5.0 INTERNAL QA/QC ACTIVITIES

5.1 QA/QC PROBLEMS

There were no QA/QC problems that occurred during these tests.

5.2 QA AUDITS

5.2.1 Reagent Blanks. As required by the method, blanks were collected for all reagents utilized. The results of reagent blank analysis are presented in Table 5-1.

Table 5-1: Reagent Blank Analysis

Container #	Sample Fraction	Contents	Mercury (μg)	Detection Limit (μg)
C7/C12	Front-half	0.1N HNO_3/Filter	<0.010	0.010
C8	1 N KCl	1 N KCl	<0.030	0.030
C9	HNO_3/H_2O_2	HNO_3/H_2O_2	<0.010	0.010
C10	$KMnO_4/H_2SO_4$	$KMnO_4/H_2SO_4$	<0.030	0.030

5.2.2 Blank Trains. As required by the method, blank trains were collected at both the inlet and stack sampling locations. These trains were collected on 09/20/99. The results of blank train analysis are presented in Table 5-2.

Table 5-2: Blank Train Analysis

Container #	Sample Fraction	Contents	Mercury (μg)	Detection Limit (μg)
IB C01/C02	Front-half	Filter/front-half rinse	<0.050	0.010
SB C01/C02	Front-half	Filter/front-half rinse	<0.010	0.010
IB C03	KCl impingers	Impingers/rinse	<0.10	0.030
SB C03	KCl impingers	Impingers/rinse	<0.10	0.030
IB C04	HNO_3-H_2O_2 impingers	Impingers/rinse	<0.25	0.010
SB C04	HNO_3-H_2O_2 impingers	Impingers/rinse	<0.25	0.010
IB C05	$KMnO_4/H_2SO_4$ impingers	Impingers/rinse	<0.10	0.030
SB C05	$KMnO_4/H_2SO_4$ impingers	Impingers/rinse	<0.10	0.030

5.2.3 Field Dry Test Meter Audit. The field dry test meter audit described in Section 4.4.1 of Method 5 was completed prior to the test. The results of the audit are presented in Table 5-3.

Table 5-3: Field Meter Audit

Meter Box Number	Pre-Audit Value	Allowable Error	Calculated Yc	Acceptable
81231	0.999	0.9690<Yc<1.0290	1.014	Yes
80573	0.996	0.9661<Yc<1.0259	0.995	Yes

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:

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

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:

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

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

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

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

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

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

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

Equation 4a - Isokinetic Sampling Nozzle Inside Diameter:

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

Equation 4b - Isokinetic Sampling "X" Factor:

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

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

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

Equation 4d - Sample Percentage of Isokinetic:

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

Equation 4e - Concentration of Mercury Species (μg/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 (μg /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 (μg - as defined in Section 15.1 of the Ontario-Hydro Method)
Ms	=	Mass of mercury species in sample (μg)
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 (°R)
Ts	=	Absolute temperature of duct gas (°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±10%)
%N2	=	Duct gas nitrogen content (%volume)
%O2	=	Duct gas oxygen content (%volume)
θ	=	Total sample time (minutes)
ΔH	=	Pressure drop across orifice ("H2O)
$\Delta H@i$	=	Orifice calibration coefficient ("H2O)
ΔP	=	Pressure drop across pitot tube ("H2O)

APPENDIX B

RAW FIELD DATA AND CALIBRATION DATA SHEETS

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 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	67294.29	5.190	initial	628.255	25.6	78	86	13.0	1.001	1.755
	final	67441.27		final	633.511						
1	initial	67127.28	5.521	initial	622.286	25.6	78	86	10.0	1.001	1.835
	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	1.798
	final	66691.49		final	606.735						

Average:	0.999	1.815
Deviation:	0.004	0.060

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**

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - ____ - _____

Plant: LRS

Sample Location: Unit 1 Inlet

Run #: Blank

Date: 09/20/99

Ambient Temp.(oF): 60

Pbar ("Hg):

Pstatic ("H2O): 15.5

Bws (assumed):

MWwet (assumed):

Ps ("Hg):

Probe Material:

Probe Heater Setting:

Filter Heater Setting:

Nozzle #:

Meter Box #: 5123 1

ΔH@i:

Y:

Pitot #: M-1

Cp:

Nozzle Material:

Nozzle Diameter:

Pre-test Leak Rate: 0.004 @ 13

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)	Sample Line (oF)		
	1855										

Comments:

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - _____ - _____

Plant: _____ Date: _____

Sample Location: _____ Run #: _____

Run Time: _____

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl		728.1	
Mod. G.S. 2	100 ml 1N KCl		731.8	
G.S. 3	100 ml 1N KCl		739.9	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2		743.3	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4		754.5	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4		733.4	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4		745.3	
Mod. G.S. 8	Silica Gel		877.1	
			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 - 5306

Plant: LRS
Sample Location: Unit 1 Inlet
Run #: 1
Date: 09/20/99
Ambient Temp.(oF): 65 F
Pbar ("Hg): 25.67
Pstatic ("H2O): -15.5
Pre-test Leak Rate: 0.006@12

Bws (assumed): 5.12
MWwet (assumed): 30.11
Ps ("Hg): 28.53
Probe Material: Teflon
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #:
Post-test Leak Rate: Fail

Meter Box #: 81231
ΔH@i: 1.315
Y: 0.979
Pitot #: M-1
Cp: 0.919
Nozzle Material: Teflon
Nozzle Diameter: ~~0.258~~ 0.251
X-Factor: 2.816

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	1519	285	0.58	64	64	1.15	4	229	229	52	16.258
2	1525	285	0.68	65	64	1.35	4	227	229	46	
1	1531	285	0.76	66	64	1.51	4	230	227	44	28.312
B3	1550	284	0.76	64	65	1.51	5	230	228	53	
2	1556	284	0.73	70	66	1.46	5	231	225	45	
1	1602	284	0.75	73	66	1.51	5	233	226	45	40.947
C3	1619	282	0.86	68	67	1.72	5	230	~~216~~ 209	51	
2	1625	282	0.90	74	68	1.82	5	231	209	46	
1	1631	282	0.73	75	68	1.48	5	233	209	46	54.298
D3	1645	278	1.10	70	69	2.22	5	232	207	55	
2	1651	279	1.10	75	69	2.24	5	233	213	48	
1	1657	279	0.95	77	69	1.94	5	233	211	49	69.428
E3	1712	273	0.88	71	69	1.80	5	233	214	54	
2	1718	275	0.83	77	70	1.71	5	234	218	51	
1	1724	278	0.57	78	71	1.17	4	234	218	51	82.431
F3	1730	269	0.68	72	[illegible]	1.40	4	234	222	54	
2	1736	273	0.73	76	71	1.50	4	234	216	51	
1	1742	275	0.66	77	71	1.36	4	234	197	52	94.965
G3	1753	267	0.53	71	70	1.09	4	232	192	54	
2	1759	269	0.61	75	70	1.26	4	232	192	52	
1	1805	271	0.98	75	71	2.02	5	234	194	51	107.770

Comments:

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 79 - 0306

Plant: Basin Electric - LRS Date: 9/20/79

Sample Location: Unit 1 Inlet Run #: 1

Run Time: 126 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	760.4	604.8	155.6
Mod. G.S. 2	100 ml 1N KCl	767.6	~~604.8~~ 730.8	36.8
G.S. 3	100 ml 1N KCl	751.8	742.1	9.7
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	731.1	~~[illegible]~~ 730.1	1.0
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	751.5	748.0	3.5
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	738.8	737.7	1.1
G.S. 7	100 ml 4%KMnO4/10%H2SO4	736.8	736.8	0.0
Mod. G.S. 8	Silica Gel	867.5	850.1	17.4
			TOTAL	225.1

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	11.1	8.7	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS
Sample Location: Unit 1 Inlet
Run #: 2
Date: 09/21/99
Ambient Temp.(oF): 60°
Pbar ("Hg): 25.63
Pstatic ("H2O): -17"

Bws (assumed): 0.12
MWwet (assumed): 30.11
Ps ("Hg): 24.38
Probe Material: Teflon
Probe Heater Setting: 250°
Filter Heater Setting: 250°
Nozzle #: 8

Meter Box #: 81231
ΔH@i: 1.415
Y: 0.999
Pitot #: M-1
Cp: 0.819
Nozzle Material: Teflon
Nozzle Diameter: 0.251

Pre-test Leak Rate: 0.014 @ 12
Post-test Leak Rate: 0.002 @ 11
X-Factor: 2.927

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	0902	294	0.84	61	60	1.70	6	252	244	55°	112.052
2	0908	295	0.89	63	60	1.80	5	250	244	39	
1	0914	295	0.83	66	60	1.69	5	250	244	41	126.014 ←
											126.182
B3	0925	291	0.82	65	62	1.68	5	250	243	48	
2	0931	294	0.77	70	63	1.58	5	250	244	44	
1	0937	293	0.90	72	64	1.86	6	250	244	45	140.252
C3	0947	288	1.00	69	65	2.07	6	251	244	49	
2	0953	291	1.05	75	66	2.19	6	250	244	46	
1	0959	291	0.82	77	68	1.72	5	250	244	47	155.230
D3	1008	285	0.91	72	68	1.90	5	249	244	50	
2	1014	287	1.15	78	69	2.42	6	250	244	47	
1	1020	289	1.16	80	70	2.32	6	252	244	49	170.950 ←
											171.112
E3	1031	279	1.10	75	71	2.33	6	251	243	52	
2	1037	283	0.99	80	72	2.11	5	250	243	49	
1	1043	287	0.68	81	72	1.44	5	251	244	53	185.537
F3	1052	276	0.59	77	73	1.26	5	251	244	56	
2	1058	283	0.79	81	74	1.68	5	251	244	53	
1	1104	284	0.71	82	74	1.51	5	251	244	52	198.442
G3	1113	268	0.50	78	74	1.08	5	251	244	56	
2	SN ~~1119~~ 1119	279	0.64	82	75	1.37	5	250	244	53	
1	SN ~~1125~~ 1125	281	1.05	83	75	2.25	6	251	244	51	211.363

Comments: - Pitot leak check pass.
- ← denotes lost volume for leak check.

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: Basin Electric - LRS Date: 9/21/99

Sample Location: Unit 1 Run #: 2

Run Time: 126 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	888.1	721.6	166.5
Mod. G.S. 2	100 ml 1N KCl	789.7	733.5	56.2
G.S. 3	100 ml 1N KCl	744.3	733.5	10.8
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	747.5	737.8	9.7
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	755.3	754.9	0.4
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	733.1	733.7	-0.6
G.S. 7	100 ml 4%KMnO4/10%H2SO4	738.6	738.6	0
Mod. G.S. 8	Silica Gel	898.4	877.1	21.3
			TOTAL	264.3

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	10.0	10.4	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS
Sample Location: Unit 1 Inlet
Run #: 3
Date: 09/21/99
Ambient Temp.(oF): 70
Pbar ("Hg): 25.63
Pstatic ("H2O): ~~17~~ -16"

Bws (assumed): 0.12
MWwet (assumed): 30.11
Ps ("Hg): ~~24.9~~ 24.95
Probe Material: Teflon
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #: #8

Meter Box #: 81231
ΔH@i: 1.415
Y: 0.999
Pitot #: M-1
Cp: 0.819
Nozzle Material: Teflon
Nozzle Diameter: 0.251

Pre-test Leak Rate: 0.008 @ 11
Post-test Leak Rate: 0.010 @ 12
X-Factor: ~~2.917~~ 3.039

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)		
G3	1226	274	0.51	76	77	1.09	4	251	229	60	212.068
2	1232	275	0.63	80	77	1.35	4	250	234	47	
1	1238	276	1.05	81	77	2.24	5	251	233	46	225.802
F3	1246	268	0.59	81	77	1.28	4	251	232	53	
2	1252	276	0.72	84	78	1.56	5	250	241	51	
1	1258	279	0.72	86	78	1.56	5	250	244	48	238.989
E3	1312	276	0.93	84	80	2.10	5	251	245	52	
2	1318	278	0.89	88	81	2.01	5	252	245	50	
1	1324	281	0.62	89	81	1.40	5	250	244	50	253.427 ←
											253.610
D3	1331	279	1.10	85	82	2.47	5	251	244	53	
2	1337	281	1.05	90	82	2.37	5	251	245	47	
1	1343	282	1.00	92	83	2.26	5	250	245	49	269.942
C3	1350	282	0.88	88	84	1.98	5	250	245	52	
2	1356	285	0.95	93	84	2.14	5	252	245	49	
1	1402	284	0.74	93	85	1.67	5	250	245	48	284.674 ←
											284.844
B3	1414	285	0.77	88	86	1.72	5	251	245	54	
2	1420	286	0.72	93	86	1.62	5	251	245	51	
1	1426	287	0.80	94	87	1.80	5	251	245	53	299.024
A3	1434	286	0.65	93	87	1.46	5	250	245	55	
2	1440	287	0.73	94	87	1.65	5	252	245	54	
1	1446	288	0.84	95	87	1.89	5	251	245	55	313.081

Comments:

SN, KH

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: Basin Electric - CRS
Date: 9/6/99
Sample Location: Unit 1 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	782.6	608.5	174.1
Mod. G.S. 2	100 ml 1N KCl	766.7	729.2	37.5
G.S. 3	100 ml 1N KCl	738.4	732.9	5.5
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2	741.8	736.6	5.2
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4	744.5	744.8	-0.3
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4	736.3	736.4	-0.1
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4	731.8	732.5	-0.7
Mod. G.S. 8	Silica Gel	885.5	867.4	18.1
			TOTAL	239.3

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	10.1	10.4	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: LRS
Sample Location: Unit 1 Inlet
Run #: 4
Date: 09/21/99
Ambient Temp.(oF): 70
Pbar ("Hg): 25.63
Pstatic ("H2O): -16"

Bws (assumed): 0.12
MWwet (assumed): 30.11
Ps ("Hg): 24.45
Probe Material: Teflon
Probe Heater Setting: 230
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: 0.004@10
Post-test Leak Rate: 0.004@11
X-Factor: 3.039

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	1640	284	0.70	85	84	1.56	5	229	244	56	315.118
2	1646	284	0.79	87	84	1.77	5	225	245	47	|
1	1652	284	0.77	87	84	1.72	5	226	245	47	329.300
											|
B3	1700	281	0.81	89	84	1.82	5	227	244	52	|
2	1706	282	0.73	91	85	1.65	5	229	245	50	|
1	1712	282	0.81	92	85	1.83	5	230	244	51	343.860
											|
C3	1719	280	0.87	92	86	1.97	5	229	244	52	|
2	1725	282	0.90	94	86	2.18	5	226	242	50	|
1	1731	281	0.76	95	87	1.73	5	229	244	51	358.960 ←
											359.123
D3	1744	277	1.10	90	87	2.49	6	231	244	55	|
2	1750	279	0.95	95	88	2.17	5	229	245	50	|
1	1756	281	1.00	97	88	2.28	5	231	244	50	375.418
											|
E3	1803	272	0.95	96	89	2.19	5	228	244	54	|
2	1809	275	0.86	97	89	1.98	5	227	245	52	|
1	1815	279	0.61	98	89	1.40	5	229	244	53	390.276
											|
F3	1825	268	0.70	93	90	1.62	5	229	244	56	|
2	1831	274	0.76	97	90	1.75	5	231	244	54	|
1	1837	276	0.70	98	90	1.61	5	229	245	55	404.418
G3	1845	266	0.48	96	90	1.12	5	226	244	56	
2	1851	269	0.64	98	90	1.49	5	226	244	55	
1	1857	271	0.98	98	91	2.27	5	230	244	57	418.507

Comments: SN, KH

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: Basin Electric - CRS Date: 9/21/99

Sample Location: Unit 1 inlet Run #: 4

Run Time: 1LC - ~

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	894.8	731.8	
Mod. G.S. 2	100 ml 1N KCl	721.4	733.7	
G.S. 3	100 ml 1N KCl	744.9	737.8	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	753.7	744.2	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	757.9	757.5	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	733.8	733.7	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	744.6	744.4	
Mod. G.S. 8	Silica Gel	918.0	898.3	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	10.1	9.8	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0506

Plant: LRS
Sample Location: Unit 1
Run #: Blank
Date: 9/20/99
Ambient Temp.(oF): 55°
Pbar ("Hg): 25.67
Pstatic ("H2O): -0.7

Bws (assumed): 0.16
MWwet (assumed): 28.17
Ps ("Hg): 25.58
Probe Material: Glass
Probe Heater Setting: 310
Filter Heater Setting: 310
Nozzle #:

Meter Box #: 80573
ΔH@i: 1.731
Y: 0.986
Pitot #: M-3
Cp: 0.84
Nozzle Material: Glass
Nozzle Diameter: 0.275

Pre-test Leak Rate: 0.010@10
Post-test Leak Rate:
X-Factor: 3.938

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 - _____ - _____

Plant: _____ Date: _____

Sample Location: _____ Run #: _____

Run Time: _____

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl		740.3	
Mod. G.S. 2	100 ml 1N KCl		747.9	
G.S. 3	100 ml 1N KCl		743.2	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2		733.7	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4		731.4	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4		732.4	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4		740.3	
Mod. G.S. 8	Silica Gel		861.0	
			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 - 0808

Plant: Laramie River
Sample Location: Unit 1 Stack
Run #: 1
Date: 9/20/99
Ambient Temp.(oF): 55
Pbar ("Hg): 25.67
Pstatic ("H2O): -(0.22)

Bws (assumed): 0.16
MWwet (assumed): 30.11
Ps ("Hg): 25.62
Probe Material: Glass
Probe Heater Setting: 310
Filter Heater Setting: 310
Nozzle #:

Meter Box #: 0.573
ΔH@i: 1.731
Y: 0.996
Pitot #: M-2
Cp: 0.818
Nozzle Material: Glass
Nozzle Diameter: ~~0.281~~ 0.225

Pre-test Leak Rate: 0.016 @ 9
Post-test Leak Rate: 0.004 @ 9
X-Factor: 3.938

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	15.19	148	0.46	64	64	1.56	3	289	313		53	104.419
2	15.29	148	0.45	65	64	1.53	3	308	314		50	
1	15.39	147	0.46	65	64	1.56	3	306	314		53	
	15.49											125.453
B 3	15.55	146	0.51	64	63	1.73	4	305	319		57	
2	16.05	148	0.48	67	64	1.63	4	309	311		52	
1	16.15	147	0.44	68	64	1.50	3	308	311		53	
	16.25		0.59			2.02						147.716
C 3	16.31	145	~~0.62~~	67	64	~~2.124~~	4	307	317		56	
2	16.41	146	0.54	69	64	1.85	4	311	314		52	
1	16.51	146	0.51	71	65	1.75	4	305	313		54	
	17.01											171.694
D 3	17.32	147	0.53	69	64	1.81	4	310	314		65	
2	17.42	146	0.54	70	64	1.85	4	310	311		55	
1	17.52	147	0.45	72	65	1.55	4	306	315		59	
	18.02											194.822

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 5306

Plant: Basin Electric - LRS Date: 7/20/99

Sample Location: Unit 1 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	966.4	725.9	240.5
Mod. G.S. 2	100 ml 1N KCl	797.0	750.9	46.1
G.S. 3	100 ml 1N KCl	735.7	728.3	7.4
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	734.6	730.7	3.9
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	746.4	746.4	0.0
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	755.6	756.4	-0.8
G.S. 7	100 ml 4%KMnO4/10%H2SO4	745.7	745.9	-0.2
Mod. G.S. 8	Silica Gel	877.0	857.9	19.1
			TOTAL	316.0

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	10.9	9.2	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 3336

Plant: Laramie River
Sample Location: Unit 1 Stack
Run #: 2
Date: 9/21/99
Ambient Temp.(oF): 50
Pbar ("Hg): 25.63
Pstatic ("H2O): -0.70

Bws (assumed): 0.16
MWwet (assumed): 28.17
Ps ("Hg): 25.78
Probe Material: Glass
Probe Heater Setting: 310
Filter Heater Setting: 310
Nozzle #:

Meter Box #: 80573
ΔH@i: 1.731
Y: 0.996
Pitot #: M-2
Cp: 0.818
Nozzle Material: Glass
Nozzle Diameter: ~~0.289~~ 0.275

Pre-test Leak Rate: 0.006 @ 9
Post-test Leak Rate: 0.016 @ 10
X-Factor: 3.938

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	09:02	150	0.60	64	64	2.03	5	305	302		54	197.751
2	09:12	150	0.51	66	64	1.73	4	307	312		47	
1	09:22	149	0.51	69	65	1.74	5	309	308		50	
	09:32											221.931
B 3	09:37	147	0.56	69	64	1.92	5	300	309		55	
2	09:47	147	0.57	73	65	1.99	5	309	312		54	
1	09:57	148	0.49	75	66	1.69	5	308	310		58	
	10:07											246.002
C 3	10:13	147	0.64	73	66	2.21	6	305	302		66	
2	10:23	146	0.59	77	67	2.05	5	309	310		62	
1	10:33	146	0.55	78	68	1.93	5	308	313		62	
	10:43											271.441
D 3	10:53	147	0.61	76	68	2.12	6	309	306		67	
2	11:03	147	0.61	78	70	2.12	6	306	310		58	
1	11:13	147	0.51	78	70	1.78	5	308	309		60	
												296.805

Comments: New Nozzle

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

Plant: Basin Electric - CRS Date: 9/21/99

Sample Location: Unit 1 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	969.9	741.7	228.2
Mod. G.S. 2	100 ml 1N KCl	811.9	752.6	59.3
G.S. 3	100 ml 1N KCl	759.3	748.8	10.5
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	741.7	738.3	3.4
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	734.1	733.6	0.5
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	732.2	732.8	-0.6
G.S. 7	100 ml 4%KMnO4/10%H2SO4	738.7	739.9	-1.2
Mod. G.S. 8	Silica Gel	884.4	861.6	22.8
			TOTAL	322.9

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	16.5	10.0	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0306

Plant: Basin Electric - LRS
Sample Location: Unit 1 Stack
Run #: 3
Date: 9/6/99
Ambient Temp.(oF): 80
Pbar ("Hg): 25.63
Pstatic ("H2O): -.20

Bws (assumed): 0.16
MWwet (assumed): 30.11
Ps ("Hg): 25.58
Probe Material: Glass
Probe Heater Setting: 260°
Filter Heater Setting: 260°
Nozzle #:

Meter Box #: 80573
ΔH@i: 1.731
Y: 0.996
Pitot #: m-2
Cp: 0.818
Nozzle Material: Glass
Nozzle Diameter: 0.265

Pre-test Leak Rate: 0.006 @ 9
Post-test Leak Rate: 0.00208
X-Factor: 3.9380

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	12:26	146	0.60	73	69	2.07	4	254	269		68	297.877
2	12:36	146	0.56	75	69	1.94	4	268	268		47	
1	12:46	145	0.44	78	70	1.54	3	270	272		50	
	12:56											322.248
C3	13:02	145	0.63	77	69	2.20	5	264	269		61	
2	13:12	145	0.59	81	72	2.07	5	269	270		50	
1	13:22	146	0.55	83	73	1.94	4	270	273		51	
	13:32											348.419
B3	13:37	146	0.56	80	72	1.96	4	267	270		60	
2	13:47	147	0.47	84	74	1.65	4	270	272		50	
1	13:57	147	0.43	81	73	1.50	4	271	275		62	
	14:07											372.772
A3	14:23	145	0.50	82	73	1.76	4	262	271		57	
2	14:33	147	0.49	85	76	1.73	4	267	272		57	
1	14:43	147	0.44	86	77	1.55	4	270	272		58	
	14:53											397.029

Comments: New nozzle

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0305

Plant: Basin Electric - LRS Date: 9/21/99

Sample Location: Unit 1 Stack Run #: 4

Run Time: 120 min

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	980.2	946.0	
Mod. G.S. 2	100 ml 1N KCl	820.7	750.1	
G.S. 3	100 ml 1N KCl	753.6	746.9	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	732.4	928.4	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	733.6	733.5	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	726.P	726.4	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	739.1	739.3	
Mod. G.S. 8	Silica Gel	900.0	884.3	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	7.8	11.8	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

APPENDIX C

REDUCED FIELD DATA SHEETS

Client: Basin Electric - LRS

Sample Location: Unit 1 Inlet

	Run 1	Run 2	Run 3	Run 4	Average
DSCFM	1,330,960	1,371,660	1,341,130	1,352,890	1,355,227
Mercury Results -					
Concentration (ug/dscm)					
Particle	0.266	0.155	0.023	0.010	0.063
Oxidized	0.441	1.922	1.307	1.868	1.699
Elemental	4.120	4.596	5.058	4.565	4.740
Total	4.827	6.673	6.388	6.443	6.501
			Check->		6.501
Mass Flow Rate (gram/hr)					
Particle	0.600	0.360	0.053	0.024	0.146
Oxidized	0.997	4.476	2.975	4.290	3.914
Elemental	9.312	10.704	11.518	10.488	10.903
Total	10.909	15.540	14.546	14.802	14.963
			Check->		14.963
Mass Flow Rate (lb/year)					
Particle	11.6	7.0	1.0	0.5	2.8
Oxidized	19.3	86.4	57.5	82.8	75.6
Elemental	179.8	206.7	222.4	202.5	210.5
Total	210.7	300.1	280.9	285.8	288.9
			Check->		288.9

Not included in averages

Sample Location: Unit 1 Stack

	Run 1	Run 2	Run 3	Run 4	Average
DSCFM	1,303,720	1,398,490	1,350,830	1,373,790	1,374,370
Mercury Results -					
Concentration (ug/dscm)					
Particle	0.002	0.011	0.002	0.005	0.006
Oxidized	0.449	0.171	0.072	0.021	0.088
Elemental	4.261	2.837	3.503	3.287	3.209
Total	4.712	3.019	3.577	3.313	3.303
			Check->		3.303
Mass Flow Rate (gram/hr)					
Particle	0.005	0.027	0.005	0.013	0.015
Oxidized	0.993	0.406	0.165	0.049	0.207
Elemental	9.432	6.736	8.035	7.668	7.480
Total	10.430	7.169	8.205	7.730	7.701
			Check->		7.701
Mass Flow Rate (lb/year)					
Particle	0.1	0.5	0.1	0.3	0.3
Oxidized	19.2	7.8	3.2	0.9	4.0
Elemental	182.2	130.1	155.2	148.1	144.5
Total	201.5	138.4	158.5	149.3	148.7
			Check->		148.7
Hg Input from Coal -					
Coal Feed (Ton/hr)	302	331	316	314	320.3
Hg Content (mg/kg)	0.103	0.103	0.111	0.144	0.119
Hg Input (g/hr)	28.219	30.929	31.821	41.020	34.590
Hg % Removal Efficiency - (Based on Inlet Input)					
Total	**4.4**	**53.9**	**43.6**	**47.8**	**48.4**
Hg % Removal Efficiency - (Based on Coal Hg Input)					
Total	**63.0**	**76.8**	**74.2**	**81.2**	**77.7**

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	1	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/20/99	Pstatic ("H2O):	-15.50	Pitot #:	M-1
Pbar ("Hg):	25.67	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.53	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	A		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.	Duct
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm	Velocity
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)	(ft/s)
3	15	19	285	0.58	64	64	4.0	229	229	52	16.258	1.15	0.63	16.258	53.6
2	15	25	285	0.68	65	64	4.0	227	229	46		1.35	0.68	20.016	58.0
1	15	31	285	0.76	66	64	4.0	230	227	44		1.51	0.72	24.092	61.3
	15	37											0.00	28.410	0.0
											28.312			28.410	
Run Time:		18	285	0.67	65	64	4.0	229	228	47	12.054	1.34		12.152	43.2

PORT:	B		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	15	50	284	0.76	66	65	5.0	230	228	53	28.312	1.51	0.72	28.312
2	15	56	284	0.73	70	66	5.0	231	225	45		1.46	0.71	32.633
1	16	2	284	0.75	73	66	5.0	233	226	45		1.51	0.72	36.900
	16	8											0.00	41.249
											40.947			41.249
Run Time:		18	284	0.75	70	66	5.0	231	226	48	12.635	1.50		12.937

PORT:	C		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	16	19	282	0.86	68	67	5.0	230	214	51	40.947	1.72	0.77	40.947
2	16	25	282	0.90	74	68	5.0	231	209	46		1.82	0.80	45.567
1	16	31	282	0.73	75	68	5.0	233	209	46		1.48	0.72	50.347
	16	37											0.00	54.660
											54.298			54.660
Run Time:		18	282	0.83	72	68	5.0	231	211	48	13.351	1.68		13.713

PORT:	D		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	16	45	278	1.10	70	69	5.0	232	207	55	54.298	2.22	0.88	54.298
2	16	51	279	1.10	75	69	5.0	233	213	48		2.24	0.88	59.557
1	16	57	279	0.95	77	69	5.0	233	211	49		1.94	0.82	64.862
	17	3											0.00	69.810
											69.428			69.810
Run Time:		18	279	1.05	74	69	5.0	233	210	51	15.130	2.14		15.512

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Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	1	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/20/99	Pstatic ("H2O):	-15.5	Pitot #:	M-1
Pbar ("Hg):	25.67	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.53	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	E		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	17	12	273	0.88	71	69	4.0	233	214	54	69.428	1.80	0.79	69.428
2	17	18	275	0.83	77	70	5.0	234	218	51		1.71	0.77	74.157
1	17	24	278	0.57	78	71	4.0	234	218	51		1.17	0.64	78.795
	17	30											0.00	82.637
											82.431			82.637
Run Time:		18	275	0.76	75	70	4.3	234	217	52	13.003	1.56		13.209

PORT:	F		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	17	30	269	0.68	72	70	4.0	234	222	54	82.431	1.40	0.70	82.431
2	17	36	273	0.73	76	71	4.0	234	216	51		1.50	0.72	86.607
1	17	42	275	0.66	77	71	4.0	234	197	52		1.36	0.69	90.954
	17	48											0.00	95.090
											94.965			95.090
Run Time:		18	272	0.69	75	71	4.0	234	212	52	12.534	1.42		12.659

PORT:	G		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	17	53	267	0.53	71	70	4.0	232	192	54	94.965	1.09	0.61	94.965
2	17	59	269	0.61	75	70	5.0	232	192	52		1.26	0.66	98.650
1	18	5	271	0.98	75	71	5.0	234	194	51		2.02	0.84	102.627
	18	11											0.00	107.662
											107.770			107.662
Run Time:		18	269	0.71	74	70	4.7	233	193	52	12.805	1.46		12.697

Post Test Leak Rate: > 0.2 CFM @ 15 "Hg

Summary	126	278		72	68	5	232	214	50	91.512	1.58	0	92.879	43

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.43	
Sample Loc:	Unit 1 Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	09/20/99	Vmstd:	78.468	%ISO:	92.4	
Run #:	1					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Mod. Greenberg Smith	100 ml 0.1N KCl	760.4	604.8	155.6
Mod. Greenberg Smith	100 ml 0.1N KCl	767.6	730.8	36.8
Greenberg Smith	100 ml 0.1N KCl	751.8	742.1	9.7
Mod. Greenberg Smith	100ml 5%HNO3/10%H2O2	731.1	730.1	1.0
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	751.5	748	3.5
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	738.8	737.7	1.1
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	736.8	736.8	0.0
Mod. Greenberg Smith	Silica Gel	867.5	850.1	17.4
			TOTAL	225.1

Fixed Gas Analysis	
%CO2:	8.7
%O2:	11.1
%C0:	0.0
%N2	80.2
Fo	1.126
Bws:	0.119
DSCFM	1,331,000

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	0.59 ug	Sample KCl:	0.98 ug	Sample HNO3/H2O2:	< 0.25 ug
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND ug
Net Front-Half:	0.590 ug	Net KCl:	0.980 ug	Net HNO3/H2O2:	< 0.250 ug
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010 ug
				Sample KMnO4:	8.9 ug
				Blank KMnO4:	ND ug
				Net KMnO4:	8.900 ug
				Detection Limit:	0.030 ug
Total Mercury:	10.72 ug			Total Elemental:	9.150 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.266	0.600	11.6
Oxidized Hg	0.441	0.997	19.3
Elemental Hg	4.120	9.312	179.8
HNO3	0.113	0.254	
H2SO4	4.008	9.058	
Total Hg	4.827	10.909	210.7

Measured Flow: 1331.0 X1000 dscfm

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

Velocity Traverse and Volume Flow Rate Data

Plant: Basin Electric - LRS
Sample Location: Unit 1 Inlet
Test Date: 09/20/99

Run #: 1

DUCT DIMENSIONS
Width: 354 inches
Depth: 276 inches
Area: 678.500 sq. feet

Pbar: 25.67 "Hg
Ps: 24.53 "Hg
Bws: 0.1191
MWw: 28.43 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	192.0	285	0.58	55.1
A2	115.2	285	0.68	59.7
A1	38.4	285	0.76	63.1
B3	192.0	284	0.76	63.1
B2	115.2	284	0.73	61.8
B1	38.4	284	0.75	62.6
C3	192.0	282	0.86	67.0
C2	115.2	282	0.90	68.5
C1	38.4	282	0.73	61.7
D3	192.0	278	1.10	75.6
D2	115.2	279	1.10	75.6
D1	38.4	279	0.95	70.3
E3	192.0	273	0.88	67.3
E2	115.2	275	0.83	65.5
E1	38.4	278	0.57	54.4
F3	192.0	269	0.68	59.0
F2	115.2	273	0.73	61.3
F1	38.4	275	0.66	58.4
G3	192.0	267	0.53	52.1
G2	115.2	269	0.61	55.9
G1	38.4	271	0.98	71.0
verage		278	0.78	63.3

Results:
Average Velocity: 63.28 fps @ 278 g. F a 24.53 "Hg

Q:	2576.13	x 1000	ACFM	154,567.8	KACFH
Q (std):	1510.98	x 1000	SCFM	90,658.8	KSCFH
Q (std dry):	1330.96	x 1000	DSCFM	79,857.6	KDSCFH

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	2	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/21/99	Pstatic ("H2O):	-17.00	Pitot #:	M-1
Pbar ("Hg):	25.63	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.38	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	A		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.	Duct
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm	Velocity
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)	(ft/s)
3	9	2	294	0.84	61	60	6.0	252	244	55	112.052	1.63	0.75	112.052	65.0
2	9	8	295	0.89	63	60	5.0	250	244	39		1.74	0.77	116.525	67.0
1	9	14	295	0.83	66	60	5.0	250	244	41		1.63	0.75	121.143	64.7
	9	20											0.00	125.629	0.0
											126.014			125.629	
Run Time:		18	295	0.85	63	60	5.3	251	244	45	13.962	1.67		13.577	49.2

PORT:	B		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	9	25	291	0.82	65	62	5.0	250	243	48	126.182	1.61	0.74	126.182
2	9	31	294	0.77	70	63	5.0	250	244	44		1.52	0.73	130.644
1	9	37	293	0.90	72	64	6.0	250	244	45		1.79	0.79	135.000
	9	43											0.00	139.731
											140.252			139.731
Run Time:		18	293	0.83	69	63	5.3	250	244	46	14.070	1.64		13.549

PORT:	C		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	9	47	288	1.00	69	65	6.0	251	244	49	140.252	1.99	0.83	140.252
2	9	53	291	1.05	75	66	6.0	250	244	46		2.11	0.86	145.227
1	9	59	291	0.82	77	68	5.0	250	244	47		1.65	0.76	150.372
	10	5											0.00	154.937
											155.230			154.937
Run Time:		18	290	0.96	74	66	5.7	250	244	47	14.978	1.92		14.685

PORT:	D		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	10	8	285	0.91	72	68	5.0	249	244	50	155.230	1.83	0.80	155.23
2	10	14	287	1.15	76	69	6.0	250	244	47		2.32	0.90	160.012
1	10	20	289	1.10	80	70	6.0	252	244	49		2.23	0.89	165.422
	10	26											0.00	170.745
											170.950			170.745
Run Time:		18	287	1.05	76	69	5.7	250	244	49	15.720	2.13		15.515

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	2	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/21/99	Pstatic ("H2O):	-17	Pitot #:	M-1
Pbar ("Hg):	25.63	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.38	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	E		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	10	31	279	1.10	75	71	6.0	251	243	52	171.112	2.24	0.88	171.112
2	10	37	283	0.99	80	72	5.0	250	243	49		2.03	0.85	176.421
1	10	43	287	0.68	81	72	5.0	251	244	53		1.39	0.70	181.491
	10	49											0.00	185.689
											185.537			185.689
Run Time:		18	283	0.92	79	72	5.3	251	243	51	14.425	1.89		14.577

PORT:	F		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	10	52	276	0.59	77	73	5.0	251	244	56	185.537	1.21	0.65	185.537
2	10	58	283	0.79	81	74	5.0	251	244	53		1.62	0.76	189.448
1	11	4	284	0.71	82	74	5.0	251	244	52		1.46	0.72	193.985
	11	10											0.00	198.292
											198.442			198.292
Run Time:		18	281	0.70	80	74	5.0	251	244	54	12.905	1.43		12.755

PORT:	G		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	11	13	268	0.50	78	74	5.0	251	244	56	198.442	1.04	0.60	198.442
2	11	19	279	0.64	82	75	5.0	250	244	53		1.32	0.68	202.069
1	11	25	281	1.05	83	75	6.0	251	244	51		2.17	0.88	206.171
	11	31											0.00	211.429
											211.363			211.429
Run Time:		18	276	0.73	81	75	5.3	251	244	53	12.921	1.51		12.987

Post Test Leak Rate: 0.002 CFM @ 11 "Hg

Summary	126	286		75	68	5	251	244	49	98.981	1.74		0	97.644	49

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.51	
Sample Loc:	Unit 1 Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	09/21/99	Vmstd:	84.578	%ISO:	96.6	
Run #:	2					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Mod. Greenberg Smith	100 ml 0.1N KCl	888.1	721.6	166.5
Mod. Greenberg Smith	100 ml 0.1N KCl	789.7	733.5	56.2
Greenberg Smith	100 ml 0.1N KCl	744.3	733.5	10.8
Mod. Greenberg Smith	100ml 5%HNO3/10%H2O2	747.5	737.8	9.7
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	755.3	754.9	0.4
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	733.1	733.7	-0.6
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	738.6	738.6	0.0
Mod. Greenberg Smith	Silica Gel	898.4	877.1	21.3
			TOTAL	264.3

Fixed Gas Analysis	
%CO2:	10.4
%O2:	10.0
%C0:	0.0
%N2	79.6
Fo	1.048
Bws:	0.128
DSCFM	1,371,700

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	0.370 ug	Sample KCl:	4.60 ug	Sample HNO3/H2O2:	< 0.25 ug
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND ug
Net Front-Half:	0.370 ug	Net KCl:	4.600 ug	Net HNO3/H2O2:	< 0.250 ug
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010 ug
				Sample KMnO4:	11.0 ug
				Blank KMnO4:	ND ug
				Net KMnO4:	11.000 ug
				Detection Limit:	0.030 ug
Total Mercury:	15.97 ug			Total Elemental:	11.000 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.155	0.360	7.0
Oxidized Hg	1.922	4.476	86.4
Elemental Hg	4.596	10.704	206.7
HNO3	0.104	0.243	
H2SO4	4.596	10.704	
Total Hg	6.673	15.540	300.1

Measured Flow: 1371.7 X1000 dscfm

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

Velocity Traverse and Volume Flow Rate Data

Plant: Basin Electric - LRS
Sample Location: Unit 1 Inlet
Test Date: 09/21/99

Run #: 2

DUCT DIMENSIONS
Width: 354 inches
Depth: 276 inches
Area: 678.500 sq. feet

Pbar: 25.63 "Hg
Ps: 24.38 "Hg
Bws: 0.1284
MWw: 28.51 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	192.0	294	0.84	66.8
A2	115.2	295	0.89	68.8
A1	38.4	295	0.83	66.5
B3	192.0	291	0.82	65.9
B2	115.2	294	0.77	64.0
B1	38.4	293	0.90	69.1
C3	192.0	288	1.00	72.6
C2	115.2	291	1.05	74.6
C1	38.4	291	0.82	65.9
D3	192.0	285	0.91	69.1
D2	115.2	287	1.15	77.8
D1	38.4	289	1.10	76.2
E3	192.0	279	1.10	75.7
E2	115.2	283	0.99	72.0
E1	38.4	287	0.68	59.9
F3	192.0	276	0.59	55.3
F2	115.2	283	0.79	64.3
F1	38.4	284	0.71	61.0
G3	192.0	268	0.50	50.7
G2	115.2	279	0.64	57.8
G1	38.4	281	1.05	74.1
verage		286	0.86	67.1

Results:
Average Velocity: 67.06 fps @ 286 g. F a 24.38 "Hg

Q:	2730.01	x 1000	ACFM	163,800.6	KACFH
Q (std):	1573.76	x 1000	SCFM	94,425.6	KSCFH
Q (std dry):	1371.66	x 1000	DSCFM	82,299.6	KDSCFH

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	3	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/21/99	Pstatic ("H2O):	-17.00	Pitot #:	M-1
Pbar ("Hg):	25.63	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.38	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	G		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.	Duct
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm	Velocity
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)	(ft/s)
3	12	26	274	0.51	78	77	4.0	251	229	60	212.068	1.05	0.61	212.068	50.0
2	12	32	275	0.63	80	77	4.0	250	234	47		1.30	0.68	215.716	55.6
1	12	38	276	1.05	81	77	5.0	251	233	46		2.17	0.88	219.782	71.8
	12	44											0.00	225.038	0.0
											225.802			225.038	
Run Time:		18	275	0.73	80	77	4.3	251	232	51	13.734	1.51		12.970	44.4

PORT:	F		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	12	46	268	0.59	81	77	4.0	251	232	53	225.802	1.23	0.66	225.802
2	12	52	276	0.72	84	78	5.0	250	241	51		1.50	0.73	229.763
1	12	58	279	0.72	86	78	5.0	250	244	48		1.50	0.73	234.140
	13	4											0.00	238.523
											238.989			238.523
Run Time:		18	274	0.68	84	78	4.7	250	239	51	13.187	1.41		12.721

PORT:	E		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	13	12	276	0.93	84	80	5.0	251	245	52	238.989	1.94	0.83	238.989
2	13	18	278	0.89	88	81	5.0	252	245	50		1.86	0.82	243.963
1	13	24	281	0.62	89	81	5.0	250	244	50		1.29	0.68	248.858
	13	30											0.00	252.942
											253.427			252.942
Run Time:		18	278	0.81	87	81	5.0	251	245	51	14.438	1.70		13.953

PORT:	D		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	13	31	279	1.10	85	82	5.0	251	244	53	253.610	2.28	0.90	253.61
2	13	37	281	1.05	90	82	5.0	251	245	47		2.19	0.89	259.018
1	13	43	282	1.00	92	83	5.0	250	245	49		2.09	0.87	264.344
	13	49											0.00	269.556
											269.942			269.556
Run Time:		18	281	1.05	89	82	5.0	251	245	50	16.332	2.19		15.946

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	3	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/21/99	Pstatic ("H2O):	-17	Pitot #:	M-1
Pbar ("Hg):	25.63	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.38	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.		Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)		(CF	(CF)
3	13	50	282	0.88	88	84	5.0	250	245	52	269.942	1.83		0.81	269.942
2	13	56	285	0.95	93	84	5.0	252	245	49		1.99		0.85	274.796
1	14	2	284	0.74	93	85	5.0	250	245	48		1.55		0.75	279.875
	14	8												0.00	284.361
											284.674				284.361
Run Time:		18	284	0.86	91	84	5.0	251	245	50	14.732	1.79			14.419

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.		Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)		(CF	(CF)
3	14	14	285	0.77	88	86	5.0	251	245	54	284.844	1.59		0.76	284.844
2	14	20	286	0.72	93	86	5.0	251	245	51		1.50		0.74	289.375
1	14	26	287	0.80	94	87	5.0	251	245	53		1.67		0.78	293.794
	14	32												0.00	298.458
											299.024				298.458
Run Time:		18	286	0.76	92	86	5.0	251	245	53	14.180	1.59			13.614

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.		Qm	Theo.	
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm	
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)		(CF	(CF)	
3	14	34	286	0.65	93	87	5.0	250	245	55	299.024	1.36		0.70	299.024	
2	14	40	287	0.73	94	87	5.0	252	245	54		1.52		0.74	303.223	
1	14	46	288	0.84	95	87	5.0	251	245	55		1.76		0.80	307.677	
	14	52												0.00	312.461	
											313.081				312.461	
Run Time:		18	287	0.74	94	87	5.0	251	245	55	14.057	1.55			13.437	
Post Test Leak Rate:				0.010	CFM @	12	"Hg									
Summary		126	281		88	82	5	251	242	51	100.660	1.68		0	97.060	44

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.64	
Sample Loc:	Unit 1 Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	09/21/99	Vmstd:	83.837	%ISO:	98.0	
Run #:	3					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Mod. Greenberg Smith	100 ml 0.1N KCl	782.6	608.5	174.1
Mod. Greenberg Smith	100 ml 0.1N KCl	766.7	729.2	37.5
Greenberg Smith	100 ml 0.1N KCl	738.4	732.9	5.5
Mod. Greenberg Smith	100ml 5%HNO3/10%H2O2	741.8	736.6	5.2
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	744.5	744.8	-0.3
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	736.3	736.4	-0.1
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	731.8	732.5	-0.7
Mod. Greenberg Smith	Silica Gel	885.5	867.4	18.1
			TOTAL	239.3

Fixed Gas Analysis	
%CO2:	10.4
%O2:	10.1
%CO:	0.0
%N2	79.5
Fo	1.038
Bws:	0.119
DSCFM	1,341,100

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	0.055 ug	Sample KCl:	3.10 ug	Sample HNO3/H2O2:	< 0.25 ug
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND ug
Net Front-Half:	0.055 ug	Net KCl:	3.100 ug	Net HNO3/H2O2:	< 0.250 ug
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010 ug
				Sample KMnO4:	12.0 ug
				Blank KMnO4:	ND ug
				Net KMnO4:	12.000 ug
				Detection Limit:	0.030 ug
Total Mercury:	15.155 ug			Total Elemental:	12.000 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.023	0.053	1.0
Oxidized Hg	1.307	2.975	57.5
Elemental Hg	5.058	11.518	222.4
HNO3	0.105	0.240	
H2SO4	5.058	11.518	
Total Hg	6.388	14.546	280.9

Measured Flow: 1341.1 X1000 dscfm

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

Velocity Traverse and Volume Flow Rate Data

Plant: Basin Electric - LRS
Sample Location: Unit 1 Inlet
Test Date: 09/21/99

Run #: 3

DUCT DIMENSIONS
Width: 354 inches
Depth: 276 inches
Area: 678.500 sq. feet

Pbar: 25.63 "Hg
Ps: 24.38 "Hg
Bws: 0.1186
MWw: 28.64 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	192.0	274	0.51	51.3
A2	115.2	275	0.63	57.0
A1	38.4	276	1.05	73.7
B3	192.0	268	0.59	54.9
B2	115.2	276	0.72	61.0
B1	38.4	279	0.72	61.1
C3	192.0	276	0.93	69.3
C2	115.2	278	0.89	67.9
C1	38.4	281	0.62	56.8
D3	192.0	279	1.10	75.6
D2	115.2	281	1.05	73.9
D1	38.4	282	1.00	72.2
E3	192.0	282	0.88	67.7
E2	115.2	285	0.95	70.5
E1	38.4	284	0.74	62.2
F3	192.0	285	0.77	63.5
F2	115.2	286	0.72	61.4
F1	38.4	287	0.80	64.8
G3	192.0	286	0.65	58.4
G2	115.2	287	0.73	61.9
G1	38.4	288	0.84	66.4
verage		281	0.80	64.4

Results:
Average Velocity: 64.35 fps @ 281 g. F a 24.38 "Hg

Q:	2619.69	x 1000	ACFM	157,181.4	KACFH
Q (std):	1521.62	x 1000	SCFM	91,297.2	KSCFH
Q (std dry):	1341.13	x 1000	DSCFM	80,467.8	KDSCFH

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	4	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/21/99	Pstatic ("H2O):	-17.00	Pitot #:	M-1
Pbar ("Hg):	25.63	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.38	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	A		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.	Duct
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm	Velocity
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)	(ft/s)
3	16	40	284	0.70	85	84	5.0	229	244	56	315.118	1.44	0.72	315.118	59.0
2	16	46	284	0.79	87	84	5.0	225	245	47		1.64	0.76	319.418	62.7
1	16	52	284	0.77	87	84	5.0	226	245	47		1.59	0.75	324.002	61.9
	16	58											0.00	328.529	0.0
											329.300			328.529	
Run Time:		18	284	0.75	86	84	5.0	227	245	50	14.182	1.56		13.411	45.9

PORT:	B		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	17	0	281	0.81	89	84	5.0	227	244	52	329.300	1.69	0.78	329.3
2	17	6	282	0.73	91	85	5.0	229	245	50		1.53	0.74	333.969
1	17	12	282	0.81	92	85	5.0	230	244	51		1.70	0.78	338.414
	17	18											0.00	343.105
											343.860			343.105
Run Time:		18	282	0.78	91	85	5.0	229	244	51	14.560	1.64		13.805

PORT:	C		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	17	19	280	0.87	92	86	5.0	229	244	52	343.860	1.83	0.81	343.86
2	17	25	282	0.96	94	86	5.0	226	242	50		2.02	0.85	348.728
1	17	31	281	0.76	95	87	5.0	229	244	51		1.60	0.76	353.854
	17	37											0.00	358.425
											358.960			358.425
Run Time:		18	281	0.86	94	86	5.0	228	243	51	15.100	1.82		14.565

PORT:	D		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	17	44	277	1.10	90	87	6.0	231	244	54	359.123	2.31	0.91	359.123
2	17	50	279	0.95	95	88	5.0	229	245	52		2.01	0.85	364.588
1	17	56	281	1.00	97	88	5.0	231	244	53		2.12	0.88	369.707
	18	2											0.00	374.970
											375.418			374.970
Run Time:		18	279	1.02	94	88	5.3	230	244	53	16.295	2.15		15.847

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin Electric - LRS	Bws(assumed):	0.12	Meter Box #:	81231
Sample Loc:	Unit 1 Inlet	MWs(assumed):	30.11	dH@i:	1.815
Run #:	4	MWd(assumed):	30.45	Gamma:	0.999
Date:	09/21/99	Pstatic ("H2O):	-17	Pitot #:	M-1
Pbar ("Hg):	25.63	Probe Mat:	Teflon	Cp:	0.819
Ps ("Hg):	24.38	Nozzle Mat:	Teflon/SS	X-Factor:	2.816
Sample time/pt:	6.0	Dn (in.):	0.251	# of Ports:	7

PORT:	E		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	18	3	272	0.95	96	89	5.0	228	244	54	375.418	2.03	0.86	375.418
2	18	9	275	0.86	97	89	5.0	227	245	52		1.84	0.82	380.570
1	18	15	279	0.61	98	89	5.0	229	244	53		1.30	0.69	385.471
	18	21											0.00	389.594
											390.276			389.594
Run Time:		18	275	0.81	97	89	5.0	228	244	53	14.858	1.72		14.176

PORT:	F		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	18	25	268	0.70	93	90	5.0	229	244	56	390.276	1.50	0.74	390.276
2	18	31	274	0.76	97	90	5.0	231	24	54		1.62	0.77	394.687
1	18	37	276	0.70	98	90	5.0	229	245	55		1.49	0.74	399.297
	18	43											0.00	403.723
											404.418			403.723
Run Time:		18	273	0.72	96	90	5.0	230	171	55	14.142	1.54		13.447

PORT:	G		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH		Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	(CF	(CF)
3	18	45	266	0.48	96	90	5.0	226	244	56	404.418	1.04	0.61	404.418
2	18	51	269	0.64	98	90	5.0	226	244	55		1.38	0.71	408.095
1	18	57	271	0.98	98	91	5.0	230	244	57		2.11	0.88	412.348
	19	3											0.00	417.603
											418.507			417.603
Run Time:		18	269	0.70	97	90	5.0	227	244	56	14.089	1.51		13.185

Post Test Leak Rate: 0.004 CFM @ 11 "Hg

Summary	126	277	94	87	5	228	234	53	103.226	1.70	0	98.436	46

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.59	
Sample Loc:	Unit 1 Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	09/21/99	Vmstd:	85.140	%ISO:	98.6	
Run #:	4					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Mod. Greenberg Smith	100 ml 0.1N KCl	894.8	731.8	163.0
Mod. Greenberg Smith	100 ml 0.1N KCl	771.4	733.7	37.7
Greenberg Smith	100 ml 0.1N KCl	744.9	739.8	5.1
Mod. Greenberg Smith	100ml 5%HNO3/10%H2O2	753.7	744.2	9.5
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	757.9	757.5	0.4
Mod. Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	733.8	733.7	0.1
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	744.6	744.4	0.2
Mod. Greenberg Smith	Silica Gel	918.0	898.3	19.7
			TOTAL	235.7

Fixed Gas Analysis	
%CO2:	9.8
%O2:	10.1
%C0:	0.0
%N2	80.1
Fo	1.102
Bws:	0.115
DSCFM	1,352,900

Concentration and Emission Rate Data

Particle-Bound Mercury			**Oxidized Mercury**			**Elemental Hg**		
Sample Front-Half:	<	0.050 ug	Sample KCl:	4.50 ug		Sample HNO3/H2O2:	<	0.25 ug
Blank Front-Half:		ND ug	Blank KCl:	ND ug		Blank HNO3/H2O2:		ND ug
Net Front-Half:		0.025 ug	Net KCl:	4.500 ug		Net HNO3/H2O2:	<	0.250 ug
Detection Limit:		0.010 ug	D.L:	0.030 ug		Detection Limit:		0.010 ug
						Sample KMnO4:		11.0 ug
						Blank KMnO4:		ND ug
						Net KMnO4:		11.000 ug
						Detection Limit:		0.030 ug
Total Mercury:		15.525 ug				Total Elemental:		11.000 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.010	0.024	0.5
Oxidized Hg	1.868	4.290	82.8
Elemental Hg	4.565	10.488	202.5
HNO3	0.104	0.238	
H2SO4	4.565	10.488	
Total Hg	6.443	14.802	285.8

Measured Flow: 1352.9 X1000 dscfm

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

Velocity Traverse and Volume Flow Rate Data

Plant: Basin Electric - LRS
Sample Location: Unit 1 Inlet
Test Date: 09/21/99

Run #: 4

DUCT DIMENSIONS
Width: 354 inches
Depth: 276 inches
Area: 678.500 sq. feet

Pbar: 25.63 "Hg
Ps: 24.38 "Hg
Bws: 0.1155
MWw: 28.59 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	192.0	284	0.70	60.5
A2	115.2	284	0.79	64.3
A1	38.4	284	0.77	63.5
B3	192.0	281	0.81	65.0
B2	115.2	282	0.73	61.7
B1	38.4	282	0.81	65.0
C3	192.0	280	0.87	67.3
C2	115.2	282	0.96	70.8
C1	38.4	281	0.76	62.9
D3	192.0	277	1.10	75.5
D2	115.2	279	0.95	70.3
D1	38.4	281	1.00	72.2
E3	192.0	272	0.95	69.9
E2	115.2	275	0.86	66.7
E1	38.4	279	0.61	56.3
F3	192.0	268	0.70	59.9
F2	115.2	274	0.76	62.6
F1	38.4	276	0.70	60.2
G3	192.0	266	0.48	49.5
G2	115.2	269	0.64	57.3
G1	38.4	271	0.98	71.0
verage		277	0.81	64.4

Results:
Average Velocity: 64.40 fps @ 277 g. F a 24.38 "Hg

Q:	2621.72	x 1000	ACFM	157,303.2	KACFH
Q (std):	1529.48	x 1000	SCFM	91,768.8	KSCFH
Q (std dry):	1352.89	x 1000	DSCFM	81,173.4	KDSCFH

Reduced Isokinetic Field Data

Plant:	Basin Electric - LRS	Bws(assumed):	0.16	Meter Box #:	80573
Sample Loc:	Unit 1 Stack	MWs(assumed):	28.17	dH@i:	1.731
Run #:	1	MWd(assumed):	29.9	Gamma:	0.996
Date:	09/20/99	Pstatic ("H2O):	-0.70	Pitot #:	M-2
Pbar ("Hg):	25.67	Probe Mat:	Glass	Cp:	0.818
Ps ("Hg):	25.62	Nozzle Mat:	Glass	X-Factor:	3.938
Sample time/pt:	10.0	Dn (in.):	0.275	# 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	15	19	148	0.46	64	64	3.0	289	313	53	104.409	1.56
2	15	29	148	0.45	65	64	3.0	308	314	50		1.53
1	15	39	147	0.46	65	64	3.0	306	314	53		1.57
	15	49									125.453	
Run Time:		30	148	0.46	65	64	3.0	301	314	52	21.044	1.55

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	15	55	146	0.51	64	63	4.0	305	319	57	125.453	1.74
2	16	5	148	0.48	67	64	4.0	309	311	52		1.64
1	16	15	147	0.44	68	64	3.0	308	311	53		1.51
	16	25									147.716	
Run Time:		30	147	0.48	66	64	3.7	307	314	54	22.263	1.63

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	31	145	0.59	67	64	4.0	307	317	56	147.716	2.02
2	16	41	146	0.54	69	64	4.0	311	314	52		1.86
1	16	51	146	0.51	71	65	4.0	305	313	54		1.76
	17	1									171.694	
Run Time:		30	146	0.55	69	64	4.0	308	315	54	23.978	1.88

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	17	32	147	0.53	69	64	4.0	310	314	65	171.694	1.82
2	17	42	146	0.54	70	64	4.0	310	311	55		1.86
1	17	52	147	0.45	72	65	4.0	306	315	59		1.55
	18	2									194.822	
Run Time:		30	147	0.51	70	64	4.0	309	313	60	23.128	1.74
Post Test Leak Rate:				0.004	CFM @	9	"Hg					
Summary		120	147	0.50	68	64	4	306	314	55	90.413	1.70

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.17	
Sample Loc:	Unit 1 Stack	Pstd:	29.92	An:	0.0004	sq. ft.
Date:	09/20/99	Vmstd:	77.956	%ISO:	93.0	
Run #:	1					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	966.4	725.9	240.5
Modified Greenberg Smith	100 ml 0.1N KCl	797.0	750.9	46.1
Greenberg Smith	100 ml 0.1N KCl	735.7	728.3	7.4
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	734.6	730.7	3.9
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	746.4	746.4	0.0
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	755.6	756.4	-0.8
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	745.7	745.9	-0.2
Modified Greenberg Smith	Silica Gel	877.0	857.9	19.1
			TOTAL	316.0

Fixed Gas Analysis	
%CO2:	10.9
%O2:	9.2
%C0:	0.0
%N2	79.9
Fo	1.073
Bws:	0.160
DSCFM	1303700

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	ND ug	Sample KC	0.99 ug	Sample HNO3/H2O	< 0.25 ug
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND ug
Net Front-Half:	0.005 ug	Net KCl:	0.990 ug	Net HNO3/H2O2:	< 0.250 ug
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010 ug
				Sample KMnO4:	9.4 ug
				Blank KMnO4:	ND ug
				Net KMnO4:	9.400 ug
				Detection Limit:	0.030 ug
Total Mercury:	10.395 ug			Total Elemental:	9.400 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.002	0.005	0.1
Oxidized Hg	0.449	0.993	19.2
Elemental Hg	4.261	9.432	182.2
HNO3	0.113	0.251	
H2SO4	4.261	9.432	
Total Hg	4.712	10.430	201.5

Measured Flow: 1303.72 X1000 dscfm

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

Velocity Traverse and Volume Flow Rate Data

Plant:	Basin Electric - LRS		
Sample Location:	Unit 1 Stack		
Date:	09/20/99	Run #:	1

Duct Diameter (in.):	375.6	Ps ("Hg):	25.62
Rectangular Duct:	0.0	Bws:	0.160
Area (sq.ft.):	769.4	MWw:	28.17
		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	111.2	0.46	148	43.5	0.51	146	45.8	0.59	145	49.2	0.53	147	46.7
2	54.8	0.45	148	43.1	0.48	148	44.5	0.54	146	47.1	0.54	146	47.1
1	16.5	0.46	147	43.5	0.44	147	42.5	0.51	146	45.8	0.45	147	43.0

RESULTS:

Average Duct Velocity = 45.1 at 147 deg. F and 25.62 "Hg

Q	=	2084.12 x1000	ACFM	125,047.2	KACFH
Qstd	=	1552.89 x1000	SCFM	93,173.4	KSCFH
Qstd(dry)	=	1303.72 x1000	DSCFM	78,223.2	KDSCFH

Reduced Isokinetic Field Data

Plant:	Basin Electric - LRS	Bws(assumed):	0.16	Meter Box #:	80573
Sample Loc:	Unit 1 Stack	MWs(assumed):	28.17	dH@i:	1.731
Run #:	2	MWd(assumed):	29.9	Gamma:	0.996
Date:	09/21/99	Pstatic ("H2O):	-0.70	Pitot #:	M-2
Pbar ("Hg):	25.63	Probe Mat:	Glass	Cp:	0.818
Ps ("Hg):	25.58	Nozzle Mat:	Glass	X-Factor:	3.938
Sample time/pt:	10.0	Dn (in.):	0.275	# 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	9	2	150	0.60	64	64	5.0	305	302	54	197.751	2.03
2	9	12	150	0.51	66	64	4.0	307	312	47		1.73
1	9	22	149	0.51	69	65	5.0	309	308	50		1.74
	9	32									221.931	
Run Time:		30	150	0.54	66	64	4.7	307	307	50	24.180	1.84

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	9	37	147	0.56	69	64	5.0	300	309	55	221.931	1.92
2	9	47	147	0.57	73	65	5.0	309	312	54		1.97
1	9	57	148	0.49	75	66	5.0	308	310	58		1.70
	10	7									246.002	
Run Time:		30	147	0.54	72	65	5.0	306	310	56	24.071	1.86

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	10	13	147	0.64	73	66	6.0	305	302	66	246.002	2.21
2	10	23	146	0.59	77	67	5.0	309	310	62		2.06
1	10	33	146	0.55	78	68	5.0	308	313	62		1.92
	10	43									271.441	
Run Time:		30	146	0.59	76	67	5.3	307	308	63	25.439	2.06

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	10	53	147	0.61	76	68	6.0	309	306	67	271.441	2.12
2	11	3	147	0.61	78	70	6.0	306	310	58		2.13
1	11	13	147	0.51	78	70	5.0	308	309	60		1.78
	11	23									296.805	
Run Time:		30	147	0.58	77	69	5.7	308	308	62	25.364	2.01
Post Test Leak Rate:				0.016	CFM @	10	"Hg					
Summary		120	148	0.56	73	66	5	307	309	58	99.054	1.94

Reduced Isokinetic Field Data

Plant:	Basin Electric - LRS	Bws(assumed):	0.16	Meter Box #:	80573
Sample Loc:	Unit 1 Stack	MWs(assumed):	28.17	dH@i:	1.731
Run #:	3	MWd(assumed):	29.9	Gamma:	0.996
Date:	09/21/99	Pstatic ("H2O):	-0.70	Pitot #:	M-2
Pbar ("Hg):	25.63	Probe Mat:	Glass	Cp:	0.818
Ps ("Hg):	25.58	Nozzle Mat:	Glass	X-Factor:	3.938
Sample time/pt:	10.0	Dn (in.):	0.275	# 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	26	146	0.60	73	69	4.0	254	269	68	297.877	2.08
2	12	36	146	0.56	75	69	4.0	268	268	47		1.95
1	12	46	145	0.44	78	70	3.0	270	272	50		1.54
	12	56									322.248	
Run Time:		30	146	0.53	75	69	3.7	264	270	55	24.371	1.86

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	2	145	0.63	77	69	5.0	264	269	61	322.248	2.20
2	13	12	145	0.59	81	72	5.0	269	270	50		2.08
1	13	22	146	0.55	83	73	4.0	270	273	51		1.94
	13	32									348.419	
Run Time:		30	145	0.59	80	71	4.7	268	271	54	26.171	2.07

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	13	37	146	0.56	80	72	4.0	267	270	60	348.419	1.97
2	13	47	147	0.47	84	74	4.0	270	272	50		1.66
1	13	57	147	0.43	81	73	4.0	271	275	62		1.51
	14	7									372.772	
Run Time:		30	147	0.49	82	73	4.0	269	272	57	24.353	1.71

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	23	145	0.50	82	73	4.0	262	271	57	372.772	1.76
2	14	33	147	0.49	85	76	4.0	267	272	57		1.73
1	14	43	147	0.44	86	77	4.0	270	272	58		1.56
	14	53									397.029	
Run Time:		30	146	0.48	84	75	4.0	266	272	57	24.257	1.69
Post Test Leak Rate:				0.007	CFM @	8	"Hg					
Summary		120	146	0.52	80	72	4	267	271	56	99.152	1.83

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.25	
Sample Loc:	Unit 1 Stack	Pstd:	29.92	An:	0.0004	sq. ft.
Date:	09/21/99	Vmstd:	83.719	%ISO:	96.3	
Run #:	3					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	966.3	724.0	242.3
Modified Greenberg Smith	100 ml 0.1N KCl	793.2	747.5	45.7
Greenberg Smith	100 ml 0.1N KCl	729.7	724.5	5.2
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	730.6	726.7	3.9
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	743.5	742.6	0.9
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	753.2	753.5	-0.3
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	743.5	743.9	-0.4
Modified Greenberg Smith	Silica Gel	890.5	877.0	13.5
			TOTAL	310.8

Fixed Gas Analysis	
%CO2:	10.3
%O2:	10.0
%C0:	0.0
%N2	79.7
Fo	1.058
Bws:	0.149
DSCFM	1350800

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	ND ug	Sample KC	0.17 ug	Sample HNO3/H2O	< 0.25 ug
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND ug
Net Front-Half:	0.005 ug	Net KCl:	0.170 ug	Net HNO3/H2O2:	< 0.250 ug
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010 ug
				Sample KMnO4:	8.3 ug
				Blank KMnO4:	ND ug
				Net KMnO4:	8.300 ug
				Detection Limit:	0.030 ug
Total Mercury:	8.475 ug			Total Elemental:	8.300 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.002	0.005	0.1
Oxidized Hg	0.072	0.165	3.2
Elemental Hg	3.503	8.035	155.2
HNO3	0.106	0.242	
H2SO4	3.503	8.035	
Total Hg	3.577	8.205	158.5

Measured Flow: 1350.83 X1000 dscfm

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

Velocity Traverse and Volume Flow Rate Data

Plant:	Basin Electric - LRS		
Sample Location:	Unit 1 Stack		
Date:	09/21/99	Run #:	3

Duct Diameter (in.):	375.6	Ps ("Hg):	25.58
Rectangular Duct:	0.0	Bws:	0.149
Area (sq.ft.):	769.4	MWw:	28.25
		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	111.2	0.60	146	49.6	0.63	145	50.8	0.56	146	47.9	0.50	145	45.2
2	54.8	0.56	146	47.9	0.59	145	49.1	0.47	147	43.9	0.49	147	44.9
1	16.5	0.44	145	42.4	0.55	146	47.5	0.43	147	42.0	0.44	147	42.5

RESULTS:

Average Duct Velocity = 46.2 at 146 deg. F and 25.58 "Hg

Q	=	2130.97	x1000	ACFM	127,858.2 KACFH
Qstd	=	1587.28	x1000	SCFM	95,236.8 KSCFH
Qstd(dry)	=	1350.83	x1000	DSCFM	81,049.8 KDSCFH

Reduced Isokinetic Field Data

Plant:	Basin Electric - LRS	Bws(assumed):	0.16	Meter Box #:	80573
Sample Loc:	Unit 1 Stack	MWs(assumed):	28.17	dH@i:	1.731
Run #:	4	MWd(assumed):	29.9	Gamma:	0.996
Date:	09/21/99	Pstatic ("H2O):	-0.70	Pitot #:	M-2
Pbar ("Hg):	25.63	Probe Mat:	Glass	Cp:	0.818
Ps ("Hg):	25.58	Nozzle Mat:	Glass	X-Factor:	3.938
Sample time/pt:	10.0	Dn (in.):	0.275	# 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	16	40	147	0.55	81	81	4.0	265	270	66	397.871	1.93
2	16	50	147	0.52	81	80	4.0	266	271	50		1.83
1	17	0	147	0.53	83	80	4.0	269	273	50		1.87
	17	10									423.014	
Run Time:		30	147	0.53	82	80	4.0	267	271	55	25.143	1.87

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	14	145	0.54	83	80	4.0	259	271	58	423.014	1.91
2	17	24	147	0.51	85	81	4.0	270	270	51		1.80
1	17	34	146	0.50	87	82	4.0	266	272	53		1.78
	17	44									447.137	
Run Time:		30	146	0.52	85	81	4.0	265	271	54	24.123	1.83

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	17	50	144	0.60	85	81	5.0	254	269	60	447.137	2.13
2	18	0	145	0.61	89	82	5.0	266	269	55		2.18
1	18	10	145	0.56	91	84	5.0	267	271	55		2.01
	18	20									473.151	
Run Time:		30	145	0.59	88	82	5.0	262	270	57	26.014	2.11

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	18	31	145	0.56	89	83	5.0	259	270	62	473.151	2.00
2	18	41	145	0.57	90	84	5.0	266	272	58		2.04
1	18	51	145	0.53	92	85	5.0	266	264	59		1.90
	19	1									498.582	
Run Time:		30	145	0.55	90	84	5.0	264	269	60	25.431	1.98
Post Test Leak Rate:				0.016	CFM @	8	"Hg					
Summary		120	146	0.55	86	82	5	264	270	56	100.711	1.95

Analytical Results

Plant:	Basin Electric - LRS	Tstd:	68	MWw:	28.29	
Sample Loc:	Unit 1 Stack	Pstd:	29.92	An:	0.0004	sq. ft.
Date:	09/21/99	Vmstd:	83.845	%ISO:	94.9	
Run #:	4					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	980.2	746.0	234.2
Modified Greenberg Smith	100 ml 0.1N KCl	820.7	750.1	70.6
Greenberg Smith	100 ml 0.1N KCl	753.6	746.9	6.7
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	732.4	728.4	4.0
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	733.0	733.5	-0.5
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	726.8	726.4	0.4
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	739.1	739.3	-0.2
Modified Greenberg Smith	Silica Gel	900.0	884.3	15.7
			TOTAL	330.9

Fixed Gas Analysis	
%CO2:	11.8
%O2:	7.8
%C0:	0.0
%N2	80.4
Fo	1.110
Bws:	0.157
DSCFM	1373800

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Hg**	
Sample Front-Half:	0.013 ug	Sample KC	< 0.10 ug	Sample HNO3/H2O	< 0.25 ug
Blank Front-Half:	ND ug	Blank KCl:	ND ug	Blank HNO3/H2O2:	ND ug
Net Front-Half:	0.013 ug	Net KCl:	0.050 ug	Net HNO3/H2O2:	< 0.250 ug
Detection Limit:	0.010 ug	D.L:	0.030 ug	Detection Limit:	0.010 ug
				Sample KMnO4:	7.8 ug
				Blank KMnO4:	ND ug
				Net KMnO4:	7.800 ug
				Detection Limit:	0.030 ug
Total Mercury:	7.863 ug			Total Elemental:	7.800 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.005	0.013	0.3
Oxidized Hg	0.021	0.049	0.9
Elemental Hg	3.287	7.668	148.1
HNO3	0.105	0.246	
H2SO4	3.287	7.668	
Total Hg	3.313	7.730	149.3

Measured Flow: 1373.79 X1000 dscfm

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

Velocity Traverse and Volume Flow Rate Data

Plant:	Basin Electric - LRS		
Sample Location:	Unit 1 Stack		
Date:	09/21/99	Run #:	4

Duct Diameter (in.):	375.6	Ps ("Hg):	25.58
Rectangular Duct:	0.0	Bws:	0.157
Area (sq.ft.):	769.4	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	111.2	0.55	147	47.5	0.54	145	47.0	0.60	144	49.5	0.56	145	47.9
2	54.8	0.52	147	46.2	0.51	147	45.7	0.61	145	49.9	0.57	145	48.3
1	16.5	0.53	147	46.6	0.50	146	45.3	0.56	145	47.9	0.53	145	46.6

RESULTS:

Average Duct Velocity = 47.4 at 146 deg. F and 25.58 "Hg

Q	=	2186.35 x1000	ACFM	131,181.0	KACFH
Qstd	=	1629.42 x1000	SCFM	97,765.2	KSCFH
Qstd(dry)	=	1373.79 x1000	DSCFM	82,427.4	KDSCFH

APPENDIX D

SAMPLING LOG AND CHAIN OF CUSTODY RECORDS

SAMPLE LOG

Client - Basin Electric - LRS

Source - Unit 1

Sample I.D.	Date Collected	Date Stored	Date Shipped
IR1-C01	9/20/99	9/20/99	10/21/99
IR1-C02	9/20/99	"	"
IR1-C03A & B	9/20/99	"	"
IR1-C04	9/20/99	"	"
IR1-C05	9/20/99	9/20/99	10/21/99
IR2-C01	9/21/99	9/21/99	10/21/99
IR2-C02	9/21/99	"	"
IR2-C03A & B	9/21/99	"	"
IR2-C04	9/21/99	"	"
IR2-C05	9/21/99	9/21/99	10/21/99
IR3-C01	9/21/99	9/21/99	10/21/99
IR3-C02	9/21/99	"	"
IR3-C03A & B	9/21/99	"	"
IR3-C04	9/21/99	"	"
IR3-C05	9/21/99	9/21/99	10/21/99
IB-C01	9/20/99	9/20/99	10/21/99
IB-C02	9/20/99	"	"
IB-C03	9/20/99	"	"
IB-C04	9/20/99	"	"
IB-C05	9/20/99	9/20/99	10/21/99

SAMPLE LOG

Client - Basin Electric - CRS

Source - Unit 1

Sample I.D.	Date Collected	Date Stored	Date Shipped
SR1-C01	9/20/99	9/20/99	10/21/99
SR1-C02	9/20/99	"	"
SR1-C03A & B	9/20/99	"	"
SR1-C04	9/20/99	"	"
SR1-C05	9/20/99	9/20/99	10/21/99
SR2-C01	9/21/99	9/21/99	10/21/99
SR2-C02	9/21/99	"	"
SR2-C03A & B	9/21/99	"	"
SR2-C04	9/21/99	"	"
SR2-C05	9/21/99	9/21/99	10/21/99
SR3-C01	9/21/99	9/21/99	10/21/99
SR3-C02	9/21/99	"	"
SR3-C03A & B	9/21/99	"	"
SR3-C04	9/21/99	"	"
SR3-C05	9/21/99	9/21/99	10/21/99
SB-C01	9/20/99	9/20/99	10/21/99
SB-C02	9/20/99	"	"
SB-C03	9/20/99	"	"
SB-C04	9/20/99	"	"
SB-C05	9/20/99	9/20/99	10/21/99

SAMPLE LOG

Client - Basin Electric - LRJ

Source - Unit 1

Sample I.D.	Date Collected	Date Stored	Date Shipped
IR4-C01	9/21/99	9/21/99	10/21/99
IR4-C02	9/21/99	"	"
IR4-C03 A+B	9/21/99	"	"
IR4-C04	9/21/99	"	"
IR4-C05	9/21/99	9/21/99	10/21/99
SR4-C01	9/21/99	9/21/99	10/21/99
SR4-C02	9/21/99	"	"
SR4-C03 A+B	9/21/99	"	"
SR4-C04	9/21/99	"	"
SR4-C05	9/21/99	9/21/99	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-17-0306
Company	Braun Intertec Corp.	P.O. #	
Mailing Address	P.O. Box 39108		
City, State, Zip	Minneapolis, MN 55439		
Telephone #	(612) 833-4654	Fax #	(612) 146-6001

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	OH Hg										FOR LAB USE ONLY
1	SB-C01 (Filter)			Filter				X										
2	SR1-C01							X										
3	SR2-C01							X										
4	SR3-C01							X										
5	SR4-C01							X										
6	SB-C02 (OHNHNO3)			Liq				X										
7	SR1-C02							X										
8	SR2-C02							X										
9	SR3-C02							X										
10	SR4-C02							X										
11	SB-C03 (OHNKCl)							X										
12	SR1-C03							X										
13	SR2-C03							X										
14	SR3-C03							X										
15	SR4-C03							X										

CHAIN OF CUSTODY

Collected by: *(Print)*	James Tryka	Collector's Signature:	[signature]
Relinquished by:	[signature]	Date/Time	10/19/2005
Relinquished by:		Date/Time	
Received 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 Sample 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	[illegible]	Project ID/Project Name	[illegible]-09-0806
Company	[illegible]		
Mailing Address	[illegible]		
City, State, Zip	[illegible]		
Telephone #	[illegible]	Fax #	[illegible]

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)

[illegible]

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	[illegible]										FOR LAB USE ONLY
1	[illegible]			[illegible]				X										
2	[illegible]							X										
3	[illegible]							X										
4	[illegible]							X										
5	[illegible]							X										
6	[illegible]							X										
7	[illegible]							X										
8	[illegible]							X										
9	[illegible]							X										
10	[illegible]							X										
11	[illegible]							X										
12	[illegible]							X										
13	[illegible]							X										
14	[illegible]							X										
15	[illegible]							X										

CHAIN OF CUSTODY

Collected by: *(Print)*	[illegible]	Collector's Signature:	[illegible]
Relinquished by:	[illegible]	Date/Time [illegible]	Received by: [illegible]	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℠ 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	[illegible]-97-0306
P.O. #	
Company	Braun Intertec Corp.
Mailing Address	P.O. Box 37[illegible]
City, State, Zip	[illegible]
Telephone #	[illegible]
Fax #	[illegible]

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	[illegible] - Stack Filter Blank			Filter				X										
2	[illegible] - Inlet Filter Blank			"				X										
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

CHAIN OF CUSTODY

Collected by: *(Print)*	James Tryba	Collector's Signature:	[signature]
Relinquished by:	[signature]	Date/Time	[illegible]
Relinquished by:		Date/Time	
Received 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:

BRAUNSM 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			SEND INVOICE TO	
Contact Name	James Tyska	Project ID/Project Name: Cmx-99-0306	Contact Name	Company
Company	Braun Intertec Corp.	P.O. #	Address	
Mailing Address	PO Box 3442		City, State, Zip	
City, State, Zip	Minneapolis, MN 55403		Telephone #	Fax #
Telephone # (612) 659-4044	Fax # (612) 659-6001			

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

Dissolved Metals 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	GH	Hg									FOR LAB USE ONLY
1	IB-001 (Filter)			Filter				X										
2	IA1-01							X										
3	IA2-01							X										
4	IA3-01							X										
5	IA4-01							X										
6	IA-02 (Filtering)			Hg				X										
7	IA1-02							X										
8	IA2-02							X										
9	IA3-02							X										
10	IA4-02							X										
11	IB-03 (Filter)							X										
12	IA1-03							X										
13	IA2-03							X										
14	IA3-03							X										
15	IA4-03							X										

CHAIN OF CUSTODY			
Collected by: *(Print)* James Tyska		Collector's Signature: [signature]	
Relinquished by: [signature]	Date/Time [illegible]	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 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: [illegible]
Company: Braun Intertec Corp.
Mailing Address: PO Box [illegible]
City, State, Zip: [illegible]
Telephone #: [illegible] Fax #: [illegible]

Project ID/Project Name: [illegible]
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)

[illegible]

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	GH Hg										FOR LAB USE ONLY
1	[illegible]																	
2	[illegible]																	
3	[illegible]																	
4	[illegible]																	
5	[illegible]																	
6	[illegible]																	
7	[illegible]																	
8	[illegible]																	
9	[illegible]																	
10	[illegible]																	
11	[illegible]																	
12																		
13																		
14																		
15																		

CHAIN OF CUSTODY
Collected by: *(Print)* [illegible]
Collector's Signature: [illegible]
Relinquished by: [illegible] Date/Time [illegible]
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:

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
U1-RUN1
Lab Sample Number: **990049215**

Component			Method
MOISTURE, AS RECEIVED	31.57	WT %	ASTM D5142
ASH, AS RECEIVED	5.23	WT %	ASTM D5142
ASH, DRY	7.64	WT %	ASTM D5142
GROSS CALORIFIC VALUE, AS RECEIVED	8110	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE, DRY	11850	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE,DRY ASH-FREE	12830	BTU/LB	ASTM D1989
SULFUR, AS RECEIVED	0.37	WT %	ASTM D5061
SULFUR, DRY	0.54	WT %	ASTM D5061
SULFUR, DRY ASH-FREE	0.58	WT %	ASTM D5061
SODIUM IN ASH	1.29	WT %	ASTM D4326
SODIUM IN COAL	0.07	WT %	ASTM D4326
COAL WEIGHT	1	POUNDS	
CHLORINE, DRY	74	MG/KG	SW846 9075 Modified for Coal
CHLORINE, AS RECEIVED	51	MG/KG	SW846 9075 Modified for Coal
MERCURY, AS RECEIVED	0.071	MG/KG	SW846 7471A Adapted/Prep 3051/3052
MERCURY, DRY	0.103	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
U1-RUN2
Lab Sample Number: **990049216**

Component			Method
MOISTURE, AS RECEIVED	31.05	WT %	ASTM D5142
ASH, AS RECEIVED	5.40	WT %	ASTM D5142
ASH, DRY	7.84	WT %	ASTM D5142
GROSS CALORIFIC VALUE, AS RECEIVED	8180	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE, DRY	11860	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE,DRY ASH-FREE	12870	BTU/LB	ASTM D1989
SULFUR, AS RECEIVED	0.36	WT %	ASTM D5061
SULFUR, DRY	0.52	WT %	ASTM D5061
SULFUR, DRY ASH-FREE	0.56	WT %	ASTM D5061
SODIUM IN ASH	1.40	WT %	ASTM D4326
SODIUM IN COAL	0.08	WT %	ASTM D4326
COAL WEIGHT	1	POUNDS	
CHLORINE, DRY	87	MG/KG	SW846 9075 Modified for Coal
CHLORINE, AS RECEIVED	60	MG/KG	SW846 9075 Modified for Coal
MERCURY, AS RECEIVED	0.071	MG/KG	SW846 7471A Adapted/Prep 3051/3052
MERCURY, DRY	0.103	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
U1-RUN3
Lab Sample Number: 990049217

Component			Method
MOISTURE, AS RECEIVED	31.21	WT %	ASTM D5142
ASH, AS RECEIVED	5.25	WT %	ASTM D5142
ASH, DRY	7.63	WT %	ASTM D5142
GROSS CALORIFIC VALUE, AS RECEIVED	8210	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE, DRY	11940	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE,DRY ASH-FREE	12930	BTU/LB	ASTM D1989
SULFUR, AS RECEIVED	0.36	WT %	ASTM D5061
SULFUR, DRY	0.52	WT %	ASTM D5061
SULFUR, DRY ASH-FREE	0.56	WT %	ASTM D5061
SODIUM IN ASH	1.37	WT %	ASTM D4326
SODIUM IN COAL	0.07	WT %	ASTM D4326
COAL WEIGHT	1	POUNDS	
CHLORINE, DRY	78	MG/KG	SW846 9075 Modified for Coal
CHLORINE, AS RECEIVED	54	MG/KG	SW846 9075 Modified for Coal
MERCURY, AS RECEIVED	0.077	MG/KG	SW846 7471A Adapted/Prep 3051/3052
MERCURY, DRY	0.111	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
U1-RUN4
Lab Sample Number: **990049218**

Component			Method
MOISTURE, AS RECEIVED	31.29	WT %	ASTM D5142
ASH, AS RECEIVED	5.57	WT %	ASTM D5142
ASH, DRY	8.10	WT %	ASTM D5142
GROSS CALORIFIC VALUE, AS RECEIVED	8170	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE, DRY	11890	BTU/LB	ASTM D1989
GROSS CALORIFIC VALUE,DRY ASH-FREE	12940	BTU/LB	ASTM D1989
SULFUR, AS RECEIVED	0.37	WT %	ASTM D5061
SULFUR, DRY	0.54	WT %	ASTM D5061
SULFUR, DRY ASH-FREE	0.59	WT %	ASTM D5061
SODIUM IN ASH	1.28	WT %	ASTM D4326
SODIUM IN COAL	0.07	WT %	ASTM D4326
COAL WEIGHT	1	POUNDS	
CHLORINE, DRY	57	MG/KG	SW846 9075 Modified for Coal
CHLORINE, AS RECEIVED	<50	MG/KG	SW846 9075 Modified for Coal
MERCURY, AS RECEIVED	0.099	MG/KG	SW846 7471A Adapted/Prep 3051/3052
MERCURY, DRY	0.144	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:

PASC - Certificate of Analysis

	Client ID:		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
	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 3	Unit 3	Unit 3	Unit 3	Unit 3	Unit 3	Unit 3	Unit 3	Unit 3	Unit 3	Unit 3
	Client ID:		Inlet-R1	Inlet-R1	Inlet-R1	Inlet-R1	Inlet-R1	Inlet-R2	Inlet-R3	Stack-FB	Stack-R1	Stack-R2	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	"	-	-	-	-	-	-	-	-	-	-	-

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)	0.6		
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			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.

00018 2/2

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						
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
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42						
43						
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45						
46						
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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.

EPA 7470 WATER PREPARATION LOG - MERCURY

DG47HG

DGHGLEACH, DG29HG***

00019

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	"	"	"	"	FINALVOL 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.) 64908	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	64881	"	"	"	"	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	64882	"	"	"	"	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 ¥ 1.4 ml HF + 1 ml AR TO MATRIX MATCH STDS ¥

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

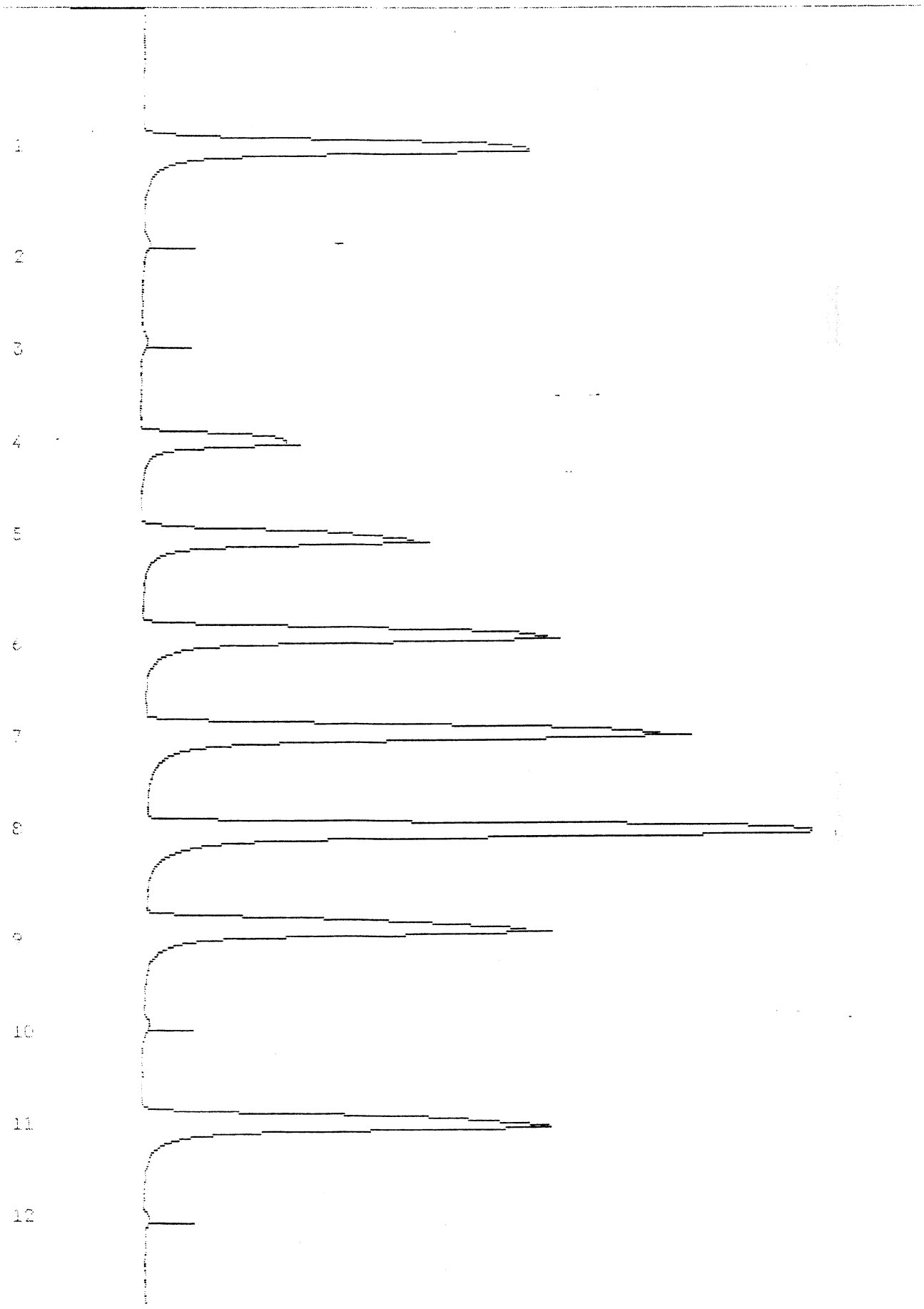
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

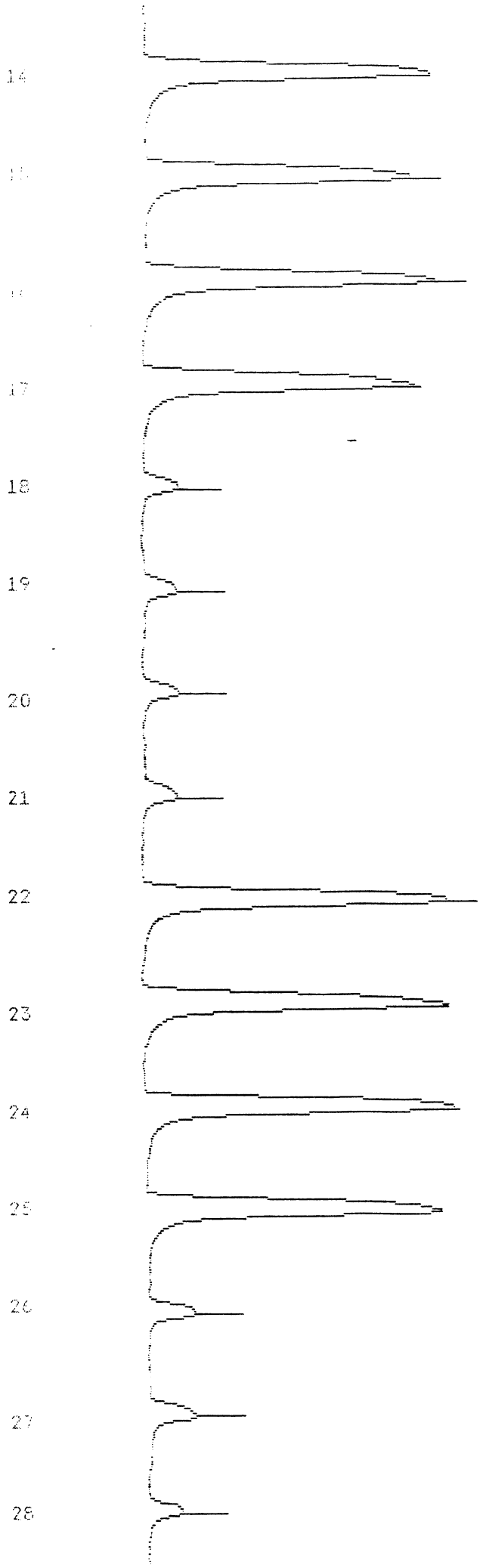
Prepare 0.05 ppm standards daily

HNO3 Lot. No. 119090 | H2SO4 Lot. No. 517120 | Bath Temps. 1 ~~[illegible]~~ °C

Prepared By: M Thapiros Date: 991214 Checked by: M Thapiros

RUN DATE: 12-14-1999 CHART DATE: 12-15-1999
CHART SPEED: 30
DATA FILE NAME: C:\GP4\DATA\991214WA.DAT

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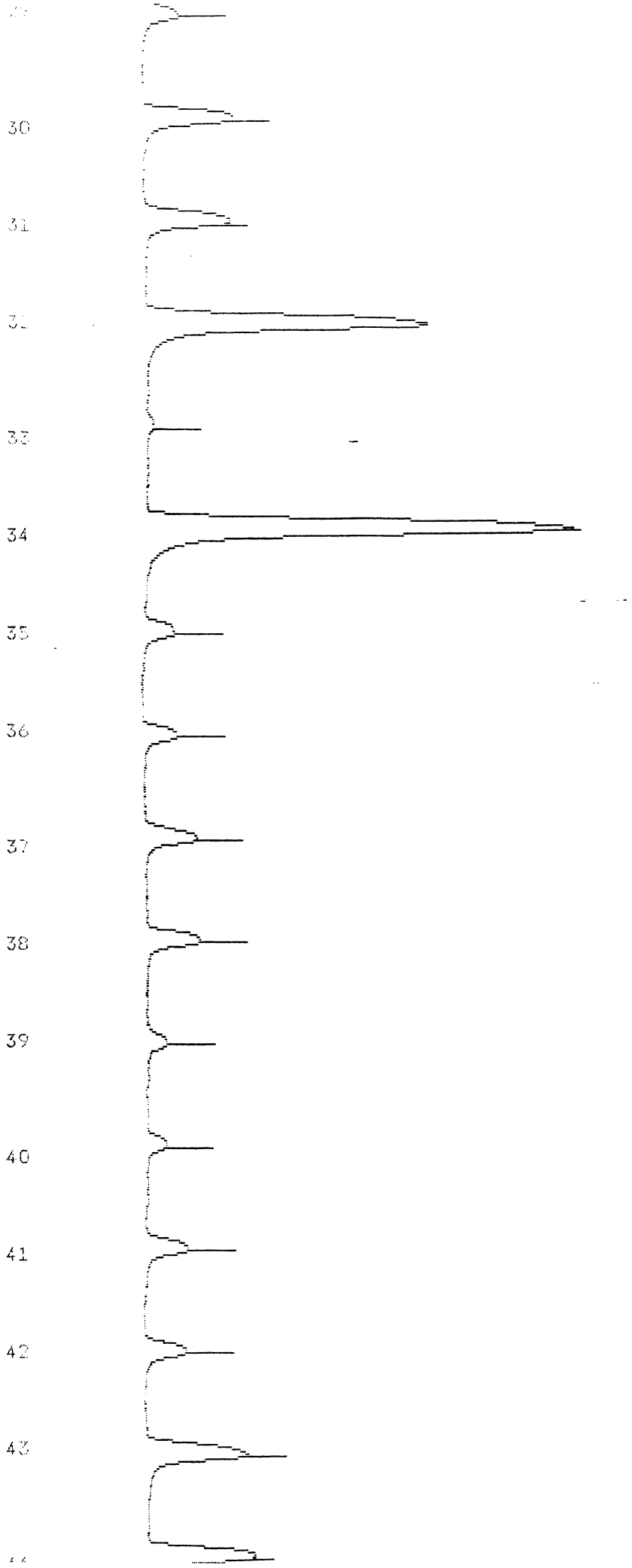
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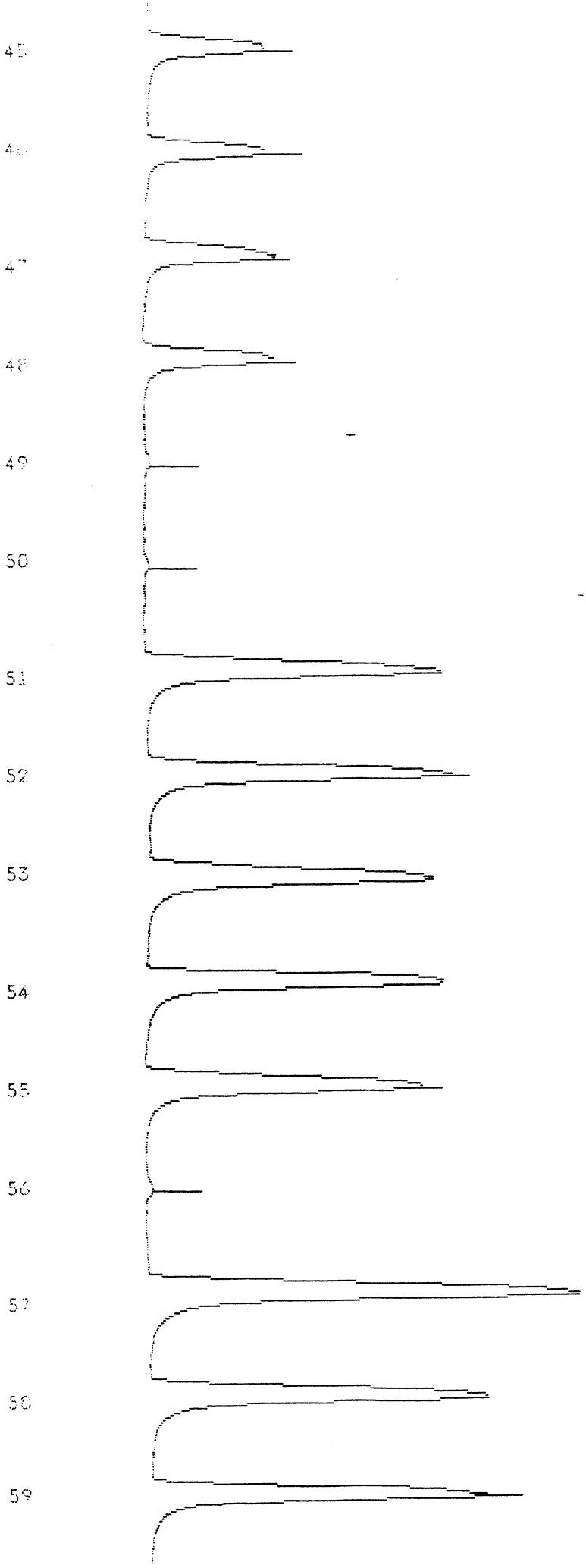
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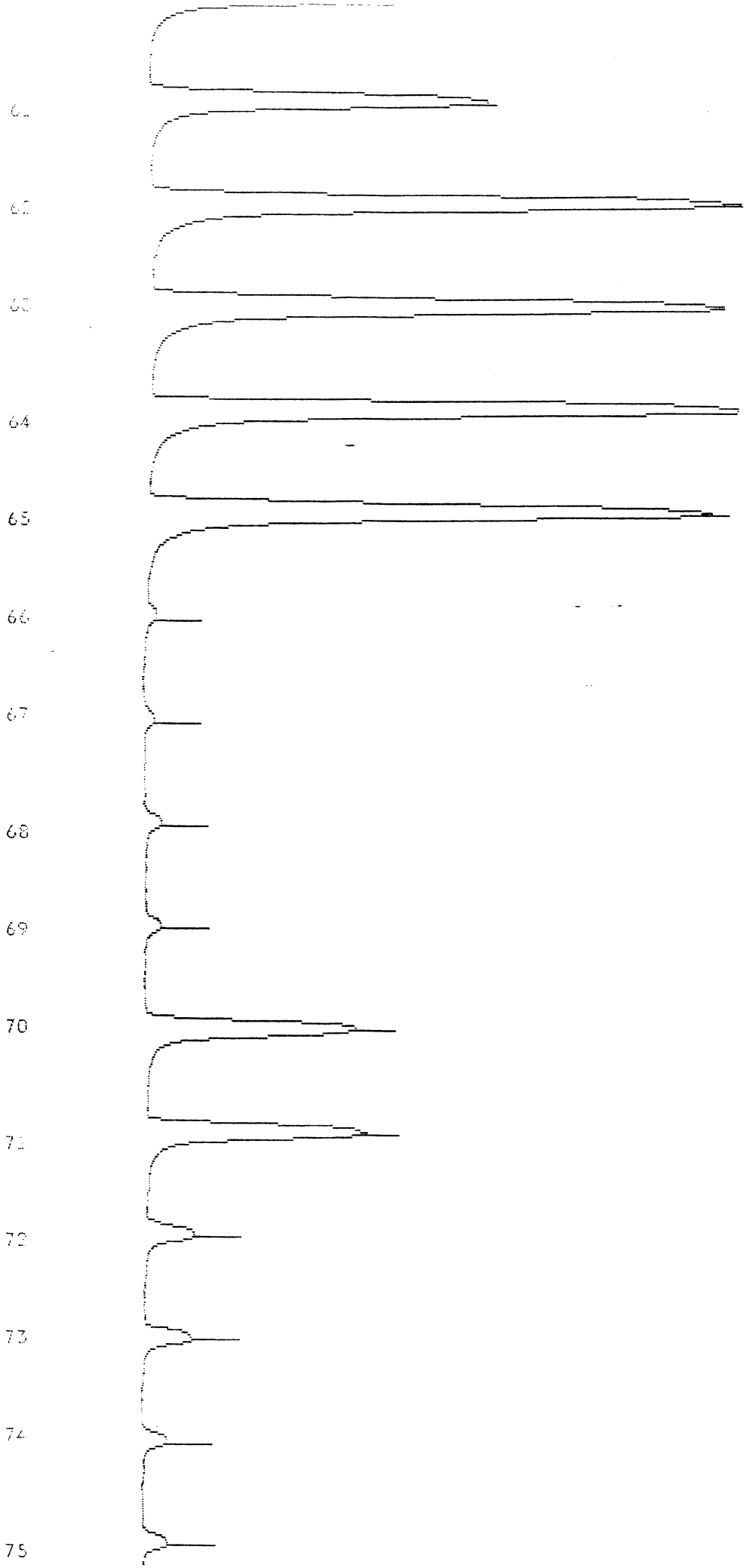
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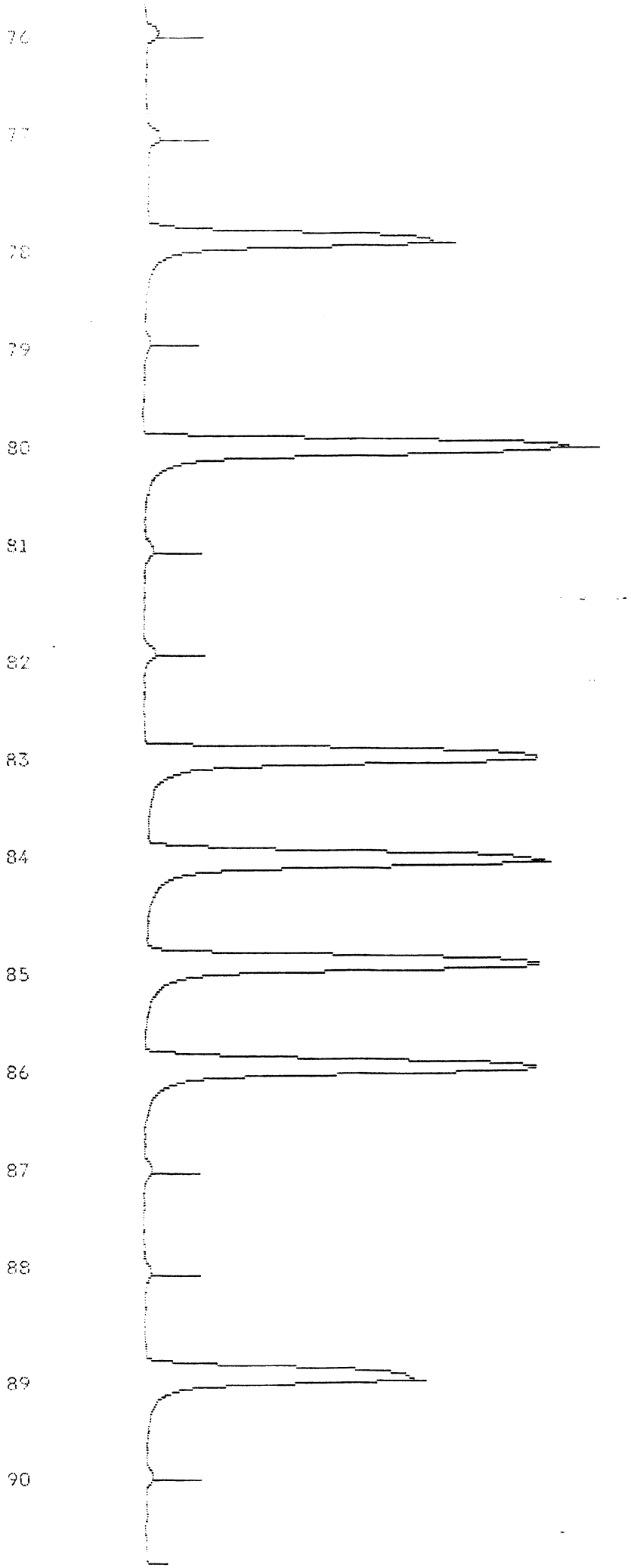
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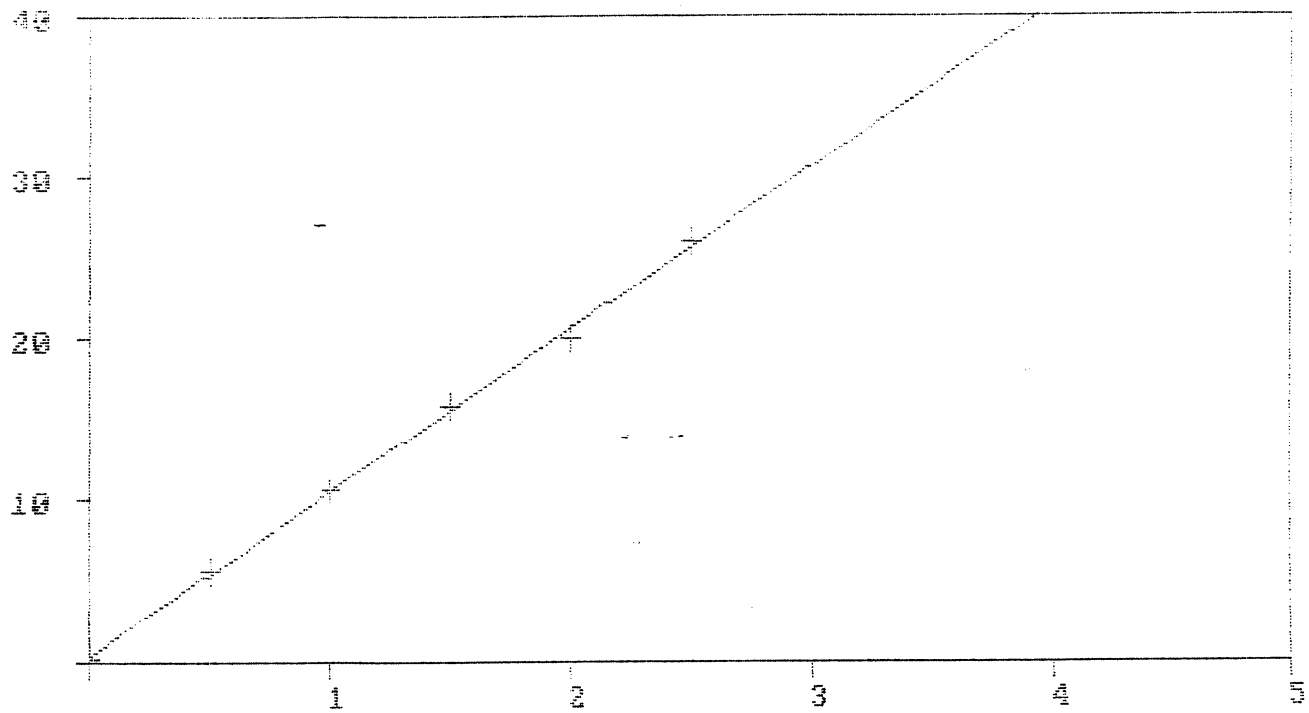
CHANNEL NAME: LDC
RUN NAME: 991214WA



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	Tot. µg	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		-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	BL12140S	1	1	10.6	0.098	1.012	s 98%

19	64883	1	1	0.7			0.058	
20	64888D	1	1	1.0		<0.01	0.085	
21	64888D	1	1	1.0			0.085	
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

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	-0.028
88	64892	1	1	0.0		-0.029
89	CCV	1	1	9.5		0.906
90	B	1	1	0.0		-0.034
91	D4	1	1	15.7		1.522
92	0	1	1	0.0		-0.034
93	0	1	1	0.0		-0.034

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 CMA Control Chart Updated N/A IO Requirements met N/A

00329

1

DC 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/

LDC 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)	0.5		
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			65788			
22			"			
23			65789			
24			"			
25			65790			
26			"			
27			BL1217	6NFB		
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.

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			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			
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.

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			69915			
22			69916			
23			"			
24			69917			
25			"			
26			CCV			
27			B			
28			D4			
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
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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

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 COMBI
- ✓ Acids added 7ml HF + 5ml AQUA
- ~~Reagents added~~
- ~~Samples spiked~~
- ~~Bath at 95 degrees C~~ 8HRS IN 85°C OVE
- ✓ 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.)	INFT	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	66556	"	"	"	"	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.)	INFT	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	69909	"	"	"	"	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	69904	"	"	"	"	
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: M Nisperos Date: 991217 Checked by: M Nisperos

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	41	CCV (Cont. Calib. Verif.)	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	"	"	"	"	2.2 L
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	66559	"	"	"	"	600 ml
3	49	61	"	"	"	"	2.2 L
4	50	62	"	"	"	"	2.4 L
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

00037 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

SEE PREVIOUS DIGEST SHEET

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	4NFB	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	65767	"	"	"	"	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 / 65751	"	"	"	"	100 ml
4	18	64	"	"	"	"	700
5	19	65	"	"	"	"	700 NO F.HRINSE 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.)	5NFB	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

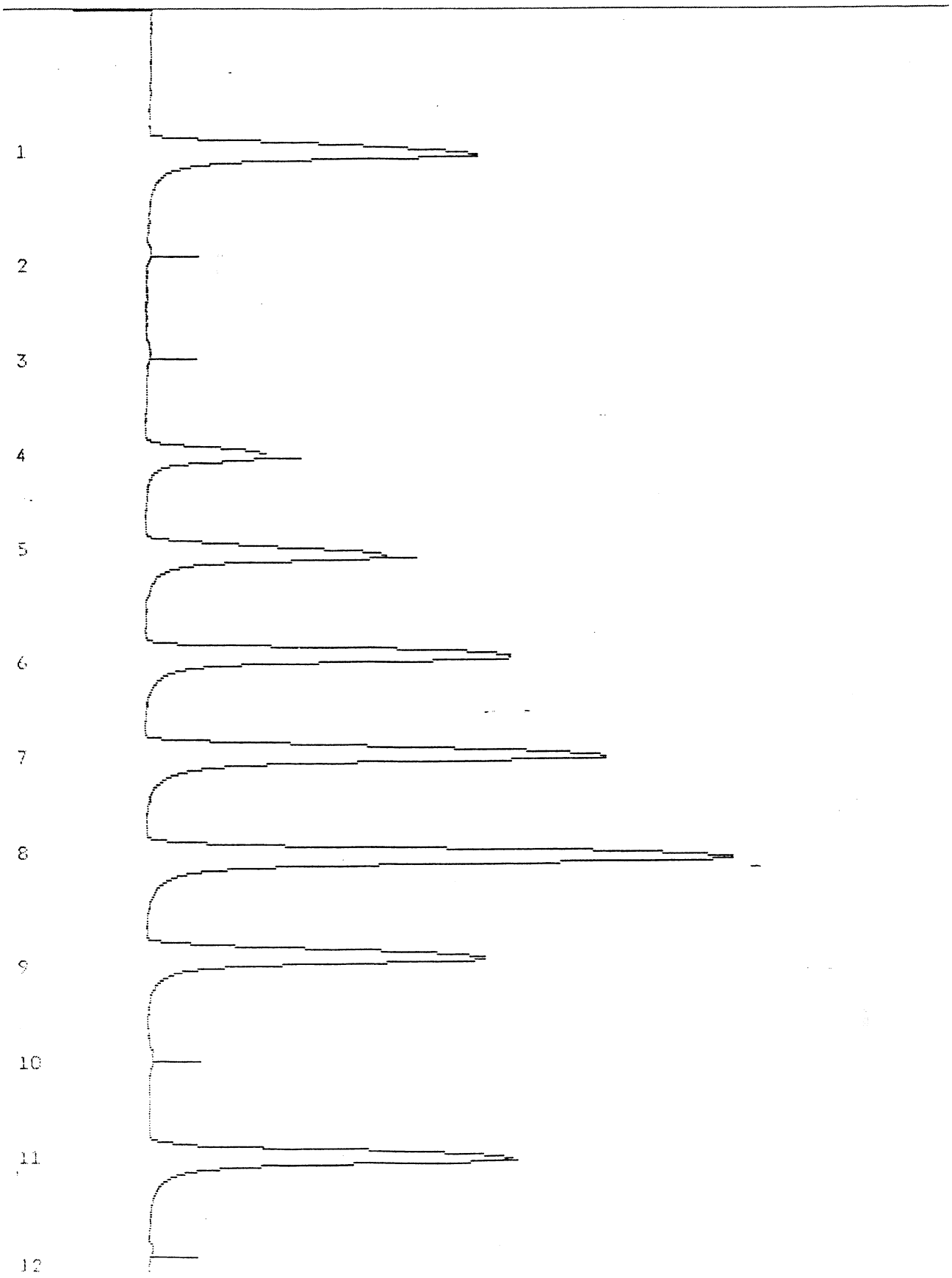
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

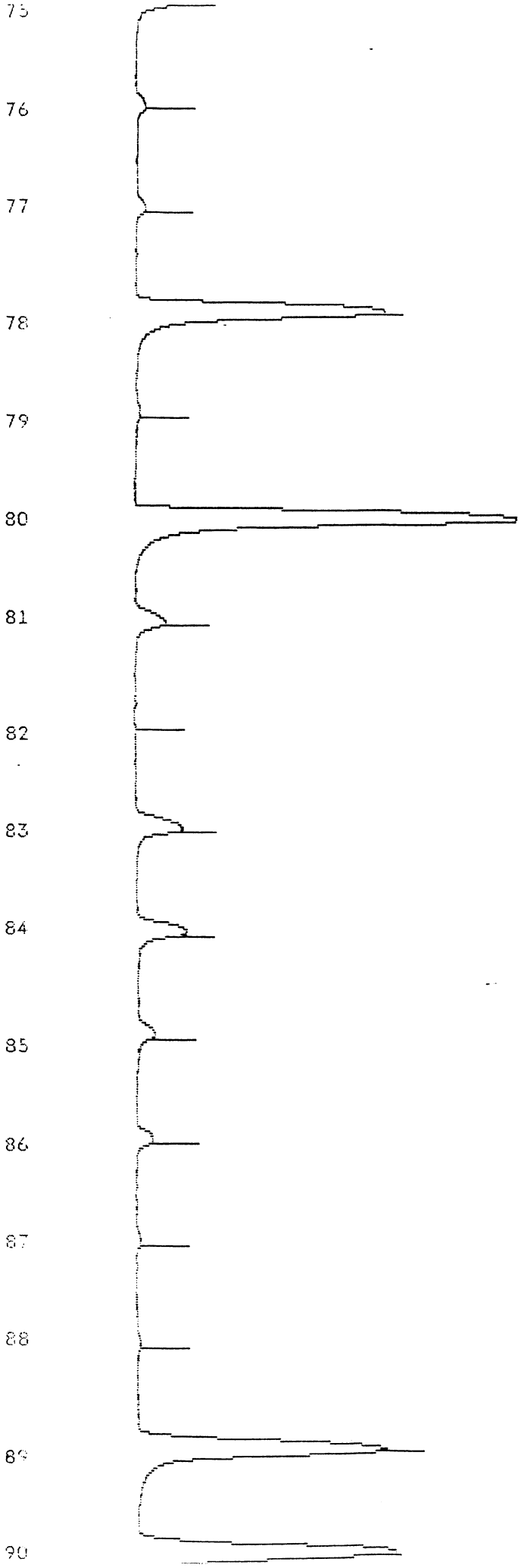
Prepare 0.05 ppm standards daily

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

Prepared By: M Khapreja Date: 99/2/7 Checked by: M Khapreja

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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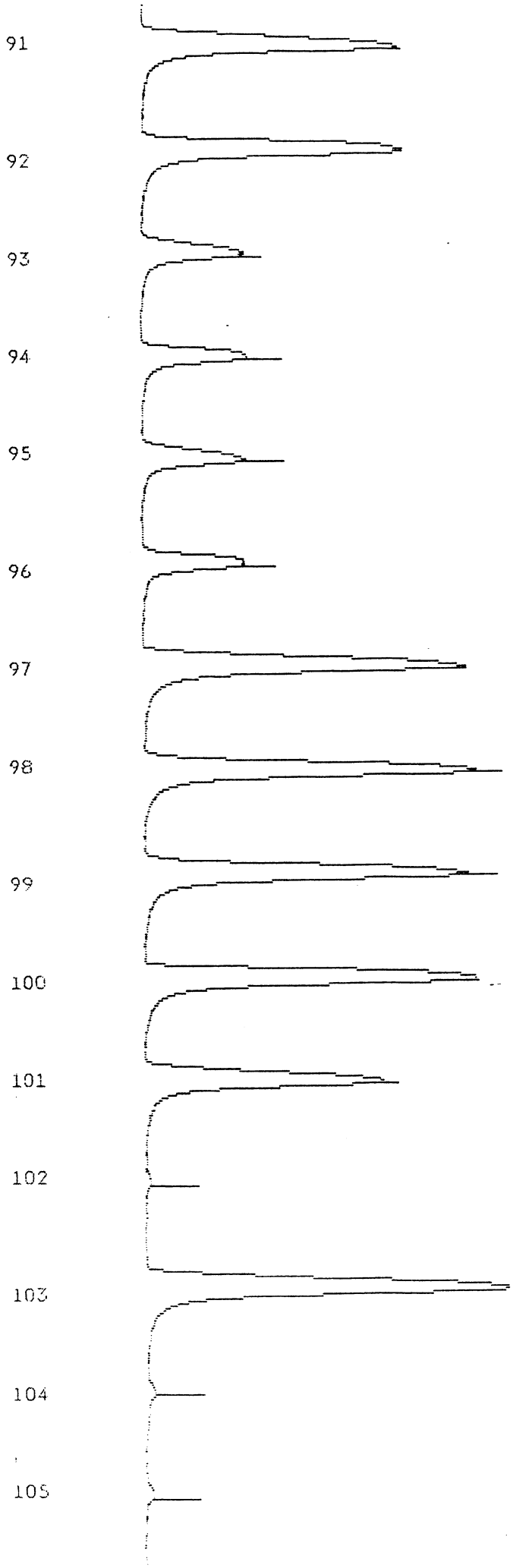
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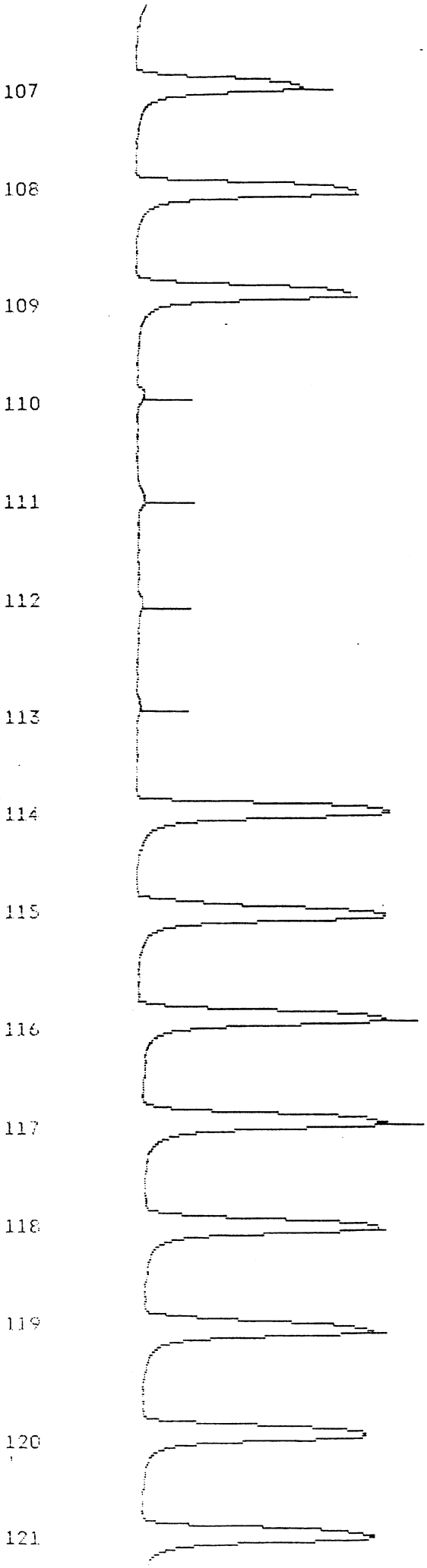
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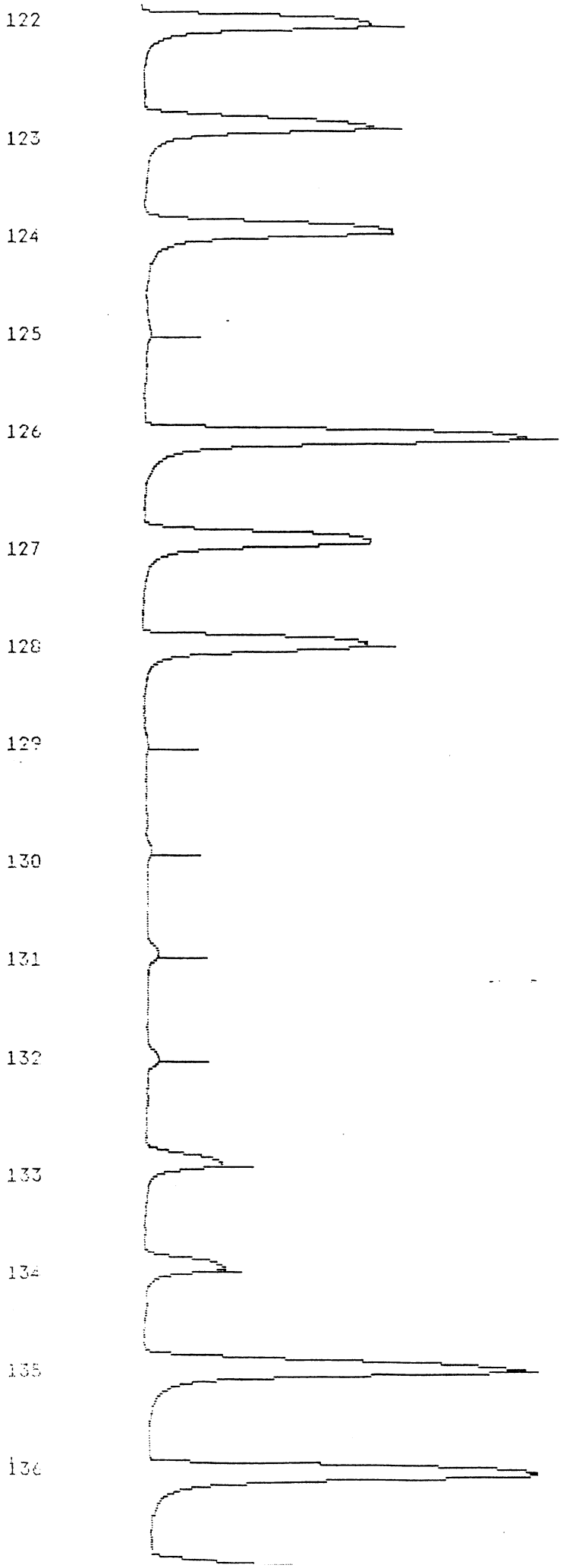
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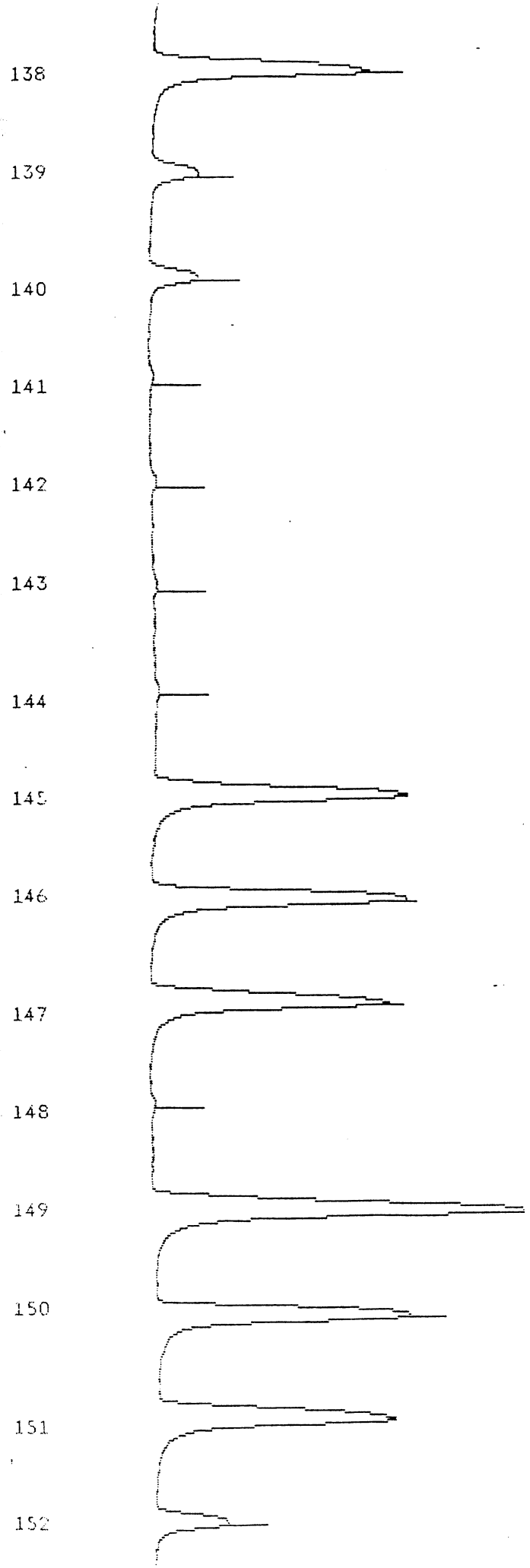
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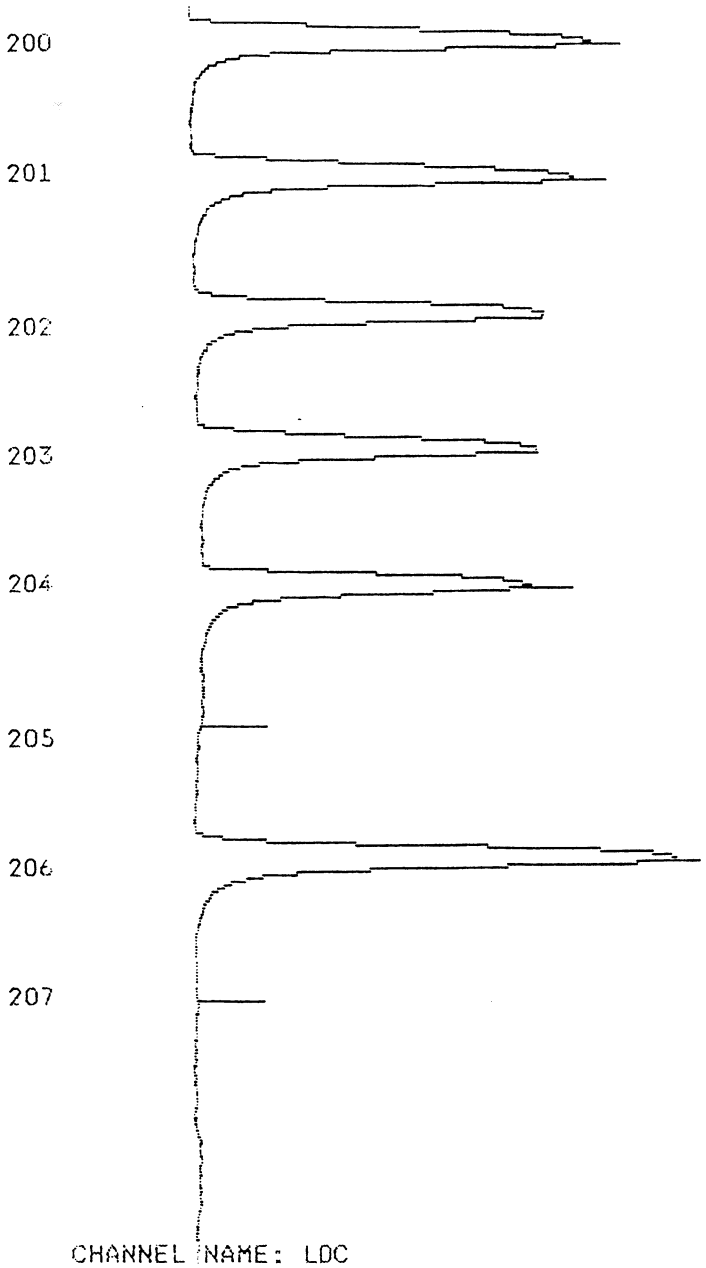
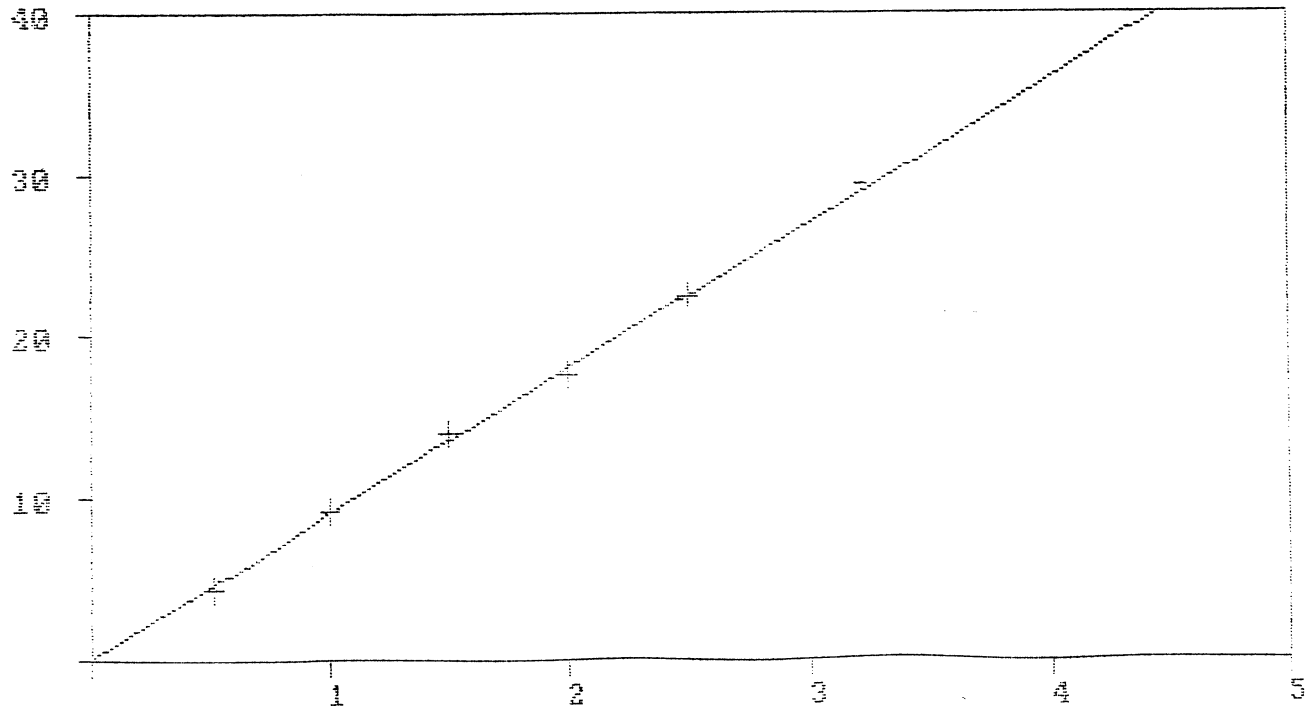


CHANNEL NAME: LDC
RUN NAME: 991217W



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	TLG	-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	

00345

55	CCV	1	1	9.0		0.990	99%	
56	B	1	1	0.0		-0.013		
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		0.934		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 i9904	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 CMB 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
Q064880	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: 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)	1.5		
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		↓	"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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		~~MD~~	~~[illegible]~~ 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.

[illegible] 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)	1.5		
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			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.

[illegible] 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./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)	0.6		
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						
141 ~~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			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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.

[illegible] 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)	0.5		
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	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

00355
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.)	18MN	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. 195.7 °C

Prepared By: AB Date: 99.11.18 Checked by:

EPA 7470 WATER PREPARATION LOG - MERCURY

00056

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.)	IN 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) 67480 MB
	11	BL 1118 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	64891	"	"	"	"	IMPV 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	64892	"	"	"	"	
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.)	IN 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	"	"	"	"	IMPV 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. 79060	H2SO4 Lot. No. 38060	Bath Temps. 1 175 °C

Prepared By: [illegible] Date: 99118 Checked by: [illegible]

EPA 7470 WATER PREPARATION LOG - MERCURY

00052 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

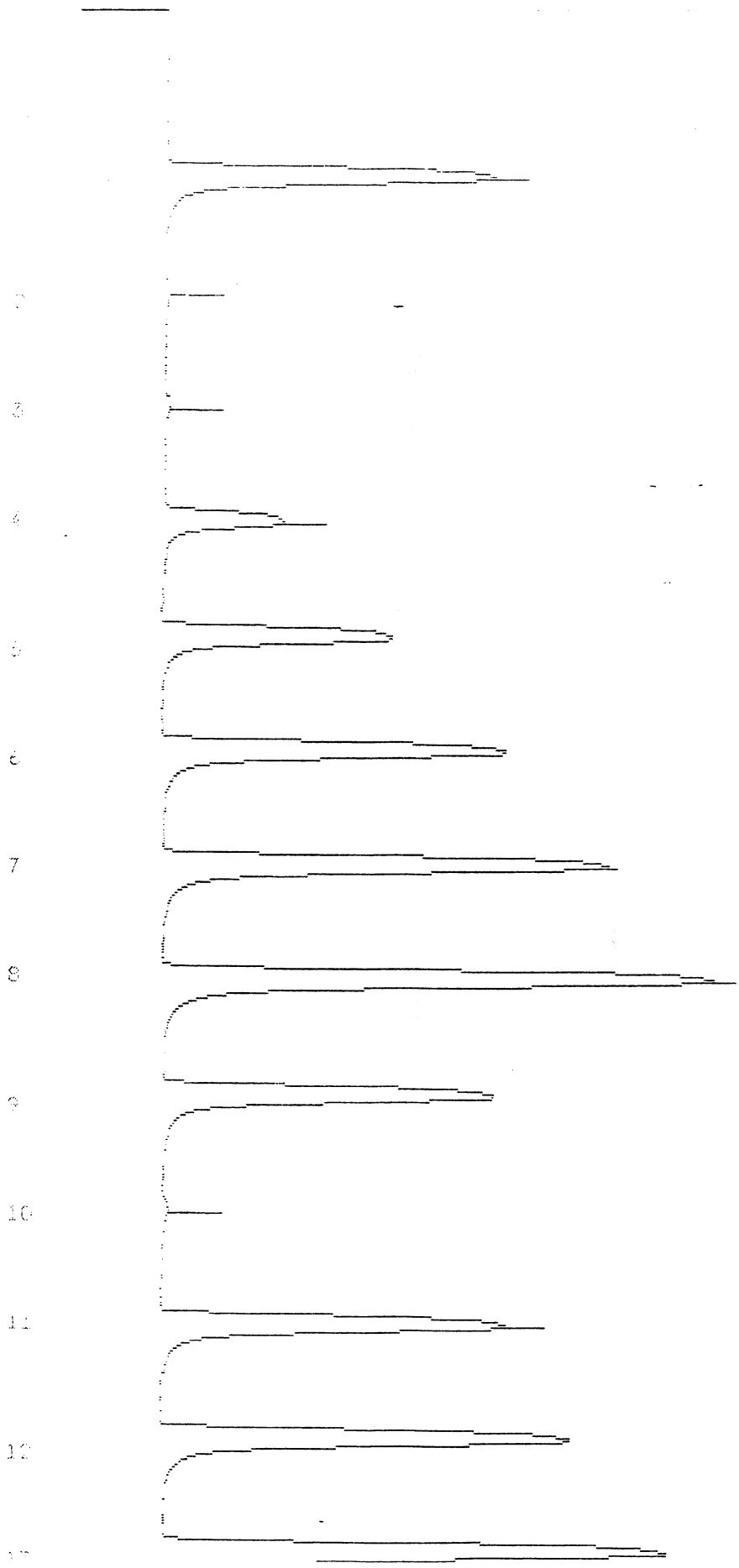
	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	IBHV	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL	"	"	"	"	(Processed Blank) 64669, 64880, 65763, 6569[illegible]
	11	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm. 6583[illegible]
1	12	64870	"	"	20ml	"	60 ml 6655[illegible]
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	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		"	"	"	"	

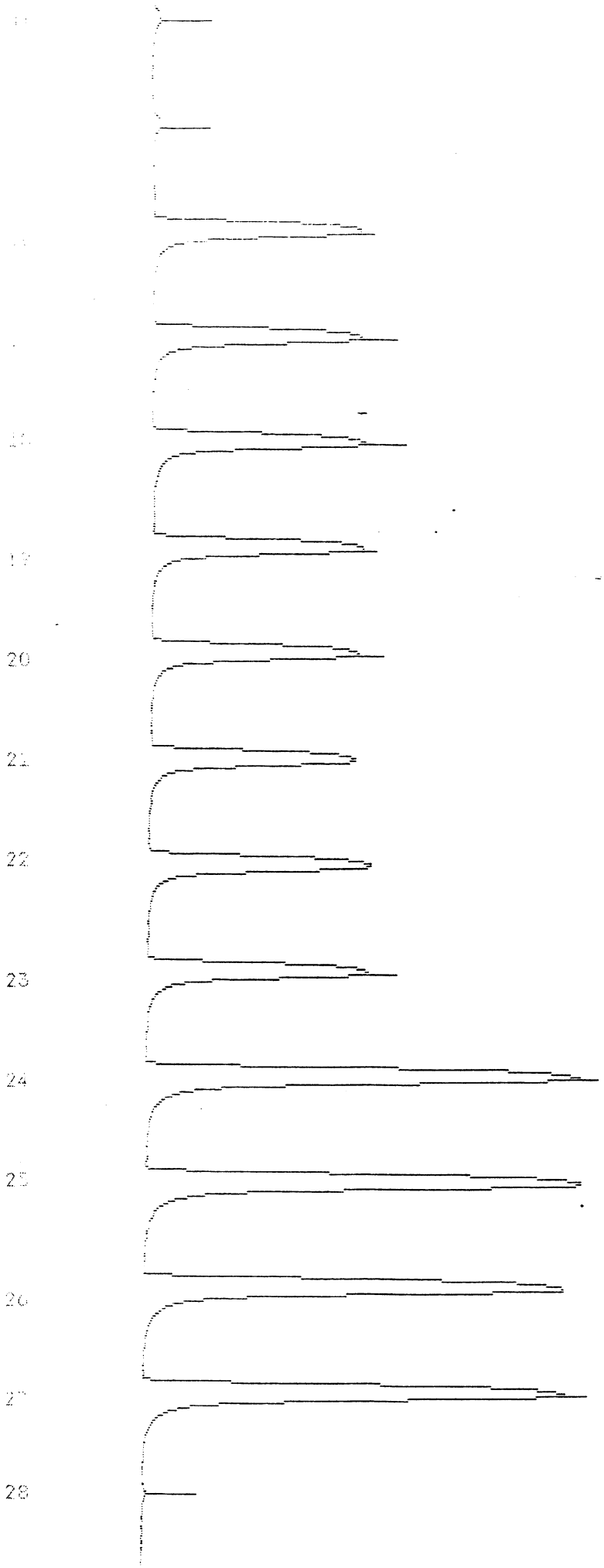
Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

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 Temps. 1[illegible] °C

Prepared By: AG Date: 99.11.18 Checked by: AB

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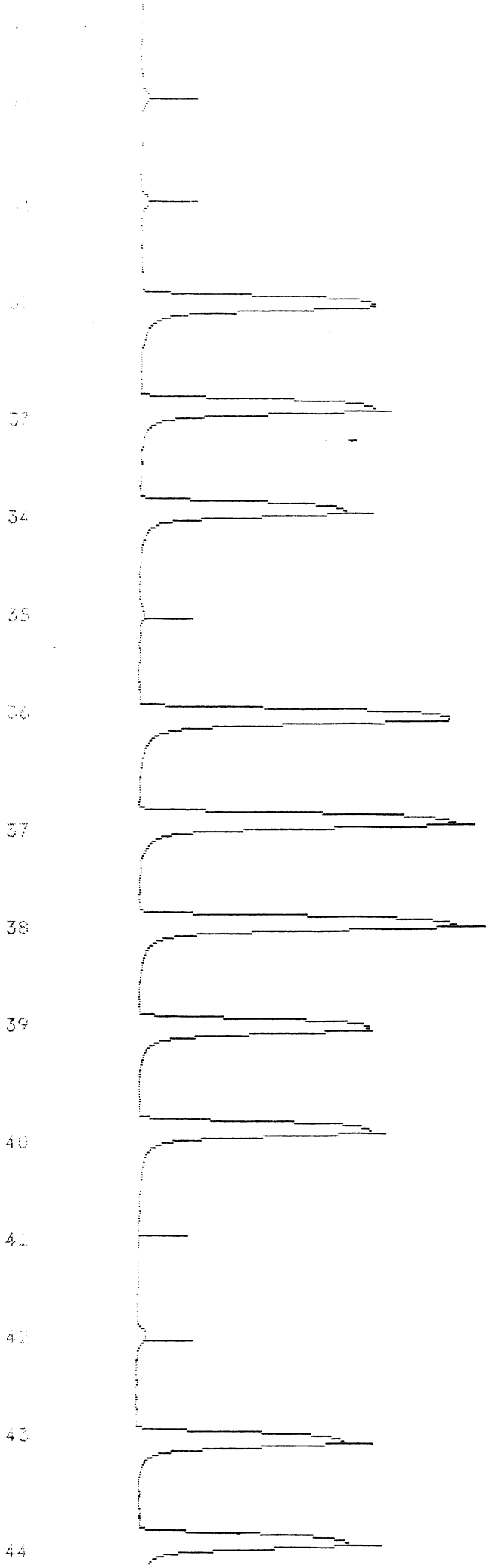
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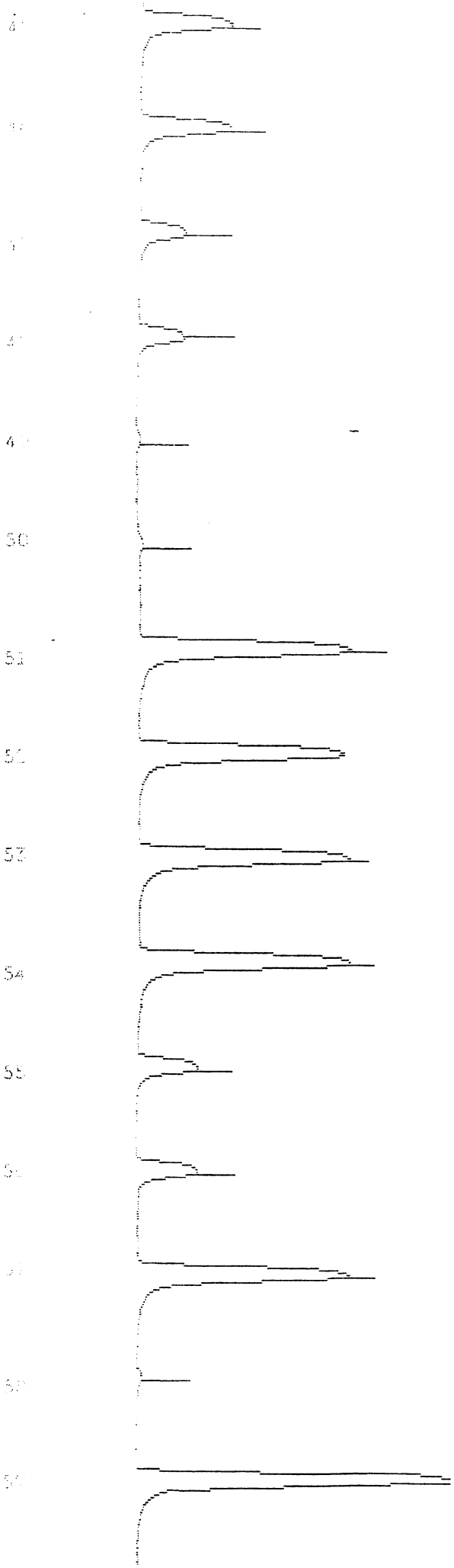

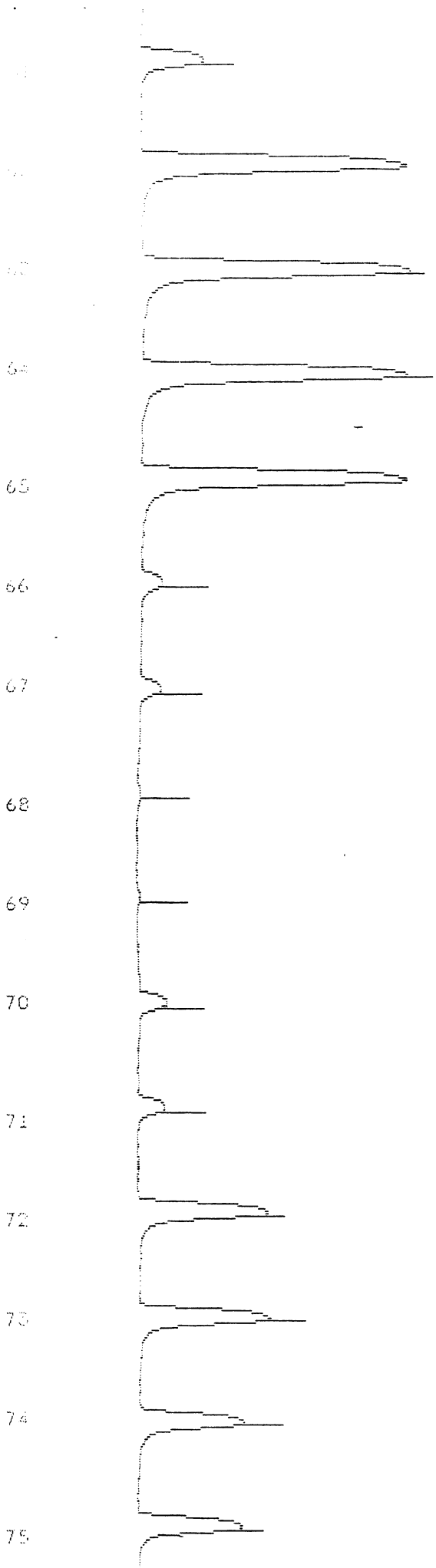
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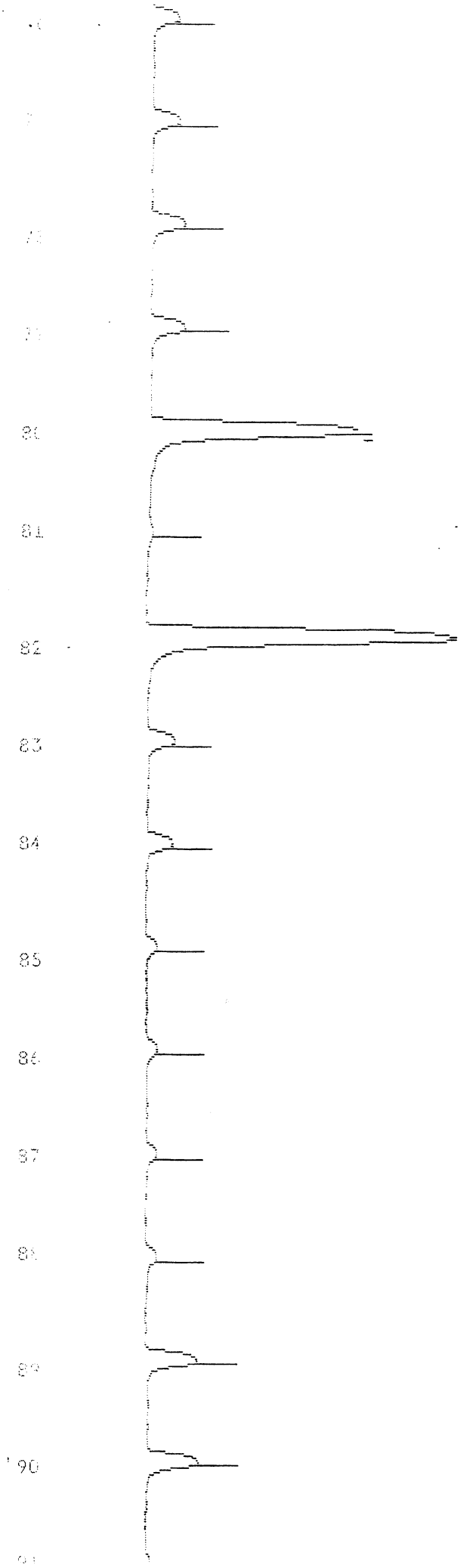
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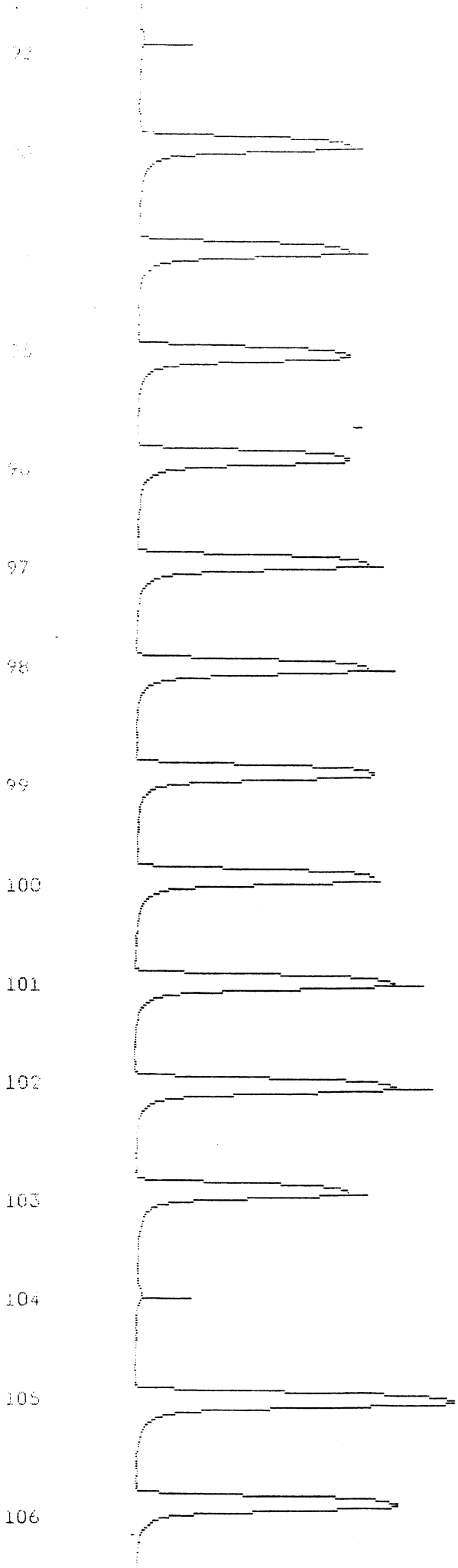
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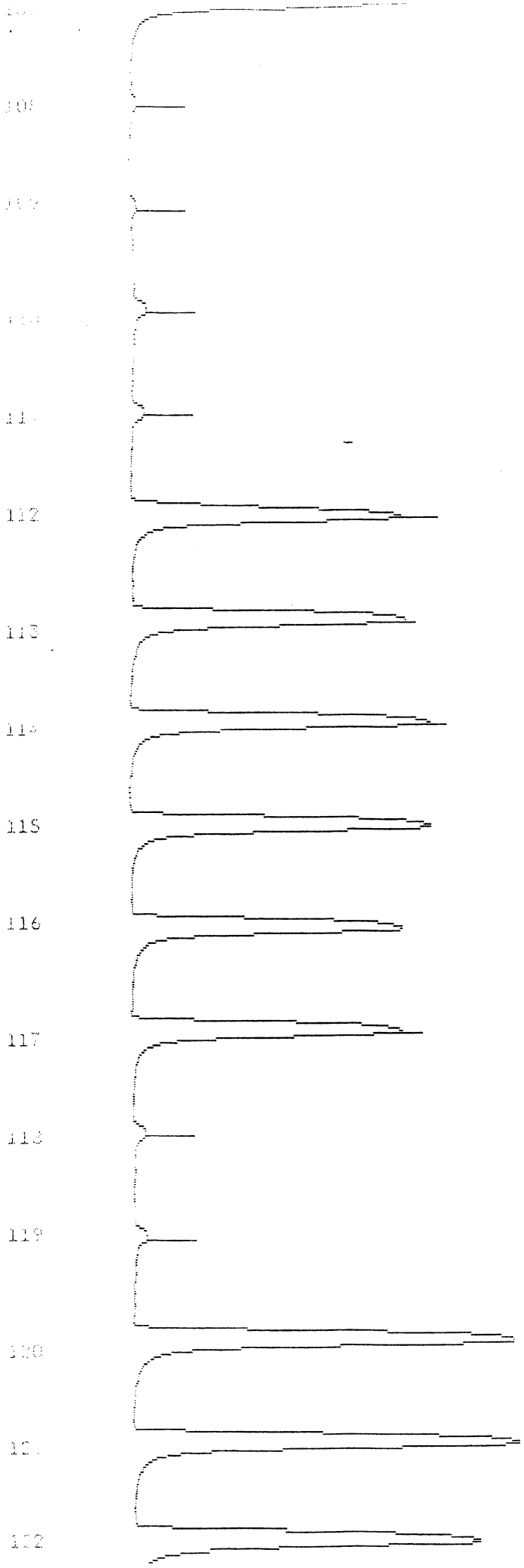
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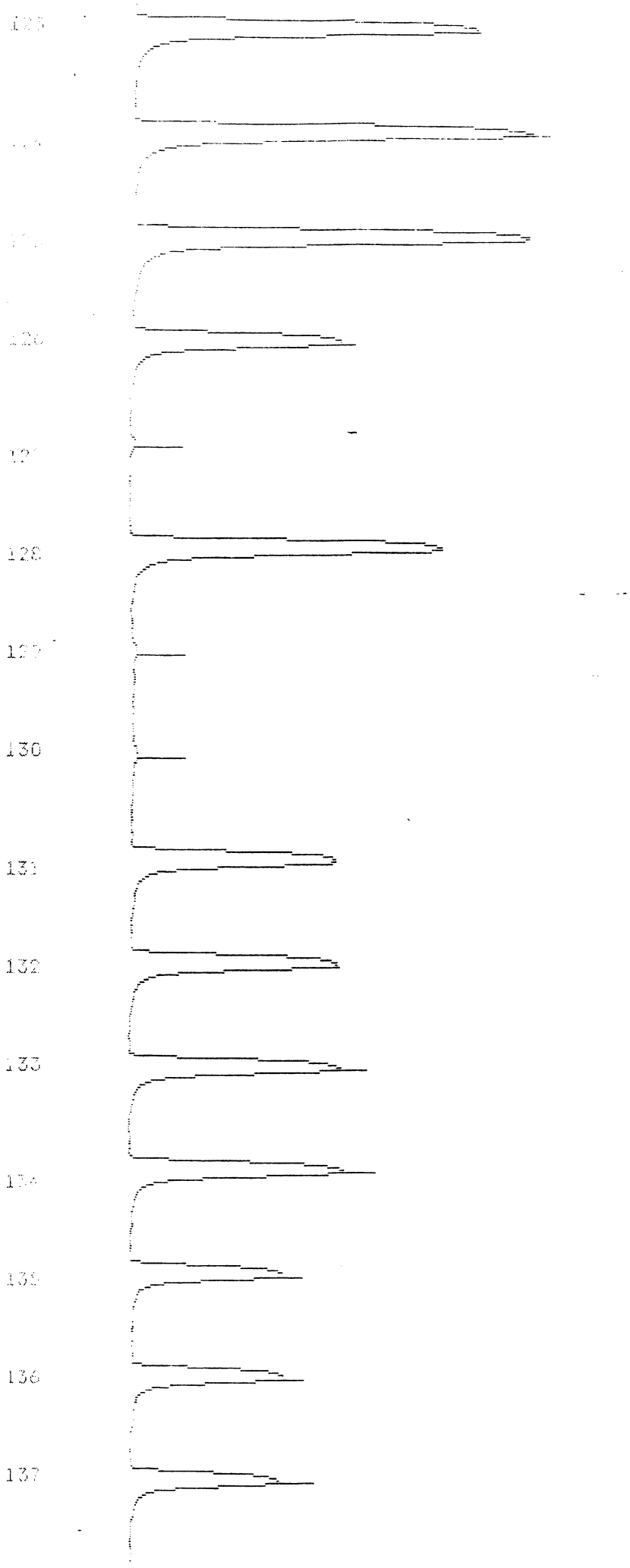
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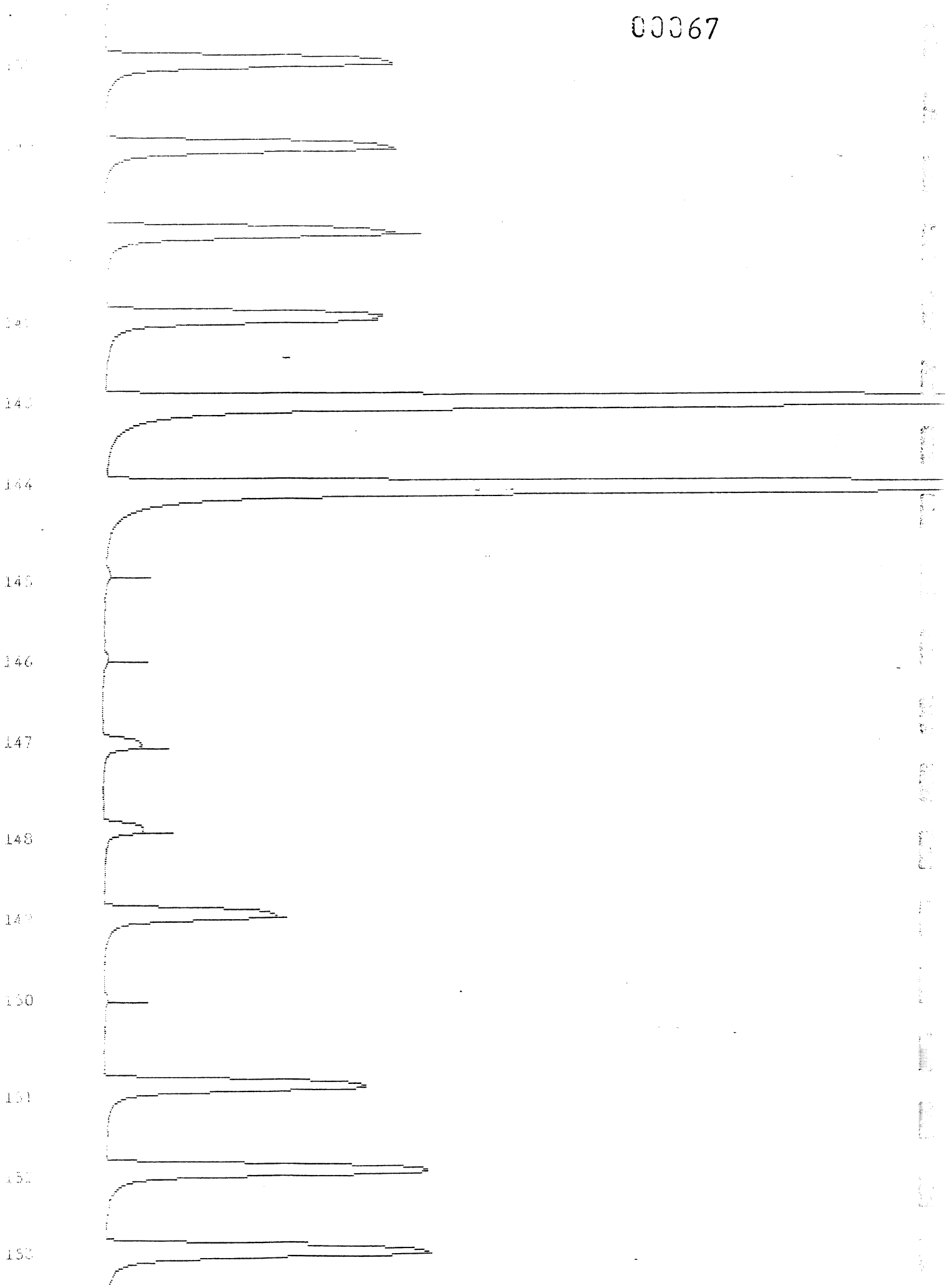
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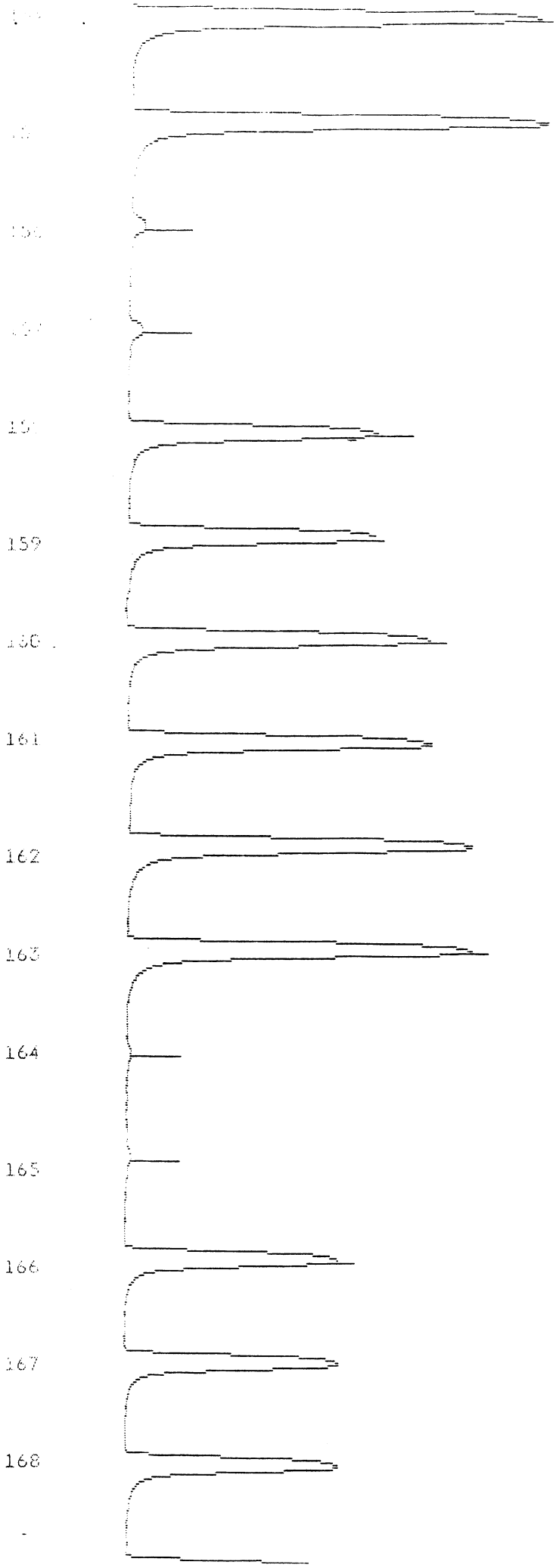
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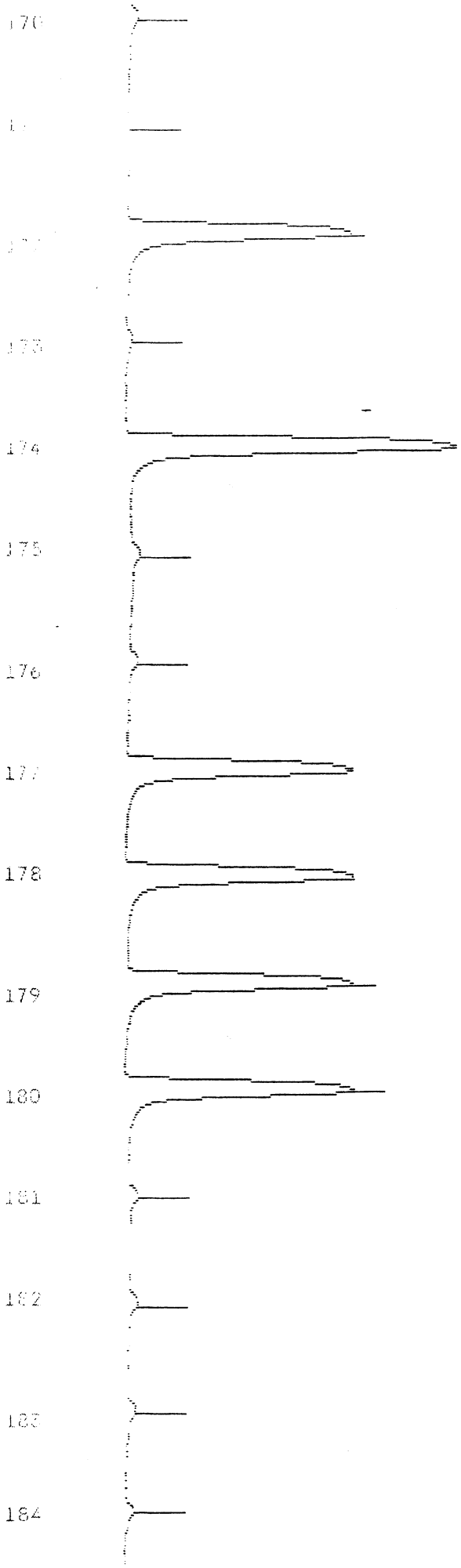
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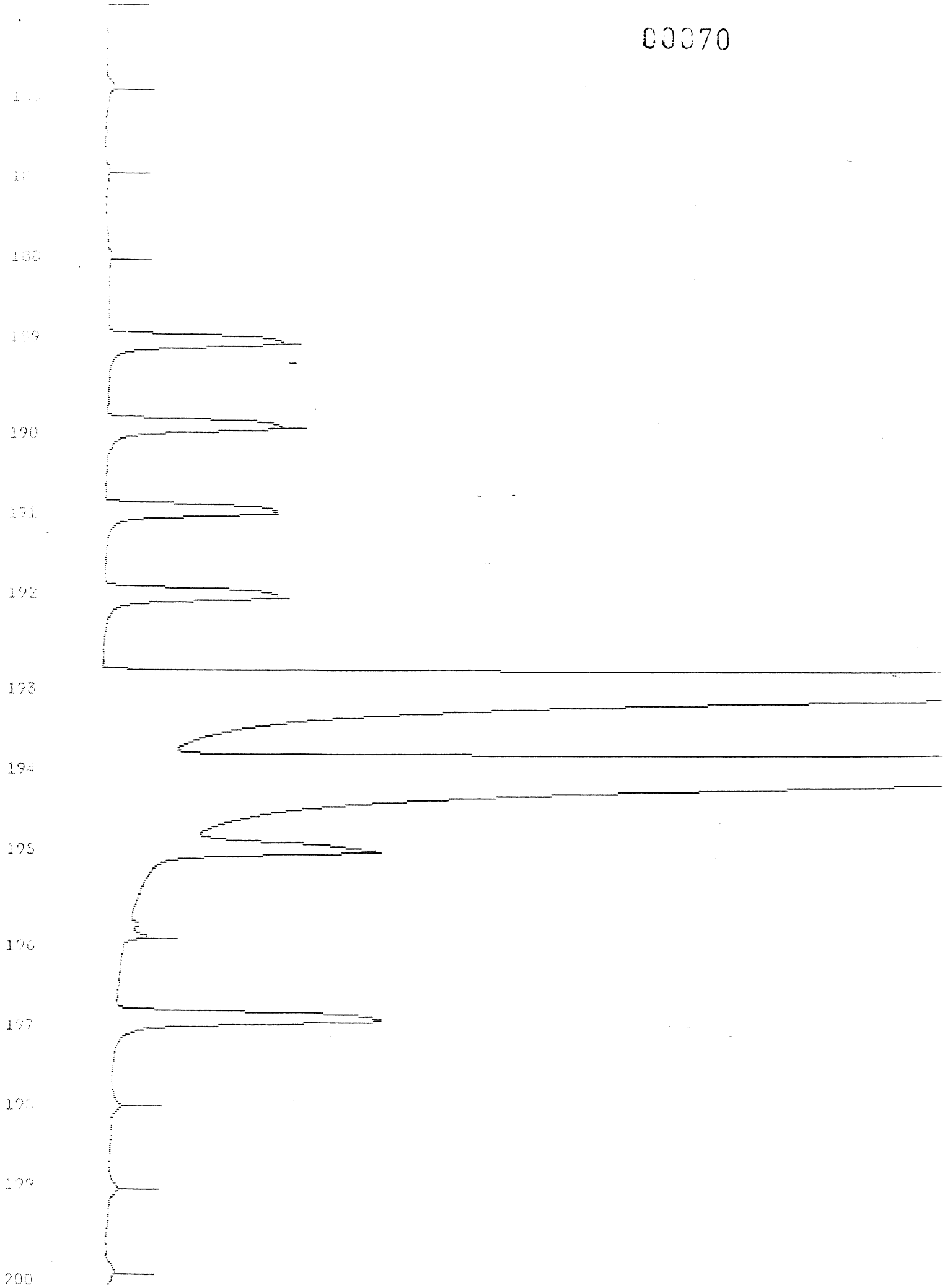
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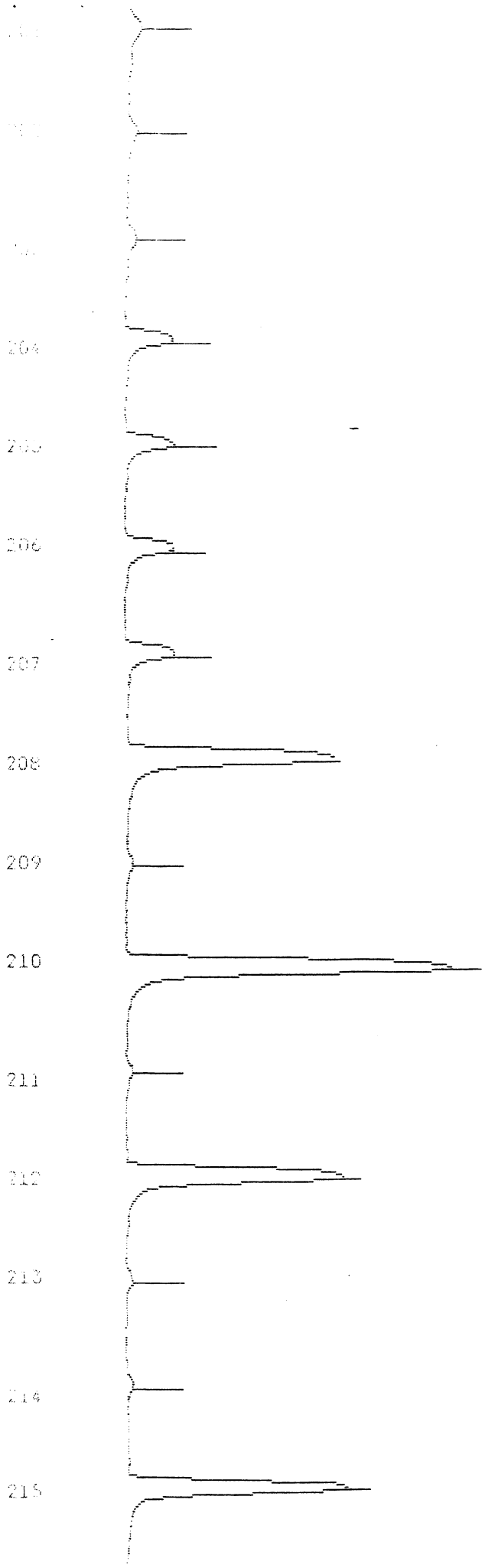
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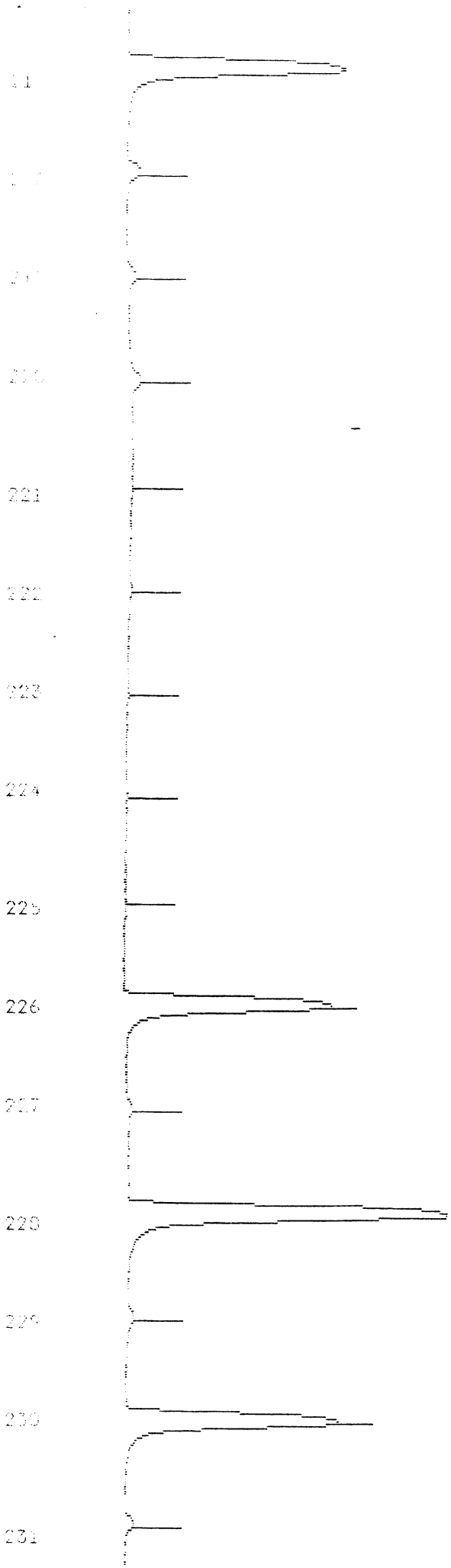
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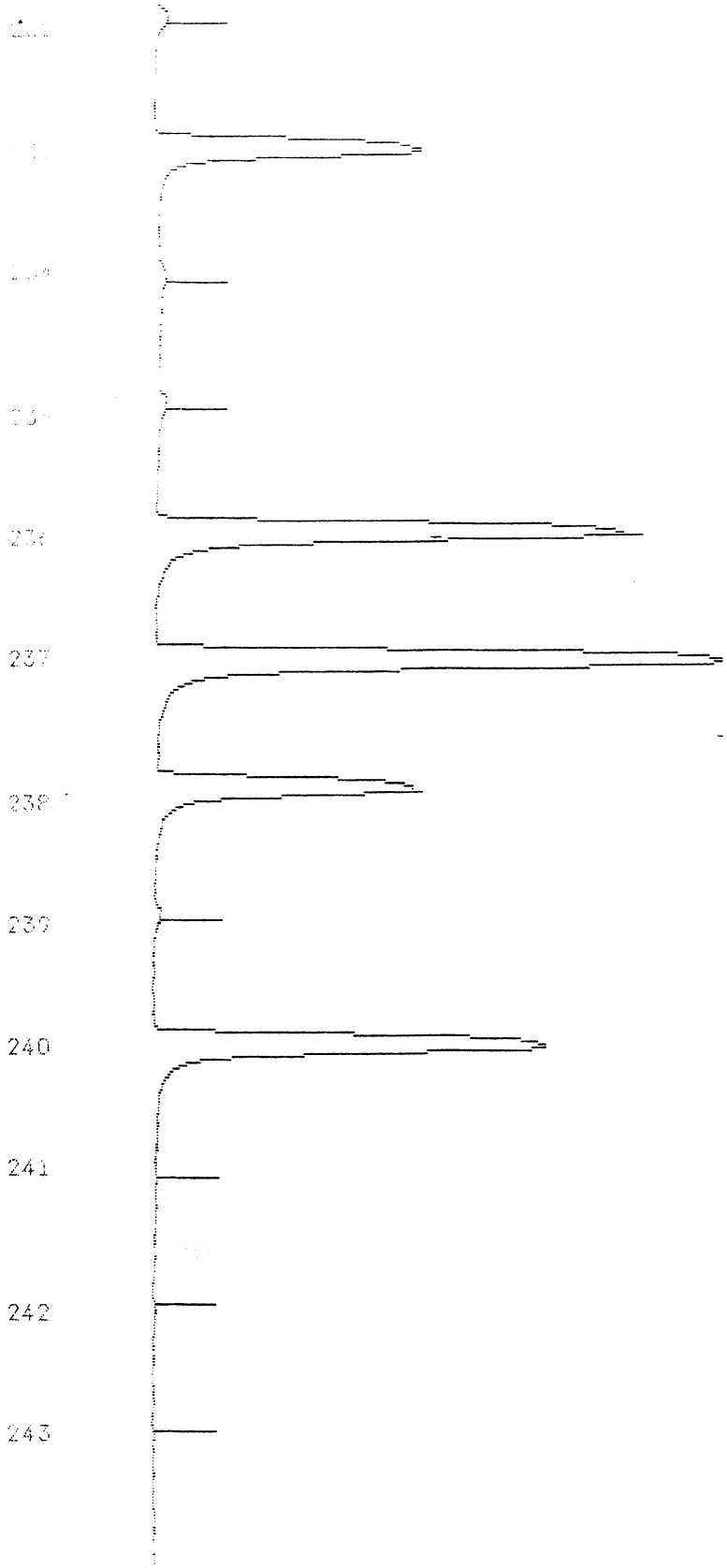
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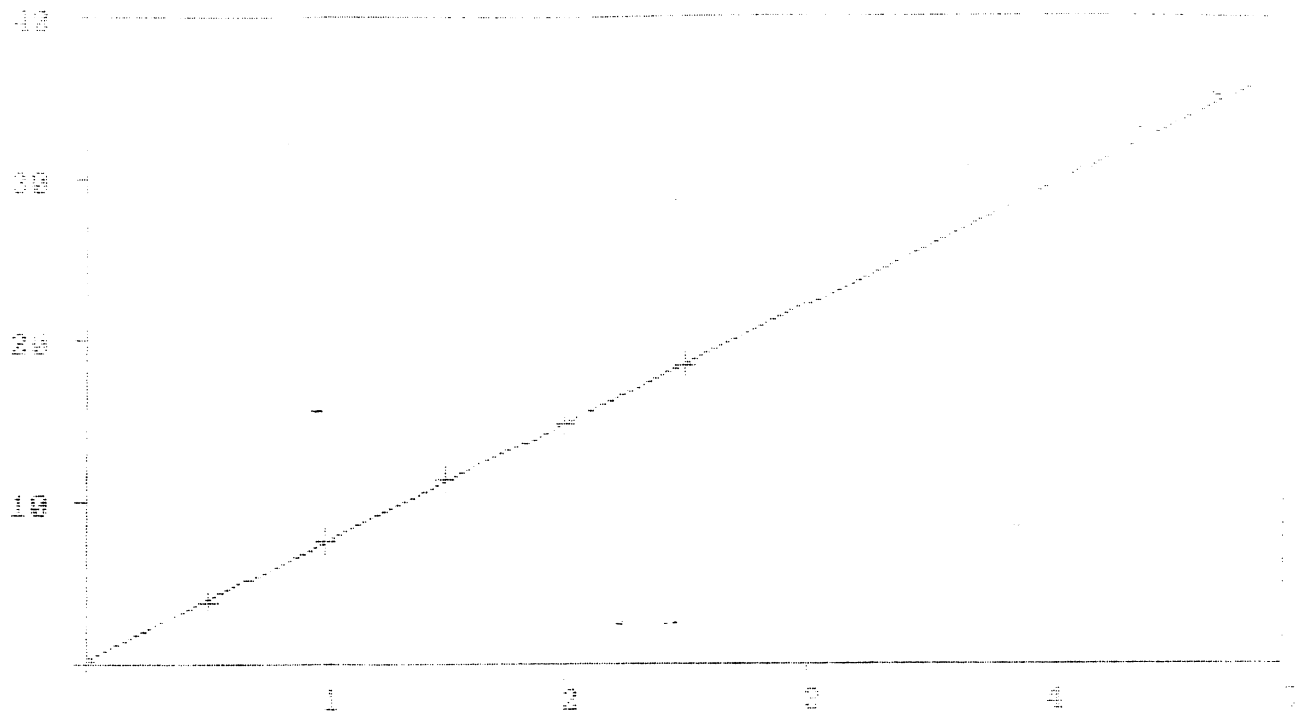
CHANNEL NAME: LOC
RUN NAME: [illegible]



DATE: [illegible] CALIBRATION ORDER: 1
INTERCEPT = 0.25 SLOPE = 7.272[illegible]

CORRELATION: .9998051

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

CUP#	SAMPLE ID	DIL	#UT	HEIGHT/AREA	TUG	CONCENTRATION µg/L	ET
1	PRIMER	1	1	11.0		1.473	
2	DUMMY	1	1	[illegible]		-0.021	
3	C1: 0	[illegible]	[illegible]	[illegible]		-0.015	
4	C2: .5	[illegible]	[illegible]	[illegible]		[illegible]	
5	C3: 1	[illegible]	[illegible]	[illegible]		[illegible]	
6	C4: 1.5	[illegible]	[illegible]	[illegible]		[illegible]	
7	C5: 2	[illegible]	[illegible]	[illegible]		[illegible]	
8	[illegible]	[illegible]	1	[illegible]		[illegible]	
9	[illegible]	1	1	[illegible]		[illegible] 98%	
10	[illegible]	1	1	[illegible]		0.033	
11	[illegible]	[illegible]	1	[illegible]		1.533	
12	[illegible]	[illegible]	[illegible]	[illegible]		[illegible] 92%	
13	[illegible]	[illegible]	1	[illegible]	TUG	[illegible] 113%	
14	[illegible] 64880	[illegible]	[illegible]	[illegible]	<0.03	[illegible]	
15	[illegible]	[illegible]	1	[illegible]		-0.011	
16	[illegible]	1	1	[illegible]	0.298	[illegible] 99%	
17	[illegible]	[illegible]	1	[illegible]		[illegible]	
18	[illegible]	[illegible]	1	[illegible]	0.303	[illegible] 101%	
19	[illegible]	1	1	[illegible]		1.003	
20	4883			7.4	0.981	0.986	
21	64880	[illegible]	1	7.4		0.976	
22	[illegible]	[illegible]	1	[illegible]	1.057	1.063	

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	a·120	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.047	0.007	103%	
[illegible]	648[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]		[illegible]	0.0	<0.100	[illegible]	[illegible]	I
[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]	[illegible]		[illegible]	[illegible]	<0.100	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.568	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	99%	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.097	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.481	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
41	64887	1	1	0.0	<0.100	0.035	I	
42	64887	1	1	0.2		0.308	I	
43	64888	1	1	7.4	0.991	0.982		
44	64888	1	1	7.5		0.999		
45	64889	1	1	3.2	0.405	0.402		
46	64889	1	1	3.2		0.403	s	
47	64890	1	1	1.5	0.170	0.178		
48	64890	1	1	1.5		0.167		
49	BL1118-2NKC	1	[illegible]	-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	BL1118DC	[illegible]	1	7.5	0.300	1.003	100%	
54	BL1118DC	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	648940	1	1	2.1	0.259	0.257		
61	648940	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	648940S	1	1	9.5	1.283	1.275	103%	
65	648940S	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	0.0	<0.100	0.096		
71	64893	1	1	0.0		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	0.463		
75	64896	1	1	3.6		0.462		
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	

00076

94	[illegible]	64880	1	1	[illegible]	<0.03	[illegible]	
95	[illegible]		1	1	[illegible]		[illegible]	
96	[illegible]		1	1	[illegible]	0.305	[illegible]	101%
97	[illegible]		1	1	7.6		1.013	
98	[illegible]		1	1	7.6	0.304	[illegible]	101%
99	[illegible]		1	1	[illegible]		[illegible]	
100	[illegible]		1	1	[illegible]	8.908	[illegible]	
101	[illegible]		1	1	[illegible]	9.244	[illegible]	
102	[illegible]		1	1	[illegible]		[illegible]	
103	[illegible]		1	1	[illegible]	10.050	[illegible]	97%
104	[illegible]		1	1	[illegible]			101%
105	[illegible]		1	1	[illegible]			
106	[illegible]		1	1	[illegible]	9.996		91%
107	[illegible]		1		[illegible]			
108	[illegible]		1		[illegible]	<0.100		
109	[illegible]				[illegible]			
110	[illegible]				[illegible]	<0.100		
111	[illegible]				[illegible]			
112	[illegible]				[illegible]	10.600		
113	[illegible]				[illegible]			
114	[illegible]				[illegible]	11.796	11.809	
					[illegible]		11.782	
					[illegible]	10.560	10.654	
					[illegible]		10.466	
					0.3	<0.100	0.005	I
				1	0.3		0.012	I
					13.9	9.446	9.395	
			5	1	14.1		9.496	s
			4	1	12.6	6.757	6.777	
			4	1	12.5		6.737	
			4	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	BL1118-22MN		1	1	0.0		-0.031	I
131	B'11183		1	1	7.4	MS 0.285	0.976	98%
132	BL1118S		1	1	7.4		0.989	
133	BL1118DS		1	1	7.6	0.303	1.006	101%
134	BL1118DS		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		0.657	
139	64894C		1	1	12.7	1.721	1.714	103%
140	64894C		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 DIL.
144	64891		1	1	53.[illegible]		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	0.130	
148	64893		1	1	1.6		0.134	
149	CCV		1	1	7.5		1.00[illegible]	100%
150	B		1	1	0.0		-0.035	b
151	D4		1	1	11.4		1.533	d
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.[illegible]	

00077

187	[illegible]	1	[illegible]	[illegible]		[illegible]		
188	64798	4	[illegible]	1	4.830	4.817		
189	64800	4	1	0		4.821		
190	64809	4	1	0	5.918	[illegible]		
191	64825	4	1	[illegible]		5.9		
192	64900	1	1	[illegible]	6.724	[illegible]		
193	[illegible]	4	1	[illegible]		[illegible]		
194	BL1118-10MN	1	1	0	<0.03	0.037	I	
195	BL1118-30MN	1	1	0.0		0.0[illegible]	I	
196	BL1118S	[illegible]	[illegible]	[illegible]	0.303	1.00[illegible]		101%
197	BL1118	1	[illegible]	0		.01[illegible]		
198	BL1118DS	1	1	[illegible]	0.300	1.00[illegible]		100%
199	BL1118DS	1	[illegible]	[illegible]		0.99[illegible]		
200	64701	1	1	2.1	<0.05	0.021	I	
201	64701	1	[illegible]	0.0		-0.035	I	
202	CCV	1	[illegible]	1.7		1.0[illegible]		101%
203	B	1	1	0.0		-0.035	b	
204	D4	1	1	11.4		1.533	d	
205	647010	1	1	0.1	<0.05	-0.021	I	
206	647010	1	1	0.0		-0.035	I	
207	64701S	1	1	7.6	0.509	1.013		101%
208	64701S	1	1	7.7		1.023		
209	647010S	1	1	7.5	0.504	1.003		101%
210	647010S	1	1	7.6		1.013		
211	64702	1	1	-0.0	<0.05	-0.035	b	
212	64702	1	1	0.0		-0.035	I	
213	64703	1	1	0.0	<0.05	-0.035	I	
214	64703	1	1	0.0		-0.035	I	
215	64705	1	1	0.0	<0.05	-0.035	I	
216	64705	1	1	0.0		-0.035	I	
217	BL1118-18HY 64880, 65692,	1	1	0.0	<0.05	-0.035	I	
218	BL1118-18HY 65763, 65830, 66553	1	1	0.0		-0.035	I	
219	BL1118S	1	1	7.2	0.096	0.959		96%
220	BL1118S	1	1	7.2		0.956		
221	BL1118DS	1	1	7.0	0.094	0.932		94%
222	BL1118DS	1	1	7.1		0.942		
223	64670	1.5	1	97.2	Dil: 2		C	
224	64670	1.5	1	94.1	Dil: 2		C	
225	CCV	1	1	0.1		1.073		107%
226	B	1	1	0.0		-0.035	b	
227	D4	1	1	11.4		1.533	d	
228	64881	1.5	1	0.0	<0.01	-0.052	I	
229	64881	1.5	1	0.0		-0.052	I	
230	64892	1.5	1	0.0	<0.01	-0.052	I	
231	64892	1.5	1	0.0		-0.052	I	
232	66553	1.5	1	0.0	<0.01	-0.052	I	
233	66554	1.5	1	0.0		-0.052	I	
234	65764	1.5	1	1.3	0.022	0.219		
235	65764	1.5	1	1.4		0.230		
236	65693	1.5	1	1.4	0.024	0.230		
237	65693	1.5	1	1.4		0.241		
238	CCV	1	1	7.3		0.962		96%
239	B	1	1	0.0		-0.035	b	
240	D4	1	1	11.4		1.533	d	
241	BL1118-3101	[illegible]	1	0.0		-0.035	[illegible]	
242	BL1118S	1	1	[illegible]		1.00[illegible]		100%
243	68153	1	1	0.1		-0.0[illegible]	I	
244	681530	1	1	0.0		0.035	I	
245	681533	1	1	[illegible]		1.009		101%
246	68151, 67993, 68009, 68310	1	1	0.0		-0.03[illegible]	I	
247	681513	1	1	[illegible]		1.0[illegible]		101%
248	68003	1	1	0.3		0.009	I	
249	68070	1	1	0.1		-0.018	I	
250	68317	1	1	0.1		-0.01[illegible]	I	

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	0.0	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	0.0	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	96%
[illegible]	[illegible]	[illegible]	[illegible]	0.0	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	11.4	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	0.0	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	98%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	101%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	0.0	[illegible]	
[illegible]	WG [illegible]	[illegible]	[illegible]	15.7	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	98%
239	B	[illegible]	1	0.0	-0.035	B
240	04	[illegible]	1	11.4	1.536	[illegible]
241	0	[illegible]	1	0.0	-0.035	S
242	0	1	1	0.0	-0.03	I

INTERCEPT: 0.25 LINEAR COEF: 7.272981

CORRELATION COEF: [illegible]

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)	0.6		
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			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		MB	~~65710 D~~ CCV			
58		MB	" B			
59		MB	~~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	ZBHN		
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						
81 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			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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						
55						
56						
57						
58						
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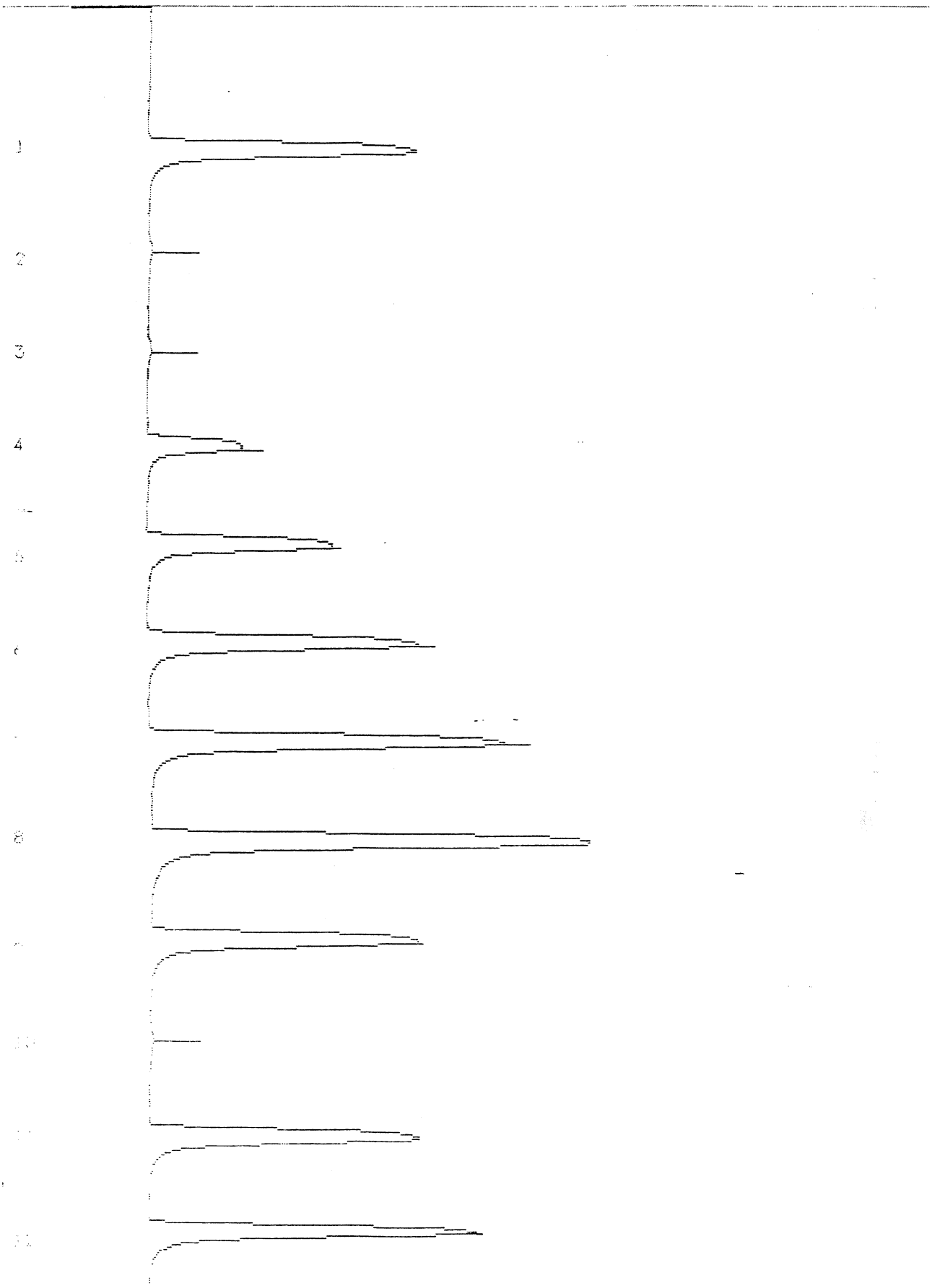
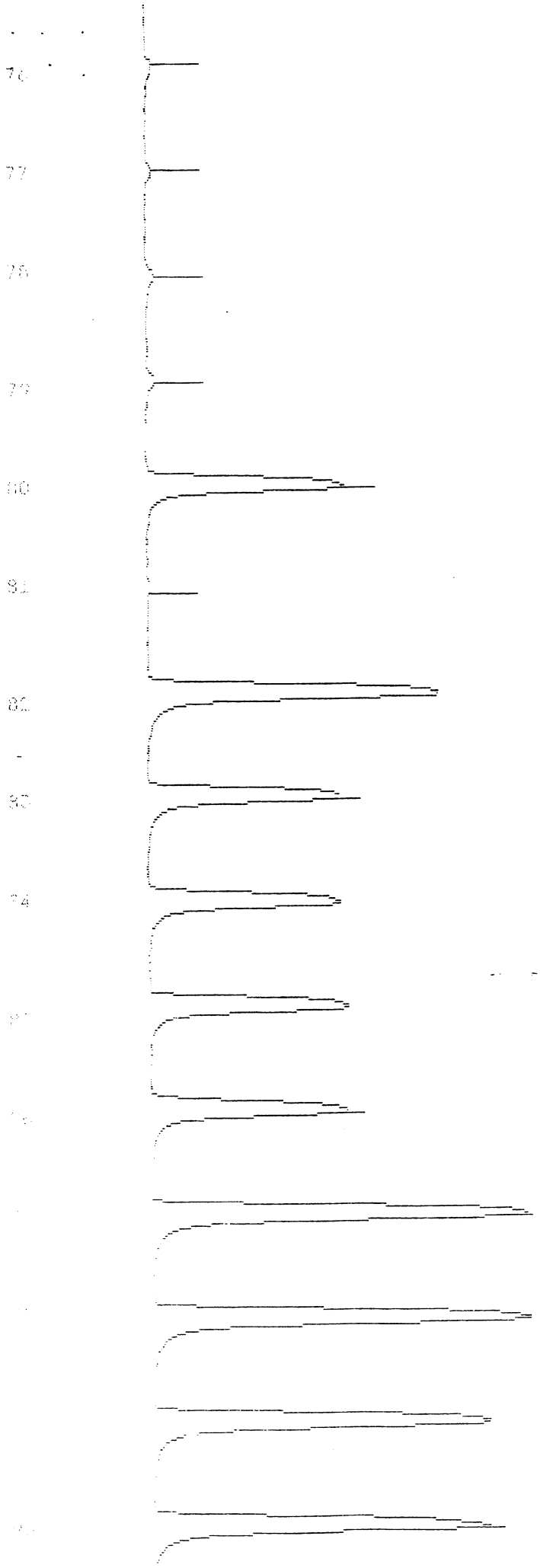
77						
78						
79						
80						

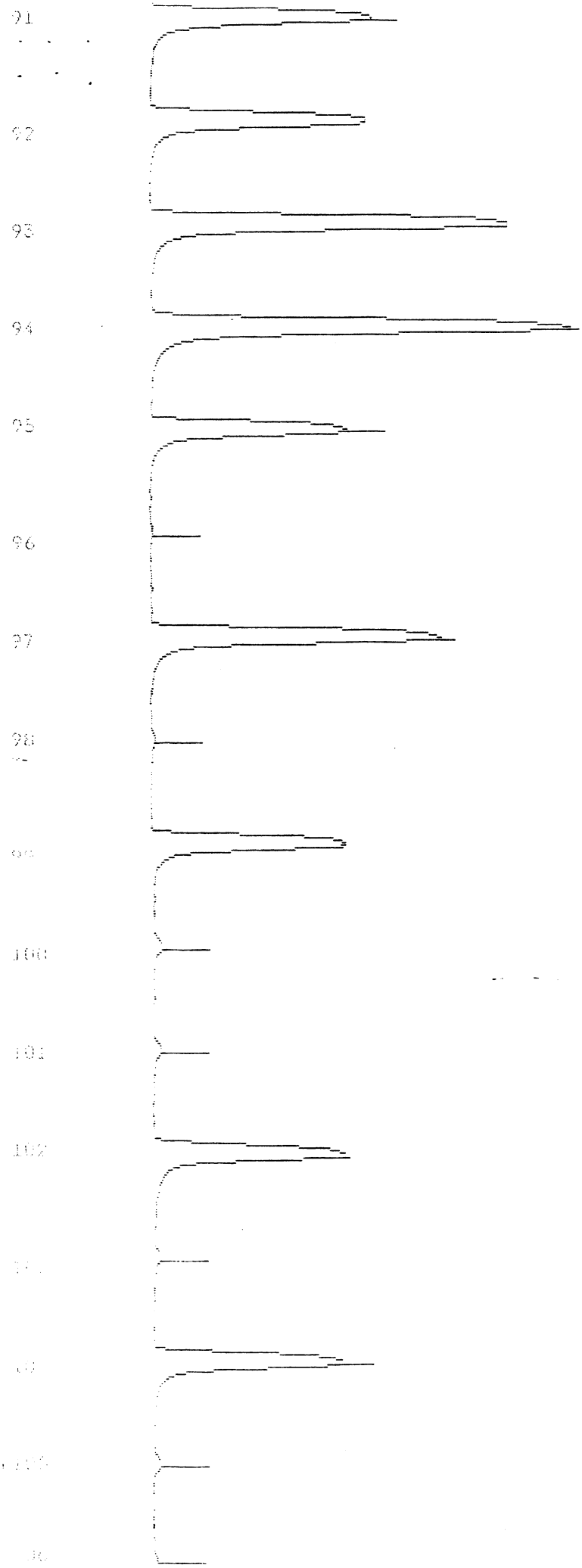
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

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

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






91
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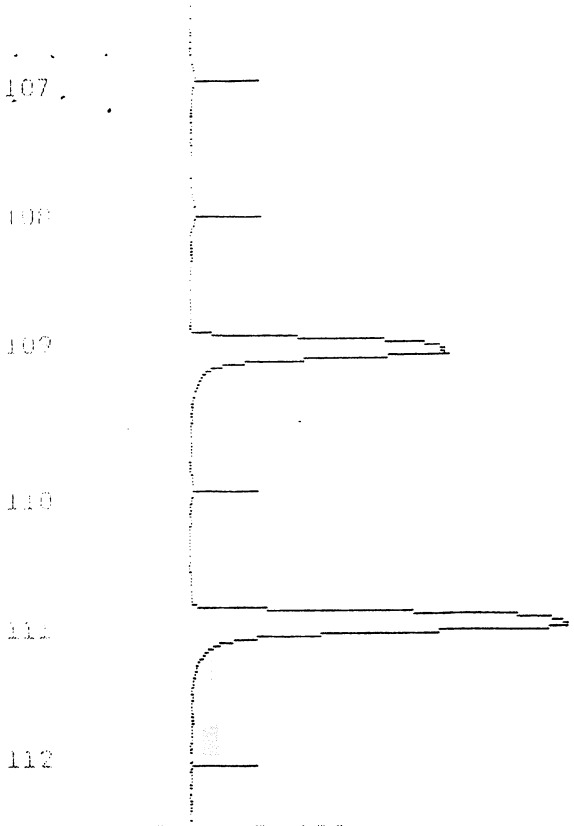
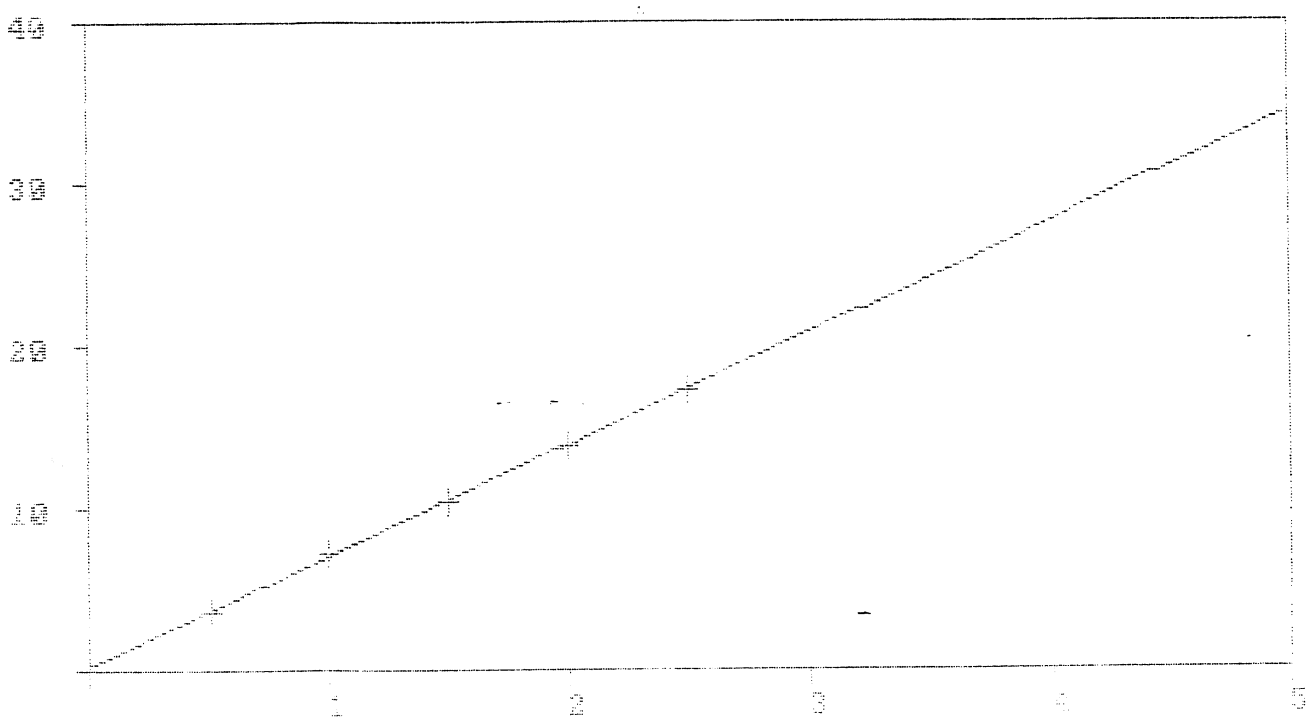


CHANNEL NAME: LDC
RUN NAME: 991119W



CHANNEL NAME: LDC
RUN NAME: 991119W
SAMPLE TABLE NAME: [illegible]
METHOD NAME: HGWATER

µg/L

00086

4	[illegible]	[illegible]	[illegible]	[illegible]				
5	[illegible]	[illegible]	[illegible]	[illegible]				
6	[illegible]	[illegible]	[illegible]	[illegible]				
7	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				100%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TUG			98%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				109%
[illegible]	[illegible] 65692			[illegible]	<0.01			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.100			100%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
18	[illegible]	[illegible]	[illegible]	[illegible]	0.101			101%
19	[illegible]	[illegible]	[illegible]	[illegible]				
20	[illegible]	10	1	0.1	<0.250	-0.094	I	
21	[illegible]	-10	1	0.1		-0.1[illegible]	I	
22	[illegible]	[illegible]	[illegible]	0.1	<0.250	-0.058	I	
23	[illegible]	10	1	0.1		-0.058	I	
24	[illegible]	10	1	7.0	2.501	9.986		100%
25	[illegible]	10	1	7.0		10.022		
26	[illegible]	10	1	6.8	2.439	9.736		97%
27	[illegible]	10	1	6.9		9.772		
28	[illegible]	10	1	-0.1	<0.250	-0.165	I	
29	[illegible]	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		0.988		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	0.1	<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	1	1	0.0	NS <0.250	-0.024		<0.01
50	[illegible]1119-2NPO 65763	[illegible]	1	0.0		-0.077	I	
51	BL11190	1	[illegible]	6.9	0.099	0.981		99%
52	BL11190	1	1	7.0		0.990		
53	BL111900	1	1	7.2	0.102	1.031		102%
54	BL111900	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	657100	10	1	0.1	<0.250	-0.058	I	
61	657100	10	1	0.1		-0.129	S	
62	657100	10	1	7.2	2.573	10.272		103%
63	657100	10	1	7.2		10.308		
64	6571000	10	1	7.2	2.559	10.236		102%
65	6571000	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	

86A

70	65716	10	1	1	<0.250	-0.129	I	
71	65716	10	1	1.0		-0.262	I	
72	65714	10	1	1	<0.250	-0.168	I	
73	65714	10	1	1.1		-0.129	I	
74	65715	10	1	1	<0.250	-0.129	I	
75	65716	10	1	1		-0.129	I	
76	65716	10	1	1	<0.250	-0.073	I	
77	65716	10	1	1		-0.094	I	
78	BL1118 - 2BMN, 64669	1	1	7	<0.03	0.001	<0.01	
79	BL1118	1	1	7		-0.002	I	
80	CCV	1	1	1		1.006	101%	
81	B	1	1	0.0		-0.027	b	
82	D4	1	1	1.5		1.506	d	
83	BL1118	1	1	8	0.293	0.974	97%	
84	BL1118S	1	1	7.9		0.981		
85	BL1118DS	1	1	1.1	0.302	1.006	101%	
86	BL1118DS	1	1	1.1		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		~~104.316~~		
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	BL1112-STA1	1	1	0.0		-0.020	I	
99	BL1112S	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[illegible] 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.	
BL1209	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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.09(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)	0.6		
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			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			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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			64674 D			
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.

Blank Spike = 1.0 mg/kg for solid samples.

DC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.09(WD) Run Code: MGo-v 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 MA			
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			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.09(WA) 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						
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16						
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19						
20						
41 ~~21~~			70235			
22			70237			
23			"			
24			70238			
25			"			
26			55			
27			WS 378			
28			ORG. REF			
29			CCV			
30			B			
31			D4			
32						
33						
34						
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37						
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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.

Spike = 1.0 mg/kg for solid samples.

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
05591
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.)	1633	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.)	2638	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	70234	"	"	"	"	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

00093

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.)	INFT	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	64678	"	"	"	"	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.)	INFB	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. 119090	H2SO4 Lot. No. MN ~~577~~ 318064	Bath Temps. 1 195°C

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

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	41	CCV (Cont. Calib. Verif.)	3NPR	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
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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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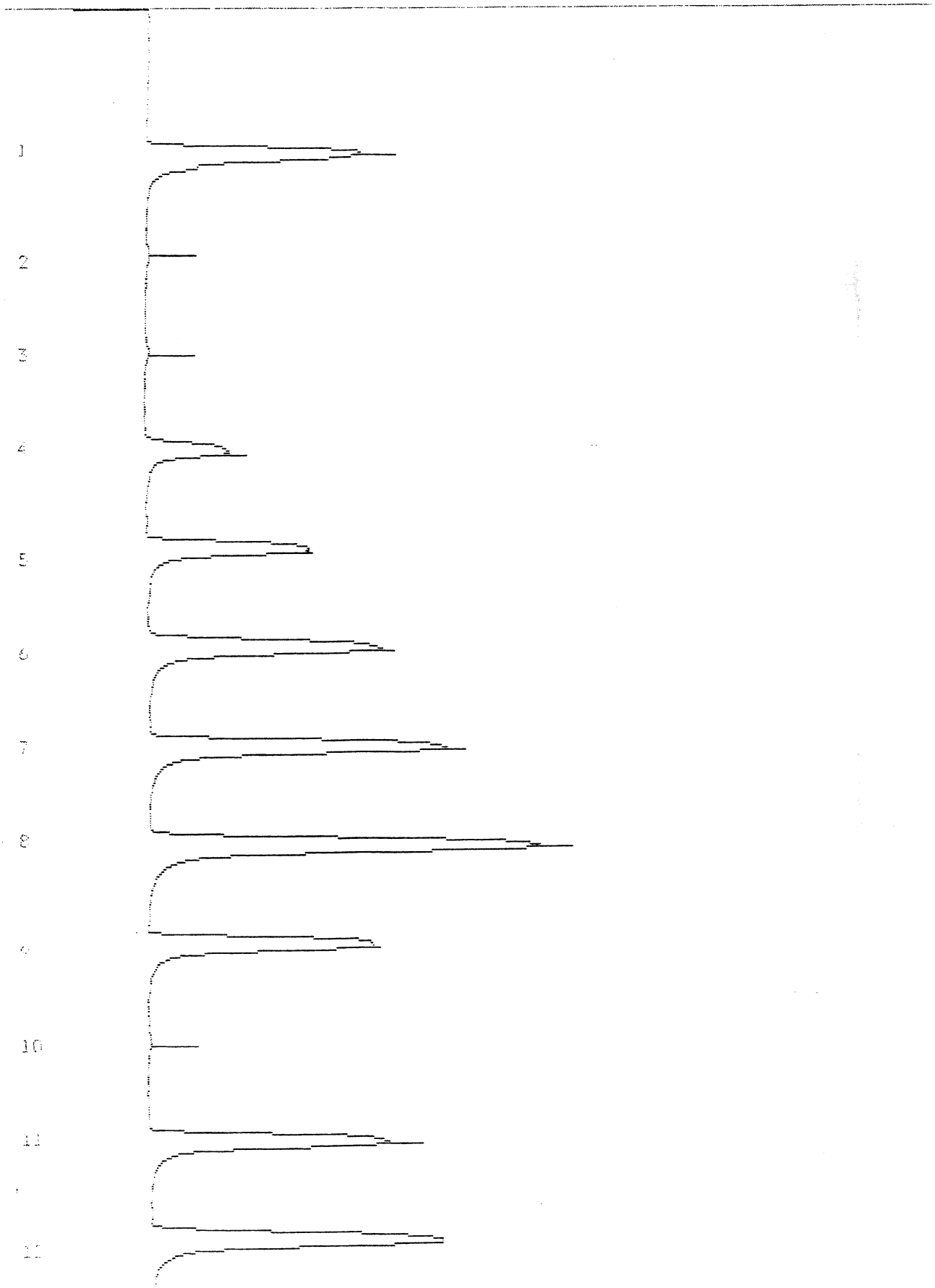

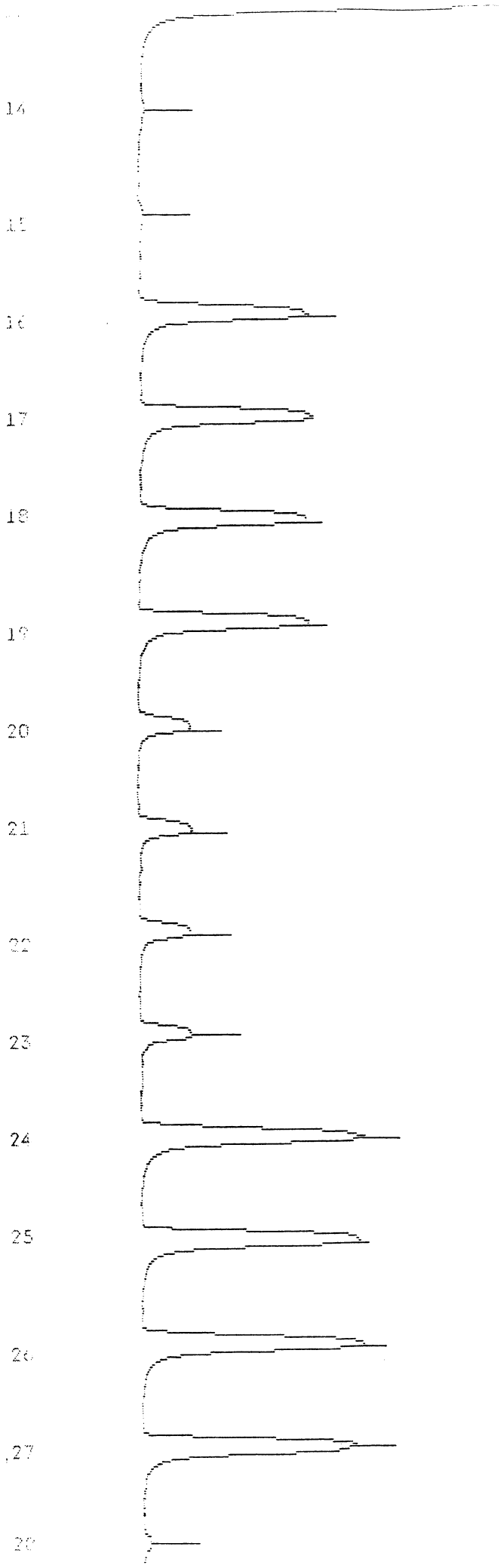
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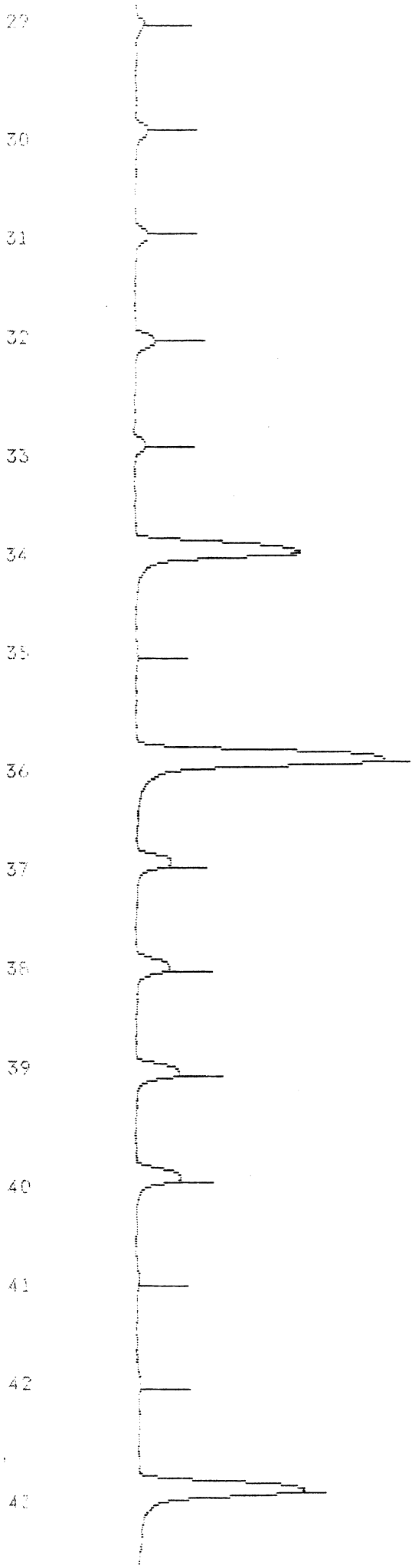
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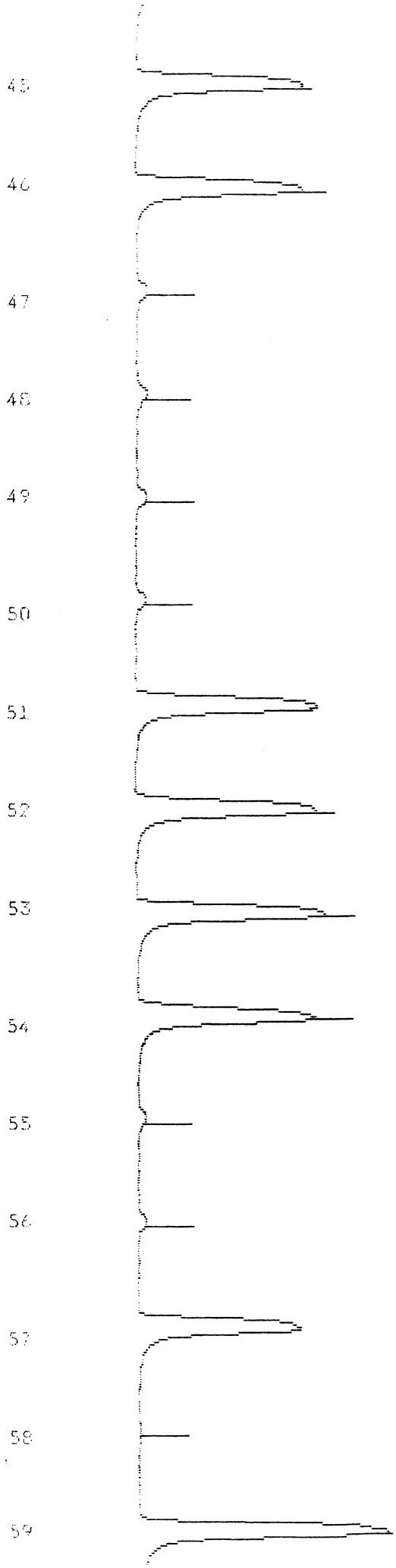
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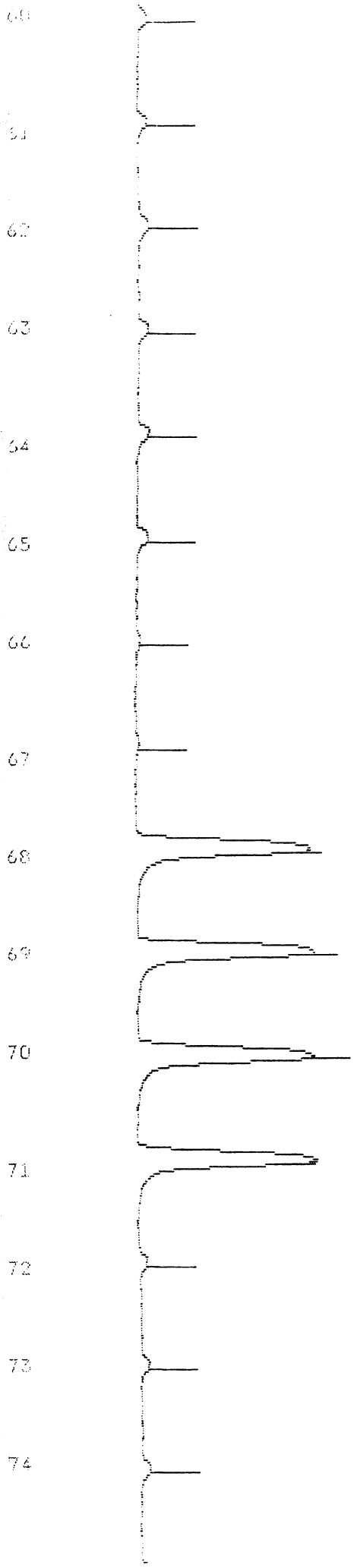
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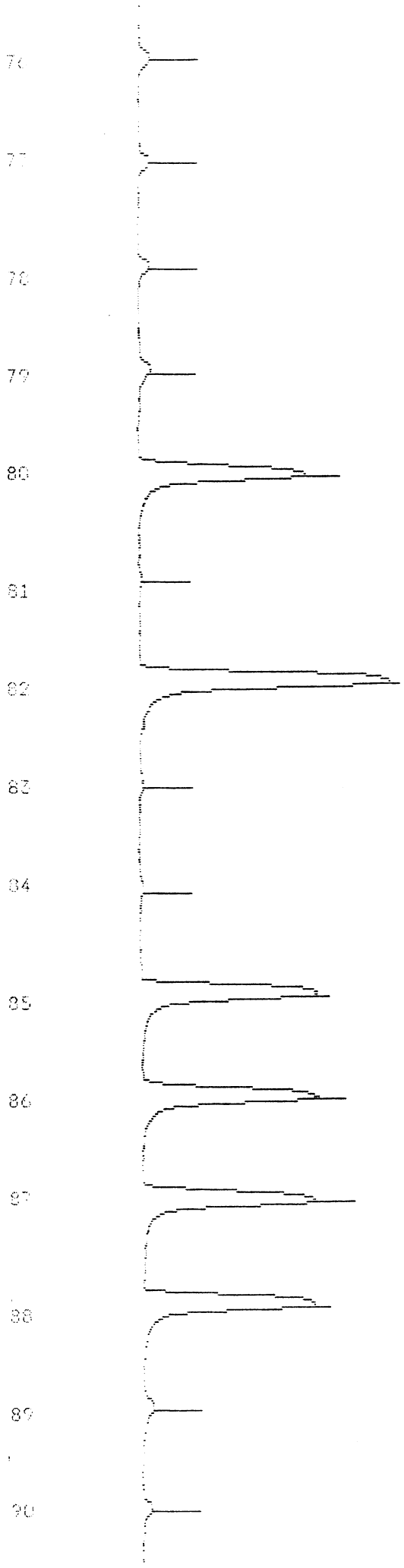
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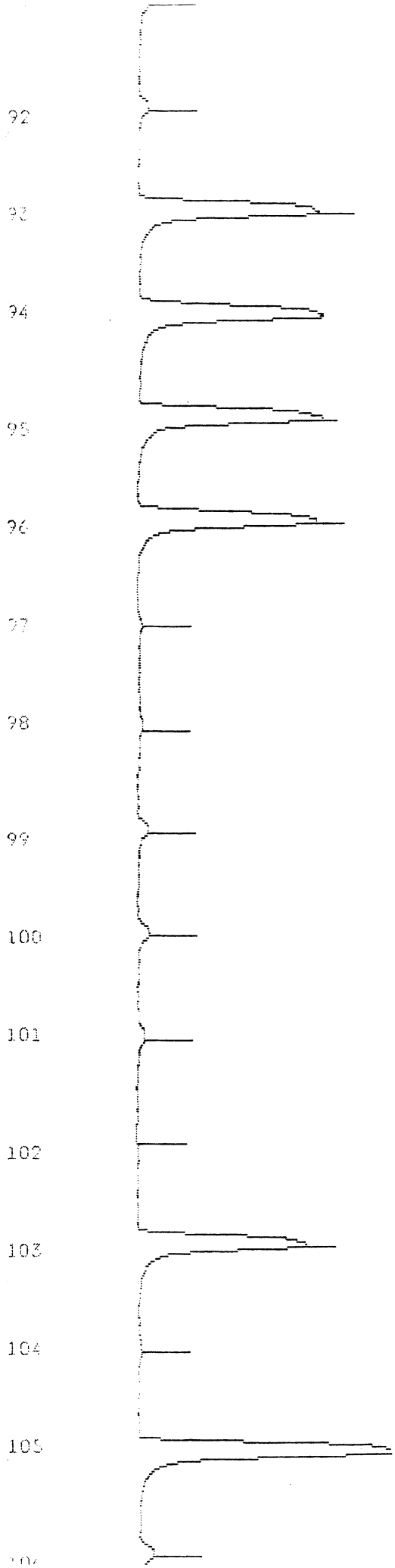
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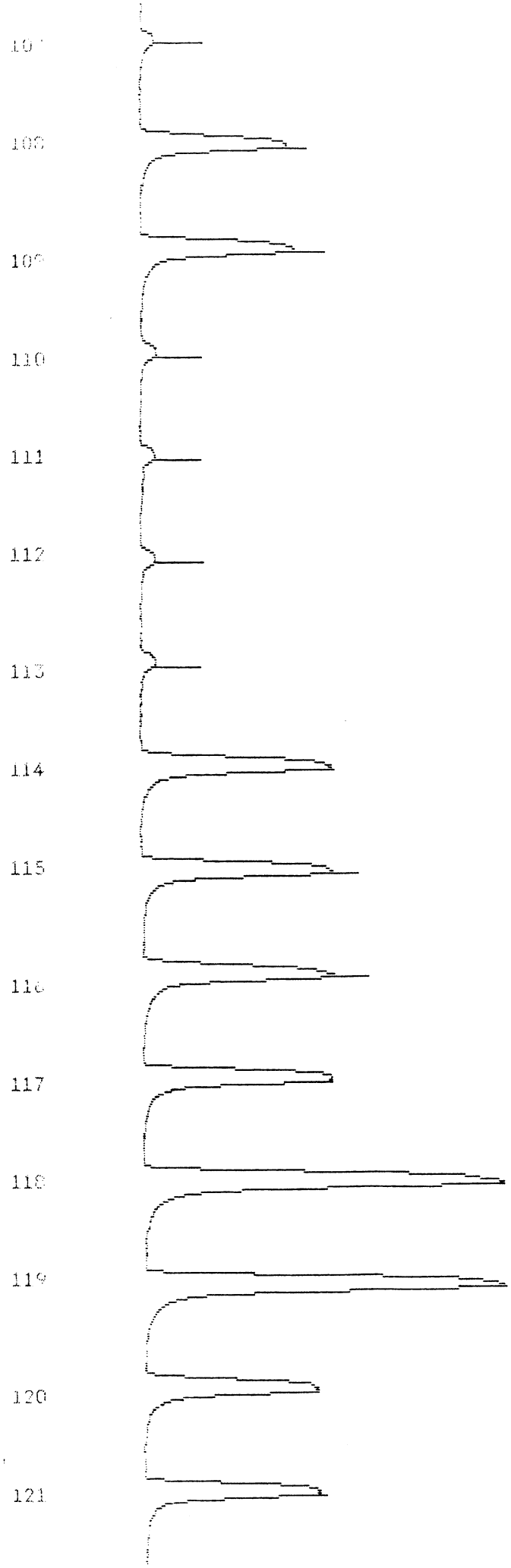
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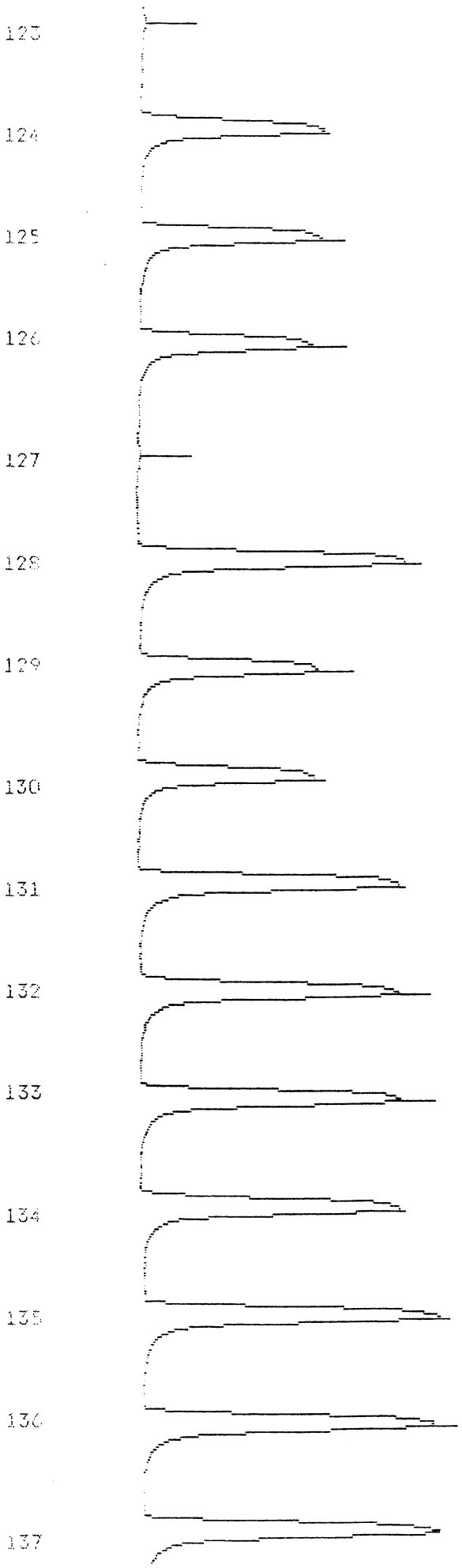
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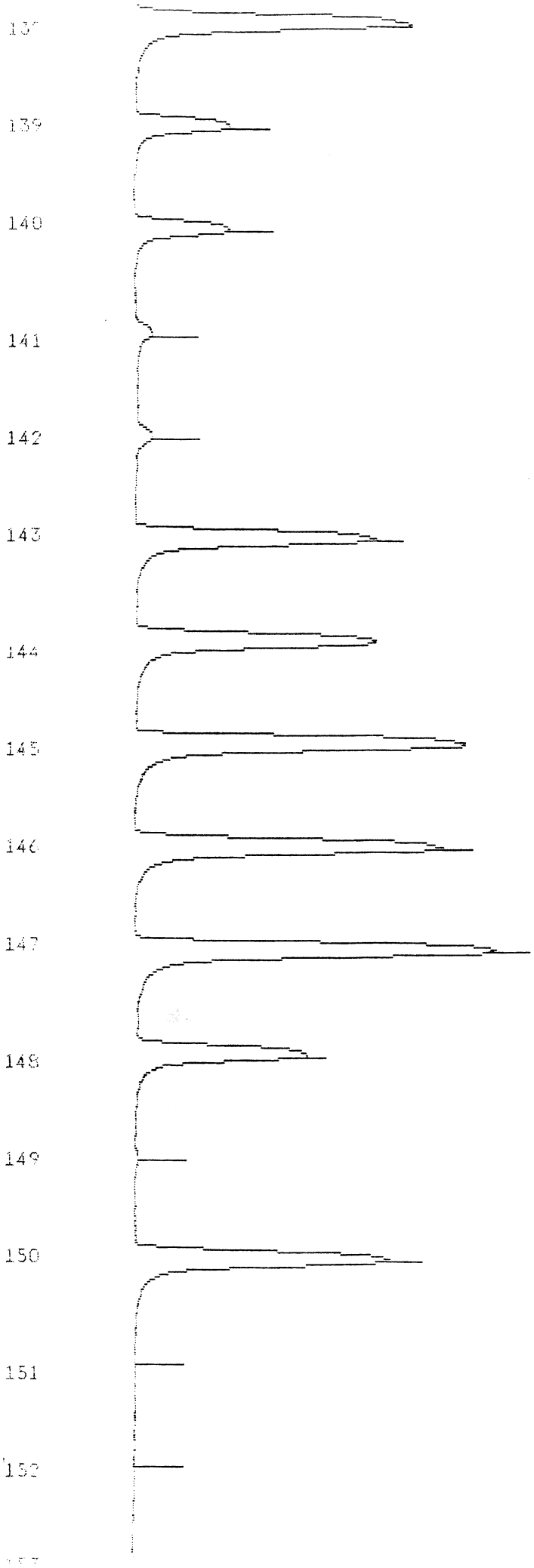
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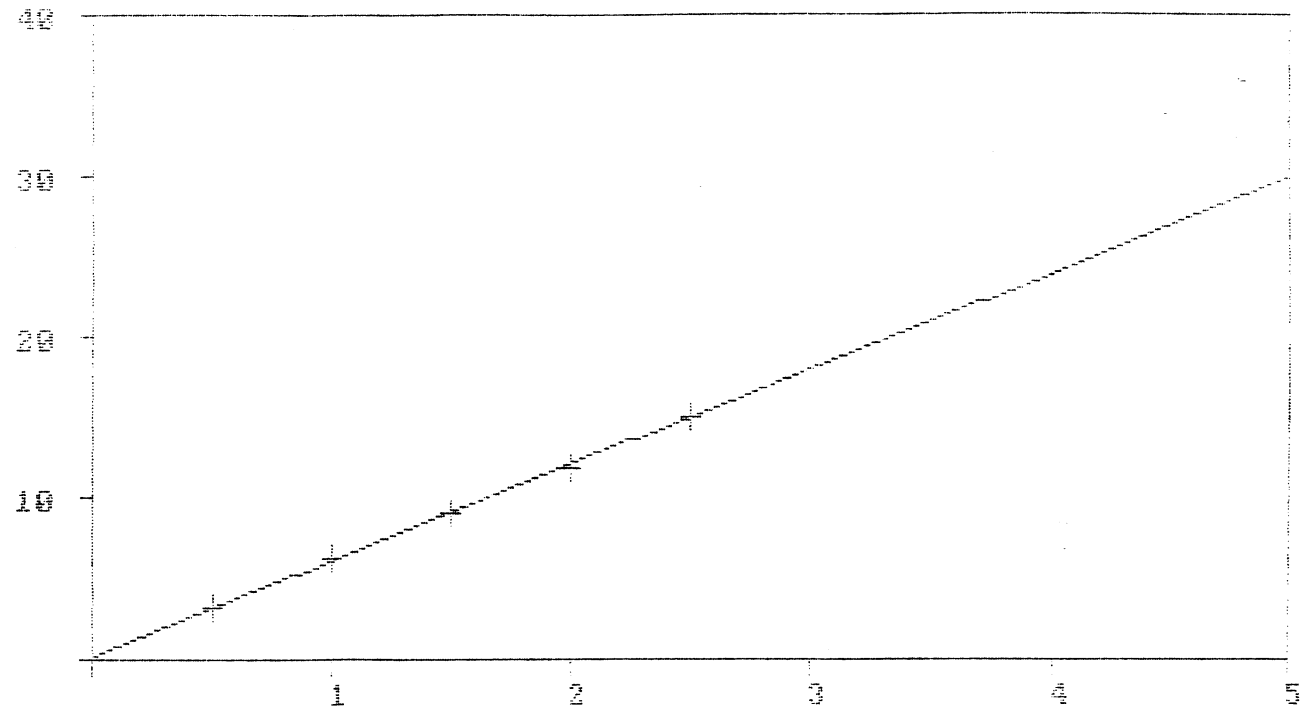
CHANNEL NAME: LDC
RUN NAME: 991209WA



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CALIBRATION ORDER: 1
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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	TUG	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		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	BL1209OS	1	1	6.1	0.102	1.015	102%
19	BL1209OS	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	0.273	

25	64678S		1	1	8.0	[illegible]	[illegible]	[illegible]
26	64678DS		1	1	8.2	0.133	0.0[illegible]	1040
27	64678DS		1	1	7.8		1.29[illegible]	
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	69584, 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	

91	[illegible]	1	1	0.2	<0.05	[illegible]		
92	70192D	1	1	0.2		[illegible]		00.07
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	95 ~~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 Tryba
Project ID/Project Name	CMXX-99-0306
P.O. #	
Company	Braun Intertec Corp
Mailing Address	P.O. Box 39108
City, State, Zip	Minneapolis MN 55439
Telephone #	(612) 833-4656
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	OH Hg										FOR LAB USE ONLY
1	C012 - Stack Filter Blank	✓		Filter	250AU			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 Tryba	Collector's Signature:	[signature]
Relinquished by:	[signature]	Date/Time 10/4/99 13:05	Received by: [signature] PASC — Date/Time 9/11/98 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 _____		Comments:
Temperature _____ °C	☐ Received on Ice		
Matrix Spike Samples Received:	☐ Yes ☐ No ☐ N/A		

00.09

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 39199
City, State, Zip: Minneapolis, MN 55439
Telephone #: (612) 832-4654 Fax #: (612) 946-0021

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 (0.1N 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 (0.1N 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 10/21/99 12:45
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	Project ID/Project Name	Cmxx-99-0306
Company	Braun Intertec Corp.	P.O. #	
Mailing Address	P.O. Box 39108		
City, State, Zip	Minneapolis, MN 55439		
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	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 HNO3)	✓		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)	✓			1LG			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 Tryba	Collector's Signature:	
Relinquished by:		Date/Time 10/12/99 13:05	Received by:	Date/Time 10/12/99 13:15
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 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

MB-64880.

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) 885-4654
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 - C04 (HNO3 - H2O2)	✓		Liq	250AK			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 (KMnO4 - H2SO4)	✓			1LCG			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 HNO3 Blank	✓			250AK			X										
12	C08 - KCl Blank	✓						X										
13	C09 - HNO3 - H2O2 Blank	✓						X										64881
14	C010 - KMnO4 - H2SO4 Blank	✓						X										
15	C011 - Hydroxlamine Blank	✓						X										

CHAIN OF CUSTODY

Collected by: (Print)	James Tryba	Collector's Signature: [signature]
Relinquished by:	[signature]	Date/Time 10/21/99 13:00
Relinquished by:		Date/Time
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 Received: ☐ Yes ☐ No ☐ N/A

Comments:

00.13

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 Trybo
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis MN 55439
Telephone #: (612) 833-9654 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 Unit 3 (Filter) ✓			Filter	500AF			X									64893
2	IR1-C01 " ✓							X									64894
3	IR2-C01 " ✓							X									64895
4	IR3-C01 " ✓							X									64896
5	IB-C02 " (0.1N HNO_3) ✓			Liq.	500AF			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 " (HNO_3-H_2O_2) ✓				250AF			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 11/08 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 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) 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	IR3-C04 Unit 3 (HNO3-H2O2)	✓		Liq.	250AG.			X										64896.
2	SO-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 be IB

CHAIN OF CUSTODY
Collected by: (Print) James Tryba
Relinquished by: [signature] Date/Time 10/21/99 14:15
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:

00115

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
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 99-0506
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 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.	500ML			X									64897
6	SR1-C02 "	✓						X									64898
7	SR2-C02 "	✓						X									64899
8	SR3-C02 "	✓						X									64900
9	SB-C03 " (0.1N HCl)	✓			1LCG			X									64897
10	SR1-C03 "	✓						X									64898
11	SR2-C03 "	✓						X									64899
12	SR3-C03 "	✓						X									64900
13	SB-C04 " (HNO3-H2O2)	✓			250ML			X									64801 64897
14	SR1-C04 " (HNO3-H2O2)	✓						X									64897 64898
15	SR2-C04 "	✓						X									64899

CHAIN OF CUSTODY

Collected by: (Print) James Tryba	Collector's Signature: [signature]	
Relinquished by: [signature]	Date/Time 10/21/99 14:15	Received by: [signature]	Date/Time 99/10/28 13:15
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 _____		Comments:	
Temperature _____ °C ☐ Received on Ice			
Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A			

009

BRAUNSM 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 59108
City, State, Zip: Minneapolis MN 55439
Telephone #: (612) 833-4054 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	SB3-C04 Unit 3 (HNO3-H2O2)		✓	Liq	1466			X										64900
2	SB-C05 " (Kmno4-H2SO4)		✓					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 " Kmno4-H2SO4 Blank		✓					X										64892
10	C011 " Hydroxylamine 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
Relinquished by: [signature] Date/Time 10/4/99 14:15
Relinquished by: Date/Time

Collector's Signature: [signature]
Received by: [signature] Date/Time 10/6/99 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 Received: ☐ Yes ☐ No ☐ N/A

Comments:

C0.17

Page ___ of ___

US SAMPLE LOG IN SHEET

BRAUN

Lab Name: Philip Analytical Services Corporation, Burlington Laboratory

Received By (Print Name): [illegible]

Received By (Signature): K. Carauro

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: 'Old' 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

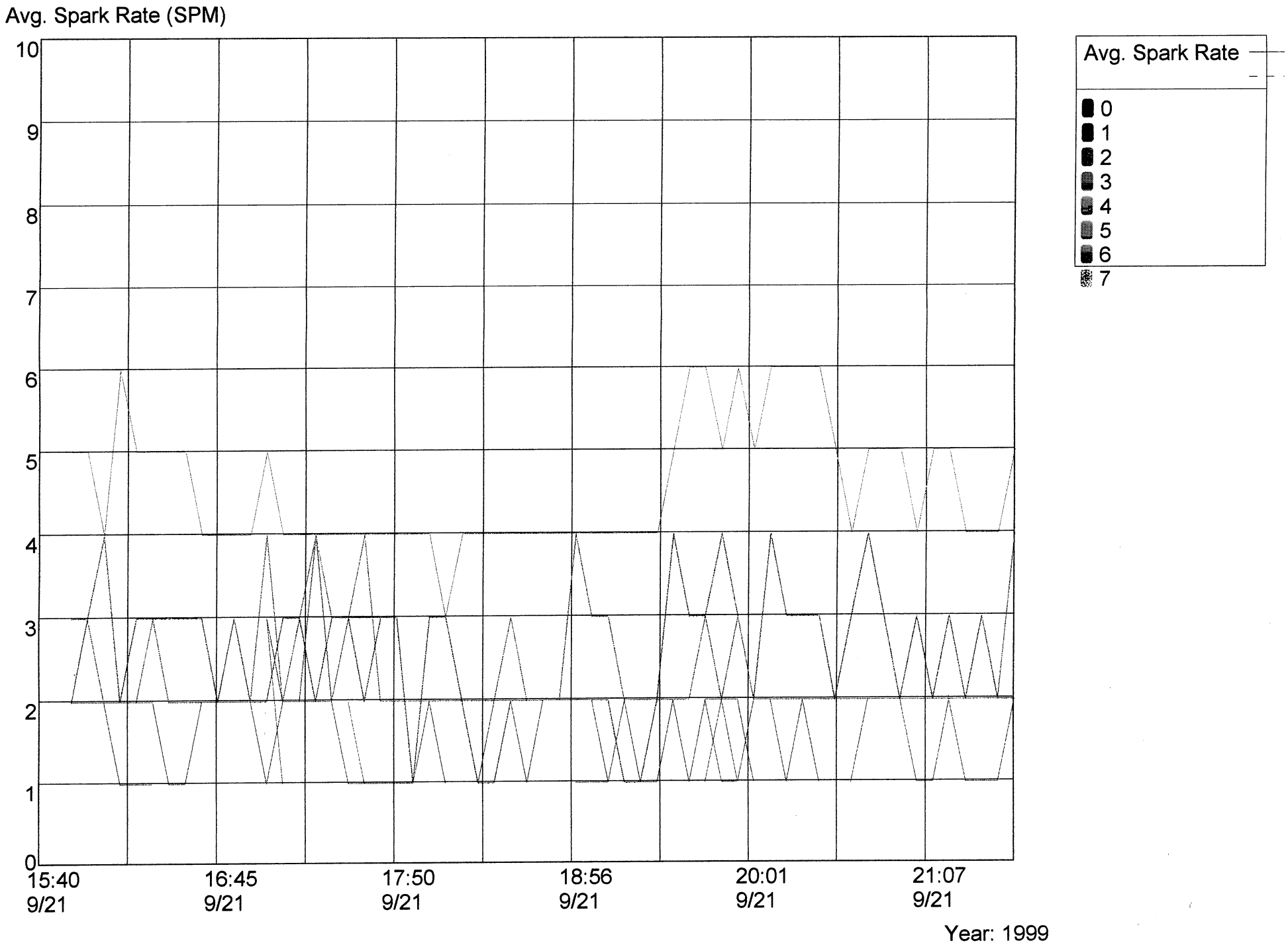
APPENDIX F

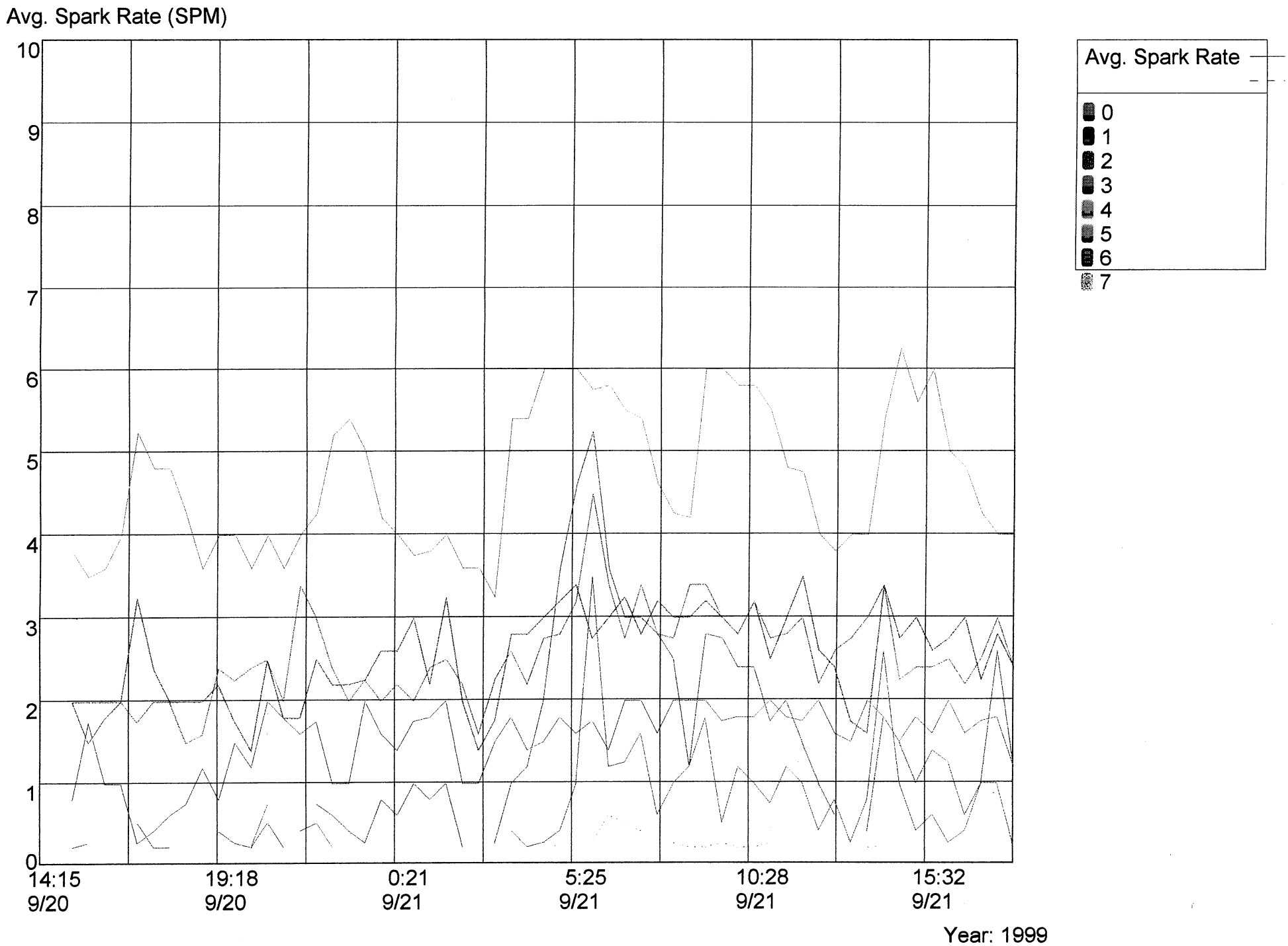
PROCESS OPERATING DATA SHEETS

Laramie River Station - Unit 1
Mercury Stack Testing Data Retrieved From the OPM

Description	Unit of Measure	Run 1	Run 2	Run 3	Run 4
Start Date and Time	MDT	9/20/99 15:19	9/21/99 9:02	9/21/99 12:26	9/21/99 16:40
End Date and Time	MDT	9/20/99 18:15	9/21/99 11:34	9/21/99 14:52	9/21/99 19:04
Gross Generation	MW	510	554	530	529
Scrubber Inlet Temp	deg F	273	284	277	276
Scrubber Inlet SO2	ppm	384	392	406	404
Coal Flow Rate	Tons/Hr	302	331	316	314
Main Steam Flow	KLB/Hr	3403	3848	3578	3591
Main Steam Pressure	PSIG	2388	2459	2439	2439
Main Steam Temperature	deg F	1005	1004	1005	1004
Limestone Slurry Makeup - "A" Tower	gpm	InOp	InOp	InOp	InOp
Limestone Slurry Makeup - "B" Tower*	gpm	InOp	InOp	InOp	InOp
Limestone Slurry Makeup - "C" Tower	gpm	4.7	6.9	6.8	6.8
Limestone Slurry Makeup - "D" Tower	gpm	1.5	5.9	6.1	5.7
Limestone Slurry Makeup - "E" Tower	gpm	5.8	7.6	5.3	6.5
"A" Tower pH		5.5	5.4	5.4	5.4
"B" Tower pH		InOp	InOp	InOp	InOp
"C" Tower pH		5.7	5.7	5.7	5.7
"D" Tower pH		5.8	5.8	5.7	5.7
"E" Tower pH		5.7	5.7	5.7	5.7
"A" Quencher pH		5.8	5.8	5.8	5.7
"B" Quencher pH		InOp	InOp	InOp	InOp
"C" Quencher pH		5.5	5.4	5.4	5.5
"D" Quencher pH		5.6	5.3	5.3	5.3
"E" Quencher pH		5.3	5.2	5.2	5.2
Slurry Density - 1A1 Tower	SGU	1.0600**	InOp	InOp	InOp
Slurry Density - 1B1 Tower	SGU	InOp	InOp	InOp	InOp
Slurry Density - 1B2 Tower	SGU	InOp	InOp	InOp	InOp
Slurry Density - 1C2 Tower	SGU	1.0526	1.0600	1.0602	1.0626
Slurry Density - 1D2 Tower	SGU	1.0687	1.0699	1.0700	1.0703
Slurry Density - 1E1 Tower	SGU	1.0489	1.0501	1.0456	1.0528
Slurry Density - 1A Quencher	SGU	1.1723	1.1569	1.1615	1.1677
Slurry Density - 1B Quencher	SGU	InOp	InOp	InOp	InOp
Slurry Density - 1C Quencher	SGU	1.188**	InOp	InOp	InOp
Slurry Density - 1D Quencher	SGU	1.207**	InOp	InOp	InOp
Slurry Density - 1E Quencher	SGU	1.1752	1.1791	1.1744	1.1723

* "B" Scrubber Tower and Quencher Out of Service for Maintenance.
** Lab Results


Avg. Spark Rate (SPM)
10
9
8
7
6
5
4
3
2
1
0
15:40
9/21
16:45
9/21
17:50
9/21
18:56
9/21
20:01
9/21
21:07
9/21
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
14:15
9/20
19:18
9/20
0:21
9/21
5:25
9/21
10:28
9/21
15:32
9/21
Year: 1999
Avg. Spark Rate
0
1
2
3
4
5
6
7

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN 1 (14:19-17:15)

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/20/99	14:19	1600984.00	111.1/0.23	10.0	50.6/826.5	5486	151.3	512	11
09/20/99	14:20	1578031.87	112.1/0.24	10.0	50.7/815.5	5416	151.7	511	11
09/20/99	14:21	1553323.12	112.2/0.24	10.0	50.8/804.3	5331	151.9	511	11
09/20/99	14:22	1561972.87	111.8/0.23	10.0	50.7/808.0	5369	151.5	509	12
09/20/99	14:23	1602480.75	111.4/0.23	10.0	50.9/831.0	5508	151.3	508	11
09/20/99	14:24	1586179.12	111.8/0.23	10.1	51.0/825.0	5471	151.5	507	11
09/20/99	14:25	1574771.00	113.1/0.24	10.1	51.1/821.1	5432	151.6	508	12
09/20/99	14:26	1581548.00	113.7/0.24	10.1	51.2/826.6	5455	151.4	510	12
09/20/99	14:27	1581678.75	114.2/0.24	10.1	51.4/829.2	5467	151.3	509	12
09/20/99	14:28	1582357.00	113.7/0.24	10.1	51.5/831.6	5485	150.8	510	12
09/20/99	14:29	1574441.75	113.9/0.24	10.1	51.8/831.3	5457	150.7	510	12
09/20/99	14:30	1580583.12	113.9/0.24	10.1	51.9/837.0	5482	150.9	511	12
09/20/99	14:31	1580521.25	114.4/0.24	10.1	52.1/839.4	5493	150.9	511	12
09/20/99	14:32	1592096.37	115.1/0.24	10.2	52.1/846.4	5538	150.7	510	12
09/20/99	14:33	1585545.37	115.2/0.24	10.2	52.2/844.1	5518	150.8	509	11
09/20/99	14:34	1582487.87	115.8/0.24	10.2	52.2/842.8	5510	150.7	507	12
09/20/99	14:35	1600116.12	114.4/0.24	10.2	52.2/852.2	5571	150.7	509	12
09/20/99	14:36	1595164.50	114.2/0.24	10.2	52.3/850.4	5570	150.8	510	12
09/20/99	14:37	1593503.12	114.8/0.24	10.2	52.5/852.5	5568	150.8	508	12
09/20/99	14:38	1572697.87	114.4/0.24	10.2	52.6/843.3	5498	150.7	509	11
09/20/99	14:39	1554919.00	115.1/0.24	10.2	52.9/839.0	5433	150.5	510	11
09/20/99	14:40	1556368.62	114.6/0.24	10.2	53.1/842.2	5439	150.7	509	12
09/20/99	14:41	1586897.12	114.3/0.24	10.2	53.2/861.2	5548	150.9	509	12
09/20/99	14:42	1579007.25	114.6/0.24	10.2	53.1/855.6	5517	150.8	510	11
09/20/99	14:43	1578876.75	114.8/0.24	10.2	53.2/857.1	5517	150.9	507	12
09/20/99	14:44	1604499.12	114.3/0.24	10.2	53.3/872.3	5607	150.9	509	12
09/20/99	14:45	1574187.12	114.3/0.24	10.2	53.3/855.8	5503	150.8	512	12
09/20/99	14:46	1585970.25	114.3/0.24	10.2	53.4/863.0	5542	150.4	512	12
09/20/99	14:47	1564090.00	113.4/0.23	10.2	53.4/852.3	5468	149.8	511	12
09/20/99	14:48	1566839.62	114.0/0.23	10.2	53.6/855.8	5486	150.2	512	12
09/20/99	14:49	1600022.12	114.6/0.24	10.2	53.6/874.3	5602	150.7	509	12
09/20/99	14:50	1593604.87	114.7/0.24	10.2	53.5/870.0	5580	150.7	510	12
09/20/99	14:51	1585645.62	114.9/0.24	10.2	53.6/866.8	5552	150.7	508	12
09/20/99	14:52	1600248.62	115.0/0.24	10.2	53.6/875.2	5603	150.5	509	12
09/20/99	14:53	1576097.62	115.1/0.24	10.2	53.7/862.5	5518	150.5	511	12
09/20/99	14:54	1577653.12	115.4/0.24	10.2	53.8/866.2	5524	150.5	509	12
09/20/99	14:55	1549612.75	114.6/0.24	10.2	54.0/853.9	5426	150.8	509	12

09/20/99	14:56	1593308.75	114.1/0.23	10.2	54.2/880.0	5579	150.9	510	12
09/20/99	14:57	1589812.12	114.0/0.23	10.2	54.4/881.3	5566	151.2	508	12
09/20/99	14:58	1582102.12	114.5/0.24	10.2	54.6/880.6	5539	150.9	506	12
09/20/99	14:59	1569642.25	115.0/0.24	10.2	54.7/874.9	5480	150.5	507	11
09/20/99	15:00	1620037.12	114.7/0.24	10.2	54.7/903.1	5654	151.1	510	12
09/20/99	15:01	1591320.50	114.0/0.23	10.2	54.7/887.1	5553	151.2	511	12
09/20/99	15:02	1599305.12	114.6/0.24	10.2	54.7/892.0	5581	151.2	508	12
09/20/99	15:03	1591777.87	114.8/0.24	10.2	54.8/889.0	5547	150.8	507	12
09/20/99	15:04	1580528.37	115.5/0.24	10.2	54.9/884.3	5508	150.8	507	12
09/20/99	15:05	1575875.62	114.9/0.24	10.2	55.0/883.2	5494	150.7	508	11
09/20/99	15:06	1577199.75	115.2/0.24	10.2	55.0/885.2	5498	150.9	510	12
09/20/99	15:07	1567603.50	114.8/0.24	10.2	55.0/879.0	5465	150.8	511	11

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/20/99	15:08	1573872.25	115.8/0.24	10.2	55.0/882.8	5489	150.9	508	12
09/20/99	15:09	1600060.75	115.1/0.24	10.2	55.1/899.4	5576	150.5	508	12
09/20/99	15:10	1598170.50	115.2/0.24	10.2	55.2/899.1	5569	150.8	508	11
09/20/99	15:11	1586772.87	115.1/0.24	10.2	55.2/893.5	5530	150.9	507	12
09/20/99	15:12	1591389.75	114.6/0.24	10.2	55.3/897.0	5546	151.0	506	12
09/20/99	15:13	1601294.62	115.0/0.24	10.2	55.2/900.9	5581	150.8	507	12
09/20/99	15:14	1578883.87	114.7/0.24	10.2	55.2/889.5	5505	150.8	510	12
09/20/99	15:15	1564606.87	115.3/0.24	10.2	55.2/881.1	5453	150.5	510	12
09/20/99	15:16	1570951.87	115.1/0.24	10.2	55.1/883.4	5477	150.7	510	12
09/20/99	15:17	1597166.00	115.5/0.24	10.2	55.1/897.8	5566	150.3	510	12
09/20/99	15:18	1614277.12	115.5/0.24	10.2	55.0/906.2	5626	150.5	509	12
09/20/99	15:19	1590307.12	114.7/0.24	10.2	55.0/892.7	5542	150.6	512	12
09/20/99	15:20	1578722.25	115.7/0.24	10.2	55.1/887.8	5502	150.9	510	12
09/20/99	15:21	1597812.12	114.7/0.24	10.2	55.1/898.5	5571	151.0	509	12
09/20/99	15:22	1598763.50	115.3/0.24	10.2	55.2/899.9	5572	150.3	506	12
09/20/99	15:23	1586464.75	115.7/0.24	10.2	55.4/895.8	5529	149.9	506	12
09/20/99	15:24	1587422.75	115.4/0.24	10.2	55.5/899.1	5534	150.4	509	12
09/20/99	15:25	1564446.75	115.5/0.24	10.2	55.6/887.8	5452	150.7	508	11
09/20/99	15:26	1561184.12	115.9/0.24	10.2	55.7/887.5	5443	150.7	508	12
09/20/99	15:27	1590175.62	115.8/0.24	10.2	55.9/906.7	5544	150.8	508	12
09/20/99	15:28	1592103.50	115.6/0.24	10.2	56.1/910.3	5551	150.5	509	11
09/20/99	15:29	1585521.62	114.6/0.24	10.2	56.2/908.2	5525	150.7	508	12
09/20/99	15:30	1575521.25	116.2/0.24	10.2	56.3/904.0	5493	150.9	509	12
09/20/99	15:31	1604537.62	115.3/0.24	10.2	56.2/920.3	5594	150.8	508	12
09/20/99	15:32	1588572.75	114.5/0.24	10.2	56.1/909.4	5536	150.8	507	12

09/20/99	15:33	1620378.00	114.6/0.24	10.2	56.2/928.9	5649	150.8	508	12
09/20/99	15:34	1566106.25	114.3/0.24	10.2	56.3/899.8	5458	150.7	510	12
09/20/99	15:35	1596932.75	113.9/0.23	10.2	56.3/917.1	5567	150.5	508	12
09/20/99	15:36	1584136.75	114.4/0.24	10.2	56.4/911.3	5523	150.5	507	13
09/20/99	15:37	1594845.37	114.9/0.24	10.2	56.4/918.0	5561	150.9	508	11
09/20/99	15:38	1573933.75	114.3/0.24	10.2	56.5/906.8	5485	150.9	510	12
09/20/99	15:39	1578815.00	114.2/0.24	10.2	56.6/910.6	5504	150.9	510	12
09/20/99	15:40	1577814.62	114.5/0.24	10.2	56.8/913.3	5501	150.4	507	12
09/20/99	15:41	1611374.50	114.5/0.24	10.2	56.8/932.8	5615	150.4	508	12
09/20/99	15:42	1579692.25	114.1/0.24	10.2	56.7/913.7	5508	150.2	508	12
09/20/99	15:43	1569810.12	114.4/0.24	10.2	56.6/906.0	5468	150.3	506	12
09/20/99	15:44	1592103.50	113.5/0.23	10.2	56.3/914.7	5548	150.5	507	12
09/20/99	15:45	1590532.25	113.7/0.23	10.2	56.3/912.6	5542	150.5	509	12
09/20/99	15:46	1574578.12	114.6/0.24	10.2	56.3/903.4	5487	150.4	510	12
09/20/99	15:47	1566518.87	114.6/0.24	10.2	56.1/896.7	5469	150.4	512	12
09/20/99	15:48	1567535.12	113.6/0.23	10.2	56.1/896.9	5496	150.9	512	12
09/20/99	15:49	1574156.37	113.8/0.23	10.2	56.2/902.3	5528	150.8	511	12
09/20/99	15:50	1609916.75	113.8/0.23	10.2	56.3/924.8	5650	150.4	509	12
09/20/99	15:51	1582749.87	113.9/0.23	10.2	56.3/908.0	5558	150.4	508	13
09/20/99	15:52	1555237.62	114.1/0.23	10.2	56.2/891.1	5461	150.3	508	12
09/20/99	15:53	1561435.50	114.3/0.23	10.2	56.1/892.7	5483	150.5	511	12
09/20/99	15:54	1569741.50	114.1/0.23	10.2	56.0/896.7	5510	150.4	511	12
09/20/99	15:55	1567924.37	113.6/0.23	10.2	56.1/897.2	5504	150.5	512	12
09/20/99	15:56	1601583.75	114.3/0.23	10.2	56.1/916.9	5619	150.7	510	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/20/99	15:57	1601451.25	114.3/0.23	10.2	56.2/917.6	5607	150.8	510	12
09/20/99	15:58	1592849.50	114.2/0.23	10.2	56.2/913.0	5577	150.0	508	12
09/20/99	15:59	1593339.12	114.0/0.23	10.2	56.3/914.1	5579	149.7	509	12
09/20/99	16:00	1603894.25	114.3/0.23	10.2	56.3/921.0	5616	150.2	508	12
09/20/99	16:01	1585483.25	115.2/0.24	10.2	56.3/910.8	5551	150.8	508	12
09/20/99	16:02	1580813.75	115.4/0.24	10.2	56.3/907.4	5535	150.6	507	12
09/20/99	16:03	1614104.50	115.9/0.24	10.2	56.4/928.1	5652	150.8	510	12
09/20/99	16:04	1620939.00	115.4/0.24	10.2	56.6/935.3	5675	150.4	512	12
09/20/99	16:05	1579492.25	115.5/0.24	10.2	56.8/914.2	5530	150.4	509	11
09/20/99	16:06	1597229.75	115.7/0.24	10.2	56.9/927.4	5593	150.3	507	12
09/20/99	16:07	1601981.75	116.0/0.24	10.2	57.0/930.7	5610	150.3	508	11
09/20/99	16:08	1600092.12	115.4/0.24	10.2	57.0/929.5	5603	150.5	509	12
09/20/99	16:09	1612461.25	115.9/0.24	10.2	56.9/935.5	5647	150.8	509	12

09/20/99	16:10	1625589.75	114.9/0.24	10.2	56.8/941.0	5692	150.4	512	12
09/20/99	16:11	1611076.12	115.3/0.24	10.2	56.8/932.6	5641	150.7	512	12
09/20/99	16:12	1614435.00	115.3/0.24	10.2	56.8/934.5	5653	150.5	513	12
09/20/99	16:13	1567794.75	115.5/0.24	10.2	56.7/907.1	5490	150.7	512	12
09/20/99	16:14	1659613.62	115.0/0.24	10.2	56.7/960.2	5811	150.5	511	12
09/20/99	16:15	1582495.00	115.7/0.24	10.2	56.8/916.8	5542	150.5	510	12
09/20/99	16:16	1582626.12	115.0/0.24	10.2	56.9/919.1	5545	150.4	509	12
09/20/99	16:17	1556467.12	115.1/0.24	10.2	57.1/905.8	5453	150.5	509	12
09/20/99	16:18	1600092.12	115.0/0.24	10.2	57.1/931.6	5606	150.5	509	12
09/20/99	16:19	1572705.25	115.4/0.24	10.2	57.1/916.1	5510	150.6	510	12
09/20/99	16:20	1572705.25	115.5/0.24	10.2	57.2/917.2	5521	150.6	510	12
09/20/99	16:21	1572705.25	115.5/0.24	10.2	57.2/917.2	5521	150.6	510	12
09/20/99	16:22	1585745.75	115.9/0.24	10.2	57.2/924.4	5558	150.5	509	12
09/20/99	16:23	1604928.87	115.7/0.24	10.2	57.3/937.2	5625	150.5	509	12
09/20/99	16:24	1582333.00	116.0/0.24	10.2	57.3/924.6	5546	150.7	509	11
09/20/99	16:25	1598825.00	116.2/0.24	10.2	57.4/936.1	5604	150.3	509	12
09/20/99	16:26	1596901.50	115.9/0.24	10.2	57.5/937.0	5597	150.5	509	12
09/20/99	16:27	1603902.00	117.0/0.24	10.2	57.6/941.6	5625	150.0	509	12
09/20/99	16:28	1603409.12	116.1/0.24	10.2	57.6/941.4	5621	150.4	509	12
09/20/99	16:29	1603409.12	116.2/0.24	10.3	57.6/942.6	5632	150.4	509	12
09/20/99	16:30	1605359.12	116.9/0.24	10.2	57.7/944.8	5630	150.2	509	12
09/20/99	16:31	1608041.00	116.5/0.24	10.2	57.8/948.1	5639	150.5	509	11
09/20/99	16:32	1576166.37	116.0/0.24	10.2	57.9/930.5	5527	150.4	509	11
09/20/99	16:33	1606094.12	116.3/0.24	10.2	58.0/950.3	5638	150.8	511	12
09/20/99	16:34	1553664.00	115.8/0.24	10.3	58.3/923.2	5464	150.2	510	12
09/20/99	16:35	1553664.00	115.9/0.24	10.3	58.3/924.3	5476	150.2	510	12
09/20/99	16:36	1582950.25	116.7/0.24	10.3	58.5/944.2	5570	150.2	510	12
09/20/99	16:37	1614670.87	116.9/0.24	10.3	58.4/961.9	5682	150.3	508	12
09/20/99	16:38	1601685.00	117.2/0.24	10.3	58.2/950.0	5636	150.5	507	12
09/20/99	16:39	1571305.25	116.9/0.24	10.3	58.0/928.8	5529	150.4	508	12
09/20/99	16:40	1584723.75	116.4/0.24	10.3	57.8/934.0	5576	150.0	507	11
09/20/99	16:41	1575000.50	115.9/0.24	10.3	57.9/929.9	5545	150.0	509	12
09/20/99	16:42	1592297.75	115.8/0.24	10.3	58.0/941.2	5608	150.4	510	11
09/20/99	16:43	1601716.50	116.3/0.24	10.3	58.1/949.2	5644	150.5	509	12
09/20/99	16:44	1611209.62	115.1/0.24	10.3	58.2/956.5	5675	150.5	509	12
09/20/99	16:45	1601786.37	115.1/0.24	10.3	58.1/949.8	5642	150.4	509	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/20/99	16:46	1591715.50	115.4/0.24	10.3	58.2/944.2	5610	150.8	509	12

UNIT 1
MERCURY EMISSIONS TEST
RUN 2 (08:02-10:34) LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	08:02	1722605.87	118.1/0.24	10.5	59.3/1041.5	6221	153.1	578	11
09/21/99	08:03	1763486.50	118.7/0.24	10.5	59.3/1067.1	6368	153.1	579	11
09/21/99	08:04	1749053.87	117.9/0.23	10.5	59.3/1057.4	6315	153.1	579	11
09/21/99	08:05	1711007.62	118.4/0.24	10.5	59.1/1031.0	6180	152.9	578	11
09/21/99	08:06	1740459.37	118.0/0.23	10.6	59.0/1047.4	6290	152.9	577	11
09/21/99	08:11	1705255.87	118.4/0.24	10.5	59.2/1029.1	6148	153.9	566	11
09/21/99	08:12	1697593.62	117.4/0.23	10.5	59.1/1022.8	6126	154.1	563	11
09/21/99	08:13	1682274.25	115.7/0.23	10.5	58.9/1009.7	6070	153.2	561	11
09/21/99	08:14	1682307.00	115.2/0.23	10.5	58.6/1005.4	6070	153.2	559	11
09/21/99	08:15	1679904.75	116.2/0.23	10.5	58.1/995.0	6039	152.7	557	12
09/21/99	08:16	1678079.75	117.0/0.24	10.4	57.2/979.0	5987	152.9	555	12
09/21/99	08:17	1688961.00	117.9/0.24	10.4	55.7/959.5	6003	152.7	555	12
09/21/99	08:18	1687519.50	119.7/0.24	10.4	54.5/938.0	5986	152.7	553	12
09/21/99	08:19	1673904.12	120.4/0.24	10.4	54.1/922.8	5938	152.7	555	12
09/21/99	08:20	1687380.50	120.2/0.24	10.3	54.1/931.1	5982	152.8	556	12
09/21/99	08:21	1699703.87	119.8/0.24	10.3	54.1/937.5	6026	152.6	555	11
09/21/99	08:22	1688703.87	118.5/0.24	10.3	54.2/933.2	5985	151.8	555	12
09/21/99	08:23	1741770.87	118.1/0.24	10.4	54.3/964.7	6185	152.1	554	11
09/21/99	08:24	1701720.37	119.0/0.24	10.4	54.4/944.2	6054	152.2	557	12
09/21/99	08:25	1681825.00	118.2/0.24	10.4	54.7/938.7	5995	152.4	558	11
09/21/99	08:26	1686700.50	117.4/0.24	10.4	54.9/944.5	6013	152.2	558	11
09/21/99	08:27	1675871.25	116.1/0.23	10.4	55.3/944.4	5974	152.3	554	11
09/21/99	08:28	1708018.00	115.5/0.23	10.4	55.3/962.5	6100	151.9	556	11
09/21/99	08:29	1699225.25	115.0/0.23	10.4	55.2/957.1	6069	151.8	559	12
09/21/99	08:30	1668295.12	115.2/0.23	10.4	55.4/942.7	5959	152.3	558	12
09/21/99	08:31	1665763.62	115.9/0.23	10.4	55.2/938.3	5950	151.9	556	12
09/21/99	08:32	1718232.37	116.0/0.23	10.4	54.8/960.8	6135	152.1	557	11
09/21/99	08:33	1705905.75	115.9/0.23	10.4	54.8/953.1	6093	151.3	556	12
09/21/99	08:34	1709856.87	116.2/0.23	10.4	54.8/954.8	6107	151.7	556	11
09/21/99	08:35	1694724.12	117.4/0.24	10.4	54.9/948.5	6039	151.8	553	11
09/21/99	08:36	1678320.37	117.6/0.24	10.4	54.8/938.0	5965	151.7	555	12
09/21/99	08:37	1714528.00	117.2/0.24	10.4	54.8/958.7	6095	151.5	554	11
09/21/99	08:38	1695277.00	117.2/0.24	10.4	55.0/950.6	6028	151.4	556	11
09/21/99	08:39	1655909.50	116.2/0.24	10.4	55.1/929.8	5888	151.3	559	11
09/21/99	08:40	1713250.25	116.4/0.23	10.4	55.1/961.9	6116	151.4	560	11
09/21/99	08:41	1687466.62	116.2/0.23	10.5	54.9/945.2	6049	151.7	559	12
09/21/99	08:42	1670610.37	114.8/0.23	10.5	54.9/934.9	6003	151.8	557	12

09/21/99	13:17	1572352.75	112.8/0.22	10.5	59.3/951.3	5672	148.8	532	12
09/21/99	13:18	1586679.37	112.5/0.22	10.5	59.3/959.7	5724	148.9	528	12
09/21/99	13:19	1576801.75	112.6/0.22	10.5	59.3/953.7	5689	149.0	528	12
09/21/99	13:20	1591601.75	111.5/0.22	10.5	59.3/962.7	5742	148.8	531	12
09/21/99	13:21	1588287.87	112.5/0.22	10.5	59.3/961.0	5730	148.9	530	12
09/21/99	13:22	1598069.25	113.3/0.23	10.5	59.3/965.7	5765	148.8	528	12
09/21/99	13:23	1618211.62	113.0/0.22	10.6	59.2/976.7	5849	149.2	531	12
09/21/99	13:24	1602690.62	112.3/0.22	10.6	59.2/967.3	5799	148.9	530	12
09/21/99	13:25	1607432.62	112.7/0.22	10.6	59.2/970.6	5818	148.9	529	12
09/21/99	13:26	1580260.50	113.7/0.23	10.6	59.2/953.7	5720	148.9	528	12
09/21/99	13:27	1578836.87	113.8/0.23	10.6	59.2/952.4	5712	148.8	529	12
09/21/99	13:28	1560750.25	113.4/0.23	10.6	59.1/940.3	5644	148.9	530	12
09/21/99	13:29	1550872.75	113.6/0.23	10.6	59.1/934.8	5611	148.9	528	12
09/21/99	13:30	1580422.75	113.5/0.23	10.6	59.1/952.6	5718	148.8	532	12
09/21/99	13:31	1578451.00	113.5/0.23	10.6	59.1/951.9	5708	149.0	530	12
09/21/99	13:32	1583364.62	113.2/0.22	10.6	59.2/955.3	5727	148.9	529	12
09/21/99	13:33	1563034.75	112.8/0.22	10.5	59.2/943.9	5643	148.3	528	12
09/21/99	13:34	1580298.75	112.4/0.22	10.5	59.2/954.3	5708	148.8	528	12
09/21/99	13:35	1587899.75	113.2/0.23	10.5	59.3/959.8	5732	149.2	526	12
09/21/99	13:36	1576254.87	113.1/0.22	10.6	59.3/953.9	5701	149.4	526	12
09/21/99	13:37	1586066.75	111.7/0.22	10.6	59.5/962.7	5740	149.3	526	12
09/21/99	13:38	1619629.25	113.0/0.22	10.5	59.7/985.6	5847	149.2	528	12
09/21/99	13:39	1560246.75	113.5/0.23	10.5	59.9/952.2	5628	149.2	527	12
09/21/99	13:40	1595556.75	112.2/0.22	10.5	60.0/975.7	5758	149.4	526	12
09/21/99	13:41	1600478.37	112.8/0.22	10.5	60.0/979.6	5776	149.3	526	13
09/21/99	13:42	1574443.50	113.3/0.23	10.5	60.1/964.1	5682	149.5	527	12
09/21/99	13:43	1612716.50	111.9/0.22	10.5	60.0/986.7	5820	149.7	528	12
09/21/99	13:44	1622207.12	112.3/0.22	10.5	59.9/991.2	5843	149.7	528	12
09/21/99	13:45	1574343.87	112.3/0.22	10.5	59.8/960.3	5670	149.7	527	12
09/21/99	13:46	1610804.50	112.7/0.23	10.5	59.8/982.2	5791	149.9	527	12
09/21/99	13:47	1594902.62	113.8/0.23	10.5	59.7/970.9	5734	149.9	528	12
09/21/99	13:48	1604760.00	114.7/0.23	10.5	59.8/977.7	5769	149.7	531	12
09/21/99	13:49	1585610.12	113.8/0.23	10.5	59.9/968.0	5703	149.7	531	12
09/21/99	13:50	1605120.75	112.7/0.23	10.5	59.9/980.4	5773	149.4	531	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
AVERAGES		1,597,154.32	110.7/0.22	10.5	59.4/968.1	5746	149.4	529	12

09/21/99	12:40	1585140.25	109.8/0.22	10.5	59.5/962.4	5696	149.3	530	12
09/21/99	12:41	1608761.00	110.1/0.22	10.5	59.1/968.7	5781	149.5	529	12
09/21/99	12:42	1600613.12	109.8/0.22	10.5	58.6/957.2	5749	149.7	530	12
09/21/99	12:43	1597749.00	110.0/0.22	10.5	58.7/955.9	5741	149.4	530	12
09/21/99	12:44	1624517.37	110.4/0.22	10.5	58.5/968.6	5837	149.5	532	12
09/21/99	12:45	1578976.50	111.5/0.22	10.5	58.3/938.6	5673	149.0	531	12
09/21/99	12:46	1562363.50	110.4/0.22	10.5	58.2/927.5	5614	149.3	530	12
09/21/99	12:47	1631490.87	110.1/0.22	10.5	58.2/968.6	5863	149.0	529	12
09/21/99	12:48	1590167.50	109.9/0.22	10.5	58.2/944.1	5715	149.0	528	12
09/21/99	12:49	1646944.62	110.6/0.22	10.5	58.2/976.8	5919	149.0	529	12
09/21/99	12:50	1604526.87	111.1/0.22	10.5	58.1/950.7	5767	149.0	529	12
09/21/99	12:51	1585116.62	111.7/0.22	10.5	57.8/934.1	5692	149.2	530	12
09/21/99	12:52	1592987.37	110.4/0.22	10.5	57.6/935.3	5717	149.3	532	12
09/21/99	12:53	1595861.87	110.9/0.22	10.5	57.5/936.2	5729	149.5	530	12
09/21/99	12:54	1589779.00	110.3/0.22	10.5	57.6/933.4	5709	149.3	530	12
09/21/99	12:55	1610519.50	110.8/0.22	10.5	57.9/951.4	5784	149.3	526	12
09/21/99	12:56	1559129.25	110.9/0.22	10.5	57.9/921.0	5600	149.2	529	12
09/21/99	12:57	1561858.75	110.7/0.22	10.5	58.1/925.0	5609	148.3	531	13
09/21/99	12:58	1612008.12	110.9/0.22	10.5	58.3/957.6	5792	148.2	531	12
09/21/99	12:59	1598248.37	110.3/0.22	10.5	58.4/951.1	5756	148.9	528	13
09/21/99	13:00	1590400.37	110.3/0.22	10.6	58.4/947.4	5750	148.8	529	13
09/21/99	13:01	1598381.37	110.8/0.22	10.6	58.8/959.0	5779	148.8	529	12
09/21/99	13:02	1594853.87	110.9/0.22	10.6	59.4/965.8	5766	149.0	531	21
09/21/99	13:03	1605961.87	111.5/0.22	10.6	60.0/982.8	5812	149.1	530	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	13:04	1592270.50	111.8/0.22	10.5	60.2/976.9	5738	148.5	526	12
09/21/99	13:05	1612505.37	112.6/0.23	10.5	60.0/987.2	5800	148.9	526	12
09/21/99	13:06	1593353.00	112.2/0.22	10.5	60.1/975.9	5732	148.9	526	12
09/21/99	13:07	1597927.87	112.5/0.22	10.5	60.3/982.9	5749	149.0	532	12
09/21/99	13:08	1593126.87	112.7/0.23	10.5	60.2/978.7	5732	149.0	532	12
09/21/99	13:09	1589919.50	112.3/0.22	10.5	60.2/975.5	5720	149.1	532	12
09/21/99	13:10	1575559.75	112.5/0.22	10.5	60.1/965.5	5671	148.9	530	12
09/21/99	13:11	1586672.00	112.6/0.22	10.5	60.1/971.6	5713	149.0	531	12
09/21/99	13:12	1609043.12	113.2/0.23	10.5	59.9/983.4	5798	149.0	532	12
09/21/99	13:13	1602621.50	112.5/0.22	10.5	59.7/975.7	5771	149.1	530	13
09/21/99	13:14	1604573.50	112.7/0.22	10.5	59.5/973.6	5782	148.8	532	12
09/21/99	13:15	1583744.37	112.5/0.22	10.5	59.5/960.1	5707	148.8	531	12
09/21/99	13:16	1572383.50	111.9/0.22	10.5	59.4/951.7	5672	148.8	530	12

09/21/99	12:03	1613632.50	108.7/0.22	10.5	59.4/978.1	5789	149.7	528	12
09/21/99	12:04	1581808.50	108.8/0.22	10.5	59.5/959.6	5675	149.6	527	12
09/21/99	12:05	1599299.87	109.3/0.22	10.5	59.3/967.8	5740	149.7	528	12
09/21/99	12:06	1581614.25	109.1/0.22	10.5	59.2/955.2	5675	149.7	527	13
09/21/99	12:07	1602622.00	109.7/0.22	10.5	59.1/965.4	5753	149.5	530	12
09/21/99	12:08	1592871.50	109.0/0.22	10.5	59.1/959.9	5718	149.7	530	12
09/21/99	12:09	1602950.75	109.4/0.22	10.5	59.2/966.8	5754	149.3	531	12
09/21/99	12:10	1616698.50	109.1/0.22	10.5	59.2/975.6	5803	149.7	531	12
09/21/99	12:11	1602426.37	109.1/0.22	10.5	59.2/967.0	5755	149.7	531	12
09/21/99	12:12	1617030.12	109.8/0.22	10.5	59.2/975.4	5808	149.4	527	12
09/21/99	12:13	1605741.87	109.2/0.22	10.5	59.2/969.4	5767	149.5	529	13
09/21/99	12:14	1594706.50	110.1/0.22	10.5	59.1/960.8	5728	149.4	531	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	12:15	1607464.37	110.0/0.22	10.5	59.0/966.8	5774	149.4	532	12
09/21/99	12:16	1594379.50	109.9/0.22	10.5	58.8/956.5	5729	149.7	532	13
09/21/99	12:17	1589344.87	109.6/0.22	10.5	58.7/951.1	5717	149.8	531	12
09/21/99	12:18	1600246.50	109.5/0.22	10.5	58.7/957.6	5756	150.0	530	12
09/21/99	12:19	1616437.87	110.0/0.22	10.5	58.8/968.6	5815	149.8	529	12
09/21/99	12:20	1608525.75	109.8/0.22	10.5	58.8/965.0	5786	149.8	527	12
09/21/99	12:21	1595033.75	110.2/0.22	10.5	59.0/959.3	5737	149.2	528	12
09/21/99	12:22	1601426.75	110.6/0.22	10.5	59.1/964.8	5761	149.2	531	12
09/21/99	12:23	1607432.75	111.3/0.22	10.5	59.3/971.8	5793	149.4	531	12
09/21/99	12:24	1592878.87	110.9/0.22	10.6	59.3/963.0	5758	149.5	527	12
09/21/99	12:25	1591112.37	110.3/0.22	10.6	59.4/963.1	5752	149.7	527	12
09/21/99	12:26	1591275.62	110.2/0.22	10.5	59.5/964.9	5739	149.5	528	12
09/21/99	12:27	1610410.00	110.0/0.22	10.5	59.6/979.4	5804	149.5	529	13
09/21/99	12:28	1591275.62	109.7/0.22	10.5	59.9/972.2	5735	149.5	529	12
09/21/99	12:29	1611633.25	108.7/0.22	10.5	60.4/993.2	5809	149.8	529	12
09/21/99	12:30	1603399.75	110.2/0.22	10.5	61.0/997.2	5779	150.0	530	12
09/21/99	12:31	1601941.00	110.2/0.22	10.5	61.1/997.5	5774	149.9	531	12
09/21/99	12:32	1603696.87	110.8/0.22	10.5	61.0/997.1	5781	149.8	530	12
09/21/99	12:33	1602269.25	110.4/0.22	10.5	60.7/992.4	5768	149.7	531	12
09/21/99	12:34	1577035.37	110.6/0.22	10.5	60.6/975.2	5666	149.3	531	12
09/21/99	12:35	1608792.62	111.4/0.22	10.5	60.4/990.3	5783	149.5	530	12
09/21/99	12:36	1588033.12	110.4/0.22	10.5	60.2/975.5	5708	149.5	530	12
09/21/99	12:37	1608792.62	110.0/0.22	10.5	60.0/985.0	5780	149.5	532	12
09/21/99	12:38	1604652.62	109.8/0.22	10.5	59.9/980.0	5766	149.0	532	12
09/21/99	12:39	1564058.25	110.1/0.22	10.5	59.8/953.2	5620	149.3	530	12

09/20/99	16:47	1595303.87	114.7/0.23	10.3	58.1/945.5	5622	150.5	510	12
09/20/99	16:48	1584105.75	115.4/0.24	10.3	58.1/938.8	5579	150.5	508	12
09/20/99	16:49	1593898.75	114.9/0.23	10.3	58.2/945.4	5617	150.4	511	12
09/20/99	16:50	1585714.62	115.5/0.24	10.3	58.2/940.9	5585	150.5	511	11
09/20/99	16:51	1589353.87	115.8/0.24	10.3	58.2/943.2	5598	150.2	509	12
09/20/99	16:52	1560189.12	115.7/0.24	10.3	58.0/923.5	5498	150.2	507	12
09/20/99	16:53	1574869.87	116.3/0.24	10.3	58.0/930.9	5547	150.2	508	11
09/20/99	16:54	1571656.75	116.3/0.24	10.3	57.9/927.8	5530	150.2	508	12
09/20/99	16:55	1571334.87	115.5/0.24	10.3	58.0/928.8	5533	150.4	510	11
09/20/99	16:56	1605257.62	115.9/0.24	10.3	58.1/951.3	5651	150.3	511	11
09/20/99	16:57	1609853.87	114.8/0.23	10.3	58.2/955.2	5667	150.4	512	12
09/20/99	16:58	1587515.75	115.9/0.24	10.3	58.3/943.2	5588	150.4	511	11
09/20/99	16:59	1590788.25	114.9/0.23	10.3	58.4/947.1	5607	150.4	510	12
09/20/99	17:00	1595856.50	115.2/0.23	10.3	58.4/950.2	5629	150.2	509	12
09/20/99	17:01	1598856.12	115.3/0.24	10.3	58.3/950.9	5631	150.3	510	12
09/20/99	17:02	1579946.62	115.2/0.24	10.3	58.3/939.1	5564	150.0	508	12
09/20/99	17:03	1579815.75	115.7/0.24	10.3	58.2/938.2	5564	150.2	509	12
09/20/99	17:04	1584654.37	116.2/0.24	10.3	58.1/938.2	5581	150.2	510	11
09/20/99	17:05	1579784.87	116.6/0.24	10.3	58.0/933.8	5564	150.2	510	11
09/20/99	17:06	1589448.50	115.8/0.24	10.3	57.8/937.4	5597	150.2	510	12
09/20/99	17:07	1576258.87	115.8/0.24	10.3	57.7/927.6	5551	150.4	511	11
09/20/99	17:08	1580913.75	115.5/0.24	10.3	57.7/930.8	5567	150.5	511	11
09/20/99	17:09	1603503.37	116.3/0.24	10.3	57.8/945.0	5648	150.4	510	11
09/20/99	17:10	1593471.37	115.5/0.24	10.3	57.7/937.4	5612	149.5	511	11
09/20/99	17:11	1604685.12	116.6/0.24	10.3	57.5/940.6	5648	149.5	509	12
09/20/99	17:12	1560471.12	116.2/0.24	10.3	57.4/913.6	5495	150.0	510	11
09/20/99	17:13	1576551.00	116.0/0.24	10.3	57.3/920.6	5552	150.2	512	11
09/20/99	17:14	1580108.62	116.1/0.24	10.3	57.3/923.5	5564	149.9	513	11
09/20/99	17:15	1595724.25	115.4/0.24	10.3	57.4/933.4	5619	150.3	511	11
AVERAGES		1,586,973.02	115.0/0.24	10.2	55.8/903.5	5552	150.6	509	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN 3 (11:26-13:52)

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	11:26	1607441.75	109.4/0.22	10.4	59.5/974.7	5754	149.8	531	12
09/21/99	11:27	1620233.50	109.1/0.22	10.5	59.6/984.2	5803	149.7	529	12
09/21/99	11:28	1585048.50	109.2/0.22	10.5	59.5/962.4	5676	149.8	529	12
09/21/99	11:29	1612333.62	109.8/0.22	10.5	59.5/977.8	5774	149.7	531	12
09/21/99	11:30	1627928.12	108.6/0.22	10.5	59.3/983.9	5832	149.8	532	12
09/21/99	11:31	1601208.50	108.9/0.22	10.5	59.2/966.5	5734	149.7	530	12
09/21/99	11:32	1619703.75	110.0/0.22	10.5	59.2/978.6	5815	150.0	531	12
09/21/99	11:33	1604332.37	109.7/0.22	10.5	59.4/972.2	5760	149.7	531	12
09/21/99	11:34	1616549.50	107.8/0.22	10.5	59.7/983.3	5804	150.0	529	12
09/21/99	11:35	1615135.37	108.0/0.22	10.5	59.8/984.9	5799	149.9	529	12
09/21/99	11:36	1615466.50	107.7/0.22	10.5	59.9/986.7	5800	149.7	530	12
09/21/99	11:37	1581730.75	108.0/0.22	10.5	60.0/967.8	5679	149.8	530	12
09/21/99	11:38	1599550.25	108.7/0.22	10.5	60.1/980.3	5743	149.7	530	12
09/21/99	11:39	1607645.50	109.0/0.22	10.5	60.1/985.7	5774	149.5	528	12
09/21/99	11:40	1600920.25	108.1/0.22	10.5	60.1/981.2	5749	149.8	531	12
09/21/99	11:41	1575199.87	108.6/0.22	10.5	60.1/965.1	5657	149.8	532	12
09/21/99	11:42	1562150.87	108.1/0.22	10.5	60.0/955.9	5610	149.8	530	12
09/21/99	11:43	1571763.50	108.5/0.22	10.5	59.8/958.6	5647	149.9	532	12
09/21/99	11:44	1591291.87	108.3/0.22	10.5	59.7/969.3	5712	149.8	531	12
09/21/99	11:45	1594039.25	108.5/0.22	10.5	59.8/972.2	5722	148.9	530	13
09/21/99	11:46	1599171.25	108.2/0.22	10.5	60.0/977.8	5740	148.7	532	12
09/21/99	11:47	1599784.50	109.1/0.22	10.5	60.1/979.8	5740	149.4	532	12
09/21/99	11:48	1626334.62	109.4/0.22	10.5	60.1/996.1	5838	149.7	529	12
09/21/99	11:49	1624930.75	108.4/0.22	10.5	60.0/994.8	5833	149.5	528	12
09/21/99	11:50	1591097.75	108.8/0.22	10.5	60.1/974.5	5712	149.9	528	12
09/21/99	11:51	1579962.37	109.4/0.22	10.5	60.1/968.9	5672	149.8	530	12
09/21/99	11:52	1605930.62	108.1/0.22	10.5	60.1/984.8	5771	149.5	529	12
09/21/99	11:53	1591392.62	108.2/0.22	10.5	60.3/978.4	5727	149.7	527	12
09/21/99	11:54	1603846.50	108.7/0.22	10.5	60.3/985.6	5758	149.9	527	12
09/21/99	11:55	1592475.37	108.9/0.22	10.5	60.2/977.6	5712	150.0	528	12
09/21/99	11:56	1597110.87	108.4/0.22	10.5	60.1/978.2	5729	150.2	530	12
09/21/99	11:57	1595513.00	108.9/0.22	10.5	59.8/973.2	5723	150.2	529	12
09/21/99	11:58	1624867.12	108.5/0.22	10.5	59.6/988.2	5825	149.5	527	12
09/21/99	11:59	1640169.87	109.3/0.22	10.5	59.5/995.4	5882	149.8	527	12
09/21/99	12:00	1603948.00	108.7/0.22	10.5	59.4/971.0	5754	149.8	528	12
09/21/99	12:01	1637222.37	108.8/0.22	10.5	59.3/989.9	5873	149.7	530	12
09/21/99	12:02	1631475.37	109.0/0.22	10.5	59.4/988.3	5852	149.3	528	12

09/21/99	08:43	1680859.25	115.1/0.23	10.5	55.0/942.9	6040	152.1	555	12
09/21/99	08:44	1684445.12	113.8/0.23	10.5	55.1/946.1	6053	151.7	557	12
09/21/99	08:45	1702248.00	114.5/0.23	10.5	55.0/953.9	6116	150.8	558	11
09/21/99	08:46	1684860.00	114.1/0.23	10.5	54.9/942.8	6054	150.3	558	12
09/21/99	08:47	1693059.87	114.0/0.23	10.5	54.8/946.2	6086	150.9	558	11
09/21/99	08:48	1689493.37	114.6/0.23	10.5	54.6/940.8	6071	151.3	556	11
09/21/99	08:49	1703537.87	114.2/0.23	10.5	54.4/944.3	6121	150.9	555	12
09/21/99	08:50	1675829.12	115.3/0.23	10.5	54.1/924.7	6022	151.3	556	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	08:51	1709165.75	114.8/0.23	10.5	53.8/937.8	6144	151.2	557	12
09/21/99	08:52	1685167.12	114.9/0.23	10.5	53.5/919.0	6055	151.2	557	12
09/21/99	08:53	1667932.50	114.3/0.23	10.5	53.2/904.1	5993	151.5	555	12
09/21/99	08:54	1689353.62	114.1/0.23	10.5	53.2/915.7	6070	151.4	558	12
09/21/99	08:55	1686334.37	113.6/0.23	10.5	53.1/912.3	6059	151.4	560	11
09/21/99	08:56	1675552.12	113.4/0.23	10.5	53.1/907.8	6020	151.5	560	12
09/21/99	08:57	1685027.62	114.2/0.23	10.5	53.0/910.7	6051	151.3	556	12
09/21/99	08:58	1700226.87	113.7/0.23	10.5	53.1/919.8	6100	151.2	555	11
09/21/99	08:59	1662014.00	114.6/0.23	10.5	53.1/900.0	5955	151.4	554	12
09/21/99	09:00	1696911.75	115.0/0.23	10.5	53.2/919.8	6080	151.4	555	12
09/21/99	09:01	1675585.00	114.4/0.23	10.5	53.3/910.0	6003	151.5	553	11
09/21/99	09:02	1679138.12	115.3/0.23	10.4	53.4/913.6	6007	151.2	555	12
09/21/99	09:03	1679138.12	115.8/0.23	10.4	53.6/917.4	6007	151.2	556	12
09/21/99	09:04	1722417.25	115.7/0.23	10.4	53.6/941.9	6162	151.3	555	12
09/21/99	09:05	1682171.75	115.0/0.23	10.4	53.7/920.4	6018	151.2	555	12
09/21/99	09:06	1703223.00	115.7/0.23	10.5	53.8/933.6	6103	151.2	558	12
09/21/99	09:07	1697713.25	116.1/0.23	10.5	53.9/933.2	6083	150.8	558	12
09/21/99	09:08	1689838.87	116.1/0.23	10.5	54.0/931.0	6055	151.0	556	11
09/21/99	09:09	1677725.12	115.5/0.23	10.5	54.1/925.7	6012	151.0	557	12
09/21/99	09:10	1670142.25	115.8/0.23	10.5	54.1/920.6	5984	151.0	559	12
09/21/99	09:11	1677619.12	115.6/0.23	10.5	53.9/921.7	6011	151.2	558	11
09/21/99	09:12	1690217.62	115.7/0.23	10.5	53.9/928.6	6056	150.8	555	12
09/21/99	09:13	1697680.12	115.3/0.23	10.5	53.8/932.0	6080	150.8	557	12
09/21/99	09:14	1667329.37	116.0/0.23	10.5	53.7/913.7	5975	150.8	557	12
09/21/99	09:15	1681072.75	116.6/0.23	10.5	53.7/920.3	6021	150.8	555	12
09/21/99	09:16	1687303.25	116.2/0.23	10.5	53.7/924.6	6043	150.7	554	12
09/21/99	09:17	1690390.50	115.4/0.23	10.5	53.7/925.3	6054	150.7	554	11
09/21/99	09:18	1689526.37	116.3/0.23	10.4	53.8/926.1	6048	151.3	557	11
09/21/99	09:19	1686818.62	116.2/0.23	10.5	54.0/928.1	6041	151.0	559	12

09/21/99	09:20	1673502.37	116.9/0.23	10.5	54.1/923.4	5994	150.8	559	11
09/21/99	09:21	1670996.87	117.0/0.23	10.5	54.3/925.3	5985	150.4	559	11
09/21/99	09:22	1690092.00	116.9/0.23	10.5	54.5/939.3	6073	149.8	559	11
09/21/99	09:23	1705524.50	117.0/0.23	10.5	54.8/952.3	6150	150.5	558	12
09/21/99	09:24	1659356.37	116.7/0.23	10.5	54.9/929.5	5986	151.0	559	12
09/21/99	09:25	1679554.75	116.0/0.23	10.5	55.0/942.6	6056	150.8	558	12
09/21/99	09:26	1647356.00	115.6/0.23	10.5	55.3/929.5	5943	150.8	556	11
09/21/99	09:27	1718794.12	115.4/0.23	10.5	55.6/975.2	6197	150.7	556	11
09/21/99	09:28	1672148.62	115.5/0.23	10.5	55.7/949.9	6015	150.6	555	11
09/21/99	09:29	1681040.12	115.3/0.23	10.5	55.7/954.6	6039	150.8	553	11
09/21/99	09:30	1688608.87	116.3/0.23	10.5	55.6/957.6	6061	150.8	555	11
09/21/99	09:31	1690464.50	116.1/0.23	10.5	55.6/958.6	6067	150.5	554	11
09/21/99	09:32	1684071.50	115.8/0.23	10.5	55.9/959.7	6047	150.8	554	11
09/21/99	09:33	1712604.37	115.9/0.23	10.5	56.2/980.8	6149	150.8	559	11
09/21/99	09:34	1697887.00	116.3/0.23	10.5	56.4/976.6	6096	150.7	559	11
09/21/99	09:35	1689838.87	117.5/0.24	10.5	56.5/972.8	6067	151.0	559	12
09/21/99	09:36	1715613.87	116.3/0.23	10.5	56.5/988.1	6160	150.8	557	11
09/21/99	09:37	1674617.62	116.0/0.23	10.5	56.5/964.5	6019	151.0	557	11
09/21/99	09:38	1672254.25	116.0/0.23	10.5	56.5/963.2	6010	150.5	558	12
09/21/99	09:39	1685790.62	115.8/0.23	10.5	56.5/971.8	6064	150.7	558	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	09:40	1688814.62	115.1/0.23	10.5	56.6/974.0	6075	150.7	558	11
09/21/99	09:41	1708339.12	114.3/0.23	10.5	56.4/982.2	6151	150.7	558	11
09/21/99	09:42	1673298.25	115.5/0.23	10.5	56.3/961.2	6025	150.9	558	12
09/21/99	09:43	1680900.75	115.4/0.23	10.5	56.3/964.3	6049	150.9	557	11
09/21/99	09:44	1679383.12	114.8/0.23	10.5	56.3/964.7	6047	150.9	557	11
09/21/99	09:45	1708197.87	116.5/0.23	10.5	56.3/981.2	6150	150.8	558	11
09/21/99	09:46	1703812.12	117.0/0.23	10.5	56.2/977.3	6134	150.8	554	12
09/21/99	09:47	1710988.75	116.3/0.23	10.5	56.3/981.7	6162	151.1	557	11
09/21/99	09:48	1677921.75	116.9/0.23	10.5	56.4/964.4	6051	151.0	558	12
09/21/99	09:49	1652051.25	116.9/0.23	10.6	56.5/951.2	5986	150.9	559	11
09/21/99	09:50	1678371.37	117.3/0.23	10.6	56.6/969.0	6088	150.7	561	11
09/21/99	09:51	1681409.25	117.7/0.23	10.6	56.8/974.6	6110	150.7	557	11
09/21/99	09:52	1675018.00	117.9/0.23	10.6	57.0/973.5	6098	150.9	558	11
09/21/99	09:53	1668542.00	117.7/0.23	10.6	57.0/969.3	6078	151.2	559	11
09/21/99	09:54	1656273.12	116.8/0.23	10.6	57.1/963.9	6030	151.2	556	11
09/21/99	09:55	1659518.75	117.0/0.23	10.6	57.2/968.7	6042	151.0	555	11
09/21/99	09:56	1661224.25	117.2/0.23	10.6	57.7/976.9	6048	150.9	555	11

09/21/99	09:57	1663642.75	116.6/0.23	10.6	58.1/985.1	6060	150.3	556	11
09/21/99	09:58	1669095.25	116.5/0.23	10.6	58.3/991.7	6071	149.7	557	12
09/21/99	09:59	1681786.25	115.9/0.23	10.6	58.3/1000.5	6117	150.4	556	11
09/21/99	10:00	1696516.50	116.7/0.23	10.6	58.3/1008.4	6174	150.7	553	11
09/21/99	10:01	1679759.62	115.8/0.23	10.6	58.4/999.9	6106	150.7	554	12
09/21/99	10:02	1676588.12	117.0/0.23	10.6	58.3/997.3	6067	150.7	553	11
09/21/99	10:03	1694399.87	117.1/0.23	10.6	58.4/1008.8	6131	150.9	554	11
09/21/99	10:04	1711397.75	117.9/0.23	10.5	58.6/1022.0	6178	150.5	556	11
09/21/99	10:05	1692113.25	118.1/0.24	10.5	58.7/1012.6	6100	150.4	557	11
09/21/99	10:06	1698974.62	118.7/0.24	10.5	59.0/1021.9	6124	150.9	558	11
09/21/99	10:07	1682073.12	118.7/0.24	10.5	59.1/1014.2	6071	151.2	557	12
09/21/99	10:08	1666883.12	119.1/0.24	10.6	59.1/1005.0	6033	151.2	555	12
09/21/99	10:09	1660754.75	119.3/0.24	10.6	59.4/1005.1	6014	151.2	554	11
09/21/99	10:10	1661231.75	118.2/0.23	10.6	59.3/1005.0	6016	150.8	549	11
09/21/99	10:11	1612604.62	117.6/0.23	10.6	59.1/972.3	5840	151.0	547	11
09/21/99	10:12	1646882.62	115.7/0.23	10.6	59.1/992.1	5964	151.2	546	11
09/21/99	10:13	1593551.00	115.2/0.23	10.6	59.0/958.5	5771	151.0	544	12
09/21/99	10:14	1622260.25	114.4/0.23	10.5	58.9/974.8	5860	150.9	542	11
09/21/99	10:15	1610326.12	113.4/0.23	10.5	58.8/965.5	5801	150.4	538	12
09/21/99	10:16	1608051.62	113.5/0.23	10.5	58.8/963.4	5790	150.9	535	12
09/21/99	10:17	1614908.62	113.9/0.23	10.5	58.8/967.5	5799	150.5	536	12
09/21/99	10:18	1653771.25	113.8/0.23	10.5	58.8/992.0	5929	150.7	533	12
09/21/99	10:19	1611548.87	114.5/0.23	10.5	58.9/967.9	5778	150.7	531	12
09/21/99	10:20	1642872.62	114.3/0.23	10.4	58.8/985.5	5874	150.7	533	12
09/21/99	10:21	1635392.87	114.8/0.23	10.4	58.8/979.9	5848	150.4	532	12
09/21/99	10:22	1633059.87	115.4/0.23	10.4	58.6/976.3	5822	151.0	529	12
09/21/99	10:23	1637569.62	116.1/0.23	10.4	58.4/975.2	5821	151.2	528	12
09/21/99	10:24	1634922.87	117.9/0.24	10.4	58.3/971.6	5801	150.8	528	12
09/21/99	10:25	1658190.75	117.7/0.24	10.4	58.3/985.4	5880	150.8	527	12
09/21/99	10:26	1665896.87	116.6/0.24	10.4	58.2/988.7	5907	150.8	530	12
09/21/99	10:27	1622924.50	116.3/0.24	10.4	58.2/962.8	5758	150.4	533	12
09/21/99	10:28	1638375.37	116.5/0.24	10.4	58.2/971.6	5824	150.5	533	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	10:29	1595935.25	116.0/0.23	10.4	58.2/946.4	5679	150.4	532	12
09/21/99	10:30	1587594.37	115.1/0.23	10.4	58.3/943.5	5660	150.7	533	12
09/21/99	10:31	1642200.37	115.5/0.23	10.4	58.5/980.1	5855	151.2	531	12
09/21/99	10:32	1558242.75	114.6/0.23	10.4	58.8/933.6	5534	150.8	531	12
09/21/99	10:33	1613925.50	114.2/0.23	10.4	59.1/972.8	5733	150.0	532	12

09/21/99	10:34	1580734.12	114.4/0.23	10.4	59.6/961.1	5613	149.8	532	12
AVERAGES		1,663,923.16	116.3/0.23	10.5	56.2/953.6	5974	153.8	554	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN 4 (15:40-18:04)

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	15:40	1539817.62	109.8/0.22	10.4	57.8/907.6	5480	149.4	531	12
09/21/99	15:41	1532836.00	110.3/0.22	10.4	57.8/902.7	5461	149.7	532	12
09/21/99	15:42	1590091.37	110.7/0.22	10.4	57.8/936.9	5665	149.5	527	12
09/21/99	15:43	1549530.87	110.9/0.22	10.4	57.8/913.0	5520	149.5	529	12
09/21/99	15:44	1534497.75	111.7/0.23	10.4	57.9/905.7	5467	149.7	531	12
09/21/99	15:45	1567490.00	111.0/0.22	10.4	57.9/925.6	5587	149.5	532	12
09/21/99	15:46	1532963.25	111.2/0.22	10.4	58.0/906.0	5462	149.5	533	12
09/21/99	15:47	1553105.37	110.0/0.22	10.4	58.0/917.9	5547	149.3	532	12
09/21/99	15:48	1623571.50	110.2/0.22	10.4	58.1/962.0	5806	149.4	533	12
09/21/99	15:49	1618884.50	111.5/0.22	10.4	58.3/962.5	5787	149.4	532	12
09/21/99	15:50	1596357.87	111.8/0.22	10.4	58.5/952.4	5706	149.7	531	12
09/21/99	15:51	1603059.25	111.8/0.22	10.4	58.6/958.4	5731	149.4	530	12
09/21/99	15:52	1610991.25	110.9/0.22	10.4	58.8/966.5	5764	149.4	531	12
09/21/99	15:53	1600039.50	110.4/0.22	10.5	59.0/962.4	5737	149.3	533	12
09/21/99	15:54	1589928.50	110.2/0.22	10.5	59.2/959.2	5701	149.7	530	12
09/21/99	15:55	1617079.75	109.2/0.22	10.5	59.4/980.1	5798	149.5	531	12
09/21/99	15:56	1609706.62	108.5/0.22	10.5	59.7/979.7	5772	149.2	528	12
09/21/99	15:57	1615115.50	109.8/0.22	10.5	60.0/988.0	5791	148.7	528	12
09/21/99	15:58	1589660.25	110.4/0.22	10.5	59.8/969.9	5699	148.7	528	13
09/21/99	15:59	1619683.50	110.3/0.22	10.5	59.4/981.7	5807	148.8	527	12
09/21/99	16:00	1597115.25	110.9/0.22	10.5	59.0/961.0	5726	149.1	528	12
09/21/99	16:01	1600665.00	110.6/0.22	10.4	58.5/955.0	5722	148.8	529	12
09/21/99	16:02	1631904.37	110.9/0.22	10.4	58.2/968.2	5831	149.0	526	12
09/21/99	16:03	1580931.00	111.6/0.23	10.4	58.1/936.0	5628	149.2	527	13
09/21/99	16:04	1628775.00	112.6/0.23	10.4	57.9/961.1	5798	149.0	527	12
09/21/99	16:05	1585406.87	112.4/0.23	10.4	57.7/932.2	5643	149.4	530	12
09/21/99	16:06	1614452.62	112.0/0.23	10.4	57.6/948.8	5747	149.2	530	12
09/21/99	16:07	1558213.25	111.3/0.22	10.4	57.6/915.7	5546	149.2	528	12
09/21/99	16:08	1597012.75	112.2/0.23	10.4	57.5/936.9	5684	149.2	527	12
09/21/99	16:09	1597012.75	112.5/0.23	10.4	57.6/937.7	5684	149.2	529	12
09/21/99	16:10	1561612.87	112.1/0.23	10.4	57.6/917.7	5559	149.0	530	12
09/21/99	16:11	1593620.87	111.5/0.23	10.4	57.8/939.0	5672	149.3	532	12
09/21/99	16:12	1583667.00	110.4/0.22	10.4	57.8/933.1	5637	149.5	529	12
09/21/99	16:13	1598445.12	110.1/0.22	10.4	57.9/943.0	5695	149.3	529	12
09/21/99	16:14	1621321.87	109.6/0.22	10.4	58.0/959.0	5779	148.8	529	12
09/21/99	16:15	1573421.25	109.8/0.22	10.4	58.1/932.6	5608	148.8	528	12
09/21/99	16:16	1606762.75	110.6/0.22	10.4	58.3/955.0	5727	149.0	530	12

09/21/99	16:17	1594602.50	111.1/0.22	10.4	58.3/947.3	5684	148.5	530	12
09/21/99	16:18	1599202.75	110.4/0.22	10.4	58.3/950.5	5704	148.7	529	12
09/21/99	16:19	1578673.37	110.8/0.22	10.4	58.3/937.9	5628	148.4	528	12
09/21/99	16:20	1578673.37	110.7/0.22	10.4	58.2/936.8	5615	148.4	528	12
09/21/99	16:21	1578673.37	110.7/0.22	10.4	58.2/936.8	5615	148.4	528	12
09/21/99	16:22	1610698.50	111.5/0.22	10.4	58.1/953.6	5745	148.4	529	12
09/21/99	16:23	1586251.50	110.7/0.22	10.4	58.1/939.5	5658	148.8	531	12
09/21/99	16:24	1586577.37	110.7/0.22	10.4	58.1/940.1	5664	148.5	531	12
09/21/99	16:25	1578542.25	109.8/0.22	10.4	58.2/937.3	5640	148.5	528	12
09/21/99	16:26	1578511.12	110.9/0.22	10.5	58.4/939.8	5654	148.5	528	12
09/21/99	16:27	1591591.87	111.5/0.22	10.5	58.7/952.8	5704	148.4	528	13
09/21/99	16:28	1583061.62	112.2/0.23	10.5	58.8/949.7	5673	148.8	529	12

UNIT 1
MERCURY EMISSIONS TEST
RUN LARAMIE RIVER STATION

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	16:29	1583518.25	112.0/0.22	10.5	58.9/950.5	5675	148.4	531	12
09/21/99	16:30	1571867.25	112.1/0.22	10.5	58.9/944.3	5636	148.7	531	12
09/21/99	16:31	1607359.62	112.7/0.23	10.5	58.9/964.8	5760	148.5	529	12
09/21/99	16:32	1594797.62	111.8/0.22	10.5	58.8/956.8	5718	148.4	527	12
09/21/99	16:33	1605365.75	112.3/0.23	10.5	58.8/962.7	5756	147.7	529	12
09/21/99	16:34	1584394.50	112.6/0.23	10.5	58.9/951.7	5678	147.8	533	12
09/21/99	16:35	1607422.50	112.7/0.23	10.5	58.8/963.9	5779	148.5	531	12
09/21/99	16:36	1575627.87	111.6/0.22	10.5	58.7/942.8	5679	148.3	529	12
09/21/99	16:37	1586740.37	112.7/0.22	10.5	58.7/949.9	5719	148.4	528	12
09/21/99	16:38	1563757.62	112.0/0.22	10.5	58.8/936.9	5636	148.7	527	12
09/21/99	16:39	1601189.62	110.9/0.22	10.5	58.9/961.0	5771	148.4	529	12
09/21/99	16:40	1572220.87	111.4/0.22	10.5	58.9/944.8	5669	148.4	529	12
09/21/99	16:41	1570173.87	111.3/0.22	10.5	58.9/943.6	5659	148.8	529	12
09/21/99	16:42	1610761.62	111.1/0.22	10.5	59.0/969.6	5808	148.4	528	12
09/21/99	16:43	1609310.37	111.1/0.22	10.5	59.2/972.0	5803	148.3	528	12
09/21/99	16:44	1628076.75	111.2/0.22	10.5	59.3/984.2	5870	148.4	526	12
09/21/99	16:45	1593359.25	110.2/0.22	10.5	59.3/963.6	5745	148.3	528	12
09/21/99	16:46	1568807.87	109.6/0.22	10.5	59.2/947.7	5660	148.5	529	12
09/21/99	16:47	1584998.37	110.0/0.22	10.5	59.2/956.2	5728	148.5	531	12
09/21/99	16:48	1569950.87	110.4/0.22	10.5	59.1/945.5	5672	148.9	532	12
09/21/99	16:49	1573521.12	110.5/0.22	10.5	58.9/944.4	5685	148.7	531	12
09/21/99	16:50	1565580.62	109.4/0.22	10.5	58.8/938.4	5658	148.5	530	12
09/21/99	16:51	1560871.37	108.8/0.22	10.5	58.8/935.1	5638	148.4	528	12
09/21/99	16:52	1570304.25	108.9/0.22	10.5	58.8/941.2	5675	148.7	528	12
09/21/99	16:53	1583386.87	108.3/0.21	10.6	58.8/949.1	5739	148.5	528	12

09/21/99	16:54	1595742.50	107.7/0.21	10.6	58.8/956.9	5803	148.9	527	12
09/21/99	16:55	1547030.62	108.5/0.21	10.6	58.9/929.7	5626	148.9	526	12
09/21/99	16:56	1592377.87	107.9/0.21	10.6	59.0/958.2	5791	149.0	528	12
09/21/99	16:57	1589660.25	107.4/0.21	10.6	59.1/957.3	5781	148.7	530	12
09/21/99	16:58	1597176.62	108.6/0.21	10.6	59.3/965.6	5808	149.0	529	12
09/21/99	16:59	1579510.12	107.9/0.21	10.6	59.3/955.6	5745	149.0	526	12
09/21/99	17:00	1585957.00	110.0/0.22	10.6	59.3/958.8	5732	149.0	526	13
09/21/99	17:01	1587564.75	109.3/0.22	10.5	59.3/960.5	5714	149.0	527	12
09/21/99	17:02	1577894.12	109.4/0.22	10.5	59.3/953.9	5679	149.0	526	12
09/21/99	17:03	1579703.25	110.6/0.22	10.5	59.3/955.7	5691	148.9	528	12
09/21/99	17:04	1565228.37	111.3/0.22	10.5	59.3/946.2	5639	148.8	529	12
09/21/99	17:05	1585794.37	110.0/0.22	10.5	59.2/957.9	5712	149.2	528	12
09/21/99	17:06	1571091.62	109.2/0.22	10.5	59.2/947.8	5660	149.3	530	12
09/21/99	17:07	1577732.37	109.6/0.22	10.5	59.1/950.2	5684	149.2	527	12
09/21/99	17:08	1606699.62	109.5/0.22	10.5	59.1/967.7	5788	149.0	527	12
09/21/99	17:09	1615811.00	109.6/0.22	10.5	59.2/974.7	5821	148.2	527	12
09/21/99	17:10	1623229.62	110.8/0.22	10.5	59.2/979.1	5847	148.6	528	12
09/21/99	17:11	1593980.25	111.0/0.22	10.5	59.1/959.9	5742	149.1	527	12
09/21/99	17:12	1595251.37	110.4/0.22	10.5	59.0/959.5	5747	149.3	528	13
09/21/99	17:13	1622363.75	111.4/0.22	10.5	59.1/977.0	5844	149.2	527	13
09/21/99	17:14	1614618.25	109.9/0.22	10.5	59.1/972.9	5817	149.0	531	12
09/21/99	17:15	1635915.62	110.1/0.22	10.5	59.2/988.2	5894	149.5	532	12
09/21/99	17:16	1622229.25	110.5/0.22	10.5	59.4/982.3	5844	149.3	532	12
09/21/99	17:17	1604648.87	110.0/0.22	10.5	59.5/973.7	5781	149.4	530	12

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	17:18	1618718.37	110.7/0.22	10.5	59.5/981.8	5831	149.5	527	12
09/21/99	17:19	1618552.75	110.2/0.22	10.5	59.5/981.8	5825	149.6	529	12
09/21/99	17:20	1627940.12	110.7/0.22	10.5	59.4/986.3	5845	149.7	528	12
09/21/99	17:21	1602863.37	112.2/0.22	10.5	59.3/969.8	5757	149.5	529	13
09/21/99	17:22	1596585.12	111.3/0.22	10.5	59.3/965.1	5734	149.6	531	12
09/21/99	17:23	1615528.50	112.5/0.22	10.5	59.2/975.6	5807	149.7	531	12
09/21/99	17:24	1594559.00	112.6/0.23	10.5	59.2/962.6	5730	149.9	530	12
09/21/99	17:25	1615629.75	111.6/0.22	10.5	59.2/975.0	5806	149.5	531	12
09/21/99	17:26	1614319.87	111.2/0.22	10.5	59.1/973.4	5802	149.3	530	12
09/21/99	17:27	1631299.00	111.2/0.22	10.5	59.0/982.0	5859	149.5	527	12
09/21/99	17:28	1626803.12	111.7/0.22	10.5	58.8/976.2	5835	149.4	527	12
09/21/99	17:29	1594986.87	112.0/0.22	10.5	58.7/954.5	5724	149.5	528	12
09/21/99	17:30	1617009.12	111.2/0.22	10.5	58.6/966.7	5803	149.7	530	12

09/21/99	17:31	1623935.25	111.8/0.22	10.5	58.6/970.5	5828	149.2	532	12
09/21/99	17:32	1610495.87	111.3/0.22	10.5	58.6/961.6	5780	149.8	530	12
09/21/99	17:33	1623800.37	111.4/0.22	10.5	58.5/967.9	5827	149.3	530	12
09/21/99	17:34	1646850.25	112.1/0.22	10.5	58.4/980.4	5910	149.5	529	12
09/21/99	17:35	1631266.87	112.1/0.22	10.5	58.2/968.6	5857	149.5	530	12
09/21/99	17:36	1636451.12	113.9/0.23	10.5	58.1/970.2	5867	149.2	531	12
09/21/99	17:37	1625671.75	113.9/0.23	10.5	58.1/963.2	5826	149.0	530	12
09/21/99	17:38	1634588.62	113.2/0.23	10.5	57.9/965.6	5858	149.4	531	12
09/21/99	17:39	1629536.62	112.7/0.23	10.5	58.0/963.0	5840	149.7	528	12
09/21/99	17:40	1629807.00	112.8/0.23	10.5	58.0/963.3	5841	149.4	528	12
09/21/99	17:41	1593426.12	112.7/0.23	10.4	57.8/939.3	5694	149.4	530	12
09/21/99	17:42	1605813.00	113.7/0.23	10.4	57.7/945.5	5736	149.7	529	12
09/21/99	17:43	1618686.87	113.4/0.23	10.4	57.7/952.5	5781	149.5	529	12
09/21/99	17:44	1614618.25	114.2/0.23	10.4	57.7/949.3	5767	149.0	528	12
09/21/99	17:45	1620016.00	113.3/0.23	10.4	57.6/951.0	5789	148.5	528	12
09/21/99	17:46	1594111.50	113.0/0.23	10.4	57.5/934.0	5693	148.9	526	12
09/21/99	17:47	1632629.25	113.1/0.23	10.4	57.3/953.2	5831	149.7	527	12
09/21/99	17:48	1628107.00	113.6/0.23	10.4	57.0/946.4	5779	149.5	526	12
09/21/99	17:49	1637808.87	113.9/0.23	10.4	56.8/947.9	5813	149.3	528	12
09/21/99	17:50	1630173.25	114.0/0.23	10.4	56.7/943.0	5789	149.2	527	12
09/21/99	17:51	1629671.75	114.6/0.23	10.4	56.9/945.2	5787	149.5	529	12
09/21/99	17:52	1607956.62	114.8/0.23	10.4	57.0/934.3	5710	149.3	530	12
09/21/99	17:53	1623736.75	115.2/0.23	10.4	57.0/944.3	5766	149.3	526	12
09/21/99	17:54	1620593.00	115.1/0.23	10.4	57.1/943.3	5755	149.3	526	12
09/21/99	17:55	1625473.00	115.7/0.23	10.4	57.1/946.2	5775	149.2	528	12
09/21/99	17:56	1614287.12	115.0/0.23	10.4	57.0/938.8	5735	149.3	530	13
09/21/99	17:57	1623935.25	115.8/0.23	10.4	57.0/944.0	5769	149.2	531	12
09/21/99	17:58	1620989.12	114.2/0.23	10.4	56.9/940.7	5758	149.0	531	12
09/21/99	17:59	1647526.12	113.9/0.23	10.4	57.1/958.5	5864	149.0	530	12
09/21/99	18:00	1618885.75	115.0/0.23	10.4	57.3/945.1	5764	149.4	529	12
09/21/99	18:01	1605009.50	114.6/0.23	10.4	57.4/939.5	5715	149.2	528	12
09/21/99	18:02	1625735.50	114.9/0.23	10.4	57.5/954.1	5786	149.0	527	13
09/21/99	18:03	1605566.62	115.2/0.23	10.4	57.7/945.1	5716	148.8	529	13
09/21/99	18:04	1635188.00	113.2/0.23	10.4	57.7/962.0	5835	149.0	530	13
09/21/99	18:05	1611479.75	112.0/0.23	10.4	57.6/947.2	5762	149.2	531	13
09/21/99	18:06	1603091.87	112.4/0.23	10.4	57.7/944.0	5735	149.4	527	13

UNIT 1
MERCURY EMISSIONS TEST
LARAMIE RIVER STATION

RUN

DATE	TIME	VFLOW SCFM	NOX PPM/LBMbTU	CO2	SO2 PPM/LBHR	HEATINPUT	STKTMP	MW(G)	OPACITY
09/21/99	18:07	1617704.25	112.5/0.23	10.4	57.8/953.2	5788	149.2	526	13

09/21/99	18:08	1619509.87	112.6/0.23	10.4	57.6/952.0	5793	149.0	528	13
09/21/99	18:09	1618036.25	113.1/0.23	10.4	57.5/948.3	5791	148.9	530	12
AVERAGES		1,599,982.34	111.5/0.22	10.5	58.4/953.2	5734	149.1	529	12

9/22/99
7:50

Jim,

Talked with Bill Grimely to discuss the probe markings. Bill stated that they do not believe the mercury is in a particulate state. So, the isolations are only marginally important. He feels that the data is valid and that no farther testing will be required unless there is a [illegible] deviation [illegible] results. Which [illegible] expects.

We do need to document the traverses very well. Probably include a sketch and other data to show the stack flow characteristics.

[illegible]

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
Abra Bennett	Battelle	Senior Policy Analyst
W. Tony Underwood	ETS, Inc.	Test Procedure Auditor