APPENDIX A

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:

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

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)
Bws	=	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)

Symbol Identification (continued)

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

APPENDIX B

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

Plant: Basin COS Date: 7-15-99

Sample Location: Main Stack Run #: 1

Run Time: _____

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	929.1	725.0	
Mod. G.S. 2	100 ml 1N KCl	745.0	733.1	
G.S. 3	100 ml 1N KCl	736.6	733.4	
Mod. G.S. 4	100 ml 5%HNO3/~~15~~ 10 %H2O2	740.0	735.5	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	744.4	742.6	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	739.2	739.1	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	BE ~~745.0~~ 738.2	737.9	
Mod. G.S. 8	Silica Gel	BE ~~929.~~ 1902.4	886.8	
			TOTAL	

ORSAT ANALYSIS

around the 17.5 ← Change chemicals

	O_2	CO_2	N_2
Run 1	10.2	12.0	
Run 2	5.8	14.6	
Run 3	5.8	14.6	
Average	~~20.9~~ BE		
Air Audit	20.9		

Comments : _____

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0305

Plant: Basin LOS
Sample Location: Stack
Run #: 2
Date: 7-15-99
Ambient Temp.(°F):
Pbar ("Hg): 29.02
Pstatic ("H2O): -0.1
Pre-test Leak Rate: 0.010 @ 5

Bws (assumed): 0.15
MWwet (assumed): 28.81
Ps ("Hg):
Probe Material: Glass
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #:
Post-test Leak Rate: 0.006 @ 9

Meter Box #: 38758
ΔH@i: 1.811
Y: 1.005
Pitot #: 3-2
Cp: 0.84 0.813 OK
Nozzle Material: Glass
Nozzle Diameter: 0.220
10 mm/pt
X-Factor: 1.769

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA			Impinger Outlet (°F)	Dry Test Meter Vol. (CF)
		Temp (°F)	ΔP ("H20)	Temp i (°F)	Temp o (°F)	ΔH ("H2O)	Vac ("Hg)	Probe (°F)	Filter (°F)	Sample Line (°F)		
D 3	08.03	360	1.80	98	97	2.16	5	248	244	231	41	941.009
2	08.13	357	1.50	73	77	1.73	5	245	249	[illegible]	39	
1	08.23	357	1.20	70	71	1.37	5	249	250	[illegible]	41	
	08.33	356									47	962.217
C 3	08.37	356	1.60	65	64	1.82	5	250	247	[illegible]	47	
2	08.47	357	1.50	67	62	1.71	5	249	245	[illegible]	46	
1	08.57	357	1.40	67	61	1.59	5	244	243	[illegible]	46	
	09.07											983.284
B 3	09.11	355	1.70	63	60	1.92	5	246	247	251	51	
2	09.21	358	1.60	68	61	1.82	5	239	240	249	46	
1	09.31	360	1.40	69	61	1.59	5	240	251	252	47	
	09.41											004.533
A 3	09.46	361	1.75	63	61	1.97	5	248	249	253	52	
2	09.56	362	1.50	68	61	1.70	5	243	243	251	49	
1	09.06	363	1.40	69	61	1.59	5	253	243	252	51	
												025.645

Comments:

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

Plant: Basin CGS Date: 7-16-99

Sample Location: Main Stack Run #: 2

Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	965.3	734.1	
Mod. G.S. 2	100 ml 1N KCl	745.1	730.9	
G.S. 3	100 ml 1N KCl	758.3	752.8	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	753.1	747.6	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	735.8	735.5	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	738.4	737.8	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	745.2	745.1	
Mod. G.S. 8	Silica Gel	859.7	852.9	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	5.8	13.9	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0305

Plant: Basin LOS
Sample Location: Stack
Run #: 3
Date: 7-16-99
Ambient Temp.(oF):
Pbar ("Hg): 29.02
Pstatic ("H2O): -0.08

Bws (assumed): 0.15
MWwet (assumed): 28.81
Ps ("Hg):
Probe Material: Glass
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #:

Meter Box #: ~~8231~~ 38758
ΔH@i: ~~1.829~~ 1.811
Y: ~~1.003~~ 1.005
Pitot #: 3-2
Cp: 0.813
Nozzle Material: Glass
Nozzle Diameter: 0.220
10mm/pt

Pre-test Leak Rate: 0.006@8
Post-test Leak Rate: 0.004@7
X-Factor: 1.769

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	11:00	365	1.60	66	63	1.80	4	256	245	[illegible]	52	025.913
2	11:10	364	1.50	68	64	1.70	4	252	244	[illegible]	47	
1	11:20	363	1.40	71	65	1.59	4	245	241	[illegible]	49	
	11:30											046.888
B 3	11:33	363	1.60	70	66	1.82	5	243	258	[illegible]	51	
2	11:43	364	1.55	73	67	1.77	5	245	242	[illegible]	48	
1	11:53	365	1.30	74	68	1.48	4	243	241	[illegible]	49	
	12:03											067.714
C 3	12:07	361	1.60	71	68	1.83	5	249	253	[illegible]	55	
2	12:17	365	1.50	74	69	1.71	5	248	258	[illegible]	52	
1	12:27	367	1.30	75	69	1.48	4	248	260	[illegible]	52	
	12:37											088.636
D 3	12:41	367	1.50	75	70	1.71	5	253	251	[illegible]	52	
2	12:51	368	1.45	75	71	1.65	5	255	258	[illegible]	54	
1	13:01	366	1.30	75	71	1.48	5	242	255	[illegible]	54	
	13:11											109.251

Comments:

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

Plant: Basin LOS Date: 7-16-99

Sample Location: Mornstock Run #: 3

Run Time: _____

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	968.0	739.1	
Mod. G.S. 2	100 ml 1N KCl	759.8	743.8	
G.S. 3	100 ml 1N KCl	749.9	747.8	
Mod. G.S. 4	100 ml 5%HNO_3/~~15~~ 10%H_2O_2	729.8	723.2	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4	746.1	745.8	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4	759.6	742.6	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4	738.5	738.0	
Mod. G.S. 8	Silica Gel	881.8	871.9	
			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 - 0305

Plant: Basin COS
Sample Location: ~~Inlet~~ Stack
Run #: Blank train
Date: 7-15-99
Ambient Temp.(°F):
Pbar ("Hg):
Pstatic ("H2O):

Bws (assumed):
MWwet (assumed):
Ps ("Hg):
Probe Material:
Probe Heater Setting:
Filter Heater Setting:
Nozzle #:

Meter Box #:
ΔH@i:
Y:
Pitot #:
Cp:
Nozzle Material:
Nozzle Diameter:

Pre-test Leak Rate: 0.0808
Post-test Leak Rate:
X-Factor:

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

Comments:

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

Plant: Bosm Cos Date: 7-15-99

Sample Location: Stack Run #: Blank Train

Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	742.3	741.8	
Mod. G.S. 2	100 ml 1N KCl	734.8	734.6	
G.S. 3	100 ml 1N KCl	734.6	734.5	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2	718.7	718.7	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4	746.1	745.9	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4	751.8	752.0	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4	759.0	759.2	
Mod. G.S. 8	Silica Gel	872.2	872.2	
			TOTAL	

ORSAT ANALYSIS

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

Comments :

DRY GAS METER CALIBRATIONS

DATE: 6/16/99 Meter box: 81231

Barometric press: 30.39 Calibrated by KH

Orifice setting (dH) in. H2O		Wet test meter (Vw) L	Gas volume 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	345.63	5.106	initial	314.490	22.2	71	74	13.0	1.003	1.785
	final	490.23		final	319.601						
1	initial	171.63	5.507	initial	308.367	22.2	71	74	10.0	1.006	1.816
	final	327.60		final	313.860						
2	initial	988.90	6.159	initial	301.962	22.2	71	72	8.0	1.002	1.865
	final	1163.33		final	308.089						
3	initial	848.07	4.737	initial	297.017	22.2	71	72	5.0	1.000	1.848
	final	982.21		final	301.727						

	Yi	dH@i
Average:	1.003	1.829
Deviation:	0.003	0.043

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: 7/6/99 Meter box: 38758

Barometric press: 30.16 Calibrated by KH

Orifice setting (dH) in. H2O		Wet test meter (Vw) L	Gas volume 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	138.78	5.315	initial	645.916	24.4	76	77	13.0	1.002	1.682
	final	289.31		final	651.226						
1	initial	976.26	5.619	initial	640.219	24.4	76	77	10.0	1.007	1.781
	final	1135.38		final	645.798						
2	initial	793.70	6.120	initial	633.827	24.4	76	77	8.0	1.006	1.922
	final	967.02		final	639.890						
3	initial	651.06	4.772	initial	628.866	24.4	76	75	5.0	1.007	1.859
	final	786.21		final	633.563						

	Yi	dH@i
Average:	1.005	1.811
Deviation:	0.004	0.129

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: 3-2 CALIBRATED BY: SN
DATE: 6/17/99

A SIDE CALIBRATION

RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(A)
1	0.60	0.89	0.813	0.003
2	0.59	0.88	0.811	0.005
3	0.61	0.88	0.824	0.008
		Cp(A)	0.816	

B SIDE CALIBRATION

RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(B)
1	0.61	0.90	0.815	0.004
2	0.60	0.90	0.808	0.002
3	0.60	0.90	0.808	0.002
		Cp(B)	0.811	

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)	0.01
AVG DEVIATION (B)	0.00	**Cp**	**0.813**

PITOT TUBE CALIBRATION

UNIT: 5-1 CALIBRATED BY: SN
DATE: 6/17/99

A SIDE CALIBRATION

RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(A)
1	0.60	0.89	0.813	0.001
2	0.59	0.88	0.811	0.003
3	0.60	0.88	0.817	0.004
		Cp(A)	0.814	

B SIDE CALIBRATION

RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(B)
1	0.61	0.90	0.815	0.004
2	0.60	0.90	0.808	0.002
3	0.60	0.90	0.808	0.002
		Cp(B)	0.811	

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

AVG DEVIATION (A)	0.00	|Cp(A)-Cp(B) |	0.00
AVG DEVIATION (B)	0.00	**Cp**	**0.812**

APPENDIX C

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin LOS	Bws(assumed):	0.14	Meter Box #:	81231
Sample Loc:	Inlet	MWs(assumed):	28.81	dH@i:	1.829
Run #:	1	MWd(assumed):	27.8	Gamma:	1.003
Date:	7/15/99	Pstatic ("H2O):	-12.5	Pitot #:	
Pbar ("Hg):	28.82	Probe Mat:	Glass	Cp:	0.812
Ps ("Hg):	27.90	Nozzle Mat:	Teflo/SS	X-Factor:	2.347
Sample time/pt:	5.0	Dn (in.):	0.238	# of Ports:	5

PORT:	A		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)	(ft/s)
5	11	40	384	0.65	98	98	4.0	237	N/A	60	880.620	1.01		0.60	880.62	57.3
4	11	45	380	0.62	99	98	4.0	259	N/A	51		0.97		0.58	883.599	55.9
3	11	50	380	0.64	100	98	5.0	258	N/A	46		1.00		0.59	886.521	56.8
2	11	55	383	0.63	101	99	5.0	246	N/A	46		0.98		0.59	889.495	56.4
1	12	0	384	0.58	102	99	5.0	249	N/A	46		0.91		0.57	892.445	54.2
	12	5									894.514				895.280	
Run Time:		25	382	0.62	100	98	4.6	250	N/A	50	13.894	0.97	94.8		14.660	56.1

PORT:	B		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	12	10	380	0.67	101	99	8.0	232	N/A	58	894.514	1.05		0.61	894.514
4	13	28	381	0.58	103	102	14.0	248	N/A	62	897.314	0.91		0.57	897.562
3	13	33	393	0.61	103	102	13.0	253	N/A	56		0.94		0.58	900.407
2	13	38	393	0.60	104	102	12.0	251	N/A	54		0.93		0.58	903.303
1	13	43	394	0.61	104	102	12.0	249	N/A	52		0.95		0.58	906.181
	13	48									908.804				909.081
Run Time:		25	388	0.61	103	101	11.8	247	N/A	56	14.290	0.96	98.1		14.567

PORT:	C		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	13	54	393	0.60	103	102	12.0	250	N/A	64	908.804	0.93		0.57	908.804
4	13	59	394	0.59	105	103	12.0	253	N/A	53		0.92		0.57	911.677
3	14	4	395	0.61	106	104	12.0	253	N/A	52		0.95		0.58	914.534
2	14	9	396	0.58	107	104	12.0	251	N/A	52		0.90		0.57	917.442
1	14	14	396	0.62	107	104	13.0	251	N/A	52		0.96		0.59	920.282
	14	19									922.924				923.218
Run Time:		25	395	0.60	106	103	12.2	252	N/A	55	14.120	0.93	98.0		14.414

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin LOS	Bws(assumed):	0.14	Meter Box #:	81231
ample Loc:	Inlet	MWs(assumed):	28.81	dH@i:	1.829
..un #:	1	MWd(assumed):	27.8	Gamma:	1.003
Date:	7/15/99	Pstatic ("H2O):	-12.5	Pitot #:	0
bar ("Hg):	28.82	Probe Mat:	Glass	Cp:	0.812
s ("Hg):	27.9009	Nozzle Mat:	Teflo/SS	X-Factor:	2.347
Sample time pt:	5	Dn (in.):	0.238	# of Ports:	5

ORT:	D		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	14	21	396	0.59	103	104	12.0	246	N/A	57	922.924	0.91		0.57	922.924
4	14	26	396	0.58	105	103	12.0	248	N/A	54		0.90		0.57	925.768
3	14	31	397	0.58	106	104	12.0	249	N/A	52		0.90		0.57	928.597
2	14	36	398	0.56	107	104	12.0	249	N/A	52	931.934	0.87		0.56	931.430
1	16	6	388	0.60	107	104	14.0	249	N/A	66		0.94		0.58	934.217
	16	11									936.934				937.118
Run Time:		25	395	0.58	106	104	12.4	248	N/A	56	14.010	0.90	98.7		14.194

ORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	16	14	388	0.57	105	104	13.0	240	N/A	68	936.934	0.89		0.56	936.934
4	16	21	387	0.59	105	104	13.0	249	N/A	62		0.92		0.57	939.752
3	16	26	388	0.58	105	104	14.0	250	N/A	60		0.91		0.57	942.621
2	16	31	388	0.58	107	104	14.0	250	N/A	59		0.91		0.57	945.464
1	16	36	390	0.59	107	104	15.0	225	N/A	58		0.92		0.57	948.317
	16	41									950.118				951.191
Run Time:		25	388	0.58	106	104	13.8	243	N/A	61	13.184	0.91	92.5		14.257

ost Test Leak Rate: 0.002 CFM @ 17 "Hg

Summary	125	390	104	102	11.0	248	N/A	56	69.498	0.94	96.40	72.09	#VALUE!

Analytical Results

ı iant:	Basin LOS	Tstd:	68	MWw:	29.05
Sample Loc:	Inlet	Pstd:	29.92	An:	0.0003 sq. ft.
ate:	7 15 99	Vmstd:	63.109	%ISO:	97.1
un #:	1				

IMPINGER ANALYSIS

YPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	848.5	737.5	111.0
lodified Greenberg Smith	100 ml 0.1N KCl	786.3	749.9	36.4
:reenberg Smith	100 ml 0.1N KCl	753.7	730.2	23.5
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	753.3	750.4	2.9
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	740.8	739.5	1.3
lodified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	740.8	738.7	2.1
reenberg Smith	100 ml 4% KMnO4/10% H2SO4	745.7	743.7	2.0
Modified Greenberg Smith	Silica Gel	853.3	848.5	4.8
			TOTAL	184

Fixed Gas Analysis	
%CO2:	14.7
%O2:	5.3
%C0:	0.0
%N2	80.0
Fo	1.061
Bws:	0.121
DSCFM	612593

Concentration and Emission Rate Data

article-Bound Mercury

Sample Front-Half:	0.88	ug
Blank Front-Half:	0.050	ug
et Front-Half:	0.880	ug
Detection Limit:	0.050	ug

Oxidized Mercury

Sample KCl:	0.35	ug
Blank KCl:	0.030	ug
Net KCl:	0.350	ug
D.L:	0.030	ug

Elemental Hg

Sample HNO3/H2O2:	<	0.25	ug
Blank HNO3/H2O2:	<	0.250	ug
Net HNO3/H2O2:	<	0.250	ug
Detection Limit:		0.010	ug
Sample KMnO4:		4.9	ug
Blank KMnO4:	<	0.030	ug
Net KMnO4:		4.900	ug
Detection Limit:		0.030	ug
Total Elemental:		5.150	ug

Total Mercury: 6.38 ug

	Concentrat on (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
article-Bound Hg	0.493	0.451	8.7
xidized Hg	0.196	0.179	3.5
Elemental Hg	< 2.884	< 2.637	50.9
HNO3	0.140	0.128	
2SO4	2.744	2.509	
otal Hg	3.572	3.267	63.1

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

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant: Basin LOS
Sample Location: Inlet
Test Date: 7/15/99

Sample Time: 11:40-16:41

Run #: 1

DUCT DIMENSIONS
Width: 480 inches
Depth: 96 inches
Area: 320.00 sq. feet

Pbar: 28.82 "Hg
Ps: 27.90 "Hg
Bws: 0.121
MWw: 29.05 g/g-mole
Tstd: 68 "deg F
Pstd: 29.92 "Hg
Cp: 0.812

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
A5	86.4	384	0.65	57.1
A4	67.2	380	0.62	55.7
A3	48.0	380	0.64	56.5
A2	28.8	383	0.63	56.2
A1	9.6	384	0.58	54.0
B5	86.4	380	0.67	57.9
B4	67.2	381	0.58	53.9
B3	48.0	393	0.61	55.6
B2	28.8	393	0.60	55.2
B1	9.6	394	0.61	55.7
C5	86.4	393	0.60	55.2
C4	67.2	394	0.59	54.7
C3	48.0	395	0.61	55.7
C2	28.8	396	0.58	54.3
C1	9.6	396	0.62	56.2
D5	86.4	396	0.59	54.8
D4	67.2	396	0.58	54.3
D3	48.0	397	0.58	54.4
D2	28.8	398	0.56	53.5
D1	9.6	388	0.60	55.0
E5	86.4	388	0.57	53.6
E4	67.2	387	0.59	54.5
E3	48.0	388	0.58	54.1
E2	28.8	388	0.58	54.1
E1	9.6	390	0.59	54.6
Average		390	0.60	55.1

Results:
Average Velocity: 55.06 fps @ 390 g. F a 27.90 "Hg

Q:	1057.15	x 100	ACFM	63429.1	KACFH
Q (std):	612.59	x 100	SCFM	36755.6	KSCFH
Q (std dry):	538.56	x 100	DSCFM	32313.4	KDSCFH

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin LOS	Bws(assumed):	0.14	Meter Box #:	81231
Sample Loc:	Inlet	MWs(assumed):	28.81	dH@i:	1.829
Run #:	2	MWd(assumed):	27.8	Gamma:	1.003
Date:	07/16/99	Pstatic ("H2O):	-12.5	Pitot #:	
Pbar ("Hg):	29.20	Probe Mat:	Glass	Cp:	0.812
Ps ("Hg):	28.28	Nozzle Mat:	Teflo/SS	X-Factor:	2.347
Sample time/pt:	5.0	Dn (in.):	0.238	# of Ports:	5

PORT:	A		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)	(ft/s)
5	8	3	388	0.65	82	81	3.0	247	N/A	62	950.618	0.98		0.57	950.618	57.1
4	8	8	388	0.63	82	81	4.0	246	N/A	48		0.95		0.56	953.486	56.2
3	8	13	388	0.64	81	81	4.0	246	N/A	47		0.96		0.57	956.310	56.7
2	8	18	389	0.63	81	80	4.0	245	N/A	50		0.94		0.56	959.150	56.2
1	8	23	388	0.66	81	80	4.0	245	N/A	52		0.99		0.58	961.967	57.5
	8	28									964.125				964.852	
Run Time:		25	388	0.64	81	81	3.8	246	N/A	52	13.507	0.96	94.9		14.234	56.7

PORT:	B		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	8	30	389	0.63	81	79	4.0	245	N/A	55	964.125	0.94		0.56	964.125
4	8	35	390	0.64	81	79	4.0	246	N/A	53		0.96		0.57	966.942
3	8	40	390	0.69	82	78	4.0	245	N/A	53		1.03		0.59	969.779
2	8	45	390	0.67	82	78	4.0	246	N/A	54		1.00		0.58	972.731
1	8	50	391	0.58	83	78	4.0	245	N/A	53		0.87		0.54	975.639
	8	55									977.550				978.349
Run Time:		25	390	0.64	82	78	4.0	245	N/A	54	13.425	0.96	94.4		14.224

PORT:	C		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	8	58	393	0.65	81	78	4.0	245	N/A	58	977.550	0.97		0.57	977.55
4	9	3	393	0.69	82	78	4.0	246	N/A	52		1.03		0.59	980.404
3	9	8	394	0.73	82	78	4.0	247	N/A	52		1.09		0.61	983.351
2	9	13	394	0.75	82	78	4.0	246	N/A	52		1.12		0.61	986.380
1	9	18	394	0.72	83	78	4.0	246	N/A	51		1.07		0.60	989.450
	9	23									991.609				992.463
Run Time:		25	394	0.71	82	78	4.0	246	N/A	53	14.059	1.06	94.3		14.913

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin LOS	Bws(assumed):	0.14	Meter Box #:	81231
ample Loc:	Inlet	MWs(assumed):	28.81	dH@i:	1.829
Run #:	2	MWd(assumed):	27.8	Gamma:	1.003
Date:	07/16/99	Pstatic ("H2O):	-12.5	Pitot #:	0
Pbar ("Hg):	29.2	Probe Mat:	Glass	Cp:	0.812
s ("Hg):	28.2809	Nozzle Mat:	Teflo/SS	X-Factor:	2.347
Sample time/pt:	5	Dn (in.):	0.238	# of Ports:	5

ORT:	D		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	9	26	397	0.56	81	78	4.0	245	N/A	58	991.609	0.83		0.53	991.609
4	9	31	397	0.62	82	78	4.0	245	N/A	54		0.92		0.56	994.252
3	9	36	398	0.74	82	78	4.0	246	N/A	53		1.10		0.61	997.039
2	9	41	398	0.65	82	78	4.0	245	N/A	54		0.96		0.57	1000.081
1	9	46	399	0.72	83	78	4.0	246	N/A	54		1.07		0.60	1002.932
	9	51									1005.309				1005.937
Run Time:		25	398	0.66	82	78	4.0	245	234	55	13.700	0.98	95.6		14.328

ORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	9	53	399	0.74	83	79	4.0	247	N/A	58	1005.309	1.10		0.61	1005.309
4	9	58	400	0.57	85	80	4.0	245	N/A	56		0.85		0.54	1008.355
3	10	3	400	0.77	85	80	4.0	247	N/A	55		1.15		0.62	1011.037
2	10	8	401	0.64	86	80	4.0	246	N/A	56		0.95		0.57	1014.154
1	10	13	401	0.68	86	80	4.0	246	N/A	57		1.01		0.59	1016.999
	10	18									1019.139				1019.932
Run Time:		25	400	0.68	85	80	4.0	246	N/A	56	13.830	1.01	94.6		14.623

ost Test Leak Rate: 0.002 CFM @ 8 "Hg

Summary	125	394	82	79	4.0	246	N/A	54	68.521	0.99	94.75	72.32	#VALUE!

Analytical Results

Plant:	Basin LOS	Tstd:	68	MWw:	28.70	
Sample Loc:	Inlet	Pstd:	29.92	An:	0.0003	sq. ft.
Date:	07/16/99	Vmstd:	65.661	%ISO:	97.5	
Run #:	2					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	890.3	732.8	157.5
Modified Greenberg Smith	100 ml 0.1N KCl	768.7	723.3	45.4
Greenberg Smith	100 ml 0.1N KCl	744.2	730.2	14.0
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	745.3	737.7	7.6
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	741.2	741.8	-0.6
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	746.63	745.8	0.8
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	740.8	741.0	-0.2
Modified Greenberg Smith	Silica Gel	911.4	902.1	9.3
			TOTAL	233.83

Fixed Gas Analysis	
%CO2:	14.2
%O2:	5.6
%CO:	0.0
%N2	80.2
Fo	1.077
Bws:	0.144
DSCFM:	651487

Concentration and Emission Rate Data

Particle-Bound Mercury

Sample Front-Half:		0.40	ug
Blank Front-Half:	<	0.050	ug
Net Front-Half:		0.400	ug
Detection Limit:		0.050	ug

Oxidized Mercury

Sample KCl:		0.72	ug
Blank KCl	<	0.030	ug
Net KCl:		0.720	ug
D.L:		0.030	ug

Elemental Hg

Sample HNO3/H2O2:		1.1	ug
Blank HNO3/H2O2:	<	0.250	ug
Net HNO3/H2O2:		1.1	ug
Detection Limit:		0.010	ug
Sample KMnO4:		12.9	ug
Blank KMnO4:	<	0.030	ug
Net KMnO4:		12.900	ug
Detection Limit:		0.030	ug
Total Elemental:		14.000	ug

Total Mercury: 15.12 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)	Mass Flow Rate* (lb/year)
Particle-Bound Hg	0.215	0.204	3.9
Oxidized Hg	0.387	0.367	7.1
Elemental Hg	7.534	7.136	137.8
HNO3	0.592	0.561	
KMnO4	6.942	6.576	
Total Hg	8.137	7.707	148.8

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

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant: Basin LOS
Sample Location: Inlet
Test Date: 07/16/99

Sample Time: 08:03-10:18
Run #: 2

DUCT DIMENSIONS
Width: 480 inches
Depth: 96 inches
Area: 320.00 sq. feet

Pbar: 29.20 "Hg
Ps: 28.28 "Hg
Bws: 0.144
MWw: 28.70 g/g-mole
Tstd: 68 "deg F
Pstd: 29.92 "Hg
Cp: 0.812

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
A5	86.4	388	0.65	57.2
A4	67.2	388	0.63	56.3
A3	48.0	388	0.64	56.8
A2	28.8	389	0.63	56.4
A1	9.6	388	0.66	57.6
B5	86.4	389	0.63	56.4
B4	67.2	390	0.64	56.8
B3	48.0	390	0.69	59.0
B2	28.8	390	0.67	58.2
B1	9.6	391	0.58	54.1
C5	86.4	393	0.65	57.4
C4	67.2	393	0.69	59.1
C3	48.0	394	0.73	60.8
C2	28.8	394	0.75	61.7
C1	9.6	394	0.72	60.4
D5	86.4	397	0.56	53.4
D4	67.2	397	0.62	56.2
D3	48.0	398	0.74	61.4
D2	28.8	398	0.65	57.5
D1	9.6	399	0.72	60.6
E5	86.4	399	0.74	61.4
E4	67.2	400	0.57	54.0
E3	48.0	400	0.77	62.7
E2	28.8	401	0.64	57.2
E1	9.6	401	0.68	59.0
Average		394	0.67	58.1

Results:
Average Velocity: 58.06 fps @ 394 g. F a 28.28 "Hg

Q:	1114.75	x 100	ACFM	66885.1	KACFH
Q (std):	651.49	x 100	SCFM	39089.2	KSCFH
Q (std dry):	557.82	x 100	DSCFM	33469.4	KDSCFH

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Basin LOS	Bws(assumed):	0.14	Meter Box #:	81231
Sample Loc:	Inlet	MWs(assumed):	28.81	dH@i:	1.829
Run #:	3	MWd(assumed):	27.8	Gamma:	1.003
Date:	07/16/99	Pstatic ("H2O):	-12.4	Pitot #:	5-1
Pbar ("Hg):	29.20	Probe Mat:	Glass	Cp:	0.812
Ps ("Hg):	28.29	Nozzle Mat:	Teflo/SS	X-Factor:	2.347
Sample time/pt:	5.0	Dn (in.):	0.238	# of Ports:	5

PORT:	A		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)	(ft/s)
5	11	0	399	0.63	80	81	4.0	246	N/A	66	19.486	0.93		0.56	19.486	56.6
4	11	5	396	0.63	84	81	4.0	246	N/A	49		0.94		0.56	22.281	56.5
3	11	10	396	0.62	86	81	4.0	247	N/A	52		0.93		0.56	25.102	56.0
2	11	15	396	0.62	87	82	4.0	246	N/A	54		0.93		0.56	27.910	56.0
1	11	20	396	0.59	89	83	5.0	246	N/A	55		0.89		0.55	30.724	54.6
	11	25									32.787				33.479	
Run Time:		25	397	0.62	85	82	4.2	246	N/A	55	13.301	0.92	95.1		13.993	55.9

PORT:	B		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	11	27	398	0.59	88	83	5.0	245	N/A	61	32.787	0.88		0.55	32.787
4	11	32	398	0.57	90	84	5.0	247	N/A	56		0.86		0.54	35.534
3	11	37	398	0.61	90	84	5.0	247	N/A	56		0.92		0.56	38.243
2	11	42	399	0.63	92	85	5.0	246	N/A	56		0.95		0.57	41.046
1	11	47	399	0.67	92	85	6.0	246	N/A	55		1.01		0.59	43.903
	11	52									46.063				46.850
Run Time:		25	398	0.61	90	84	5.2	246	N/A	57	13.276	0.92	94.4		14.063

PORT:	C		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	11	54	400	0.55	90	85	5.0	245	N/A	63	46.063	0.83		0.53	46.063
4	11	59	400	0.63	93	86	6.0	246	N/A	57		0.95		0.57	48.721
3	12	4	401	0.79	93	87	6.0	247	N/A	56		1.19		0.64	51.582
2	12	9	401	0.58	94	87	6.0	246	N/A	56		0.88		0.55	54.784
1	12	14	402	0.67	95	87	6.0	247	N/A	57		1.01		0.59	57.532
	12	19									59.735				60.490
Run Time:		25	401	0.64	93	86	5.8	246	N/A	58	13.672	0.97	94.8		14.427

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Basin LOS	Bws(assumed):	0.14	Meter Box #:	81231
Sample Loc:	Inlet	MWs(assumed):	28.81	dH@i:	1.829
Run #:	3	MWd(assumed):	27.8	Gamma:	1.003
Date:	07/16/99	Pstatic ("H2O):	-12.4	Pitot #:	5-1
Pbar ("Hg):	29.2	Probe Mat:	Glass	Cp:	0.812
Ps ("Hg):	28.29	Nozzle Mat:	Teflo/SS	X-Factor:	2.347
Sample time/pt:	5	Dn (in.):	0.238	# of Ports:	5

PORT:	D		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	12	21	403	0.55	93	88	6.0	245	N/A	61	59.735	0.83		0.53	59.735
4	12	26	404	0.69	95	88	7.0	247	N/A	57		1.04		0.60	62.403
3	12	31	404	0.72	96	89	7.0	247	N/A	57		1.09		0.61	65.401
2	12	36	404	0.57	96	89	6.0	246	N/A	57		0.86		0.55	68.469
1	12	41	404	0.61	96	89	6.0	246	N/A	57		0.92		0.56	71.198
	12	46									73.413				74.022
Run Time:		25	404	0.63	95	89	6.4	246	0	58	13.678	0.95	95.7		14.287

PORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick	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)	%iso	(CFM)	(CF)
5	12	48	405	0.67	94	90	6.0	245	N/A	63	73.413	1.01		0.59	73.413
4	12	53	406	0.58	96	90	6.0	246	N/A	58		0.87		0.55	76.360
3	12	58	406	0.69	96	90	6.0	247	N/A	58		1.04		0.60	79.110
2	13	3	406	0.69	96	90	6.0	247	N/A	57		1.04		0.60	82.110
1	13	8	406	0.55	97	90	6.0	247	N/A	57		0.83		0.54	85.110
	13	13									86.989				87.793
Run Time:		25	406	0.64	96	90	6.0	246	N/A	59	13.576	0.96	94.4		14.380

Post Test Leak Rate: 0.002 CFM @ 10 "Hg

Summary	125	401		92	86	5.5	246	N/A	57	67.503	0.94	94.88		71.15	#VALUE!

APPENDIX D

Times printed are CEM time.
Add 1 hour on for actual time.

Test #1

no DOC 07/15/99

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2 no DOC	SO2LBHR	OPACITYANALYZER Round to 1	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/15/99	10:32	1280160.750	760.960	9702.540	10.125	279.080	0.514	12.390	355.336	4982.390	428.297
07/15/99	10:33	1283144.620	767.076	9803.330	10.250	279.354	0.513	12.429	355.461	5009.838	429.391
07/15/99	10:34	1274590.250	761.238	9663.852	10.200	282.417	0.517	12.449	355.461	4984.693	432.688
07/15/99	10:35	1280635.370	764.983	9757.457	10.550	285.503	0.522	12.481	355.336	5021.171	432.063
07/15/99	10:36	1281258.750	765.893	9773.817	10.200	287.290	0.522	12.543	355.086	5048.511	432.875
07/15/99	10:37	1265404.620	763.089	9617.535	10.125	292.627	0.532	12.547	355.086	4987.698	433.641
07/15/99	10:38	1283866.250	767.667	9816.390	10.150	286.246	0.519	12.573	355.086	5070.860	435.688
07/15/99	10:39	1279647.500	768.046	9788.971	10.050	284.737	0.515	12.621	354.961	5073.243	436.500
07/15/99	10:40	1280699.000	774.492	9879.233	10.200	284.482	0.513	12.657	354.711	5091.928	437.328
07/15/99	10:41	1265313.620	768.046	9679.320	10.475	289.332	0.522	12.646	354.586	5026.660	437.906
07/15/99	10:42	1278705.250	766.152	9757.633	10.475	286.756	0.517	12.645	354.586	5079.460	438.188
07/15/99	10:43	1269586.620	771.379	9754.149	10.550	285.781	0.515	12.647	354.586	5044.033	437.688
07/15/99	10:44	1266852.250	772.596	9748.495	10.500	290.330	0.524	12.645	354.336	5032.376	436.422
07/15/99	10:45	1271168.620	773.202	9789.389	10.425	285.225	0.514	12.650	354.336	5051.581	436.266
07/15/99	10:46	1272507.750	774.369	9814.487	9.974	290.306	0.523	12.649	354.336	5056.504	434.922
07/15/99	10:47	1275280.000	768.425	9760.367	9.824	292.047	0.528	12.622	354.211	5056.400	435.719
07/15/99	10:48	1284603.370	767.016	9813.694	10.175	286.989	0.518	12.624	354.211	5094.169	435.094
07/15/99	10:49	1282520.250	767.076	9798.560	10.200	289.309	0.523	12.625	354.086	5086.309	435.094
07/15/99	10:50	1289385.250	764.144	9813.347	10.150	292.603	0.529	12.619	354.086	5111.044	437.641
07/15/99	10:51	1276335.120	762.284	9690.382	9.349	291.743	0.527	12.616	353.961	5058.104	435.688
07/15/99	10:52	1295788.120	762.224	9837.295	10.100	292.023	0.529	12.595	354.211	5126.823	435.781
07/15/99	10:53	1292598.870	762.224	9813.083	9.999	297.126	0.538	12.595	353.961	5114.205	436.156
07/15/99	10:54	1286123.370	760.086	9736.546	9.774	297.382	0.539	12.590	354.086	5086.502	435.688
07/15/99	10:55	1295464.750	761.617	9827.019	10.500	296.616	0.537	12.590	354.086	5123.446	435.719
07/15/99	10:56	1293671.870	759.066	9780.541	9.899	301.671	0.548	12.558	354.211	5103.373	434.391
07/15/99	10:57	1283611.250	754.828	9650.305	10.325	305.538	0.556	12.542	354.086	5057.469	434.109
07/15/99	10:58	1281902.000	752.053	9602.026	10.125	306.304	0.558	12.517	354.086	5040.361	433.500
07/15/99	10:59	1287448.620	752.675	9651.543	10.050	304.008	0.554	12.517	354.086	5062.170	430.547
07/15/99	11:00	1281949.250	750.463	9582.071	9.899	305.514	0.558	12.491	354.086	5030.261	430.734
07/15/99	11:01	1284085.500	751.084	9605.987	9.724	304.749	0.559	12.435	354.086	5015.801	429.188
07/15/99	11:02	1296630.000	748.023	9660.295	10.074	313.678	0.579	12.362	354.336	5035.446	429.922
07/15/99	11:03	1301839.500	741.220	9610.896	9.824	307.786	0.569	12.341	354.211	5046.858	430.734
07/15/99	11:04	1283231.370	744.659	9517.470	10.225	305.769	0.565	12.342	354.086	4975.111	429.453
07/15/99	11:05	1296207.250	746.094	9632.246	10.375	301.368	0.554	12.409	354.336	5052.669	429.016
07/15/99	11:06	1298693.500	743.778	9620.758	10.074	307.835	0.566	12.399	354.336	5058.560	429.922
07/15/99	11:07	1289425.120	742.188	9531.680	9.949	309.341	0.571	12.352	354.336	5003.295	432.609
07/15/99	11:08	1294364.120	741.826	9563.522	10.247	307.786	0.568	12.351	354.586	5022.064	432.563
07/15/99	11:09	1297845.500	746.752	9652.926	9.874	297.821	0.545	12.459	354.461	5079.644	433.500
07/15/99	11:10	1300128.750	754.146	9765.647	10.425	296.824	0.542	12.496	354.711	5103.699	431.797
07/15/99	11:11	1287952.000	754.146	9674.184	10.125	302.198	0.553	12.471	354.586	5045.485	431.797
07/15/99	11:12	1296754.000	747.928	9659.993	10.375	310.313	0.572	12.378	354.711	5042.219	432.797

07/15/99	11:13	1288703.500	742.188	9526.346	9.996	310.106	0.572	12.362	354.711	5004.663	432.250
07/15/99	11:14	1298716.620	743.363	9615.558	10.300	309.573	0.570	12.394	354.836	5056.549	434.313
07/15/99	11:15	1298291.250	753.385	9742.004	9.699	300.324	0.548	12.498	354.961	5097.344	438.234
07/15/99	11:16	1281590.000	762.725	9735.904	9.899	288.150	0.517	12.712	355.086	5117.972	441.438
07/15/99	11:17	1283771.500	778.607	9955.557	10.074	278.928	0.497	12.804	355.086	5163.646	443.313
07/15/99	11:18	1294092.370	778.607	10035.595	10.375	285.831	0.509	12.804	355.461	5205.160	442.125
07/15/99	11:19	1293768.750	766.330	9874.885	9.849	302.939	0.550	12.573	355.336	5109.714	439.875
07/15/99	11:20	1293816.500	754.648	9724.708	10.372	307.506	0.560	12.525	355.336	5090.671	440.078
07/15/99	11:21	1298883.620	750.662	9711.224	9.824	310.057	0.567	12.479	355.336	5091.707	439.609
07/15/99	11:22	1289055.250	751.284	9645.731	10.125	303.425	0.555	12.479	355.461	5053.179	436.094
07/15/99	11:23	1308858.870	754.648	9837.771	9.899	299.838	0.549	12.458	355.461	5122.346	434.188
07/15/99	11:24	1278490.750	745.028	9487.011	10.325	306.692	0.563	12.420	355.461	4988.240	434.313

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/15/99	11:25	1298263.120	742.978	9607.228	9.549	302.150	0.555	12.422	355.586	5066.184	432.828
07/15/99	11:26	1291596.620	745.952	9596.152	9.999	300.300	0.551	12.425	355.586	5041.462	430.984
07/15/99	11:27	1288806.500	748.451	9607.496	10.625	298.028	0.547	12.432	355.836	5033.052	431.859
07/15/99	11:28	1290974.870	750.543	9650.559	9.724	298.770	0.547	12.451	355.836	5049.471	430.156
07/15/99	11:29	1291022.620	748.953	9630.473	10.250	302.588	0.555	12.435	355.836	5042.999	430.188
07/15/99	11:30	1290075.870	744.362	9564.430	9.949	301.823	0.554	12.414	355.961	5030.958	430.000
07/15/99	11:31	1291525.500	746.574	9603.627	10.375	300.300	0.552	12.415	356.211	5037.009	431.250
07/15/99	11:32	1291901.120	748.451	9630.564	10.074	300.579	0.551	12.432	356.211	5045.137	431.250
07/15/99	11:33	1303176.620	753.543	9780.716	10.700	299.511	0.547	12.497	356.461	5115.754	433.141
07/15/99	11:34	1283008.250	753.225	9625.279	10.074	297.981	0.544	12.502	356.297	5038.655	433.500
07/15/99	11:35	1292368.500	752.878	9691.041	10.550	301.017	0.549	12.501	356.336	5075.015	433.922
07/15/99	11:36	1279892.500	749.862	9559.032	10.325	303.353	0.553	12.502	356.461	5026.419	433.219
07/15/99	11:37	1292968.870	743.630	9576.447	10.247	309.680	0.567	12.448	356.586	5056.036	433.031
07/15/99	11:38	1294236.620	744.362	9595.277	9.649	306.413	0.562	12.435	356.586	5055.553	436.328
07/15/99	11:39	1294038.620	753.225	9708.030	10.125	289.821	0.524	12.615	356.836	5127.995	439.531
07/15/99	11:40	1287735.500	767.875	9848.642	10.150	279.598	0.501	12.737	356.836	5152.571	437.063
07/15/99	11:41	1299517.370	774.374	10022.876	10.125	286.761	0.515	12.692	356.836	5181.216	436.234
07/15/99	11:42	1288909.620	754.089	9680.646	10.225	306.133	0.559	12.490	356.961	5057.265	437.219
07/15/99	11:43	1294262.750	751.695	9689.987	9.749	292.116	0.532	12.527	357.086	5093.315	433.766
07/15/99	11:44	1289136.250	753.786	9678.459	9.774	295.917	0.539	12.526	357.211	5072.741	433.844
07/15/99	11:45	1289607.620	742.077	9531.600	10.425	305.344	0.560	12.428	357.211	5034.592	433.844
07/15/99	11:46	1288939.250	740.001	9500.012	9.899	298.977	0.548	12.444	357.461	5038.630	432.063
07/15/99	11:47	1285918.870	742.396	9508.425	9.399	302.284	0.554	12.443	357.586	5026.427	430.531
07/15/99	11:48	1286489.120	738.354	9460.844	10.200	298.675	0.547	12.442	357.461	5028.259	432.328
07/15/99	11:49	1286489.120	739.278	9472.683	10.250	302.515	0.555	12.437	357.461	5026.180	432.313
07/15/99	11:50	1282844.620	742.077	9481.614	10.250	298.189	0.546	12.448	357.711	5016.483	430.875
07/15/99	11:51	1295284.500	747.926	9649.017	9.999	293.344	0.534	12.525	358.047	5096.532	433.578
07/15/99	11:52	1291926.000	752.041	9676.956	9.824	298.882	0.544	12.533	358.086	5086.257	433.922
07/15/99	11:53	1284703.500	750.244	9599.856	10.074	299.161	0.544	12.534	358.172	5058.254	434.313
07/15/99	11:54	1289337.750	752.379	9661.907	9.949	301.455	0.548	12.539	358.211	5078.584	434.719
07/15/99	11:55	1295993.620	744.731	9613.063	9.774	302.491	0.550	12.539	358.336	5104.801	434.719
07/15/99	11:56	1285326.250	744.413	9529.866	10.125	298.906	0.544	12.539	358.461	5062.783	434.531
07/15/99	11:57	1288619.120	749.543	9620.124	10.125	295.289	0.537	12.539	358.586	5075.753	435.469
07/15/99	11:58	1280222.250	750.244	9566.371	10.275	296.866	0.540	12.539	358.461	5042.679	435.016
07/15/99	11:59	1295374.750	750.244	9679.598	9.471	294.827	0.536	12.539	358.586	5102.363	434.531
07/15/99	12:00	1291156.620	748.396	9624.316	10.200	296.612	0.540	12.534	358.586	5083.771	436.172
07/15/99	12:01	1290832.620	748.396	9621.901	9.649	297.631	0.542	12.534	358.461	5082.496	437.141
07/15/99	12:02	182161.438	751.169	1362.867	9.499	290.493	0.526	12.595	51.375	720.711	438.234
07/15/99	12:03	125372.102	759.421	948.294	10.125	289.219	0.523	12.621	51.375	497.080	436.672
07/15/99	12:04	118201.953	753.303	886.857	9.624	294.317	0.532	12.621	51.375	468.652	436.266
07/15/99	12:05	118220.758	747.125	879.724	9.624	300.921	0.548	12.533	51.250	465.443	435.984

07/15/99	12:06	110554.289	749.017	824.758	9.874	293.552	0.532	12.575	51.500	436.723	439.000
07/15/99	12:07	110540.781	751.455	827.342	9.499	291.513	0.528	12.580	51.625	436.848	437.609
07/15/99	12:08	118144.203	754.228	887.512	9.571	290.493	0.526	12.606	51.875	467.850	437.953
07/15/99	12:09	118129.789	753.606	886.672	9.449	293.297	0.530	12.611	52.000	467.984	436.531
07/15/99	12:10	118115.359	754.132	887.183	9.524	292.023	0.528	12.606	52.125	467.736	436.766
07/15/99	12:11	118096.602	753.666	886.494	9.399	294.341	0.533	12.592	52.250	467.126	435.094
07/15/99	12:12	118072.148	746.277	877.621	9.100	294.572	0.534	12.585	52.500	466.802	434.984
07/15/99	12:13	118057.750	740.429	870.637	9.524	299.161	0.545	12.519	52.625	464.266	433.844
07/15/99	12:14	110405.992	742.867	816.889	9.874	292.533	0.533	12.519	52.875	434.175	435.906
07/15/99	12:15	110405.992	743.824	817.941	9.024	289.728	0.527	12.544	52.875	435.067	436.047
07/15/99	12:16	110392.539	747.807	822.221	9.449	287.179	0.521	12.575	53.000	436.084	433.688
07/15/99	12:17	110367.367	748.396	822.681	9.325	291.258	0.528	12.575	53.234	435.984	435.531

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/15/99	12:18	110375.023	739.278	812.714	9.921	296.380	0.539	12.535	53.125	434.622	435.813
07/15/99	12:19	110365.656	741.242	814.804	9.699	292.740	0.533	12.534	53.250	434.551	435.781
07/15/99	12:20	110352.211	747.393	821.465	9.749	289.219	0.526	12.534	53.375	434.498	435.781
07/15/99	12:21	110338.781	745.655	819.456	9.149	291.258	0.530	12.534	53.500	434.445	434.656
07/15/99	12:22	110338.781	745.353	819.124	9.624	295.337	0.538	12.524	53.500	434.089	435.984
07/15/99	12:23	110329.422	740.689	813.930	8.975	293.274	0.534	12.523	53.625	434.018	433.563
07/15/99	12:24	1245829.620	744.014	9232.076	9.199	293.504	0.534	12.524	362.844	4901.276	435.375
07/15/99	12:25	1272024.620	741.236	9390.990	9.824	290.702	0.530	12.517	363.094	5001.487	434.203
07/15/99	12:26	1279350.120	743.252	9470.756	9.399	289.126	0.527	12.515	363.094	5029.497	433.141
07/15/99	12:27	1277704.750	744.066	9468.945	9.449	293.529	0.535	12.518	362.844	5024.218	433.641
07/15/99	12:28	1274540.120	740.799	9404.013	9.649	295.243	0.538	12.515	362.719	5010.587	433.953
07/15/99	12:29	1277143.370	742.690	9447.273	10.071	291.905	0.532	12.515	362.594	5020.804	433.766
07/15/99	12:30	1284448.120	745.175	9533.105	8.975	294.247	0.536	12.515	362.469	5049.521	432.875
07/15/99	12:31	1269853.620	741.480	9378.044	10.250	296.286	0.541	12.495	362.094	4984.354	433.953
07/15/99	12:32	1274457.120	740.976	9405.646	10.050	291.490	0.532	12.502	362.094	5005.271	435.781
07/15/99	12:33	1274598.250	746.326	9474.609	9.949	290.146	0.527	12.561	362.094	5029.341	435.609
07/15/99	12:34	1270805.500	748.838	9478.214	9.999	292.208	0.530	12.562	361.969	5014.771	437.250
07/15/99	12:35	1281026.870	748.838	9554.450	9.947	289.914	0.526	12.562	361.969	5055.106	439.031
07/15/99	12:36	1285309.000	759.785	9726.526	10.550	273.564	0.490	12.736	361.969	5142.175	434.984
07/15/99	12:37	1284922.750	769.883	9852.837	10.025	283.265	0.507	12.736	361.922	5140.630	433.563
07/15/99	12:38	1277823.120	752.805	9581.040	9.774	301.909	0.552	12.464	361.719	5003.252	433.375
07/15/99	12:39	1278770.870	738.119	9401.090	10.074	304.458	0.558	12.438	361.594	4996.638	434.094
07/15/99	12:40	1285927.120	738.983	9464.776	9.749	294.478	0.536	12.525	361.719	5059.506	434.797
07/15/99	12:41	1270618.120	748.986	9478.682	9.524	289.333	0.524	12.586	361.719	5023.485	433.766
07/15/99	12:42	1285504.370	749.384	9594.835	9.824	292.440	0.530	12.587	361.719	5082.754	435.719
07/15/99	12:43	1274792.000	743.889	9445.102	9.349	298.046	0.541	12.561	361.844	5030.105	436.938
07/15/99	12:44	1285176.250	748.039	9575.164	9.899	289.335	0.524	12.600	361.719	5086.880	436.938
07/15/99	12:45	1275409.370	751.717	9549.122	9.699	295.451	0.535	12.585	361.719	5042.043	434.094
07/15/99	12:46	1272896.120	740.941	9393.684	12.452	304.871	0.559	12.445	361.719	4976.223	434.656
07/15/99	12:47	1284329.870	735.792	9412.193	9.724	302.092	0.554	12.446	361.719	5021.318	432.875
07/15/99	12:48	1280696.870	742.269	9468.190	9.349	301.606	0.553	12.447	361.969	5007.509	434.266
07/15/99	12:49	1286867.120	741.604	9505.289	9.649	295.960	0.541	12.477	361.719	5043.705	435.266
07/15/99	12:50	1281737.250	742.453	9478.236	9.925	291.812	0.530	12.562	361.844	5057.967	434.797
07/15/99	12:51	1291781.120	749.038	9637.230	8.771	292.926	0.530	12.606	361.844	5115.512	433.688
07/15/99	12:52	1279945.250	750.567	9568.421	9.399	296.494	0.537	12.591	361.844	5062.440	433.578
07/15/99	12:53	1286478.870	749.098	9598.438	9.549	298.556	0.543	12.540	362.094	5067.909	431.438
07/15/99	12:54	1271423.500	745.980	9446.629	10.074	299.042	0.544	12.539	361.844	5008.205	431.250
07/15/99	12:55	1281215.500	748.600	9552.813	9.174	292.879	0.532	12.558	361.969	5054.253	430.531
07/15/99	12:56	1286473.000	744.257	9536.370	9.749	298.206	0.542	12.557	362.344	5074.594	430.547
07/15/99	12:57	1282195.250	742.151	9477.758	9.524	295.427	0.537	12.548	362.344	5053.979	432.328
07/15/99	12:58	1290257.750	745.861	9585.041	9.771	290.841	0.527	12.589	362.297	5102.423	434.984

07/15/99	12:59	1286277.500	756.486	9691.588	9.000	285.213	0.514	12.644	362.594	5109.124	436.328
07/15/99	13:00	1277803.750	765.052	9736.765	10.074	285.468	0.514	12.669	362.594	5085.367	436.766
07/15/99	13:01	1267132.250	758.938	9578.281	9.524	290.054	0.522	12.669	362.594	5042.897	437.125
07/15/99	13:02	1273875.620	755.865	9590.270	9.899	292.856	0.529	12.622	362.719	5050.989	436.578
07/15/99	13:03	1284862.120	754.277	9652.650	9.449	295.125	0.534	12.601	362.844	5085.857	436.719
07/15/99	13:04	1277801.120	753.006	9583.434	9.399	296.885	0.538	12.589	362.719	5053.384	438.094
07/15/99	13:05	1289129.120	751.780	9652.654	9.949	291.281	0.528	12.584	362.844	5096.104	440.266
07/15/99	13:06	1291037.870	765.552	9844.032	9.949	275.217	0.490	12.810	363.094	5195.292	442.125
07/15/99	13:07	1289256.750	778.702	9999.312	10.050	270.377	0.478	12.897	363.219	5223.484	440.500
07/15/99	13:08	1286028.870	779.245	9981.234	9.449	279.032	0.495	12.855	363.094	5193.398	440.500
07/15/99	13:09	1285509.000	764.870	9793.138	9.822	286.928	0.514	12.737	363.219	5143.604	439.734
07/15/99	13:10	1281181.620	755.096	9635.454	9.774	289.729	0.522	12.665	363.344	5097.354	439.547

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/15/99	13:11	1275662.120	752.039	9555.108	10.325	290.494	0.523	12.665	363.344	5075.395	439.531
07/15/99	13:12	1286677.500	748.059	9586.604	9.949	288.201	0.520	12.635	363.344	5106.767	438.234
07/15/99	13:13	1286060.620	750.797	9617.088	9.774	289.984	0.523	12.635	363.594	5104.319	438.797
07/15/99	13:14	1279194.620	752.946	9593.121	10.100	286.164	0.517	12.635	363.719	5077.068	438.500
07/15/99	13:15	1291805.620	750.149	9651.703	10.025	289.706	0.523	12.634	363.844	5126.715	436.422
07/15/99	13:16	1278767.620	746.714	9510.546	10.074	291.466	0.526	12.633	363.844	5074.571	436.984
07/15/99	13:17	1282388.750	747.438	9546.727	10.550	288.456	0.521	12.635	363.969	5089.745	436.422
07/15/99	13:18	1284691.000	745.991	9545.349	10.275	288.364	0.521	12.631	363.969	5097.271	435.547
07/15/99	13:19	1281210.870	749.348	9562.330	10.650	291.165	0.526	12.631	364.094	5083.463	433.563
07/15/99	13:20	1286558.370	745.446	9552.231	10.025	294.753	0.533	12.601	364.219	5092.634	433.500
07/15/99	13:21	1286086.500	739.244	9469.284	10.575	298.294	0.542	12.548	364.344	5069.625	433.953
07/15/99	13:22	1276351.370	743.842	9456.064	10.150	292.183	0.530	12.569	364.344	5039.482	432.797
07/15/99	13:23	1278848.250	744.706	9485.562	9.824	293.942	0.532	12.599	364.469	5061.315	433.453
07/15/99	13:24	1287627.120	745.350	9558.938	10.575	292.461	0.530	12.596	364.469	5094.788	434.453
07/15/99	13:25	1290423.000	749.031	9626.999	10.450	291.165	0.526	12.620	364.719	5115.852	434.188
07/15/99	13:26	1270196.370	745.991	9437.653	9.899	289.892	0.524	12.625	364.594	5037.712	434.891
07/15/99	13:27	1273971.620	747.200	9481.043	9.971	292.947	0.529	12.625	364.672	5052.685	435.344
07/15/99	13:28	1284528.750	744.464	9524.598	10.450	293.202	0.530	12.625	364.719	5094.556	434.391
07/15/99	13:29	1280531.120	746.914	9526.209	10.196	296.003	0.535	12.620	364.969	5076.636	433.844
07/15/99	13:30	1284840.000	743.178	9510.454	10.025	297.252	0.538	12.594	364.922	5082.957	433.844
07/15/99	13:31	1267145.250	741.392	9356.933	10.750	295.748	0.536	12.595	364.672	5013.351	432.938
07/15/99	13:32	1281280.120	744.145	9496.440	10.375	296.003	0.537	12.574	365.094	5061.009	434.031
07/15/99	13:33	1279017.500	741.333	9443.847	10.325	292.669	0.530	12.588	365.344	5057.859	433.031
07/15/99	13:34	1280810.250	744.824	9501.628	9.721	293.735	0.532	12.584	365.094	5063.271	432.938
07/15/99	13:35	1275721.500	744.404	9458.538	10.550	295.979	0.536	12.588	365.219	5044.826	435.984
07/15/99	13:36	1282026.000	741.274	9465.307	10.250	290.864	0.527	12.597	365.344	5073.076	435.688
07/15/99	13:37	1287785.750	747.260	9584.613	10.650	287.878	0.520	12.616	365.344	5103.723	433.688
07/15/99	13:38	1307913.620	742.542	9672.955	10.875	295.979	0.535	12.609	365.344	5180.564	432.563
07/15/99	13:39	1303104.500	735.170	9541.709	10.875	296.464	0.542	12.481	365.594	5108.969	430.969
07/15/99	13:40	1305959.370	750.212	9758.277	11.325	285.795	0.523	12.465	365.719	5113.860	428.375
07/15/99	13:41	1316943.750	781.385	10249.242	10.650	285.031	0.524	12.404	365.922	5131.390	428.578
07/15/99	13:42	1308464.620	816.365	10639.116	10.996	288.896	0.532	12.373	366.094	5085.652	428.875
07/15/99	13:43	1304636.250	828.169	10761.381	11.050	286.050	0.528	12.352	366.344	5062.397	425.828
07/15/99	13:44	1292922.500	815.548	10502.231	10.375	289.591	0.538	12.274	366.469	4985.277	425.469
07/15/99	13:45	1295330.120	789.757	10189.043	10.125	290.309	0.540	12.257	366.719	4987.507	424.938
07/15/99	13:46	1288246.750	775.034	9944.413	10.150	289.383	0.538	12.261	366.969	4961.802	424.563
07/15/99	13:47	1294525.750	766.775	9886.394	10.375	295.239	0.549	12.261	366.969	4985.986	422.719
07/15/99	13:48	1301190.000	762.478	9881.601	10.575	305.695	0.570	12.235	366.969	5001.163	422.859
07/15/99	13:49	1295358.500	754.416	9733.306	10.525	305.901	0.572	12.203	367.094	4965.430	421.813
07/15/99	13:50	1303311.370	748.851	9720.826	10.025	301.294	0.563	12.202	367.094	4995.521	421.609
07/15/99	13:51	1296067.000	743.605	9599.070	9.824	301.270	0.563	12.195	366.844	4965.271	421.609

07/15/99	13:52	1296067.000	738.387	9531.709	9.474	302.288	0.568	12.129	366.844	4938.108	421.703
07/15/99	13:53	1302361.500	738.160	9575.054	10.200	302.822	0.569	12.130	366.719	4962.484	421.000
07/15/99	13:54	1288765.500	730.146	9372.228	10.074	305.597	0.576	12.093	366.547	4895.746	420.266
07/15/99	13:55	1299817.000	725.772	9395.970	10.100	305.852	0.580	12.036	366.844	4914.678	419.453
07/15/99	13:56	1304583.120	723.735	9403.962	10.125	312.470	0.592	12.036	366.594	4932.699	418.563
07/15/99	13:57	1301668.620	719.850	9332.582	10.200	316.571	0.600	12.034	366.422	4920.748	417.422
07/15/99	13:58	1306609.120	723.304	9412.946	10.275	306.944	0.582	12.034	366.469	4939.425	414.500
07/15/99	13:59	1306924.370	724.831	9435.103	10.250	312.036	0.594	11.978	366.594	4917.435	415.750
07/15/99	14:00	1308045.870	717.684	9350.079	10.325	315.295	0.603	11.917	366.344	4896.741	415.844
07/15/99	14:01	1319068.120	721.645	9480.907	10.450	311.986	0.597	11.917	366.469	4938.003	414.375
07/15/99	14:02	1317015.870	725.622	9518.329	10.450	316.059	0.606	11.887	366.469	4918.011	413.078
07/15/99	14:03	1304320.120	717.798	9324.934	9.699	317.892	0.612	11.841	366.219	4851.614	413.063

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/15/99	14:04	1302292.120	722.323	9369.132	10.400	314.302	0.605	11.842	366.219	4844.527	415.984
07/15/99	14:05	1304003.750	722.682	9386.109	10.200	318.401	0.613	11.843	366.094	4851.277	415.391
07/15/99	14:06	1304712.370	721.963	9381.866	10.325	310.459	0.592	11.958	365.844	4901.081	415.750
07/15/99	14:07	1306226.870	726.114	9446.761	10.575	309.769	0.590	11.972	365.844	4912.566	414.484
07/15/99	14:08	1314489.000	720.608	9434.426	10.875	313.588	0.599	11.941	365.844	4930.927	414.750
07/15/99	14:09	1311321.620	717.324	9368.798	10.500	311.961	0.601	11.845	365.922	4879.458	415.375
07/15/99	14:10	1312624.500	721.702	9435.345	10.074	310.483	0.598	11.847	365.719	4885.079	413.453
07/15/99	14:11	1323666.620	725.436	9563.946	10.947	312.545	0.602	11.848	365.719	4926.563	412.188
07/15/99	14:12	1298573.500	719.946	9311.628	10.250	311.988	0.601	11.836	365.594	4828.146	412.188
07/15/99	14:13	1285399.250	715.160	9155.894	10.247	310.943	0.599	11.835	365.469	4778.857	414.344
07/15/99	14:14	1295971.000	707.088	9127.003	10.375	316.619	0.610	11.833	365.719	4817.216	415.719
07/15/99	14:15	1300974.620	712.594	9233.581	10.750	312.545	0.598	11.915	365.719	4869.363	416.703
07/15/99	14:16	1302614.500	718.001	9315.377	10.375	317.841	0.608	11.917	365.344	4876.408	415.047
07/15/99	14:17	1308523.370	718.287	9361.361	10.825	325.748	0.624	11.913	365.219	4896.841	416.641
07/15/99	14:18	1301830.250	718.532	9316.657	10.900	320.107	0.617	11.835	365.344	4839.945	417.594
07/15/99	14:19	1309351.120	729.505	9513.568	10.650	314.738	0.606	11.846	365.219	4872.511	417.797
07/15/99	14:20	1317750.120	737.178	9675.313	10.825	319.088	0.614	11.850	365.094	4905.501	416.563
07/15/99	14:21	1292935.500	729.749	9397.439	10.750	323.161	0.623	11.825	364.969	4802.709	416.609
07/15/99	14:22	1303057.250	719.154	9333.498	10.125	324.704	0.627	11.804	364.844	4831.909	416.469
07/15/99	14:23	1294012.000	714.254	9205.567	11.075	324.320	0.628	11.769	364.969	4783.965	417.516
07/15/99	14:24	1308283.870	711.633	9272.940	10.400	330.225	0.640	11.771	364.719	4837.494	418.484
07/15/99	14:25	1304966.120	708.390	9207.272	10.775	326.968	0.631	11.824	364.594	4847.015	417.328
07/15/99	14:26	1303647.120	708.015	9193.095	10.575	328.978	0.634	11.828	364.219	4843.832	416.609
07/15/99	14:27	1313795.250	704.260	9215.524	10.900	329.435	0.635	11.826	364.094	4880.766	417.094
07/15/99	14:28	1305557.120	707.672	9202.109	10.700	327.425	0.633	11.801	363.969	4840.030	417.859
07/15/99	14:29	1300481.620	713.911	9247.150	9.849	321.734	0.622	11.799	363.719	4820.069	417.172
07/15/99	14:30	1299968.250	717.397	9288.636	10.550	326.636	0.631	11.800	363.719	4818.929	415.922
07/15/99	14:31	1296622.120	714.932	9232.890	10.150	330.453	0.640	11.780	363.719	4798.172	416.531
07/15/99	14:32	1302103.120	706.018	9156.304	10.700	325.846	0.631	11.777	363.719	4817.233	417.594
07/15/99	14:33	1297754.750	712.196	9205.591	10.625	323.567	0.624	11.826	363.344	4821.176	416.891
07/15/99	14:34	1324786.870	711.576	9389.163	10.625	326.127	0.626	11.877	363.219	4942.939	416.891
07/15/99	14:35	1297356.120	712.614	9208.162	10.325	331.391	0.637	11.864	362.969	4835.264	416.016
07/15/99	14:36	1298070.870	705.300	9118.680	10.074	327.575	0.631	11.839	362.594	4827.477	415.547
07/15/99	14:37	1295360.620	706.940	9120.788	10.200	318.961	0.614	11.841	362.719	4818.160	416.609
07/15/99	14:38	1294653.000	719.977	9283.913	10.375	309.243	0.596	11.839	362.672	4814.766	414.859
07/15/99	14:39	1281201.120	720.580	9195.149	10.250	308.225	0.594	11.839	362.594	4764.738	414.563
07/15/99	14:40	1287975.500	717.543	9204.815	10.250	309.497	0.596	11.839	362.594	4789.932	415.156
07/15/99	14:41	1296864.000	717.283	9264.978	10.325	315.119	0.607	11.840	362.469	4823.370	417.531
07/15/99	14:42	1301814.250	712.614	9239.804	9.649	310.006	0.593	11.921	362.094	4874.940	421.063
07/15/99	14:43	1308073.000	718.867	9365.691	10.025	304.458	0.573	12.112	361.969	4977.104	423.563
07/15/99	14:44	1319556.500	728.212	9570.732	9.999	298.287	0.557	12.211	361.719	5061.652	425.203

07/15/99	14:45	1317856.500	739.879	9711.540	10.325	288.389	0.536	12.281	361.719	5083.972	427.688
07/15/99	14:46	1318318.000	748.072	9822.517	10.200	286.076	0.531	12.280	361.719	5085.350	430.906
07/15/99	14:47	1317905.000	750.520	9851.577	10.375	285.567	0.531	12.274	361.719	5081.634	431.438
07/15/99	14:48	1311426.120	758.012	9901.010	9.824	284.781	0.529	12.268	361.594	5054.141	431.500
07/15/99	14:49	1311326.500	763.895	9977.086	10.750	287.580	0.534	12.273	361.719	5055.868	431.875
07/15/99	14:50	1299695.500	759.860	9836.357	9.599	287.048	0.534	12.267	361.719	5008.535	433.375
07/15/99	14:51	1300530.120	753.635	9762.041	10.200	287.511	0.535	12.245	361.844	5002.583	433.422
07/15/99	14:52	1297438.750	753.040	9731.148	10.125	285.013	0.530	12.272	361.922	5001.928	436.172
07/15/99	14:53	1282776.370	755.221	9649.043	10.200	288.297	0.534	12.307	361.844	4959.466	437.875
07/15/99	14:54	1287582.500	753.539	9663.628	9.824	289.037	0.532	12.383	361.719	5008.745	440.172
07/15/99	14:55	1289695.620	757.307	9727.888	10.450	288.274	0.528	12.450	361.719	5043.957	442.922
07/15/99	14:56	1284291.750	756.384	9675.325	10.750	287.511	0.526	12.470	361.594	5031.092	442.922

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/15/99	14:57	1293962.370	757.049	9756.746	10.200	284.482	0.516	12.579	361.594	5113.125	443.844
07/15/99	14:58	1277631.620	760.807	9681.427	10.074	285.453	0.518	12.577	361.469	5047.794	445.313
07/15/99	14:59	1283732.870	760.238	9720.383	10.200	286.702	0.520	12.576	361.344	5071.499	447.281
07/15/99	15:00	1286893.870	761.943	9766.174	10.025	285.639	0.517	12.591	361.219	5090.056	446.578
07/15/99	15:01	1285430.620	761.943	9755.069	9.699	290.470	0.526	12.590	360.922	5084.021	446.750
07/15/99	15:02	1288360.120	758.273	9730.204	10.025	289.453	0.524	12.590	360.969	5095.607	449.469
07/15/99	15:03	1274791.120	771.066	9790.168	10.325	276.703	0.494	12.779	360.969	5117.387	447.469
07/15/99	15:04	1287611.250	778.739	9987.021	10.074	280.761	0.501	12.774	360.844	5166.775	446.125
07/15/99	15:05	1281437.370	776.006	9904.259	10.250	291.741	0.526	12.657	360.594	5095.017	443.109
07/15/99	15:06	1285168.620	768.167	9832.754	10.074	291.788	0.528	12.608	360.594	5089.991	442.406
07/15/99	15:07	1287057.870	764.089	9794.925	9.699	293.775	0.532	12.596	360.469	5092.526	443.578
07/15/99	15:08	1283712.500	759.271	9707.866	10.425	289.222	0.524	12.597	360.344	5079.692	442.063
07/15/99	15:09	1270799.750	761.703	9640.995	10.325	281.594	0.508	12.632	360.469	5042.902	436.500
07/15/99	15:10	1288803.250	762.608	9789.198	10.375	297.867	0.543	12.515	360.344	5066.672	433.922
07/15/99	15:11	1293033.620	743.815	9579.313	10.200	315.477	0.583	12.337	360.219	5011.312	432.656
07/15/99	15:12	1278086.870	734.151	9345.559	9.649	315.402	0.585	12.288	359.969	4933.708	433.141
07/15/99	15:13	1289944.750	736.037	9456.498	9.999	301.188	0.553	12.428	359.969	5035.892	433.422
07/15/99	15:14	1290222.000	742.835	9545.879	10.125	298.908	0.547	12.470	360.094	5053.975	433.688
07/15/99	15:15	1295159.620	746.990	9636.020	9.949	295.046	0.539	12.478	359.844	5076.677	433.375
07/15/99	15:16	1290936.750	747.309	9608.694	10.074	295.046	0.539	12.478	359.844	5060.125	433.453
07/15/99	15:17	1280191.000	745.465	9505.201	10.125	293.521	0.536	12.478	359.461	5018.004	432.250
07/15/99	15:18	1274668.750	741.823	9417.970	10.375	296.453	0.542	12.474	359.594	4994.761	432.219
07/15/99	15:19	1287038.370	740.998	9498.780	9.949	300.568	0.550	12.465	359.594	5039.506	432.656
07/15/99	15:20	1281981.370	741.240	9464.544	9.774	296.937	0.544	12.459	359.594	5017.246	432.516
07/15/99	15:21	1285669.500	748.154	9580.313	9.774	292.480	0.533	12.507	359.594	5051.070	432.797
07/15/99	15:22	1290632.870	749.862	9639.250	9.874	293.196	0.534	12.511	359.336	5072.257	432.797
07/15/99	15:23	1280379.370	749.183	9554.011	9.696	298.002	0.543	12.509	359.461	5031.148	434.531
07/15/99	15:24	1282609.500	750.326	9585.262	9.449	298.717	0.545	12.510	359.336	5040.324	435.375
07/15/99	15:25	1288029.000	745.108	9558.818	10.150	297.700	0.543	12.508	359.594	5060.819	435.266
07/15/99	15:26	1279384.120	746.513	9512.571	9.824	298.923	0.545	12.506	359.336	5026.055	433.844
07/15/99	15:27	1287981.620	742.420	9523.980	9.999	300.790	0.549	12.498	359.594	5056.893	434.266
07/15/99	15:28	1280097.120	739.355	9426.602	9.524	296.707	0.542	12.483	359.336	5019.763	434.641
07/15/99	15:29	1285521.250	744.624	9534.011	10.250	293.681	0.536	12.484	359.422	5041.433	433.766
07/15/99	15:30	1288310.870	747.018	9585.418	10.025	297.470	0.542	12.515	359.594	5064.788	434.891
07/15/99	15:31	1287510.000	745.545	9560.572	9.749	294.952	0.538	12.510	359.594	5059.582	435.188
07/15/99	15:32	1271235.120	745.890	9444.092	9.574	292.180	0.533	12.511	359.594	4996.022	434.984
07/15/99	15:33	1269234.370	749.183	9470.849	9.349	293.888	0.536	12.509	359.461	4987.355	434.641
07/15/99	15:34	1285288.370	747.658	9571.120	10.325	292.156	0.533	12.510	359.719	5050.852	434.109
07/15/99	15:35	1285666.000	749.242	9594.225	9.325	293.705	0.535	12.511	359.719	5052.736	433.563
07/15/99	15:36	1282353.370	744.446	9508.239	9.824	296.406	0.540	12.507	359.844	5038.119	432.125
07/15/99	15:37	1291269.120	744.747	9578.216	9.949	299.709	0.547	12.507	359.844	5073.147	432.063

07/15/99	15:38	1279465.250	742.809	9465.972	9.699	301.440	0.550	12.502	359.719	5024.715	432.406
07/15/99	15:39	1279733.750	744.747	9492.651	9.874	299.709	0.546	12.512	359.922	5029.884	431.438
		~~1280507~~ 1279509	747	9591	10.2		0548	12.41	361	5025	432

Procedure Summary

308 Records Processed

[illegible] Test # [illegible]
[illegible]

07/16/99

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/16/99	07:00	1311679.000	729.553	9531.117	9.549	299.683	0.549	12.452	356.461	5130.697	444.688
07/16/99	07:01	1325670.000	746.722	9859.473	9.800	287.625	0.521	12.602	356.336	5247.989	445.703
07/16/99	07:02	1321997.250	726.229	9562.319	9.474	280.852	1.306	4.905	356.211	2036.894	447.844
07/16/99	07:03	1318212.370	205.668	2700.300	9.849	96.578	37.267	0.059	356.211	24.473	447.141
07/16/99	07:04	1307116.500	32.146	418.502	9.549	36.329	41.357-	0.020-	356.336	8.226-	447.141
07/16/99	07:05	1312625.500	8.947	116.972	10.100	21.011	9.567-	0.050-	356.336	20.653-	449.188
07/16/99	07:06	1319896.000	4.732	62.214	9.649	11.721	4.765-	0.056-	356.211	23.260-	446.781
07/16/99	07:07	1319475.370	3.222	42.346	9.774	6.452	2.408-	0.061-	356.211	25.328-	446.328
07/16/99	07:08	1307316.750	3.222	41.956	9.724	3.693	1.184-	0.071-	356.086	29.206-	446.688
07/16/99	07:09	1315783.870	2.620	34.337	9.796	2.184	0.700-	0.071-	356.086	29.395-	445.078
07/16/99	07:10	1318010.620	2.620	34.395	9.599	0.929	0.298-	0.071-	356.461	29.448-	444.344
07/16/99	07:11	1316426.000	2.620	34.354	9.399	0.678	0.218-	0.071-	356.336	29.414-	443.844
07/16/99	07:12	1311557.000	3.222	42.092	9.724	0.177	0.057-	0.071-	356.086	29.302-	445.281
07/16/99	07:13	1294710.500	2.620	33.787	9.649	0.325-	0.099	0.075-	355.836	30.557-	444.734
07/16/99	07:14	1306367.000	293.936	3824.526	10.125	768.642	0.997	17.591	356.211	7218.810	443.469
07/16/99	07:15	1307216.620	941.023	12252.000	9.549	911.483	1.135	18.308	356.211	7517.986	444.391
07/16/99	07:16	1307965.500	1075.114	14005.871	10.021	914.744	1.131	18.438	356.336	7575.801	443.109
07/16/99	07:17	1318111.500	1098.007	14415.059	9.974	915.999	1.132	18.456	356.336	7642.100	440.891
07/16/99	07:18	1309661.870	1101.926	14373.780	9.899	917.002	1.130	18.513	356.336	7616.536	440.234
07/16/99	07:19	1304014.250	1107.633	14385.918	10.150	915.246	1.128	18.511	355.961	7582.935	441.781
07/16/99	07:20	1302935.620	1107.633	14374.019	9.724	919.762	1.132	18.532	355.711	7585.239	442.578
07/16/99	07:21	1294710.500	1106.411	14267.518	10.146	918.256	1.127	18.580	355.836	7556.972	441.953
07/16/99	07:22	1326495.000	1108.543	14645.950	10.050	918.507	1.127	18.580	355.836	7742.491	442.578
07/16/99	07:23	1310587.500	1038.048	13550.110	9.925	621.771	0.927	15.288	355.711	6294.224	440.984
07/16/99	07:24	1312504.000	883.793	11553.414	10.275	418.424	0.692	13.795	355.961	5687.704	439.281
07/16/99	07:25	1319155.500	804.877	10575.110	9.846	370.727	0.642	13.159	356.086	5452.969	440.547
07/16/99	07:26	1320098.120	763.609	10040.062	10.074	359.924	0.641	12.803	355.961	5309.417	440.547
07/16/99	07:27	1301356.870	744.919	9655.274	9.925	347.129	0.619	12.782	356.086	5225.441	441.953
07/16/99	07:28	1309962.870	749.434	9778.043	9.949	328.799	0.585	12.812	355.961	5272.363	442.219
07/16/99	07:29	1302309.620	746.126	9678.001	9.774	327.545	0.584	12.792	355.961	5233.364	442.844
07/16/99	07:30	1292696.250	747.333	9622.103	10.074	319.517	0.570	12.793	356.211	5194.992	441.953
07/16/99	07:31	1312071.000	742.511	9703.309	9.925	325.143	0.584	12.698	356.336	5233.870	442.953
07/16/99	07:32	1318403.250	739.980	9716.898	10.050	318.311	0.572	12.681	356.461	5252.063	442.469
07/16/99	07:33	1314408.370	744.626	9748.280	10.275	313.853	0.564	12.683	356.586	5236.998	441.953
07/16/99	07:34	1312076.250	742.334	9701.029	10.300	308.891	0.553	12.729	356.211	5246.700	442.828
07/16/99	07:35	1310035.750	741.961	9681.077	10.400	313.377	0.561	12.728	356.172	5238.116	442.063
07/16/99	07:36	1315401.750	731.333	9581.489	10.071	319.543	0.577	12.635	356.461	5221.103	442.328
07/16/99	07:37	1319566.120	730.037	9594.791	9.999	316.307	0.573	12.595	356.586	5221.037	443.656
07/16/99	07:38	1316050.120	733.566	9615.486	9.800	307.112	0.553	12.663	356.586	5235.278	442.063
07/16/99	07:39	1310227.870	741.382	9674.937	9.800	304.105	0.546	12.704	356.461	5229.001	445.547
07/16/99	07:40	1294527.120	740.830	9551.889	10.225	304.130	0.546	12.705	356.297	5166.759	446.875

07/16/99	07:41	1315349.000	749.015	9812.756	9.774	292.741	0.522	12.786	356.586	5283.292	445.891
07/16/99	07:42	1310022.250	751.769	9808.945	10.225	298.794	0.534	12.766	356.836	5253.679	445.547
07/16/99	07:43	1308330.500	743.777	9692.144	9.874	305.358	0.550	12.663	356.711	5204.570	443.578
07/16/99	07:44	1309916.870	735.631	9597.605	10.125	309.972	0.562	12.574	357.086	5174.206	441.438
07/16/99	07:45	1309540.500	732.362	9552.212	10.100	311.246	0.566	12.538	357.086	5157.900	441.609
07/16/99	07:46	1310340.750	729.399	9519.382	9.774	310.520	0.565	12.539	357.086	5161.471	441.438
07/16/99	07:47	1313679.000	732.777	9587.832	9.974	307.539	0.559	12.540	357.086	5175.040	442.766
07/16/99	07:48	1306190.750	734.713	9558.365	9.771	301.202	0.545	12.592	357.086	5166.857	444.547
07/16/99	07:49	1304867.250	740.471	9623.509	9.675	297.907	0.537	12.652	357.086	5186.228	444.547
07/16/99	07:50	1317840.870	742.211	9742.034	9.899	295.926	0.532	12.678	357.336	5248.544	445.281
07/16/99	07:51	1289781.870	744.859	9568.623	9.974	291.394	0.522	12.742	357.336	5162.711	445.547
07/16/99	07:52	1302564.370	744.859	9663.454	10.074	294.149	0.526	12.757	357.422	5220.015	445.078

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/16/99	07:53	1312770.370	743.907	9726.724	9.800	297.647	0.533	12.741	357.461	5254.303	444.547
07/16/99	07:54	1312902.370	735.724	9620.698	10.300	302.754	0.545	12.680	357.586	5229.725	444.281
07/16/99	07:55	1316748.870	735.962	9652.005	10.074	296.968	0.534	12.679	357.586	5244.621	444.250
07/16/99	07:56	1307537.870	737.659	9606.587	9.999	298.172	0.536	12.677	357.586	5207.088	443.219
07/16/99	07:57	1318332.870	732.956	9624.148	10.375	304.232	0.552	12.568	357.711	5204.957	441.656
07/16/99	07:58	1300149.370	726.439	9407.013	10.074	305.411	0.555	12.555	357.836	5127.832	438.906
07/16/99	07:59	1305964.250	719.298	9356.200	10.250	314.952	0.575	12.496	357.961	5126.570	437.328
07/16/99	08:00	1315076.750	714.195	9354.644	9.599	319.976	0.587	12.430	358.211	5135.078	437.422
07/16/99	08:01	1312126.120	717.614	9378.338	10.074	312.749	0.571	12.488	358.086	5147.217	440.234
07/16/99	08:02	178729.250	533.209	949.188	9.824	32.007	0.085	8.627	51.375	484.363	440.500
07/16/99	08:03	130575.102	180.768	235.094	9.899	238.982	0.473	11.530	51.250	472.954	438.766
07/16/99	08:04	119144.195	236.976	281.214	9.949	68.120	0.531	2.925	51.375	109.492	439.547
07/16/99	08:05	119118.242	168.718	200.170	10.275	104.270	0.667	3.567	51.375	133.477	442.156
07/16/99	08:06	119103.680	253.943	301.245	10.250	178.008	0.528	7.690	51.500	287.730	441.953
07/16/99	08:07	119097.789	452.223	536.434	10.447	233.654	0.531	10.027	51.625	375.152	440.344
07/16/99	08:08	119060.039	573.000	679.486	9.874	267.051	0.559	10.899	51.875	407.643	442.766
07/16/99	08:09	111352.844	617.290	684.620	10.150	274.609	0.561	11.155	52.000	390.209	442.156
07/16/99	08:10	111347.328	646.372	716.839	10.525	266.528	0.534	11.379	52.125	398.033	442.578
07/16/99	08:11	111314.672	664.028	736.204	10.300	279.281	0.555	11.483	52.500	401.524	442.578
07/16/99	08:12	111302.547	671.411	744.309	10.175	281.103	0.551	11.625	52.500	406.474	441.234
07/16/99	08:13	111279.453	682.494	756.438	10.150	279.577	0.545	11.705	52.750	409.154	441.688
07/16/99	08:14	111269.930	690.866	765.651	10.175	283.063	0.547	11.794	52.875	412.232	441.609
07/16/99	08:15	111265.891	687.617	762.022	10.200	290.103	0.560	11.815	52.875	412.950	440.000
07/16/99	08:16	111256.375	686.355	760.559	10.175	291.583	0.563	11.814	53.000	412.881	440.984
07/16/99	08:17	111246.859	689.619	764.111	9.824	289.555	0.552	11.958	53.125	417.880	440.266
07/16/99	08:18	111229.273	697.491	772.711	9.999	290.831	0.554	11.974	53.250	418.372	440.266
07/16/99	08:19	111215.734	697.177	772.269	9.774	293.087	0.557	12.009	53.375	419.544	441.875
07/16/99	08:20	111210.266	705.803	781.786	10.625	288.028	0.544	12.072	53.500	421.726	443.766
07/16/99	08:21	111207.969	712.987	789.727	10.850	283.040	0.527	12.253	53.484	428.040	439.734
07/16/99	08:22	111200.773	712.371	788.993	10.150	300.047	0.564	12.136	53.625	423.926	438.375
07/16/99	08:23	111204.813	702.683	778.291	10.450	307.789	0.580	12.110	53.625	423.034	437.688
07/16/99	08:24	1260677.000	703.576	8834.336	10.175	304.532	0.574	12.110	362.719	4795.735	436.859
07/16/99	08:25	1292350.120	701.759	9032.903	10.250	304.031	0.571	12.140	362.547	4928.399	437.422
07/16/99	08:26	157211.969	706.174	1105.750	10.125	300.597	0.564	12.158	53.875	600.417	438.719
07/16/99	08:27	118887.258	713.445	844.802	9.949	295.724	0.551	12.244	53.625	457.262	435.953
07/16/99	08:28	111200.773	711.478	788.004	10.100	298.794	0.556	12.251	53.625	427.943	437.297
07/16/99	08:29	111228.148	708.581	784.988	10.050	304.733	0.568	12.228	53.484	427.245	438.391
07/16/99	08:30	118887.258	706.837	836.978	10.300	303.506	0.566	12.224	53.625	456.515	439.828
07/16/99	08:31	111204.813	712.610	789.286	10.425	295.748	0.545	12.370	53.625	432.115	439.281
07/16/99	08:32	1277551.000	721.157	9176.290	9.974	295.425	0.544	12.392	363.547	4973.069	444.344
07/16/99	08:33	1298904.870	723.668	9362.165	10.325	294.972	0.541	12.434	363.469	5073.331	446.609

07/16/99	08:34	1295987.750	736.514	9506.949	9.800	282.014	0.508	12.657	363.219	5152.732	445.797
07/16/99	08:35	1288828.500	742.271	9528.334	10.125	283.176	0.511	12.643	363.344	5118.558	445.797
07/16/99	08:36	1296554.120	742.942	9594.119	10.025	282.697	0.510	12.644	363.219	5149.658	446.125
07/16/99	08:37	1305169.000	740.040	9620.140	10.100	294.519	0.535	12.556	362.922	5147.820	445.703
07/16/99	08:38	1301372.250	731.869	9486.244	9.874	296.249	0.541	12.495	362.969	5107.904	446.313
07/16/99	08:39	1313036.870	730.825	9557.619	10.300	293.314	0.535	12.498	362.969	5154.943	445.281
07/16/99	08:40	1309448.120	729.203	9510.347	10.074	295.772	0.540	12.496	362.844	5140.019	446.781
07/16/99	08:41	1320445.750	727.286	9564.999	10.225	288.663	0.527	12.503	362.844	5186.080	443.391
07/16/99	08:42	1311976.500	734.162	9593.503	10.050	287.801	0.524	12.523	362.719	5161.084	440.859
07/16/99	08:43	1312864.370	722.654	9449.523	9.949	299.069	0.553	12.342	362.719	5089.925	438.563
07/16/99	08:44	1311499.500	717.730	9375.378	10.150	298.520	0.552	12.330	362.969	5079.688	438.313
07/16/99	08:45	1301193.370	718.768	9315.156	10.375	297.430	0.550	12.329	362.719	5039.362	436.984

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/16/99	08:46	1293298.250	724.651	9334.409	10.250	297.768	0.551	12.330	362.969	5009.191	438.234
07/16/99	08:47	1317742.000	725.289	9519.206	10.425	294.268	0.543	12.366	362.969	5118.768	438.656
07/16/99	08:48	1318582.870	725.406	9526.824	10.521	300.346	0.553	12.378	362.844	5127.009	440.094
07/16/99	08:49	1306170.250	726.095	9446.104	10.275	290.714	0.530	12.519	362.844	5136.576	442.219
07/16/99	08:50	1303160.120	737.465	9571.904	10.225	291.692	0.529	12.573	362.969	5146.829	443.469
07/16/99	08:51	1308553.870	736.676	9601.246	10.050	292.240	0.530	12.575	362.969	5168.971	442.984
07/16/99	08:52	1298870.750	732.302	9473.615	10.350	292.921	0.532	12.567	363.094	5127.433	441.172
07/16/99	08:53	1296270.000	728.204	9401.731	9.899	301.428	0.550	12.496	363.219	5088.261	440.859
07/16/99	08:54	1299997.500	724.534	9381.241	10.175	312.499	0.573	12.428	363.219	5075.145	440.266
07/16/99	08:55	1295947.370	725.426	9363.538	9.824	301.978	0.550	12.513	362.969	5093.925	441.609
07/16/99	08:56	1297455.370	729.144	9422.480	9.896	302.027	0.549	12.545	363.094	5112.905	442.297
07/16/99	08:57	1306716.620	726.674	9457.594	9.899	301.188	0.548	12.543	363.219	5148.573	442.297
07/16/99	08:58	1291493.870	729.458	9383.222	10.050	293.493	0.532	12.590	363.094	5107.666	442.578
07/16/99	08:59	1293673.120	729.681	9401.922	10.096	297.243	0.538	12.589	363.094	5115.870	440.609
07/16/99	09:00	1290161.750	719.175	9241.410	9.774	309.768	0.567	12.470	363.219	5053.872	440.813
07/16/99	09:01	1304407.870	722.181	9382.510	9.874	298.746	0.544	12.530	363.469	5134.505	440.969
07/16/99	09:02	1312309.620	726.988	9502.173	9.675	299.998	0.544	12.570	363.594	5182.090	441.688
07/16/99	09:03	1305674.370	726.674	9450.050	10.100	299.497	0.543	12.570	363.469	5155.889	440.000
07/16/99	09:04	1307262.250	728.491	9485.196	10.074	301.000	0.546	12.570	363.594	5162.159	441.063
07/16/99	09:05	1317227.500	725.230	9514.719	9.774	304.282	0.552	12.571	363.672	5201.932	443.578
07/16/99	09:06	1310061.750	725.450	9465.822	9.925	297.517	0.540	12.571	363.719	5173.633	440.891
07/16/99	09:07	1307063.750	729.085	9491.491	10.096	303.756	0.551	12.565	363.844	5159.323	442.844
07/16/99	09:08	1312205.750	726.463	9494.552	9.974	302.407	0.550	12.547	363.844	5172.187	442.641
07/16/99	09:09	1303022.370	733.151	9514.905	10.025	297.421	0.537	12.623	363.797	5167.068	441.047
07/16/99	09:10	1295197.620	732.863	9454.053	9.999	309.947	0.564	12.524	363.922	5095.804	440.500
07/16/99	09:11	1300869.750	724.416	9386.016	10.150	314.952	0.575	12.492	363.844	5105.039	439.469
07/16/99	09:12	1314893.620	722.718	9464.961	10.050	313.751	0.573	12.493	364.094	5160.499	441.047
07/16/99	09:13	1305502.000	720.067	9362.888	10.150	312.774	0.571	12.495	364.219	5124.466	440.891
07/16/99	09:14	1311439.750	725.426	9475.475	10.100	300.225	0.544	12.574	364.219	5180.293	443.094
07/16/99	09:15	1308351.250	728.789	9496.976	9.925	303.255	0.550	12.575	364.344	5168.513	443.313
07/16/99	09:16	1308672.750	726.095	9464.202	9.521	300.186	0.544	12.574	364.469	5169.373	442.953
07/16/99	09:17	1312588.870	729.978	9543.286	10.100	302.253	0.548	12.575	364.297	5185.253	441.781
07/16/99	09:18	1314065.870	725.783	9499.113	9.974	308.766	0.561	12.555	364.547	5182.836	442.063
07/16/99	09:19	1328227.370	720.678	9533.957	10.600	312.023	0.568	12.530	364.547	5228.265	439.281
07/16/99	09:20	1334389.370	716.764	9526.170	10.475	309.518	0.563	12.530	364.594	5252.521	438.234
07/16/99	09:21	1334187.120	720.067	9568.613	10.225	305.510	0.557	12.510	364.844	5243.347	436.797
		1309061	699	9510	10.7		0.546	~~13~~ 12.2	359	5160	442

Times printed are start time
Add 1 hour on for actual time

List #3

07/16/99

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/16/99	10:00	1303795.750	729.222	9469.531	10.375	305.686	0.556	12.549	364.422	5139.534	444.109
07/16/99	10:01	1329263.370	733.746	9714.400	10.575	310.194	0.563	12.559	364.469	5244.097	443.578
07/16/99	10:02	1318870.250	732.133	9617.260	10.175	307.689	0.559	12.564	364.469	5205.165	443.109
07/16/99	10:03	1314461.870	730.800	9567.664	10.550	312.597	0.570	12.515	364.469	5167.524	442.406
07/16/99	10:04	1320317.500	726.991	9560.196	10.196	316.654	0.578	12.502	364.344	5185.175	443.625
07/16/99	10:05	1311876.870	725.132	9474.794	10.475	316.128	0.577	12.486	363.969	5145.434	441.609
07/16/99	10:06	1325981.370	725.547	9582.142	10.425	314.176	0.574	12.488	363.969	5201.600	441.609
07/16/99	10:07	1309874.750	726.932	9483.813	10.175	314.125	0.572	12.521	363.844	5151.964	441.531
07/16/99	10:08	1316117.120	726.873	9528.238	10.325	311.596	0.569	12.495	363.969	5165.774	442.219
07/16/99	10:09	1320713.750	737.310	9698.798	10.325	311.799	0.568	12.510	363.969	5190.031	441.938
07/16/99	10:10	1326279.000	739.561	9769.402	10.175	312.372	0.569	12.531	363.719	5220.646	443.625
07/16/99	10:11	1317524.500	740.171	9712.922	10.425	305.612	0.555	12.556	363.719	5196.519	442.063
07/16/99	10:12	1325915.870	734.221	9696.211	10.525	309.142	0.561	12.562	363.594	5232.121	441.438
07/16/99	10:13	1310121.120	728.672	9508.300	10.225	316.352	0.579	12.465	363.594	5129.911	441.438
07/16/99	10:14	1321014.370	723.572	9520.250	10.425	314.350	0.575	12.470	363.594	5174.637	440.547
07/16/99	10:15	1315579.000	721.177	9449.703	9.925	312.096	0.571	12.470	363.594	5153.345	440.094
07/16/99	10:16	1310110.870	721.830	9418.951	10.275	317.630	0.581	12.471	363.547	5132.343	439.547
07/16/99	10:17	1314373.620	721.141	9440.577	10.225	315.377	0.577	12.471	363.469	5149.042	440.359
07/16/99	10:18	1309804.000	721.294	9409.747	9.749	312.898	0.572	12.472	363.344	5131.558	440.266
07/16/99	10:19	1329337.750	725.489	9605.618	9.675	308.391	0.563	12.502	363.469	5220.599	442.016
07/16/99	10:20	1311949.870	724.702	9469.690	9.899	310.569	0.566	12.513	363.469	5156.818	442.828
07/16/99	10:21	1306949.370	722.961	9410.935	10.050	303.584	0.551	12.555	363.344	5154.390	442.328
07/16/99	10:22	1312045.250	728.198	9516.075	10.050	306.013	0.556	12.561	363.469	5177.341	445.078
07/16/99	10:23	1318926.500	724.181	9513.215	10.225	308.341	0.560	12.555	363.594	5201.626	442.766
07/16/99	10:24	1318094.750	726.005	9531.150	10.375	306.888	0.557	12.557	363.469	5199.191	441.953
07/16/99	10:25	1309478.120	723.258	9433.022	9.999	315.601	0.577	12.485	363.344	5135.609	441.344
07/16/99	10:26	1315668.750	716.416	9387.959	10.175	313.874	0.575	12.456	363.422	5147.924	440.984
07/16/99	10:27	1324864.870	719.659	9496.369	9.949	305.336	0.556	12.515	363.469	5208.422	440.547
07/16/99	10:28	1320449.120	723.536	9515.709	10.350	306.566	0.558	12.536	363.719	5199.769	443.391
07/16/99	10:29	1315112.370	720.328	9435.231	10.375	307.615	0.560	12.536	363.594	5178.754	440.969
07/16/99	10:30	1314274.000	720.923	9437.004	10.150	307.114	0.559	12.536	363.594	5175.453	440.969
07/16/99	10:31	1313891.870	719.717	9418.479	10.050	308.616	0.562	12.526	363.547	5169.826	441.250
07/16/99	10:32	1318560.870	719.717	9451.949	10.575	303.108	0.552	12.526	363.469	5188.197	439.609
07/16/99	10:33	1315212.120	720.328	9435.946	10.400	304.360	0.554	12.531	363.469	5177.083	440.453
07/16/99	10:34	1315249.620	714.600	9361.182	10.325	313.123	0.574	12.441	363.422	5140.094	439.547
07/16/99	10:35	1313806.750	709.258	9281.013	10.074	314.854	0.579	12.411	363.594	5122.095	441.531
07/16/99	10:36	1317980.250	711.909	9345.290	10.300	305.111	0.558	12.481	363.672	5167.305	442.156
07/16/99	10:37	1306974.250	721.177	9387.896	10.225	301.831	0.548	12.550	363.844	5152.439	441.609
07/16/99	10:38	1324051.250	722.484	9527.792	10.325	304.384	0.553	12.552	363.844	5220.609	439.281
07/16/99	10:39	1323898.500	721.235	9510.232	10.200	312.622	0.571	12.491	364.094	5194.663	437.688
07/16/99	10:40	1313183.500	714.261	9342.038	10.074	323.628	0.598	12.345	363.969	5092.469	437.047

07/16/99	10:41	1320148.500	706.791	9293.371	10.347	324.155	0.600	12.311	364.094	5105.398	439.203
07/16/99	10:42	1317642.750	712.816	9354.806	10.250	309.868	0.566	12.476	364.094	5163.916	438.656
07/16/99	10:43	1306354.370	722.069	9395.054	9.949	303.834	0.551	12.575	364.094	5160.240	437.422
07/16/99	10:44	1317029.250	723.136	9485.821	10.400	312.673	0.569	12.543	364.219	5189.211	436.234
07/16/99	10:45	1329975.500	712.577	9439.188	10.100	320.175	0.586	12.452	364.219	5202.240	436.172
07/16/99	10:46	1318800.620	699.690	9190.612	10.275	325.710	0.603	12.313	364.094	5101.015	440.547
07/16/99	10:47	1312101.870	703.588	9194.866	10.350	309.918	0.567	12.463	364.094	5136.860	441.750
07/16/99	10:48	1325413.000	717.382	9470.236	10.250	294.352	0.530	12.656	364.219	5269.643	444.109
07/16/99	10:49	1308862.750	733.091	9556.778	9.800	294.877	0.529	12.707	364.469	5224.799	446.250
07/16/99	10:50	1304223.750	733.864	9532.942	10.447	293.577	0.527	12.705	364.594	5205.434	445.281
07/16/99	10:51	1318352.870	735.545	9658.291	10.450	293.899	0.527	12.708	364.594	5263.110	444.000
07/16/99	10:52	1302862.370	726.753	9430.711	10.074	307.915	0.559	12.553	364.594	5137.481	445.359

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/16/99	10:53	1316307.370	714.600	9368.710	10.200	318.131	0.584	12.431	364.719	5140.099	445.359
07/16/99	10:54	1299093.500	711.141	9201.436	9.996	314.048	0.576	12.428	364.844	5071.643	443.031
07/16/99	10:55	1318705.370	714.087	9379.040	10.146	309.517	0.565	12.497	365.094	5176.739	442.500
07/16/99	10:56	1311802.500	721.060	9421.050	10.625	308.791	0.563	12.518	365.297	5158.289	440.891
07/16/99	10:57	1321891.620	714.427	9406.168	10.175	313.798	0.572	12.518	365.219	5197.961	442.766
07/16/99	10:58	1313026.750	714.542	9344.604	10.225	306.792	0.558	12.539	365.219	5171.769	440.719
07/16/99	10:59	1322312.000	717.265	9446.548	9.899	314.850	0.571	12.570	365.094	5221.200	440.094
07/16/99	11:00	1312424.870	707.047	9242.349	10.175	316.603	0.580	12.455	364.922	5134.815	439.031
07/16/99	11:01	1316573.750	706.734	9267.455	10.100	314.600	0.576	12.455	364.969	5151.047	439.172
07/16/99	11:02	1313864.500	710.959	9303.676	10.074	311.095	0.568	12.490	365.219	5154.873	439.828
07/16/99	11:03	1315211.250	712.809	9337.444	10.600	309.242	0.565	12.486	365.344	5158.479	438.719
07/16/99	11:04	1316222.750	714.484	9366.590	10.025	314.324	0.574	12.494	365.469	5165.770	440.172
07/16/99	11:05	1310444.620	712.346	9297.559	10.125	313.297	0.572	12.493	365.422	5142.674	439.734
07/16/99	11:06	1319513.250	709.738	9327.631	10.200	315.852	0.576	12.495	365.469	5179.104	440.359
07/16/99	11:07	1309567.620	708.121	9236.234	9.800	310.043	0.566	12.498	365.469	5141.286	440.453
07/16/99	11:08	1304935.120	708.320	9206.143	10.450	311.495	0.568	12.506	365.594	5126.358	438.563
07/16/99	11:09	1309935.750	709.879	9261.765	9.925	309.517	0.564	12.507	365.594	5146.421	437.422
07/16/99	11:10	1321171.000	705.003	9277.039	9.925	317.251	0.579	12.496	365.719	5185.997	436.172
07/16/99	11:11	1322419.250	707.116	9313.628	9.999	309.242	0.562	12.545	365.719	5211.632	439.031
07/16/99	11:12	1320238.370	711.026	9349.688	10.074	314.999	0.573	12.545	365.844	5203.038	438.563
07/16/99	11:13	1310624.370	714.311	9324.482	9.675	312.746	0.569	12.545	365.844	5165.149	437.766
07/16/99	11:14	1326322.370	713.477	9425.147	9.974	314.523	0.572	12.546	365.969	5227.439	438.563
07/16/99	11:15	1326004.000	708.263	9354.022	10.600	313.722	0.573	12.490	365.969	5202.466	438.563
07/16/99	11:16	1326217.870	712.173	9407.181	10.375	305.713	0.558	12.490	366.219	5203.305	437.953
07/16/99	11:17	1317438.000	709.508	9309.941	10.275	308.992	0.564	12.491	366.219	5169.278	438.766
07/16/99	11:18	1325240.370	708.320	9349.394	10.100	311.495	0.569	12.481	366.344	5195.737	439.203
07/16/99	11:19	1327059.250	705.869	9329.830	10.200	311.720	0.570	12.475	366.719	5200.364	436.438
07/16/99	11:20	1308117.000	706.161	9200.466	10.325	313.344	0.574	12.460	366.719	5119.951	436.875
07/16/99	11:21	1311973.870	705.557	9219.691	9.424	313.972	0.574	12.465	366.844	5137.135	435.688
07/16/99	11:22	1314379.870	705.442	9235.103	10.250	319.191	0.585	12.453	367.094	5141.598	437.609
07/16/99	11:23	1306563.870	706.886	9198.977	10.125	315.397	0.577	12.472	366.969	5118.800	440.500
07/16/99	11:24	1301411.000	711.390	9221.073	9.999	304.888	0.552	12.607	367.094	5154.098	438.031
07/16/99	11:25	1307630.620	722.609	9411.262	9.800	304.437	0.549	12.654	367.094	5198.023	440.172
07/16/99	11:26	1295823.620	719.426	9285.196	9.949	314.748	0.570	12.591	366.969	5125.512	440.641
07/16/99	11:27	1307064.500	715.958	9320.597	10.125	308.669	0.561	12.549	367.219	5152.750	441.172
07/16/99	11:28	1311158.750	717.178	9365.728	9.699	312.220	0.568	12.534	367.344	5162.724	438.313
07/16/99	11:29	1321071.870	708.064	9316.618	9.846	324.300	0.596	12.402	367.344	5146.669	437.688
07/16/99	11:30	1311008.250	698.179	9116.576	9.699	324.221	0.597	12.379	367.594	5097.997	441.063
07/16/99	11:31	1313085.250	706.333	9237.656	9.949	316.924	0.581	12.438	367.672	5130.358	439.469
07/16/99	11:32	1313835.870	713.820	9340.903	9.749	308.144	0.558	12.589	367.719	5195.913	439.828
07/16/99	11:33	1304751.500	713.303	9269.604	10.050	314.697	0.571	12.563	367.547	5149.350	440.891

07/16/99	11:34	1300360.000	710.177	9197.912	9.949	316.776	0.578	12.507	367.594	5108.801	440.000
07/16/99	11:35	1311133.750	709.227	9261.718	9.824	311.447	0.568	12.510	367.844	5152.354	438.031
07/16/99	11:36	1320672.870	711.084	9353.524	9.949	314.774	0.574	12.517	367.844	5192.747	439.734
07/16/99	11:37	1313275.370	706.562	9241.990	10.100	315.775	0.577	12.482	367.719	5149.245	439.391
07/16/99	11:38	1309540.000	712.636	9294.920	9.774	305.664	0.554	12.582	367.922	5176.040	440.813
07/16/99	11:39	1302684.620	716.858	9301.052	10.100	310.668	0.563	12.592	368.094	5153.027	440.813
07/16/99	11:40	1314226.370	715.676	9367.984	9.949	305.213	0.553	12.594	368.219	5199.528	442.688
07/16/99	11:41	1308277.370	718.796	9366.230	9.925	301.461	0.543	12.672	368.219	5208.017	443.219
07/16/99	11:42	1310125.750	720.153	9397.170	10.050	302.283	0.544	12.673	368.469	5215.799	444.797
07/16/99	11:43	1301681.750	718.890	9320.230	9.824	304.511	0.548	12.672	368.594	5181.761	444.953
07/16/99	11:44	1311966.250	714.087	9331.110	9.949	308.766	0.558	12.626	368.844	5203.775	443.906
07/16/99	11:45	1302872.750	713.065	9253.163	9.824	309.467	0.559	12.615	368.805	5163.189	443.188

DATE_FIELD	TIME_FIELD	VFLOWSCFM	SO2	SO2LBHR	OPACITYANALYZER	NOX	NOXLBBTU	CO2	STACKTEMP	HEATINPUT	OPERLOAD
07/16/99	11:46	1308277.370	714.805	9314.219	9.675	307.941	0.557	12.604	368.930	5180.083	442.297
07/16/99	11:47	1305441.000	714.711	9292.815	9.999	309.645	0.560	12.604	368.805	5168.853	441.531
07/16/99	11:48	1312328.750	713.303	9323.438	9.649	313.446	0.569	12.573	369.094	5183.369	441.781
07/16/99	11:49	1319988.750	712.173	9362.996	9.849	310.969	0.564	12.569	369.344	5211.979	440.641
07/16/99	11:50	1308325.500	712.867	9289.312	9.849	308.766	0.560	12.576	369.219	5168.817	442.406
07/16/99	11:51	1316574.120	716.596	9396.784	10.025	313.072	0.567	12.594	369.219	5208.859	440.094
07/16/99	11:52	1313561.000	712.982	9327.997	9.774	309.067	0.560	12.594	369.344	5196.938	441.250
07/16/99	11:53	1310120.500	710.473	9270.819	10.375	310.268	0.562	12.586	369.594	5180.018	441.781
07/16/99	11:54	1320471.620	715.828	9414.502	10.050	300.983	0.543	12.635	369.719	5241.225	442.156
07/16/99	11:55	1308057.000	720.275	9383.924	9.949	301.459	0.543	12.655	369.680	5200.141	442.016
07/16/99	11:56	1311219.370	716.010	9350.903	9.724	309.943	0.561	12.604	369.969	5191.732	440.984
07/16/99	11:57	1297975.370	705.557	9121.319	9.899	315.474	0.574	12.534	369.680	5110.813	438.281
07/16/99	11:58	1307125.000	699.945	9112.561	9.499	317.777	0.580	12.497	369.680	5131.279	437.422
07/16/99	11:59	1314410.750	702.354	9194.890	9.974	315.024	0.575	12.497	369.969	5159.880	436.172
07/16/99	12:00	1316806.620	699.945	9180.056	9.675	314.774	0.575	12.479	370.094	5162.057	438.578
07/16/99	12:01	1319810.370	701.744	9224.647	10.100	313.272	0.571	12.504	369.969	5184.178	438.313
07/16/99	12:02	178809.484	708.971	1262.637	9.925	306.013	0.555	12.584	51.250	706.844	439.391
07/16/99	12:03	119232.266	707.923	840.696	9.921	305.067	0.553	12.582	51.250	471.251	439.391
07/16/99	12:04	111507.555	710.817	789.444	9.675	306.642	0.555	12.595	51.359	441.178	437.766
07/16/99	12:05	111511.359	706.208	784.352	9.199	317.251	0.577	12.533	51.250	439.027	437.766
07/16/99	12:06	111474.516	710.265	788.597	9.774	312.423	0.569	12.531	51.625	438.811	438.234
07/16/99	12:07	111474.516	716.068	795.040	9.925	306.214	0.556	12.552	51.625	439.545	436.438
07/16/99	12:08	111460.898	712.751	791.261	9.874	322.746	0.590	12.477	51.750	436.870	437.328
07/16/99	12:09	119127.625	696.828	826.795	9.874	328.502	0.605	12.382	52.000	463.372	436.672
07/16/99	12:10	119108.773	698.996	829.236	9.549	325.275	0.599	12.383	52.125	463.336	435.266
07/16/99	12:11	119098.555	699.769	830.081	9.874	321.433	0.589	12.451	52.250	465.835	437.422
07/16/99	12:12	111410.805	702.012	778.989	9.849	312.869	0.569	12.543	52.359	438.976	438.031
07/16/99	12:13	111383.359	708.799	786.326	9.949	317.200	0.576	12.561	52.500	439.499	438.641
07/16/99	12:14	111373.820	702.721	779.516	9.624	322.694	0.587	12.545	52.625	438.902	437.563
07/16/99	12:15	103079.508	700.739	719.429	9.624	318.992	0.580	12.547	52.875	406.282	440.266
07/16/99	12:16	103084.844	702.183	720.949	9.474	313.446	0.570	12.546	52.859	406.270	439.469
07/16/99	12:17	103054.398	703.664	722.256	9.800	315.724	0.574	12.547	53.125	406.183	440.453
07/16/99	12:18	111289.844	704.763	781.192	10.025	318.278	0.578	12.549	53.250	438.714	440.094
07/16/99	12:19	111293.883	702.578	778.799	9.899	316.500	0.575	12.548	53.250	438.694	438.719
07/16/99	12:20	111285.805	704.539	780.915	9.849	318.304	0.578	12.550	53.250	438.733	438.391
07/16/99	12:21	111291.570	700.555	776.540	10.146	321.797	0.587	12.499	53.234	436.976	437.422
07/16/99	12:22	111280.320	699.825	775.653	10.050	318.252	0.584	12.433	53.375	434.628	437.844
07/16/99	12:23	111254.680	719.898	797.716	10.275	313.823	0.577	12.401	53.500	433.413	437.391
07/16/99	12:24	1279798.750	734.975	9368.578	9.699	314.451	0.580	12.367	375.055	4972.033	437.609
07/16/99	12:25	1292673.750	739.261	9518.008	9.574	314.748	0.582	12.333	375.352	5008.272	434.641
07/16/99	12:26	1304300.500	733.685	9531.186	9.874	315.550	0.584	12.325	375.352	5050.050	432.938

07/16/99	12:27	1314168.000	731.395	9573.312	9.925	326.382	0.609	12.223	375.352	5045.805	432.938
07/16/99	12:28	1307532.000	718.040	9351.051	10.025	329.583	0.616	12.201	375.477	5011.309	432.875
07/16/99	12:29	1314676.870	709.029	9284.148	9.724	331.085	0.619	12.206	375.352	5040.754	433.219
07/16/99	12:30	1308434.000	708.320	9230.826	9.724	331.282	0.619	12.204	374.977	5016.002	433.313
		1313682	715	9378	10.6		0.569	12.5	366	5162	440

Date	Time	Air Htr Exit Gas Temp
07/15/99	11:40	361
07/15/99	11:41	361
07/15/99	11:42	360
07/15/99	11:43	360
07/15/99	11:44	359
07/15/99	11:45	359
07/15/99	11:46	359
07/15/99	11:47	359
07/15/99	11:48	359
07/15/99	11:49	359
07/15/99	11:50	358
07/15/99	11:51	358
07/15/99	11:52	358
07/15/99	11:53	358
07/15/99	11:54	358
07/15/99	11:55	358
07/15/99	11:56	358
07/15/99	11:57	358
07/15/99	11:58	359
07/15/99	11:59	359
07/15/99	12:00	359
07/15/99	12:01	359
07/15/99	12:02	359
07/15/99	12:03	359
07/15/99	12:04	359
07/15/99	12:05	359
07/15/99	12:06	359
07/15/99	12:07	359
07/15/99	12:08	359
07/15/99	12:09	360
07/15/99	12:10	360
07/15/99	12:11	360
07/15/99	12:12	360
07/15/99	12:13	361
07/15/99	12:14	361
07/15/99	12:15	361
07/15/99	12:16	361
07/15/99	12:17	361
07/15/99	12:18	361
07/15/99	12:19	368
07/15/99	12:20	368
07/15/99	12:21	368
07/15/99	12:22	368
07/15/99	12:23	368
07/15/99	12:24	368
07/15/99	12:25	369
07/15/99	12:26	362
07/15/99	12:27	363
07/15/99	12:28	369
07/15/99	12:29	369
07/15/99	12:30	369

358 - 8
359 - 17
360 - 6
361 - 8
362 - 1
363 - 1
364 - 1
365 - 6
366 - 6
367 - 17
368 - 18
369 - 15
370 - 18
371 - 46
372 26
373 - 38
374 - 27
375 - 27
376 - 15
377 - 10
378 - 7
383 - 1

Avg = 370

Date	Time	Air Htr Exit Gas Temp
07/15/99	12:31	369
07/15/99	12:32	369
07/15/99	12:33	369
07/15/99	12:34	369
07/15/99	12:35	370
07/15/99	12:36	370
07/15/99	12:37	370
07/15/99	12:38	370
07/15/99	12:39	370
07/15/99	12:40	370
07/15/99	12:41	370
07/15/99	12:42	370
07/15/99	12:43	364
07/15/99	12:44	370
07/15/99	12:45	371
07/15/99	12:46	371
07/15/99	12:47	371
07/15/99	12:48	371
07/15/99	12:49	371
07/15/99	12:50	372
07/15/99	12:51	372
07/15/99	12:52	372
07/15/99	12:53	372
07/15/99	12:54	372
07/15/99	12:55	373
07/15/99	12:56	373
07/15/99	12:57	373
07/15/99	12:58	373
07/15/99	12:59	367
07/15/99	13:00	367
07/15/99	13:01	367
07/15/99	13:02	367
07/15/99	13:03	367
07/15/99	13:04	367
07/15/99	13:05	367
07/15/99	13:06	367
07/15/99	13:07	367
07/15/99	13:08	367
07/15/99	13:09	367
07/15/99	13:10	367
07/15/99	13:11	367
07/15/99	13:12	367
07/15/99	13:13	368
07/15/99	13:14	368
07/15/99	13:15	374
07/15/99	13:16	368
07/15/99	13:17	368
07/15/99	13:18	368
07/15/99	13:19	368
07/15/99	13:20	368
07/15/99	13:21	369

Date	Time	Air Htr Exit Gas Temp
07/15/99	13:22	375
07/15/99	13:23	375
07/15/99	13:24	375
07/15/99	13:25	375
07/15/99	13:26	375
07/15/99	13:27	369
07/15/99	13:28	369
07/15/99	13:29	369
07/15/99	13:30	376
07/15/99	13:31	369
07/15/99	13:32	369
07/15/99	13:33	369
07/15/99	13:34	370
07/15/99	13:35	370
07/15/99	13:36	370
07/15/99	13:37	370
07/15/99	13:38	370
07/15/99	13:39	376
07/15/99	13:40	370
07/15/99	13:41	370
07/15/99	13:42	376
07/15/99	13:43	376
07/15/99	13:44	370
07/15/99	13:45	371
07/15/99	13:46	371
07/15/99	13:47	371
07/15/99	13:48	371
07/15/99	13:49	371
07/15/99	13:50	371
07/15/99	13:51	371
07/15/99	13:52	371
07/15/99	13:53	371
07/15/99	13:54	371
07/15/99	13:55	371
07/15/99	13:56	371
07/15/99	13:57	371
07/15/99	13:58	371
07/15/99	13:59	372
07/15/99	14:00	372
07/15/99	14:01	372
07/15/99	14:02	372
07/15/99	14:03	372
07/15/99	14:04	373
07/15/99	14:05	373
07/15/99	14:06	373
07/15/99	14:07	373
07/15/99	14:08	373
07/15/99	14:09	373
07/15/99	14:10	373
07/15/99	14:11	373
07/15/99	14:12	374

Date	Time	Air Htr Exit Gas Temp
07/15/99	14:13	373
07/15/99	14:14	373
07/15/99	14:15	373
07/15/99	14:16	373
07/15/99	14:17	373
07/15/99	14:18	374
07/15/99	14:19	374
07/15/99	14:20	374
07/15/99	14:21	374
07/15/99	14:22	374
07/15/99	14:23	374
07/15/99	14:24	374
07/15/99	14:25	374
07/15/99	14:26	374
07/15/99	14:27	374
07/15/99	14:28	374
07/15/99	14:29	374
07/15/99	14:30	375
07/15/99	14:31	375
07/15/99	14:32	375
07/15/99	14:33	375
07/15/99	14:34	375
07/15/99	14:35	375
07/15/99	14:36	375
07/15/99	14:37	375
07/15/99	14:38	375
07/15/99	14:39	375
07/15/99	14:40	375
07/15/99	14:41	375
07/15/99	14:42	375
07/15/99	14:43	376
07/15/99	14:44	376
07/15/99	14:45	376
07/15/99	14:46	377
07/15/99	14:47	377
07/15/99	14:48	383
07/15/99	14:49	377
07/15/99	14:50	378
07/15/99	14:51	378
07/15/99	14:52	378
07/15/99	14:53	378
07/15/99	14:54	378
07/15/99	14:55	378
07/15/99	14:56	378
07/15/99	14:57	377
07/15/99	14:58	377
07/15/99	14:59	377
07/15/99	15:00	377
07/15/99	15:01	377
07/15/99	15:02	376
07/15/99	15:03	376

Date	Time	Air Htr Exit Gas Temp
07/15/99	15:04	376
07/15/99	15:05	376
07/15/99	15:06	375
07/15/99	15:07	375
07/15/99	15:08	375
07/15/99	15:09	375
07/15/99	15:10	375
07/15/99	15:11	374
07/15/99	15:12	374
07/15/99	15:13	374
07/15/99	15:14	374
07/15/99	15:15	374
07/15/99	15:16	374
07/15/99	15:17	374
07/15/99	15:18	373
07/15/99	15:19	373
07/15/99	15:20	373
07/15/99	15:21	373
07/15/99	15:22	373
07/15/99	15:23	373
07/15/99	15:24	373
07/15/99	15:25	373
07/15/99	15:26	372
07/15/99	15:27	372
07/15/99	15:28	372
07/15/99	15:29	372
07/15/99	15:30	371
07/15/99	15:31	377
07/15/99	15:32	377
07/15/99	15:33	370
07/15/99	15:34	376
07/15/99	15:35	376
07/15/99	15:36	376
07/15/99	15:37	376
07/15/99	15:38	375
07/15/99	15:39	375
07/15/99	15:40	375
07/15/99	15:41	375
07/15/99	15:42	374
07/15/99	15:43	374
07/15/99	15:44	374
07/15/99	15:45	374
07/15/99	15:46	373
07/15/99	15:47	373
07/15/99	15:48	373
07/15/99	15:49	373
07/15/99	15:50	373
07/15/99	15:51	367
07/15/99	15:52	373
07/15/99	15:53	367
07/15/99	15:54	367

Date	Time	Air Htr Exit Gas Temp
07/15/99	15:55	368
07/15/99	15:56	368
07/15/99	15:57	368
07/15/99	15:58	368
07/15/99	15:59	368
07/15/99	16:00	374
07/15/99	16:01	374
07/15/99	16:02	373
07/15/99	16:03	373
07/15/99	16:04	373
07/15/99	16:05	373
07/15/99	16:06	373
07/15/99	16:07	373
07/15/99	16:08	373
07/15/99	16:09	372
07/15/99	16:10	372
07/15/99	16:11	372
07/15/99	16:12	372
07/15/99	16:13	372
07/15/99	16:14	372
07/15/99	16:15	371
07/15/99	16:16	372
07/15/99	16:17	371
07/15/99	16:18	371
07/15/99	16:19	371
07/15/99	16:20	371
07/15/99	16:21	371
07/15/99	16:22	371
07/15/99	16:23	371
07/15/99	16:24	371
07/15/99	16:25	371
07/15/99	16:26	371
07/15/99	16:27	371
07/15/99	16:28	371
07/15/99	16:29	371
07/15/99	16:30	371
07/15/99	16:31	371
07/15/99	16:32	371
07/15/99	16:33	371
07/15/99	16:34	371
07/15/99	16:35	371
07/15/99	16:36	372
07/15/99	16:37	372
07/15/99	16:38	372
07/15/99	16:39	372
07/15/99	16:40	372

Test #3

Date	Time	Air Htr Exit Gas Temp
07/16/99	08:00	366
07/16/99	08:01	366
07/16/99	08:02	366
07/16/99	08:03	365
07/16/99	08:04	365
07/16/99	08:05	365
07/16/99	08:06	365
07/16/99	08:07	365
07/16/99	08:08	364
07/16/99	08:09	364
07/16/99	08:10	364
07/16/99	08:11	364
07/16/99	08:12	364
07/16/99	08:13	364
07/16/99	08:14	364
07/16/99	08:15	364
07/16/99	08:16	364
07/16/99	08:17	364
07/16/99	08:18	364
07/16/99	08:19	364
07/16/99	08:20	364
07/16/99	08:21	364
07/16/99	08:22	364
07/16/99	08:23	364
07/16/99	08:24	364
07/16/99	08:25	364
07/16/99	08:26	364
07/16/99	08:27	364
07/16/99	08:28	364
07/16/99	08:29	364
07/16/99	08:30	364
07/16/99	08:31	364
07/16/99	08:32	364
07/16/99	08:33	364
07/16/99	08:34	364
07/16/99	08:35	364
07/16/99	08:36	364
07/16/99	08:37	364
07/16/99	08:38	365
07/16/99	08:39	365
07/16/99	08:40	365
07/16/99	08:41	365
07/16/99	08:42	365
07/16/99	08:43	365
07/16/99	08:44	365
07/16/99	08:45	366
07/16/99	08:46	366
07/16/99	08:47	366
07/16/99	08:48	366
07/16/99	08:49	366
07/16/99	08:50	366

AVG = 370

Date	Time	Air Htr Exit Gas Temp
07/16/99	08:51	366
07/16/99	08:52	366
07/16/99	08:53	366
07/16/99	08:54	367
07/16/99	08:55	367
07/16/99	08:56	367
07/16/99	08:57	367
07/16/99	08:58	367
07/16/99	08:59	367
07/16/99	09:00	367
07/16/99	09:01	368
07/16/99	09:02	368
07/16/99	09:03	368
07/16/99	09:04	367
07/16/99	09:05	367
07/16/99	09:06	367
07/16/99	09:07	368
07/16/99	09:08	368
07/16/99	09:09	368
07/16/99	09:10	368
07/16/99	09:11	368
07/16/99	09:12	368
07/16/99	09:13	368
07/16/99	09:14	368
07/16/99	09:15	368
07/16/99	09:16	368
07/16/99	09:17	369
07/16/99	09:18	369
07/16/99	09:19	369
07/16/99	09:20	369
07/16/99	09:21	369
07/16/99	09:22	370
07/16/99	09:23	370
07/16/99	09:24	370
07/16/99	09:25	370
07/16/99	09:26	370
07/16/99	09:27	371
07/16/99	09:28	371
07/16/99	09:29	371
07/16/99	09:30	371
07/16/99	09:31	371
07/16/99	09:32	371
07/16/99	09:33	371
07/16/99	09:34	371
07/16/99	09:35	371
07/16/99	09:36	371
07/16/99	09:37	371
07/16/99	09:38	372
07/16/99	09:39	372
07/16/99	09:40	372
07/16/99	09:41	373

Date	Time	Air Htr Exit Gas Temp
07/16/99	09:42	373
07/16/99	09:43	373
07/16/99	09:44	373
07/16/99	09:45	373
07/16/99	09:46	374
07/16/99	09:47	374
07/16/99	09:48	374
07/16/99	09:49	374
07/16/99	09:50	375
07/16/99	09:51	375
07/16/99	09:52	375
07/16/99	09:53	375
07/16/99	09:54	375
07/16/99	09:55	375
07/16/99	09:56	375
07/16/99	09:57	375
07/16/99	09:58	375
07/16/99	09:59	375
07/16/99	10:00	375
07/16/99	10:01	375
07/16/99	10:02	382
07/16/99	10:03	382
07/16/99	10:04	382
07/16/99	10:05	376
07/16/99	10:06	376
07/16/99	10:07	376
07/16/99	10:08	376
07/16/99	10:09	376
07/16/99	10:10	376
07/16/99	10:11	376
07/16/99	10:12	376
07/16/99	10:13	376
07/16/99	10:14	376
07/16/99	10:15	376
07/16/99	10:16	377
07/16/99	10:17	377
07/16/99	10:18	377
07/16/99	10:19	377
07/16/99	10:20	377
07/16/99	10:21	378
07/16/99	10:22	378
07/16/99	10:23	378
07/16/99	10:24	378
07/16/99	10:25	378
07/16/99	10:26	379
07/16/99	10:27	379
07/16/99	10:28	380
07/16/99	10:29	381
07/16/99	10:30	381

Test #3

Date	Time	Air Htr Exit Gas Temp
07/16/99	11:00	375
07/16/99	11:01	375
07/16/99	11:02	374
07/16/99	11:03	374
07/16/99	11:04	374
07/16/99	11:05	374
07/16/99	11:06	373
07/16/99	11:07	373
07/16/99	11:08	373
07/16/99	11:09	373
07/16/99	11:10	373
07/16/99	11:11	373
07/16/99	11:12	373
07/16/99	11:13	372
07/16/99	11:14	372
07/16/99	11:15	372
07/16/99	11:16	378
07/16/99	11:17	378
07/16/99	11:18	378
07/16/99	11:19	378
07/16/99	11:20	378
07/16/99	11:21	378
07/16/99	11:22	378
07/16/99	11:23	378
07/16/99	11:24	372
07/16/99	11:25	378
07/16/99	11:26	372
07/16/99	11:27	373
07/16/99	11:28	373
07/16/99	11:29	373
07/16/99	11:30	373
07/16/99	11:31	373
07/16/99	11:32	373
07/16/99	11:33	373
07/16/99	11:34	373
07/16/99	11:35	373
07/16/99	11:36	373
07/16/99	11:37	373
07/16/99	11:38	374
07/16/99	11:39	374
07/16/99	11:40	374
07/16/99	11:41	374
07/16/99	11:42	380
07/16/99	11:43	380
07/16/99	11:44	380
07/16/99	11:45	380
07/16/99	11:46	380
07/16/99	11:47	380
07/16/99	11:48	380
07/16/99	11:49	374
07/16/99	11:50	374

Avg = 378

Date	Time	Air Htr Exit Gas Temp
07/16/99	11:51	374
07/16/99	11:52	374
07/16/99	11:53	374
07/16/99	11:54	374
07/16/99	11:55	375
07/16/99	11:56	375
07/16/99	11:57	375
07/16/99	11:58	375
07/16/99	11:59	375
07/16/99	12:00	375
07/16/99	12:01	376
07/16/99	12:02	376
07/16/99	12:03	376
07/16/99	12:04	376
07/16/99	12:05	376
07/16/99	12:06	376
07/16/99	12:07	376
07/16/99	12:08	376
07/16/99	12:09	376
07/16/99	12:10	376
07/16/99	12:11	376
07/16/99	12:12	376
07/16/99	12:13	376
07/16/99	12:14	377
07/16/99	12:15	377
07/16/99	12:16	377
07/16/99	12:17	377
07/16/99	12:18	377
07/16/99	12:19	377
07/16/99	12:20	377
07/16/99	12:21	377
07/16/99	12:22	378
07/16/99	12:23	378
07/16/99	12:24	378
07/16/99	12:25	378
07/16/99	12:26	378
07/16/99	12:27	379
07/16/99	12:28	379
07/16/99	12:29	379
07/16/99	12:30	379
07/16/99	12:31	379
07/16/99	12:32	379
07/16/99	12:33	379
07/16/99	12:34	379
07/16/99	12:35	379
07/16/99	12:36	379
07/16/99	12:37	380
07/16/99	12:38	380
07/16/99	12:39	380
07/16/99	12:40	380
07/16/99	12:41	380

Date	Time	Air Htr Exit Gas Temp
07/16/99	12:42	380
07/16/99	12:43	380
07/16/99	12:44	380
07/16/99	12:45	380
07/16/99	12:46	381
07/16/99	12:47	381
07/16/99	12:48	381
07/16/99	12:49	381
07/16/99	12:50	381
07/16/99	12:51	381
07/16/99	12:52	381
07/16/99	12:53	381
07/16/99	12:54	381
07/16/99	12:55	381
07/16/99	12:56	382
07/16/99	12:57	382
07/16/99	12:58	382
07/16/99	12:59	382
07/16/99	13:00	382
07/16/99	13:01	382
07/16/99	13:02	382
07/16/99	13:03	382
07/16/99	13:04	382
07/16/99	13:05	382
07/16/99	13:06	382
07/16/99	13:07	382
07/16/99	13:08	382
07/16/99	13:09	382
07/16/99	13:10	382
07/16/99	13:11	382
07/16/99	13:12	382
07/16/99	13:13	383
07/16/99	13:14	383
07/16/99	13:15	383
07/16/99	13:16	383
07/16/99	13:17	383
07/16/99	13:18	383
07/16/99	13:19	383
07/16/99	13:20	384
07/16/99	13:21	384
07/16/99	13:22	384
07/16/99	13:23	384
07/16/99	13:24	384
07/16/99	13:25	384
07/16/99	13:26	385
07/16/99	13:27	385
07/16/99	13:28	385
07/16/99	13:29	386
07/16/99	13:30	386

APPENDIX E

BRAUN INTERTEC

Description: CMXX-99-0305
LOS Project Log

Project No:

Date:

Page 1 of 1

7-15-99 on site 0715

Set up both locations,
As of 0730 - have not received QAPP Approval from EPA

Stack initials $\Delta P_H = 1.5$ $\Delta P_L = 1.1$ $\Delta P_{AVG} = 1.4$ $T_d = 355$
Static = -0.1"
$B_{ws} = 13.8$ $CO_2 = 15.5$ $O_2 = 5.9$

≡ Received Authorization from EPA @ 0934

Inlet Initials $\Delta P_H = 0.68$ $\Delta P_L = 0.35$ $\Delta P_{AVG} = 0.55$ $T_d = 355$
$P_{STATIC} = -12.5$

Tried to start inlet run 1 with M5 configuration, filter sucked off fast immediately. Will try M17 configuration if temps OK . . .

M17 config looks ok at inlet, will run with.
Plugged one filter.
1500 - Plant needs to blow soot - stop run until 1600

Finish Run @ 1642.

Set up, recover field blanks.

Charge 2 trains for each location for 7-16

off site @ 1900.

7-16-99
On-site 0705 $P_{bar} = 29.02$

Start Run 2 @ 0810

Start Run 3 @ 1100

no incidents.

BRAUN INTERTEC

Description: Sample log Basin LOS

Project No.:

Date: By:

ID	Date Collected	Date Stored
SR1 - CØ1	7-15-99	7-16
SR1 - CØ2	7-15	7-16
SR1 - CØ3 A&B	7-15-99	7-16
SR1 - CØ4	7-15-99	7-16
SR1 - CØ5	7-15-99	7-16
SR2 - CØ1	7-16	7-16
SR2 - CØ2	7-16-99	7-16
SR2 - CØ3 A&B	7-16-99	7-16
SR2 - CØ4	7-16-99	7-16
SR2 - CØ5	7-16-99	7-16
SR3 - CØ1	7-16	7-16
SR3 - CØ2	7-16	7-16
SR3 - CØ3 A+B	7-16	7-16
SR3 - CØ4	7-16	7-16
SR3 - CØ5	7-16	7-16
SB - CØ1	7-15-99	7-16
SB - CØ2	7-15-99	7-16
SB - CØ3	7-15-99	7-16
SB - CØ4	7-15-99	7-16
SB - CØ5	7-15-99	7-16
CØ7	7-16	7-16
CØ8	7-16	7-16
CØ9	7-16	7-16
~~CØ~~ C10	7-16	7-16
C11	7-16	7-16
C12	7-16	7-16

BRAUN INTERTEC

Sample log Bosru COS

ID	Date Collected	Date Stored
1R1-CØ1	7-15-99	7-16
1R1-CØ2	7-15-99	7-16
1R1-CØ3 A&B	7-15-99	7-16
1R1-CØ4	7-15-99	7-16
1R1-CØ5	7-15-99	7-16
1R2-CØ1	7-16-99	7-16
1R2-CØ2	7-16-99	7-16
1R2-CØ3 A&B	7-16-99	7-16
1R2-CØ4	7-16-99	7-16
1R2-CØ5	7-16-99	7-16
1R3-CØ1	7-16	7-16
1R3-CØ2	7-16	7-16
1R3-CØ3 A+B	7-16	7-16
1R3-CØ4	7-16	7-16
1R3-CØ5	7-16	7-16
1B-CØ1	7-15-99	7-16
1B-CØ2	7-15-99	7-16
1B-CØ3	7-15-99	7-16
1B-CØ4	7-15-99	7-16
1B-CØ5	7-15-99	7-16

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: Bruce Randall
Company: Braun Intertec Corp
Mailing Address: [illegible]
City, State, Zip: Minneapolis, MN [illegible]
Telephone #: ([illegible]) [illegible] Fax #: ([illegible]) [illegible]

Project ID/Project Name: [illegible]-99-CBCS
P.O. #

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

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

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	Hydrocarbon Hydr.										FOR LAB USE ONLY
1	[illegible]	[illegible]		[illegible]				X										
2	[illegible]	[illegible]		↓				X										
3	[illegible]	[illegible]		↓				X										
4	[illegible]	[illegible]		[illegible]				X										
5	[illegible]	[illegible]						X										
6	[illegible]	7-16						X										
7	[illegible]	7-16						X										
8	[illegible] (Hrub)	7-15						X										
9	[illegible] CC3A > composite	7-15						X										
10	[illegible]	"						X										
11	[illegible] A > composite	7-16						X										
12	[illegible]	"						X										
13	[illegible] A > composite	"						X										
14	[illegible]	"						X										
15	[illegible]	7-16						X										

CHAIN OF CUSTODY
Collected by: *(Print)* Bruce Randall
Collector's Signature: Bruce Randall
Relinquished by: Date/Time
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 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] | P.O. #
Company [illegible]
Mailing Address [illegible]
City, State, Zip [illegible] MN [illegible]
Telephone # [illegible] | Fax # [illegible]

SEND INVOICE TO
Contact Name [illegible] | Company
Address
City, State, Zip
Telephone # | Fax #

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)
No - SP2-cd5 [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	SP1 - cd1	[illegible]		[illegible]														
2	SP2 - cd1	[illegible]		[illegible]														
3	SP3 - cd1	[illegible]																
4	SP4 - cd1	[illegible]																
5	SP1 - cd5	[illegible]																
6	SP2 - cd5	[illegible]																
7	~~SP3~~																	
8	SP4 - cd5	[illegible]																
9	C7 (method blank)																	
10	C8 "																	
11	C9 "																	
12	C10 "																	
13	C11 "																	
14	C12 "																	
15																		

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

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	[illegible]
Company	[illegible]
Mailing Address	[illegible]
City, State, Zip	[illegible]
Telephone #	[illegible]
Fax #	[illegible]
Project ID/Project Name	[illegible]
P.O. #	

SEND INVOICE TO

Contact Name	[illegible]
Company	
Address	
City, State, Zip	
Telephone #	
Fax #	

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

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]		[illegible]				Y										
2	[illegible]	[illegible]						Y										
3	[illegible]	[illegible]						Y										
4	[illegible]	[illegible]						Y										
5	[illegible]			[illegible]				Y										
6	[illegible]	[illegible]		[illegible]				Y										
7	[illegible]	[illegible]						Y										
8	[illegible]	[illegible]						Y										
9	[illegible]	[illegible]						Y										
10	[illegible]							Y										
11	[illegible]	[illegible]						Y										
12	[illegible]							Y										
13	[illegible]							Y										
14	[illegible]	✓						Y										
15	[illegible]	[illegible]						Y										

CHAIN OF CUSTODY

Collected by: *(Print)* [illegible]	Collector's Signature: [illegible]
Relinquished by: [illegible]	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 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]
P.O. #
Company [illegible]
Mailing Address [illegible]
City, State, Zip [illegible] MN [illegible]
Telephone # [illegible] Fax # [illegible]

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

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

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]		[illegible]				X										
2	[illegible]	7-16						X										
3	[illegible]	7-16						X										
4	[illegible] (blank)	7-15						X										
5	[illegible]	"						X										
6	[illegible]	7-16						X										
7	[illegible]	"						X										
8	[illegible] (blank)	7-15						X										
9	Nothing below this line																	
10																		
11																		
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 F

Bruce Randell
Braun Intertec
8585 West 78th Street
Minneapolis, MN
55438

December 7, 1999

Dear Mr. Randell:

Re Correction on Proj# CMXX-99-0305 (PASC Submission # 9H0221):

Regretfully, we must inform you that there were calculation errors on some of the draft ASTM mercury speciation data reported to you in the past. The portions that were impacted are the KCl and KMnO4 impinger data which were reported high by a factor of 9/4th relative to the correct value.

The error occurred where a correction factor for sample vs standard prep of 1.5 was applied to the data in the wrong direction - a multiplication rather than a division. The 1.5 factor compensates for a 1.5-fold dilution of the standards during the preparation of these digested standards.

Enclosed is a revised report that presents the final results to the correct values. In regard to the corresponding data packages; the concentrations on the corresponding run sequence tables are incorrect since the dilution factors were entered as 1.5 (or appropriate dilutions of this value) rather than 0.667. The corresponding final ug of mercury per train portion as reported on the run sequence tables and on the validation tables have been reported high by the factor of 9/4th. I have enclosed copies of example pages from the original data package in which these errors are present. Instead of correcting each erroneous page of the original package, I request that with the data package as submitted to you prior, you include this letter of explanation and the enclosed revised report.

Of course quality data is of great concern to Philip and since this error has past several review stages before it has been identified, our review processes must be re-evaluated. We will also keep you informed as to the appropriated corrective actions that we implement to ensure that such an error will not repeat.

Should you have any questions in this regard please do not hesitate to contact me at extension 236 or the QA/QC scientist, Gerry Bengert, at extension 248.

Yours truly,

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

cc: Gerry Bengert

INORGANIC DATA PACKAGE
FOR
BRAUN INTERTEC

Project #: ***CMXX-99-0305***

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

Submission #9H0221

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: AN990993
Philip Submission #:9H0221

Client: Braun Intertec
Client Project: CMXX-99-0305

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					
042724 99	Method Blank	99/07/15	99/08/05	99/10/09	99/10/09
042730 99	SB-C01/C02	99/07/15	99/08/05	99/10/09	99/10/09
042731 99	SR1-C01/C02	99/07/15	99/08/05	99/10/09	99/10/09
042732 99	SR2-C01/C02	99/07/16	99/08/05	99/10/09	99/10/09
042733 99	SR3-C01/C02	99/07/16	99/08/05	99/10/09	99/10/09
042724 99	Method Blank	99/07/15	99/08/05	99/10/11	99/10/11
042725 99	Reagent Blank C7,C12	99/07/15	99/08/05	99/10/11	99/10/11
042726 99	1B-C01/C02	99/07/15	99/08/05	99/10/11	99/10/11
042727 99	1R1-C01/C02	99/07/15	99/08/05	99/10/11	99/10/11
042728 99	1R2-C01/C02	99/07/16	99/08/05	99/10/11	99/10/11
042729 99	1R3-C01/C02	99/07/16	99/08/05	99/10/11	99/10/11
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- Hydroxylamine					
042760 99	Reagent blank C11	99/07/15	99/08/05	99/10/01	99/10/01
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- KCl Impingers/Rinses					
042724 99	Method Blank	99/07/15	99/08/05	99/10/03	99/10/03
042734 99	Reagent Blank C8	99/07/15	99/08/05	99/10/03	99/10/03
042735 99	1B-C03	99/07/15	99/08/05	99/10/03	99/10/03
042736 99	1R1-C03A/B	99/07/15	99/08/05	99/10/03	99/10/03
042737 99	1R2-C03A/B	99/07/16	99/08/05	99/10/03	99/10/03
042738 99	1R3-C03A/B	99/07/16	99/08/05	99/10/03	99/10/03
042739 99	SB-C03	99/07/15	99/08/05	99/10/03	99/10/03
042740 99	SR1-C03A/B	99/07/15	99/08/05	99/10/03	99/10/03
042741 99	SR2-C03A/B	99/07/16	99/08/05	99/10/03	99/10/03
042742 99	SR3-C03A/B	99/07/16	99/08/05	99/10/03	99/10/03
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- KMNO4 Impingers/Rinses					
042724 99	Method Blank	99/07/15	99/08/05	99/10/05	99/10/05
042752 99	Reagent Blank C10	99/07/15	99/08/05	99/10/05	99/10/05

042753 99	1B-C05	99/07/15	99/08/05	99/10/05	99/10/05
042754 99	1R1-C05	99/07/15	99/08/05	99/10/05	99/10/05
042755 99	1R2-C05	99/07/16	99/08/05	99/10/05	99/10/05
042756 99	1R3-C05	99/07/16	99/08/05	99/10/05	99/10/05
042757 99	SB-C05	99/07/15	99/08/05	99/10/05	99/10/05
042758 99	SR1-C05	99/07/15	99/08/05	99/10/05	99/10/05
042759 99	SR2-C05	99/07/16	99/08/05	99/10/05	99/10/05

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

042724 99	Method Blank	99/07/15	99/08/05	99/10/01	99/10/01
042743 99	Reagent C9	99/07/15	99/08/05	99/10/01	99/10/01
042744 99	1B-CO4	99/07/15	99/08/05	99/10/01	99/10/01
042745 99	1R1-C04	99/07/15	99/08/05	99/10/01	99/10/01
042746 99	1R2-C04	99/07/16	99/08/05	99/10/01	99/10/01
042747 99	1R3-C04	99/07/16	99/08/05	99/10/01	99/10/01
042748 99	SB-C04	99/07/15	99/08/05	99/10/01	99/10/01
042749 99	SR1-C04	99/07/15	99/08/05	99/10/01	99/10/01
042750 99	SR2-C04	99/07/16	99/08/05	99/10/01	99/10/01
042751 99	SR3-C04	99/07/16	99/08/05	99/10/01	99/10/01

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:

The were significant unexpected problems with the samples as received. It took time for us to adapt in-house protocols to be able the successfully analyze the samples (see notes to follow the narrative).

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis.

a) Hold Times: all analyses were over the method recommended hold times of 45 days. The hold times were exceeded because the sample arrived several weeks following sampling and because of process problems with the samples from the field (see notes to follow the narrative).
It is worth noting that the authors of the method do not have data to determine the actual hold times of samples via this method. They do have data to demonstrate that samples are stable for 45 days.

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

Summary of how we (PASC) are handling submissions from the field:

KCl Impinger Contents and Rinses:

Initially we were trying to reduce the permanganate and MnO2 with hydroxylamine to just colorless and the re-add a one or so drops of permanganate to just pink color. In general, we found this impractical. It was very difficult to obtain a persistent pink color.

We had consulted Keith Curtis on this and he was concerned about losses of elemental Hg after addition of excess hydroxyamine. I think that this comment slowed us from reaching our final approach. I believe that Keilth's concern was unfounded since hydroxylamine is not a strong enough reducing agent to take Hg all the way to zero oxidation state.

Now we are not taking such care to avoid excesses of hydroxylamine. This speeds the reduction to colorless. Once reduced to colorless and on the same day, we take a subsample for final Hg processing and analysis. The remaining unused sample is retreated with permanganate (to purple) for long term sample archiving.

KMnO4 Iminger Contents and Rinses:

Similar changes in processing have occurred here too. Initially we were trying to cautiously titrate to just colorless. Now we are no longer so concerned about the addition of excess hydroxylamine and we analyze the reduced solutions on the same day as the reduction step. For long term storage of samples, the archived samples are preserved with permanganate.

I feel compelled to provide comments and suggestions relating to the Draft ASTM method (Ontario Hydro Method) for mercury speciation. Although significant and valiant effort has been made to develop and define this method, I suggest a few improvements and changes as follows.

I do not suggest that the data obtained from the method as written is compromised. I do not have data to suggest this. I do have enough experience to suggest that recovery protocols could be improved which should ease the analytical processes.

Before I continue, I would point out that Keith Curtis - who developed that use of the KCl impinger for effective capture of HgCl2 - recovers and processes his Hg speciation trains in the field significantly differently than the approach presented in the existing draft method. I am aware that are good reasons for the changes relative to Keith's approach, but those changes have a significant impact on the ultimate handling of the samples. We have had the luxury of having received samples into our laboratory that were treated in the manner that Keith's team handles them in the field. Indeed, we have seen the difference.

In part these comments are derived from discussions with Keith in regards to the intention of the recovery processes that he designed for his field staff. According to Keith, the recovered impinger solutions are supposed to be homogeneous. The KCl and permanganate impinger samples coming in from field derived from the draft ASTM method are in general the farthest possible from this description.

Re KCl Recoveries:

1) Firstly, I would suggest to use some other rinse solution than KMnO4 to rinse out the KCl impingers after transferring the KCl solution to the recovery bottle. Instead, use more KCl solution, or water or 0.1N HNO3 but **NOT** KMnO4. Once the permanganate is used, then the impingers are rinsed with hydroxylamine to remove the inevitable brown staining. It is this combination of rinses that causes

problems analytically. Please eliminate the KMnO4 and hydroxylamine rinses. Replace these rinses with one of the others suggested above.

We commonly receive these KCl impingers and rinses in the lab with large amounts of MnO2 precipitates. This is because of the presence of significant permanganate and hydroxylamine rinses. [The resulting copious amounts of MnO2 precipitates can be resolublized in the lab, but this is time consuming and unnecessary. Furthermore, we cannot easily stabilize these solutions. If we do not analyze them immediately then the MnO2 precipitates again.]

If no KMnO4 is used in the impinger rinsing and no hydroylamine has subsequently been used, I believe that the field staff will find it easier, in general, to obtain a 'just pink' solution using only a very few drops of permangate . [This premise has been confirmed by discussions with a field sampling team]

2) Secondly once the impinger solutions have been treated to just pink with permanganate, then add dichromate as preservative.

Ii is our experience that all solutions so treated have remained homogeneous. The dichromate is an additional preservative process that Keith Cutis's field staff include for KCl impingers.

Re KMnO4 Recoveries:

3) Here I suggest one of two approaches... either use Keith Curtis's field approach entirely or adopt the method 29 approach with HCl rinses.

The Curtis approach is to reduce the permanganate solutions all the way to colorless in the field with cautious addition of hydroxylamine, then preservation with dichromate. This provides a stable and homogenous solution. [re this approach: I understand there is some concern from the ASTM method writers with the severity of this reaction being done by non-chemists in the field. I share some of these concerns.]

The method 29 approach is to recover the brown stains with 8 N HCl and place these in a separate bottle. We are all familiar with the disadvantages of handling the strong hydrochloric acid. However, it is a devil that is known to all field staff. It is also a recovery process well accepted and I presume well validated.

The problem with the draft ASTM method as currently written is that the addition of hydroxylamine in the field (not enough to reduce all the way to a colorless solution) provides an unstable mixture which creates large amounts of MnO2 precipitate upon standing. If the solution was taken all the way to colorless in the field then copious amounts of precipitate would not likely occur and certainly not occur after treatment with hydroxylamine .

[We occasionally observe high amounts of MnO2 precipitation in method 29 permanganate submissions. I suspect that this occurs for sources with high organic emissions that have been oxidized by the permanganate. Usually for method 29 samples, the precipitation of MnO2 is minor in amount - unlike almost all of the permanganates coming from the ASTM mercury speciation trains. I conclude that the 'small' amounts of hydroxylamine added in the field is causing the problems (i.e. the reason for copious amounts of precipitate).]

ASTM Draft Method for Mecury Speciation (Ontario Hydro Method): - Suggested Changes

I feel compelled to provide comments and suggestions relating to the Draft ASTM method (Ontario Hydro Method) for mercury speciation. Although significant and valiant effort has been made to develop and define this method, I suggest a few improvements and changes as follows.

I do not suggest that the data obtained from the method as written is compromised. I do not have data to suggest this. I do have enough experience to suggest that recovery protocols could be improved which should ease the analytical processes.

Before I continue, I would point out that Keith Curtis - who developed that use of the KCl impinger for effective capture of HgCl2 - recovers and processes his Hg speciation trains in the field significantly differently than the approach presented in the existing draft method. I am aware that are good reasons for the changes relative to Keith's approach, but those changes have a significant impact on the ultimate handling of the samples. We have had the luxury of having received samples into our laboratory that were treated in the manner that Keith's team handles them in the field. Indeed, we have seen the difference.

In part these comments are derived from discussions with Keith in regards to the intention of the recovery processes that he designed for his field staff. According to Keith, the recovered impinger solutions are supposed to be homogeneous. The KCl and permanganate impinger samples coming in from field derived from the draft ASTM method are in general the farthest possible from this description.

Re KCl Recoveries:

1) Firstly, I would suggest to use some other oxidant than KMnO4 to treat/preserve the KCl impingers after sampling. Perhaps use dichromate instead. Once the permanganate is used, then the impingers are rinsed with hydroxylamine to remove the inevitable brown staining. It seems to be this combination of permanganate and hyrdoxylamine that causes problems creating large amounts of MnO2 on standing. Please eliminate the KMnO4 and hydroxylamine rinses.

We commonly receive these KCl impingers and rinses in the lab with large amounts of MnO2 precipitates. This appears to be because of the presence of significant permanganate and hydroxylamine rinses. [The resulting copious amounts of MnO2 precipitates can be resolublized in the lab, but this is time consuming and unnecessary. Furthermore, we cannot easily stabilize these solutions. If we do not analyze them immediately then the MnO2 precipitates again.]

It is worth noting that samples treated via Keith Curtis's approach have been easy to process. These had been treated with permanganate and dichromate and remain homogeneous.

It is our experience that all solutions so treated have remained homogeneous. The dichromate is an additional preservative process that Keith Cutis's field staff include for KCl impingers.

Re KMnO4 Recoveries:

2) Here I suggest one of two approaches… either use Keith Curtis's field approach entirely or adopt the method 29 approach with HCl rinses.

The Curtis approach is to reduce the permanganate solutions all the way to colorless in the field with cautious addition of hydroxylamine, then preservation with dichromate. This provides a stable and homogenous solution. [re this approach: I understand there is some concern from the ASTM method writers with the severity of this reaction being done by non-chemists in the field. I share some of these concerns.]

The method 29 approach is to recover the brown stains with 8 N HCl and place these in a separate bottle. We are all familiar with the disadvantages of handling the strong hydrochloric acid. However, it is a devil that is known to all field staff. It is also a recovery process well accepted and I presume well validated.

The problem with the draft ASTM method as currently written is that the addition of hydroxylamine in the field (not enough to reduce all the way to a colorless solution) appears to provide an unstable mixture which creates large amounts of MnO2 precipitate upon standing. If the solution was taken all the way to colorless in the field then copious amounts of precipitate would not likely occur and certainly not occur after treatment with hydroxylamine .

[We occasionally observe high amounts of MnO2 precipitation in method 29 permanganate submissions. I suspect that this occurs for sources with high organic emissions that have been oxidized by the permanganate. Usually for method 29 samples, the precipitation of MnO2 is minor in amount - unlike almost all of the permanganates coming from the ASTM mercury speciation trains. I conclude that the 'small' amounts of hydroxylamine added in the field is causing the problems (i.e. the reason for copious amounts of precipitate).]

2. ANALYTICAL DATA REPORT

Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Bruce Randall	**Contact:**	Ron McLeod
Client Name:	Braun Intertec	**Project:**	AN990993
Project:	CMXX-99-0305	**Date Received:**	99/08/05
Project Desc:	Stack Emissions	**Date Reported:**	99/10/12
Address:	P.O. Box 39108 Minneapolis, MN 55439	**Submission No.:**	9H0221
		Sample No.:	042724-042760
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: **Revised Report:99/12/06**

Certified by: _____

PASC - Certificate of Analysis

	Client ID:		Method Blank	Blank Spike#1	Blank Spike#1	Blank Spike#2	Blank Spike#2	Reagent Blank C7,C12	1B C01/C02	1R1 C01/C02	1R1 C01/C02
	Lab No.:		042724 99	042724 99	042724 99	042724 99	042724 99	042725 99	042726 99	042727 99	042727 99
	Date Sampled:		-	-	-	-	-	99/07/15	99/07/15	99/07/15	99/07/15
Component	**MDL**	**Units**			% Recoveries		% Recoveries				Duplicate
Mercury - FH (Outlet)	0.010	ug	<	0.098	98	0.097	97	-	-	-	-
Mercury - FH (Inlet)	0.010	"	<	0.10	100	0.10	100	<0.050	<0.080	0.88	0.89

PASC - Certificate of Analysis

			1R1	1R1	1R1	1R1	1R2	1R3	SB	SR1	SR2	SR3
	Client ID:		C01/C02	C01/C02	C01/C02	C01/C02	C01/C02	C01/C02	C01/C02	C01/C02	C01/C02	C01/C02
	Lab No.:		042727 99	042727 99	042727 99	042727 99	042728 99	042729 99	042730 99	042731 99	042732 99	042733 99
	Date Sampled:		99/07/15	99/07/15	99/07/15	99/07/15	99/07/16	99/07/16	99/07/15	99/07/15	99/07/16	99/07/16
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.						
Mercury - FH (Outlet)	0.010	ug	-	-	-	-	-	-	<	<	<	<
Mercury - FH (Inlet)	0.010	"	2.9	100	2.9	100	0.40	4.4	-	-	-	-

PASC - Certificate of Analysis

	Client ID:		Reagent blank C11
	Lab No.:		042760 99
	Date Sampled:		99/07/15
Component	**MDL**	**Units**	
Impinger volume - hydroxylamine		ml	90
Mercury - hydroxyalamine	0.010	ug	<

PASC - Certificate of Analysis

			Method	Blank	Blank	Blank	Blank	Reagent		1R1	1R1
	Client ID:		Blank	Spike#1	Spike#1	Spike#2	Spike#2	Blank C8	1B-C03	C03A/B	C03A/B
	Lab No.:		042724 99	042724 99	042724 99	042724 99	042724 99	042734 99	042735 99	042736 99	042736 99
	Date Sampled:		-	-	-	-	-	99/07/15	99/07/15	99/07/15	99/07/15
Component	**MDL**	**Units**			% Recoveries		% Recoveries				Duplicate
Mercury - KCl	0.030	ug	<	0.30	99	0.29	97	<	<	0.35	0.35
Impinger volume - KCl - combined		ml	100	-	-	-	-	49	510	350	-

PASC - Certificate of Analysis

			1R1	1R1	1R1	1R1	1R2	1R3		SR1	SR2	SR3
	Client ID:		C03A/B	C03A/B	C03A/B	C03A/B	C03A/B	C03A/B	SB-C03	C03A/B	C03A/B	C03A/B
	Lab No.:		042736 99	042736 99	042736 99	042736 99	042737 99	042738 99	042739 99	042740 99	042741 99	042742 99
	Date Sampled:		99/07/15	99/07/15	99/07/15	99/07/15	99/07/16	99/07/16	99/07/15	99/07/15	99/07/16	99/07/16
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.						
Mercury - KCl	0.030	ug	1.05	110	1.05	110	0.72	1.24	<	1.51	2.15	3.11
Impinger volume - KCl - combined		ml	-	-	-	-	360	430	460	390	430	440

PASC - Certificate of Analysis

			Method	Blank	Blank	Blank	Blank	Reagent			
	Client ID:		Blank	Spike#1	Spike#1	Spike#2	Spike#2	Blank C10	1B-C05	1R1-C05	1R1-C05
	Lab No.:		042724 99	042724 99	042724 99	042724 99	042724 99	042752 99	042753 99	042754 99	042754 99
	Date Sampled:		-	-	-	-	-	99/07/15	99/07/15	99/07/15	99/07/15
Component	**MDL**	**Units**			% Recoveries		% Recoveries				Duplicate
Mercury - KMnO4	0.030	ug	<	0.30	99	0.30	99	<	0.032	4.9	4.8

PASC - Certificate of Analysis

	Client ID:		1R1-C05	1R1-C05	1R1-C05	1R1-C05		1R3-C05	SB-C05	SR1-C05	SR2-C05
	Lab No.:		042754 99	042754 99	042754 99	042754 99	042755 99	042756 99	042757 99	042758 99	042759 99
	Date Sampled:		99/07/15	99/07/15	99/07/15	99/07/15	99/07/16	99/07/16	99/07/15	99/07/15	99/07/16
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.					
Mercury - KMnO4	0.030	ug	11.2	95	11.1	94	12.9	7.1	<	7.2	9.9

PASC - Certificate of Analysis

			Method	Blank	Blank	Blank	Blank	Reagent			
	Client ID:		Blank	Spike#1	Spike#1	Spike#2	Spike#2	C9		1R1-C04	1R1-C04
	Lab No.:		042724 99	042724 99	042724 99	042724 99	042724 99	042743 99	042744 99	042745 99	042745 99
	Date Sampled:		-	-	-	-	-	99/07/15	99/07/15	99/07/15	99/07/15
Component	**MDL**	**Units**			% Recoveries		% Recoveries				Duplicate
Mercury - H202	0.010	ug	<	0.050	100	0.050	99	<0.25	<0.25	<0.25	<0.25

PASC - Certificate of Analysis

	Client ID:		1R1-C04	1R1-C04	1R1-C04	1R1-C04	1R2-C04	1R3-C04	SB-C04	SR1-C04	SR2-C04	SR3-C04
	Lab No.:		042745 99	042745 99	042745 99	042745 99	042746 99	042747 99	042748 99	042749 99	042750 99	042751 99
	Date Sampled:		99/07/15	99/07/15	99/07/15	99/07/15	99/07/16	99/07/16	99/07/15	99/07/15	99/07/16	99/07/16
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.						
Mercury - H202	0.010	ug	2.7	100	2.6	97	1.1	<0.25	<0.25	0.26	0.52	1.1

Batch Code:	**10094GFL**	
Mercury - FH (Outlet)	042724 99	
	042730 99	
	042731 99	
	042732 99	
	042733 99	
Run Date:	99/10/09	
Date of Sample Prep:	99/10/09	
Batch Code:	**10111GFB**	**10112GFB**
Mercury - FH (Inlet)	042724 99	042727 99
	042725 99	042728 99
	042726 99	042729 99
Run Date:	99/10/11	99/10/11
Date of Sample Prep:	99/10/11	99/10/11
Batch Code:	**1001MGHY**	
Mercury - hydroxalamine	042760 99	
Run Date:	99/10/01	
Date of Sample Prep:	99/10/01	
Batch Code:	**10033BKC**	**10034BKC**
Mercury - KCl	042724 99	042736 99
	042734 99	042739 99
	042735 99	042740 99
	042737 99	042741 99
	042738 99	042742 99
Run Date:	99/10/03	99/10/03
Date of Sample Prep:	99/10/03	99/10/03
Batch Code:	**10052GMN**	
Mercury - KMnO4	042724 99	
	042752 99	
	042753 99	
	042754 99	
	042755 99	
	042756 99	
	042757 99	
	042758 99	
	042759 99	
Run Date:	99/10/05	
Date of Sample Prep:	99/10/05	
Batch Code:	**10014N2B**	
Mercury - H202	042724 99	
	042743 99	
	042744 99	
	042745 99	
	042746 99	

	042747 99
	042748 99
	042749 99
	042750 99
	042751 99
Run Date:	99/10/01
Date of Sample Prep:	99/10/01

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
042266	BRAUN-MN	SR2-C01/C02	Mercury -	PV	0.037	0.037	0.134	97.	0.134	97.	99/10/09	4GFL	99/10/09	MG01	87.	67.	*PDS*
042267	BRAUN-MN	SR3-C01/C02	Mercury -	PV	0.037						99/10/09	4GFL	99/10/09	MG01	87.	67.	
042724	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.098	98.	0.097	97.	99/10/09	4GFL	99/10/09	MG01	86.	65.	
042730	BRAUN-MN	SB-C01/C02	Mercury -	PV	-0.010						99/10/09	4GFL	99/10/09	MG01	86.	65.	
042731	BRAUN-MN	SR1-C01/C02	Mercury -	PV	-0.010						99/10/09	4GFL	99/10/09	MG01	86.	65.	
042732	BRAUN-MN	SR2-C01/C02	Mercury -	PV	-0.010						99/10/09	4GFL	99/10/09	MG01	85.	65.	
042733	BRAUN-MN	SR3-C01/C02	Mercury -	PV	-0.010						99/10/09	4GFL	99/10/09	MG01	85.	65.	
043188	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.098	98.	0.097	97.	99/10/09	4GFL	99/10/09	MG01	82.	60.	
043189	BRAUN-MN	Reagent Blank C7/C12	Mercury -	PV	-0.010						99/10/09	4GFL	99/10/09	MG01	82.	60.	
043194	BRAUN-MN	SR1-C01/C02	Mercury -	PV	0.189						99/10/09	4GFL	99/10/09	MG01	82.	60.	
043195	BRAUN-MN	SR2-C01/C02	Mercury -	PV	0.123						99/10/09	4GFL	99/10/09	MG01	81.	60.	
043196	BRAUN-MN	SR3-C01/C02	Mercury -	PV	0.089						99/10/09	4GFL	99/10/09	MG01	81.	60.	
043225	BRAUN-MN	SB-C01/C02	Mercury -	PV	0.016						99/10/09	4GFL	99/10/09	MG01	82.	60.	
BL1009	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.098	98.	0.097	97.	99/10/09	4GFL	99/10/09	MG01	$$$	$$$	

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

00012

(1)

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.09(WA) Run Code: MG01 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL1009	16 FL		
13			"			
14			BL1009 S			
15			"			
16			BL1009 DS			
17			"			
18			53139			
19			"			
20			53139 D			
21			"			
22			53139 S			
23			"			
24			53139 DS			
25			"			
26		1/10	51662			
27			"			
28			51663			
29			"			
30			51664			
31			"			
32			CCV			
33			B			
34			D4			
35			53129 a			
36			"			
37			53129 b			
38			"			
39			53129 c			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			53130			
42			"			
43			53138			
44			"			
45			53140			
46			"			
47			53141			
48			"			
49			53142			
50			"			
51			BL1009	2G FL		
52			"			
53			BL1009 S			
54			"			
55			CCV			
56			B			
57			D4			
58			BL1009 DS			
59			"			
60			53164			
61			"			
62			53164 D			
63			"			
64			53164 S			
65			"			
66			53164 DS			
67			"			
68			53143 a			
69			"			
70			53143 b			
71			"			
72			53143 c			
73			"			
74			53144			
75			"			
76			53149			
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.

(2)

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.09 Run Code: MG01 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21		1/10	53150			
22			"			
23			53151			
24			"			
25			53165			
26			"			
27			53685 a			
28			"			
29			53685 b			
30			"			
31			53685 c			
32			"			
33			53690			
34			"			
35			53691			
36			"			
37			BL1009	3GFL		
38			"			
39			BL1009 S			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
44			BL1009 DS			
45			"			
46			53693			
47			"			
48			53693 D			
49			"			
50			53693 S			
51			"			
52			53693 DS			
53			"			
54			53692			
55			"			
56			47503			
57			"			
58			51449 a			
59			"			
60			51449 b			
61			"			
62			51449 c			
63			"			
64			CCV			
65			B			
66			D4			
67			51450			
68			" 51459 "			
69		1/10	51460			
70			"			
71			51461			
72			"			
73			42246 a			
74			"			
75			42246 b			
76			"			
77			42246 c			
78			"			
79			42265			
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.

(2)

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.09 Run Code: MG01 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			BL1009	4GFL		
22			"			
23			BL1009 S			
24			"			
25			BL1009 DS			
26			"			
27			CCV			
28			B			
29			D4			
30			42266			
31			"			
32			42266 D			
33			"			
34			42266 S			
35			"			
36			42266 DS			
37			"			
38			42267			
39			"			
40			42730			

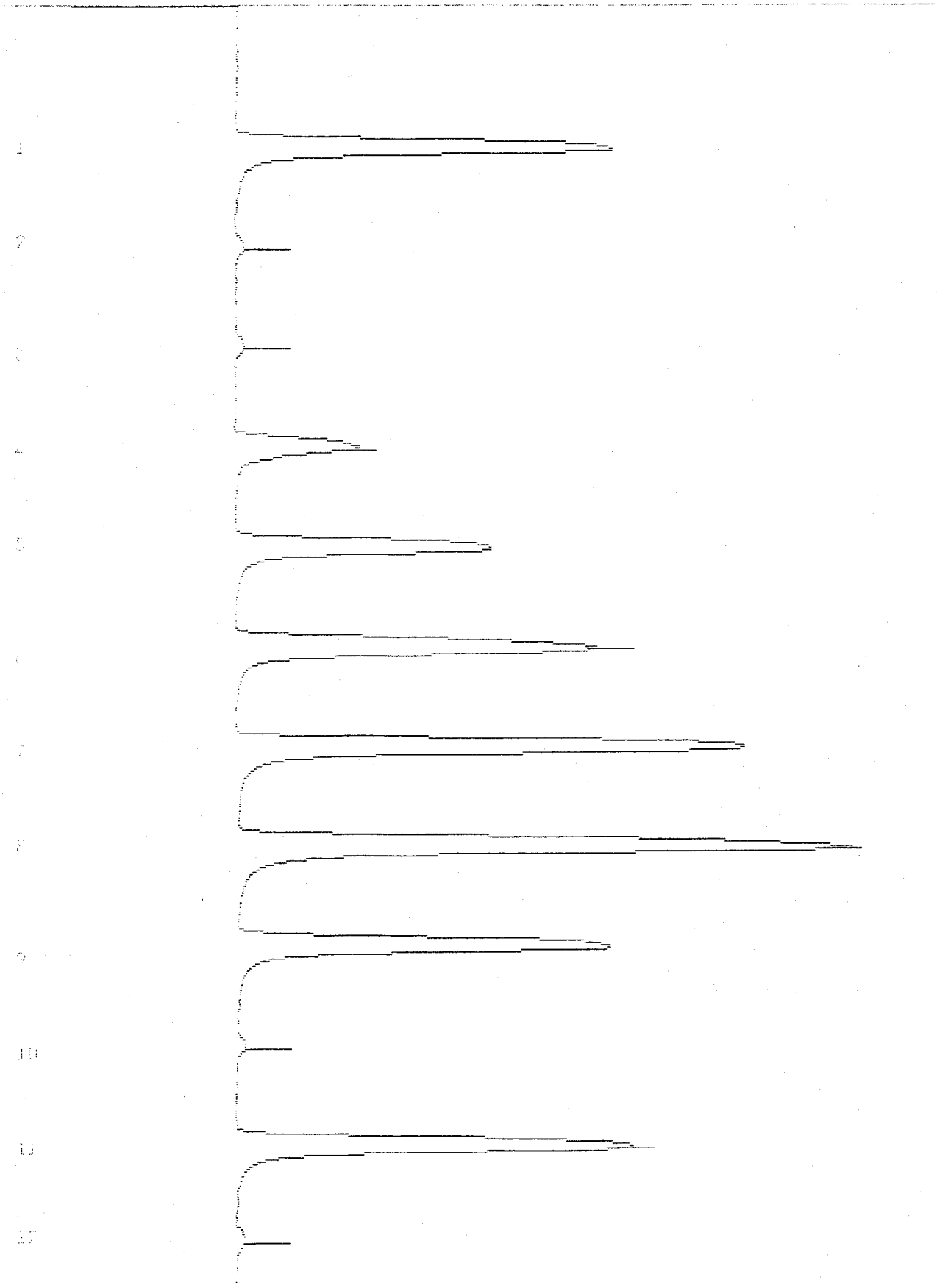
Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			42730			
42			42731			
43			"			
44			42732			
45			"			
46			42733			
47			"			
48			43189 a			
49			"			
50			CCV			
51			B			
52			D4			
53			43189 b			
54			"			
55			43189. c			
56			"			
57			43194			
58			"			
59			43195			
60			"			
61			43196			
62			"			
63			43225			
64			"			
65			47489 a			
66			"			
67			CCV			
68			B			
69			D4			
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						

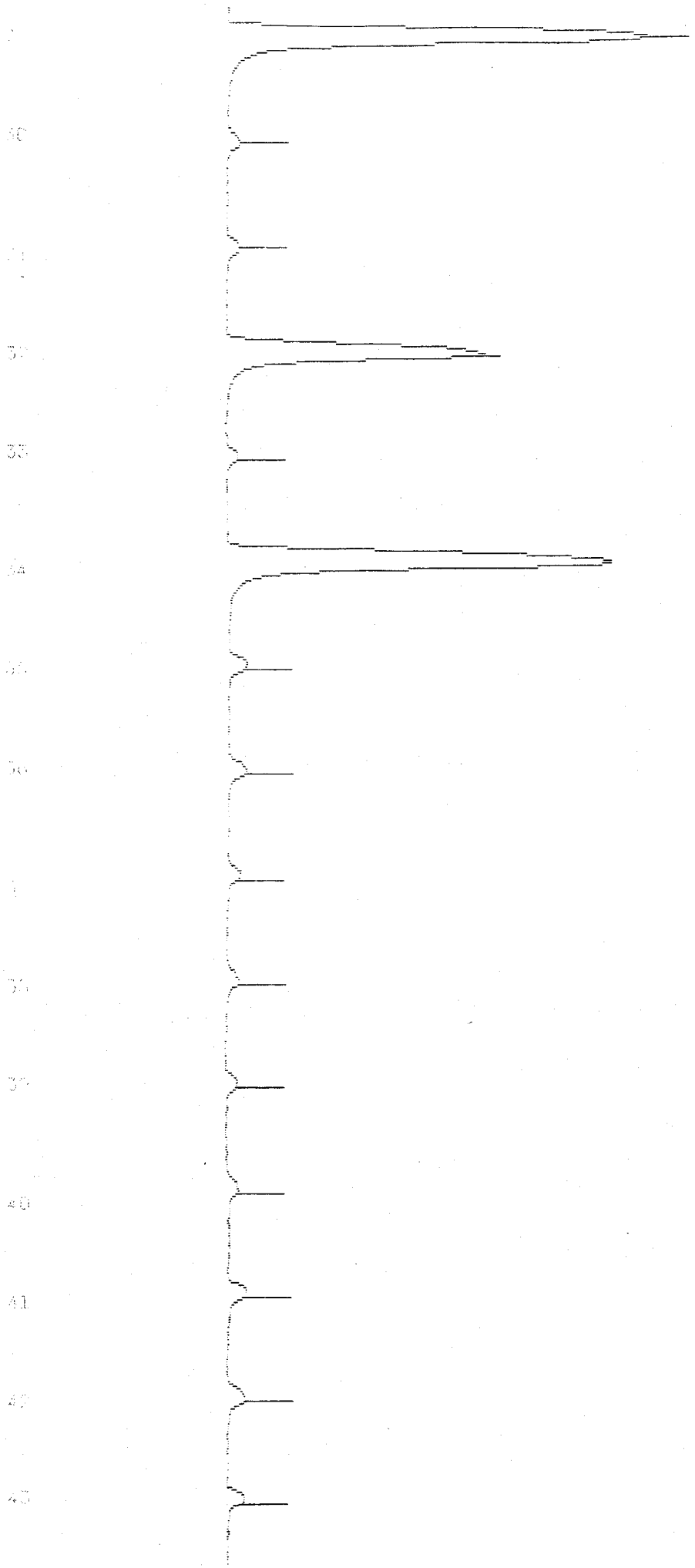
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

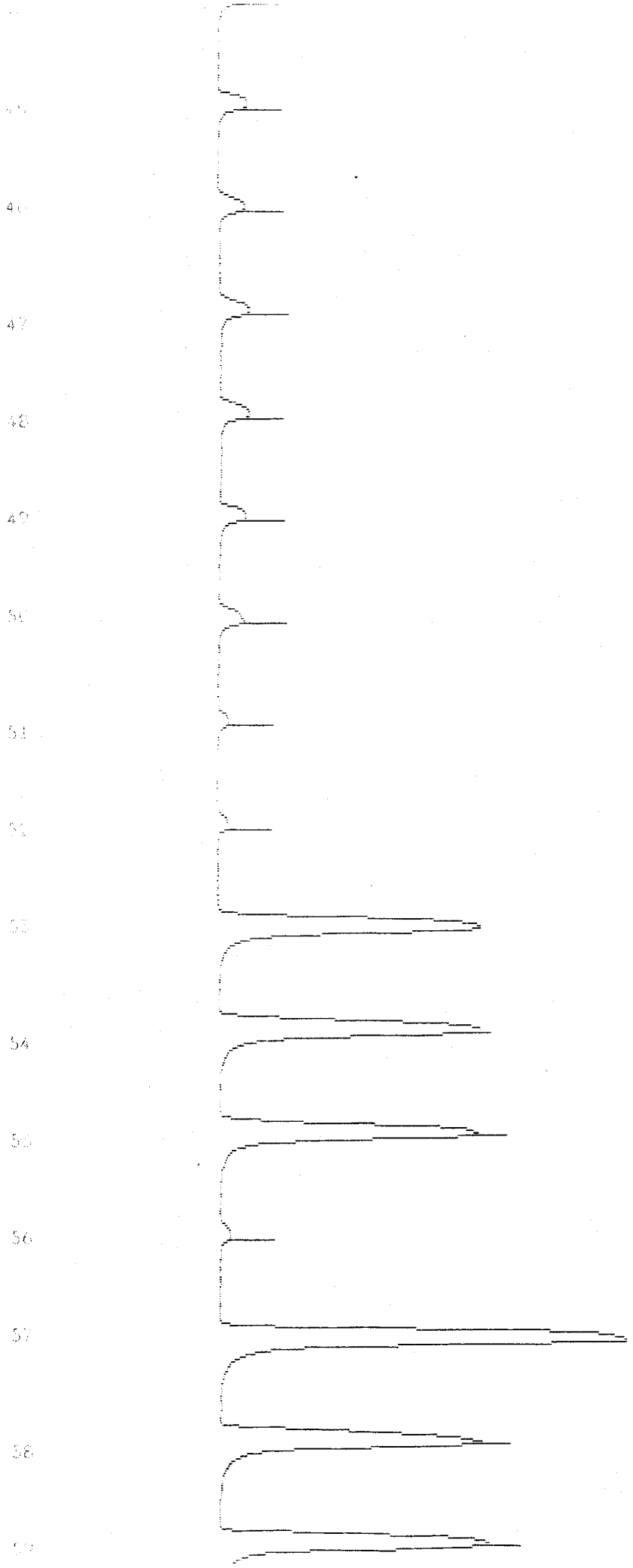
ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

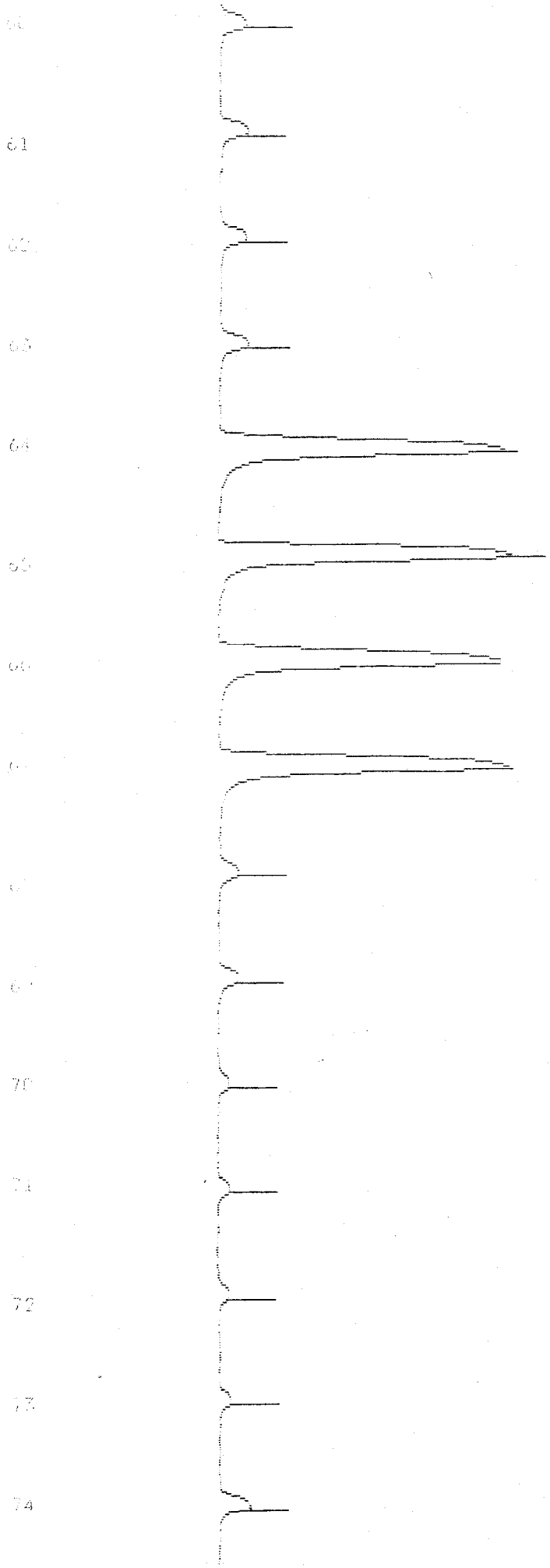
ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

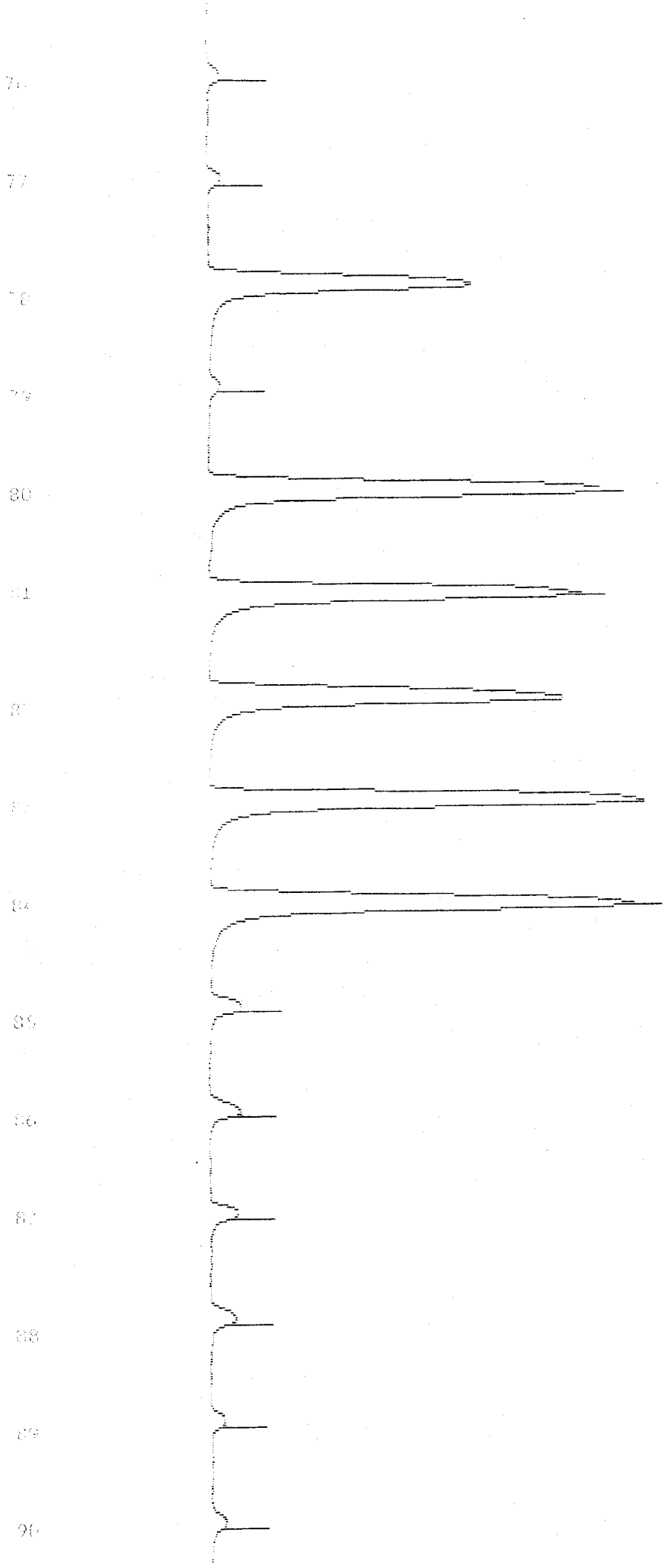
RUN DATE: 10-09-1999 CHART DATE: 10-10-1999
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\991009WA.DAT

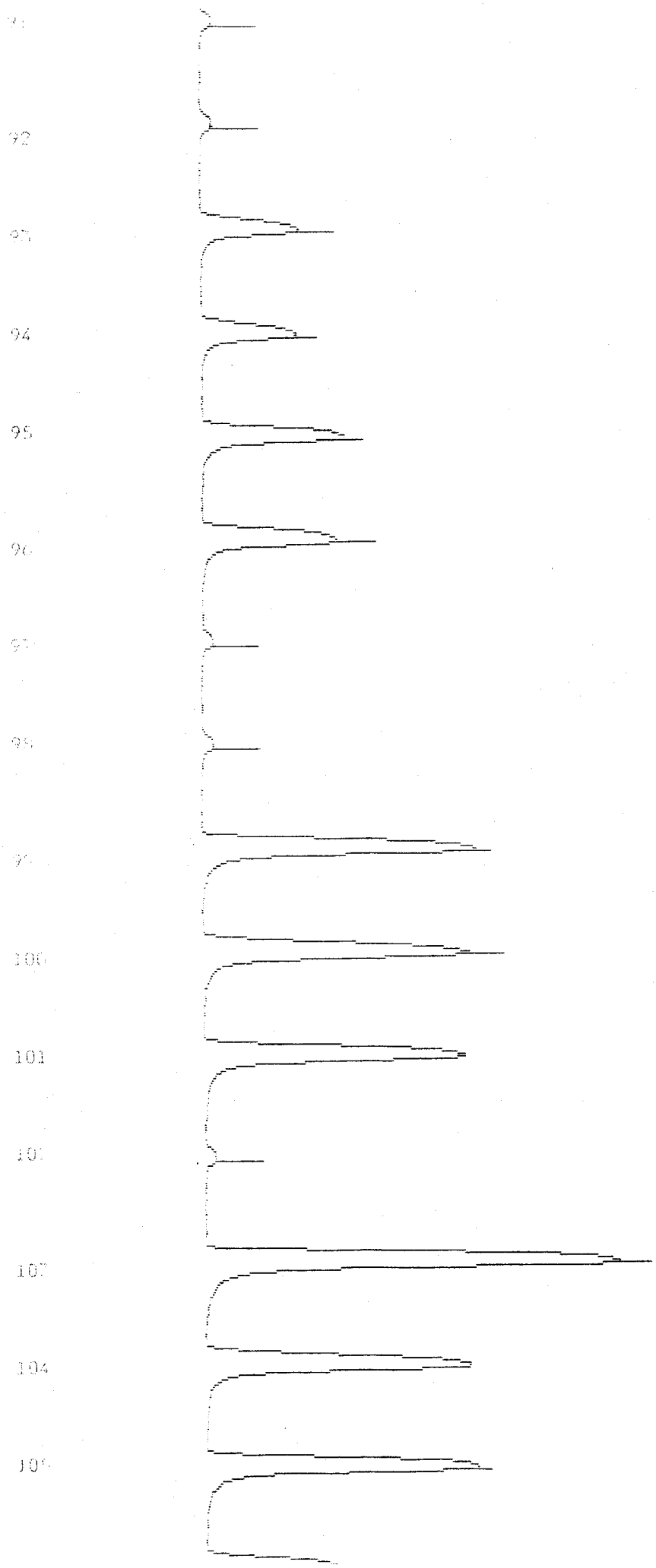


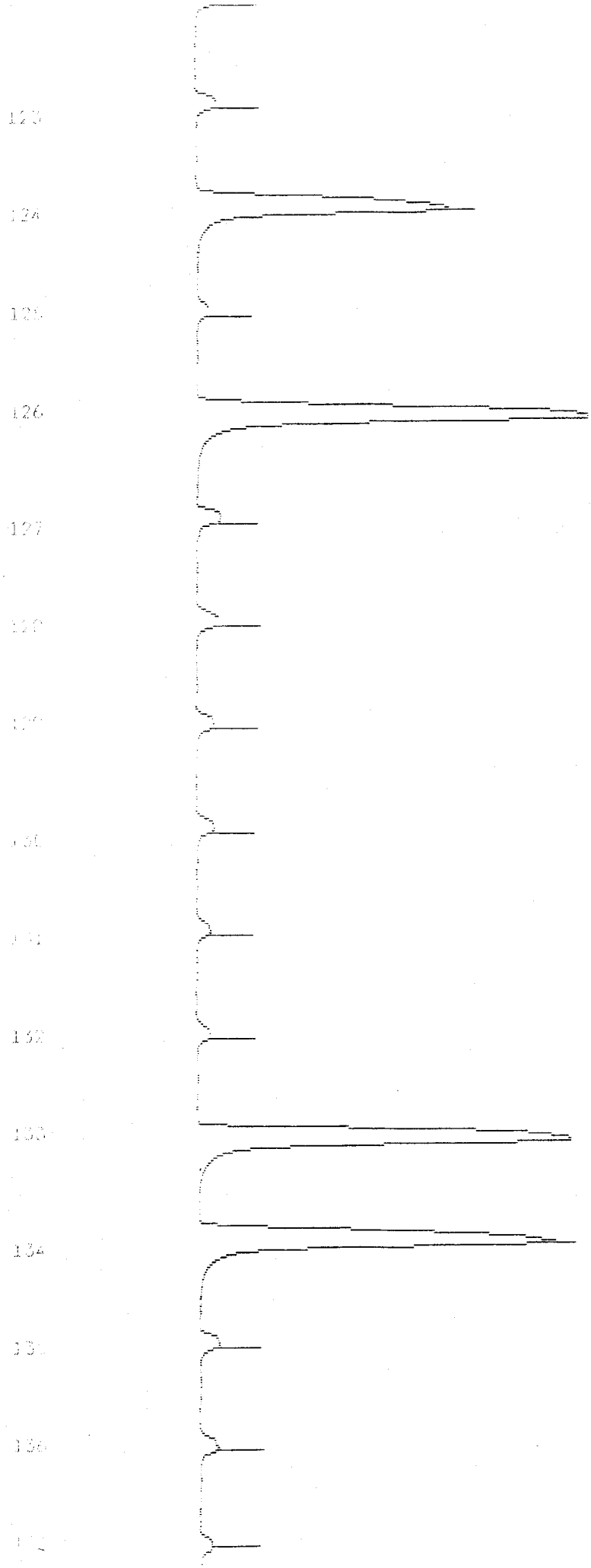


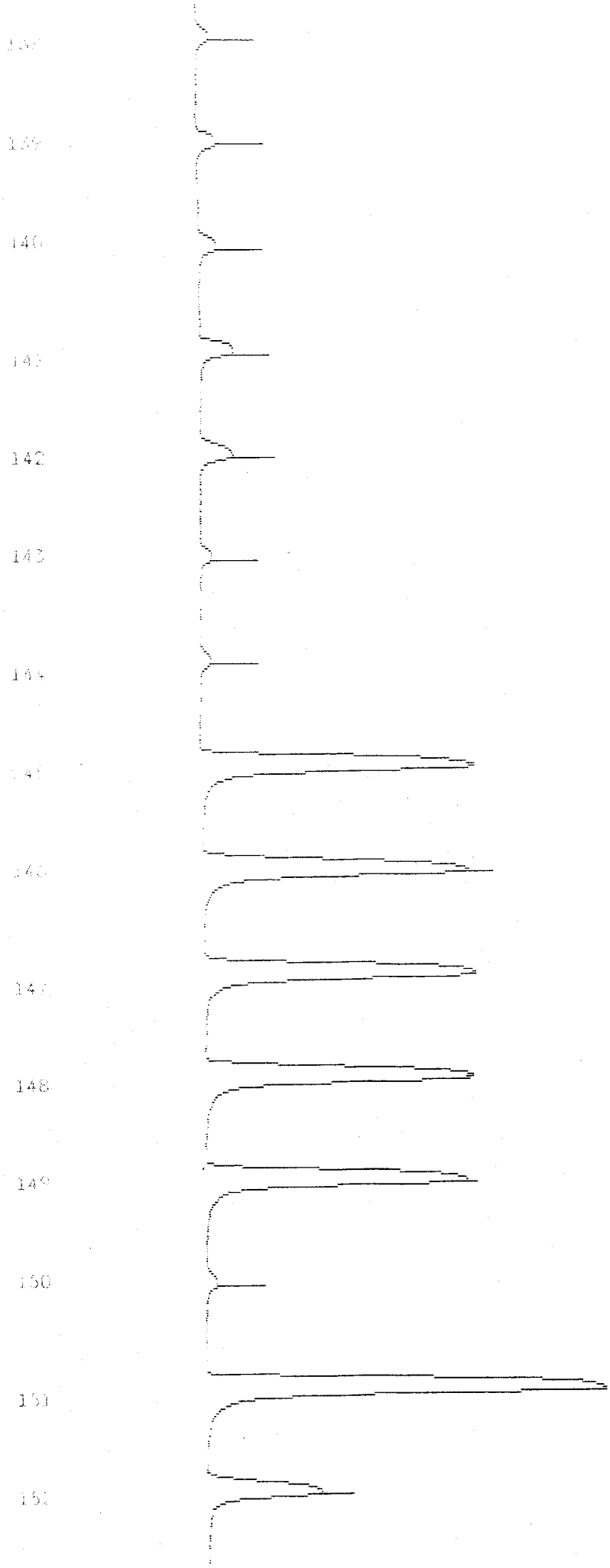

47
48
49
50
51
52
53
54
55
56
57
58

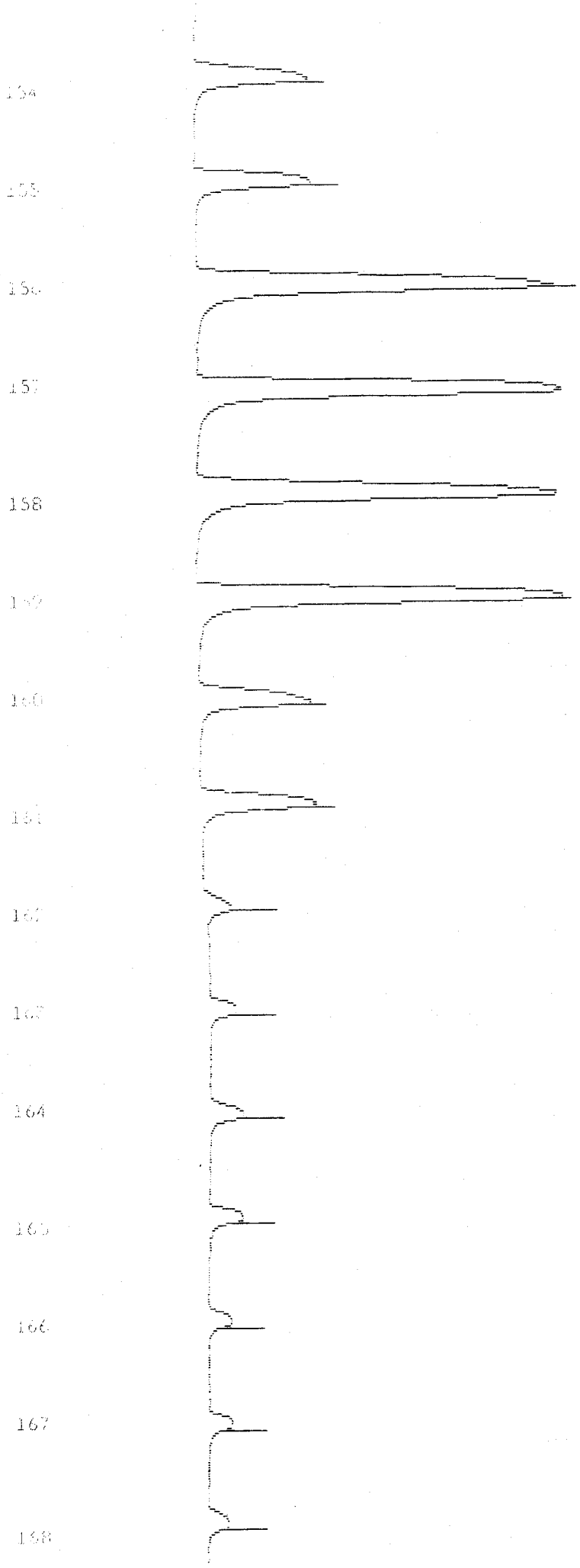

70
71
72
73
74

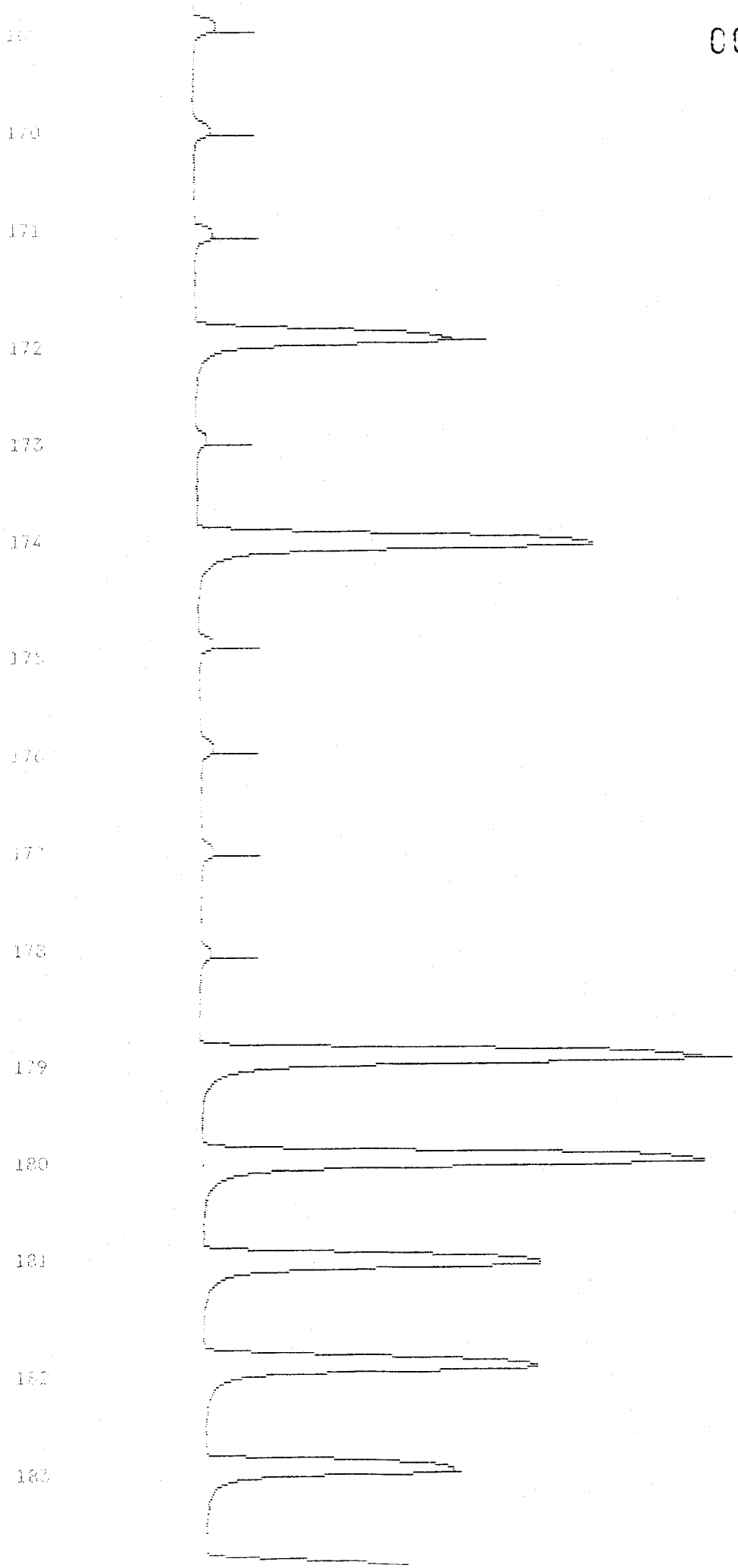

70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
99
100

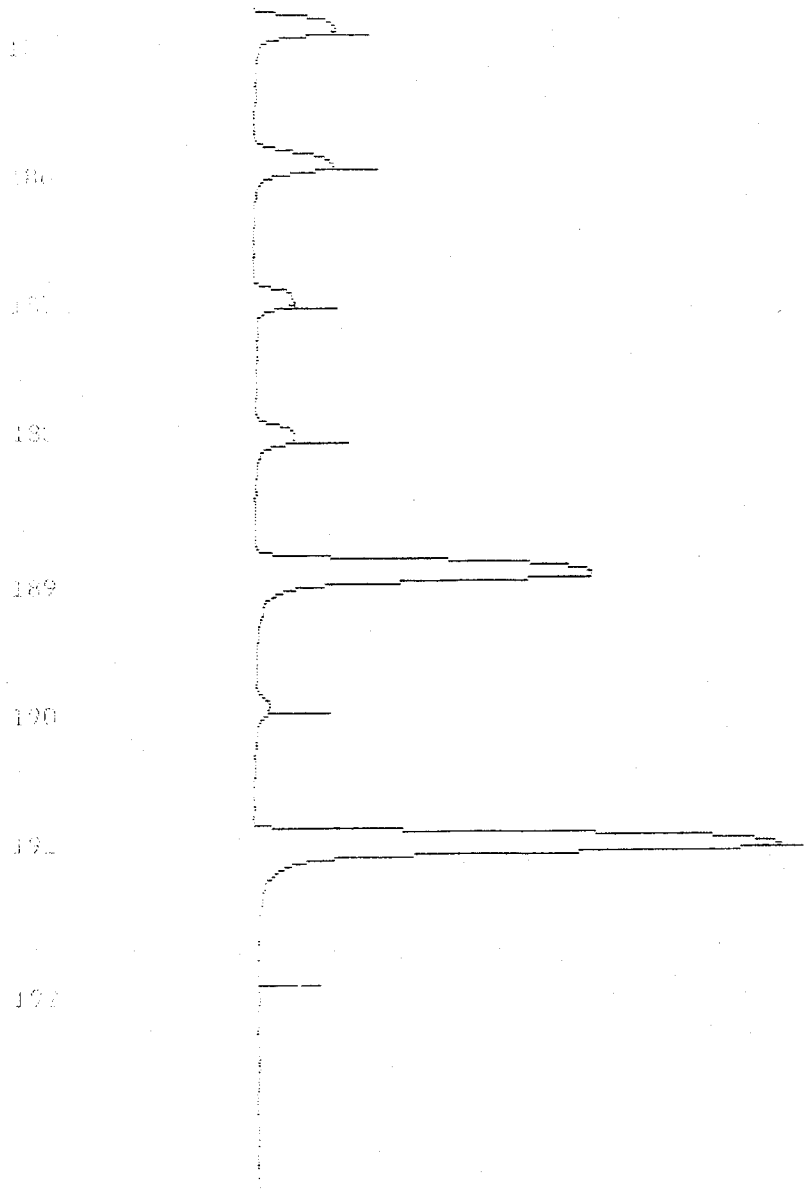

92
94
95
96
100
101


123
124
125
126
127
128
129
130
131
132
133
134
135
136
137

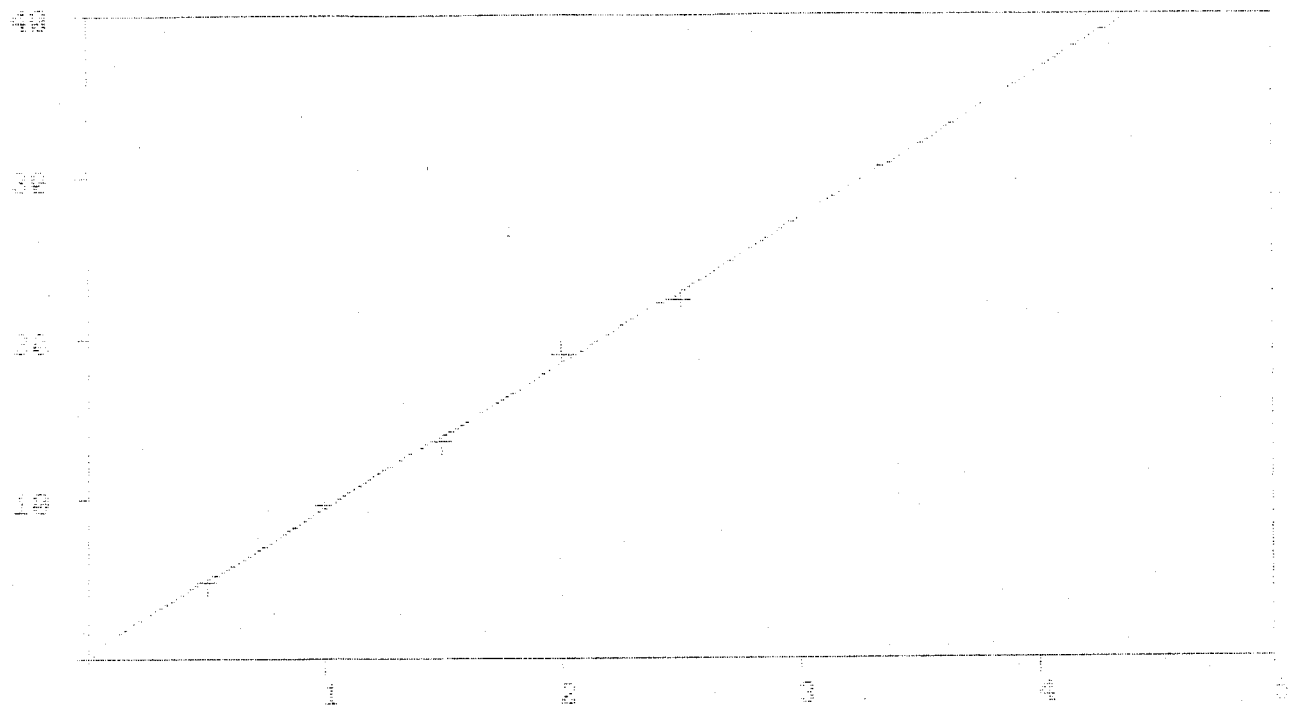

140
141
142
143
144
145
146
147
148
149
150
151
152


154
155
156
157
158
159
160
161
162
163
164
165
166
167
168


170
171
172
173
174
175
176
177
178
179
180
181
182
183


189
190

CHANNEL NAME: LDI
RUN NAME: 991009WA



DATA TYPE: FIA
INTERCEPT = 0.33

CALIBRATION ORDER: 1
SLOPE = 9.024245

CORRELATION .9991146

CHANNEL NAME: LDI
RUN DATE: 10-09-1999
SAMPLE TABLE NAME: 991009WA
METHOD NAME: HGWATER

ppb

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION	EF
1	PRIMER	1	1	14.5		1.571	-
2	DUMMY	1	1	0.2		-0.015	I
3	S1: 0	1	1	0.2		-0.015	I
4	S2: .5	1	1	4.7		0.486	
5	S3: 1	1	1	9.7		1.068	
6	S4: 1.5	1	1	13.7		1.481	
7	S5: 2	1	1	18.9		2.058	
8	S6: 2.5	1	1	22.5		2.453	
9	ICV	1	1	13.4	TUG	1.446	96%
10	B	1	1	0.0		-0.037	b
11	B4	1	1	13.7		1.481	d
12	BL1009-1GFL 53128	1	1	0.0	<0.01	-0.037	I
13	BL1009-1GFL	1	1	0.0		-0.037	I
14	BL1009S	1	1	8.8	0.095	0.935	95%
15	BL1009S	1	1	9.0		0.956	
16	BL1009DS	1	1	8.8	0.095	0.940	95%
17	BL1009DS	1	1	8.9		0.954	
18	53139	1	1	0.5	<0.01	0.020	I
19	53139	1	1	0.6		0.026	I
20	53139D	1	1	0.5	<0.01	0.015	
21	53139D	1	1	0.4		0.012	
22	53139S	1	1	9.6	0.104	1.024	102%
23	53139S	1	1	9.8		1.054	

00038

26	51664	10	1	14.[illegible]	1.545	[illegible]		
27	51662	10	1	14.5		[illegible]		
28	51663	10	1	15.4	1.532	14.989		
29	51663	10	1	14.9		16.140		
30	51664	1	1	0.0	<0.01	-0.034	I	
31	51664	1	1	0.0		-0.034	s	
32	CCV	1	1	9.3		0.989	99%	
33	B	1	1	0.0		-0.037	b	
34	D4	1	1	13.7		1.481	d	
35	53129 A	1	1	0.2	<0.01	-0.015	I	
36	53129 A	1	1	0.2		-0.010	I	
37	53129 B	1	1	0.0	<0.01	-0.034	I	
38	53129 B	1	1	0.1		-0.026	I	
39	53129 C	1	1	0.0	<0.01	-0.031	I	
40	53129 C	1	1	0.0		-0.037	I	
41	53130	1	1	0.2	<0.01	-0.010	I	
42	53130	1	1	0.2		-0.012	I	
43	53138	1	1	0.2	<0.01	-0.015	I	
44	53138	1	1	0.2		-0.018	I	
45	53140	1	1	0.7	<0.01	0.039		
46	53140	1	1	0.6		0.028	s	
47	53141	1	1	0.7	<0.01	0.039		
48	53141	1	1	0.6		0.034		
49	53142	1	1	0.5	<0.01	0.023		
50	53142	1	1	0.5		0.020	I	
51	BL1009-2GFL 53684	1	1	0.0	<0.01	-0.037	I	
52	BL1009-2GFL	1	1	0.0		-0.037	I	
53	BL1009S	1	1	8.9	0.094	0.948	94%	
54	BL1009S	1	1	8.8		0.935		
55	CCV	1	1	8.6		0.921	92%	
56	B	1	1	0.0		-0.037	b	
57	D4	1	1	13.7		1.481	d	
58	BL1009DS	1	1	8.8	0.095	0.937	95%	
59	BL1009DS	1	1	8.9		0.954		
60	53164	1	1	0.6	<0.01	0.028	I	
61	53164	1	1	0.6		0.034	s	
62	53164D	1	1	0.5	<0.01	0.020		
63	53164D	1	1	0.6		0.031		
64	53164S	1	1	9.5	0.103	1.013	100%	
65	53164S	1	1	9.8		1.046		
66	53164DS	1	1	9.5	0.103	1.016	100%	
67	53164DS	1	1	9.7		1.038		
68	53143 A	1	1	0.3	<0.01	0.001	I	
69	53143 A	1	1	0.3		-0.002	I	
70	53143 B	1	1	0.0	<0.01	-0.031	I	
71	53143 B	1	1	0.1		-0.026	I	
72	53143 C	1	1	0.0	<0.01	-0.031	I	
73	53143 C	1	1	0.0		-0.031	I	
74	53144	1	1	0.7	<0.01	0.044		
75	53144	1	1	0.7		0.042		
76	53149	1	1	0.1	<0.01	-0.026	s	
77	53149	1	1	0.1		-0.023	I	
78	CCV	1	1	9.1		0.970	97%	
79	B	1	1	0.0		-0.037	b	
80	D4	1	1	13.7		1.481	d	
81	53150	10	1	13.1	1.370	14.110		
82	53150	10	1	12.3		13.298		
83	53151	10	1	15.1	1.613	16.410		
84	53151	10	1	14.6		15.842		
85	53165	1	1	0.7	<0.01	0.042		
86	53165	1	1	0.7		0.042	I	
87	53685 A	1	1	0.6	<0.01	0.031		
88	53685 A	1	1	0.6		0.028		
89	53685 B	1	1	0.1	<0.01	-0.023	I	

[illegible]	[illegible]	1	1	[illegible]	0.134	[illegible]		97%
[illegible]	[illegible]	1	1	[illegible]		[illegible]		
160	42267	1	1	3.6	0.037	0.366		
161	42267	1	1	3.7		0.369		
162	42730	1	1	0.5	<0.01	0.020	I	
163	42730	1	1	0.6		0.028		
164	42731	1	1	0.8	<0.01	0.050		
165	42731	1	1	0.8		0.047		
166	42732	1	1	0.4	<0.01	0.009	s	
167	42732	1	1	0.5		0.017		
168	42733	1	1	0.3	<0.01	0.001	I	
169	42733	1	1	0.4		0.007	I	
170	43189 A	1	1	0.2	<0.01	-0.010	I	
171	43189 A	1	1	0.2		-0.010	I	
172	CCV	1	1	8.8		0.943		94%
173	B	1	1	0.0		-0.037	b	
174	D4	1	1	13.7		1.481	d	
175	43189 B	1	1	0.1	<0.01	-0.023	I	
176	43189 B	1	1	0.0		-0.031	I	
177	43189 C	1	1	0.0	<0.01	-0.031	I	
178	43189 C	1	1	0.0		-0.037	I	
179	43194	1	1	17.4	0.189	1.887		
180	43194	1	1	17.3		1.885		
181	43195	1	1	11.5	0.123	1.238	s	
182	43195	1	1	11.4		1.230		
183	43196	1	1	8.4	0.089	0.889		
184	43196	1	1	8.3		0.883		
185	43225	1	1	1.5	0.016	0.161		
186	43225	1	1	1.7		0.153		
187	47489 A	1	1	0.6	<0.01	0.034		
188	47489 A	1	1	0.6		0.031		
189	CCV	1	1	8.5		0.919		92%
190	B	1	1	0.0		-0.037	b	
191	D4	1	1	13.7		1.481	d	

INTERCEPT: 0.33 LINEAR COEF: 9.024245

CORRELATION COEF: .9991148

[illegible]	[illegible]	1	1	[illegible]		[illegible]		
[illegible]	53690	1	1	[illegible]	0.0239	0.039		
94	53690	1	1	2.9		0.288		
95	53691	1	1	4.6	0.0460	0.472		
96	53691	1	1	4.3		0.440		
97	8L1009-3GFL 42245, 51448	1	1	0.0	<0.01	-0.031	I	
98	8L1009-3GFL	1	1	0.0		-0.034	I	
99	8L1009S	1	1	9.0	0.095	0.965	95%	
100	8L1009S	1	1	8.7		0.929		
101	CCV	1	1	8.5		0.910	91%	
102	B	1	1	0.0		-0.037	b	
103	D4	1	1	13.7		1.481	d	
104	8L1009DS	1	1	3.6	0.094	0.921	93%	
105	8L1009DS	1	1	8.9		0.948		
106	53693	1	1	4.2	0.0433	0.431	s	
107	53693	1	1	4.2		0.434		
108	536930	1	1	4.1	0.0424	0.418		
109	536930	1	1	4.2		0.429		
110	53693S	1	1	12.7	0.138	1.373	95%	
111	53693S	1	1	12.9		1.395		
112	536930S	1	1	12.6	0.139	1.365	96%	
113	536930S	1	1	13.1		1.419		
114	53692	1	1	8.3	0.089	0.881		
115	53692	1	1	8.4		0.900		
116	47503	1	1	11.6	0.128	1.254		
117	47503	1	1	12.3		1.305		
118	51449 A	1	1	0.6	<0.01	0.028	I	
119	51449 A	1	1	0.7		0.036		
120	51449 B	1	1	0.2	<0.01	-0.015	I	
121	51449 B	1	1	0.3		-0.007	s	
122	51449 C	1	1	0.3	<0.01	0.001	I	
123	51449 C	1	1	0.4		0.004		
124	CCV	1	1	8.6		0.921	92%	
125	B	1	1	0.0		-0.03	b	
126	D4	1	1	13.7		1.481	d	
127	51450	1	1	0.4	<0.01	0.012		
128	51450	1	1	0.4		0.012	I	
129	51459	1	1	0.3	<0.01	-0.007	I	
130	51459	1	1	0.2		-0.010	I	
131	51460 VOID	10	1	0.1		0.205	RERUN ON 1X DIL. ON 99/10/11.	
132	51460	10	1	0.1		-0.232		
133	51461	10	1	12.9	1.358	13.921		
134	51461	10	1	12.3		13.244		
135	42246 A	1	1	0.3	<0.01	0.001	I	
136	42246 A	1	1	0.2		-0.012	s	
137	42246 B	1	1	0.0	<0.01	-0.037	I	
138	42246 B	1	1	0.1		-0.029	I	
139	42246 C	1	1	0.3	<0.01	-0.007	R	
140	42246 C	1	1	0.2		-0.012	I	
141	42265	1	1	0.8	<0.01	0.055		
142	42265	1	1	0.8		0.050		
143	8L1009-4GFL 42724, 43188	1	1	0.0	<0.01	-0.031	I	
144	8L1009-4GFL	1	1	0.0		-0.034	I	
145	8L1009S	1	1	9.3	0.098	0.992	98%	
146	8L1009S	1	1	9.0		0.959		
147	8L1009DS	1	1	9.2	0.097	0.978	97%	
148	8L1009DS	1	1	9.1		0.970		
149	CCV	1	1	8.9		0.946	95%	
150	B	1	1	0.0		-0.037	b	
151	D4	1	1	13.7		1.481	s	
152	42266	1	1	3.6	0.037	0.364		
153	42266	1	1	3.7		0.372		
154	42266D	1	1	3.6	0.037	0.361		
155	42266D	1	1	3.7		0.375		

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
042245	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.100	100.	0.100	100.	99/10/11	1GFB	99/10/11	MG01	90.	69.	
042248	BRAUN-MN	1Blank-C01/C02	Mercury -	PV	-0.040						99/10/11	1GFB	99/10/11	MG01	90.	69.	
042249	BRAUN-MN	1R1-C01/C02	Mercury -	PV	-0.300						99/10/11	1GFB	99/10/11	MG01	90.	69.	
042250	BRAUN-MN	1R2-C01/C02	Mercury -	PV	-0.400						99/10/11	1GFB	99/10/11	MG01	89.	69.	
042251	BRAUN-MN	1R3-C01/C02	Mercury -	PV	-0.300						99/10/11	1GFB	99/10/11	MG01	89.	69.	
042724	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.100	100.	0.100	100.	99/10/11	1GFB	99/10/11	MG01	88.	67.	
042725	BRAUN-MN	Reagent Blank C7,C12	Mercury -	PV	-0.050						99/10/11	1GFB	99/10/11	MG01	88.	67.	
042726	BRAUN-MN	1B-C01/C02	Mercury -	PV	-0.080						99/10/11	1GFB	99/10/11	MG01	88.	67.	
BL1011	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.100	100.	0.100	100.	99/10/11	1GFB	99/10/11	MG01	$$$	$$$	
042727	BRAUN-MN	1R1-C01/C02	Mercury -	PV	0.876	0.887	2.916	101.	2.904	101.	99/10/11	2GFB	99/10/11	MG01	88.	67.	*PDS*
042728	BRAUN-MN	1R2-C01/C02	Mercury -	PV	0.395						99/10/11	2GFB	99/10/11	MG01	87.	67.	
042729	BRAUN-MN	1R3-C01/C02	Mercury -	PV	4.401						99/10/11	2GFB	99/10/11	MG01	87.	67.	
043188	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.104	104.	0.103	103.	99/10/11	2GFB	99/10/11	MG01	84.	62.	
043189	BRAUN-MN	Reagent Blank C7/C12	Mercury -	PV	-0.080						99/10/11	2GFB	99/10/11	MG01	84.	62.	
043190	BRAUN-MN	1B-C01/C02	Mercury -	PV	-0.100						99/10/11	2GFB	99/10/11	MG01	84.	62.	
043191	BRAUN-MN	1R1-C01/C02	Mercury -	PV	4.272						99/10/11	2GFB	99/10/11	MG01	84.	62.	
043192	BRAUN-MN	1R2-C01/C02	Mercury -	PV	2.485						99/10/11	2GFB	99/10/11	MG01	83.	62.	
043193	BRAUN-MN	1R3-C01/C02	Mercury -	PV	6.395						99/10/11	2GFB	99/10/11	MG01	83.	62.	
BL1011	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.104	104.	0.103	103.	99/10/11	2GFB	99/10/11	MG01	$$$	$$$	

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

C0040

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.11 Run Code: MG01 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL1011	1GFB		
13			"			
14			BL1011 S			
15			"			
16			BL1011 DS			
17			"			
18		1/5	53136			
19			"			
20			53136 D			
21			"			
22			53136 S			
23			"			
24			53136 DS			
25			"			
26		1/10	53137			
27			"			
28			53146			
29			"			
30			53147			
31			"			
32			CCV			
33			B			
34			D4			
35			42248			
36			"			
37			42249			
38			"			
39			42250			
40			"			
41			42251			
42			"			
43			42725 a			
44			"			
45			42725 b			
46			"			
47			42725 c			
48			"			
49			42726			
50			"			
51			BL10 "	2GFB		
52			"			
53			BL10 " S			
54			"			
55			CCV			
56			B			
57			D4			
58			BL10 " DS			
59			"			
60			42727			
61			"			
62			42727 D			
63			"			
64			42727 S			
65			"			
66			42727 DS			
67			"			
68			42728			
69			"			
70			42729			
71			"			
72			43189 a			
73			"			
74			43189 b			
75			"			
76			43189 c			
77			"			
78			CCV			
79			B			
80			D4			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.11 Run Code: MG01 Matrix: IMP.

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

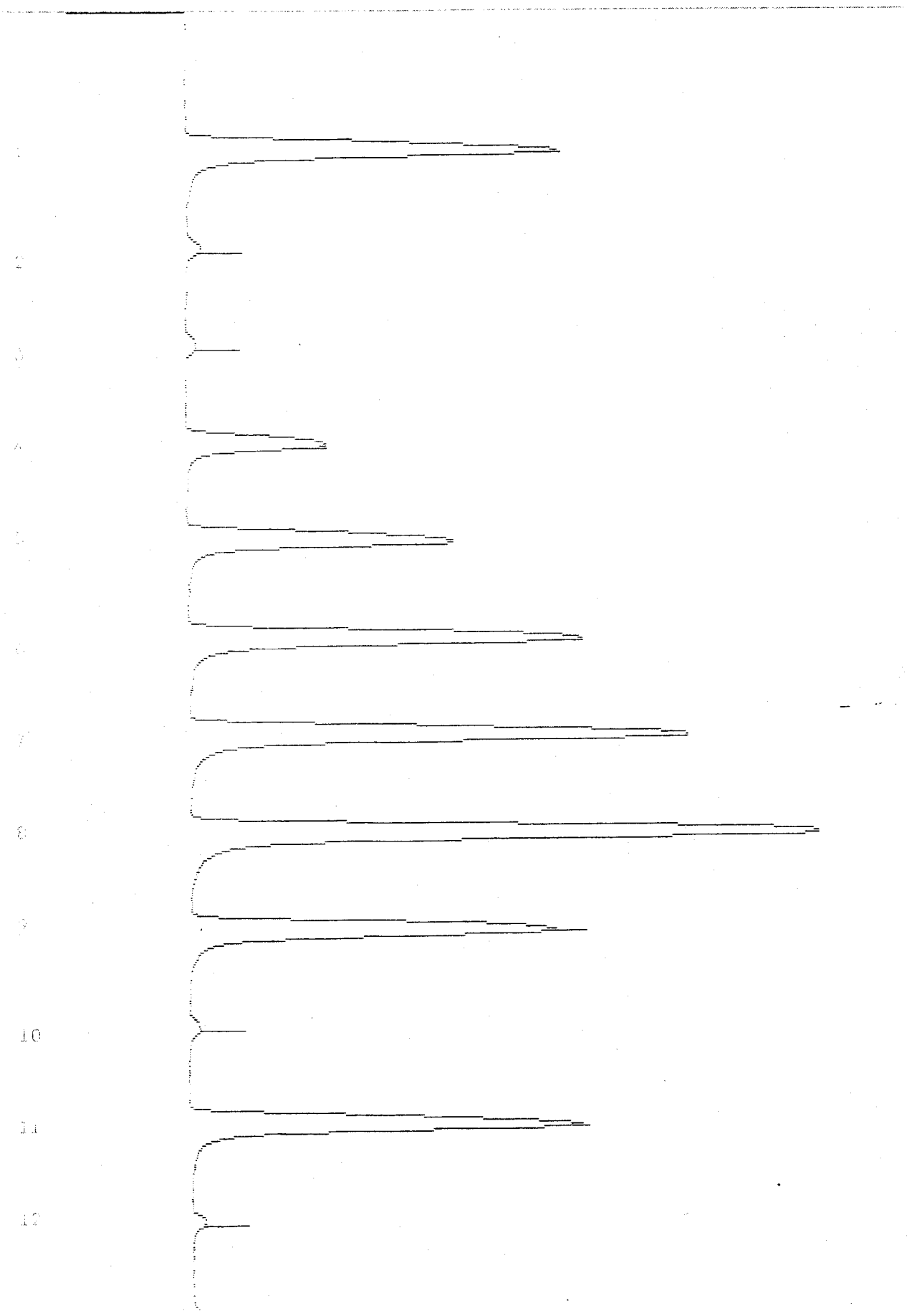
Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			43190			
22			"			
23			43191			
24			"			
25			43192			
26			"			
27			43193			
28			"			
29		1/5	53136 DS			
30		↓	"			
31			51460	OH FCT		
32			"	↓		
33		1/10	51462			
34		↓	"			
35			51463			
36		↓	" 63	↓		
37			51664			
38			"			
39		1/2	43192			
40		↓	"			

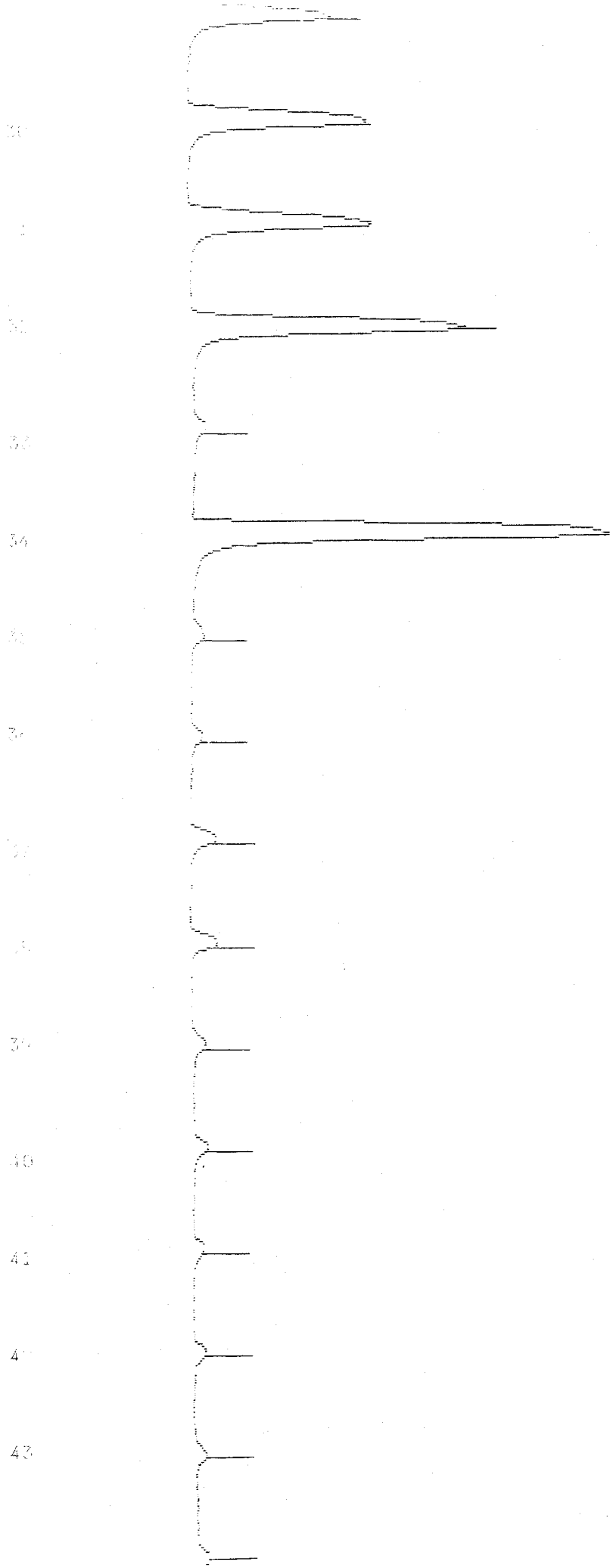
Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						

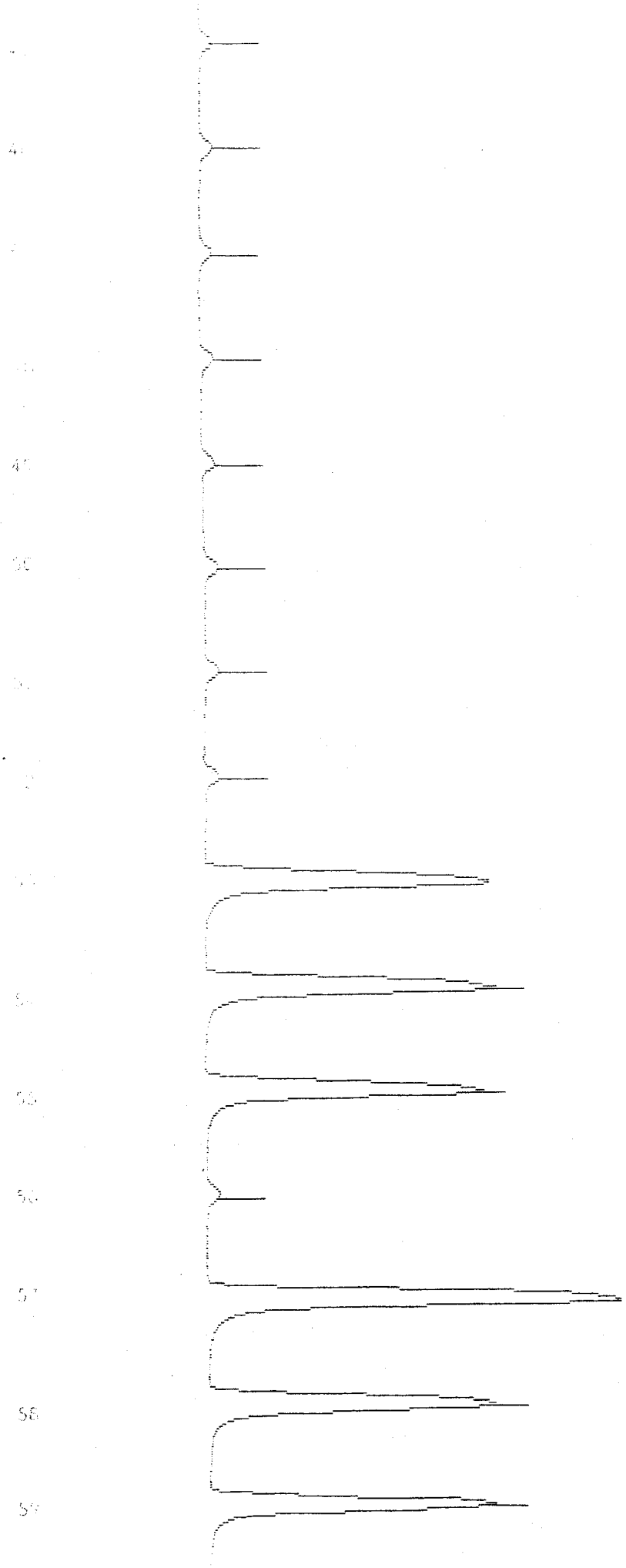
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

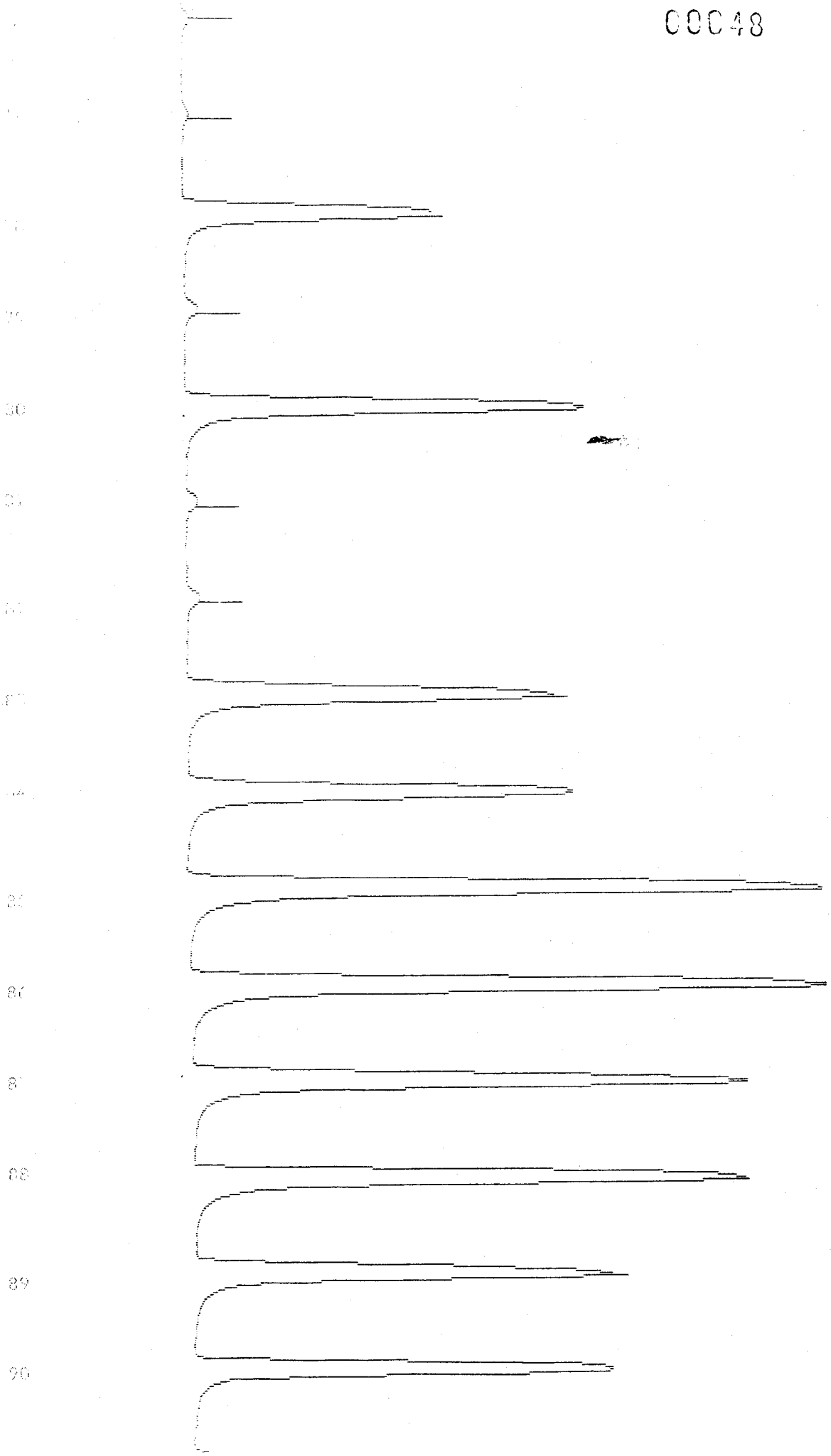
ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

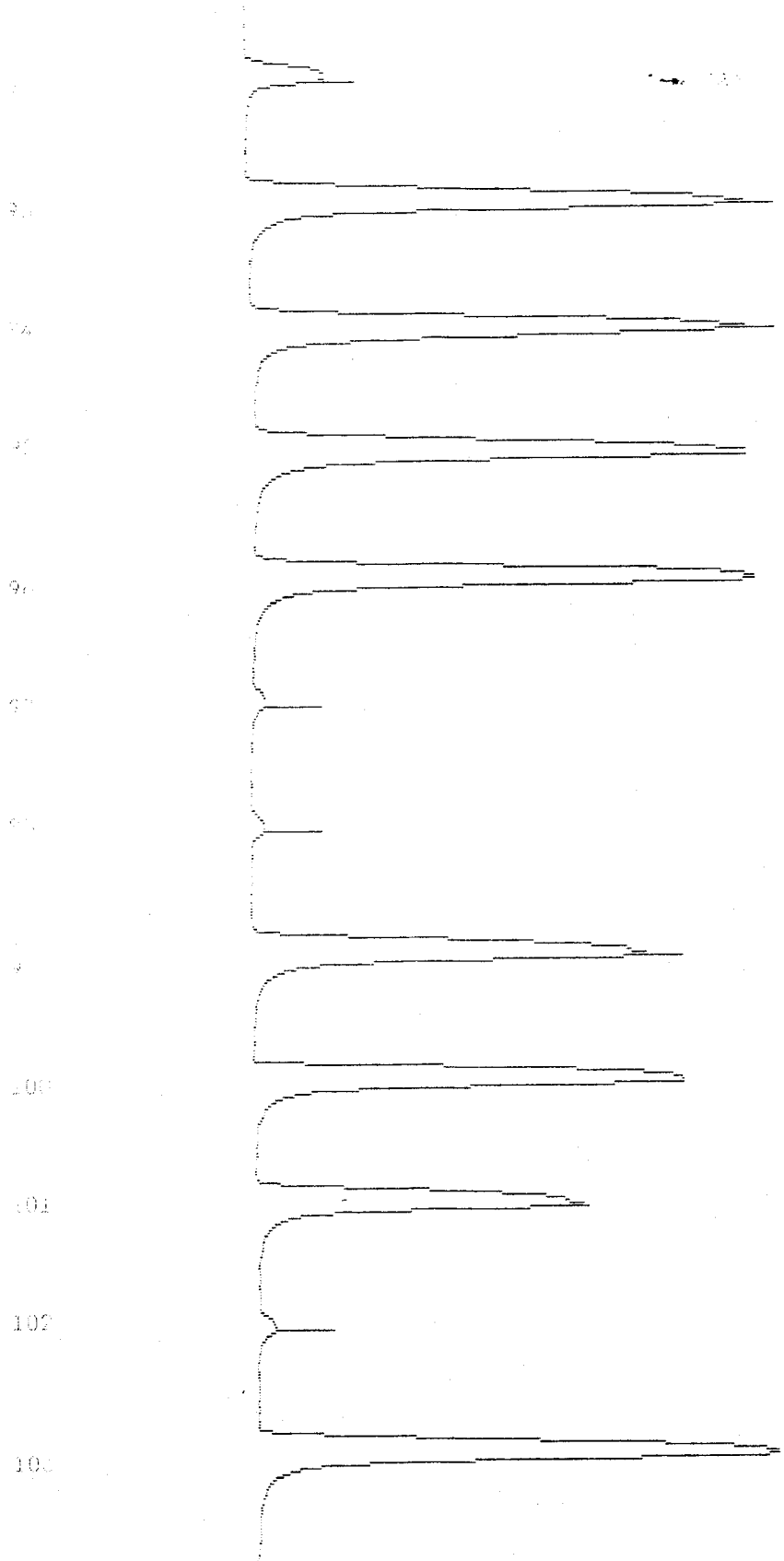
ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.


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

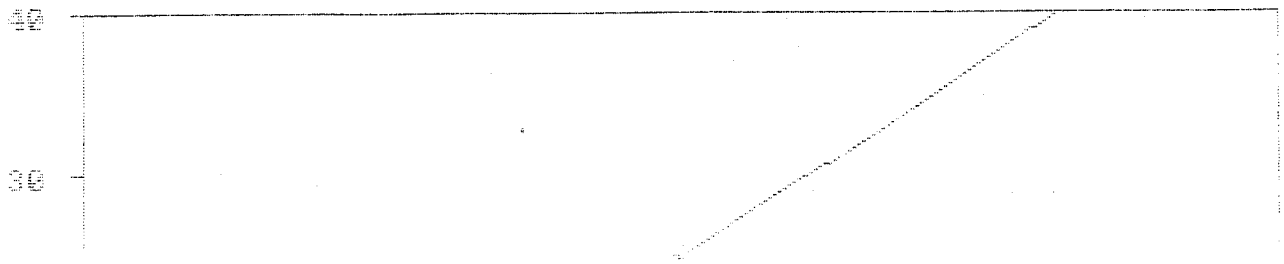


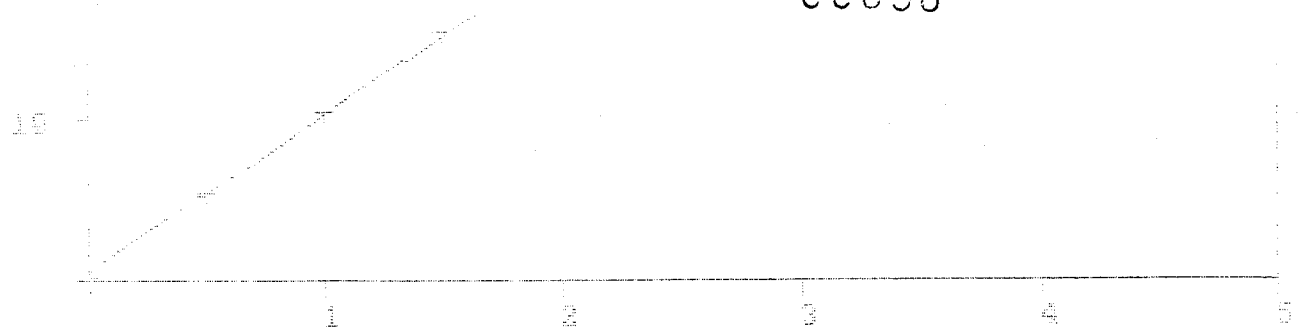






CHANNEL NAME: LDC
RUN NAME: 991011W





DATA TYPE: FIX CALIBRATION ORDER: 1
INTERCEPT = 0.02 SLOPE = 0.684284

CORRELATION: 0.995642

CHANNEL NAME: LOC
RUN DATE: 10-13-1992
SAMPLE TABLE NAME: 921011W
METHOD NAME: HCWATER

SUB#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION (ppb)		CF
1	PRIMER	1		14.6	1.457		s
2	DUMMY	1	1	0.5	-0.003		I
3	S1: 0	1	1	0.3	-0.023		I
4	S2: 5	1	1	5.4	0.504		
5	S3: 1	1	1	10.4	1.023		
6	S4: 1.5	1	1	15.4	1.535		
7	S5: 2	1	1	19.5	1.964		
8	S6: 2.5	1	1	24.7	2.498		
9	ICV	1	1	14.3	1.424 (TuG)	95%	
10	B	1	1	0.0	-0.054		b
11	D4	1	1	15.4	1.535		d
12	BL1011-1GFB 42245, 42724	1	1	0.1	-0.041 (<0.01)		I
13	BL1011-1GFB	1	1	0.1	-0.046		I
14	BL101113	1	1	10.3	1.028 (0.100)	100%	
15	BL101113	1	1	9.9	0.965		
16	BL101103	1	1	10.2	1.003 (0.100)	100%	
17	BL101103	1	1	10.1	0.988		
18	53136	5	1	6.5	3.085 (3.098)		
19	53136	5	1	6.5	3.111		
20	531360	5	1	6.2	2.934 (3.060)		
21	531360	5	1	6.7	3.186		
22	531368	5	1	15.7	7.839 (7.889)	96%	
23	531368	5	1	15.9	7.939		
24	5313603 VOID	5	1	16.3	8.141 } RERUN SEE BELOW ↓		
25	5313603	5	1	14.6	7.284		
26	53137	10	1	10.5	10.331 (10.243)		
27	53137	10	1	10.4	10.155		
28	53146	1	1	4.9	0.451 (0.452)		
29	53146	1	1	4.9	0.453		
30	53147	1	1	6.4	0.607 (0.619)		
31	53147	1	1	6.6	0.630		s
32	CCV	1	1	10.0	0.983	98%	
33	B	1	1	0.0	-0.054		b
34	D4	1	1	15.4	1.535		d
35	42248	1	1	0.0	-0.054 (<0.04)		I
36	42248	1	1	0.0	-0.054		I
37	42247	1	1	0.3	-0.003 (<0.300)		P
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

41	[illegible]	1	1	0.0	<0.0051	[illegible]		
42	[illegible]	1	1	0.0		-0.054	I	
43	[illegible]	1	1	0.0	<0.05	-0.054	I	
44	[illegible]	1	1	0.0		-0.054	I	
45	[illegible]	1	1	0.0	<0.01	-0.054	I	
46	[illegible]	1	1	0.0		-0.051	s	
47	[illegible]	1	1	0.0	<0.01	-0.054	I	
48	[illegible]	1	1	0.0		-0.054	I	
49	[illegible]	1	1	0.0	<0.08	-0.054	I	
50	[illegible]	1	1	0.0		-0.051	I	
51	BLJ011-2GFB 43188	1	1	0.0	<0.01	-0.049	I	
52	BLJ011-2GFB	1	1	0.1		0.046	I	
53	BLJ011G	1	1	10.5	0.104	1.031	104%	
54	BLJ011G	1	1	10.7		1.048		
55	CCV	1	1	10.2		1.000	100%	
56	B	1	1	0.0		-0.054	b	
57	04	1	1	15.4		1.535	d	
58	BLJ011G3	1	1	10.5	0.103	1.031	103%	
59	BLJ011G3	1	1	10.5		1.028		
60	42727	1	1	4.8	0.876	0.443		
61	42727	1	1	4.7		0.433	s	
62	427270	1	1	4.9	0.887	0.451		
63	427270	1	1	4.7		0.436		
64	427275	1	1	15.2	2.916	1.412	101%	
65	427275	1	1	14.1		1.404		
66	427275	1	1	14.7	2.904	1.455	101%	
67	427275	1	1	14.5		1.447		
68	[illegible]	1	1	2.4	0.395	0.176		
69	[illegible]	1	1	2.5		0.204		
70	42729	1		22.5	4.401	2.936		
71	[illegible]	1	1	21.5		2.169		
72	43189	1	1	0.0	<0.08	0.054	I	
73	[illegible]	1	1	0.0		-0.054	I	
74	43189 B	1	1	0.0	<0.01	-0.054	I	
75	43189 B	1	1	0.0		-0.054	I	
76	43189 C	1	1	0.0	<0.01	-0.054	I	
77	43189 C	1	1	0.0		-0.054	I	
78	[illegible]	1	1	9.5		0.922	92%	
79	B	1	1	0.0		-0.054	b	
80	04	1	1	15.4		1.535	d	
81	43190	1	1	0.0	<0.100	-0.054	I	
82	43190	1	1	0.3		0.054	I	
83	43191	1	1	14.0	4.272	1.391		
84	43191	1	1	14.6		1.457		
85	43192	1	1	24.5	2.485	2.473		
86	43192	1	1	24.7		2.496		
87	43193	1	1	21.3	6.395	2.143		
88	43193	1	1	21.1		2.120		
89	5313603	5	1	15.9	7.915	7.927	97%	
90	5313603	5	1	15.8		7.902		
91	51460-OHFLT	1	1	1.7	0.013	0.120	s	
92	51460-OHFLT	1	1	1.8		0.133		
93	51462-OHFLT	10	1	14.6	1.442	14.543		
94	51462-OHFLT	10	1	14.4		14.290		
95	51463-OHFLT	10	1	14.5	1.443	14.442		
96	51463-OHFLT	10	1	14.5		14.416		
97	42764-[illegible]	1	1	0.0	<0.01	-0.054	I	
98	42264-[illegible]	1	1	0.0		-0.054	I	
99	43192 VOID	2	1	11.6		2.283	VOID	
100	43192	2	1	12.5		2.465		
101	CCV	1	1	9.4		0.920	92%	
102	B	1	1	0.0		-0.054	b	
103	04	1	1	15.4		1.535	d	

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
042282	BRAUN-MN	Reagent Blank C11	Mercury -	PV	-0.010						99/10/01	MGHY	99/10/01	MG02	79.	59.	
042760	BRAUN-MN	Reagent blank C11	Mercury -	PV	-0.010						99/10/01	MGHY	99/10/01	MG02	78.	57.	
043224	BRAUN-MN	Reagent Blank C11	Mercury -	PV	-0.010						99/10/01	MGHY	99/10/01	MG02	73.	52.	
BL1001	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.100	100.	0.101	101.	99/10/01	MGHY	99/10/01	MG02	$$$	$$$	*BLKIMP*

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

00053

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
042724	BRAUN-MN	MB R456	Mercury -	PV	-0.0050	-99999.0	0.0500	100.	0.0500	99.	99/10/01	4N2B	99/10/01	MG02	78.	57.	*BLKIMP*
042743	BRAUN-MN	Reagent C9	Mercury -	PV	-0.2500						99/10/01	4N2B	99/10/01	MG02	78.	57.	*DDL*
042744	BRAUN-MN		Mercury -	PV	-0.2500						99/10/01	4N2B	99/10/01	MG02	78.	57.	*DDL*
042745	BRAUN-MN	1R1-C04	Mercury -	PV	-0.2500	-0.2500	2.6760	101.	2.5680	97.	99/10/01	4N2B	99/10/01	MG02	78.	57.	*PDS*
042746	BRAUN-MN	1R2-C04	Mercury -	PV	1.0900						99/10/01	4N2B	99/10/01	MG02	77.	57.	
042747	BRAUN-MN	1R3-C04	Mercury -	PV	-0.2500						99/10/01	4N2B	99/10/01	MG02	77.	57.	*DDL*
042748	BRAUN-MN	SB-C04	Mercury -	PV	-0.2500						99/10/01	4N2B	99/10/01	MG02	78.	57.	*DDL*
042749	BRAUN-MN	SR1-C04	Mercury -	PV	0.2640						99/10/01	4N2B	99/10/01	MG02	78.	57.	
042750	BRAUN-MN	SR2-C04	Mercury -	PV	0.5200						99/10/01	4N2B	99/10/01	MG02	77.	57.	
042751	BRAUN-MN	SR3-C04	Mercury -	PV	1.0810						99/10/01	4N2B	99/10/01	MG02	77.	57.	
BL1001	INTERNAL		Mercury -	PV	-0.0050	-99999.0	0.0500	100.	0.0500	99.	99/10/01	4N2B	99/10/01	MG02	$$$	$$$	*BLKIMP*

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

00054

00055

1 of 3

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.01 Run Code: MG02 Matrix: IMP.

Analyst: MG Units: µg (see comments) MDL: 0.005

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			BL4001	1BIB		
15			~~xxxxxx~~	NO CUP		
16			BL1001 S			
17			"			
18			BL1001 DS			
19			"			
20	2		50091			
21			"			
22			50091 D			
23			"			
24			50091 S			
25			"			
26			50091 DS			
27			"			
28			50089			
29			"			
30			50090			
31			"			
32			50092			
33			"			
34			CCV			
35			B			
36			D4			
37			50093			
38			"			
39			50094			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			BL4001	1N2B		
42			"			
43			BL1001 S			
44			"			
45			BL1001 DS			
46			"			
47	10		42257			
48			"			
49			42257 D			
50			"			
51			42257 S			
52			"			
53			42257 DS			
54			"			
55			42258			
56			"			
57			CCV			
58			B			
59			D4			
60	10		42258			
61			"			
62			42259			
63			"			
64			42272			
65			"			
66			42273			
67			"			
68			42274			
69			"			
70			42275			
71			"			
72			42280			
73			"			
74			BL4001	2N2B		
75			"			
76			BL1001 S			
77			"			
78			BL1001 DS			
79			"			
80			CCV			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.01 Run Code: MG02 Matrix: IMP.

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			B			
22			D4			
23	10		42489			
24			"			
25			42489 D			
26			"			
27			42489 S			
28			"			
29			42489 DS			
30			"			
31			42487			
32			"			
33			42488			
34			"			
35			42490			
36			"			
37			42491			
38			"			
39			42507			
40			"			
41	10		42508			
42			"			
43			CCV			
44			B			
45			D4			
46	10		42509			
47			"			
48			42510			
49			"			
50			BL1001	3N2B		
51			"			
52			BL1001 S			
53			"			
54			BL1001 DS			
55			"			
56	10		42524			
57			"			
58			42524 D			
59			"			
60			42524 S			
61			"			
62			42524 DS			
63			"			
64			42523			
65			"			
66			CCV			
67			B			
68			D4			
69	10		42525			
70			"			
71			42526			
72			"			
73			42529			
74			"			
75			42538			
76			42540			
77			42541			
78			"			
79			42542			
80			"			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.01 Run Code: MG02 Matrix: IMP

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			BL1001	4N2B		
22			"			
23			BL1001S			
24			"			
25			BL1001 DS			
26			"			
27	10		42745			
28			"			
29			CCV			
30			B			
31			D4			
32	10		42745 D			
33			"			
34			42745 S			
35			"			
36			42745 DS			
37			"			
38			42743			
39			"			
40			42744			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41	10		42744 (Cup Missed)			
42			42746			
43			"			
44			42747			
45			"			
46			42748			
47			"			
48			42749			
49			"			
50			42750			
51			"			
52			CCV			
53			B			
54			D4			
55	10		42751			
56			"			
57			42282	HYDR.		
58			"	HYX		
59			42497			
60			"			
61			43224			
62			"			
63			42760			
64			"			
65			44796			
66			"			
67			47489			
68			"			
69			53129			
70			"			
71			53143			
72			"			
73			53685			
74			"			
75			WS 378			
76			ORG REF			
77			CCV			
78			B			
79			D4			
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.

00058

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
- ✓ 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.)	1N21B	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL ~~0930~~ 1001	"	"	"	"	(Processed Blank)
	11	BL ~~0930~~ 1001 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	42257	"	1 ml	15 ml	10X	FINAL VOL 250 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	56	"	"	"	"	
3	17	57	"	"	"	"	
4	18	59	"	"	"	"	
5	19	42272	"	"	"	"	
6	20	73	"	"	"	"	
7	21	74	"	"	"	"	
8	22	75	"	"	"	"	
9	23	42280	"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	2N21B	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL ~~0930~~ 1001	"	"	"	"	(Processed Blank) 42476 MB
	27	BL ~~0930~~ 1001 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	42489	"	1 ml	15 ml	10X	FINAL VOL 250 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	87	"	"	"	"	
3	33	88	"	"	"	"	
4	34	90	"	"	"	"	
5	35	91	"	"	"	"	
6	36	42507	"	"	"	"	
7	37	08	"	"	"	"	
8	38	09	"	"	"	"	
9	39	10	"	"	"	"	
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. 219040	H2SO4 Lot. No. ~~[illegible]~~	Bath Temps. 1 195°C

Prepared By: M Alisparos Date: 97/08/1 Checked by: M Alisparos

00059

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
- ✓ 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.)	[illegible]	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL ~~[illegible]~~ 1001	"	"	"	"	(Processed Blank)
	11	BL ~~[illegible]~~ 1001 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	42745	"	1 mL	15 mL	10X	FINAL VOL 250 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	42743	"	"	"	"	
3	17	44	"	"	"	"	
4	18	46	"	"	"	"	
5	19	47	"	"	"	"	
6	20	48	"	"	"	"	
7	21	49	"	"	"	"	
8	22	50	"	"	"	"	
9	23	51	"	"	"	"	
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. 119040	H2SO4 Lot. No. 312064	Bath Temps. 1 175°C

Prepared By: [illegible] Date: 99/08/1 Checked by: [illegible]

CCCO NOT DIGESTED

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
- 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.)	MGHY	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1001	"	"	"	"	(Processed Blank)
	11	BL 1001 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	42282	"	"	"	"	90 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	42497	"	"	"	"	50 ml
3	17	43224	"	"	"	"	84 ml
4	18	42760	"	"	"	"	90 ml
5	19	~~42498~~	"	"	"	"	50 ml
6	20	44796	"	"	"	"	110 ml
7	21	47489	"	"	"	"	100 ml
8	22	53129	"	"	"	"	48 ml
9	23	53143	"	"	"	"	74 ml
10	24	53685	"	"	"	"	50 ml
	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

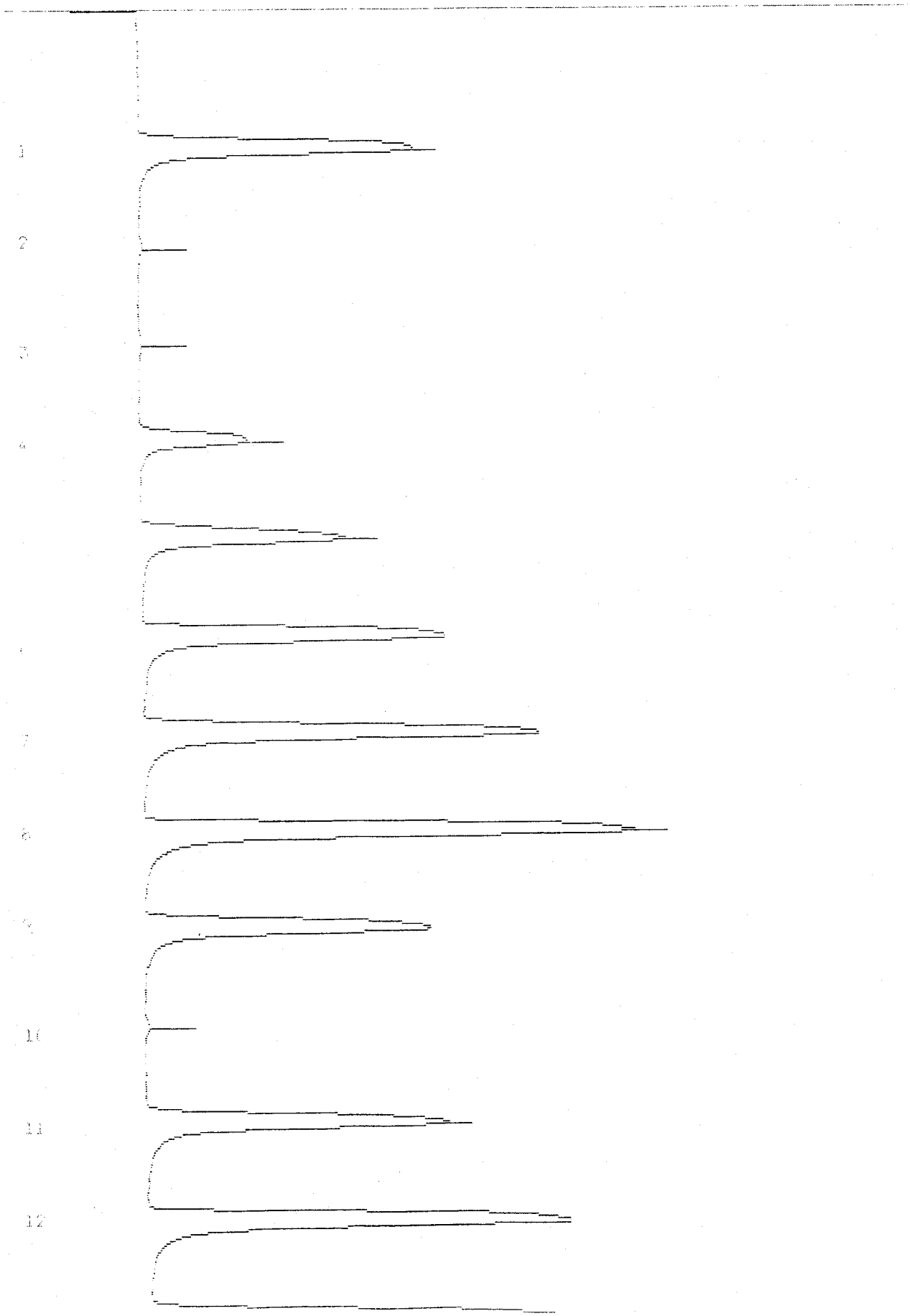
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

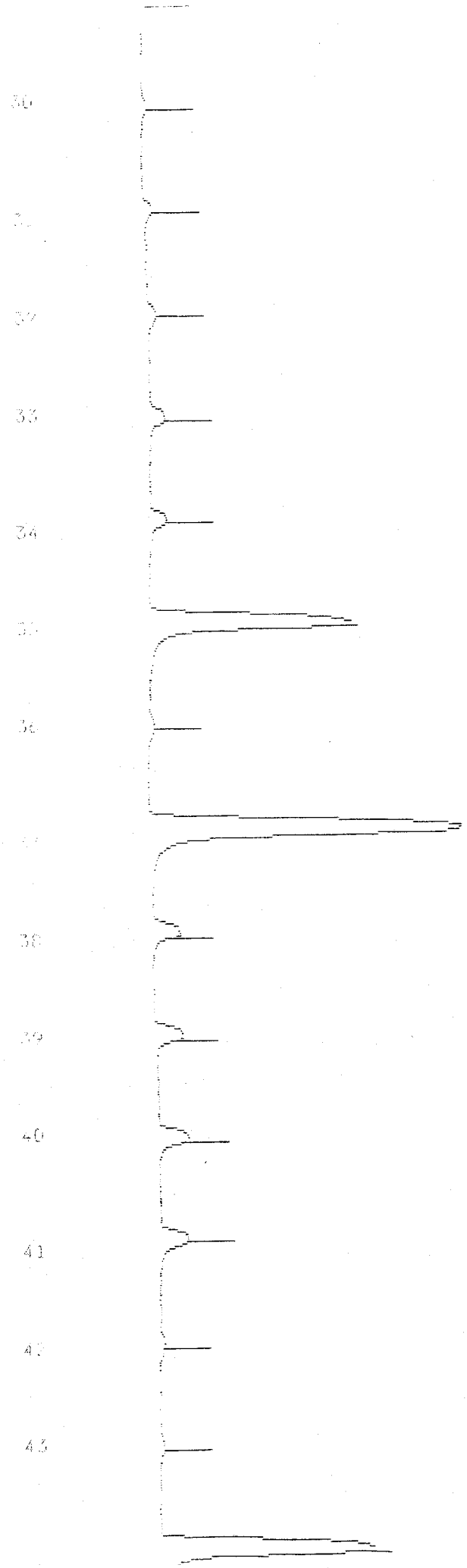
Prepare 0.05 ppm standards daily

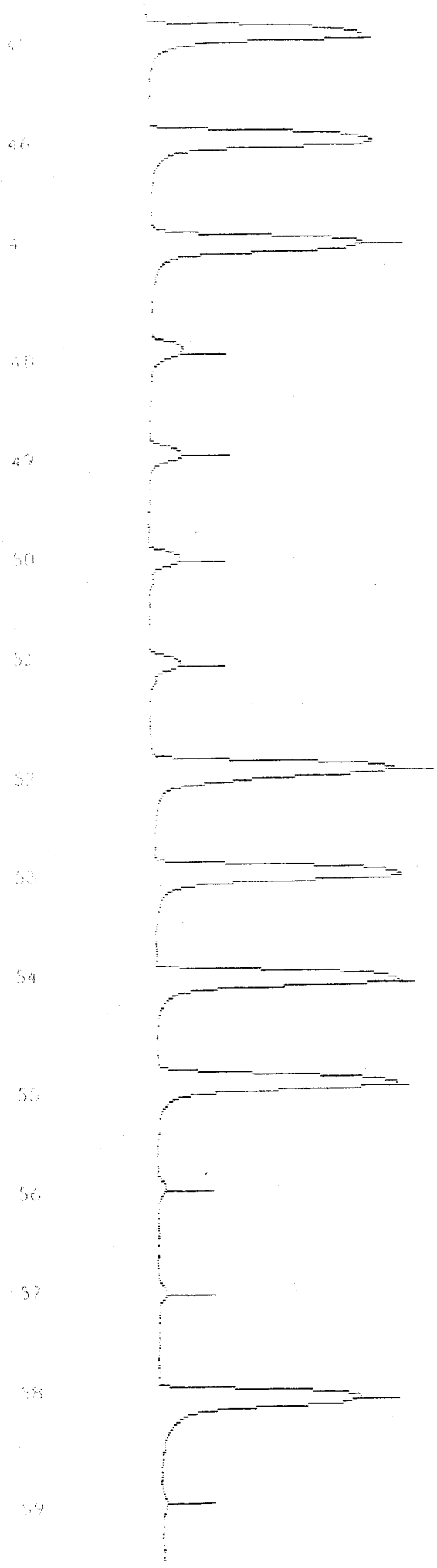
HNO3 Lot. No.	H2SO4 Lot. No.	Bath Temps. / / °C

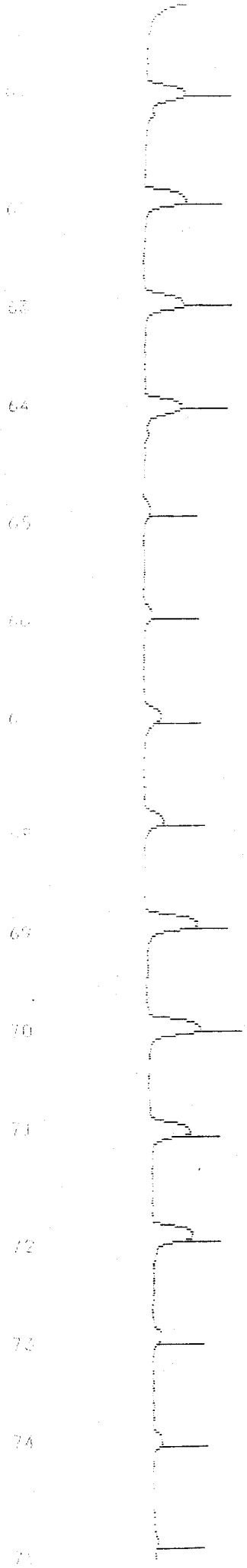
Prepared By: CMBon Date: 99/10/01 Checked by: CMBon

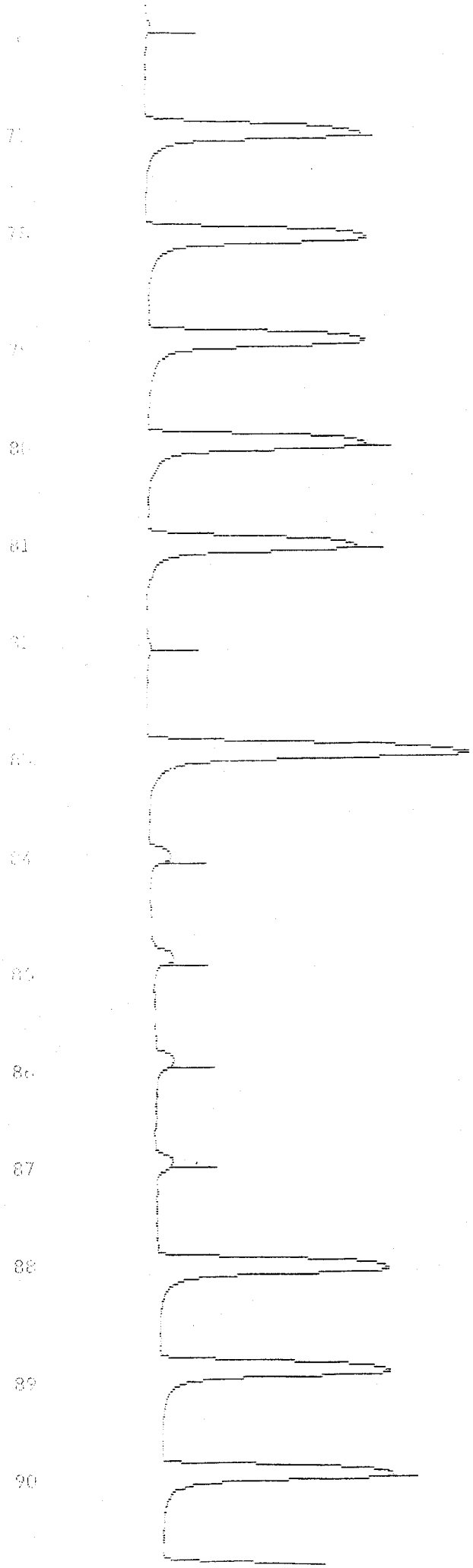
RUN DATE: 10-01-1999 CHART DATE: 10-02-1999
CHART SPEED: 30
DATA FILE NAME: C:\OP4\DATA\991001W.DAT

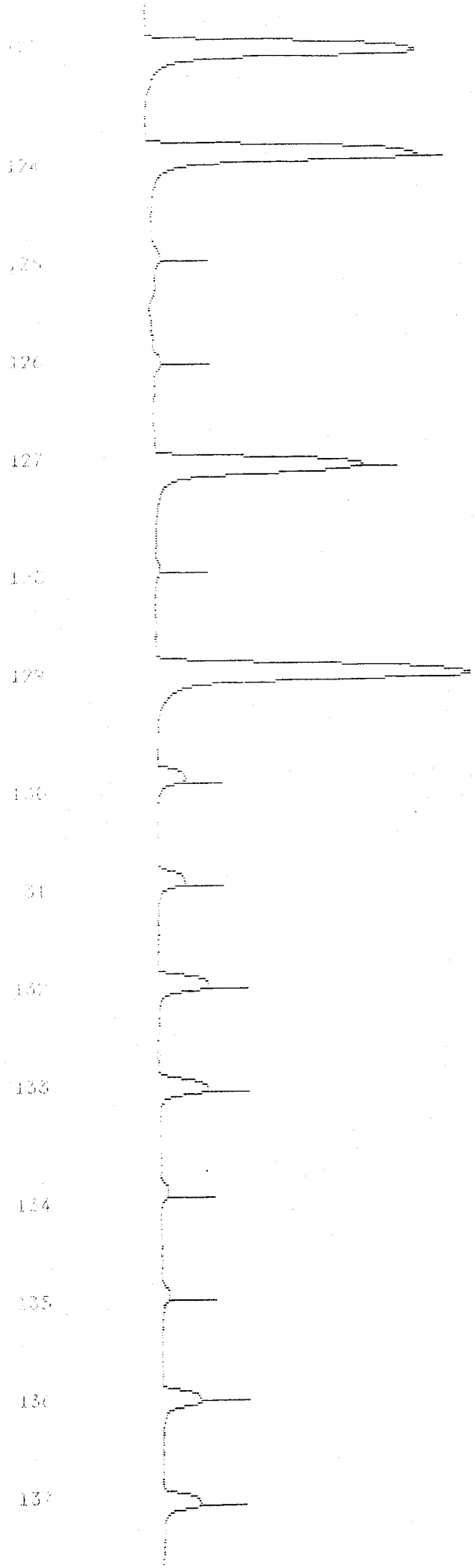


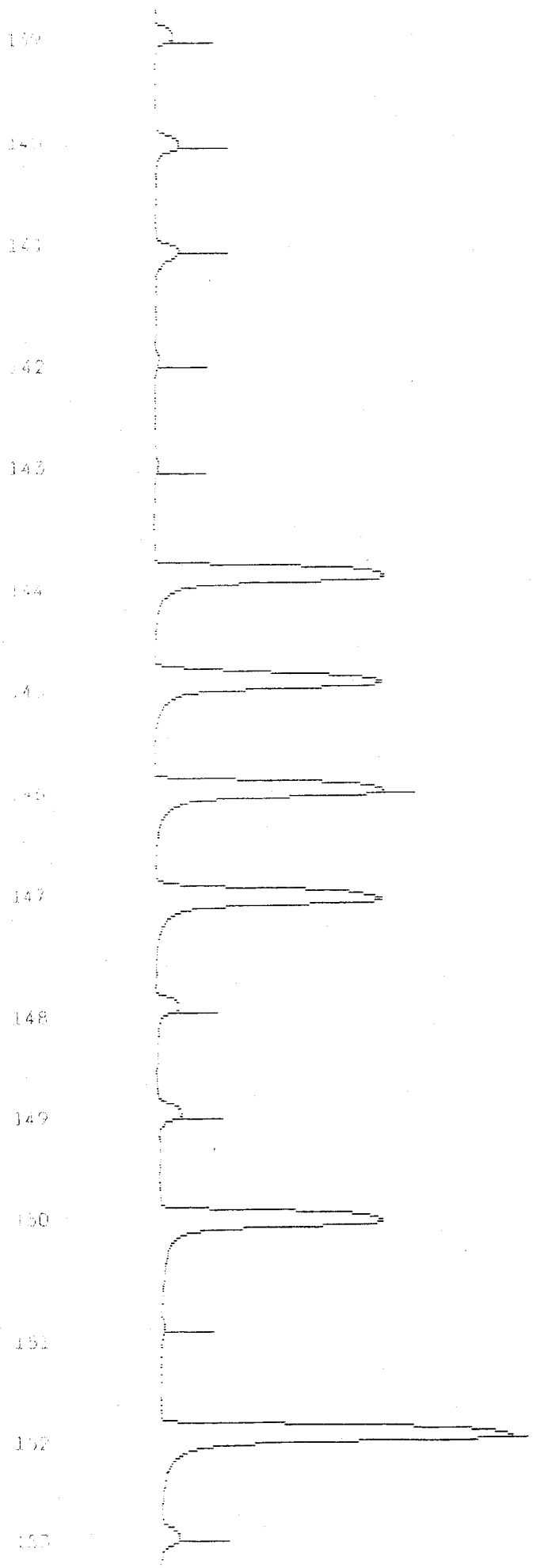

30
31
32
33
34
35
36
37
38
39
40
41
42
43

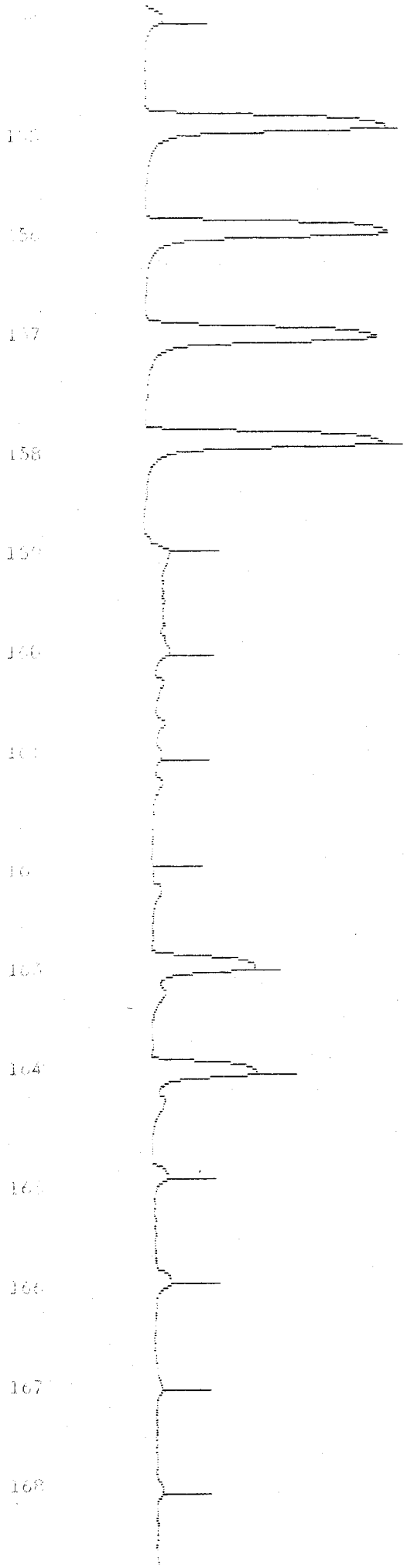

45
46
47
48
49
50
51
52
53
54
55
56
57
58
59

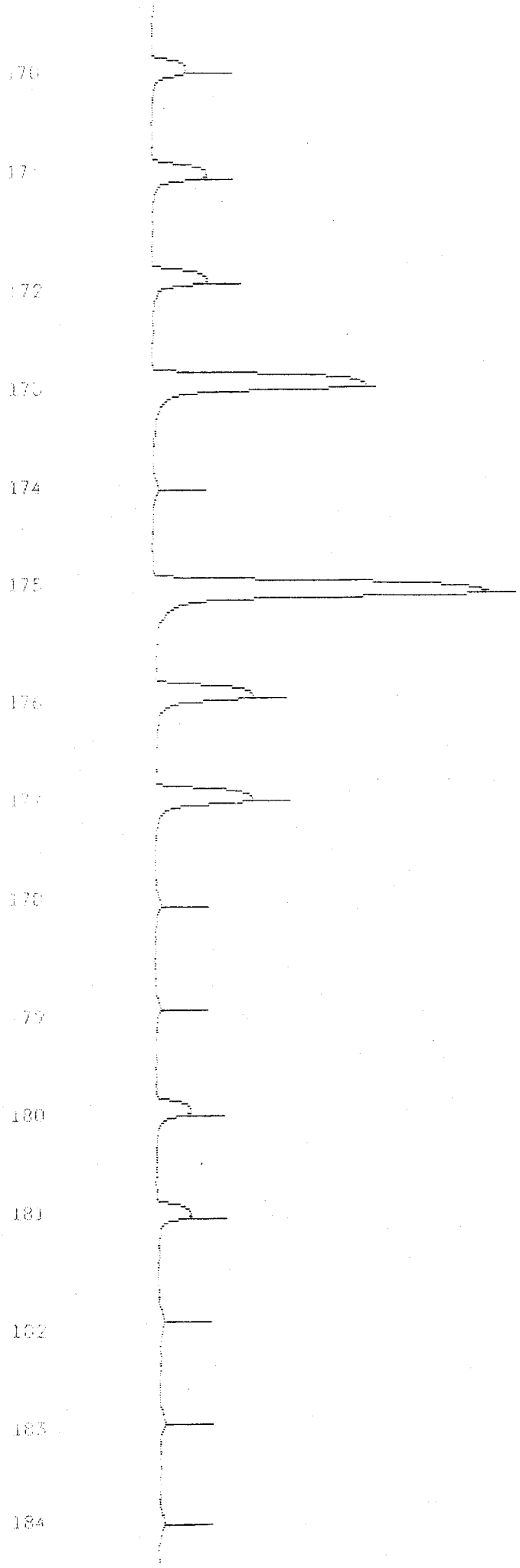

63
64
65
69
70
71
72
73
74

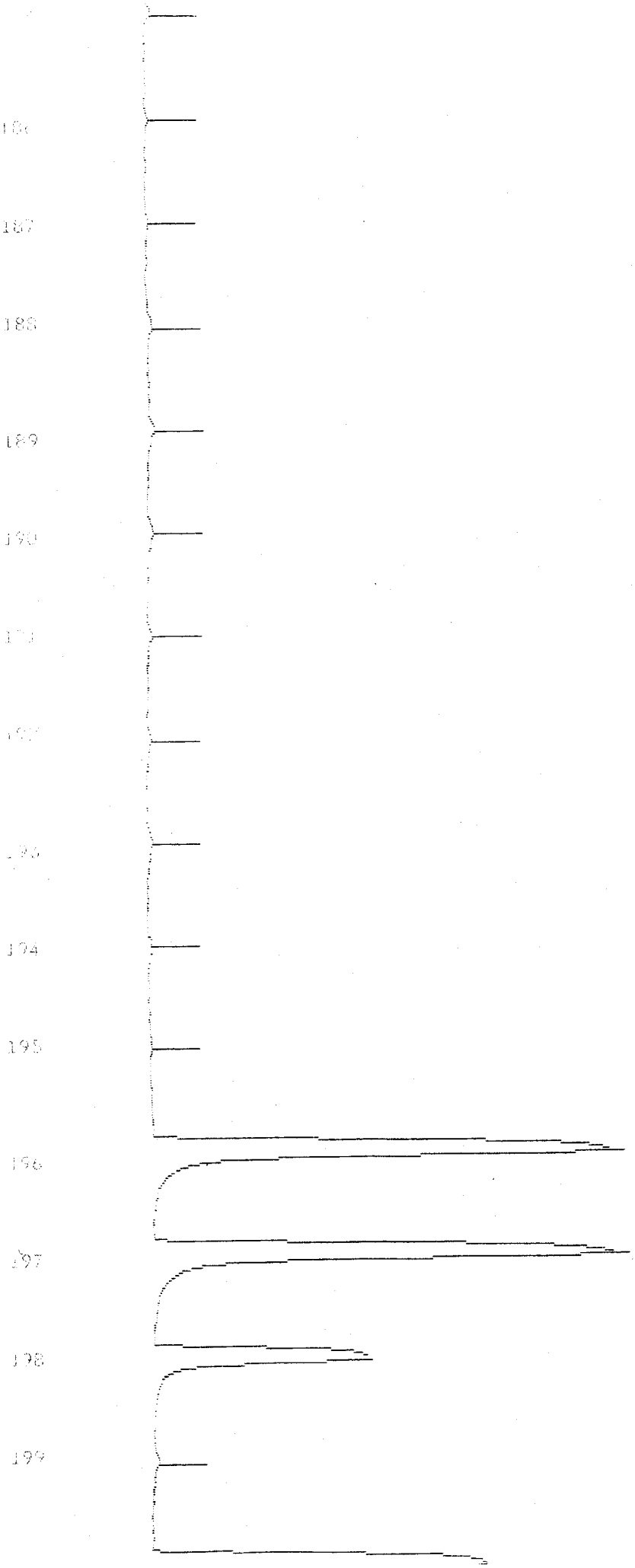

87
88
89
90

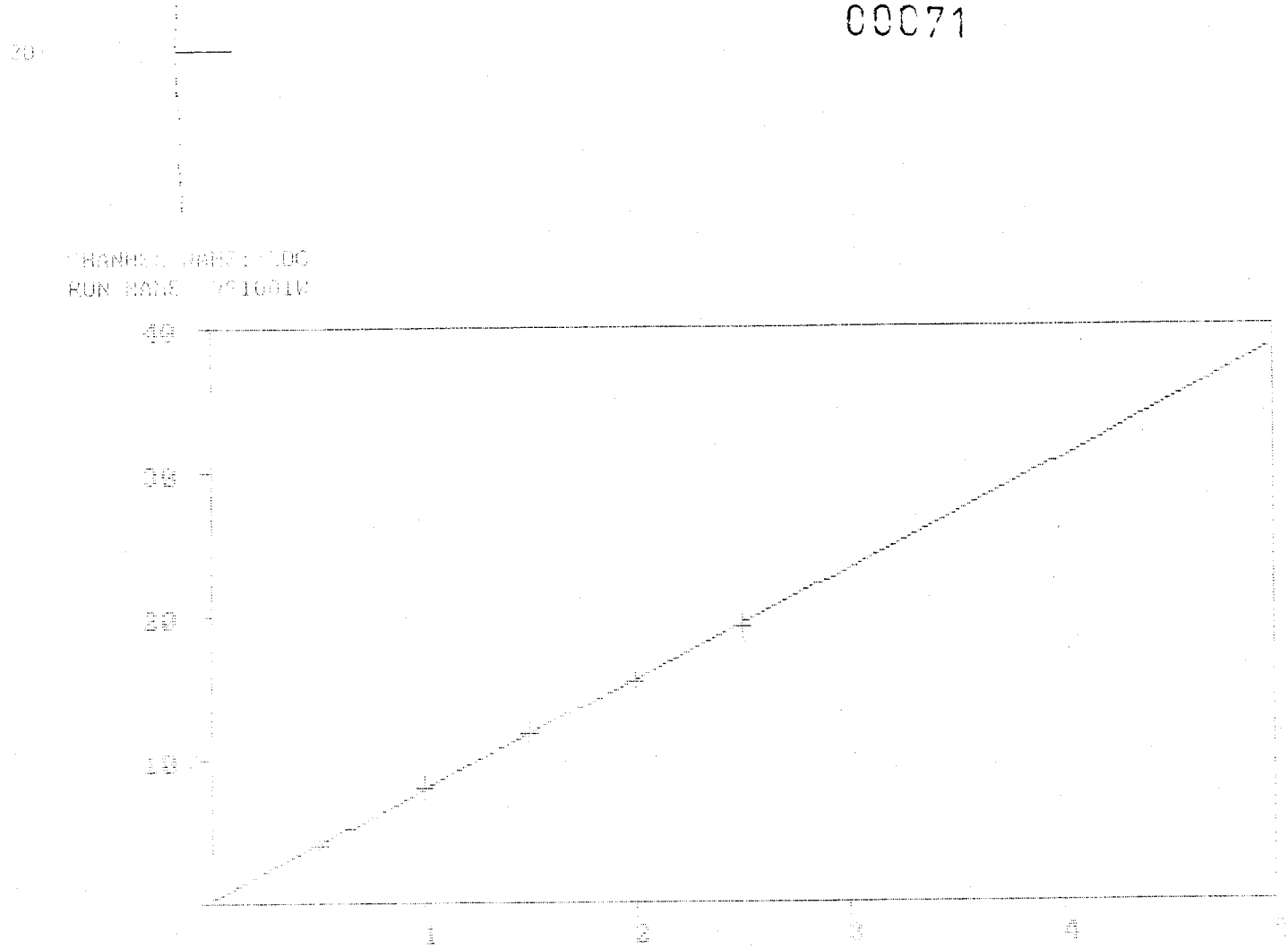

124
125
126
127
128
129
130
131
132
133
134
135
136
137


142
143
144
147
148
149
150


158
159
160
161
162
163
164
165
166
167
168


170
171
172
173
174
175
176
177
178
179
180
181
182
183
184


186
187
188
189
190
191
192
193
194
195
196
197
198
199



DATA TYPE: CIA
CALIBRATION ORDER: 1
INTERCEPT = 0.20
SLOPE = 7.63812

CORRELATION: .9997931

CHANNEL NAME: LDC
RUN DATE: 10-01-1999
SAMPLE TABLE NAME: 991001W
METHOD NAME: HGWATER

CLP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION (ppb)	EF
1	PRIMER	1	1	10.8	1.383	S
2	DUMMY	1	1	0.0	-0.020	I
3	S1: 0	1	1	0.0	-0.023	I
4	S2: .5	1	1	4.1	0.506	
5	S3: 1	1	1	8.0	1.019	
6	S4: 1.5	1	1	11.9	1.523	
7	S5: 2	1	1	15.4	1.989	
8	S6: 2.5	1	1	19.2	2.486	
9	ICV	1	1	11.2	1.440	96%
10	B	1	1	0.0	-0.027	B
11	D4	1	1	11.9	1.523	d
12	WS 378	1	1	16.6	2.139	107%
13	ORG REF	1	1	16.5	2.132	107%
14	BL1001-1818 50089	1	1	0.0	-0.027	I
15	BL1001-1818	1	1	0.0	-0.027	I
16	BL1001S	1	1	7.9	0.987	99%

Tug
<0.03
m.296

19	[illegible]	[illegible]			[illegible]	[illegible]			
20	[illegible]	1	1	7.8	0.022	0.872	97%		
21	50091	2	1	0.3	<0.03	~~0.012~~	0.024		
22	50091	2	1	0.3		~~0.015~~	0.030		
23	500910	2	1	0.3	<0.03	~~0.009~~	0.018		
24	500910	2	1	0.3		~~0.012~~	0.024		
25	500913	2	1	8.3	0.631	~~1.026~~	2.052	103%	
26	500913	2	1	8.4		~~1.077~~	2.154		
27	5009103	2	1	8.4	0.639	~~1.070~~	2.140	105%	
28	5009103	2	1	8.4		~~1.067~~	2.122		
29	50089	1	1	0.0	<0.03	-0.027	I		
30	50089	1	1	0.0		-0.027	I		
31	50090	1	1	0.1	<0.03	-0.017	s		
32	50090	1	1	0.1		-0.011	I		
33	50092	1	1	0.4	<0.03	0.024	I		
34	50092	1	1	0.4		0.028	I		
35	CCV	1	1	7.7		0.984	98%		
36	B	1	1	0.0		-0.027	b		
37	B4	1	1	11.9		1.523	d		
38	50093	1	1	0.8	<0.03	0.082			
39	50093	1	1	0.9		0.085			
40	50094	1	1	1.0	<0.03	0.098			
41	50094	1	1	0.8		0.079			
42	BL1001-1N2B	1	1	0.0	<0.005	-0.027	I		
43	BL1001-1N2B	1	1	0.0		-0.027	I		
44	BL10013	1	1	8.1	0.051	1.029	102%		
45	BL10013	1	1	8.0		1.019			
46	BL10013	1	1	8.1	0.050	1.033	101%		
47	BL10013	1	1	7.7		0.981			
48	42257	10	1	1.0	<0.250	0.978	I		
49	42257	10	1	1.0		0.978			
50	422570	10	1	0.9	<0.250	0.914			
51	422570	10	1	0.9		0.850			
52	422578	10	1	8.9	2.871	11.341	105%		
53	422578	10	1	9.1		11.628			
54	4225703	10	1	8.9	2.819	11.341	103%		
55	4225703	10	1	8.8		11.214			
56	42256	10	1	0.2	<0.250	-0.011	I		
57	42256	10	1	0.1		-0.106	I		
58	CCV	1	1	7.5		0.924	92%		
59	B	1	1	0.0		-0.027	b		
60	B4	1	1	11.9		1.523	d		
61	42258	10	1	1.2	0.364	1.329	s		
62	42258	10	1	1.4		1.584			
63	42259	10	1	1.2	0.328	1.361			
64	42259	10	1	1.2		1.265			
65	42272	10	1	0.1	<0.250	-0.170	I		
66	42272	10	1	0.2		-0.043	I		
67	42273	10	1	0.5	<0.250	0.372	I		
68	42273	10	1	0.6		0.468	I		
69	42274	10	1	1.8	0.512	2.030			
70	42274	10	1	1.8		2.062			
71	42275	10	1	1.3	0.372	1.485			
72	42275	10	1	1.3		1.488			
73	42280	10	1	0.2	<0.250	-0.043	I		
74	42280	10	1	0.2		-0.011	I		
75	BL1001-2N2B 12476	1	1	0.0	<0.005	-0.023	I		
76	BL1001-2N2B	1	1	0.0		-0.023	s		
77	BL10013	1	1	8.0	0.051	1.013	101%		
78	BL10013	1	1	8.1		1.026			
79	BL10013	1	1	7.9	0.051	1.010	101%		
80	BL10013	1	1	8.0		1.016			
81	CCV	1	1	7.6		0.972	97%		
82	[illegible]	1	1	0.0		-0.027	b		

00073

[illegible]	[illegible]	10	1	0.[illegible]	<0.250	[illegible]	[illegible]	
[illegible]	424[illegible]	10	1	0.5	<0.250	[illegible]	I	
87	424890	10	1	0.5		0.436	I	
88	424890S	10	1	8.3	2.676	10.799	102%	
89	424890	10	1	8.3		10.608		
90	424890G	10	1	8.4	2.684	10.640	103%	
91	424890S	10	1	8.[illegible]		10.831		
92	42487	10	1	0.2	<0.250	-0.011	I	
93	42487	10	1	0.1		-0.170	I	
94	42488	10	1	0.[illegible]	<0.250	-0.043	I	
95	42488	10	1	0.1		-0.074	I	
96	42490	10	1	0.7	<0.250	0.691		
97	42490	10	1	0.7		0.659		
98	42491	10	1	0.6	<0.250	0.531	I	
99	42491	10	1	0.6		0.468	I	
100	42507	10	1	0.1	<0.250	-0.074	I	
101	42507	10	1	0.1		-0.106	I	
102	42508	10	1	0.2		0.021	I	
103	42508	10	1	0.2		-0.011	I	
104	CCV	1	1	7.6		0.968	97%	
105	B	1	1	0.0		-0.027	b	
106	D4	1	1	11.9		1.523	d	
107	42509	10	1	0.2	<0.250	0.053	I	
108	42509	10	1	0.3		0.085	I	
109	42510	10	1	0.4	<0.250	0.244	I	
110	42510	10	1	0.4		0.276	I	
111	BL1001-3N2B	1	1	0.0	<0.005	-0.027	I	
112	BL1001-3N2B	1	1	0.0		-0.027	I	
113	BL10013	1	1	7.8	0.050	0.997	101%	
114	BL10013	1	1	8.0		1.013		
115	BL1001DS	1	1	8.1	0.051	1.035	101%	
116	BL1001DS	1	1	7.9		1.000		
117	42524	10	1	2.0	0.595	2.38[illegible]		
118	42524	10	1	2.0		2.381		
119	42524D	10	1	1.8	0.512	2.067		
120	42524D	10	1	1.[illegible]		2.030		
121	42524S	10	1	9.[illegible]	3.182	12.715	105%	
122	42524S	10	1	10.0		12.744		
123	42524DS	10	1	10.0	3.222	12.840	107%	
124	42524DS	10	1	10.1		12.936		
125	42523	10	1	0.2	<0.250	0.021	I	
126	42523	10	1	0.2		-0.043	I	
127	CCV	1	1	7.8		0.987	99%	
128	B	1	1	0.0		-0.027	b	
129	D4	1	1	11.9		1.523	d	
130	42525	10	1	0.9	<0.250	0.914		
131	42525	10	1	0.9		0.882		
132	42526	10	1	1.8	0.496	2.030		
133	42526	10	1	1.7		1.935		
134	42539	10	1	0.1	<0.250	-0.074	I	
135	42539	10	1	0.1		-0.074	I	
136	42540	10	1	1.2	0.320	1.297	[illegible]	
137	42540	10	1	1.2		1.364		
138	42541	10	1	0.6	<0.250	0.468	I	
139	42541	10	1	0.5		0.436	I	
140	42542	10	1	0.6	<0.250	0.563		
141	42542	10	1	0.6		0.563	I	
142	BL1001-4N2B	1	1	0.0	<0.005	-0.027	I	
143	BL1001-4N2B	1	1	0.0		0.027	I	
144	BL10014	1	1	8.0	0.050	1.015	100%	
145	BL10014	1	1	7.[illegible]		0.954		
146	BL1001DS	1	1	7.9	0.050	1.000	99%	
147	BL1001DS	1	1	7.7		0.959		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	10	1	0.[illegible]	<0.250	0.372	I
[illegible]	[illegible]	10	1	0.5		0.[illegible]	I
[illegible]	[illegible]	10	1	8.4	2.676	10.640	101%
[illegible]	[illegible]	10	1	8.[illegible]		10.767	
[illegible]	[illegible]	10	1	7.9	2.568	10.098	97%
168	[illegible]	10	1	8.2		10.449	
169	42743	10	1	0.5	<0.250	0.404	I
[illegible]	[illegible]	10	1	0.3		0.085	I
[illegible]	42743	10	1	0.2	<0.250	-0.043	I
[illegible]	42743	10	1	0.0		-0.266	I
[illegible]	[illegible]	10	1	3.5	1.090	4.294	
[illegible]	[illegible]	10	1	3.6		4.422	
[illegible]	42747	10	1	0.4	<0.250	0.276	I
[illegible]	42747	10	1	0.4		0.276	s
167	42748	10	1	0.1	<0.250	-0.170	I
168	42748	10	1	0.1		-0.138	I
169	42749	10	1	1.1	0.264	1.105	
170	42749	10	1	1.0		1.010	
171	42750	10	1	1.8	0.520	2.094	
172	42750	10	1	1.8		2.062	
173	CCV	1	1	7.5		0.956	95%
174	B	1	1	0.0		0.027	b
175	DA	1	1	11.9		1.523	d
176	[illegible]	10	1	3.5	1.018	4.071	
177	[illegible]	10	1	3.5		4.071	
178	42282 HYX -MGHYX	1	1	0.0		-0.023	I
179	42282 HYX	1	1	0.0		-0.027	I
180	[illegible]	1	1	1.1		0.111	
181	[illegible]	1	1	1.1		0.114	s
182	[illegible]	1	1	0.0		-0.027	I
183	[illegible]	1	1	0.0		-0.027	I
184	[illegible]	1	1	0.0		-0.020	I
185	4[illegible]760	1	1	0.0		-0.020	I
186	[illegible]	1	1	0.0		-0.027	I
187	44796	1	1	0.0		-0.027	I
188	47489	1	1	0.0		-0.027	I
189	47489	1	1	0.1		-0.017	I
190	53129	1	1	0.1		-0.017	I
191	53129	1	1	0.0		-0.027	I
192	53143	1	1	0.0		-0.027	I
193	53143	1	1	0.0		-0.027	I
194	53685	1	1	0.0		-0.027	I
195	53685	1	1	0.0		-0.027	I
196	WS 378	1	1	16.1		2.075	103%
197	ORG REF	1	1	16.2		2.084	104%
198	CCV	1	1	7.5		0.952	95%
199	B	1	1	0.0		-0.027	b
200	DA	1	1	11.9		1.523	d

INTERCEPT: 0.20 LINEAR COEF: 7.65812
CORRELATION COEF: .9997931

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
042724	BRAUN-MN	MB R456	Mercury -	P	-0.030	-99999.0	0.299	99.	0.293	97.	99/10/03	3BKC	99/10/03	MG01	80.	59.	*PDS*
042734	BRAUN-MN	Reagent Blank C8	Mercury -	P	-0.030						99/10/03	3BKC	99/10/03	MG01	80.	59.	
042735	BRAUN-MN	1B-C03	Mercury -	P	-0.030						99/10/03	3BKC	99/10/03	MG01	80.	59.	
042737	BRAUN-MN	1R2-C03A/B	Mercury -	P	1.612						99/10/03	3BKC	99/10/03	MG01	79.	59.	
042738	BRAUN-MN	1R3-C03A/B	Mercury -	P	2.790						99/10/03	3BKC	99/10/03	MG01	79.	59.	
BL1003	INTERNAL		Mercury -	P	-0.030	-99999.0	0.299	99.	0.293	97.	99/10/03	3BKC	99/10/03	MG01	$$$	$$$	

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

00075

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
042736	BRAUN-MN	1R1-C03A/B	Mercury -	P	0.778	0.792	2.371	105.	2.360	105.	99/10/03	4BKC	99/10/03	MG01	80.	59.	*PDS*
042739	BRAUN-MN	SB-C03	Mercury -	P	0.048						99/10/03	4BKC	99/10/03	MG01	80.	59.	
042740	BRAUN-MN	SR1-C03A/B	Mercury -	P	3.403						99/10/03	4BKC	99/10/03	MG01	80.	59.	
042741	BRAUN-MN	SR2-C03A/B	Mercury -	P	4.845						99/10/03	4BKC	99/10/03	MG01	79.	59.	
042742	BRAUN-MN	SR3-C03A/B	Mercury -	P	6.998						99/10/03	4BKC	99/10/03	MG01	79.	59.	
043188	BRAUN-MN	MB R456	Mercury -	P	-0.030	-99999.0	0.278	93.	0.285	95.	99/10/03	4BKC	99/10/03	MG01	76.	54.	
043197	BRAUN-MN	Reagent Blank C08	Mercury -	P	-0.030						99/10/03	4BKC	99/10/03	MG01	75.	54.	
043198	BRAUN-MN	1B-C03	Mercury -	P	1.286						99/10/03	4BKC	99/10/03	MG01	76.	54.	
043199	BRAUN-MN	1R1-C03A/B	Mercury -	P	11.109						99/10/03	4BKC	99/10/03	MG01	76.	54.	
043200	BRAUN-MN	1R2-C03A/B	Mercury -	P	1.845						99/10/03	4BKC	99/10/03	MG01	75.	54.	
043201	BRAUN-MN	1R3-C03A/B	Mercury -	P	0.849						99/10/03	4BKC	99/10/03	MG01	75.	54.	
BL1003	INTERNAL		Mercury -	P	-0.030	-99999.0	0.279	93.	0.285	95.	99/10/03	4BKC	99/10/03	MG01	$$$	$$$	

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

00076

Run Date: 99/10/03 Matrix: IMP(KCl)
Run Code MG01

Batch	Sample #	Result (ug/L)	Average (ug/L)	Volume (L)	Result (total ug)	% Rec.
1BKC	bl1003	-0.024	-0.022	0.300	-0.0066	
	bl1003	-0.02				
	bl1003s	0.941	0.945	0.300	0.2835	94.5
	bl1003s	0.949				
	bl1003ds	0.941	0.943	0.300	0.2829	94.3
	bl1003ds	0.945				
	42253	1.639	1.636	1	1.636	
	42253	1.633				
	42253d	1.627	1.636	1	1.636	
	42253d	1.645				
	42253s	3.17	3.137	1	3.137	100.07
	42253s	3.104				
	42253ds	3.146	3.161	1	3.161	101.67
	42253ds	3.176				
	42247	0.012	0.018	1	0.018	
	42247	0.024				
	42252	0.191	0.197	1	0.197	
	42252	0.203				
	42254	1.794	1.788	1	1.788	
	42254	1.782				
	42255	0.67	0.685	1	0.685	
	42255	0.7				
	42268	0.018	0.009	1	0.009	
	42268	0				
	42269	0.879	0.882	1	0.882	
	42269	0.885				
	42270	2.751	2.739	1	2.739	
	42270	2.727				
	42271	1.13	1.13	1	1.13	
	42271	1.13				
	42482	-0.048	-0.048	1	-0.048	
	42482	-0.048				

Run Date: 99/10/03 Matrix: IMP(KCl)
Run Code MG01

Batch	Sample #	Result (ug/L)	Average (ug/L)	Volume (L)	Result (total ug)	% Rec.
3BKC	bl1003	-0.028	-0.026	0.300	-0.0078	
	bl1003	-0.024				
	bl1003s	0.985	0.995	0.300	0.2985	99.5
	bl1003s	1.005				
	bl1003ds	0.981	0.975	0.300	0.2925	97.5
	bl1003ds	0.969				
	42521	6.34	6.232	1	6.232	
	42521	6.124				
	42521d	6.411	6.2915	1	6.2915	
	42521d	6.172				
	42521s	12.488	12.2845	1	12.2845	100.38
	42521s	12.081				
	42521ds	12.536	12.6315	1	12.6315	106.16
	42521ds	12.727				
	Dil. Check	11.962	11.902	1	11.902	Dilution Check %RPD: 5.947
		11.842				
	42522	8.349	8.3135	1	8.3135	
	42522	8.278				
	42535	0.269	0.281	1	0.281	
	42535	0.293				
	42536	1.621	1.597	1	1.597	
	42536	1.573				
	42537	2.405	2.4185	1	2.4185	
	42537	2.432				
	42538	4.402	4.408	1	4.408	
	42538	4.414				
	42734	-0.042	-0.045	1	-0.045	
	42734	-0.048				
	42735	-0.036	-0.042	1	-0.042	
	42735	-0.048				
	42737	1.441	1.435	1	1.435	
	42737	1.429				
	42738	2.781	2.79	1	2.79	
	42738	2.799		1		

Run Date: 99/10/03 Matrix: IMP(KCl)
Run Code MG01

Batch	Sample #	Result (ug/L)	Average (ug/L)	Volume (L)	Result (total ug)	% Rec.
4BKC	bl1003	-0.024	-0.028	0.300	-0.0084	
	bl1003	-0.032				
	bl1003s	0.913	0.925	0.300	0.2775	92.5
	bl1003s	0.937				
	bl1003ds	0.961	0.951	0.300	0.2853	95.1
	bl1003ds	0.941				
	42736	0.795	0.7775	1	0.7775	
	42736	0.76				
	42736d	0.789	0.792	1	0.792	
	42736d	0.795				
	42736s	2.38	2.371	1	2.371	105.75
	42736s	2.362				
	42736ds	2.38	2.3595	1	2.3595	104.98
	42736ds	2.339				
	42739	0.048	0.048	1	0.048	
	42739	0.048				
	42740	3.421	3.403	1	3.403	
	42740	3.385				
	42741	4.797	4.8445	1	4.8445	
	42741	4.892				
	42742	7.033	6.9975	1	6.9975	
	42742	6.962				
	43197	-0.048	-0.048	1	-0.048	
	43197	-0.048				
	43198	1.304	1.286	1	1.286	
	43198	1.268				
	43199	11.094	11.109	1	11.109	
	43199	11.124				
	43200	1.806	1.845	1	1.845	
	43200	1.884				
	43201	0.849	0.849	1	0.849	
	43201	0.849		1		

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 09.10.03 Run Code: MG01 Matrix: IMP (KCl)

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			WS 378			
13			ORG. REF			
14			BL1003	iBK C		
15			"			
16			BL1003 S			
17			"			
18			BL1003 DS			
19			"			
20	1.5		42253			
21			"			
22			42253 D			
23			"			
24			42253 S			
25			"			
26			42253 DS			
27			"			
28			42257			
29			"			
30			42252			
31			"			
32			42254			
33			"			
34			CCV			
35			B			
36			D4			
37	1.5		42255			
38			"			
39			42268			
40			"			
41	1.5		42269			
42			"			
43			42270			
44			"			
45			42271			
46			"			
47			42482			
48			"			
49			BL1003	2BKC		
50			"			
51			BL1003 S			
52			"			
53			BL1003 DS			
54			"			
55	1.5		42483			
56			"			
57			CCV			
58			B			
59			D4			
60	1.5		42483 D			
61			"			
62			42483 S			
63			"			
64			42483 DS			
65			"			
66			42484			
67			"			
68		1/4	42485			
69			"			
70			42486			
71			"			
72			42503			
73			"			
74			42504			
75			"			
76			42505			
77			"			
78		1/4	42506			
79			"			
80			CCV			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99/10/03 Run Code: MG01 Matrix: IMP. (KCl)

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			B			
22			D4			
23	1.5		42519			
24	↓		"			
25		1/4	42520			
26	↓	↓	"			
27			BL1003	3BKG		
28			"			
29			BL1003 S			
30			"			
31			BL1003 DS			
32			"			
33	1.5	1/4	42521			
34	↓	↓	"			
35			42521 D			
36			"			
37			42521 S			
38			"			
39			42521 DS			
40	↓	↓	"			
41	1.5	1/20	42521 DS			
42	↓	↓	"			
43			CCV			
44			B			
45			D4			
46	1.5	1/4	42522			
47	↓	↓	"			
48			42535			
49			"			
50			42536			
51			"			
52		1/2	42537			
53		↓	"			
54		1/2	42538			
55		↓	"			
56			42734			
57			"			
58			42735			
59			"			
60			42737			
61			"			
62	↓	1/2	42738			
63		↓	"			
64			BL1003	4BKC		
65			"			
66			CCV			
67			B			
68			D4			
69			BL1003 S			
70			"			
71			BL1003 DS			
72			"			
73	1.5		42736			
74	↓		"			
75			42736 D			
76			"			
77			42736 S			
78			"			
79			42736 DS			
80	↓		"			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99/10/03 Run Code: MG01 Matrix: IMP (KCL)

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		42739			
22			"			
23		1/2	42740			
24			"			
25			42741			
26			"			
27		1/4	42742			
28			"			
29			CCV			
30			B			
31			D4			
32	1.5		43197			
33			"			
34			43198			
35			"			
36			43199			
37			"			
38			43200			
39			"			
40			43201			
41	1.5		43201			
42			BL1003	IGKC		
43			"			
44			BL1003 S			
45			"			
46			BL1003 DS			
47			"			
48	1.5	1/20	53744			
49			"			
50		1/20	53744 D			
51			"			
52			CCV			
53			B			
54			D4			
55	1.5	1/20	53744 S			
56			"			
57			53744 DS			
58			"			
59		1/100	53744 DS			
60			"			
61			BL1003	IG2B		
62			"			
63			BL1003 S			
64			"			
65			BL1003 DS			
66			"			
67	10		53749			
68			"			
69			53749 D			
70			"			
71			53749 S			
72			"			
~~73~~			53749 DS			
~~74~~			"			
75			WS 378			
76			ORG. REF.			
77			CCV			
78			B			
79			D4			
80	1.5	1/5	43199			

didn't add to sample tray!

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99·10·03 Run Code: MG01 Matrix: Imp(KCl)

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

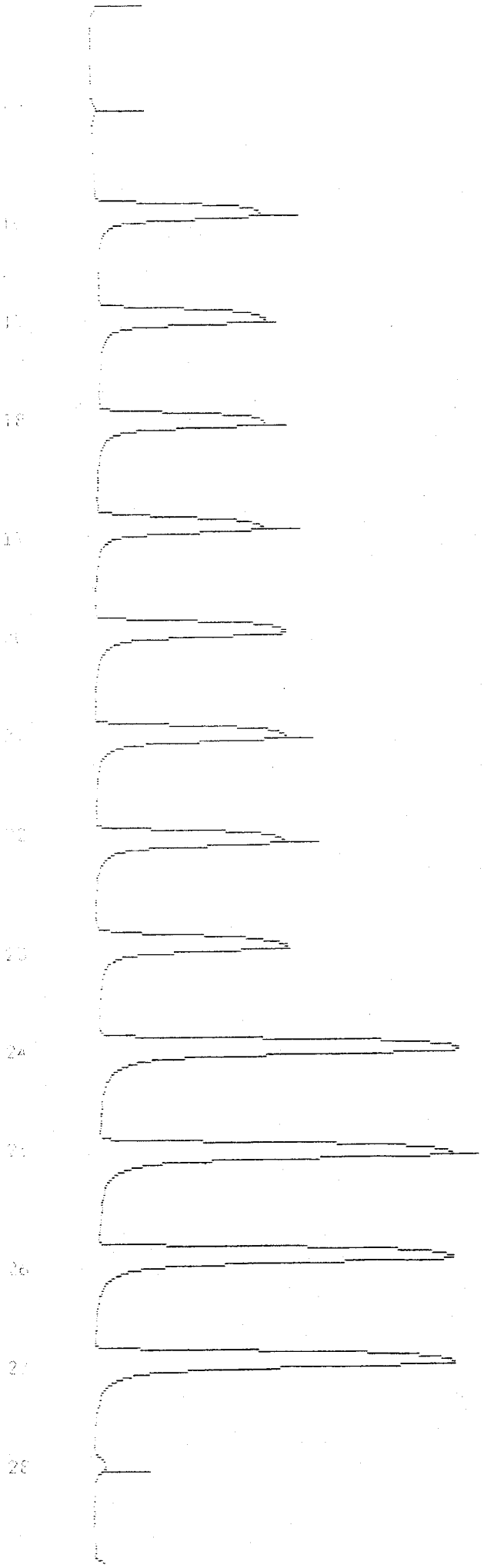
Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
~~19~~	15	1/3	43199			
20	↓	1/25	53744			
21			"			
22			53744 d			
23		↓	"			
24		1/125	53744 d			
25	↓	↓	"			
26	10		53749 ds			
27	10		"			
28	"	1/25	53744 s			
29			"			
30			53744 ds			
31		↓	"			
32		1/125	53744 ds			
33		↓	"			
34			CCV			
35			B			
36			D4			
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						

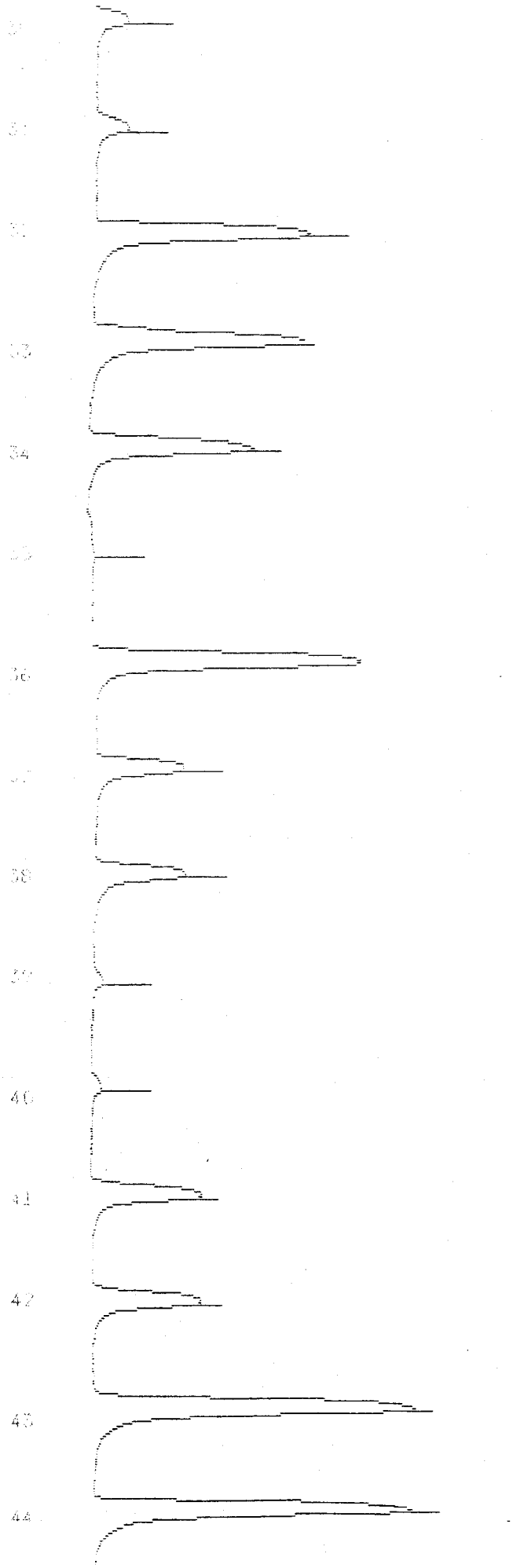
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

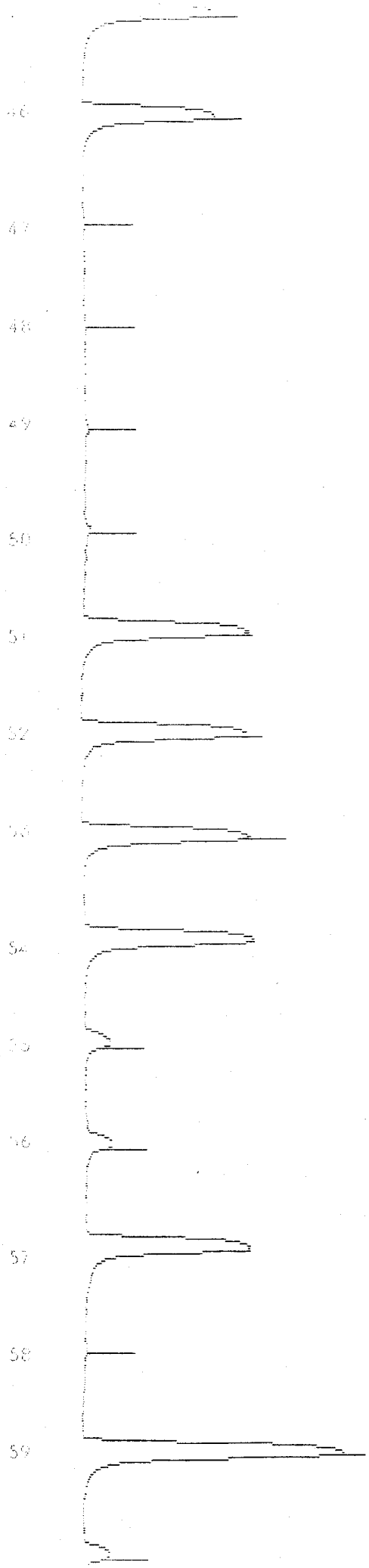
ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

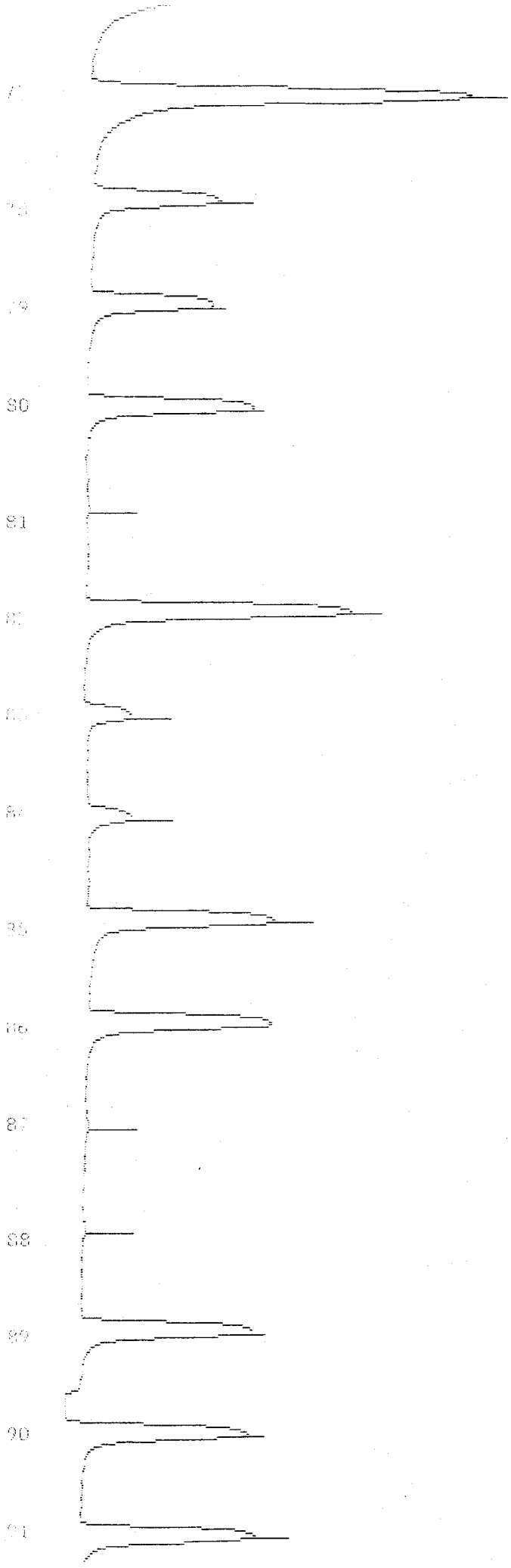
ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

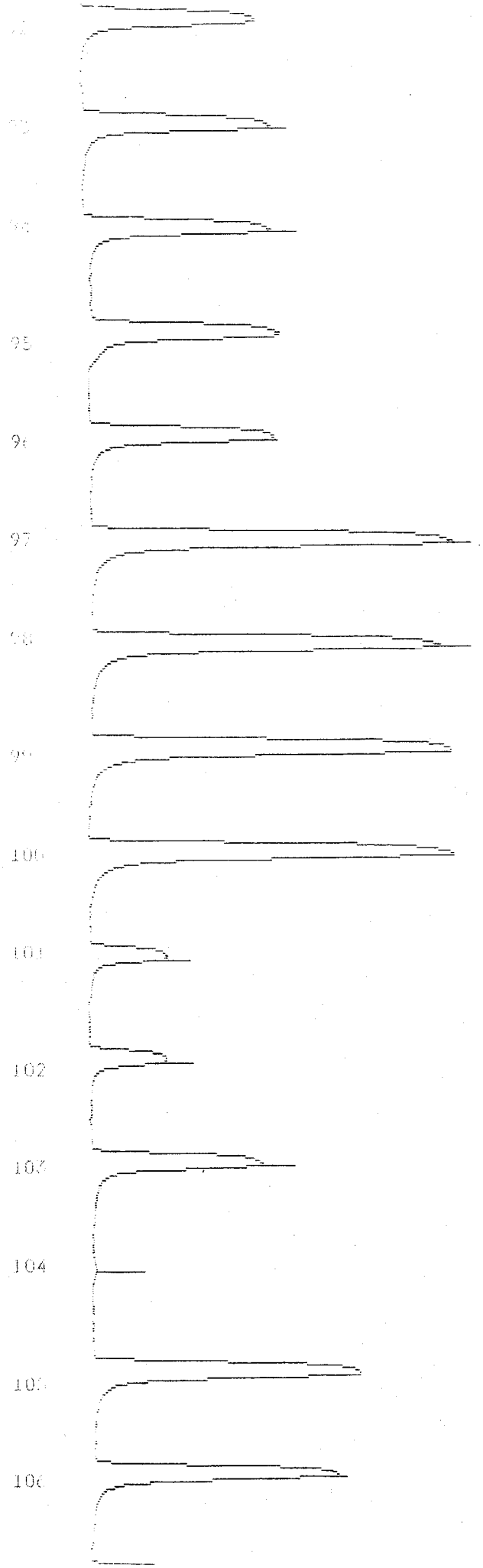
1
2
3
4
5
6
7
8
9
10
11
12
13

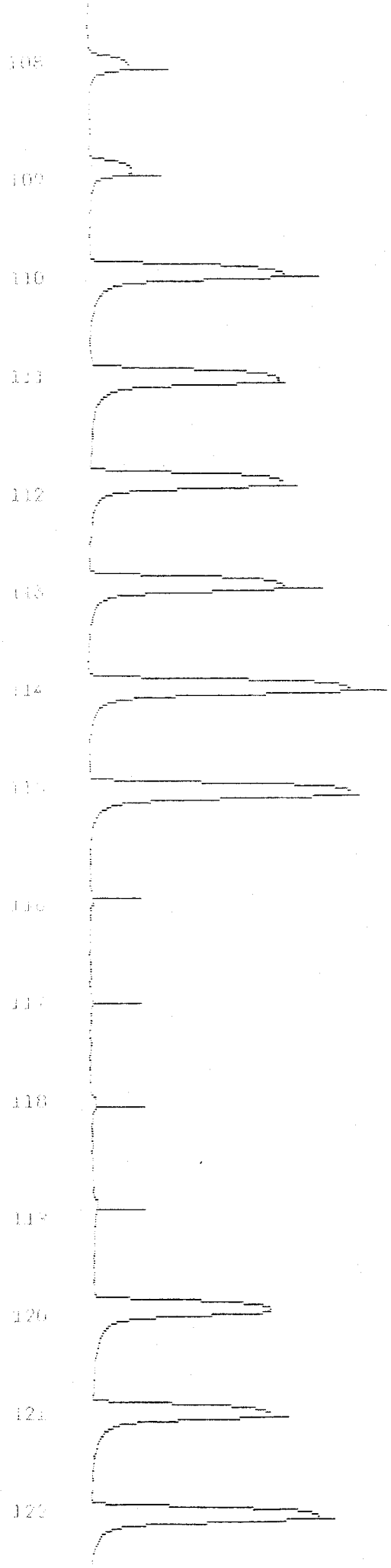


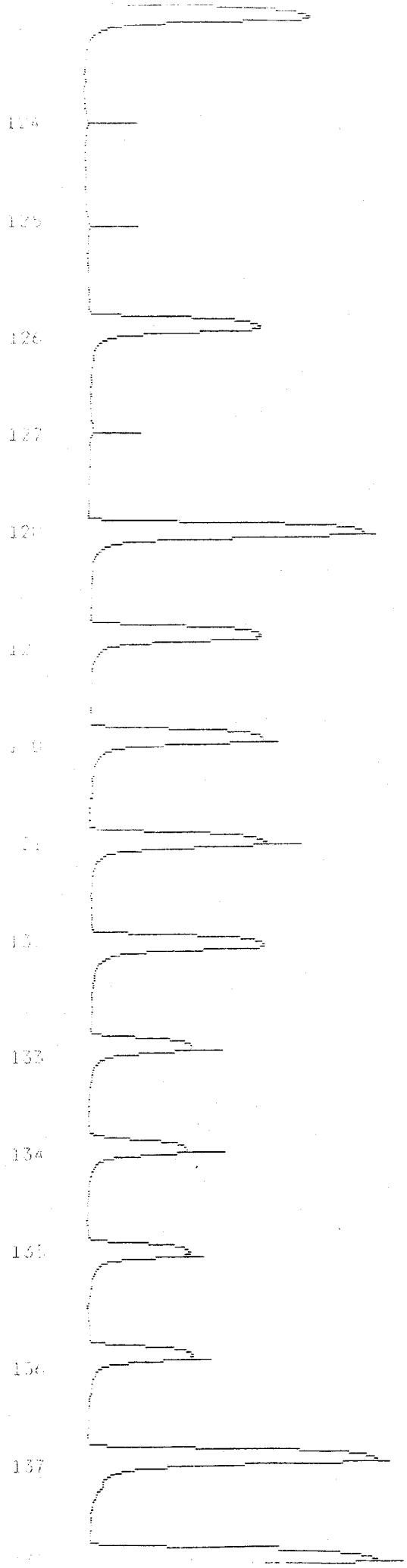

32
33
34
35
36
37
38
39
40
41
42
43
44

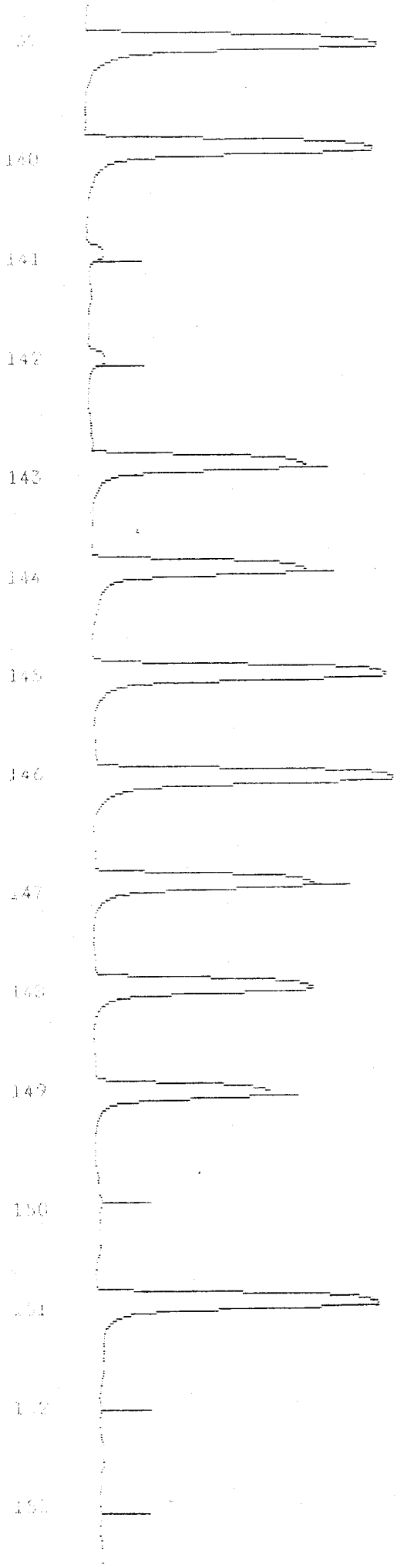

46
47
48
49
50
51
52
53
54
55
56
57
58
59

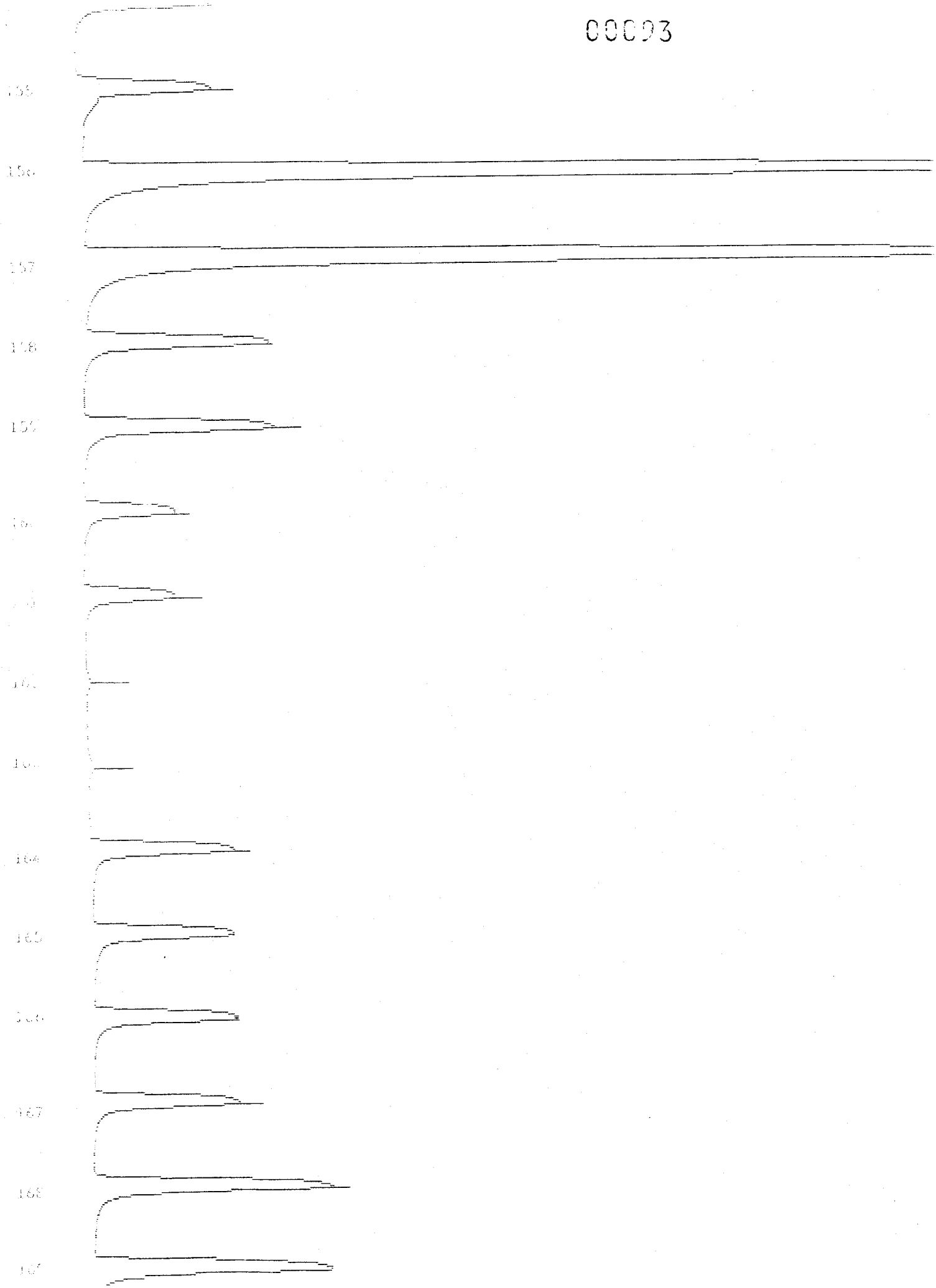

80
81
85
87
88
90

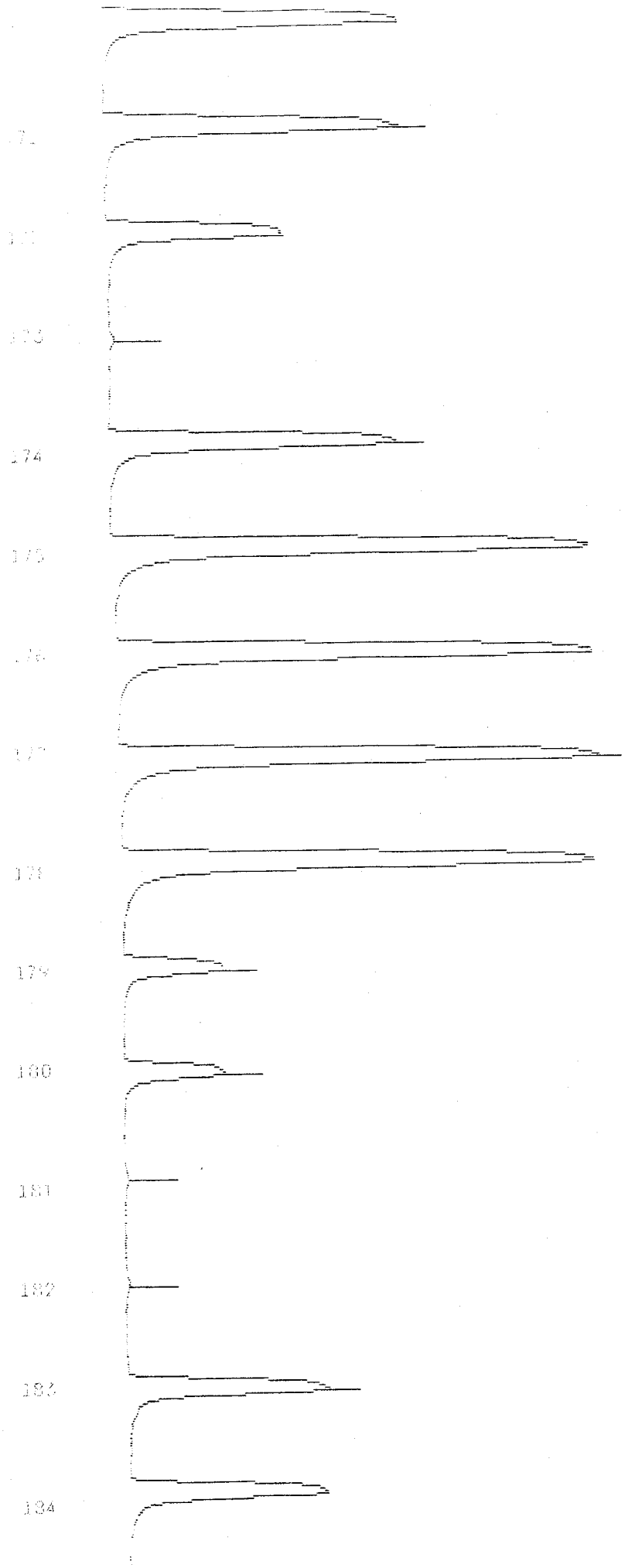

97
102
104

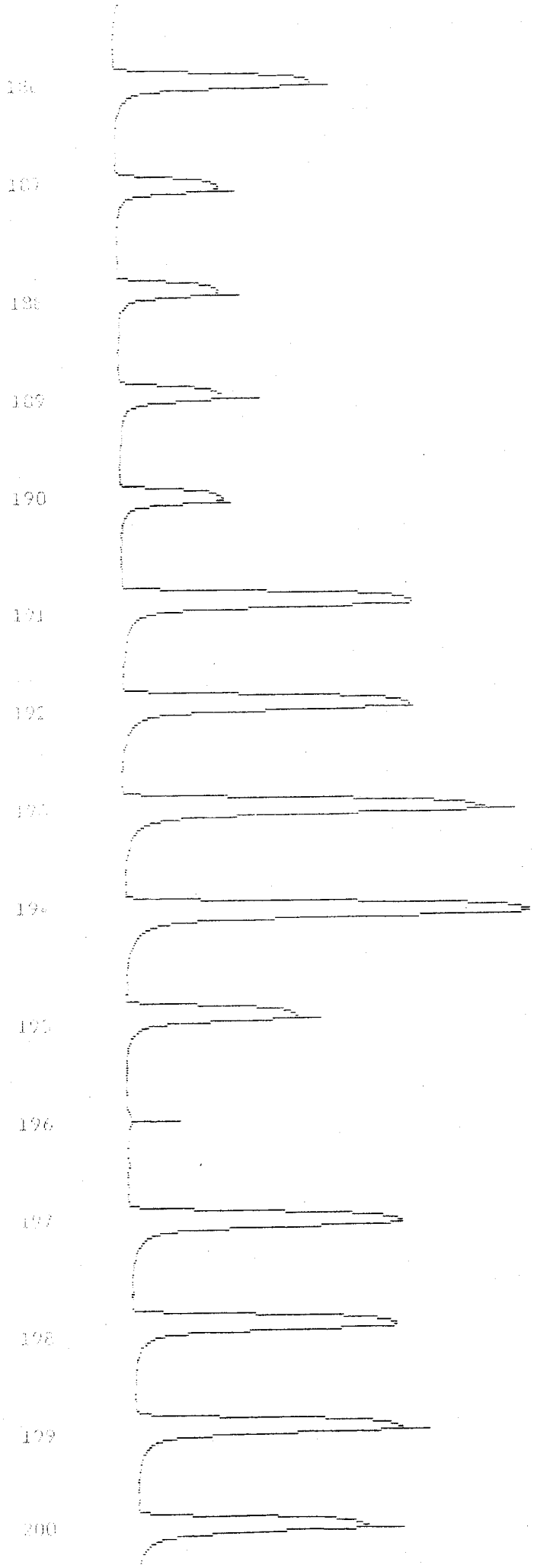

108
109
110
111
112
113
114
115
116
117
118
119
120
121
122

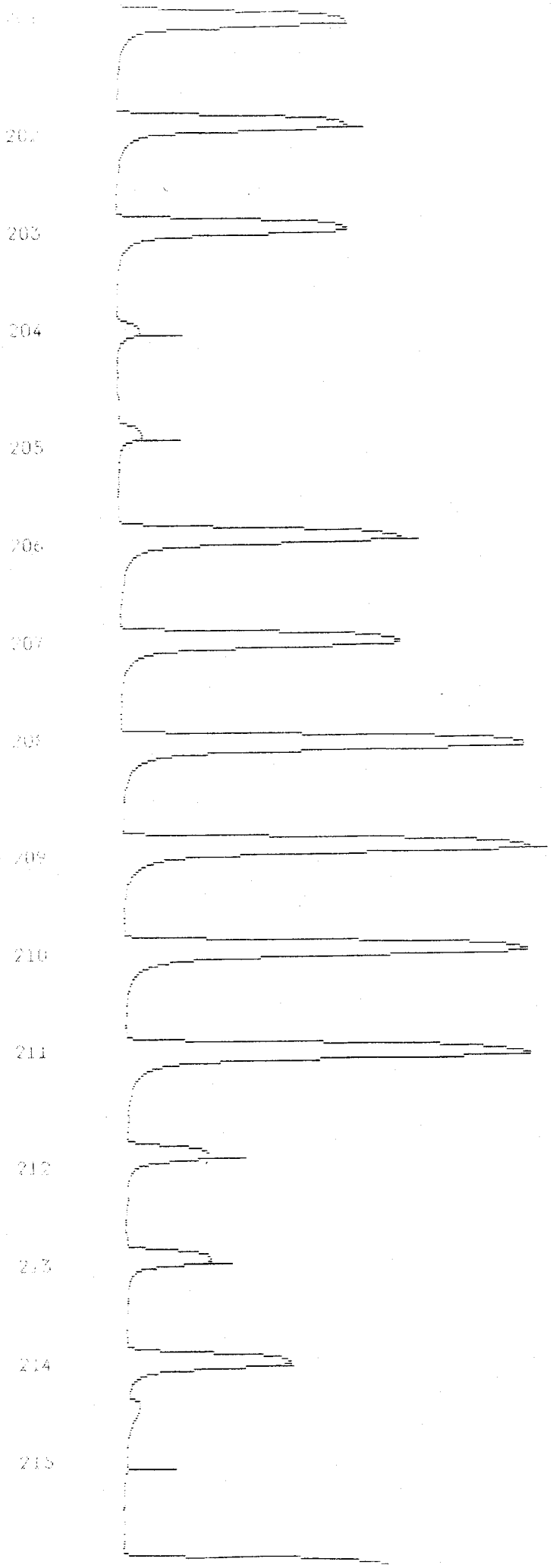

124
125
126
127
128
129
130
131
132
133
134
135
136
137


140
141
142
143
144
145
146
147
148
149
150
151
152
153

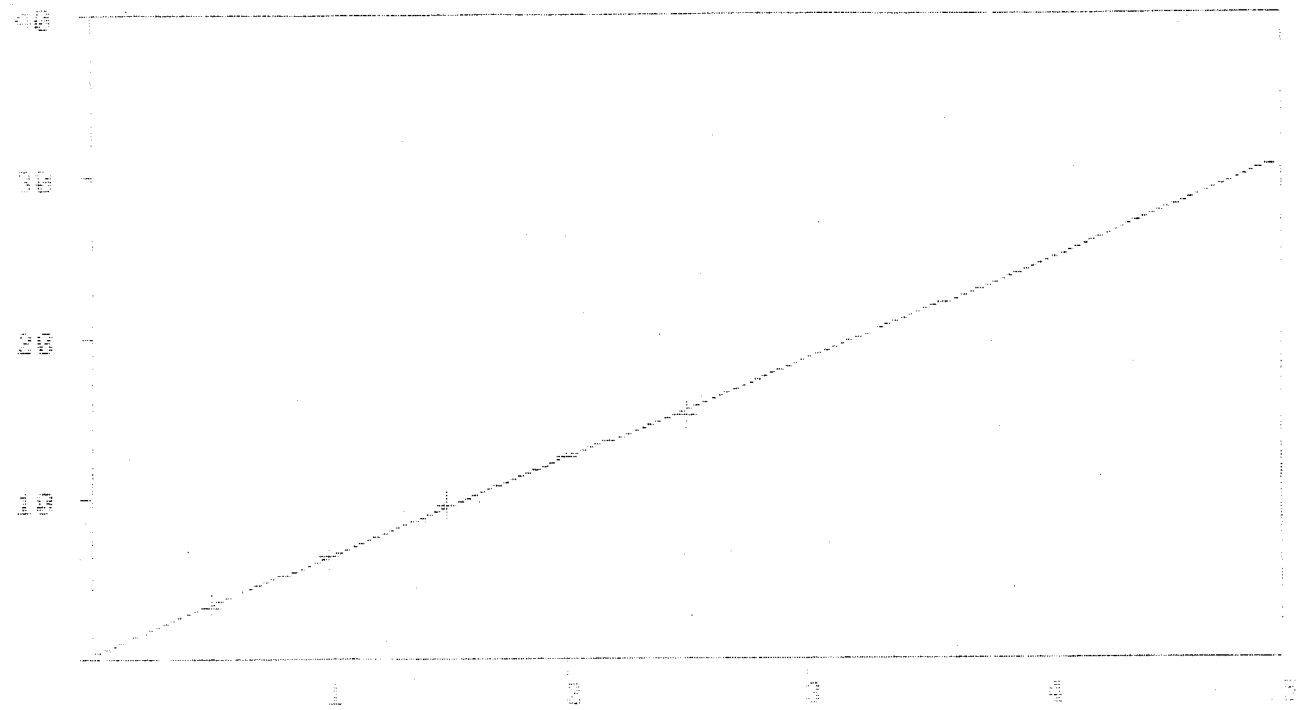



174
175
179
180
181
182
184


190
191
192
193
194
195
196
197
198
199
200


202
203
204
205
206
207
208
209
210
211
212
213
214
215

CHANNEL NAME: 100
RUN NAME: 991003W



CG A TYPE: 1X2 CG ITERATION ORDER: 1
INTERCEPT = 0.20 SLOPE = 0.124512

CORRELATION: [illegible]

CHANNEL NAME: 100
RUN DATE: 10-03-1991
SAMPLE TABLE NAME: 991003W
METHOD NAME: HOWATER

CUP#	SAMPLE ID	CTS	MOY	HEIGHT/AREA	CONCENTRATION (PPb)	EF
1	PRIMER	1	1	9.1	1.459	A
2	DUMMY	1	1	0.0	-0.028	I
3	S1: 0	1	1	0.1	-0.020	I
4	S2: [illegible]	1	1	3.2	0.490	
5	S3: 1	1	1	6.4	1.021	
6	S4: 1.5	1	1	9.5	1.523	
7	S5: 2	1	1	12.6	2.030	
8	S6: 2.5	1	1	15.2	2.456	
9	ICV	1	1	9.0	1.443 96%	
10	B	1	1	0.0	-0.032	B
11	D4	1	1	9.5	1.523	D
12	WG 578	1	1	12.1	1.946 97%	
13	ORG REF	1	1	14.6	2.352 117%	
14	BL1003-10KC	1	1	0.0	0.024	I
15	BL1003-18KC	1	1	0.1	<0.03 -0.020	I
16	BL1003S	1	[illegible]	[illegible]	0.941	[illegible]
17	BL1003S	1	1	6.0	0.949 95%	
18	BL1003DS	1	1	6.0	0.941 94%	
19	BL1003DS	1	1	6.0	0.945	
20	42253	1.5	1	6.9	1.639	
21	42253	1.5	1	6.9	1.63[illegible]	
[illegible]	[illegible]	1.5	1	6.9	1.6[illegible]	

00099

52	[illegible]	[illegible]	1	[illegible]	[illegible]		
53	[illegible]	1.5		1.0	[illegible]		
54	[illegible]	1.5		13.7	[illegible]		
55	42247	1.5	1	3.2	3.312	I	
56	42247	1.5	1	6.3	0.324	I	
57	42249	1.5	1	1.0	0.191		
58	42250	1.5	1	1.0	0.263		
59	42254	1.5	1	2.5	1.294		
60	42254	1.5	1	7.5	1.782		
61	009	1	1	5.8	0.[illegible]	91%	
62	8	1	1	0.0	-0.032	b	
63	04	1	1	9.5	1.323	d	
64	42255	1.5	1	2.9	0.876		
65	42258	1.5	1	3.1	[illegible]		
66	42268	1.5	1	0.3	[illegible]	I	
67	42268	1.5	1	0.2	0.000	I	
68	42269	1.5	1	3.8	0.879		
69	42269	1.5	1	3.8	0.885		
70	42270	1.5	1	11.4	2.751		
71	42270	1.5	1	11.3	2.727		
72	42271	1.5	1	4.8	1.130		
73	42271	1.5	1	4.8	1.130	b	
74	42482	1.5	1	0.0	-0.048	I	
75	42482	1.5	1	0.0	-0.048	I	
76	BL10035-2860	1	1	0.0	-0.024	I	
77	BL10035-2880	1	1	0.1	0.012	I	
78	BL10035	1	1	6.1	0.957	96%	
79	BL10035	1	1	6.1	0.969		
80	BL100306	1	1	6.1	0.965	97%	
81	BL100306		1	6.2	0.981		
82	42483	1.5	1	0.8	0.156		
83	42483	1.5	1	0.7	0.161		
84	[illegible]	1	1	6.0	0.949	95%	
85	[illegible]	1	1	0.0	0.032	b	
86	D4	1	1	9.5	1.523	d	
87	42483	1.5	1	0.9	0.167		
88	42[illegible]30	1.5	1	0.8	1.150	b	
89	42483	1.5	1	1.8	1.027		
90	42[illegible]	1.5	1	7.6	1.812		
91	42483	1.5	1	[illegible]	1.102		
92	42483	1.5	1	6.6	1.077		
93	42484	1.5	1	12.7	3.074		
94	42484	1.5	1	12.8	3.080		
95	42485	6	1	9.6	9.211		
96	42485	6	1	9.4	8.995		
97	42486	6	1	6.4	6.013		
98	42486	6	1	6.3	5.981		
99	42503	1.5	1	0.9	0.161	I	
100	42503	1.5	1	0.9	0.161		
101	42504	1.5	1	5.6	1.316		
102	42504	1.5	1	5.8	1.370		
103	42505	1.5	1	13.6	3.272	b	
104	42505	1.5	1	13.6	3.283		
105	42506	6	1	4.5	4.204		
106	42506	6	1	4.3	4.067		
107	009	1	1	5.9	0.929	93%	
108	8	1	1	0.0	-0.032	b	
109	D4	1	1	9.5	1.523	d	
110	42519	1.5	1	1.6	0.335		
111	42519	1.5	1	1.5	0.317		
112	42520	6	1	6.6	6.268		
113	42520	6	1	6.5	6.220		
114	BL100[illegible]-2880	1	1	0.0	0.028	I	
115	BL100[illegible]-2880	1	1	0.0	0.024	I	

<0.03

<0.03

VOID MA
CCCGA A

[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	F
[illegible]	[illegible]	1	1	7.6	[illegible]	
159	43246	1.5	1	[illegible]	1.084	
160	43201	1.5	1	5.7	0.849	
161	43201	1.5	1	8.[illegible]	0.849	
162	81100S-1080	1	1	8.0	-0.032	I
163	81100S-1080	1	1	0.0	-0.024	I
164	81100S3	1	1	7.7	0.932	
165	81100S3	1	1	5.8	0.909	
166	81100S0S	1	1	5.9	0.925	e
167	81100S0S	1	1	6.0	0.941	
168	55744	30	1	11.0	47.847	
169	57744	30	1	9.9	47.727	
170	537440	30	1	9.9	47.488	
171	537440	30	1	10.0	47.847	
172	00V	1	1	7.8	0.909 91%	
173	8	1	1	0.0	-0.032	b
174	04	1	1	9.5	1.523	d
175	537445	30	1	16.1	77.751	
176	537445	30	1	16.0	77.632	
177	537440S	30	1	16.1	77.990	
178	537440S	30	1	16.0	77.273	
179	537440C	150	1	3.[illegible]	74.163	
180	537440C	150	1	3.2	74.[illegible]1	
181	81100S-1020	1	1	8.0	-0.032	[illegible]
182	81100S-1020	1	1	0.0	-0.032	I
183	81100S3	1	1	6.7	1.09[illegible]	
184	81100S3	1	1	6.[illegible]	1.047	
185	81100S0S	1	1	6.8	1.073	
186	81100S0S	1	1	6.[illegible]	1.[illegible]	
187	[illegible]	0	[illegible]	5.4	5.303	
188	[illegible]	10	[illegible]	[illegible]	5.1[illegible]	
189	[illegible]	10	1	6.4	[illegible]	
190	[illegible]	10	1	5.[illegible]	[illegible]	
191	[illegible]	10	1	11.1	15.140	
192	[illegible]	10	[illegible]	10.0	15.989	
193	[illegible]	[illegible]	1	12.[illegible]	2.00	
194	[illegible]	1	1	[illegible]	[illegible]	
195	[illegible]	1	1	5.7	0.9[illegible] 93%	
196	8	1	1	0.0	[illegible]	b
197	04	1	1	9.5	1.523	d
198	[illegible]	7.5	1	9.3	[illegible]	
199	[illegible]	7.5	1	9.3	11.[illegible]4	
200	[illegible]44	37.5	[illegible]	8.0	47.996	
201	55744	37.5	1	8.0	4[illegible].847	
202	[illegible]	37.5	1	8.1	48.146	
203	[illegible]	37.5	1	8.1	48.445	
204	[illegible]	187.5	1	0.7	16.447	
205	[illegible]	187.5	1	0.8	1[illegible].943	
206	[illegible]	15	1	9.9	25.864	
207	537490	15	1	9.8	2[illegible].624	
208	537445	37.5	1	14.3	86.124	
209	537445	37.5	1	14.3	86.274	
210	537440	37.5	1	14.3	86.274	
211	537440	37.5	1	14.3	86.274	e
212	537440	187.5	1	2.3	[illegible]	
213	537440	187.5	1	2.7	82.984	
214	00V	1	1	5.7	0.897 90%	
215	8	1	1	0.0	-0.032	b
216	04	1	1	9.5	1.523	d

INTERCEPT = 0.30 LINEAR COEFF: 0.124542
CORRELATION COEFF = .999[illegible]

00.00

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	1	1	[illegible]	[illegible]	
[illegible]	[illegible]	6	1	[illegible]	6.340	
94	[illegible]	6	1	5.4	6.121	
95	[illegible]	6	1	6.7	6.411	
96	[illegible]	6	1	6.5	6.172	
97	[illegible]	[illegible]	1	12.7	12.487	
98	[illegible]	6	1	12.5	12.081	
99	[illegible]	6	1	13.0	12.536	
100	[illegible]	6	1	3.2	12.727	
101	[illegible]	36	1	2.6	11.962	
102	[illegible]	30	1	2.6	11.842	
103	[illegible]	1	1	6.0	0.945	95%
104	[illegible]	1	1	0.0	-0.032	b
105	[illegible]	1	1	9.5	1.523	d
106	[illegible]	6	1	3.7	8.349	s
107	[illegible]	6	1	8.6	8.278	
108	[illegible]	1.5	1	1.3	0.269	
109	42535	1.5	1	1.4	0.293	
110	42536	1.5	1	6.3	1.621	
111	42536	1.5	1	6.6	1.573	
112	42537	1.5	1	6.7	1.603	
113	42537	1.5	1	6.8	1.621	
114	[illegible]	3	1	9.2	4.402	
115	[illegible]	3	1	[illegible]	4.414	
116	42774	1.5	1	0.0	-0.048	I
117	42774	1.5	1	0.0	-0.048	I
118	42775	1.5	1	0.0	-0.036	I
119	42775	1.5	1	0.0	-0.048	I
120	42777	1.5	1	0.1	1.441	
121	[illegible]	1.5	1	3.6	1.429	s
122	[illegible]	1.5	1	7.5	1.854	
123	[illegible]	1.5	1	7.3	1.866	
124	[illegible]	1	1	0.0	-0.024	I
125	[illegible]	1	1	0.0	-0.032	I
126	[illegible]	1	1	5.9	0.933	93%
127	[illegible]	1	1	0.0	-0.032	b
128	[illegible]	1	1	[illegible]	1.535	d
129	[illegible]	1	1	5.8	0.915	
130	[illegible]	1	1	5.9	0.927	
131	[illegible]	1	1	6.1	0.961	
132	[illegible]	1	1	6.0	0.941	
133	42736	1.5	1	3.4	0.795	
134	42736	1.5	1	3.3	0.760	
135	427360	1.5	1	3.4	0.789	
136	427360	1.5	1	3.4	0.795	s
137	424368	1.5	1	9.9	2.390	
138	424368	1.5	1	9.8	2.362	
139	4273608	1.5	1	9.9	2.380	
140	4273608	1.5	1	9.7	2.339	
141	42739	1.5	1	0.4	0.048	I
142	42739	1.5	1	0.4	0.048	I
143	42740	3	1	7.2	3.421	
144	42740	3	1	7.1	3.385	
145	42741	3	1	10.3	4.797	
146	42741	3	1	10.2	4.892	
147	42742	6	1	7.4	7.033	
148	42742	6	1	7.3	6.962	
149	OOV	1	1	5.8	0.913	91%
150	B	1	1	0.0	-0.032	b
151	D4	1	1	9.5	1.523	s
152	43197	1.5	1	0.0	-0.048	I
153	43197	1.5	1	0.0	-0.048	I
154	43198	1.5	1	7.5	1.504	

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
042281	BRAUN-MN	Reagent Blank C10	Mercury -	PV	-0.030						99/10/05	2GMN	99/10/05	MG02	83.	63.	
042724	BRAUN-MN	MB R456	Mercury -	PV	-0.030	-99999.0	0.298	99.	0.299	99.	99/10/05	2GMN	99/10/05	MG02	82.	61.	
042752	BRAUN-MN	Reagent Blank C10	Mercury -	PV	-0.030						99/10/05	2GMN	99/10/05	MG02	82.	61.	
042753	BRAUN-MN	1B-C05	Mercury -	PV	0.073						99/10/05	2GMN	99/10/05	MG02	82.	61.	
042754	BRAUN-MN	1R1-C05	Mercury -	PV	10.966	10.806	25.137	95.	25.004	94.	99/10/05	2GMN	99/10/05	MG02	82.	61.	*BLKIMP*
042755	BRAUN-MN		Mercury -	PV	29.060						99/10/05	2GMN	99/10/05	MG02	81.	61.	
042756	BRAUN-MN	1R3-C05	Mercury -	PV	16.010						99/10/05	2GMN	99/10/05	MG02	81.	61.	
042757	BRAUN-MN	SB-C05	Mercury -	PV	-0.030						99/10/05	2GMN	99/10/05	MG02	82.	61.	
042758	BRAUN-MN	SR1-C05	Mercury -	PV	16.090						99/10/05	2GMN	99/10/05	MG02	82.	61.	
042759	BRAUN-MN	SR2-C05	Mercury -	PV	22.352						99/10/05	2GMN	99/10/05	MG02	81.	61.	
043188	BRAUN-MN	MB R456	Mercury -	PV	-0.030	-99999.0	0.298	99.	0.299	99.	99/10/05	2GMN	99/10/05	MG02	78.	56.	
043215	BRAUN-MN	Reagent Blank C10	Mercury -	PV	-0.030						99/10/05	2GMN	99/10/05	MG02	77.	56.	
BL1005	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.298	99.	0.299	99.	99/10/05	2GMN	99/10/05	MG02	$$$	$$$	

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

00101

Run Date: 99/10/05 Matrix: IMP(KMnO4)
Run Code MG02

Batch	Sample #	Result (ug/L)	Average (ug/L)	Volume (L)	Result (total ug)	% Rec.
1GMN	BL1004	-0.011	-0.011	0.300	-0.0033	
	BL1004	-0.011				
	BL1004S	0.996	0.9945	0.300	0.29835	99.45
	BL1004S	0.993				
	BL1004D	1	0.9945	0.300	0.29835	99.45
	BL1004D	0.989				
	53747	34.369	33.995	0.5	16.9975	
	53747	33.621				
	53747D	33.835	33.8885	0.5	16.94425	
	53747D	33.942				
	53747S	61.27	61.0565	0.5	30.52825	90.38
	53747S	60.843				
	53747DS	61.377	61.2165	0.5	30.60825	90.92
	53747DS	61.056				
1G3C	53750	0.993	0.966	0.5	0.483	
	53750	0.939				
	53750D	0.939	0.971	0.5	0.4855	
	53750D	1.003				
	53750S	2.092	2.1855	0.5	1.09275	81.13
	53750S	2.279				
	53750DS	2.22	2.26	0.5	1.13	86.10
	53750DS	2.3				
	42277	1.302	1.302	0.5	0.651	
	42277	1.302				
	42277D	1.307	1.307	0.5	0.6535	
	42277D	1.307				
	42277S	2.663	2.6925	0.5	1.34625	92.53
	42277S	2.722				
	42277DS	2.701	2.709	0.5	1.3545	93.63
	42277DS	2.717				
	42260	-0.006	-0.0085	0.5	-0.00425	
	42260	-0.011				
	42261	66.389	66.9225	0.5	33.46125	
	42261	67.456				
	42262	67.029	67.136	0.5	33.568	
	42262	67.243				
	42263	63.827	64.147	0.5	32.0735	
	42263	64.467				
	42276	-0.016	-0.016	0.5	-0.008	
	42276	-0.016				
	42278	61.342	56.5555	0.5	28.27775	
	42278	51.769				
	42279	49.42	49.2065	0.5	24.60325	
	42279	48.993				

Run Date: 99/10/05 Matrix: IMP(KMnO4)
Run Code MG02

Batch	Sample #	Result (ug/L)	Average (ug/L)	Volume (L)	Result (total ug)	% Rec.
2QMN	BL1004	-0.011	-0.011	0.300	-0.0033	
	BL1004	-0.011				
	BL1004S	0.993	0.993	0.300	0.2979	99.3
	BL1004S	0.993				
	BL1004D	1	0.998	0.300	0.2994	99.8
	BL1004D	0.996				
	42754	21.986	21.9325	0.5	10.96625	
	42754	21.879				
	42754D	21.665	21.612	0.5	10.806	
	42754D	21.559				
	42754S	50.595	50.2745	0.5	25.13725	95.01
	42754S	49.954				
	42754DS	50.275	50.008	0.5	25.004	94.12
	42754DS	49.741				
	42281	-0.016	-0.016	0.5	-0.008	
	42281	-0.016				
	42752	-0.016	-0.016	0.5	-0.008	
	42752	-0.016				
	42753	0.149	0.1465	0.5	0.07325	
	42753	0.144				
	42755	58.067	58.1205	0.5	29.06025	
	42755	58.174				
	42756	31.807	32.0205	0.5	16.01025	
	42756	32.234				
	42757	0.08	0.0425	0.5	0.02125	
	42757	0.005				
	42758	32.127	32.1805	0.5	16.09025	
	42758	32.234				
	42759	44.403	44.7035	0.5	22.35175	
	42759	45.004				
	43215	-0.016	-0.016	0.5	-0.008	
	43215	-0.016				

Run Date: 99/10/05 Matrix: IMP(KMnO4)
Run Code MG02

Batch	Sample #	Result (ug/L)	Average (ug/L)	Volume (L)	Result (total ug)	% Rec.
3GMN	BL1004	-0.011	0.016	0.300	0.0048	
	BL1004	0.043				
	BL1004S	1.053	1.023	0.300	0.3069	102.3
	BL1004S	0.993				
	BL1004D	0.993	0.966	0.300	0.2898	96.6
	BL1004D	0.939				
	43217	13.715	13.608	0.5	6.804	
	43217	13.501				
	43217D	13.662	13.662	0.5	6.831	
	43217D	13.662				
	43217S	27.913	27.726	0.5	13.863	93.94
	43217S	27.539				
	43217DS	27.966	27.911	0.5	13.9555	95.17
	43217DS	27.856				
	43216	1.27	1.3315	0.5	0.66575	
	43216	1.393				
	43218	9.765	9.7385	0.5	4.86925	
	43218	9.712				
	43219	11.097	10.99	0.5	5.495	
	43219	10.883				
	43220	1.019	1.035	0.5	0.5175	
	43220	1.051				
	43221	35.436	36.0765	0.5	18.03825	
	43221	36.717				
	43222	38.745	39.0655	0.5	19.53275	
	43222	39.386				
	43223	34.689	34.849	0.5	17.4245	
	43223	35.009				
	53685	-0.016	-0.016	1	-0.016	
	53685	-0.016				
	53686	0.021	0.0025	1	0.0025	
	53686	-0.016				

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.05(W) Run Code: MG02 Matrix: IMP. (KMNO4)

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			BL1005	1GMN		
15			"			
16			BL1005 S			
17			"			
18			BL1005 S			
19			"			
20	1.5	1/20	53747			
21			"			
22			53747 D			
23			"			
24			53747 S			
25			"			
26			53747 DS			
27			"			
28		1/100	53747 DS			
29			"			
30			53750			
31			"			
32			53750 D			
33			"			
34			CCV			
35			B			
36			D4			
37	1.5		53750 S			
38			"			
39			53750 DS			
40			"			
41	1.5		42277			
42			"			
43			42277 D			
44			"			
45			42277 S.			
46			"			
47			42277 DS			
48			"			
49			42260			
50			"			
51		1/40	42261			
52			"			
53			42262			
54			"			
55			42263			
56			"			
57			CCV			
58			B			
59			D4			
60	1.5		42276			
61			"			
62		1/20	42278			
63			"			
64			42279			
65			"			
66			BL1005	2GMN		
67			"			
68			BL1005 S			
69			"			
70			BL1005 DS			
71			"			
72	1.5	1/20	42754			
73			"			
74			42754 D			
75			"			
76			42754 S			
77			"			
78			42754 DS			
79			"			
80			CCV			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.05 Run Code: MG02 Matrix: IMP. (MN04)

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	1.5	1/100	42754 D5			
24			"			
25			42281			
26			"			
27			42752			
28			"			
29			42753			
30			"			
31		1/20	42755			
32			"			
33			42756			
34			"			
35			42757			
36			"			
37		1/20	42758			
38			"			
39			42759			
40			"			
41	1.5		43215			
42			"			
43			CCV			
44			B			
45			D4			
46			BL1005	36 MN		
47			"			
48			BL1005 S			
49			"			
50			BL1005 S			
51			"			
52	1.5	1/10	43217			
53			"			
54			43217 D			
55			"			
56			43217 S			
57			"			
58			43217 DS			
59			"			
60			43216			
61			"			
62		1/10	43218			
63			"			
64		1/20	43219			
65			"			
66			CCV			
67			B			
68			D4			
69	1.5		43220			
70	1.5		"			
71		1/20	43321			
72			"			
73			43322			
74			"			
75			43323			
76			"			
77			53685			
78			"			
79			53686			
80			"			

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.10.05 Run Code: MG02 Matrix: IMP-

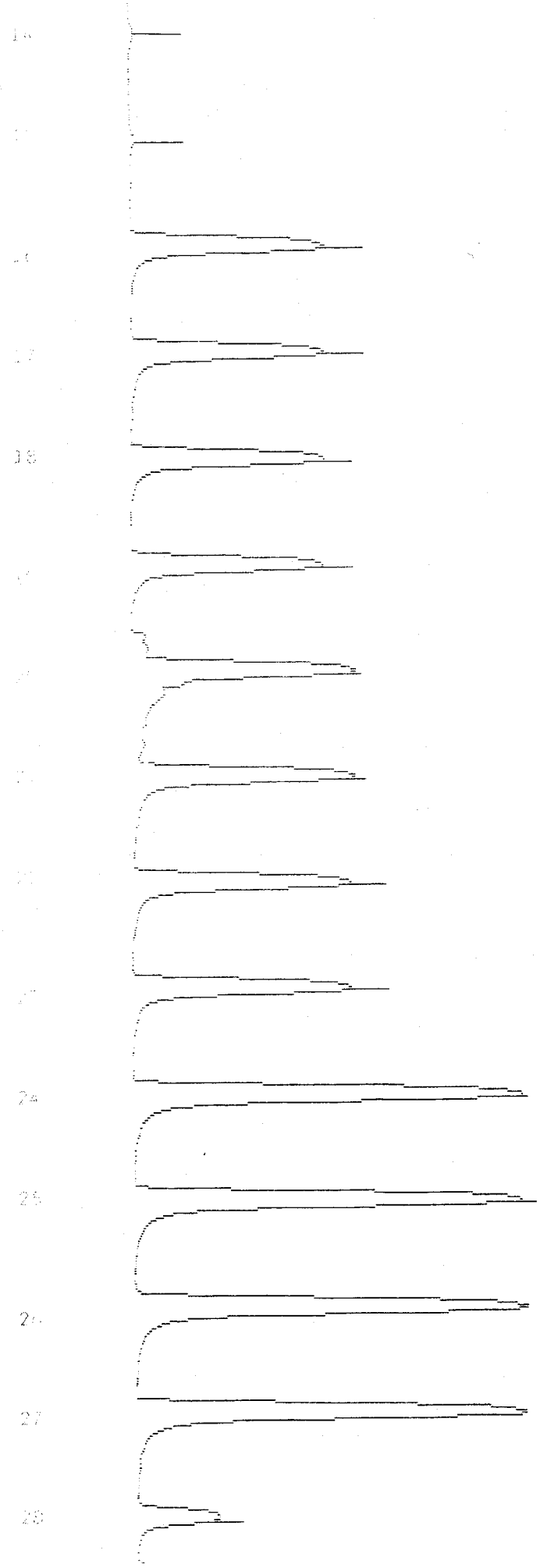
Analyst: _____ Units: µg (see comments) MDL: 0.03

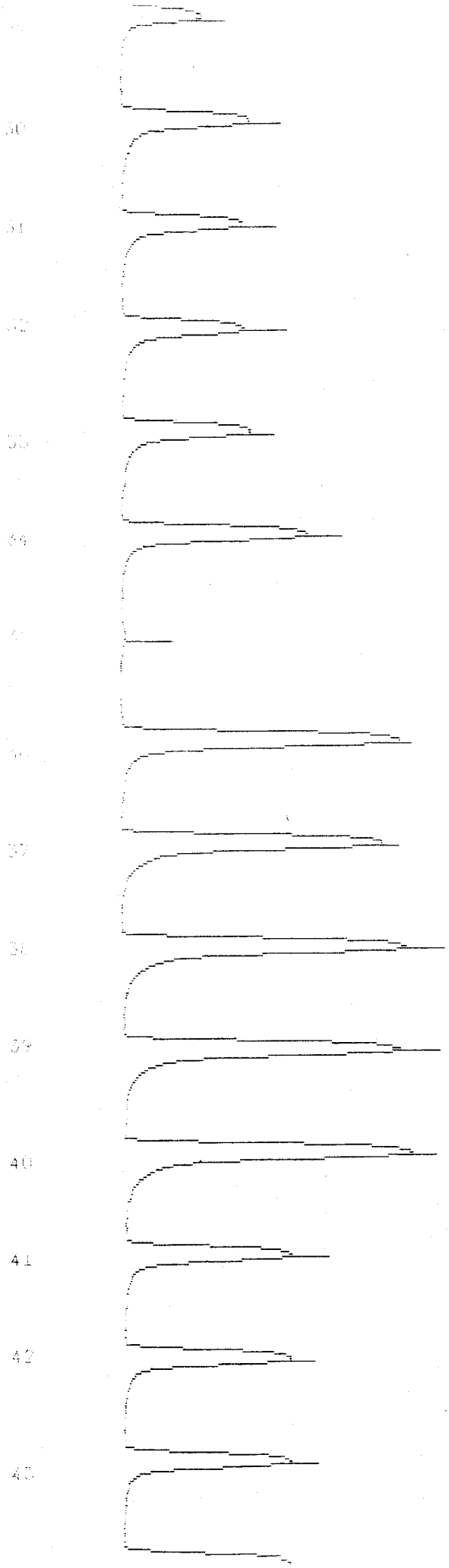
Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			BL1005	46MN		
22			"			
23			BL1005 S			
24			"			
25			BL1005 DS			
26			"			
27	1.5	1/20	53687			
28	↓	↓	"			
29			CCV			
30			B			
31			D4			
32	1.5	1/20	53687 D			
33			"			
34			53687 S			
35			"			
36			53687 DS			
37			"			
38		1/20	53688			
39		↓	"			
40		1/10	53689			
41	1.5	1/10	53689			
42			53690			
43			"			
44		1/20	53691			
45			"			
46			53692			
47			"			
48			53693			
49			"			
50			53147			
51			"			
52			WS 378			
53			ORG. REF			
54			CCV			
55			B			
56			D4			
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						

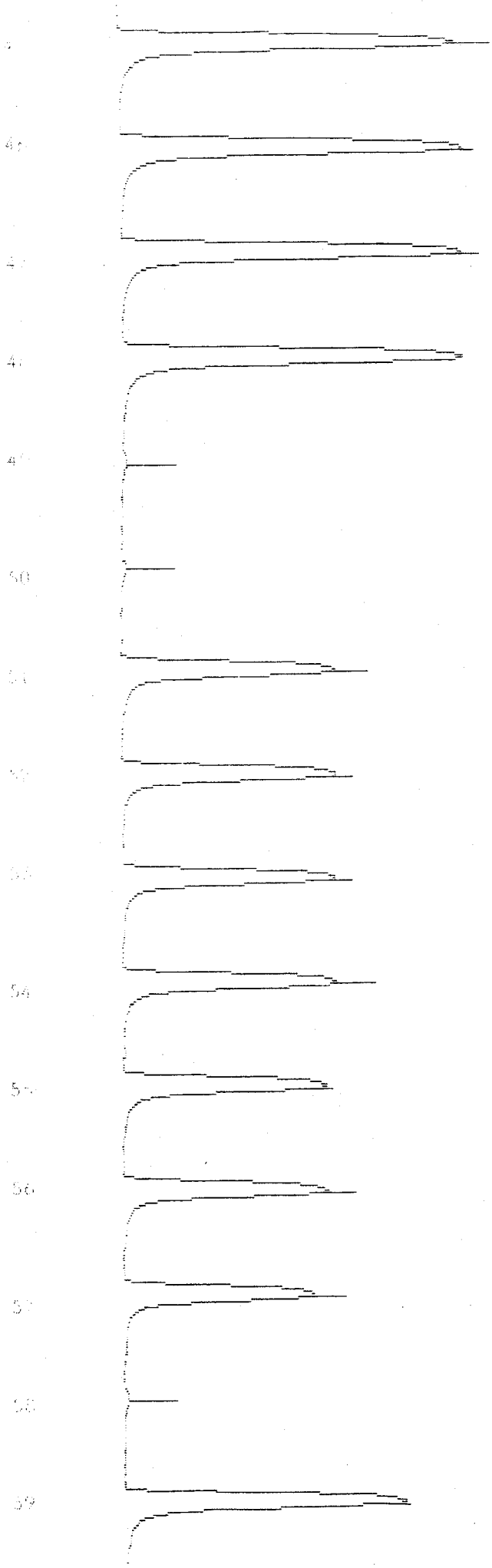
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

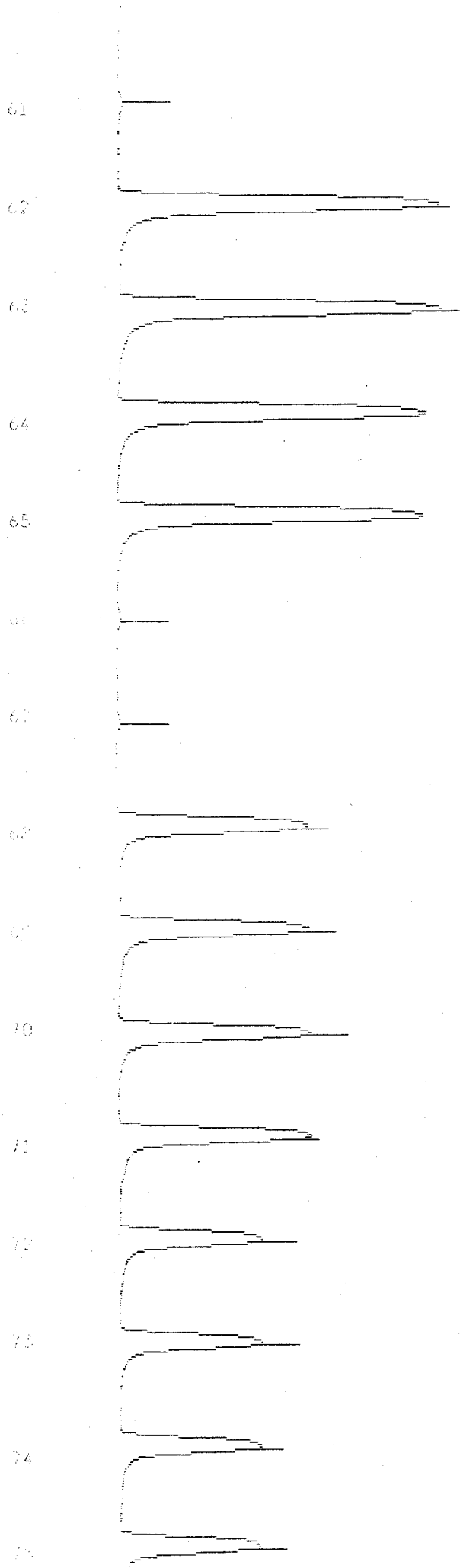
ICV = 1.5 ug/L, CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

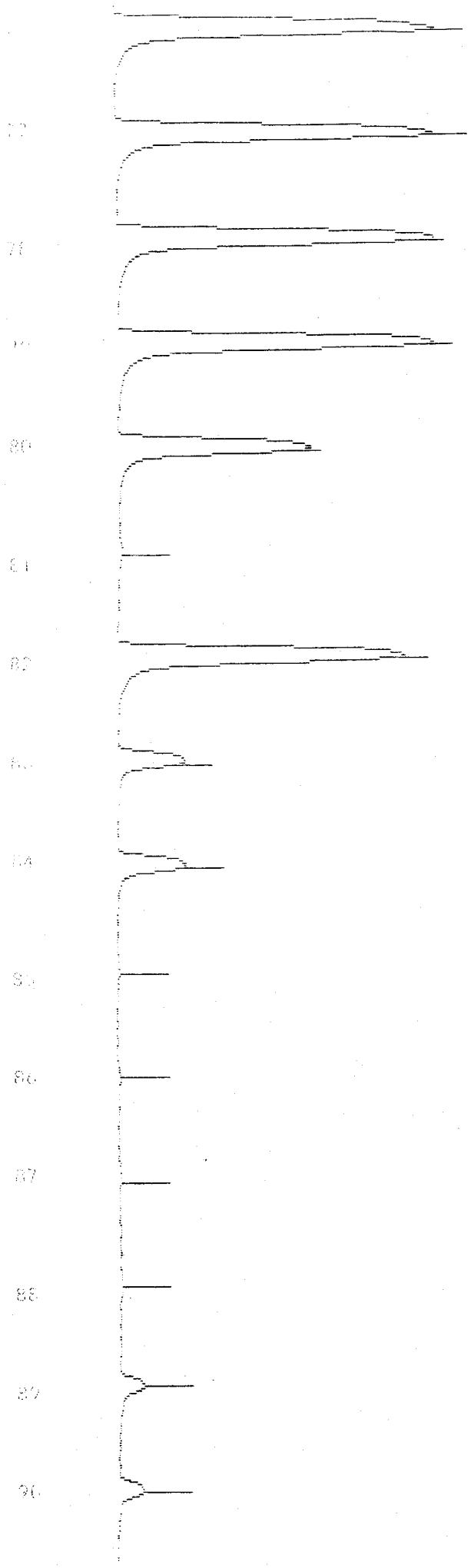
ICV = 1.5 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

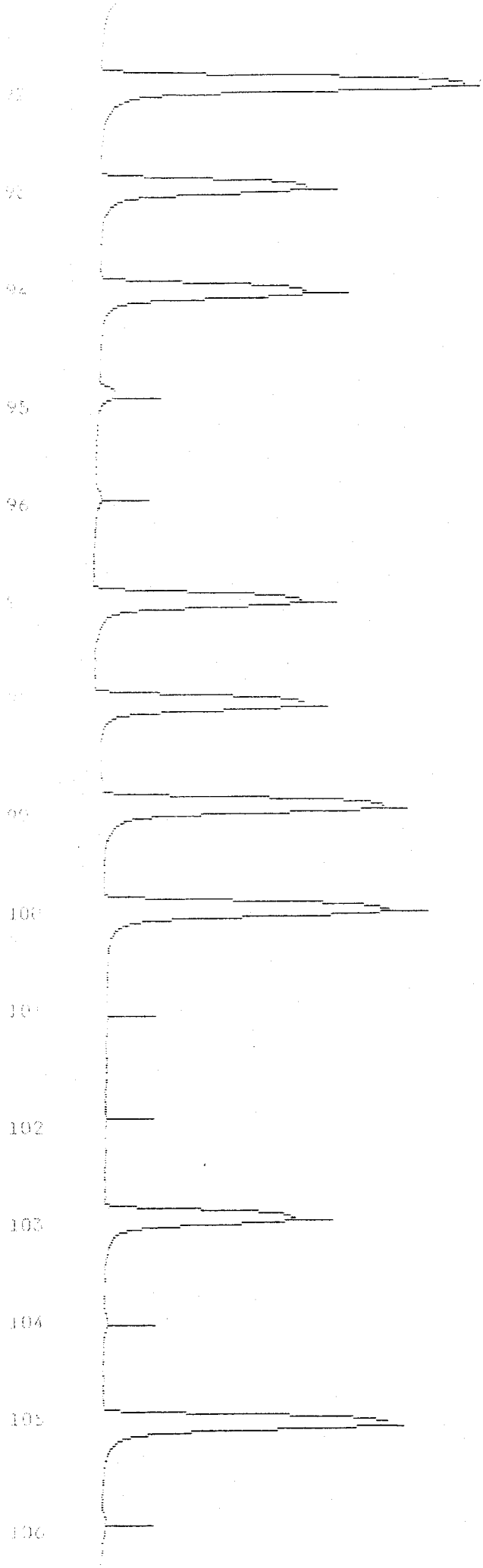


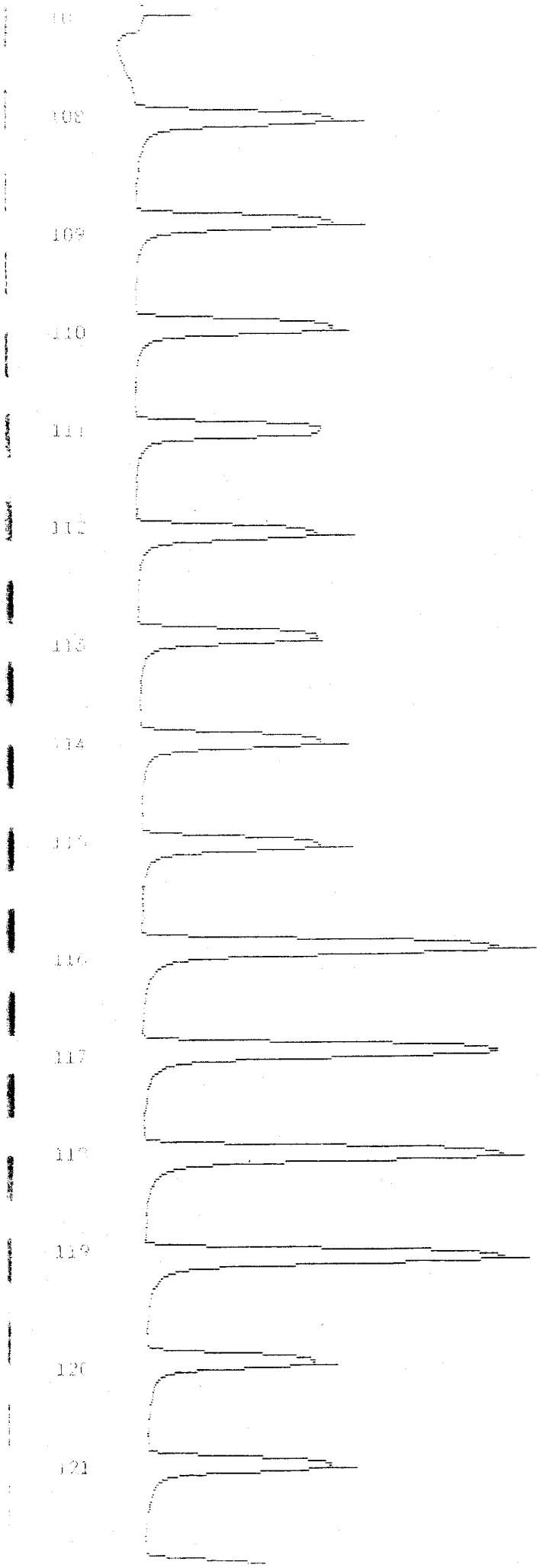

40
41
42
43

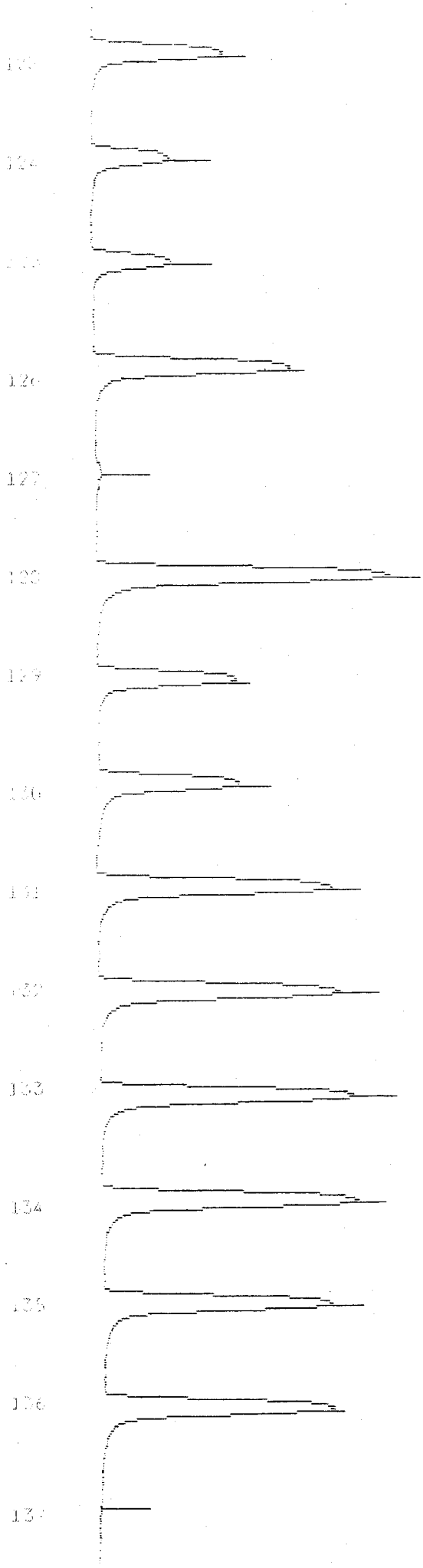


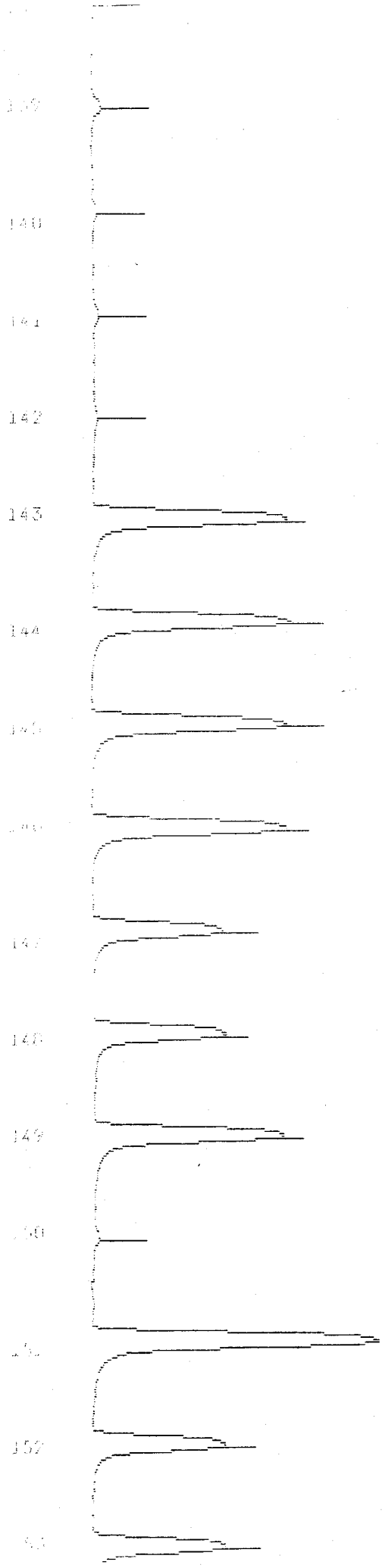

61
62
63
64
65
66
67
68
69
70
71
72
73
74
75

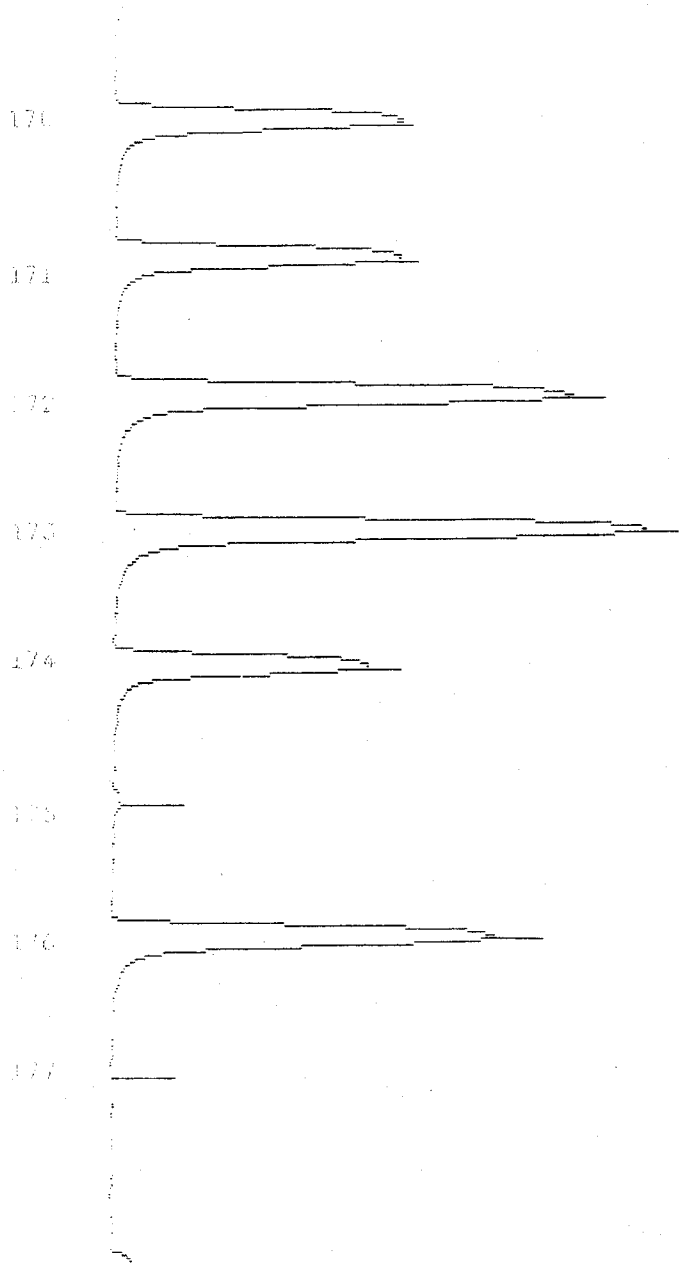



96
95
100
102
103
104
105
106

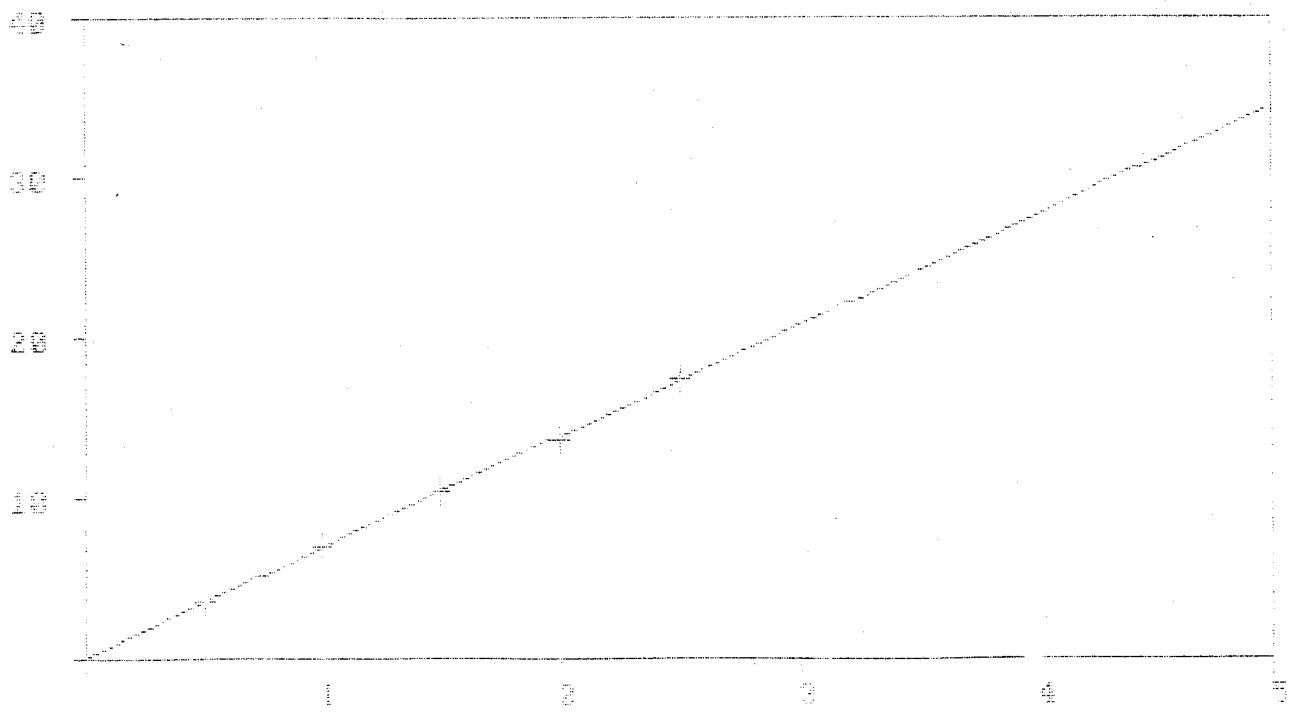

108
109
110
111
112
113
114
115
116
117
118
119
120
121


123
124
125
126
127
128
129
130
131
132
133
134
135
136
137

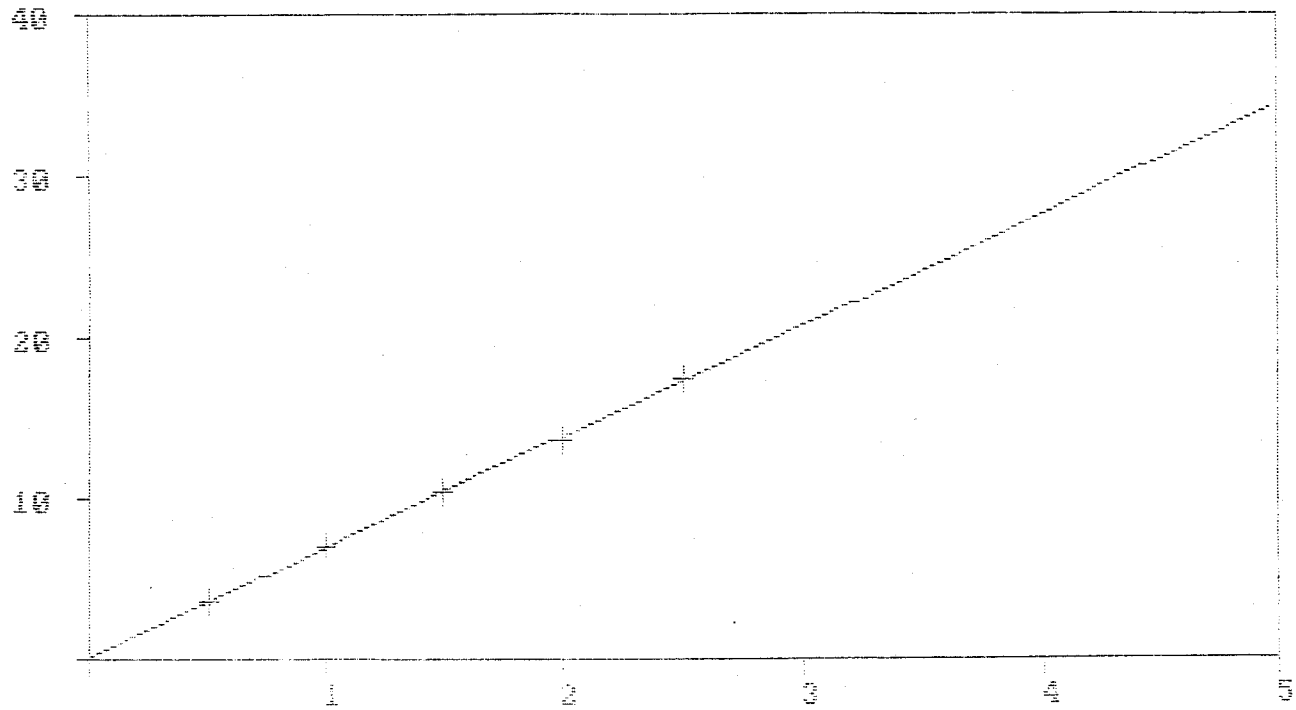

139
140
141
142
143
144
145
146
147
148
149
150
151
152
153



CHANNEL NAME: LDC
RUN NAME: 991005W



CHANNEL NAME: LDC
RUN NAME: 991005W



DATA TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = 7.44 SLOPE = 6.862724

CORRELATION: .9999237

CHANNEL NAME: LDC
RUN DATE: 10-06-1999
SAMPLE TABLE NAME: 991005W
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION (ppb)	EF
1	PRIMER	1	1	10.1		1.466	s
2	DUMMY	1	1	0.0		-0.004	I
3	S1: 0	1	1	0.1		-0.000	I
4	S2: .5	1	1	3.6		0.509	
5	S3: 1	1	1	6.9		0.996	
6	S4: 1.5	1	1	10.4		1.498	
7	S5: 2	1	1	13.7		1.982	
8	S6: 2.5	1	1	17.3		2.516	
9	ICV	1	1	10.1		1.462 97%	
10	B	1	1	0.0		-0.011	b
11	D4	1	1	10.4	TUG	1.498	d
12	WS 378	1	1	12.6		1.818 91%	
13	ORG REF	1	1	11.9		1.719 86%	
14	BL1005-1GMN	1	1	0.0	<0.03	-0.011	I
15	BL1005-1GMN	1	1	0.0		-0.011	I
16	BL1005S	1	1	6.9		0.996	s
17	BL1005S	1	1	6.9		0.993	
18	BL1005DS	1	1	6.9		1.000	
19	BL1005DS	1	1	6.9		0.989	
20	53747 > REPEATED @ END TO CHECK. NA	30	1	7.9		34.369	
21	53747	30	1	7.8		33.621	
22	537470	30	1	7.8		33.835	

00120

25	53747D	30	1	14.0	60.843	
26	53747DS	30	1	14.1	[illegible]	
27	53747DS	30	1	14.0	61.056	
28	53747DS	150	1	2.8	60.289	
29	53747DS	150	1	2.9	61.890	
30	53751	1.5	1	4.6	0.993	
31	53751	1.5	1	4.4	0.939	s
32	53751D	1.5	1	4.4	0.939	
33	53751D	1.5	1	4.7	1.003	
34	CCV	1	1	6.8	0.978 98%	
35	B	1	1	0.0	-0.011	b
36	D4	1	1	10.4	1.498	d
37	53751S	1.5	1	9.6	2.092	
38	53751S	1.5	1	10.5	2.279	
39	53747DS	1.5	1	10.2	2.220	
40	53747DS	1.5	1	10.6	2.300	
41	42277	1.5	1	6.0	1.302	
42	42277	1.5	1	6.0	1.302	
43	42277D	1.5	1	6.1	1.307	
44	42277D	1.5	1	6.1	1.307	
45	42277S	1.5	1	12.3	2.663	
46	42277S	1.5	1	12.5	2.722	s
47	42277DS	1.5	1	12.4	2.701	
48	42277DS	1.5	1	12.5	2.717	
49	42260	1.5	1	0.0	-0.006	I
50	42260	1.5	1	0.0	-0.011	I
51	42261	60	1	7.7	66.389	
52	42261	60	1	7.8	67.456	
53	42262	60	1	7.7	67.029	
54	42262	60	1	7.8	67.243	
55	42263	60	1	7.4	63.827	
56	42263	60	1	7.4	64.467	
57	CCV	1	1	6.9	0.989 99%	
58	B	1	1	0.0	0.011	b
59	D4	1	1	10.4	1.498	d
60	42276	1.5	1	0.0	0.016	I
61	42276	1.5	1	0.0	-0.016	I
62	42278	30	1	11.8	51.542	
63	42278	30	1	11.9	51.769	
64	42279	30	1	11.4	49.420	
65	42279	30	1	11.3	48.993	
66	BL100S-30MN	1	1	0.0	-0.011	I
67	BL100S-20MN	1	1	0.0	-0.011	I
68	BL100SS	1	1	6.9	0.993	
69	BL100SS	1	1	6.9	0.993	
70	BL100SDS	1	1	6.9	1.000	
71	BL100SDS	1	1	6.9	0.996	
72	42754	30	1	5.1	21.986	
73	42754	30	1	5.1	21.879	
74	42754D	30	1	5.0	21.665	
75	42754D	30	1	5.0	21.559	
76	42754S	30	1	11.6	50.595	s
77	42754S	30	1	11.5	49.954	
78	42754DS	30	1	11.6	50.275	
79	42754DS	30	1	11.5	49.741	
80	CCV	1	1	6.9	0.993 99%	
81	B	1	1	0.0	-0.011	b
82	D4	1	1	10.4	1.498	d
83	42754DS	150	1	2.2	46.94[illegible]	
84	42754DS	150	1	2.2	47.479	
85	42281	1.5	1	0.0	-0.016	I
86	42281	1.5	1	0.0	-0.016	I
87	42282	1.5	1	0.0	0.016	I
88	[illegible]	[illegible]	1	0.0	0.016	I

91	[illegible]	[illegible]	1	[illegible]	[illegible]	s
92	[illegible]	30	1	[illegible]	[illegible]174	
93	42756	30	1	[illegible]	31.807	
94	42756	30	1	7.4	32.234	
95	42757	1.5	1	0.4	0.080	I
96	42757	1.5	1	0.1	0.005	I
97	42758	30	1	7.4	32.127	
98	42758	30	1	7.4	32.234	
99	42759	30	1	10.2	44.403	
100	42759	30	1	10.4	45.044	
101	43215	1.5	1	0.0	-0.016	I
102	43215	1.5	1	0.0	-0.016	I
103	CCV	1	1	6.8	0.975 98%	
104	B	1	1	0.0	-0.011	b
105	D4	1	1	10.4	1.498	d
106	BL1005-3GMN	1	1	0.0	-0.011	s
107	BL1005-3GMN	1	1	0.3	0.039	I
108	BL1005S	1	1	7.3	1.053	
109	BL1005S	1	1	6.9	0.993	
110	BL1005DS	1	1	6.9	0.993	
111	BL1005DS	1	1	6.5	0.939	
112	43217	15	1	6.3	13.715	
113	43217	15	1	6.3	13.501	
114	432170	15	1	6.3	13.662	
115	432170	15	1	6.3	13.662	
116	432173	15	1	12.8	27.913	
117	432173	15	1	12.7	27.639	
118	43217DS	15	1	12.9	27.966	
119	43217DS	15	1	12.8	2[illegible].859	
120	43216	1.5	1	5.9	1.2[illegible]0	
121	43216	1.5	1	6.4	1.393	s
122	43218	15	1	4.[illegible]	[illegible].765	
123	43218	15	1	4.5	9.712	
124	43219	30	1	2.[illegible]	11.[illegible]97	
125	43219	30	1	2.6	10.883	
126	CCV	1	1	6.8	0.975 98%	
127	B	1	1	0.0	-0.011	b
128	D4	1	1	10.4	1.498	d
129	43220	1.5	1	4.7	1.019	
130	43220	1.5	1	4.9	1.051	
131	43221	30	1	8.2	35.436	
132	43221	30	1	8.5	36.717	
133	43222	30	1	8.9	38.745	
134	43222	30	1	9.1	39.386	
135	43223	30	1	8.0	34.689	
136	43223	30	1	8.1	35.009	s
137	53685	1.5	1	0.0	-0.016	I
138	53685	1.5	1	0.0	-0.016	I
139	53686	1.5	1	0.2	0.021	I
140	53686	1.5	1	0.0	-0.016	I
141	BL1005-4GMN	1	1	0.0	-0.011	I
142	BL1005-4GMN	1	1	0.0	-0.011	I
143	BL1005S	1	1	6.9	0.996	
144	BL1005S	1	1	7.0	1.014	
145	BL1005DS	1	1	6.9	0.996	
146	BL1005DS	1	1	7.0	1.003	
147	53687	30	1	4.5	19.530	
148	53687	30	1	4.7	20.064	
149	CCV	1	1	6.7	0.968 97%	
150	B	1	1	0.0	-0.011	b
151	D4	1	1	10.4	1.498	s
152	536870	30	1	4.7	20.064	
153	536870	30	1	4.7	20.064	
154	536878	30	1	11.2	48.673	

00122

[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	
[illegible]	[illegible]	30	1	[illegible]	24.[illegible]	
[illegible]	[illegible]	[illegible]	1	[illegible]	10.[illegible]	
[illegible]	[illegible]	[illegible]	1	[illegible]	10.886	
[illegible]	53690	[illegible]	1	[illegible]	0.057	1
163	53690	[illegible]	[illegible]	0.6	0.117	1
164	53691	30	1	[illegible]	[illegible]	
165	53691	30	1	4.2	18.143	
[illegible]	53692	30	1	[illegible]	33.26[illegible]	[illegible]
167	53692	30		5.4	23.[illegible]	
168	[illegible]	[illegible]	1	[illegible]	13.147	
169	53694	[illegible]	1	4.3	18.35[illegible]	
170	53747	30	1	[illegible]	33.301	
171	53747	30	1	[illegible]	33.038	
172	WB 57[illegible]	1	1	12.4	1.793	90%
173	ORT. REF	1	1	14.4	2.081	104%
174	CCV	1	1	6.8	0.97[illegible]	98%
175	E	1	1	0.0	-0.011	D
176	D4	1	1	10.4	1.498	[illegible]

INTERCEPT: 0.0 LINEAR COEF: 6.867.74

CORRELATION COEF: 999.[illegible]

4. SHIPPING/RECEIVING DOCUMENTS

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

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: Bruce Randall
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis, MN 55439
Telephone #: (612) 833-4653 Fax #: (612) 946-6601

Project ID/Project Name: CMXX-99-0305
P.O. #

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

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

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	Hg Ontario Hydro										FOR LAB USE ONLY
1	1R1-C01	7-15		Filter				X										
2	1R2-C01	7-16						X										
3	1R3-C01	7-16						X										
4	1B-C01 (Blank)	7-15						X										
5	1R1-C02	"		Liq.				X										
6	1R2-C02	7-16		L				X										
7	1R3-C02	7-16						X										
8	1B-C02 (Blank)	~~7-17~~ 7-15 BK						X										
9	1R1-C03A	7-15						X										
10	1R1-C03B	"						X										
11	1R2-C03A	7-16						X										
12	1R2-C03B							X										
13	1R3-C03A							X										
14	1R3-C03B							X										
15	1B-C03 (Blank)	7-15						X										

CHAIN OF CUSTODY
Collected by: *(Print)* Bruce Randall
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 7/30-1000
Received by: Date/Time
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

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

Comments:

BRAUN 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: Bruce Randall
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39106
City, State, Zip: Minneapolis, MN 55439
Telephone #: (612) 833-4653 Fax #: (612) 946-6001

Project ID/Project Name: CMXX-99-0305
P.O. #

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

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

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	Hg-Ontario Hydro										FOR LAB USE ONLY
1	1R1-C04	7-15		Liq				X										
2	1R2-C04	7-16						X										
3	1R3-C04	7-16						X										
4	1B-C04 (Blank)	7-15						X										
5	1R1-C05	"						X										
6	1R2-C05	7-16						X										
7	1R3-C05	"						X										
8	1B-C05 (Blank)	7-15						X										
9	Nothing Below this Line																	
10																		
11																		
12																		
13																		
14																		
15																		

CHAIN OF CUSTODY
Collected by: *(Print)* Bruce Randall
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 7-30 1000
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:

00125

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: Bruce Randall
Project ID/Project Name: CMXX-99-0305
P.O. #:
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis, MN 55439
Telephone #: (612) 833-4653
Fax #: (612) 946-6001

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

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

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	Hg-Ontario Hydro										FOR LAB USE ONLY
1	SR1-CØ1	7-15		filter				X										
2	SR2-CØ1	7-16		↓				X										
3	SR3-~~CØ3~~ CØ1	7-16		↓				X										
4	~~SR1~~ SB-CØ1	7-15		filter				X										
5	SR1 -CØ2	7-15						X										
6	SR2 - CØ2	7-16						X										
7	SR3 - CØ2	7-16						X										
8	SBR - CØ2 (Blank)	7-15						X										
9	SR1 - CØ3A > combine	7-15						X										
10	SR1 - CØ3B	"						X										
11	SR2 - CØ3A > combine	7-16						X										
12	SR2 - CØ3B	"						X										
13	SR3 - CØ3A > combine	"						X										
14	SR3 - CØ3B	"						X										
15	SB - CØ3	7-15						X										

CHAIN OF CUSTODY
Collected by: (Print) Bruce Randall
Collector's Signature: Bruce Randall
Relinquished by: [signature] Date/Time 7/30 - 1000
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:

00126

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: Bruce Randall
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39108
City, State, Zip: Minneapolis, MN 55439
Telephone #: (612) 833-4653 Fax #: (612) 946-6001

Project ID/Project Name: CMXX-99-0305
P.O. #

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

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)
Note - SR3-C05 Not included - Broken

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	Hg-Cvtoxro Hydro										FOR LAB USE ONLY
1	SR1 - C04	7-15		Irq														
2	SR2 - C04	7-16		↓														
3	SR3 - C04	7-16																
4	SB - C04	7-15																
5	SR1 - C05	7-15																
6	SR2 - C05	7-16																
7	~~SR3~~																	
8	SB - C05	7-15		↓														
9	C7 (reagent blank)																	
10	C8 "																	
11	C9 "																	
12	C10 "																	12752
13	C11 "																	
14	C12 "																	
15																		

CHAIN OF CUSTODY
Collected by: *(Print)* Bruce Randall
Collector's Signature: [signature]
Relinquished by: Date/Time
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 Received: ☐ Yes ☐ No ☐ N/A

Comments:

00157

00128

Page ___ of ___

US SAMPLE LOG IN SHEET

BRAUN

Lab Name: Philip Analytical Services Corporation, Burlington Laboratory

Received By (Print Name): _____

Received By (Signature): _____

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.	12 [illegible] 2990	
Does Information on Custody Records and Samples Agree?	Yes ___ No ___	
Date Received at Lab	08-05-99	
Time Received	11:40	

Temperature of Coolers	
Cooler ID:	Temperature
2 coolers	22° 22°

Relinquished By: _____

Date: 08-05-99

Logbook No: _____

Logbook Page No. _____

APPENDIX G

BRAUN INTERTEC

Description: LOS meter Yc Check

Project No: CMXX-99-0305

Date: 7-16-99 By: BR

Pbar = 29.02

Inlet

meter # 81231
$\gamma = 1.003$
$\Delta H_c = 1.829$

$V_i = 87.124$
$V_f = 94.789$
$V_m = 7.665$
$T_m = 81°F = 541°R$

$$Y_c = \frac{10}{7.665}\left(\frac{0.0319 \times 541}{29.02}\right)^{1/2}$$

$Y_c = 1.0061$

$0.97Y = 0.97(1.003)$
$= 0.9729$
$1.03Y = 1.03(1.003)$
$= 1.0331$

$0.9729 < 1.0061 < 1.0331$

OK

Stack

meter # 38758
$\gamma = 1.005$
$\Delta H_c = 1.811$

$V_i = 110.004$
$V_f = 117.720$
$V_m = 7.768$
$T_m = 92°F = 552°R$

$$Y_c = \frac{10}{7.768}\left(\frac{0.0319 \times 552}{29.02}\right)^{1/2}$$

$Y_c = 1.0028$

$0.97Y = 0.97(1.005)$
$= 0.9749$
$1.03Y = 1.03(1.005)$
$= 1.0352$

$0.9749 < 1.0028 < 1.0352$

OK

APPENDIX H

List of Participants

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