APPENDIX A

CALCULATIONS

Calculations

Equation 1a - Dry Molecular Weight:

$$MWd = 0.440(\%CO2) + 0.320(\%O2) + 0.280(\%N2 + \%CO)$$

Equation 1b - Wet Molecular Weight:

$$MWw = MWd(1-B_{ws}) + 18.0(B_{ws})$$

Equation 2a - Meter Volume at Standard Conditions:

$$Vm(std) = \frac{VmY\ (Tstd)(Pbar + H/13.6)}{(Tm)(Pstd)}$$

Equation 2b - Volume of Water Vapor Condensed:

$$Vwc(std) = K1(Wf-Wi)$$

Equation 2c - Moisture Content:

$$B_{ws} = Vwc(std)/(Vwc(std) + Vm(std))$$

Equation 3a - Velocity at a Traverse Point:

$$Vd = KpCp(Ts\ \ P/PsMWw)^{1/2}$$

Equation 3b - Volumetric Flow Rate (Actual Basis):

$$Q = Vd(avg)Ad\ 60$$

Equation 3c - Volumetric Flow Rate (Standard Basis):

$$Qstd = \frac{Q(Tstd)(Ps)}{(Ts)(Pstd)}$$

Equation 3d - Volumetric Flow Rate (Standard Dry Basis):

$$Qstd(dry) = Qstd(1-B_{ws})$$

Equation 4a - Isokinetic Sampling Nozzle Inside Diameter:

$$D_n = \frac{(0.0358)QmPm}{TmCp(1-B_{ws})} \frac{(TsMWw)}{(Ps\ \ P)}^{0.5}\ \ 0.5$$

Equation 4b - Isokinetic Sampling "X" Factor:

$$X = 846.72 \times Dn^4 \times H@i \times Cp^2 \times (1-Bws)^2 \times \frac{(MWd \times Ps)}{(MWw \times Pm)}$$

Equation 4c - Orifice Pressure Drop at Isokinetic Sampling Rate:

$$H = X \times P \times \frac{(Tm)}{(Ts)}$$

Equation 4d - Sample Percentage of Isokinetic:

$$\%ISO = \frac{(TsavgVmstdPstd100)}{(TstdVdavg\theta AnPs60(1-Bws))}$$

Equation 4e - Concentration of Mercury Species (g/dscm):

$$C = \frac{(Ms - Mb)}{(Vmstd \times 0.0283)}$$

Equation 4f - Mercury Species Emission Rate (gram/hr):

$$ER = \frac{(Ms - Mb)}{Vmstd} \times Qstd(dry) \times 60$$

Symbol Identification

An	=	Nozzle area (ft^2)
Ad	=	Area of duct (ft^2)
B*ws*	=	Water vapor in gas stream, proportional by volume
C	=	Mercury species concentration (g /dscm)
Cp	=	Pitot tube calibration factor (unitless)
Dn	=	Inside diameter of sample nozzle (inches)
ER	=	Mercury species emission rate (gram/hr)
K1	=	Constant (0.04715 ft^3/g)
Kp	=	Constant (85.49)
Mb	=	Mass of mercury species in blank (g - as defined in Section 15.1 of the Ontario-Hydro Method)
Ms	=	Mass of mercury species in sample (g)
MWd	=	Duct gas dry molecular weight (lb/lb-mole)
MWw	=	Duct gas wet molecular weight (lb/lb-mole)
Pbar	=	Barometric pressure ("Hg)
Pm	=	Meter pressure (assumed to be 30"Hg)
Ps	=	Absolute stack pressure ("Hg)
Pstd	=	Standard pressure (29.92"Hg)
Q	=	Duct volumetric flow rate (actual cfm)

Qm	=	Assumed sampling rate (cfm)
Qstd	=	Duct volumetric flow rate (scfm)
Qstd(dry)	=	Duct volumetric flow rate (dscfm)
Tm	=	Absolute temperature at meter (^{o}R)
Ts	=	Absolute temperature of duct gas (^{o}R)
Tstd	=	Standard temperature (528°R)
Vd	=	Duct velocity at a traverse point (ft/s)
Vm	=	Dry test meter volume (cf)
Vm(std)	=	Dry test meter volume at standard conditions (scf)
Vwc(std)	=	Volume of water vapor condensed at standard conditions (scf)
Wf	=	Final weight of impinger/absorber train (g)
Wi	=	Initial weight of impinger/absorber train (g)
X	=	Isokinetic orifice pressure drop sampling coefficient
Y	=	Dry test meter calibration factor (unitless)
%CO2	=	Duct gas carbon dioxide content (%volume)
%CO	=	Duct gas carbon monoxide content (%volume)
%ISO	=	Sample percentage of isokinetic (must be 100$\pm$10%)
%N2	=	Duct gas nitrogen content (%volume)
%O2	=	Duct gas oxygen content (%volume)
θ	=	Total sample time (minutes)
H	=	Pressure drop across orifice ("H2O)
H@i	=	Orifice calibration coefficient ("H2O)
P	=	Pressure drop across pitot tube ("H2O)

APPENDIX B

RAW FIELD DATA AND CALIBRATION DATA SHEETS

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0506

Plant: LRS
Sample Location: U3 Inlet
Run #: Blank
Date: 09/23/99
Ambient Temp.(oF): 60°
Pbar ("Hg): 25.41
Pstatic ("H2O): -1.7

Bws (assumed): 0.02
MWwet (assumed): 27.7
Ps ("Hg): 24.56
Probe Material: Teflon
Probe Heater Setting: –
Filter Heater Setting: 250°
Nozzle #: 8

Meter Box #: 81731
ΔH@i: 1.847
Y: 0.999
Pitot #: M1
Cp: 0.819
Nozzle Material: Teflon
Nozzle Diameter: 0.251

Pre-test Leak Rate: 0.00409
Post-test Leak Rate:
X-Factor: 3.052

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA		Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Sample Line (oF)		

Comments:

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 97 - 0300

Plant: LRS Date: 8/23/99

Sample Location: Unit 3 Inlet Run #: Blank

Run Time: –

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl		728.6	
Mod. G.S. 2	100 ml 1N KCl		729.6	
G.S. 3	100 ml 1N KCl		743.7	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2		742.8	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4		734.0	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4		748.2	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4		752.3	
Mod. G.S. 8	Silica Gel		930.5	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1			
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: Laramie River Station
Sample Location: Unit 3 Inlet
Run #: 1
Date: 09/22/99
Ambient Temp.(oF): 75°F
Pbar ("Hg): 25.45
Pstatic ("H2O): -11

Bws (assumed): 0.08
MWwet (assumed): 27.75
Ps ("Hg): 24.64
Probe Material: Teflon
Probe Heater Setting: ~~230°F~~ SN 250°
Filter Heater Setting: 250°
Nozzle #: #8

Meter Box #: 81231
ΔH@i: 1.815
Y: 0.999
Pitot #: M-1
Cp: 0.819
Nozzle Material: Teflon
Nozzle Diameter: 0.251

Pre-test Leak Rate: 0.006@10
Post-test Leak Rate: 0.004@10
X-Factor: 3.052

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA		Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Sample Line (oF)		
A3	1240	272	0.34	90	90	0.78	4	225	244	59	420.971
2	1245	271	0.36	93	90	0.83	5	227	245	54	
1	1250	267	0.40	93	90	0.93	7	226	245	52	429.381
B3	1257	276	0.38	96	93	0.88	5	226	246	55	
2	1302	274	0.49	98	94	1.14	6	227	246	54	
1	1307	268	0.50	99	95	1.17	6	226	246	50	438.937
C3	1314	269	0.54	99	97	1.26	6	229	246	54	
2	1319	281	0.42	103	99	0.97	5	228	245	52	448.594
1	1324	264	0.44	104	100	1.05	5	227	245	50	~~448.594~~ SN
D3	1331	277	0.73	104	101	1.71	7	225	245	55	
2	1336	288	0.62	106	102	1.43	7	227	246	52	
1	1341	278	0.38	107	103	0.89	5	230	246	50	459.207 ←
E3	1405	281	0.54	105	105	1.26	5	226	245	57	460.819
2	1410	287	0.39	105	105	0.90	4	228	246	54	
1	1415	273	0.35	105	105	0.82	3	228	246	53	470.152
F3	1424	278	0.52	104	105	1.21	5	227	245	54	
2	1429	291	0.44	105	105	1.01	5	227	246	51	
1	1434	290	0.54	106	105	1.24	5	227	246	50	480.071
G3	1440	282	0.51	104	105	1.18	5	225	245	56	
2	1445	294	0.65	106	105	1.49	5	226	245	53	
1	1450	290	0.69	106	104	1.59	6	228	246	53	491.043
H3	1457	286	0.77	103	102	1.77	6	226	246	57	
2	1502	297	0.75	102	101	1.70	6	229	244	56	
1	1507	296	0.72	101	99	1.63	6	227	244	55	502.985

Comments:

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS Date: 9/22/99

Sample Location: Unit 3 Inlet Run #: 1

Run Time: 120 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	733.9	608.3	125.6
Mod. G.S. 2	100 ml 1N KCl	748.4	733.2	15.2
G.S. 3	100 ml 1N KCl	738.6	736.5	2.1
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	731.1	725.3	5.8
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	753.3	753.7	-0.4
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	742.5	742.3	0.2
G.S. 7	100 ml 4%KMnO4/10%H2SO4	730.8	731.3	-0.5
Mod. G.S. 8	Silica Gel	897.1	885.4	11.7
			TOTAL	159.7

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	9.9	10.6	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS
Sample Location: Unit 3 Inlet
Run #: 2
Date: 09/22/99
Ambient Temp.(oF): 70
Pbar ("Hg): 25.47
Pstatic ("H2O): -16

Bws (assumed): 0.08
MWwet (assumed): 27.75
Ps ("Hg): 24.64
Probe Material: Teflon
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #: #8

Meter Box #: 81231
ΔH@i: 1.815
Y: 0.999
Pitot #: M-1
Cp: 0.819
Nozzle Material: Teflon
Nozzle Diameter: 0.251

Pre-test Leak Rate: 0.006@11
Post-test Leak Rate: 0.004@8
X-Factor: 3.052

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA		Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Sample Line (oF)		
H3	1613	298	0.74	87	86	1.63	4	273	240	61	503.257
2	1618	297	0.75	87	86	1.65	4	272	244	52	
1	1623	297	0.75	87	86	1.65	4	271	245	49	514.576
G3	1629	296	0.51	87	85	1.13	4	273	245	58	
2	1634	297	0.59	89	85	1.31	4	272	245	53	
1	1639	296	0.59	89	84	1.31	4	270	245	50	524.743
F3	1645	295	0.53	89	84	1.18	4	270	245	56	
2	1650	294	0.48	90	84	1.07	4	271	245	53	
1	1655	292	0.52	91	85	1.16	4	270	245	51	534.590
E3	1702	288	0.50	89	85	1.12	4	273	245	56	
2	1707	291	0.41	91	85	0.92	4	269	245	52	
1	1712	287	0.28	91	85	0.63	4	267	245	51	543.022
D3	1718	286	0.77	89	84	1.73	5	272	245	54	
2	1723	288	0.63	91	85	1.42	5	273	245	52	
1	1728	278	0.42	92	85	0.96	4	270	245	51	553.438
C3	1735	279	0.50	90	84	1.14	4	276	245	55	
2	1740	279	0.43	91	85	0.98	4	271	245	53	
1	1745	275	0.54	92	85	1.24	4	270	245	53	563.182
B3	1751	276	0.39	89	85	0.89	4	273	244	56	
2	1756	275	0.54	91	85	1.24	4	276	244	54	
1	1801	269	0.46	92	85	1.06	4	268	245	55	572.777
A3	1807	267	0.37	89	85	0.85	4	265	244	57	
2	1812	274	0.37	91	85	0.85	4	263	245	55	
1	1817	274	0.40	91	85	0.92	4	263	245	55	581.580

Comments:

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS
Date: 9/22/99
Sample Location: Unit 3 inlet
Run #: 2
Run Time: 120 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	862.7	732.0	130.7
Mod. G.S. 2	100 ml 1N KCl	741.9	727.6	14.3
G.S. 3	100 ml 1N KCl	746.1	744.9	1.2
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	744.4	740.1	4.3
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	731.1	731.2	-0.1
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	758.0	758.0	0.0
G.S. 7	100 ml 4%KMnO4/10%H2SO4	740.2	741.4	-1.2
Mod. G.S. 8	Silica Gel	930.7	918.0	12.7
			TOTAL	161.9

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	9.9	10.4	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 030C

Plant: LRS
Sample Location: Unit 3 Inlet
Run #: 3
Date: 09/23/99
Ambient Temp.(oF): 60°
Pbar ("Hg): 25.41
Pstatic ("H2O): -11.5

Bws (assumed): 0.08
MWwet (assumed): 27.75
Ps ("Hg): 24.56
Probe Material: Teflon
Probe Heater Setting: 250°
Filter Heater Setting: 250°
Nozzle #: #8

Meter Box #: 81231
ΔH@i: 1.817
Y: 0.999
Pitot #: M-1
Cp: 0.819
Nozzle Material: Teflon
Nozzle Diameter: 0.251

Pre-test Leak Rate: 0.006@9
Post-test Leak Rate: 0.004@11
X-Factor: 3.052

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA		Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Sample Line (oF)		
A3	0803	269	0.38	57	56	0.82	4	241	228	49	582.582
2	0808	269	0.39	57	56	0.84	4	238	234	44	
1	0813	266	0.37	58	56	0.81	4	237	239	41	590.475
B3	0819	266	0.37	59	57	0.81	4	242	244	42	
2	0824	270	0.54	60	57	1.17	5	244	245	43	
1	0829	267	0.48	62	58	1.05	5	243	245	44	599.283
C3	0835	274	0.50	64	58	1.09	5	246	245	47	
2	0840	277	0.37	66	59	0.81	4	247	245	46	
1	0845	272	0.60	66	60	~~0.60~~ 1.32 SN	5	245	245	47	608.254
D3	0851	276	0.76	67	61	1.66	6	245	244	49	
2	0856	281	0.63	68	61	1.37	5	243	244	49	
1	0901	280	0.42	69	61	0.92	5	241	244	51	618.096
E3	0907	279	0.53	68	62	1.16	5	246	244	52	
2	0912	284	0.40	69	62	0.87	5	246	244	51	
1	0917	269	0.26	69	63	0.58	4	239	244	51	626.230
F3	0923	282	0.53	68	63	1.15	5	243	244	53	
2	0928	287	0.50	69	63	1.08	5	245	244	52	
1	0933	279	0.39	70	63	0.85	5	241	244	52	635.126
G3	0939	282	0.53	69	64	1.15	5	245	245	51	
2	0944	288	0.61	71	65	1.32	6	247	245	52	
1	0949	283	0.57	73	65	1.25	6	246	245	53	644.815
H3	0955	278	0.71	72	66	1.56	6	249	245	54	
2	1000	289	0.70	75	67	1.53	7	247	246	55	
1	1005	283	0.75	77	69	1.65	7	246	246	55	655.730

Comments:

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 95 - 0300

Plant: LRS Date: 9/23/99

Sample Location: Unit 3 Inlet Run #: 3

Run Time: 120 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	867.4	740.4	127.0
Mod. G.S. 2	100 ml 1N KCl	755	736.5	18.5
G.S. 3	100 ml 1N KCl	746.2	743.9	2.3
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	740.6	736.7	3.9
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	736.9	737.4	-0.5
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	740.6	740.4	0.2
G.S. 7	100 ml 4%KMnO4/10%H2SO4	743.7	743.9	-0.2
Mod. G.S. 8	Silica Gel	904.2	897.0	7.2
			TOTAL	158.7

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	10.1	10.0	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS
Sample Location: U3 Stack
Run #: Blank
Date: 9/23/99
Ambient Temp.(oF): 55°
Pbar ("Hg): 25.41
Pstatic ("H2O): -.72

Bws (assumed): 0.16
MWwet (assumed): 28.11
Ps ("Hg): 30.4
Probe Material: Glass
Probe Heater Setting: 250°
Filter Heater Setting: 250°
Nozzle #:

Meter Box #: 80573
ΔH@i: 1.731
Y: 0.996
Pitot #: M-2
Cp: 0.84
Nozzle Material: Glass
Nozzle Diameter: 0.212

Pre-test Leak Rate: 0.0028
Post-test Leak Rate:
X-Factor:

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA			Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Filter (oF)	Sample Line (oF)		

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRJ Date: 9/23/99

Sample Location: Unit 3 Stack Run #: Blank

Run Time: —

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl		720.3	
Mod. G.S. 2	100 ml 1N KCl		750.1	
G.S. 3	100 ml 1N KCl		728.9	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2		733.0	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4		740.8	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4		756.0	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4		744.4	
Mod. G.S. 8	Silica Gel		900.1	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1			
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: Laramie River
Sample Location: Unit 3 Outlet
Run #: 1
Date: 9/22/99
Ambient Temp.(oF): 70
Pbar ("Hg): 25.47
Pstatic ("H2O): -.72

Bws (assumed): 0.16
MWwet (assumed): 28.17
Ps ("Hg): 25.46
Probe Material: Glass
Probe Heater Setting: 250°
Filter Heater Setting: 250°
Nozzle #:

Meter Box #: 80573
ΔH@i: 1.731
Y: 0.996
Pitot #: M-2
Cp: 0.818
Nozzle Material: Glass
Nozzle Diameter: 0.212

Pre-test Leak Rate: 0.010@8
Post-test Leak Rate: 0.008@8
X-Factor: 1.494

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA			Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp 170 (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Filter (oF)	Sample Line (oF)		
A3	12:40	~~228~~	0.86	83	82	1.10	3	270	272		61	500.851
2	12:50	171	1.05	85	82	1.35	3	272	266		46	
1	13:00	172	0.97	86	82	1.25	3	267	270		48	
	13:10											520.953
B3	13:17	176	1.05	84	81	1.34	3	269	271		57	
2	13:27	172	1.10	84	81	1.41	3	268	274		49	
1	13:37	172	1.20	83	80	1.54	4	265	275		50	
	13:47		0.99									542.913
C3	14:01	171	~~0.98~~	78	77	1.26	3	263	272		67	
2	14:11	172	1.15	80	77	1.46	4	267	267		52	
1	14:21	172	1.15	81	77	1.47	4	262	261		53	
	14:31											564.656
D3	14:36	172	1.10	78	76	1.39	4	260	271		65	
2	14:46	173	1.20	80	76	1.52	4	268	294		56	
1	14:56	173	1.20	82	77	1.53	4	269	274		57	
	15:06											586.983

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS Date: 9/22/99

Sample Location: Unit 3 Stack Run #: 1

Run Time: 120 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	942.4	721.4	221.0
Mod. G.S. 2	100 ml 1N KCl	787.8	749.8	38.0
G.S. 3	100 ml 1N KCl	729.9	727.1	2.8
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	726.7	723.9	2.8
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	751.1	751.0	0.1
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	752.0	752.3	-0.3
G.S. 7	100 ml 4%KMnO4/10%H2SO4	742.7	742.3	0.4
Mod. G.S. 8	Silica Gel	900.3	890.5	9.8
			TOTAL	274.6

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	10.0	10.5	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRJ
Sample Location: Unit 3 Stack
Run #: 2
Date: 9/22/99
Ambient Temp.(oF): 70°
Pbar ("Hg): 25.47
Pstatic ("H2O): -.72

Bws (assumed): 0.11
MWwet (assumed): 28.17
Ps ("Hg): 25.46
Probe Material: Glass
Probe Heater Setting: 250°
Filter Heater Setting: 250°
Nozzle #:

Meter Box #: 80573
ΔH@i: 1.731
Y: 0.996
Pitot #: M-2
Cp: 0.848
Nozzle Material: Glass
Nozzle Diameter: 0.209

Pre-test Leak Rate: 0.016 @ 8
Post-test Leak Rate: 0.010 @ 8
X-Factor: 1.494

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA			Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Filter (oF)	Sample Line (oF)		
D3	16:13	174	1.10	76	75	1.38	4	266	271		69	587.306
2	16:23	174	1.20	77	75	1.51	4	268	272		64	
1	16:33	174	1.20	78	74	1.52	4	266	273		51	
	16:43											609.732
C3	16:49	174	1.10	76	75	1.38	4	269	272		67	
2	16:59	175	1.20	78	75	1.51	4	266	275		58	
1	17:09	175	1.15	78	75	1.45	4	260	269		59	
	17:19											631.975
B3	17:24	174	1.25	77	74	1.58	4	261	270		67	
2	17:34	174	1.25	79	75	1.58	4	266	272		56	
1	17:44	173	1.20	79	74	1.52	4	264	267		55	
												654.974
A3	17:59	173	1.15	80	75	1.46	4	262	271		65	
2	18:09	173	1.20	78	74	1.52	4	267	273		57	
1	18:19	174	1.15	78	75	1.45	4	267	274		56	
	18:29											677.394

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRJ Date: 12/22/99

Sample Location: Unit 3 Stack Run #: 2

Run Time: 120 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	973.5	742.6	230.9
Mod. G.S. 2	100 ml 1N KCl	786.1	756.5	29.6
G.S. 3	100 ml 1N KCl	744.0	740.3	3.7
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	729.3	726.0	3.3
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	741.0	741.2	-0.2
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	732.7	732.8	-0.1
G.S. 7	100 ml 4%KMnO4/10%H2SO4	737.0	737.4	-0.4
Mod. G.S. 8	Silica Gel	910.2	900.0	10.2
			TOTAL	227.6

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	10.0	10.3	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: Laramie River Station
Sample Location: Unit 3 Stack
Run #: 3
Date: 9/23/99
Ambient Temp.(oF): 65
Pbar ("Hg): 25.41
Pstatic ("H2O): -1.0

Bws (assumed): 0.16
MWwet (assumed): 28.17
Ps ("Hg): 25.34
Probe Material: Glass
Probe Heater Setting: 250°
Filter Heater Setting: 250°
Nozzle #:

Meter Box #: 80573
ΔH@i: 1.731
Y: 0.996
Pitot #: M-2
Cp: 0.818
Nozzle Material: Glass
Nozzle Diameter: 0.209

Pre-test Leak Rate: 0.016 @ 8
Post-test Leak Rate: 0.004 @ 8
X-Factor: 1.494

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA			Impinger Outlet (oF)	Dry Test Meter Vol. (CF)
		Temp (oF)	ΔP ("H20)	Temp i (oF)	Temp o (oF)	ΔH ("H2O)	Vac ("Hg)	Probe (oF)	Filter (oF)	Sample Line (oF)		
A 3	08:03	175	1.05	70	70	1.30	3	268	271		65	678.578
2	08:13	174	1.00	71	69	1.25	3	268	272		44	
1	08:23	174	1.05	71	69	1.31	3	269	273		45	
	08:33										—	699.559
B3	08:38	174	1.10	68	67	1.36	3	261	264		49	
2	08:48	174	1.10	69	66	1.37	3	265	264		43	
1	08:58	173	1.05	70	65	1.31	3	265	269		44	
	09:08											720.800
C3	09:13	173	1.05	70	65	1.31	3	263	273		53	
2	09:23	173	1.15	73	67	1.44	4	269	273		51	
1	09:33	172	1.10	76	69	1.39	4	267	272		51	
	09:43											742.198
D3	09:58	174	1.00	79	72	1.27	3	263	272		62	
2	10:08	174	1.05	82	74	1.34	4	268	273		54	
1	10:18	173	1.20	83	77	1.53	4	267	273		56	
	10:28											763.883

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0300

Plant: LRS Date: 9/13/99

Sample Location: Unit 3 Stack Run #: 3

Run Time: 120 min.

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	969.1	757.2	211.9
Mod. G.S. 2	100 ml 1N KCl	798.3	756.2	42.1
G.S. 3	100 ml 1N KCl	743.3	739.5	3.8
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	738.9	735.9	3.0
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	735.3	735.9	-0.6
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	741.1	741.6	-0.5
G.S. 7	100 ml 4%KMnO4/10%H2SO4	743.4	743.3	0.1
Mod. G.S. 8	Silica Gel	917.5	910.2	7.3
			TOTAL	267.1

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	9.8	10.6	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

DRY GAS METER CALIBRATIONS

DATE: 08/31/99 Meter box: 80573

Barometric press: 29.74 Calibrated by GJ

Orifice setting (dH) in. H2O		Gas volume Wet test meter (Vw) L	Wet test meter (Vw) ft^3		Dry gas meter (Vd) ft^3	Temperatures Wet test meter average (tw) C	Wet test meter average (tw) F	Dry gas meter average (td) F	Time min.	Yi	dH@i in. H2O
0.5	initial	62425.01	5.372	initial	89.685	23.3	74	79	13.0	0.991	1.651
	final	62577.14		final	95.147						
1	initial	62257.48	5.718	initial	83.702	23.3	74	79	10.0	0.995	1.725
	final	62419.41		final	89.486						
2	initial	62072.71	6.369	initial	77.155	23.3	74	79	8.0	1.000	1.779
	final	62253.08		final	83.554						
3	initial	61930.86	4.900	initial	72.143	23.3	74	77	5.0	0.998	1.768
	final	62069.62		final	77.045						

Average:	0.996	1.731
Deviation:	0.005	0.080

Meter Yi must be +-.01 of Yavg and .98< Yavg <1.02 for each run.
The Yavg of this meter is acceptable.

Meter dH@ should be +- 0.15 of dH@avg for each run.
Recommended range of dH@avg is 1.69< dH@avg <2.09 (not required).
The d@Havg of this meter is acceptable.

DRY GAS METER CALIBRATIONS

DATE: 09/01/99 Meter box: 81321

Barometric press: 30.04 Calibrated by GJ

Orifice setting (dH) in. H2O	Gas volume					Temperatures			Time	Yi	dH@i
		Wet test meter (Vw) L	Wet test meter (Vw) ft^3		Dry gas meter (Vd) ft^3	Wet test meter average (tw) C	Wet test meter average (tw) F	Dry gas meter average (td) F	min.		in. H2O
0.5	initial	67294.29	5.190	initial	628.255	25.6	78	86	13.0	1.001	1.75
	final	67441.27		final	633.511						
1	initial	67127.28	5.521	initial	622.286	25.6	78	86	10.0	1.001	1.83
	final	67283.63		final	627.872						
2	initial	66920.86	6.184	initial	614.916	25.6	78	86	8.0	0.999	1.873
	final	67095.98		final	621.169						
3	initial	66554.42	4.840	initial	601.854	25.6	78	84	5.0	0.995	1.79
	final	66691.49		final	606.735						

Average: 0.999 1.815
Deviation: 0.004 0.06

Meter Yi must be +-.01 of Yavg and .98< Yavg <1.02 for each run.
The Yavg of this meter is acceptable.

Meter dH@ should be +- 0.15 of dH@avg for each run.
Recommended range of dH@avg is 1.69< dH@avg <2.09 (not required).
The d@Havg of this meter is acceptable.

PITOT TUBE CALIBRATION

UNIT: M-1 CALIBRATED BY: KH
DATE: 9/8/99

		A SIDE CALIBRATION		
RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(A)
1	0.57	0.84	0.816	0.004
2	0.57	0.84	0.816	0.004
3	0.58	0.83	0.828	0.008
		Cp(A)	0.820	

		B SIDE CALIBRATION		
RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(B)
1	0.58	0.85	0.818	0.000
2	0.58	0.85	0.818	0.000
3	0.58	0.85	0.818	0.000
		Cp(B)	0.818	

Cp(A)-Cp(B)| must be less than or equal to 0.01. This pitot is acceptable
Avg Deviation (A) must be less than or equal to 0.01 This pitot acceptable
Avg Deviation (B) must be less than or equal to 0.01 This pitot acceptable

AVG DEVIATION (A)	0.01	|Cp(A)-Cp(B)|	0.00
AVG DEVIATION (B)	0.00	**Cp**	**0.819**

PITOT TUBE CALIBRATION

UNIT: M-2 CALIBRATED BY: KH
DATE: 9/8/99

		A SIDE CALIBRATION		
RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(A)
1	0.57	0.85	0.811	0.003
2	0.57	0.84	0.816	0.002
3	0.57	0.84	0.816	0.002
		Cp(A)	0.814	

		B SIDE CALIBRATION		
RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(B)
1	0.57	0.83	0.820	0.002
2	0.57	0.83	0.820	0.002
3	0.58	0.83	0.828	0.005
		Cp(B)	0.823	

Cp(A)-Cp(B)| must be less than or equal to 0.01. This pitot is acceptable
Avg Deviation (A) must be less than or equal to 0.01 This pitot acceptable
Avg Deviation (B) must be less than or equal to 0.01 This pitot acceptable

AVG DEVIATION (A)	0.00	|Cp(A)-Cp(B)|	0.01
AVG DEVIATION (B)	0.00	**Cp**	**0.818**

APPENDIX C

REDUCED FIELD DATA SHEETS

Client: Basin Electric - LRS

Sample Location: Unit 3 Inlet

	Run 1	Run 2	Run 3	Average
SCFM	383,010	382,030	381,420	382,153
DSCFM	342,990	341,560	340,900	341,817
SCFM x 4	1,532,040	1,528,120	1,525,680	1,528,613
Mercury Results -				
Concentration (ug/dscm)				
Particle	0.016	1.042	2.756	1.271
Oxidized	0.137	0.324	0.264	0.242
Elemental	0.389	5.266	5.624	3.760
Total	0.542	6.632	8.644	5.273
		Check->		5.273
Mass Flow Rate (gram/hr)				
Particle	0.010	0.605	1.595	0.737
Oxidized	0.080	0.188	0.153	0.140
Elemental	0.226	3.054	3.256	2.179
Total	0.316	3.847	5.004	3.056
		Check->		3.056
Mass Flow Rate (lb/year)				
Particle	0.2	11.7	30.8	14.2
Oxidized	1.5	3.6	3.0	2.7
Elemental	4.4	59.0	62.9	42.1
Total	6.1	74.3	96.7	59.0
		Check->		59.0
Adjusted Mass Flow Rate (gram/hr) *				
Particle	0.048	3.036	7.654	3.579
Oxidized	0.385	0.943	0.734	0.687
Elemental	1.086	15.325	15.626	10.679
Total	1.519	19.304	24.014	14.946
		Check->		14.946
Adjusted Mass Flow Rate (lb/year) *				
Particle	1.0	58.7	147.8	69.2
Oxidized	7.2	18.1	14.4	13.2
Elemental	21.2	296.1	301.9	206.4
Total	29.4	372.9	464.1	288.8
		Check->		288.8

Not included in averages

* M flow rates

Sample Location: Unit 3 Stack

	Run 1	Run 2	Run 3	Average
SCFM	1,841,070	1,917,010	1,830,440	1,862,840
DSCFM	1,559,030	1,634,210	1,558,250	1,583,830
Mercury Results -				
Concentration (ug/dscm)				
Particle	0.016	0.017	0.021	0.018
Oxidized	0.059	0.023	0.025	0.036
Elemental	2.370	2.762	3.284	2.805
Total	2.445	2.802	3.330	2.859
		Check->		2.859
Mass Flow Rate (gram/hr)				
Particle	0.042	0.048	0.054	0.048
Oxidized	0.157	0.065	0.065	0.096
Elemental	6.274	7.665	8.688	7.542
Total	6.473	7.778	8.807	7.686
		Check->		7.686
Mass Flow Rate (lb/year)				
Particle	0.8	0.9	1.0	0.9
Oxidized	3.0	1.3	1.3	1.9
Elemental	121.2	148.0	167.8	145.7
Total	125.0	150.2	170.1	148.4
		Check->		148.4
Hg Input from Coal -				
Coal Feed (Ton/hr)	331	339	335	335.0
Hg Content (mg/kg)	0.118	0.142	0.114	0.125
Hg Input (g/hr)	35.433	43.671	34.646	37.917
Hg % Removal Efficiency - (Based on Adjusted Inlet Input)				
Total	**-326.1**	**59.7**	**63.3**	**61.5**
Hg % Removal Efficiency - (Based on Coal Hg Input)				
Total	**81.7**	**82.2**	**74.6**	**79.7**

Client: Basin Electric - LRS

Sample Location: Unit 3 Inlet

	Run 1	Run 2	Run 3	Average
SCFM	383,010	382,030	381,420	382,153
DSCFM	342,990	341,560	340,900	341,817
SCFM x 4	1,532,040	1,528,120	1,525,680	1,528,613
Mercury Results - Concentration (ug/dscm)				
Particle	0.016	1.042	2.756	1.899
Oxidized	0.137	0.324	0.264	0.294
Elemental	0.389	5.266	5.624	5.445
Total	0.542	6.632	8.644	7.638
Mass Flow Rate (gram/hr)				
Particle	0.010	0.605	1.595	1.100
Oxidized	0.080	0.188	0.153	0.171
Elemental	0.226	3.054	3.256	3.155
Total	0.316	3.847	5.004	3.056
Mass Flow Rate (lb/year)				
Particle	0.2	11.7	30.8	21.250
Oxidized	1.5	3.6	3.0	3.300
Elemental	4.4	59.0	62.9	60.950
Total	6.1	74.3	96.7	59.0
Adjusted Mass Flow Rate (gram/hr) *				
Particle	0.048	3.036	7.654	5.345
Oxidized	0.385	0.943	0.734	0.839
Elemental	1.086	15.325	15.626	15.475
Total	1.519	19.304	24.014	21.659
Adjusted Mass Flow Rate (lb/year) *				
Particle	1.0	58.7	147.8	69.2
Oxidized	7.2	18.1	14.4	13.2
Elemental	21.2	296.1	301.9	206.4
Total	29.4	372.9	464.1	418.5

Not included in averages

* M flow rates

Sample Location: Unit 3 Stack

	Run 1	Run 2	Run 3	Average
SCFM	1,841,070	1,917,010	1,830,440	1,862,840
DSCFM	1,559,030	1,634,210	1,558,250	1,583,830
Mercury Results - Concentration (ug/dscm)				
Particle	0.016	0.017	0.021	0.018
Oxidized	0.059	0.023	0.025	0.036
Elemental	2.370	2.762	3.284	2.805
Total	2.445	2.802	3.330	2.859
		Check->		2.859
Mass Flow Rate (gram/hr)				
Particle	0.042	0.048	0.054	0.048
Oxidized	0.157	0.065	0.065	0.096
Elemental	6.274	7.665	8.688	7.542
Total	6.473	7.778	8.807	7.686
		Check->		7.686
Mass Flow Rate (lb/year)				
Particle	0.8	0.9	1.0	0.9
Oxidized	3.0	1.3	1.3	1.9
Elemental	121.2	148.0	167.8	145.7
Total	125.0	150.2	170.1	148.4
		Check->		148.4
Hg Input from Coal -				
Coal Feed (Ton/hr)	331	339	335	335.0
Hg Content (mg/kg)	0.118	0.142	0.114	0.125
Hg Input (g/hr)	35.433	43.671	34.646	37.917
Hg % Removal Efficiency - (Based on Adjusted Inlet Input)				
Total	**-326.1**	**59.7**	**63.3**	**61.5**
Hg % Removal Efficiency - (Based on Coal Hg Input)				
Total	**81.7**	**82.2**	**74.6**	**79.7**

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.08	Meter Box #:	81231
Sample Loc:	Unit 3 Inlet	MWs(assumed):	27.75	dH@i:	1.815
Run #:	1	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/22/99	Pstatic ("H2O):	-11.00	Pitot #:	M-1
Pbar ("Hg):	25.45	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.64	Nozzle Mat:	Teflon/SS	X-Factor:	3.052
Sample time/pt:	5.0	Dn (in.):	0.251	# of Ports:	8

PORT:	A		Duct Data		Meter Data			Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	12	40	272	0.34	90	90	4.0	225	244	59	420.971	0.78
2	12	45	271	0.36	93	90	5.0	227	245	54		0.83
1	12	50	267	0.40	93	90	7.0	226	245	52		0.93
	12	55										
											429.381	
Run Time:		15	270	0.37	92	90	5.3	226	245	55	8.410	0.85

PORT:	B		Duct Data		Meter Data			Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	12	57	270	0.38	96	93	5.0	226	246	55	429.381	0.88
2	13	2	274	0.49	98	94	6.0	227	246	54		1.14
1	13	7	268	0.50	99	95	6.0	226	246	50		1.17
	13	12										
											438.937	
Run Time:		15	271	0.46	98	94	5.7	226	246	53	9.556	1.06

PORT:	C		Duct Data		Meter Data			Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	13	14	269	0.54	99	97	6.0	229	246	54	438.937	1.26
2	13	19	281	0.42	103	99	5.0	228	245	52		0.97
1	13	24	264	0.44	104	100	5.0	227	245	50		1.05
	13	29										
											448.594	
Run Time:		15	271	0.47	102	99	5.3	228	245	52	9.657	1.09

PORT:	D		Duct Data		Meter Data			Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	13	31	277	0.73	104	101	7.0	225	245	55	448.594	1.70
2	13	36	288	0.62	106	102	7.0	227	246	52		1.43
1	13	41	278	0.38	107	103	5.0	230	246	50		0.89
	13	46										
											459.207	
Run Time:		15	281	0.58	106	102	6.3	227	246	52	10.613	1.34

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.08	Meter Box #:	81231
Sample Loc:	Unit 3 Inlet	MWs(assumed):	27.75	dH@i:	1.815
Run #:	1	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/22/99	Pstatic ("H2O):	-11	Pitot #:	M-1
Pbar ("Hg):	25.45	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.64	Nozzle Mat:	Teflon/SS	X-Factor:	3.052
Sample time/pt:	5.0	Dn (in.):	0.251	# of Ports:	8

PORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	14	5	281	0.54	105	105	5.0	226	245	57	460.819	1.26
2	14	10	287	0.39	105	105	4.0	228	246	54		0.90
1	14	15	273	0.35	105	105	3.0	228	246	53		0.82
	14	20										
											470.152	
Run Time:		15	280	0.43	105	105	4.0	227	246	55	9.333	0.99

PORT:	F		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	14	24	278	0.52	104	105	5.0	227	245	54	470.152	1.21
2	14	29	281	0.44	105	105	5.0	227	246	51		1.02
1	14	34	290	0.54	106	105	5.0	227	246	50		1.24
	14	39										
											480.071	
Run Time:		15	283	0.50	105	105	5.0	227	246	52	9.919	1.16

PORT:	G		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	14	40	282	0.51	104	105	5.0	225	245	56	480.071	1.18
2	14	45	294	0.65	106	105	5.0	226	245	53		1.49
1	14	50	290	0.69	106	104	6.0	228	246	53		1.59
	14	55										
											491.043	
Run Time:		15	289	0.62	105	105	5.3	226	245	54	10.972	1.42

PORT:	H		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	14	57	286	0.77	103	102	6.0	226	246	57	491.043	1.77
2	15	2	297	0.75	102	101	6.0	229	244	56		1.70
1	15	7	296	0.72	101	99	6.0	227	244	55		1.63
	15	12										
											502.985	
Run Time:		15	293	0.75	102	101	6.0	227	245	56	11.942	1.70

Post Test Leak Rate: 0.004 CFM @ 10 "Hg

Summary	120	280		102	100	5.4	227	245	54	80.402	1.20

Velocity Traverse and Volume Flow Rate Data

Plant: Basin Electric - LRS
Sample Location: Unit 3 Inlet
Test Date: 09/22/99

Run #: 1

DUCT DIMENSIONS
Width: 204 inches
Depth: 150 inches
Area: 212.500 sq. feet

Pbar: 25.45 "Hg
Ps: 24.64 "Hg
Bws: 0.104
MWw: 28.83 g/g-mole
Tstd: 68 "deg F
Pstd: 29.92 "Hg
Cp: 0.819

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
A3	120.4	272	0.34	41.4
A2	72.3	271	0.36	42.6
A1	24.1	267	0.40	44.8
B3	120.4	270	0.38	43.8
B2	72.3	274	0.49	49.8
B1	24.1	268	0.50	50.1
C3	120.4	269	0.54	52.1
C2	72.3	281	0.42	46.3
C1	24.1	264	0.44	46.9
D3	120.4	277	0.73	60.9
D2	72.3	288	0.62	56.6
D1	24.1	278	0.38	44.0
E3	120.4	281	0.54	52.6
E2	72.3	287	0.39	44.8
E1	24.1	273	0.35	42.1
F3	120.4	278	0.52	51.5
F2	72.3	281	0.44	47.4
F1	24.1	290	0.54	52.9
G3	120.4	282	0.51	51.1
G2	72.3	294	0.65	58.2
G1	24.1	290	0.69	59.8
H3	120.4	286	0.77	63.0
H2	72.3	297	0.75	62.6
H1	24.1	296	0.72	61.3
Average		280	0.52	51.10

Results:
Average Velocity: 51.10 fps @ 280 deg. F 24.64 "Hg

Q:	651.57	x 1000	ACFM	39,094.2	KACFH
Q (std):	383.01	x 1000	SCFM	22,980.6	KSCFH
Q (std dry):	342.99	x 1000	DSCFM	20,579.4	KDSCFH

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.83	
Sample Loc:	Unit 3 Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	09/22/99	Vmstd:	64.536	%ISO:	97.0	
Run #:	1					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Mod. Greenberg Smith	100 ml 0.1N KCl	733.9	608.3	125.6
Mod. Greenberg Smith	100 ml 0.1N KCl	748.4	733.2	15.2
Greenberg Smith	100 ml 0.1N KCl	738.6	736.5	2.1
Mod. Greenberg Smith	100ml 5%HNO3/10%H2O2	731.1	725.3	5.8
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	753.3	753.7	-0.4
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	742.5	742.3	0.2
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	730.8	731.3	-0.5
Mod. Greenberg Smith	Silica Gel	897.1	885.4	11.7
			TOTAL	159.7

Fixed Gas Analysis	
%CO2:	10.6
%O2:	9.9
%C0:	0.0
%N2	79.5
Fo	1.038
Bws:	0.104
DSCFM	343,000

Concentration and Emission Rate Data

Particle-Bound Mercury			**Oxidized Mercury**			**Elemental Hg**		
Sample Front-Half:	<	0.060 ug	Sample KCl:	0.25 ug		Sample HNO3/H2O2:	<	0.25
Blank Front-Half:		ND ug	Blank KCl:	ND ug		Blank HNO3/H2O2:		ND
Net Front-Half:		0.030 ug	Net KCl:	0.250 ug		Net HNO3/H2O2:	<	0.250
Detection Limit:		0.010 ug	D.L:	0.030 ug		Detection Limit:		0.010
						Sample KMnO4:		0.71
						Blank KMnO4:		ND
						Net KMnO4:		0.710
						Detection Limit:		0.030
Total Mercury:		0.99 ug				Total Elemental:		0.710

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.016	0.010	0.2
Oxidized Hg	0.137	0.080	1.5
Elemental Hg	0.389	0.226	4.4
HNO3	0.137	0.080	
H2SO4	0.389	0.226	
Total Hg	0.542	0.316	6.1

Measured Flow: 343.0 X1000 dscfm

* Assumes operation 24 hr/day, 365 day/year

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.08	Meter Box #:	81231
Sample Loc:	Unit 3 Inlet	MWs(assumed):	27.75	dH@i:	1.815
Run #:	2	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/22/99	Pstatic ("H2O):	-11.00	Pitot #:	M-1
Pbar ("Hg):	25.45	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.64	Nozzle Mat:	Teflon/SS	X-Factor:	3.052
Sample time/pt:	5.0	Dn (in.):	0.251	# of Ports:	8

PORT:	H		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	16	13	298	0.74	87	86	4.0	273	246	61	503.257	1.63
2	16	18	297	0.75	87	86	4.0	272	244	52		1.65
1	16	23	297	0.75	87	86	4.0	271	245	49		1.65
	16	28										
											514.576	
Run Time:		15	297	0.75	87	86	4.0	272	245	54	11.319	1.65

PORT:	G		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	16	29	296	0.51	87	85	4.0	273	245	58	514.576	1.13
2	16	34	297	0.59	89	85	4.0	272	245	53		1.31
1	16	39	296	0.59	89	84	4.0	273	245	50		1.31
	16	44										
											524.743	
Run Time:		15	296	0.56	88	85	4.0	273	245	54	10.167	1.25

PORT:	F		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	16	45	295	0.53	89	84	4.0	270	245	56	524.743	1.18
2	16	50	294	0.48	90	84	4.0	271	245	53		1.07
1	16	55	292	0.52	91	85	4.0	270	245	51		1.16
	17	0										
											534.590	
Run Time:		15	294	0.51	90	84	4.0	270	245	53	9.847	1.14

PORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	17	2	288	0.50	89	85	4.0	273	245	56	534.590	1.12
2	17	7	291	0.41	91	85	4.0	269	245	52		0.92
1	17	12	287	0.28	91	85	4.0	267	245	51		0.63
	17	17										
											543.022	
Run Time:		15	289	0.40	90	85	4.0	270	245	53	8.432	0.89

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.08	Meter Box #:	81231
Sample Loc:	Unit 3 Inlet	MWs(assumed):	27.75	dH@i:	1.815
Run #:	2	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/22/99	Pstatic ("H2O):	-11	Pitot #:	M-1
Pbar ("Hg):	25.45	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.64	Nozzle Mat:	Teflon/SS	X-Factor:	3.052
Sample time/pt:	5.0	Dn (in.):	0.251	# of Ports:	8

PORT:	D		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	17	18	286	0.77	89	84	5.0	272	245	54	543.022	1.73
2	17	23	288	0.63	91	85	5.0	273	245	52		1.42
1	17	28	278	0.42	92	85	4.0	270	245	51		0.96
	17	33										
											553.438	
Run Time:		15	284	0.61	91	85	4.7	272	245	52	10.416	1.37

PORT:	C		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	17	35	279	0.50	90	84	4.0	276	245	55	553.438	1.14
2	17	40	279	0.43	91	85	4.0	271	245	53		0.98
1	17	45	275	0.54	92	85	4.0	270	245	53		1.24
	17	50										
											563.182	
Run Time:		15	278	0.49	91	85	4.0	272	245	54	9.744	1.12

PORT:	B		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	17	51	276	0.39	89	85	4.0	273	244	56	563.182	0.89
2	17	56	275	0.54	91	85	4.0	276	244	54		1.24
1	18	1	269	0.46	92	85	4.0	268	245	55		1.06
	18	6										
											572.777	
Run Time:		15	273	0.46	91	85	4.0	272	244	55	9.595	1.06

PORT:	A		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	18	7	267	0.37	89	85	4.0	265	244	57	572.777	0.85
2	18	12	274	0.37	91	85	4.0	263	245	55		0.85
1	18	17	274	0.40	91	85	4.0	263	245	55		0.92
	18	22										
											581.580	
Run Time:		15	272	0.38	90	85	4.0	264	245	56	8.803	0.87

Post Test Leak Rate: 0.004 CFM @ 8 "Hg

Summary	120	285		90	85	4.1	271	245	54	78.323	1.17

Velocity Traverse and Volume Flow Rate Data

Plant: Basin Electric - LRS
Sample Location: Unit 3 Inlet
Test Date: 09/22/99

Run #: 2

DUCT DIMENSIONS
Width: 204 inches
Depth: 150 inches
Area: 212.500 sq. feet

Pbar: 25.45 "Hg
Ps: 24.64 "Hg
Bws: 0.106
MWw: 28.78 g/g-mole
Tstd: 68 "deg F
Pstd: 29.92 "Hg
Cp: 0.819

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
A3	120.4	298	0.74	62.3
A2	72.3	297	0.75	62.6
A1	24.1	297	0.75	62.6
B3	120.4	296	0.51	51.6
B2	72.3	297	0.59	55.6
B1	24.1	296	0.59	55.5
C3	120.4	295	0.53	52.6
C2	72.3	294	0.48	50.0
C1	24.1	292	0.52	52.0
D3	120.4	288	0.50	50.8
D2	72.3	291	0.41	46.1
D1	24.1	287	0.28	38.0
E3	120.4	286	0.77	63.0
E2	72.3	288	0.63	57.1
E1	24.1	278	0.42	46.3
F3	120.4	279	0.50	50.5
F2	72.3	279	0.43	46.9
F1	24.1	275	0.54	52.4
G3	120.4	276	0.39	44.5
G2	72.3	275	0.54	52.4
G1	24.1	269	0.46	48.1
H3	120.4	267	0.37	43.1
H2	72.3	274	0.37	43.3
H1	24.1	274	0.40	45.1
Average		285	0.52	51.36

Results:
Average Velocity: 51.36 fps @ 285 deg. F 24.64 "Hg

Q:	654.80	x 1000	ACFM	39,288.0	KACFH
Q (std):	382.03	x 1000	SCFM	22,921.8	KSCFH
Q (std dry):	341.56	x 1000	DSCFM	20,493.6	KDSCFH

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.78	
Sample Loc:	Unit 3 Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	09/22/99	Vmstd:	64.418	%ISO:	97.2	
Run #:	2					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Mod. Greenberg Smith	100 ml 0.1N KCl	862.7	732.0	130.7
Mod. Greenberg Smith	100 ml 0.1N KCl	741.9	727.6	14.3
Greenberg Smith	100 ml 0.1N KCl	746.1	744.9	1.2
Mod. Greenberg Smith	100ml 5%HNO3/10%H2O2	744.4	740.1	4.3
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	731.1	731.2	-0.1
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	758.0	758.0	0.0
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	740.2	741.4	-1.2
Mod. Greenberg Smith	Silica Gel	930.7	918.0	12.7
			TOTAL	161.9

Fixed Gas Analysis	
%CO2:	10.4
%O2:	9.9
%C0:	0.0
%N2	79.7
Fo	1.058
Bws:	0.106
DSCFM	341,600

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**		
Sample Front-Half:	1.900 ug	Sample KCl:	0.59 ug	Sample HNO3/H2O2:	<	0.25
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:		ND
Net Front-Half:	1.900 ug	Net KCl:	0.590 ug	Net HNO3/H2O2:	<	0.250
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:		0.010
				Sample KMnO4:		9.6
				Blank KMnO4:		ND
				Net KMnO4:		9.600
				Detection Limit:		0.030
Total Mercury:	12.09 ug			Total Elemental:		9.600

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	1.042	0.605	11.7
Oxidized Hg	0.324	0.188	3.6
Elemental Hg	5.266	3.054	59.0
HNO3	0.137	0.080	
H2SO4	5.266	3.054	
Total Hg	6.632	3.847	74.3

Measured Flow: 341.6 X1000 dscfm

* Assumes operation 24 hr/day, 365 day/year

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.08	Meter Box #:	81231
Sample Loc:	Unit 3 Inlet	MWs(assumed):	27.75	dH@i:	1.815
Run #:	3	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/23/99	Pstatic ("H2O):	-11.00	Pitot #:	M-1
Pbar ("Hg):	25.45	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.64	Nozzle Mat:	Teflon/SS	X-Factor:	3.052
Sample time/pt:	5.0	Dn (in.):	0.251	# of Ports:	8

PORT:	A		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	8	3	269	0.38	57	56	4.0	241	228	49	582.582	0.82
2	8	8	269	0.39	57	56	4.0	238	234	44		0.84
1	8	13	266	0.37	58	56	4.0	237	239	41		0.81
	8	18										
											590.475	
Run Time:		15	268	0.38	57	56	4.0	239	234	45	7.893	0.82

PORT:	B		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	8	19	266	0.37	59	57	4.0	242	244	42	590.475	0.81
2	8	24	270	0.54	60	57	5.0	244	245	43		1.17
1	8	29	267	0.48	62	58	5.0	243	245	44		1.05
	8	34										
											599.283	
Run Time:		15	268	0.46	60	57	4.7	243	245	43	8.808	1.01

PORT:	C		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	8	35	274	0.50	64	58	5.0	246	245	47	599.283	1.09
2	8	40	277	0.37	66	59	4.0	247	245	46		0.81
1	8	45	272	0.60	66	60	5.0	245	245	47		1.32
	8	50										
											608.254	
Run Time:		15	274	0.49	65	59	4.7	246	245	47	8.971	1.07

PORT:	D		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	8	51	276	0.76	67	61	6.0	245	244	49	608.254	1.66
2	8	56	281	0.63	68	61	5.0	243	244	49		1.37
1	9	1	280	0.42	69	61	5.0	241	244	51		0.92
	9	6										
											618.096	
Run Time:		15	279	0.60	68	61	5.3	243	244	50	9.842	1.32

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.08	Meter Box #:	81231
Sample Loc:	Unit 3 Inlet	MWs(assumed):	27.75	dH@i:	1.815
Run #:	3	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/23/99	Pstatic ("H2O):	-11	Pitot #:	M-1
Pbar ("Hg):	25.45	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.64	Nozzle Mat:	Teflon/SS	X-Factor:	3.052
Sample time/pt:	5.0	Dn (in.):	0.251	# of Ports:	8

PORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	9	7	279	0.53	68	62	5.0	246	244	52	618.096	1.16
2	9	12	284	0.40	69	62	5.0	246	244	51		0.87
1	9	17	269	0.26	69	63	4.0	239	244	51		0.58
	9	22										
											626.230	
Run Time:		15	277	0.40	69	62	4.7	244	244	51	8.134	0.87

PORT:	F		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	9	23	282	0.53	68	63	5.0	243	244	53	626.230	1.15
2	9	28	287	0.50	69	63	5.0	245	244	52		1.08
1	9	33	279	0.39	70	63	5.0	241	244	52		0.85
	9	38										
											635.126	
Run Time:		15	283	0.47	69	63	5.0	243	244	52	8.896	1.03

PORT:	G		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	9	39	282	0.53	69	64	5.0	245	245	52	635.126	1.15
2	9	44	288	0.61	71	65	5.0	247	245	51		1.32
1	9	49	283	0.57	73	65	6.0	246	246	52		1.25
	9	54										
											644.815	
Run Time:		15	284	0.57	71	65	5.3	246	245	52	9.689	1.24

PORT:	H		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	9	55	278	0.71	72	66	6.0	249	245	54	644.815	1.56
2	10	0	289	0.70	75	67	7.0	247	246	55		1.53
1	10	5	283	0.75	77	69	7.0	246	246	55		1.65
	10	10										
											655.730	
Run Time:		15	283	0.72	75	67	6.7	247	246	55	10.915	1.58

Post Test Leak Rate: 0.004 CFM @ 11 "Hg

Summary	120	277		67	61	5.0	244	243	49	73.148	1.12

Velocity Traverse and Volume Flow Rate Data

Plant: Basin Electric - LRS
Sample Location: Unit 3 Inlet
Test Date: 09/23/99 Run #: 3

DUCT DIMENSIONS
Width: 204 inches
Depth: 150 inches
Area: 212.500 sq. feet

Pbar: 25.45 "Hg
Ps: 24.64 "Hg
Bws: 0.106
MWw: 28.73 g/g-mole
Tstd: 68 "deg F
Pstd: 29.92 "Hg
Cp: 0.819

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
A3	120.4	269	0.38	43.8
A2	72.3	269	0.39	44.4
A1	24.1	266	0.37	43.1
B3	120.4	266	0.37	43.1
B2	72.3	270	0.54	52.3
B1	24.1	267	0.48	49.2
C3	120.4	274	0.50	50.4
C2	72.3	277	0.37	43.5
C1	24.1	272	0.60	55.2
D3	120.4	276	0.76	62.2
D2	72.3	281	0.63	56.9
D1	24.1	280	0.42	46.4
E3	120.4	279	0.53	52.1
E2	72.3	284	0.40	45.4
E1	24.1	269	0.26	36.2
F3	120.4	282	0.53	52.2
F2	72.3	287	0.50	50.9
F1	24.1	279	0.39	44.7
G3	120.4	282	0.53	52.2
G2	72.3	288	0.61	56.2
G1	24.1	283	0.57	54.2
H3	120.4	278	0.71	60.2
H2	72.3	289	0.70	60.3
H1	24.1	283	0.75	62.1
Average		277	0.51	50.71

Results:
Average Velocity: 50.71 fps @ 277 deg. F 24.64 "Hg

Q:	646.52	x 1000	ACFM	38,791.2	KACFH
Q (std):	381.42	x 1000	SCFM	22,885.2	KSCFH
Q (std dry):	340.90	x 1000	DSCFM	20,454.0	KDSCFH

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.73	
Sample Loc:	Unit 3 Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	09/23/99	Vmstd:	62.827	%ISO:	95.0	
Run #:	3					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Mod. Greenberg Smith	100 ml 0.1N KCl	867.4	740.4	127.0
Mod. Greenberg Smith	100 ml 0.1N KCl	755.0	736.5	18.5
Greenberg Smith	100 ml 0.1N KCl	746.2	743.9	2.3
Mod. Greenberg Smith	100ml 5%HNO3/10%H2O2	740.6	736.7	3.9
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	736.9	737.4	-0.5
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	740.6	740.4	0.2
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	743.7	743.9	-0.2
Mod. Greenberg Smith	Silica Gel	904.2	897.0	7.2
			TOTAL	158.4

Fixed Gas Analysis	
%CO2:	10.0
%O2:	10.1
%C0:	0.0
%N2	79.9
Fo	1.080
Bws:	0.106
DSCFM	340,900

Concentration and Emission Rate Data

Particle-Bound Mercury			**Oxidized Mercury**			**Elemental Hg**		
Sample Front-Half:	4.9	ug	Sample KCl:	0.47	ug	Sample HNO3/H2O2:	<	0.25
Blank Front-Half:	ND	ug	Blank KCl:	ND	ug	Blank HNO3/H2O2:		ND
Net Front-Half:	4.900	ug	Net KCl:	0.470	ug	Net HNO3/H2O2:	<	0.250
Detection Limit:	0.010	ug	D.L:	0.030	ug	Detection Limit:		0.010
						Sample KMnO4:		10
						Blank KMnO4:		ND
						Net KMnO4:		10.000
						Detection Limit:		0.030
Total Mercury:	15.37	ug				Total Elemental:		10.000

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	2.756	1.595	30.8
Oxidized Hg	0.264	0.153	3.0
Elemental Hg	5.624	3.256	62.9
HNO3	0.141	0.081	
H2SO4	5.624	3.256	
Total Hg	8.644	5.004	96.7

Measured Flow: 340.9 X1000 dscfm

* Assumes operation 24 hr/day, 365 day/year

Reduced Isokinetic Field Data

Plant:	Basin Electric - LRS	Bws(assumed):	0.16	Meter Box #:	80573
Sample Loc:	Unit 3 Stack	MWs(assumed):	28.17	dH@i:	1.731
Run #:	1	MWd(assumed):	29.9	Gamma:	0.996
Date:	09/22/99	Pstatic ("H2O):	-0.72	Pitot #:	M-2
Pbar ("Hg):	25.45	Probe Mat:	Glass	Cp:	0.818
Ps ("Hg):	25.40	Nozzle Mat:	Glass	X-Factor:	1.494
Sample time/pt:	10.0	Dn (in.):	0.212	# of Ports:	4

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	12	40	170	0.86	83	82	3.0	270	272	61	500.851	1.11
2	12	50	171	1.05	85	82	3.0	272	266	46		1.35
1	13	0	172	0.97	86	82	3.0	267	270	48		1.25
	13	10									520.953	
Run Time:		30	171	0.96	85	82	3.0	270	269	52	20.102	1.24

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	13	17	176	1.05	84	81	3.0	269	271	57	520.953	1.34
2	13	27	172	1.10	84	81	3.0	268	274	49		1.41
1	13	37	172	1.20	83	80	4.0	265	275	50		1.54
	13	47									542.913	
Run Time:		30	173	1.12	84	81	3.3	267	273	52	21.960	1.43

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	14	1	171	0.99	78	77	3.0	263	272	67	542.913	1.26
2	14	11	172	1.15	80	77	4.0	267	267	52		1.47
1	14	21	172	1.15	81	77	4.0	262	261	53		1.47
	14	31									564.656	
Run Time:		30	172	1.10	80	77	3.7	264	267	57	21.743	1.40

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	14	36	172	1.10	78	76	4.0	260	271	65	564.656	1.40
2	14	46	173	1.20	80	76	4.0	268	274	56		1.53
1	14	56	173	1.20	82	77	4.0	269	274	57		1.54
	15	6									586.983	
Run Time:		30	173	1.17	80	76	4.0	266	273	59	22.327	1.49
Post Test Leak Rate:				0.008	CFM @	8	"Hg					
Summary		120	172	1.09	82	79	4	267	271	55	86.132	1.39

Velocity Traverse and Volume Flow Rate Data

Plant:	Basin Electric - LRS		
Sample Location:	Unit 3 Stack		
Date:	09/22/99	Run #:	1

Duct Diameter (in.):	340.8	Ps ("Hg):	25.40
Rectangular Duct:	0.0	Bws:	0.153
Area (sq.ft.):	633.5	MWw:	28.23
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.818

		Port: A			Port: B			Port: C			Port: D		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
3	100.9	0.86	170	60.8	1.05	176	67.5	0.99	171	65.3	1.10	172	68.9
2	49.8	1.05	171	67.2	1.10	172	68.9	1.15	172	70.4	1.20	173	72.0
1	15.0	0.97	172	64.7	1.20	172	71.9	1.15	172	70.4	1.20	173	72.0

RESULTS:

Average Duct Velocity = 68.3 at 172 deg. F and 25.40 "Hg

Q	=	2596.85	x1000	ACFM	155,811.0 KACFH
Qstd	=	1841.07	x1000	SCFM	110,464.2 KSCFH
Qstd(dry)	=	1559.03	x1000	DSCFM	93,541.8 KDSCFH

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.23	
Sample Loc:	Unit 3 Stack	Pstd:	29.92	An:	0.0002	sq. ft.
Date:	09/22/99	Vmstd:	71.570	%ISO:	98.9	
Run #:	1					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	942.4	721.4	221.0
Modified Greenberg Smith	100 ml 0.1N KCl	787.8	749.8	38.0
Greenberg Smith	100 ml 0.1N KCl	729.9	727.1	2.8
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	726.7	723.9	2.8
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	751.1	751.0	0.1
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	752.0	752.3	-0.3
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	742.7	742.3	0.4
Modified Greenberg Smith	Silica Gel	900.3	890.5	9.8
			TOTAL	274.6

Fixed Gas Analysis	
%CO2:	10.5
%O2:	10.0
%C0:	0.0
%N2	79.5
Fo	1.038
Bws:	0.153
DSCFM	1559000

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**		
Sample Front-Half:	0.032 ug	Sample KC	0.12 ug	Sample HNO3/H2O2:	<	0.25
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:		ND
Net Front-Half:	0.032 ug	Net KCl:	0.120 ug	Net HNO3/H2O2:	<	0.250
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:		0.010
				Sample KMnO4:		4.8
				Blank KMnO4:		ND
				Net KMnO4:		4.800
				Detection Limit:		0.030
Total Mercury:	4.952 ug			Total Elemental:		4.800

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.016	0.042	0.8
Oxidized Hg	0.059	0.157	3.0
Elemental Hg	2.370	6.274	121.2
HNO3	0.123	0.327	
H2SO4	2.370	6.274	
Total Hg	2.445	6.473	125.0

Measured Flow: 1559.03 X1000 dscfm

* Assumes operation 24 hr/day, 365 day/year

Reduced Isokinetic Field Data

Plant:	Basin Electric - LRS	Bws(assumed):	0.16	Meter Box #:	80573
Sample Loc:	Unit 3 Stack	MWs(assumed):	28.17	dH@i:	1.731
Run #:	2	MWd(assumed):	29.9	Gamma:	0.996
Date:	09/22/99	Pstatic ("H2O):	-0.72	Pitot #:	M-2
Pbar ("Hg):	25.45	Probe Mat:	Glass	Cp:	0.818
Ps ("Hg):	25.40	Nozzle Mat:	Glass	X-Factor:	1.494
Sample time/pt:	10.0	Dn (in.):	0.209	# of Ports:	4

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	16	13	174	1.10	76	75	4.0	266	271	69	587.306	1.39
2	16	23	174	1.20	77	75	4.0	268	272	64		1.52
1	16	33	174	1.20	78	74	4.0	266	273	51		1.52
	16	43									609.732	
Run Time:		30	174	1.17	77	75	4.0	267	272	61	22.426	1.48

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	16	49	174	1.10	76	75	4.0	269	272	67	609.732	1.39
2	16	59	175	1.20	78	75	4.0	266	275	58		1.52
1	17	9	175	1.15	78	75	4.0	260	269	59		1.46
	17	19									631.975	
Run Time:		30	175	1.15	77	75	4.0	265	272	61	22.243	1.45

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	17	24	174	1.25	77	74	4.0	261	270	67	631.975	1.58
2	17	34	174	1.25	79	75	4.0	266	272	56		1.59
1	17	44	173	1.20	79	74	4.0	264	267	55		1.53
	17	54									654.974	
Run Time:		30	174	1.23	78	74	4.0	264	270	59	22.999	1.57

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	17	59	173	1.15	80	75	4.0	262	271	65	654.974	1.47
2	18	9	173	1.20	78	74	4.0	267	273	57		1.52
1	18	19	174	1.15	78	75	4.0	267	274	56		1.46
	18	29									677.394	
Run Time:		30	173	1.17	79	75	4.0	265	273	59	22.420	1.48
Post Test Leak Rate:				0.010	CFM @	8	"Hg					
Summary		120	174	1.18	78	75	4	265	272	60	90.088	1.49

Velocity Traverse and Volume Flow Rate Data

Plant:	Basin Electric - LRS		
Sample Location:	Unit 3 Stack		
Date:	09/22/99	Run #:	2

Duct Diameter (in.):	340.8	Ps ("Hg):	25.40
Rectangular Duct:	0.0	Bws:	0.148
Area (sq.ft.):	633.5	MWw:	28.27
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.818

		Port: D			Port: C			Port: B			Port: A		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
3	100.9	1.10	174	68.9	1.10	174	68.9	1.25	174	73.5	1.15	173	70.4
2	49.8	1.20	174	72.0	1.20	175	72.0	1.25	174	73.5	1.20	173	71.9
1	15.0	1.20	174	72.0	1.15	175	70.5	1.20	173	71.9	1.15	174	70.5

RESULTS:

Average Duct Velocity = 71.3 at 174 deg. F and 25.40 "Hg

Q	=	2711.44	x1000	ACFM	162,686.4 KACFH
Qstd	=	1917.01	x1000	SCFM	115,020.6 KSCFH
Qstd(dry)	=	1634.21	x1000	DSCFM	98,052.6 KDSCFH

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.27	
Sample Loc:	Unit 3 Stack	Pstd:	29.92	An:	0.0002	sq. ft.
Date:	09/22/99	Vmstd:	75.473	%ISO:	102.3	
Run #:	2					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	973.5	742.6	230.9
Modified Greenberg Smith	100 ml 0.1N KCl	786.1	756.5	29.6
Greenberg Smith	100 ml 0.1N KCl	744.0	740.3	3.7
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	729.3	726.0	3.3
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	741.0	741.2	-0.2
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	732.7	732.8	-0.1
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	737.0	737.4	-0.4
Modified Greenberg Smith	Silica Gel	910.2	900.0	10.2
			TOTAL	277.0

Fixed Gas Analysis	
%CO2:	10.3
%O2:	10.0
%C0:	0.0
%N2	79.7
Fo	1.058
Bws:	0.148
DSCFM	1634200

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	0.037 ug	Sample KC	< 0.10 ug	Sample HNO3/H2O2:	< 0.25
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND
Net Front-Half:	0.037 ug	Net KCl:	0.050 ug	Net HNO3/H2O2:	< 0.250
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010
				Sample KMnO4:	5.9
				Blank KMnO4:	ND
				Net KMnO4:	5.900
				Detection Limit:	0.030
Total Mercury:	5.987 ug			Total Elemental:	5.900

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.017	0.048	0.9
Oxidized Hg	0.023	0.065	1.3
Elemental Hg	2.762	7.665	148.0
HNO3	0.117	0.325	
H2SO4	2.762	7.665	
Total Hg	2.802	7.778	150.2

Measured Flow: 1634.21 X1000 dscfm

* Assumes operation 24 hr/day, 365 day/year

Reduced Isokinetic Field Data

Plant:	Basin Electric - LRS	Bws(assumed):	0.16	Meter Box #:	80573
Sample Loc:	Unit 3 Stack	MWs(assumed):	28.17	dH@i:	1.731
Run #:	3	MWd(assumed):	29.9	Gamma:	0.996
Date:	09/23/99	Pstatic ("H2O):	-1.00	Pitot #:	M-2
Pbar ("Hg):	25.45	Probe Mat:	Glass	Cp:	0.818
Ps ("Hg):	25.41	Nozzle Mat:	Glass	X-Factor:	1.494
Sample time/pt:	10.0	Dn (in.):	0.209	# of Ports:	4

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	8	3	175	1.05	70	70	3.0	268	271	65	678.578	1.31
2	8	13	174	1.00	71	69	3.0	268	272	44		1.25
1	8	23	174	1.05	71	69	3.0	269	273	45		1.31
	8	33									699.559	
Run Time:		30	174	1.03	71	69	3.0	268	272	51	20.981	1.29

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	8	38	174	1.10	68	67	3.0	261	264	49	699.559	1.37
2	8	48	174	1.10	69	66	3.0	265	264	43		1.37
1	8	58	173	1.05	70	65	3.0	265	269	44		1.31
	9	8									720.800	
Run Time:		30	174	1.08	69	66	3.0	264	266	45	21.241	1.35

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	9	13	173	1.05	70	65	3.0	263	273	53	720.800	1.31
2	9	23	173	1.15	73	67	4.0	269	273	51		1.45
1	9	33	172	1.10	76	69	4.0	267	272	51		1.39
	9	43									742.198	
Run Time:		30	173	1.10	73	67	3.7	266	273	52	21.398	1.38

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)
3	9	58	174	1.00	79	72	3.0	263	272	62	742.198	1.27
2	10	8	174	1.05	82	74	4.0	268	273	54		1.34
1	10	18	173	1.20	83	77	4.0	267	273	56		1.54
	10	28									763.883	
Run Time:		30	174	1.08	81	74	3.7	266	273	57	21.685	1.38
Post Test Leak Rate:				0.004	CFM @	8	"Hg					
Summary		120	174	1.08	74	69	3	266	271	51	85.305	1.35

Velocity Traverse and Volume Flow Rate Data

Plant:	Basin Electric - LRS		
Sample Location:	Unit 3 Stack		
Date:	09/23/99	Run #:	3

Duct Diameter (in.):	340.8	Ps ("Hg):	25.41
Rectangular Duct:	0.0	Bws:	0.149
Area (sq.ft.):	633.5	MWw:	28.29
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.818

		Port: A			Port: B			Port: C			Port: D		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
3	100.9	1.05	175	67.3	1.10	174	68.9	1.05	173	67.2	1.00	174	65.7
2	49.8	1.00	174	65.7	1.10	174	68.9	1.15	173	70.4	1.05	174	67.3
1	15.0	1.05	174	67.3	1.05	173	67.2	1.10	172	68.8	1.20	173	71.9

RESULTS:

Average Duct Velocity = 68.0 at 174 deg. F and 25.41 "Hg

Q	=	2586.32 x1000	ACFM	155,179.2	KACFH
Qstd	=	1830.44 x1000	SCFM	109,826.4	KSCFH
Qstd(dry)	=	1558.25 x1000	DSCFM	93,495.0	KDSCFH

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.29	
Sample Loc:	Unit 3 Stack	Pstd:	29.92	An:	0.0002	sq. ft.
Date:	09/23/99	Vmstd:	72.098	%ISO:	102.5	
Run #:	3					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	969.1	757.2	211.9
Modified Greenberg Smith	100 ml 0.1N KCl	798.3	756.2	42.1
Greenberg Smith	100 ml 0.1N KCl	743.3	739.5	3.8
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	738.4	735.4	3.0
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	733.3	733.9	-0.6
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	741.1	741.6	-0.5
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	743.4	743.3	0.1
Modified Greenberg Smith	Silica Gel	917.5	910.2	7.3
			TOTAL	267.1

Fixed Gas Analysis	
%CO2:	10.6
%O2:	9.8
%C0:	0.0
%N2	79.6
Fo	1.047
Bws:	0.149
DSCFM	1558300

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	0.042 ug	Sample KC	< 0.10 ug	Sample HNO3/H2O2:	< 0.25
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND
Net Front-Half:	0.042 ug	Net KCl:	0.050 ug	Net HNO3/H2O2:	< 0.250
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010
				Sample KMnO4:	6.7
				Blank KMnO4:	ND
				Net KMnO4:	6.700
				Detection Limit:	0.030
Total Mercury:	6.792 ug			Total Elemental:	6.700

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.021	0.054	1.0
Oxidized Hg	0.025	0.065	1.3
Elemental Hg	3.284	8.688	167.8
HNO3	0.123	0.324	
H2SO4	3.284	8.688	
Total Hg	3.330	8.807	170.1

Measured Flow: 1558.25 X1000 dscfm

* Assumes operation 24 hr/day, 365 day/year

APPENDIX D

SAMPLING LOG AND CHAIN OF CUSTODY RECORDS

SAMPLE LOG

Client - Basin Electric LRS

Source - Unit 3

Sample I.D.	Date Collected	Date Stored	Date Shipped
IR1 - C01	9/22/99	9/22/99	10/21/99
" - C02	"	"	"
" - C03A+B	"	"	"
" - C04	"	"	"
" - C05	9/22/99	9/22/99	10/21/99
IR2 - C01	9/22/99	9/22/99	10/21/99
" - C02	"	"	"
" - C03 A+B	"	"	"
" - C04	"	"	"
" - C05	9/22/99	9/22/99	10/21/99
IR3 - C01	9/23/99	9/23/99	10/21/99
" - C02	"	"	"
" - C03 A+B	"	"	"
" - C04	"	"	"
" - C05	9/23/99	9/23/99	10/21/99
IB - C01	9/23/99	9/23/99	10/21/99
" - C02	"	"	"
" - C03	"	"	"
" - C04	"	"	"
" - C05	9/23/99	9/23/99	10/21/99

SAMPLE LOG

Client - Basin Electric WRS

Source - Unit 3

Sample I.D.	Date Collected	Date Stored	Date Shipped
SR1 - CO1	9/22/99	9/23/99	10/21/99
" - CO2	"	"	"
" - CO3 A+B	"	"	"
" - CO4	"	"	"
" - CO5	9/22/99	9/23/99	10/21/99
SR2 - CO1	9/22/99	9/22/99	10/21/99
" - CO2	"	"	"
" - CO3	"	"	"
" - CO4	"	"	"
" - CO5	9/22/99	9/22/99	10/21/99
SR3 - CO1	9/23/99	9/23/99	10/21/99
" - CO2	"	"	"
" - CO3	"	"	"
" - CO4	"	"	"
" - CO5	9/23/99	9/23/99	10/21/99
SB - CO1	9/23/99	9/23/99	10/21/99
" - CO2	"	"	"
" - CO3	"	"	"
" - CO4	"	"	"
" - CO5	9/23/99	9/23/99	10/21/99

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO

Contact Name	James Tryka	Project ID/Project Name	Cmxx M-0306
Company	Braun Intertec Corp.	P.O. #	
Mailing Address	P.O. Box 37108		
City, State, Zip	Minneapolis MN 55439		
Telephone #	(612) 833-4654	Fax #	(612) 746-6001

SEND INVOICE TO

Contact Name	Company
Address	
City, State, Zip	
Telephone #	Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg Unit 3

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	S3-C01 Unit 3 (Filter)			Filter				X										
2	SR1-C01 "							X										
3	SR2-C01 "							X										
4	SR3-C01 "							X										
5	SB-C02 " (0.1N HNO3)			Liq.				X										
6	SR1-C02 "							X										
7	SR2-C02 "							X										
8	SR3-C02 "							X										
9	SB-C03 " (0.1N HCl)							X										
10	SR1-C03 "							X										
11	SR2-C03 "							X										
12	SR3-C03 "							X										
13	SB-C04 "							X										
14	SR1-C04 " (HNO3-H2O2)							X										
15	SR2-C04 "							X										

CHAIN OF CUSTODY

Collected by: (Print)	James Tryka	Collector's Signature: [signature]
Relinquished by:	[signature] Date/Time 10/21/99 1425	Received by: Date/Time
Relinquished by:	Date/Time	Received Contents Not Verified: Date/Time
Evidence Tape Intact	☐ Yes ☐ No ☐ N/A	Received Contents Verified: Date/Time
Sample Condition Upon Receipt:	☐ Acceptable ☐ Other _____	Comments:
Temperature _____ °C	☐ Received on Ice	
Matrix Spike Samples Received:	☐ Yes ☐ No ☐ N/A	

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO

Contact Name	James Tryba	Project ID/Project Name	Cmxx-97-0306
Company	Braun Intertec Corp.	P.O. #	
Mailing Address	P.O. Box [illegible]		
City, State, Zip	Minneapolis, MN 55405		
Telephone #	(612) 896-6454	Fax #	(612) 746-6001

SEND INVOICE TO

Contact Name		Company	
Address			
City, State, Zip			
Telephone #		Fax #	

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg Unit 3

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	IR3-OH Unit 3 (HNO3-H2O)			Liq.				X										
2	SB-005 " (KMnO4-H2SO4)							X										
3	IR1-005 "							X										
4	IR2-005 "							X										
5	IR3-005							X										
6	Nothing Below this Line																	
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

CHAIN OF CUSTODY

Collected by: *(Print)*	James Tryba	Collector's Signature:	James Tryba
Relinquished by:	James Tryba	Date/Time 10/8/99 14:15	Received by: / Date/Time
Relinquished by:		Date/Time	Received Contents Not Verified: / Date/Time
Evidence Tape Intact	☐ Yes ☐ No ☐ N/A		Received Contents Verified: / Date/Time
Sample Condition Upon Receipt:	☐ Acceptable ☐ Other _____		Comments:
Temperature _____ °C	☐ Received on Ice		

Matrix Sample Received: [illegible]

BRAUN INTERTECSM
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO

Contact Name	James Trybe	Project ID/Project Name	Cmxx 22-0306
Company	Braun Intertec Corp.		
Mailing Address	P.O. Box 37108		
City, State, Zip	Minneapolis MN 55430		
Telephone #	(612) 833-6651	Fax #	(612) 946-6001

P.O. #

SEND INVOICE TO

Contact Name	Company
Address	
City, State, Zip	
Telephone #	Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg Unit 3

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	IB-C01 Unit3 (Filter)			Filter				X										
2	IR1-C01 "							X										
3	IR2-C01 "							X										
4	IR3-C01 "							X										
5	IB-C02 " (0.1N HNO3)			Liq.				X										
6	IR1-C02 "							X										
7	IR2-C02 "							X										
8	IR3-C02 "							X										
9	IB-C03 " (0.1N KCl							X										
10	IR1-C03 "							X										
11	IR2-C03 "							X										
12	IR3-C03 "							X										
13	IB-C04 " (HNO3-H2O2)							X										
14	IR1-C04 "							X										
15	IR2-C04 "							X										

CHAIN OF CUSTODY

Collected by: *(Print)*	James Trybe	Collector's Signature:	James Trybe
Relinquished by:	James Trybe	Date/Time 1/21/99 14:15	Received by: / Date/Time
Relinquished by:		Date/Time	Received Contents Not Verified: / Date/Time
			Received Contents Verified: / Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____

Temperature _____ °C ☐ Received on Ice

Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A

Comments:

BRAUN INTERTECSM
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Tryba
Company: Braun Intertec Corp
Mailing Address: P.O. Box 57108
City, State, Zip: Minneapolis MN 55459
Telephone #: (612) 893-4654 Fax #: (612) 896-6001

Project ID/Project Name: Cmxx-97-0306
P.O. #:

SEND INVOICE TO
Contact Name:
Company:
Address:
City, State, Zip:
Telephone #:
Fax #:

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg Unit 3

Circle metals that require low detection limits
Ag | As | Be | Cd | Cr | Pb | Ni | Sb | Se | Tl | V | Other

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	Ont Hg											FOR LAB USE ONLY
1	SB3-C04 Unit 3 (Hxy-HCl)																		
2	SB-C05 " (Kmnxy-Hxy)																		
3	SB1-C05 "																		
4	SB2-C05 "																		
5	SB3-C05 "																		
6	C06 " 0.1N HNO3 Blank																		
7	C08 " KCl Blank																		
8	C09 " HNO3-HCl Blank																		
9	C010 " Kmnxy-Hxy Blank																		
10	C011 " Hydroxylamine Blank																		
11	C012 " Tot E. Hx Blank																		
12	C012 " Out E. Hx Blank																		
13																			
14																			
15																			

CHAIN OF CUSTODY
Collected by: *(Print)* James Tryba
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 10/4/99 14:15
Received by: [signature] Date/Time
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A

Comments:

APPENDIX E

ANALYTICAL DATA SHEETS

DAKOTA GASIFICATION COMPANY
A BASIN ELECTRIC SUBSIDIARY
GREAT PLAINS SYNFUELS PLANT
P.O. BOX 1149
BEULAH, NORTH DAKOTA 58523
PHONE: 701/873-2100
FAX: 701/873-6875

Sample Date: **09/28/99**

LARAMIE RIVER STATION
U3-RUN1
Lab Sample Number: **990049219**

Component			Method
MOISTURE, AS RECEIVED	30.80	WT %	ASTM D5142
ASH, AS RECEIVED	5.12	WT %	ASTM D5142
ASH, DRY	7.40	WT %	ASTM D5142
GROSS CALORIFIC VALUE, AS RECEIVED	8180	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE, DRY	11820	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE,DRY ASH-FREE	12760	BTU/LB	ASTM D1989
SULFUR, AS RECEIVED	0.34	WT %	ASTM D5061
SULFUR, DRY	0.49	WT %	ASTM D5061
SULFUR, DRY ASH-FREE	0.53	WT %	ASTM D5061
SODIUM IN ASH	1.27	WT %	ASTM D4326
SODIUM IN COAL	0.07	WT %	ASTM D4326
COAL WEIGHT	1	POUNDS	
CHLORINE, DRY	86	MG/KG	SW846 9075 Modified for Coal
CHLORINE, AS RECEIVED	60	MG/KG	SW846 9075 Modified for Coal
MERCURY, AS RECEIVED	0.082	MG/KG	SW846 7471A Adapted/Prep 3051/3052
MERCURY, DRY	0.118	MG/KG	SW846 7471A Adapted/Prep 3051/3052

Methods Referenced: ASTM; Annual Book of ASTM Standards, ASTM; SW-846: "Test Methods For Evaluating Solid Wastes, USEPA

DAKOTA GASIFICATION COMPANY
A BASIN ELECTRIC SUBSIDIARY
GREAT PLAINS SYNFUELS PLANT
P.O. BOX 1149
BEULAH, NORTH DAKOTA 58523
PHONE: 701/873-2100
FAX: 701/873-6875

Sample Date: **09/28/99**

LARAMIE RIVER STATION
U3-RUN2
Lab Sample Number: **990049220**

Component			Method
MOISTURE, AS RECEIVED	30.83	WT %	ASTM D5142
ASH, AS RECEIVED	5.19	WT %	ASTM D5142
ASH, DRY	7.51	WT %	ASTM D5142
GROSS CALORIFIC VALUE, AS RECEIVED	8290	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE, DRY	11990	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE,DRY ASH-FREE	12960	BTU/LB	ASTM D1989
SULFUR, AS RECEIVED	0.34	WT %	ASTM D5061
SULFUR, DRY	0.49	WT %	ASTM D5061
SULFUR, DRY ASH-FREE	0.53	WT %	ASTM D5061
SODIUM IN ASH	1.21	WT %	ASTM D4326
SODIUM IN COAL	0.06	WT %	ASTM D4326
COAL WEIGHT	1	POUNDS	
CHLORINE, DRY	66	MG/KG	SW846 9075 Modified for Coal
CHLORINE, AS RECEIVED	<50	MG/KG	SW846 9075 Modified for Coal
MERCURY, AS RECEIVED	0.098	MG/KG	SW846 7471A Adapted/Prep 3051/3052
MERCURY, DRY	0.142	MG/KG	SW846 7471A Adapted/Prep 3051/3052

Methods Referenced: ASTM; Annual Book of ASTM Standards, ASTM; SW-846: "Test Methods For Evaluating Solid Wastes, USEPA

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GREAT PLAINS SYNFUELS PLANT
P.O. BOX 1149
BEULAH, NORTH DAKOTA 58523
PHONE: 701/873-2100
FAX: 701/873-6875

Sample Date: **09/28/99**

LARAMIE RIVER STATION
U3-RUN3
Lab Sample Number: **990049221**

Component			Method
MOISTURE, AS RECEIVED	30.98	WT %	ASTM D5142
ASH, AS RECEIVED	4.87	WT %	ASTM D5142
ASH, DRY	7.06	WT %	ASTM D5142
GROSS CALORIFIC VALUE, AS RECEIVED	8330	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE, DRY	12070	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE,DRY ASH-FREE	12990	BTU/LB	ASTM D1989
SULFUR, AS RECEIVED	0.33	WT %	ASTM D5061
SULFUR, DRY	0.47	WT %	ASTM D5061
SULFUR, DRY ASH-FREE	0.51	WT %	ASTM D5061
SODIUM IN ASH	0.69	WT %	ASTM D4326
SODIUM IN COAL	<0.05	WT %	ASTM D4326
COAL WEIGHT	1	POUNDS	
CHLORINE, DRY	79	MG/KG	SW846 9075 Modified for Coal
CHLORINE, AS RECEIVED	55	MG/KG	SW846 9075 Modified for Coal
MERCURY, AS RECEIVED	0.078	MG/KG	SW846 7471A Adapted/Prep 3051/3052
MERCURY, DRY	0.114	MG/KG	SW846 7471A Adapted/Prep 3051/3052

Methods Referenced: ASTM; Annual Book of ASTM Standards, ASTM; SW-846: "Test Methods For Evaluating Solid Wastes, USEPA

PHILIP SERVICES

INORGANIC DATA PACKAGE
FOR
BRAUN INTERTEC
Project #: ***CMXX-99-0306***

Philip Analytical Services Corporation
5555 North Service Road
Burlington, Ontario L7L 5H7

Submission #9J1241

Prepared by: Janice Joseph - CSR Initial : _____
Approved by : Dr. Ron McLeod - Principal Scientist Initial : _____

1. CASE NARRATIVE

PROJECT NARRATIVE

PHILIP Analytical Services (Burlington ON)
Philip Project: AN991367
Philip Submission #:9J1241

Client: Braun Intertec
Client Project: CMXX-99-0306

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Philip ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Run Date
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- Front Half					
064880 99	Method Blank	99/09/20	99/10/28	99/12/14	99/12/14
064881 99	Unit 1 Blank	99/09/21	99/10/28	99/12/14	99/12/14
064887 99	Unit 1 Stack-FB	99/09/20	99/10/28	99/12/14	99/12/14
064888 99	Unit 1 Stack-R1	99/09/20	99/10/28	99/12/14	99/12/14
064889 99	Unit 1 Stack-R2	99/09/21	99/10/28	99/12/14	99/12/14
064890 99	Unit 1 Stack-R3	99/09/21	99/10/28	99/12/14	99/12/14
064891 99	Unit 1 Stack-R4	99/09/21	99/10/28	99/12/14	99/12/14
064892 99	Unit 3 Blank	99/09/22	99/10/28	99/12/14	99/12/14
064897 99	Unit 3 Stack-FB	99/09/23	99/10/28	99/12/14	99/12/14
064898 99	Unit 3 Stack-R1	99/09/22	99/10/28	99/12/14	99/12/14
064899 99	Unit 3 Stack-R2	99/09/22	99/10/28	99/12/14	99/12/14
064900 99	Unit 3 Stack-R3	99/09/23	99/10/28	99/12/14	99/12/14
064881 99	Unit 1 Blank	99/09/21	99/10/28	99/12/14	99/12/14
064882 99	Unit 1 Inlet-FB	99/09/20	99/10/28	99/12/14	99/12/14
064883 99	Unit 1 Inlet-R1	99/09/20	99/10/28	99/12/14	99/12/14
064884 99	Unit 1 Inlet-R2	99/09/21	99/10/28	99/12/14	99/12/14
064885 99	Unit 1 Inlet-R3	99/09/21	99/10/28	99/12/14	99/12/14
064886 99	Unit 1 Inlet-R4	99/09/21	99/10/28	99/12/14	99/12/14
064892 99	Unit 3 Blank	99/09/22	99/10/28	99/12/17	99/12/17
064893 99	Unit 3 Inlet-FB	99/09/23	99/10/28	99/12/14	99/12/14
064894 99	Unit 3 Inlet-R1	99/09/22	99/10/28	99/12/14	99/12/14
064895 99	Unit 3 Inlet-R2	99/09/22	99/10/28	99/12/14	99/12/14
064896 99	Unit 3 Inlet-R3	99/09/23	99/10/28	99/12/14	99/12/14
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- Hydroxylamine					
064880 99	Method Blank	99/09/20	99/10/28	99/11/18	99/11/18
064881 99	Unit 1 Blank	99/09/21	99/10/28	99/11/18	99/11/18
064892 99	Unit 3 Blank	99/09/22	99/10/28	99/11/18	99/11/18
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- KCl Impingers/Rinses					
064880 99	Method Blank	99/09/20	99/10/28	99/11/18	99/11/18

064881 99	Unit 1 Blank	99/09/21	99/10/28	99/11/18	99/11/18
064882 99	Unit 1 Inlet-FB	99/09/20	99/10/28	99/11/18	99/11/18
064883 99	Unit 1 Inlet-R1	99/09/20	99/10/28	99/11/18	99/11/18
064884 99	Unit 1 Inlet-R2	99/09/21	99/10/28	99/11/18	99/11/18
064885 99	Unit 1 Inlet-R3	99/09/21	99/10/28	99/11/18	99/11/18
064886 99	Unit 1 Inlet-R4	99/09/21	99/10/28	99/11/18	99/11/18
064887 99	Unit 1 Stack-FB	99/09/20	99/10/28	99/11/18	99/11/18
064888 99	Unit 1 Stack-R1	99/09/20	99/10/28	99/11/18	99/11/18
064889 99	Unit 1 Stack-R2	99/09/21	99/10/28	99/11/18	99/11/18
064890 99	Unit 1 Stack-R3	99/09/21	99/10/28	99/11/18	99/11/18
064891 99	Unit 1 Stack-R4	99/09/21	99/10/28	99/11/18	99/11/18
064892 99	Unit 3 Blank	99/09/22	99/10/28	99/11/18	99/11/18
064893 99	Unit 3 Inlet-FB	99/09/23	99/10/28	99/11/18	99/11/18
064894 99	Unit 3 Inlet-R1	99/09/22	99/10/28	99/11/18	99/11/18
064895 99	Unit 3 Inlet-R2	99/09/22	99/10/28	99/11/18	99/11/18
064896 99	Unit 3 Inlet-R3	99/09/23	99/10/28	99/11/18	99/11/18
064897 99	Unit 3 Stack-FB	99/09/23	99/10/28	99/11/18	99/11/18
064898 99	Unit 3 Stack-R1	99/09/22	99/10/28	99/11/18	99/11/18
064899 99	Unit 3 Stack-R2	99/09/22	99/10/28	99/11/18	99/11/18
064900 99	Unit 3 Stack-R3	99/09/23	99/10/28	99/11/18	99/11/18

Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- KMNO4 Impingers/Rinses

064880 99	Method Blank	99/09/20	99/10/28	99/11/18	99/11/18
064881 99	Unit 1 Blank	99/09/21	99/10/28	99/11/18	99/11/18
064882 99	Unit 1 Inlet-FB	99/09/20	99/10/28	99/11/18	99/11/18
064883 99	Unit 1 Inlet-R1	99/09/20	99/10/28	99/11/18	99/11/18
064884 99	Unit 1 Inlet-R2	99/09/21	99/10/28	99/11/18	99/11/18
064885 99	Unit 1 Inlet-R3	99/09/21	99/10/28	99/11/18	99/11/18
064886 99	Unit 1 Inlet-R4	99/09/21	99/10/28	99/11/18	99/11/18
064887 99	Unit 1 Stack-FB	99/09/20	99/10/28	99/11/18	99/11/18
064888 99	Unit 1 Stack-R1	99/09/20	99/10/28	99/11/18	99/11/18
064889 99	Unit 1 Stack-R2	99/09/21	99/10/28	99/11/18	99/11/18
064890 99	Unit 1 Stack-R3	99/09/21	99/10/28	99/11/18	99/11/18
064891 99	Unit 1 Stack-R4	99/09/21	99/10/28	99/11/18	99/11/19
064892 99	Unit 3 Blank	99/09/22	99/10/28	99/11/18	99/11/18
064893 99	Unit 3 Inlet-FB	99/09/23	99/10/28	99/11/18	99/11/18
064894 99	Unit 3 Inlet-R1	99/09/22	99/10/28	99/11/18	99/11/18
064895 99	Unit 3 Inlet-R2	99/09/22	99/10/28	99/11/18	99/11/18
064896 99	Unit 3 Inlet-R3	99/09/23	99/10/28	99/11/18	99/11/18
064897 99	Unit 3 Stack-FB	99/09/23	99/10/28	99/11/18	99/11/18
064898 99	Unit 3 Stack-R1	99/09/22	99/10/28	99/11/18	99/11/18
064899 99	Unit 3 Stack-R2	99/09/22	99/10/28	99/11/18	99/11/18
064900 99	Unit 3 Stack-R3	99/09/23	99/10/28	99/11/18	99/11/18

Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- HNO3/H202 Impingers/Rinses

064880 99	Method Blank	99/09/20	99/10/28	99/11/15	99/11/15
064881 99	Unit 1 Blank	99/09/21	99/10/28	99/11/15	99/11/15
064882 99	Unit 1 Inlet-FB	99/09/20	99/10/28	99/11/15	99/11/15
064883 99	Unit 1 Inlet-R1	99/09/20	99/10/28	99/11/15	99/11/15

064884 99	Unit 1 Inlet-R2	99/09/21	99/10/28	99/11/15	99/11/15
064885 99	Unit 1 Inlet-R3	99/09/21	99/10/28	99/11/15	99/11/15
064886 99	Unit 1 Inlet-R4	99/09/21	99/10/28	99/11/15	99/11/15
064887 99	Unit 1 Stack-FB	99/09/20	99/10/28	99/11/15	99/11/15
064888 99	Unit 1 Stack-R1	99/09/20	99/10/28	99/11/15	99/11/15
064889 99	Unit 1 Stack-R2	99/09/21	99/10/28	99/11/15	99/11/15
064890 99	Unit 1 Stack-R3	99/09/21	99/10/28	99/11/15	99/11/15
064891 99	Unit 1 Stack-R4	99/09/21	99/10/28	99/11/15	99/11/15
064892 99	Unit 3 Blank	99/09/22	99/10/28	99/11/15	99/11/15
064893 99	Unit 3 Inlet-FB	99/09/23	99/10/28	99/11/15	99/11/15
064894 99	Unit 3 Inlet-R1	99/09/22	99/10/28	99/11/15	99/11/15
064895 99	Unit 3 Inlet-R2	99/09/22	99/10/28	99/11/15	99/11/15
064896 99	Unit 3 Inlet-R3	99/09/23	99/10/28	99/11/15	99/11/15
064897 99	Unit 3 Stack-FB	99/09/23	99/10/28	99/11/15	99/11/15
064898 99	Unit 3 Stack-R1	99/09/22	99/10/28	99/11/15	99/11/15
064899 99	Unit 3 Stack-R2	99/09/22	99/10/28	99/11/15	99/11/15
064900 99	Unit 3 Stack-R3	99/09/23	99/10/28	99/11/15	99/11/15

Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- Probe Rinse

064881 99	Unit 1 Blank	99/09/21	99/10/28	99/12/09	99/12/09
064892 99	Unit 3 Blank	99/09/22	99/10/28	99/12/09	99/12/09

Run Date is defined as the date of injection of the last calibration standard (12 hour or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis.

a) Hold Times:
Samples were received at Philip some 38 days following sampling.

The draft ASTM method has a defaulted hold time of 45 days for analysis after sampling. The authors at EERC (Denis Laudal) have indicated that this hold time is a very conservative value and that they have data demonstating that the levels do not change over several months in the recovered impinger solutions as submitted to the laboratory. We can confirm this by the tabulated data below which shows no measurable change in KCl and KMnO4 impinger contents over greater than four months. The filter captured solids of coal fly ash is within the heated zone of the train and therefore volatile mercury has already been stripped and hold time should not be a concern with the fraction. In fact NIST uses coal fly ash as mercury reference materials (eg. 1633b) because of its long term stability.

Therefore despite the apparent exceedence from the method recommended hold time, there should be no concern for sample integrity from sample storage of this time frame.

ASTM Mercury Speciation Train ('Ontario Hydro Method') Sample Stability Study

KCl Impinger

	PASC ID #:	044798 99	044799 99	044800 99
Analysis Data		**ug**	**ug**	**ug**
Sept 9th 1999		16.4	7.70	4.13
Nov. 1999		14.6	7.25	4.11
Jan 11th 2000		16.3	7.53	4.50

KMnO4 Impinger

	PASC ID #:	044798 99	044799 99	044800 99
Analysis Data		**ug**	**ug**	**ug**
Sept 9th 1999		3.66	0.383	0.570
Nov. 1999		3.33	0.361	0.505
Jan 11th 2000		3.62	0.391	0.538

b) Instrument Calibration: all within control limits

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above.
In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate.
Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Ronald A. McLeod, Principal Sci., Ph.D.,C.Chem.

Date

2. ANALYTICAL DATA REPORT

PHILIP SERVICES

Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Bruce Randall	**Contact:**	Ron McLeod
Client Name:	Braun Intertec	**Project:**	AN991367
Project:	CMXX-99-0306	**Date Received:**	99/10/28
Project Desc:	Stack Emissions	**Date Reported:**	99/12/15
Address:	P.O. Box 39108 Minneapolis, MN 55439	**Submission No.:**	9J1241
		Sample No.:	064880-064900
Fax Number:	612-946-6001		
Phone Number:	612-833-4653		

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:

Certified by:

PHILIP ANALYTICAL SERVICES CORPORATION
5555 North Service Road, Burlington, Ontario, Canada L7L 5H7 Tel: (905) 332-8788 Fax: (905) 332-9169

PASC - Certificate of Analysis

			Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	Unit 1 Blank	Unit 1 Inlet-FB	Unit 1 Inlet-R1	Unit 1 Inlet-R1
Client ID:											
Lab No.:			064880 99	064880 99	064880 99	064880 99	064880 99	064881 99	064882 99	064883 99	064883 99
Date Sampled:			-	-	-	-	-	99/09/21	99/09/20	99/09/20	99/09/20
Component	**MDL**	**Units**			% Recoveries		% Recoveries				Duplicate
Mercury - FH (Outlet)	0.010	ug	<	0.096	96	0.098	98	0.011	-	-	-
Mercury - FH (Inlet)	0.010	"	-	-	-	-	-	<0.070	<0.050	0.59	0.60
Mercury - hydroxylamine	0.010	"	<	0.096	96	0.094	94	<	-	-	-
Mercury - KCl	0.030	"	<	0.30	99	0.30	100	<0.10	<0.10	0.98	1.1
Mercury - KMnO4	0.030	"	<	0.31	100	0.30	100	<0.10	<0.10	8.9	9.2
Mercury - H202	0.010	"	<	0.097	97	0.099	99	<0.25	<0.25	<0.25	<0.25
Mercury - probe rinse	0.010	"	-	-	-	-	-	<	-	-	-

00008

PASC - Certificate of Analysis

			Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1
	Client ID:		Inlet-R1	Inlet-R1	Inlet-R1	Inlet-R1	Inlet-R2	Inlet-R3	Inlet-R4	Stack-FB	Stack-R1	Stack-R1
	Lab No.:		064883 99	064883 99	064883 99	064883 99	064884 99	064885 99	064886 99	064887 99	064888 99	064888 99
	Date Sampled:		99/09/20	99/09/20	99/09/20	99/09/20	99/09/21	99/09/21	99/09/21	99/09/20	99/09/20	99/09/20
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.						Duplicate
Mercury - FH (Outlet)	0.010	ug	-	-	-	-	-	-	-	<	<	<
Mercury - FH (Inlet)	0.010	"	1.0	91	1.0	88	0.37	0.055	<0.050	-	-	-
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-	-	-	-
Mercury - KCl	0.030	"	2.1	110	2.0	100	4.6	3.1	4.5	<0.10	0.99	-
Mercury - KMnO4	0.030	"	10	97	10.0	91	11	12	11	<0.10	9.4	-
Mercury - H202	0.010	"	2.5	100	2.5	99	<0.25	<0.25	<0.25	<0.25	<0.25	-
Mercury - probe rinse	0.010	"	-	-	-	-	-	-	-	-	-	-

00009

PASC - Certificate of Analysis

	Client ID:		Unit 1 Stack-R1	Unit 1 Stack-R1	Unit 1 Stack-R1	Unit 1 Stack-R1	Unit 1 Stack-R2	Unit 1 Stack-R3	Unit 1 Stack-R4	Unit 3 Blank	Unit 3 Inlet-FB	Unit 3 Inlet-R1
	Lab No.:		064888 99	064888 99	064888 99	064888 99	064889 99	064890 99	064891 99	064892 99	064893 99	064894 99
	Date Sampled:		99/09/20	99/09/20	99/09/20	99/09/20	99/09/21	99/09/21	99/09/21	99/09/22	99/09/23	99/09/22
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.						
Mercury - FH (Outlet)	0.010	ug	0.11	100	0.11	99	0.027	<	0.013	<	-	-
Mercury - FH (Inlet)	0.010	"	-	-	-	-	-	-	-	<	<0.050	<0.060
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-	<	-	-
Mercury - KCl	0.030	"	-	-	-	-	0.41	0.17	<0.10	<0.10	<0.10	0.25
Mercury - KMnO4	0.030	"	-	-	-	-	6.8	8.3	7.8	<0.10	0.18	0.71
Mercury - H202	0.010	"	-	-	-	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Mercury - probe rinse	0.010	"	-	-	-	-	-	-	-	<	-	-

00010

PASC - Certificate of Analysis

	Client ID:		Unit 3 Inlet-R1	Unit 3 Inlet-R1	Unit 3 Inlet-R1	Unit 3 Inlet-R1	Unit 3 Inlet-R1	Unit 3 Inlet-R2	Unit 3 Inlet-R3	Unit 3 Stack-FB	Unit 3 Stack-R1	Unit 3 Stack-R2	Unit 3 Stack-R3
	Lab No.:		064894 99	064894 99	064894 99	064894 99	064894 99	064895 99	064896 99	064897 99	064898 99	064899 99	064900 99
	Date Sampled:		99/09/22	99/09/22	99/09/22	99/09/22	99/09/22	99/09/22	99/09/23	99/09/23	99/09/22	99/09/22	99/09/23
Component	**MDL**	**Units**	Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.						
Mercury - FH (Outlet)	0.010	ug	-	-	-	-	-	-	-	<	0.032	0.037	0.042
Mercury - FH (Inlet)	0.010	"	-	-	-	-	-	1.9	4.9	-	-	-	-
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-	-	-	-	-
Mercury - KCl	0.030	"	0.26	1.3	100	1.3	100	0.59	0.47	<0.10	0.12	<0.10	<0.10
Mercury - KMnO4	0.030	"	0.67	1.7	100	1.7	100	9.6	10	<0.10	4.8	5.9	6.7
Mercury - H202	0.010	"	<0.25	2.5	100	2.6	100	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Mercury - probe rinse	0.010	"	-	-	-	-	-	-	-	-	-	-	-

00311

Batch Code:	**12103NF1**	**12143NFT**
Mercury - filter	064880 99	064881 99
		064887 99
		064888 99
		064889 99
		064890 99
		064891 99
		064892 99
		064897 99
		064898 99
		064899 99
		064900 99
Run Date:	99/12/14	99/12/14
Date of Sample Prep:	99/12/10	99/12/14

Batch Code:	**12144NFB**	**12144NFB**
Mercury - filter - bulk	064881 99	064892 99
	064882 99	
	064883 99	
	064884 99	
	064885 99	
	064886 99	
	064893 99	
	064894 99	
	064895 99	
	064896 99	
Run Date:	99/12/14	99/12/17
Date of Sample Prep:	99/12/14	99/12/17

Batch Code:	**11181BHY**
Mercury - hydroxylamine	064880 99
	064881 99
	064892 99
Run Date:	99/11/18
Date of Sample Prep:	99/11/18

Batch Code:	**11181NKC**	**11182NKC**
Mercury - KCl	064880 99	064891 99
	064881 99	064892 99
	064882 99	064893 99
	064883 99	064894 99
	064884 99	064895 99
	064885 99	064896 99
	064886 99	064897 99
	064887 99	064898 99
	064888 99	064899 99
	064889 99	064900 99
	064890 99	
Run Date:	99/11/18	99/11/18

Date of Sample Prep:	99/11/18	99/11/18	
Batch Code:	**11181BMN**	**11182BMN**	**11182BMN**
Mercury - KMnO4	064880 99	064891 99	064892 99
	064881 99		064893 99
	064882 99		064894 99
	064883 99		064895 99
	064884 99		064896 99
	064885 99		064897 99
	064886 99		064898 99
	064887 99		064899 99
	064888 99		064900 99
	064889 99		
	064890 99		
Run Date:	99/11/18	99/11/19	99/11/18
Date of Sample Prep:	99/11/18	99/11/18	99/11/18
Batch Code:	**11151BPO**	**11152BPO**	
Mercury - H202	064880 99	064891 99	
	064881 99	064892 99	
	064882 99	064893 99	
	064883 99	064894 99	
	064884 99	064895 99	
	064885 99	064896 99	
	064886 99	064897 99	
	064887 99	064898 99	
	064888 99	064899 99	
	064889 99	064900 99	
	064890 99		
Run Date:	99/11/15	99/11/15	
Date of Sample Prep:	99/11/15	99/11/15	
Batch Code:	**12093NPR**		
Mercury - probe rinse	064881 99		
	064892 99		
Run Date:	99/12/09		
Date of Sample Prep:	99/12/09		

3. RAW DATA

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
064880	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.096	96.	0.098	98.	99/12/14	3NF1	99/12/14	MG02	85.	47.	
064881	BRAUN-MN	Unit 1 Blank	Mercury -	PV	0.011						99/12/14	3NFT	99/12/14	MG02	84.	47.	
064887	BRAUN-MN	Unit 1 Stack-FB	Mercury -	PV	-0.010						99/12/14	3NFT	99/12/14	MG02	85.	47.	
064888	BRAUN-MN	Unit 1 Stack-R1	Mercury -	PV	-0.010	-0.010	0.106	100.	0.105	99.	99/12/14	3NFT	99/12/14	MG02	85.	47.	
064889	BRAUN-MN	Unit 1 Stack-R2	Mercury -	PV	0.027						99/12/14	3NFT	99/12/14	MG02	84.	47.	
064890	BRAUN-MN	Unit 1 Stack-R3	Mercury -	PV	-0.010						99/12/14	3NFT	99/12/14	MG02	84.	47.	
064891	BRAUN-MN	Unit 1 Stack-R4	Mercury -	PV	0.013						99/12/14	3NFT	99/12/14	MG02	84.	47.	
064892	BRAUN-MN	Unit 3 Blank	Mercury -	PV	-0.010						99/12/14	3NFT	99/12/14	MG02	83.	47.	
064897	BRAUN-MN	Unit 3 Stack-FB	Mercury -	PV	-0.010						99/12/14	3NFT	99/12/14	MG02	82.	47.	
064898	BRAUN-MN	Unit 3 Stack-R1	Mercury -	PV	0.032						99/12/14	3NFT	99/12/14	MG02	83.	47.	
064899	BRAUN-MN	Unit 3 Stack-R2	Mercury -	PV	0.037						99/12/14	3NFT	99/12/14	MG02	83.	47.	
064900	BRAUN-MN	Unit 3 Stack-R3	Mercury -	PV	0.042						99/12/14	3NFT	99/12/14	MG02	82.	47.	
BL1214	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.096	96.	0.098	98.	99/12/14	3NFT	99/12/14	MG02	$$$	$$$	*BLKIMP*

13 Tests for OHFLT with an MDL of 0.010 ug Validated By CMB Control Chart Updated N/A IO Requirements met N/A

00015

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
064881	BRAUN-MN	Unit 1 Blank	Mercury -	PV	-0.070						99/12/14	4NFB	99/12/14	MG02	84.	47.	
064882	BRAUN-MN	Unit 1 Inlet-FB	Mercury -	PV	-0.050						99/12/14	4NFB	99/12/14	MG02	85.	47.	
064883	BRAUN-MN	Unit 1 Inlet-R1	Mercury -	PV	0.588	0.599	1.041	91.	1.035	88.	99/12/14	4NFB	99/12/14	MG02	85.	47.	
064884	BRAUN-MN	Unit 1 Inlet-R2	Mercury -	PV	0.367						99/12/14	4NFB	99/12/14	MG02	84.	47.	
064885	BRAUN-MN	Unit 1 Inlet-R3	Mercury -	PV	0.055						99/12/14	4NFB	99/12/14	MG02	84.	47.	
064886	BRAUN-MN	UNIT	Mercury -	PV	-0.050						99/12/14	4NFB	99/12/14	MG02	84.	47.	
064893	BRAUN-MN	Unit 3 Inlet-FB	Mercury -	PV	-0.050						99/12/14	4NFB	99/12/14	MG02	82.	47.	
064894	BRAUN-MN	Unit 3 Inlet-R1	Mercury -	PV	-0.060						99/12/14	4NFB	99/12/14	MG02	83.	47.	
064895	BRAUN-MN	Unit 3 Inlet-R2	Mercury -	PV	1.945						99/12/14	4NFB	99/12/14	MG02	83.	47.	
064896	BRAUN-MN	Unit 3 Inlet-R3	Mercury -	PV	4.945						99/12/14	4NFB	99/12/14	MG02	82.	47.	
BL1214	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.104	104.	0.101	101.	99/12/14	4NFB	99/12/14	MG02	$$$	$$$	*BLKIMP*

11 Tests for OHFLTB with an MDL of 0.010 ug Validated By CMB Control Chart Updated N/A IO Requirements met N/A

00016

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.14(WA) Run Code: MG02 Matrix: IMP

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL1214	3NFT.		
13			"			
14			BL1214 S			
15			"			
16			BL1214 DS			
17			"			
18			64888			
19			"			
20			64888 D			
21			"			
22			64888 S			
23			"			
24			64888 DS			
25			"			
26			64881			
27			"			
28			64887			
29			"			
30			64889			
31			"			
32			CCV			
33			B			
34			D4			
35			64890			
36			"			
37			64891			
38			"			
39			64892			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			64897			
42			"			
43			64898			
44			"			
45			64899			
46			"			
47			64900			
48			"			
49			BL1214	4NFB		
50			"			
51			BL1214 S			
52			"			
53			BL1214 DS			
54			"			
55			CCV			
56			B			
57			D4			
58			64883			
59			"			
60			64883 D			
61			"			
62			64883 S			
63			"			
64			64883 DS			
65			"			
66			64881			
67			"			
68			64882			
69			"			
70			64884			
71			"			
72			64885			
73			"			
74			64886			
75			"			
76			64893			
77			"			
78			CCV			
79			B			
80			D4			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.14(wA) Run Code: M602 Matrix: IMP.

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
81 21			64894			
22			"			
23			64895			
24			"			
25		1/2	64896			
26		↓	"			
27			64892			
28			"			
29			CCV			
30			B			
31			D4			
32						
33						
34						
35						
36						
37						
38						
39						
40						

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41						
42						
43						
44						
45						
46						
47						
48						
49						
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78						
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80						

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

DGHGLEACH, DG29HG***

00319

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List

- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added TO MATRIX MATCH STDS ¥
- ~~Reagents added~~
- ~~Samples spiked~~
- ~~Bath at 95 degrees C~~
- ~~Samples digested~~
- ~~Hydroxylamine HCl added~~
- ~~Samples bulked and mixed~~
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	3NFT	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1214	"	"	"	"	(Processed Blank)
	11	BL 1214 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	64881	"	"	"	"	FINAL VOL 100 ml
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64887	"	"	"	"	100 ml ~~600 ml~~ MN
3	17	88	"	"	"	"	~~700 ml~~ MN
4	18	89	"	"	"	"	~~800 ml~~ MN
5	19	90	"	"	"	"	~~800 ml~~ MN
6	20	91	"	"	"	"	
7	21	92	"	"	"	"	
8	22	97	"	"	"	"	
9	23	98	"	"	"	"	
10	24	99	"	"	"	"	
	25	CCV (Cont. Calib. Verif.) 64900	4NFG	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1214	"	"	"	"	(Processed Blank)
	27	BL 1214 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	64891	"	"	"	"	700 ml
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	64892	"	"	"	"	500 ml ~~600 ml~~ MN
3	33	83	"	"	"	"	500 ml ~~600 ml~~ MN
4	34	84	"	"	"	"	500 ml ~~700 ml~~ MN
5	35	85	"	"	"	"	500 ml ~~800 ml~~ MN
6	36	86	"	"	"	"	500 ml ~~800 ml~~ MN
7	37	64893	"	"	"	"	500 ml
8	38	94	"	"	"	"	600 ml
9	39	95	"	"	"	"	1400 ml
10	40	96	"	"	"	"	1800 ml

64892 500 ml

Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C

DG29HGI, DG29HGF, DG101AA1, DG101AA2

¥ 1.4 ml HF + 1 ml AR TO MATRIX MATCH STDS ¥

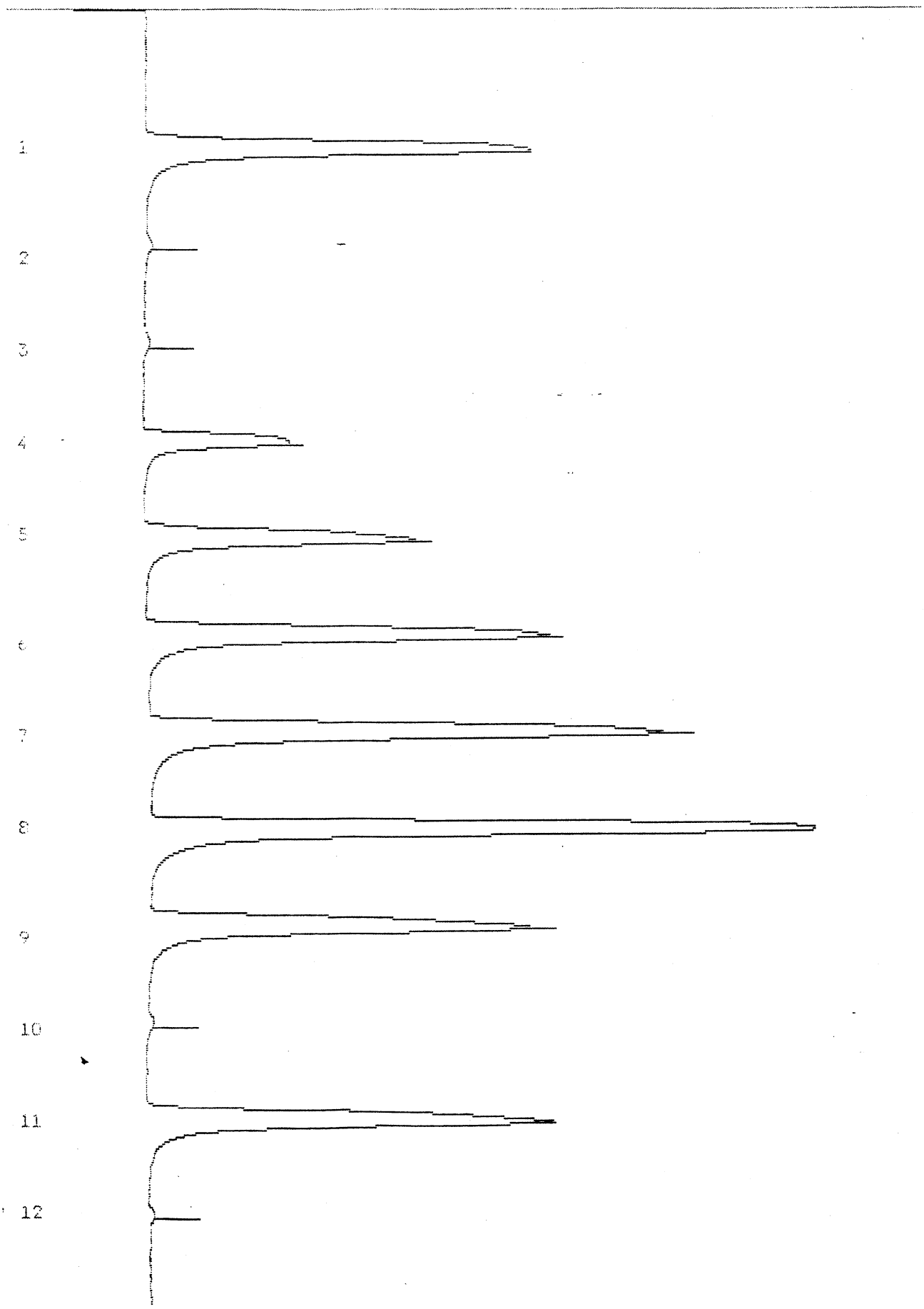
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

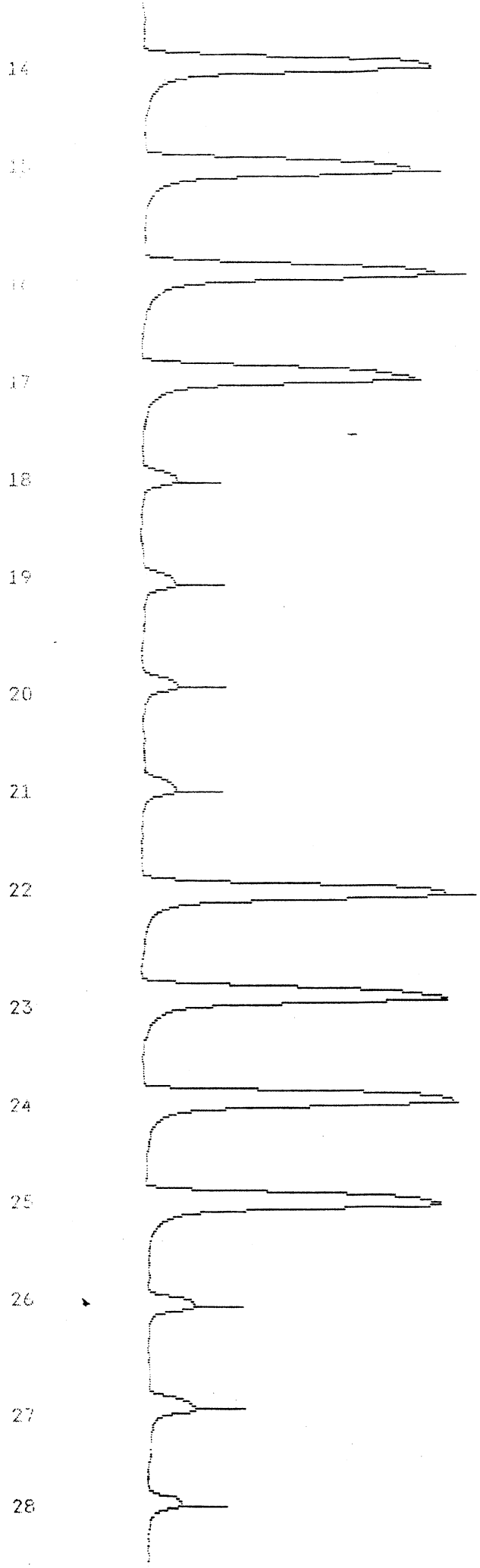
Prepare 0.05 ppm standards daily

HNO3 Lot. No. 119090 H2SO4 Lot. No. 517124 Bath Temps. 1 ~~[illegible]~~ °C

Prepared By: M Thapinos Date: 9/12/14 Checked by: M Thapinos

RUN DATE: 12-14-1999 CHART DATE: 12-15-1999
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\991214WA.DAT

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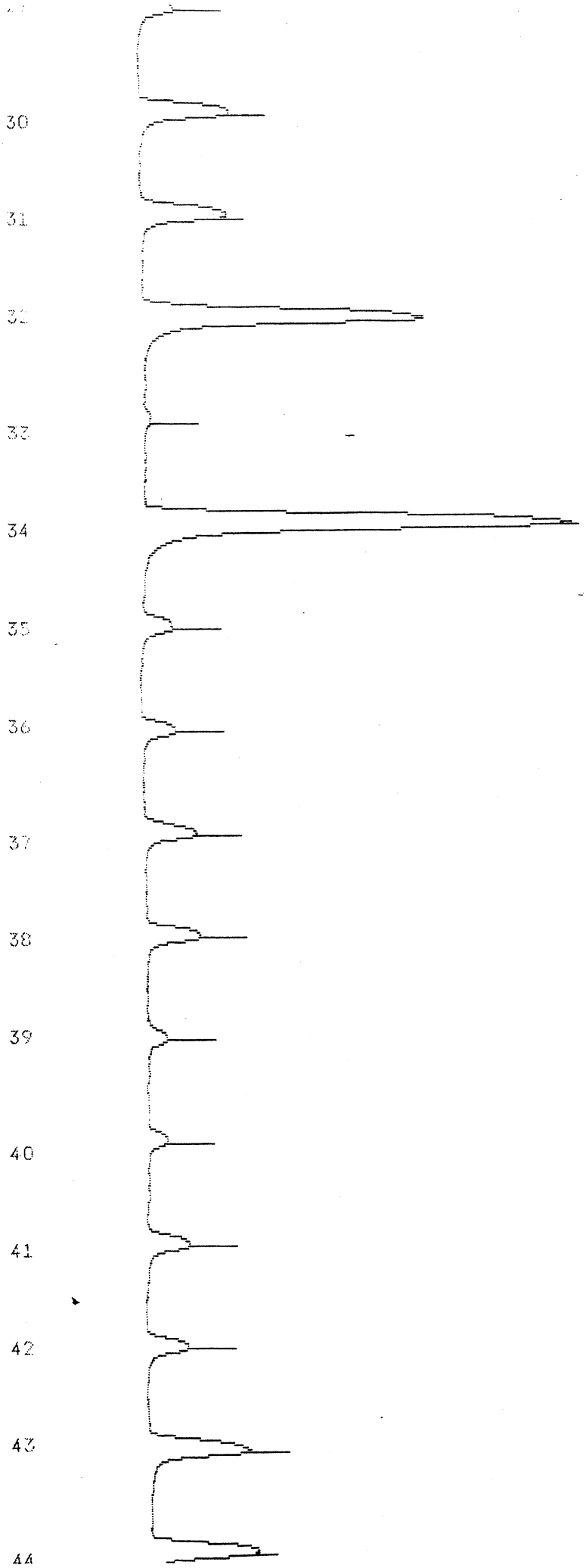
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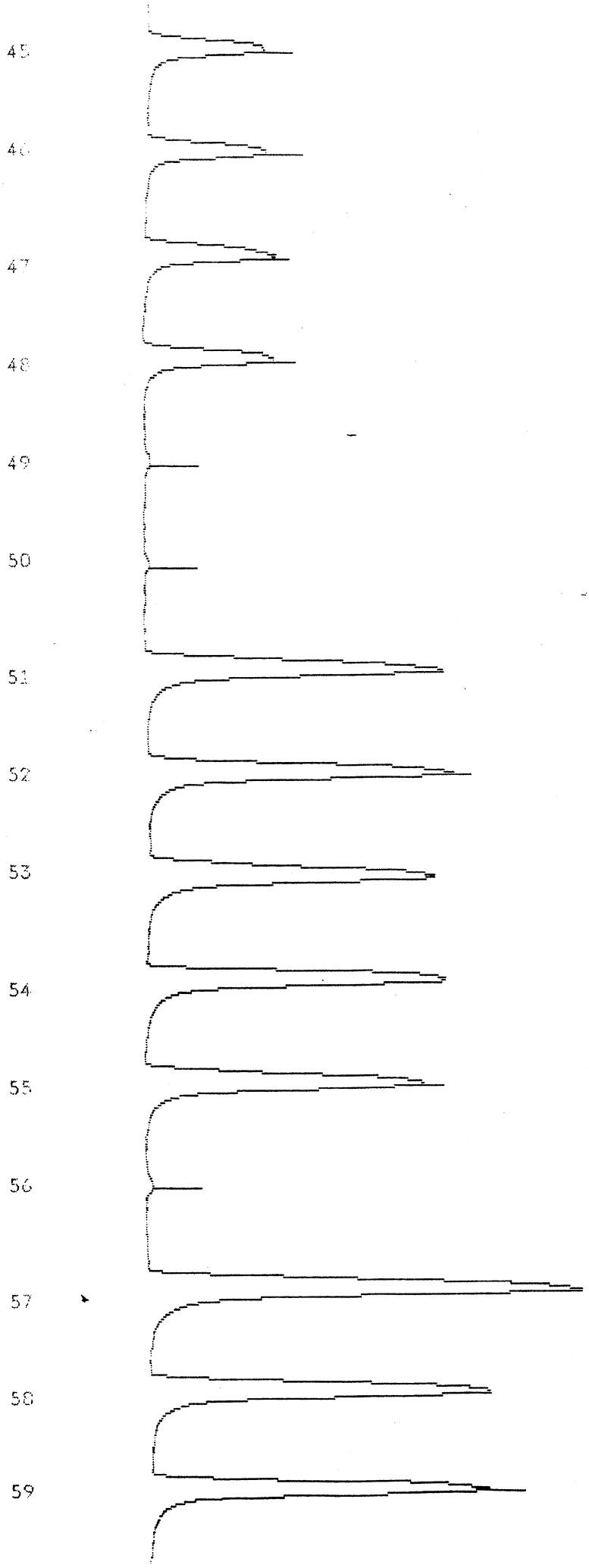
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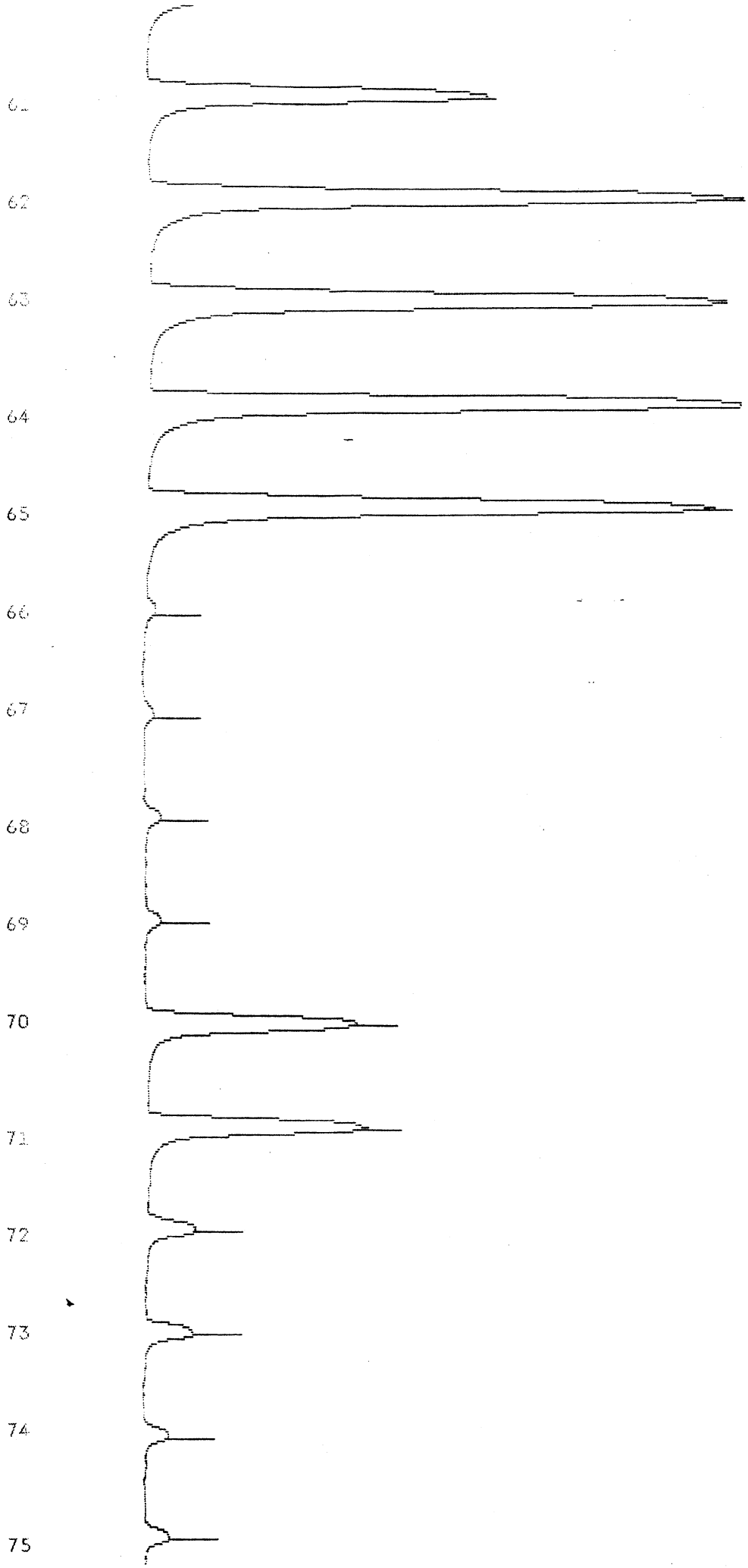
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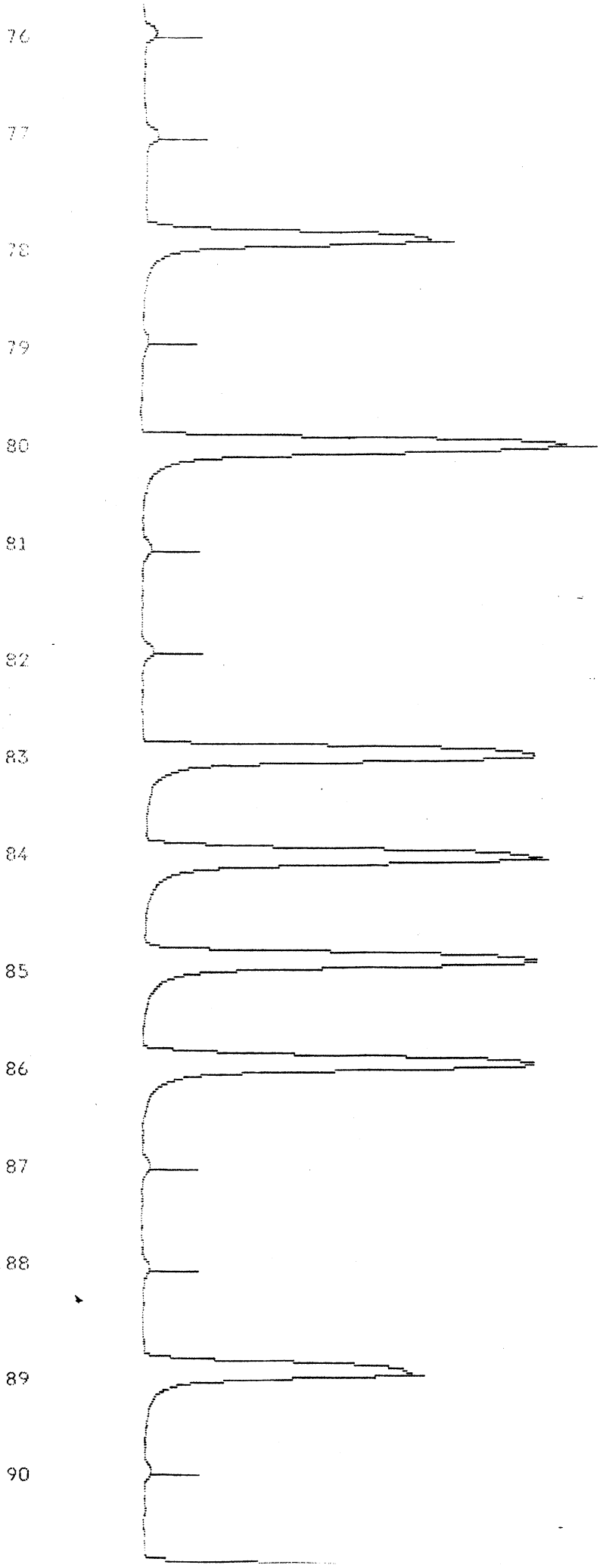
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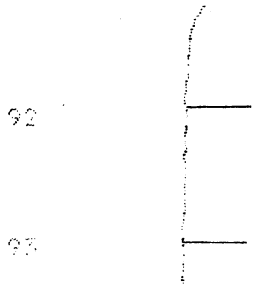
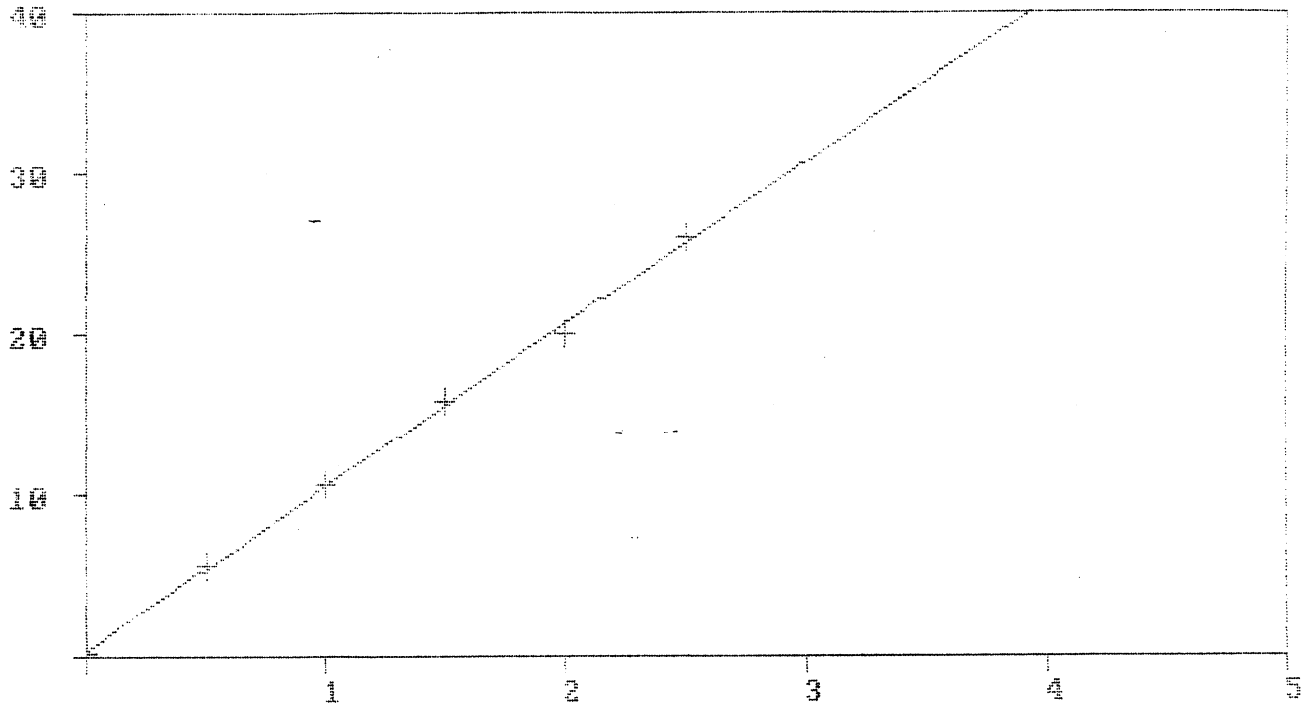


CHANNEL NAME: LDC
RUN NAME: 991214WA



DATA TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = 0.34 SLOPE = 10.1057

CORRELATION: .9992236

CHANNEL NAME: LDC
RUN DATE: 12-14-1999
SAMPLE TABLE NAME: 991214WA
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION µg/L	EF
1	PRIMER	1	1	15.2		1.469	s
2	DUMMY	1	1	0.1		-0.022	I
3	S1: 0	1	1	0.1		-0.022	I
4	S2: .5	1	1	5.7		0.527	.
5	S3: 1	1	1	10.5		1.008	
6	S4: 1.5	1	1	15.7		1.522	
7	S5: 2	1	1	19.9		1.935	
8	S6: 2.5	1	1	25.9		2.530	
9	ICV	1	1	14.6		1.414	94%
10	B	1	1	0.0	Tot. µg	-0.034	b
11	D4	1	1	15.7		1.522	d
12	BL1214-3NFT	1	1	0.0	<0.01	-0.034	I
13	BL1214-3NFT	1	1	0.0		-0.034	I
14	BL1214S	1	1	10.5	0.096	1.000	96%
15	BL1214S	1	1	9.6		0.918	
16	BL1214DS	1	1	10.6	0.098	1.012	s 98%
17	BL1214DS	1	1	9.9		0.947	

19	64888	1	1	0.9		0.056		
20	64888D	1	1	1.0	<0.01	0.063		
21	64888D	1	1	1.0		0.065		
22	64888S	1	1	10.9	0.106	1.049	100%	
23	64888S	1	1	11.2		1.078		
24	64888DS	1	1	11.2	0.105	1.073	99%	
25	64888DS	1	1	10.7		1.022		
26	64881	1	1	1.4	mb <0.011	0.104		
27	64881	1	1	1.4		0.106		
28	64887	1	1	0.9	<0.01	0.055		
29	64887	1	1	1.0		0.060		
30	64889	1	1	3.1	0.027	0.275		
31	64889	1	1	3.0		0.258	s	
32	CCV	1	1	10.3		0.988	99%	
33	B	1	1	0.0		-0.034	b	
34	D4	1	1	15.7		1.522	d	
35	64890	1	1	0.8	<0.01	0.046		
36	64890	1	1	0.9		0.058		
37	64891	1	1	1.6	0.013	0.123		
38	64891	1	1	1.6		0.126		
39	64892	1	1	0.4	<0.01	0.007	I	
40	64892	1	1	0.4		0.005	I	
41	64897	1	1	1.2	<0.01	0.089		
42	64897	1	1	1.2		0.082		
43	64898	1	1	3.5	0.032	0.309		
44	64898	1	1	3.7		0.331		
45	64899	1	1	4.0	0.037	0.362		
46	64899	1	1	4.1		0.367	s	
47	64900	1	1	4.5	0.042	0.413		
48	64900 mb	1	1	4.6		0.423		
49	BL1214-4NFB	1	1	0.0	<0.01	-0.034	I	
50	BL1214-4NFB	1	1	0.0		-0.034	I	
51	BL1214S	1	1	10.7	0.104	1.029	104%	
52	BL1214S	1	1	11.0		1.053		
53	BL1214DS	1	1	10.3	0.101	0.988	101%	
54	BL1214DS	1	1	10.7		1.027		
55	CCV	1	1	10.0		0.952	95%	
56	B	1	1	0.0		-0.034	b	
57	D4	1	1	15.7		1.522	d	
58	64883	1	1	12.2	0.588	1.177		
59	64883	1	1	12.2		1.174		
60	64883D	1	1	12.5	0.599	1.201		
61	64883D	1	1	12.4		1.196	s	
62	64883S	1	1	21.9	1.048	2.129	91%	
63	64883S	1	1	21.2		2.064		
64	64883DS	1	1	21.8	1.035	2.124	88%	
65	64883DS	1	1	20.7		2.015		
66	64881	1	1	0.1	< 0.07	-0.024	I	
67	64881	1	1	0.1		-0.022	I	
68	64882	1	1	0.4	<0.05	0.005	I	
69	64882	1	1	0.3		-0.000	I	
70	64884	1	1	7.6	0.367	0.718		
71	64884	1	1	7.9		0.749		
72	64885	1	1	1.5	0.055	0.111		
73	64885	1	1	1.4		0.109		
74	64886	1	1	0.6	<0.05	0.026		
75	64886	1	1	0.6		0.029	I	
76	64893	1	1	0.3	<0.05	-0.007	s	
77	64893	1	1	0.3		-0.005	I	
78	CCV	1	1	10.5		1.003	100%	
79	B	1	1	0.0		-0.034	b	
80	D4	1	1	15.7		1.522	d	
81	64894	1	1	0.1	<0.06	-0.022	I	
82	64894	1	1	0.2		-0.010	I	
83	64895	1	1	14.3		1.380		

85	64896	2	1	14.3	4.945 2.759	
86	64896	2	1	14.2	2.735	
87	64892	1	1	0.1	<0.05 ~~-0.031~~ 0.0228	
88	64892	1	1	0.0	-0.029	I
89	CCV	1	1	9.5	0.906917	
90	8	1	1	0.0	-0.034	b
91	04	1	1	15.7	1.522	s
92	0	1	1	0.0	-0.034	I
93	0	1	1	0.0	-0.034	I

INTERCEPT: 0.34 LINEAR COEF: 10.1057

CORRELATION COEF: .9992236

n er	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
92	BRAUN-MN	Unit 3 Blank	Mercury -	PV	-0.010						99/12/17	4NFB	99/12/17	MG02	86.	50.	
17	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.099	99.	0.101	101.	99/12/17	4NFB	99/12/17	MG02	$$$	$$$	*BLKIMP*

2 Tests for OHFLTB with an MDL of 0.010 ug Validated By CMB Control Chart Updated N/A IO Requirements met N/A

00029

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.17 Run Code: MGD2 Matrix: IMP

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL1217	4NFB		
13			"			
14			BL1217 S			
15			"			
16			BL1217 DS			
17			"			
18			65767			
19			"			
20			65767 D			
21			"			
22			65767 S			
23			"			
24			65767 DS			
25			"			
26			65763			
27			"			
28			65764			
29			"			
30			65765			
31			"			
32			CCV			
33			B			
34			D4			
35			65766			
36			"			
37			65768			
38			"			
39			65769			
40			"			
41			65770			
42			"			
43			65772			
44			"			
45			BL1217	5NFB		
46			"			
47			BL1217 S			
48			"			
49			BL1217 DS			
50			"			
51			65771			
52			"			
53			65771 D			
54			"			
55			CCV			
56			B			
57			D4			
58			65771 S			
59			"			
60			65771 DS			
61			"			
62			65773			
63			"			
64			65781			
65			"			
66			65782			
67			"			
68			65783			
69			"			
70			65784			
71			"			
72			65785			
73			"			
74			65786			
75			"			
76			65787			
77			"			
78			CCV			
79			B			
80			D4			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

2/

DC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.17 Run Code: M602 Matrix: IMP

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 6 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			65788			
22			"			
23			65789			
24			"			
25			65790			
26			"			
27			BL1217	6NFD		
28			"			
29			BL1217 S			
30			"			
31			BL1217 DS			
32			"			
33			66560			
34			"			
35			66560 D			
36			"			
37			66560 S			
38			"			
39			66560 DS			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
44			66559			
45			"			
46			66561			
47			"			
48			66562			
49			"			
50			64892			
51			"			
52			BL1217	INFT		
53			"			
54			BL1217 S			
55			"			
56			BL1217 DS			
57			"			
58			66556			
59			"			
60			66556 D			
61			"			
62			66556 S			
63			"			
64			CCV			
65			B			
66			D4			
67			66556 DS			
68			"			
69			66553			
70			"			
71			66554			
72			"			
73			66555			
74			"			
75			66557			
76			"			
77			66558			
78			"			
79			66554	THIMBLE		
80			"	"		

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.17 Run Code: MG02 Matrix: Imp.

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			66554	PROBE		
22			"	"		
23			BL1217	2NFT		
24			"			
25			BL1217 S			
26			"			
27			CCV			
28			B			
29			D4			
30			BL1217 DS			
31			"			
32			69909			
33			"			
34			69909 D			
35			"			
36			69909 S			
37			"			
38			69909 DS			
39			"			
40			69904			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			69904			
42			69905			
43			"			
44		1/2	69906			
45		↓	"			
46		1/2	69907			
47		↓	"			
48			69908			
49			"			
50			CCV			
51			B			
52			D4			
53			69910			
54			"			
55			69911			
56			"			
57			~~69912~~ nb			
58			~~"~~ nb			
59			69913			
60			"			
61			69914			
62			"			
63			BL1217	3NFT		
64			"			
65			BL1217 S			
66			"			
67			BL1217 DS			
68			"			
69			69912			
70			"			
71			69912 D			
72			"			
73			CCV			
74			B			
75			D4			
76			69912 S			
77			"			
78			69912 DS			
79			"			
80			69915			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

4/

_DC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99/12/17 Run Code: MG02 Matrix: IMP

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			69915			
22			69916			
23			"			
24			69917			
25			"			
26			CCV			
27			B			
28			D4			
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
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72						
73						
74						
75						
76						
77						
78						
79						
80						

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

EPA 7470 WATER PREPARATION LOG - MERCURY

0 0 0 3 4 7 0 DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List

- ✓ Digest Code/labels
- ✓ ~~Samples poured out~~ FILTER & RINSE CUBE
- ✓ Acids added 7ml HF + 5ml AQUA
- ~~Reagents added~~
- ~~Samples spiked~~
- ~~Bath at 95 degrees C~~ 8HRS IN 85°C SYI
- ✓ Samples digested
- ~~Hydroxylamine HCl added.~~
- ✓ Samples bulked and mixed
- ~~Rack order checked~~

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	INIT	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1217	"	"	"	"	(Processed Blank)
	11	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	66554	"	"	"	"	100
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	66553	"	"	"	"	100
3	17	54	"	"	"	"	100
4	18	55	"	"	"	"	100 RINSE ALONE FILTER LOST
5	19	57	"	"	"	"	100
6	20	58	"	"	"	"	100
7	21	66554	"	"	"	"	THIMBLE
8	22	66554	"	"	"	"	PROBE
9	23		"	"	"	"	
10	24		"	"	"	"	

	25	CCV (Cont. Calib. Verif.)	INIT	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1217	"	"	"	"	(Processed Blank)
	27	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	67909	"	"	"	"	100
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	67904	"	"	"	"	
3	33	05	"	"	"	"	
4	34	07	"	"	"	"	
5	35	08	"	"	"	"	
6	36	06	"	"	"	"	
7	37	10	"	"	"	"	
8	38	11	"	"	"	"	
9	39	13	"	"	"	"	2300
10	40	14	"	"	"	"	1900

Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run — Prepare 0.05 ppm standards daily

HNO3 Lot. No. HF LOT #519070	H2SO4 Lot. No.	Bath Temps. / / °C

Prepared By: [illegible] Date: 991217 Checked by: [illegible]

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	41	CCV (Cont. Calib. Ver(.)	6NFB	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	42	BL 1217	"	"	"	"	(Processed Blank)
	43	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	44	MN ~~66559~~ 66560	"	"	"	"	2.2L
1	45	D	"	"	"	"	(Duplicate sample)
1	46	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	47	DS	"	"	"	"	(Duplicate Spiked sample)
2	48	66557	"	"	"	"	600 ml
3	49	61	"	"	"	"	2.2 L
4	50	62	"	"	"	"	2.4L
5	51		"	"	"	"	
6	52		"	"	"	"	
7	53		"	"	"	"	
8	54		"	"	"	"	
9	55		"	"	"	"	
10	56		"	"	"	"	

Comments

* concentration based on 30 ml final volume, ** concentration based on 20 ml final volume

*** group of several Method 29 testcodes

Dilution factor of 1.5 is corrected by entering the calibration concentrations listed above

Procedure/Methodology:

1 Prepare 25 ppm Intermediate stock (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO3
2 Prepare 0.05 ppm Working stock daily by pipetting 200 ul., of 25 ppm Stock to 100 ml final volume of 2% HNO3
3 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
4 Using the labeling program, "DIGLBL", retreive the "SCNDIG" list and create labels for the required samples.
5 Label the falcon tubes appropriately
6 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
7 Spike the tubes as indicated in the comment sector of the digestion sheet
8 Add 0.5 ml. of conc. Nitric Acid (HNO3), and 1 ml. of conc. Sulphuric acid, (H2SO4), to each tube
9 Add 3 ml. Potassium Permanganate (KMnO4), colour should remain for at least 15 minutes
10 Add 1.5 ml. of Potassium persulphate, (K2S2O8), to each tube
11 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
12 Remove tubes and allow to cool to room temperature
13 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
14 Recap tubes and shake until the Potassium Permanganate (KMnO4) is destroyed and sample becomes colourless
15 Dilute the sample to a final volume of 30 ml., cap and mix well

REFERENCE STANDARDS/SPIKING SOLUTIONS:
Source: Inorganic Ventures Standard, see standard tracking binder for current lot and expiry date information

ICV/CCV STANDARDS:
Source: High Purity MESS-ZENO 30/QCA Standard, see standard tracking binder for current lot

INTERNAL REFERENCE STANDARD: (2 ppb in 10% HNO3)
Source: EPA WS 378 or SPEX CertiPrep Trace Metal - Water Supply, see standard tracking binder for current source, lot and expiry date information.

All reagents used are of a grade suitable for mercury analyses

EPA 7470 WATER PREPARATION LOG - MERCURY

00076 7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List
- [ ] Digest Code/labels
- [ ] Samples poured out
- [ ] Acids added
- [ ] Reagents added
- [ ] Samples spiked
- [ ] Bath at 95 degrees C
- [ ] Samples digested
- [ ] Hydroxylamine HCl added
- [ ] Samples bulked and mixed
- [ ] Rack order checked

SEE PREVIOUS DIGEST SHEET

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	4NF6	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1217	"	"	"	"	(Processed Blank)
	11	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	65761	"	"	"	"	700
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64892	"	"	"	"	
3	17	65763 / 65761	"	"	"	"	100 ml
4	18	64	"	"	"	"	700
5	19	65	"	"	"	"	700 NO F.RINSE SUBMITTED
6	20	66	"	"	"	"	700
7	21	68	"	"	"	"	800
8	22	69	"	"	"	"	800
9	23	70	"	"	"	"	700
10	24	72	"	"	"	"	700
	25	CCV (Cont. Calib. Verif.)	6NF6	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1217	"	"	"	"	(Processed Blank)
	27	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	65771	"	"	"	"	800 ml
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	73	"	"	"	"	700
3	33	65782	"	"	"	"	600
4	34	83	"	"	"	"	600
5	35	84	"	"	"	"	700
6	36	85	"	"	"	"	800 NO FH RINSE SUBMITTED
7	37	86	"	"	"	"	800
8	38	87	"	"	"	"	600
9	39	88	"	"	"	"	700
10	40	89	"	"	"	"	800
		90					800

Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

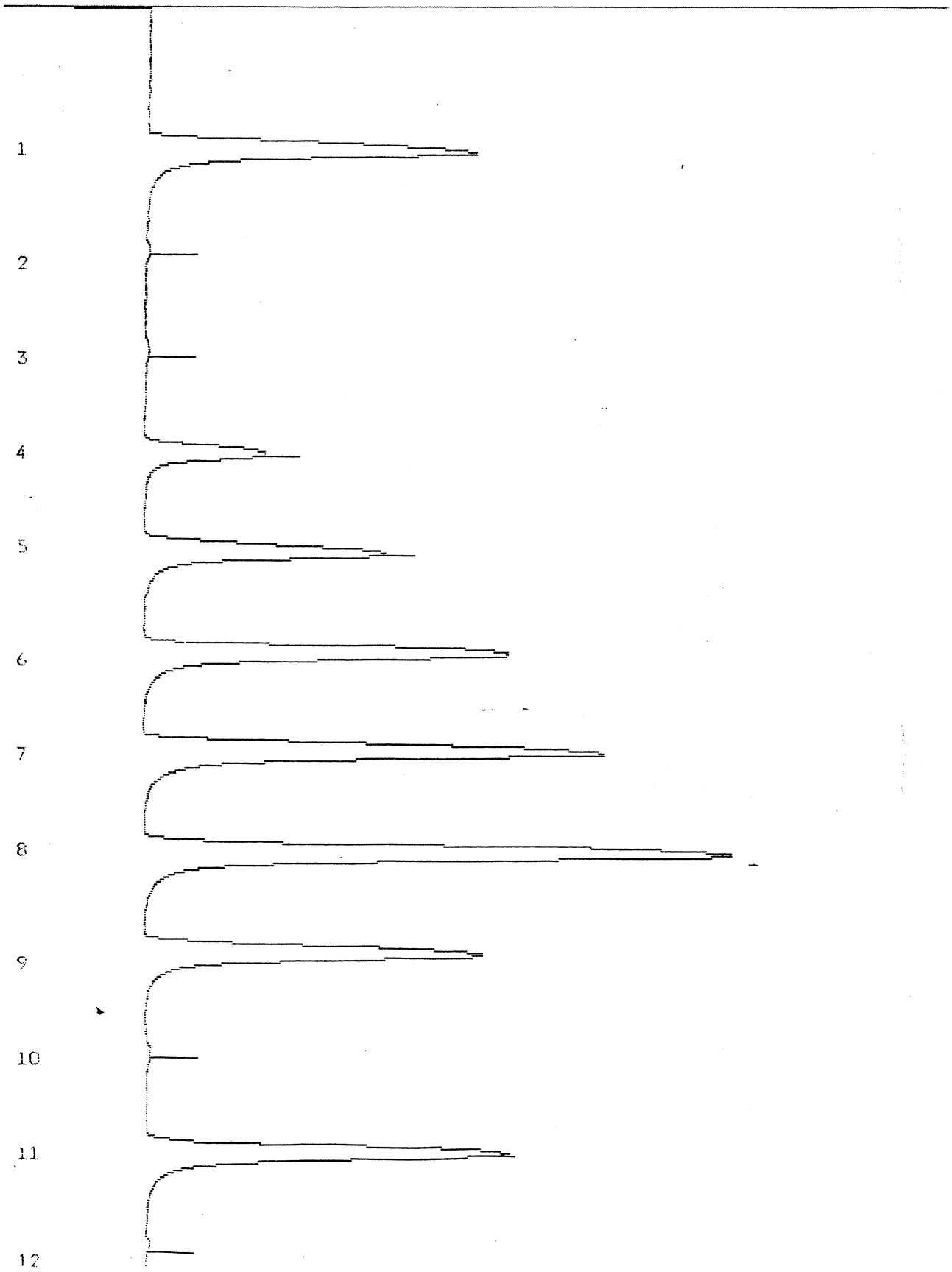
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

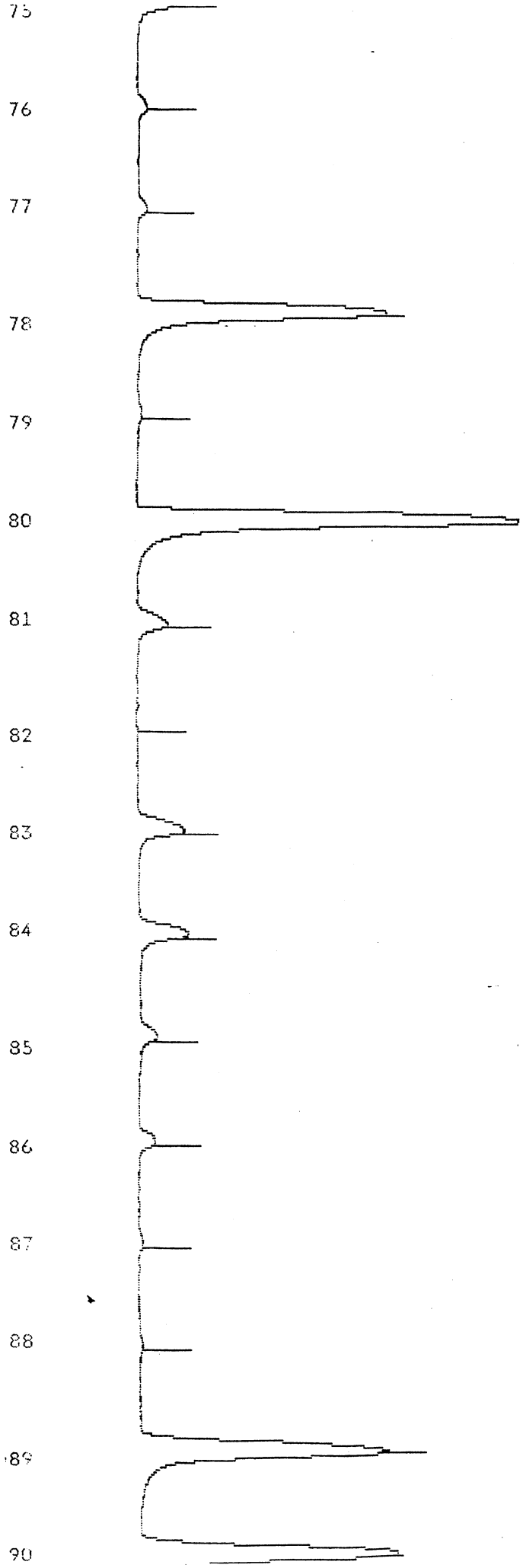
Prepare 0.05 ppm standards daily

HNO3 Lot. No. HF Lot # 519070 | H2SO4 Lot. No. | Bath Temps. / / °C

Prepared By: M. Chaparro Date: 5/12/7 Checked by: M. Chaparro

RUN DATE: 12-17-1999 CHART DATE: 12-18-1999
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\991217W.DAT

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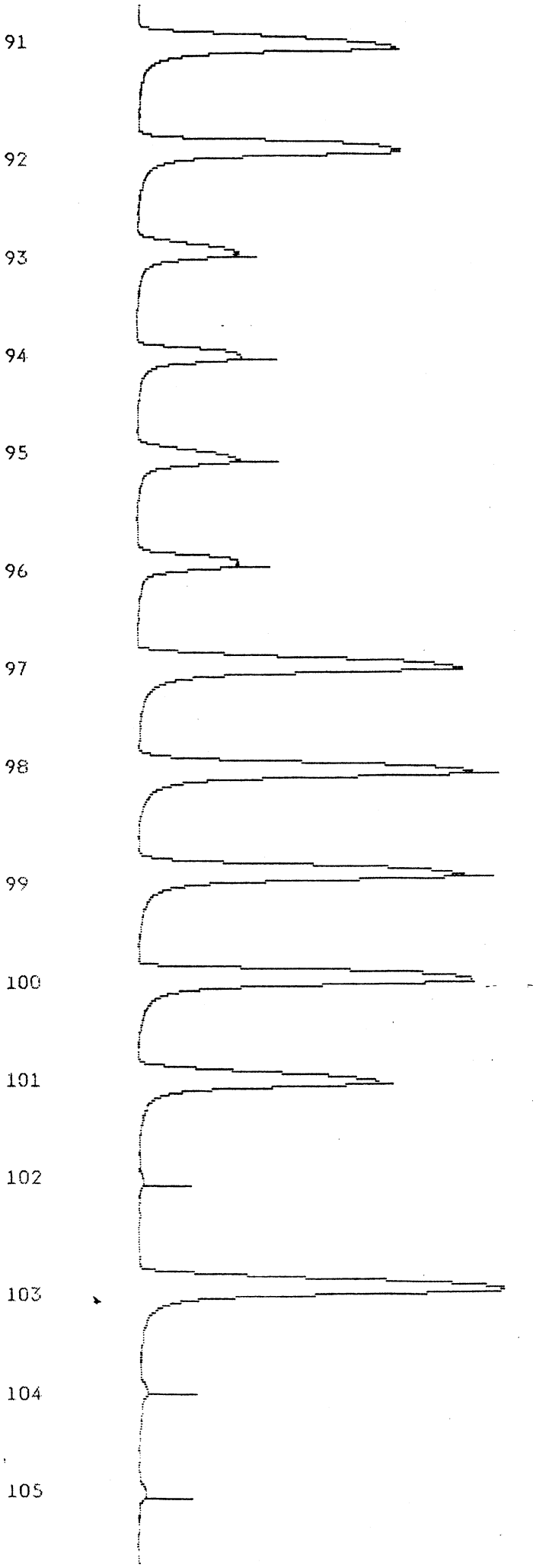
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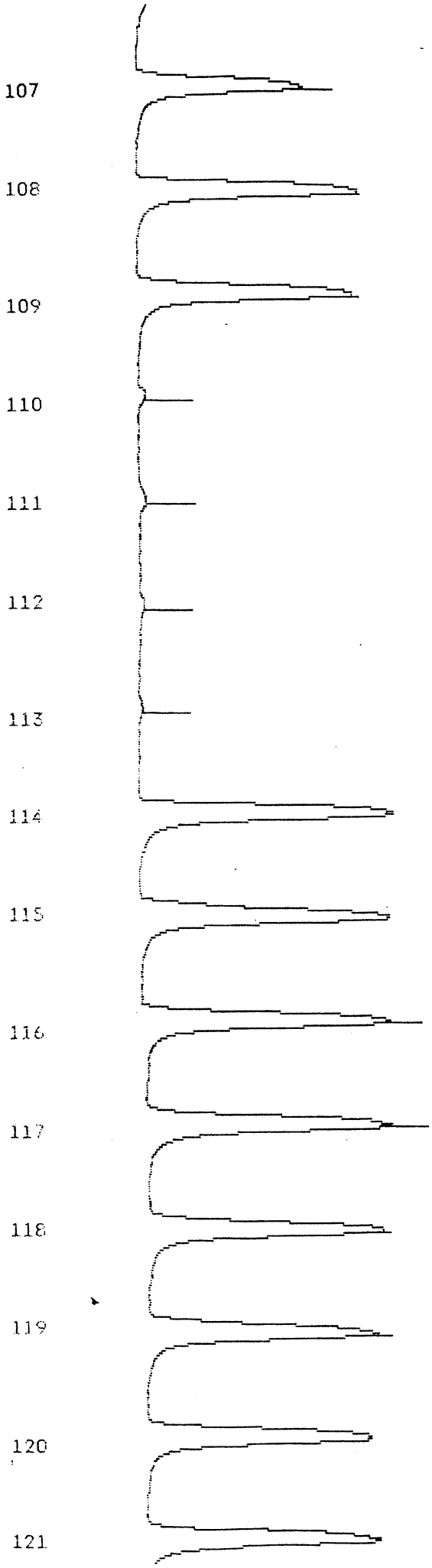
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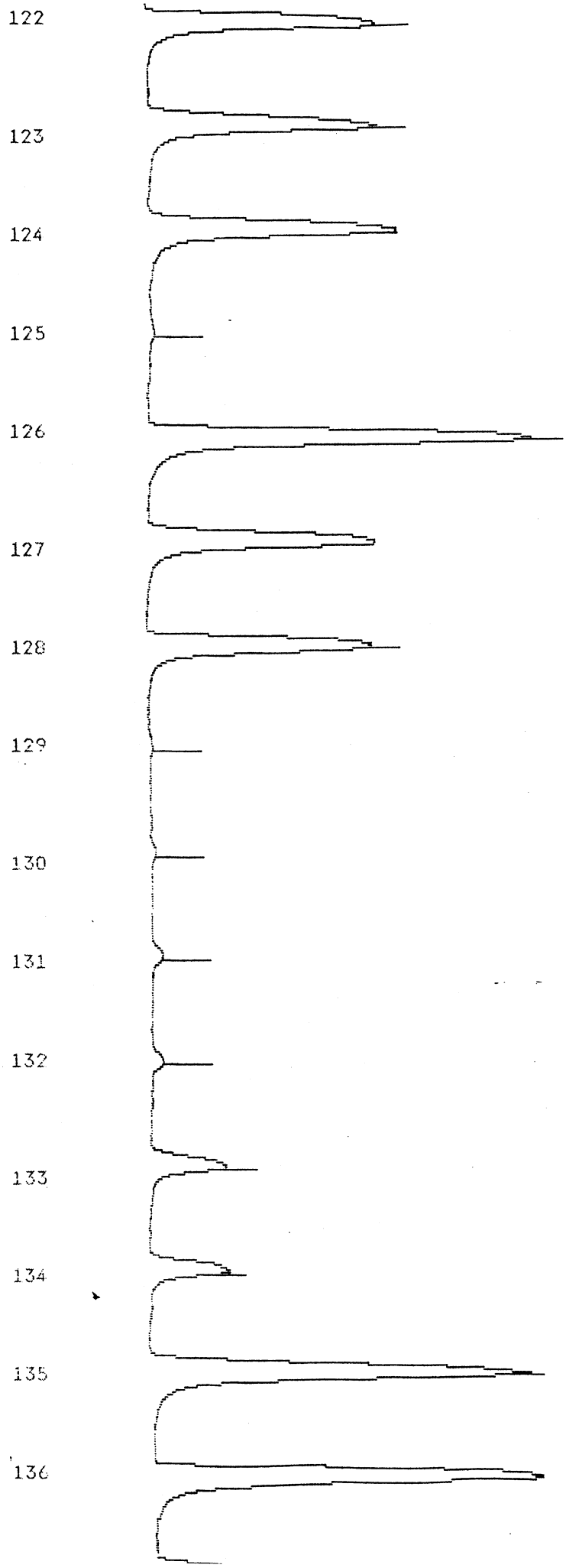
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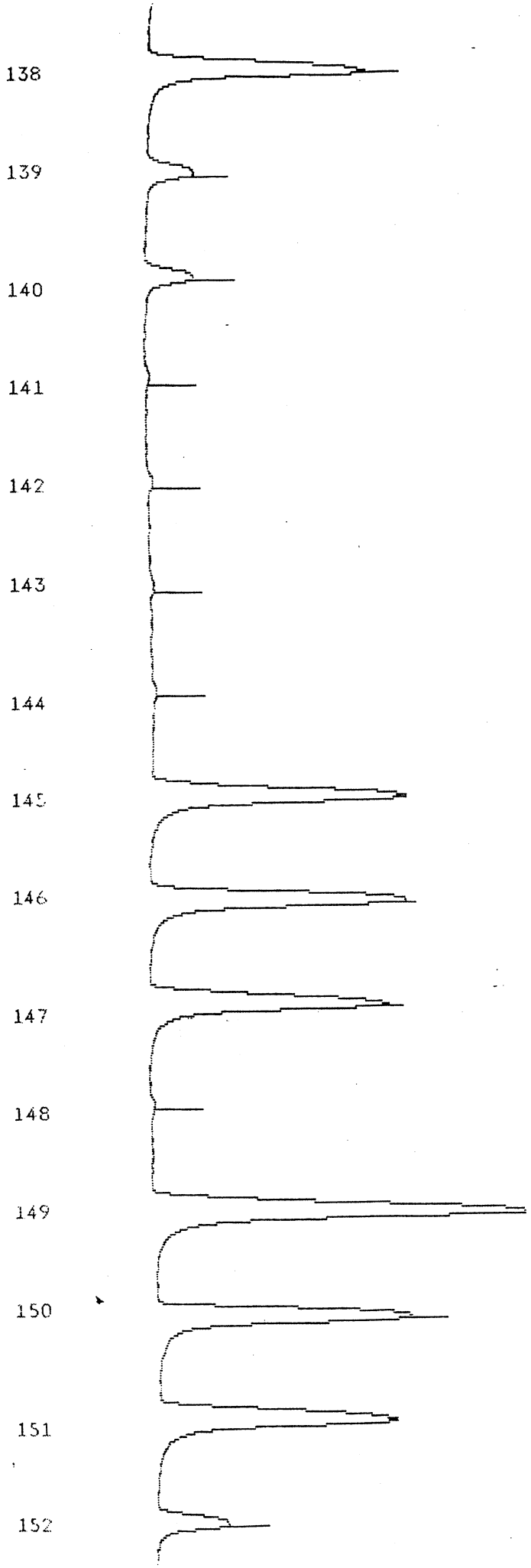
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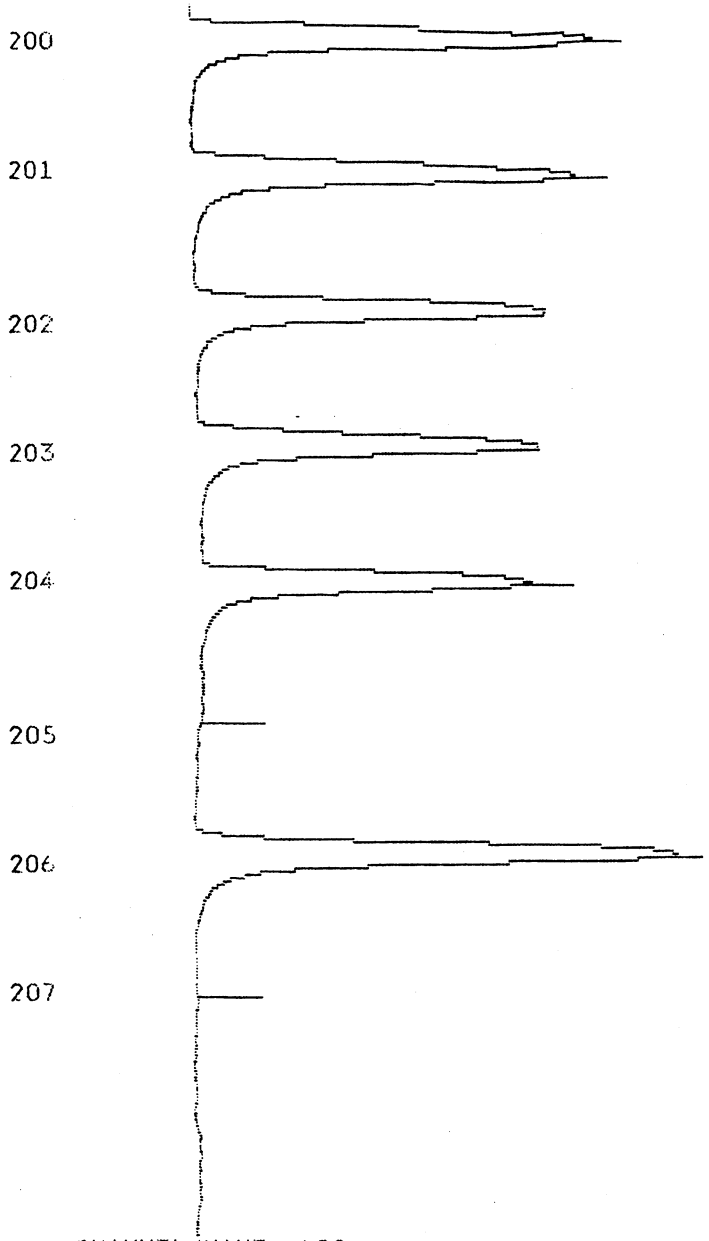
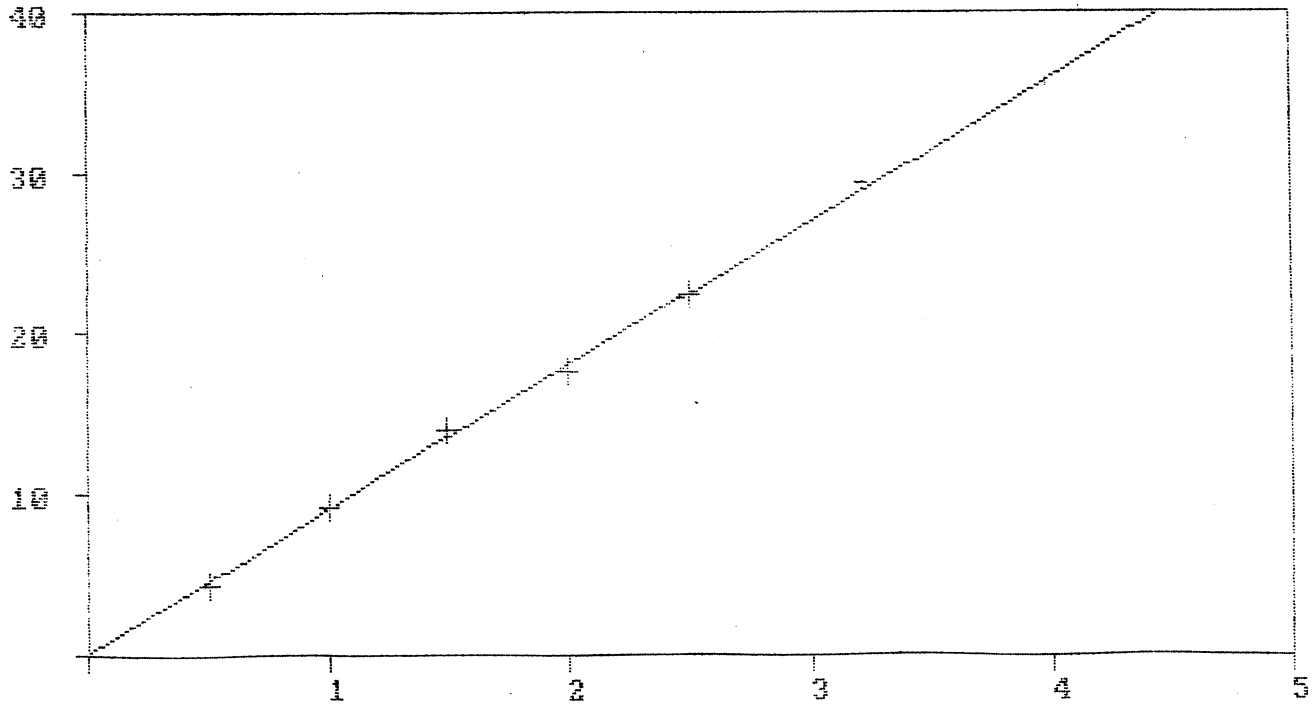


CHANNEL NAME: LDC
RUN NAME: 991217W



INTERCEPT = 0.12 SLOPE = 8.933543

00044

CORRELATION: .999613

CHANNEL NAME: LDC
RUN DATE: 12-17-1999
SAMPLE TABLE NAME: 991217W
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION (ppb)	EF
1	PRIMER	1	1	12.5		1.389	s
2	DUMMY	1	1	0.1		-0.005	I
3	S1: 0	1	1	0.0		-0.007	I
4	S2: .5	1	1	4.5		0.490	
5	S3: 1	1	1	9.1		1.007	
6	S4: 1.5	1	1	13.9		1.545	
7	S5: 2	1	1	17.7		1.966	
8	S6: 2.5	1	1	22.4		2.499	
9	ICV	1	1	12.9		1.433	95%
10	B	1	1	0.0	TUG	-0.013	b
11	D4	1	1	13.9		1.545	d
12	BL1217-4NFB 65763,65781	1	1	0.0	<0.01	-0.013	I
13	BL1217-4NFB	1	1	0.0		-0.013	I
14	BL1217S	1	1	8.9	0.099	0.982	99%
15	BL1217S	1	1	9.0		0.996	
16	BL1217DS	1	1	9.3	0.101	1.031	101%
17	BL1217DS	1	1	9.1		1.001	
18	65767	1	1	0.2	<0.07	0.012	I
19	65767	1	1	0.2		0.012	I
20	65767D	1	1	0.3	<0.07	0.017	I
21	65767D	1	1	0.2		0.012	I
22	65767S	1	1	9.2	0.701	1.015	99%
23	65767S	1	1	8.9		0.988	
24	65767DS	1	1	9.1	0.689	1.001	97%
25	65767DS	1	1	8.8		0.968	
26	65763	1	1	0.0	<0.01	-0.010	I
27	65763	1	1	0.0		-0.013	I
28	65764	1	1	0.3	<0.07	0.017	I
29	65764	1	1	0.3		0.017	I
30	65765	1	1	0.3	<0.07	0.020	I
31	65765	1	1	0.3		0.023	s
32	CCV	1	1	9.0		0.996	100%
33	B	1	1	0.0		-0.013	b
34	D4	1	1	13.9		1.545	d
35	65766	1	1	0.4	<0.07	0.028	I
36	65766	1	1	0.5		0.039	I
37	65768	1	1	1.4	0.115	0.140	
38	65768	1	1	1.4		0.148	
39	65769	1	1	1.9	0.164	0.200	
40	65769	1	1	2.0		0.211	
41	65770	1	1	0.2	<0.07	0.009	I
42	65770	1	1	0.2		0.012	I
43	65772	1	1	0.2	<0.07	0.012	I
44	65772	1	1	0.2		0.012	I
45	BL1217-5NFB 65781	1	1	0.0	<0.01	-0.013	I
46	BL1217-5NFB	1	1	0.0		-0.010	s
47	BL1217S	1	1	9.4	0.106	1.042	106%
48	BL1217S	1	1	9.7		1.075	
49	BL1217DS	1	1	9.2	0.099	1.012	99%
50	BL1217DS	1	1	8.8		0.974	
51	65771	1	1	0.2	<0.07	0.012	I
52	65771	1	1	0.3		0.017	I

55	CCV	1	1	9.0		0.990		99%
56	B	1	1	0.0		0.045		
57	D4	1	1	13.9		1.545	d	
58	65771S	1	1	9.3	0.699	1.026		99%
59	65771S	1	1	8.8		0.971		
60	65771DS	1	1	9.6	0.734	1.064		103%
61	65771DS	1	1	9.4		1.034	s	
62	65773	1	1	0.2	<0.07	0.009	I	
63	65773	1	1	0.2		0.012	I	
64	65781	1	1	0.0	<0.01	-0.013	I	
65	65781	1	1	0.0		-0.013	I	
66	65782	1	1	0.6	<0.06	0.058	I	
67	65782	1	1	0.6		0.050	I	
68	65783	1	1	1.5	0.095	0.157		
69	65783	1	1	1.5		0.159		
70	65784	1	1	2.1	0.154	0.222		
71	65784	1	1	2.1		0.219		
72	65785	1	1	0.2	<0.08	0.014	I	
73	65785	1	1	0.2		0.009	I	
74	65786	1	1	1.1	0.098	0.113		
75	65786	1	1	1.3		0.132		
76	65787	1	1	0.3	<0.06	0.020	s	
77	65787	1	1	0.3		0.017	I	
78	CCV	1	1	9.1		1.001		100%
79	B	1	1	0.0		-0.013	b	
80	D4	1	1	13.9		1.545	d	
81	65788	1	1	1.0	<0.07	0.099		
82	65788	1	1	0.0		-0.013	(CUP MISSED; INJECTED IMPROPERLY)	M
83	65789	1	1	1.6	0.138	0.168		
84	65789	1	1	1.7		0.176		
85	65790	1	1	0.5	<0.08	0.047	I	
86	65790	1	1	0.5		0.042	I	
87	BL1217-6NFB	1	1	0.0	<0.01	-0.007	I	
88	BL1217-6NFB	1	1	0.0		-0.007	I	
89	BL1217S	1	1	9.2	0.103	1.018		103%
90	BL1217S	1	1	9.5		1.048		
91	BL1217DS	1	1	9.4	0.105	1.042		105%
92	BL1217DS	1	1	9.6		1.064		
93	66560	1	1	3.7	0.889	0.397		
94	66560	1	1	3.8		0.411		
95	66560D	1	1	3.7	0.880	0.403		
96	66560D	1	1	3.7		0.397		
97	66560S	1	1	12.2	3.021	1.354		97%
98	66560S	1	1	12.6		1.392		
99	66560DS	1	1	12.3	3.035	1.359		97%
100	66560DS	1	1	12.6		1.400		
101	CCV	1	1	9.1		1.001		100%
102	B	1	1	0.0		-0.013	b	
103	D4	1	1	13.9		1.545	d	
104	66559	1	1	0.1	<0.06	0.001	I	
105	66559	1	1	0.1		0.004	I	
106	66561	1	1	6.1	1.481	0.673	s	
107	66561	1	1	6.1		0.673		
108	66562	1	1	8.3	2.164	0.914		
109	66562	1	1	8.1		0.889		
110	64892	1	1	0.1		-0.002	I	
111	64892	1	1	0.1		0.001	I	
112	BL1217-1NFT 66553, ~~64904~~	1	1	0.0	<0.01	-0.007	I	
113	BL1217-1NFT	1	1	0.0		-0.010	I	
114	BL1217S	1	1	9.5	0.104	1.045		104%
115	BL1217S	1	1	9.3		1.026		
116	BL1217DS	1	1	9.1	0.100	1.004		100%
117	BL1217DS	1	1	9.0		0.996		
118	66556	1	1	8.6	0.094	0.949		

121	66556D	1	1	8.5		0.944	s	
122	66556S	1	1	8.2		0.324		NOT SPIKED, RERUN
123	66556S	1	1	8.2		0.908		
124	CCV	1	1	9.0		0.990	99%	
125	B	1	1	0.0		-0.013	b	
126	D4	1	1	13.9		1.545	d	
127	66556DS	1	1	8.3		0.911		NOT SPIKED, RERUN.
128	66556DS	1	1	8.1		0.889		
129	66553	1	1	0.0	<0.01	-0.013	I	
130	66553	1	1	0.0		-0.013	I	
131	66554	1	1	0.2	<0.01	0.014	I	
132	66554	1	1	0.3		0.017	I	
133	66555	1	1	2.6	0.029	0.280		
134	66555	1	1	2.7		0.291		
135	66557	1	1	14.0	0.156	1.551		
136	66557	1	1	14.2		1.575	s	
137	66558	1	1	7.7	0.086	0.851		
138	66558	1	1	7.9		0.870		
139	66554-THIMBL	1	1	1.6	0.017	0.165		
140	66554-THIMBL	1	1	1.7		0.173		
141	66554-PROBE	1	1	0.0		-0.010	I	
142	66554-PROBE	1	1	0.1		-0.005	I	
143	BL1217-2NFT	1	1	0.0	<0.01	-0.007	I	
144	BL1217-2NFT	1	1	0.0		-0.007	I	
145	BL1217S ¿9904	1	1	9.4	0.105	1.040	105%	
146	BL1217S	1	1	9.5		1.053		
147	CCV	1	1	8.8		0.977	97%	
148	B	1	1	0.0		-0.013	b	
149	D4	1	1	13.9		1.545	d	
150	BL1217DS	1	1	9.4	0.101	1.042	101%	
151	BL1217DS	1	1	8.9		0.985	s	
152	69909	1	1	2.5	0.027	0.269		
153	69909	1	1	2.6		0.274		
154	69909D	1	1	2.4	0.026	0.258		
155	69909D	1	1	2.5		0.269		
156	69909S	1	1	11.6	0.127	1.288	101%	
157	69909S	1	1	11.4		1.258		
158	69909DS	1	1	11.0	0.123	1.223	96%	
159	69909DS	1	1	11.1		1.231		
160	69904	1	1	0.0	<0.01	-0.013	I	
161	69904	1	1	0.0		-0.010	I	
162	69905	1	1	17.0	0.189	1.895		
163	69905	1	1	16.9		1.876		
164	69906	2	1	12.3	0.272	2.724		
165	69906	2	1	12.2		2.713		
166	69907	2	1	14.8	0.331	3.298	s	
167	69907	2	1	14.9		3.315		
168	69908	1	1	17.2	0.188	1.909		
169	69908	1	1	16.6		1.849		
170	CCV	1	1	8.8		0.974	97%	
171	B	1	1	0.0		-0.013	b	
172	D4	1	1	13.9		1.545	d	
173	69910	1	1	1.7	0.020	0.181		
174	69910	1	1	2.0		0.211		
175	69911	1	1	2.2	0.024	0.233		
176	69911	1	1	2.3		0.244		
177	69913	1	1	6.5	1.651	0.714		
178	69913	1	1	6.6		0.722		
179	69914	1	1	3.0	0.612	0.326		
180	69914	1	1	3.0		0.318		
181	BL1217-3NFT	1	1	0.0	<0.01	-0.013	s	
182	BL1217-3NFT	1	1	0.0		-0.013	I	
183	BL1217S	1	1	9.3	0.101	1.023	101%	
184	BL1217S	1	1	9.2		1.015		

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
064880	BRAUN-MN	MB R456	Mercury -	PV	-0.030	-99999.0	0.305	101.	0.304	101.	99/11/18	1BMN	99/11/18	MG03	59.	21.	
064881	BRAUN-MN	Unit 1 Blank	Mercury -	PV	-0.100						99/11/18	1BMN	99/11/18	MG03	58.	21.	
064882	BRAUN-MN	Unit 1 Inlet-FB	Mercury -	PV	-0.100						99/11/18	1BMN	99/11/18	MG03	59.	21.	
064883	BRAUN-MN	Unit 1 Inlet-R1	Mercury -	PV	8.908	9.244	10.050	97.	9.996	91.	99/11/18	1BMN	99/11/18	MG03	59.	21.	
064884	BRAUN-MN	Unit 1 Inlet-R2	Mercury -	PV	10.600						99/11/18	1BMN	99/11/18	MG03	58.	21.	
064885	BRAUN-MN	Unit 1 Inlet-R3	Mercury -	PV	11.796						99/11/18	1BMN	99/11/18	MG03	58.	21.	
064886	BRAUN-MN	Unit 1 Inlet-R4	Mercury -	PV	10.560						99/11/18	1BMN	99/11/18	MG03	58.	21.	
064887	BRAUN-MN	Unit 1 Stack-FB	Mercury -	PV	-0.100						99/11/18	1BMN	99/11/18	MG03	59.	21.	
064888	BRAUN-MN	Unit 1 Stack-R1	Mercury -	PV	9.446						99/11/18	1BMN	99/11/18	MG03	59.	21.	
064889	BRAUN-MN	Unit 1 Stack-R2	Mercury -	PV	6.757						99/11/18	1BMN	99/11/18	MG03	58.	21.	
064890	BRAUN-MN	Unit 1 Stack-R3	Mercury -	PV	8.330						99/11/18	1BMN	99/11/18	MG03	58.	21.	
BL1118	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.305	101.	0.304	101.	99/11/18	1BMN	99/11/18	MG03	$$$	$$$	

12 Tests for OHMN4 with an MDL of 0.030 ug Validated By CMB Control Chart Updated N/A IO Requirements met N/A

00047

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
064892	BRAUN-MN	Unit 3 Blank	Mercury -	PV	-0.100						99/11/18	2BMN	99/11/18	MG03	57.	21.	
064893	BRAUN-MN	Unit 3 Inlet-FB	Mercury -	PV	0.182						99/11/18	2BMN	99/11/18	MG03	56.	21.	
064894	BRAUN-MN	Unit 3 Inlet-R1	Mercury -	PV	0.706	0.666	1.721	103.	1.690	100.	99/11/18	2BMN	99/11/18	MG03	57.	21.	
064895	BRAUN-MN	Unit 3 Inlet-R2	Mercury -	PV	9.563						99/11/18	2BMN	99/11/18	MG03	57.	21.	
064896	BRAUN-MN	Unit 3 Inlet-R3	Mercury -	PV	10.151						99/11/18	2BMN	99/11/18	MG03	56.	21.	
064897	BRAUN-MN	Unit 3 Stack-FB	Mercury -	PV	-0.100						99/11/18	2BMN	99/11/18	MG03	56.	21.	
064898	BRAUN-MN	Unit 3 Stack-R1	Mercury -	PV	4.830						99/11/18	2BMN	99/11/18	MG03	57.	21.	
064899	BRAUN-MN	Unit 3 Stack-R2	Mercury -	PV	5.918						99/11/18	2BMN	99/11/18	MG03	57.	21.	
064900	BRAUN-MN	Unit 3 Stack-R3	Mercury -	PV	6.724						99/11/18	2BMN	99/11/18	MG03	56.	21.	
BL1118	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.295	98.	0.303	101.	99/11/18	2BMN	99/11/18	MG03	$$$	$$$	

10 Tests for OHMN4 with an MDL of 0.030 ug Validated By CMA Control Chart Updated N/A IO Requirements met N/A

00048

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
064880	BRAUN-MN	MB R456	Mercury -	PV	-0.030	-99999.0	0.298	99.	0.303	101.	99/11/18	1NKC	99/11/18	MG03	59.	21.	
064881	BRAUN-MN	Unit 1 Blank	Mercury -	PV	-0.100						99/11/18	1NKC	99/11/18	MG03	58.	21.	
064882	BRAUN-MN	Unit 1 Inlet-FB	Mercury -	PV	-0.100						99/11/18	1NKC	99/11/18	MG03	59.	21.	
064883	BRAUN-MN	Unit 1 Inlet-R1	Mercury -	PV	0.981	1.057	2.122	110.	2.047	103.	99/11/18	1NKC	99/11/18	MG03	59.	21.	
064884	BRAUN-MN	Unit 1 Inlet-R2	Mercury -	PV	4.568						99/11/18	1NKC	99/11/18	MG03	58.	21.	
064885	BRAUN-MN	Unit 1 Inlet-R3	Mercury -	PV	3.097						99/11/18	1NKC	99/11/18	MG03	58.	21.	
064886	BRAUN-MN	Unit 1 Inlet-R4	Mercury -	PV	4.481						99/11/18	1NKC	99/11/18	MG03	58.	21.	
064887	BRAUN-MN	Unit 1 Stack-FB	Mercury -	PV	-0.100						99/11/18	1NKC	99/11/18	MG03	59.	21.	
064888	BRAUN-MN	Unit 1 Stack-R1	Mercury -	PV	0.991						99/11/18	1NKC	99/11/18	MG03	59.	21.	
064889	BRAUN-MN	Unit 1 Stack-R2	Mercury -	PV	0.405						99/11/18	1NKC	99/11/18	MG03	58.	21.	
064890	BRAUN-MN	Unit 1 Stack-R3	Mercury -	PV	0.170						99/11/18	1NKC	99/11/18	MG03	58.	21.	
BL1118	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.298	99.	0.303	101.	99/11/18	1NKC	99/11/18	MG03	$$$	$$$	
064891	BRAUN-MN	Unit 1 Stack-R4	Mercury -	PV	-0.100						99/11/18	2NKC	99/11/18	MG03	58.	21.	
064892	BRAUN-MN	Unit 3 Blank	Mercury -	PV	-0.100						99/11/18	2NKC	99/11/18	MG03	57.	21.	
064893	BRAUN-MN	Unit 3 Inlet-FB	Mercury -	PV	-0.100						99/11/18	2NKC	99/11/18	MG03	56.	21.	
064894	BRAUN-MN	Unit 3 Inlet-R1	Mercury -	PV	0.249	0.259	1.292	103.	1.283	103.	99/11/18	2NKC	99/11/18	MG03	57.	21.	
064895	BRAUN-MN	Unit 3 Inlet-R2	Mercury -	PV	0.590						99/11/18	2NKC	99/11/18	MG03	57.	21.	
064896	BRAUN-MN	Unit 3 Inlet-R3	Mercury -	PV	0.465						99/11/18	2NKC	99/11/18	MG03	56.	21.	
064897	BRAUN-MN	Unit 3 Stack-FB	Mercury -	PV	-0.100						99/11/18	2NKC	99/11/18	MG03	56.	21.	
064898	BRAUN-MN	Unit 3 Stack-R1	Mercury -	PV	0.115						99/11/18	2NKC	99/11/18	MG03	57.	21.	
064899	BRAUN-MN	Unit 3 Stack-R2	Mercury -	PV	-0.100						99/11/18	2NKC	99/11/18	MG03	57.	21.	
064900	BRAUN-MN	Unit 3 Stack-R3	Mercury -	PV	-0.100						99/11/18	2NKC	99/11/18	MG03	56.	21.	
BL1118	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.298	99.	0.300	100.	99/11/18	2NKC	99/11/18	MG03	$$$	$$$	

23 Tests for OHKCL with an MDL of 0.030 ug Validated By Cmb Control Chart Updated N/a IO Requirements met N/A

00349

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
064880	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.096	96.	0.094	94.	99/11/18	1BHY	99/11/18	MG03	59.	21.	*BLKIMP*
064881	BRAUN-MN	Unit 1 Blank	Mercury -	PV	-0.010						99/11/18	1BHY	99/11/18	MG03	58.	21.	
064892	BRAUN-MN	Unit 3 Blank	Mercury -	PV	-0.010						99/11/18	1BHY	99/11/18	MG03	57.	21.	
066553	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.096	96.	0.094	94.	99/11/18	1BHY	99/11/18	MG03	50.	14.	*BLKIMP*
066554	BRAUN-MN	Reagent Blank	Mercury -	PV	-0.010						99/11/18	1BHY	99/11/18	MG03	50.	14.	
BL1118	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.096	96.	0.094	94.	99/11/18	1BHY	99/11/18	MG03	$$$	$$$	*BLKIMP*

6 Tests for OHHYX with an MDL of 0.010 ug Validated By CMB Control Chart Updated N/A IO Requirements met N/A

00050

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.18(WA) Run Code: MG03 Matrix: DMP.

Analyst: MG Units: µg (see comments) MDL: 0.03

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			WS 378			
13			ORG-REF-			
14			BL1118	INKC.		
15			"			
16			BL1118 S			
17			"			
18			BL1118 DS			
19			"			
20			64883			
21			"			
22			64883 D			
23			"			
24			64883 S			
25			"			
26			64883 DS			
27			"			
28			64881			
29			"			
30			64882			
31			"			
32		1/4	64884			
33		↓	"			
34			CCV			
35			B			
36			D4			
37		1/2	64885			
38		↓	"			
39		1/4	64886			
40		↓	"			
41			64887			
42			"			
43			64888			
44			"			
45			64889			
46			"			
47			64890			
48			"			
49			BL1118	2NKC		
50			"			
51			BL1118 S			
52			"			
53			BL1118 DS			
54			"			
55			64894			
56			"			
57			~~64894 D~~ CCV			
58			B			
59			D4			
60			64894 D			
61			"			
62			64894 S			
63			"			
64			64894 DS			
65			"			
66			64891			
67			"			
68			64892			
69			"			
70			64893			
71			"			
72			64895			
73			"			
74			64896			
75			"			
76			64897			
77			"			
78			64898			
79			"			
80			CCV			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.18 (WA) Run Code: MG03 Matrix: IMP

Analyst: MG Units: µg (see comments) MDL: 0.03

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
81 ~~21~~			B			
22			D4			
23			64899			
24			"			
25			64900			
26			"			
27			64676	KCl/4D.		
28			"			
29			64679	KCl/D		
30			"			
31			BL1118	1BMN		
32			"			
33			BL1118 S			
34			"			
35			BL1118 DS			
36			"			
37		1/8	64883			
38		↓	"			
39			64883 D			
40			"			
41		1/8	64883 S			
42		↓	"			
43			CCV			
44			B			
45			D4			
46		1/8	64883 DS			
47		↓	"			
48			64881			
49			"			
50			64882			
51			"			
52		1/8	64884			
53		↓	"			
54			64885			
55			"			
56			64886			
57			"			
58			64887			
59			"			
60		1/5	64888			
61		↓	"			
62		1/4	64889			
63		↓	"			
64			64890			
65			"			
66			CCV			
67			B			
68			D4			
69			BL1118	2BMN		
70			"			
71			BL1118 S			
72			"			
73			BL1118 DS			
74			"			
75			64894			
76			"			
77			64894 D			
78			"			
79			64894 S			
80			"			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.18(WA) Run Code: M603 Matrix: IMP./WATER.

Analyst: MG Units: µg (see comments) MDL: 0.03

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			64894 DS			
22			"			
23			64891			
24			"			
25			64892			
26			"			
27			64893			
28			"			
29			CCV			
30			B			
31			D4			
32		1/5	64895			
33		↓	"			
34			64896			
35			"			
36			64897			
37			"			
38		1/4	64898			
39		↓	"			
40			64899			
41		1/4	64899			
42		↓	64900			
43			"			
44			BL1118	3BMN		
45			"			
46			BL1118 S			
47			"			
48			BL1118 DS			
49			"			
50			64701			
51			"			
52			CCV			
53			B			
54			D4			
55			64701 D			
56			"			
57			64701 S			
58			"			
59			64701 DS			
60			"			
61			64702			
62			"			
63			64703			
64			"			
65			64705			
66			"			
67			BL1118	1BHY		
68			"			
69			BL1118 S			
70			"			
71			BL1118 DS			
72			"			
73	1.5		64670			
74			"			
75			CCV			
76			B			
77			D4			
78	1.5		64881			
79	↓		"			
80			64892			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.18 (WA) Run Code: M603 Matrix: IMP./WATER

Analyst: MG Units: µg (see comments) MDL: _____

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21	1.5		64892			
22			65654			
23			"			
24			65764			
25			"			
26			65693			
27			"			
28			CCV			
29			B			
30			D4			
31			BL1118	STBL		
32			BL1118 S			
33			68153			
34			53 D			
35			53 S			
36			51			
37			51 S			
38			68003			
39			020			
40			319			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			68324			
42			26			
43			28			
44			30			
45			32			
46			CCV			
47			B			
48			D4			
49			BL1118	STBL		
50			BL1118 S			
51			68318			
52			18 D			
53			18 S			
54			68871			
55			872			
56			WS 378			
57			ORG. REF			
58			CCV			
59			B			
60			D4			
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

EPA 7470 WATER PREPARATION LOG - MERCURY

00055
DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List
- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added
- ✓ Reagents added
- ✓ Samples spiked
- ✓ Bath at 95 degrees C
- ✓ Samples digested
- ✓ Hydroxylamine HCl added
- ✓ Samples bulked and mixed
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	16MN	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1118	"	"	"	"	(Processed Blank) 64880
	11	BL 1118 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	64883	"	"	"	"	FV= 1000ml
1	13	O	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64881	"	"	"	"	
3	17	82	"	"	"	"	
4	18	84	"	"	"	"	
5	19	85	"	"	"	"	
6	20	86	"	"	"	"	
7	21	87	"	"	"	"	
8	22	88	"	"	"	"	
9	23	89	"	"	"	"	
10	24	90	"	"	"	"	FV= 1060ml
	25	CCV (Cont. Calib. Verif.)	26MN	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1118	"	"	"	"	(Processed Blank)
	27	BL 1118 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	64894	"	"	"	"	FV= 1000ml
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	64891	"	"	"	"	
3	33	892	"	"	"	"	
4	34	893	"	"	"	"	
5	35	895	"	"	"	"	
6	36	896	"	"	"	"	
7	37	897	"	"	"	"	
8	38	898	"	"	"	"	
9	39	899	"	"	"	"	
10	40	900	"	"	"	"	

Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run — Prepare 0.05 ppm standards daily

HNO3 Lot. No. 119060 | H2SO4 Lot. No. 318060 | Bath Temps. 1957 °C

Prepared By: AL | Date: 99 11 18 | Checked by:

EPA 7470 WATER PREPARATION LOG - MERCURY

00356
DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List
- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added
- ✓ Reagents added
- ✓ Samples spiked
- ✓ Bath at 95 degrees C
- ✓ Samples digested
- ✓ Hydroxylamine HCl added
- ✓ Samples bulked and mixed
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init.Calib. Verif.)	1M KC	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1118	"	"	"	"	(Processed Blank) 64880 MB
	11	BL 1118 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	64881	"	"	"	"	1MPV KCL 1000 mL
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64882	"	"	"	"	
3	17	83	"	"	"	"	FULL QC
4	18	84	"	"	"	"	
5	19	85	"	"	"	"	
6	20	86	"	"	"	"	
7	21	87	"	"	"	"	
8	22	88	"	"	"	"	
9	23	89	"	"	"	"	
10	24	90	"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	2M KC	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1118	"	"	"	"	(Processed Blank)
	27	BL 1118 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	64891	"	"	"	"	1MPV KCL 1000 mL
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	92	"	"	"	"	
3	33	93	"	"	"	"	
4	34	94	"	"	"	"	FULL QC
5	35	95	"	"	"	"	
6	36	96	"	"	"	"	
7	37	97	"	"	"	"	
8	38	98	"	"	"	"	
9	39	99	"	"	"	"	
10	40	64900	"	"	"	"	

Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

Prepare 0.05 ppm standards daily

HNO3 Lot No. 070660	H2SO4 Lot No. 980660	Bath Temp: 1 195 °C

Prepared By: [illegible] Date: 991118 Checked by: [illegible]

EPA 7470 WATER PREPARATION LOG - MERCURY

00057 DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List
- Digest Code/labels
- Samples poured out
- Acids added
- Reagents added
- Samples spiked
- Bath at 95 degrees C
- Samples digested
- Hydroxylamine HCl added
- Samples bulked and mixed
- Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init.Calib. Verif.)	IBHY	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL	"	"	"	"	(Processed Blank) 64669, 64880, 65763, 65692
	11	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm. 65830
1	12	64670	"	"	20ml	"	60 ml 66553
1	13	O	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64881	"	"	"	"	102 ml
3	17	64892	"	"	"	"	100 ml
4	18	65764	"	"	"	"	100 ml
5	19	65693	"	"	"	"	100 ml
6	20	66554	"	"	"	"	92 ml
7	21		"	"	"	"	
8	22		"	"	"	"	
9	23		"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont.Calib. Verif.)		20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL	"	"	"	"	(Processed Blank)
	27	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28		"	"	"	"	
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32		"	"	"	"	
3	33		"	"	"	"	
4	34		"	"	"	"	
5	35		"	"	"	"	
6	36		"	"	"	"	
7	37		"	"	"	"	
8	38		"	"	"	"	
9	39		"	"	"	"	
10	40		"	"	"	"	

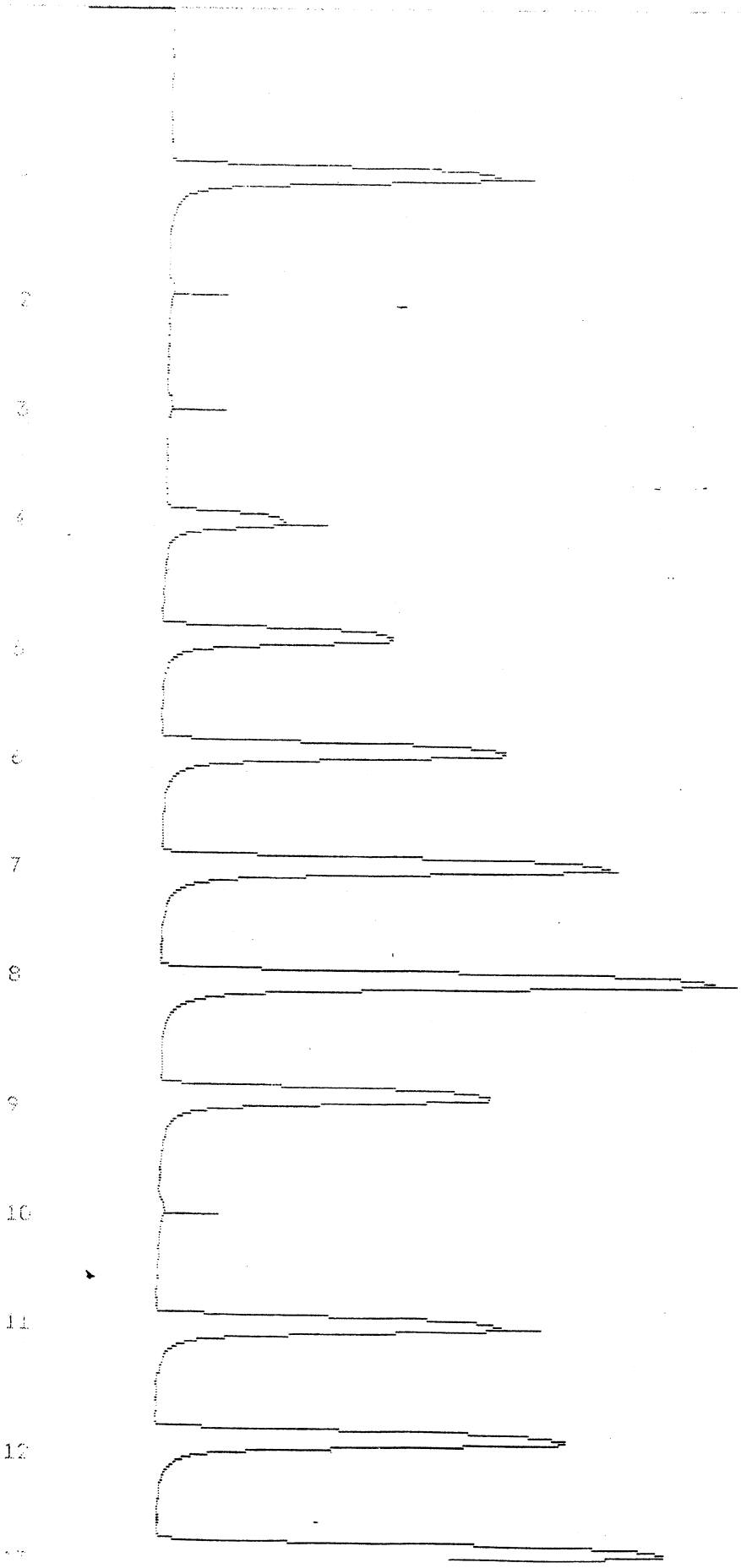
Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

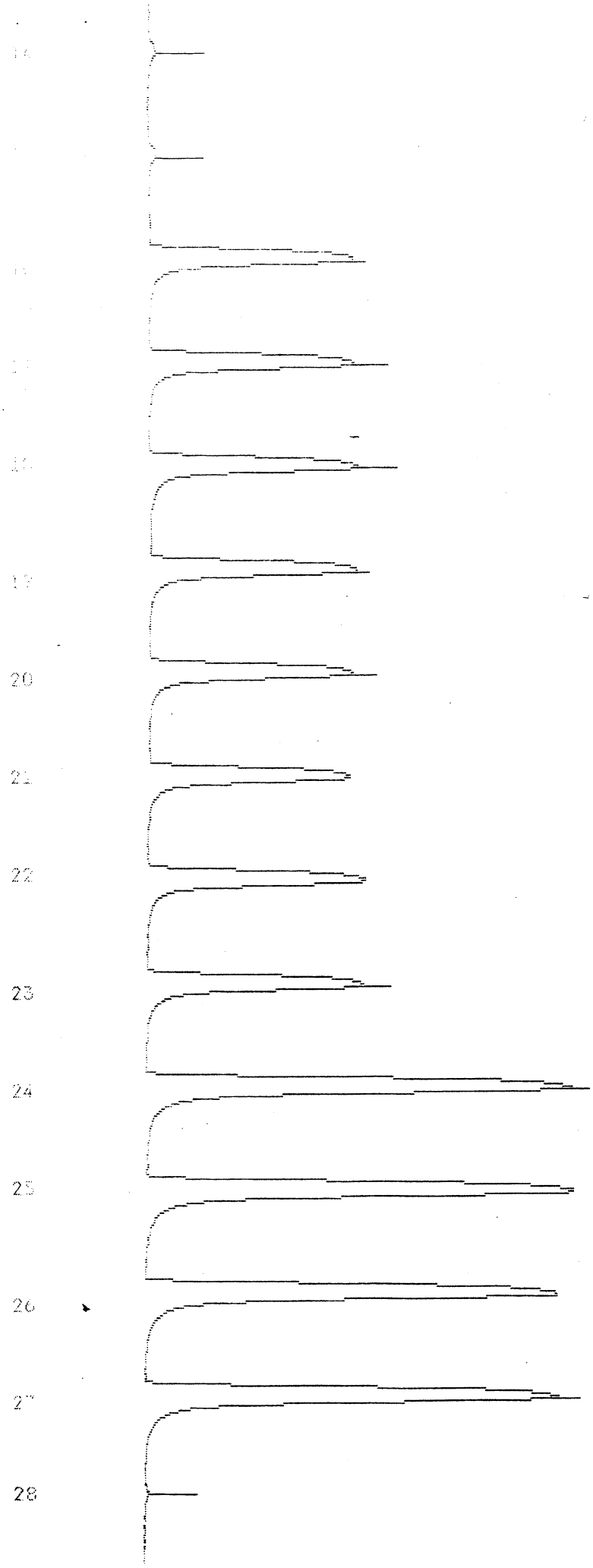
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run — Prepare 0.05 ppm standards daily

HNO3 Lot. No. N/A | H2SO4 Lot. No. N/A | Bath Temp. N/A °C

Prepared By: AG Date: 99-11-18 Checked by: AG

RUN DATE: 11-10-1999 LAST DATE: 11-17-1999
CHART SPEED: 30
DATA FILE NAME: [illegible]

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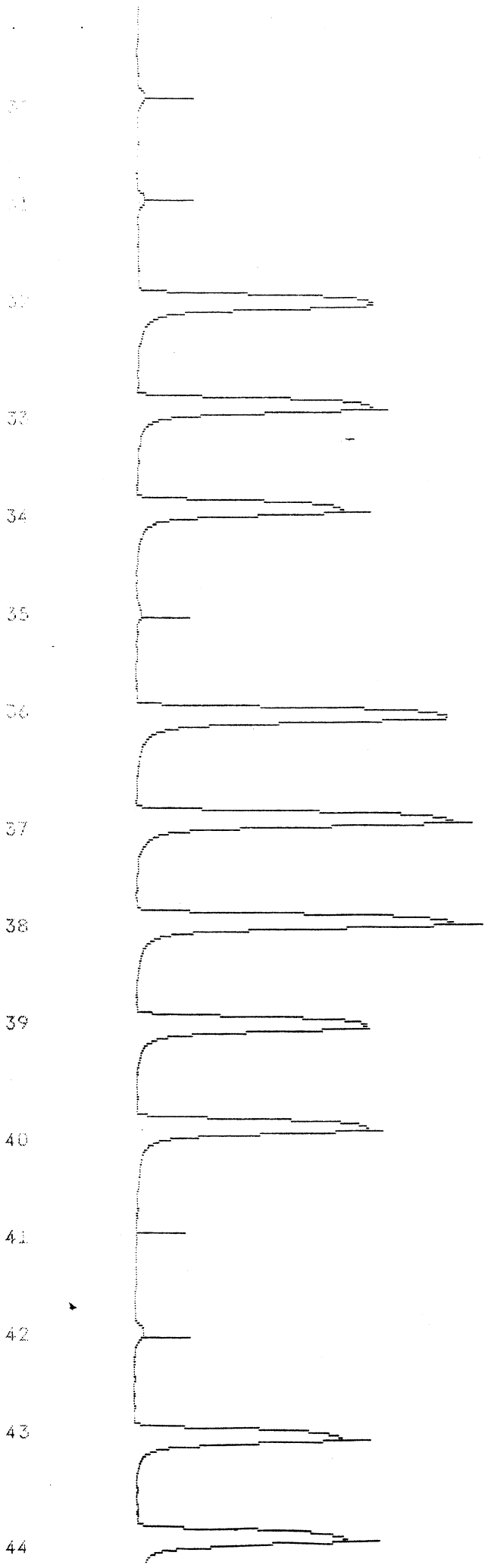
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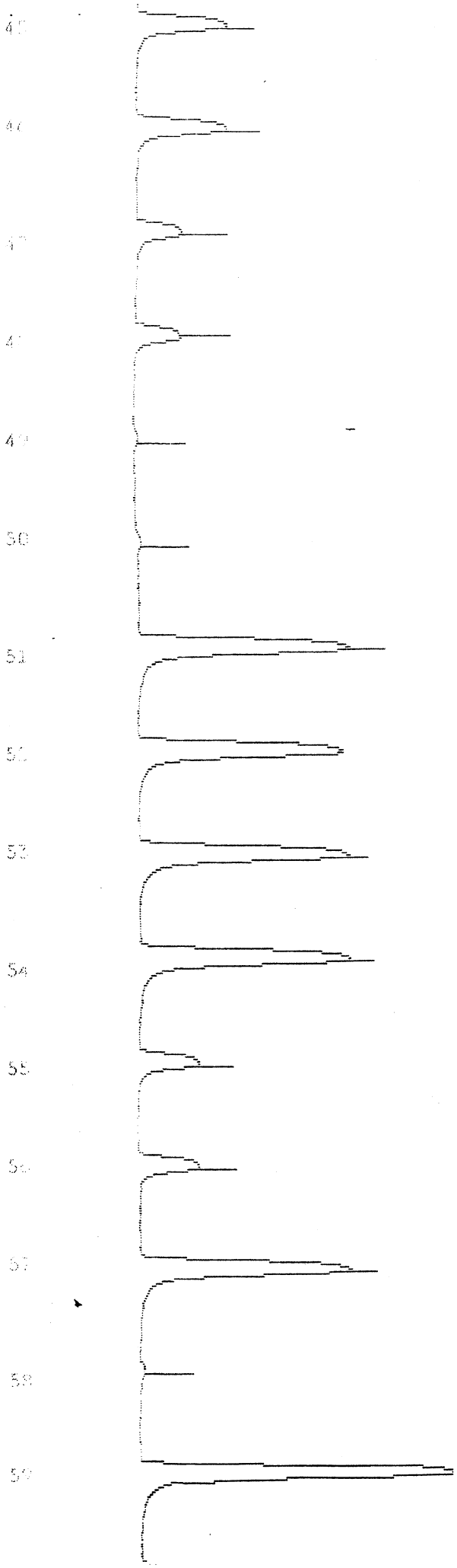
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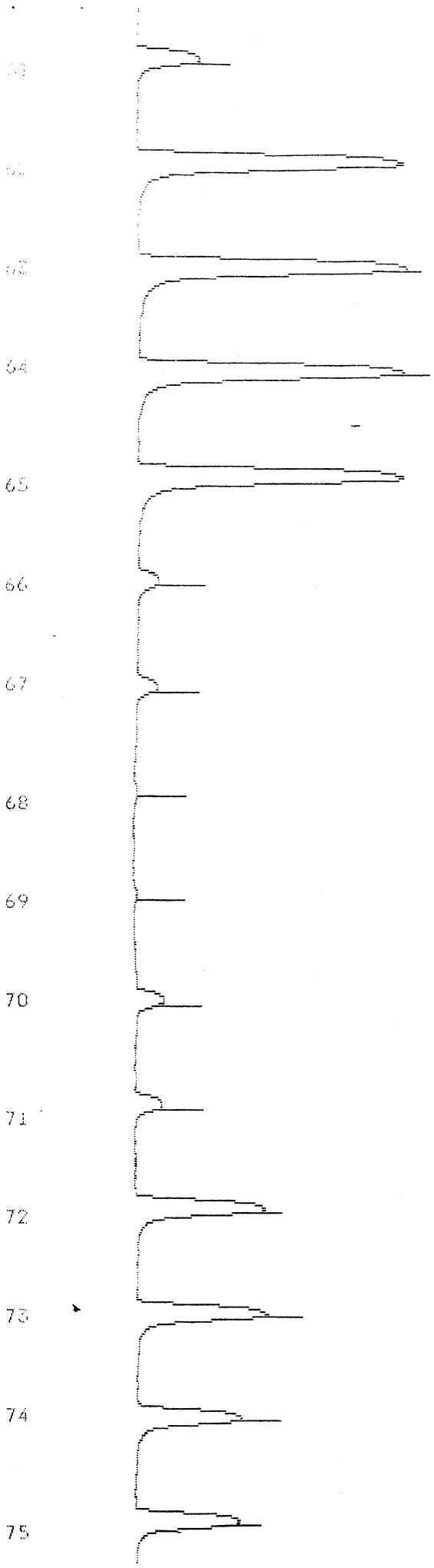
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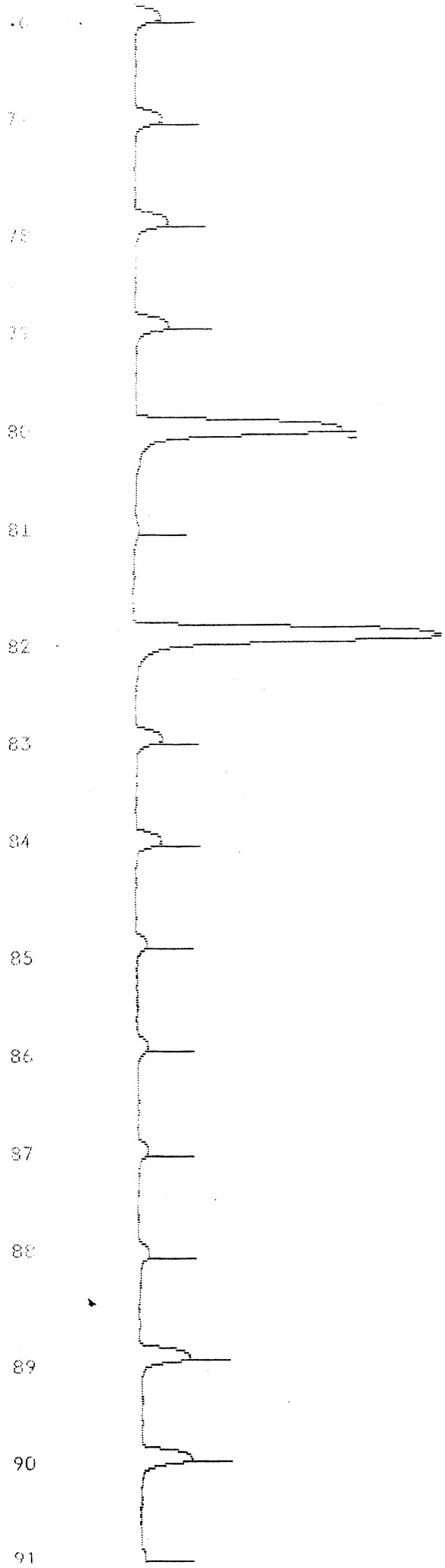
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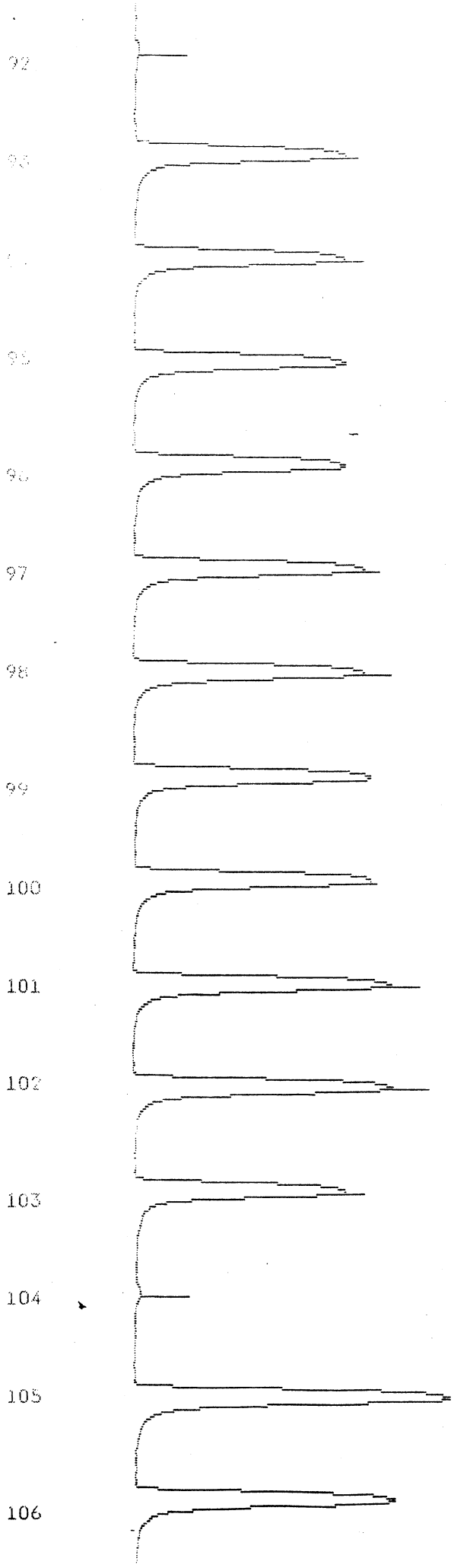
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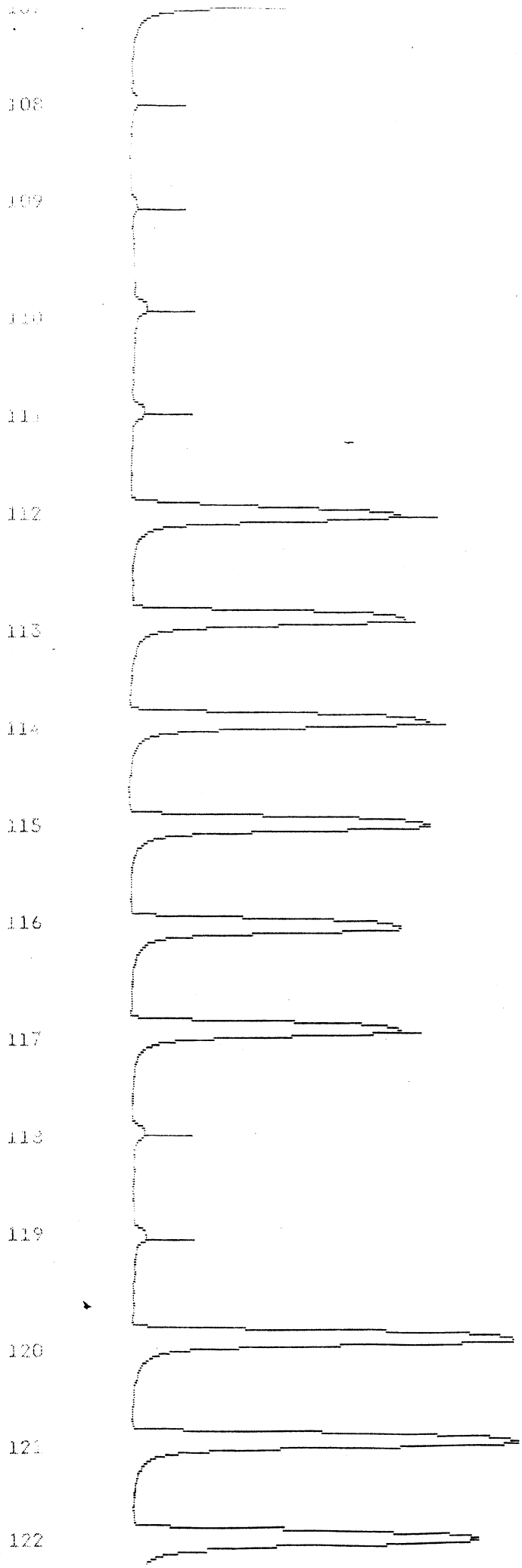
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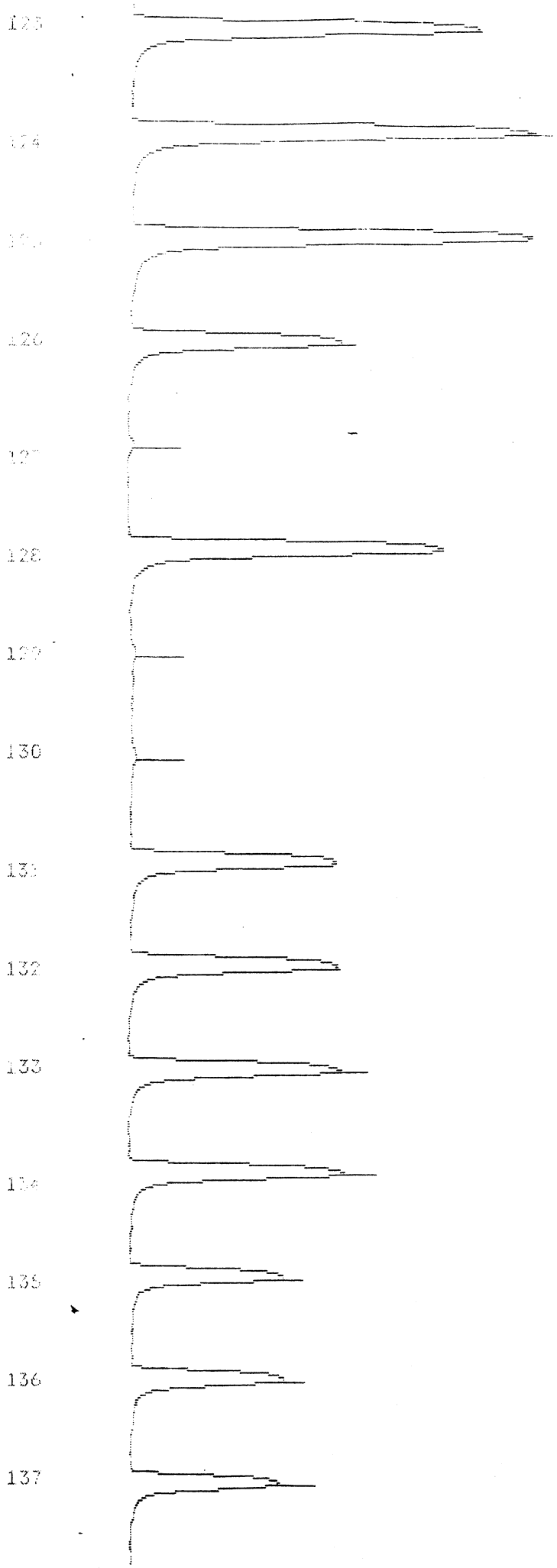
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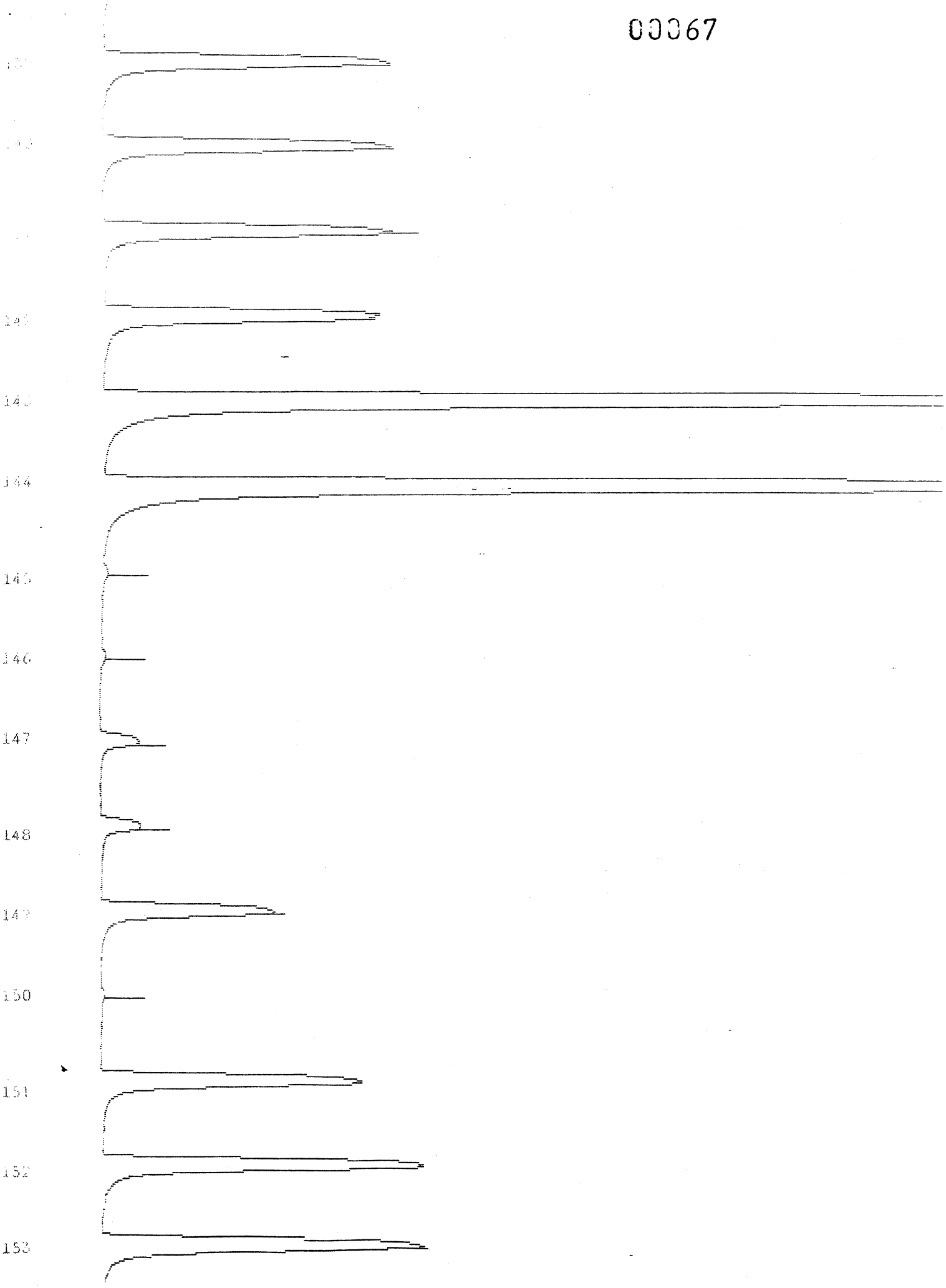
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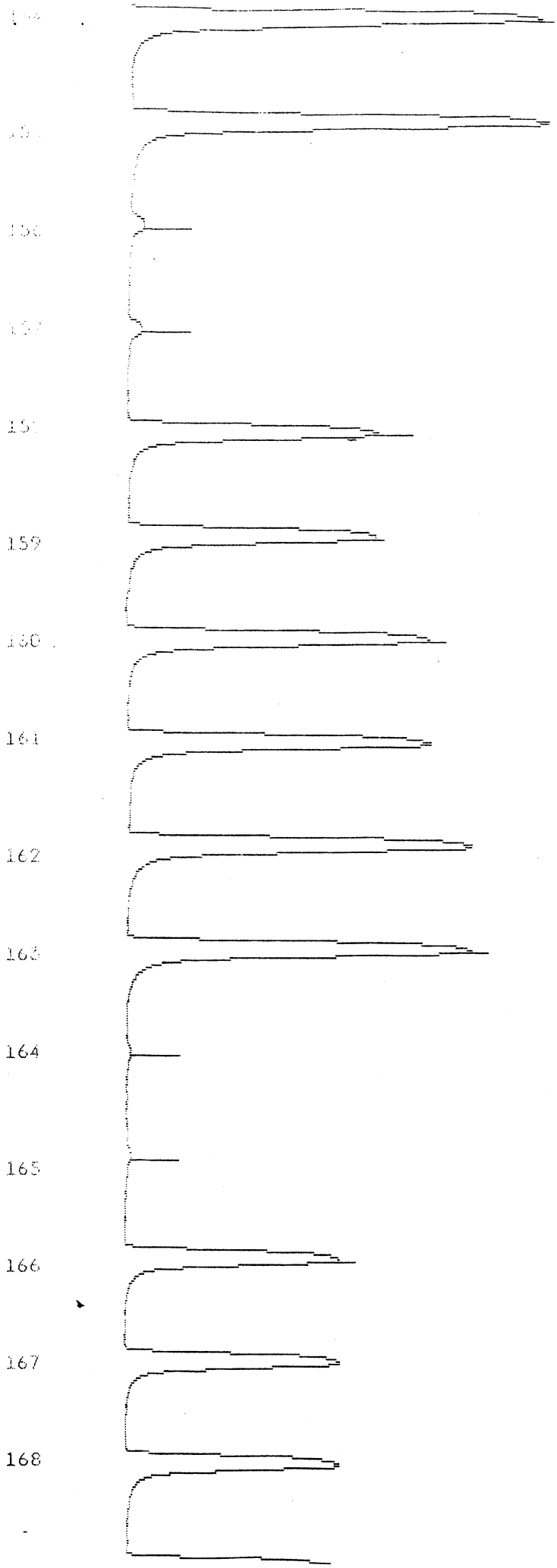
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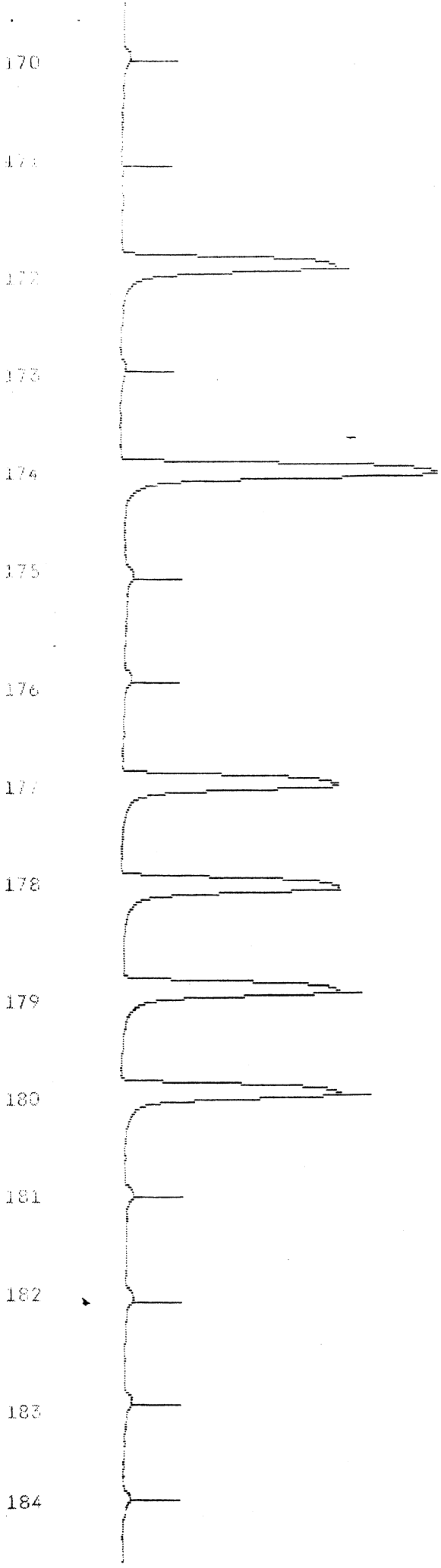
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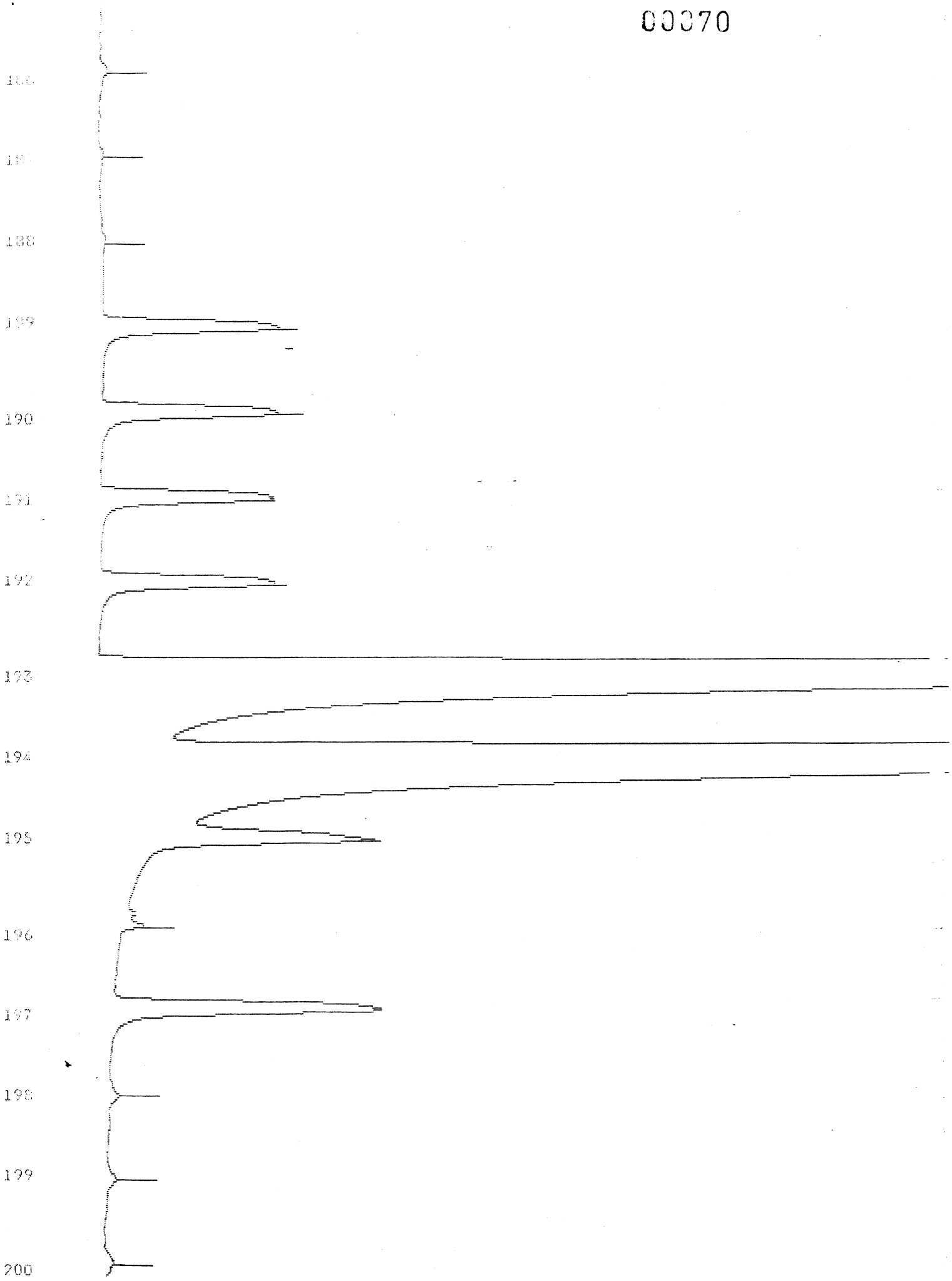
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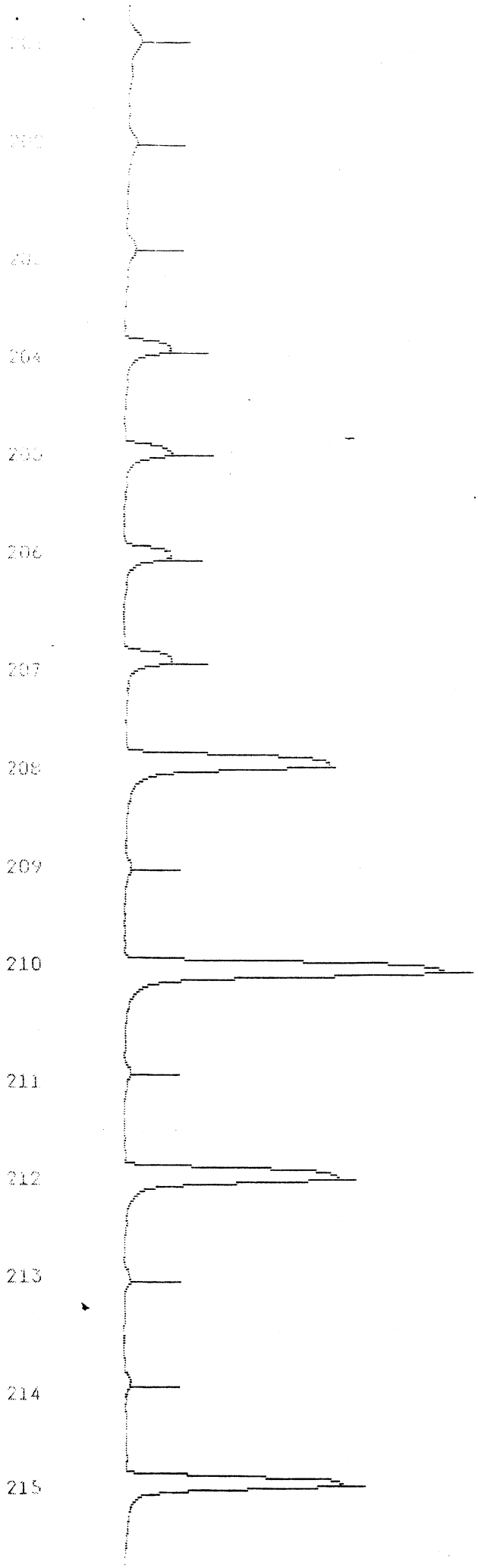
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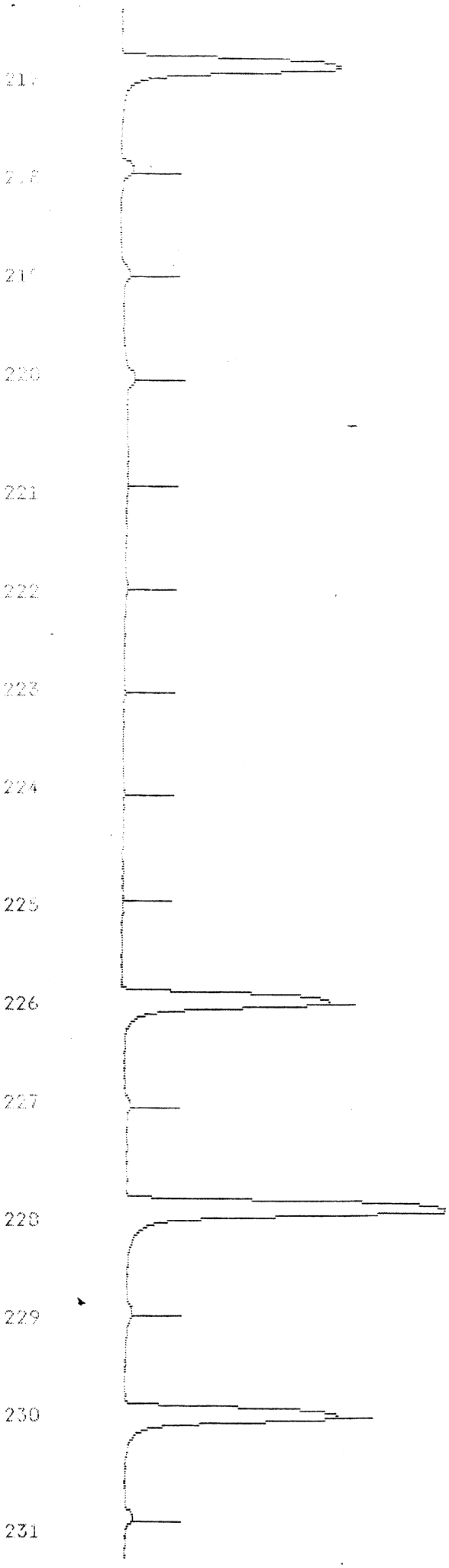
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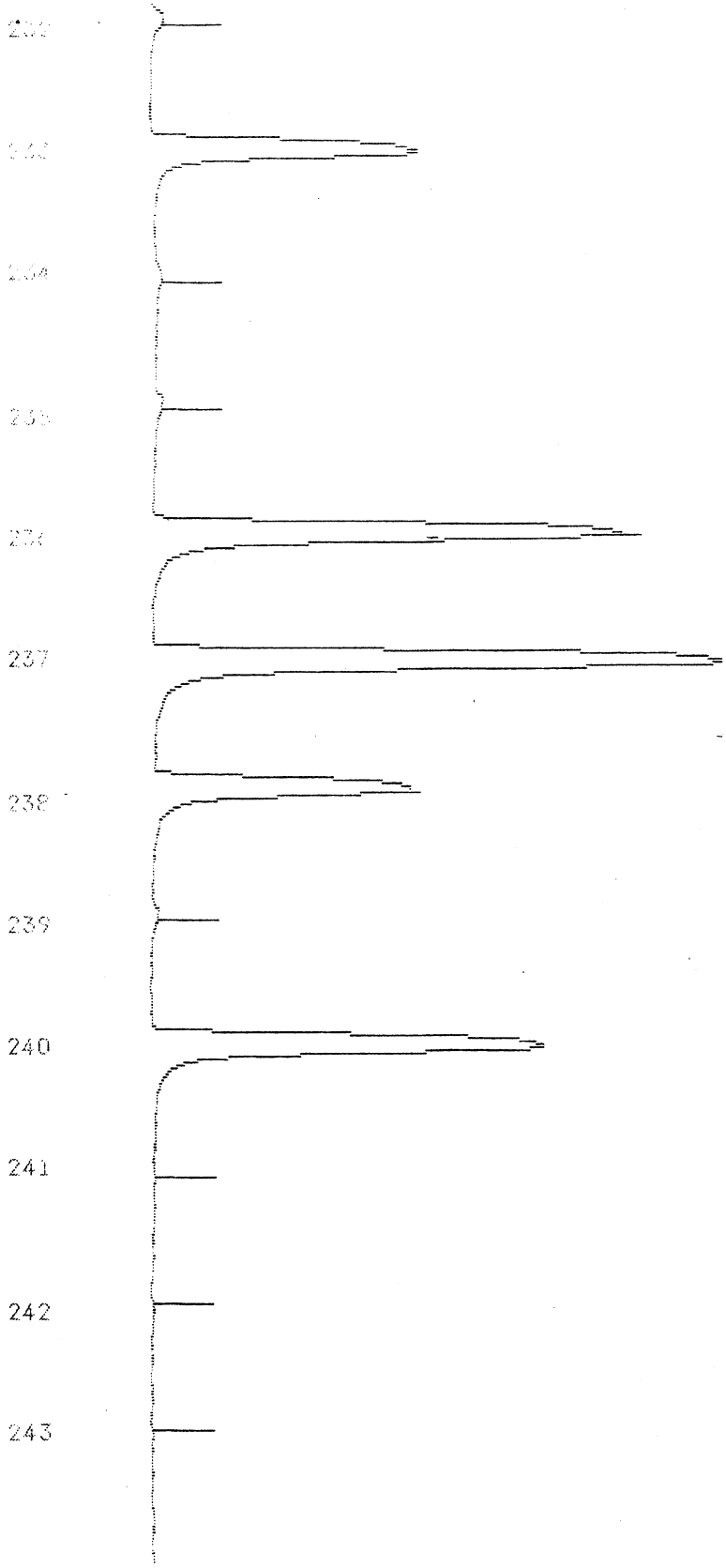
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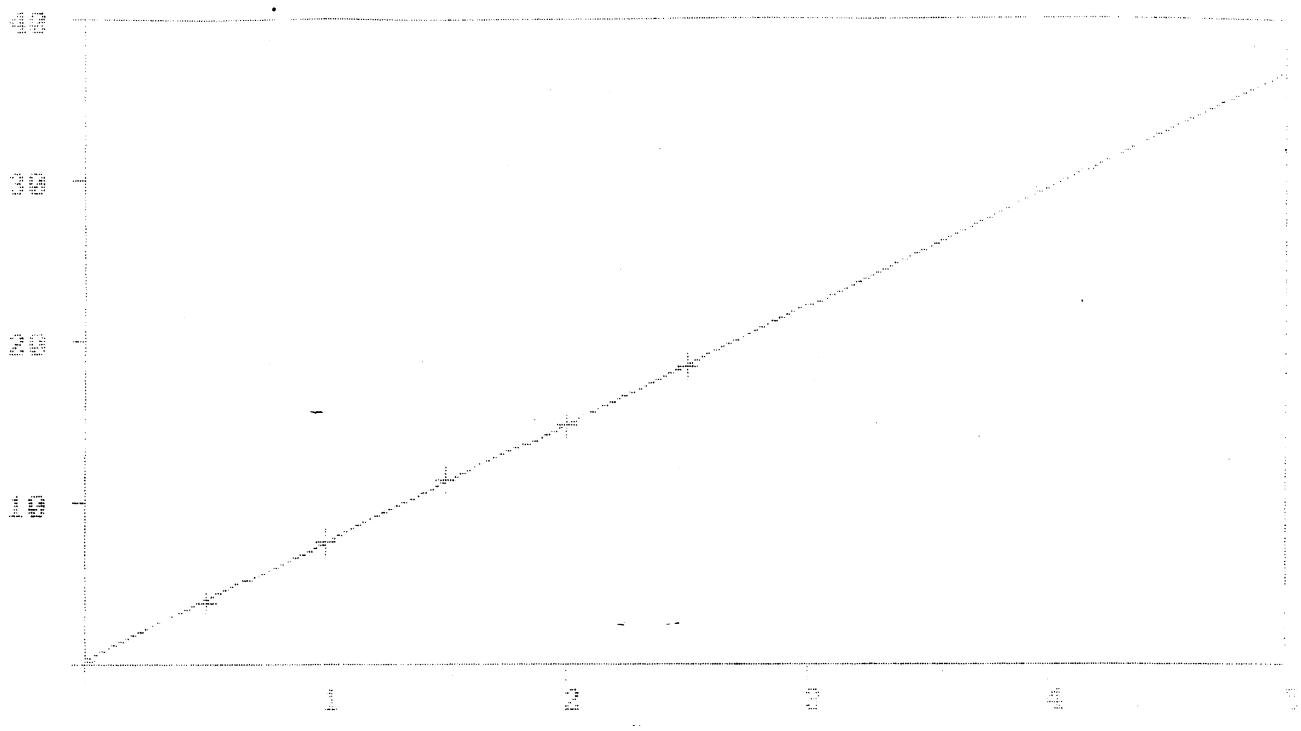
CHANNEL NAME: LDC
RUN NAME: 991118WA



DATE: TYPE: LIN CALIBRATION ORDER: 1
INTERCEPT = 0.25 SLOPE = 7.272901

CORRELATION: .9998083

CHANNEL NAME: LDC
RUN DATE: 11-18-1999
SAMPLE TABLE NAME: 991118WA
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	TUG	CONCENTRATION µg/L		ET
1	PRIMER	1	1	11.0		1.473		s
2	DUMMY	1	1	1.1		-0.021		
3	S1: 0	1	1	0.1		-0.015		
4	S2: .5	1	1	3.9		0.499		
5	S3: 1			7.1		1.006		
6	S4: 1.5	1	1	1.8		1.533		
7	S5: 2			14.7		1.993		
8	S6: 2.5		1	1.7		2.433		
9	ICV	1	1	10.9		1.469	98%	
10	B	1	1	0.0		-0.035		b
11	DA	1	1	11.4		1.533		d
12	SS 378		1	13.6		1.835	92%	
13	ORG REF	1	1	16.	TUG	2.265	113%	
14	BL1118-1NKC 64880	1	1	0.1	<0.03	0.015		
15	BL1118-1NKC	1	1	0.2		-0.011		
16	BL11180	1	1	7.4	0.298	0.989	99%	
17	BL11180	1	1	7.5		0.996		
18	BL11180	1	1	7.6	0.303	1.016	101%	
19	BL11180	1	1	7.5		1.003		
20	64883	1	1	7.4	0.981	0.986		
21	64883	1	1	7.4		0.976		
22	64883D	1	1	8.0	1.057	1.063		

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.047	0.007	103%	
[illegible]	64887S	[illegible]	[illegible]	[illegible]		0.044		
[illegible]	64884		[illegible]	0.0	<0.100	[illegible]		I
[illegible]	64887	[illegible]	[illegible]	0.0		-0.035		I
[illegible]	[illegible]	[illegible]	[illegible]	0.1	<0.100	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]
37	[illegible]	4	1	8.5	4.568	[illegible]		
38	64886	4	1	8.6		4.575		
34	CCV	[illegible]	1	7.[illegible]		0.993	99%	
35	B	1	1	0.0		-0.035		b
36	D4	1	[illegible]	11.4		1.533		d
37	64[illegible]	2	[illegible]	11.5	3.097	3.0[illegible]		
38	64885	2	1	11.5		3.100		
39	64886	4	1	8.4	4.481	4.454		
40	64886	4	1	8.4		4.503		
41	64887	1	1	0.0	<0.100	0.035		I
42	64887	1	1	0.2		0.008		I
43	64888	1	1	7.4	0.991	0.983		
44	64888	1	1	7.5		0.999		
45	64889	1	1	3.2	0.405	0.402		
46	64889	1	1	3.2		0.409		s
47	64890	1	1	1.5	0.170	0.173		
48	64890	1	1	1.5		0.167		
49	BL1118-2NKC	1	1	-0.0	<0.03	-0.035		I
50	BL1118-2NKC	1	1	0.0		-0.035		I
51	BL1118S	1	1	7.6	0.298	1.006	99%	
52	BL1118S	1	1	7.4		0.983		
53	BL1118DS	1	1	7.5	0.300	1.003	100%	
54	BL1118DS	1	1	7.5		0.996		
55	64894	1	1	2.1	0.249	0.251		
56	64894	1	1	2.1		0.247		
57	CCV	1	1	7.6		1.006	101%	
58	B	1	1	0.0		-0.035		b
59	D4	1	1	11.4		1.533		d
60	64894D	1	1	2.1	0.259	0.257		
61	64894D	1	1	2.1		0.261		s
62	64894S	1	1	9.6	1.292	1.288	103%	
63	64894S	1	1	9.7		1.295		
64	64894DS	1	1	9.5	1.283	1.275	103%	
65	64894DS	1	1	9.6		1.291		
66	64891	1	1	0.6	<0.100	0.049		I
67	64891	1	1	0.6		0.049		
68	64892	1	1	0.0	<0.100	-0.035		I
69	64892	1	1	0.0		-0.035		I
70	64893	1	1	1.0	<0.100	0.096		
71	64893	1	1	0.8		0.076		
72	64895	1	1	4.5	0.590	0.586		
73	64895	1	1	4.6		0.593		
74	64896	1	1	3.6	0.465	0.468		
75	64896	1	1	3.6		0.465		
76	64897	1	1	0.9	<0.100	0.083		s
77	64897	1	1	0.9		0.083		
78	64898	1	1	1.1	0.115	0.113		
79	64898	1	1	1.1		0.116		
80	CCV	1	1	7.6		1.009	101%	
81	B	1	1	0.0		-0.035		b
82	D4	1	1	11.4		1.533		d
83	64899	1	1	0.8	<0.100	0.076		
84	64899	1	1	0.8		0.073		
85	64900	1	1	0.2	<0.100	-0.001		I
86	64900	1	1	0.2		-0.001		I
87	64676-UD	1	1	0.2	<0.100	-0.005		I
88	64676-UD	1	1	0.3		0.002		I

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91	BL1118-18MN 64880	1	1	0.0	<0.03	0.000		
92	BL1118-18MN	1	1	0.0				
93	BL1183	1	1	7.7	0.305	1.022	101%	
94	BL1183S	1	1	7.6		1.013		
95	BL1183DC	1	1	7.6	0.304	1.015	101%	
96	BL1183DS	1	1	7.6		1.015		
97	64883	8	1	8.4	8.908	8.908		
98	64883	8	1	8.4		8.908		
99	64883D	8	1	8.6	9.244	9.203		
100	64883D	8	1	8.7		9.[illegible]		
101	64883S	8	1	7.4	10.050	10.[illegible]	97%	
102	64883S	8	1	7.4				
103	CCV	1	1	7.5			101%	
104	B	1	1	0.0				
105	D4	1	1	[illegible]				
106	64883DS	8	1	[illegible]	9.996		91%	
107	64883DS	8						
108	64881	1			<0.100			
109	64881							
110	64882				<0.100			
111	64882							
112	64884				10.600	[illegible]		
113	[illegible]					[illegible]		
114	[illegible]				11.796	11.809		
						11.782		
					10.560	10.664		
						10.466		
				0.3	<0.100	0.005	I	
			1	0.3		0.012	I	
			1	13.9	9.446	9.393		
		5	1	14.1		9.496	s	
		4	1	12.6	6.757	6.777		
		4	1	12.5		6.737		
		5	1	14.6	8.330	7.879		
125	64890	4	1	14.5		7.838		
126	CCV	1	1	7.5		0.996	100%	
127	B	1	1	0.0		-0.035	b	
128	D4	1	1	11.4		1.533	d	
129	BL1118-28MN	1	1	0.0	<0.03	-0.035	I	
130	BL1118-28MN	1	1	0.0		-0.031	I	
131	BL1183	1	1	7.4	0.285	0.976	98%	
132	BL1183S	1	1	7.4		0.989		
133	BL1183DS	1	1	7.6	0.303	1.006	101%	
134	BL1183DS	1	1	7.6		1.016		
135	64894	1	1	5.4	0.706	0.707		
136	64894	1	1	5.4		0.704	s	
137	64894D	1	1	5.2	0.666	0.674		
138	64894D	1	1	5.0		0.637		
139	64894S	1	1	12.7	1.721	1.714	103%	
140	64894S	1	1	12.8		1.728		
141	64894DS	1	1	12.9	1.690	1.735	100%	
142	64894DS	1	1	12.2		1.644		
143	64891	1	1	51.7		7.080	R	VOID; RERUN ON 4X I
144	64891	1	1	53.7		7.349	R	
145	64892	1		0.0	<0.100	-0.031	I	
146	64892	1	1	0.0		-0.028	I	
147	64893	1	1	1.6	0.182	0.180		
148	64893	1	1	1.6		0.183		
149	CCV	1	1	7.5		1.003	100%	
150	B	1	1	0.0		-0.035	b	
151	D4	1	1	11.4		1.533	s	
152	64895	5	1	14.1	9.563	9.546		
153	64895	5	1	14.2		9.580		
154	64896	5	1	14.9	10.151	10.050		

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157	64897	1	1	0.0		[illegible]		
158	64898	4	1	7.1	4.830	[illegible]		
159	64898	4	1	7.0		4.816		
160	64899	4	1	11.0	5.918	[illegible]		
161	64899	4	1	11.3		5.9[illegible]		
162	64900	4	1	[illegible]	6.724	[illegible]		
163	64900	4	1	[illegible]		6.[illegible]		
164	BL1118-30MN	1	1	0.0	<0.03	0.03[illegible]	I	
165	BL1118-30MN	1	1	0.0		-0.03[illegible]	I	
166	BL1118S	1	1	7.6	0.303	1.00[illegible]		101%
167	BL1118S	1	1	7.6		1.01[illegible]		
168	BL1118DS	1	1	[illegible]	0.300	1.00[illegible]		100%
169	BL1118DS	1	1	7.5		0.99[illegible]		
170	64701	1	1	0.1	<0.05	-0.02[illegible]	I	
171	64701	1	1	0.0		-0.035	I	
172	CCV	1	1	7.7		1.0[illegible]		101%
173	B	1	1	0.0		-0.035	b	
174	D4	1	1	11.4		1.533	d	
175	64701D	1	1	0.1	<0.05	-0.021	I	
176	64701D	1	1	0.0		-0.035	I	
177	64701S	1	1	7.6	0.509	1.013		101%
178	64701S	1	1	7.7		1.023		
179	64701DS	1	1	7.5	0.504	1.003		101%
180	64701DS	1	1	7.6		1.013		
181	64702	1	1	0.0	<0.05	-0.035	I	
182	64702	1	1	0.0		-0.035	I	
183	64703	1	1	0.0	<0.05	-0.035	I	
184	64703	1	1	0.0		-0.035	I	
185	64705	1	1	0.0	<0.05	-0.035	I	
186	64705	1	1	0.0		-0.035	I	
187	BL1118-18HY 64880, 65692,	1	1	0.0	<0.05	-0.035	I	
188	BL1118-18HY 65763, 65830, 66553	1	1	0.0		-0.035	I	
189	BL1118S	1	1	7.2	0.096	0.959		96%
190	BL1118S	1	1	7.2		0.956		
191	BL1118DS	1	1	7.0	0.094	0.932		94%
192	BL1118DS	1	1	7.1		0.942		
193	64670	1.5	1	97.2	Dil: 2		C	
194	64670	1.5	1	94.1	Dil: 2		C	
195	CCV	1	1	8.1		1.073		107%
196	B	1	1	0.0		-0.035	b	
197	D4	1	1	11.4		1.533	d	
198	64881	1.5	1	0.0	<0.01	-0.052	I	
199	64881	1.5	1	0.0		-0.052	I	
200	64892	1.5	1	0.0	<0.01	-0.052	I	
201	64892	1.5	1	0.0		-0.052	I	
202	66518	1.5	1	0.0	<0.01	-0.052	I	
203	66554	1.5	1	0.0		-0.052	I	
204	65764	1.5	1	1.3	0.022	0.219		
205	65764	1.5	1	1.4		0.230		
206	65693	1.5	1	1.4	0.024	0.230		
207	65693	1.5	1	1.4		0.245		
208	CCV	1	1	7.3		0.962		96%
209	B	1	1	0.0		-0.035	b	
210	D4	1	1	11.4		1.533	d	
211	BL1118-STB1	1	1	0.0		-0.031	s	
212	BL1118S	1	1	7.5		1.003		100%
213	68153	1	1	0.1		-0.025	I	
214	681530	1	1	0.0		-0.035	I	
215	681533	1	1	7.6		1.009		101%
216	68151, 67993, 68009, 68310	1	1	0.0		-0.031	I	
217	68151S	1	1	7.6		1.013		101%
218	68003	1	1	0.3		0.009	I	
219	68020	1	1	0.1		-0.018	I	
220	68319	1	1	0.1		-0.018	I	

00378

223	[illegible]	1	[illegible]	0.1	[illegible]	[illegible]
224	[illegible]	1	[illegible]	0.0	[illegible]	[illegible]
225	68332	1	1	0.0	-0.035	I
226	CCV	1	1	7.3	0.9[illegible]	96%
227	B	1	1	0.0	-0.035	L
228	04	1	1	11.4	1.533	d
229	BL1118-3HCT	1	[illegible]	0.0	-0.029	I
230	BL1118S	1	1	7.4	1.003	98%
231	68313	1	1	0.1	-0.024	
232	68318H	1	1	0.2	-0.008	I
233	68318C	1	1	7.6	1.006	101%
234	68871	1	1	0.0	-0.031	[illegible]
235	68872	1	1	0.0	-0.028	J
236	WS 478	1	1	13.7	1.842	
237	ORG REF	1	1	16.6	2.232	
238	CCV	1	1	7.4	0.999	98%
239	B	1	1	0.0	-0.035	b
240	04	1	1	11.4	1.533	d
241	0	1	1	0.0	-0.035	s
242	0	1	1	0.0	-0.03[illegible]	I

INTERCEPT: 0.25 LINEAR COEF: 7.272981

CORRELATION COEF: .9993085

non mber	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
4891	BRAUN-MN	Unit 1 Stack-R4	Mercury -	PV	7.819						99/11/18	2BMN	99/11/19	MG01	58.	21.	
1118	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.293	97.	0.302	101.	99/11/18	2BMN	99/11/19	MG01	$$$	$$$	

2 Tests for OHMN4 with an MDL of 0.030 ug Validated By CMK Control Chart Updated N/A IO Requirements met N/A

00079

1/2

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.19 Run Code: MG01 Matrix: IMP.

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			WS 378			
13			ORG. REF.			
14			BL1119	INPO.		
15			"			
16			BL1119 S			
17			"			
18			BL1119 DS			
19			"			
20	10		65702			
21			"			
22			65702 D			
23			"			
24			65702 S			
25			"			
26			65702 DS			
27			"			
28			65693			
29			"			
30			65701			
31			"			
32			65703			
33			"			
34			CCV			
35			B			
36			D4			
37	10		65704			
38			"			
39			65705			
40			"			
41	10		65706			
42			"			
43			65707			
44			"			
45			65708			
46			"			
47			65709			
48			"			
49			BL1119	ZNPO		
50			"			
51			BL1119 S			
52			"			
53			BL1119 DS			
54			"			
55	10		65710			
56			"			
57		MA	~~65710 D~~ CCV			
58		MA	" B			
59		MA	~~65710 S~~ D4			
60	10		65710 D			
61			65710 D			
62			65710 S			
63			"			
64			65710 DS			
65			"			
66			65711			
67			"			
68			65712			
69			"			
70			65713			
71			"			
72			65714			
73			"			
74			65715			
75			"			
76			657116			
77			"			
78			BL1118	ZBMN		
79			"			
80			CCV			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99-11-19 Run Code: M601 Matrix: IMP.

Analyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			B			
22			D4			
23			BL1118 S			
24			"			
25			BL1118 DS			
26			"			
27		1/4	64891			
28	"	↓	"			
29	1.5	1/40	64670	UNDIGESTED		
30	↓	↓	"	"		
31	20	1/2	64670	DIGESTED		
32	↓	↓	"	"		
33			WS 378			
34			ORG. REF.			
35			CCV			
36			B			
37			D4			
38			BL1119	STA 1		
39			BL1119 S			
40			68663			
41			68663 D			
42			63 S			
43			61			
44			61 S			
45			68806			
46			68978			
47			68813			
48			68882			
49			CCV			
50			B			
51			D4			
52						
53						
54						
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59						
60						
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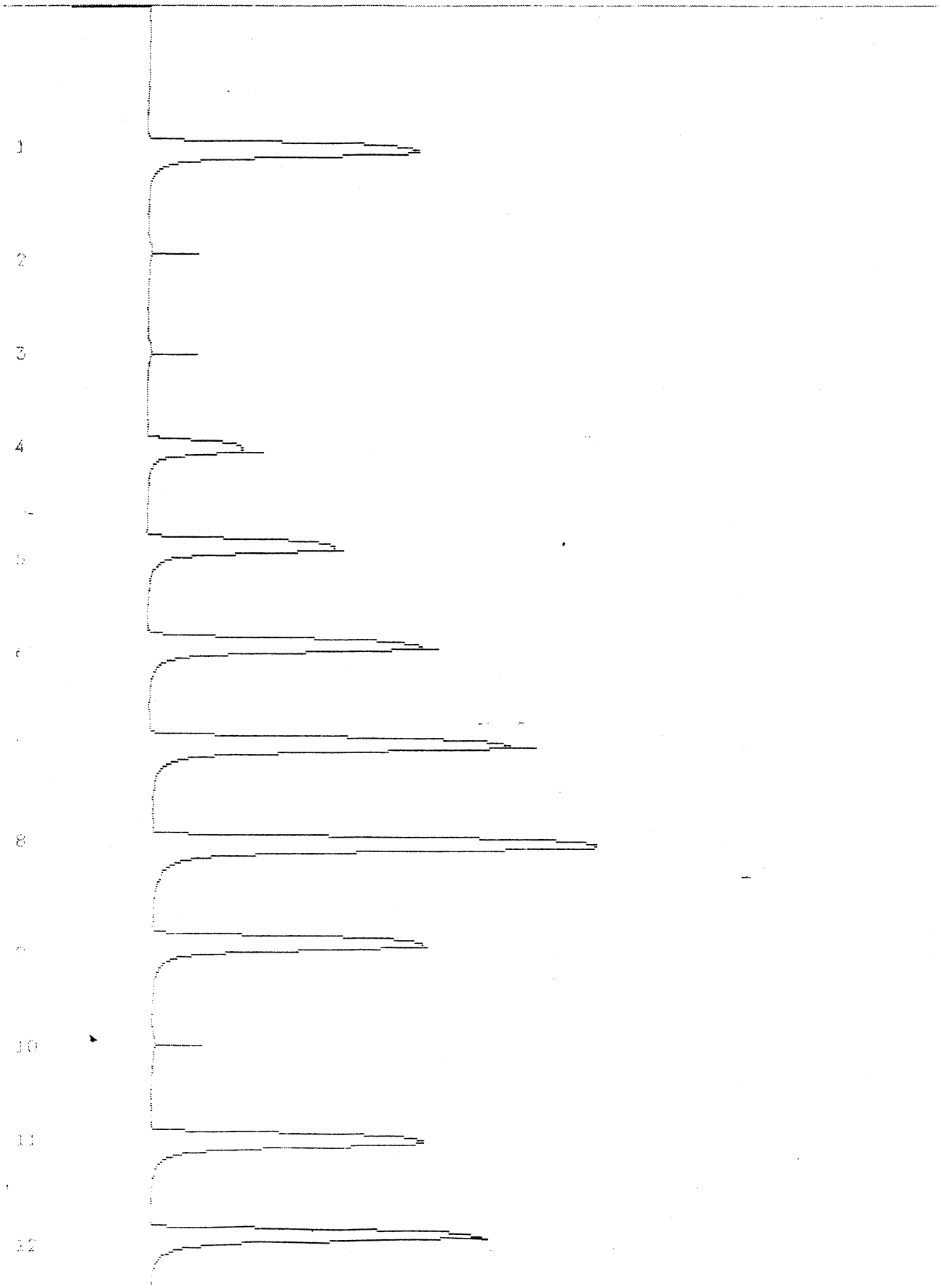
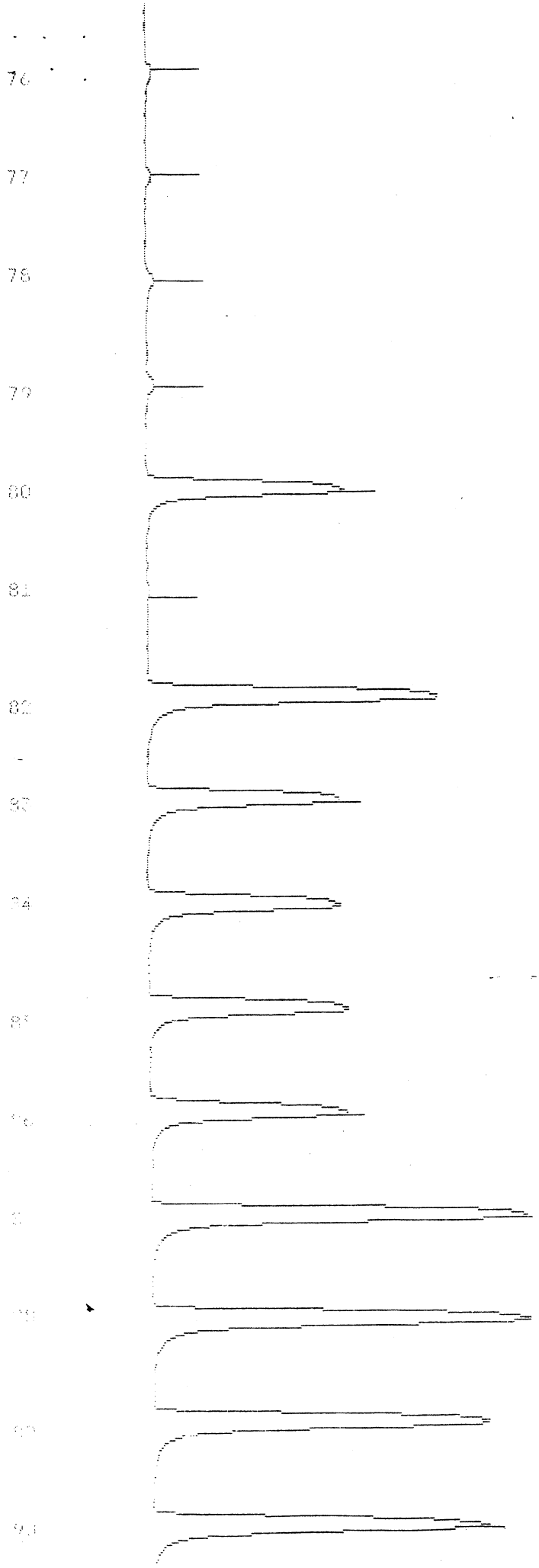
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

RUN DATE: 11-19-1999 CHART DATE: 11-19-1999
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\991119W.DAT

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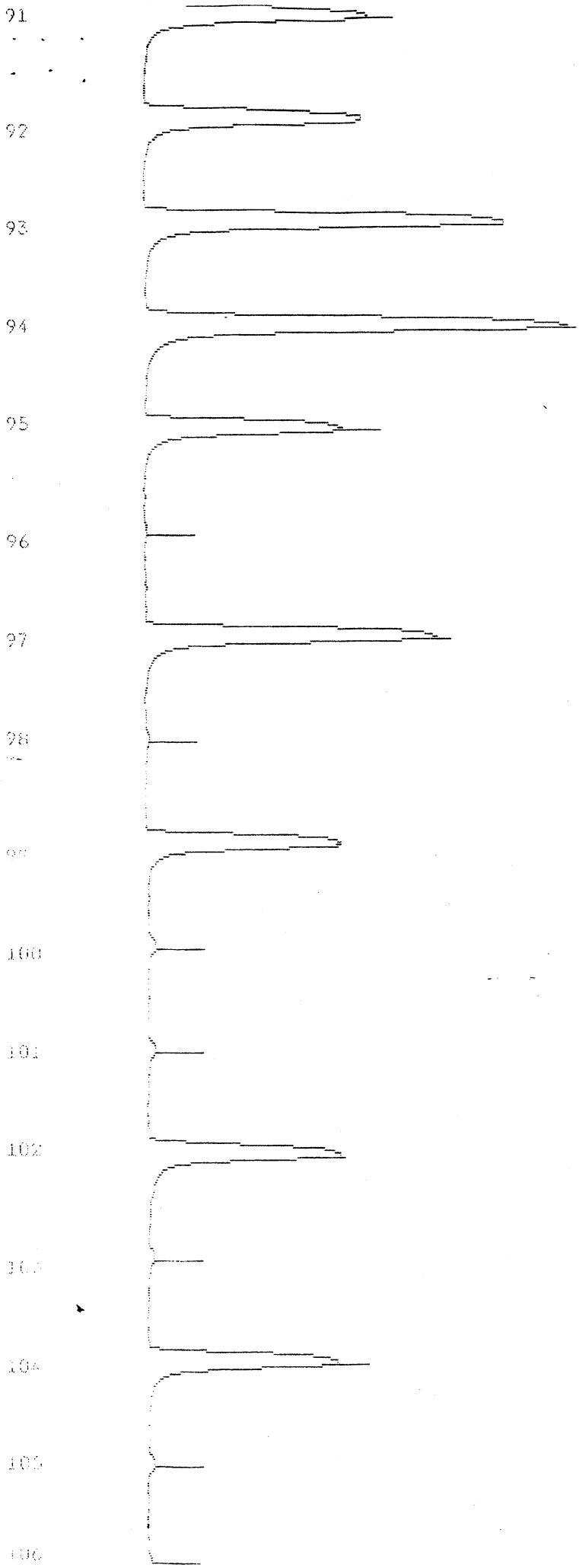
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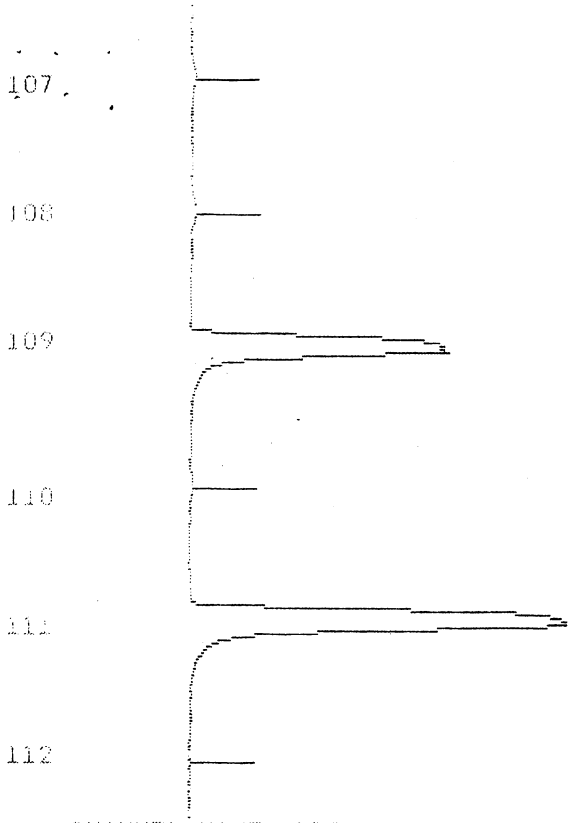
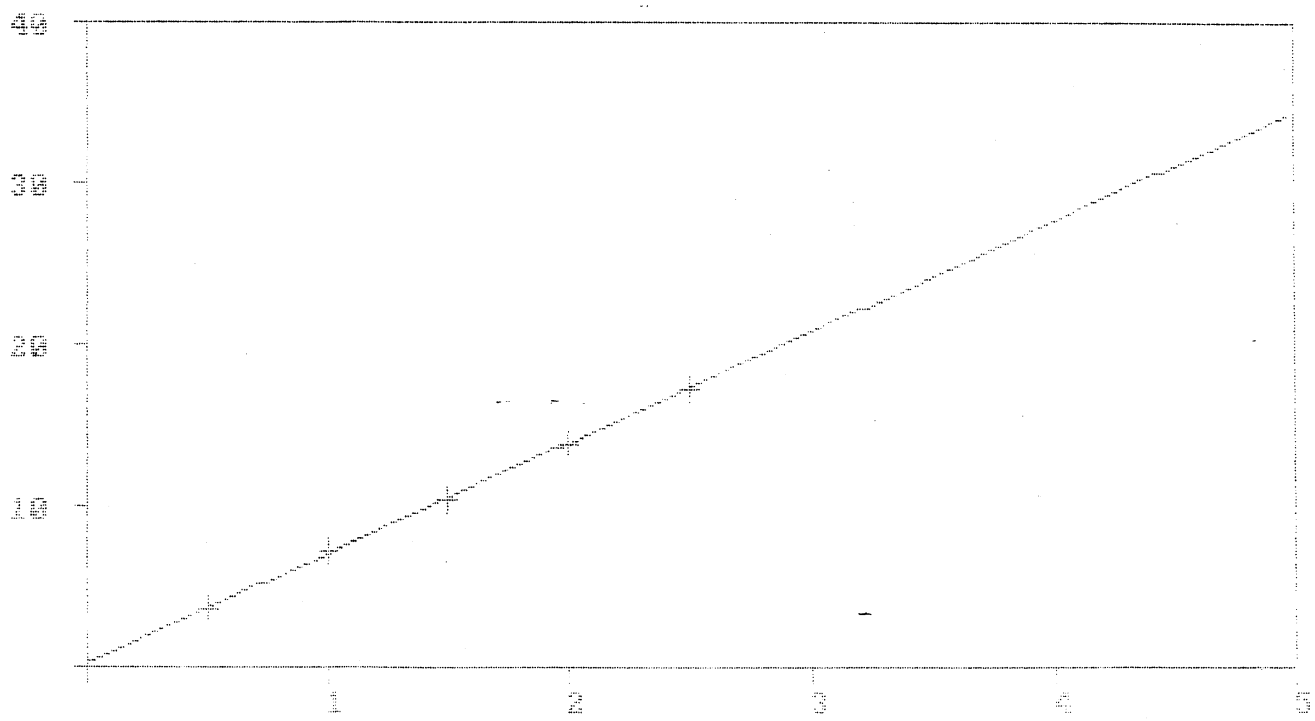


CHANNEL NAME: LDC
RUN NAME: 991119W



DATA TYPE: [illegible]
INTERCEPT = 0.19
CALIBRATION ORDER: 1
SLOPE = 6.332075

CORRELATION: [illegible]

CHANNEL NAME: LDC
RUN DATE: 11-19-1999
SAMPLE TABLE NAME: 991119W
METHOD NAME: HGWATER

µg/L

[illegible]

00086

4	B2	1	1	5.6		[illegible]		
5	B3 1	1	1	7.2		[illegible]		
6	B4	1	1	10.5		1.506		
7	B5 2	1	1	13.5		1.992		
8	B6 2.5	1	1	11.2		[illegible]		
9	[illegible]	1	1	10.5		1.506		100%
10	B	1	1	0.0		[illegible]		
11	B6	1	1	10.5		1.506		
12	WO 378	1	1	12.1	TUG	[illegible]		98%
13	WO R29	1	1	14.2		[illegible]		109%
14	BL1119-2NPO 65692	1	1	0.0	<0.01	[illegible]		
15	BL1119-1NPO	1	1	0.0		[illegible]		
16	BL1119S	1	1	7.0	0.100	[illegible]		100%
17	BL1119S	1	1	7.0		1.002		
18	BL1119DS	1	1	7.0	0.101	0.995		101%
19	BL1119DS	1	1	7.2		1.020		
20	65702	10	1	0.1	<0.250	-0.094	I	
21	65702	10	1	0.1		-0.165	I	
22	65702D	10	1	0.1	<0.250	-0.058	I	
23	65702D	10	1	0.1		-0.058	I	
24	65702S	10	1	7.0	2.501	9.986		100%
25	65702S	10	1	7.0		10.022		
26	65702DS	10	1	6.8	2.439	9.736		97%
27	65702DS	10	1	6.9		9.772		
28	65693	10	1	0.1	<0.250	-0.165	I	
29	65693	10	1	0.0		-0.201	I	
30	65701	10	1	0.1	<0.250	-0.094	I	
31	65701	10	1	0.1		-0.129	s	
32	65703	10	1	0.1	<0.250	-0.094	I	
33	65703	10	1	0.1		-0.129	I	
34	CCV	1	1	6.9		0.986		99%
35	B	1	1	0.0		-0.027	b	
36	D4	1	1	10.5		1.506	d	
37	65704	10	1	0.1	<0.250	-0.165	I	
38	65704	10	1	0.1		-0.165	I	
39	65705	10	1	0.2	<0.250	-0.022	I	
40	65705	10	1	0.1		-0.058	I	
41	65706	10	1	2.9	0.955	3.910		
42	65706	10	1	2.7		3.731		
43	65707	10	1	0.3	<0.250	0.192	I	
44	65707	10	1	0.3		0.121	I	
45	65708	10	1	0.2	<0.250	-0.022	I	
46	65708	10	1	0.2		0.014	s	
47	65709	10	1	0.1	<0.250	-0.058	I	
48	65709	10	1	0.1		-0.165	I	
49	BL1119-2NPO 65763	1	1	0.0	MB <0.250	-0.024		<0.01
50	BL1119-2NPO	1	1	0.0		-0.077	I	
51	BL1119S	1	1	6.9	0.099	0.981		99%
52	BL1119S	1	1	7.0		0.999		
53	BL1119DS	1	1	7.2	0.102	1.031		102%
54	BL1119DS	1	1	7.1		1.013		
55	65710	10	1	0.1	<0.250	-0.094	I	
56	65710	10	1	0.1		-0.129	I	
57	CCV	1	1	7.0		0.991		99%
58	B	1	1	0.0		-0.027	b	
59	D4	1	1	10.5		1.506	d	
60	65710D	10	1	0.1	<0.250	-0.058	I	
61	65710D	10	1	0.1		-0.129	s	
62	65710S	10	1	7.2	2.573	10.272		103%
63	65710S	10	1	7.2		10.308		
64	65710DS	10	1	7.2	2.559	10.236		102%
65	65710DS	10	1	7.2		10.236		
66	65711	10	1	0.1	<0.250	-0.165	I	
67	65711	10	1	0.1		-0.129	I	

86 A

70	65715	10	1	0.1	<0.250	-0.129	I	
71	65715	10	1	0.0		-0.201	I	
72	65714	10	1	0.1	<0.250	-0.165	I	
73	65714	10	1	0.1		-0.129	I	
74	65715	10	1	0.1	<0.250	-0.129	I	
75	65715	10	1	0.1		-0.129	I	
76	65716	10	1	0.1	<0.250	-0.053	S	
77	65716	10	1	0.1		-0.034	I	
78	BL1118-2BMN, 64669	1	1	0.2	<0.03	0.001	I	<0.01
79	BL1118	1	1	0.2		-0.002	I	
80	CCV	1	1	7.1		1.006		101%
81	B	1	1	0.0		-0.027	b	
82	D4	1	1	10.5		1.506	d	
83	BL1118S	1	1	6.8	0.293	0.974		97%
84	BL1118S	1	1	6.9		0.951		
85	BL1118DS	1	1	7.1	0.302	1.006		101%
86	BL1118DS	1	1	7.1		1.009		
87	64891-$KMnO_4$	- 4	1	13.5	7.819	7.812		
88	64891	4	1	13.6		7.826		
89	64670	60	1	12.1		~~104.317~~	VOID; UNDIGESTED MT	
90	64670	60	1	12.1		~~104.310~~		
91	64670	40	1	7.9	2.675	45.234	S	
92	64670	40	1	7.7		43.947		
93	WS 378	1	1	12.9		1.867		93%
94	ORG REF	1	1	15.1		2.182		109%
95	CCV	1	1	7.0		0.999		100%
96	B	1	1	0.0		-0.027	b	
97	D4	1	1	10.5		1.506	d	
98	BL1119-STA1	1	1	0.0		-0.020	I	
99	BL1119S	1	1	6.9		0.984		98%
100	68663	1	1	0.2		-0.002	I	
101	68663D	1	1	0.2		-0.002	I	
102	68663S	1	1	6.9		0.981		98%
103	68661	1	1	0.1		-0.013	I	
104	68661S	1	1	6.7		0.959		96%
105	68806	1	1	0.1		-0.009	I	
106	68978	1	1	0.0		-0.024	S	
107	68813	1	1	0.0		-0.024	I	
108	68882	1	1	0.0		-0.024	I	
109	CCV	1	1	6.9		0.981		98%
110	B	1	1	0.0		-0.027	b	
111	D4	1	1	10.5		1.506	d	

INTERCEPT: 0.19 LINEAR COEF: 6.832025

CORRELATION COEF: .9998874

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
064881	BRAUN-MN	Unit 1 Blank	Mercury -	PV	-0.010						99/12/09	3NPR	99/12/09	MG02	79.	42.	
064892	BRAUN-MN	Unit 3 Blank	Mercury -	PV	-0.010						99/12/09	3NPR	99/12/09	MG02	78.	42.	
3L1209	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.103	103.	0.104	104.	99/12/09	3NPR	99/12/09	MG02	$$$	$$$	*BLKIMP*

3 Tests for OHPROBE with an MDL of 0.010 ug Validated By CMB Control Chart Updated N/A IO Requirements met N/A

00087

DC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.09(WA) Run Code: MG02 Matrix: IMP

nalyst: MG Units: µg (see comments) MDL: 0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			WS 378			
13			ORG. REF			
14			BL1209	INFT.		
15			BL1209			
16			BL1209 S			
17			"			
18			BL1209 DS			
19			"			
20			64678			
21			"			
22			78 D			
23			"			
24			78 S			
25			"			
26			78 DS			
27			"			
28			64669			
29			"			
30			64670			
31			"			
32			64676			
33			"			
34			CCV			
35			B			
36			D4			
37			64679			
38			"			
39			64680			
40			"			
41			BL1209	2NFB		
42			"			
43			BL1209 S			
44			"			
45			BL1209 DS			
46			"			
47			64673			
48			"			
49			64673 D			
50			"			
51			64673 DS			
52			"			
53			64673 DS			
54			"			
55			64674D			
56			"			
57			CCV			
58			B			
59			D4 64671			
60			64674			
61			"			
62			64675			
63			"			
64			BL1209	3NPR		
65			"			
66			BL1209 S			
67			"			
68			BL1209 DS			
69			"			
70			64670			
71			"			
72			64704			
73			"			
74			64881			
75			"			
76			64892			
77			"			
78			~~BL1209~~	~~1B3BMD~~		
79			"			
80			CCV			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

[illegible] = 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.09(WD) Run Code: MG02 Matrix: IMP

Analyst: MG Units: µg (see comments) MDL: 0.05

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			CCV MG			
22			B			
23			D4			
24			BL1209	1B3B		
25			"			
26			BL1209 S			
27			"			
28			BL1209 DS			
29			"			
30			70192			
31			"			
32			70192 D			
33			"			
34			70192 S			
35			"			
36			70192 DS			
37			"			
38			69884			
39			"			
40			70191			
41			70191			
42			70193			
43			"			
44			CCV			
45			B			
46			D4			
47			70194			
48			"			
49			69885			
50			"			
51			69886			
52			"			
53			69886 D			
54			"			
55			69886 S			
56			"			
57			69886 DS			
58			"			
59		1/5	69887			
60		↓	"			
61		1/20	69888			
62		↓	"			
63			BL1209	2B3B		
64			"			
65			BL1209 S			
66			"			
67			CCV			
68			B			
69			D4			
70			BL1209 DS			
71			"			
72		1/5	70236			
73			"			
74			70236 D			
75			"			
76			70236 S			
77			"			
78			70236 DS			
79			"			
80			70235			

Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

Blank Spike = 1.0 mg/kg for solid samples.

DC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.09(WA) Run Code: MG02 Matrix: Imp

Analyst: MG Units: µg (see comments) MDL: 0.25

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			70235			
22			70237			
23			"			
24			70238			
25			"			
26			55			
27			WS 378			
28			ORG. REF			
29			CCV			
30			B			
31			DK			
32						
33						
34						
35						
36						
37						
38						
39						
40						

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

[illegible] = 1.0 mg/kg for solid samples.

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
DGHGLEACH, DG29HG***

0991

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List
- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added
- ✓ Reagents added
- ✓ Samples spiked
- ✓ Bath at 95 degrees C
- ✓ Samples digested
- ✓ Hydroxylamine HCl added
- ✓ Samples bulked and mixed
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	1833	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1209	"	"	"	"	(Processed Blank)
	11	BL 1209 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	70192	"	"	"	"	F.Vol. 500 ml
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	70190 / 69884	"	"	"	"	
3	17	191	"	"	"	"	
4	18	193	"	"	"	"	
5	19	194	"	"	"	"	
6	20	69885	"	"	"	"	
7	21	886	"	"	"	"	FULL QC
8	22	887	"	"	"	"	
9	23	888	"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	2633	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1209	"	"	"	"	(Processed Blank)
	27	BL 1209 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	70236	"	"	"	"	Final Vol. = 500 ml
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	70235	"	"	"	"	
3	33	237	"	"	"	"	
4	34	238	"	"	"	"	
5	35		"	"	"	"	
6	36		"	"	"	"	
7	37		"	"	"	"	
8	38		"	"	"	"	
9	39		"	"	"	"	
10	40		"	"	"	"	

Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

Prepare 0.05 ppm standards daily

HNO3 Lot. No. 119090 | H2SO4 Lot. No. 318064 | Bath Temps. 195.1 °C

Prepared By: AB Date: 99.12.09 Checked by: AB

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	41	CCV (Cont. Calib. Verif.)		20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	42	BL	"	"	"	"	(Processed Blank)
	43	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	44		"	"	"	"	
1	45	D	"	"	"	"	(Duplicate sample)
1	46	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	47	DS	"	"	"	"	(Duplicate Spiked sample)
2	48		"	"	"	"	
3	49		"	"	"	"	
4	50		"	"	"	"	
5	51		"	"	"	"	
6	52		"	"	"	"	
7	53		"	"	"	"	
8	54		"	"	"	"	
9	55		"	"	"	"	
10	56		"	"	"	"	

Comments

* concentration based on 30 ml final volume, ** concentration based on 20 ml final volume

*** group of several Method 29 testcodes

Dilution factor of 1.5 is corrected by entering the calibration concentrations listed above

Procedure/Methodology:

1 Prepare 25 ppm Intermediate stock (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO3
2 Prepare 0.05 ppm Working stock daily by pipetting 200 ul., of 25 ppm Stock to 100 ml final volume of 2% HNO3
3 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
4 Using the labeling program, "DIGLBL", retreive the "SCNDIG" list and create labels for the required samples.
5 Label the falcon tubes appropriately
6 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
7 Spike the tubes as indicated in the comment sector of the digestion sheet
8 Add 0.5 ml. of conc. Nitric Acid (HNO3), and 1 ml. of conc. Sulphuric acid, (H2SO4), to each tube
9 Add 3 ml. Potassium Permanganate (KMnO4), colour should remain for at least 15 minutes
10 Add 1.5 ml. of Potassium persulphate, (K2S2O8), to each tube
11 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
12 Remove tubes and allow to cool to room temperature
13 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
14 Recap tubes and shake until the Potassium Permanganate (KMnO4) is destroyed and sample becomes colourless
15 Dilute the sample to a final volume of 30 ml., cap and mix well

REFERENCE STANDARDS/SPIKING SOLUTIONS:

Source: Inorganic Ventures Standard, see standard tracking binder for current lot and expiry date information

ICV/CCV STANDARDS:

Source: High Purity MESS-ZENO 30/QCA Standard, see standard tracking binder for current lot

INTERNAL REFERENCE STANDARD: (2 ppb in 10% HNO3)

Source: EPA WS 378 or SPEX CertiPrep Trace Metal - Water Supply, see standard tracking binder for current source, lot and expiry date information.

All reagents used are of a grade suitable for mercury analyses

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
03993
DGHGLEACH, DG29HG***

Calibration Solutions:

#	I.D.	*Conc.	Spike	**Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	0.33	200 ul of 0.05 ppm IV working standard	0.5
4	Standard 3	0.67	400 ul of 0.05 ppm IV working standard	1.0
5	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
6	Standard 4	1.0	600 ul of 0.05 ppm IV working standard	1.5
7	Standard 5	1.33	800 ul of 0.05 ppm IV working standard	2.0
7	Standard 6	1.67	1000 ul of 0.05 ppm IV working standard	2.5

Check List
- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added
- ✓ Reagents added
- ✓ Samples spiked
- ✓ Bath at 95 degrees C
- ✓ Samples digested
- ✓ Hydroxylamine HCl added
- ✓ Samples bulked and mixed
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	INIT	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1209	"	"	"	"	(Processed Blank)
	11	BL 1209 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	64671	"	"	"	"	100 mls
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64669	"	"	"	"	
3	17	64670	"	"	"	"	
4	18	64676	"	"	"	"	
5	19	79	"	"	"	"	
6	20	80	"	"	"	"	
7	21		"	"	"	"	
8	22		"	"	"	"	
9	23		"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	INIT	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1209	"	"	"	"	(Processed Blank)
	27	BL 1209 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	64673	"	"	"	"	400 mls
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	64670	"	"	"	"	
3	33	64671	"	"	"	"	
4	34	74	"	"	"	"	
5	35	75	"	"	"	"	
6	36		"	"	"	"	
7	37		"	"	"	"	
8	38		"	"	"	"	
9	39		"	"	"	"	
10	40		"	"	"	"	

Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

Prepare 0.05 ppm standards daily

HNO3 Lot. No. [illegible] | H2SO4 Lot. No. [illegible] | Bath Temps. 1 195°C

Prepared By: [illegible] Date: 991209 Checked by: [illegible]

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	41	CCV (Cont. Calib. Verif.)	BN PR	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	42	BL 1209	"	"	"	"	(Processed Blank)
	43	BL 1209 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	44	64670	"	"	"	"	100mls
1	45	D	"	"	"	"	(Duplicate sample)
1	46	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	47	DS	"	"	"	"	(Duplicate Spiked sample)
2	48	64704	"	"	"	"	
3	49	64881	"	"	"	"	
4	50	64892	"	"	"	"	
5	51		"	"	"	"	
6	52		"	"	"	"	
7	53		"	"	"	"	
8	54		"	"	"	"	
9	55		"	"	"	"	
10	56		"	"	"	"	

Comments

* concentration based on 30 ml final volume, ** concentration based on 20 ml final volume

*** group of several Method 29 testcodes

Dilution factor of 1.5 is corrected by entering the calibration concentrations listed above

Procedure/Methodology:

1 Prepare 25 ppm Intermediate stock (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO3
2 Prepare 0.05 ppm Working stock daily by pipetting 200 ul., of 25 ppm Stock to 100 ml final volume of 2% HNO3
3 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
4 Using the labeling program, "DIGLBL", retreive the "SCNDIG" list and create labels for the required samples.
5 Label the falcon tubes appropriately
6 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
7 Spike the tubes as indicated in the comment sector of the digestion sheet
8 Add 0.5 ml. of conc. Nitric Acid (HNO3), and 1 ml. of conc. Sulphuric acid, (H2SO4), to each tube
9 Add 3 ml. Potassium Permanganate (KMnO4), colour should remain for at least 15 minutes
10 Add 1.5 ml. of Potassium persulphate, (K2S2O8), to each tube
11 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
12 Remove tubes and allow to cool to room temperature
13 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
14 Recap tubes and shake until the Potassium Permanganate (KMnO4) is destroyed and sample becomes colourless
15 Dilute the sample to a final volume of 30 ml., cap and mix well

REFERENCE STANDARDS/SPIKING SOLUTIONS:

Source: Inorganic Ventures Standard, see standard tracking binder for current lot and expiry date information

ICV/CCV STANDARDS:

Source: High Purity MESS-ZENO 30/QCA Standard, see standard tracking binder for current lot

INTERNAL REFERENCE STANDARD: (2 ppb in 10% HNO3)

Source: EPA WS 378 or SPEX CertiPrep Trace Metal - Water Supply, see standard tracking binder for current source, lot and expiry date information.

All reagents used are of a grade suitable for mercury analyses

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CHART SPEED: 30
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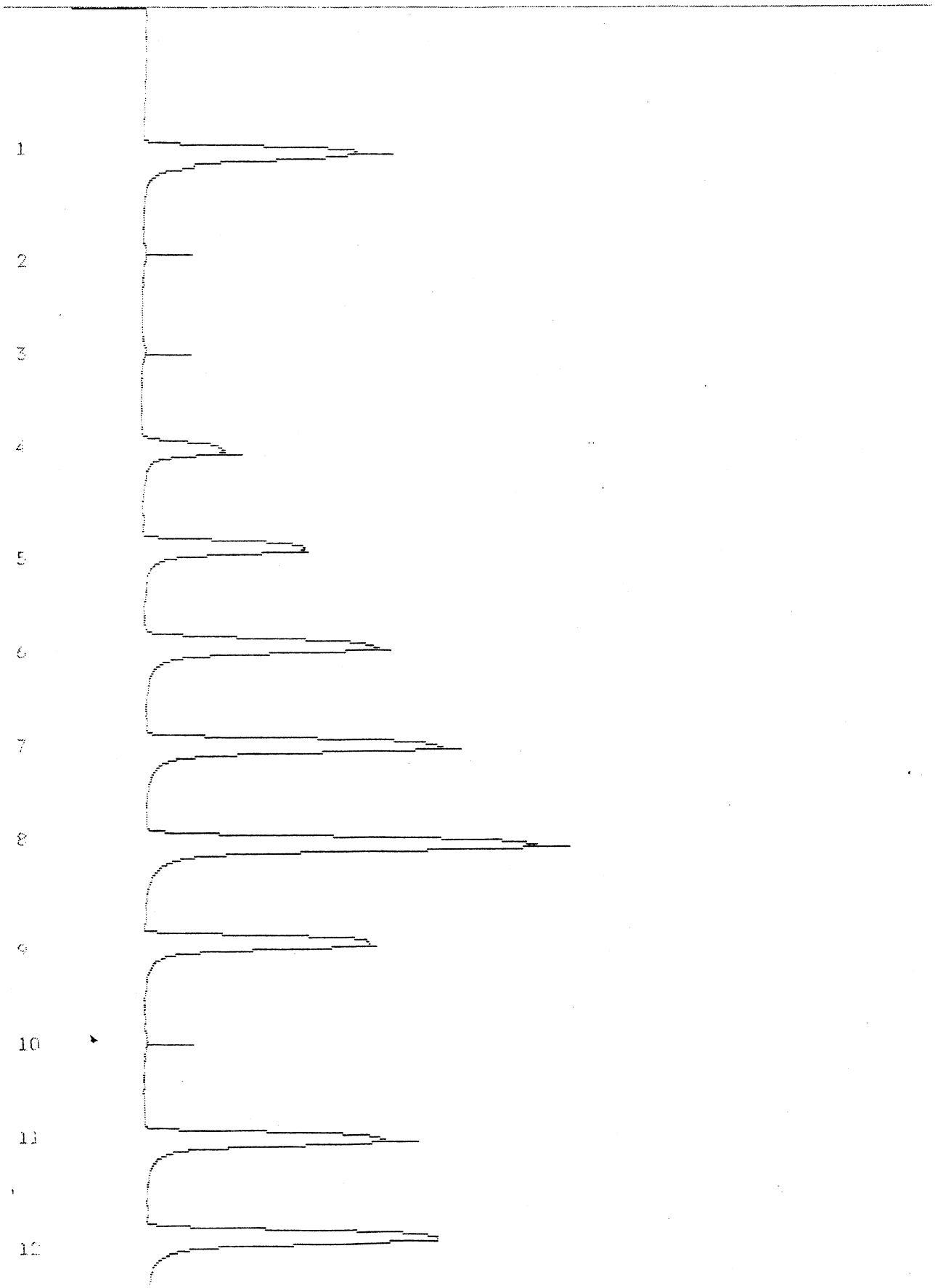

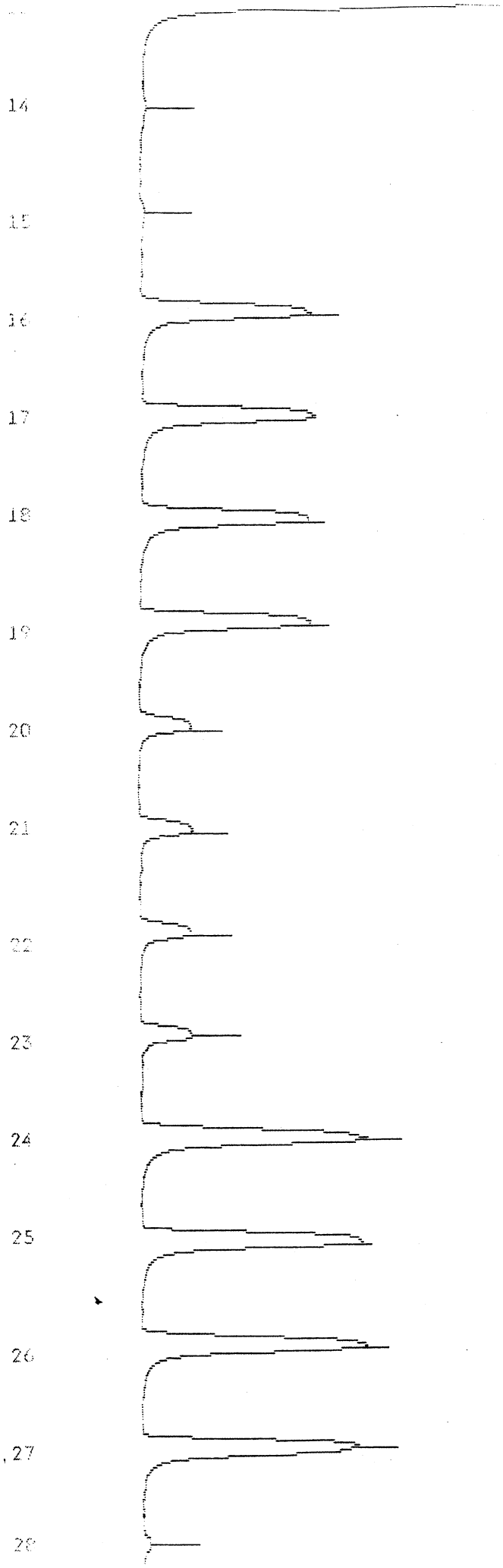
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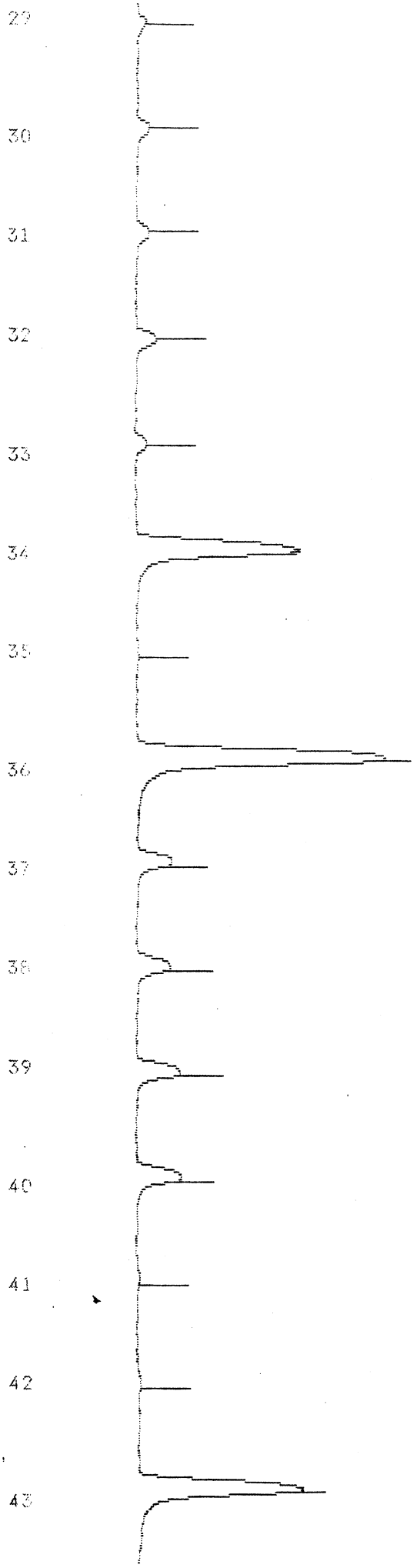
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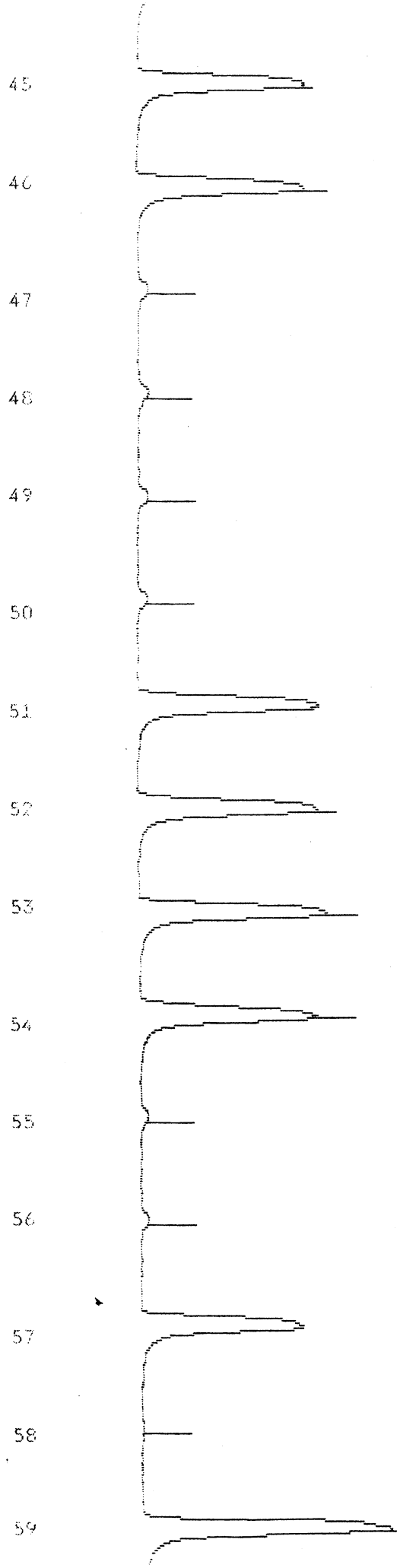
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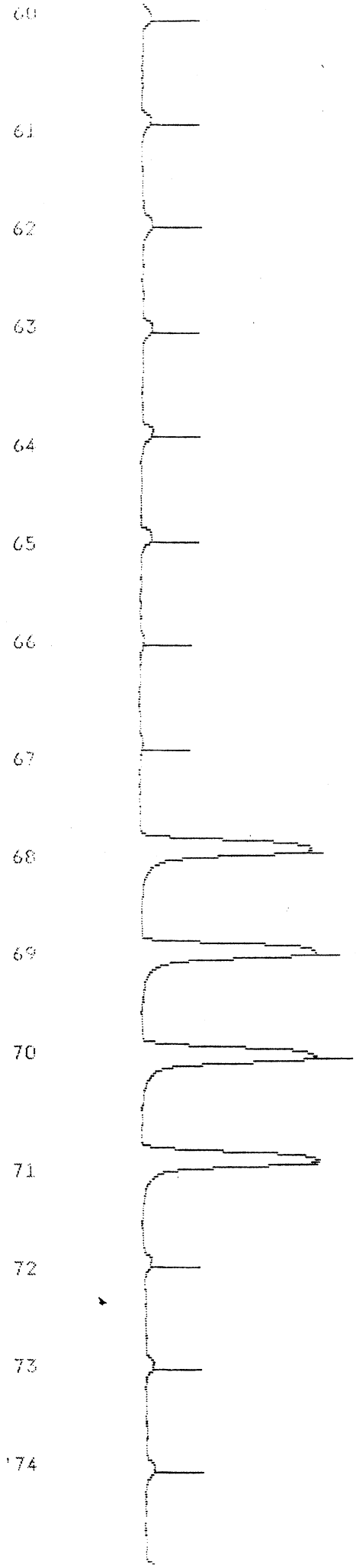
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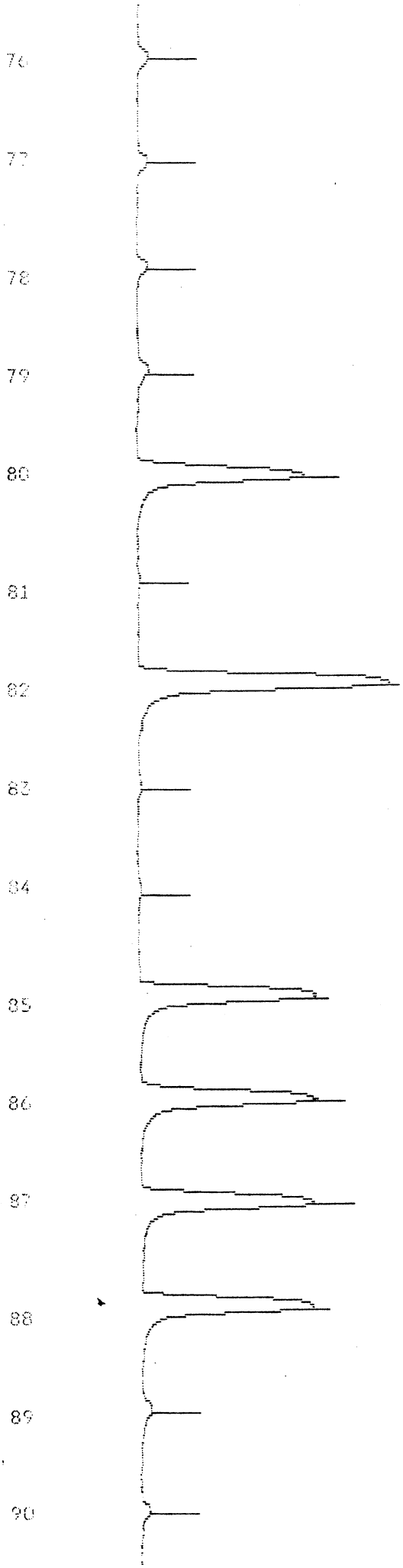
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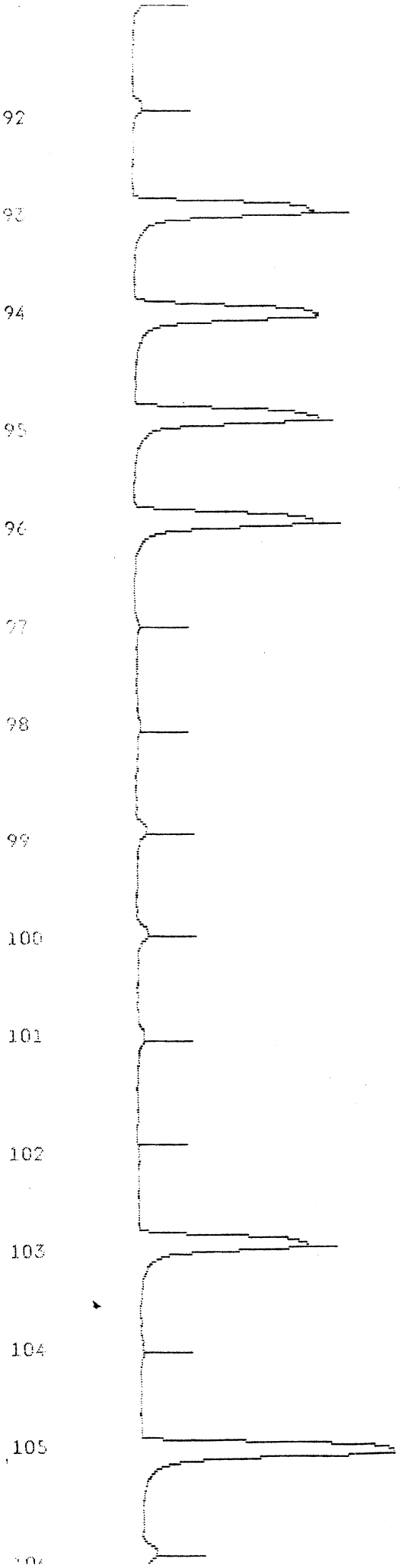
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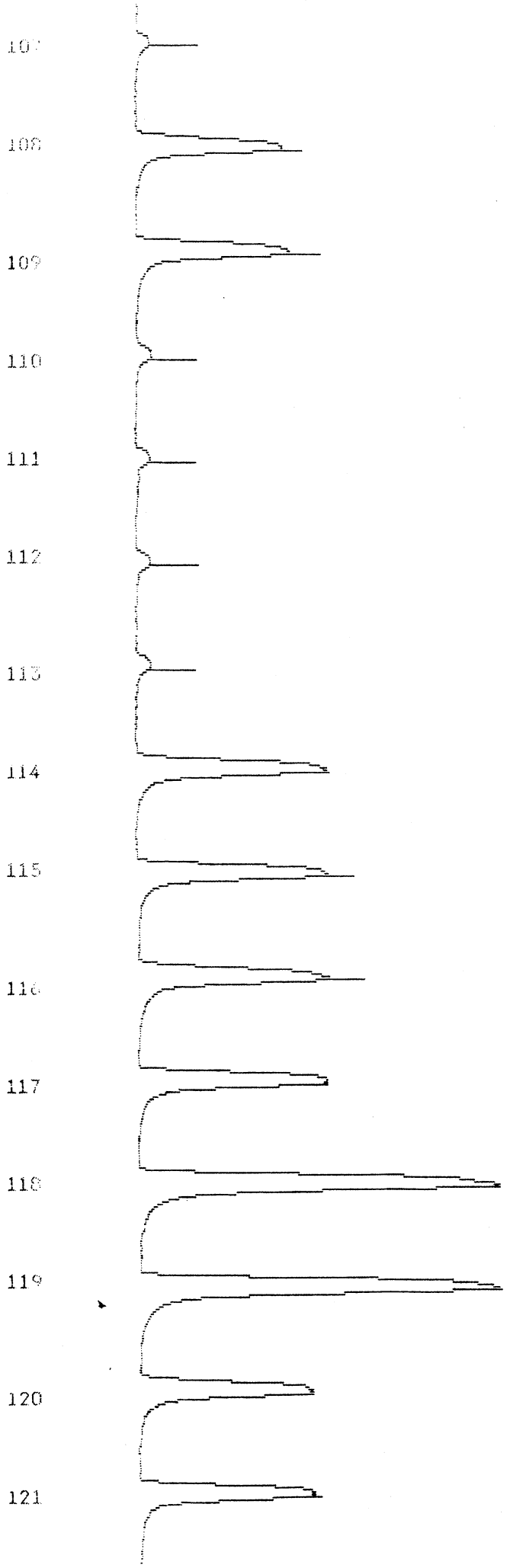
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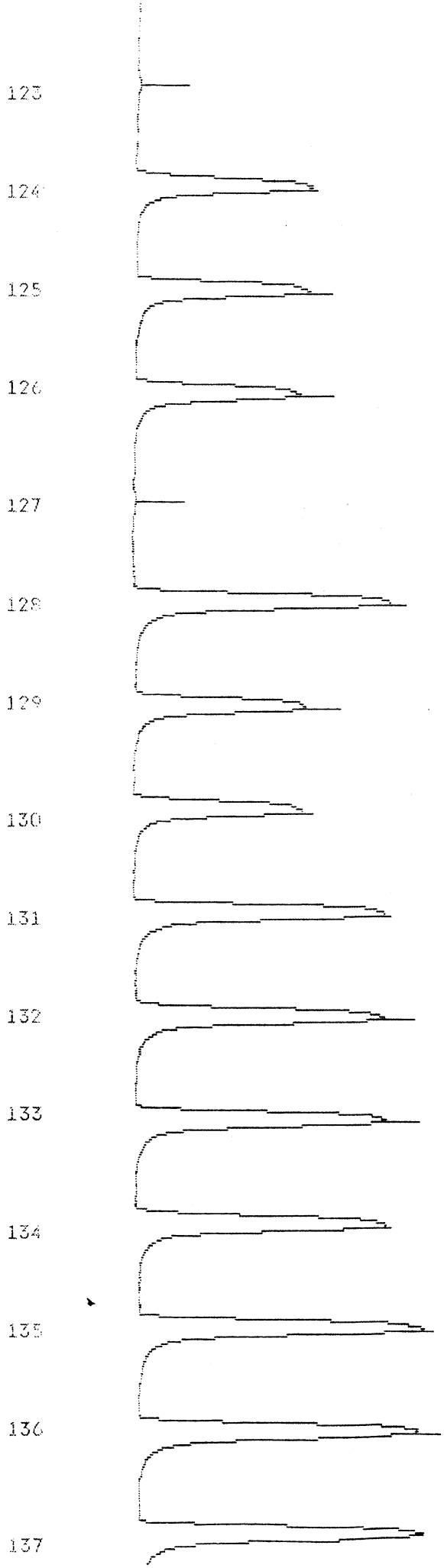
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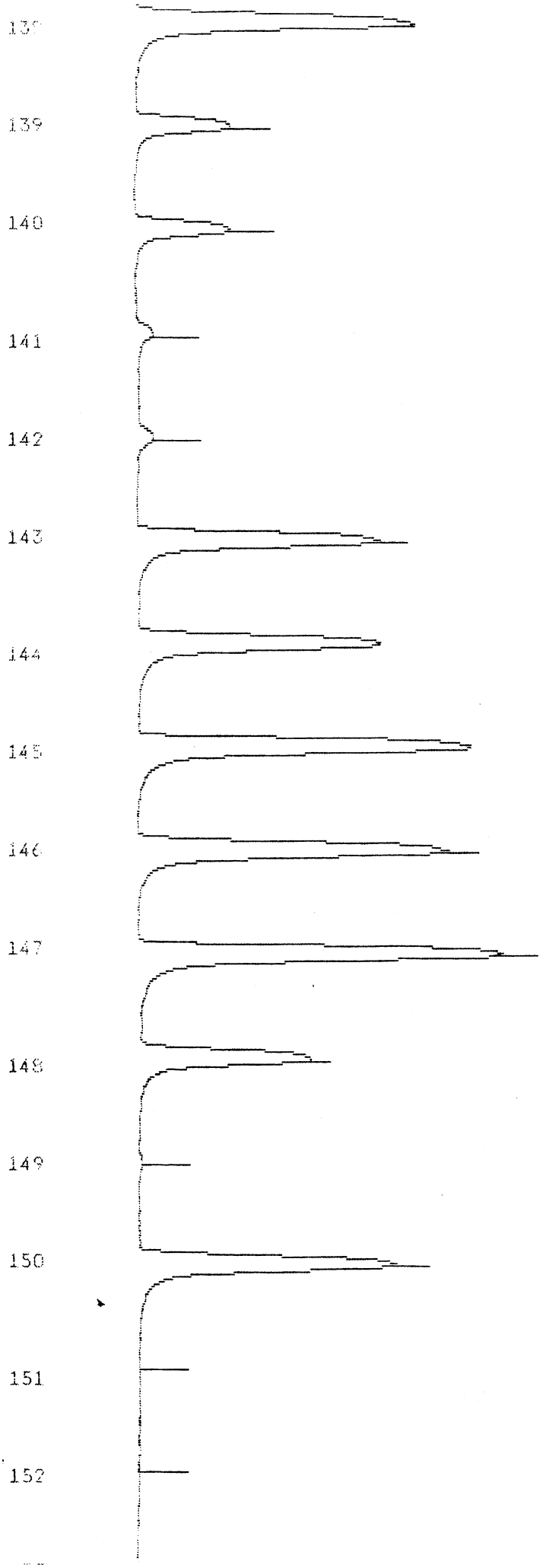
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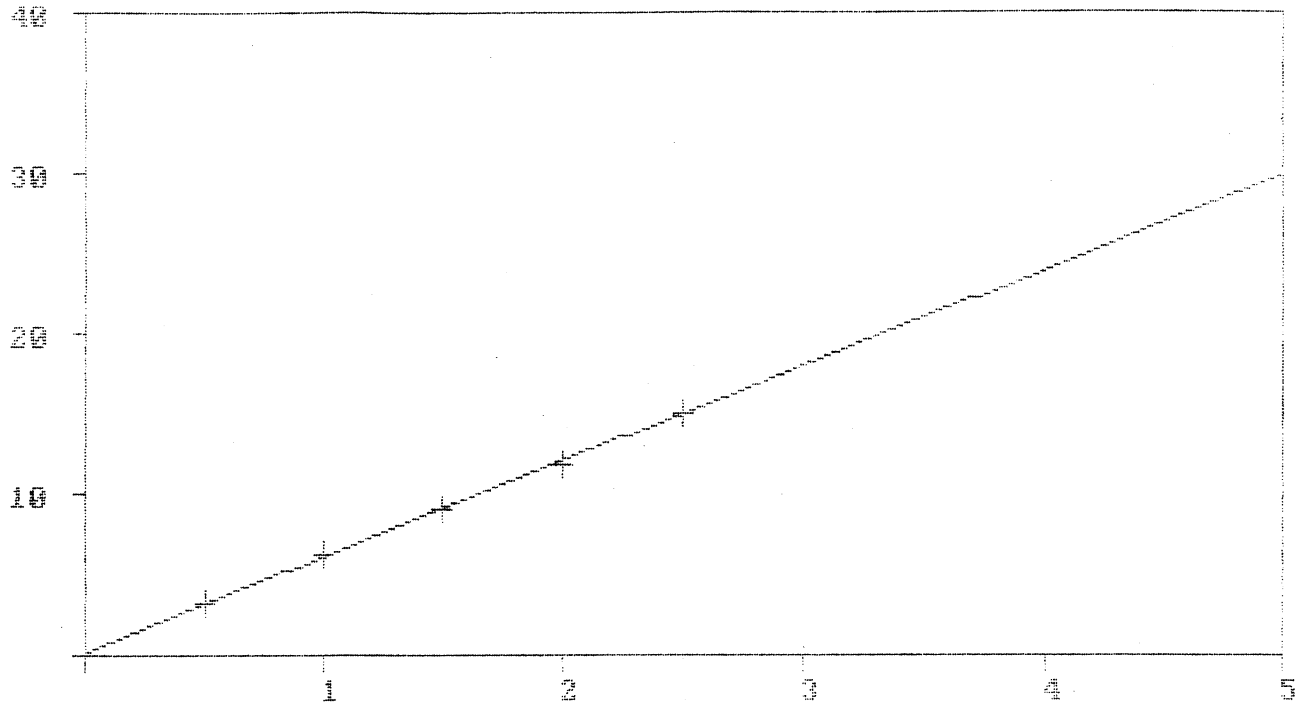
CHANNEL NAME: LDC
RUN NAME: 991209WA



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INTERCEPT = 0.11 SLOPE = 5.934763

CORRELATION: .9998013

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RUN DATE: 12-09-1999
SAMPLE TABLE NAME: 991209WA
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION (ppb)	EF
1	PRIMER	1	1	8.2		1.356	s
2	DUMMY	1	1	0.0		-0.010	I
3	S1: 0	1	1	0.0		-0.014	I
4	S2: .5	1	1	3.1		0.505	
5	S3: 1	1	1	6.2		1.019	
6	S4: 1.5	1	1	9.1		1.513	
7	STD5	1	1	11.4		1.895	
8	S6: 2.5	1	1	15.0		2.508	
9	ICV	1	1	8.6		1.430	95%
10	B	1	1	0.0		-0.018	b
11	D4	1	1	9.1		1.513	d
12	WS 378	1	1	11.1	TUG	1.854	93%
13	ORG REF	1	1	12.8		2.142	107%
14	BL1209-1NFT 64669	1	1	0.0	<0.01	-0.014	I
15	BL1209-1NFT	1	1	0.1		-0.006	I
16	BL1209S	1	1	6.2	0.103	1.023	103%
17	BL1209DS	1	1	6.2		1.031	
18	BL1209DS	1	1	6.1	0.102	1.015	102%
19	BL1209DS	1	1	6.2		1.031	
20	64678	1	1	1.9	0.030	0.295	
21	64678	1	1	1.9		0.299	
22	64678D	1	1	1.7	0.027	0.274	

25	64678D	1	1	8.0		[illegible]	1.036	104%
26	64678DS	1	1	8.2	0.133	[illegible]	[illegible]	104%
27	64678DS	1	1	7.8		1.295		
28	64669	1	1	0.2	<0.01	0.011	I	
29	64669	1	1	0.2		0.023	I	
30	64670	1	1	0.4	<0.01	0.044	I	
31	64670	1	1	0.3		0.031	s	
32	64676	1	1	0.7	<0.01	0.101	I	
33	64676	1	1	0.3		0.040	I	
34	CCV	1	1	5.9		0.978		97%
35	B	1	1	0.0		-0.018	b	
36	D4	1	1	9.1		1.513	d	
37	64679	1	1	1.1	0.016	0.163		
38	64679	1	1	1.1		0.163		
39	64680	1	1	1.5	0.023	0.229		
40	64680	1	1	1.5		0.229		
41	BL1209-2NFB	1	1	0.0	<0.01	-0.010	I	
42	BL1209-2NFB	1	1	0.1		-0.006	I	
43	BL1209S	1	1	5.8	0.097	0.965		97%
44	BL1209S	1	1	5.9		0.982		
45	BL1209DS	1	1	6.0	0.100	0.994		100%
46	BL1209DS	1	1	6.1		1.002	s	
47	64673	1	1	0.3	<0.04	0.031	I	
48	64673	1	1	0.3		0.035	I	
49	64673D	1	1	0.3	<0.04	0.035	I	
50	64673D	1	1	0.3		0.040	I	
51	64673S	1	1	6.5	0.436	1.085		107%
52	64673S	1	1	6.6		1.093		
53	64673DS	1	1	6.7	0.436	1.118		107%
54	64673DS	1	1	6.4		1.064		
55	64670	1	1	0.3	<0.04	0.027	I	
56	64670	1	1	0.2		0.023	I	
57	CCV	1	1	5.8		0.957		95%
58	B	1	1	0.0		-0.018	b	
59	D4	1	1	9.1		1.513	d	
60	64671	1	1	0.2	<0.04	0.019	I	
61	64671	1	1	0.3		0.035	s	
62	64674	1	1	0.3	<0.04	0.031	I	
63	64674	1	1	0.3		0.035	I	
64	64675	1	1	0.3	<0.04	0.040	I	
65	64675	1	1	0.3		0.040	I	
66	BL1209-3NPR	1	1	0.0	<0.01	-0.014	I	
67	BL1209-3NPR	1	1	0.1		-0.006	I	
68	BL1209S	1	1	6.1	0.103	1.015		103%
69	BL1209S	1	1	6.3		1.039		
70	BL1209DS	1	1	6.3	0.104	1.044		104%
71	BL1209DS	1	1	6.3		1.044		
72	64670	1	1	0.2	<0.01	0.023	I	
73	64670	1	1	0.2		0.019	I	
74	64704	1	1	0.2	<0.01	0.023	I	
75	64704	1	1	0.3		0.035	I	
76	64881	1	1	0.3	<0.01	0.031	s	
77	64881	1	1	0.3		0.035	I	
78	64892	1	1	0.3	<0.01	0.040	I	
79	64892	1	1	0.4		0.044	I	
80	CCV	1	1	5.9		0.978		97%
81	B	1	1	0.0		-0.018	b	
82	D4	1	1	9.1		1.513	d	
83	BL1209-183B 69684,70190	1	1	0.0	<0.05	-0.018	I	
84	BL1209-183B	1	1	0.0		-0.010	I	
85	BL1209S	1	1	6.3	0.520	1.039		103%
86	BL1209S	1	1	6.3		1.039		
87	BL1209DS	1	1	6.1	0.502	1.007		101%
88	BL1209DS	1	1	6.1		1.002		

00.07

91	70192D	1	1	0.2	<0.05	0.027	I	
92	70192D	1	1	0.2		0.003		
93	70192S	1	1	6.5	0.544	1.076	107%	
94	70192S	1	1	6.6		1.101		
95	70192DS	1	1	6.7	0.544	1.105	107%	
96	70192DS	1	1	6.5		1.072		
97	69884/70190	1	1	0.0	<0.05	-0.014	I	
98	69884 "	1	1	0.0		-0.010	I	
99	70191	1	1	0.3	<0.05	0.027	I	
100	70191	1	1	0.3		0.027	I	
101	70193	1	1	0.1	<0.05	0.003	I	
102	70193	1	1	0.0		-0.018	I	
103	CCV	1	1	6.0		0.990	99%	
104	B	1	1	0.0		-0.018	b	
105	D4	1	1	9.1		1.513	d	
106	70194	1	1	0.4	<0.05	0.044	s	
107	70194	1	1	0.4		0.048	I	
108	69885	1	1	5.2	0.437	0.858		
109	69885	1	1	5.4		0.891		
110	69886	1	1	0.5	<0.05	0.060	I	
111	69886	1	1	0.5		0.060	I	
112	69886D	1	1	0.4	<0.05	0.056	I	
113	69886D	1	1	0.5		0.060	I	
114	69886S	1	1	6.8	0.560	1.122	106%	
115	69886S	1	1	6.7		1.118		
116	69886DS	1	1	6.7	0.553	1.114	105%	
117	69886DS	1	1	6.6		1.097		
118	69887	5	1	12.9	5.381	10.814		
119	69887	5	1	12.8		10.711		
120	69888	20	1	6.1	10.148	20.213		
121	69888	20	1	6.2		20.378	s	
122	BL1209-2B3B	1	1	0.1	<0.05	0.003	I	
123	BL1209-2B3B	1	1	0.1		-0.006	I	
124	BL1209S	1	1	6.3	0.513	1.035	103%	
125	BL1209S	1	1	6.1		1.015		
126	CCV	1	1	5.8	45 ~~0.483~~	0.965	97%	
127	B	1	1	0.0		-0.018	b	
128	D4	1	1	9.1		1.513	d	
129	BL1209DS	1	1	6.0	0.497	0.990	99%	
130	BL1209DS	1	1	6.0		0.998		
131	70236	5	1	9.0	3.720	7.481		
132	70236	5	1	8.9		7.399		
133	70236D	5	1	8.9	3.699	7.378		
134	70236D	5	1	8.9		7.419		
135	70236S	5	1	10.1	4.168	8.448	91%	
136	70236S	5	1	9.9		8.222	s	
137	70236DS	5	1	10.0	4.178	8.366	93%	
138	70236DS	5	1	10.0		8.345		
139	70235	1	1	3.2	0.269	0.529		
140	70235	1	1	3.3		0.546		
141	70237	1	1	0.5	<0.05	0.060	I	
142	70237	1	1	0.5		0.060	I	
143	70238	1	1	8.5	0.706	1.418		
144	70238	1	1	8.4		1.406		
145	S5: 2	1	1	11.8		1.969		
146	WS 378	1	1	11.1		1.858	93%	
147	ORG REF	1	1	12.9		2.159	107%	
148	CCV	1	1	6.0		0.994	99%	
149	B	1	1	0.0		-0.018	b	
150	D4	1	1	9.1		1.513	d	
151	0	1	1	0.0		-0.018	s	
152	0	1	1	0.0		-0.018	I	

INTERCEPT: 0.11 LINEAR COEF: 5.934763

4. SHIPPING/RECEIVING DOCUMENTS

Airbills (No. of shipments)
Chain-of-Custody Records
Sample Log-In Sheets
Miscellaneous Shipping/Receiving Records (describe or list)

_____
_____
_____
_____
_____
_____
_____

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO

Contact Name	James Trybu	Project ID/Project Name	CMXX-99-0306
Company	Braun Intertec Corp.	P.O. #	
Mailing Address	P.O. Box 39108		
City, State, Zip	Minneapolis MN 55419		
Telephone #	(612) 833-4654	Fax #	(612) 946-6001

SEND INVOICE TO

Contact Name	Company
Address	
City, State, Zip	
Telephone #	Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	ON Hg										FOR LAB USE ONLY
1	C011 - Stack Filter Blank	✓		Filter	25CMU			X										64881
2	C011 - Inlet Filter Blank	✓		"	"			X										
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

CHAIN OF CUSTODY

Collected by: *(Print)*	James Trybu	Collector's Signature:	
Relinquished by:	Date/Time 10/1/99 13:00	Received by:	Date/Time 10/1/99 12:15
Relinquished by:	Date/Time	Received Contents Not Verified:	Date/Time
Evidence Tape Intact ☐ Yes ☐ No ☐ N/A		Received Contents Verified:	Date/Time
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____			
Temperature _____ °C ☐ Received on Ice		Comments:	
Matrix Spike Sample Required: ☐ Yes ☐ No ☐ N/A			

00.09

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Tryba
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis, MN 55439
Telephone #: (612) 832-4654 Fax #: (612) 946-6001

Project ID/Project Name: CMXX-99-0306
P.O. #

SEND INVOICE TO
Contact Name
Company
Address
City, State, Zip
Telephone #
Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg

Circle metals that require low detection limits
Ag | As | Be | Cd | Cr | Pb | Ni | Sb | Se | Tl | V | Other

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	IB-C01 (Filters)			Filter				X										64882
2	IR1-C01							X										64883
3	IR2-C01							X										64884
4	IR3-C01							X										64885
5	IR4-C01							X										64886
6	IB-C02 (0.1 N HNO3)			Liq.				X										64887
7	IR1-C02							X										64883
8	IR2-C02							X										64884
9	IR3-C02							X										64885
10	IR4-C02							X										64886
11	IB-C03 (0.1 N KCl							X										64882
12	IR1-C03							X										64883
13	IR2-C03							X										64884
14	IR3-C03							X										64885
15	IR4-C03							X										64886

CHAIN OF CUSTODY
Collected by: (Print) James Tryba
Relinquished by: [signature] Date/Time 10/21/99 12:47
Relinquished by: Date/Time

Collector's Signature: [signature]
Received by: [signature] Date/Time 99/10/28 12:15
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A

Comments:

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO

Contact Name	James Triplett
Company	Braun Intertec Corp.
Mailing Address	P.O. Box 39108
City, State, Zip	Minneapolis MN 55439
Telephone #	(612) 853-4654
Fax #	(612) 946-6001
Project ID/Project Name	CMXX-99-0506
P.O. #	

SEND INVOICE TO

Contact Name	
Company	
Address	
City, State, Zip	
Telephone #	
Fax #	

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	Ont Hg										FOR LAB USE ONLY
1	IB-C04 (HNO3/H2O2)				350Ag													64882
2	IR1-C04																	64883
3	IR2-C04																	64884
4	IR3-C04																	64885
5	IR4-C04																	64886
6	IB-C05 (KMnO4/H2SO4)				1LCG													64882
7	IR1-C05																	64883
8	IR2-C05																	64884
9	IR3-C05																	64885
10	IR4-C05																	64886
11	~~[illegible]~~ Nothing Below this line																	
12																		
13																		
14																		
15																		

CHAIN OF CUSTODY

Collected by: (Print)	James Triplett	Collector's Signature: [signature]
Relinquished by:	[signature] Date/Time 10/4/99 12:4[illegible]	Received by: [signature] Date/Time 991028 1215
Relinquished by:	Date/Time	Received Contents Not Verified: Date/Time
		Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____

Temperature _____ °C ☐ Received on Ice

Matrix Spike Samples Required: ☐ Yes ☐ No ☐ N/A

Comments:

00111

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO

Contact Name	James Trybo
Company	Braun Intertec Corp.
Mailing Address	P.O. Box 39108
City, State, Zip	Minneapolis, MN 55439
Telephone #	(612) 833-4654
Fax #	(612) 946-6001

Project ID/Project Name: CMXX-99-0306
P.O. #

SEND INVOICE TO

Contact Name	
Company	
Address	
City, State, Zip	
Telephone #	
Fax #	

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	SB-C01 (Filter)	✓		Filter	PPD			X										64887
2	SR1-C01	✓						X										64888
3	SR2-C01	✓						X										64889
4	SR3-C01	✓						X										64890
5	SR4-C01	✓						X										64891
6	SB-C02 (0.1N HNO_3)	✓		Liq	500ml			X										64887
7	SR1-C02	✓						X										64888
8	SR2-C02	✓						X										64889
9	SR3-C02	✓						X										64890
10	SR4-C02	✓						X										64891
11	SB-C03 (0.1N KCl)	✓			ILG			X										64887
12	SR1-C03	✓						X										64888
13	SR2-C03	✓						X										64889
14	SR3-C03	✓						X										64890
15	SR4-C03	✓						X										64891

CHAIN OF CUSTODY

Collected by: *(Print)* James Trybo
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 10/1/99 13:05
Received by: [signature] Date/Time 10/1/99 12:15
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A

Comments:

00.12

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

MB-14880.

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Tryba
Company: Braun Intertec Corp
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis MN 55459
Telephone #: (612) 883-4654 Fax #: (612) 946-6001

Project ID/Project Name: CMXX-99-0306
P.O. #

SEND INVOICE TO
Contact Name
Company
Address
City, State, Zip
Telephone #
Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	Ont Hg										FOR LAB USE ONLY
1	SB - C04 (HNO_3-H_2O_2)	✓		Liq	29AK			X										64887
2	SR1 - C04	✓						X										64888
3	SR2 - C04	✓						X										64889
4	SR3 - C04	✓						X										64890
5	SR4 - C04	✓						X										64891
6	SB - C07 ($KMnO_4$-H_2SO_4)	✓			1LG			X										64887
7	SR1 - C05	✓						X										64888
8	SR2 - C05	✓						X										64889
9	SR3 - C05	✓						X										64890
10	SR4 - C05	✓						X										64891
11	C06 - 0.1N HNO_3 Blank	✓			29AK			X										
12	C08 - KCl Blank	✓						X										
13	C09 - HNO_3-H_2O_2 Blank	✓						X										64881
14	C010 - $KMnO_4$-H_2SO_4 Blank	✓						X										
15	C011 - Hydroxlamine Blank	✓		✓	✓			X										

CHAIN OF CUSTODY
Collected by: (Print) James Tryba
Relinquished by: [signature] Date/Time 10/21/99 13:00
Relinquished by: Date/Time

Collector's Signature: [signature]
Received by: [signature] Date/Time 9/10/99 12:15
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spike Samples Required: ☐ Yes ☐ No ☐ N/A

Comments:

00-13

BRAUN INTERTEC
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Trybo
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis MN 55439
Telephone #: (612) 833-4654 Fax #: (612) 896-6001

Project ID/Project Name: CMXX 99-030C
P.O. #

SEND INVOICE TO
Contact Name
Company
Address
City, State, Zip
Telephone #
Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)
Ontario Hydro Hg Unit 3

Circle metals that require low detection limits
Ag | As | Be | Cd | Cr | Pb | Ni | Sb | Se | Tl | V | Other

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	IB-C01 Unit3 (Filter) ✓			Filter	500AB			X										64893
2	IR1-C01 " ✓							X										64894
3	IR2-C01 " ✓							X										64895
4	IR3-C01 " ✓							X										64896
5	IB-C02 " (0.1N HNO3) ✓			Liq.	500AB			X										64893
6	IR1-C02 " ✓							X										64894
7	IR2-C02 " ✓							X										64895
8	IR3-C02 " ✓							X										64896
9	IB-C03 " (0.1N KCl ✓				1LCG			X										64893
10	IR1-C03 " ✓							X										64894
11	IR2-C03 " ✓							X										64895
12	IR3-C03 " ✓							X										64896
13	IB-C04 " (HNO3-H2O2) ✓				250AB			X										64893
14	IR1-C04 " ✓							X										64894
15	IR2-C04 " ✓							X										64895

CHAIN OF CUSTODY
Collected by: (Print) James Trybo
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 10/21/99 14:15
Received by: [signature] Date/Time 11/10/98 12:15
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A

Comments:

00.14

BRAUN INTERTECSM
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Trybq
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis, MN 55439
Telephone #: (612) 832-4654 Fax #: (612) 946-6001

Project ID/Project Name: CMXX-99-0306
P.O. #

SEND INVOICE TO
Contact Name
Company
Address
City, State, Zip
Telephone #
Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)
Ontario Hydro Hg Unit 3

Circle metals that require low detection limits
Ag | As | Be | Cd | Cr | Pb | Ni | Sb | Se | Tl | V | Other

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	IR3-C04 Unit 3 (HNO3-H2O2)	✓		Liq.	250Mc			X										64896
2	S9-C05 " (KMnO4-H2SO4)	✓			1LCG			X										64893
3	IR1-C05 "	✓						X										64894
4	IR2-C05 "	✓						X										64895
5	IR3-C05	✓						X										64897
6	Nothing Below this Line																	
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

Add to IB

CHAIN OF CUSTODY
Collected by: (Print) James Trybq
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 10/21/99 14:15
Relinquished by: Date/Time
Received by: [signature] Date/Time 10/21/99 19:15
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spikes Required: Yes No N/A

Comments:

00.15

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Tryba
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis MN 55459
Telephone #: (612) 833-4654 Fax #: (612) 946-6001

Project ID/Project Name: Cmxx 99-0306
P.O. #

SEND INVOICE TO
Contact Name
Company
Address
City, State, Zip
Telephone #
Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg Unit 3

Circle metals that require low detection limits
Ag | As | Be | Cd | Cr | Pb | Ni | Sb | Se | Tl | V | Other

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	SB-C01 Unit 3 (Filter)	✓		Filter	PPD			X										64897
2	SR1-C01 "	✓						X										64898
3	SR2-C01 "	✓						X										64899
4	SR3-C01 "	✓						X										64900
5	SB-C02 " (0.1N HNO3)	✓		Liq.	500AC			X										64897
6	SR1-C02 "	✓						X										64898
7	SR2-C02 "	✓						X										64899
8	SR3-C02 "	✓						X										64900
9	SB-C03 " (0.1N HCl)	✓			1LG			X										64897
10	SR1-C03 "	✓						X										64898
11	SR2-C03 "	✓						X										64899
12	SR3-C03 "	✓						X										64900
13	SB-C04 " (HNO3-H2O2)	✓			250AC			X										~~64901~~ 64897
14	SR1-C04 " (HNO3-H2O2)	✓						X										~~64897~~ 64898
15	SR2-C04 "	✓						X										~~64899~~

CHAIN OF CUSTODY
Collected by: (Print) James Tryba
Relinquished by: [signature] Date/Time 10/21/99 1415
Relinquished by: Date/Time

Collector's Signature: [signature]
Received by: [signature] Date/Time 991028 1375
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A

Comments:

036

BRAUN INTERTEC[SM]
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO

Contact Name	James Tryba	Project ID/Project Name	CMXX-99-0306
Company	Braun Intertec Corp	P.O. #	
Mailing Address	P.O. Box 59108		
City, State, Zip	Minneapolis MN 55439		
Telephone #	(612) 833-4054	Fax #	(612) 946-6001

SEND INVOICE TO

Contact Name	Company
Address	
City, State, Zip	
Telephone #	Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Ontario Hydro Hg Unit 3

Circle metals that require low detection limits

Ag	As	Be	Cd	Cr	Pb	Ni	Sb	Se	Tl	V	Other			

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	SR3-C04 Unit 3 (HNO3-H2O2)	✓		Liq	1446			X										64900
2	SB-C05 " (Kinney-Hilsey)	✓			1446			X										64897
3	SR1-C05 "	✓						X										64898
4	SR2-C05 "	✓						X										64899
5	SR3-C05 "	✓						X										64900
6	C07 " 0.1N HNO3 Blank	✓			250AG			X										
7	C08 " KCl Blank	✓						X										
8	C09 " HNO3-H2O2 Blank	✓						X										
9	C010 " Kinney-Hilsey Blank	✓						X										64892
10	C011 " Hydrocarbon Blank	✓		Liq				X										
11	C012 " Inlet Filter Blank	✓		Filter				X										
12	C012 " Outlet Filter Blank	✓		Filter				X										
13	Nothing Below This Line																	
14																		
15																		

CHAIN OF CUSTODY

Collected by: (Print)	James Tryba	Collector's Signature:
Relinquished by:	Date/Time 10/4/99 14:15	Received by: Date/Time 10/10/99 12:15
Relinquished by:	Date/Time	Received Contents Not Verified: Date/Time
Received Contents Verified:	Date/Time	

Evidence Tape Intact ☐ Yes ☐ No ☐ N/A

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____

Temperature _____ °C ☐ Received on Ice

Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A

Comments:

00.17

Page ___ of ___

US SAMPLE LOG IN SHEET

BRAUN

Lab Name: Philip Analytical Services Corporation, Burlington Laboratory

Received By (Print Name): Ellen

Received By (Signature): K. Carcaro

Client Project ID:

REMARKS:		Condition of Samples/Sample Shipment:
Custody Seal(s)	Present ___ Absent ✓	
Chain of Custody Records	Present ✓ Absent ___	
Airbill	Present ✓ Absent ___	
Airbill No. UPS.	12552 06503 1011 6341	
	6323	
	6332	
	6350	
Does Information on Custody Records and Samples Agree?	Yes ✓ No ___	
Date Received at Lab	28-10-99	
Time Received	12:15p	

Temperature of Coolers		
Cooler ID:	Temperature	
4 Coolers	20°C 20°C 20°C 20°C	- ice packs thawed.
		- sent via ground.

Relinquished By: [signature]

Date: 28-10-99

Logbook No: ___

Logbook Page No. ___

** TX STATUS REPORT ** AS OF OCT 31 1999 09:00 PAGE.01

PHILIP ANALYTICAL

	DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	JOB#	STATUS
22	10/31	09:00	16129466001	EC--S	00'29"	001	205	OK

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Bruce Randall
Client: Braun Intertec
Re Client Project: CMXX-99-0306
FAX #: 612-946-6001
Phone #: 612-833-4653

Samples for: 'OH' Mercury
were received in good condition unless indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received *
064881	Unit 1 Blank	99/10/21	99/10/28
064882	Unit 1 Inlet-FB	99/10/21	99/10/28
064883	Unit 1 Inlet-R1	99/10/21	99/10/28
064884	Unit 1 Inlet-R2	99/10/21	99/10/28
064885	Unit 1 Inlet-R3	99/10/21	99/10/28
064886	Unit 1 Inlet-R4	99/10/21	99/10/28
064887	Unit 1 Stack-FB	99/10/21	99/10/28
064888	Unit 1 Stack-R1	99/10/21	99/10/28
064889	Unit 1 Stack-R2	99/10/21	99/10/28
064890	Unit 1 Stack-R3	99/10/21	99/10/28
064891	Unit 1 Stack-R4	99/10/21	99/10/28
064892	Unit 3 Blank	99/10/21	99/10/28
064893	Unit 3 Inlet-FB	99/10/21	99/10/28
064894	Unit 3 Inlet-R1	99/10/21	99/10/28
064895	Unit 3 Inlet-R2	99/10/21	99/10/28
064896	Unit 3 Inlet-R3	99/10/21	99/10/28
064897	Unit 3 Stack-FB	99/10/21	99/10/28
064898	Unit 3 Stack-R1	99/10/21	99/10/28
064899	Unit 3 Stack-R2	99/10/21	99/10/28
064900	Unit 3 Stack-R3	99/10/21	99/10/28

Comments: * Not available - please provide.

Date 99/10/31

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Bruce Randall
Client: Braun Intertec
Re Client Project: CMXX-99-0306
FAX #: 612-946-6001
Phone #: 612-833-4653

Samples for: 'OH' Mercury
were received in good condition unless indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
			*
064881	Unit 1 Blank	99/10/21	99/10/28
064882	Unit 1 Inlet-FB	99/10/21	99/10/28
064883	Unit 1 Inlet-R1	99/10/21	99/10/28
064884	Unit 1 Inlet-R2	99/10/21	99/10/28
064885	Unit 1 Inlet-R3	99/10/21	99/10/28
064886	Unit 1 Inlet-R4	99/10/21	99/10/28
064887	Unit 1 Stack-FB	99/10/21	99/10/28
064888	Unit 1 Stack-R1	99/10/21	99/10/28
064889	Unit 1 Stack-R2	99/10/21	99/10/28
064890	Unit 1 Stack-R3	99/10/21	99/10/28
064891	Unit 1 Stack-R4	99/10/21	99/10/28
064892	Unit 3 Blank	99/10/21	99/10/28
064893	Unit 3 Inlet-FB	99/10/21	99/10/28
064894	Unit 3 Inlet-R1	99/10/21	99/10/28
064895	Unit 3 Inlet-R2	99/10/21	99/10/28
064896	Unit 3 Inlet-R3	99/10/21	99/10/28
064897	Unit 3 Stack-FB	99/10/21	99/10/28
064898	Unit 3 Stack-R1	99/10/21	99/10/28
064899	Unit 3 Stack-R2	99/10/21	99/10/28
064900	Unit 3 Stack-R3	99/10/21	99/10/28

Comments: * Not available - please provide.

Date 99/10/31

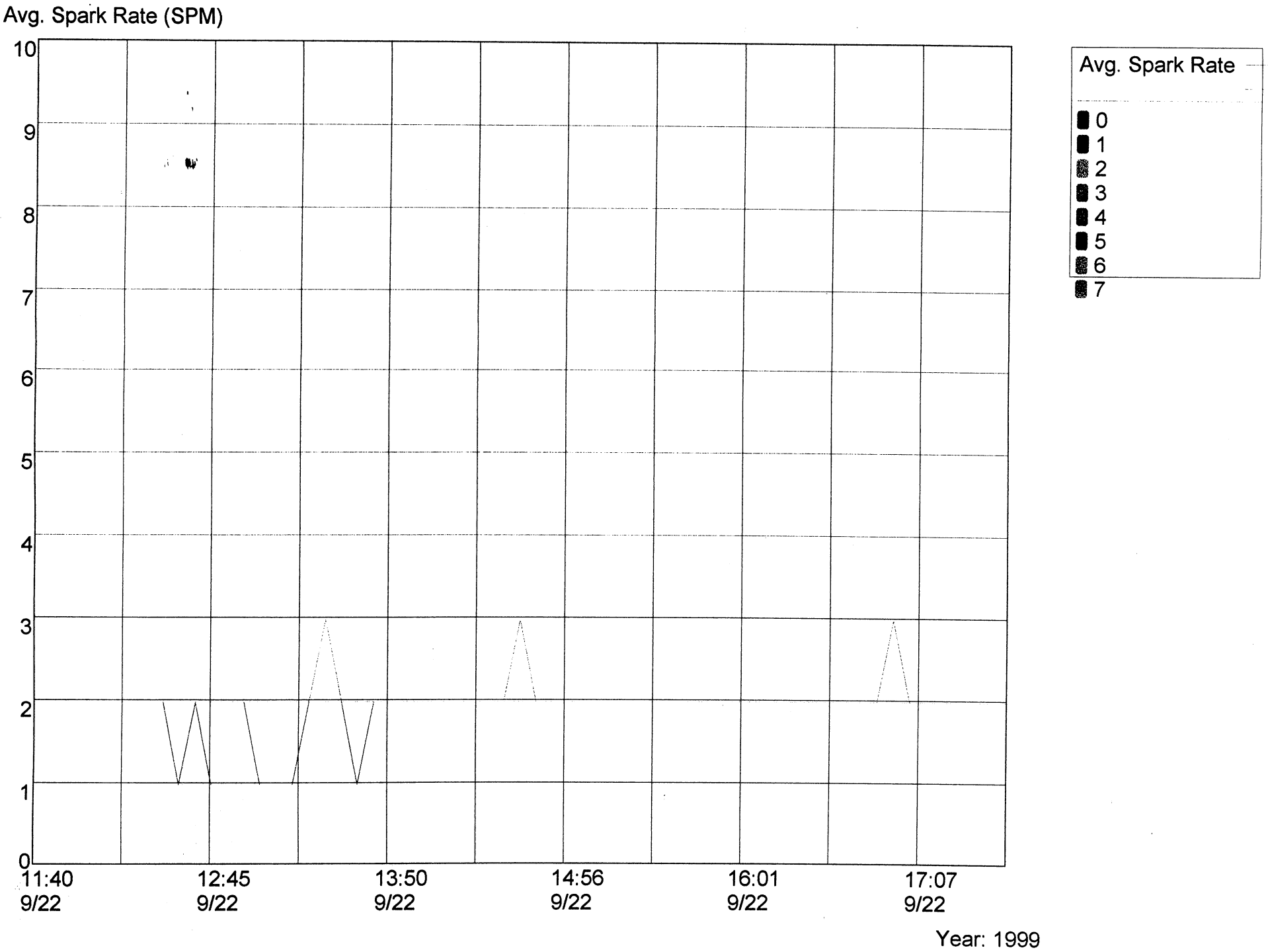
APPENDIX F

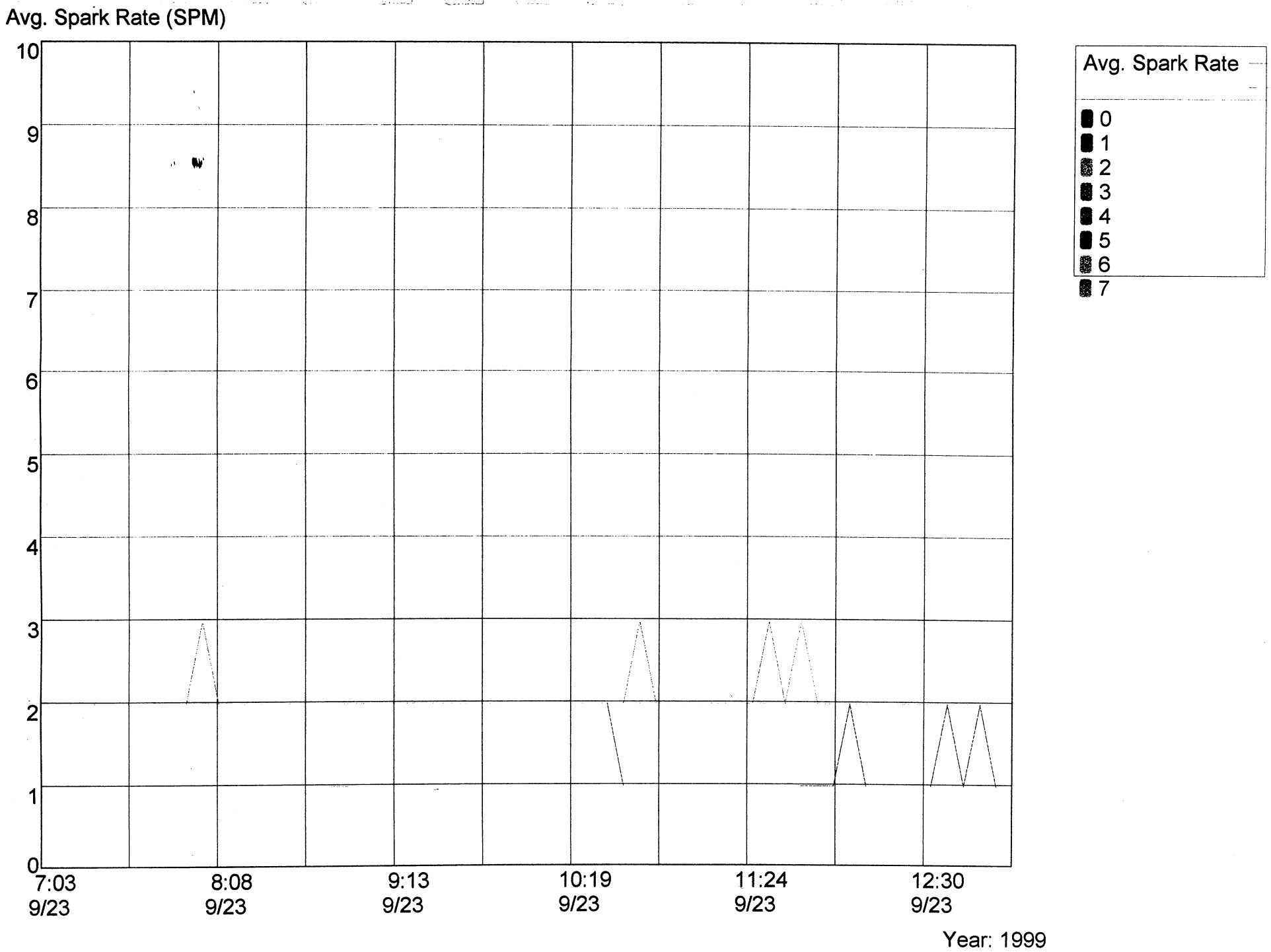
PROCESS OPERATING DATA SHEETS

Laramie River Station - Unit 3
Mercury Stack Testing Data Retrieved From the OPM

Description	Unit of Measure	Run 1	Run 2	Run 3
Start Date and Time	MDT	9/22/99 12:40	9/22/99 16:13	9/23/99 8:03
End Date and Time	MDT	9/22/99 15:13	9/22/99 18:29	9/23/99 10:16
Gross Generation	MW	573	585	585
Inlet Temperature - "A" Reactor	deg F	297	302	296
Inlet Temperature - "B" Reactor	deg F	288	290	284
Inlet Temperature - "C" Reactor	deg F	291	294	288
Inlet Temperature - "D" Reactor	deg F	295	301	293
Inlet SO2 - "A & B" Reactor	ppm	321	307	336
Inlet SO2 - "C & D" Reactor	ppm	305	298	306
Coal Flow Rate	Tons/Hr	331	339	335
Main Steam Flow	KLB/Hr	3750	3866	3839
Main Steam Pressure	PSIG	2439	2462	2457
Main Steam Temperature	deg F	998	991	998
Lime Slurry Flow - "A" Reactor	gpm	16.1	18.1	15.2
Lime Slurry Flow - "B" Reactor	gpm	19.6	21.1	17.0
Lime Slurry Flow - "C" Reactor	gpm	15.9	15.6	16.4
Lime Slurry Flow - "D" Reactor	gpm	14.4	13.4	12.7
Ash Slurry Flow - "A" Reactor	gpm	118.9	121.8	121.3
Ash Slurry Flow - "B" Reactor	gpm	102.5	108.6	103.7
Ash Slurry Flow - "C" Reactor	gpm	101.9	108.6	103.1
Ash Slurry Flow - "D" Reactor	gpm	113.0	121.3	118.0
Ash Slurry Solids - "A" Reactor	PerCent	30.1**	30.1**	30.1**
Ash Slurry Solids - "B" Reactor	PerCent	30.1**	30.1**	30.1**
Ash Slurry Solids - "C" Reactor	PerCent	30.1**	30.1**	30.1**
Ash Slurry Solids - "D" Reactor	PerCent	30.1**	30.1**	30.1**
Lime Slurry Solids - "A" Reactor	PerCent	16.7**	16.7**	16.7**
Lime Slurry Solids - "B" Reactor	PerCent	16.7**	16.7**	16.7**
Lime Slurry Solids - "C" Reactor	PerCent	16.7**	16.7**	16.7**
Lime Slurry Solids - "D" Reactor	PerCent	16.7**	16.7**	16.7**
Lime Feed Density - "A" Reactor	SGU	1.0703	1.0700	1.0700
Lime Feed Density - "B" Reactor	SGU	1.0703	1.0700	1.0700
Lime Feed Density - "C" Reactor	SGU	1.0703	1.0700	1.0700
Lime Feed Density - "D" Reactor	SGU	1.0702	1.0700	1.0701
Ash Slurry Density - "A" Reactor	SGU	1.2049	1.2100	1.2189
Ash Slurry Density - "B" Reactor	SGU	1.2049	1.2100	1.2189
Ash Slurry Density - "C" Reactor	SGU	1.2049	1.2100	1.2189
Ash Slurry Density - "D" Reactor	SGU	1.2049	1.2100	1.2189

** Lab Results


Avg. Spark Rate (SPM)
10
9
8
7
6
5
4
3
2
1
0
11:40
9/22
12:45
9/22
13:50
9/22
14:56
9/22
16:01
9/22
17:07
9/22
Year: 1999
Avg. Spark Rate
0
1
2
3
4
5
6
7


Avg. Spark Rate (SPM)
10
9
8
7
6
5
4
3
2
1
0
7:03
9/23
8:08
9/23
9:13
9/23
10:19
9/23
11:24
9/23
12:30
9/23
Year: 1999
Avg. Spark Rate
0
1
2
3
4
5
6
7

RUN 1 (11:40-14:13MST)

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/22/99	11:40	1776769.87	122.7/0.25	10.4	61.0/1089.3	6268	173	560	11
09/22/99	11:41	1794237.75	121.9/0.24	10.5	62.4/1125.7	6338	173	560	12
09/22/99	11:42	1774681.00	121.5/0.24	10.5	63.5/1131.8	6279	173	560	12
09/22/99	11:43	1798467.87	120.2/0.24	10.5	63.3/1143.0	6363	173	561	11
09/22/99	11:44	1795770.62	120.6/0.24	10.5	63.2/1140.3	6363	173	561	12
09/22/99	11:45	1781904.00	120.5/0.24	10.5	62.9/1126.5	6331	173	561	12
09/22/99	11:46	1823056.12	119.7/0.24	10.5	62.9/1152.6	6475	173	560	13
09/22/99	11:47	1801338.37	120.4/0.24	10.5	62.9/1137.6	6386	173	560	11
09/22/99	11:48	1825712.62	121.4/0.24	10.5	62.8/1152.1	6460	173	560	11
09/22/99	11:49	1780277.25	122.1/0.25	10.5	62.5/1118.5	6288	173	558	11
09/22/99	11:50	1823846.62	123.4/0.25	10.5	62.1/1137.3	6439	173	559	11
09/22/99	11:51	1833693.00	122.8/0.25	10.5	61.8/1138.8	6474	173	558	12
09/22/99	11:52	1827253.00	121.7/0.25	10.4	61.3/1125.7	6427	173	558	12
09/22/99	11:53	1820073.12	122.4/0.25	10.4	61.0/1114.8	6392	173	559	12
09/22/99	11:54	1849656.25	123.8/0.25	10.4	60.7/1128.3	6500	173	559	11
09/22/99	11:55	1811058.37	125.9/0.25	10.4	60.8/1105.7	6370	173	560	12
09/22/99	11:56	1812140.62	125.1/0.25	10.4	60.8/1106.3	6383	173	560	12
09/22/99	11:57	1896168.37	123.4/0.25	10.4	60.7/1155.8	6683	173	559	13
09/22/99	11:58	1838151.37	122.5/0.25	10.4	60.3/1113.9	6475	173	560	11
09/22/99	11:59	1815750.50	122.6/0.25	10.4	60.2/1098.5	6399	173	561	12
09/22/99	12:00	1805984.25	123.5/0.25	10.5	60.3/1093.9	6377	173	560	11
09/22/99	12:01	1811380.25	121.6/0.24	10.5	60.7/1105.5	6420	173	561	12
09/22/99	12:02	1801587.75	119.8/0.24	10.5	61.1/1105.8	6389	173	560	12
09/22/99	12:03	1799591.50	118.4/0.24	10.5	61.2/1106.8	6385	173	560	11
09/22/99	12:04	1861419.87	118.0/0.24	10.5	61.4/1149.2	6608	173	562	12
09/22/99	12:05	1848698.37	117.6/0.23	10.5	61.4/1139.9	6572	173	565	11
09/22/99	12:06	1906871.75	120.3/0.24	10.5	61.1/1170.3	6770	173	569	13
09/22/99	12:07	1849775.75	125.0/0.25	10.5	61.1/1136.1	6556	173	573	12
09/22/99	12:08	1893283.50	127.8/0.26	10.5	61.5/1169.0	6717	174	575	13
09/22/99	12:09	1856480.12	128.0/0.25	10.6	62.3/1161.7	6630	174	579	12
09/22/99	12:10	1859083.75	126.2/0.25	10.6	64.4/1202.1	6665	174	584	12
09/22/99	12:11	1840342.00	124.2/0.24	10.7	67.9/1255.6	6619	174	585	12
09/22/99	12:12	1894572.75	122.4/0.24	10.8	70.9/1349.8	6876	174	585	12
09/22/99	12:13	1873752.62	122.2/0.24	10.7	72.1/1357.1	6781	174	586	13
09/22/99	12:14	1861316.50	123.8/0.24	10.7	71.7/1341.0	6735	174	585	12
09/22/99	12:15	1828723.12	124.7/0.24	10.7	71.7/1316.7	6615	174	585	12

09/22/99	12:16	1850896.75	123.3/0.24	10.7	71.8/1334.5	6699	174	584	12
09/22/99	12:17	1864453.00	122.6/0.24	10.7	70.8/1327.0	6760	174	585	13
09/22/99	12:18	1863065.50	121.9/0.24	10.7	67.4/1261.0	6749	173	584	12
09/22/99	12:19	1911185.37	123.3/0.24	10.7	60.8/1167.4	6930	174	584	13
09/22/99	12:20	1832501.62	124.9/0.24	10.7	56.4/1038.8	6630	174	577	12
09/22/99	12:21	1884404.25	126.1/0.25	10.7	56.1/1061.6	6808	174	583	13
09/22/99	12:22	1878644.12	126.5/0.25	10.6	55.8/1053.2	6750	173	584	13
09/22/99	12:23	1917202.75	125.4/0.25	10.6	55.8/1075.4	6883	173	585	13
09/22/99	12:24	1895085.87	124.7/0.25	10.6	56.0/1065.8	6800	173	585	13
09/22/99	12:25	1885383.37	124.4/0.24	10.7	55.9/1059.4	6797	173	586	14
09/22/99	12:26	1890124.37	123.9/0.24	10.7	55.8/1060.2	6814	173	585	13
09/22/99	12:27	1903883.87	124.4/0.24	10.7	55.8/1067.0	6864	173	585	13

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/22/99	12:28	1898534.62	123.9/0.24	10.7	55.5/1058.3	6826	173	585	13
09/22/99	12:29	1899545.62	124.9/0.25	10.7	55.3/1056.0	6839	173	586	13
09/22/99	12:30	1913311.00	127.5/0.25	10.7	55.2/1062.2	6889	173	586	13
09/22/99	12:31	1844499.87	128.3/0.25	10.7	55.4/1026.3	6641	173	585	12
09/22/99	12:32	1896285.25	127.1/0.25	10.7	55.6/1058.5	6828	173	587	12
09/22/99	12:33	1897110.50	125.6/0.25	10.7	55.6/1060.4	6844	173	586	13
09/22/99	12:34	1862298.25	125.1/0.25	10.7	55.8/1043.8	6731	173	584	15
09/22/99	12:35	1934490.00	124.2/0.24	10.7	56.0/1088.1	7005	173	579	13
09/22/99	12:36	1733076.00	124.4/0.24	10.7	56.0/975.7	6249	173	563	13
09/22/99	12:37	1821046.62	131.6/0.26	10.6	56.1/1025.7	6508	173	557	12
09/22/99	12:38	1769996.00	134.4/0.27	10.4	56.2/998.7	6240	173	549	12
09/22/99	12:39	1786141.62	128.5/0.26	10.4	55.9/1002.5	6273	172	541	12
09/22/99	12:40	1763069.75	128.6/0.26	10.3	54.8/970.1	6156	172	533	12
09/22/99	12:41	1758731.75	128.9/0.26	10.3	50.3/888.2	6097	172	527	12
09/22/99	12:42	1744246.62	129.9/0.27	10.2	41.3/724.4	5985	172	527	12
09/22/99	12:43	1740517.62	127.5/0.27	10.1	39.3/687.9	5937	172	526	12
09/22/99	12:44	1835821.50	123.5/0.26	10.1	37.3/688.7	6278	172	525	13
09/22/99	12:45	1785859.75	120.7/0.25	10.2	36.5/656.0	6146	172	526	12
09/22/99	12:46	1773714.00	120.0/0.25	10.2	36.3/647.9	6119	172	524	12
09/22/99	12:47	1801357.75	121.1/0.25	10.2	36.7/664.4	6206	172	526	12
09/22/99	12:48	1823644.75	123.6/0.26	10.1	37.8/693.3	6231	172	529	13
09/22/99	12:49	1820003.25	123.9/0.26	10.1	42.1/770.1	6206	172	532	12
09/22/99	12:50	1844815.25	123.6/0.26	10.1	58.1/1077.8	6306	172	536	13
09/22/99	12:51	1824999.25	125.5/0.26	10.2	65.5/1201.1	6263	172	540	12

09/22/99	12:52	1800610.50	124.5/0.26	10.2	62.1/1123.5	6198	172	545	12
09/22/99	12:53	1842674.75	124.3/0.25	10.3	57.0/1054.8	6380	172	552	12
09/22/99	12:54	1833505.12	124.3/0.25	10.3	54.5/1004.4	6401	173	559	12
09/22/99	12:55	1821730.12	122.3/0.25	10.4	53.9/987.5	6425	173	563	13
09/22/99	12:56	1851837.37	121.9/0.24	10.5	54.4/1011.7	6556	173	566	12
09/22/99	12:57	1876190.50	122.9/0.25	10.5	55.0/1037.3	6662	173	568	12
09/22/99	12:58	1835865.37	123.6/0.25	10.6	55.6/1026.5	6540	173	569	12
09/22/99	12:59	1843686.62	124.7/0.25	10.5	55.8/1033.6	6564	173	567	12
09/22/99	13:00	1871502.75	125.3/0.25	10.5	55.8/1049.3	6664	173	566	12
09/22/99	13:01	1850150.75	124.8/0.25	10.6	55.5/1031.8	6591	173	563	13
09/22/99	13:02	1849303.25	125.0/0.25	10.5	55.1/1024.3	6578	173	563	12
09/22/99	13:03	1838447.25	125.8/0.25	10.5	54.8/1012.8	6491	173	563	13
09/22/99	13:04	1862075.37	127.2/0.26	10.4	54.6/1020.7	6559	174	567	12
09/22/99	13:05	1862742.62	127.0/0.25	10.5	54.7/1023.0	6596	174	567	12
09/22/99	13:06	1882805.62	127.3/0.25	10.6	54.7/1034.0	6706	174	571	13
09/22/99	13:07	1914449.50	126.4/0.25	10.6	54.9/1055.8	6835	174	574	13
09/22/99	13:08	1869524.62	125.4/0.25	10.6	55.1/1035.7	6674	174	579	12
09/22/99	13:09	1904630.50	123.9/0.25	10.6	55.6/1064.7	6793	174	581	13
09/22/99	13:10	1901161.37	123.4/0.24	10.6	56.2/1073.8	6807	174	585	13
09/22/99	13:11	1891692.00	122.0/0.24	10.6	57.4/1090.3	6760	174	586	12
09/22/99	13:12	1894279.25	122.1/0.24	10.6	58.1/1106.1	6773	174	585	13
09/22/99	13:13	1847336.75	121.8/0.24	10.6	58.5/1086.6	6593	174	585	12
09/22/99	13:14	1896338.37	123.1/0.24	10.6	58.6/1116.9	6778	174	586	12
09/22/99	13:15	1910771.75	123.4/0.24	10.6	58.6/1124.9	6851	174	585	12

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/22/99	13:16	1862155.75	120.3/0.24	10.7	58.8/1099.9	6720	174	586	13
09/22/99	13:17	1852778.75	117.5/0.23	10.7	59.1/1100.5	6722	174	585	13
09/22/99	13:18	1868761.25	118.1/0.23	10.7	59.5/1116.6	6780	174	584	13
09/22/99	13:19	1858938.50	116.2/0.23	10.7	59.7/1115.4	6716	174	585	13
09/22/99	13:20	1886012.87	116.5/0.23	10.7	59.4/1125.4	6797	174	584	12
09/22/99	13:21	1860036.62	116.9/0.23	10.7	58.9/1101.6	6707	174	584	13
09/22/99	13:22	1904780.62	115.9/0.23	10.7	58.6/1121.3	6875	174	584	13
09/22/99	13:23	1902169.75	115.1/0.23	10.7	58.3/1114.6	6883	174	585	15
09/22/99	13:24	1873629.25	114.9/0.22	10.7	58.1/1093.1	6779	174	585	13
09/22/99	13:25	1888199.87	114.3/0.22	10.7	57.9/1099.3	6825	174	584	13
09/22/99	13:26	1855201.87	115.0/0.23	10.7	57.9/1079.2	6712	174	585	13
09/22/99	13:27	1828428.87	116.4/0.23	10.7	58.1/1066.8	6621	174	585	13

09/22/99	13:28	1924358.12	115.3/0.23	10.7	58.2/1125.2	6956	174	584	14
09/22/99	13:29	1965937.75	115.1/0.23	10.7	58.3/1151.9	7109	174	584	14
09/22/99	13:30	1894055.37	116.7/0.23	10.7	58.3/1110.3	6843	174	585	13
09/22/99	13:31	1912066.00	122.8/0.24	10.7	58.5/1124.2	6879	174	586	12
09/22/99	13:32	1884738.37	123.6/0.24	10.6	59.0/1118.1	6762	174	586	13
09/22/99	13:33	1861205.37	122.2/0.24	10.7	60.0/1121.5	6712	174	585	12
09/22/99	13:34	1899405.75	119.4/0.23	10.7	61.3/1169.3	6849	174	585	13
09/22/99	13:35	1881952.87	118.6/0.23	10.7	62.1/1174.1	6780	174	586	12
09/22/99	13:36	1895964.87	118.3/0.23	10.7	62.8/1196.7	6821	174	585	13
09/22/99	13:37	1894428.62	117.7/0.23	10.7	63.1/1201.5	6828	174	585	13
09/22/99	13:38	1841989.62	117.3/0.23	10.7	63.3/1171.0	6667	174	586	12
09/22/99	13:39	1927711.25	118.1/0.23	10.7	63.6/1230.9	6984	174	586	13
09/22/99	13:40	1890077.12	117.9/0.23	10.7	63.7/1210.2	6838	174	585	13
09/22/99	13:41	1926054.50	119.2/0.23	10.7	63.9/1236.1	6971	174	585	13
09/22/99	13:42	1927749.12	118.2/0.23	10.7	64.0/1239.1	6955	174	585	12
09/22/99	13:43	1868429.87	119.9/0.24	10.6	63.8/1198.5	6703	174	584	13
09/22/99	13:44	1890114.37	122.2/0.24	10.6	63.6/1208.3	6787	174	585	13
09/22/99	13:45	1887335.00	121.3/0.24	10.6	63.2/1198.4	6771	174	584	14
09/22/99	13:46	1911362.75	121.0/0.24	10.6	62.1/1191.6	6870	174	585	13
09/22/99	13:47	1939341.62	120.2/0.24	10.6	60.4/1176.4	6954	174	584	13
09/22/99	13:48	1945033.37	121.0/0.24	10.6	58.3/1140.2	6962	174	585	13
09/22/99	13:49	1891431.50	122.6/0.24	10.6	56.7/1077.4	6767	174	586	13
09/22/99	13:50	1888162.75	122.4/0.24	10.6	55.6/1055.2	6765	174	585	13
09/22/99	13:51	1927483.62	122.0/0.24	10.6	55.6/1077.2	6919	174	585	15
09/22/99	13:52	1924562.12	121.0/0.24	10.7	55.3/1068.8	6938	174	585	14
09/22/99	13:53	1879958.37	121.2/0.24	10.7	55.0/1038.2	6777	174	585	13
09/22/99	13:54	1860729.12	122.3/0.24	10.7	55.0/1028.7	6699	174	585	14
09/22/99	13:55	1908310.37	122.5/0.24	10.7	55.1/1057.5	6874	174	585	14
09/22/99	13:56	1921752.25	122.5/0.24	10.7	55.1/1064.9	6925	174	585	13
09/22/99	13:57	1890984.37	122.7/0.24	10.7	55.3/1050.2	6833	174	585	13
09/22/99	13:58	1886555.00	122.8/0.24	10.7	55.2/1046.7	6816	175	585	16
09/22/99	13:59	1915100.00	122.4/0.24	10.7	55.1/1060.5	6916	174	586	13
09/22/99	14:00	1902948.75	123.1/0.24	10.7	55.3/1057.2	6888	175	586	13

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/22/99	14:12	1812668.12	118.8/0.24	10.2	53.6/976.7	6270	176	585	13
09/22/99	14:13	1905093.25	121.3/0.25	10.2	53.9/1031.8	6590	176	585	12

AVERAGES	1816447.65	119.8/0.24	10.4	56.5/1033.5	6377	169	573	13

RUN 2 (15:13-17:29)

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/22/99	15:13	1963404.62	124.4/0.24	10.7	56.4/1112.8	7079	176	584	13
09/22/99	15:14	1987712.25	125.0/0.25	10.7	56.5/1129.1	7159	176	585	13
09/22/99	15:15	1930020.62	125.9/0.25	10.6	56.5/1095.3	6912	176	585	15
09/22/99	15:16	1902860.00	126.9/0.25	10.6	56.4/1078.9	6815	176	585	13
09/22/99	15:17	1916526.00	126.4/0.25	10.7	56.5/1088.5	6893	176	585	13
09/22/99	15:18	1925839.87	124.9/0.25	10.6	56.6/1094.3	6919	176	585	12
09/22/99	15:19	1895187.87	124.9/0.25	10.6	56.6/1076.9	6803	176	585	12
09/22/99	15:20	1960995.00	125.2/0.25	10.7	56.6/1115.8	7076	176	586	13
09/22/99	15:21	1923266.37	124.9/0.25	10.7	56.7/1095.8	6947	176	584	12
09/22/99	15:22	1921385.50	124.6/0.25	10.7	56.8/1097.2	6923	176	583	13
09/22/99	15:23	1937669.37	125.3/0.25	10.7	56.8/1106.5	6975	176	585	13
09/22/99	15:24	1882763.37	128.2/0.25	10.6	56.8/1075.1	6730	176	585	13
09/22/99	15:25	1947486.25	128.0/0.25	10.6	56.9/1112.5	6984	176	585	12
09/22/99	15:26	1899957.87	127.4/0.25	10.7	56.9/1085.8	6836	176	585	12
09/22/99	15:27	1909273.62	124.9/0.25	10.7	57.0/1092.7	6887	176	584	13
09/22/99	15:28	1898095.87	126.9/0.25	10.7	57.0/1087.3	6834	176	585	13
09/22/99	15:29	1881751.12	126.9/0.25	10.6	57.1/1079.9	6760	176	584	13
09/22/99	15:30	1885241.25	127.6/0.25	10.7	57.2/1083.2	6784	176	585	12
09/22/99	15:31	1908272.12	127.8/0.25	10.7	57.3/1097.8	6896	176	585	13
09/22/99	15:32	1906380.50	126.4/0.25	10.7	57.3/1098.2	6889	176	585	12
09/22/99	15:33	1919465.50	126.6/0.25	10.7	57.4/1107.7	6901	176	584	12
09/22/99	15:34	1926003.37	127.3/0.25	10.7	57.6/1114.9	6928	176	585	13
09/22/99	15:35	1895338.62	126.7/0.25	10.7	57.7/1099.1	6821	176	585	13
09/22/99	15:36	1882430.50	126.7/0.25	10.7	57.9/1095.9	6791	176	585	12
09/22/99	15:37	1928997.75	126.5/0.25	10.7	58.1/1125.4	6952	177	585	13
09/22/99	15:38	1879949.12	127.2/0.25	10.7	58.2/1099.5	6771	176	586	12
09/22/99	15:39	1911487.75	127.3/0.25	10.7	58.3/1119.9	6875	176	585	12
09/22/99	15:40	1955089.87	126.4/0.25	10.7	58.4/1148.0	7059	176	585	13
09/22/99	15:41	1945012.75	126.6/0.25	10.7	58.7/1147.1	7004	176	585	12
09/22/99	15:42	1893997.00	126.6/0.25	10.6	58.8/1118.5	6805	177	585	13
09/22/99	15:43	1870877.00	127.3/0.25	10.6	58.8/1105.3	6700	176	585	13
09/22/99	15:44	1886520.50	126.6/0.25	10.6	59.0/1118.7	6781	176	585	13
09/22/99	15:45	1910563.50	126.8/0.25	10.6	59.2/1136.7	6863	176	584	13
09/22/99	15:46	1918128.50	127.4/0.25	10.6	59.3/1142.8	6891	176	584	15
09/22/99	15:47	1908711.25	127.1/0.25	10.6	59.3/1136.3	6832	176	585	13
09/22/99	15:48	1880222.50	127.9/0.25	10.6	59.3/1120.8	6740	177	585	13

09/22/99	15:49	1873113.37	127.6/0.25	10.7	59.3/1116.0	6743	177	586	13
09/22/99	15:50	1896382.62	128.0/0.25	10.6	59.5/1132.8	6814	177	584	13
09/22/99	15:51	1900029.50	128.1/0.25	10.6	59.7/1139.7	6826	177	585	13
09/22/99	15:52	1900660.50	127.2/0.25	10.7	59.8/1142.0	6839	177	585	13
09/22/99	15:53	1896568.75	127.7/0.25	10.7	59.9/1140.5	6828	177	585	13
09/22/99	15:54	1916829.50	127.0/0.25	10.7	60.0/1155.1	6914	177	584	13
09/22/99	15:55	1912775.50	126.7/0.25	10.7	60.1/1154.6	6876	177	585	13
09/22/99	15:56	1926317.25	127.5/0.25	10.6	60.2/1164.2	6912	177	585	13
09/22/99	15:57	1894808.62	126.3/0.25	10.6	60.0/1142.8	6798	177	585	15
09/22/99	15:58	1899992.00	127.1/0.25	10.6	59.9/1142.6	6804	177	585	12
09/22/99	15:59	1905115.62	127.2/0.25	10.6	59.5/1139.4	6820	177	585	12
09/22/99	16:00	1904038.50	127.1/0.25	10.6	59.5/1138.0	6824	177	585	14

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/22/99	16:01	1872613.50	126.5/0.25	10.7	59.7/1122.3	6747	176	586	13
09/22/99	16:02	1889103.12	125.4/0.25	10.7	59.8/1134.5	6807	176	585	13
09/22/99	16:03	1879799.62	124.8/0.25	10.7	59.7/1128.5	6763	176	585	13
09/22/99	16:04	1895040.62	126.1/0.25	10.6	59.8/1138.2	6809	176	585	13
09/22/99	16:05	1898429.87	125.0/0.25	10.7	59.7/1138.8	6835	176	584	13
09/22/99	16:06	1911879.37	124.3/0.24	10.7	59.5/1142.5	6886	177	585	14
09/22/99	16:07	1879358.12	125.6/0.25	10.6	59.5/1122.6	6737	177	585	13
09/22/99	16:08	1893139.12	127.1/0.25	10.6	59.2/1125.1	6767	177	586	13
09/22/99	16:09	1876412.37	127.1/0.25	10.6	59.0/1111.5	6704	176	585	13
09/22/99	16:10	1885917.75	126.1/0.25	10.7	58.7/1112.8	6786	176	584	13
09/22/99	16:11	1888724.37	125.3/0.25	10.7	58.5/1111.1	6790	176	585	15
09/22/99	16:12	1888909.75	125.5/0.25	10.6	58.4/1107.9	6771	176	584	13
09/22/99	16:13	1913052.25	125.8/0.25	10.6	58.2/1118.7	6835	176	583	13
09/22/99	16:14	1883959.12	125.8/0.25	10.6	57.7/1092.1	6727	176	583	14
09/22/99	16:15	1939230.75	126.1/0.25	10.6	57.3/1117.4	6909	176	584	13
09/22/99	16:16	1945929.37	126.0/0.25	10.6	57.0/1113.9	6936	176	584	13
09/22/99	16:17	1941745.25	127.7/0.26	10.5	56.7/1106.6	6898	176	585	16
09/22/99	16:18	1926028.62	129.0/0.26	10.6	56.6/1094.7	6871	176	584	14
09/22/99	16:19	1926684.00	128.0/0.25	10.6	56.6/1095.0	6867	176	586	13
09/22/99	16:20	1935184.25	128.5/0.26	10.5	56.7/1102.3	6891	176	585	13
09/22/99	16:21	1925915.00	127.8/0.25	10.6	56.8/1099.1	6871	176	586	13
09/22/99	16:22	1937742.75	127.1/0.25	10.6	57.2/1114.1	6917	176	585	13
09/22/99	16:23	1920877.62	127.0/0.25	10.6	57.6/1112.1	6877	176	585	13
09/22/99	16:24	1908131.37	125.7/0.25	10.6	57.8/1108.1	6830	176	585	13

09/22/99	16:25	1886055.87	125.7/0.25	10.6	57.7/1092.9	6741	176	585	13
09/22/99	16:26	1885340.87	126.8/0.25	10.6	57.4/1087.8	6726	175	585	13
09/22/99	16:27	1906762.50	125.8/0.25	10.6	57.3/1097.3	6794	175	585	14
09/22/99	16:28	1905054.62	125.5/0.25	10.6	57.3/1096.8	6807	175	585	13
09/22/99	16:29	1895671.62	124.4/0.25	10.6	57.2/1090.4	6805	175	586	15
09/22/99	16:30	1911250.87	123.5/0.24	10.6	57.1/1096.5	6864	175	585	15
09/22/99	16:31	1890661.87	122.7/0.24	10.6	57.0/1083.7	6781	175	585	15
09/22/99	16:32	1896006.87	123.8/0.25	10.6	57.0/1085.4	6771	175	587	15
09/22/99	16:33	1902195.25	125.2/0.25	10.6	56.8/1086.5	6784	175	586	14
09/22/99	16:34	1902419.75	124.8/0.25	10.6	56.6/1082.8	6797	175	585	16
09/22/99	16:35	1829231.62	123.4/0.24	10.6	56.4/1037.5	6570	175	585	14
09/22/99	16:36	1904281.25	124.0/0.25	10.6	56.2/1076.2	6833	175	585	15
09/22/99	16:37	1900373.00	123.1/0.24	10.6	55.9/1066.8	6793	175	585	16
09/22/99	16:38	1903612.75	124.0/0.25	10.6	55.4/1060.5	6811	175	584	15
09/22/99	16:39	1887279.87	124.5/0.25	10.6	55.1/1045.7	6740	175	585	16
09/22/99	16:40	1912529.37	126.2/0.25	10.6	54.9/1055.9	6817	174	584	15
09/22/99	16:41	1884194.12	126.4/0.25	10.6	54.8/1038.3	6732	174	585	15
09/22/99	16:42	1859813.37	125.4/0.25	10.6	55.0/1027.2	6664	174	585	14
09/22/99	16:43	1917636.37	126.4/0.25	10.6	55.0/1060.6	6860	174	585	14
09/22/99	16:44	1919524.62	126.2/0.25	10.6	55.2/1065.5	6881	174	584	14
09/22/99	16:45	1929689.87	126.5/0.25	10.6	55.5/1076.0	6918	174	583	16
09/22/99	16:46	1899889.25	126.3/0.25	10.6	55.5/1058.9	6811	174	585	14
09/22/99	16:47	1912053.50	126.4/0.25	10.6	55.5/1066.2	6851	174	584	14
09/22/99	16:48	1911012.25	126.1/0.25	10.6	55.6/1067.0	6857	174	584	14

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/22/99	16:49	1905698.87	125.7/0.25	10.6	55.6/1064.6	6841	174	585	16
09/22/99	16:50	1963830.75	126.9/0.25	10.6	55.9/1102.4	7047	174	585	14
09/22/99	16:51	1880233.75	127.8/0.25	10.6	56.0/1057.4	6756	174	586	14
09/22/99	16:52	1928844.75	127.1/0.25	10.7	56.2/1090.1	6947	174	587	14
09/22/99	16:53	1904362.25	126.4/0.25	10.7	56.4/1079.6	6862	174	586	14
09/22/99	16:54	1885430.37	125.6/0.25	10.7	56.8/1076.0	6810	174	587	14
09/22/99	16:55	1875207.62	124.4/0.24	10.7	56.9/1071.6	6767	174	586	13
09/22/99	16:56	1901308.75	124.8/0.25	10.7	56.8/1084.6	6861	174	586	14
09/22/99	16:57	1896303.25	124.1/0.24	10.7	56.5/1076.5	6821	174	584	13
09/22/99	16:58	1898023.25	124.1/0.24	10.7	56.4/1076.5	6834	174	585	13
09/22/99	16:59	1893757.62	125.0/0.25	10.6	56.2/1068.8	6802	174	585	14
09/22/99	17:00	1866673.50	125.9/0.25	10.6	55.8/1046.5	6704	174	584	14

09/22/99	17:01	1869514.50	125.0/0.25	10.7	55.3/1039.6	6727	174	585	13
09/22/99	17:02	1912807.00	124.7/0.25	10.7	55.2/1060.8	6893	174	585	14
09/22/99	17:03	1911277.62	124.5/0.24	10.7	55.2/1059.5	6898	174	585	14
09/22/99	17:04	1872452.87	124.6/0.24	10.7	55.2/1037.9	6757	174	585	12
09/22/99	17:05	1872221.00	124.1/0.24	10.7	55.4/1042.1	6759	174	584	13
09/22/99	17:06	1952494.25	125.0/0.25	10.7	55.4/1087.3	7039	174	585	13
09/22/99	17:07	1943543.50	125.5/0.25	10.7	55.3/1080.8	6997	174	583	14
09/22/99	17:08	1897499.75	125.9/0.25	10.7	55.4/1057.1	6828	174	583	14
09/22/99	17:09	1905031.00	125.8/0.25	10.6	56.0/1071.0	6839	174	583	14
09/22/99	17:10	1890277.50	125.5/0.25	10.6	56.6/1074.4	6776	174	585	14
09/22/99	17:11	1970304.62	124.2/0.25	10.6	57.7/1142.7	7076	175	584	15
09/22/99	17:12	1919806.75	123.4/0.24	10.6	59.8/1153.6	6899	175	585	14
09/22/99	17:13	1911254.12	122.7/0.24	10.7	61.1/1173.4	6874	175	586	15
09/22/99	17:14	1920844.25	122.5/0.24	10.7	61.8/1193.4	6912	175	585	15
09/22/99	17:15	1948449.50	122.7/0.24	10.7	61.9/1211.5	7011	175	585	15
09/22/99	17:16	1918807.00	123.4/0.24	10.7	61.4/1183.8	6901	175	585	14
09/22/99	17:17	1919655.75	125.1/0.25	10.6	61.0/1177.1	6875	175	586	13
09/22/99	17:18	1934490.75	124.4/0.25	10.6	61.1/1188.5	6927	175	587	14
09/22/99	17:19	1908366.12	123.1/0.24	10.6	62.0/1188.5	6841	175	586	13
09/22/99	17:20	1961590.87	122.3/0.24	10.6	62.9/1239.9	7035	175	585	14
09/22/99	17:21	1953230.12	123.7/0.24	10.6	63.2/1239.6	7003	175	584	13
09/22/99	17:22	1930390.87	124.2/0.25	10.6	62.9/1220.2	6895	175	585	14
09/22/99	17:23	1925322.00	126.1/0.25	10.6	62.3/1205.4	6872	175	586	13
09/22/99	17:24	1942661.37	125.6/0.25	10.6	62.2/1213.2	6948	175	586	14
09/22/99	17:25	1917731.25	126.3/0.25	10.6	62.0/1194.8	6862	175	586	13
09/22/99	17:26	1923047.50	126.6/0.25	10.6	62.4/1205.3	6864	175	585	12
09/22/99	17:27	1896790.37	126.8/0.25	10.5	62.3/1187.4	6751	175	585	13
09/22/99	17:28	1912002.50	127.2/0.25	10.5	61.9/1189.7	6780	175	585	13
09/22/99	17:29	1926395.12	127.1/0.25	10.5	61.6/1191.4	6844	175	585	14
AVERAGES		1908816.06	125.8/0.25	10.6	57.9/1111.1	6850	175	585	14

RUN 3 (07:03-09:16)

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/23/99	07:03	1886058.25	126.6/0.25	10.7	65.5/1240.2	6822	176	586	15
09/23/99	07:04	1904128.00	125.6/0.25	10.8	65.6/1255.9	6913	176	585	59
09/23/99	07:05	1905873.87	125.5/0.25	10.7	65.7/1258.9	6909	176	585	59
09/23/99	07:06	1833812.25	127.2/0.25	10.7	65.6/1208.1	6647	176	585	59
09/23/99	07:07	1954169.62	127.4/0.25	10.7	65.5/1286.3	7090	176	585	2
09/23/99	07:08	1897716.75	126.5/0.25	10.8	65.6/1251.5	6901	176	585	2
09/23/99	07:09	1901154.12	127.5/0.25	10.8	65.8/1257.2	6914	176	585	2
09/23/99	07:10	1901786.00	126.7/0.25	10.9	66.2/1265.1	6977	176	585	14
09/23/99	07:11	1889839.50	127.2/0.25	10.8	66.2/1257.3	6893	176	585	16
09/23/99	07:12	1888524.37	126.8/0.25	10.8	66.3/1257.5	6863	176	587	15
09/23/99	07:13	1896232.50	126.1/0.25	10.8	66.4/1264.8	6908	176	585	15
09/23/99	07:14	1884998.00	126.5/0.25	10.8	66.5/1259.7	6884	176	584	15
09/23/99	07:15	1876293.62	126.3/0.25	10.8	66.4/1252.3	6847	176	584	14
09/23/99	07:16	1858170.50	128.3/0.25	10.8	66.5/1240.9	6745	176	584	14
09/23/99	07:17	1890174.25	128.4/0.25	10.7	66.4/1261.8	6858	176	585	14
09/23/99	07:18	1917582.25	128.2/0.25	10.8	66.5/1281.9	6963	176	584	14
09/23/99	07:19	1852831.50	127.7/0.25	10.8	66.6/1239.1	6725	176	585	14
09/23/99	07:20	1880932.12	127.9/0.25	10.8	66.6/1258.8	6827	176	585	14
09/23/99	07:21	1877465.00	127.9/0.25	10.8	66.5/1254.6	6817	176	584	13
09/23/99	07:22	1871382.00	128.0/0.25	10.8	66.4/1249.1	6808	176	583	14
09/23/99	07:23	1905880.62	127.4/0.25	10.8	66.3/1269.3	6943	176	584	13
09/23/99	07:24	1948980.50	127.8/0.25	10.7	66.2/1295.5	7061	176	584	14
09/23/99	07:25	1924515.50	130.1/0.25	10.7	65.9/1274.6	6970	176	584	16
09/23/99	07:26	1877502.00	129.7/0.25	10.7	65.8/1242.1	6806	176	586	13
09/23/99	07:27	1888784.25	129.4/0.25	10.8	65.8/1249.5	6856	176	586	13
09/23/99	07:28	1929927.62	129.2/0.25	10.8	65.6/1272.4	7006	176	585	14
09/23/99	07:29	1893128.75	128.7/0.25	10.8	65.4/1243.3	6872	176	584	13
09/23/99	07:30	1887690.00	130.4/0.25	10.9	65.1/1234.9	6919	176	584	13
09/23/99	07:31	1897790.37	130.1/0.25	10.7	64.9/1237.5	6876	176	584	14
09/23/99	07:32	1954591.25	130.2/0.25	10.7	64.7/1269.9	7086	176	585	13
09/23/99	07:33	1929624.25	128.9/0.25	10.7	64.6/1252.0	6977	176	585	13
09/23/99	07:34	1876061.00	128.5/0.25	10.7	64.5/1216.0	6794	176	585	13
09/23/99	07:35	1888181.12	128.0/0.25	10.8	64.4/1222.4	6879	176	585	13
09/23/99	07:36	1876429.62	127.3/0.25	10.8	64.6/1217.7	6830	175	585	13
09/23/99	07:37	1907259.50	127.9/0.25	10.7	64.5/1236.2	6913	175	585	13
09/23/99	07:38	1921504.62	128.5/0.25	10.7	64.3/1241.4	6958	175	586	13

09/23/99	07:39	1899478.25	129.7/0.25	10.8	64.2/1226.1	6926	175	587	14
09/23/99	07:40	1878553.37	129.3/0.25	10.8	64.6/1218.8	6856	175	585	13
09/23/99	07:41	1895146.75	127.0/0.25	10.8	64.9/1235.7	6921	175	584	13
09/23/99	07:42	1880472.12	127.2/0.25	10.8	65.1/1229.5	6857	175	584	13
09/23/99	07:43	1897080.62	128.8/0.25	10.7	65.1/1240.9	6831	175	584	13
09/23/99	07:44	1881027.00	130.6/0.26	10.7	64.6/1220.1	6766	175	585	12
09/23/99	07:45	1879477.25	130.7/0.26	10.7	64.4/1215.3	6783	175	585	13
09/23/99	07:46	1890612.50	129.7/0.25	10.7	64.3/1222.2	6834	175	585	14
09/23/99	07:47	1905811.87	129.4/0.25	10.8	64.5/1234.3	6956	175	585	13
09/23/99	07:48	1890842.37	129.1/0.25	10.8	64.5/1226.3	6882	175	585	13
09/23/99	07:49	1909230.50	130.1/0.25	10.8	64.4/1235.8	6936	175	585	13
09/23/99	07:50	1909858.62	129.9/0.25	10.7	64.5/1238.2	6926	175	585	13

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/23/99	07:51	1887689.00	129.9/0.25	10.7	64.5/1223.4	6843	175	585	13
09/23/99	07:52	1930572.75	129.4/0.25	10.8	64.5/1251.7	7011	175	585	13
09/23/99	07:53	1866232.50	128.8/0.25	10.8	64.4/1207.6	6792	175	585	12
09/23/99	07:54	1874300.50	128.2/0.25	10.7	64.3/1211.0	6787	175	584	13
09/23/99	07:55	1904512.25	128.6/0.25	10.8	64.3/1230.2	6914	175	585	13
09/23/99	07:56	1913094.50	129.2/0.25	10.7	64.3/1235.7	6932	175	585	13
09/23/99	07:57	1885393.25	129.0/0.25	10.7	64.3/1217.7	6834	175	585	13
09/23/99	07:58	1889489.62	129.3/0.25	10.8	64.3/1220.7	6874	175	585	13
09/23/99	07:59	1889675.50	129.4/0.25	10.8	64.5/1223.6	6862	175	585	13
09/23/99	08:00	1896192.87	129.8/0.25	10.7	64.5/1228.8	6854	175	585	13
09/23/99	08:01	1874079.50	130.2/0.25	10.7	64.5/1215.4	6793	175	585	13
09/23/99	08:02	1910272.00	130.3/0.25	10.8	64.8/1243.7	6947	175	583	13
09/23/99	08:03	1909230.50	130.4/0.26	10.7	65.0/1245.9	6920	175	584	14
09/23/99	08:04	1892891.37	130.1/0.26	10.7	65.0/1235.7	6848	175	584	12
09/23/99	08:05	1904100.25	131.0/0.26	10.7	65.1/1244.9	6902	175	585	13
09/23/99	08:08	1778001.50	130.2/0.25	10.8	65.9/1176.4	6453	450	586	13
09/23/99	08:09	1771867.00	129.4/0.25	10.7	66.0/1174.5	6428	450	587	14
09/23/99	08:10	1867786.87	129.6/0.25	10.7	66.1/1240.6	6777	176	585	13
09/23/99	08:11	1867171.75	129.4/0.25	10.7	66.1/1239.3	6739	176	585	13
09/23/99	08:12	1907326.87	129.0/0.25	10.7	66.2/1267.9	6898	176	585	13
09/23/99	08:13	1920485.62	130.1/0.25	10.8	66.1/1275.2	7026	176	585	13
09/23/99	08:14	1873107.62	130.1/0.25	10.8	66.3/1246.8	6808	176	585	14
09/23/99	08:15	1860868.37	129.7/0.25	10.8	66.5/1242.4	6758	176	586	13
09/23/99	08:16	1898992.25	128.9/0.25	10.8	66.9/1276.9	6896	176	584	14

09/23/99	08:17	1898321.62	128.9/0.25	10.8	67.3/1283.2	6890	176	585	13
09/23/99	08:18	1904501.00	129.8/0.25	10.7	67.5/1290.7	6893	176	585	13
09/23/99	08:19	1873475.50	129.3/0.25	10.7	67.6/1272.5	6765	176	585	13
09/23/99	08:20	1922330.37	128.4/0.25	10.7	67.7/1306.7	6945	176	586	14
09/23/99	08:21	1890016.12	127.8/0.25	10.7	67.8/1287.6	6816	176	586	15
09/23/99	08:22	1888375.50	127.7/0.25	10.7	67.8/1286.9	6816	176	585	13
09/23/99	08:23	1872974.25	126.9/0.25	10.7	68.0/1278.7	6744	176	586	13
09/23/99	08:24	1890099.25	126.9/0.25	10.6	67.8/1288.1	6781	176	585	13
09/23/99	08:25	1930496.75	128.2/0.25	10.6	67.5/1309.8	6926	176	585	13
09/23/99	08:26	1868584.75	128.5/0.25	10.6	67.6/1269.2	6704	176	586	12
09/23/99	08:27	1899142.25	128.8/0.25	10.6	67.5/1288.7	6814	175	585	13
09/23/99	08:28	1835239.37	128.9/0.26	10.6	67.6/1245.8	6557	175	585	16
09/23/99	08:29	1886909.50	128.1/0.25	10.6	67.5/1280.4	6742	175	585	13
09/23/99	08:30	1891443.87	127.3/0.25	10.6	67.6/1284.3	6755	175	585	13
09/23/99	08:31	1900373.37	127.2/0.25	10.6	67.6/1291.4	6777	175	584	13
09/23/99	08:32	1956794.87	127.1/0.25	10.6	67.6/1328.8	6972	175	584	13
09/23/99	08:33	1879633.37	127.2/0.25	10.5	67.5/1274.0	6688	175	585	13
09/23/99	08:34	1854365.37	127.7/0.25	10.5	67.3/1254.1	6591	175	585	14
09/23/99	08:35	1890879.50	126.7/0.25	10.5	67.3/1278.8	6728	175	585	14
09/23/99	08:36	1862221.50	126.1/0.25	10.6	67.6/1264.1	6645	175	585	14
09/23/99	08:37	1897948.37	126.4/0.25	10.6	67.5/1287.9	6772	175	584	13
09/23/99	08:38	1900523.00	125.9/0.25	10.6	67.7/1292.5	6775	175	584	14

UNIT 3
MERCURY EMISSION TEST
LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOx PPM/LBMBTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/23/99	08:39	1909080.25	126.4/0.25	10.5	67.7/1298.4	6789	175	585	14
09/23/99	08:40	1902237.37	127.4/0.25	10.5	67.6/1291.8	6749	175	584	14
09/23/99	08:41	1914459.62	127.1/0.25	10.5	67.5/1298.5	6804	175	585	14
09/23/99	08:42	1916673.37	126.9/0.25	10.6	67.6/1300.9	6828	175	586	14
09/23/99	08:43	1895631.37	126.1/0.25	10.6	67.8/1291.0	6760	175	585	14
09/23/99	08:44	1899926.87	125.4/0.25	10.6	67.9/1296.8	6785	175	585	14
09/23/99	08:45	1870706.37	124.9/0.25	10.6	68.2/1282.0	6683	175	584	14
09/23/99	08:46	1869834.75	124.7/0.25	10.6	68.2/1281.4	6661	175	586	14
09/23/99	08:47	1899255.37	124.3/0.25	10.6	68.1/1300.1	6766	175	585	14
09/23/99	08:48	1906929.50	123.7/0.25	10.6	68.1/1304.9	6791	175	584	18
09/23/99	08:49	1919751.37	124.6/0.25	10.5	68.0/1311.2	6836	175	585	15
09/23/99	08:50	1897815.12	124.5/0.25	10.5	67.8/1293.5	6739	175	585	14
09/23/99	08:51	1904887.37	124.6/0.25	10.5	67.2/1286.4	6755	174	584	14
09/23/99	08:52	1908460.75	124.9/0.25	10.5	66.1/1267.3	6765	174	585	15

09/23/99	08:53	1891431.50	125.7/0.25	10.5	62.8/1194.2	6712	174	584	14
09/23/99	08:54	1922471.25	125.7/0.25	10.5	51.2/989.0	6828	174	584	15
09/23/99	08:55	1929870.50	126.0/0.25	10.5	49.0/951.1	6851	174	584	16
09/23/99	08:56	1901236.62	125.5/0.25	10.5	48.1/918.9	6734	174	586	15
09/23/99	08:57	1871996.37	127.0/0.25	10.5	47.9/900.5	6640	174	588	15
09/23/99	08:58	1845641.25	125.6/0.25	10.5	48.0/891.0	6562	174	587	15
09/23/99	08:59	1928043.00	123.7/0.25	10.6	48.2/933.2	6871	174	585	15
09/23/99	09:00	1863609.75	124.2/0.25	10.6	48.2/903.0	6645	173	583	15
09/23/99	09:01	1845336.75	123.3/0.25	10.5	47.6/882.1	6570	173	583	16
09/23/99	09:02	1903693.12	124.5/0.25	10.5	46.9/896.6	6757	173	584	16
09/23/99	09:03	1900257.00	125.7/0.25	10.5	46.3/884.4	6721	173	583	16
09/23/99	09:04	1916524.37	125.1/0.25	10.5	45.7/879.5	6779	173	582	15
09/23/99	09:05	1918228.75	125.3/0.25	10.5	45.2/870.6	6775	173	583	15
09/23/99	09:06	1942581.87	125.3/0.25	10.5	44.8/875.3	6858	173	584	16
09/23/99	09:07	1936033.50	126.1/0.25	10.5	44.4/864.6	6838	173	584	16
09/23/99	09:08	1919553.12	125.3/0.25	10.5	44.4/857.2	6783	174	586	17
09/23/99	09:09	1879692.62	124.1/0.25	10.5	44.6/842.2	6683	173	584	16
09/23/99	09:10	1904701.62	124.3/0.25	10.5	44.5/851.1	6779	173	584	16
09/23/99	09:11	1875488.62	123.3/0.25	10.5	43.9/826.7	6662	173	585	15
09/23/99	09:12	1865693.50	124.4/0.25	10.5	43.0/805.5	6602	173	586	16
09/23/99	09:13	1883167.25	123.9/0.25	10.5	41.8/791.7	6664	173	586	16
09/23/99	09:14	1885545.87	124.6/0.25	10.5	41.4/783.7	6682	173	585	17
09/23/99	09:15	1890059.87	124.2/0.25	10.5	41.9/796.1	6698	173	585	16
09/23/99	09:16	1884679.00	124.4/0.25	10.5	42.9/813.3	6679	173	585	16
AVERAGES		1864804.00	127.5/0.25	10.7	62.6/1171.2	6713	177	585	15

APPENDIX G

LIST OF PARTICIPANTS

List of Participants

Name	Organization	Project Role
Jerry Menge	BEPC	Air Quality Program Coordinator
Terry Archbold	BEPC - LRS	Plant Contact/Process Monitor
Bruce Randall	Braun Intertec	Project Director
James Tryba	Braun Intertec	Test Director
David Hillesheim	Braun Intertec	Main Stack Sample Team Leader
Kevin Hoffman	Braun Intertec	Inlet Sample Team Leader
George Jansen	Braun Intertec	Main Stack Sample Technician
Shawn Nelezen	Braun Intertec	Inlet Sample Technician
Ron McCloud	Phillips Analytical	Speciated Mercury Sample Analysis