Appendix A. Results and Calculations

Spreadsheet Printouts

General Calculations

Mercury Specific Calculations

Mass Balance Calculations

FOSSIL ENERGY RESEARCH CORP.

ISOKINETIC TEST DATA SUMMARY

Test Program Information				
Client	Ameren	*Data input by*	MDM	
Plant/Unit	Newton 2	*Method*	Ontario Hydro	
Sample Location	ESP Inlet	*Stack Area, ft^2*	162	
Fuel	PRB Coal	*Sample Train ID*	5-WCS	
Fuel F-factor, dscf/MMBtu	9780	*Meter factor, Y_D*	0.983	
		Ref Temp, F	68	
Pre-test Information				
Test Number	1-Inlet	2-Inlet	3-Inlet	Average
Pitot Factor, C_p	0.84	0.84	0.84	-
Barometric Pressure, in Hg	29.40	29.40	29.40	-
Sample Time, min	120	120	120	-
Nozzle Diameter, in	0.185	0.192	0.192	-
Sample Train Data				
Meter Volume, acf	49.300	45.875	48.720	-
Static Pressure, iwg	-16.00	-16.00	-16.00	-16.00
ΔP, iwg	0.7507	0.6262	0.6447	0.6739
ΔH, iwg	0.64	0.61	0.63	0.63
Meter Temp, F	88.0	80.0	102.1	90.0
Stack Temp, F	335.7	302.0	327.3	321.7
Water collected, g	171.6	151.5	150.4	157.8
O_2, %	4.00	4.05	3.96	4.00
CO_2, %	15.63	15.49	15.14	15.42
Start time/stop time	1426/1743	0752/0957	1147/1351	
Sample Train Results				
Std Sample Vol, dscf	45.952	43.390	44.271	44.537
Std Sample Vol, m^3	1.301	1.229	1.254	1.261
Std Moisture Vol, dscf	8.100	7.151	7.099	-
Moisture, %	14.98%	14.15%	13.82%	14.32%
Dry Molecular Weight	30.66	30.64	30.58	-
Wet Molecular Weight	28.76	28.85	28.84	28.82
Stack Gas Velocity, ft/s	61.50	54.88	56.61	57.66
Stack Gas Flow, wacfm	597757	533442	550267	560489
Stack Gas Flow, dscfm	318094	299339	300004	305812
Isokinetic Ratio, %	104.50	97.35	99.10	-
Mercury catch, ug				
Particulate	0.10	0.08	0.20	
Oxidized	0.71	0.72	1.96	
Elemental	11.92	11.40	11.00	
Total	12.73	12.20	13.16	12.70
Mercury catch, ug/m^3				
Particulate	0.08	0.07	0.16	0.10
Oxidized	0.55	0.59	1.56	0.90
Elemental	9.16	9.28	8.77	9.07
Total	9.71	9.86	10.34	9.97
Mercury catch, lb/10^{12} Btu				
Particulate	0.06	0.05	0.12	0.08
Oxidized	0.41	0.44	1.18	0.68
Elemental	6.90	7.01	6.60	6.84
Total	7.31	7.45	7.77	7.51
Mercury, lb/hr				
Particulate	0.000	0.000	0.001	0.000
Oxidized	0.002	0.002	0.007	0.004
Elemental	0.038	0.037	0.037	0.037
Total	0.040	0.040	0.043	0.041

Shades values are not detected. Calculations shown are at detection levels.

FOSSIL ENERGY RESEARCH CORP.

ISOKINETIC TEST DATA SUMMARY

Test Program Information				
Client	Ameren	*Data input by*	MDM	
Plant/Unit	Newton 2	*Method*	Ontario Hydro	
Sample Location	Stack	*Stack Area, ft^2*	545.6	
Fuel	PRB Coal	*Sample Train ID*	1-FERCo	
Fuel F-factor, dscf/MMBtu	9780	*Meter factor, Y_D*	1.001	
		Ref Temp, F	68	
Pre-test Information				
Test Number	1-Stack	2-Stack	3-Stack	Average
Pitot Factor, C_p	0.84	0.84	0.84	-
Barometric Pressure, in Hg	29.20	29.30	29.30	-
Sample Time, min	120	120	120	-
Nozzle Diameter, in	0.185	0.227	0.224	-
Sample Train Data				
Meter Volume, acf	60.028	76.782	79.170	-
Static Pressure, iwg	-0.70	-0.80	-0.90	-0.80
ΔP, iwg	0.9475	0.8477	0.9042	0.8998
ΔH, iwg	0.87	1.50	1.72	1.36
Meter Temp, F	125.5	110.1	116.2	117.3
Stack Temp, F	336.2	325.0	338.3	333.2
Water collected, g	175.4	196.4	265.7	212.5
O_2, %	5.84	5.86	5.08	5.59
CO_2, %	13.93	13.83	14.14	13.97
Start time/stop time	1340/1759	0751/1032	1146/1416	
Sample Train Results				
Std Sample Vol, dscf	52.995	69.965	71.417	64.792
Std Sample Vol, m^3	1.501	1.981	2.022	1.835
Std Moisture Vol, dscf	8.279	9.270	12.541	-
Moisture, %	13.51%	11.70%	14.94%	13.38%
Dry Molecular Weight	30.46	30.45	30.47	-
Wet Molecular Weight	28.78	28.99	28.60	28.79
Stack Gas Velocity, ft/s	67.99	63.52	66.61	66.04
Stack Gas Flow, wacfm	2225807	2079515	2180681	2162001
Stack Gas Flow, dscfm	1243695	1207044	1198735	1216491
Isokinetic Ratio, %	103.82	93.80	99.01	-
Mercury catch, ug				
Particulate	0.01	0.01	0.01	
Oxidized	2.78	2.79	3.70	
Elemental	10.16	11.90	14.40	
Total	12.94	14.69	18.10	15.24
Mercury catch, ug/m^3				
Particulate	0.007	0.005	0.005	0.01
Oxidized	1.85	1.41	1.83	1.70
Elemental	6.77	6.01	7.12	6.63
Total	8.62	7.41	8.95	8.33
Mercury catch, lb/10^{12} Btu				
Particulate	0.006	0.004	0.004	0.005
Oxidized	1.57	1.19	1.47	1.410
Elemental	5.72	5.09	5.73	5.514
Total	7.29	6.28	7.20	6.924
Mercury, lb/hr				
Particulate	0.000	0.000	0.000	0.000
Oxidized	0.009	0.006	0.008	0.008
Elemental	0.031	0.027	0.032	0.030
Total	0.040	0.033	0.040	0.038

Shades values are not detected. Calculations shown are at detection levels.

EMISSION CALCULATIONS

1. <u>Sample Volume and Isokinetics</u>

   a. Sample gas volume, dscf

   $V_{m\ std} = 0.03342 V_m\ [P_{bar} + (H/13.6)](T_{ref}/T_m)(Y)$

   b. Water vapor volume, scf

   $V_{w\ std} = 0.0472\ V_{lc}\ (T_{ref}/528°R)$

   c. Moisture content, nondimensional

   $B_{wo} = V_{w\ std}/(V_{m\ std} + V_{w\ std})$

   d. Stack gas molecular weight, lb/lb mole

   $MW_{dry} = 0.44(\%\ CO_2) + 0.32(\%\ O_2) + 0.28\ (\%\ N_2)$

   $MW_{wet} = MW_{dry}\ (1 - B_{wo}) + 18\ (B_{wo})$

   e. Absolute stack pressure, iwg

   $Ps = P_{bar} + P_{sg}/13.6$

   f. Stack velocity, ft/sec

$$V_s = 2.90\ C_p \sqrt{\Delta PTs} \sqrt{\frac{29.92}{Ps} \times \frac{28.95}{MW_{wet}}}$$

   g. Actual stack gas flow rate, wacfm

   $Q = (V_s)(A_s)(60)$

   h. Standard stack gas flow, dscfm

   $Q_{sd} = Q(1 - B_{wo})\ (T_{ref}/Ts)(Ps/29.92)$

   i. Percent isokinetic

$$I = \frac{17.32 \times T_s\ (V_{m\ std})}{(1 - B_{wo})\ \theta \times V_s \times Ps \times Dn^2} \times \frac{528°R}{T_{ref}}$$

2. <u>Particulate Emissions</u>

   a. Grain loading, gr/dscf

   $C = 0.01543\ (M_n/V_{m\ std})$

   b. Grain loading at 12% CO_2, gr/dscf

   $C_{(12\%\ CO2)} = C\ (12/\%CO_2)$

c. Mass emissions, lb/hr

$M = C \times Qsd \times (60\ min/hr)/(7000\ gr/lb)$

3. Gaseous Emissions, lb/hr

$$M = ppm \times 10^{-6} \quad \frac{MW_i\ lb/lb\ mole}{SV} \quad X\ Qsd\ X\ 60\ min/hr$$

where SV = specific molar volume of an ideal gas:

385.3 ft^3/lb mole for $T_{ref} = 528°R$

379.5 ft^3/lb mole for $T_{ref} = 520°R$

4. Emissions Rates, lb/10^6 Btu

a. Fuel factor at 68°F, dscf/10^6 Btu at 0% O_2

$$F_{68} = \frac{10^6[3.64(\%H) + 1.53(\%C) + 0.14(\%N) + 0.57(\%S) - 0.46(\%O_2, fuel)]}{HHV,\ Btu/lb}$$

b. Fuel factor at 60°F

$F_{60} = F_{68}\ (520°R/528°R)$

c. Gaseous emission factor

$$lb/10^6\ Btu_i = ppm_i \times 10^{-6} \times \frac{MW_i\ lb}{lb\ mole} \times \frac{1}{SV} \times F \times \frac{20.9}{20.9 - \%O_2}$$

d. Particulate emission factor

$$lb/10^6\ Btu = C \times \frac{1\ lb}{7000\ gr} \times F \times \frac{20.9}{20.9 - \%O_2}$$

These calculations are routinely performed on FERCo's computer.

Nomenclature:

A_s	=	stack area, ft^2
B_{wo}	=	flue gas moisture content
$C_{12\%CO2}$	=	particulate grain loading, gr/dscf corrected to 12% CO_2
C	=	particulate grain loading, gr/dscf
C_p	=	pitot calibration factor, dimensionless
Dn	=	nozzle diameter, in.
F	=	fuel F factor, dscf/10^6 Btu at 0% O_2
H	=	orifice pressure differential, iwg
I	=	% isokinetics
M_n	=	mass of collected particulate, mg
M_i	=	mass of emissions species i, lb/hr
MW	=	molecular weight of flue gas
MW_i	=	molecular weight of species i:
		NO_x: 64
		CO: 28
		SO_2: 64
		HC: 16
Σ	=	sample time, min.
ΔP	=	average velocity head, iwg = $\left(\overline{\sqrt{\Delta P}}\right)^2$
P_{bar}	=	barometric pressure, in. Hg
Ps	=	stack absolute pressure, in. Hg
Psg	=	stack static pressure, iwg
Q	=	wet stack gas flow rate at actual conditions, wacfm
qsd	=	dry stack gas flow rate at standard conditions, dscfm
SV	=	specific molar volume of an ideal gas at std conditions, ft^3/lb mole
Tm	=	meter temperature, °R
T_{ref}	=	reference temperature, °R
Ts	=	stack temperature, °R
V_s	=	stack velocity, ft/sec
V_{lc}	=	volume of liquid collected in impingers, ml
V_m	=	dry meter volume uncorrected, dcf
$V_{m\ std}$	=	dry meter volume at standard conditions, dscf
$V_{w\ std}$	=	volume of water vapor at standard conditions, scf
Y	=	meter calibration coefficient

Calculations to determine mercury as lb/!0^{12} Btu in fuel												
Mercury	=	Mercury	x	1.E-06	x	(1-H_2O)	/	HHV	*	1.E+12		
lb/10^{12} Btu		ppm dry						lb/Btu				
Example, Newton Test 3												
0.7	=	0.008	x	1.E-06	x	0.7144	/	8700	*	1.E+12		
lb/10^{12} Btu		ppm dry						lb/Btu				
Calculations to determine mercury as lb/hr Btu in fuel												
Mercury	=	Mercury	x	1.E-06	x	(1-H_2O)	x	coal flow				
lb/hr		ppm dry						lb/hr as-fired				
Example, Newton Test 3												
0.004	=	0.008	x	1.E-06	x	0.7144	x	625000				
lb/hr		ppm dry						lb/hr as-fired				
Calculations to determine gas flow rates from fuel input												
Oxygen based												
Flow	=	fuel flow	x	HHV	x	Fd-factor	x	20.9/(20.9-O_2)	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		
Example, Newton Test 3 Stack												
1,153,557	=	625000	x	8571	x	9780	x	1.321	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		
Carbon based												
Flow	=	fuel flow	x	HHV	x	Fc-factor	x	100/CO_2	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		
Example, Newton Test 3 Stack												
1,136,335	=	625000	x	8571	x	1800	x	7.071	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		

FOSSIL ENERGY RESEARCH CORP.

23342 C SOUTH POINTE, LAGUNA HILLS, CA 92653 (714) 859-4466

Date _____ Operator _____

Sampling train _____ Checked by _____

Site _____ Used for runs _____

1. C_p (for S-type pitots) = _____
2. P_b (barometric pressure at location) = _____
3. D_n (nozzle diameter inches) = _____
4. B_w (moisture in gas stream, percent) = _____
5. P_m (barometric pressure at meter, in Hg) $= \frac{\text{AVG } \Delta H}{13.6} + P_b$ = _____
6. $\Delta H@$ (pressure differential of orifice in meterbox, H_2O) = _____
7. P_s (stack pressure, in Hg) $= P_b \pm \frac{\text{stack static pressure } (H_2O)}{13.6}$ = _____
8. T_s (average stack temperature, °R) = _____ °F + 460 = _____ °R
9. T_m (average meter temperature, °R = ambient + 20°F + 460 = _____ °R
10. M_d (molecular weight of stack gas, dry, lb/lb mole)
    $= (0.44 \times \% CO_2) + (0.32 \times \% O_2) + [0.28 + \% N_2]$
    $= (0.44 \times$ _____$) + (0.32 \times$ _____$) + (0.28 +$ _____$)$ = _____
11. M_s (molecular weight of stack gas with water vapor, lb/lb mole)
    $= [M_d \times (1-B_w)] + [18 \times B_w]$
    $= [$ _____ $\times (1 -$ _____$)] + [18 \times$ _____$]$ = _____
12. $K = (846.72)\ (D_n^4)\ (\Delta H@)\ (C_p^2)\ (1-B_w)^2 \left[\frac{M_d}{M_s}\right] \left[\frac{P_s}{P_m}\right] \left[\frac{T_m}{T_s}\right]$

    K = (846.72) (_____)^4 (_____) (_____)^2 (_____)^2 (_____) (_____) (_____)
    K = _____

$\Delta H = K\Delta P$
Correlation Chart

ΔH	ΔP

K-Factor Calculation Form

Calculations to determine mercury as lb/!0^{12} Btu in fuel												
Mercury	=	Mercury	x	1.E-06	x	(1-H_2O)	/	HHV	*	1.E+12		
lb/10^{12} Btu		ppm dry						lb/Btu				
Example, Newton Test 3												
6.8	=	0.0825	x	1.E-06	x	0.7144	/	8700	*	1.E+12		
lb/10^{12} Btu		ppm dry						lb/Btu				
Calculations to determine mercury as lb/hr Btu in fuel												
Mercury	=	Mercury	x	1.E-06	x	(1-H_2O)	x	coal flow				
lb/hr		ppm dry						lb/hr as-fired				
Example, Newton Test 3												
0.037	=	0.0825	x	1.E-06	x	0.7144	x	625000				
lb/hr		ppm dry						lb/hr as-fired				
Calculations to determine gas flow rates from fuel input												
Oxygen based												
Flow	=	fuel flow	x	HHV	x	Fd-factor	x	20.9/(20.9-O_2)	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		
Example, Newton Test 3 Stack												
1,153,557	=	625000	x	8571	x	9780	x	1.321	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		
Carbon based												
Flow	=	fuel flow	x	HHV	x	Fc-factor	x	100/CO_2	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		
Example, Newton Test 3 Stack												
1,136,335	=	625000	x	8571	x	1800	x	7.071	/	60	/	1,000,000
dscfm		lb/hr		Btu/lb		dscf/mmBtu				min/hr		

Calculations to determine mercury as lb/10^{12} Btu in gas												
Mercury	=	Mercury	/	Sample vol	x	2.20.E-09	x	9780	*	20.9/(20.9-O_2)	*	1.E+06
lb/10^{12} Btu		ug/sample		dscf		lb/ug		f-factor		dilution		10^{12}/10^{6}
								dscf/10^{6} Btu		correciton		
Example, Newton Test 3 Stack Total Mercury												
7.213	=	18.1	/	71.42	x	2.20.E-09	x	9780	x	1.321	*	1.E+06
lb/10^{12} Btu		ug/sample		dscf		lb/ug		f-factor		dilution		10^{12}/10^{6}
								dscf/10^{6} Btu		correction		
Calculations to determine mercury as lb/hr Btu in gas												
Mercury	=	Mercury	/	Sample vol	x	2.20.E-09	x	Gas flow	x	60		
lb/hr		ug/sample		dscf		lb/ug		dscfm		min/hr		
Example, Newton Test 3 Stack Total Mercury												
3.19E-02	=	14.4	/	71.42	x	2.20.E-09	x	1198735	x	60		
lb/hr		ug/sample		dscf		lb/ug		dscfm		min/hr		

Appendix B. Raw Field Data and Calibration Data Sheets

Sampling Data

Velocity Traverses

O_2 Meter Calibration

O_2 Meter Gas Certificates

Dry Gas Meter Calibration

Pitot Probe Calibration

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: Ameren Newton Unit 2 | UNIT: 2 | TEST NO.: Inlet FB | METHOD: OH Hg | PAGE 1 OF 1
SAMPLE LOCATION: Inlet ESP 2A | TEST CONDITION: | AMBIENT TEMPERATURE:
OPERATOR/ASSISTANT: DW/PA | METER VOLUME START/END: / | DATE: 7/31/95

PRE-TEST DATA:	EQUIPMENT INFO:
Barometric Pressure, In.Hg	Meter No.
Assumed Stack Pressure, iwg	Meter Yd
Assumed Moisture, %	Δ H @
Assumed Molecular Weight	Pitot ID, Cp
Assumed Stack Temperature	O_2/CO_2 Method
Assumed Meter Temperature	Teflon connecting line? (Y/N)
Average ΔP	Probe material
Stack diameter/area	Probe length
Sample time, min/point	Nozzle material glass
ΔH = _____ x ΔP	Nozzle diameter, in. .185
	Filter No. GT-25
	Filter material quartz

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl		-	100 g	=	
2	KCl		-		=	
3	KCl		-		=	
4	HNO_3/H_2O_2		-		=	
5	$KMnO_4/H_2SO_4$		-		=	
6	$KMnO_4/H_2SO_4$		-		=	
7	$KMnO_4/H_2SO_4$		-		=	
8	SG		-		=	
					Total	

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test				
Post-test				

PRE-TEST METER CALIBRATION CHECK:

	Time	Δ H	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

COMMENTS:

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	FILTER	METER In	METER out	IMP OUT		O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
	1000														Impingers Loaded
	1230														Impingers Recovered
															Filter Loaded
															Filter Recovered
															Probe Wash
															TEST AVERAGES/TOTALS
															Calculated by:
															Checked by:
															Δ P, iwg
															Δ H, iwg
															Sample vol, acf
															Stack temp, F
															Meter temp, F
															Static press, iwg
															Water collected, g
															O_2, %
															Sample time, min

Field Blank Dave Wood

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: Ameren Newton Unit 2 | UNIT: 2 | TEST NO.: 1 Full | METHOD: OH Hg | PAGE 1 OF 2
SAMPLE LOCATION: ESP Full 2A | TEST CONDITION: Full load | AMBIENT TEMPERATURE:
OPERATOR/ASSISTANT: DW/RA | METER VOLUME START/END: 528.630 / | DATE: 7-31-99

PRE-TEST DATA:

Barometric Pressure, In.Hg	29.4
Assumed Stack Pressure, iwg	-15"
Assumed Moisture, %	10
Assumed Molecular Weight	28
Assumed Stack Temperature	270
Assumed Meter Temperature	90
Average ΔP	.8
Stack diameter/area	
Sample time, min/point	8/15
ΔH = _____ x ΔP	

EQUIPMENT INFO:

Meter No.	5-wd.5
Meter Yd	.983
Δ H @	1.83
Pitot ID, Cp	.84
O_2/CO_2 Method	Portable O_2
Teflon connecting line? (Y/N)	Yes
Probe material	--
Probe length	--
Nozzle material	glass
Nozzle diameter, in.	0.185
Filter No.	QT-26 Lot# 3.2636
Filter material	quartz

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl	896.3	-	715.2	=	181.1
2	KCl	604.8	-	590.8	=	14.0
3	KCl	646.3	-	644.8	=	1.5
4	$KMnO_4/H_2SO_4$	582.3	-	579.4	=	2.9
5	$KMnO_4/H_2SO_4$	586.0	-	586.2	=	-0.2
6	$KMnO_4/H_2SO_4$	576.5	-	576.2	=	0.3
7	$KMnO_4/H_2SO_4$	561.2	-	562.0	=	-0.8
8	SG	727.9	-	705.1	=	22.8
					Total	221.6

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test	.01	10	ok	
Post-test	.01	10	ok	

PRE-TEST METER CALIBRATION CHECK:

	Time	Δ H	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

COMMENTS:

ch wd 294.9/295.0

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	Line ~~FILTER~~	METER In	METER out	IMP OUT		O_2	VAC.	STATIC PRESS. iwg
3	1426	528.630	1.15	.93	307	250	245	92	86	60		5.4	7	
2	1434	532.9	1.1	.89	308	250	240	93	91	58		5.4	7	
1	1442	536.9	.40	.32	312	251	242	93	91	58		5.4	7	-16"
	1450	539.150												
3	1553	539.400	.80	.64	322	247	243	88	86	58		4.4	7	
2	1601	542.6	.78	.64	320	258	242	87	86	58		4.4	7	
1	1609	545.8	.63	.50	326	250	251	89	87	58		4.4	7	
	1617	548.730												
3	1628	549.050	.90	.72	340	251	255	89	87	58		3.7	7	
2	1636	552.6	.90	.78	342	251	252	88	86	58		3.4	7	
1	1644	556.2	.43	.39	343	243	250	89	86	57		3.7	7	
	1652	558.800												

CHAIN OF CUSTODY INFORMATION

Impingers Loaded	✓
Impingers Recovered	✓
Filter Loaded	✓
Filter Recovered	✓
~~Probe~~ Wash	DW

TEST AVERAGES/TOTALS

Calculated by:	DW
Checked by:	MMJ
Δ P, iwg	.7507 ~~.7558~~ ✓
Δ H, iwg	.64 ✓
Sample vol, acf	19.3 ✓
Stack temp, F	335.7 ✓
Meter temp, F	88.1 ✓
Static press, iwg	-16"
Water collected, g	
O_2, %	4.4 ✓
Sample time, min	120

19-78 .7676 .67 315 90

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: Ameren Newton | UNIT: 2 | TEST NO.: 1-Inlet | METHOD: OH-HG | PAGE 2 OF 2
SAMPLE LOCATION: Inlet Duct | TEST CONDITION: | AMBIENT TEMPERATURE:
OPERATOR/ASSISTANT: D.W. P.A. | METER VOLUME START/END: / | DATE: 7-31-99

PRE-TEST DATA:	EQUIPMENT INFO:
Barometric Pressure, In.Hg	Meter No.
Assumed Stack Pressure, iwg	Meter Yd
Assumed Moisture, %	ΔH @
Assumed Molecular Weight	Pitot ID, Cp
Assumed Stack Temperature	O_2/CO_2 Method
Assumed Meter Temperature	Teflon connecting line? (Y/N)
Average ΔP	Probe material
Stack diameter/area	Probe length
Sample time, min/point	Nozzle material
ΔH = _____ x ΔP	Nozzle diameter, in.
	Filter No.
	Filter material

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)	Wt (start)		Wt gain
1				=	
2				=	
3				=	
4				=	
5				=	
6				=	
7				=	
8				=	
				Total	

COMMENTS:

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test				
Post-test				

PRE-TEST METER CALIBRATION CHECK:

	Time	ΔH	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	Line ~~FILTER~~	METER in	METER out	IMP OUT		O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
3	1654	555.200	.87	.75	352	250	250	89	87	65		3.7	5		Impingers Loaded
2	1702	563.1	.84	.72	351	247	245	89	86	65		3.7	5		Impingers Recovered
1	1710	566.5	.44	.38	348	251	245	89	86	65		3.4	5		Filter Loaded
	1718	568.950													Filter Recovered
															Probe Wash
3	1719	569.200	.92	.80	355	241	250	88	87	65		3.7	5		
2	1727	572.9	.91	.80	355	242	243	88	86	65		3.7	5		**TEST AVERAGES/TOTALS**
1	1735	576.6	.48	.41	355	242	245	80	86	64		3.7	5		Calculated by:
	1743	579.150													Checked by:
															ΔP, iwg
															ΔH, iwg
															Sample vol, acf
															Stack temp, F
															Meter temp, F
															Static press, iwg
															Water collected, g
															O_2, %
															Sample time, min

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: American Newban Unit 2 | UNIT: 2 | TEST NO.: 2-Field | METHOD: OH Hg | PAGE 1 OF 7
SAMPLE LOCATION: CSP Field 2A | TEST CONDITION: full load | AMBIENT TEMPERATURE:
OPERATOR/ASSISTANT: DW/PA | METER VOLUME START/END: 580.000 / | DATE: 8-7-99

PRE-TEST DATA:

Barometric Pressure, In.Hg	28.4
Assumed Stack Pressure, iwg	-16
Assumed Moisture, %	10
Assumed Molecular Weight	28
Assumed Stack Temperature	280
Assumed Meter Temperature	80
Average ΔP	.8
Stack diameter/area	
Sample time, min/point	8 / 15
ΔH = _____ x ΔP	

EQUIPMENT INFO:

Meter No.	5-[illegible]
Meter Yd	.983
ΔH @	1.871
Pitot ID, Cp	.84
O_2/CO_2 Method	portf O_2
Teflon connecting line? (Y/N)	Y
Probe material	–
Probe length	–
Nozzle material	glass
Nozzle diameter, in.	.192
Filter No.	QT-28 tare 2.8157
Filter material	quartz

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl	800.3	-	638.4	=	161.9
2	KCl	619.3	-	597.6	=	21.7
3	KCl	562.9	-	560.1	=	2.8
4	HNO_3/H_2O_2	708.1	-	705.1	=	3.0
5	$KMnO_4/H_2SO_4$	587.2	-	586.7	=	0.5
6	$KMnO_4/H_2SO_4$	606.9	-	605.9	=	1.0
7	$KMnO_4/H_2SO_4$	556.5	-	556.2	=	0.3
8	SG	793.2	-	782.9	=	10.3
					Total	~~201.5~~ 201.5

COMMENTS:

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test	.01	12	OK	DW
Post-test	.01	12	OK	DW

PRE-TEST METER CALIBRATION CHECK:

	Time	ΔH	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	LINE ~~FILTER~~	METER In	METER out	IMP OUT		O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
A-3	752	580.000	.94	.94	272	270	240	74	72	ice		4.8	7		Impingers Loaded
2	800	584.2	.95	.95	271	265	243	77	73	60		4.8	7	-16"	Impingers Recovered
1	808	587.3	.32	.32	277	265	241	80	74	58		5.0	7		Filter Loaded
	816	590.475													Filter Recovered
B 3	818	590.700	.80	.77	287	265	241	80	75	58		4.8	7		Probe Wash
2	826	593.9	.82	.78	289	260	242	82	76	58		4.4	7		
1	834	597.4	.35	.72	291	260	243	83	77	58		4.0	7		**TEST AVERAGES/TOTALS**
	842	599.550													Calculated by: DW
C 3	843	599.700	.78	.72	303	261	243	83	78	57		4.0	7		Checked by: MM
2	851	603.3	.77	.71	305	260	242	85	79	58		4.1	7		ΔP, iwg .6262
1	859	606.7	.38	.35	306	265	243	85	79	58		3.5	7		ΔH, iwg .61
	907	~~608.800~~						~~85~~	~~80~~	~~58~~					Sample vol, acf 45.875
D 3	908	609.000	.76	.70	317	260	242	85	80	58		3.0	7		Stack temp, F 302.3
2	916	612.500	.76	.70	319	261	243	86	81	57		2.9	7		Meter temp, F 80.4
1	924	615.8	.35	.32	316	260	243	86	82	57		4.1	7		Static press, iwg -16"
	932	617.950													Water collected, g 151.5
E 3	933	618.100	.60	.55	322	260	242	85	81	58		3.9	7		O_2, % ~~4.65~~ ~~4.10~~ 4.05
2	941	621.0	.60	.55	329	260	243	85	81	57		3.7	7		Sample time, min 120
1	949	623.9	.50	.46	331	260	242	86	81	57		3.7	7		

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY Ameren Newton Unit 2 UNIT 2 TEST NO. 3-Inlet METHOD OH Hg PAGE 1 OF 1
SAMPLE LOCATION ESP Inlet TEST CONDITION full load AMBIENT TEMPERATURE
OPERATOR/ASSISTANT DW/PA METER VOLUME START/END 627.300 / DATE 8-2-99

PRE-TEST DATA:

Barometric Pressure, In.Hg	29.40
Assumed Stack Pressure, iwg	-16
Assumed Moisture, %	14
Assumed Molecular Weight	28
Assumed Stack Temperature	300
Assumed Meter Temperature	85
Average ΔP	
Stack diameter/area	
Sample time, min/point	8/12
ΔH = _____ x ΔP	

EQUIPMENT INFO:

Meter No.	S-WCS
Meter Yd	.983
ΔH @	1.831
Pitot ID, Cp	.84 #33
O_2/CO_2 Method	Port. O2
Teflon connecting line? (Y/N)	Y
Probe material	—
Probe length	—
Nozzle material	glass
Nozzle diameter, in.	~~0.185~~ .192
Filter No.	QT-29 Tare=3.6177
Filter material	quartz

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl	860.0	-	701.7	=	158.3
2	KCl	599.5	-	580.7	=	18.8
3	KCl	645.1	-	641.7	=	3.4
4	HNO_3/H_2O_2	584.5	-	582.1	=	2.4
5	$KMnO_4/H_2SO_4$	585.4	-	585.7	=	-0.3
6	$KMnO_4/H_2SO_4$	591.9	-	590.2	=	1.7
7	$KMnO_4/H_2SO_4$	567.1	-	568.9	=	-1.8
8	SG	737.4	-	719.5	=	17.9
					Total	150.4

COMMENTS:

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test	.01	12	OK	AL
Post-test	.01	12	OK	AL

PRE-TEST METER CALIBRATION CHECK:

	Time	ΔH	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F STACK	PROBE	~~FILTER~~ Line	METER in	METER out	IMP OUT		O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
A 3	1147	627.300	1.0	.95	298	265	233	96	94	ice		5.3	6	-16"	Impingers Loaded ✓
2	1155	631.4	.95	.9	298	265	237	97	96	60		5.3	6		Impingers Recovered
1	1203	635.3	.32	.30	304	260	240	104	99	60		5.4	6		Filter Loaded ✓
	1211	637.500													Filter Recovered
B 3	1212	637.650	.69	.68	313	258	241	108	99	57		4.0	6		Probe Wash
2	1220	640.97	.68	.65	315	257	243	101	99	57		3.8	6		
1	1228	644.3	.35	.33	318	258	242	102	99	57		3.9	6		
	1236	646.500													**TEST AVERAGES/TOTALS**
C 3	1237	646.700	.85	.81	331	258	242	103	101	57		3.2	6		Calculated by: DW
2	1245	650.4	.85	.81	337	257	240	104	101	59		3.2	6		Checked by: MM ✓
1	1253	654.15	.32	.30	331	255	242	105	102	59		3.8	6		ΔP, iwg .6447 ✓
	1301	656.400													ΔH, iwg .67 ✓
D 3	1302	656.580	.80	.76	342	257	243	106	103	59		3.5	6		Sample vol, acf 48.72 ✓
2	1310	660.3	.78	.74	343	255	243	106	104	60		3.3	6		Stack temp, F 327.3 ✓
1	1318	663.8	.40	.38	339	258	247	107	104	60		3.7	6		Meter temp, F 102.1 ✓
	1326	666.550													Static press, iwg -16" ✓
E 3	1327	666.700	.80	.76	349	257	243	107	104	67		3.6	6		Water collected, g
2	1335	670.3	.76	.73	349	257	243	107	104	67		3.6	6		O_2, % 3.96 ✓
1	1343	673.75	.45	.41	349	258	251	107	104	67		3.7	6		Sample time, min 120
	1351	676.700													

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: American Newborn Unit 2 UNIT: 2 TEST NO.: FB METHOD: OH Hg PAGE ___ OF ___
SAMPLE LOCATION: Stack TEST CONDITION: ___ AMBIENT TEMPERATURE: ___
OPERATOR/ASSISTANT: MM / LP METER VOLUME START/END: ___ / ___ DATE: ___

PRE-TEST DATA:	EQUIPMENT INFO:
Barometric Pressure, In.Hg	Meter No.
Assumed Stack Pressure, iwg	Meter Yd
Assumed Moisture, %	Δ H @
Assumed Molecular Weight	Pitot ID, Cp
Assumed Stack Temperature	O_2/CO_2 Method
Assumed Meter Temperature	Teflon connecting line? (Y/N)
Average ΔP	Probe material
Stack diameter/area	Probe length
Sample time, min/point	Nozzle material glass
ΔH = ___ x ΔP	Nozzle diameter, in. 0.185
	Filter No. Q47-10 Lot=0.10
	Filter material glass

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl		-	KCl	=	✓
2	KCl		-		=	✓
3	KCl		-		=	✓
4	$KMnO_4/H_2SO_4$		-		=	✓
5	$KMnO_4/H_2SO_4$		-		=	✓
6	$KMnO_4/H_2SO_4$		-		=	✓
7	$KMnO_4/H_2SO_4$		-	✓	=	✓
8	SG		-	✓	=	✓
					Total	

COMMENTS:

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test	✓			
Post-test	✓			

PRE-TEST METER CALIBRATION CHECK:

	Time	Δ H	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	FILTER	METER in	METER out	IMP OUT		O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
	1022-														Impingers Loaded
	1222														Impingers Recovered
															Filter Loaded
															Filter Recovered
															Probe Wash
															TEST AVERAGES/TOTALS
															Calculated by:
															Checked by:
															Δ P, iwg
															Δ H, iwg
															Sample vol, acf
															Stack temp, F
															Meter temp, F
															Static press, iwg
															Water collected, g
															O_2, %
															Sample time, min

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: Cimarron Newton Unit 2 | UNIT: 2 | TEST NO.: 1-Stack | METHOD: OH Hg | PAGE 1 OF 1
SAMPLE LOCATION: Stack | TEST CONDITION: Full load | AMBIENT TEMPERATURE: 100
OPERATOR/ASSISTANT: DW/LP | METER VOLUME START/END: / | DATE: 7/31/99

PRE-TEST DATA:

Barometric Pressure, In.Hg	29.2
Assumed Stack Pressure, iwg	-.7
Assumed Moisture, %	10
Assumed Molecular Weight	29
Assumed Stack Temperature	340
Assumed Meter Temperature	125
Average ΔP	1.2
Stack diameter/area	29.01
Sample time, min/point	10
ΔH = ____ x ΔP	.89

EQUIPMENT INFO:

Meter No.	FERLo-1
Meter Yd	1.001
ΔH @	
Pitot ID, Cp	.84 S-type
O_2/CO_2 Method	portable
Teflon connecting line? (Y/N)	Y
Probe material	teflon
Probe length	16'
Nozzle material	glass
Nozzle diameter, in.	0.185
Filter No.	Q47-9
Filter material	quartz

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl	747.2	-	588.8	=	158.4
2	KCl	632.6	-	598.5	=	34.1
3	KCl	659.9	-	651.0	=	8.9
4	KMnO4/H2SO4	621.0	-	618.7	=	2.3
5	KMnO4/H2SO4	593.8	-	591.5	=	2.3
6	KMnO4/H2SO4	598.3	-	597.3	=	1.0
7	KMnO4/H2SO4	638.2	-	637.1	=	1.1
8	SG	746.8	-	729.5	=	17.3
					Total	227.4

COMMENTS: * panel meter readout-OOS - use signal from averaging connection - value is ave reg of inlet & outlet.

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test	.01	15	✓	MM
Post-test	.02	8	✓	MM

PRE-TEST METER CALIBRATION CHECK:

	Time	ΔH	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

1400 - suspend sampling - inlet train turnaround - resume 1429

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	FILTER (Heated line)	METER* In	METER* out	IMP OUT		O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
S-1	1340	18.031	.90	.81	336	251	255	122		74		5.2	6	-.8	Impingers Loaded
-2	1400	23.1	1.1	1.0	347	270	250	123		71		5.4	5	calO2	Impingers Recovered
-3	1429	28.362	1.2	"		270	260	124					8		Filter Loaded
	1431	29.38	line plugged - ✓ at - leak ✓ pre change at impingers ok												Filter Recovered
			replace line, use stack filter - post change leak at nozzle ok												Probe Wash MM
			check nozzle - replace w/ same size - leak ✓ <.01 @ 10 in												
S-3	1553	32.604	1.2	1.1	336	in stack	288	124		74		5.0	8	calO2	**TEST AVERAGES/TOTALS**
	1601	37.009										5.4			Calculated by: MM
W-11	1609	37.09	.85	.76	315	stack	287	122		74		5.2	6		Checked by: ✓ MM
-12	1619	41.9	.80	.72	342	stack	284	125		74	iced	5.2	6		ΔP, iwg .9475 ✓
-13	1629	46.9	1.1	1.0	346	stack	284	126		74		5.1	8	calO2	ΔH, iwg .87 ✓
N-11	1647	51.74	.55	.76	333	stack	287	127		77	iced	6.0	6		Sample vol, acf 60.028 ✓
-12	1657	56.4	.95	.85	342	"	294	127		72	"	5.1	7		Stack temp, F 336.2 ✓
-13	1707	61.4	1.1	1.0	347	"	298	127		64		5.1	7	calO2	Meter temp, F 125.5 ✓
S-3	1729	66.710	1.1	1.0	336	"	265	128		64		6.0	8		Static press, iwg -.7 ✓
-2	1739	72.5	.85	.76	348	"	283	127		65		5.2	6		Water collected, g
-1	1749	77.3	.65	.59	309		286	128		67		5.2	5		O_2, % 5.84 ✓
End	1759	81.283													Sample time, min 120
		44.3	.9787	.9				125				5.4			

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: Ameren Meramec Unit 2 | UNIT: 2 | TEST NO.: 2-Stack | METHOD: OH Hg | PAGE 1 OF 1
SAMPLE LOCATION: Stack | TEST CONDITION: | AMBIENT TEMPERATURE: 75
OPERATOR/ASSISTANT: MM/LP | METER VOLUME START/END: / | DATE: 8/2/99

PRE-TEST DATA:

Barometric Pressure, In.Hg	29.3
Assumed Stack Pressure, iwg	-.7
Assumed Moisture, %	10
Assumed Molecular Weight	29
Assumed Stack Temperature	340
Assumed Meter Temperature	120
Average ΔP	1.0
Stack diameter/area	29'0"
Sample time, min/point	10
ΔH = ____ x ΔP	1.94 1.87
	Tm 120 Tm 110
	1.78 H_2O 135%

EQUIPMENT INFO:

Meter No.	#1-FERCo
Meter Yd	7-14-99
ΔH @	1.001
Pitot ID, Cp	.84 S-type
O_2/CO_2 Method	portable
Teflon connecting line? (Y/N)	Y
Probe material	teflon
Probe length	10'
Nozzle material	glass
Nozzle diameter, in.	~~0.185~~ .227
Filter No.	Q47-11 Raw = 0.1063
Filter material	quartz

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl	775.0	-	588.9	=	186.1
2	KCl	677.6	-	650.3	=	27.3
3	KCl	664.2	-	661.1	=	3.1
4	HNO_3/H_2O_2	695.3	-	691.1	=	4.2
5	$KMnO_4/H_2SO_4$	542.2	-	543.4	=	-1.2
6	$KMnO_4/H_2SO_4$	662.1	-	610.6	=	1.5
7	$KMnO_4/H_2SO_4$	584.5	-	585.7	=	-1.2
8	SG	689.0	-	662.4	=	26.6
+ 50 ml Hexane rinse					Total	246.4
						-50.0
						196.4

COMMENTS: see Test 1-Stack for note on Tmeter
replaced nozzle - see below

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test	.02	15	✓	MM
Post-test	.02	18	✓	MM

PRE-TEST METER CALIBRATION CHECK:

	Time	ΔH	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	~~FILTER~~ line	METER ~~in~~ out	IMP OUT		cal O_2 pre-test O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
E-3	0751	91.001	1.15	2.15	327	Stack T	287	106	76	add ice	5.2	18	-.8	Impingers Loaded 75
-2	0801	98.6	.80	1.52	327	"	287	106	72		5.2	14		Impingers Recovered 73
-1	0811	105.2	.70	1.33	290	"	280	108	59		5.3	11		Filter Loaded 75
	0821	111.125												Filter Recovered 73
N-3	0828	111.125	.95	1.69	327	"	265	106	62		5.1	9	cal O_2	Probe Wash MM
-2	0838	117.5	.87	1.65	327	"	287	111	57		5.4	14		
-1	0848	123.9	.73	1.30	325	"	293	112	63		5.5	14		
	0858	129.973												**TEST AVERAGES/TOTALS**
W-3	0904	129.973	1.1	1.96	329	"	290	112	59		5.7	18	cal O_2	Calculated by: MM
-2	0914	137.4	.95	1.69	330	"	290	118	64		5.8	14		Checked by: M.M
-1	0924	143.7	.75	1.34	330	"	290	111	67		5.5	14		ΔP, iwg .8477 ✓
	0934	149.785	replace nozzle - lost on removal from port - use same size - leak ✓ ok											ΔH, iwg 1.50 ✓
S-3	1002	150.665	1.0	1.8	331	"	293	106	61		7.1	18	cal O_2	Sample vol, acf 325.0
-2	1012	157.4	.65	1.16	339	"	293	110	65		7.3	12		Stack temp, F ~~323.3~~
-1	1022	163.2	.62	1.10	318	"	293	111	67		7.2	11		Meter temp, F 110.1 ✓
end	1032	168.663												Static press, iwg -.8 ✓
		17.688 ✓												Water collected, g 196.4 ✓
														O_2, % 5.86 ✓
														Sample time, min 120 ✓

✓ 58.7844 325.0

FOSSIL ENERGY RESEARCH CORPORATION
Ontario Hydro Mercury Speciation Sampling Data Sheet

FACILITY: Ameren Newton Unit 2 | UNIT: 2 | TEST NO.: 3-Stack | METHOD: OH Hg | PAGE 1 OF 1
SAMPLE LOCATION: Stack | TEST CONDITION: | AMBIENT TEMPERATURE: 80
OPERATOR/ASSISTANT: MM/LP | METER VOLUME START/END: / | DATE: 8/2/99

PRE-TEST DATA:

Barometric Pressure, In.Hg	29.3
Assumed Stack Pressure, iwg	-.8
Assumed Moisture, %	13
Assumed Molecular Weight	29
Assumed Stack Temperature	325
Assumed Meter Temperature	120
Average ΔP	.9
Stack diameter/area	29'0"
Sample time, min/point	10
ΔH = _____ x ΔP	1.9

EQUIPMENT INFO:

Meter No.	1-FERC
Meter Yd	1.001
Δ H @	
Pitot ID, Cp	.84 S-typ
O_2/CO_2 Method	portable
Teflon connecting line? (Y/N)	Y
Probe material	Teflon
Probe length	16'
Nozzle material	glass
Nozzle diameter, in.	.224
Filter No.	G42-12 Area=0.1129
Filter material	quartz

IMPINGER WEIGHTS:

Imp #	Contents	Wt (end)		Wt (start)		Wt gain
1	KCl	789.5	-	582.3	=	207.2
2	KCl	675.6	-	599.1	=	76.5
3	KCl	673.4	-	665.3	=	8.1
4	$KMnO_4/H_2SO_4$	613.2	-	609.2	=	4.0
5	$KMnO_4/H_2SO_4$	606.3	-	605.9	=	0.4
6	$KMnO_4/H_2SO_4$	607.4	-	609.1	=	-1.7
7	$KMnO_4/H_2SO_4$	646.6	-	646.9	=	-0.3
8	SG	735.5	-	714.0	=	21.5
					Total	265.7

COMMENTS: Trailer - sec Test 1-stk

LEAK CHECKS:

	CFM	Vacuum	Pitot	Initial
Pre-test	<.02	15	✓	MM
Post-test				

PRE-TEST METER CALIBRATION CHECK:

	Time	ΔH	Meter Reading	Meter In/Out
Start				/
Stop				/
Avg/total				

chwt 294.9/295.0

SAMPLE POINT	TIME (clock)	METER VOLUME ft³	ΔP iwg	ΔH iwg	TEMPERATURES, F: STACK	PROBE	~~FILTER~~ line	METER avg in	METER avg out	IMP OUT	O_2	VAC.	STATIC PRESS. iwg	CHAIN OF CUSTODY INFORMATION
S-3	1146	170.703	1.0	1.9	338	in stack	297	112		63	4.8	9	calc	Impingers Loaded ✓
-2	1156	178.0	.95	1.8	341	"	298	114		68	5.0	8	-0.9	Impingers Recovered
-1	1206	184.8	.70	1.3	322	"	302	115		63	4.9	6		Filter Loaded ✓
	1216	190.675			337			113			4.9			Filter Recovered
W-3	1222	190.675	1.05	2.0	341	"	300	116		59	5.0	10	calO2	Probe Wash
-2	1232	197.9	.94	1.8	339	"	298	117		62	4.8	10		
-1	1242	204.7	.85	1.6	332	"	296	117		63	4.8	10		
	1252	211.166												**TEST AVERAGES/TOTALS**
N-3	1302	211.166	1.05	2.0	350	"	253	118		65	5.0	11	calO2	Calculated by: MM
-2	1312	218.4	.90	1.7	342	"	281	117		67	5.0	12		Checked by:
-1	1322	225.0	.87	1.65	339	"	287	118		69	5.2	11		Δ P, iwg .9042 ✓
	1332	231.507												Δ H, iwg 1.72 ✓
E-3	1346	231.507	1.05	2.0	350	"	288	116		60	5.4	12	calO2	Sample vol, acf 79.17 ✓
-2	1356	238.3	.85	1.6	344	"	287	117		67	5.4	14		Stack temp, F 338.3 ✓
-1	1406	244.5	.69	1.3	322	"	290	117		68	5.6	12		Meter temp, F 116.2 ✓
end	1416	249.873												Static press, iwg -0.9 ✓
														Water collected, g
														O_2, % 5.08 ✓
														Sample time, min 120

Fossil Energy Research Corp.
Preliminary Velocity Traverse and Cyclonic Flow Check Data Sheet

Test No. Pre lim Vel.
Client/Unit Alnerem Newton
Location Inlet

Date 7-31-99
Data by CW
Start time 1050
Stop time 1100

Barometric pressure _____
Static pressure, iwg _____

Port	Point	ΔP	Temp	Yaw Angle
A	7	.48	300	
	2	1.2	300	
	1	1.25	300	
B	7	.80	300	
	2	.98	300	
	1	.55	300	
C	3	1.0	329	
	2	1.0	325	
	1	.65	320	
D	3	.85	340	
	2	.95	340	
	1	.70	330	
E	3	.87	343	
	2	.88	343	
	1	.48	340	

Port	Point	ΔP	Temp	Yaw Angle

Leak check: Pre-test _____
Post-test _____

Manometer zero: Pre-test _____
Post-test _____

Notes/Comments _____

Fossil Energy Research Corp.
Preliminary Velocity Traverse and Cyclonic Flow Check Data Sheet

Test No. Pretest gel
Client/Unit Ameren Newton 2
Location Stack

Date 7/31/99
Data by MDN
Start time ~~1152~~ 1105
Stop time

Barometric pressure 29.2
Static pressure, iwg -.70

Port	Point	ΔP	Temp	Yaw Angle
E	1	.70	250	Ø
	2	1.1	328	Ø
	3	1.2	342	Ø
N	1	.95	313	Ø
	2	1.95	332	5
	3	1.2	344	10
W	1	1.1	340	10
	2	1.2	338	15
	3	1.2	343	10
S	1	.95	340	10
	2	1.4	336	5
	3	1.2	—	-5

Port	Point	ΔP	Temp	Yaw Angle

Leak check: Pre-test ✓
Post-test ✓

Manometer zero: Pre-test ✓
Post-test ✓

Notes/Comments

Cyclonic flow check.xls

Instructions:

1. Perform at the beginning and end of each test day.
2. Calibrate instrument on air.
3. Introduce mid range and zero cal gases. Read on lowest instrument scale possible
4. Linearity specification in ±2% of scale (±0.1% O_2 on 0-55 scale, ±0.2% on a 0-10% scale, and ±0.5% on 0-25% scale).

Mid range cal gas value 8.96 Bottle # SA 2063D

Zero Bottle # 6061

Ameren Newton Unit 2

Analyzer ID Ferco

Pre-Test No. 1-Jul

Post-Test No.

Data by JB

Date 7/31/95

0-25 scale

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.0	0.1	0.1	0.025	Yes
8.96	9.2	0.24	0.96	Yes

Analyzer ID Delta

Pre-Test No. 1-Stack

Post-Test No.

Data by JB

Date 7/31/95

0-25 scale

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.0	0.15	0.15	0.6	Yes
8.96	9.01	0.05 JB	0.2	Yes

Analyzer ID

Pre-Test No.

Post-Test No.

Data by

Date

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?

Portable Analyzer Linearity Check

Instructions:

1. Perform at the beginning and end of each test day.
2. Calibrate instrument on air.
3. Introduce mid range and zero cal gases. Read on lowest instrument scale possible
4. Linearity specification in ±2% of scale (±0.1% O_2 on 0-55 scale, ±0.2% on a 0-10% scale, and ±0.5% on 0-25% scale).

Mid range cal gas value 8.96 Bottle # _____

Zero Bottle # _____

Analyzer ID Ferco

Pre-Test No. _____ Data by JB Date 2/31/99

Post-Test No. 1-Inlet

0-25 scale

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.0	0.1	0.1	0.4	Yes
8.96	9.2	0.24	0.96	Yes

Analyzer ID Delta

Pre-Test No. _____ Data by JB Date 2/31/99

Post-Test No. 1-Stack

0-25 scale

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.0	0.02	0.02	0.08	Yes
8.96	8.90	0.06	0.24	Yes

Analyzer ID _____

Pre-Test No. _____ Data by _____ Date _____

Post-Test No. _____

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?

Portable Analyzer Linearity Check

Instructions:

1. Perform at the beginning and end of each test day.
2. Calibrate instrument on air.
3. Introduce mid range and zero cal gases. Read on lowest instrument scale possible
4. Linearity specification in ±2% of scale (±0.1% O_2 on 0-55 scale, ±0.2% on a 0-10% scale, and ±0.5% on 0-25% scale).

Mid range cal gas value 8.96 Bottle # _____

Zero Bottle # _____

Analyzer ID Ferco

Pre-Test No. 2-Inlet, 3-Inlet Data by JS Date 8/2/99

Post-Test No. _____ 0-25 ppm

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.0	0.1	0.1	0.4	Yes
8.96	9.1	0.14	0.56	Yes

Analyzer ID Delta

Pre-Test No. 2-Stack, 3-Stack Data by JS Date 8/2/99

Post-Test No. _____ 0-25 ppm

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.0	0.1	0.1	0.4	Yes
8.96	8.85	0.11	0.44	Yes

Analyzer ID _____

Pre-Test No. _____ Data by _____ Date _____

Post-Test No. _____

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?

Portable Analyzer Linearity Check

Instructions:

1. Perform at the beginning and end of each test day.
2. Calibrate instrument on air.
3. Introduce mid range and zero cal gases. Read on lowest instrument scale possible
4. Linearity specification in ±2% of scale (±0.1% O_2 on 0-55 scale, ±0.2% on a 0-10% scale, and ±0.5% on 0-25% scale).

Mid range cal gas value 8.96 Bottle # _____

Zero Bottle # _____

Analyzer ID Ferro

Pre-Test No. _____ Data by DW Date 8-2-99

Post-Test No. _____

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.00	0.00			Y
8.96	8.9			Y

Analyzer ID Delta

Pre-Test No. _____ Data by DW Date 8-2-99

Post-Test No. _____

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?
0.00	.01			Y
8.96	9.2			Y

Analyzer ID _____

Pre-Test No. _____ Data by _____ Date _____

Post-Test No. _____

Gas Value	Reading	Difference % O_2	Difference % of Scale	Pass?

Portable Analyzer Linearity Check

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER DELTA AIR

P.O NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
OXYGEN GMIS	vs 2658a	SA 9818	10.02%
CARBON DIOXIDE NTRM	82745x	SA 18781	17.89%

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT OXYGEN GMIS ANALYZER MAKE-MODEL-S/N Siemens Oxymat 5E S/N A12-839
   ANALYTICAL PRINCIPLE Paramagnetic
   FIRST ANALYSIS DATE 04/14/99 LAST CALIBRATION DATE 04/05/99
   SECOND ANALYSIS DATE

Z 0.00	R 10.02	C 8.96	CONC. 8.96	Z	R	C	CONC.
R 10.02	Z 0.00	C 8.96	CONC. 8.96	R	Z	C	CONC.
Z 0.00	C 8.96	R 10.02	CONC. 8.96	Z	C	R	CONC.

U/M % MEAN TEST ASSAY 8.96 % U/M % MEAN TEST ASSAY

2. COMPONENT CARBON DIOXIDE NTRM ANALYZER MAKE-MODEL-S/N Siemens Ultramat 5E S/N A12-730
   ANALYTICAL PRINCIPLE NDIR
   FIRST ANALYSIS DATE 04/14/99 LAST CALIBRATION DATE 04/05/99
   SECOND ANALYSIS DATE

Z 0.00	R 17.90	C 17.96	CONC. 17.95	Z	R	C	CONC.
R 17.92	Z 0.00	C 18.02	CONC. 17.99	R	Z	C	CONC.
Z 0.00	C 18.00	R 17.94	CONC. 17.95	Z	C	R	CONC.

U/M % MEAN TEST ASSAY 17.96 % U/M % MEAN TEST ASSAY

Values not valid below 150 psig

THIS CYLINDER NO. SA 20637
HAS BEEN CERTIFIED ACCORDING TO SECTION EPA-600/R97/121
OF TRACEABILITY PROTOCOL NO. Rev. 9/97
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 2000 PSIG
CERTIFICATION DATE 04/14/99
EXPIRATION DATE 04/14/02 TERM 36 MONTHS

CERTIFIED CONCENTRATION

OXYGEN	8.96 %
CARBON DIOXIDE	17.96 %
NITROGEN	BALANCE

SA 20637

ANALYZED BY JOSEPH CHARLES

CERTIFIED BY PHU TIEN NGUYEN

APEX INSTRUMENTS
EPA Method 5
522 Series Meter Box Calibration
Pre-Test Orifice Method
English Meter Box Units, English K' Factor

Filename: C:\meter cal\Apex\[FERCO BOX 7 -99.xls]scenorth
Revised: 7/25/95 Version: 2.2

Model #: FERCO BOX
Serial #: 1-FERCO

Date: ----------> 07/19/99
Barometric Pressure: ---------> 29.95 (in. Hg)
Theoretical Critical Vacuum:---> 14.13 (in. Hg)

!!!!!!!!
IMPORTAN For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAN The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).
!!!!!!!!

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-					
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --		
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)
0.32	17.00	660.110	665.510	5.400	89.0	86.0	89.0	86.0	40	0.239	19.0	88.0	89.0	88.5
0.71	11.00	665.510	670.552	5.042	88.0	87.0	90.0	87.0	48	0.347	19.0	90.0	90.0	90.0
1.30	11.00	653.403	660.110	6.707	86.0	87.0	89.0	86.0	55	0.459	17.0	85.0	87.0	86.0
2.15	8.00	670.552	676.750	6.198	90.0	87.0	94.0	88.0	63	0.589	15.0	91.0	90.0	90.5
4.20	6.00	647.000	653.403	6.403	86.0	85.0	85.0	87.0	73	0.820	17.0	84.0	84.0	84.0

********** RESULTS **********

-- DRY GAS METER --		-------- ORIFICE --------			-- DRY GAS METER --		------- ORIFICE -------			
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	CALIBRATION FACTOR		CALIBRATION FACTOR			
ORRECTE	RRECTED	CORRECTE	ORRECTE	NOMINAL	Y		dH@			
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Value	Variation	
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(mm H2O)	(in H2O)	
5.215	147.7	5.196	147.1	5.394	0.996	-0.005	1.865	47.38	-0.135	
4.869	137.9	4.875	138.0	5.075	1.001	0.000	1.965	49.91	-0.035	
6.499	184.0	6.472	183.3	6.688	0.996	-0.005	2.043	51.90	0.043	
5.988	169.6	6.015	170.3	6.267	1.005	0.003	2.065	52.46	0.065	
6.262	177.4	6.318	178.9	6.505	1.009	0.008	2.063	52.39	0.062	
			Average Y ------->		1.001		2.000	50.81	<------- Average dH@	
							d	0.530		

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: [signature] Date: 7-19-99

EPA Method 5

Meter Box Calibration

Pre/Post-Test Orifice Method

System I.D.: S-WCS

Meter Serial #: NuTech

Date: 7/12/99 (in. Hg)

Barometric Pressure: 29.76 (in. Hg)

DRY GAS METER READINGS											CRITICAL ORIFICE READINGS				
							Initial Temps.		Final Temps.					Ambient Temperature	
dH (in H2O)	Start Time hh:mm:ss	Stop Time hh:mm:ss	Elapsed Time mm.mm	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)
1.95	0	9	9.	157.800	164.710	6.910	86	83	89	85	63	.588	19	90	
1.95	9	18	9	164.710	171.605	6.895	89	85	92	87	63	.588	28		
2.0	18	27	9	171.605	178.540	6.935	92	87	92	88	63	.588	20		90

RESULTS

DRY GAS METER					ORIFICE				DRY GAS METER			ORIFICE			
									CALIBRATION FACTOR			CALIBRATION FACTOR			
VOLUME CORRECTED Vm(std) (cu ft)					VOLUME CORRECTED Vcr(std) (cu ft)		VOLUME NOMINAL Vcr (cu ft)		Y Value (number)	Variation (number)		dH@ Value (in H2O)		Variation (in H2O)	
6.678					6.719		7.039		1.006	-0.003		1.851		0.005	
6.633					6.715		7.036		1.012	.003		1.846		0.000	
6.653					6.715		7.036		1.009	0.000		1.841		-0.005	

Average Y ⟶ 1.009

1.846 ⟵ Average dH@

SIGNED: [signature]

Date: 7/12/99

DGM Orifice Calibration Log Sheet

EPA Method 5

Meter Box Calibration

Pre/Post-Test Orifice Method

System I.D.: 5WCS

Meter Serial #: Nutech

Date: 3/30/99 ~~(in Hg)~~

Barometric Pressure: 27.86 (in. Hg)

DRY GAS METER READINGS											CRITICAL ORIFICE READINGS				
dH (in H2O)	Start Time hh:mm:ss	Stop Time hh:mm:ss	Elapsed Time mm.mm	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temps. Inlet (deg F)	Initial Temps. Outlet (deg F)	Final Temps. Inlet (deg F)	Final Temps. Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)
0.28			16.50	50.8	55.964	5.164	65	65	67	68	40	0.239	20	65	65
0.60			11.50	56.4	61.675	5.275	67	67	68	69	48	0.347	19	67	67
1.10			9.00	62.1	67.586	5.486	68	69	69	69	55	0.459	15	67	67
1.90			7.00	68.2	73.695	5.495	69	69	69	69	63	0.589	15	67	67
3.50			5.00	74.8	80.207	5.407	69	69	69	69	73	0.820	14	67	67

RESULTS

DRY GAS METER VOLUME CORRECTED Vm(std) (cu ft)	ORIFICE VOLUME CORRECTED Vcr(std) (cu ft)	ORIFICE VOLUME NOMINAL Vcr (cu ft)	DRY GAS METER CALIBRATION FACTOR Y Value (number)	DRY GAS METER CALIBRATION FACTOR Variation (number)	ORIFICE CALIBRATION FACTOR dH@ Value (in H2O)	ORIFICE CALIBRATION FACTOR Variation (in H2O)
4.826	4.795	5.122	0.994	0.010	1.742	-.040
4.920	4.845	5.191	0.985	0.002	1.770	-.061
5.114	5.013	5.376	0.980	-.003	1.853	.022
5.131	5.004	5.366	0.975	-.008	1.944	.113
5.070	4.976	5.336	0.981	-.002	1.848	.016

Average Y ——> 0.983

1.831 <—— Average dH@

SIGNED: Stafford Pearce

Date: 3/30/99

DGM Orifice Calibration Log Sheet

FOSSIL ENERGY RESEARCH CORP
PITOT TUBE DIMENSIONAL CALIBRATION

Pitot tube ID	Inlet	Tube diameter (D_t)	3/8"
Date	7/31/99	P_A	
Data by	MDM	P_B	

(a) Face opening plane angle = 90 deg (Y/N)?	A	Y
	B	Y
(b) Face opening planes parallell to longitudinal axis (Y/N)?	A	Y
	B	Y
(c) Both legs equal length and centerline coincident?	A	Y
	B	Y
(d) $P_A = P_B$ (Y/N)?		Y
(e) $1.05\ D_t \leq P \leq 1.50\ D_t$ (Y/N)?		Y

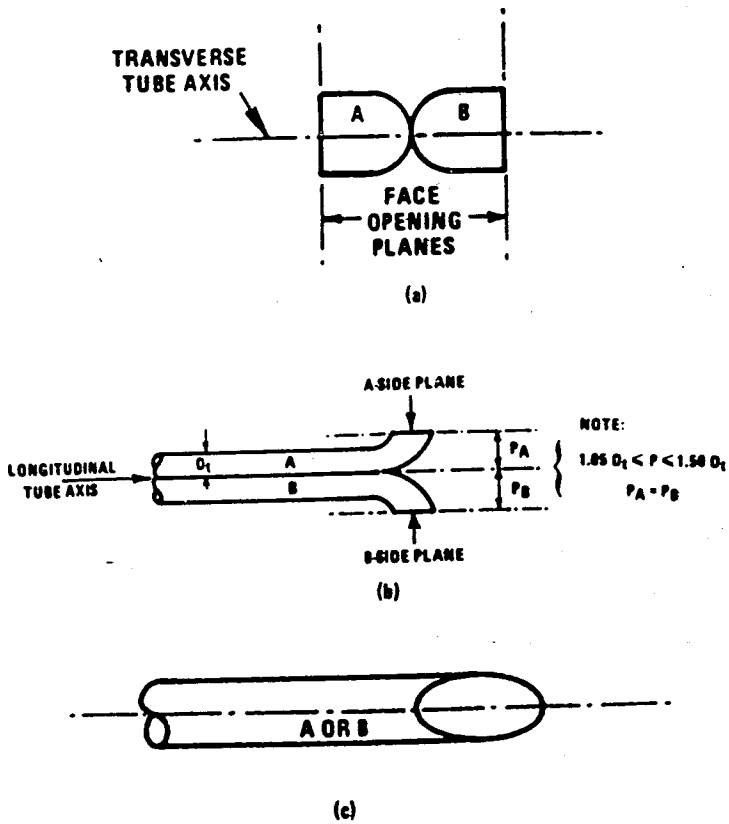

Figure 2-2. Properly constructed Type S pitot tube, shown in: (a) end view; face opening planes perpendicular to transverse axis; (b) top view; face opening planes parallel to longitudinal axis; (c) side view; both legs of equal length and centerlines coincident, when viewed from both sides. Baseline coefficient values of 0.84 may be assigned to pitot tubes constructed this way.

FOSSIL ENERGY RESEARCH CORP

PITOT TUBE DIMENSIONAL CALIBRATION

Pitot tube ID	Stack	Tube diameter (D_t)	3/8"
Date	7/31/99	P_A	
Data by	MDM	P_B	

(a) Face opening plane angle = 90 deg (Y/N)?	A	Y
	B	Y
(b) Face opening planes parallell to longitudinal axis (Y/N)?	A	Y
	B	Y
(c) Both legs equal length and centerline coincident?	A	Y
	B	Y
(d) $P_A = P_B$ (Y/N)?		Y
(e) $1.05\ D_t \leq P \leq 1.50\ D_t$ (Y/N)?		Y

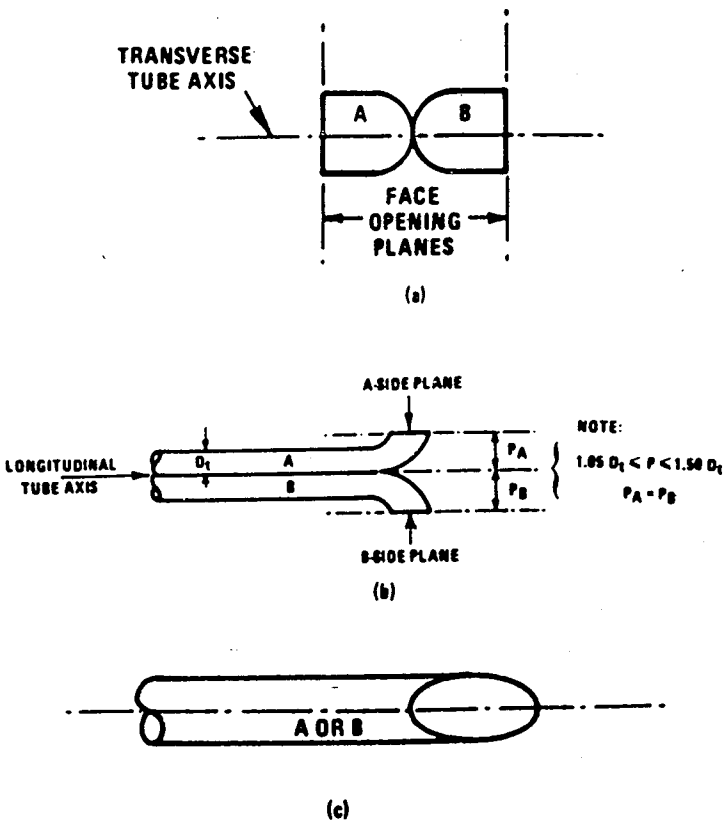

Figure 2-2. Properly constructed Type S pitot tube, shown in: (a) end view; face opening planes perpendicular to transverse axis; (b) top view; face opening planes parallel to longitudinal axis; (c) side view; both legs of equal length and centerlines coincident, when viewed from both sides. Baseline coefficient values of 0.84 may be assigned to pitot tubes constructed this way.

Appendix C. Chain-of-Custody Records

Chain-of-Custody Records

Reagent Chain of Custody

Project Number: Ameren Project Name: EPA Mercury Testing

Filters:

Type/Numbers

quartz thimble filters (QT-2, QT10-14, QT-19-43)
quartz 47mm filters (Q47-1 -63)
unbaked quartz filters

Reagents:

Type/Lot Numbers

10 gal ASTM Type II water (conductivity = 0.8 umhos)
3 x 500 ml 30% H_2O_2 - lot # 992088, Hydrofluoric acid Lot # 418110
Nitric Acid Lot # 118100, NaCl Lot # 986410, Sulfuric acid Lot # 318
Potassium Permanganate Lot # 987715, Hydroxylamine Sulfate Lot # 99
Potassium Chloride lot # 986514 (Wash acid 8N HCl, 1:1 HNO_3)
8 x 400 ml 10% H_2SO_4, 2l 5% HNO_3 (add H_2O_2) 1l 10% HNO_3, 2l 0.1
5l KCl/cl solution, premixed $KMnO_4$ (5g, 16g) in glass jar

Laboratory Supplies:

12 cases amber glass 500 ml bottles
4 cases amber glass 250 ml bottles
1000 ml amber glass bottles (reagent storage)
500, 100, 50 ml graduated cylinders, stir bars, funnels
pH paper, pasteur pipettes/bulbs, #1 Filter paper

General Supplies:

Parafilm, kimwipes, paper towels, balance & cal weights
wash bottles, silica gel, nozzle brushes, probe brushes (tel.
stir plate,

(Glassware & containers washed)

Released By: [signature] Date: 7/16/99
Kimmarbel Ferg Lisa P. Anderson

Received By: [signature] Date: 7/27/99

Ameren

Mercury ICR Program

Consumables Record Form and Tracking Log

Reagent	Supplier	Lot Number	Date rec'd	Date opened	Opened by	Meets inspection criteria	Date blank taken	Tests used
Quartz Thimble	Agilent	NA	7/1/99	7/1/99	JB	Yes	7/29/99	
Quartz 47mm Filter	Agilent	NA	7/1/99	7/1/99	JB	Yes	7/29/99	
DI H_2O	Amerbed/Water	NA	7/15/99	7/15/99	JB	Yes cond. = 0.8 µmhos	w/ reagent	
30% H_2O_2	Fischer	992088	7/1/99	7/1/99	JB	Yes	w/ H_2O_2	H_2O_2 reagent 7/29/99
conc. HCl	Fischer	418110	7/1/99	7/1/99	JB	Yes	fuming - no blank	
Nickel Bead	Fischer	118100	7/1/99	7/1/99	JB	Yes	7/29/99	
NaCl	Fisher	986410	7/20/99	7/20/99	JB	Yes	w/ hydroxylamine	
Sulfuric Acid	Fischer	318061	7/1/99	7/1/99	JB	Yes	w/ $KMnO_4$/H_2SO_4 reagent	
Potassium Chloride	Fischer	986514	7/1/99	7/1/99	JB	Yes	7/29/99	
Hydroxylamine Sulfate	Fischer	991665	7/1/99	7/1/99	JB	Yes	7/29/99	
Potassium Permanganate	Fischer	987715	7/1/99	7/1/99	JB	Yes	w/ $KMnO_4$/H_2SO_4	

1 of 4

CHAIN OF CUSTODY FORM

CLIENT: Ameren

TEST DATE(S): 7/31, 8/2/99

LOCATION: Newton Unit 2

SAMPLER(S): MM, DW

SAMPLE LOCATION: Stack and ESP Inlet

PROJECT MANAGER: Mark McDonnel

TEST METHOD(S): Ontario Hydro Hg

DATE DUE: 8/30/99

OUTSIDE LAB REQUIRED: Yes - Philip Analytical

COMPLIANCE TEST: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
7/30/99	1400	Inlet FB	Silica QT-25	1	DW	
			$F^1/_2$	1	↓	
			KCl imp, $B^1/_2$, Lin	1	↓	
			HNO_3/H_2O_2 imp	1	↓	
			$KMnO_4$ imp	1	↓	
		Stack FB	Silica QT-25-10	1	MM	
			$F^1/_2$	1	↓	
			KCl imp, $B^1/_2$, Lin	1	↓	
			HNO_3/H_2O_2 imp	1	↓	
			$KMnO_4$ imp	1	↓	

Note: Use reagent blanks from Ameren Meterware, same chemical & reagent batch

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
[signature]	8/2/99 1930	[signature]	02/08/99 20:30

ANALYSIS REQUIRED: Hg speciation and analysis by Ontario hydro method for EPA ICR

CHAIN OF CUSTODY FORM

CLIENT: Ameren

TEST DATE(S): 7/31, 8/2/99

LOCATION: Newton Unit 2

SAMPLER(S): MM, DW

SAMPLE LOCATION: Stack & ESP Inlet

PROJECT MANAGER: MM

TEST METHOD(S): Ontario Hydro Hg

DATE DUE: 8/30/99

OUTSIDE LAB REQUIRED: Yes Philip Analytical

COMPLIANCE TEST: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
8/2/99	0930	1-Inlet	Filter QT-26	1	DW	
			F 1/2	1		
			KCl imp, 13%, line	2		
			HNO_3 / H_2O_2 imp	1		
			$KMnO_4$ imp	1		
		1-Stack	QT7-9 Filter	1	MM	
			F 1/2	1		
			KCl imp, 13%, line	2		
			HNO_3 / H_2O_2 imp	1		
			$KMnO_4$ imp	1		

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME

ANALYSIS REQUIRED:

3 of 4

CHAIN OF CUSTODY FORM

CLIENT: Ameren

TEST DATE(S): 7/31, 8/2/99

LOCATION: Newton Unit 2

SAMPLER(S): MM DW

SAMPLE LOCATION: Stack & ESP Inlet

PROJECT MANAGER: Mark McDonnell

TEST METHOD(S): Ontario Hydro Hg

DATE DUE: 8/30/99

OUTSIDE LAB REQUIRED: Yes Philip Analytical

COMPLIANCE TEST:

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
		2-Inlet	Filter # QT-28	1	DW	
			F/R	1		
			KCl imp, BR, Lin	2		
			HNO_3/H_2O_2 imp	1		
			$KMnO_4$ imp	1		
		2-Stack	Filter # Q47-11	1	MM	
			F/R	1		
			KCl imp, BR, Lin	2		
			HNO_3/H_2O_2 imp	1		
			$KMnO_4$ imp	1		

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME

ANALYSIS REQUIRED:

CHAIN OF CUSTODY FORM

CLIENT: Ameren

TEST DATE(S): 7/31, 8/2/99

LOCATION: Newton Unit 2

SAMPLER(S): MM, DW

SAMPLE LOCATION: Stack & ESP Inlet

PROJECT MANAGER: Mark McDaniel

TEST METHOD(S): Ontario Hydro Hg

DATE DUE: 8/30/99

OUTSIDE LAB REQUIRED: Yes - Philip Analytical

COMPLIANCE TEST: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
		3-Inlet	Filter QT-29	1	DW	
			Fit	1		
			KCl imp, H_2O_2, line	2		
			HNO_3/H_2O_2 imp	1		
			$KMnO_4$ imp	1		
		3-Stack	Filter Q47-12	1	MM	
			Fit	1		
			KCl imp, H_2O_2, line	2		
			HNO_3/H_2O_2 imp	1		
			$KMnO_4$ imp	1		

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME

ANALYSIS REQUIRED:

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Mark McDaniel
Client: Fossil Energy Research Corp.
Re Client Project: Ameren
FAX #: 949-859-7916
Phone #: 949-859-4466

Samples for: Blank Preservs
were received in good condition unless
indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
042497	RB 10% Hydroxylamine	99/07/29	99/08/06
042498	RB 10% HNO3	99/07/29	99/08/06

Comments: _____

Date 99/08/07

** TOTAL PAGE.03 **

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Mark McDaniel
Client: Fossil Energy Research Corp.
Re Client Project: Ameren
FAX #: 949-859-7916
Phone #: 949-859-4466

Samples for: 'OM' Mercuries
were received in good condition unless indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
042477	Reagent Blank F.H.	99/07/29	99/08/03
042478	Stack FB F.H.	99/07/27	99/08/03
042479	MU4 Stack-R2 F.H.	99/07/29	99/08/03
042480	Stack-R3 F.H.	99/07/30	99/08/03
042481	Stack-R4 F.H.	99/07/30	99/08/03
042499	MU4 Inlet-FB F.H.	99/07/27	99/08/06
042500	MU4 Inlet-R2 F.H.	99/07/29	99/08/03
042501	MU4 Inlet-R3 F.H.	99/07/30	99/08/03
042502	MU4 Inlet-R4 F.H.	99/07/30	99/08/03
042515	NU2 Stack-FB F.H.	99/07/31	99/08/03
042516	NU2 Stack-R1 F.H.	99/07/31	99/08/03
042517	NU2 Stack-R2 F.H.	99/08/02	99/08/03
042518	NU2 Stack-R3 F.H.	99/08/02	99/08/03
042531	NU2 Inlet-FB F.H.	99/07/31	99/08/03
042532	NU2 Inlet-R1 F.H.	99/07/31	99/08/03
042533	NU2 Inlet-R2 F.H.	99/08/02	99/08/03
042534	NU2 Inlet-R3 F.H.	99/08/02	99/08/03
042487	Reagent Blank H2O2	99/07/29	99/08/03
042488	MU4 Stack-FB H2O2	99/07/27	99/08/03
042489	MU4 Stack-R2 H2O2	99/07/29	99/08/03
042490	MU4 Stack-R3 H2O2	99/07/30	99/08/03
042491	MU4 Stack-R4 H2O2	99/07/30	99/08/06
042507	MU4 Inlet-FB H2O2	99/07/27	99/08/03
042508	MU4 Inlet-R2 H2O2	99/07/29	99/08/03
042509	MU4 Inlet-R3 H2O2	99/07/30	99/08/03
042510	MU4 Inlet-R4 H2O2	99/07/30	99/08/03
042523	NU2 Stack-FB H2O2	99/07/31	99/08/03
042524	NU2 Stack-R1 H2O2	99/07/31	99/08/03
042525	NU2 Stack-R2 H2O2	99/08/02	99/08/03
042526	NU2 Stack-R3 H2O2	99/08/02	99/08/03
042539	NU2 Inlet-FB H2O2	99/07/31	99/08/03
042540	NU2 Inlet-R1 H2O2	99/07/31	99/08/03
042541	NU2 Inlet-R2 H2O2	99/08/02	99/08/03
042542	NU2 Inlet-R3 H2O2	99/08/02	99/08/03
042492	Reagent Blank KMNO4	99/07/29	99/08/06
042493	MU4 Stack-FB KMNO4	99/07/27	99/08/06
042494	MU4 Stack-R2 KMNO4	99/07/29	99/08/06

Comments:

① Please check sampling dates

② PO does not include shipping (pick-up) costs

Date 99/08/07

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Mark McDaniel
Client: Fossil Energy Research Corp.
Re Client Project: Ameren
FAX #: 949-859-7916
Phone #: 949-859-4466

Samples for: Oil' Mercrib
were received in good condition unless
indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
042495	MU4 Stack-R3 KMNO4	99/07/30	99/08/06
042496	MU4 Stack-R4 KMNO4	99/07/30	99/08/06
042511	MU4 Inlet-FB KMNO4	99/07/27	99/08/03
042512	MU4 Inlet-R2 KMNO4	99/07/29	99/08/03
042513	MU4 Inlet-R3 KMNO4	99/07/30	99/08/03
042514	MU4 Inlet-R4 KMNO4	99/07/30	99/08/03
042527	NU2 Stack-FB KMNO4	99/07/31	99/08/03
042528	NU2 Stack-R1 KMNO4	99/07/31	99/08/03
042529	NU2 Stack-R2 KMNO4	99/08/02	99/08/03
042530	NU2 Stack-R3 KMNO4	99/08/02	99/08/03
042543	NU2 Inlet-FB KMNO4	99/07/31	99/08/03
042544	NU2 Inlet-R1 KMNO4	99/07/31	99/08/03
042545	NU2 Inlet-R2 KMNO4	99/08/02	99/08/03
042546	NU2 Inlet-R3 KMNO4	99/08/02	99/08/03
042482	Reagent Blank-KCl	99/07/29	99/08/03
042483	MU4 Stack-FB KCl	99/07/27	99/08/03
042484	MU4 Stack-R2 KCl	99/07/29	99/08/03
042485	MU4 Stack-R3 KCl	99/07/30	99/08/03
042486	MU4 Stack-R4 KCl	99/07/30	99/08/03
042503	MU4 Inlet-FB KCl	99/07/27	99/08/03
042504	MU4 Inlet-R2 KCl	99/07/29	99/08/03
042505	MU4 Inlet-R3 KCl	99/07/30	99/08/03
042506	MU4 Inlet-R4 KCl	99/07/30	99/08/03
042519	NU2 Stack-FB KCl	99/07/31	99/08/03
042520	NU2 Stack-R1 KCl	99/07/31	99/08/03
042521	NU2 Stack-R2 KCl	99/08/02	99/08/03
042522	NU2 Stack-R3 KCl	99/08/02	99/08/03
042535	NU2 Inlet-FB KCl	99/07/31	99/08/03
042536	NU2 Inlet-R1 KCl	99/07/31	99/08/03
042537	NU2 Inlet-R2 KCl	99/08/02	99/08/03
042538	NU2 Inlet-R3 KCl	99/08/02	99/08/03

Comments: _____

Date 99/08/07

Appendix D. Analytical Lab Reports

Gas Samples

Coal Samples

Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Mark McDaniel	**Contact:**	Ron McLeod
Client Name:	Fossil Energy Research Corp.	**Project:**	AN990986
Project:	Ameren	**Date Received:**	99/08/03
Project Desc:	Stack & ESP Inlet	**Date Reported:**	99/10/08
Address:	23342 C South Pointe Laguna Hills, CA CA 92653	**Submission No.:**	9H0189
		Sample No.:	042476-042546
Fax Number:	949-859-7916		
Phone Number:	949-859-4466		

NOTES: ***"-" = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available***
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by PASC are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Nineteenth Edition. Other methods are based on the principles of MISA or EPA methodologies. New York State: ELAP Identification Number 10756.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at PASC for a period of three weeks from receipt of data or as per contract.

COMMENTS: **Revised Report: 991207**

Certified by: _____

PASC - Certificate of Analysis

			Method	Blank	Blank	Blank	Blank	Reagent	Stack	Stack	Stack	Stack	Stack	Stack
	Client ID:		Blank	Spike #1	Spike #1	Spike #2	Spike #2	Blank F.H.	FB F.H.	FB F.H.	FB F.H.	FB F.H.	FB F.H.	FB F.H.
	Lab No.:		042476 99	042476 99	042476 99	042476 99	042476 99	042477 99	042478 99	042478 99	042478 99	042478 99	042478 99	042478 99
	Date Sampled:		-	-	-	-	-	99/07/29	99/07/27	99/07/27	99/07/27	99/07/27	99/07/27	99/07/27
Component	**MDL**	**Units**			% Recoveries		% Recoveries			Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.
Mercury - filter	0.010	ug	<	0.10	100	0.10	100	<	0.011	0.011	0.12	110	0.12	100

PASC - Certificate of Analysis

			MU4 Stack-R2	Stack-R3	Stack-R4	NU2 Stack-FB	NU2 Stack-R1	NU2 Stack-R2	NU2 Stack-R3
		Client ID:	F.H.	F.H.	F.H.	F.H.	F.H.	F.H.	F.H.
		Lab No.:	042479 99	042480 99	042481 99	042515 99	042516 99	042517 99	042518 99
		Date Sampled:	99/07/29	99/07/30	99/07/30	99/07/31	99/07/31	99/08/02	99/08/02
Component	**MDL**	**Units**							
Mercury - filter	0.010	ug	<	0.015	<	<	<	<	<

PASC - Certificate of Analysis

			Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	Reagent Blank F.H.	MU4 Inlet-FB F.H.	MU4 Inlet-R2 F.H.	MU4 Inlet-R3 F.H.	MU4 Inlet-R4 F.H.
Client ID:												
Lab No.:			042476 99	042476 99	042476 99	042476 99	042476 99	042477 99	042499 99	042500 99	042501 99	042502 99
Date Sampled:			-	-	-	-	-	99/07/29	99/07/27	99/07/29	99/07/30	99/07/30
Component	**MDL**	**Units**			% Recoveries		% Recoveries					
Mercury - filter	0.010	ug	<	0.097	97	0.095	95	<	<0.080	9.3	10	5.4

PASC - Certificate of Analysis

			NU2 Inlet-FB	NU2 Inlet-R1	NU2 Inlet-R1	NU2 Inlet-R1	NU2 Inlet-R1	NU2 Inlet-R1	NU2 Inlet-R1	NU2 Inlet-R2
	Client ID:		F.H.	F.H.	F.H.	F.H.	F.H.	F.H.	F.H.	F.H.
	Lab No.:		042531 99	042532 99	042532 99	042532 99	042532 99	042532 99	042532 99	042533 99
	Date Sampled:		99/07/31	99/07/31	99/07/31	99/07/31	99/07/31	99/07/31	99/07/31	99/08/02
Component	**MDL**	**Units**			Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.	
Mercury - filter	0.010	ug	<0.080	<0.10	<0.10	0.98	97	0.99	99	<0.080

			NU2 Inlet-R3
	Client ID:		F.H.
	Lab No.:		042534 99
	Date Sampled:		99/08/02
Component	**MDL**	**Units**	
Mercury - filter	0.010	ug	<0.20

	Client ID:		MU4 Inlet-R3 KMNO4	MU4 Inlet-R4 KMNO4	NU2 Stack-FB KMNO4	NU2 Stack-R1 KMNO4	NU2 Stack-R2 KMNO4	NU2 Stack-R3 KMNO4	NU2 Inlet-FB KMNO4
	Lab No.:		042513 99	042514 99	042527 99	042528 99	042529 99	042530 99	042543 99
	Date Sampled:		99/07/30	99/07/30	99/07/31	99/07/31	99/08/02	99/08/02	99/07/31
Component	**MDL**	**Units**							
Mercury - KMnO4	0.030	"	0.47	0.59	<	9.6	11.9	13.9	<

PASC - Certificate of Analysis

	Client ID:		Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	Reagent Blank-KCl	MU4 Stack-FB KCl	MU4 Stack-FB KCl
	Lab No.:		042476 99	042476 99	042476 99	042476 99	042476 99	042482 99	042483 99	042483 99
	Date Sampled:		-	-	-	-	-	99/07/29	99/07/27	99/07/27
Component	**MDL**	**Units**			% Recoveries		% Recoveries			Duplicate
Mercury - KCl	0.030	ug	<	0.28	95	0.28	94	<	0.071	0.071

PASC - Certificate of Analysis

			MU4 Stack-FB	MU4 Stack-FB	MU4 Stack-FB	MU4 Stack-FB	MU4 Stack-R2	MU4 Stack-R3
	Client ID:		KCl	KCl	KCl	KCl	KCl	KCl
	Lab No.:		042483 99	042483 99	042483 99	042483 99	042484 99	042485 99
	Date Sampled:		99/07/27	99/07/27	99/07/27	99/07/27	99/07/29	99/07/30
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - KCl	0.030	ug	0.76	100	0.75	100	1.37	4.05

PASC - Certificate of Analysis

	Client ID:		MU4 Stack-R4 KCl	MU4 Inlet-FB KCl	MU4 Inlet-R2 KCl	MU4 Inlet-R3 KCl	MU4 Inlet-R4 KCl	NU2 Stack-FB KCl
	Lab No.:		042486 99	042503 99	042504 99	042505 99	042506 99	042519 99
	Date Sampled:		99/07/30	99/07/27	99/07/29	99/07/30	99/07/30	99/07/31
Component	**MDL**	**Units**						
Mercury - KCl	0.030	ug	2.67	0.07	0.60	1.46	1.84	0.14

PASC - Certificate of Analysis

			NU2 Stack-R1	NU2 Stack-R2	NU2 Stack-R2	NU2 Stack-R2	NU2 Stack-R2	NU2 Stack-R2
	Client ID:		KCl	KCl	KCl	KCl	KCl	KCl
	Lab No.:		042520 99	042521 99	042521 99	042521 99	042521 99	042521 99
	Date Sampled:		99/07/31	99/08/02	99/08/02	99/08/02	99/08/02	99/08/02
Component	**MDL**	**Units**			Duplicate	M. Spike	MS % Rec.	MS Dup
Mercury - KCl	0.030	ug	2.78	2.77	2.80	5.46	100	5.61

PASC - Certificate of Analysis

			NU2 Stack-R2	NU2 Stack-R3	NU2 Inlet-FB	NU2 Inlet-R1	NU2 Inlet-R2	NU2 Inlet-R3
	Client ID:		KCl	KCl	KCl	KCl	KCl	KCl
	Lab No.:		042521 99	042522 99	042535 99	042536 99	042537 99	042538 99
	Date Sampled:		99/08/02	99/08/02	99/07/31	99/07/31	99/08/02	99/08/02
Component	**MDL**	**Units**	MSD % Rec.					
Mercury - KCl	0.030	ug	110	3.70	0.12	0.71	0.72	1.96

	Client ID:		Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	Reagent Blank H2O2	MU4 Stack-FB H2O2	MU4 Stack-R2 H2O2	MU4 Stack-R2 H2O2
	Lab No.:		042476 99	042476 99	042476 99	042476 99	042476 99	042487 99	042488 99	042489 99	042489 99
	Date Sampled:		-	-	-	-	-	99/07/29	99/07/27	99/07/29	99/07/29
Component	**MDL**	**Units**			% Recoveries		% Recoveries				Duplicate
Final volume - H2O2		ml	250	-	-	-	-	250	250	250	-
Mercury - H202	0.010	ug	<	0.051	100	0.050	100	<0.25	<0.25	<0.25	<0.25

PASC - Certificate of Analysis

	Client ID:		MU4 Stack-R2 H2O2	MU4 Stack-R2 H2O2	MU4 Stack-R2 H2O2	MU4 Stack-R2 H2O2	MU4 Stack-R3 H2O2	MU4 Stack-R4 H2O2	MU4 Inlet-FB H2O2
	Lab No.:		042489 99	042489 99	042489 99	042489 99	042490 99	042491 99	042507 99
	Date Sampled:		99/07/29	99/07/29	99/07/29	99/07/29	99/07/30	99/07/30	99/07/27
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.			
Final volume - H2O2		ml	-	-	-	-	250	250	250
Mercury - H202	0.010	ug	2.7	100	2.7	100	<0.25	<0.25	<0.25

PASC - Certificate of Analysis

	Client ID:		MU4 Inlet-R2 H2O2	MU4 Inlet-R3 H2O2	MU4 Inlet-R4 H2O2	NU2 Stack-FB H2O2	NU2 Stack-R1 H2O2	NU2 Stack-R1 H2O2	NU2 Stack-R1 H2O2
	Lab No.:		042508 99	042509 99	042510 99	042523 99	042524 99	042524 99	042524 99
	Date Sampled:		99/07/29	99/07/30	99/07/30	99/07/31	99/07/31	99/07/31	99/07/31
Component	**MDL**	**Units**						Duplicate	M. Spike
Final volume - H2O2		ml	250	250	250	250	250	-	-
Mercury - H202	0.010	ug	<0.25	<0.25	<0.25	<0.25	0.60	0.51	3.2

PASC - Certificate of Analysis

	Client ID:		NU2 Stack-R1 H2O2	NU2 Stack-R1 H2O2	NU2 Stack-R1 H2O2	NU2 Stack-R2 H2O2	NU2 Stack-R3 H2O2	NU2 Inlet-FB H2O2	NU2 Inlet-R1 H2O2
	Lab No.:		042524 99	042524 99	042524 99	042525 99	042526 99	042539 99	042540 99
	Date Sampled:		99/07/31	99/07/31	99/07/31	99/08/02	99/08/02	99/07/31	99/07/31
Component	**MDL**	**Units**	MS % Rec.	MS Dup	MSD % Rec.				
Final volume - H2O2		ml	-	-	-	250	250	250	250
Mercury - H202	0.010	ug	110	3.2	110	<0.25	0.50	<0.25	0.32

	Client ID:		NU2 Inlet-R2 H2O2	NU2 Inlet-R3 H2O2
	Lab No.:		042541 99	042542 99
	Date Sampled:		99/08/02	99/08/02
Component	**MDL**	**Units**		
Final volume - H2O2		ml	250	250
Mercury - H202	0.010	ug	<0.25	<0.25

PASC - Certificate of Analysis

	Client ID:		Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	Reagent Blank KMNO4	MU4 Stack-FB KMNO4	MU4 Stack-R2 KMNO4
	Lab No.:		042476 99	042476 99	042476 99	042476 99	042476 99	042492 99	042493 99	042494 99
	Date Sampled:		-	-	-	-	-	99/07/29	99/07/27	99/07/29
Component	**MDL**	**Units**			% Recoveries		% Recoveries			
Mercury - KMnO4	0.030	"	<	0.30	99	0.30	99	<	<	1.45

			MU4 Stack-R2	MU4 Stack-R2	MU4 Stack-R2	MU4 Stack-R2	MU4 Stack-R2	MU4 Stack-R3	MU4 Stack-R4
	Client ID:		KMNO4	KMNO4	KMNO4	KMNO4	KMNO4	KMNO4	KMNO4
	Lab No.:		042494 99	042494 99	042494 99	042494 99	042494 99	042495 99	042496 99
	Date Sampled:		99/07/29	99/07/29	99/07/29	99/07/29	99/07/29	99/07/30	99/07/30
Component	**MDL**	**Units**	Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - KMnO4	0.030	"	1.45	3.1	97	3.1	99	2.1	1.41

			MU4 Inlet-FB	MU4 Inlet-R2	MU4 Inlet-R2	MU4 Inlet-R2	MU4 Inlet-R2	MU4 Inlet-R2	MU4 Inlet-R2
	Client ID:		KMNO4	KMNO4	KMNO4	KMNO4	KMNO4	KMNO4	KMNO4
	Lab No.:		042511 99	042512 99	042512 99	042512 99	042512 99	042512 99	042512 99
	Date Sampled:		99/07/27	99/07/29	99/07/29	99/07/29	99/07/29	99/07/29	99/07/29
Component	**MDL**	**Units**			Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.
Mercury - KMnO4	0.030	"	<	0.18	0.17	0.49	95	0.49	94

PASC - Certificate of Analysis

	Client ID:		NU2 Inlet-R1 KMNO4	NU2 Inlet-R2 KMNO4	NU2 Inlet-R3 KMNO4
	Lab No.:		042544 99	042545 99	042546 99
	Date Sampled:		99/07/31	99/08/02	99/08/02
Component	**MDL**	**Units**			
Mercury - KMnO4	0.030	"	11.6	11.4	11.0

	Client ID:		RB 10% Hydroxylamine	RB 10% HNO3
	Lab No.:		042497 99	042498 99
	Date Sampled:		99/07/29	99/07/29
Component	**MDL**	**Units**		
Impinger volume - hydroxylamine		mL	50	-
Impinger volume measured		"	-	50
Mercury	0.05	ug/L	-	<
Mercury - hydroxalamine	0.010	ug	<	-

Batch Code:	**0824ABD2**			
Mercury	042498 99			
Run Date:	99/08/24			
Date of Sample Prep:	99/08/24			
Batch Code:	**1001MGHY**			
Mercury - hydroxalamine	042497 99			
Run Date:	99/10/01			
Date of Sample Prep:	99/10/01			
Batch Code:	**10031BKC**	**10032BKC**	**10032BKC**	**10033BKC**
Mercury - KCl	042476 99	042483 99	042519 99	042521 99
	042482 99	042484 99	042520 99	042522 99
		042485 99		042535 99
		042486 99		042536 99
		042503 99		042537 99
		042504 99		042538 99
		042505 99		
		042506 99		
Run Date:	99/10/03	99/10/03	99/10/03	99/10/03
Date of Sample Prep:	99/10/03	99/10/03	99/10/03	99/10/03
Batch Code:	**10041BMN**	**10042BMN**	**10042BMN**	
Mercury - KMnO4	042476 99	042512 99	042527 99	
	042492 99		042528 99	
	042493 99		042529 99	
	042494 99		042530 99	
	042495 99		042543 99	
	042496 99		042544 99	
	042511 99		042545 99	
	042513 99		042546 99	
	042514 99			
Run Date:	99/10/04	99/10/04	99/10/04	
Date of Sample Prep:	99/10/04	99/10/04	99/10/04	
Batch Code:	**10012N2B**	**10013N2B**		
Mercury - H202	042476 99	042523 99		
	042487 99	042524 99		
	042488 99	042525 99		
	042489 99	042526 99		
	042490 99	042539 99		
	042491 99	042540 99		
	042507 99	042541 99		
	042508 99	042542 99		
	042509 99			
	042510 99			
Run Date:	99/10/01	99/10/01		
Date of Sample Prep:	99/10/01	99/10/01		
Batch Code:	**10081GFL**			

Mercury - filter (Stack)	042476 99	
	042477 99	
	042478 99	
	042479 99	
	042480 99	
	042481 99	
	042515 99	
	042516 99	
	042517 99	
	042518 99	
Run Date:	99/10/08	
Date of Sample Prep:	99/10/08	

Batch Code:	**10101GFB**	**10101GFT**
Mercury - filter (Inlets)	042476 99	042477 99
	042499 99	042534 99
	042500 99	
	042501 99	
	042502 99	
	042531 99	
	042532 99	
	042533 99	
Run Date:	99/10/10	99/10/10
Date of Sample Prep:	99/10/10	99/10/10

Subject: Final Volumes of Samples sent to EERC for Hg Confirmational Analy ses
Date: Tue, 21 Dec 1999 12:55:38 -0500
From: "McLeod, Ron" <RMcLeod@philipinc.com>
To: "'mmcdannel'" <mmcdannel@ferco.com>
CC: "McLeod, Ron" <RMcLeod@philipinc.com>

The field samples were taken to the following final volumes prior to analysis of Hg by our facility and prior to shipment to EERC:

All KMnO4 impingers/rinses	500mL
All KCl impingers/rinses	1000mL

This corrects the information sent to you earlier in which the KCl volumes were reported as being approx 400-500mL each. Those prior reported volumes were the KCl volumes before processing.

Ron

MERCURY ANALYSIS

11/24/1999

PHILIPS ANALYTICAL SAMPLES --NU2 SAMPLES

all values in µg/liter

SAMPLE ID	SAMPLE TYPE	CONCENTRATION, ug/L
42482	RB-KCL	BELOW DETECTION
42482	RB-KCL	BELOW DETECTION
42519	STACK-FB KCL	BELOW DETECTION
42519	STACK-FB KCL	BELOW DETECTION
42520	STACK-R1 KCL	2.54
42520	STACK-R1 KCL	2.52
42521	STACK-R2 KCL	2.36
42521	STACK-R2 KCL	2.37
42522	STACK-R3 KCL	3.39
42522	STACK-R3 KCL	3.36
42535	INLET-FB KCL	BELOW DETECTION
42535	INLET-FB KCL	BELOW DETECTION
42536	INLET-R1 KCL	0.489
42536	INLET-R1 KCL	0.48
42537	INLET-R2 KCL	1.18
42537	INLET-R2 KCL	1.14
42538	INLET-R3 KCL	1.68
42538	INLET-R3 KCL	1.7
42492	RB-KMNO4	BELOW DETECTION
42492	RB-KMNO4	BELOW DETECTION
42527	STACK-FB KMNO4	BELOW DETECTION
42527	STACK-FB KMNO4	BELOW DETECTION
42528	STACK-R1 KMNO4	19.14
42528	STACK-R1 KMNO4	18.94
42529	STACK-R2 KMNO4	23.8
42529	STACK-R2 KMNO4	24
42530	STACK-R3 KMNO4	27.6
42530	STACK-R3 KMNO4	27.6
42543	INLET-FB KMNO4	BELOW DETECTION
42543	INLET-FB KMNO4	BELOW DETECTION
42544	INLET-R1 KMNO4	22.4
42544	INLET-R1 KMNO4	22.2
42545	INLET-R2 KMNO4	21.8
42545	INLET-R2 KMNO4	22
42546	INLET-R3 KMNO4	22
42546	INLET-R3 KMNO4	22.8

KCL SPIKE RECOVERY= 106% FOR A 5 PPB SPIKE SAMPLE AND 102.2% FOR A 10 PPB SPIKE

KMNO4 SPIKE RECOVERY= 95.6% FOR A 5 PPB SPIKE SAMPLE AND 94.8% FOR A 10 PPB SPIKE

Notes on Lab Codes on Coal Analyses		
Lab Code	*ASTM Method*	
U 1013	D 2013	
U 1024	D 3684	
U 1003	D 4208	
U 1001	D 1989	
U 1020	D 5142	
U 1012	D 4239	

Coal Full Proximate Analysis Report
Laboratory Services Department
AmerenUE

Lab Sample No.: UE15930
Original Sample ID: Run 1
Sample Description: Coal from EPA Mercury speciation tests
Sample Pt. Description: Newton #2 stack test
Other Information: As-fired feeder composites
Collection Date: 31-Jul-99 12:00 PM

Date Received: 05-Aug-99
Report Date: 24-Sep-99
Requestor: Bob Hof 612
CC: Steve Whitworth 602

Parameter	Results	Units	Analysis Code	Analyst
Air Dry Loss	12.96	Weight %	U1013	MJS
Mercury in Coal (dry)	0.025	µg/g	U1024	ARD
Chlorine in Coal (dry)	178	ug/g	U1003	MJS
Mercury in NIST 1630a (dry)	0.099	µg/g	U1024STD	ARD
Calorific Value (Isoperibol)				
Calorific Value (As - Received)	8869	BTU/lb	$U1001	MJS
Calorific Value (As - Determined)	10190	BTU/lb		MJS
Calorific Value (Dry)	11718	BTU/lb		MJS
Calorific Value (DAF)	12899	BTU/lb		MJS
Short Proximate Analysis				
Moisture (As - Received)	24.31	Weight %	$U1020	MJS
Moisture (As - Determined)	13.04	Weight %		MJS
Ash (As - Received)	6.93	Weight %		MJS
Ash (As - Determined)	7.96	Weight %		MJS
Ash (Dry)	9.15	Weight %		MJS
Total Sulfur in Coal (LECO)				
Sulfur (As - Received)	0.33	Weight %	$U1012	STD
Sulfur (As - Determined)	0.38	Weight %		STD
Sulfur (Dry)	0.44	Weight %		STD
Sulfur (DAF)	0.48	Weight %		STD

Comments:

The sulfur was determined by Standard Laboratories.

The Hg result represents the average of 4 trials (0.015; 0.025; 0.036; and 0.013 on an as-determined basis).

Approved By: fPC 9-24-99
(Confirm FAX)

Coal Full Proximate Analysis Report
Laboratory Services Department
AmerenUE

Lab Sample No.: UE15931
Original Sample ID: Run 2
Sample Description: Coal from EPA Mercury speciation tests
Sample Pt. Description: Newton #2 stack test
Other Information: As-fired feeder composites
Collection Date: 02-Aug-99 12:00 PM

Date Received: 05-Aug-99
Report Date: 24-Sep-99
Requestor: Bob Hof 612
CC: Steve Whitworth 602

Parameter	Results	Units	Analysis Code	Analyst
Air Dry Loss	14.83	Weight %	U1013	MJS
Mercury in Coal (dry)	0.020	µg/g	U1024	WM
Chlorine in Coal (dry)	<50	ug/g	U1003	MJS
Mercury in NIST 1630a (dry)	0.099	µg/g	U1024STD	ARD
Calorific Value (Isoperibol)				
Calorific Value (As - Received)	8700	BTU/lb	$U1001	MJS
Calorific Value (As - Determined)	10214	BTU/lb		MJS
Calorific Value (Dry)	12023	BTU/lb		MJS
Calorific Value (DAF)	12977	BTU/lb		MJS
Short Proximate Analysis				
Moisture (As - Received)	27.64	Weight %	$U1020	MJS
Moisture (As - Determined)	15.04	Weight %		MJS
Ash (As - Received)	5.32	Weight %		MJS
Ash (As - Determined)	6.25	Weight %		MJS
Ash (Dry)	7.36	Weight %		MJS
Total Sulfur in Coal (LECO)				
Sulfur (As - Received)	0.29	Weight %	$U1012	STD
Sulfur (As - Determined)	0.34	Weight %		STD
Sulfur (Dry)	0.40	Weight %		STD
Sulfur (DAF)	0.43	Weight %		STD

Comments:

The sulfur was determined by Standard Laboratories.

The Hg result represents the average of 4 trials (0.007; 0.015; 0.025; and 0.020 on an as-determined basis). This value is reported below the MDL of 0.025.

Approved By: JPC 9-24-99
(Confirm FAX)

Coal Full Proximate Analysis Report
Laboratory Services Department
AmerenUE

Lab Sample No.: UE15932
Original Sample ID: Run 3
Sample Description: Coal from EPA Mercury speciation tests
Sample Pt. Description: Newton #2 stack test
Other Information: As-fired feeder composites
Collection Date: 02-Aug-99 12:00 PM

Date Received: 05-Aug-99
Report Date: 24-Sep-99
Requestor: Bob Hof 612
CC: Steve Whitworth 602

Parameter	Results	Units	Analysis Code	Analyst
Air Dry Loss	14.52	Weight %	U1013	MJS
Mercury in Coal (dry)	0.008	µg/g	U1024	WM
Chlorine in Coal (dry)	<50	ug/g	U1003	MJS
Mercury in NIST 1630a (dry)	0.099	µg/g	U1024STD	ARD
Calorific Value (Isoperibol)				
Calorific Value (As - Received)	8571	BTU/lb	$U1001	MJS
Calorific Value (As - Determined)	10027	BTU/lb		MJS
Calorific Value (Dry)	11998	BTU/lb		MJS
Calorific Value (DAF)	13003	BTU/lb		MJS
Short Proximate Analysis				
Moisture (As - Received)	28.56	Weight %	$U1020	MJS
Moisture (As - Determined)	16.43	Weight %		MJS
Ash (As - Received)	5.52	Weight %		MJS
Ash (As - Determined)	6.46	Weight %		MJS
Ash (Dry)	7.73	Weight %		MJS
Total Sulfur in Coal (LECO)				
Sulfur (As - Received)	0.27	Weight %	$U1012	STD
Sulfur (As - Determined)	0.32	Weight %		STD
Sulfur (Dry)	0.38	Weight %		STD
Sulfur (DAF)	0.41	Weight %		STD

Comments:

The sulfur was determined by Standard Laboratories.

The Hg result represents the average of 4 trials (0.009; 0.008; 0.002; and 0.008 on an as-determined basis). This value is below the MDL of 0.025.

Approved By: [signature] 9-24-99
(Confirm FAX)

Chemical Analysis Report
Laboratory Services Department
AmerenUE

CC: Steve Whitworth 602

Requestor or Contact: BOB HOF 612
Department: PPM&E
Date Received: 10-Dec-99

Report Date: 10-Dec-99
Login Record File: 99120123

General Sample Description: Coal from Mercury Speciation Tests
Sample Point: Newton U-2 Run #1
Lab Sample No.: UE19893

Collection Date: 31-Jul-99
Original Sample ID: Old 15930

Parameter	Results	Units	MDL	Analysis Code	Analyst
Mercury in Coal (Leco)	0.074	µg/g, dry	0.001	U1024A	WM
Mercury in NIST 1630a (dry)	0.088	µg/g	0.025	U1024STD	WM

General Sample Description: Coal from Mercury Speciation Tests
Sample Point: Newton U-2 Run #2
Lab Sample No.: UE19894

Collection Date: 02-Aug-99
Original Sample ID: Old 15931

Parameter	Results	Units	MDL	Analysis Code	Analyst
Mercury in Coal (Leco)	0.068	µg/g, dry	0.001	U1024A	WM
Mercury in NIST 1630a (dry)	0.088	µg/g	0.025	U1024STD	WM

General Sample Description: Coal from Mercury Speciation Tests
Sample Point: Newton U-2 Run #3
Lab Sample No.: UE19895

Collection Date: 02-Aug-99
Original Sample ID: Old 15932

Parameter	Results	Units	MDL	Analysis Code	Analyst
Mercury in Coal (Leco)	0.070	µg/g, dry	0.001	U1024A	WM
Mercury in NIST 1630a (dry)	0.088	µg/g	0.025	U1024STD	WM

Comments:

These values are averages of at least four determinations on each sample using the LECO AMA-254 analyzer. Method Reference: EPA Method 7473 (SW-846 Draft IVA), 'Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry.'

Approved By: Carol Zale 12/10/99

Coal Mercury and Chlorine Report
Laboratory Services Department
AmerenUE

Lab Sample No.: UE16395
Original Sample ID: Run #1
Sample Description: Newton Coal Sample from Stack Test
Sample Pt. Description: Newton feeder(as-fired) Run #1
Other Information: SPLIT SAMPLE FROM PLANT - FOR HG ONLY
Collection Date: 31-Jul-99 12:00 AM

Date Received: 20-Oct-99
Report Date: 04-Nov-99
Requestor: BOB HOF 612
CC: Steven Whitworth 602

Parameter	Results	Units	Analysis Code	Analyst
Air Dry Loss	11.6	Weight %	U1013	RWF
Mercury in Coal (dry)	0.055	µg/g	U1024	WM
Mercury in Coal (Leco)	0.081	µg/g, dry	U1024A	WM
Residual Moisture	16.89	Weight %	U1011	RWF
Total Moisture	26.53	Weight %	U1017	RWF
Mercury in NIST 1630a (dry)	0.117	µg/g	U1024STD	WM

Comments:

This was a split sample which corresponds to the previously analyzed sample UE16930.

Approved By: Carol Zale 11/4/99

Coal Mercury and Chlorine Report
Laboratory Services Department
AmerenUE

Lab Sample No.: UE18396
Original Sample ID: Run #2
Sample Description: Newton Coal Sample from Stack Test
Sample Pt. Description: Newton feeder(as-fired) Run #2
Other Information: SPLIT SAMPLE FROM PLANT - FOR HG ONLY
Collection Date: 02-Aug-99 12:00 AM

Date Received: 20-Oct-99
Report Date: 04-Nov-99
Requestor: BOB HOF 612
CC: Steven Whitworth 602

Parameter	Results	Units	Analysis Code	Analyst
Air Dry Loss	14.82	Weight %	U1013	RWF
Mercury in Coal (dry)	0.026	µg/g	U1024	WM
Mercury in Coal (Leco)	0.067	µg/g, dry	U1024A	WM
Residual Moisture	11.72	Weight %	U1011	RWF
Total Moisture	24.80	Weight %	U1017	RWF
Mercury in NIST 1630a (dry)	0.117	µg/g	U1024STD	WM

Comments:

This was a split sample which corresponds to the previously analyzed sample UE15931.

Approved By: Carol Zale 11/4/99

Coal Mercury and Chlorine Report
Laboratory Services Department
AmerenUE

Lab Sample No.: UE18397
Original Sample ID: Run #3
Sample Description: Newton Coal Sample from Stack Test
Sample Pt. Description: Newton feeder(as-fired) Run #3
Other Information: SPLIT SAMPLE FROM PLANT - FOR HG ONLY
Collection Date: 02-Aug-99 12:00 AM

Date Received: 20-Oct-99
Report Date: 04-Nov-99
Requestor: BOB HOF 612
CC: Steven Whitworth 602

Parameter	Results	Units	Analysis Code	Analyst
Air Dry Loss	12.66	Weight %	U1013	RWF
Mercury in Coal (dry)	0.090	µg/g	U1024	WM
Mercury in Coal (Leco)	0.095	µg/g, dry	U1024A	WM
Residual Moisture	14.79	Weight %	U1011	RWF
Total Moisture	25.58	Weight %	U1017	RWF
Mercury in NIST 1630a (dry)	0.117	µg/g	U1024STD	WM

Comments:

This was a split sample which corresponds to the previously analyzed sample UE15932.

Approved By: Carol Zale 11/4/99

13 Dec 99

T/C Dennis Laudal, EERC

Results for Newton coal samples

UE18395	0.0803 µg/g
UE18396	0.0645 µg/g
UE18397	0.0915 µg/g

Appendix E. Audit Data Sheets

(no audits performed)

Appendix F. List of Participants

List of Participants		
Newton 2 Mercury ICR Testing		
Name	*Position on Test Team*	*Affiliation*
Mark McDannel	Team Leader, Stack Sampling Leader	Fossil Energy Research Corp.
Lawrence Pedregon	Stack Assistant	Delta Air Quality Services
Dave Wonderly	Inlet Sampling Leader	Delta Air Quality Services
Paul Anderson	Inlet Assistant	Fossil Energy Research Corp.
Arlene Bell	Project Chemist, Sample Recovery and Custody	Delta Air Quality Services
Ron McLeod	Project Manager, Gas Sample Analyses	Phillip Analytical Services
Robert Hof	Ameren Program Manager	Ameren
David Heath	On-Site Coordinator	Ameren
Stephen Cuppett	Coal Sample Analyses	Ameren

Appendix G. Additional Information

CEMS Data

Unit Operating Data

ESP Operating Data

Subject: precip performance
Date: Mon, 23 Aug 1999 14:41:00 -0500
From: "Heath, David E" <david_e_heath@ameren.com>
To: mmcdannel@ferco.com
CC: "Hof, Robert R" <RHof@ameren.com>

Mr. Mark McDannel

On the Afternoon of July 30th and the morning and early afternoon of August 1st the Newton Power Station Unit 2 Precipitator performance was checked by myself. The operation of the Transformer Rectifier sets was observed to be normal. The parameters checked were primary voltage, secondary voltage, primary current, secondary current, spark rate, and power level. It is my conclusion that the precipitators were operating within normal operating parameters and no unusual operating parameters were observed.

If you have any questions or comments please feel free to contact me, thanks.

David E. Heath

mercury	testing	Newton	Unit	2
precip	voltage	readings	Test Run	1

run	number	1	7/31/99	
time	1425		1730	
2A1A	54		54	
2A2A	48		44	
2A3A	38		37	
2A4A	56		56	
2A1B	57		54	
2A2B	55		55	
2A3B	61		60	
2A4B	53		52	
2A1C	47		46	
2A2C	48		46	
2A3C	46		47	
2A4C	49		39	
2A1D	47		46	
2A2D	54		55	
2A3D	49		48	
2A4D	48		48	
2B1A	58		56	
2B2A	56		57	
2B3A	45		43	
2B4A	60		53	
2B1B	48		47	
2B2B	54		53	
2B3B	62		63	
2B4B	52		50	
2B1C	48		47	
2B2C	54		53	
2B3C	42		40	
2B4C	43		44	
2B1D	44		48	
2B2D	43		44	
2B3D	51		49	
2B4D	62		62	
			Avg	
Total power	1632		1596	1614

Coal feeder readings in pounds

time	1325	1759	Net	Tons	Hours	klb/hr
2A	22464100	22916400	452300	226.15	4.57	99.0
2B	14911000	15357700	446700	223.35	4.57	97.8
2C	92125300	92603200	477900	238.95	4.57	104.6
2D	24913600	25369100	455500	227.75	4.57	99.7
2E	77073900	77530900	457000	228.5	4.57	100.1
2F	70403200	70861500	458300	229.15	4.57	100.4
					Sum	601.7

mercury	testing	Newton	Unit	2	
precip	voltage	readings	Test Run	2	
run	number	2	8/2/99		
time		815		950	
2A1A		57		56	
2A2A		49		47	
2A3A		39		32	
2A4A		56		56	
2A1B		57		56	
2A2B		56		52	
2A3B		61		61	
2A4B		53		50	
2A1C		46		46	
2A2C		48		46	
2A3C		45		45	
2A4C		40		40	
2A1D		48		48	
2A2D		54		55	
2A3D		49		48	
2A4D		45		46	
2B1A		62		61	
2B2A		58		57	
2B3A		45		44	
2B4A		59		61	
2B1B		40		46	
2B2B		53		53	
2B3B		62		63	
2B4B		49		50	
2B1C		48		45	
2B2C		53		53	
2B3C		41		40	
2B4C		44		43	
2B1D		46		46	
2B2D		42		42	
2B3D		51		51	
2B4D		62		61	
			Avg		
Total power		1618		1600	1609

Coal feeder readings in pounds

time	750	1032	Net	Tons	Hours	klb/hr
2A	47154600	47427400	272800	136.4	2.70	101.0
2B	92591900	92881300	289400	144.7	2.70	107.2
2C	81733600	82004100	270500	135.25	2.70	100.2
2D	71784800	72061500	276700	138.35	2.70	102.5
2E	2998500	3294400	295900	147.95	2.70	109.6
2F	29080600	29355200	274600	137.3	2.70	101.7
					Sum	622.2

mercury	testing	Newton	Unit	2
precip	voltage	readings	Test Run	3

run	number	3	8/2/99	
time		1210		1345
2A1A		55		53
2A2A		45		43
2A3A		38		33
2A4A		54		56
2A1B		58		56
2A2B		54		54
2A3B		61		60
2A4B		50		51
2A1C		46		46
2A2C		47		48
2A3C		45		44
2A4C		40		39
2A1D		45		44
2A2D		54		54
2A3D		48		47
2A4D		47		47
2B1A		60		60
2B2A		55		52
2B3A		44		44
2B4A		60		59
2B1B		48		47
2B2B		52		53
2B3B		62		62
2B4B		50		48
2B1C		46		47
2B2C		53		52
2B3C		43		40
2B4C		44		43
2B1D		47		43
2B2D		42		44
2B3D		51		49
2B4D		61		61
			Avg	
Total power		1605	1579	1592

Coal feeder readings in pounds

time	1142	1416	Net	Tons	Hours	klb/hr
2A	47561700	47827900	266200	133.1	2.57	103.7
2B	93023700	93295900	272200	136.1	2.57	106.1
2C	82136400	82394000	257600	128.8	2.57	100.4
2D	72197000	72460600	263600	131.8	2.57	102.7
2E	3440300	3718700	278400	139.2	2.57	108.5
2F	29488500	29755500	267000	133.5	2.57	104.0
					Sum	625.3

Hgprecp.xls — precip data
coal burn data

HgCO2r1 — CEMS CO2 data run 1
HgCO2r2 2
HgCO2r3 3

HgFlowr1 CEMS Flow data run 1
HgFlowr2 2
HgFlowr3 3

HgTempr1 CEMS Temperature data run 1
r2 run 2
r3 run 3

Hgopacr1 CEMS opacity data run 1
r2 2
r3 3

HgSO2r1 CEMS SO_2 data run 1
r2 2
r3 3

HgNOxr1 CEMS NOx data run 1
r2 2
r3 3

Hgload r1 CEMS recorded Load r1
Hgload 8 2 CEMS recorded Load r2 & 3

actual CEMS time is 1 hour earlier than recorded daylight savings time on test team reading sheets.

Dan Hall

08:00:13 08-02-1999 8-HOUR REPORT OF 6-MINUTE AVERAGES

BOILER	OPACITY	BOILER LOAD	TOTAL POWER
2	16.1	570.6	741.9

AVC	KV1	MA1	LC	LV	KVA	SPM	CNT
65- 2B1A	61.9	48.0	14.5	270.6	9.4	9.1	112.6
66- 2B2A	59.4	186.0	50.9	398.0	19.7	0.7	174.0
67- 2B3A	44.8	13.1	6.9	237.1	1.0	1.4	87.5
68- 2B4A	60.4	27.0	10.3	280.7	2.4	0.8	110.8
69- 2B1B	42.1	167.8	92.6	264.7	8.0	7.2	124.0
70- 2B2B	53.5	246.7	56.3	363.5	19.9	0.2	173.2
71- 2B3B	62.7	224.2	52.3	392.6	19.9	0.0	178.1
72- 2B4B	50.2	302.5	64.6	358.3	22.5	0.9	181.5
73- 2B1C	46.8	413.8	82.6	921.2	25.8	0.5	175.7
74- 2B2C	52.5	550.2	108.4	347.3	36.9	0.9	217.5
75- 2B3C	37.9	102.5	27.2	217.6	5.4	9.2	126.1
76- 2B4C	43.6	420.5	79.9	315.1	24.6	0.5	196.0
77- 2B1D	44.2	527.5	101.4	366.3	36.6	2.1	189.8
78- 2B2D	42.9	484.3	93.5	382.3	30.6	2.5	175.6
79- 2B3D	51.3	547.8	104.8	410.3	42.4	2.0	196.1
80- 2B4D	61.4	60.0	17.7	248.7	3.8	0.0	103.1
97- 2A1A	56.8	322.9	62.4	386.8	29.4	0.0	187.4
98- 2A2A	48.1	32.5	11.3	284.2	2.7	2.5	106.2
99- 2A3A	36.5	30.1	10.8	184.4	1.6	13.4	87.2
100- 2A4A	57.5	290.1	50.5	395.6	19.5	0.4	178.7
101- 2A1B	59.2	488.3	56.3	343.5	18.7	0.6	173.3
102- 2A2B	56.8	503.5	55.6	425.7	23.1	0.0	236.1
103- 2A3B	61.3	220.4	52.9	385.8	19.7	0.0	190.7
104- 2A4B	52.9	473.1	89.8	394.7	34.8	0.0	203.4
105- 2A1C	46.5	473.4	88.1	367.2	31.8	0.8	173.8
106- 2A2C	50.1	587.7	109.3	383.9	41.3	0.2	213.1
107- 2A3C	46.4	415.7	82.5	320.6	25.9	0.8	183.4
108- 2A4C	40.6	662.3	117.3	325.0	37.5	0.0	225.2
109- 2A1D	48.2	644.4	117.8	393.4	45.6	0.0	203.0
110- 2A2D	54.7	451.1	87.7	349.4	29.8	0.0	181.4
111- 2A3D	49.0	649.3	117.5	366.5	42.4	0.0	231.5
112- 2A4D	46.0	612.8	118.4	352.2	40.9	0.0	181.1

12:00:13 08-02-1999 4-HOUR REPORT OF 6-MINUTE AVERAGES

BOILER	OPACITY	BOILER LOAD	TOTAL POWER
2	20.4	570.5	698.8

AVC	KV1	MA1	LC	LV	KVA	SPM	CNT
65- 2B1A	60.9	48.0	14.6	269.9	9.4	2.8	112.9
66- 2B2A	55.5	189.0	49.4	371.3	17.6	1.2	164.9
67- 2B3A	44.1	13.6	6.4	299.2	1.0	1.3	86.7
68- 2B4A	60.4	29.0	11.0	282.9	2.6	1.6	112.5
69- 2B1B	48.1	333.5	59.5	329.8	18.6	0.9	159.1
70- 2B2B	53.4	241.6	54.5	359.4	19.1	0.0	175.5
71- 2B3B	62.7	200.9	47.5	387.9	17.7	0.0	172.1
72- 2B4B	49.4	319.5	64.7	347.9	21.9	0.6	178.1
73- 2B1C	47.2	426.9	84.7	325.1	27.0	0.8	176.7
74- 2B2C	53.1	519.5	102.3	348.4	35.0	0.9	212.7
75- 2B3C	38.8	112.1	29.0	221.5	5.9	7.8	128.8
76- 2B4C	44.2	416.2	79.1	318.0	24.5	0.5	196.0
77- 2B1D	45.9	604.6	119.6	383.9	43.1	0.9	201.0
78- 2B2D	43.5	483.1	92.6	336.2	30.6	2.5	180.2
79- 2B3D	51.7	540.2	109.6	412.3	42.1	2.3	196.3
80- 2B4D	61.6	72.3	20.5	254.7	4.8	0.0	106.6
97- 2A1A	54.8	358.5	66.3	370.6	23.9	0.0	184.0
98- 2A2A	46.8	22.1	8.6	266.2	2.0	2.8	95.6
99- 2A3A	37.5	35.3	11.7	193.4	2.0	9.8	90.3
100- 2A4A	55.9	315.9	53.0	385.3	19.7	0.3	177.3
101- 2A1B	55.8	433.6	55.4	317.7	16.9	2.7	166.2
102- 2A2B	51.2	501.3	85.4	362.5	12.3	1.2	182.1
103- 2A3B	60.7	238.6	55.9	383.7	20.8	0.2	191.0
104- 2A4B	51.4	398.5	77.8	378.5	28.9	0.0	189.2
105- 2A1C	45.9	417.4	78.7	357.1	27.6	0.2	165.5
106- 2A2C	47.7	430.1	83.6	357.2	29.2	0.2	186.0
107- 2A3C	45.3	366.1	73.3	308.4	22.3	0.6	173.6
108- 2A4C	39.8	586.6	105.6	315.3	32.6	0.6	212.2
109- 2A1D	46.0	544.4	101.9	379.5	37.5	0.2	187.9
110- 2A2D	54.7	435.9	85.1	348.2	28.9	0.0	179.5
111- 2A3D	47.6	592.0	108.6	352.9	37.8	0.3	217.5
112- 2A4D	46.8	607.1	117.3	358.4	41.5	0.0	181.4

12:00:07 07-31-1996 4-HOUR REPORT OF 6-MINUTE AVERAGES

BOILER	OPACITY	BOILER LOAD	TOTAL POWER
2	18.1	574.5	699.8

AVC	KV1	MA1	LC	LV	KVA	SPM	CNT
65- 2B1A	61.2	59.4	17.1	275.2	4.2	3.3	116.8
66- 2B2A	58.3	185.7	50.7	399.9	19.7	0.6	179.8
67- 2B3A	44.5	14.8	6.8	237.5	1.0	0.5	89.1
68- 2B4A	60.3	33.7	12.2	286.2	2.9	1.6	115.9
69- 2B1B	44.9	235.7	43.7	290.6	12.7	5.3	137.8
70- 2B2B	59.8	229.2	52.8	362.0	18.6	0.3	175.2
71- 2B3B	62.7	218.9	51.3	391.8	19.6	0.0	176.6
72- 2B4B	50.5	317.2	66.5	359.7	23.3	0.0	183.4
73- 2B1C	47.9	382.6	77.3	375.9	24.7	0.9	173.6
74- 2B2C	53.4	539.0	108.6	352.3	37.7	0.7	218.1
75- 2B3C	38.5	89.3	23.5	214.7	4.6	8.3	121.2
76- 2B4C	44.2	419.6	79.6	318.9	24.8	0.3	197.0
77- 2B1D	46.6	493.2	95.2	381.8	35.6	2.3	190.8
78- 2B2D	43.7	485.9	94.0	397.5	31.2	2.5	180.8
79- 2B3D	52.1	527.8	101.4	414.0	41.3	2.1	195.7
80- 2B4D	61.5	58.7	17.2	248.0	3.7	0.0	101.5
97- 2A1A	55.4	349.6	65.6	377.6	24.0	0.0	185.7
98- 2A2A	45.3	19.1	8.0	257.4	1.6	2.4	91.3
99- 2A3A	34.9	49.4	14.5	181.0	2.1	12.2	90.9
100- 2A4A	56.1	292.3	50.0	385.6	18.7	0.0	171.5
101- 2A1B	54.7	234.4	45.6	303.0	13.4	12.7	155.2
102- 2A2B	56.1	413.8	46.5	407.5	18.4	0.0	215.6
103- 2A3B	61.3	223.3	53.4	384.6	19.8	0.0	190.4
104- 2A4B	52.0	381.4	74.7	379.0	27.7	0.0	183.7
105- 2A1C	46.2	427.6	80.3	360.3	28.4	1.2	167.5
106- 2A2C	47.5	435.5	84.4	356.1	29.4	0.5	186.2
107- 2A3C	46.3	387.1	76.9	315.5	23.7	0.6	178.1
108- 2A4C	40.7	607.9	108.9	322.8	34.5	0.5	217.8
109- 2A1D	46.3	559.0	104.1	375.8	-38.5	0.2	189.2
110- 2A2D	54.7	417.1	81.8	346.0	27.9	0.0	176.8
111- 2A3D	48.8	585.1	107.1	360.0	38.0	0.2	219.1
112- 2A4D	48.0	610.6	117.7	364.5	42.2	0.0	182.9

16:00:07 07-31-1999 4-HOUR REPORT OF 6-MINUTE AVERAGES --

BOILER	OPACITY	BOILER LOAD	TOTAL POWER
2	19.4	574.6	683.9

AVC	KV1	MA1	LC	LV	KVA	SPM	CNT
65- 2B1A	56.3	27.3	9.5	237.9	1.7	4.0	96.0
66- 2B2A	56.5	183.1	49.2	377.9	18.0	0.2	165.9
67- 2B3A	44.1	14.6	6.6	234.5	1.0	2.6	87.4
68- 2B4A	55.2	18.4	7.8	248.7	1.4	3.6	97.2
69- 2B1B	47.0	301.8	53.8	309.1	16.2	4.1	150.7
70- 2B2B	53.8	231.1	52.4	359.5	18.2	0.5	179.9
71- 2B3B	62.6	205.8	48.4	368.0	18.1	0.0	179.0
72- 2B4B	49.6	331.8	67.6	350.6	23.1	0.0	180.4
73- 2B1C	48.3	390.5	77.9	327.0	24.9	1.3	179.9
74- 2B2C	53.6	489.1	101.6	350.6	34.9	0.7	212.7
75- 2B3C	38.7	70.7	19.3	212.8	3.7	11.2	115.2
76- 2B4C	44.5	396.0	75.5	318.3	23.2	0.8	193.0
77- 2B1D	46.2	456.6	89.4	376.6	33.1	2.0	186.0
78- 2B2D	43.7	473.5	91.9	336.7	30.4	2.0	179.7
79- 2B3D	51.8	511.1	98.6	410.4	39.7	2.2	192.6
80- 2B4D	61.5	101.3	27.1	264.0	6.8	0.0	113.6
97- 2A1A	54.9	333.4	62.6	369.4	22.6	0.0	181.3
98- 2A2A	47.0	24.3	9.1	270.0	2.1	3.5	97.5
99- 2A3A	37.6	29.0	10.6	193.0	1.7	15.1	88.2
100- 2A4A	56.1	292.5	49.8	383.7	18.4	0.0	174.1
101- 2A1B	56.5	396.2	51.8	321.2	16.0	3.3	163.8
102- 2A2B	55.4	435.4	48.6	405.1	19.3	0.2	215.6
103- 2A3B	61.2	229.9	54.5	384.7	20.4	0.0	190.9
104- 2A4B	52.1	368.9	72.7	378.4	26.9	0.0	186.7
105- 2A1C	46.3	437.0	81.7	361.5	29.0	0.7	168.2
106- 2A2C	47.6	426.4	82.9	355.8	28.9	0.0	185.3
107- 2A3C	45.9	362.9	72.6	311.2	22.0	1.3	172.9
108- 2A4C	40.5	587.7	105.7	320.1	33.2	0.2	214.0
109- 2A1D	46.2	601.9	111.1	377.6	41.4	0.0	193.2
110- 2A2D	54.7	415.5	81.6	346.0	27.9	0.0	176.5
111- 2A3D	48.6	572.3	105.2	357.6	37.0	0.3	216.6
112- 2A4D	48.4	612.8	117.9	367.3	42.6	0.0	183.9

20:00:11 07-31-1999 4-HOUR REPORT OF 6-MINUTE AVERAGES

BOILER	OPACITY	BOILER LOAD	TOTAL POWER
2	19.5	595.3	668.1

AVC	KV1	MA1	LC	LV	KV2	SOM	CNT
65- 2B1A	56.2	19.5	7.6	229.1	1.2	3.5	89.6
66- 2B2A	56.7	190.0	50.9	304.2	19.0	0.9	169.0
67- 2B3A	44.3	19.3	6.4	295.6	1.0	1.6	87.1
68- 2B4A	55.3	15.0	6.8	241.7	1.1	4.2	92.7
69- 2B1B	44.8	172.9	33.3	273.5	8.8	6.1	125.5
70- 2B2B	53.8	241.4	54.7	363.2	19.2	0.3	176.4
71- 2B3B	62.7	227.8	52.9	392.8	20.1	0.0	178.2
72- 2B4B	50.3	315.1	65.5	357.5	22.8	0.3	181.7
73- 2B1C	48.5	388.4	77.3	327.3	24.7	1.1	174.7
74- 2B2C	53.8	499.2	99.5	351.2	34.3	0.8	212.5
75- 2B3C	39.4	99.9	26.4	223.3	5.7	11.1	126.4
76- 2B4C	44.5	403.3	76.6	318.5	23.8	0.0	195.0
77- 2B1D	46.8	458.3	89.7	381.8	33.7	2.5	188.0
78- 2B2D	42.1	439.2	85.7	323.0	27.1	2.8	172.4
79- 2B3D	52.3	527.2	101.4	415.8	41.5	2.2	192.4
80- 2B4D	61.6	52.6	15.7	246.2	3.3	0.0	99.1
97- 2A1A	55.2	346.1	64.8	372.5	23.7	0.0	184.6
98- 2A2A	44.9	17.9	7.4	251.8	1.3	3.2	89.0
99- 2A3A	35.5	13.9	7.5	173.3	0.9	11.5	77.1
100- 2A4A	56.5	272.4	47.1	383.4	17.5	0.0	172.8
101- 2A1B	52.9	387.0	55.9	297.4	15.6	4.8	160.3
102- 2A2B	54.9	402.3	45.6	399.4	17.7	0.1	208.9
103- 2A3B	61.1	232.4	55.2	385.0	20.6	0.0	192.0
104- 2A4B	52.2	377.0	74.0	380.2	27.6	0.0	188.3
105- 2A1C	46.8	430.0	81.0	366.4	29.2	0.0	169.6
106- 2A2C	47.4	402.9	78.8	352.7	27.1	0.0	182.2
107- 2A3C	46.1	371.9	73.9	312.4	22.5	1.2	175.6
108- 2A4C	40.6	569.0	102.8	319.5	32.2	0.9	208.0
109- 2A1D	46.2	572.6	104.8	375.3	38.7	0.0	189.4
110- 2A2D	54.7	408.9	80.5	345.9	27.2	0.0	176.1
111- 2A3D	48.4	562.7	109.7	356.1	36.3	0.3	215.3
112- 2A4D	48.5	608.7	117.4	368.4	42.6	0.0	184.3

Newton 2, Run 1 CO2 CEMS Data

Database Flags Report for File: CO2_R1M. (Start: 7/31/99 12:42)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	31-Jul								
Average	***12.05***								
12:42	11.97		0	0	0	0	0 -------8--	----------	---------
12:43	11.98		0	0	0	0	0 -------8--	----------	---------
12:44	12.01		0	0	0	0	0 -------8--	----------	---------
12:45	11.96		0	0	0	0	0 -------8--	----------	---------
12:46	11.99		0	0	0	0	0 -------8--	----------	---------
12:47	12.02		0	0	0	0	0 -------8--	----------	---------
12:48	12.07		0	0	0	0	0 -------8--	----------	---------
12:49	12.05		0	0	0	0	0 -------8--	----------	---------
12:50	12		0	0	0	0	0 -------8--	----------	---------
12:51	11.96		0	0	0	0	0 -------8--	----------	---------
12:52	11.92		0	0	0	0	0 -------8--	----------	---------
12:53	11.91		0	0	0	0	0 -------8--	----------	---------
12:54	11.97		0	0	0	0	0 -------8--	----------	---------
12:55	12		0	0	0	0	0 -------8--	----------	---------
12:56	11.98		0	0	0	0	0 -------8--	----------	---------
12:57	11.97		0	0	0	0	0 -------8--	----------	---------
12:58	12.01		0	0	0	0	0 -------8--	----------	---------
12:59	11.95		0	0	0	0	0 -------8--	----------	---------
13:00	11.92		0	0	0	0	0 -------8--	----------	---------
13:01	11.94		0	0	0	0	0 -------8--	----------	---------
13:02	11.93		0	0	0	0	0 -------8--	----------	---------
13:03	11.98		0	0	0	0	0 -------8--	----------	---------
13:04	12		0	0	0	0	0 -------8--	----------	---------
13:05	11.98		0	0	0	0	0 -------8--	----------	---------
13:06			0	0	0	0	0 -------8--	-23-------	---------
13:07			0	0	0	0	0 -------8--	-23-------	---------
13:08			0	0	0	0	0 -------8--	-23-------	---------
13:09			0	0	0	0	0 -------8--	-23-------	---------
13:10			0	0	0	0	0 -------8--	-23-------	---------
13:11	11.49		0	0	0	0	0 -------8--	----------	---------
13:12	11.72		0	0	0	0	0 -------8--	----------	---------
13:13	11.84		0	0	0	0	0 -------8--	----------	---------
13:14	11.87		0	0	0	0	0 -------8--	----------	---------
13:15	11.89		0	0	0	0	0 -------8--	----------	---------
13:16	11.99		0	0	0	0	0 -------8--	----------	---------
13:17	12.04		0	0	0	0	0 -------8--	----------	---------
13:18	12		0	0	0	0	0 -------8--	----------	---------
13:19	12.01		0	0	0	0	0 -------8--	----------	---------
13:20	12.01		0	0	0	0	0 -------8--	----------	---------
13:21	11.95		0	0	0	0	0 -------8--	----------	---------
13:22	11.9		0	0	0	0	0 -------8--	----------	---------
13:23	11.92		0	0	0	0	0 -------8--	----------	---------
13:24	11.96		0	0	0	0	0 -------8--	----------	---------
13:25	12		0	0	0	0	0 -------8--	----------	---------
13:26	11.98		0	0	0	0	0 -------8--	----------	---------
13:27	11.95		0	0	0	0	0 -------8--	----------	---------
13:28	11.96		0	0	0	0	0 -------8--	----------	---------
13:29	12.01		0	0	0	0	0 -------8--	----------	---------
13:30	11.98		0	0	0	0	0 -------8--	----------	---------
13:31	11.96		0	0	0	0	0 -------8--	----------	---------
13:32	11.94		0	0	0	0	0 -------8--	----------	---------

13:33	11.95	0	0	0	0	0 -------8--	----------	---------
13:34	11.92	0	0	0	0	0 -------8--	----------	---------
13:35	11.95	0	0	0	0	0 -------8--	----------	---------
13:36	11.99	0	0	0	0	0 -------8--	----------	---------
13:37	11.97	0	0	0	0	0 -------8--	----------	---------
13:38	11.92	0	0	0	0	0 -------8--	----------	---------
13:39	11.98	0	0	0	0	0 -------8--	----------	---------
13:40	12.01	0	0	0	0	0 -------8--	----------	---------
13:41	12.04	0	0	0	0	0 -------8--	----------	---------
13:42	12.06	0	0	0	0	0 -------8--	----------	---------
13:43	12.12	0	0	0	0	0 -------8--	----------	---------
13:44	12.11	0	0	0	0	0 -------8--	----------	---------
13:45	12.02	0	0	0	0	0 -------8--	----------	---------
13:46	12.01	0	0	0	0	0 -------8--	----------	---------
13:47	12.02	0	0	0	0	0 -------8--	----------	---------
13:48	12	0	0	0	0	0 -------8--	----------	---------
13:49	12.06	0	0	0	0	0 -------8--	----------	---------
13:50	12.02	0	0	0	0	0 -------8--	----------	---------
13:51	11.99	0	0	0	0	0 -------8--	----------	---------
13:52	11.98	0	0	0	0	0 -------8--	----------	---------
13:53	12.03	0	0	0	0	0 -------8--	----------	---------
13:54	12.03	0	0	0	0	0 -------8--	----------	---------
13:55	12	0	0	0	0	0 -------8--	----------	---------
13:56	12.01	0	0	0	0	0 -------8--	----------	---------
13:57	12.01	0	0	0	0	0 -------8--	----------	---------
13:58	11.96	0	0	0	0	0 -------8--	----------	---------
13:59	12.05	0	0	0	0	0 -------8--	----------	---------
14:00	12.09	0	0	0	0	0 -------8--	----------	---------
14:01	12.08	0	0	0	0	0 -------8--	----------	---------
14:02	11.97	0	0	0	0	0 -------8--	----------	---------
14:03	11.96	0	0	0	0	0 -------8--	----------	---------
14:04	11.99	0	0	0	0	0 -------8--	----------	---------
14:05	12.01	0	0	0	0	0 -------8--	----------	---------
14:06	11.98	0	0	0	0	0 -------8--	----------	---------
14:07	11.98	0	0	0	0	0 -------8--	----------	---------
14:08		0	0	0	0	0 -------8--	-23-------	---------
14:09		0	0	0	0	0 -------8--	-23-------	---------
14:10		0	0	0	0	0 -------8--	-23-------	---------
14:11		0	0	0	0	0 -------8--	-23-------	---------
14:12		0	0	0	0	0 -------8--	-23-------	---------
14:13	11.65	0	0	0	0	0 -------8--	----------	---------
14:14	11.86	0	0	0	0	0 -------8--	----------	---------
14:15	11.92	0	0	0	0	0 -------8--	----------	---------
14:16	11.99	0	0	0	0	0 -------8--	----------	---------
14:17	12.02	0	0	0	0	0 -------8--	----------	---------
14:18	12.03	0	0	0	0	0 -------8--	----------	---------
14:19	12	0	0	0	0	0 -------8--	----------	---------
14:20	12.03	0	0	0	0	0 -------8--	----------	---------
14:21	12.03	0	0	0	0	0 -------8--	----------	---------
14:22	11.96	0	0	0	0	0 -------8--	----------	---------
14:23	12.04	0	0	0	0	0 -------8--	----------	---------
14:24	12.01	0	0	0	0	0 -------8--	----------	---------
14:25	11.98	0	0	0	0	0 -------8--	----------	---------
14:26	11.97	0	0	0	0	0 -------8--	----------	---------
14:27	11.99	0	0	0	0	0 -------8--	----------	---------
14:28	12.07	0	0	0	0	0 -------8--	----------	---------
14:29	12.15	0	0	0	0	0 -------8--	----------	---------
14:30	12.09	0	0	0	0	0 -------8--	----------	---------
14:31	12.12	0	0	0	0	0 -------8--	----------	---------

14:32	12.12	0	0	0	0	0 -------8--	----------	---------
14:33	12.11	0	0	0	0	0 -------8--	----------	---------
14:34	12.09	0	0	0	0	0 -------8--	----------	---------
14:35	12.09	0	0	0	0	0 -------8--	----------	---------
14:36	12.1	0	0	0	0	0 -------8--	----------	---------
14:37	12.09	0	0	0	0	0 -------8--	----------	---------
14:38	12.06	0	0	0	0	0 -------8--	----------	---------
14:39	12.04	0	0	0	0	0 -------8--	----------	---------
14:40	12.2	0	0	0	0	0 -------8--	----------	---------
14:41	12.21	0	0	0	0	0 -------8--	----------	---------
14:42	12.1	0	0	0	0	0 -------8--	----------	---------
14:43	12.09	0	0	0	0	0 -------8--	----------	---------
14:44	12.09	0	0	0	0	0 -------8--	----------	---------
14:45	12.06	0	0	0	0	0 -------8--	----------	---------
14:46	12.05	0	0	0	0	0 -------8--	----------	---------
14:47	12.07	0	0	0	0	0 -------8--	----------	---------
14:48	12.11	0	0	0	0	0 -------8--	----------	---------
14:49	12.07	0	0	0	0	0 -------8--	----------	---------
14:50	12.08	0	0	0	0	0 -------8--	----------	---------
14:51	12.12	0	0	0	0	0 -------8--	----------	---------
14:52	12.09	0	0	0	0	0 -------8--	----------	---------
14:53	12.07	0	0	0	0	0 -------8--	----------	---------
14:54	12.03	0	0	0	0	0 -------8--	----------	---------
14:55	12.01	0	0	0	0	0 -------8--	----------	---------
14:56	12.05	0	0	0	0	0 -------8--	----------	---------
14:57	12.08	0	0	0	0	0 -------8--	----------	---------
14:58	12.14	0	0	0	0	0 -------8--	----------	---------
14:59	12.15	0	0	0	0	0 -------8--	----------	---------
15:00	12.11	0	0	0	0	0 -------8--	----------	---------
15:01	12.04	0	0	0	0	0 -------8--	----------	---------
15:02	12.09	0	0	0	0	0 -------8--	----------	---------
15:03	12.1	0	0	0	0	0 -------8--	----------	---------
15:04	12.07	0	0	0	0	0 -------8--	----------	---------
15:05	12.04	0	0	0	0	0 -------8--	----------	---------
15:06	12.07	0	0	0	0	0 -------8--	----------	---------
15:07	12.03	0	0	0	0	0 -------8--	----------	---------
15:08	12.03	0	0	0	0	0 -------8--	----------	---------
15:09		0	0	0	0	0 -------8--	-23-------	---------
15:10		0	0	0	0	0 -------8--	-23-------	---------
15:11		0	0	0	0	0 -------8--	-23-------	---------
15:12		0	0	0	0	0 -------8--	-23-------	---------
15:13		0	0	0	0	0 -------8--	-23-------	---------
15:14	11.58	0	0	0	0	0 -------8--	----------	---------
15:15	11.83	0	0	0	0	0 -------8--	----------	---------
15:16	11.99	0	0	0	0	0 -------8--	----------	---------
15:17	12.04	0	0	0	0	0 -------8--	----------	---------
15:18	12.04	0	0	0	0	0 -------8--	----------	---------
15:19	12.06	0	0	0	0	0 -------8--	----------	---------
15:20	12.07	0	0	0	0	0 -------8--	----------	---------
15:21	12.04	0	0	0	0	0 -------8--	----------	---------
15:22	12.04	0	0	0	0	0 -------8--	----------	---------
15:23	12.08	0	0	0	0	0 -------8--	----------	---------
15:24	12.1	0	0	0	0	0 -------8--	----------	---------
15:25	12.06	0	0	0	0	0 -------8--	----------	---------
15:26	12.1	0	0	0	0	0 -------8--	----------	---------
15:27	12.08	0	0	0	0	0 -------8--	----------	---------
15:28	12.07	0	0	0	0	0 -------8--	----------	---------
15:29	12.11	0	0	0	0	0 -------8--	----------	---------
15:30	12.11	0	0	0	0	0 -------8--	----------	---------

15:31	12.14	0	0	0	0	0 -------8--	----------	---------
15:32	12.16	0	0	0	0	0 -------8--	----------	---------
15:33	12.14	0	0	0	0	0 -------8--	----------	---------
15:34	12.01	0	0	0	0	0 -------8--	----------	---------
15:35	12	0	0	0	0	0 -------8--	----------	---------
15:36	12.09	0	0	0	0	0 -------8--	----------	---------
15:37	12.03	0	0	0	0	0 -------8--	----------	---------
15:38	12.02	0	0	0	0	0 -------8--	----------	---------
15:39	12.12	0	0	0	0	0 -------8--	----------	---------
15:40	12.12	0	0	0	0	0 -------8--	----------	---------
15:41	12.09	0	0	0	0	0 -------8--	----------	---------
15:42	12.08	0	0	0	0	0 -------8--	----------	---------
15:43	12.1	0	0	0	0	0 -------8--	----------	---------
15:44	12.06	0	0	0	0	0 -------8--	----------	---------
15:45	12.03	0	0	0	0	0 -------8--	----------	---------
15:46	12.06	0	0	0	0	0 -------8--	----------	---------
15:47	12.07	0	0	0	0	0 -------8--	----------	---------
15:48	12.2	0	0	0	0	0 -------8--	----------	---------
15:49	12.27	0	0	0	0	0 -------8--	----------	---------
15:50	12.23	0	0	0	0	0 -------8--	----------	---------
ˇ15:51	12.19	0	0	0	0	0 -------8--	----------	---------
15:52	12.16	0	0	0	0	0 -------8--	----------	---------
15:53	12.17	0	0	0	0	0 -------8--	----------	---------
15:54	12.18	0	0	0	0	0 -------8--	----------	---------
15:55	12.14	0	0	0	0	0 -------8--	----------	---------
15:56	12.15	0	0	0	0	0 -------8--	----------	---------
15:57	12.14	0	0	0	0	0 -------8--	----------	---------
15:58	12.09	0	0	0	0	0 -------8--	----------	---------
15:59	12.1	0	0	0	0	0 -------8--	----------	---------
16:00	12.14	0	0	0	0	0 -------8--	----------	---------
16:01	12.16	0	0	0	0	0 -------8--	----------	---------
16:02	12.12	0	0	0	0	0 -------8--	----------	---------
16:03	12.15	0	0	0	0	0 -------8--	----------	---------
16:04	12.16	0	0	0	0	0 -------8--	----------	---------
16:05	12.17	0	0	0	0	0 -------8--	----------	---------
16:06	12.1	0	0	0	0	0 -------8--	----------	---------
16:07	12.07	0	0	0	0	0 -------8--	----------	---------
16:08	12.08	0	0	0	0	0 -------8--	----------	---------
16:09	12.12	0	0	0	0	0 -------8--	----------	---------
16:10	12.13	0	0	0	0	0 -------8--	----------	---------
16:11		0	0	0	0	0 -------8--	-23-------	---------
16:12		0	0	0	0	0 -------8--	-23-------	---------
16:13		0	0	0	0	0 -------8--	-23-------	---------
16:14		0	0	0	0	0 -------8--	-23-------	---------
16:15		0	0	0	0	0 -------8--	-23-------	---------
16:16	11.81	0	0	0	0	0 -------8--	----------	---------
16:17	12.12	0	0	0	0	0 -------8--	----------	---------
16:18	12.22	0	0	0	0	0 -------8--	----------	---------
16:19	12.14	0	0	0	0	0 -------8--	----------	---------
16:20	12.02	0	0	0	0	0 -------8--	----------	---------
16:21	11.97	0	0	0	0	0 -------8--	----------	---------
16:22	11.95	0	0	0	0	0 -------8--	----------	---------
16:23	11.98	0	0	0	0	0 -------8--	----------	---------
16:24	12.07	0	0	0	0	0 -------8--	----------	---------
16:25	12.13	0	0	0	0	0 -------8--	----------	---------
16:26	12.18	0	0	0	0	0 -------8--	----------	---------
16:27	12.14	0	0	0	0	0 -------8--	----------	---------
16:28	12.09	0	0	0	0	0 -------8--	----------	---------
16:29	12.13	0	0	0	0	0 -------8--	----------	---------

16:30	12.16	0	0	0	0	0 -------8--	----------	---------
16:31	12.15	0	0	0	0	0 -------8--	----------	---------
16:32	12.13	0	0	0	0	0 -------8--	----------	---------
16:33	12.14	0	0	0	0	0 -------8--	----------	---------
16:34	12.19	0	0	0	0	0 -------8--	----------	---------
16:35	12.23	0	0	0	0	0 -------8--	----------	---------
16:36	12.2	0	0	0	0	0 -------8--	----------	---------
16:37	12.19	0	0	0	0	0 -------8--	----------	---------
16:38	12.25	0	0	0	0	0 -------8--	----------	---------
16:39	12.25	0	0	0	0	0 -------8--	----------	---------
16:40	12.19	0	0	0	0	0 -------8--	----------	---------
16:41	12.2	0	0	0	0	0 -------8--	----------	---------
16:42	12.16	0	0	0	0	0 -------8--	----------	---------
16:43	12.17	0	0	0	0	0 -------8--	----------	---------
16:44	12.11	0	0	0	0	0 -------8--	----------	---------
16:45	12.18	0	0	0	0	0 -------8--	----------	---------
16:46	12.25	0	0	0	0	0 -------8--	----------	---------
16:47	12.28	0	0	0	0	0 -------8--	----------	---------
16:48	12.23	0	0	0	0	0 -------8--	----------	---------
16:49	12.21	0	0	0	0	0 -------8--	----------	---------
16:50	12.15	0	0	0	0	0 -------8--	----------	---------
16:51	12.17	0	0	0	0	0 -------8--	----------	---------
16:52	12.12	0	0	0	0	0 -------8--	----------	---------
16:53	12.12	0	0	0	0	0 -------8--	----------	---------
16:54	12.18	0	0	0	0	0 -------8--	----------	---------
16:55	12.22	0	0	0	0	0 -------8--	----------	---------
ˇ16:56	12.22	0	0	0	0	0 -------8--	----------	---------
16:57	12.17	0	0	0	0	0 -------8--	----------	---------
16:58	12.13	0	0	0	0	0 -------8--	----------	---------
16:59	12.15	0	0	0	0	0 -------8--	----------	---------
17:00	12.13	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 1 CO2 CEMS Data

Database Flags Report for File: CO2_R1M. (Start: 8/2/99 07:50)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	========
Date:	2-Aug								
Average	***12.21***								
7:50	12.34	0	0	0	0	0	0 -------8--	----------	---------
7:51	12.36	0	0	0	0	0	0 -------8--	----------	---------
7:52	12.11	0	0	0	0	0	0 -------8--	----------	---------
7:53	11.99	0	0	0	0	0	0 -------8--	----------	---------
7:54	12.12	0	0	0	0	0	0 -------8--	----------	---------
7:55	12.36	0	0	0	0	0	0 -------8--	----------	---------
7:56	12.36	0	0	0	0	0	0 -------8--	----------	---------
7:57	12.13	0	0	0	0	0	0 -------8--	----------	---------
7:58	11.93	0	0	0	0	0	0 -------8--	----------	---------
7:59	12.1	0	0	0	0	0	0 -------8--	----------	---------
8:00	12.4	0	0	0	0	0	0 -------8--	----------	---------
8:01	12.49	0	0	0	0	0	0 -------8--	----------	---------
8:02	12.3	0	0	0	0	0	0 -------8--	----------	---------
8:03	12.08	0	0	0	0	0	0 -------8--	----------	---------
8:04	12.03	0	0	0	0	0	0 -------8--	----------	---------
8:05	12.23	0	0	0	0	0	0 -------8--	----------	---------
8:06	12.38	0	0	0	0	0	0 -------8--	----------	---------
8:07	12.32	0	0	0	0	0	0 -------8--	----------	---------
8:08	12.13	0	0	0	0	0	0 -------8--	----------	---------
8:09	12	0	0	0	0	0	0 -------8--	----------	---------
8:10	12.14	0	0	0	0	0	0 -------8--	----------	---------
8:11		0	0	0	0	0	0 -------8--	-23-------	---------
8:12		0	0	0	0	0	0 -------8--	-23-------	---------
8:13		0	0	0	0	0	0 -------8--	-23-------	---------
8:14		0	0	0	0	0	0 -------8--	-23-------	---------
8:15		0	0	0	0	0	0 -------8--	-23-------	---------
8:16	11.73	0	0	0	0	0	0 -------8--	----------	---------
8:17	12.11	0	0	0	0	0	0 -------8--	----------	---------
8:18	12.32	0	0	0	0	0	0 -------8--	----------	---------
8:19	12.28	0	0	0	0	0	0 -------8--	----------	---------
8:20	12.12	0	0	0	0	0	0 -------8--	----------	---------
8:21	12.11	0	0	0	0	0	0 -------8--	----------	---------
8:22	12.25	0	0	0	0	0	0 -------8--	----------	---------
8:23	12.41	0	0	0	0	0	0 -------8--	----------	---------
8:24	12.36	0	0	0	0	0	0 -------8--	----------	---------
8:25	12.2	0	0	0	0	0	0 -------8--	----------	---------
8:26	12.19	0	0	0	0	0	0 -------8--	----------	---------
8:27	12.41	0	0	0	0	0	0 -------8--	----------	---------
8:28	12.52	0	0	0	0	0	0 -------8--	----------	---------
8:29	12.32	0	0	0	0	0	0 -------8--	----------	---------
8:30	12.11	0	0	0	0	0	0 -------8--	----------	---------
8:31	12.2	0	0	0	0	0	0 -------8--	----------	---------
8:32	12.39	0	0	0	0	0	0 -------8--	----------	---------
8:33	12.44	0	0	0	0	0	0 -------8--	----------	---------
8:34	12.24	0	0	0	0	0	0 -------8--	----------	---------
8:35	12.02	0	0	0	0	0	0 -------8--	----------	---------
8:36	12.13	0	0	0	0	0	0 -------8--	----------	---------
8:37	12.4	0	0	0	0	0	0 -------8--	----------	---------
8:38	12.5	0	0	0	0	0	0 -------8--	----------	---------
8:39	12.29	0	0	0	0	0	0 -------8--	----------	---------
8:40	12.05	0	0	0	0	0	0 -------8--	----------	---------

8:41	12.07	0	0	0	0	0 -------8--	----------	---------
8:42	12.26	0	0	0	0	0 -------8--	----------	---------
8:43	12.23	0	0	0	0	0 -------8--	----------	---------
8:44	12.03	0	0	0	0	0 -------8--	----------	---------
8:45	11.88	0	0	0	0	0 -------8--	----------	---------
8:46	11.96	0	0	0	0	0 -------8--	----------	---------
8:47	12.15	0	0	0	0	0 -------8--	----------	---------
8:48	12.2	0	0	0	0	0 -------8--	----------	---------
ˇ08:49	12.19	0	0	0	0	0 -------8--	----------	---------
8:50	12.18	0	0	0	0	0 -------8--	----------	---------
8:51	11.98	0	0	0	0	0 -------8--	----------	---------
8:52	11.81	0	0	0	0	0 -------8--	----------	---------
8:53	11.9	0	0	0	0	0 -------8--	----------	---------
8:54	12.21	0	0	0	0	0 -------8--	----------	---------
8:55	12.4	0	0	0	0	0 -------8--	----------	---------
8:56	12.33	0	0	0	0	0 -------8--	----------	---------
8:57	12.02	0	0	0	0	0 -------8--	----------	---------
8:58	11.84	0	0	0	0	0 -------8--	----------	---------
8:59	11.96	0	0	0	0	0 -------8--	----------	---------
9:00	12.18	0	0	0	0	0 -------8--	----------	---------
9:01	12.16	0	0	0	0	0 -------8--	----------	---------
9:02	11.94	0	0	0	0	0 -------8--	----------	---------
9:03	11.72	0	0	0	0	0 -------8--	----------	---------
9:04	11.93	0	0	0	0	0 -------8--	----------	---------
9:05	12.17	0	0	0	0	0 -------8--	----------	---------
9:06	12.38	0	0	0	0	0 -------8--	----------	---------
9:07	12.36	0	0	0	0	0 -------8--	----------	---------
9:08	12.24	0	0	0	0	0 -------8--	----------	---------
9:09	12.08	0	0	0	0	0 -------8--	----------	---------
9:10	12.14	0	0	0	0	0 -------8--	----------	---------
9:11	12.35	0	0	0	0	0 -------8--	----------	---------
9:12	12.4	0	0	0	0	0 -------8--	----------	---------
9:13		0	0	0	0	0 -------8--	-23-------	---------
9:14		0	0	0	0	0 -------8--	-23-------	---------
9:15		0	0	0	0	0 -------8--	-23-------	---------
9:16		0	0	0	0	0 -------8--	-23-------	---------
9:17		0	0	0	0	0 -------8--	-23-------	---------
9:18	11.9	0	0	0	0	0 -------8--	----------	---------
9:19	11.99	0	0	0	0	0 -------8--	----------	---------
9:20	12.08	0	0	0	0	0 -------8--	----------	---------
9:21	12.29	0	0	0	0	0 -------8--	----------	---------
9:22	12.42	0	0	0	0	0 -------8--	----------	---------
9:23	12.27	0	0	0	0	0 -------8--	----------	---------
9:24	12.1	0	0	0	0	0 -------8--	----------	---------
9:25	12.17	0	0	0	0	0 -------8--	----------	---------
9:26	12.39	0	0	0	0	0 -------8--	----------	---------
9:27	12.42	0	0	0	0	0 -------8--	----------	---------
9:28	12.27	0	0	0	0	0 -------8--	----------	---------
9:29	12.05	0	0	0	0	0 -------8--	----------	---------
9:30	12.1	0	0	0	0	0 -------8--	----------	---------
9:31	12.3	0	0	0	0	0 -------8--	----------	---------
9:32	12.38	0	0	0	0	0 -------8--	----------	---------
9:33	12.29	0	0	0	0	0 -------8--	----------	---------
9:34	12.09	0	0	0	0	0 -------8--	----------	---------
9:35	12.08	0	0	0	0	0 -------8--	----------	---------
9:36	12.29	0	0	0	0	0 -------8--	----------	---------
9:37	12.44	0	0	0	0	0 -------8--	----------	---------
9:38	12.36	0	0	0	0	0 -------8--	----------	---------
9:39	12.23	0	0	0	0	0 -------8--	----------	---------

9:40	12.2	0	0	0	0	0 -------8--	----------	---------
9:41	12.29	0	0	0	0	0 -------8--	----------	---------
9:42	12.36	0	0	0	0	0 -------8--	----------	---------
9:43	12.24	0	0	0	0	0 -------8--	----------	---------
9:44	12.18	0	0	0	0	0 -------8--	----------	---------
9:45	12.22	0	0	0	0	0 -------8--	----------	---------
9:46	12.31	0	0	0	0	0 -------8--	----------	---------
9:47	12.31	0	0	0	0	0 -------8--	----------	---------
9:48	12.26	0	0	0	0	0 -------8--	----------	---------
9:49	12.22	0	0	0	0	0 -------8--	----------	---------
9:50	12.24	0	0	0	0	0 -------8--	----------	---------
9:51	12.33	0	0	0	0	0 -------8--	----------	---------
9:52	12.23	0	0	0	0	0 -------8--	----------	---------
9:53	12.14	0	0	0	0	0 -------8--	----------	---------
ˇ09:54	12.15	0	0	0	0	0 -------8--	----------	---------
9:55	12.29	0	0	0	0	0 -------8--	----------	---------
9:56	12.36	0	0	0	0	0 -------8--	----------	---------
9:57	12.28	0	0	0	0	0 -------8--	----------	---------
9:58	12.16	0	0	0	0	0 -------8--	----------	---------
9:59	12.18	0	0	0	0	0 -------8--	----------	---------
10:00	12.33	0	0	0	0	0 -------8--	----------	---------
10:01	12.37	0	0	0	0	0 -------8--	----------	---------
10:02	12.27	0	0	0	0	0 -------8--	----------	---------
10:03	12.23	0	0	0	0	0 -------8--	----------	---------
10:04	12.26	0	0	0	0	0 -------8--	----------	---------
10:05	12.31	0	0	0	0	0 -------8--	----------	---------
10:06	12.34	0	0	0	0	0 -------8--	----------	---------
10:07	12.31	0	0	0	0	0 -------8--	----------	---------
10:08	12.24	0	0	0	0	0 -------8--	----------	---------
10:09	12.25	0	0	0	0	0 -------8--	----------	---------
10:10	12.27	0	0	0	0	0 -------8--	----------	---------
10:11	12.3	0	0	0	0	0 -------8--	----------	---------
10:12	12.21	0	0	0	0	0 -------8--	----------	---------
10:13	12.15	0	0	0	0	0 -------8--	----------	---------
10:14	12.2	0	0	0	0	0 -------8--	----------	---------
10:15		0	0	0	0	0 -------8--	-23-------	---------
10:16		0	0	0	0	0 -------8--	-23-------	---------
10:17		0	0	0	0	0 -------8--	-23-------	---------
10:18		0	0	0	0	0 -------8--	-23-------	---------
10:19		0	0	0	0	0 -------8--	-23-------	---------
10:20	11.95	0	0	0	0	0 -------8--	----------	---------
10:21	12.2	0	0	0	0	0 -------8--	----------	---------
10:22	12.12	0	0	0	0	0 -------8--	----------	---------
10:23	12.16	0	0	0	0	0 -------8--	----------	---------
10:24	12.25	0	0	0	0	0 -------8--	----------	---------
10:25	12.3	0	0	0	0	0 -------8--	----------	---------
10:26	12.23	0	0	0	0	0 -------8--	----------	---------
10:27	12.19	0	0	0	0	0 -------8--	----------	---------
10:28	12.21	0	0	0	0	0 -------8--	----------	---------
10:29	12.28	0	0	0	0	0 -------8--	----------	---------
10:30	12.27	0	0	0	0	0 -------8--	----------	---------
10:31	12.22	0	0	0	0	0 -------8--	----------	---------
10:32	12.17	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 3 CO2 CEMS Data

Database Flags Report for File: CO2_R1M. (Start: 8/2/99 10:42)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	========
Date:	2-Aug								
Average	***12.03***								
10:42	12.27		0	0	0	0	0 -------8--	----------	---------
10:43	12.26		0	0	0	0	0 -------8--	----------	---------
10:44	12.23		0	0	0	0	0 -------8--	----------	---------
10:45	12.22		0	0	0	0	0 -------8--	----------	---------
10:46	12.15		0	0	0	0	0 -------8--	----------	---------
10:47	12.26		0	0	0	0	0 -------8--	----------	---------
10:48	12.33		0	0	0	0	0 -------8--	----------	---------
10:49	12.3		0	0	0	0	0 -------8--	----------	---------
10:50	12.23		0	0	0	0	0 -------8--	----------	---------
10:51	12.23		0	0	0	0	0 -------8--	----------	---------
10:52	12.29		0	0	0	0	0 -------8--	----------	---------
10:53	12.43		0	0	0	0	0 -------8--	----------	---------
10:54	12.37		0	0	0	0	0 -------8--	----------	---------
10:55	12.28		0	0	0	0	0 -------8--	----------	---------
10:56	12.31		0	0	0	0	0 -------8--	----------	---------
10:57	12.46		0	0	0	0	0 -------8--	----------	---------
10:58	12.47		0	0	0	0	0 -------8--	----------	---------
10:59	12.33		0	0	0	0	0 -------8--	----------	---------
11:00	12.26		0	0	0	0	0 -------8--	----------	---------
11:01	12.34		0	0	0	0	0 -------8--	----------	---------
11:02	12.4		0	0	0	0	0 -------8--	----------	---------
11:03	12.43		0	0	0	0	0 -------8--	----------	---------
11:04	12.28		0	0	0	0	0 -------8--	----------	---------
11:05	12.29		0	0	0	0	0 -------8--	----------	---------
11:06	12.41		0	0	0	0	0 -------8--	----------	---------
11:07	12.43		0	0	0	0	0 -------8--	----------	---------
11:08	12.36		0	0	0	0	0 -------8--	----------	---------
11:09	12.29		0	0	0	0	0 -------8--	----------	---------
11:10	12.31		0	0	0	0	0 -------8--	----------	---------
11:11	12.41		0	0	0	0	0 -------8--	----------	---------
11:12	12.44		0	0	0	0	0 -------8--	----------	---------
11:13	12.37		0	0	0	0	0 -------8--	----------	---------
11:14	12.27		0	0	0	0	0 -------8--	----------	---------
11:15	12.26		0	0	0	0	0 -------8--	----------	---------
11:16			0	0	0	0	0 -------8--	-23-------	---------
11:17			0	0	0	0	0 -------8--	-23-------	---------
11:18			0	0	0	0	0 -------8--	-23-------	---------
11:19			0	0	0	0	0 -------8--	-23-------	---------
11:20			0	0	0	0	0 -------8--	-23-------	---------
11:21	11.92		0	0	0	0	0 -------8--	----------	---------
11:22	12.07		0	0	0	0	0 -------8--	----------	---------
11:23	12.1		0	0	0	0	0 -------8--	----------	---------
11:24	12.24		0	0	0	0	0 -------8--	----------	---------
11:25	12.36		0	0	0	0	0 -------8--	----------	---------
11:26	12.35		0	0	0	0	0 -------8--	----------	---------
11:27	12.18		0	0	0	0	0 -------8--	----------	---------
11:28	12.15		0	0	0	0	0 -------8--	----------	---------
11:29	12.26		0	0	0	0	0 -------8--	----------	---------
11:30	12.36		0	0	0	0	0 -------8--	----------	---------
11:31	12.27		0	0	0	0	0 -------8--	----------	---------
11:32	12.13		0	0	0	0	0 -------8--	----------	---------

11:33	12.19	0	0	0	0	0 -------8--	----------	---------
11:34	12.31	0	0	0	0	0 -------8--	----------	---------
11:35	12.3	0	0	0	0	0 -------8--	----------	---------
11:36	12.23	0	0	0	0	0 -------8--	----------	---------
11:37	12.14	0	0	0	0	0 -------8--	----------	---------
11:38	12.2	0	0	0	0	0 -------8--	----------	---------
11:39	12.33	0	0	0	0	0 -------8--	----------	---------
11:40	12.42	0	0	0	0	0 -------8--	----------	---------
11:41	12.3	0	0	0	0	0 -------8--	----------	---------
11:42	12.22	0	0	0	0	0 -------8--	----------	---------
11:43	12.33	0	0	0	0	0 -------8--	----------	---------
11:44	12.4	0	0	0	0	0 -------8--	----------	---------
11:45	12.31	0	0	0	0	0 -------8--	----------	---------
11:46	12.22	0	0	0	0	0 -------8--	----------	---------
11:47	12.27	0	0	0	0	0 -------8--	----------	---------
11:48	12.4	0	0	0	0	0 -------8--	----------	---------
11:49	12.39	0	0	0	0	0 -------8--	----------	---------
11:50	12.28	0	0	0	0	0 -------8--	----------	---------
11:51	12.22	0	0	0	0	0 -------8--	----------	---------
11:52	12.28	0	0	0	0	0 -------8--	----------	---------
11:53	12.36	0	0	0	0	0 -------8--	----------	---------
11:54	12.36	0	0	0	0	0 -------8--	----------	---------
11:55	12.22	0	0	0	0	0 -------8--	----------	---------
11:56	12.21	0	0	0	0	0 -------8--	----------	---------
11:57	12.27	0	0	0	0	0 -------8--	----------	---------
11:58	12.33	0	0	0	0	0 -------8--	----------	---------
11:59	12.21	0	0	0	0	0 -------8--	----------	---------
12:00	12.13	0	0	0	0	0 -------8--	----------	---------
12:01	12.23	0	0	0	0	0 -------8--	----------	---------
12:02	12.32	0	0	0	0	0 -------8--	----------	---------
12:03	12.31	0	0	0	0	0 -------8--	----------	---------
12:04	12.27	0	0	0	0	0 -------8--	----------	---------
12:05	12.22	0	0	0	0	0 -------8--	----------	---------
12:06	12.3	0	0	0	0	0 -------8--	----------	---------
12:07	12.37	0	0	0	0	0 -------8--	----------	---------
12:08	12.34	0	0	0	0	0 -------8--	----------	---------
12:09	12.21	0	0	0	0	0 -------8--	----------	---------
12:10	12.19	0	0	0	0	0 -------8--	----------	---------
12:11	12.24	0	0	0	0	0 -------8--	----------	---------
12:12	12.28	0	0	0	0	0 -------8--	----------	---------
12:13	12.32	0	0	0	0	0 -------8--	----------	---------
12:14	12.23	0	0	0	0	0 -------8--	----------	---------
12:15	12.2	0	0	0	0	0 -------8--	----------	---------
12:16	12.28	0	0	0	0	0 -------8--	----------	---------
12:17	12.37	0	0	0	0	0 -------8--	----------	---------
12:18		0	0	0	0	0 -------8--	-23-------	---------
12:19		0	0	0	0	0 -------8--	-23-------	---------
12:20		0	0	0	0	0 -------8--	-23-------	---------
12:21		0	0	0	0	0 -------8--	-23-------	---------
12:22		0	0	0	0	0 -------8--	-23-------	---------
12:23	12.02	0	0	0	0	0 -------8--	----------	---------
12:24	12.08	0	0	0	0	0 -------8--	----------	---------
12:25	12.08	0	0	0	0	0 -------8--	----------	---------
12:26	12.23	0	0	0	0	0 -------8--	----------	---------
12:27	12.28	0	0	0	0	0 -------8--	----------	---------
12:28	12.23	0	0	0	0	0 -------8--	----------	---------
12:29	12.17	0	0	0	0	0 -------8--	----------	---------
12:30	12.23	0	0	0	0	0 -------8--	----------	---------
12:31	12.36	0	0	0	0	0 -------8--	----------	---------

12:32	12.32	0	0	0	0	0 -------8--	----------	---------
12:33	12.12	0	0	0	0	0 -------8--	----------	---------
12:34	12.13	0	0	0	0	0 -------8--	----------	---------
12:35	12.26	0	0	0	0	0 -------8--	----------	---------
12:36	12.31	0	0	0	0	0 -------8--	----------	---------
12:37	12.21	0	0	0	0	0 -------8--	----------	---------
12:38	12.12	0	0	0	0	0 -------8--	----------	---------
12:39	12.26	0	0	0	0	0 -------8--	----------	---------
12:40	12.34	0	0	0	0	0 -------8--	----------	---------
12:41	12.27	0	0	0	0	0 -------8--	----------	---------
12:42	12.07	0	0	0	0	0 -------8--	----------	---------
12:43	12.07	0	0	0	0	0 -------8--	----------	---------
12:44	12.28	0	0	0	0	0 -------8--	----------	---------
12:45	12.39	0	0	0	0	0 -------8--	----------	---------
ˇ12:46	12.22	0	0	0	0	0 -------8--	----------	---------
12:47	12.08	0	0	0	0	0 -------8--	----------	---------
12:48	12.18	0	0	0	0	0 -------8--	----------	---------
12:49	12.38	0	0	0	0	0 -------8--	----------	---------
12:50	12.35	0	0	0	0	0 -------8--	----------	---------
12:51	12.19	0	0	0	0	0 -------8--	----------	---------
12:52	12.16	0	0	0	0	0 -------8--	----------	---------
12:53	12.32	0	0	0	0	0 -------8--	----------	---------
12:54	12.4	0	0	0	0	0 -------8--	----------	---------
12:55	12.3	0	0	0	0	0 -------8--	----------	---------
12:56	12.17	0	0	0	0	0 -------8--	----------	---------
12:57	12.21	0	0	0	0	0 -------8--	----------	---------
12:58	12.37	0	0	0	0	0 -------8--	----------	---------
12:59	12.32	0	0	0	0	0 -------8--	----------	---------
13:00	12.08	0	0	0	0	0 -------8--	----------	---------
13:01	12.07	0	0	0	0	0 -------8--	----------	---------
13:02	12.26	0	0	0	0	0 -------8--	----------	---------
13:03	12.45	0	0	0	0	0 -------8--	----------	---------
13:04	12.28	0	0	0	0	0 -------8--	----------	---------
13:05	12.06	0	0	0	0	0 -------8--	----------	---------
13:06	12.13	0	0	0	0	0 -------8--	----------	---------
13:07	12.33	0	0	0	0	0 -------8--	----------	---------
13:08	12.42	0	0	0	0	0 -------8--	----------	---------
13:09	12.21	0	0	0	0	0 -------8--	----------	---------
13:10	12.02	0	0	0	0	0 -------8--	----------	---------
13:11	12.13	0	0	0	0	0 -------8--	----------	---------
13:12	12.34	0	0	0	0	0 -------8--	----------	---------
13:13	12.36	0	0	0	0	0 -------8--	----------	---------
13:14	12.11	0	0	0	0	0 -------8--	----------	---------
13:15	12.02	0	0	0	0	0 -------8--	----------	---------
13:16	12.23	0	0	0	0	0 -------8--	----------	---------
13:17	12.44	0	0	0	0	0 -------8--	----------	---------
13:18	12.32	0	0	0	0	0 -------8--	----------	---------
13:19		0	0	0	0	0 -------8--	-23-------	---------
13:20		0	0	0	0	0 -------8--	-23-------	---------
13:21		0	0	0	0	0 -------8--	-23-------	---------
13:22		0	0	0	0	0 -------8--	-23-------	---------
13:23		0	0	0	0	0 -------8--	-23-------	---------
13:24	11.5	0	0	0	0	0 -------8--	----------	---------
13:25	11.83	0	0	0	0	0 -------8--	----------	---------
13:26	12.26	0	0	0	0	0 -------8--	----------	---------
13:27	12.44	0	0	0	0	0 -------8--	----------	---------
13:28	12.21	0	0	0	0	0 -------8--	----------	---------
13:29	11.96	0	0	0	0	0 -------8--	----------	---------
13:30	12.04	0	0	0	0	0 -------8--	----------	---------

13:31	12.35	0	0	0	0	0 -------8--	----------	---------
13:32	12.36	0	0	0	0	0 -------8--	----------	---------
13:33	12.11	0	0	0	0	0 -------8--	----------	---------
13:34	11.84	0	0	0	0	0 -------8--	----------	---------
13:35	12	0	0	0	0	0 -------8--	----------	---------
13:36	12.29	0	0	0	0	0 -------8--	----------	---------
13:37	12.19	0	0	0	0	0 -------8--	----------	---------
13:38	11.67	0	0	0	0	0 -------8--	----------	---------
13:39	11.36	0	0	0	0	0 -------8--	----------	---------
13:40	11.37	0	0	0	0	0 -------8--	----------	---------
13:41	11.4	0	0	0	0	0 -------8--	----------	---------
13:42	11.25	0	0	0	0	0 -------8--	----------	---------
13:43	11.05	0	0	0	0	0 -------8--	----------	---------
13:44	10.97	0	0	0	0	0 -------8--	----------	---------
13:45	11.11	0	0	0	0	0 -------8--	----------	---------
13:46	11.3	0	0	0	0	0 -------8--	----------	---------
13:47	11.39	0	0	0	0	0 -------8--	----------	---------
13:48	11.15	0	0	0	0	0 -------8--	----------	---------
13:49	10.87	0	0	0	0	0 -------8--	----------	---------
13:50	10.77	0	0	0	0	0 -------8--	----------	---------
˜13:51	10.63	0	0	0	0	0 -------8--	----------	---------
13:52	10.55	0	0	0	0	0 -------8--	----------	---------
13:53	10.93	0	0	0	0	0 -------8--	----------	---------
13:54	11.25	0	0	0	0	0 -------8--	----------	---------
13:55	10.84	0	0	0	0	0 -------8--	----------	---------
13:56	10.01	0	0	0	0	0 -------8--	----------	---------
13:57	9.68	0	0	0	0	0 -------8--	----------	---------
13:58	10	0	0	0	0	0 -------8--	----------	---------
13:59	10.6	0	0	0	0	0 -------8--	----------	---------
14:00	10.95	0	0	0	0	0 -------8--	----------	---------
14:01	11	0	0	0	0	0 -------8--	----------	---------
14:02	10.92	0	0	0	0	0 -------8--	----------	---------
14:03	10.75	0	0	0	0	0 -------8--	----------	---------
14:04	10.67	0	0	0	0	0 -------8--	----------	---------
14:05	10.82	0	0	0	0	0 -------8--	----------	---------
14:06	11.14	0	0	0	0	0 -------8--	----------	---------
14:07	11.25	0	0	0	0	0 -------8--	----------	---------
14:08	11.17	0	0	0	0	0 -------8--	----------	---------
14:09	11.22	0	0	0	0	0 -------8--	----------	---------

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Newton 2, Run 1 NOx CEMS Data

Database Flags Report for File: NOX_LM1! (Start: 7/31/99 12:30)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	31-Jul								
Average	***0.327***								
12:30	0.331		0	0	0	0	0 -------8--	----------	---------
12:45	0.335		0	0	0	0	0 -------8--	----------	---------
13:00	0.341		0	0	0	0	0 -------8--	--3-------	---------
13:15	0.338		0	0	0	0	0 -------8--	----------	---------
13:30	0.338		0	0	0	0	0 -------8--	----------	---------
13:45	0.343		0	0	0	0	0 -------8--	----------	---------
14:00	0.344		0	0	0	0	0 -------8--	--3-------	---------
14:15	0.339		0	0	0	0	0 -------8--	----------	---------
14:30	0.336		0	0	0	0	0 -------8--	----------	---------
14:45	0.338		0	0	0	0	0 -------8--	----------	---------
15:00	0.332		0	0	0	0	0 -------8--	--3-------	---------
15:15	0.325		0	0	0	0	0 -------8--	----------	---------
15:30	0.325		0	0	0	0	0 -------8--	----------	---------
15:45	0.317		0	0	0	0	0 -------8--	----------	---------
16:00	0.314		0	0	0	0	0 -------8--	--3-------	---------
16:15	0.309		0	0	0	0	0 -------8--	--3-------	---------
16:30	0.308		0	0	0	0	0 -------8--	----------	---------
16:45	0.304		0	0	0	0	0 -------8--	----------	---------
17:00	0.304		0	0	0	0	0 -------8--	--3-------	---------

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Newton 2, Run 2 NOx CEMS Data

Database Flags Report for File: NOX_LM1! (Start: 8/2/99 07:45)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	========:
Date:	2-Aug								
Average	***0.279***								
7:45	0.281	0	0	0	0	0	-------8--	----------	---------
8:00	0.281	0	0	0	0	0	-------8--	--3-------	---------
8:15	0.272	0	0	0	0	0	-------8--	--3-------	---------
8:30	0.274	0	0	0	0	0	-------8--	----------	---------
8:45	0.293	0	0	0	0	0	-------8--	----------	---------
9:00	0.282	0	0	0	0	0	-------8--	--3-------	---------
9:15	0.274	0	0	0	0	0	-------8--	--3-------	---------
9:30	0.276	0	0	0	0	0	-------8--	----------	---------
9:45	0.276	0	0	0	0	0	-------8--	----------	---------
10:00	0.277	0	0	0	0	0	-------8--	----------	---------
10:15	0.278	0	0	0	0	0	-------8--	--3-------	---------
10:30	0.28	0	0	0	0	0	-------8--	----------	---------

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Newton 2, Run 3 NOx CEMS Data

Database Flags Report for File: NOX_LM1! (Start: 8/2/99 10:30)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	2-Aug								
Average	***0.285***								
10:30	0.28		0	0	0	0	0 -------8--	----------	---------
10:45	0.279		0	0	0	0	0 -------8--	----------	---------
11:00	0.279		0	0	0	0	0 -------8--	----------	---------
11:15	0.28		0	0	0	0	0 -------8--	--3-------	---------
11:30	0.284		0	0	0	0	0 -------8--	----------	---------
11:45	0.286		0	0	0	0	0 -------8--	----------	---------
12:00	0.288		0	0	0	0	0 -------8--	----------	---------
12:15	0.292		0	0	0	0	0 -------8--	--3-------	---------
12:30	0.293		0	0	0	0	0 -------8--	----------	---------
12:45	0.293		0	0	0	0	0 -------8--	----------	---------
13:00	0.294		0	0	0	0	0 -------8--	----------	---------
13:15	0.295		0	0	0	0	0 -------8--	--3-------	---------
13:30	0.3		0	0	0	0	0 -------8--	----------	---------
13:45	0.253		0	0	0	0	0 -------8--	----------	---------

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Newton 2, Run 1 Opacity CEMS Data

Database Flags Report for File: OPAC_R6l (Start: 7/31/99 12:42)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	========:
Date:	31-Jul								
Average	***19***								
12:42	18.317	0	0	0	0	0	-------8--	----------	---------
12:48	17.608	0	0	0	0	0	-------8--	----------	---------
12:54	18.087	0	0	0	0	0	-------8--	----------	---------
13:00	19.013	0	0	0	0	0	-------8--	----------	---------
13:06	18.405	0	0	0	0	0	-------8--	----------	---------
13:12	17.953	0	0	0	0	0	-------8--	----------	---------
13:18	17.627	0	0	0	0	0	-------8--	----------	---------
13:24	18.973	0	0	0	0	0	-------8--	----------	---------
13:30	18.038	0	0	0	0	0	-------8--	----------	---------
13:36	17.785	0	0	0	0	0	-------8--	----------	---------
13:42	18.647	0	0	0	0	0	-------8--	----------	---------
13:48	19.365	0	0	0	0	0	-------8--	----------	---------
13:54	18.663	0	0	0	0	0	-------8--	----------	---------
14:00	18.18	0	0	0	0	0	-------8--	----------	---------
14:06	19.255	0	0	0	0	0	-------8--	----------	---------
14:12	18.88	0	0	0	0	0	-------8--	----------	---------
14:18	18.408	0	0	0	0	0	-------8--	----------	---------
14:24	18.073	0	0	0	0	0	-------8--	----------	---------
14:30	20.032	0	0	0	0	0	-------8--	----------	---------
14:36	19.183	0	0	0	0	0	-------8--	----------	---------
14:42	18.845	0	0	0	0	0	-------8--	----------	---------
14:48	18.657	0	0	0	0	0	-------8--	----------	---------
14:54	19.737	0	0	0	0	0	-------8--	----------	---------
15:00	19.115	0	0	0	0	0	-------8--	----------	---------
15:06	18.6	0	0	0	0	0	-------8--	----------	---------
15:12	20.047	0	0	0	0	0	-------8--	----------	---------
15:18	19.265	0	0	0	0	0	-------8--	----------	---------
15:24	19.318	0	0	0	0	0	-------8--	----------	---------
15:30	19.965	0	0	0	0	0	-------8--	----------	---------
15:36	21.333	0	4	52	0	0	-------8--	----------	---------
15:42	20.068	0	0	0	0	0	-------8--	----------	---------
15:48	19.635	0	0	0	0	0	-------8--	----------	---------
15:54	18.827	0	0	0	0	0	-------8--	----------	---------
16:00	20.243	0	0	0	0	0	-------8--	----------	---------
16:06	18.33	0	0	0	0	0	-------8--	----------	---------
16:12	19.24	0	0	0	0	0	-------8--	----------	---------
16:18	19.668	0	0	0	0	0	-------8--	----------	---------
16:24	20.925	0	4	52	0	0	-------8--	----------	---------
16:30	19.175	0	0	0	0	0	-------8--	----------	---------
16:36	18.407	0	0	0	0	0	-------8--	----------	---------
16:42	20.065	0	0	0	0	0	-------8--	----------	---------
16:48	20.433	0	0	0	0	0	-------8--	----------	---------
16:54	19.267	0	0	0	0	0	-------8--	----------	---------
17:00	19.585	0	0	0	0	0	-------8--	----------	---------

D atabase F lags Repor for File: OPAC _R6M.1 (Start: 0 ######## 48)

Time	Meas. Value	Subst. Value	EX RC	CEED CA	-C RC	EMS- CA	---------- 1.23E+09	-- FLAGS - ---------- 1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	========:
Date:	02-Aug								
7:48	19.215	0	0	0	0	0	-------8--	----------	---------
7:54	19.39	0	0	0	0	0	-------8--	----------	---------
8:00	19.273	0	0	0	0	0	-------8--	----------	---------
8:06	19.565	0	0	0	0	0	-------8--	----------	---------
8:12	19.915	0	0	0	0	0	-------8--	----------	---------
8:18	19.333	0	0	0	0	0	-------8--	----------	---------
8:24	18.265	0	0	0	0	0	-------8--	----------	---------
8:30	19.152	0	0	0	0	0	-------8--	----------	---------
8:36	20.843	0	3	5	0	0	-------8--	----------	---------
8:42	20.108	0	0	0	0	0	-------8--	----------	---------
8:48	21.885	0	3	5	0	0	-------8--	----------	---------
8:54	21.927	0	3	5	0	0	-------8--	----------	---------
9:00	20.143	0	0	0	0	0	-------8--	----------	---------
9:06	18.5	0	0	0	0	0	-------8--	----------	---------
9:12	18.075	0	0	0	0	0	-------8--	----------	---------
9:18	17.543	0	0	0	0	0	-------8--	----------	---------
9:24	17.045	0	0	0	0	0	-------8--	----------	---------
9:30	18.13	0	0	0	0	0	-------8--	----------	---------
9:36	19.06	0	0	0	0	0	-------8--	----------	---------
9:42	16.88	0	0	0	0	0	-------8--	----------	---------
9:48	17.003	0	0	0	0	0	-------8--	----------	---------
9:54	16.788	0	0	0	0	0	-------8--	----------	---------
10:00	19.492	0	0	0	0	0	-------8--	----------	---------
10:06	22.735	0	4	52	0	0	-------8--	----------	---------
10:12	21.732	0	4	52	0	0	-------8--	----------	---------
10:18	22.022	0	4	52	0	0	-------8--	----------	---------
10:24	19.322	0	0	0	0	0	-------8--	----------	---------
10:30	16.657	0	0	0	0	0	-------8--	----------	---------

D atabase F lags Repor for File: OPAC _R6M.1 (Start: 0 ######## 42)

Time	Meas. Value	Subst. Value	EX RC	CEED CA	-C RC	EMS- CA	---------- 1.23E+09	-- FLAGS - ---------- 1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	=========	=========	=========
Date:	02-Aug								
10:42	18.225	0	0	0	0	0	0 -------8--	----------	---------
10:48	19.675	0	0	0	0	0	0 -------8--	----------	---------
10:54	18.823	0	0	0	0	0	0 -------8--	----------	---------
11:00	19.753	0	0	0	0	0	0 -------8--	----------	---------
11:06	19.715	0	0	0	0	0	0 -------8--	----------	---------
11:12	21.813	0	4	52	0	0	0 -------8--	----------	---------
11:18	18.342	0	0	0	0	0	0 -------8--	----------	---------
11:24	18.435	0	0	0	0	0	0 -------8--	----------	---------
11:30	19.668	0	0	0	0	0	0 -------8--	----------	---------
11:36	19.517	0	0	0	0	0	0 -------8--	----------	---------
11:42	17.835	0	0	0	0	0	0 -------8--	----------	---------
11:48	17.62	0	0	0	0	0	0 -------8--	----------	---------
11:54	18.15	0	0	0	0	0	0 -------8--	----------	---------
12:00	20.74	0	4	52	0	0	0 -------8--	----------	---------
12:06	18.252	0	0	0	0	0	0 -------8--	----------	---------
12:12	18.54	0	0	0	0	0	0 -------8--	----------	---------
12:18	19.477	0	0	0	0	0	0 -------8--	----------	---------
12:24	19.6	0	0	0	0	0	0 -------8--	----------	---------
12:30	18.522	0	0	0	0	0	0 -------8--	----------	---------
12:36	20.135	0	0	0	0	0	0 -------8--	----------	---------
12:42	19.487	0	0	0	0	0	0 -------8--	----------	---------
12:48	20.732	0	4	52	0	0	0 -------8--	----------	---------
12:54	20.19	0	0	0	0	0	0 -------8--	----------	---------
13:00	18.892	0	0	0	0	0	0 -------8--	----------	---------
13:06	18.98	0	0	0	0	0	0 -------8--	----------	---------
13:12	19.418	0	0	0	0	0	0 -------8--	----------	---------
13:18	21.868	0	4	52	0	0	0 -------8--	----------	---------
13:24	20.602	0	4	52	0	0	0 -------8--	----------	---------
13:30	19.652	0	0	0	0	0	0 -------8--	----------	---------
13:36	19.947	0	0	0	0	0	0 -------8--	----------	---------
13:42	16.065	0	0	0	0	0	0 -------8--	----------	---------
13:48	16.895	0	0	0	0	0	0 -------8--	----------	---------
13:54	12.437	0	0	0	0	0	0 -------8--	----------	---------
14:00	13.612	0	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 1 SO2 CEMS Data

Database Flags Report for File: SO2_LM15 (Start: 7/31/99 12:30)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	31-Jul								
Average	***0.709***								
12:30	0.778		0	0	0	0	0 -------8--	----------	---------
12:45	0.77		0	0	0	0	0 -------8--	----------	---------
13:00	0.771		0	0	0	0	0 -------8--	--3-------	---------
13:15	0.775		0	0	0	0	0 -------8--	----------	---------
13:30	0.777		0	0	0	0	0 -------8--	----------	---------
13:45	0.77		0	0	0	0	0 -------8--	----------	---------
14:00	0.759		0	0	0	0	0 -------8--	--3-------	---------
14:15	0.75		0	0	0	0	0 -------8--	----------	---------
14:30	0.726		0	0	0	0	0 -------8--	----------	---------
14:45	0.721		0	0	0	0	0 -------8--	----------	---------
15:00	0.709		0	0	0	0	0 -------8--	--3-------	---------
15:15	0.688		0	0	0	0	0 -------8--	----------	---------
15:30	0.675		0	0	0	0	0 -------8--	----------	---------
15:45	0.657		0	0	0	0	0 -------8--	----------	---------
16:00	0.653		0	0	0	0	0 -------8--	--3-------	---------
16:15	0.645		0	0	0	0	0 -------8--	--3-------	---------
16:30	0.628		0	0	0	0	0 -------8--	----------	---------
16:45	0.617		0	0	0	0	0 -------8--	----------	---------
17:00	0.611		0	0	0	0	0 -------8--	--3-------	---------

Newton 2, Run 2 SO2 CEMS Data

Database Flags Report for File: SO2_LM15 (Start: 8/2/99 07:45)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	2-Aug								
Average	***0.762***								
7:45	0.752		0	0	0	0	0 -------8--	----------	---------
8:00	0.75		0	0	0	0	0 -------8--	--3-------	---------
8:15	0.754		0	0	0	0	0 -------8--	--3-------	---------
8:30	0.759		0	0	0	0	0 -------8--	----------	---------
8:45	0.755		0	0	0	0	0 -------8--	----------	---------
9:00	0.762		0	0	0	0	0 -------8--	--3-------	---------
9:15	0.763		0	0	0	0	0 -------8--	--3-------	---------
9:30	0.764		0	0	0	0	0 -------8--	----------	---------
9:45	0.765		0	0	0	0	0 -------8--	----------	---------
10:00	0.769		0	0	0	0	0 -------8--	----------	---------
10:15	0.775		0	0	0	0	0 -------8--	--3-------	---------
10:30	0.774		0	0	0	0	0 -------8--	----------	---------

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Newton 2, Run 3 SO2 CEMS Data

Database Flags Report for File: SO2_LM15 (Start: 8/2/99 10:30)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	2-Aug								
Average	***0.766***								
10:30	0.774		0	0	0	0	0 -------8--	----------	---------
10:45	0.768		0	0	0	0	0 -------8--	----------	---------
11:00	0.764		0	0	0	0	0 -------8--	----------	---------
11:15	0.768		0	0	0	0	0 -------8--	--3-------	---------
11:30	0.77		0	0	0	0	0 -------8--	----------	---------
11:45	0.772		0	0	0	0	0 -------8--	----------	---------
12:00	0.769		0	0	0	0	0 -------8--	----------	---------
12:15	0.774		0	0	0	0	0 -------8--	--3-------	---------
12:30	0.777		0	0	0	0	0 -------8--	----------	---------
12:45	0.772		0	0	0	0	0 -------8--	----------	---------
13:00	0.77		0	0	0	0	0 -------8--	----------	---------
13:15	0.76		0	0	0	0	0 -------8--	--3-------	---------
13:30	0.743		0	0	0	0	0 -------8--	----------	---------
13:45	0.737		0	0	0	0	0 -------8--	----------	---------

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Newton 2, Run 1 Temperature CEMS Data

Database Flags Report for File: TEMP_R5I (Start: 7/31/99 12:40)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	31-Jul								
Average	***356***								
12:40	352.83	0	0	0	0	0	0 -------8--	----------	---------
12:45	353.21	0	0	0	0	0	0 -------8--	----------	---------
12:50	353.62	0	0	0	0	0	0 -------8--	----------	---------
12:55	353.33	0	0	0	0	0	0 -------8--	----------	---------
13:00	353.6	0	0	0	0	0	0 -------8--	----------	---------
13:05	354.35	0	0	0	0	0	0 -------8--	----------	---------
13:10	354.29	0	0	0	0	0	0 -------8--	----------	---------
13:15	354.6	0	0	0	0	0	0 -------8--	----------	---------
13:20	354.5	0	0	0	0	0	0 -------8--	----------	---------
13:25	354.65	0	0	0	0	0	0 -------8--	----------	---------
13:30	354.96	0	0	0	0	0	0 -------8--	----------	---------
13:35	354.42	0	0	0	0	0	0 -------8--	----------	---------
13:40	354.37	0	0	0	0	0	0 -------8--	----------	---------
13:45	354.63	0	0	0	0	0	0 -------8--	----------	---------
13:50	355.44	0	0	0	0	0	0 -------8--	----------	---------
13:55	355.03	0	0	0	0	0	0 -------8--	----------	---------
14:00	355.18	0	0	0	0	0	0 -------8--	----------	---------
14:05	355.28	0	0	0	0	0	0 -------8--	----------	---------
14:10	355.73	0	0	0	0	0	0 -------8--	----------	---------
14:15	355.52	0	0	0	0	0	0 -------8--	----------	---------
14:20	355.58	0	0	0	0	0	0 -------8--	----------	---------
14:25	355.86	0	0	0	0	0	0 -------8--	----------	---------
14:30	356.08	0	0	0	0	0	0 -------8--	----------	---------
14:35	356.14	0	0	0	0	0	0 -------8--	----------	---------
14:40	356.33	0	0	0	0	0	0 -------8--	----------	---------
14:45	356.44	0	0	0	0	0	0 -------8--	----------	---------
14:50	356.13	0	0	0	0	0	0 -------8--	----------	---------
14:55	356.13	0	0	0	0	0	0 -------8--	----------	---------
15:00	356.3	0	0	0	0	0	0 -------8--	----------	---------
15:05	356.44	0	0	0	0	0	0 -------8--	----------	---------
15:10	356.75	0	0	0	0	0	0 -------8--	----------	---------
15:15	357.58	0	0	0	0	0	0 -------8--	----------	---------
15:20	357.41	0	0	0	0	0	0 -------8--	----------	---------
15:25	356.87	0	0	0	0	0	0 -------8--	----------	---------
15:30	357.5	0	0	0	0	0	0 -------8--	----------	---------
15:35	357.76	0	0	0	0	0	0 -------8--	----------	---------
15:40	357.69	0	0	0	0	0	0 -------8--	----------	---------
15:45	357.52	0	0	0	0	0	0 -------8--	----------	---------
15:50	358.38	0	0	0	0	0	0 -------8--	----------	---------
15:55	358.02	0	0	0	0	0	0 -------8--	----------	---------
16:00	357.85	0	0	0	0	0	0 -------8--	----------	---------
16:05	358.18	0	0	0	0	0	0 -------8--	----------	---------
16:10	358.68	0	0	0	0	0	0 -------8--	----------	---------
16:15	358.69	0	0	0	0	0	0 -------8--	----------	---------
16:20	358.79	0	0	0	0	0	0 -------8--	----------	---------
16:25	359.26	0	0	0	0	0	0 -------8--	----------	---------
16:30	358.78	0	0	0	0	0	0 -------8--	----------	---------
16:35	358.52	0	0	0	0	0	0 -------8--	--------9-	---------
16:40	358.32	0	0	0	0	0	0 -------8--	----------	---------
16:45	359.05	0	0	0	0	0	0 -------8--	----------	---------
16:50	358.87	0	0	0	0	0	0 -------8--	----------	---------

16:55	359.02	0	0	0	0	0 -------8--	----------	---------
17:00	360.19	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 2 Temperature CEMS Data

Database Flags Report for File: TEMP_R5f (Start: 8/2/99 07:50)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	2-Aug								
Average	***336***								
7:50	331.94	0	0	0	0	0	-------8--	----------	---------
7:55	331.97	0	0	0	0	0	-------8--	----------	---------
8:00	332.3	0	0	0	0	0	-------8--	----------	---------
8:05	332.63	0	0	0	0	0	-------8--	----------	---------
8:10	332.76	0	0	0	0	0	-------8--	----------	---------
8:15	333.81	0	0	0	0	0	-------8--	----------	---------
8:20	333.58	0	0	0	0	0	-------8--	----------	---------
8:25	333.43	0	0	0	0	0	-------8--	----------	---------
8:30	333.91	0	0	0	0	0	-------8--	----------	---------
8:35	334.9	0	0	0	0	0	-------8--	----------	---------
8:40	334.69	0	0	0	0	0	-------8--	----------	---------
8:45	335.78	0	0	0	0	0	-------8--	----------	---------
8:50	336.39	0	0	0	0	0	-------8--	----------	---------
8:55	336.46	0	0	0	0	0	-------8--	----------	---------
9:00	336.41	0	0	0	0	0	-------8--	----------	---------
9:05	336.36	0	0	0	0	0	-------8--	----------	---------
9:10	336.4	0	0	0	0	0	-------8--	----------	---------
9:15	336.16	0	0	0	0	0	-------8--	----------	---------
9:20	336.04	0	0	0	0	0	-------8--	----------	---------
9:25	336.45	0	0	0	0	0	-------8--	----------	---------
9:30	337.79	0	0	0	0	0	-------8--	----------	---------
9:35	337.11	0	0	0	0	0	-------8--	----------	---------
9:40	338.03	0	0	0	0	0	-------8--	----------	---------
9:45	338.3	0	0	0	0	0	-------8--	----------	---------
9:50	338.16	0	0	0	0	0	-------8--	----------	---------
9:55	339.05	0	0	0	0	0	-------8--	----------	---------
10:00	338.61	0	0	0	0	0	-------8--	----------	---------
10:05	338.72	0	0	0	0	0	-------8--	----------	---------
10:10	338.72	0	0	0	0	0	-------8--	----------	---------
10:15	339.45	0	0	0	0	0	-------8--	----------	---------
10:20	339.83	0	0	0	0	0	-------8--	----------	---------
10:25	340.98	0	0	0	0	0	-------8--	----------	---------
10:30	340.55	0	0	0	0	0	-------8--	----------	---------

Newton 2, Run 3 Temperature CEMS Data

Database Flags Report for File: TEMP_R5f (Start: 8/2/99 10:40)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	2-Aug								
Average	***345***								
10:40	341.16		0	0	0	0	0 -------8--	----------	---------
10:45	341.26		0	0	0	0	0 -------8--	----------	---------
10:50	341.56		0	0	0	0	0 -------8--	----------	---------
10:55	341.14		0	0	0	0	0 -------8--	----------	---------
11:00	342.19		0	0	0	0	0 -------8--	----------	---------
11:05	342.22		0	0	0	0	0 -------8--	----------	---------
11:10	343.1		0	0	0	0	0 -------8--	----------	---------
11:15	343.37		0	0	0	0	0 -------8--	----------	---------
11:20	342.75		0	0	0	0	0 -------8--	----------	---------
11:25	343.23		0	0	0	0	0 -------8--	----------	---------
11:30	343.72		0	0	0	0	0 -------8--	----------	---------
11:35	343.21		0	0	0	0	0 -------8--	----------	---------
11:40	343.45		0	0	0	0	0 -------8--	----------	---------
11:45	344.04		0	0	0	0	0 -------8--	----------	---------
11:50	344.84		0	0	0	0	0 -------8--	----------	---------
11:55	344.9		0	0	0	0	0 -------8--	----------	---------
12:00	344.88		0	0	0	0	0 -------8--	----------	---------
12:05	345.21		0	0	0	0	0 -------8--	----------	---------
12:10	345.14		0	0	0	0	0 -------8--	----------	---------
12:15	346.51		0	0	0	0	0 -------8--	----------	---------
12:20	345.67		0	0	0	0	0 -------8--	----------	---------
12:25	346.23		0	0	0	0	0 -------8--	----------	---------
12:30	346.7		0	0	0	0	0 -------8--	----------	---------
12:35	346.07		0	0	0	0	0 -------8--	----------	---------
12:40	347.35		0	0	0	0	0 -------8--	----------	---------
12:45	347.28		0	0	0	0	0 -------8--	----------	---------
12:50	346.65		0	0	0	0	0 -------8--	----------	---------
12:55	347.68		0	0	0	0	0 -------8--	----------	---------
13:00	347.81		0	0	0	0	0 -------8--	----------	---------
13:05	347.34		0	0	0	0	0 -------8--	----------	---------
13:10	348.4		0	0	0	0	0 -------8--	----------	---------
13:15	348.46		0	0	0	0	0 -------8--	----------	---------
13:20	348.09		0	0	0	0	0 -------8--	----------	---------
13:25	348.95		0	0	0	0	0 -------8--	----------	---------
13:30	348.77		0	0	0	0	0 -------8--	----------	---------
13:35	349.21		0	0	0	0	0 -------8--	----------	---------
13:40	349.28		0	0	0	0	0 -------8--	----------	---------
13:45	348.46		0	0	0	0	0 -------8--	----------	---------
13:50	344.8		0	0	0	0	0 -------8--	----------	---------
13:55	341.31		0	0	0	0	0 -------8--	----------	---------
14:00	339.03		0	0	0	0	0 -------8--	----------	---------
14:05	332.56		0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 1 Unit Load CEMS Data

Database Flags Report for File: MW_R5M. (Start: 7/31/99 13:30)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	========:
Date:	31-Jul								
Average	***567***								
13:30	570.34		0	0	0	0	0 -------8--	----------	---------
13:35	570.13		0	0	0	0	0 -------8--	----------	---------
13:40	570.28		0	0	0	0	0 -------8--	----------	---------
13:45	570.44		0	0	0	0	0 -------8--	----------	---------
13:50	570.77		0	0	0	0	0 -------8--	----------	---------
13:55	570.9		0	0	0	0	0 -------8--	----------	---------
14:00	570.65		0	0	0	0	0 -------8--	----------	---------
14:05	571.07		0	0	0	0	0 -------8--	----------	---------
14:10	570.87		0	0	0	0	0 -------8--	----------	---------
14:15	570.87		0	0	0	0	0 -------8--	----------	---------
14:20	571.23		0	0	0	0	0 -------8--	----------	---------
14:25	571.01		0	0	0	0	0 -------8--	----------	---------
14:30	570.85		0	0	0	0	0 -------8--	----------	---------
14:35	571.37		0	0	0	0	0 -------8--	----------	---------
14:40	570.51		0	0	0	0	0 -------8--	----------	---------
14:45	571.06		0	0	0	0	0 -------8--	----------	---------
14:50	570.85		0	0	0	0	0 -------8--	----------	---------
14:55	570.84		0	0	0	0	0 -------8--	----------	---------
15:00	570.92		0	0	0	0	0 -------8--	----------	---------
15:05	570.19		0	0	0	0	0 -------8--	----------	---------
15:10	569.43		0	0	0	0	0 -------8--	----------	---------
15:15	569.79		0	0	0	0	0 -------8--	----------	---------
15:20	570.13		0	0	0	0	0 -------8--	----------	---------
15:25	569.72		0	0	0	0	0 -------8--	----------	---------
15:30	568.73		0	0	0	0	0 -------8--	----------	---------
15:35	568.81		0	0	0	0	0 -------8--	----------	---------
15:40	567.93		0	0	0	0	0 -------8--	----------	---------
15:45	568.28		0	0	0	0	0 -------8--	----------	---------
15:50	568		0	0	0	0	0 -------8--	----------	---------
15:55	568.72		0	0	0	0	0 -------8--	----------	---------
16:00	568.03		0	0	0	0	0 -------8--	----------	---------
16:05	567.68		0	0	0	0	0 -------8--	----------	---------
16:10	567.93		0	0	0	0	0 -------8--	----------	---------
16:15	568.02		0	0	0	0	0 -------8--	----------	---------
16:20	573.12		0	0	0	0	0 -------8--	----------	---------
16:25	570.49		0	0	0	0	0 -------8--	----------	---------
16:30	569.79		0	0	0	0	0 -------8--	----------	---------
16:35	568.88		0	0	0	0	0 -------8--	----------	---------
16:40	568.69		0	0	0	0	0 -------8--	----------	---------
16:45	568.67		0	0	0	0	0 -------8--	----------	---------
16:50	568.59		0	0	0	0	0 -------8--	----------	---------
16:55	568.02		0	0	0	0	0 -------8--	----------	---------
17:00	568.51		0	0	0	0	0 -------8--	----------	---------
17:05	567.92		0	0	0	0	0 -------8--	----------	---------

17:10	567.84	0	0	0	0	0 -------8--	----------	---------
17:15	566.34	0	0	0	0	0 -------8--	----------	---------
17:20	565.48	0	0	0	0	0 -------8--	----------	---------
17:25	564.97	0	0	0	0	0 -------8--	----------	---------
17:30	564.28	0	0	0	0	0 -------8--	----------	---------
17:35	564.06	0	0	0	0	0 -------8--	----------	---------
17:40	564.55	0	0	0	0	0 -------8--	----------	---------
17:45	563.99	0	0	0	0	0 -------8--	----------	---------
17:50	563.32	0	0	0	0	0 -------8--	----------	---------
17:55	563.28	0	0	0	0	0 -------8--	----------	---------
18:00	559.28	0	0	0	0	0 -------8--	----------	---------
18:05	548.69	0	0	0	0	0 -------8--	----------	---------
18:10	546.8	0	0	0	0	0 -------8--	----------	---------
18:15	534.63	0	0	0	0	0 -------8--	----------	---------
18:20	526.6	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 1 Unit Load CEMS Data

Database Flags Report for File: MW_R5M. (Start: 8/2/99 06:40)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	2-Aug								
Average	***567***								
6:40	567.09	0	0	0	0	0	0 -------8--	----------	---------
6:45	567.53	0	0	0	0	0	0 -------8--	----------	---------
6:50	567.69	0	0	0	0	0	0 -------8--	----------	---------
6:55	567.07	0	0	0	0	0	0 -------8--	----------	---------
7:00	567.17	0	0	0	0	0	0 -------8--	----------	---------
7:05	567.09	0	0	0	0	0	0 -------8--	----------	---------
7:10	566.68	0	0	0	0	0	0 -------8--	----------	---------
7:15	567.08	0	0	0	0	0	0 -------8--	----------	---------
7:20	568.32	0	0	0	0	0	0 -------8--	----------	---------
7:25	568.33	0	0	0	0	0	0 -------8--	----------	---------
7:30	568.22	0	0	0	0	0	0 -------8--	----------	---------
7:35	568.32	0	0	0	0	0	0 -------8--	----------	---------
7:40	566.73	0	0	0	0	0	0 -------8--	----------	---------
7:45	567.26	0	0	0	0	0	0 -------8--	----------	---------
7:50	566.86	0	0	0	0	0	0 -------8--	----------	---------
7:55	566.95	0	0	0	0	0	0 -------8--	----------	---------
8:00	566.82	0	0	0	0	0	0 -------8--	----------	---------
8:05	566.47	0	0	0	0	0	0 -------8--	----------	---------
8:10	567.41	0	0	0	0	0	0 -------8--	----------	---------
8:15	567.17	0	0	0	0	0	0 -------8--	----------	---------
8:20	567.49	0	0	0	0	0	0 -------8--	----------	---------
8:25	568.36	0	0	0	0	0	0 -------8--	----------	---------
8:30	568.24	0	0	0	0	0	0 -------8--	----------	---------
8:35	567.87	0	0	0	0	0	0 -------8--	----------	---------
8:40	567.49	0	0	0	0	0	0 -------8--	----------	---------
8:45	567.38	0	0	0	0	0	0 -------8--	----------	---------
8:50	566.89	0	0	0	0	0	0 -------8--	----------	---------
8:55	566.32	0	0	0	0	0	0 -------8--	----------	---------
9:00	566.6	0	0	0	0	0	0 -------8--	----------	---------
9:05	566.22	0	0	0	0	0	0 -------8--	----------	---------
9:10	567.27	0	0	0	0	0	0 -------8--	----------	---------
9:15	568.06	0	0	0	0	0	0 -------8--	----------	---------
9:20	568.42	0	0	0	0	0	0 -------8--	----------	---------
9:25	568.13	0	0	0	0	0	0 -------8--	----------	---------
9:30	567.79	0	0	0	0	0	0 -------8--	----------	---------
Run 3	***567***								
10:45	567.51	0	0	0	0	0	0 -------8--	----------	---------
10:50	567.47	0	0	0	0	0	0 -------8--	----------	---------
10:55	566.86	0	0	0	0	0	0 -------8--	----------	---------
11:00	567.57	0	0	0	0	0	0 -------8--	----------	---------
11:05	566.88	0	0	0	0	0	0 -------8--	----------	---------
11:10	566.9	0	0	0	0	0	0 -------8--	----------	---------
11:15	567.58	0	0	0	0	0	0 -------8--	----------	---------
11:20	567.65	0	0	0	0	0	0 -------8--	----------	---------
11:25	568.03	0	0	0	0	0	0 -------8--	----------	---------
11:30	568.14	0	0	0	0	0	0 -------8--	----------	---------
11:35	567.3	0	0	0	0	0	0 -------8--	----------	---------
11:40	567.41	0	0	0	0	0	0 -------8--	----------	---------
11:45	567.42	0	0	0	0	0	0 -------8--	----------	---------
11:50	567.16	0	0	0	0	0	0 -------8--	----------	---------
11:55	567.35	0	0	0	0	0	0 -------8--	----------	---------

12:00	567.39	0	0	0	0	0 -------8--	----------	---------
12:05	567.16	0	0	0	0	0 -------8--	----------	---------
12:10	566.99	0	0	0	0	0 -------8--	----------	---------
12:15	567.34	0	0	0	0	0 -------8--	----------	---------
12:20	566.31	0	0	0	0	0 -------8--	----------	---------
12:25	567.99	0	0	0	0	0 -------8--	----------	---------
12:30	567.77	0	0	0	0	0 -------8--	----------	---------
12:35	567.61	0	0	0	0	0 -------8--	----------	---------
12:40	567.7	0	0	0	0	0 -------8--	----------	---------
12:45	567.04	0	0	0	0	0 -------8--	----------	---------
12:50	566.91	0	0	0	0	0 -------8--	----------	---------
12:55	566.79	0	0	0	0	0 -------8--	----------	---------
13:00	566.48	0	0	0	0	0 -------8--	----------	---------
13:05	567.13	0	0	0	0	0 -------8--	----------	---------
13:10	567.14	0	0	0	0	0 -------8--	----------	---------
13:15	567.15	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 1 Stack Flow CEMS Data

Database Flags Report for File: FLOW_R1 (Start: 7/31/99 12:42)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	========:	========:	=========
Date:	31-Jul								
Average	***1307***								
12:42	1310.89		0	0	0	0	0 -------8--	----------	---------
12:43	1309.59		0	0	0	0	0 -------8--	----------	---------
12:44	1300.52		0	0	0	0	0 -------8--	----------	---------
12:45	1300.54		0	0	0	0	0 -------8--	----------	---------
12:46	1300.54		0	0	0	0	0 -------8--	----------	---------
12:47	1300.57		0	0	0	0	0 -------8--	----------	---------
12:48	1304.7		0	0	0	0	0 -------8--	----------	---------
12:49	1309.28		0	0	0	0	0 -------8--	----------	---------
12:50	1312.74		0	0	0	0	0 -------8--	----------	---------
12:51	1314		0	0	0	0	0 -------8--	----------	---------
12:52	1311.41		0	0	0	0	0 -------8--	----------	---------
12:53	1309.5		0	0	0	0	0 -------8--	----------	---------
12:54	1304.49		0	0	0	0	0 -------8--	----------	---------
12:55	1302.59		0	0	0	0	0 -------8--	----------	---------
12:56	1302.53		0	0	0	0	0 -------8--	----------	---------
12:57	1302.53		0	0	0	0	0 -------8--	----------	---------
12:58	1303.46		0	0	0	0	0 -------8--	----------	---------
12:59	1304.98		0	0	0	0	0 -------8--	----------	---------
13:00	1304.87		0	0	0	0	0 -------8--	----------	---------
13:01	1304.14		0	0	0	0	0 -------8--	----------	---------
13:02	1305.64		0	0	0	0	0 -------8--	----------	---------
13:03	1311.75		0	0	0	0	0 -------8--	----------	---------
13:04	1311.75		0	0	0	0	0 -------8--	----------	---------
13:05	1311.98		0	0	0	0	0 -------8--	----------	---------
13:06	1312.07		0	0	0	0	0 -------8--	----------	---------
13:07	1315.47		0	0	0	0	0 -------8--	----------	---------
13:08	1318.1		0	0	0	0	0 -------8--	----------	---------
13:09	1315.32		0	0	0	0	0 -------8--	----------	---------
13:10	1314.05		0	0	0	0	0 -------8--	----------	---------
13:11	1314.09		0	0	0	0	0 -------8--	----------	---------
13:12	1314.04		0	0	0	0	0 -------8--	----------	---------
13:13	1314.75		0	0	0	0	0 -------8--	----------	---------
13:14	1315.06		0	0	0	0	0 -------8--	----------	---------
13:15	1315.87		0	0	0	0	0 -------8--	----------	---------
13:16	1316.25		0	0	0	0	0 -------8--	----------	---------
13:17	1313.25		0	0	0	0	0 -------8--	----------	---------
13:18	1311.25		0	0	0	0	0 -------8--	----------	---------
13:19	1311.46		0	0	0	0	0 -------8--	----------	---------
13:20	1312.87		0	0	0	0	0 -------8--	----------	---------
13:21	1314.71		0	0	0	0	0 -------8--	----------	---------
13:22	1316.25		0	0	0	0	0 -------8--	----------	---------
13:23	1317.12		0	0	0	0	0 -------8--	----------	---------
13:24	1317.6		0	0	0	0	0 -------8--	----------	---------
13:25	1318.89		0	0	0	0	0 -------8--	----------	---------
13:26	1324.06		0	0	0	0	0 -------8--	----------	---------
13:27	1324.08		0	0	0	0	0 -------8--	----------	---------
13:28	1320.75		0	0	0	0	0 -------8--	----------	---------
13:29	1320.84		0	0	0	0	0 -------8--	----------	---------
13:30	1321.08		0	0	0	0	0 -------8--	----------	---------
13:31	1320.7		0	0	0	0	0 -------8--	----------	---------
13:32	1318.09		0	0	0	0	0 -------8--	----------	---------

13:33	1318.21	0	0	0	0	0 -------8--	----------	---------
13:34	1315.18	0	0	0	0	0 -------8--	----------	---------
13:35	1314	0	0	0	0	0 -------8--	----------	---------
13:36	1311.8	0	0	0	0	0 -------8--	----------	---------
13:37	1310.62	0	0	0	0	0 -------8--	----------	---------
13:38	1303.6	0	0	0	0	0 -------8--	----------	---------
13:39	1302.77	0	0	0	0	0 -------8--	----------	---------
13:40	1303.91	0	0	0	0	0 -------8--	----------	---------
ˇ13:41	1304.09	0	0	0	0	0 -------8--	----------	---------
13:42	1303.72	0	0	0	0	0 -------8--	----------	---------
13:43	1303.48	0	0	0	0	0 -------8--	----------	---------
13:44	1309.58	0	0	0	0	0 -------8--	----------	---------
13:45	1312.87	0	0	0	0	0 -------8--	----------	---------
13:46	1317.6	0	0	0	0	0 -------8--	----------	---------
13:47	1319.62	0	0	0	0	0 -------8--	----------	---------
13:48	1324.18	0	0	0	0	0 -------8--	----------	---------
13:49	1329.67	0	0	0	0	0 -------8--	----------	---------
13:50	1329.04	0	0	0	0	0 -------8--	----------	---------
13:51	1324.11	0	0	0	0	0 -------8--	----------	---------
13:52	1322.74	0	0	0	0	0 -------8--	----------	---------
13:53	1315.11	0	0	0	0	0 -------8--	----------	---------
13:54	1314.14	0	0	0	0	0 -------8--	----------	---------
13:55	1307.19	0	0	0	0	0 -------8--	----------	---------
13:56	1306.3	0	0	0	0	0 -------8--	----------	---------
13:57	1305	0	0	0	0	0 -------8--	----------	---------
13:58	1304.78	0	0	0	0	0 -------8--	----------	---------
13:59	1302.98	0	0	0	0	0 -------8--	----------	---------
14:00	1306.39	0	0	0	0	0 -------8--	----------	---------
14:01	1309.5	0	0	0	0	0 -------8--	----------	---------
14:02	1309.83	0	0	0	0	0 -------8--	----------	---------
14:03	1311.75	0	0	0	0	0 -------8--	----------	---------
14:04	1311.75	0	0	0	0	0 -------8--	----------	---------
14:05	1318.5	0	0	0	0	0 -------8--	----------	---------
14:06	1318.5	0	0	0	0	0 -------8--	----------	---------
14:07	1307.53	0	0	0	0	0 -------8--	----------	---------
14:08	1307.25	0	0	0	0	0 -------8--	----------	---------
14:09	1325.78	0	0	0	0	0 -------8--	----------	---------
14:10	1324.27	0	0	0	0	0 -------8--	----------	---------
14:11	1314.98	0	0	0	0	0 -------8--	----------	---------
14:12	1316.19	0	0	0	0	0 -------8--	----------	---------
14:13	1321.17	0	0	0	0	0 -------8--	----------	---------
14:14	1321.11	0	0	0	0	0 -------8--	----------	---------
14:15	1310.9	0	0	0	0	0 -------8--	----------	---------
14:16	1303.42	0	0	0	0	0 -------8--	----------	---------
14:17	1306.33	0	0	0	0	0 -------8--	----------	---------
14:18	1308.37	0	0	0	0	0 -------8--	----------	---------
14:19	1309.5	0	0	0	0	0 -------8--	----------	---------
14:20	1314	0	0	0	0	0 -------8--	----------	---------
14:21	1318.13	0	0	0	0	0 -------8--	----------	---------
14:22	1321.86	0	0	0	0	0 -------8--	----------	---------
14:23	1320.15	0	0	0	0	0 -------8--	----------	---------
14:24	1318.68	0	0	0	0	0 -------8--	----------	---------
14:25	1318.02	0	0	0	0	0 -------8--	----------	---------
14:26	1317.27	0	0	0	0	0 -------8--	----------	---------
14:27	1312.29	0	0	0	0	0 -------8--	----------	---------
14:28	1308.38	0	0	0	0	0 -------8--	----------	---------
14:29	1306.15	0	0	0	0	0 -------8--	----------	---------
14:30	1303.5	0	0	0	0	0 -------8--	----------	---------
14:31	1304.08	0	0	0	0	0 -------8--	----------	---------

14:32	1307.84	0	0	0	0	0 -------8--	----------	---------
14:33	1316.16	0	0	0	0	0 -------8--	----------	---------
14:34	1323	0	0	0	0	0 -------8--	----------	---------
14:35	1320.45	0	0	0	0	0 -------8--	----------	---------
14:36	1317.27	0	0	0	0	0 -------8--	----------	---------
14:37	1313.02	0	0	0	0	0 -------8--	----------	---------
14:38	1309.5	0	0	0	0	0 -------8--	----------	---------
14:39	1308.71	0	0	0	0	0 -------8--	----------	---------
14:40	1305	0	0	0	0	0 -------8--	----------	---------
14:41	1306.22	0	0	0	0	0 -------8--	----------	---------
14:42	1310.62	0	0	0	0	0 -------8--	----------	---------
14:43	1310.61	0	0	0	0	0 -------8--	----------	---------
14:44	1309.64	0	0	0	0	0 -------8--	----------	---------
14:45	1308.51	0	0	0	0	0 -------8--	----------	---------
14:46	1303.9	0	0	0	0	0 -------8--	----------	---------
14:47	1303.52	0	0	0	0	0 -------8--	----------	---------
14:48	1301.72	0	0	0	0	0 -------8--	----------	---------
14:49	1303.12	0	0	0	0	0 -------8--	----------	---------
14:50	1305	0	0	0	0	0 -------8--	----------	---------
14:51	1305.04	0	0	0	0	0 -------8--	----------	---------
14:52	1310.7	0	0	0	0	0 -------8--	----------	---------
14:53	1312.12	0	0	0	0	0 -------8--	----------	---------
14:54	1312.08	0	0	0	0	0 -------8--	----------	---------
14:55	1311.97	0	0	0	0	0 -------8--	----------	---------
14:56	1314.12	0	0	0	0	0 -------8--	----------	---------
14:57	1315.19	0	0	0	0	0 -------8--	----------	---------
14:58	1311.53	0	0	0	0	0 -------8--	----------	---------
14:59	1307.85	0	0	0	0	0 -------8--	----------	---------
15:00	1305.92	0	0	0	0	0 -------8--	----------	---------
15:01	1305.01	0	0	0	0	0 -------8--	----------	---------
15:02	1303	0	0	0	0	0 -------8--	----------	---------
15:03	1301.24	0	0	0	0	0 -------8--	----------	---------
15:04	1302.35	0	0	0	0	0 -------8--	----------	---------
15:05	1307.81	0	0	0	0	0 -------8--	----------	---------
15:06	1305.19	0	0	0	0	0 -------8--	----------	---------
15:07	1302.8	0	0	0	0	0 -------8--	----------	---------
15:08	1304.43	0	0	0	0	0 -------8--	----------	---------
15:09	1304.97	0	0	0	0	0 -------8--	----------	---------
15:10	1305	0	0	0	0	0 -------8--	----------	---------
15:11	1471.76	0	0	0	0	0 -------8--	----------	---------
15:12	1480.52	0	0	0	0	0 -------8--	----------	---------
15:13	1320.76	0	0	0	0	0 -------8--	----------	---------
15:14	1307.81	0	0	0	0	0 -------8--	----------	---------
15:15	1302.66	0	0	0	0	0 -------8--	----------	---------
15:16	1302.73	0	0	0	0	0 -------8--	----------	---------
15:17	1301.65	0	0	0	0	0 -------8--	----------	---------
15:18	1300.5	0	0	0	0	0 -------8--	----------	---------
15:19	1300.5	0	0	0	0	0 -------8--	----------	---------
15:20	1300.5	0	0	0	0	0 -------8--	----------	---------
15:21	1302.59	0	0	0	0	0 -------8--	----------	---------
15:22	1302.69	0	0	0	0	0 -------8--	----------	---------
15:23	1302.67	0	0	0	0	0 -------8--	----------	---------
15:24	1302.76	0	0	0	0	0 -------8--	----------	---------
15:25	1303.27	0	0	0	0	0 -------8--	----------	---------
15:26	1303.9	0	0	0	0	0 -------8--	----------	---------
15:27	1303.35	0	0	0	0	0 -------8--	----------	---------
15:28	1302.63	0	0	0	0	0 -------8--	----------	---------
15:29	1302.34	0	0	0	0	0 -------8--	----------	---------
15:30	1293.69	0	0	0	0	0 -------8--	----------	---------

15:31	1293.83	0	0	0	0	0 -------8--	----------	---------
15:32	1294.52	0	0	0	0	0 -------8--	----------	---------
15:33	1294.43	0	0	0	0	0 -------8--	----------	---------
15:34	1294.38	0	0	0	0	0 -------8--	----------	---------
15:35	1294.57	0	0	0	0	0 -------8--	----------	---------
15:36	1301.68	0	0	0	0	0 -------8--	----------	---------
15:37	1301.62	0	0	0	0	0 -------8--	----------	---------
15:38	1302.51	0	0	0	0	0 -------8--	----------	---------
15:39	1302.75	0	0	0	0	0 -------8--	----------	---------
15:40	1301.42	0	0	0	0	0 -------8--	----------	---------
15:41	1300.59	0	0	0	0	0 -------8--	----------	---------
15:42	1303.98	0	0	0	0	0 -------8--	----------	---------
15:43	1305	0	0	0	0	0 -------8--	----------	---------
15:44	1303.34	0	0	0	0	0 -------8--	----------	---------
15:45	1302.56	0	0	0	0	0 -------8--	----------	---------
15:46	1303.27	0	0	0	0	0 -------8--	----------	---------
15:47	1307.25	0	0	0	0	0 -------8--	----------	---------
15:48	1305.56	0	0	0	0	0 -------8--	----------	---------
15:49	1296.05	0	0	0	0	0 -------8--	----------	---------
15:50	1295.64	0	0	0	0	0 -------8--	----------	---------
ˇ15:51	1293.62	0	0	0	0	0 -------8--	----------	---------
15:52	1292.75	0	0	0	0	0 -------8--	----------	---------
15:53	1286.5	0	0	0	0	0 -------8--	----------	---------
15:54	1286.26	0	0	0	0	0 -------8--	----------	---------
15:55	1291.41	0	0	0	0	0 -------8--	----------	---------
15:56	1291.65	0	0	0	0	0 -------8--	----------	---------
15:57	1293.22	0	0	0	0	0 -------8--	----------	---------
15:58	1293.65	0	0	0	0	0 -------8--	----------	---------
15:59	1293.67	0	0	0	0	0 -------8--	----------	---------
16:00	1293.66	0	0	0	0	0 -------8--	----------	---------
16:01	1295.47	0	0	0	0	0 -------8--	----------	---------
16:02	1295.26	0	0	0	0	0 -------8--	----------	---------
16:03	1289.34	0	0	0	0	0 -------8--	----------	---------
16:04	1288.27	0	0	0	0	0 -------8--	----------	---------
16:05	1288.89	0	0	0	0	0 -------8--	----------	---------
16:06	1289.43	0	0	0	0	0 -------8--	----------	---------
16:07	1284.24	0	0	0	0	0 -------8--	----------	---------
16:08	1280.34	0	0	0	0	0 -------8--	----------	---------
16:09	1282.38	0	0	0	0	0 -------8--	----------	---------
16:10	1283.77	0	0	0	0	0 -------8--	----------	---------
16:11	1285.67	0	0	0	0	0 -------8--	----------	---------
16:12	1287.11	0	0	0	0	0 -------8--	----------	---------
16:13	1384.81	0	0	0	0	0 -------8--	----------	---------
16:14	1421.92	0	0	0	0	0 -------8--	----------	---------
16:15	1347.01	0	0	0	0	0 -------8--	----------	---------
16:16	1291.59	0	0	0	0	0 -------8--	----------	---------
16:17	1294.49	0	0	0	0	0 -------8--	----------	---------
16:18	1295.32	0	0	0	0	0 -------8--	----------	---------
16:19	1296.74	0	0	0	0	0 -------8--	----------	---------
16:20	1302.34	0	0	0	0	0 -------8--	----------	---------
16:21	1300.55	0	0	0	0	0 -------8--	----------	---------
16:22	1298.29	0	0	0	0	0 -------8--	----------	---------
16:23	1290.79	0	0	0	0	0 -------8--	----------	---------
16:24	1287.84	0	0	0	0	0 -------8--	----------	---------
16:25	1287.32	0	0	0	0	0 -------8--	----------	---------
16:26	1287.14	0	0	0	0	0 -------8--	----------	---------
16:27	1287.32	0	0	0	0	0 -------8--	----------	---------
16:28	1295.24	0	0	0	0	0 -------8--	----------	---------
16:29	1297.12	0	0	0	0	0 -------8--	----------	---------

16:30	1306.12	0	0	0	0	0 -------8--	----------	---------
16:31	1305.84	0	0	0	0	0 -------8--	----------	---------
16:32	1300.48	0	0	0	0	0 -------8--	----------	---------
16:33	1299.89	0	0	0	0	0 -------8--	----------	---------
16:34	1297.18	0	0	0	0	0 -------8--	----------	---------
16:35	1297.13	0	0	0	0	0 -------8--	----------	---------
16:36	1297.13	0	0	0	0	0 -------8--	----------	---------
16:37	1297.16	0	0	0	0	0 -------8--	----------	---------
16:38	1297.15	0	0	0	0	0 -------8--	--------9-	---------
16:39	1296.85	0	0	0	0	0 -------8--	--------9-	---------
16:40	1295.49	0	0	0	0	0 -------8--	----------	---------
16:41	1294.93	0	0	0	0	0 -------8--	----------	---------
16:42	1292.76	0	0	0	0	0 -------8--	----------	---------
16:43	1291.02	0	0	0	0	0 -------8--	----------	---------
16:44	1290.24	0	0	0	0	0 -------8--	----------	---------
16:45	1290.19	0	0	0	0	0 -------8--	----------	---------
16:46	1290.03	0	0	0	0	0 -------8--	----------	---------
16:47	1288.96	0	0	0	0	0 -------8--	----------	---------
16:48	1287.91	0	0	0	0	0 -------8--	----------	---------
16:49	1290.38	0	0	0	0	0 -------8--	----------	---------
16:50	1291.61	0	0	0	0	0 -------8--	----------	---------
16:51	1290.05	0	0	0	0	0 -------8--	----------	---------
16:52	1282.72	0	0	0	0	0 -------8--	----------	---------
16:53	1282.72	0	0	0	0	0 -------8--	----------	---------
16:54	1290.89	0	0	0	0	0 -------8--	----------	---------
16:55	1292.73	0	0	0	0	0 -------8--	----------	---------
ˇ16:56	1289.72	0	0	0	0	0 -------8--	----------	---------
16:57	1289.19	0	0	0	0	0 -------8--	----------	---------
16:58	1289.12	0	0	0	0	0 -------8--	----------	---------
16:59	1289.15	0	0	0	0	0 -------8--	----------	---------
17:00	1282.97	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 2 Stack Flow CEMS Data

Database Flags Report for File: FLOW_R1 (Start: 8/2/99 07:50)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	=========	=========	=========
Date:	2-Aug								
Average	***1252***								
7:50	1236.81	0	0	0	0	0	-------8--	----------	---------
7:51	1233.14	0	0	0	0	0	-------8--	----------	---------
7:52	1231.62	0	0	0	0	0	-------8--	----------	---------
7:53	1226.75	0	0	0	0	0	-------8--	----------	---------
7:54	1229.44	0	0	0	0	0	-------8--	----------	---------
7:55	1237.51	0	0	0	0	0	-------8--	----------	---------
7:56	1238.07	0	0	0	0	0	-------8--	----------	---------
7:57	1242	0	0	0	0	0	-------8--	----------	---------
7:58	1242.35	0	0	0	0	0	-------8--	----------	---------
7:59	1244.25	0	0	0	0	0	-------8--	----------	---------
8:00	1245.03	0	0	0	0	0	-------8--	----------	---------
8:01	1246.5	0	0	0	0	0	-------8--	----------	---------
8:02	1246.5	0	0	0	0	0	-------8--	----------	---------
8:03	1246.48	0	0	0	0	0	-------8--	----------	---------
8:04	1246.66	0	0	0	0	0	-------8--	----------	---------
8:05	1256.89	0	0	0	0	0	-------8--	----------	---------
8:06	1256.9	0	0	0	0	0	-------8--	----------	---------
8:07	1255.13	0	0	0	0	0	-------8--	----------	---------
8:08	1255	0	0	0	0	0	-------8--	----------	---------
8:09	1247.54	0	0	0	0	0	-------8--	----------	---------
8:10	1246.45	0	0	0	0	0	-------8--	----------	---------
8:11	1244.81	0	0	0	0	0	-------8--	----------	---------
8:12	1250.71	0	0	0	0	0	-------8--	----------	---------
8:13	1362.33	0	0	0	0	0	-------8--	----------	---------
8:14	1362.23	0	0	0	0	0	-------8--	----------	---------
8:15	1260.29	0	0	0	0	0	-------8--	----------	---------
8:16	1260.15	0	0	0	0	0	-------8--	----------	---------
8:17	1260.04	0	0	0	0	0	-------8--	----------	---------
8:18	1260.02	0	0	0	0	0	-------8--	----------	---------
8:19	1250.88	0	0	0	0	0	-------8--	----------	---------
8:20	1249.87	0	0	0	0	0	-------8--	----------	---------
8:21	1250.57	0	0	0	0	0	-------8--	----------	---------
8:22	1251	0	0	0	0	0	-------8--	----------	---------
8:23	1246.64	0	0	0	0	0	-------8--	----------	---------
8:24	1245.37	0	0	0	0	0	-------8--	----------	---------
8:25	1243.56	0	0	0	0	0	-------8--	----------	---------
8:26	1242.63	0	0	0	0	0	-------8--	----------	---------
8:27	1240.1	0	0	0	0	0	-------8--	----------	---------
8:28	1239.65	0	0	0	0	0	-------8--	----------	---------
8:29	1242.66	0	0	0	0	0	-------8--	----------	---------
8:30	1242.66	0	0	0	0	0	-------8--	----------	---------
8:31	1246.66	0	0	0	0	0	-------8--	----------	---------
8:32	1248.53	0	0	0	0	0	-------8--	----------	---------
8:33	1251.29	0	0	0	0	0	-------8--	----------	---------

8:34	1252.6	0	0	0	0	0 -------8--	----------	---------
8:35	1248.82	0	0	0	0	0 -------8--	----------	---------
8:36	1246.52	0	0	0	0	0 -------8--	----------	---------
8:37	1247.7	0	0	0	0	0 -------8--	----------	---------
8:38	1248.28	0	0	0	0	0 -------8--	----------	---------
8:39	1247.96	0	0	0	0	0 -------8--	----------	---------
8:40	1247.06	0	0	0	0	0 -------8--	----------	---------
8:41	1248.52	0	0	0	0	0 -------8--	----------	---------
8:42	1255.07	0	0	0	0	0 -------8--	----------	---------
8:43	1255.86	0	0	0	0	0 -------8--	----------	---------
8:44	1255.72	0	0	0	0	0 -------8--	----------	---------
8:45	1258.05	0	0	0	0	0 -------8--	----------	---------
8:46	1263.37	0	0	0	0	0 -------8--	----------	---------
8:47	1263.38	0	0	0	0	0 -------8--	----------	---------
8:48	1270.46	0	0	0	0	0 -------8--	----------	---------
ˇ08:49	1273.5	0	0	0	0	0 -------8--	----------	---------
8:50	1273.52	0	0	0	0	0 -------8--	----------	---------
8:51	1273.5	0	0	0	0	0 -------8--	----------	---------
8:52	1269.94	0	0	0	0	0 -------8--	----------	---------
8:53	1267.34	0	0	0	0	0 -------8--	----------	---------
8:54	1260.67	0	0	0	0	0 -------8--	----------	---------
8:55	1255.83	0	0	0	0	0 -------8--	----------	---------
8:56	1261.53	0	0	0	0	0 -------8--	----------	---------
8:57	1267.29	0	0	0	0	0 -------8--	----------	---------
8:58	1266.89	0	0	0	0	0 -------8--	----------	---------
8:59	1261.89	0	0	0	0	0 -------8--	----------	---------
9:00	1262.19	0	0	0	0	0 -------8--	----------	---------
9:01	1271.57	0	0	0	0	0 -------8--	----------	---------
9:02	1271.48	0	0	0	0	0 -------8--	----------	---------
9:03	1264.17	0	0	0	0	0 -------8--	----------	---------
9:04	1263.02	0	0	0	0	0 -------8--	----------	---------
9:05	1256.8	0	0	0	0	0 -------8--	----------	---------
9:06	1256.82	0	0	0	0	0 -------8--	----------	---------
9:07	1252.43	0	0	0	0	0 -------8--	----------	---------
9:08	1250.94	0	0	0	0	0 -------8--	----------	---------
9:09	1245.58	0	0	0	0	0 -------8--	----------	---------
9:10	1244.05	0	0	0	0	0 -------8--	----------	---------
9:11	1247.17	0	0	0	0	0 -------8--	----------	---------
9:12	1247.03	0	0	0	0	0 -------8--	----------	---------
9:13	1243.05	0	0	0	0	0 -------8--	----------	---------
9:14	1242.67	0	0	0	0	0 -------8--	----------	---------
9:15	1391.9	0	0	0	0	0 -------8--	----------	---------
9:16	1404	0	0	0	0	0 -------8--	----------	---------
9:17	1280.72	0	0	0	0	0 -------8--	----------	---------
9:18	1249.87	0	0	0	0	0 -------8--	----------	---------
9:19	1243.57	0	0	0	0	0 -------8--	----------	---------
9:20	1242	0	0	0	0	0 -------8--	----------	---------
9:21	1246.93	0	0	0	0	0 -------8--	----------	---------
9:22	1249.28	0	0	0	0	0 -------8--	----------	---------
9:23	1246.99	0	0	0	0	0 -------8--	----------	---------
9:24	1246.52	0	0	0	0	0 -------8--	----------	---------
9:25	1252.8	0	0	0	0	0 -------8--	----------	---------

9:26	1255.5	0	0	0	0	0 -------8--	----------	---------
9:27	1253.67	0	0	0	0	0 -------8--	----------	---------
9:28	1253.23	0	0	0	0	0 -------8--	----------	---------
9:29	1253.44	0	0	0	0	0 -------8--	----------	---------
9:30	1254.19	0	0	0	0	0 -------8--	----------	---------
9:31	1253.6	0	0	0	0	0 -------8--	----------	---------
9:32	1253.55	0	0	0	0	0 -------8--	----------	---------
9:33	1251.11	0	0	0	0	0 -------8--	----------	---------
9:34	1249.29	0	0	0	0	0 -------8--	----------	---------
9:35	1242.08	0	0	0	0	0 -------8--	----------	---------
9:36	1238.62	0	0	0	0	0 -------8--	----------	---------
9:37	1244.86	0	0	0	0	0 -------8--	----------	---------
9:38	1245.4	0	0	0	0	0 -------8--	----------	---------
9:39	1243.58	0	0	0	0	0 -------8--	----------	---------
9:40	1235.23	0	0	0	0	0 -------8--	----------	---------
9:41	1235.22	0	0	0	0	0 -------8--	----------	---------
9:42	1239.63	0	0	0	0	0 -------8--	----------	---------
9:43	1239.75	0	0	0	0	0 -------8--	----------	---------
9:44	1230.87	0	0	0	0	0 -------8--	----------	---------
9:45	1229.92	0	0	0	0	0 -------8--	----------	---------
9:46	1242	0	0	0	0	0 -------8--	----------	---------
9:47	1241.57	0	0	0	0	0 -------8--	----------	---------
9:48	1239.75	0	0	0	0	0 -------8--	----------	---------
9:49	1242.66	0	0	0	0	0 -------8--	----------	---------
9:50	1254.23	0	0	0	0	0 -------8--	----------	---------
9:51	1254.24	0	0	0	0	0 -------8--	----------	---------
9:52	1252.82	0	0	0	0	0 -------8--	----------	---------
9:53	1252.43	0	0	0	0	0 -------8--	----------	---------
ˇ09:54	1258.05	0	0	0	0	0 -------8--	----------	---------
9:55	1260	0	0	0	0	0 -------8--	----------	---------
9:56	1245.82	0	0	0	0	0 -------8--	----------	---------
9:57	1244.72	0	0	0	0	0 -------8--	----------	---------
9:58	1244.68	0	0	0	0	0 -------8--	----------	---------
9:59	1244.25	0	0	0	0	0 -------8--	----------	---------
10:00	1243.25	0	0	0	0	0 -------8--	----------	---------
10:01	1239.75	0	0	0	0	0 -------8--	----------	---------
10:02	1239.03	0	0	0	0	0 -------8--	----------	---------
10:03	1236.48	0	0	0	0	0 -------8--	----------	---------
10:04	1235.33	0	0	0	0	0 -------8--	----------	---------
10:05	1231.18	0	0	0	0	0 -------8--	----------	---------
10:06	1230.69	0	0	0	0	0 -------8--	----------	---------
10:07	1228.96	0	0	0	0	0 -------8--	----------	---------
10:08	1230.6	0	0	0	0	0 -------8--	----------	---------
10:09	1236.1	0	0	0	0	0 -------8--	----------	---------
10:10	1236	0	0	0	0	0 -------8--	----------	---------
10:11	1236	0	0	0	0	0 -------8--	----------	---------
10:12	1235.92	0	0	0	0	0 -------8--	----------	---------
10:13	1235.16	0	0	0	0	0 -------8--	----------	---------
10:14	1236.89	0	0	0	0	0 -------8--	----------	---------
10:15	1238.66	0	0	0	0	0 -------8--	----------	---------
10:16	1238.66	0	0	0	0	0 -------8--	----------	---------
10:17	1368.85	0	0	0	0	0 -------8--	----------	---------

Newton 2, Run 3 Stack Flow CEMS Data

Database Flags Report for File: FLOW_R1 (Start: 8/2/99 10:42)

Time	Meas. Value	Subst. Value	EXCEED RC	-CEMS- CA	---------- RC	FLAGS CA	---------- 1.23E+09	1.23E+09	1.23E+08
=====	=======	=======	===	===	===	===	=========	=========	=========
Date:	2-Aug								
Average	***1217***								
10:42	1244.25	0	0	0	0	0	-------8--	----------	---------
10:43	1244.67	0	0	0	0	0	-------8--	----------	---------
10:44	1249.86	0	0	0	0	0	-------8--	----------	---------
10:45	1248.27	0	0	0	0	0	-------8--	----------	---------
10:46	1241.97	0	0	0	0	0	-------8--	----------	---------
10:47	1242.71	0	0	0	0	0	-------8--	----------	---------
10:48	1246.26	0	0	0	0	0	-------8--	----------	---------
10:49	1244.84	0	0	0	0	0	-------8--	----------	---------
10:50	1240.39	0	0	0	0	0	-------8--	----------	---------
10:51	1240.62	0	0	0	0	0	-------8--	----------	---------
10:52	1248.22	0	0	0	0	0	-------8--	----------	---------
10:53	1248.27	0	0	0	0	0	-------8--	----------	---------
10:54	1236.31	0	0	0	0	0	-------8--	----------	---------
10:55	1236.54	0	0	0	0	0	-------8--	----------	---------
10:56	1249.36	0	0	0	0	0	-------8--	----------	---------
10:57	1249.04	0	0	0	0	0	-------8--	----------	---------
10:58	1247.63	0	0	0	0	0	-------8--	----------	---------
10:59	1247.24	0	0	0	0	0	-------8--	----------	---------
11:00	1242.87	0	0	0	0	0	-------8--	----------	---------
11:01	1241.59	0	0	0	0	0	-------8--	----------	---------
11:02	1237.5	0	0	0	0	0	-------8--	----------	---------
11:03	1236.37	0	0	0	0	0	-------8--	----------	---------
11:04	1231.86	0	0	0	0	0	-------8--	----------	---------
11:05	1244.01	0	0	0	0	0	-------8--	----------	---------
11:06	1252.12	0	0	0	0	0	-------8--	----------	---------
11:07	1253.39	0	0	0	0	0	-------8--	----------	---------
11:08	1256.93	0	0	0	0	0	-------8--	----------	---------
11:09	1256.84	0	0	0	0	0	-------8--	----------	---------
11:10	1256.45	0	0	0	0	0	-------8--	----------	---------
11:11	1256.37	0	0	0	0	0	-------8--	----------	---------
11:12	1250.38	0	0	0	0	0	-------8--	----------	---------
11:13	1247.07	0	0	0	0	0	-------8--	----------	---------
11:14	1239.83	0	0	0	0	0	-------8--	----------	---------
11:15	1238.06	0	0	0	0	0	-------8--	----------	---------
11:16	1235.34	0	0	0	0	0	-------8--	----------	---------
11:17	1235.39	0	0	0	0	0	-------8--	----------	---------
11:18	1306.78	0	0	0	0	0	-------8--	----------	---------
11:19	1378.12	0	0	0	0	0	-------8--	----------	---------
11:20	1286.69	0	0	0	0	0	-------8--	----------	---------
11:21	1231.81	0	0	0	0	0	-------8--	----------	---------
11:22	1237.28	0	0	0	0	0	-------8--	----------	---------
11:23	1240.31	0	0	0	0	0	-------8--	----------	---------
11:24	1244.68	0	0	0	0	0	-------8--	----------	---------
11:25	1246.5	0	0	0	0	0	-------8--	----------	---------

11:26	1243.23	0	0	0	0	0 -------8--	----------	---------
11:27	1240.29	0	0	0	0	0 -------8--	----------	---------
11:28	1243.16	0	0	0	0	0 -------8--	----------	---------
11:29	1244.25	0	0	0	0	0 -------8--	----------	---------
11:30	1244.25	0	0	0	0	0 -------8--	----------	---------
11:31	1244.25	0	0	0	0	0 -------8--	----------	---------
11:32	1249.2	0	0	0	0	0 -------8--	----------	---------
11:33	1253.25	0	0	0	0	0 -------8--	----------	---------
11:34	1253.88	0	0	0	0	0 -------8--	----------	---------
11:35	1256.79	0	0	0	0	0 -------8--	----------	---------
11:36	1258.38	0	0	0	0	0 -------8--	----------	---------
11:37	1265.07	0	0	0	0	0 -------8--	----------	---------
11:38	1258.57	0	0	0	0	0 -------8--	----------	---------
11:39	1252.09	0	0	0	0	0 -------8--	----------	---------
11:40	1251.11	0	0	0	0	0 -------8--	----------	---------
11:41	1245.36	0	0	0	0	0 -------8--	----------	---------
11:42	1245.34	0	0	0	0	0 -------8--	----------	---------
11:43	1247.76	0	0	0	0	0 -------8--	----------	---------
11:44	1248.3	0	0	0	0	0 -------8--	----------	---------
11:45	1263.57	0	0	0	0	0 -------8--	----------	---------
11:46	1263.41	0	0	0	0	0 -------8--	----------	---------
11:47	1262.12	0	0	0	0	0 -------8--	----------	---------
11:48	1261.91	0	0	0	0	0 -------8--	----------	---------
11:49	1259.12	0	0	0	0	0 -------8--	----------	---------
11:50	1258.5	0	0	0	0	0 -------8--	----------	---------
11:51	1251.14	0	0	0	0	0 -------8--	----------	---------
11:52	1251	0	0	0	0	0 -------8--	----------	---------
11:53	1250.9	0	0	0	0	0 -------8--	----------	---------
11:54	1250.91	0	0	0	0	0 -------8--	----------	---------
11:55	1240.18	0	0	0	0	0 -------8--	----------	---------
11:56	1238.28	0	0	0	0	0 -------8--	----------	---------
11:57	1236.81	0	0	0	0	0 -------8--	----------	---------
11:58	1235.39	0	0	0	0	0 -------8--	----------	---------
11:59	1235.39	0	0	0	0	0 -------8--	----------	---------
12:00	1235.41	0	0	0	0	0 -------8--	----------	---------
12:01	1238.62	0	0	0	0	0 -------8--	----------	---------
12:02	1240.5	0	0	0	0	0 -------8--	----------	---------
12:03	1247.97	0	0	0	0	0 -------8--	----------	---------
12:04	1249.87	0	0	0	0	0 -------8--	----------	---------
12:05	1248.9	0	0	0	0	0 -------8--	----------	---------
12:06	1244.27	0	0	0	0	0 -------8--	----------	---------
12:07	1241.46	0	0	0	0	0 -------8--	----------	---------
12:08	1238.77	0	0	0	0	0 -------8--	----------	---------
12:09	1242.68	0	0	0	0	0 -------8--	----------	---------
12:10	1247.17	0	0	0	0	0 -------8--	----------	---------
12:11	1247.02	0	0	0	0	0 -------8--	----------	---------
12:12	1243.78	0	0	0	0	0 -------8--	----------	---------
12:13	1244.78	0	0	0	0	0 -------8--	----------	---------
12:14	1252.74	0	0	0	0	0 -------8--	----------	---------
12:15	1252.53	0	0	0	0	0 -------8--	----------	---------
12:16	1238.14	0	0	0	0	0 -------8--	----------	---------
12:17	1236.1	0	0	0	0	0 -------8--	----------	---------

12:18	1240.76	0	0	0	0	0 -------8--	----------	---------
12:19	1241.94	0	0	0	0	0 -------8--	----------	---------
12:20	1330.57	0	0	0	0	0 -------8--	----------	---------
12:21	1373.31	0	0	0	0	0 -------8--	----------	---------
12:22	1281.22	0	0	0	0	0 -------8--	----------	---------
12:23	1246.42	0	0	0	0	0 -------8--	----------	---------
12:24	1253.84	0	0	0	0	0 -------8--	----------	---------
12:25	1256.76	0	0	0	0	0 -------8--	----------	---------
12:26	1259.07	0	0	0	0	0 -------8--	----------	---------
12:27	1260	0	0	0	0	0 -------8--	----------	---------
12:28	1262.19	0	0	0	0	0 -------8--	----------	---------
12:29	1263.43	0	0	0	0	0 -------8--	----------	---------
12:30	1263.96	0	0	0	0	0 -------8--	----------	---------
12:31	1266.75	0	0	0	0	0 -------8--	----------	---------
12:32	1266.75	0	0	0	0	0 -------8--	----------	---------
12:33	1263.54	0	0	0	0	0 -------8--	----------	---------
12:34	1262.98	0	0	0	0	0 -------8--	----------	---------
12:35	1261.16	0	0	0	0	0 -------8--	----------	---------
12:36	1261.13	0	0	0	0	0 -------8--	----------	---------
12:37	1260.64	0	0	0	0	0 -------8--	----------	---------
12:38	1260.68	0	0	0	0	0 -------8--	----------	---------
12:39	1262.22	0	0	0	0	0 -------8--	----------	---------
12:40	1262.89	0	0	0	0	0 -------8--	----------	---------
12:41	1264.51	0	0	0	0	0 -------8--	----------	---------
12:42	1265.09	0	0	0	0	0 -------8--	----------	---------
12:43	1262.43	0	0	0	0	0 -------8--	----------	---------
12:44	1260.74	0	0	0	0	0 -------8--	----------	---------
12:45	1254.96	0	0	0	0	0 -------8--	----------	---------
12:46	1252.51	0	0	0	0	0 -------8--	----------	---------
12:47	1239.22	0	0	0	0	0 -------8--	----------	---------
12:48	1239.35	0	0	0	0	0 -------8--	----------	---------
12:49	1238.49	0	0	0	0	0 -------8--	----------	---------
12:50	1237.5	0	0	0	0	0 -------8--	----------	---------
12:51	1243.58	0	0	0	0	0 -------8--	----------	---------
12:52	1248.75	0	0	0	0	0 -------8--	----------	---------
12:53	1250.17	0	0	0	0	0 -------8--	----------	---------
12:54	1255.72	0	0	0	0	0 -------8--	----------	---------
12:55	1254.69	0	0	0	0	0 -------8--	----------	---------
12:56	1253.7	0	0	0	0	0 -------8--	----------	---------
12:57	1253.36	0	0	0	0	0 -------8--	----------	---------
12:58	1251.52	0	0	0	0	0 -------8--	----------	---------
12:59	1252.12	0	0	0	0	0 -------8--	----------	---------
13:00	1255.71	0	0	0	0	0 -------8--	----------	---------
13:01	1257.25	0	0	0	0	0 -------8--	----------	---------
13:02	1263.41	0	0	0	0	0 -------8--	----------	---------
13:03	1259.84	0	0	0	0	0 -------8--	----------	---------
13:04	1247.62	0	0	0	0	0 -------8--	----------	---------
13:05	1246.92	0	0	0	0	0 -------8--	----------	---------
13:06	1242	0	0	0	0	0 -------8--	----------	---------
13:07	1240.28	0	0	0	0	0 -------8--	----------	---------
13:08	1233.33	0	0	0	0	0 -------8--	----------	---------
13:09	1234.51	0	0	0	0	0 -------8--	----------	---------

13:10	1242.01	0	0	0	0	0 -------8--	----------	---------
13:11	1244.27	0	0	0	0	0 -------8--	----------	---------
13:12	1252.11	0	0	0	0	0 -------8--	----------	---------
13:13	1253.27	0	0	0	0	0 -------8--	----------	---------
13:14	1254.67	0	0	0	0	0 -------8--	----------	---------
13:15	1255.09	0	0	0	0	0 -------8--	----------	---------
13:16	1256.37	0	0	0	0	0 -------8--	----------	---------
13:17	1255.19	0	0	0	0	0 -------8--	----------	---------
13:18	1247.56	0	0	0	0	0 -------8--	----------	---------
13:19	1247.62	0	0	0	0	0 -------8--	----------	---------
13:20	1242.81	0	0	0	0	0 -------8--	----------	---------
13:21	1241.97	0	0	0	0	0 -------8--	----------	---------
13:22	1314.67	0	0	0	0	0 -------8--	----------	---------
13:23	1318.5	0	0	0	0	0 -------8--	----------	---------
13:24	1256.51	0	0	0	0	0 -------8--	----------	---------
13:25	1254.65	0	0	0	0	0 -------8--	----------	---------
13:26	1267.28	0	0	0	0	0 -------8--	----------	---------
13:27	1267.28	0	0	0	0	0 -------8--	----------	---------
13:28	1264.9	0	0	0	0	0 -------8--	----------	---------
13:29	1264.31	0	0	0	0	0 -------8--	----------	---------
13:30	1263.62	0	0	0	0	0 -------8--	----------	---------
13:31	1263.4	0	0	0	0	0 -------8--	----------	---------
13:32	1259.55	0	0	0	0	0 -------8--	----------	---------
13:33	1258.39	0	0	0	0	0 -------8--	----------	---------
13:34	1255.45	0	0	0	0	0 -------8--	----------	---------
13:35	1253.68	0	0	0	0	0 -------8--	----------	---------
13:36	1251.74	0	0	0	0	0 -------8--	----------	---------
13:37	1242.52	0	0	0	0	0 -------8--	----------	---------
13:38	1238.35	0	0	0	0	0 -------8--	----------	---------
13:39	1235.25	0	0	0	0	0 -------8--	----------	---------
13:40	1235.12	0	0	0	0	0 -------8--	----------	---------
13:41	1234.39	0	0	0	0	0 -------8--	----------	---------
13:42	1230.75	0	0	0	0	0 -------8--	----------	---------
13:43	1210.5	0	0	0	0	0 -------8--	----------	---------
13:44	1205.97	0	0	0	0	0 -------8--	----------	---------
13:45	1174.45	0	0	0	0	0 -------8--	----------	---------
13:46	1156.54	0	0	0	0	0 -------8--	----------	---------
13:47	1136.86	0	0	0	0	0 -------8--	----------	---------
13:48	1132.05	0	0	0	0	0 -------8--	----------	---------
13:49	1109.55	0	0	0	0	0 -------8--	----------	---------
13:50	1101.74	0	0	0	0	0 -------8--	----------	---------
ˇ13:51	1076.58	0	0	0	0	0 -------8--	----------	---------
13:52	1076.58	0	0	0	0	0 -------8--	----------	---------
13:53	1041.35	0	0	0	0	0 -------8--	----------	---------
13:54	1033.45	0	0	0	0	0 -------8--	----------	---------
13:55	1009.13	0	0	0	0	0 -------8--	----------	---------
13:56	993.1	0	0	0	0	0 -------8--	----------	---------
13:57	975.33	0	0	0	0	0 -------8--	----------	---------
13:58	949.3	0	0	0	0	0 -------8--	----------	---------
13:59	927	0	0	0	0	0 -------8--	----------	---------
14:00	918.9	0	0	0	0	0 -------8--	----------	---------
14:01	873.01	0	0	0	0	0 -------8--	----------	---------

14:02	857.43	0	0	0	0	0 -------8--	----------	---------
14:03	843.75	0	0	0	0	0 -------8--	----------	---------
14:04	843.13	0	0	0	0	0 -------8--	----------	---------
14:05	837.61	0	0	0	0	0 -------8--	----------	---------
14:06	836.02	0	0	0	0	0 -------8--	----------	---------
14:07	835.87	0	0	0	0	0 -------8--	----------	---------
14:08	833.1	0	0	0	0	0 -------8--	----------	---------
14:09	832.66	0	0	0	0	0 -------8--	----------	---------
14:10	835.08	0	0	0	0	0 -------8--	----------	---------