	8.1	942.	22.0	12.2	32.4	175.0	348.9	117.0
	17:32	23.1	8.0	943.	22.3	11.4	32.5	175.4	349.5	117.2
	17:33	22.7	8.1	943.	22.5	11.4	32.4	175.4	349.9	117.3
	17:34	23.0	8.1	948.	21.8	11.4	32.5	175.4	350.8	117.5
	17:35	23.2	8.1	949.	21.3	11.8	32.5	175.3	350.8	116.9
	17:36	22.9	8.0	952.	21.4	12.2	32.4	175.4	349.3	117.5
	17:37	22.7	8.0	955.	21.6	12.3	32.5	175.4	350.5	117.1
	17:38	23.0	8.1	958.	21.5	12.1	32.4	175.0	352.0	117.2
	17:39	22.9	8.0	954.	21.8	11.3	32.5	175.3	351.7	117.5
	17:40	22.4	8.0	944.	21.6	11.5	32.5	175.4	350.8	117.1
	17:41	22.6	8.1	946.	21.5	12.0	32.5	175.4	350.2	117.2
	17:42	23.0	8.1	948.	21.4	11.9	32.5	175.4	349.8	117.2
	17:43	22.7	8.0	945.	21.7	11.8	32.5	175.4	350.7	117.2
	17:44	22.5	8.0	942.	22.2	12.4	32.5	175.7	351.5	117.2
	17:45	22.8	8.1	945.	22.7	11.9	32.5	175.4	351.4	117.3
	17:46	22.9	8.1	949.	22.9	11.0	32.5	175.4	351.3	117.4
	17:47	22.5	8.0	944.	22.7	11.9	32.4	176.0	351.9	117.0
	17:48	22.6	8.1	943.	22.2	11.7	32.5	176.7	352.1	117.5
	17:49	22.9	8.0	941.	21.7	13.1	32.2	175.4	349.6	117.1
	17:50	22.6	8.0	941.	21.9	10.7	32.4	175.5	349.5	117.4
	17:51	22.5	8.0	930.	21.9	12.2	32.4	176.2	350.5	117.1
	17:52	22.8	8.1	931.	21.9	11.3	32.5	175.6	350.5	117.3
	17:53	22.8	8.0	937.	22.0	11.6	32.5	175.4	351.3	117.4
	17:54	22.3	8.0	937.	21.7	11.5	32.4	175.8	351.4	117.3

Run 3

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:31

Data Averaging Type: 1m

Rolling Average Interval: 1

Stack

Date	Time	NOXLO (PPM)	CO2 (PERCENT)	FLOW (KSCFM)	SO2LO (PPM)	OPACITY (PERCENT)	STEAM (KLB/HR)	LOADMW (MW)	TEMPF (DEGF)	COALFLOW (TONS/HR)
10/12/99	17:55	22.3	8.1	937.	21.8	12.0	32.5	176.8	351.0	117.0
	17:56	22.7	8.1	939.	22.1	11.9	32.4	175.4	351.0	117.2
	17:57	22.8	8.1	949.	22.0	12.4	32.4	175.4	351.0	117.3
	17:58	22.5	8.0	948.	21.8	10.8	32.5	176.4	351.0	117.0
	17:59	22.6	8.1	947.	21.9	12.0	32.5	175.7	351.0	117.2
	18:00	22.9	8.1	945.	22.2	12.0	32.4	175.4	349.8	117.5
	18:01	22.7	8.1	943.	22.6	11.1	32.4	175.8	348.8	117.1
	18:02	22.5	8.0	943.	22.5	11.6	32.5	177.0	350.0	117.3
	18:03	22.9	8.1	943.	22.4	12.3	32.5	175.6	350.5	117.4
	18:04	23.0	8.0	942.	22.3	12.3	32.5	175.4	351.6	117.3
	18:05	22.5	8.0	941.	22.2	12.6	32.4	177.0	352.0	117.3
	18:06	22.7	8.0	939.	21.9	12.9	32.4	177.5	351.6	117.0
	18:07	23.0	8.0	938.	21.8	11.1	32.5	175.3	351.6	117.5
	18:08	22.8	8.0	925.	22.1	12.0	32.4	175.7	351.5	117.3
	18:09	22.4	8.0	923.	22.1	12.6	32.5	177.0	351.1	117.0
	18:10	22.7	8.0	913.	22.1	11.4	32.4	176.6	349.5	117.0
	18:11	23.1	8.0	912.	21.9	11.2	32.4	175.6	349.3	117.4
	18:12	22.9	8.0	912.	21.7	11.6	32.5	176.6	349.3	117.4
	18:13	22.8	8.0	918.	22.0	12.6	32.4	176.6	350.5	117.3
	18:14	23.0	8.0	922.	22.3	12.4	32.4	175.9	351.5	117.4
	18:15	22.9	8.0	925.	22.2	11.1	32.5	175.4	350.4	117.2
	18:16	22.5	8.0	927.	22.2	12.3	32.4	176.8	349.4	117.2
	18:17	22.5	8.0	927.	22.0	11.7	32.4	177.4	349.4	117.3
	18:18	22.9	8.0	927.	21.9	11.4	32.5	175.9	349.5	117.1
	18:19	22.8	8.0	927.	22.0	11.2	32.5	176.9	349.5	117.5
	18:20	22.8	8.1	935.	22.3	11.2	32.5	177.7	350.6	117.1
	18:21	23.0	8.1	943.	22.4	11.4	32.5	177.0	351.6	117.5
	18:22	23.0	8.1	946.	22.2	11.2	32.7	176.6	352.0	117.3
	18:23	22.8	8.1	949.	22.8	12.0	34.5	177.7	352.2	117.3
	18:24	22.5	8.1	951.	22.8	12.3	35.3	177.8	351.1	117.1
	18:25	22.0	8.1	953.	22.7	12.0	35.1	177.4	349.9	117.2
Average =		23.2	8.1	937.	21.9	11.9	31.6	174.9	349.8	117.3
Maximum =		24.6	8.1	959.	22.9	14.1	35.3	177.8	352.2	117.6
Minimum =		22.0	8.0	905.	20.9	10.5	28.9	172.6	346.8	116.9
Possible Values =		181	181	181	181	181	181	181	181	181
Included Values =		181	181	181	181	181	181	181	181	181
Total =		4201.7	1459.8	169579.	3961.6	2148.1	5725.3	31655.8	63320.8	21222.3

NOx CO2 Flow SO2 Opacity Steam Load Temp Coal

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
V - invalid for state
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Data Averaging Type: 1m

Time of Report: 10/12/99 18:44

Rolling Average Interval: 1

Run 1

Date	Time	SYNFLOW (LB/SEC)
10/12/99	09:00	111.0
	09:01	111.3
	09:02	112.0
	09:03	111.4
	09:04	111.1
	09:05	111.6
	09:06	111.8
	09:07	110.9
	09:08	111.3
	09:09	111.6
	09:10	111.3
	09:11	111.1
	09:12	111.1
	09:13	111.5
	09:14	110.9
	09:15	111.2
	09:16	111.7
	09:17	111.2
	09:18	111.0
	09:19	111.2
	09:20	111.7
	09:21	111.2
	09:22	111.2
	09:23	111.6
	09:24	111.7
	09:25	110.9
	09:26	111.1
	09:27	111.5
	09:28	111.2
	09:29	110.9
	09:30	111.1
	09:31	111.6
	09:32	111.1
	09:33	111.3
	09:34	111.4
	09:35	111.3
	09:36	110.7
	09:37	111.3
	09:38	111.6
	09:39	111.4
	09:40	111.4
	09:41	111.8
	09:42	111.9
	09:43	110.9
	09:44	111.7
	09:45	111.8
	09:46	111.7
	09:47	111.2
	09:48	111.9
	09:49	112.1

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:44

Data Averaging Type: 1m

Rolling Average Interval: 1

Run 1

Date	Time	SYNFLOW (LB/SEC)
10/12/99	09:50	111.4
	09:51	111.2
	09:52	111.6
	09:53	111.7
	09:54	111.3
	09:55	111.5
	09:56	111.9
	09:57	111.5
	09:58	111.4
	09:59	111.7
	10:00	111.6
	10:01	111.1
	10:02	111.1
	10:03	111.8
	10:04	111.4
	10:05	110.9
	10:06	111.5
	10:07	111.7
	10:08	110.9
	10:09	110.9
	10:10	111.5
	10:11	111.4
	10:12	110.9
	10:13	111.4
	10:14	111.7
	10:15	111.1
	10:16	111.2
	10:17	111.7
	10:18	111.8
	10:19	111.0
	10:20	111.4
	10:21	112.4
	10:22	112.2
	10:23	111.4
	10:24	111.8
	10:25	112.0
	10:26	111.4
	10:27	111.1
	10:28	111.8
	10:29	111.8
	10:30	111.1
	10:31	111.6
	10:32	112.1
	10:33	111.3
	10:34	111.7
	10:35	112.1
	10:36	111.7
	10:37	111.2
	10:38	111.3
	10:39	112.1

Site Name: HRSG
Data Averaging Type: 1m

Time of Report: 10/12/99 18:44
Rolling Average Interval: 1

Run 1

Date	Time	SYNFLOW (LB/SEC)
10/12/99	10:40	111.6
	10:41	110.9
	10:42	111.4
	10:43	111.5
	10:44	110.8
	10:45	111.1
	10:46	111.8
	10:47	111.6
	10:48	111.0
	10:49	111.0
	10:50	111.9
	10:51	111.0
	10:52	110.9
	10:53	111.3
	10:54	111.4
	10:55	110.7
	10:56	111.4
	10:57	111.7
	10:58	111.3
	10:59	110.8
	11:00	112.0
	11:01	111.8
	11:02	111.0
	11:03	111.2
	11:04	111.7
	11:05	111.6
	11:06	111.3
	11:07	111.8
	11:08	112.1
	11:09	111.4
	11:10	111.3
	11:11	111.6
	11:12	111.8
	11:13	111.2
	11:14	111.7
	11:15	112.2
	11:16	111.5
	11:17	111.3
	11:18	111.4
	11:19	111.6
	11:20	110.6
	11:21	111.1
	11:22	111.6
	11:23	111.1
	11:24	110.6
	11:25	111.1

Average =	111.4
Maximum =	112.4
Minimum =	110.6
Possible Values =	146
Included Values =	146
Total =	16266.6

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Data Averaging Type: 1m

Time of Report: 10/12/99 18:45

Rolling Average Interval: 1

Run 2

Date	Time	SYNFLOW (LB/SEC)
10/12/99	12:10	111.6
	12:11	111.4
	12:12	111.3
	12:13	111.4
	12:14	111.4
	12:15	111.3
	12:16	111.4
	12:17	111.5
	12:18	111.4
	12:19	111.2
	12:20	111.2
	12:21	111.4
	12:22	111.1
	12:23	110.9
	12:24	111.1
	12:25	111.1
	12:26	111.0
	12:27	110.6
	12:28	110.6
	12:29	110.7
	12:30	110.4
	12:31	110.3
	12:32	110.5
	12:33	110.4
	12:34	110.5
	12:35	110.5
	12:36	110.5
	12:37	110.6
	12:38	110.6
	12:39	110.6
	12:40	110.6
	12:41	110.6
	12:42	110.5
	12:43	110.8
	12:44	110.9
	12:45	110.5
	12:46	110.5
	12:47	110.5
	12:48	110.4
	12:49	110.5
	12:50	110.7
	12:51	110.4
	12:52	110.6
	12:53	110.4
	12:54	110.7
	12:55	110.6
	12:56	110.3
	12:57	110.1
	12:58	110.3
	12:59	110.0

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:45

Data Averaging Type: 1m

Rolling Average Interval: 1

Run 2

Date	Time	SYNFLOW (LB/SEC)
10/12/99	13:00	109.9
	13:01	109.8
	13:02	109.8
	13:03	110.1
	13:04	110.2
	13:05	110.1
	13:06	110.1
	13:07	110.1
	13:08	110.3
	13:09	110.3
	13:10	110.3
	13:11	110.4
	13:12	110.5
	13:13	110.4
	13:14	110.3
	13:15	110.4
	13:16	110.5
	13:17	110.4
	13:18	110.7
	13:19	111.0
	13:20	110.9
	13:21	111.2
	13:22	111.3
	13:23	110.6
	13:24	110.5
	13:25	110.6
	13:26	110.0
	13:27	110.4
	13:28	110.7
	13:29	110.2
	13:30	109.4
	13:31	109.5
	13:32	111.1
	13:33	111.3
	13:34	111.2
	13:35	111.0
	13:36	111.2
	13:37	111.0
	13:38	110.7
	13:39	110.3
	13:40	109.5
	13:41	109.3
	13:42	109.7
	13:43	111.0
	13:44	111.2
	13:45	111.0
	13:46	110.8
	13:47	111.3
	13:48	111.2
	13:49	111.4

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Time of Report: 10/12/99 18:45

Data Averaging Type: 1m

Rolling Average Interval: 1

Run 2

Date	Time	SYNFLOW (LB/SEC)
10/12/99	13:50	111.3
	13:51	111.2
	13:52	110.5
	13:53	110.7
	13:54	110.9
	13:55	110.8
	13:56	110.7
	13:57	110.6
	13:58	110.1
	13:59	110.2
	14:00	110.1
	14:01	109.9
	14:02	110.2
	14:03	109.9
	14:04	109.9
	14:05	110.1
	14:06	110.1
	14:07	110.0
	14:08	109.7
	14:09	109.8
	14:10	109.9
	14:11	110.1
	14:12	109.7
	14:13	109.7
	14:14	109.9
	14:15	110.0
	14:16	109.9
	14:17	110.5
	14:18	111.1
	14:19	110.8
	14:20	109.8
	14:21	110.4
	14:22	110.0
	14:23	109.8
	14:24	109.8
	14:25	110.6
	14:26	111.3
	14:27	111.1
	14:28	110.8
	14:29	110.6
	14:30	110.6
	14:31	110.5
	14:32	110.4
	14:33	110.0
	14:34	109.8
	14:35	109.6
	14:36	109.7
	14:37	110.1
	14:38	110.5

Average =	110.5
Maximum =	111.6
Minimum =	109.3
Possible Values =	149
Included Values =	149
Total =	16467.2

Plant Name: WRRP

General Average Report

Reporting Period: 10/12/1999 to 10/12/1999

Site Name: HRSG

Data Averaging Type: 1m

Time of Report: 10/12/99 18:47

Rolling Average Interval: 1

Run 3

Date	Time	SYNFLOW (LB/SEC)
10/12/99	15:25	109.4
	15:26	109.4
	15:27	109.1
	15:28	109.0
	15:29	108.8
	15:30	108.9
	15:31	109.0
	15:32	109.2
	15:33	109.3
	15:34	109.1
	15:35	109.1
	15:36	109.2
	15:37	109.2
	15:38	109.0
	15:39	109.0
	15:40	108.8
	15:41	108.7
	15:42	108.5
	15:43	108.5
	15:44	108.2
	15:45	108.1
	15:46	108.2
	15:47	108.3
	15:48	107.9
	15:49	107.7
	15:50	107.9
	15:51	108.0
	15:52	107.9
	15:53	108.0
	15:54	108.2
	15:55	108.0
	15:56	107.9
	15:57	108.0
	15:58	108.6
	15:59	108.7
	16:00	108.6
	16:01	108.7
	16:02	108.4
	16:03	108.3
	16:04	108.6
	16:05	108.7
	16:06	108.5
	16:07	108.3
	16:08	108.3
	16:09	108.3
	16:10	108.3
	16:11	108.1
	16:12	108.2
	16:13	108.0
	16:14	107.9

Site Name: HRSG
Data Averaging Type: 1m

Time of Report: 10/12/99 18:47
Rolling Average Interval: 1

Run 3

Date	Time	SYNFLOW (LB/SEC)
10/12/99	16:15	107.9
	16:16	108.1
	16:17	108.2
	16:18	108.5
	16:19	108.4
	16:20	108.4
	16:21	108.2
	16:22	108.3
	16:23	108.5
	16:24	108.5
	16:25	108.5
	16:26	108.4
	16:27	108.5
	16:28	108.4
	16:29	108.6
	16:30	108.4
	16:31	108.3
	16:32	108.3
	16:33	108.3
	16:34	108.5
	16:35	108.3
	16:36	108.4
	16:37	108.6
	16:38	108.4
	16:39	108.7
	16:40	108.8
	16:41	108.9
	16:42	108.9
	16:43	108.7
	16:44	108.8
	16:45	108.7
	16:46	108.8
	16:47	108.7
	16:48	109.0
	16:49	108.9
	16:50	108.7
	16:51	108.9
	16:52	108.8
	16:53	108.5
	16:54	108.4
	16:55	108.6
	16:56	108.6
	16:57	108.5
	16:58	108.5
	16:59	108.6
	17:00	108.8
	17:01	108.6
	17:02	108.6
	17:03	108.5
	17:04	108.4

Site Name: HRSG
Data Averaging Type: 1m

Time of Report: 10/12/99 18:47
Rolling Average Interval: 1

Run 3

Date	Time	SYNFLOW (LB/SEC)
10/12/99	17:05	108.5
	17:06	108.8
	17:07	108.7
	17:08	108.8
	17:09	108.8
	17:10	108.9
	17:11	108.9
	17:12	109.0
	17:13	109.1
	17:14	109.0
	17:15	109.0
	17:16	109.1
	17:17	108.8
	17:18	108.8
	17:19	108.9
	17:20	108.9
	17:21	108.7
	17:22	108.8
	17:23	108.9
	17:24	108.4
	17:25	108.8
	17:26	109.0
	17:27	108.7
	17:28	108.0
	17:29	108.8
	17:30	108.8
	17:31	108.4
	17:32	108.7
	17:33	108.9
	17:34	109.1
	17:35	108.2
	17:36	108.7
	17:37	109.3
	17:38	108.3
	17:39	108.8
	17:40	109.2
	17:41	109.1
	17:42	108.8
	17:43	109.2
	17:44	109.4
	17:45	109.2
	17:46	108.8
	17:47	109.3
	17:48	109.6
	17:49	109.0
	17:50	109.5
	17:51	109.5
	17:52	109.3
	17:53	109.3
	17:54	109.5

Site Name: HRSG
Data Averaging Type: 1m

Time of Report: 10/12/99 18:47
Rolling Average Interval: 1

Run 3

Date	Time	SYNFLOW (LB/SEC)
10/12/99	17:55	109.7
	17:56	109.2
	17:57	109.0
	17:58	109.6
	17:59	109.2
	18:00	109.1
	18:01	109.4
	18:02	109.6
	18:03	109.2
	18:04	109.1
	18:05	109.7
	18:06	109.7
	18:07	108.8
	18:08	109.2
	18:09	109.7
	18:10	109.6
	18:11	109.2
	18:12	109.4
	18:13	109.5
	18:14	109.3
	18:15	109.0
	18:16	109.4
	18:17	109.7
	18:18	109.2
	18:19	109.6
	18:20	109.8
	18:21	109.7
	18:22	109.6
	18:23	109.7
	18:24	110.1
	18:25	109.5

Average =	108.8
Maximum =	110.1
Minimum =	107.7
Possible Values =	181
Included Values =	181
Total =	19692.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
V - invalid for state
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

APPENDIX F

Chain of Custody Records

Job# 99-95WAB Unit Tested Wabash River HRSG CHAIN OF CUSTODY RECORD Page # 1/1

Facility Name/Location
Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Collected By/Company
METCO Environmental

HRSG Stack 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)
								SAMPLE ANALYSIS REQUIRED												Analyze according to the Ontario Hydro Method.
Container 1 Filter	10/12/99	1212	X				I	SL		X							X			Filter was adhered to frit and was torn during recovery. Filter # 47Q51
Container 2 (13H) 0.1 N HNO_3 F.W.	10/12/99	1223	X				I	SL									X			
Container 3 10% HNO_3 Rinse Imp. 1,2,3	10/12/99	1253	X				II	SL									X			
Container 4 0.1 N HNO_3 Rinse Imp. 4	10/12/99	1259	X				I	SL									X			
Container 5 0.1 N HNO_3 Rinse Imp 5,6,7	10/12/99	1321	X				I	SL									X			Used Hydroxylamine Sulfate / Sodium Chloride.

Received by:	Date:	Time:	Transported by:	Date:	Time:	Received at Lab by:	Date:	Time:
				10/15/99	2215		10/16/99	14:00
Analyzed by:	Date:	Time:	Data Reviewed by:	Date:	Time:	Remarks:		

Ship to: TestAmerica

METCO ENVIRONMENTAL

Job# 99-95WAB Unit Tested Wabash River HRSG **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location
Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Collected By/Company
METCO Environmental

HRSG Stack

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)
Run 2																				Analyze according to the Ontario Hydro method.
Container 1 Filter	10/12/99	1530	X				I	SL		X							X			Filter #47852
Container 2 0.1 N HNO_3 F.W.	10/12/99	1535	X				I	SL									X			
Container 3 10% HNO_3 Rinse Imp 1,2,3	10/12/99	1604	X				II	SL									X			
Container 4 0.1 N HNO_3 Rinse Imp 4	10/12/99	1609	X				I	SL									X			
Container 5 0.1 N HNO_3 Rinse Imp. 5,6,7	10/12/99	1631	X				I	SL									X			Used Hydroxylamine sulfate / Sodium chloride.

Received by:	Date:	Time:	Transported by:	Date:	Time:	Received at Lab by:	Date:	Time:
			Shane Lee	10/15/99	2215		10/16/99	14:00
Analyzed by:	**Date:**	**Time:**	**Data Reviewed by:**	**Date:**	**Time:**	**Remarks:**		
			JM					

Ship to: TestAmerica

METCO ENVIRONMENTAL

Job# 99-95WABUnit Tested Wabash River HRSG **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location
Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Collected By/Company
METCO Environmental

HRSG Stack
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	10/12/99	1910	X				I	SL		X							X			Filter #47056
Container 2 0.1 N HNO_3 F.W.	10/12/99	1912	X				I	SL									X			
Container 3 10% HNO_3 Rinse Imp 1,2,3	10/12/99	1927	X				II	SL									X			
Container 4 0.1 N HNO_3 Rinse Imp 4	10/12/99	1934	X				I	SL									X			
Container 5 0.1 N HNO_3 Rinse Imp. 5,6,7	10/12/99	1945	X				I	SL									X			Used Hydroxylamine Sulfate / Sodium Chloride

Analyze according to the Ontario Hydro method.

Received by:	Date:	Time:	Transported by: Shane Lee	Date: 10/15/99	Time: 2215
Analyzed by:	Date:	Time:	Data Reviewed by: JM	Date:	Time:

Received at Lab by: [signature] Date: 10/16/99 Time: 14:00

Remarks:

Ship to: TestAmerica

METCO ENVIRONMENTAL

Job#9995WABUnit Tested Wabash River HRSG **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location
Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

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)
HRSG Stack Blank Train																				Analyze according to the Ontario Hydro method. Blank Train Run Time 0730-0930 10/12/99
Container 1 Filter	10/12/99																			Not Recovered. Filter # ____
Container 2 0.1 N HNO_3 F.W.	10/12/99																			Not Recovered.
Container 3 10% HNO_3 Rinse Imp 1,2,3	10/12/99	1036	X				I	SL									X			
Container 4 0.1 N HNO_3 Rinse Imp 4	10/12/99	1041	X				I	SL									X			
Container 5 0.1 N HNO_3 Rinse Imp 5,6,7	10/12/99	1056	X				I	SL									X			Used Hydroxylamine Sulfate / Sodium Chloride.

Received by:	Date:	Time:	Transported by:	Date:	Time:	Received at Lab by:	Date:	Time:
			Shane Lee	10/15/99	2215		10/16/99	14:00
Analyzed by:	Date:	Time:	Data Reviewed by:	Date:	Time:	Remarks:		

Ship to: TestAmerica.

METCO ENVIRONMENTAL

Job# 99-95WABUnit Tested Wabash River HRSG **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location
Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Collected By/Company
METCO Environmental

HRSG Stack SAMPLE I.D. Reagent Blanks	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)
								SAMPLE ANALYSIS REQUIRED												Analyze according to the Ontario Hydro method.
✓ Container 7 0.1 N HNO_3 Blank	10/12/99	0840	X				I	SL									X			Vol. = 50 ml
✓ Container 8 1 N KCl Blank	10/12/99	0838	X				I	SL									X			Vol. = 50 ml
✓ Container 9 5% HNO_3 – 10% H_2O_2 Blank	10/12/99	0836	X				I	SL									X			Vol. = 50ml
✓ Container 10 H_2SO_4 - $KMnO_4$ Blank	10/12/99	0832	X				I	SL									X			Vol. = 50 ml
✓ Container 11 Hydroxylamine Sulfate / Sodium Chloride Blank	10/12/99	0826	X				I	SL									X			Vol. = 100 ml
✓ Container 12 Filter Blank	10/12/99	0819	X				I	SL									X			Filters: 47Q 53 47Q 54 47Q 55

Received by:	Date:	Time:	Transported by:	Date:	Time:	Received at Lab by:	Date:	Time:
			Shane Lee	10/15/99	2215	[signature]	10/16/99	14:00
Analyzed by:	Date:	Time:	Data Reviewed by:	Date:	Time:	Remarks:		
			[signature]					

Ship to: TestAmerica

METCO ENVIRONMENTAL

Job# 99-95WAB Unit Tested Wabash River HRSG **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location
Cinergy
Wabash River Repowering Project
West Terre Haute, Indiana

Collected By/Company
METCO Environmental

HRSG Stack

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)
Run 1 Container 2A Acetone F.W.	10/12/99	1217	X				I	SL		X							X			Analyze according to the Ontario Hydro Method. Ship to TestAmerica for Hg Analysis.
Run 2 Container 2A Acetone F.W.	10/12/99	1532	X				I	SL		X							X			
Run 3 Container 2A Acetone F.W.	10/12/99	1913	X				I	SL		X							X			
Acetone Blank	10/12/99	0847	X				I	SL		X										Vol. = @ 250ml

Received by:	Date:	Time:	Transported by:	Date:	Time:	Received at Lab by:	Date:	Time:
			[signature]	10/15/99	2215	[signature]	10/18/99	0800
Analyzed by:	Date:	Time:	Data Reviewed by: JRN	Date:	Time:	Remarks: part. by Metco 11-2-99 M. Ganter		

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TESTAMERICA: James C. Davis

METCO ENVIRONMENTAL

Job# 99-95[illegible] Unit Tested Wabash River HRSG **CHAIN OF CUSTODY RECORD** Page # 1/1

Facility Name/Location: Cinergy Wabash River Repowering Project West Terre Haute, Indiana

Collected By/Company: Dynegy Power Corp./Cinergy

Fuel & Slag Samples

SAMPLE I.D.	DATE	TIME	AIR	SOLID	COMP	GRAB	# OF CONTAINERS	RECOVERED BY	HCl	PART.	SO2	SO3	PCDD/PCDF	SEMI-VOC	POHC's	Cl_2 METALS	Hg	FLY ASH	BLU CONTR	REMARKS (Specific Compounds/Methods)
Run 1 Fuel Composite	10/12/99	0000-0330			X		I	TO								X	X	X	X	Pull an aliquote to ship to EERC for Analysis. 3075.9 grams
Run 2 Fuel Composite	10/12/99	0410-0700			X		I	TO								X	X	X	X	3428.1 grams
Run 3 Fuel Composite	10/12/99	0730-1200			X		I	TO								X	X	X	X	4073.0 grams
Slag Grab	10/12/99	1400				X	I	TO												Ship to EERC of the University of North Dakota

Received by:	Date:	Time:	Transported by: [signature]	Date: 10/15/99	Time: 2215	Received at Lab by:	Date:	Time:
Analyzed by:	Date:	Time:	Data Reviewed by: [signature]	Date:	Time:	Remarks:		

Ship to: Test America / METCO

METCO ENVIRONMENTAL

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.