APPENDIX A
DETAILED TEST DATA AND TEST RESULTS

TABLE A-1
COGENTRIX - ROCKY MOUNT, NC
SUMMARY OF MERCURY SPECIATION TEST DATA AND TEST RESULTS
UNIT NO. 2B INLET

TEST DATA:						
Test run number		1	2		3	
Location			Unit No. 2B Inlet			
Test date		11/17/99	11/17/99		11/18/99	
Test time period		0815-1055	1247-1602		0745-1011	
PROCESS DATA:						
Unit Load, MW		62.7	62.0		62.6	
Coal feed rate, lb/hr.		28700	28600		27400	
Coal Btu content, Btu/lb.		13200	13290		13310	
Heat Input, 10^6 Btu/hr		378.8	380.1		364.7	
SAMPLING DATA:						
Sampling duration, min.		125.0	125.0		125.0	
Nozzle diameter, in.		0.229	0.229		0.212	
Cross sectional nozzle area, sq.ft.		0.000286	0.000286		0.000245	
Barometric pressure, in. Hg		30.03	30.03		30.21	
Avg. orifice press. diff., in H_2O		1.29	1.26		0.89	
Avg. dry gas meter temp., deg F		58.4	72.5		54.0	
Avg. abs. dry gas meter temp., deg. R		518	533		514	
Total liquid collected by train, ml		121.7	132.5		113.3	
Std. vol. of H_2O vapor coll., cu.ft.		5.7	6.2		5.3	
Dry gas meter calibration factor		0.9961	0.9961		0.9961	
Sample vol. at meter cond., dcf		69.792	71.893		60.721	
Sample vol. at std. cond., dscf (1)		71.268	71.457		62.845	
Percent of isokinetic sampling		96.2	100.0		101.2	
Sample vol. at std. cond., dscm (1)		2.018	2.023		1.780	
GAS STREAM COMPOSITION DATA:						
CO_2, % by volume, dry basis		13.7	14.1		14.2	
O_2, % by volume, dry basis		4.3	4.3		4.3	
N_2, % by volume, dry basis		82.0	81.6		81.5	
Molecular wt. of dry gas, lb/lb mole		30.36	30.43		30.44	
H_20 vapor in gas stream, prop. by vol.		0.074	0.080		0.078	
Mole fraction of dry gas		0.926	0.920		0.922	
Molecular wt. of wet gas, lb/lb mole		29.44	29.43		29.47	
GAS STREAM VELOCITY AND VOLUMETRIC FLOW DATA:						
Static pressure, in. H_2O		-12.00	-12.00		-12.00	
Absolute pressure, in. Hg		29.15	29.15		29.33	
Avg. temperature, deg. F		332	332		337	
Avg. absolute temperature, deg.R		792	792		797	
Pitot tube coefficient		0.84	0.84		0.84	
Total number of traverse points		25	25		25	
Avg. gas stream velocity, ft./sec.		57.5	55.8		56.5	AVERAGE
Stack/duct cross sectional area, sq.ft.		35.500	35.500		35.500	
Avg. gas stream volumetric flow, wacf/min.		122381	118905		120329	120538
Avg. gas stream volumetric flow, dscf/min. (1)		73552	70970		71988	72170
MERCURY LABORATORY REPORT DATA:						
Particulate bound, ug		4.1000	4.0200		3.3000	
Oxidized, ug	<	0.1000	0.3400	<	0.1000	
Elemental, ug	<	0.3500	0.7800	<	0.3500	
Total catch, ug(3)		4.5500	5.1400		3.7500	
PARTICULATE BOUND MERCURY EMISSIONS:						
Conc., ug/m^3		2.03	1.99		1.85	1.958
Conc., ug/Nm^3 (2)		2.18	2.13		1.99	2.100
Emission rate, lbs/10^{12} Btu.		1.48	1.39		1.37	1.41
Emission rate, lbs/hr		5.60E-04	5.28E-04		5.00E-04	5.29E-04
OXIDIZED MERCURY EMISSIONS:						
Conc., ug/m^3	<	0.05	0.17	<	0.06	0.09
Conc., ug/Nm^3 (2)	<	0.05	0.18	<	0.06	0.10
Emission rate, lbs/10^{12} Btu.	<	0.04	0.12	<	0.04	0.07
Emission rate, lbs/hr	<	1.37E-05	4.47E-05	<	1.52E-05	2.45E-05
ELEMENTAL MERCURY EMISSIONS:						
Conc., ug/m^3	<	0.17	0.39	<	0.20	0.25
Conc., ug/Nm^3 (2)	<	0.19	0.41	<	0.21	0.27
Emission rate, lbs/10^{12} Btu.	<	0.13	0.27	<	0.15	0.18
Emission rate, lbs/hr	<	4.78E-05	1.02E-04	<	5.30E-05	6.78E-05
TOTAL MERCURY EMISSIONS: (3)						
Conc., ug/m^3		2.25	2.54		2.11	2.30
Conc., ug/Nm^3 (2)		2.42	2.73		2.26	2.47
Emission rate, lbs/10^{12} Btu.		1.64	1.78		1.56	1.66
Emission rate, lbs/hr		6.21E-04	6.75E-04		5.68E-04	6.22E-04

(1) Standard conditions = 68 deg. F. (20 deg. C.) and 29.92 inches Hg (760mm Hg).
(2) Nm3 = Normal cubic meter (32 deg. F. (0 deg. C.) and 29.92 inches Hg (760mm Hg)).
(3) Non-detects included in total mercury catch value.

TABLE A-2
COGENTRIX - ROCKY MOUNT, NC
SUMMARY OF MERCURY SPECIATION TEST DATA AND TEST RESULTS
UNIT NO. 2B OUTLET

TEST DATA:							
Test run number		1		2		3	
Location				Unit No. 2B Outlet			
Test date		11/17/99		11/17/99		11/18/99	
Test time period		0815-1055		1246-1603		0746-1010	
PROCESS DATA:							
Unit Load, MW		62.7		62.0		62.6	
Coal feed rate, lb/hr.		28700		28600		27400	
Coal Btu content, Btu/lb.(as received)		13200		13290		13310	
Heat Input, 10^6 Btu/hr		378.8		380.1		364.7	
SAMPLING DATA:							
Sampling duration, min.		125.0		125.0		125.0	
Nozzle diameter, in.		0.190		0.190		0.190	
Cross sectional nozzle area, sq.ft.		0.000197		0.000197		0.000197	
Barometric pressure, in. Hg		30.03		30.03		30.21	
Avg. orifice press. diff., in H_2O		1.43		1.26		1.22	
Avg. dry gas meter temp., deg F		53.7		66.1		56.9	
Avg. abs. dry gas meter temp., deg. R		514		526		517	
Total liquid collected by train, ml		226.5		211.0		218.6	
Std. vol. of H_2O vapor coll., cu.ft.		10.7		9.9		10.3	
Dry gas meter calibration factor		1.0098		1.0098		1.0098	
Sample vol. at meter cond., dcf		77.675		73.968		71.679	
Sample vol. at std. cond., dscf (1)		81.166		75.446		74.839	
Percent of isokinetic sampling		107.9		102.1		101.4	
Sample vol. at std. cond., dscm (1)		2.298		2.136		2.119	
GAS STREAM COMPOSITION DATA:							
CO_2, % by volume, dry basis		13.3		13.2		13.7	
O_2, % by volume, dry basis		5.0		5.1		5.3	
N_2, % by volume, dry basis		81.7		81.7		81.0	
Molecular wt. of dry gas, lb/lb mole		30.33		30.32		30.40	
H_20 vapor in gas stream, prop. by vol.		0.116		0.116		0.121	
Mole fraction of dry gas		0.884		0.884		0.879	
Molecular wt. of wet gas, lb/lb mole		28.90		28.88		28.90	
GAS STREAM VELOCITY AND VOLUMETRIC FLOW DATA:							
Static pressure, in. H_2O		-26.00		-26.00		-26.00	
Absolute pressure, in. Hg		28.12		28.12		28.30	
Avg. temperature, deg. F		185		187		187	
Avg. absolute temperature, deg.R		645		647		647	
Pitot tube coefficient		0.84		0.84		0.84	
Total number of traverse points		25		25		25	
Avg. gas stream velocity, ft./sec.		74.9		73.9		73.8	AVERAGE
Stack/duct cross sectional area, sq.ft.		26.026		26.026		26.026	
Avg. gas stream volumetric flow, wacf/min.		116969		115328		115227	115841
Avg. gas stream volumetric flow, dscf/min. (1)		79534		78161		78097	78597
MERCURY LABORATORY REPORT DATA:							
Particulate bound, ug		0.1150		0.0560	<	0.0300	
Oxidized, ug	<	0.1000	<	0.1000	<	0.1000	
Elemental, ug	<	0.3500	<	0.3500	<	0.3500	
Total catch, ug(3)		0.5650		0.5060		0.4800	
PARTICULATE BOUND MERCURY EMISSIONS:							
Conc., ug/m^3		0.050		0.026	<	0.014	0.030
Conc., ug/Nm^3 (2)		0.054		0.028	<	0.015	0.032
Emission rate, lbs/10^{12} Btu.		3.94E-02		2.02E-02	<	1.14E-02	2.36E-02
Emission rate, lbs/hr		1.49E-05		7.67E-06	<	4.14E-06	8.91E-06
OXIDIZED MERCURY EMISSIONS:							
Conc., ug/m^3	<	0.04	<	0.05	<	0.05	0.05
Conc., ug/Nm^3 (2)	<	0.05	<	0.05	<	0.05	0.05
Emission rate, lbs/10^{12} Btu.	<	0.03	<	0.04	<	0.04	0.04
Emission rate, lbs/hr	<	1.30E-05	<	1.37E-05	<	1.38E-05	1.35E-05
ELEMENTAL MERCURY EMISSIONS:							
Conc., ug/m^3	<	0.15	<	0.16	<	0.17	0.16
Conc., ug/Nm^3 (2)	<	0.16	<	0.18	<	0.18	0.17
Emission rate, lbs/10^{12} Btu.	<	0.12	<	0.13	<	0.13	0.13
Emission rate, lbs/hr	<	4.54E-05	<	4.80E-05	<	4.83E-05	4.72E-05
TOTAL MERCURY EMISSIONS: (3)							
Conc., ug/m^3		0.25		0.24		0.23	0.24
Conc., ug/Nm^3 (2)		0.26		0.25		0.24	0.25
Emission rate, lbs/10^{12} Btu.		0.19		0.18		0.18	0.19
Emission rate, lbs/hr		7.32E-05		6.93E-05		6.63E-05	6.96E-05
TOTAL MERCURY REMOVAL EFFICIENCY:		88.21%		89.73%		88.34%	88.76%

(1) Standard conditions = 68 deg. F. (20 deg. C.) and 29.92 inches Hg (760mm Hg).
(2) Nm3 = Normal cubic meter (32 deg. F. (0 deg. C.) and 29.92 inches Hg (760mm Hg)).
(3) Non-detects included in total mercury catch value.

APPENDIX B
PROCESS OPERATIONS, FACILITY CEMS AND FGD/BAGHOUSE DATA

COGENTRIX
SUMMARY OF PROCESS DATA
UNIT 2B
RUN 1
11/17/99

	Time Period												
	0815	0830	0845	0900	0915	0930	0945	1000	1015	1030	1045	1100	**Average**
Unit Operating Parameters													
Gross MW Generated	61.92	62.67	62.64	62.88	62.07	62.95	62.81	63.24	63.12	62.11	62.56	62.89	62.66
Net MW Generated	58.87	59.62	59.49	59.76	59.00	59.86	59.70	60.13	60.03	58.96	59.40	59.71	59.54
Steam Flow (KLBS)	277.9	274.7	276.7	273.9	275.7	280.5	283.8	279.4	278.4	278.4	275.7	276.6	277.6
Steam Temperature (deg F)	948	952	949	950	949	949	949	952	945	947	947	947	949
APCD Operating Parameters													
Atomizer Power (KW)	58	56	56	59	62	59	59	57	60	60	57	59	59
FGD Inlet Temp (deg F)	324.9	324.0	324.8	327.1	327.6	326.5	323.8	324.5	326.5	328.3	327.1	328.3	326.1
FGD Outlet Temp (deg F)	191	189	182	188	182	184	186	185	182	186	188	186	186
Lime Slurry Flow (gpm)	6.5	6.9	7.5	7.5	7.4	8.1	7.6	7.3	7.5	8.0	7.2	7.5	7.4
Baghouse Outlet Temp (deg F)	182	181	181	181	182	181	183	181	182	181	181	182	182
Baghouse Delta P (in H2O)	10.8	10.7	10.3	10.2	9.6	11.1	11.2	11.8	12.7	10.9	11.0	11.1	11.0
Emissions Information													
Inlet NOx (lb/MMBtu)	0.31	0.32	0.33	0.33	0.32	0.27	0.26	0.26	0.29	0.28	0.31	0.31	0.30
Inlet O2 (%)	2.9	3.1	2.9	2.7	3.0	2.4	2.4	2.0	2.3	2.2	2.8	2.5	2.6
Outlet SO2 (lb/MMBtu)	0.04	0.06	0.04	0.03	0.06	0.03	0.08	0.03	0.06	0.04	0.06	0.04	0.05
SO2 Reduction (%)	95.15	93.62	95.33	96.82	92.73	96.93	92.16	96.71	93.58	96.13	94.30	95.73	94.93
Stack Opacity (2A/2B Combined)	9.2	8.4	8.6	9.0	8.7	9.4	9.7	9.6	10.0	10.3	10.5	10.6	9.5

17-Nov-99
08:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.92		
U2 NET MW GEN.	58.87		
U2B COAL BURN (tons this hour)	3.45	TODAY	114.75
U2B STEAM FLOW (KLBS)	277.9		
U2B STEAM TEMP (deg F)	948.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	58.
U2B FGD INLET TEMP (deg F)	324.9
U2B FGD OUTLET TEMP (deg F)	191.
U2B LIME SLURRY FLOW (gpm)	6.5
U2B BAGHOUSE OUTLET TEMP (deg. F)	182.
U2B BAGHOUSE DELTA P (in H2O)	10.8

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.31
U2B INLET O2 (%)	2.9
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	95.15
U2 STACK OPACITY (2A/2B combined)	9.2

17-Nov-99
08:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.67		
U2 NET MW GEN.	59.62		
U2B COAL BURN (tons this hour)	7.05	TODAY	118.35
U2B STEAM FLOW (KLBS)	274.7		
U2B STEAM TEMP (deg F)	952.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	56.
U2B FGD INLET TEMP (deg F)	324.0
U2B FGD OUTLET TEMP (deg F)	189.
U2B LIME SLURRY FLOW (gpm)	6.9
U2B BAGHOUSE OUTLET TEMP (deg F)	181.
U2B BAGHOUSE DELTA P (in H2O)	10.7

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.32
U2B INLET O2 (%)	3.1
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	93.62
U2 STACK OPACITY (2A/2B combined)	8.4

17-Nov-99
08:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.64	
U2 NET MW GEN.	59.49	
U2B COAL BURN (tons this hour)	10.65	TODAY 121.95
U2B STEAM FLOW (KLBS)	276.7	
U2B STEAM TEMP (deg F)	949.	

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	56.
U2B FGD INLET TEMP (deg F)	324.8
U2B FGD OUTLET TEMP (deg F)	182.
U2B LIME SLURRY FLOW (gpm)	7.5
U2B BAGHOUSE OUTLET TEMP (deg. F)	181.
U2B BAGHOUSE DELTA P (in H2O)	10.3

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.33
U2B INLET O2 (%)	2.9
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	95.33
U2 STACK OPACITY (2A/2B combined)	8.6

17-Nov-99
09:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.88		
U2 NET MW GEN.	59.76		
U2B COAL BURN (tons this hour)	.00	TODAY	125.40
U2B STEAM FLOW (KLBS)	273.9		
U2B STEAM TEMP (deg F)	950.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	327.1
U2B FGD OUTLET TEMP (deg F)	188.
U2B LIME SLURRY FLOW (gpm)	7.5
U2B BAGHOUSE OUTLET TEMP (deg F)	181.
U2B BAGHOUSE DELTA P (in H2O)	10.2

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.33
U2B INLET O2 (%)	2.7
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.82
U2 STACK OPACITY (2A/2B combined)	9.0

17-Nov-99
09:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.07		
U2 NET MW GEN.	59.00		
U2B COAL BURN (tons this hour)	3.45	TODAY	129.00
U2B STEAM FLOW (KLBS)	275.7		
U2B STEAM TEMP (deg F)	949.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	62.
U2B FGD INLET TEMP (deg F)	327.6
U2B FGD OUTLET TEMP (deg F)	182.
U2B LIME SLURRY FLOW (gpm)	7.4
U2B BAGHOUSE OUTLET TEMP (deg F)	182.
U2B BAGHOUSE DELTA P (in H2O)	9.6

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.32
U2B INLET O2 (%)	3.0
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	92.73
U2 STACK OPACITY (2A/2B combined)	8.7

17-Nov-99
09:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.95		
U2 NET MW GEN.	59.86		
U2B COAL BURN (tons this hour)	7.20	TODAY	132.60
U2B STEAM FLOW (KLBS)	280.5		
U2B STEAM TEMP (deg F)	949.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	326.5
U2B FGD OUTLET TEMP (deg F)	184.
U2B LIME SLURRY FLOW (gpm)	8.1
U2B BAGHOUSE OUTLET TEMP (deg F)	181.
U2B BAGHOUSE DELTA P (in H2O)	11.1

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.27
U2B INLET O2 (%)	2.4
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.93
U2 STACK OPACITY (2A/2B combined)	9.4

17-Nov-99
09:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.81		
U2 NET MW GEN.	59.70		
U2B COAL BURN (tons this hour)	10.95	TODAY	136.35
U2B STEAM FLOW (KLBS)	283.8		
U2B STEAM TEMP (deg F)	949.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	323.8
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	7.6
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	11.2

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.26
U2B INLET O2 (%)	2.4
U2B OUTLET SO2 (LB/MMBtu)	.08
U2B SO2 REDUCTION (%)	92.16
U2 STACK OPACITY (2A/2B combined)	9.7

17-Nov-99
10:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	63.24		
U2 NET MW GEN.	60.13		
U2B COAL BURN (tons this hour)	.00	TODAY	139.95
U2B STEAM FLOW (KLBS)	279.4		
U2B STEAM TEMP (deg F)	952.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	57.
U2B FGD INLET TEMP (deg F)	324.5
U2B FGD OUTLET TEMP (deg F)	185.
U2B LIME SLURRY FLOW (gpm)	7.3
U2B BAGHOUSE OUTLET TEMP (deg F)	181.
U2B BAGHOUSE DELTA P (in H2O)	11.8

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.26
U2B INLET O2 (%)	2.0
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.71
U2 STACK OPACITY (2A/2B combined)	9.6

17-Nov-99
10:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	63.12		
U2 NET MW GEN.	60.03		
U2B COAL BURN (tons this hour)	3.60	TODAY	143.55
U2B STEAM FLOW (KLBS)	278.4		
U2B STEAM TEMP (deg F)	945.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	60.
U2B FGD INLET TEMP (deg F)	326.5
U2B FGD OUTLET TEMP (deg F)	182.
U2B LIME SLURRY FLOW (gpm)	7.5
U2B BAGHOUSE OUTLET TEMP (deg F)	182.
U2B BAGHOUSE DELTA P (in H2O)	12.7

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.29
U2B INLET O2 (%)	2.3
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	93.58
U2 STACK OPACITY (2A/2B combined)	10.0

17-Nov-99
10:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.11		
U2 NET MW GEN.	58.96		
U2B COAL BURN (tons this hour)	7.20	TODAY	147.15
U2B STEAM FLOW (KLBS)	278.4		
U2B STEAM TEMP (deg F)	947.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	60.
U2B FGD INLET TEMP (deg F)	328.3
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	8.0
U2B BAGHOUSE OUTLET TEMP (deg F)	181.
U2B BAGHOUSE DELTA P (in H2O)	10.9

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.28
U2B INLET O2 (%)	2.2
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	96.13
U2 STACK OPACITY (2A/2B combined)	10.3

17-Nov-99
10:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.56		
U2 NET MW GEN.	59.40		
U2B COAL BURN (tons this hour)	10.65	TODAY	150.60
U2B STEAM FLOW (KLBS)	275.7		
U2B STEAM TEMP (deg F)	947.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	57.
U2B FGD INLET TEMP (deg F)	327.1
U2B FGD OUTLET TEMP (deg F)	188.
U2B LIME SLURRY FLOW (gpm)	7.2
U2B BAGHOUSE OUTLET TEMP.(deg F)	181.
U2B BAGHOUSE DELTA P (in H2O)	11.0

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.31
U2B INLET O2 (%)	2.8
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	94.30
U2 STACK OPACITY (2A/2B combined)	10.5

17-Nov-99
11:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.89		
U2 NET MW GEN.	59.71		
U2B COAL BURN (tons this hour)	.00	TODAY	154.20
U2B STEAM FLOW (KLBS)	276.6		
U2B STEAM TEMP (deg F)	947.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	328.3
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	7.5
U2B BAGHOUSE OUTLET TEMP (deg F)	182.
U2B BAGHOUSE DELTA P (in H2O)	11.1

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.31
U2B INLET O2 (%)	2.5
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	95.73
U2 STACK OPACITY (2A/2B combined)	10.6

R1

	NADB	MMDDYY	HR	PRD	INBO2	INBSO2	INBNOX	OUTBO2	OUTBSO2
1	UNIT 2	11/17/99	8	1	2.90000	503.10000	233.70000	3.80000	14.80000
2	UNIT 2	11/17/99	8	2	2.80000	507.30000	228.70000	3.70000	25.70000
3	UNIT 2	11/17/99	8	3	3.10000	494.50000	232.40000	3.90000	23.30000
4	UNIT 2	11/17/99	8	4	3.20000	494.80000	244.10000	4.10000	24.00000
5	UNIT 2	11/17/99	9	1	3.60000	488.30000	222.00000	3.80000	21.00000
6	UNIT 2	11/17/99	9	2	2.60000	524.80000	214.20000	3.70000	21.40000
7	UNIT 2	11/17/99	9	3	2.40000	553.20000	201.00000	3.30000	23.10000
8	UNIT 2	11/17/99	9	4	2.50000	569.00000	197.60000	3.20000	17.80000
9	UNIT 2	11/17/99	10	1	2.50000	565.60000	218.60000	3.40000	32.80000
10	UNIT 2	11/17/99	10	2	2.40000	578.70000	218.50000	3.60000	29.30000
11	UNIT 2	11/17/99	10	3	2.40000	586.50000	220.70000	3.20000	19.00000
12	UNIT 2	11/17/99	10	4	2.60000	581.10000	230.00000	3.50000	27.50000
13	UNIT 2	11/17/99	11	1	2.80000	581.20000	242.20000	3.50000	23.40000
14	UNIT 2	11/17/99	11	2	2.50000	594.90000	235.70000	3.40000	17.50000
15	UNIT 2	11/17/99	11	3	3.00000	580.00000	249.00000	3.80000	23.70000
					2.8	547.	226	3.6	23.0

COGENTRIX
SUMMARY OF PROCESS DATA
UNIT 2B
RUN 2
11/17/99

	Time Period														
	1245	1300	1315	1330	1345	1400	1415	1430	1445	1500	1515	1530	1545	1600	**Average**
Unit Operating Parameters															
Gross MW Generated	62.65	62.67	62.43	62.37	61.88	62.48	61.93	61.60	61.10	62.23	61.68	61.89	61.32	62.06	62.02
Net MW Generated	59.60	59.56	59.33	59.22	58.74	59.36	58.80	58.57	58.01	59.15	58.55	58.87	58.27	59.04	58.93
Steam Flow (KLBS)	276.8	272.7	270.8	270.0	272.1	272.1	268.8	269.4	262.8	270.1	268.7	270.1	268.7	270.5	270.26
Steam Temperature (deg F)	953	952	944	955	950	956	957	954	951	949	954	949	947	950	951.50
APCD Operating Parameters															
Atomizer Power (KW)	59	59	49	59	59	58	59	56	59	63	62	61	62	60	58.93
FGD Inlet Temp (deg F)	330.0	327.2	327.4	327.6	328.4	326.4	325.8	329.1	331.8	331.8	333.1	334.5	335.5	334.1	330.19
FGD Outlet Temp (deg F)	184	191	189	185	186	186	189	186	186	181	188	186	186	189	186.57
Lime Slurry Flow (gpm)	6.7	6.4	5.0	3.3	2.0	4.0	4.3	3.9	4.8	5.0	4.2	4.0	5.5	6.0	4.65
Baghouse Outlet Temp (deg F)	181	183	183	182	183	183	182	184	184	185	185	183	184	184	183.29
Baghouse Delta P (in H2O)	12.0	10.3	11.5	11.7	12.3	12.4	13.5	13.2	11.4	10.5	11.8	11.6	10.9	10.6	11.69
Emissions Information															
Inlet NOx (lb/MMBtu)	0.30	0.29	0.34	0.33	0.34	0.31	0.31	0.33	0.39	0.34	0.30	0.38	0.39	0.37	0.34
Inlet O2 (%)	2.2	1.9	2.6	2.4	2.5	2.4	2.1	2.4	3.1	2.5	3.0	2.9	3.0	2.7	2.55
Outlet SO2 (lb/MMBtu)	0.02	0.04	0.05	0.01	0.05	0.04	0.03	0.06	0.05	0.03	0.06	0.04	0.07	0.06	0.04
SO2 Reduction (%)	97.98	95.58	94.96	98.90	94.61	96.24	97.18	94.45	95.47	96.69	94.62	96.19	93.63	94.25	95.77
Stack Opacity (2A/2B Combined)	9.2	10.3	8.8	9.6	9.7	11.7	11.4	10.4	9.9	11.5	9.3	9.1	8.8	9.7	9.96

17-Nov-99
12:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.65		
U2 NET MW GEN.	59.60		
U2B COAL BURN (tons this hour)	10.50	TODAY	178.65
U2B STEAM FLOW (KLBS)	276.8		
U2B STEAM TEMP (deg F)	953.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	330.0
U2B FGD OUTLET TEMP (deg F)	184.
U2B LIME SLURRY FLOW (gpm)	6.7
U2B BAGHOUSE OUTLET TEMP (deg F)	181.
U2B BAGHOUSE DELTA P (in H2O)	12.0

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.30
U2B INLET O2 (%)	2.2
U2B OUTLET SO2 (LB/MMBtu)	.02
U2B SO2 REDUCTION (%)	97.98
U2 STACK OPACITY (2A/2B combined)	9.2

17-Nov-99
13:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.67		
U2 NET MW GEN.	59.56		
U2B COAL BURN (tons this hour)	.00	TODAY	182.40
U2B STEAM FLOW (KLBS)	272.7		
U2B STEAM TEMP (deg F)	952.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	327.2
U2B FGD OUTLET TEMP (deg F)	191.
U2B LIME SLURRY FLOW (gpm)	6.4
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	10.3

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.29
U2B INLET O2 (%)	1.9
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	95.58
U2 STACK OPACITY (2A/2B combined)	10.3

17-Nov-99
13:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.43		
U2 NET MW GEN.	59.33		
U2B COAL BURN (tons this hour)	3.60	TODAY	186.00
U2B STEAM FLOW (KLBS)	270.8		
U2B STEAM TEMP (deg F)	944.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	49.
U2B FGD INLET TEMP (deg F)	327.4
U2B FGD OUTLET TEMP (deg F)	189.
U2B LIME SLURRY FLOW (gpm)	5.0
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	11.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.34
U2B INLET O2 (%)	2.6
U2B OUTLET SO2 (LB/MMBtu)	.05
U2B SO2 REDUCTION (%)	94.96
U2 STACK OPACITY (2A/2B combined)	8.8

17-Nov-99
13:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.37		
U2 NET MW GEN.	59.22		
U2B COAL BURN (tons this hour)	7.35	TODAY	189.75
U2B STEAM FLOW (KLBS)	270.0		
U2B STEAM TEMP (deg F)	955.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	327.6
U2B FGD OUTLET TEMP (deg F)	185.
U2B LIME SLURRY FLOW (gpm)	3.3
U2B BAGHOUSE OUTLET TEMP (deg F)	182.
U2B BAGHOUSE DELTA P (in H2O)	11.7

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.33
U2B INLET O2 (%)	2.4
U2B OUTLET SO2 (LB/MMBtu)	.01
U2B SO2 REDUCTION (%)	98.90
U2 STACK OPACITY (2A/2B combined)	9.6

17-Nov-99
13:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.88		
U2 NET MW GEN.	58.74		
U2B COAL BURN (tons this hour)	10.95	TODAY	193.35
U2B STEAM FLOW (KLBS)	272.1		
U2B STEAM TEMP (deg F)	950.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	328.4
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	2.0
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	12.3

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.34
U2B INLET O2 (%)	2.5
U2B OUTLET SO2 (LB/MMBtu)	.05
U2B SO2 REDUCTION (%)	94.61
U2 STACK OPACITY (2A/2B combined)	9.7

17-Nov-99
14:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.48		
U2 NET MW GEN.	59.36		
U2B COAL BURN (tons this hour)	.00	TODAY	197.10
U2B STEAM FLOW (KLBS)	272.1		
U2B STEAM TEMP (deg F)	956.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	58.
U2B FGD INLET TEMP (deg F)	326.4
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	4.0
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	12.4

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.31
U2B INLET O2 (%)	2.4
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	96.24
U2 STACK OPACITY (2A/2B combined)	11.7

17-Nov-99
14:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.93		
U2 NET MW GEN.	58.80		
U2B COAL BURN (tons this hour)	3.75	TODAY	200.85
U2B STEAM FLOW (KLBS)	268.8		
U2B STEAM TEMP (deg F)	957.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	325.8
U2B FGD OUTLET TEMP (deg F)	189.
U2B LIME SLURRY FLOW (gpm)	4.3
U2B BAGHOUSE OUTLET TEMP (deg F)	182.
U2B BAGHOUSE DELTA P (in H2O)	13.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.31
U2B INLET O2 (%)	2.1
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	97.18
U2 STACK OPACITY (2A/2B combined)	11.4

17-Nov-99
14:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.60		
U2 NET MW GEN.	58.57		
U2B COAL BURN (tons this hour)	7.20	TODAY	204.30
U2B STEAM FLOW (KLBS)	269.4		
U2B STEAM TEMP (deg F)	954.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	56.
U2B FGD INLET TEMP (deg F)	329.1
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	3.9
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	13.2

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.33
U2B INLET O2 (%)	2.4
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	94.45
U2 STACK OPACITY (2A/2B combined)	10.4

17-Nov-99
14:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.10		
U2 NET MW GEN.	58.01		
U2B COAL BURN (tons this hour)	10.65	TODAY	207.75
U2B STEAM FLOW (KLBS)	262.8		
U2B STEAM TEMP (deg F)	951.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	59.
U2B FGD INLET TEMP (deg F)	331.8
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	4.8
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	11.4

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.39
U2B INLET O2 (%)	3.1
U2B OUTLET SO2 (LB/MMBtu)	.05
U2B SO2 REDUCTION (%)	95.47
U2 STACK OPACITY (2A/2B combined)	9.9

17-Nov-99
15:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.23		
U2 NET MW GEN.	59.15		
U2B COAL BURN (tons this hour)	.00	TODAY	211.20
U2B STEAM FLOW (KLBS)	270.1		
U2B STEAM TEMP (deg F)	949.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	63.
U2B FGD INLET TEMP (deg F)	331.8
U2B FGD OUTLET TEMP (deg F)	181.
U2B LIME SLURRY FLOW (gpm)	5.0
U2B BAGHOUSE OUTLET TEMP (deg F)	185.
U2B BAGHOUSE DELTA P (in H2O)	10.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.34
U2B INLET O2 (%)	2.5
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.69
U2 STACK OPACITY (2A/2B combined)	11.5

17-Nov-99
15:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.68		
U2 NET MW GEN.	58.55		
U2B COAL BURN (tons this hour)	3.45	TODAY	214.65
U2B STEAM FLOW (KLBS)	268.7		
U2B STEAM TEMP (deg F)	954.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	62.
U2B FGD INLET TEMP (deg F)	333.1
U2B FGD OUTLET TEMP (deg F)	188.
U2B LIME SLURRY FLOW (gpm)	4.2
U2B BAGHOUSE OUTLET TEMP (deg F)	185.
U2B BAGHOUSE DELTA P (in H2O)	11.8

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.30
U2B INLET O2 (%)	3.0
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	94.62
U2 STACK OPACITY (2A/2B combined)	9.3

17-Nov-99
15:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.89		
U2 NET MW GEN.	58.87		
U2B COAL BURN (tons this hour)	6.90	TODAY	218.10
U2B STEAM FLOW (KLBS)	270.1		
U2B STEAM TEMP (deg F)	949.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	334.5
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	4.0
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	11.6

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.38
U2B INLET O2 (%)	2.9
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	96.19
U2 STACK OPACITY (2A/2B combined)	9.1

17-Nov-99
15:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.32		
U2 NET MW GEN.	58.27		
U2B COAL BURN (tons this hour)	10.35	TODAY	221.55
U2B STEAM FLOW (KLBS)	268.7		
U2B STEAM TEMP (deg F)	947.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	62.
U2B FGD INLET TEMP (deg F)	335.5
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	5.5
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	10.9

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.39
U2B INLET O2 (%)	3.0
U2B OUTLET SO2 (LB/MMBtu)	.07
U2B SO2 REDUCTION (%)	93.63
U2 STACK OPACITY (2A/2B combined)	8.8

17-Nov-99
16:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.06		
U2 NET MW GEN.	59.04		
U2B COAL BURN (tons this hour)	.00	TODAY	225.00
U2B STEAM FLOW (KLBS)	270.5		
U2B STEAM TEMP (deg F)	950.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	60.
U2B FGD INLET TEMP (deg F)	334.1
U2B FGD OUTLET TEMP (deg F)	189.
U2B LIME SLURRY FLOW (gpm)	6.0
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	10.6

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.37
U2B INLET O2 (%)	2.7
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	94.25
U2 STACK OPACITY (2A/2B combined)	9.7

	NADB	MMDDYY	HR	PRD	INBO2	INBSO2	INBNOX	OUTBO2	OUTBSO2
1	UNIT 2	11/17/99	8	1	2.90000	503.10000	233.70000	3.80000	14.80000
2	UNIT 2	11/17/99	8	2	2.80000	507.30000	228.70000	3.70000	25.70000
3	UNIT 2	11/17/99	8	3	3.10000	494.50000	232.40000	3.90000	23.30000
4	UNIT 2	11/17/99	8	4	3.20000	494.80000	244.10000	4.10000	24.00000
5	UNIT 2	11/17/99	9	1	3.60000	488.30000	222.00000	3.80000	21.00000
6	UNIT 2	11/17/99	9	2	2.60000	524.80000	214.20000	3.70000	21.40000
7	UNIT 2	11/17/99	9	3	2.40000	553.20000	201.00000	3.30000	23.10000
8	UNIT 2	11/17/99	9	4	2.50000	569.00000	197.60000	3.20000	17.80000
9	UNIT 2	11/17/99	10	1	2.50000	565.60000	218.60000	3.40000	32.80000
10	UNIT 2	11/17/99	10	2	2.40000	578.70000	218.50000	3.60000	29.30000
11	UNIT 2	11/17/99	10	3	2.40000	586.50000	220.70000	3.20000	19.00000
12	UNIT 2	11/17/99	10	4	2.60000	581.10000	230.00000	3.50000	27.50000
13	UNIT 2	11/17/99	11	1	2.80000	581.20000	242.20000	3.50000	23.40000
14	UNIT 2	11/17/99	11	2	2.50000	594.90000	235.70000	3.40000	17.50000
15	UNIT 2	11/17/99	11	3	3.00000	580.00000	249.00000	3.80000	23.70000
16	UNIT 2	11/17/99	11	4	2.90000	577.30000	249.50000	3.80000	27.50000
17	UNIT 2	11/17/99	12	1	3.10000	564.60000	247.90000	4.00000	22.20000
18	UNIT 2	11/17/99	12	2	2.80000	579.40000	237.50000	3.70000	21.50000
19	UNIT 2	11/17/99	12	3	2.60000	590.40000	232.40000	3.50000	14.90000
20	UNIT 2	11/17/99	12	4	2.30000	596.90000	230.20000	3.30000	23.50000
21	UNIT 2	11/17/99	13	1	2.50000	593.60000	233.50000	3.10000	10.30000
22	UNIT 2	11/17/99	13	2	2.30000	590.90000	244.10000	3.30000	10.20000
23	UNIT 2	11/17/99	13	3	2.70000	578.60000	251.90000	3.40000	16.60000
24	UNIT 2	11/17/99	13	4	2.50000	586.40000	242.80000	3.40000	34.30000
25	UNIT 2	11/17/99	14	1	2.20000	588.20000	239.80000	3.20000	21.50000
26	UNIT 2	11/17/99	14	2	2.90000	576.50000	243.00000	3.30000	23.30000
27	UNIT 2	11/17/99	14	3	2.80000	584.10000	273.40000	3.60000	24.80000
28	UNIT 2	11/17/99	14	4	2.80000	588.40000	263.80000	3.80000	20.40000
29	UNIT 2	11/17/99	15	1	3.00000	587.90000	269.40000	3.70000	15.50000
30	UNIT 2	11/17/99	15	2	3.00000	573.40000	273.30000	3.80000	17.20000
31	UNIT 2	11/17/99	15	3	2.90000	579.50000	283.30000	3.90000	31.80000
32	UNIT 2	11/17/99	15	4	2.70000	590.70000	277.70000	3.60000	21.90000
					2.7	585.	256	3.5	21.

R2

COGENTRIX
SUMMARY OF PROCESS DATA
UNIT 2B
RUN 3
11/18/99

	Time Period											
	0745	0800	0815	0830	0845	0900	0915	0930	0945	1000	1015	**Average**
Unit Operating Parameters												
Gross MW Generated	63.03	62.48	62.31	62.41	62.90	62.33	62.67	61.93	62.47	62.73	62.87	62.56
Net MW Generated	59.86	59.31	59.20	59.29	59.77	59.26	59.65	58.83	59.39	59.65	59.78	59.45
Steam Flow (KLBS)	272.7	274.1	275.9	273.8	276.9	271.7	272.8	275.2	274.3	274.5	277.2	274.46
Steam Temperature (deg F)	948	951	949	952	953	947	953	946	950	951	956	950.55
APCD Operating Parameters												
Atomizer Power (KW)	62	62	60	63	61	61	61	61	61	61	61	61.27
FGD Inlet Temp (deg F)	334.6	334.2	333.1	335.4	333.7	335.0	334.6	333.6	333.2	334.3	336.5	334.38
FGD Outlet Temp (deg F)	184	186	185	185	187	185	186	185	186	185	186	185.45
Lime Slurry Flow (gpm)	6.2	5.7	5.6	5.8	4.8	4.2	3.6	4.6	5.4	5.5	5.0	5.13
Baghouse Outlet Temp (deg F)	182	183	183	183	183	183	184	183	184	184	184	183.27
Baghouse Delta P (in H2O)	8.5	10.3	10.4	10.7	11.5	9.5	8.5	10.2	10.3	10.3	10.5	10.06
Emissions Information												
Inlet NOx (lb/MMBtu)	0.35	0.34	0.39	0.37	0.31	0.36	0.35	0.33	0.31	0.33	0.32	0.34
Inlet O2 (%)	2.8	2.9	4.6	2.9	2.9	2.9	2.8	2.6	2.5	2.7	2.4	2.91
Outlet SO2 (lb/MMBtu)	0.05	0.04	0.05	0.03	0.03	0.03	0.05	0.06	0.03	0.03	0.03	0.04
SO2 Reduction (%)	95.44	95.80	94.91	97.28	96.97	96.67	95.27	94.71	96.43	96.47	96.51	96.04
Stack Opacity (2A/2B Combined)	9.3	8.5	10.2	8.0	8.1	7.4	8.4	8.2	9.1	9.4	10.9	8.86

18-Nov-99
07:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	63.03		
U2 NET MW GEN.	59.86		
U2B COAL BURN (tons this hour)	9.90	TODAY	102.00
U2B STEAM FLOW (KLBS)	272.7		
U2B STEAM TEMP (deg F)	948.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	62.
U2B FGD INLET TEMP (deg F)	334.6
U2B FGD OUTLET TEMP (deg F)	184.
U2B LIME SLURRY FLOW (gpm)	6.2
U2B BAGHOUSE OUTLET TEMP (deg F)	182.
U2B BAGHOUSE DELTA P (in H2O)	8.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.35
U2B INLET O2 (%)	2.8
U2B OUTLET SO2 (LB/MMBtu)	.05
U2B SO2 REDUCTION (%)	95.44
U2 STACK OPACITY (2A/2B combined)	9.3

18-Nov-99
08:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.48		
U2 NET MW GEN.	59.31		
U2B COAL BURN (tons this hour)	.00	TODAY	105.30
U2B STEAM FLOW (KLBS)	274.1		
U2B STEAM TEMP (deg F)	951.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	62.
U2B FGD INLET TEMP (deg F)	334.2
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	5.7
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	10.3

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.34
U2B INLET O2 (%)	2.9
U2B OUTLET SO2 (LB/MMBtu)	.04
U2B SO2 REDUCTION (%)	95.80
U2 STACK OPACITY (2A/2B combined)	8.5

18-Nov-99
08:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.31		
U2 NET MW GEN.	59.20		
U2B COAL BURN (tons this hour)	3.45	TODAY	108.75
U2B STEAM FLOW (KLBS)	275.9		
U2B STEAM TEMP (deg F)	949.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	60.
U2B FGD INLET TEMP (deg F)	333.1
U2B FGD OUTLET TEMP (deg F)	185.
U2B LIME SLURRY FLOW (gpm)	5.6
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	10.4

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.39
U2B INLET O2 (%)	4.6
U2B OUTLET SO2 (LB/MMBtu)	.05
U2B SO2 REDUCTION (%)	94.91
U2 STACK OPACITY (2A/2B combined)	10.2

18-Nov-99
08:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.41		
U2 NET MW GEN.	59.29		
U2B COAL BURN (tons this hour)	6.90	TODAY	112.20
U2B STEAM FLOW (KLBS)	273.8		
U2B STEAM TEMP (deg F)	952.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	63.
U2B FGD INLET TEMP (deg F)	335.4
U2B FGD OUTLET TEMP (deg F)	185.
U2B LIME SLURRY FLOW (gpm)	5.8
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	10.7

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.37
U2B INLET O2 (%)	2.9
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	97.28
U2 STACK OPACITY (2A/2B combined)	8.0

18-Nov-99
08:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.90		
U2 NET MW GEN.	59.77		
U2B COAL BURN (tons this hour)	10.35	TODAY	115.65
U2B STEAM FLOW (KLBS)	276.9		
U2B STEAM TEMP (deg F)	953.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	333.7
U2B FGD OUTLET TEMP (deg F)	187.
U2B LIME SLURRY FLOW (gpm)	4.8
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	11.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.31
U2B INLET O2 (%)	2.9
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.97
U2 STACK OPACITY (2A/2B combined)	8.1

18-Nov-99
09:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.33		
U2 NET MW GEN.	59.26		
U2B COAL BURN (tons this hour)	.00	TODAY	118.95
U2B STEAM FLOW (KLBS)	271.7		
U2B STEAM TEMP (deg F)	947.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	335.0
U2B FGD OUTLET TEMP (deg F)	185.
U2B LIME SLURRY FLOW (gpm)	4.2
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	9.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.36
U2B INLET O2 (%)	2.9
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.67
U2 STACK OPACITY (2A/2B combined)	7.4

18-Nov-99
09:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.67		
U2 NET MW GEN.	59.65		
U2B COAL BURN (tons this hour)	3.45	TODAY	122.40
U2B STEAM FLOW (KLBS)	272.8		
U2B STEAM TEMP (deg F)	953.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	334.6
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	3.6
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	8.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.35
U2B INLET O2 (%)	2.8
U2B OUTLET SO2 (LB/MMBtu)	.05
U2B SO2 REDUCTION (%)	95.27
U2 STACK OPACITY (2A/2B combined)	8.4

18-Nov-99
09:30:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	61.93		
U2 NET MW GEN.	58.83		
U2B COAL BURN (tons this hour)	6.90	TODAY	125.85
U2B STEAM FLOW (KLBS)	275.2		
U2B STEAM TEMP (deg F)	946.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	333.6
U2B FGD OUTLET TEMP (deg F)	185.
U2B LIME SLURRY FLOW (gpm)	4.6
U2B BAGHOUSE OUTLET TEMP (deg F)	183.
U2B BAGHOUSE DELTA P (in H2O)	10.2

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.33
U2B INLET O2 (%)	2.6
U2B OUTLET SO2 (LB/MMBtu)	.06
U2B SO2 REDUCTION (%)	94.71
U2 STACK OPACITY (2A/2B combined)	8.2

18-Nov-99
09:45:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.47		
U2 NET MW GEN.	59.39		
U2B COAL BURN (tons this hour)	10.35	TODAY	129.30
U2B STEAM FLOW (KLBS)	274.3		
U2B STEAM TEMP (deg F)	950.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	333.2
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	5.4
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	10.3

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.31
U2B INLET O2 (%)	2.5
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.43
U2 STACK OPACITY (2A/2B combined)	9.1

18-Nov-99
10:00:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.73		
U2 NET MW GEN.	59.65		
U2B COAL BURN (tons this hour)	.00	TODAY	132.75
U2B STEAM FLOW (KLBS)	274.5		
U2B STEAM TEMP (deg F)	951.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	334.3
U2B FGD OUTLET TEMP (deg F)	185.
U2B LIME SLURRY FLOW (gpm)	5.5
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	10.3

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.33
U2B INLET O2 (%)	2.7
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.47
U2 STACK OPACITY (2A/2B combined)	9.4

18-Nov-99
10:15:00

Mercury ICR Stack Test - 2B Boiler

UNIT OPERATING PARAMETERS

U2 GROSS MW GEN.	62.87		
U2 NET MW GEN.	59.78		
U2B COAL BURN (tons this hour)	3.45	TODAY	136.20
U2B STEAM FLOW (KLBS)	277.2		
U2B STEAM TEMP (deg F)	956.		

APCD OPERATING PARAMETERS

U2B ATOMIZER POWER (KW)	61.
U2B FGD INLET TEMP (deg F)	336.5
U2B FGD OUTLET TEMP (deg F)	186.
U2B LIME SLURRY FLOW (gpm)	5.0
U2B BAGHOUSE OUTLET TEMP (deg F)	184.
U2B BAGHOUSE DELTA P (in H2O)	10.5

EMISSIONS INFORMATION

U2B INLET NOX (lb/MMBtu)	.32
U2B INLET O2 (%)	2.4
U2B OUTLET SO2 (LB/MMBtu)	.03
U2B SO2 REDUCTION (%)	96.51
U2 STACK OPACITY (2A/2B combined)	10.9

R3

	NADB	MMDDYY	HR	PRD	INBO2	INBSO2	INBNOX	OUTBO2	OUTBSO2
1	UNIT 2	11/18/99	7	1	4.30000	522.80000	225.70000	5.10000	14.20000
2	UNIT 2	11/18/99	7	2	4.20000	525.70000	229.30000	4.90000	16.80000
3	UNIT 2	11/18/99	7	3	3.10000	568.40000	257.60000	4.00000	21.10000
4	UNIT 2	11/18/99	7	4	3.10000	567.40000	260.20000	3.80000	17.00000
5	UNIT 2	11/18/99	8	1	2.90000	573.30000	255.50000	3.60000	19.90000
6	UNIT 2	11/18/99	8	2	3.10000	573.60000	267.10000	3.60000	22.50000
7	UNIT 2	11/18/99	8	3	3.90000	546.20000	244.70000	3.70000	14.60000
8	UNIT 2	11/18/99	8	4	3.00000	572.70000	263.20000	3.80000	18.70000
9	UNIT 2	11/18/99	9	1	3.90000	538.00000	243.90000	3.80000	18.50000
10	UNIT 2	11/18/99	9	2	2.60000	593.10000	251.50000	3.60000	28.00000
11	UNIT 2	11/18/99	9	3	3.00000	584.20000	241.40000	3.60000	25.10000
12	UNIT 2	11/18/99	9	4	2.70000	589.10000	244.80000	3.40000	20.40000
13	UNIT 2	11/18/99	10	1	2.80000	587.80000	252.60000	3.50000	18.50000
14	UNIT 2	11/18/99	10	2	2.80000	587.60000	254.80000	3.50000	19.10000
15	UNIT 2	11/18/99	10	3	2.40000	605.10000	249.90000	3.20000	28.50000
16	UNIT 2	11/18/99	10	4	2.30000	607.50000	247.80000	2.90000	28.40000
17	UNIT 2	11/18/99	11	1	2.20000	621.00000	238.10000	3.00000	17.50000
18	UNIT 2	11/18/99	11	2	2.30000	615.10000	234.10000	3.10000	15.20000
19	UNIT 2	11/18/99	11	3	2.60000	600.70000	250.40000	3.30000	16.50000
20	UNIT 2	11/18/99	11	4	2.40000	611.10000	253.10000	3.00000	29.00000
					3.1	572.5	253.	3.6	20.3

APPENDIX C
RAW TEST DATA

TABLE A-1
COGENTRIX - ROCKY MOUNT, NC
ONTARIO HYDRO METHOD DATA INPUTS
UNIT NO. 2B INLET

Test Data					
Run number		1	2		3
Location			Unit No. 2B Inlet		
Date		11/17/99	11/17/99		11/18/99
Time period		0815-1055	1247-1602		0745-1011
Operator		TB	TB		TB
Process Data					
Unit Load, MW		62.7	62.0		62.6
Coal feed rate, lb/hr.		28700	28600		27400
Coal Btu content, Btu/lb.(as received)		13200	13290		13310
Heat Input, 10^6 Btu/hr		378.8	380.1		364.7
Inputs For Calcs.					
Sq. rt. delta P		0.832954	0.80888		0.81917
Delta H		1.28680	1.26120		0.89440
Stack temp. (deg.F)		331.84	332.28		337.08
Meter temp. (deg.F)		58.36	72.52		54.00
Sample volume (act.)		69.792	71.893		60.721
Barometric press. (in.Hg)		30.03	30.03		30.21
Volume H_2O imp. (ml)		105.0	112.1		99.7
Weight chnge sil. gel (g)		16.7	20.4		13.6
% CO_2		13.7	14.1		14.2
% O_2		4.3	4.3		4.3
% N		82.0	81.6		81.5
Area of stack (sq.ft.)		35.50	35.50		35.50
Sample time (min.)		125.00	125.00		125.00
Static pressure (in.H_2O)		-12.00	-12.00		-12.00
Nozzle dia. (in.)		0.229	0.229		0.212
Meter box cal.		0.9961	0.9961		0.9961
Cp of pitot tube		0.84	0.84		0.84
Traverse points		25	25		25
Mercury Laboratory Report Data					
Particulate bound, ug		4.1000	4.0200		3.3000
Oxidized, ug	<	0.1000	0.3400	<	0.1000
Elemental, ug	<	0.3500	0.7800	<	0.3500
Total mercury catch, ug		4.5500	5.1400		3.7500

Note: Non-detects included in total mercury catch value.

TABLE A-2
COGENTRIX - ROCKY MOUNT, NC
ONTARIO HYDRO METHOD DATA INPUTS
UNIT NO. 2B OUTLET

Test Data						
Run number		1		2		3
Location				Unit No. 2B Outlet		
Date		11/17/99		11/17/99		11/18/99
Time period		0815-1055		1246-1603		0746-1010
Operator		PED		PED		PED
Process Data						
Unit Load, MW		62.7		62.0		62.6
Coal feed rate, lb/hr.		28700		28600		27400
Coal Btu content, Btu/lb.(as received)		13200		13290		13310
Heat Input, 10^6 Btu/hr		378.8		380.1		364.7
Inputs For Calcs.						
Sq. rt. delta P		1.170936		1.15249		1.15491
Delta H		1.42600		1.26080		1.22120
Stack temp. (deg.F)		184.76		186.72		187.48
Meter temp. (deg.F)		53.70		66.06		56.94
Sample volume (act.)		77.675		73.968		71.679
Barometric press. (in.Hg)		30.03		30.03		30.21
Volume H_2O imp. (ml)		213.4		191.4		205.6
Weight chnge sil. gel (g)		13.1		19.6		13.0
% CO_2		13.3		13.2		13.7
% O_2		5.0		5.1		5.3
% N		81.7		81.7		81.0
Area of stack (sq.ft.)		26.03		26.03		26.03
Sample time (min.)		125.00		125.00		125.00
Static pressure (in.H_2O)		-26.00		-26.00		-26.00
Nozzle dia. (in.)		0.190		0.190		0.190
Meter box cal.		1.0098		1.0098		1.0098
Cp of pitot tube		0.84		0.84		0.84
Traverse points		25		25		25
Mercury Laboratory Report Data						
Particulate bound, ug		0.1150		0.0560	<	0.0300
Oxidized, ug	<	0.1000	<	0.1000	<	0.1000
Elemental, ug	<	0.3500	<	0.3500	<	0.3500
Total mercury catch, ug		0.5650		0.5060		0.4800

Note: Non-detects included in total mercury catch value.

Sample and Velocity Traverse Point Data Sheet - Method 1

Client: COGENTRIX
Loaction/Plant: ROCKY MTN., NC
Source: TAILET

Operator: TB
Date: 11-16-99

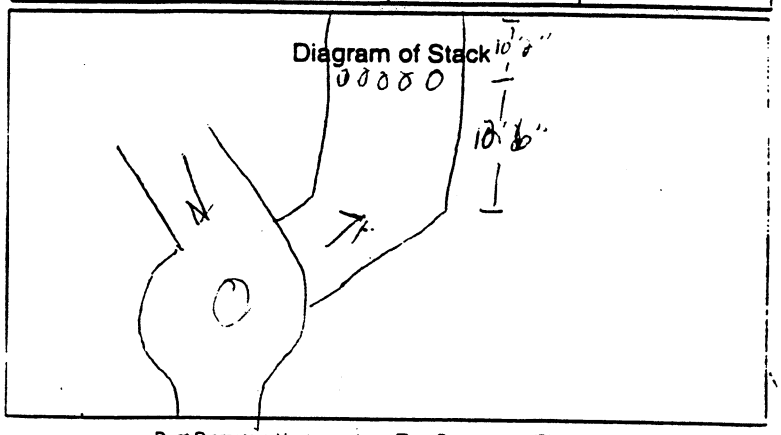
Duct Type	☐ Circular	☒ Rectangular Duct		Indicate appropriate type
Traverse Type	☒ Particulate Traverse	☐ Velocity Traverse		

Distance from far wall to outside of port (in.) = C	86"
Port Depth (in.) = D	14"
Depth of Duct, diameter (in.) = C-D	72"
Area of Duct (ft^2)	35.5
Total Traverse Points	25
Total Traverse Points per Port	5

Rectangular Ducts Only	
Width of Duct, rectangular duct only (in.)	71"
Total Ports (rectangular duct only)	25

Flow Disturbances	
Upstream - A (ft)	~~12'6"~~ 10'8"
Downstream - B (ft)	~~10'8"~~ 12'6"
Upstream - A (duct diameters)	
Downstream - B (duct diameters)	

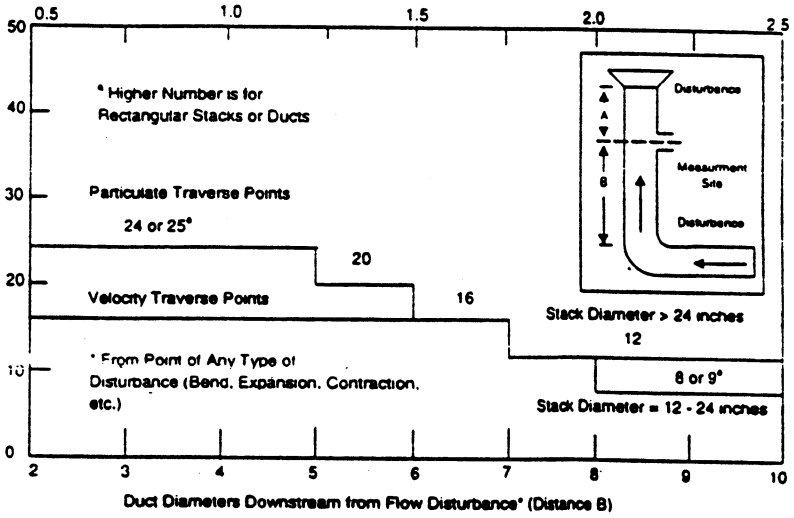
Diagram of Stack



Traverse Point Locations

Traverse Point	% of Duct	Distance from Inside Duct Wall (in)	Distance from Outside of Port (in)
1	10	7.2	21.2
2	30	21.6	35.6
3	50	36	50
4	70	50.4	64.4
5	90	64.8	78.8
6			
7			
8			
9			
10			
11			
12			

Equivalent Diameter = (2*L*W)/(L+W) = 71.5"



Traverse Point Location Percent of Stack -Circular

Traverse Point	Number of Traverse Points: 2	3	4	5	6	7	8	9	10	11	12
1	14.6		6.7		4.4		3.2		2.6		2.1
2	85.4		25		14.6		10.5		8.2		6.7
3			75		29.6		19.4		14.6		11.8
4			93.3		70.4		32.3		22.6		17.7
5					85.4		67.7		34.2		25
6					95.6		80.6		65.8		35.6
7							89.5		77.4		64.4
8							96.8		85.4		75
9									91.8		82.3
10									97.4		88.2
11											93.3
12											97.9

Traverse Point Location Percent of Stack -Rectangular

Traverse Point	Number of Traverse Points: 2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50.0	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

Rectangular Stack Points & Matrix
9 - 3 x 3
12 - 4 x 3
16 - 4 x 4
20 - 5 x 4
25 - 5 x 5
30 - 6 x 5
36 - 6 x 6
42 - 7 x 6
49 - 7 x 7

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Determination of Stack Gas Velocity - Method 2

Client: COGENTRIX
Location/Plant: ROCKY MTN, NC
Source: 2B INLET

Operator: TB
Date: 11-16-99
W.O. Number: _____

Pitot Coeff (Cp): .84
Stack Area, ft² (As): 35.5
Pitot Tube/Thermo ID: P112

As = 35.5

Run Number	PRELIM		
Time	1340		
Barometric Press, in Hg (Pb)	29.65		
Static Press, in H_2O (Pstatic)	-10.5		
Source Moisture, % (BWS)	7.3		
O_2, %			
CO_2, %			

Cyclonic Flow Determination		Traverse Location		Leak Check good ? (Y) N		Leak Check good ? Y / N		Leak Check good ? Y / N	
Delta P at 0°	Angle yeilding zero Delta P	Port	Point	Delta P	Source Temp, F° (Ts)	Delta P	Source Temp, F° (Ts)	Delta P	Source Temp, F° (Ts)
0		A	1	0.74	335				
			2	0.74	336				
			3	0.69	338				
			4	0.77	338				
0			5	0.65	340				
		B	1	0.73	335				
			2	0.73	336				
0			3	0.73	336				
			4	0.79	338				
			5	0.71	338				
		C	1	0.75	334				
0			2	0.78	335				
			3	0.80	335				
			4	0.77	337	ACFM		= 132000	
			5	0.77	338				
0		D	1	0.80	336	SCFM		77700	
			2	0.85	337				
			3	0.88	337				
0			4	0.77	338				
			5	0.69	340				
		E	1	0.79	337				
0			2	0.90	336				
			3	1.1	339				
			4	0.92	339				
0			5	0.65	340				
Avg Angle		Avg Delta P & Temp		0.7812	336.7				
		avg √DeltaP		0.8824					
Average gas stream velocity, ft/sec.									
Vol. flow rate @ actual conditions, wacf/min									
Vol. flow rate at standard conditions, dscf/min									

$$MWd = (0.32 * O_2) + (0.44 * CO_2) + (0.28 * (100 - (CO_2 + O_2)))$$

$$MWs = (MWd * (1 - (BWS/100))) + (18 * (BWS/100))$$

$$Tsa = Ts + 460$$

$$Ps = Pb + (Pstatic/13.6)$$

$$Vs = 85.49 * Cp * avg\sqrt{DeltaP} * \sqrt{Tsa/(Ps * MWs)}$$

$$Qs(act) = 60 * Vs * As$$

$$Qs(std) = 17.64 * (1 - (BWS/100)) * (Ps/Tsa) * Qs(act)$$

where:
MWd = Dry molecular weight source gas, lb/lb-mole.
MWs = Wet molecular weight source gas, lb/lb-mole.
Tsa = Source Temperature, absolute(oR)
Ps = Absolute stack static pressure, inches Hg.
Vs = Average gas stream velocity, ft/sec.
Qs(act) = Volumetric flow rate of wet stack gas at actual,
Qs(std) = Volumetric flow rate of dry stack gas at standard conditions, dscf/min

Comments _____

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Determination of Moisture Content in Stack Gases - Method 4

Client: COGENTRIX
Location/Plant: ROCKY MTN, NC
Source: 2B INLET
W.O. Number: _____
Operator: TB
Meter Box ID: 15
Temperature °C or °F: °F
Date: 11-16-99
Meter Box Y: 0.9961
Sample Volume, ft³ or L: FT³

Run Number		Sample Time (min)	Meter Volume, Vm	Meter Temp (or ambient temp for rotometer)		Meter Press, Delta H (in H_2O)	Impinger Volume, ml	Silica Gel Weight, g	Corrected Volume, Vm(std)	Leak Rate Check
				Inlet	Outlet					Initial .007@15"
PRELIM										
	End Test	1357	319.955	72	68	2.0	228	310.1		Final .023@5"
Baro Press., Pb (in Hg)	Start Test	1327	316.966	67	67	2.0	200	300	Moisture Volume, Vw(std)	Percent Moisture (%), BWS
29.65	Avg. or Total	30MIN	32.99	68.5		2.0	28	10.1		7.3

Run Number		Sample Time (min)	Meter Volume, Vm	Meter Temp (or ambient temp for rotometer)		Meter Press, Delta H (in H_2O)	Impinger Volume, ml	Silica Gel Weight, g	Corrected Volume, Vm(std)	Leak Rate Check
				Inlet	Outlet					Initial _____
	End Test									Final _____
Baro Press., Pb (in Hg)	Start Test								Moisture Volume, Vw(std)	Percent Moisture (%), BWS
	Avg. or Total									

Run Number		Sample Time (min)	Meter Volume, Vm	Meter Temp (or ambient temp for rotometer)		Meter Press, Delta H (in H_2O)	Impinger Volume, ml	Silica Gel Weight, g	Corrected Volume, Vm(std)	Leak Rate Check
				Inlet	Outlet					Initial _____
	End Test									Final _____
Baro Press., Pb (in Hg)	Start Test								Moisture Volume, Vw(std)	Percent Moisture (%), BWS
	Avg. or Total									

$$Vm(std) = \frac{17.64 * Y * Vm * (Pb + (deltaH / 13.6))}{(Tm + 460)}$$

if Tm is C° than $Tm = (Tmc * 1.8) + 32$

if Vm is liters than $Vm = Vml * 28.32$

$$Vw(std) = (0.04707 * Vwc) + (0.04715 * Wwsg)$$

$$BWS = \left(\frac{Vw(std)}{Vw(std) + Vm(std)} \right) * 100$$

WHERE:
Vm(std)= Sample volume corrected to standard temp and pressure, scf or L
Vm= Actual sample volume, calculated, scf
Vml= Actual sample volume, calculated, Liters
Y= Dry gas meter calibration factor.
Pb= Barometric pressure, in. Hg
delta H= Meter pressure, in H2O
Tm= Average temperature of meter (DGM is used) or rotomter, degrees °
Tmc= Average temperature of meter (DGM is used) or rotomter, degrees °
Vw(std)= Volume of water vapor at standard conditions, scf or L
Vwc= Volume of water condensed, mL
Wwsg= Weight of Silica Gel, g
Bws= Water vapor in gas stream, percen

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Use either ft³ or liters in calculations. DO NOT MIX CUBIC FEET AND LITERS IN ANY CALCULATION.

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ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client	Cogentrix
W.O.#	12257.001.001
Project ID	CORM
Mode/Source ID	FGD
Samp. Loc. ID	IN
Run No.ID	1
Test Method ID	OHM
Date ID	16NOV1999
Source/Location	FGD Inlet
Sample Date	11-17-99
Baro. Press (in Hg)	30.03
Operator	TB

Stack Conditions

	Assumed	Actual
% Moisture	7.3	
Impinger Vol (ml)		105g
Silica gel (g)		16.7g
CO_2, % by Vol	10	13.7
O_2, % by Vol	10	4.3
Temperature (°F)	336	
Meter Temp (°F)	50	
Static Press (in H_2O)	-12.5	-12.0
Ambient Temp (°F)	45	

Meter Box ID	15
Meter Box Y	0.9961
Meter Box Del H	2.0355
Probe ID / Length	8'
Probe Material	Boro
Pitot / Thermocouple ID	P301
Pitot Coefficient	0.84
Nozzle ID	.229
Avg Nozzle Dia (in)	.229
Area of Stack (ft^2)	35.5
Sample Time	125
Total Traverse Pts	25

K Factor 1.85

Leak Checks	Initial	Mid-Point	Final
Sample Train (ft^3)	.014	X	.012
Leak Check @ (in Hg)	15		15
Pitot good	yes / no	yes / no	yes / no
Orsat good	yes / no	yes / no	yes / no

Temp Check	Pre-Test Set	Post-Test Set
Meter Box Temp	46	49
Reference Temp	44	48
Pass/Fail (+/- 2°)	Pass / Fail	Pass / Fail
Temp Change Response	yes / no	yes / no

	TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft^3)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPINGER EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
		0	0815			320.402									
E	1	5	|	0.65	1.20	323.1	325	50	48	322	310	48	4		
	2	10	|	0.75	1.39	325.9	327	51	49	322	300	49	7		
	3	15	|	0.91	1.68	328.0	330	53	50	319	304	49	9		
	4	20	|	0.84	1.55	332.1	330	59	51	322	309	48	10		
	5	25	|	0.75	1.39	334.776	334	60	53	321	314	48	12		
		0	0845	—	—	335.176	—	—	—	—	—	—	—		
D	1	5	|	0.69	1.28	338.0	330	57	54	318	321	50	12		
	2	10	|	0.75	1.39	340.9	332	60	54	320	320	50	13		
	3	15	|	0.75	1.39	343.8	335	61	55	321	323	49	13		
	4	20	0902/0911	0.72	1.33	346.855/348.500	336	61	55	319	321	50	14		
	5	25	0918	0.62	1.15	349.540	330	61	56	319	320	51	5		
		0	0921	—	—	349.633	—	—	—	—	—	—	—		
C	1	5		0.67	1.24	352.5	330	61	56	321	318	50	7		
	2	10		0.67	1.24	355.7	330	62	57	322	325	50	8		
	3	15		0.72	1.33	358.0	335	62	57	321	327	49	10		
	4	20		0.64	1.18	360.7	335	63	58	320	322	50	12		
	5	25	0946	0.57	1.05	363.196	334	63	59	323	329	50	13		

Avg Sqrt Delta P	Avg Delta Hg	Total Volume	Avg Ts	Avg Tm	Min/Max	Min/Max	Max Temp	Max Vac	Max Temp
.83295									
0.8330	1.2868	69.792	331.84	58.36	318/322	304/325	54	14	
0.6960	Avg Sqrt Del H 1.1326								

Comments:

Ontario Hydro Method

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✓WF

FILTER CHANGE: 0902
0946

PORT E PRE: .014@15"
POST: .010@13

PORT D PRE: .012@15"
POST: .010@15"

PORT C: PRE: .010@15"
POST: .014@15

ISOKINETIC FIELD DATA SHEET — Ontario Hydro Method - Mercury

Client: Cogentrix | Operator: TB
Source: FGD | Run No.: 1
Sample Loc.: Inlet | Date: 11-17-99 | K Factor: 1.

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft³)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
	0	0957			363.484									
1	5		0.73	1.35	366.3	327	60	58	319	321	50	5		
2	10		0.77	1.42	369.2	331	62	55	315	318	50	6		
3	15		0.75	1.39	372.2	334	62	58	321	322	50	8		
4	20		0.67	1.24	375.2	335	63	59	322	327	51	11		
5	25	1022	0.57	1.05	377.749	334	63	59	320	328	51	13		
	0	1030	—	—	378.070	—	—	—	—	—	—	—		
1	5		0.65	1.20	380.8	327	62	60	322	328	54	5		
2	10		0.66	1.22	383.5	331	63	59	322	329	51	6		
3	15		0.68	1.26	386.4	335	64	60	322	322	52	8		
4	20		0.65	1.20	389.1	337	65	61	322	328	52	11		
5	25	1055	0.57	1.05	391.715	337	65	61	322	325	52	13		
														2.02 m³
					13.645									
												Vm std =		71.27
					14.261									
												% Mr =		7.44
					13.558									
												Acfm =		
					4.04									
												Scfm =		74000
					9.915									
												% I =		96.0
					14.373									
												As =		35.5 ft²
			Avg Sqrt Delta P	Avg Delta H	Total Volume 69.792	Avg Ts	Avg Tm		Min/Max	Min/Max	Max Temp	Max Vac		Max Temp
				Avg Sqrt Del H	Comments:									

WESTON — MANAGERS DESIGNERS/CONSULTANTS

PORT B PRE.
POST.

ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client	Cogentrix
W.O.#	12257.001.001
Project ID	CORM
Mode/Source ID	FGD
Samp. Loc. ID	IN
Run No.ID	2
Test Method ID	OHM
Date ID	16NOV1999
Source/Location	FGD Inlet
Sample Date	11-10-99
Baro. Press (in Hg)	30.03
Operator	TB

Stack Conditions	Assumed	Actual
% Moisture	7.4	
Impinger Vol (ml)		112.19
Silica gel (g)		20.49
CO2, % by Vol	14	14.1
O2, % by Vol	4	4.3
Temperature (°F)	335	
Meter Temp (°F)	70	
Static Press (in H_2O)	-12.0	-12.0
Ambient Temp (°F)		

Meter Box ID	15
Meter Box Y	0.9961
Meter Box Del H	2.0355
Probe ID / Length	8'
Probe Material	Boro
Pitot / Thermocouple ID	P301
Pitot Coefficient	0.84
Nozzle ID	
Avg Nozzle Dia (in)	.229
Area of Stack (ft^2)	35.5
Sample Time	125
Total Traverse Pts	25

K Factor 1.92

Leak Checks	Initial	Mid-Point	Final
Sample Train (ft^3)	.014	X	.012
Leak Check @ (in Hg)	15		15
Pitot good	yes / no	yes / no	yes / no
Orsat good	yes / no	yes / no	yes / no

Temp Check	Pre-Test Set	Post-Test Set
Meter Box Temp	53	55
Reference Temp	54	56
Pass/Fail (+/- 2°)	Pass / Fail	Pass / Fail
Temp Change Response	yes / no	yes / no

	TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft^3)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
		0	1247			392.177									
A	1	5		0.60	1.15	394.9	331	68	68	318	329	59	4		
	2	10		0.66	1.23	397.8	335	74	70	322	327	57	6		
	3	15		0.62	1.19	400.6	332	76	71	323	325	53	8		
	4	20		0.64	1.23	403.3	333	77	73	320	323	51	11		
	5	25	1312	0.58	1.11	406.035	333	78	74	320	320	51	14		
		0	1358	—	—	406.375	—	—	—	—	—	—	—		
B	1	5		0.60	1.15	409.4	333	70	70	322	320	58	4		
	2	10		0.71	1.36	412.2	330	69	69	320	316	50	7		
	3	15		0.70	1.34	415.2	331	70	69	323	322	47	10		
	4	20		0.62	1.19	417.9	333	71	68	316	319	47	12		
	5	25	1423	0.53	1.02	421.113	332	72	69	318	320	47	14		
		0	1437	—	—	421.345	—	—	—	—	—	—	—		
C	1	5		0.59	1.13	424.1	329	74	69	323	320	54	4		
	2	10		0.66	1.31	427.0	327	76	70	323	320	49	5		
	3	15		0.68	1.31	429.9	335	77	72	323	320	47	7		
	4	20		0.62	1.19	432.7	336	78	73	323	314	46	8		
	5	25	1502	0.51	0.98	435.346	336	77	73	320	317	47	9		

Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm	Min/Max	Min/Max	Max Temp	Max Vac	Max Temp
0.8089	1.0612	71.893	332.3	72.5					

Avg Sqrt Del H 1.1209

Comments:

Ontario Hydro Method

VWF

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AVG ΔP: 0.6568

ILRR CHANGE: 1312 1423 1502

PORT A PRE: .014@15"
POST: .014@15"

PORT B PRE: .013@15
POST: .012@15

PORT C PRE: .011@15
POST: .008@15"

ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client: Cogentrix
Source: FGD
Sample Loc.: Inlet
Operator: TB
Run No.: 2
Date: 11-17-99
K Factor: 1.92

	TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft³)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
		0	1504			435.490									
D	1	5	1	0.64	1.23	436.3	328	76	75	324	320	51	11		
	2	10	1514/1520	0.69	1.32	441.163/441.370	329	76	73	310	330	48	13		
	3	15		0.72	1.38	444.3	331	74	71	325	334	53	4		
	4	20		0.67	1.29	447.2	333	75	71	320	335	49	5		
	5	25	1535	0.55	1.06	449.863	336	76	71	326	335	48	6		
		0	1537	–	–	450.075	–	–	–	–	–	–	–		
E	1	5		0.70	1.34	452.7	329	75	72	328	331	53	8		
	2	10		0.80	1.54	455.8	331	75	71	324	331	50	10		
	3	15		0.86	1.65	459.0	339	74	70	326	333	50	12		
	4	20		0.81	1.56	462.0	338	72	69	324	334	48	13		
	5	25	1602	0.64	1.23	466.225	338	73	69	322	333	50	13		

Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm	Min/Max	Min/Max	Max Temp	Max Vac	Max Temp

Avg Sqrt Del H

Comments:

WESTON MANAGERS DESIGNERS/CONSULTANTS

PORT D PRE: .013@15"
POST: .013@15"

PORT E PRE: .011@15
POST: .012@15

ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client	Cogentrix
W.O.#	12257.001.001
Project ID	CORM
Mode/Source ID	FGD
Samp. Loc. ID	IN
Run No.ID	3
Test Method ID	OHM
Date ID	16NOV1999
Source/Location	FGD Inlet
Sample Date	11-18-99
Baro. Press (in Hg)	30.21
Operator	TB

Stack Conditions

	Assumed	Actual
% Moisture	8	
Impinger Vol (ml)		99.79
Silica gel (g)		13.69
CO2, % by Vol	14	14.2
O2, % by Vol	4	4.3
Temperature (°F)	335	
Meter Temp (°F)	45	
Static Press (in H_2O)	-12	-12
Ambient Temp (°F)	35	

Meter Box ID	15
Meter Box Y	0.9961
Meter Box Del H	2.0355
Probe ID / Length	8'
Probe Material	Boro
Pitot / Thermocouple ID	P301
Pitot Coefficient	0.84
Nozzle ID	.212
Avg Nozzle Dia (in)	.212
Area of Stack (ft^2)	35.5
Sample Time	125 min
Total Traverse Pts	25

K Factor 1.33

Leak Checks	Initial	Mid-Point	Final
Sample Train (ft^3)	.012		.012
Leak Check @ (in Hg)	15		15
Pitot good	yes / no	yes / no	yes / no
Orsat good	yes / no	yes / no	yes / no

Temp Check	Pre-Test Set	Post-Test Set
Meter Box Temp	34	53
Reference Temp	35	53
Pass/Fail (+/- 2°)	Pass / Fail	Pass / Fail
Temp Change Response	yes / no	yes / no

	TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft^3)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPINGER EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
		0	0745			465.436									
E	1	5		0.69	0.92	467.9	331	39	38	324	318	40	4		
	2	10		0.75	1.05	470.4	338	43	39	326	314	41	4		
	3	15		0.86	1.14	473.0	340	45	40	327	320	41	5		
	4	20		0.83	1.10	475.6	340	48	41	324	320	41	6		
	5	25	0810	0.60	0.80	477.935	340	50	43	324	323	41	6		
		0	0814	—	—	478.029	—	—	—	—	—	—	—		
D	1	5		0.68	0.90	480.4	331	50	46	326	326	43	6		
	2	10		0.71	0.94	482.9	333	53	47	323	329	42	7		
	3	15		0.73	0.97	485.4	341	54	47	329	326	43	8		
	4	20		0.73	0.97	487.9	341	55	49	325	332	41	9		
	5	25	0839	0.61	0.81	490.085	342	56	50	327	334	41	10		
		0	0842	—	—	490.383	—	—	—	—	—	—	—		
C	1	5		0.64	0.85	492.6	331	57	53	326	334	45	10		
	2	10		0.67	0.89	495.1	332	59	53	325	332	44	11		
	3	15		0.71	0.94	497.5	338	59	53	323	334	43	12		
	4	20		0.63	0.84	499.9	341	59	53	327	334	43	12		
	5	25	0907	0.57	0.76	502.227	340	59	54	327	333	43	13		
				0.81917											
				Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm		Min/Max	Min/Max	Max Temp	Max Vac	Max Temp	
				~~0.8630~~	0.8944	60.72	337.1	54.0							
					Avg Sqrt Del H										
					0.9442										

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AVG ΔP .7484 WF

~~PORT~~ FILTER CHANGE! 0907

Comments:

PORT A PRE: .012@15 POST: .009@10

PORT B PRE: .010@15 POST: .010@15

PORT C PRE: .012@15 POST: .010@15

Ontario Hydro Method

✓WF

ISOKINETIC FIELD DATA SHEET — Ontario Hydro Method - Mercury

Client	Cogentrix	Operator	TB
Source	FGD	Run No.	3
Sample Loc.	Inlet	Date	11-18-96
K Factor	1.33		

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft³)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
	0	0918			502.382									
B 1	5		0.66	0.88	504.8	332	59	55	327	331	49	4		
2	10		0.73	0.97	507.4	333	61	56	322	331	46	4		
3	15		0.73	0.97	509.9	337	62	56	322	332	46	5		
4	20		0.63	0.84	512.3	338	62	57	327	334	46	6		
5	25	0943	0.57	0.76	514.645	338	63	57	325	330	49	6		
	0	0946	—	—	514.845	—	—	—	—	—	—	—		
A 1	5		0.58	0.77	517.2	334	63	57	327	334	48	7		
2	10		0.65	0.86	519.6	334	65	60	325	333	48	8		
3	15		0.61	0.81	522.0	337	65	60	328	332	47	9		
4	20		0.65	0.86	524.4	339	65	60	330	333	48	11		
5	25	1011	0.57	0.76	526.704	340	65	60	324	333	48	12		

Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm	Min/Max	Min/Max	Max Temp	Max Vac	Max Temp
0.81917									
	Avg Sqrt Del H	Comments:							

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PORT B PRE: .012@15" PORT A PRE: .010@15"
POST: .010@15" POST: .012@15"

FGD INLET

SAMPLE RECOVERY FIELD DATA

Client ~~CORM FGD IN-1 OHM 16NOV1999~~ (Cogentrix) Method ONTARIO Hydro Method - Mercury

W.O. # 12257-001-001

Location/Plant Rocky Mount NC Source & Location FGD INLET 2B

Run No. 1 **Sample Date** 11/17/99 **Recovery Date** 11/17/99

Sample I.D. CORM-FGD-IN-1-OHM-16NOV1999 **Analyst** JM **Filter Number** Rinse W14-W15-W16-W2

	Impinger 1	2	3	4	5	6	~~Imp. Total~~	7 TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final	742.2	668.6	765.4	631.5	599.8	711.8	724.8		316.70
Initial	699.2	626.3	757.3	625.0	598.9	710.8	725.6		300.0
Gain	45	42.3	11.1	6.5	0.9	0.0	-0.8	105	16.7

Impinger Color 1-4 Clear Colorless **Labeled?** ✓ 121.7

Silica Gel Condition Blue 20% **Sealed?** ✓ Filter ID W32

Run No. 2 **Sample Date** 11/17/99 **Recovery Date** 11/17/99

Sample I.D. CORM-FGD-IN-2-OHM-16NOV1999 **Analyst** JM **Filter Number** Rinse W21, W22, W24, W25

	Impinger 1	2	3	4	5	6	~~Imp. Total~~	7 TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final	709.0	709.7	590.8	703.9	687.6	714.5	717.3		320.4
Initial	650.8	676.6	582.4	701.5	687.4	714.7	717.3		300.0
Gain	58.2	33.1	8.4	2.4	.2	-.2	0	112.1	20.4

Impinger Color 1-4 Clear Colorless **Labeled?** ✓ Filter ID W22 W24

Silica Gel Condition 1/2 Blue **Sealed?** ✓

Run No. 3 **Sample Date** 11/18/99 **Recovery Date** 11/18/99

Sample I.D. CORM-FGD-IN-3-OHM-16NOV1999 **Analyst** **Filter Number** Rinse W26 + W27

	Impinger 1	2	3	4	5	6	~~Imp. Total~~	7 TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final	727.2	641.9	756.8	627.2	609.4	705.4	722.9		313.6
Initial	702.0	622.5	753.9	623.6	609.1	706.2	723.5		300.0
Gain	25.2	19.10	2.9	3.6	.3	-0.8	-0.6	99.7	13.6

Impinger Color 1-4 Clear Colorless **Labeled?** ✓ Filter ID W26

Silica Gel Condition 1/2 Blue **Sealed?** ✓

Check COC for Sample IDs of Media Blanks

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Source Gas Analysis Data Sheet - Method 3

Client Calentrix

Analyst Jno (KI)

Location/Plant

Date 11/17/97

Source FGD Inlet

Analytical Method (circle one) Orsat

W.O. Number

Run Number ONE

Leak Check Good? (circle one) Yes No

Analysis Number	Analysis Time	Percent CO_2 (A)	Percent Total (B)	Percent O_2 (B - A)	Percent N_2 (100 - B)
1		13.9	18	[illegible]	
2		13.7	18	4.3	
3		13.6	18	4.4	
	Average	13.7		4.3	

Run Number 2

Leak Check Good? (circle one) Yes No

Analysis Number	Analysis Time	Percent CO_2 (A)	Percent Total (B)	Percent O_2 (B - A)	Percent N_2 (100 - B)
1		14.2	18.4	4.2	
2		14.2	18.4	4.2	
3		14.0	18.4	4.4	
	Average	14.1		4.3	

Run Number 3

Leak Check Good? (circle one) Yes No

Analysis Number	Analysis Time	Percent CO_2 (A)	Percent Total (B)	Percent O_2 (B - A)	Percent N_2 (100 - B)
1		14.2	18.6	4.4	
2		14.0	18.2	4.2	
3		14.4	18.6	4.2	
	Average	14.2		4.3	

Acceptable differences for repeat analysis:

if CO_2 > 4% than +/- 0.3%

if CO_2 < or = 4% than +/- 0.2%

if O_2 > or = 15% than +/- 0.2%

if O_2 < 15% than +/- 0.3%

Ambient Check

Oxygen

Carbon Dioxide

Report all values to the nearest 0.1 percent

Comments

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Determination of Moisture Content in Stack Gases - Method 4

Client: Cogentrix
Location/Plant: Rocky Mount, NC
Source: Baghouse Outlet
W.O. Number: 12257-001-001
Operator: M.E.D.
Meter Box ID: 14
Temperature °C or °F: F
Date: 11/16/99
Meter Box Y: 1.0098
Sample Volume, ft³ or L: ft

Run Number		Sample Time (min)	Meter Volume, Vm	Meter Temp (or ambient temp for rotometer) Inlet	Meter Temp Outlet	Meter Press, Delta H (in H_2O)	Impinger Volume ml	Silica Gel Weight, g	Corrected Volume, Vm(std)	Leak Rate Check
1										Initial 0.005 @ 10
	End Test	1504	477.360	72	64	1.7	26.4	306.9		Final 0.005 @ 10
Baro Press., Pb (in Hg)	Start Test	1430	454.100	75	68	1.7	200	300	Moisture Volume, Vw(std)	Percent Moisture (%), BWS
29.65	Avg. or Total	34	23.260	69.75		1.7	6.4	6.9		12.54

Run Number		Sample Time (min)	Meter Volume, Vm	Meter Temp (or ambient temp for rotometer) Inlet	Meter Temp Outlet	Meter Press, Delta H (in H_2O)	Impinger Volume, ml	Silica Gel Weight, g	Corrected Volume, Vm(std)	Leak Rate Check
										Initial
	End Test									Final
Baro Press., Pb (in Hg)	Start Test								Moisture Volume, Vw(std)	Percent Moisture (%), BWS
	Avg. or Total									

Run Number		Sample Time (min)	Meter Volume, Vm	Meter Temp (or ambient temp for rotometer) Inlet	Meter Temp Outlet	Meter Press, Delta H (in H_2O)	Impinger Volume, ml	Silica Gel Weight, g	Corrected Volume, Vm(std)	Leak Rate Check
										Initial
	End Test									Final
Baro Press., Pb (in Hg)	Start Test								Moisture Volume, Vw(std)	Percent Moisture (%), BWS
	Avg. or Total									

$$Vm(std) = \frac{17.64 * Y * Vm * (Pb + (deltaH / 13.6))}{(Tm + 460)}$$

if Tm is C° than $Tm = (Tmc * 1.8) + 32$

if Vm is liters than $Vm = Vml * 28.32$

$$Vw(std) = (0.04707 * Vwc) + (0.04715 * Wwsg)$$

$$BWS = \left(\frac{Vw(std)}{Vw(std) + Vm(std)} \right) * 100$$

WHERE:
Vm(std)= Sample volume corrected to standard temp and pressure, scf or L
Vm= Actual sample volume, calculated, scf
Vml= Actual sample volume, calculated, Liters
Y= Dry gas meter calibration factor.
Pb= Barometric pressure, in. Hg
delta H= Meter pressure, in H2O
Tm= Average temperature of meter (DGM is used) or rotomter, degrees °
Tmc= Average temperature of meter (DGM is used) or rotomter, degrees °
Vw(std)= Volume of water vapor at standard conditions, scf or L
Vwc= Volume of water condensed, mL
Wwsg= Weight of Silica Gel, g
Bws= Water vapor in gas stream, percen

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Use either ft³ or liters in calculations. DO NOT MIX CUBIC FEET AND LITERS IN ANY CALCULATION.

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ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client	Cogentrix
W.O.#	12257.001.001
Project ID	CORM
Mode/Source ID	BH
Samp. Loc. ID	OUT
Run No.ID	1
Test Method ID	OHM
Date ID	16NOV1999
Source/Location	BagHouse Outlet
Sample Date	11/17/99
Baro. Press (in Hg)	30.03
Operator	EM/KA

Stack Conditions

	Assumed	Actual
% Moisture	12	
Impinger Vol (ml)		213.4
Silica gel (g)		13.1
CO2, % by Vol		13.3
O2, % by Vol		5
Temperature (°F)		
Meter Temp (°F)		
Static Press (in H_2O)		-26.0
Ambient Temp (°F)	45	

Meter Box ID	14	
Meter Box Y	1.0098	
Meter Box Del H	1.9405	
Probe ID / Length		6'
Probe Material	Boro	
Pitot / Thermocouple ID	180	14
Pitot Coefficient	0.84	
Nozzle ID	6465	
Avg Nozzle Dia (in)	0.19	
Area of Stack (ft^2)	26.03	
Sample Time	125	
Total Traverse Pts	25	

K Factor 1.03

Leak Checks	Initial	Mid-Point	Final
Sample Train (ft^3)	0.010		0.008
Leak Check @ (in Hg)	15		12
Pitot good	yes / no	yes / no	yes / no
Orsat good	yes / no	yes / no	yes / no

Temp Check	Pre-Test Set	Post-Test Set
Meter Box Temp	47	55
Reference Temp	45	54
Pass/Fail (+/- 2°)	Pass / Fail	Pass / Fail
Temp Change Response	yes / no	yes / no

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft^3)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPINGER EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
	0	815			479.800									
A 1	5		1.8	1.85	484.0	187	47	49	263	266	47	8		
2	10		1.9	1.96	487.5	190	57	50	260	267	48	8		
3	15		2.1	2.16	491.3	190	61	52	261	266	48	9		
4	20		1.7	1.75	494.7	189	62	52	259	266	48	8		
5	25		1.2	1.24	497.652	175	61	51	260	263	47	7		
	~~30~~			Volume	17.852									0.002 @ 11"
1	0	946	1.3	1.34	498.070	167	55	50	270	262	45	7		
B 2	5		1.5	1.55	500.8	187	57	53	270	266	47	8		
3 2	10		1.8	1.85	504.2	187	57	52	266	264	46	8		
4 3	15		1.3	1.34	507.5	185	56	52	263	265	47	8		
5 4	20		1.1	1.13	510.6	178	56	52	260	266	48	7		
5	25				513.478									0.006 @ 11"
PCD	~~30~~			Volume	15.408									
	0	921	—	—	513.675	—	—	—	—	—	—	—		
C 1	5		1.2	1.24	516.5	181	50	50	271	264	43	7		
2	10		1.1	1.13	519.3	188	52	51	270	268	48	7		
3	15		1.4	1.44	522.5	189	53	51	269	265	48	7		
4	20		1.1	1.13	525.2	186	54	51	260	260	49	7		
5	25		1.0	1.03	527.870	185	54	51	263	273	49	7		
	~~30~~	946		Volume	14.265									0.006 @ 11"
			Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm		Min/Max	Min/Max	Max Temp	Max Vac	Max Temp	

Avg Sqrt Del H

Comments:

Ontario Hydro Method

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Filter #

ISOKINETIC FIELD DATA SHEET — Ontario Hydro Method - Mercury

Client: Cogentrix | Operator: P.E. D. / IRA
Source: BagHouse | Run No.: 1
Sample Loc.: Outlet | Date: 11/17/99 | K Factor: 1.03

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft³)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)			COMMENTS
	0	959			528.000										
D 1	5		1.3	1.34	531.0	177	52	51	275	271	50	8			
2	10		1.1	1.13	533.7	187	54	52	270	274	49	7			
3	15		1.3	1.34	536.8	188	54	51	265	271	49	8			
4	20		1.2	1.24	539.7	188	55	52	266	272	50	7			
5	25	1024	1.2	1.24	542.588	177	56	53	270	272	51	7			
															0.006 @ 11"
	0	1030	—	—	542.728	—	—	—	—	—	—	—			
E 1	5		1.5	1.55	546.0	186	55	53	277	274	51	8			
2	10		1.3	1.34	548.7	187	55	53	271	271	52	8			
3	15		1.4	1.44	552.0	188	58	53	267	269	51	8			
4	20		1.5	1.55	555.2	188	57	54	269	274	52	8			
5	25	1055	1.3	1.34	558.288	185	61	55	272	271	54	8			
															0.008 @ 12"
					15.562	//									
					14.588	//									
					14.269	//					PAS = 26.03				
					15.409	//									
					17.852	//									
				1.426				53.7							
			Avg Sqrt Delta P: 1.17094	Avg Delta H: ~~1.4249~~	Total Volume: 77.675	Avg Ts: 184.76		Avg Tm: ~~54.79~~	Min/Max: 260/277	Min/Max: 260/274	Max Temp: 52	Max Vac: 8	Max Temp		
				Avg Sqrt Del H	Comments:										

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✓WF

ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client	Cogentrix
W.O.#	12257.001.001
Project ID	CORM
Mode/Source ID	BH
Samp. Loc. ID	OUT
Run No.ID	2
Test Method ID	OHM
Date ID	16NOV1999
Source/Location	BagHouse Outlet
Sample Date	11/17/99
Baro. Press (in Hg)	30.03
Operator	RCD

Stack Conditions	Assumed	Actual
% Moisture	12	
Impinger Vol (ml)		191.4
Silica gel (g)		19.6
CO2, % by Vol		13.2
O2, % by Vol		5.1
Temperature (°F)		
Meter Temp (°F)		
Static Press (in H_2O)		-26.0
Ambient Temp (°F)	50	

Meter Box ID	14
Meter Box Y	1.0078
Meter Box Del H	1.9408
Probe ID / Length	6'
Probe Material	Boro
Pitot / Thermocouple ID	180 / 14
Pitot Coefficient	0.84
Nozzle ID	G155B
Avg Nozzle Dia (in)	0.19
Area of Stack (ft^2)	26.03
Sample Time	125
Total Traverse Pts	25

K Factor 1.00 .94

Leak Checks	Initial	Mid-Point	Final
Sample Train (ft³)	0.005		0.012
Leak Check @ (in Hg)	15"		10"
Pitot good	yes / no	yes / no	yes / no
Orsat good	yes / no	yes / no	yes / no

Temp Check	Pre-Test Set	Post-Test Set
Meter Box Temp	57	56
Reference Temp	56	54.5
Pass/Fail (+/- 2°)	Pass / Fail	Pass / Fail
Temp Change Response	yes / no	yes / no

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft³)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
	0	1246			557.910									
A 1	5		1.7	1.79	563.5	182	59	56	258	272	68	6		
2	10		1.8	1.69	566.9	188	63	57	267	262	66	6		
3	15		1.9	1.97	570.5	190	64	57	271	270	63	6		
4	20		1.7	1.60	573.9	190	67	59	275	273	64	6		
5	25	1311	1.5	1.41	577.100	189	69	61	270	273	65	6		
				Volume	17.190									0.005@12"
	0	1358	—	—	578.167	—	—	—	—	—	—	—		
B 1	5		1.1	1.03	580.9	185	64	62	270	268	62	5		
2	10		1.7	[illegible]	584.1	188	64	62	268	278	60	6		
3	15		1.5	1.44	587.2	190	68	63	265	273	58	6		
4	20		1.1	1.03	589.8	188	70	64	262	268	57	5		
5	25	1423	1.0	0.94	592.377	179	72	67	276	275	60	5		
				Volume	14.210									0.008@10"
	0	1437	—	—	592.450	—	—	—	—	—	—	—		
C 1	5		1.2	1.13	595.3	183	64	64	266	267	66	6		
2	10		1.2	1.13	598.1	187	65	64	262	267	61	6		
3	15		1.2	1.13	601.0	190	68	64	268	267	59	6		
4	20		1.0	0.94	603.5	189	74	67	268	270	61	6		
5	25	1502	0.99	0.93	606.043	179	75	68	270	267	62	5		0.002@10"
				Volume	13.593									
			Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm		Min/Max	Min/Max	Max Temp	Max Vac	Max Temp	
				Avg Sqrt Del H	Comments:						Ontario Hydro Method			

WESTON MANAGERS DESIGNERS/CONSULTANTS

Filter #

ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client: Cogentrix
Source: BagHouse
Sample Loc.: Outlet
Operator: P.E.D.
Run No.: 2
Date: 11/17/99
K Factor: 0.94

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft³)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
	0	1505			606.150									
D 1	5		1.2	1.12	609.0	185	70	68	265	267	62	6		
2	10		1.2	1.12	611.8	187	72	68	272	272	63	6		
3	15		1.2	1.12	614.7	191	75	69	273	270	63	6		
4	20		1.2	1.12	617.5	188	72	66	269	266	60	6		
5	25	1530	1.0	0.94	620.068	179	72	66	266	269	60	6		
				Volume	13.918									0.002 @ 10"
	0	1537	—	—	620.130	—	—	—	—	—	—	—		
E 1	5		1.2	1.12	623.0	186	66	66	259	267	64	6		
2	10		1.5	1.41	626.1	187	67	66	264	265	61	6		
3	15		1.5	1.41	629.2	190	68	66	278	266	58	6		
4	20		1.3	1.22	632.2	189	67	65	272	267	57	6		
5	25	1603	1.3	1.22	635.187	189	67	65	275	267	58	6		
				Volume	15.057									0.012 @ 10"

Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm	Min/Max	Min/Max	Max Temp	Max Vac	Max Temp
1.1525	1.2608	73.968	186.720	66.06	259/276	262/278	68	6	
	Avg Sqrt Del H 1.1164	Comments:							

WESTON MANAGERS DESIGNERS/CONSULTANTS

✓WF

ISOKINETIC FIELD DATA SHEET

Ontario Hydro Method - Mercury

Client	Cogentrix
W.O.#	12257.001.001
Project ID	CORM
Mode/Source ID	BH
Samp. Loc. ID	OUT
Run No.ID	3
Test Method ID	OHM
Date ID	16NOV1999
Source/Location	BagHouse Outlet
Sample Date	11/18/99
Baro. Press (in Hg)	30.21
Operator	R.E.D.

Stack Conditions

	Assumed	Actual
% Moisture	12	
Impinger Vol (ml)		205.6
Silica gel (g)		13.0
CO2, % by Vol		13.7
O2, % by Vol		5.3
Temperature (°F)		
Meter Temp (°F)		
Static Press (in H_2O)		-26.0
Ambient Temp (°F)	38	

Meter Box ID	14
Meter Box Y	1.0018
Meter Box Del H	1.940
Probe ID / Length	6"
Probe Material	Boro
Pitot / Thermocouple ID	180 / 14
Pitot Coefficient	0.84
Nozzle ID	G/SS
Avg Nozzle Dia (in)	0.19
Area of Stack (ft^2)	26.03
Sample Time	125
Total Traverse Pts	25

K Factor 0.71

Leak Checks	Initial	Mid-Point	Final
Sample Train (ft^3)	0.008		0.012
Leak Check @ (in Hg)	15		10
Pitot good	yes / no	yes / no	yes / no
Orsat good	yes / no	yes / no	yes / no

Temp Check	Pre-Test Set	Post-Test Set
Meter Box Temp	36	61
Reference Temp	34.6	52.7
Pass/Fail (+/- 2°)	Pass / Fail	Pass / Fail
Temp Change Response	yes / no	yes / no

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft^3)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPINGER EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
	0	746			635.717									
A 1	5		1.7	1.55	638.7	182	43	42	262	277	46	7		
2	10		1.7	1.73	642.3	171	48	43	260	269	47	8		
3	15		1.7	1.55	645.5	172	51	44	262	271	46	7		
4	20		1.6	1.46	649.6	171	56	45	262	269	45	7		
5	25	811	1.6	1.46	651.717	193	57	47	264	269	45	7		
				Volume	16.000									0.002 @10"
	0	815	—	—	651.851	—	—	—	—	—	—	—		
B 1	5		1.3	1.18	654.7	182	57	50	275	272	47	7		
2	10		1.3	1.18	657.6	170	59	50	276	270	46	7		
3	15		1.3	1.18	660.4	190	58	49	277	266	44	7		
4	20		1.3	1.18	663.2	190	58	51	275	269	45	7		
5	25	840	1.0	0.91	665.686	186	59	51	279	269	46	6		
				Volume	13.835									0.002 @10"
	0	841	—	—	665.850	—	—	—	—	—	—	—		
C 1	5		1.2	1.09	668.6	183	58	53	279	270	46	7		
2	10		1.3	1.18	671.4	189	60	53	278	270	47	7		
3	15		1.3	1.18	674.2	191	61	53	275	269	47	7		
4	20		1.1	1.00	676.8	191	61	55	270	269	47	6		
5	25	906	0.77	0.88	679.252	180	62	55	272	271	49	6		
				Volume	13.452									0.010 @10"
			Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm		Min/Max	Min/Max	Max Temp	Max Vac	Max Temp	

Avg Sqrt Del H

Comments:

Ontario Hydro Method

WESTON MANAGERS DESIGNERS/CONSULTANTS

Filter # W275

ISOKINETIC FIELD DATA SHEET — Ontario Hydro Method - Mercury

Client	Cogentrix	Operator	P.E.D.
Source	BagHouse	Run No.	3
Sample Loc.	Outlet	Date	11/15/94
K Factor	0.91		

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H2O)	ORIFICE PRESSURE Delta H (in H2O)	DRY GAS METER READING (ft³)	STACK TEMP (°F)	DGM INLET TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (F)	IMPING EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)		COMMENTS
	0	718			679.313									
D 1	5		1.2	1.09	682.1	185	60	57	278	264	52	7		
2	10		1.2	1.09	684.9	189	63	57	278	266	50	7		
3	15		1.1	1.00	687.5	191	66	58	273	266	49	6		
4	20		1.2	1.09	690.3	189	66	53	266	265	49	7		
5	25	943	1.2	1.09	693.100	185	67	57	265	263	49	7		
				Volume	13.627									0.009 @10
	0	945	—	—	693.100	—	—	—	—	—	—	—		
E 1	5		1.4	1.27	695.0	186	66	60	260	265	51	7		
2	10		1.4	1.27	699.0	189	68	60	259	266	50	7		
3	15		1.5	1.37	702.0	189	69	60	262	261	50	7		
4	20		1.5	1.37	705.0	190	69	61	264	265	51	7		
5	25	1010	1.3	1.18	707.865	183	70	61	266	265	51	7		0.012@10'
				Volume	14.765									

Avg Sqrt Delta P	Avg Delta H	Total Volume	Avg Ts	Avg Tm	Min/Max	Min/Max	Max Temp	Max Vac	Max Temp
1.1549	1.2212	71.679	187.48	56.940	260/279	263/277	52	7	7
	Avg Sqrt Del H 1.1013	Comments:							

Ass.

WESTON MANAGERS DESIGNERS/CONSULTANTS

BAGHOUSE OUTLET

SAMPLE RECOVERY FIELD DATA

Method UNITED HYDRO METHOD - MERCURY

Client ~~CORM-BH-OUT-1-OHM-16NOV1999~~ COGENTRIX W.O. # 12257-001 001

Location/Plant ROCKY MOUNT NC Source & Location BAGHOUSE OUTLET 2B

Run No. 1 **Sample Date** 11/17/99 **Recovery Date** 11/17/99

Sample I.D. CORM-BH-OUT-1-OHM-16NOV1999 **Analyst** _____ **Filter Number** W 133

	Impinger 1	2	3	4	5	6	7 ~~Imp. Total~~	7 TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final	793.0	702.9	740.4	691.3	633.9	606.9	678.1		313.1
Initial	692.4	599.6	732.3	688.6	633.6	607.2	679.4	~~679.4~~ WF	300.0
Gain	100.6	103.3	8.1	2.7	0.3	-0.3	-1.3	213.4	13.1

Impinger Color 1-4 Clear Colorless **Labeled?** ✓

Silica Gel Condition 1/2 Blue **Sealed?** ✓

Run No. ~~CORM-BH-OUT-2-~~ 2 **Sample Date** 11/17/99 **Recovery Date** 11/17/99

Sample I.D. CORM-BH-OUT-2-OHM-16NOV1999 **Analyst** _____ **Filter Number** W 273

	Impinger 1	2	3	4	5	6	7 ~~Imp. Total~~	7 TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final	720.4	752.8	712.4	623.7	701.8	706.8	680.4		319.6
Initial	604.4	699.2	695.0	619.7	700.3	708.7	679.6	WF	300.0
Gain	116.0	53.6	17.4	4.0	1.5	-1.9	.8	191.4	19.6

Impinger Color 1-4 Clear Colorless **Labeled?** ✓

Silica Gel Condition 1/2 Blue **Sealed?** ✓

Run No. 3 **Sample Date** 11/18/99 **Recovery Date** 11/18/99

Sample I.D. CORM-BH-OUT-3-OHM-16NOV1999 **Analyst** _____ **Filter Number** W

	Impinger 1	2	3	4	5	6	7 ~~Imp. Total~~	7 TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final	764.0	718.9	729.2	690.0	616.3	625.2	673.2		313.0
Initial	682.3	601.3	724.0	688.7	616.2	625.3	673.4	WF	300.0
Gain	81.7	117.6	5.2	1.3	.1	-.1	-.2	205.6	13.0

Impinger Color 1-4 clear coloring **Labeled?** ✓

Silica Gel Condition 1/2 Blue **Sealed?** ✓

Check COC for Sample IDs of Media Blanks

WESTON

Source Gas Analysis Data Sheet - Method 3

Client Cogentrix

Analyst JDS (KL)

Location/Plant

Date 11/17/99

Source FGD Outlet

Analytical Method (circle one) Orsat

W.O. Number

Run Number One

Leak Check Good? (circle one) Yes No

Analysis Number	Analysis Time	Percent CO_2 (A)	Percent Total (B)	Percent O_2 (B - A)	Percent N_2 (100 - B)
1		13.3	18.3	5.0	
2		13.3	18.2	4.9	
3		13.2	18.2	5.0	
	Average	13.3	18.2	5.0	

Run Number 2

Leak Check Good? (circle one) Yes No

Analysis Number	Analysis Time	Percent CO_2 (A)	Percent Total (B)	Percent O_2 (B - A)	Percent N_2 (100 - B)
1		13.2	18.3	5.1	
2		13.3	18.3	5.0	
3		13.2	18.3	5.1	
	Average	13.2	18.3	5.1	

Run Number 3

Leak Check Good? (circle one) Yes No

Analysis Number	Analysis Time	Percent CO_2 (A)	Percent Total (B)	Percent O_2 (B - A)	Percent N_2 (100 - B)
1		13.6	18.8	5.2	
2		13.6	19.0	5.4	
3		13.8	19.0	5.2	
	Average	13.7	18.9	5.3	

Acceptable differences for repeat analysis:

if CO_2 > 4% than +/- 0.3%

if CO_2 < or = 4% than +/- 0.2%

if O_2 > or = 15% than +/- 0.2%

if O_2 < 15% than +/- 0.3%

Ambient Check

Oxygen

Carbon Dioxide

Report all values to the nearest 0.1 percent

Comments

WESTON

MANAGERS DESIGNERS/CONSULTANTS

Method3

Copyright Roy F Weston Inc October 1998PV

BLANK TRAINS

SAMPLE RECOVERY FIELD DATA

Method ONTARIO HYDRO METHOD – MERCURY

Client CO GENTRIX

W.O. # 12257-001-001

Location/Plant Rocky Mount NC

Source & Location BAGHOUSE OUTLET – FGD INLET

Run No. OUTLET BT

Sample Date 11/17/99

Recovery Date 11/17/99

Sample I.D. CORM-BH-OUT-BT-OHM-16NOV1999

Analyst

Filter Number 2m ~~W15, W16, W24, W2~~

	Impinger 1	2	3	4	5	6	7 ~~Imp. Total~~	TOTAL LIQ 7	Silica Gel ~~Total~~
Contents									
Final	744.7	732.1	726.8	675.6	610.6	689.4	625.9		300.0
Initial	744.7	732.0	726.5	675.5	610.5	689.4	625.8		300.0
Gain	0	0.1	0.3	0.1	0.1	0	0.1	0.6	

Impinger Color 1-4 clear colorless

Labeled? ✓

Silica Gel Condition 100% Blue

Sealed? ✓

Run No. INLET BT

Sample Date 11/17/99

Recovery Date 11/17/99

Sample I.D. CORM-FGD-IN-BT-OHM-16NOV1999

Analyst

Filter Number —

	Impinger 1	2	3	4	5	6	7 ~~Imp. Total~~	TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final	739.0	732.7	723.6	671.7	615.4	686.8	631.3		300.0
Initial	739.0	732.7	723.6	671.7	615.4	686.8	631.3		300.0
Gain	0	0	0	0	0	0	0		

Impinger Color 1-4 clear colorless

Labeled? ✓

Silica Gel Condition 100% Blue

Sealed? ✓

Run No. —

Sample Date

Recovery Date

Sample I.D.

Analyst

Filter Number

	Impinger 1	2	3	4	5	6	7 ~~Imp. Total~~	TOTAL LIQ	Silica Gel ~~Total~~
Contents									
Final									
Initial									
Gain									

Impinger Color

Labeled?

Silica Gel Condition

Sealed?

Check COC for Sample IDs of Media Blanks

WESTON

APPENDIX D
LABORATORY ANALYTICAL REPORTS

COAL SAMPLES ANALYTICAL REPORT

PHILIP
ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

• EPA/NVLAP 101262-0
• AIHA ACCREDITATION NO. 100439
• NY DOH 10903
• PA DER 06-353
• NJ DEP 77678

December 13, 1999

Jeff O'Neill
Roy F. Weston, Inc.
One Weston Way
Bldg. 5-1
West Chester PA 19380

Laboratory Project: 188324
Client Reference: Cogentrix, Rocky Mount WO#12257.001.001
Coal Samples

Dear Mr. O'Neill:

The samples which were logged in on 24-NOV-99 have been analyzed as requested. The analytical results are enclosed in the attached report.

Please note that any unused portion of the samples will be disposed after 05-JAN-00, unless you have requested otherwise.

Thank you for the opportunity to provide these services to you. If you have any questions concerning this report, please contact a Client Services representative at 610/921-8833.

Sincerely,

Fred Usbeck, CIH
Director, Laboratory Services

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

PHILIP ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

• EPA/NVLAP 101262-0 • NY DOH 10903 • NJ DEP 77678
• AIHA ACCREDITATION NO. 100439 • PA DER 06-353

ANALYTICAL REPORT

Client: Roy F. Weston, Inc.

Report to: Jeff O'Neill
Roy F. Weston, Inc.
One Weston Way
Bldg. 5-1
West Chester PA 19380

Project: 188324
Received: 22-NOV-99
Reported: 13-DEC-99

PURCHASE ORDER: 0008272

Project Description: Cogentrix, Rocky Mount WO#12257.001.001
Coal Samples

	AS RECEIVED BASIS	DRY BASIS	UNITS	METHOD	DATE	ANALYST
CORM-COAL-Run 1						
Lab Sample: 1384186						
sampled: 17-NOV-99						
Moisture, Total	4.50		%	D 3302	30-NOV-99	GLB
SHORT PROX - COAL						
Ash	6.84	7.16	%	D 3174	06-DEC-99	VJO
Sulfur	0.70	0.73	%	D 4239	06-DEC-99	VJO
Heating Value	13200	13820	BTU/lb	D 3286	01-DEC-99	VJO
Mercury, Total	< 0.06	< 0.06	mg/kg	7471	08-DEC-99	JLP
Chlorine, Total	0.14	0.15	%	E776/300.0	07-DEC-99	DRK
CORM-COAL-Run 2						
Lab Sample: 1384187						
sampled: 17-NOV-99						
Moisture, Total	4.37		%	D 3302	30-NOV-99	GLB
SHORT PROX - COAL						
Ash	6.64	6.94	%	D 3174	06-DEC-99	VJO
Sulfur	0.73	0.76	%	D 4239	06-DEC-99	VJO
Heating Value	13290	13900	BTU/lb	D 3286	01-DEC-99	VJO
Mercury, Total	< 0.06	< 0.06	mg/kg	7471	08-DEC-99	JLP
Chlorine, Total	0.17	0.18	%	E776/300.0	07-DEC-99	DRK
CORM-COAL-Run 3						
Lab Sample: 1384188						
sampled: 18-NOV-99						
Moisture, Total	4.43		%	D 3302	30-NOV-99	GLB
SHORT PROX - COAL						
Ash	6.14	6.42	%	D 3174	06-DEC-99	VJO

PHILIP
ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

• EPA/NVLAP 101262-0
• AIHA ACCREDITATION NO. 100439
• NY DOH 10903
• PA DER 06-353
• NJ DEP 77678

Client: Roy F. Weston, Inc.
Project: 188324

CORM-COAL-Run 3
Lab Sample: 1384188 - continued

	AS RECEIVED BASIS	DRY BASIS	UNITS	METHOD	DATE	ANALYST
Sulfur	0.74	0.77	%	D 4239	06-DEC-99	VJO
Heating Value	13310	13930	BTU/lb	D 3286	01-DEC-99	VJO
Mercury, Total	< 0.06	< 0.06	mg/kg	7471	08-DEC-99	JLP
Chlorine, Total	0.17	0.18	%	E776/300.0	07-DEC-99	DRK

< Indicates less than the limit of quantitation.

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

Philip Analytical Services
Quality Assurance Protocol

PAS Sample #: 1384186-1384187,1384188

Client Name: Roy F. Weston

PAS Project #: 188324

Job ID :

Units: %,BTU/lb

O1 SUMMARY FORM

Sample # & Parameter	Matrix Spike				Matrix Spike Duplicate				Laboratory Control Sample		
	Sample Conc.	Spike Conc.	Matrix Spike Conc.	Recovery	Matrix Spike Dup Conc.	Recovery	Precision RPD	Method Blank	Spikes Conc.	Found Conc.	Recovery

Sample # & Parameter	Matrix Spike				Duplicate			Laboratory Control Sample			Method Blank	Detection Limits
	Sample Conc.	Spike Conc.	Matrix Spike Conc.	Recovery	Sample Conc.	Sample Duplicate Conc.	Precision RPD	Spikes Conc.	Found Conc.	Recovery		
1384186-Ash					7.11	7.07	0.56	11.8	11.7	99	N/A	0.01
1384186-Sulfur					0.73	0.72	1.36	1.78	1.81	102	N/A	0.01
1384186-Heating Value					13750	13750	0	13350	13410	100	N/A	50

Matrix Spike	75 - 125
Laboratory Control Sample	80 - 120
Duplicate	0 - 20

Philip Analytical Services

Quality Assurance Protocol

PAS Sample #: 1384186

Client Name: Roy F. Weston

PAS Project #:

Job ID:

Units: mg/kg

O1 SUMMARY FORM

Sample Number & Parameter	Sample Conc.	Matrix Spike			Matrix Spike Duplicate			Method Blank	Laboratory Control Sample		
		Spiked Conc.	Matrix Spike Conc.	Matrix Spike % Recovery	Matrix Spike Duplicate Conc.	Matrix Spike Duplicate % Recovery	Precision RPD (%)		Spiked Conc.	Found Conc.	% Recovery
Chloride	1,485	928	2,373	96	2,385	97	1	2.26	100	97.7	98

	Matrix Spike				Duplicate			Laboratory Control Sample			Method Blank	Detection Limits
	Sample Conc.	Spiked Conc.	Matrix Conc.	Matrix % Recovery	Sample Conc.	Sample Duplicate Conc.	Precision RPD (%)	Spiked Conc.	Found Conc.	% Recovery		
Chloride	1,485	928	2,373	96	1,485	1,533	3	100	97.7	98	2.26	10.00
Chlorine Control								2.00	1.76	88		.01

Criteria Limits

Laboratory Control Sample	80 – 120 %
Matrix Spike	75 - 125 %
Duplicate	0 – 20 %

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

188324

WESTON

Page ____ of ____

Client: CoGenTrix
Est. Final Proj. Sampling Date:
Work Order #:
Project Contact/Phone #: Jeff Oneil
AD Project Manager:
QC: ____ Del: ____ TAT: STD
Date Rec'd: ____ Date Due: ____
Account #:

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN							
		WESTON Analytics Use Only															
		BTU	Sulfur	Ash	Mercury	Chloride											

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	BTU	Sulfur	Ash	Mercury	Chloride									
	CORM - Coal - Run1				11/17/99		X	X	X	X	X									
	CORM - Coal - Run2				11/17/99		X	X	X	X	X									
	CORM - Coal - Run3				11/18/99		X	X	X	X	X									

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
BTU - ASTM D3286
SULFUR - ASTM D4239
ASH - ASTM 3174 ~~D2013 / EPA 7471~~
Mercury ASTM D2013 / EPA 7471
Chloride - ASTM E776 / EPA 300

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ✓ Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/22/99	11:15	AS	[illegible]	11/22/99	1500

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

PN 188324, 188325

PHILIP
ANALYTICAL SERVICES

Client: Roy F. Weston		Test(s): Chloride
Date: 12/7/99	Initials: DRK	Reviewed By:

Standard 1 Concentration: _____ Reading: _____
Standard 2 Concentration: _____ Reading: _____
Standard 3 Concentration: _____ Reading: _____
Standard 4 Concentration: _____ Reading: _____
Spike 1 Spike Amount: _____ Recv'd _____ Recv'y: _____
Spike 2 Spike Amount: _____ Recv'd _____ Recv'y: _____

CLB CONT 1:50 3.97 mg/L

PAGE _____ of _____
☐ Call Results
☐ FAX Results
☐ Results Entered

Sample			Chloride mg/L			mg/Kg		%	
1384186			15.998			1,485		0.15	✓
1384186	DUP		18.460			1,533		0.15	✓
1384187			22.732			1,714		0.17	✓
1384188			18.881			1,810		0.18	✓
1384189			2.419			259		0.03	✓
1384189	DUP		4.603			337		0.03	✓
1384190			3.013			282		0.03	✓
1384191			5.336			372		0.04	✓
CALCULATIONS:			(X mg/L)(0.050 L) / WEIGHT (Kg) =			mg/Kg			
			mg/Kg	× 0.0001 =		%			

Comments For Report:

☐ Analysis performed for PHILIP Analytical by our AIHA accredited reference laboratory ☐ Sample results are blank-corrected

Analytical Method	LLD
EPA 300.0	10.0 mg/Kg

N/A = not applicable ND = none detected L/A = sample lost to lab accident QNS = quantity not sufficient to test N/R = sample not received by chemist

PeakNet AS3500DX - 12079901.AS3

Inj. Vol.	Inj/ Vial	Sample	Method (.MET)	Data	Dil.	Int. Std.	Template (.PRP)
50	1	WATER	ACIDSCAN	120799	1	1	
50	1	AUTOCAL1	ACIDSCAN	120799	1	1	
50	1	AUTOCAL2	ACIDSCAN	120799	1	1	
50	1	AUTOCAL3	ACIDSCAN	120799	1	1	
50	1	AUTOCAL4	ACIDSCAN	120799	1	1	
50	1	AUTOCAL5	ACIDSCAN	120799	1	1	
50	1	AUTOCAL6	ACIDSCAN	120799	1	1	
50	1	METH BLK	ACIDSCAN	120799	1	1	
50	1	IPC	ACIDSCAN	120799	1	1	
50	1	QCS	ACIDSCAN	120799	1	1	
50	1	LCS	ACIDSCAN	120799	1	1	
50	1	WEEKLY LFB	ACIDSCAN	120799	1	1	
50	1	METH BLK	ACIDSCAN	120799	1	1	
50	1	1384256 F	ACIDSCAN	120799	1	1	
50	1	1384256 F MS	ACIDSCAN	120799	1	1	
50	1	1384256 B	ACIDSCAN	120799	1	1	
50	1	1384256 B MS	ACIDSCAN	120799	1	1	
50	1	1384259 F	ACIDSCAN	120799	1	1	
50	1	1384259 B	ACIDSCAN	120799	1	1	
50	1	1384745	ACIDSCAN	120799	1	1	
50	1	1384745 MS	ACIDSCAN	120799	1	1	
50	1	1384746	ACIDSCAN	120799	1	1	
50	1	1385333 FILT	ACIDSCAN	120799	1	1	
50	1	1385333 FILT MS	ACIDSCAN	120799	1	1	
50	1	1385333 PAD	ACIDSCAN	120799	1	1	
50	1	1385333 PAD MS	ACIDSCAN	120799	1	1	
50	1	1385334 FILT	ACIDSCAN	120799	1	1	
50	1	1385334 PAD	ACIDSCAN	120799	1	1	
50	1	1385335 FILT	ACIDSCAN	120799	1	1	
50	1	1385335 PAD	ACIDSCAN	120799	1	1	
50	1	1383211 1:100	ACIDSCAN	120799	1	1	
50	1	1383211 1:100 DUP	ACIDSCAN	120799	1	1	
50	1	1383211 1:100 MS	ACIDSCAN	120799	1	1	
50	1	1383211 1:100 MSD	ACIDSCAN	120799	1	1	
50	1	METH BLK	ACIDSCAN	120799	1	1	
50	1	IPC	ACIDSCAN	120799	1	1	
50	1	1383977	ACIDSCAN	120799	1	1	
50	1	1383978	ACIDSCAN	120799	1	1	
50	1	1383979	ACIDSCAN	120799	1	1	
50	1	1383831	ACIDSCAN	120799	1	1	
50	1	1383832	ACIDSCAN	120799	1	1	
50	1	1383833	ACIDSCAN	120799	1	1	
50	1	1383833 DUP	ACIDSCAN	120799	1	1	
50	1	1383833 MS	ACIDSCAN	120799	1	1	
50	1	1383833 MSD	ACIDSCAN	120799	1	1	
50	1	METH BLK	ACIDSCAN	120799	1	1	
50	1	IPC	ACIDSCAN	120799	1	1	
50	1	CL2 CONT 1:50	ACIDSCAN	120799	1	1	
50	1	1384186	ACIDSCAN	120799	1	1	
50	1	1384186 DUP	ACIDSCAN	120799	1	1	
50	1	1384186 MS	ACIDSCAN	120799	1	1	
50	1	1384186 MSD	ACIDSCAN	120799	1	1	
50	1	1384187	ACIDSCAN	120799	1	1	
50	1	1384188	ACIDSCAN	120799	1	1	
50	1	1384189	ACIDSCAN	120799	1	1	

	50	1	1384191	ACIDSCAN	120799	1	1	
	50	1	METH BLK	ACIDSCAN	120799	1	1	
	50	1	IPC	ACIDSCAN	120799	1	1	
Inj. Vol.	Inj/ Vial		Sample	Method (.MET)	Data	Dil.	Int. Std.	Template (.PRP)
50	1	1384286		ACIDSCAN	120799	1	1	
50	1	1384286 DUP		ACIDSCAN	120799	1	1	
50	1	1384286 MS		ACIDSCAN	120799	1	1	
50	1	1384286 MSD		ACIDSCAN	120799	1	1	
50	1	1384287		ACIDSCAN	120799	1	1	
50	1	1384288		ACIDSCAN	120799	1	1	
50	1	1384289		ACIDSCAN	120799	1	1	
50	1	1384290		ACIDSCAN	120799	1	1	
50	1	1384291		ACIDSCAN	120799	1	1	
50	1	1384292		ACIDSCAN	120799	1	1	
50	1	1384293		ACIDSCAN	120799	1	1	
50	1	METH BLK		ACIDSCAN	120799	1	1	
50	1	IPC		ACIDSCAN	120799	1	1	
50	1	1384294		ACIDSCAN	120799	1	1	
50	1	1384294 DUP		ACIDSCAN	120799	1	1	
50	1	1384294 MS		ACIDSCAN	120799	1	1	
50	1	1384294 MSD		ACIDSCAN	120799	1	1	
50	1	1384295		ACIDSCAN	120799	1	1	
50	1	1384296		ACIDSCAN	120799	1	1	
50	1	1384297		ACIDSCAN	120799	1	1	
50	1	METH BLK		ACIDSCAN	120799	1	1	
50	1	IPC		ACIDSCAN	120799	1	1	
50	1	WATER		STOP	120799	1	1	

More Run Parameters

al s	Oven Ctl	Oven Set	Cool Ctl	Cool Set	Cycle Time	Flush Vol	Visc Factor	Prep Visc	Inj Type	Needle Height
0	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
1	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
2	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
3	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
4	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
5	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
6	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
1	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
2	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
3	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
4	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
5	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
1	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
6	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
7	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
8	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
9	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
10	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
11	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
12	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
3	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
1	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
2	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
3	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
4	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
5	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0

Ion Chromatography
10/7/99

WEEKLY LFB

CLEAN AIR PROJ # 188340	(AIR)	Hydrofluoric Acid	NIOSH 7903
PHILIP ANALYT PROJ # 188415	(AIR)	CHLORINE	NIOSH 6011
HOFMAN SAFETY PROJ # 188544	(AIR)	SULFUR DIOXIDE (SO_4)	NIOSH 6004
LUCENT TECH PROJ # 188111	SG (WSE)	SULFATE	EPA 300.0
04 PAS LAB PROJ # 188305	SUNK (WSE)	CHLORIDE	EPA 300.0

File	: C:\PEAKNET\DATA\12079001.DXD	Report Date	: 12/7/99 9:28:10 AM
.e Name	: WATER - C40	Collected	: 12/7/99 9:16:04 AM
:t #	: 1	Vial #	: C40
ɔd File	: c:\peaknet\method\acidscan.met	Calibrated	: 11/24/99 3:49:37 PM
·m Name	: ANIONS	Detector	: CD20
ɪn Type	:	Operator	: DK
Points	: 3600	Rate	: 5.00 Hz
.e Name	: S/N 96020568 ID:24 Of 15	Moduleware	: 1.17

·ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
ıal	50	1	0.00	12.00	10	10.00	0.94

: type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

************ Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
0.00	FLUORIDE	0.000	0	0	0	0.00
0.00	CHLORIDE	0.000	0	0	0	0.00
0.00	NITRITE	0.000	0	0	0	0.00
0.00	BROMIDE	0.000	0	0	0	0.00
0.00	NITRATE	0.000	0	0	0	0.00
0.00	PHOSPHATE	0.000	0	0	0	0.00
8.65	SULFATE	0.140	476	7909	1	1.17
	Totals	0.140	476	7909		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
8.65	SULFATE	0.140	476	7909	1	1.17
	Totals	0.140	476	7909		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
IDE	2.08	0
IDE	2.98	0
IE	3.57	0
E	4.50	0
E	5.27	0
ATE	7.10	0

********** Peak Report: All Peaks **********

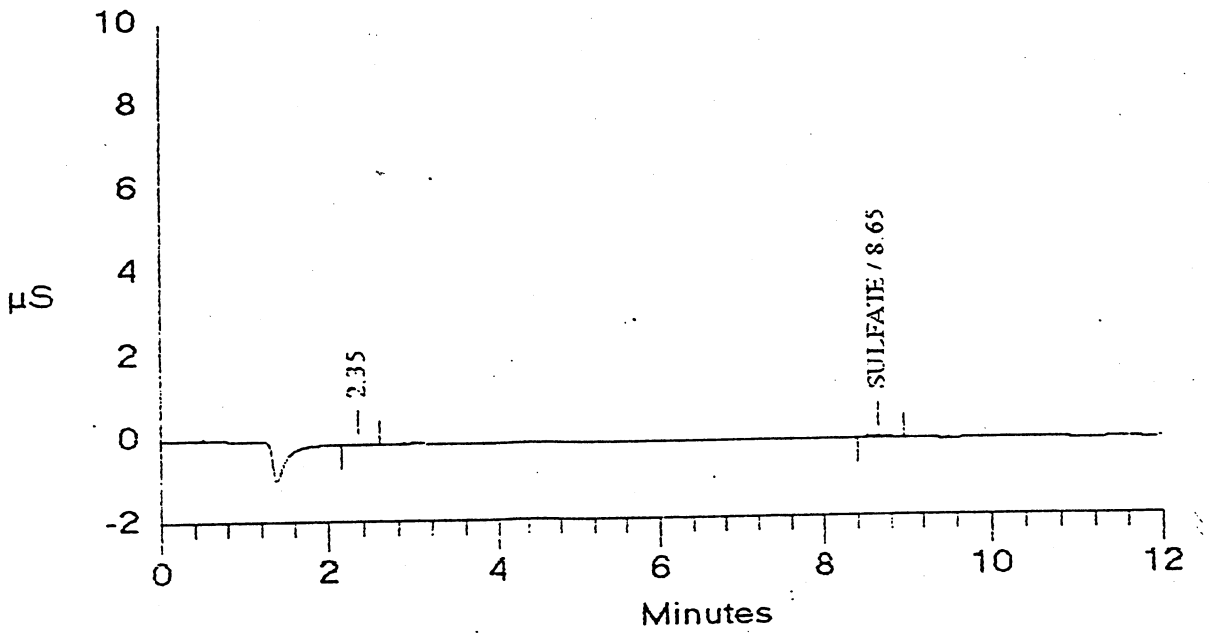
Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

2.35	0.000	184	3234	1	
8.65 SULFATE	0.140	476	7909	1	1.17
Totals	0.140	660	11143		

********** Peak Report: Unknown Peaks **********

Ret. Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.35		0.000	184	3234	1	
	Totals	0.000	184	3234		

File: 12079001.DXD Sample WATER - C40



********** AUTOMATIC CALIBRATION UPDATE **********

File : C:\PEAKNET\DATA\12079002.DXD
.e Name: AUTOCAL1R - A01
:t # : 2
:d File: c:\peaknet\method\acidscan.met
:m Name: ANIONS
Level : 1

Report Date: 12/7/99 9:41:45 AM
Collected : 12/7/99 9:29:38 AM
Vial # : A01
Last Update: 11/24/99 3:49:37 PM
Detector : CD20
Analyst :

********** COMPONENTS FOUND IN THIS RUN **********

COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
LUORIDE	2.08	2.10	2.10	1.161e+005	1.555e+005	1.555e+005
HLORIDE	2.98	3.00	3.00	1.000e+005	1.203e+005	1.203e+005
ITRITE	3.57	3.63	3.63	6.052e+004	7.745e+004	7.745e+004
ROMIDE	4.50	4.63	4.63	3.828e+004	4.974e+004	4.974e+004
ITRATE	5.27	5.45	5.45	5.345e+004	6.588e+004	6.588e+004
HOSPHATE	7.10	7.17	7.17	1.932e+004	2.682e+004	2.682e+004
ULFATE	8.55	8.65	8.65	8.136e+004	9.263e+004	9.263e+004

File : C:\PEAKNET\DATA\12079002.DXD
le Name: AUTOCAL1R - A01
ct # : 2
od File: c:\peaknet\method\acidscan.met
em Name: ANIONS
mn Type:
Points: 3600
le Name: S/N 96020568 ID:24 0f 15

Report Date: 12/7/99 9:41:45 AM
Collected : 12/7/99 9:29:38 AM
Vial # : A01
Calibrated : 12/7/99 9:41:45 AM
Detector : CD20
Operator : DK
Rate : 5.00 Hz
Moduleware : 1.17

ration	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
nal	50	1	0.00	12.00	10	10.00	0.94

r type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	1.000	17916	155479	1	0.80
3.00	CHLORIDE	1.000	14194	120311	2	0.56
3.63	NITRITE	1.000	7209	77455	2	1.87
4.63	BROMIDE	1.000	4084	49740	1	2.96
5.45	NITRATE	1.000	4657	65876	1	3.48
7.17	PHOSPHATE	1.000	1345	26816	1	0.94
8.65	SULFATE	1.000	4132	92631	1	1.17
	Totals	7.000	53536	588309		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

2.10	FLUORIDE	1.000	17916	155479	1	0.80
3.00	CHLORIDE	1.000	14194	120311	2	0.56
3.63	NITRITE	1.000	7209	77455	2	1.87
4.63	BROMIDE	1.000	4084	49740	1	2.96
5.45	NITRATE	1.000	4657	65876	1	3.48
7.17	PHOSPHATE	1.000	1345	26816	1	0.94
8.65	SULFATE	1.000	4132	92631	1	1.17
	Totals	7.000	53536	588309		

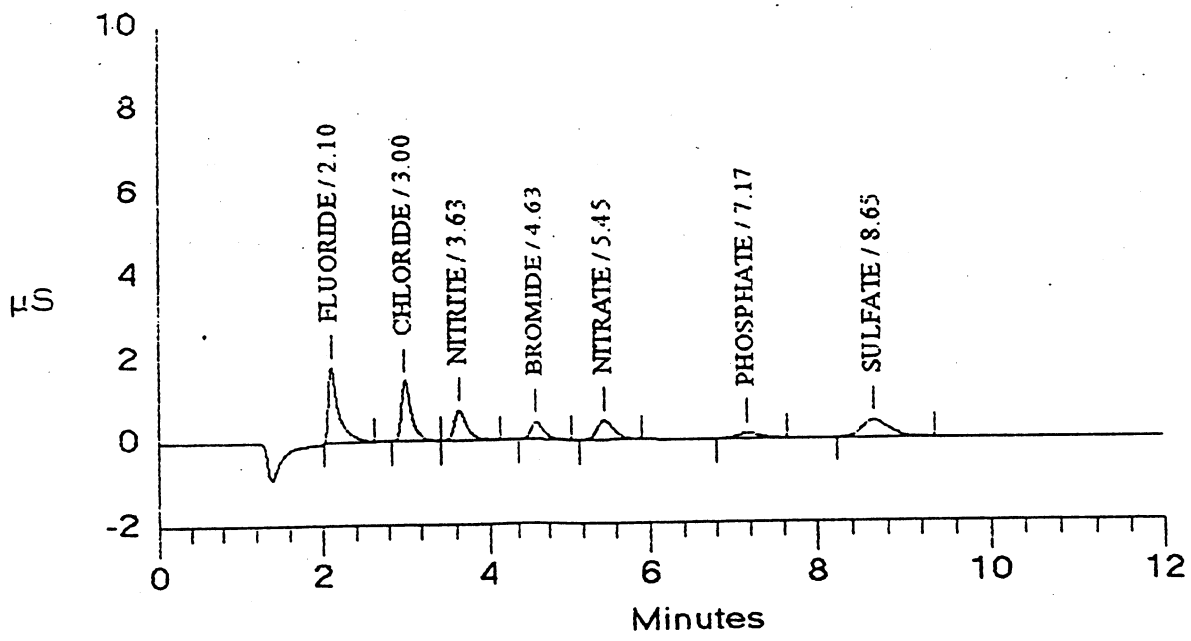
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	1.000	17916	155479	1	0.80
3.00	CHLORIDE	1.000	14194	120311	2	0.56
3.63	NITRITE	1.000	7209	77455	2	1.87
4.63	BROMIDE	1.000	4084	49740	1	2.96
5.45	NITRATE	1.000	4657	65876	1	3.48
7.17	PHOSPHATE	1.000	1345	26816	1	0.94
8.65	SULFATE	1.000	4132	92631	1	1.17
	Totals	7.000	53536	588309		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079002.DXD Sample AUTOCAL1R - A01



********** AUTOMATIC CALIBRATION UPDATE **********

File :	C:\PEAKNET\DATA\12079003.DXD	Report Date:	12/7/99 9:55:21 AM
e Name:	AUTOCAL2R - A02	Collected :	12/7/99 9:43:14 AM
t # :	3	Vial # :	A02
d File:	c:\peaknet\method\acidscan.met	Last Update:	12/7/99 9:41:45 AM
m Name:	ANIONS	Detector :	CD20
Level :	2	Analyst :	

********** COMPONENTS FOUND IN THIS RUN **********

COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
LUORIDE	2.10	2.12	2.12	2.410e+005	2.770e+005	2.770e+005
HLORIDE	3.00	3.02	3.02	2.027e+005	2.215e+005	2.215e+005
TRITE	3.63	3.65	3.65	1.243e+005	1.366e+005	1.366e+005
OMIDE	4.63	4.63	4.63	8.723e+004	9.262e+004	9.262e+004
TRATE	5.45	5.47	5.47	1.129e+005	1.288e+005	1.288e+005
OSPHATE	7.17	7.18	7.18	3.993e+004	5.265e+004	5.265e+004
LFATE	8.65	8.65	8.65	1.459e+005	1.639e+005	1.639e+005

File :	C:\PEAKNET\DATA\12079003.DXD	Report Date:	12/7/99 9:55:21 AM
e Name:	AUTOCAL2R - A02	Collected :	12/7/99 9:43:14 AM
t # :	3	Vial # :	A02
d File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 9:55:21 AM
m Name:	ANIONS	Detector :	CD20
m Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
e Name:	S/N 98020568 ID:24 Of 15	Moduleware :	1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	2.000	33257	276991	1	0.79
3.02	CHLORIDE	2.000	25616	221509	2	0.56
3.65	NITRITE	2.000	12537	136565	2	0.46
4.63	BROMIDE	2.000	7676	92616	2	0.00
5.47	NITRATE	2.000	8650	128822	2	0.31
7.18	PHOSPHATE	2.000	2586	52647	1	0.23
8.65	SULFATE	2.000	7443	163894	1	0.00
	Totals	14.000	97765	1073043		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

2.12 FLUORIDE	2.000	33257	276991	1	0.79
3.02 CHLORIDE	2.000	25616	221509	2	0.56
3.65 NITRITE	2.000	12537	136565	2	0.46
4.63 BROMIDE	2.000	7676	92616	2	0.00
5.47 NITRATE	2.000	8650	128822	2	0.31
7.18 PHOSPHATE	2.000	2586	52647	1	0.23
8.65 SULFATE	2.000	7443	163894	1	0.00
Totals	14.000	97765	1073043		

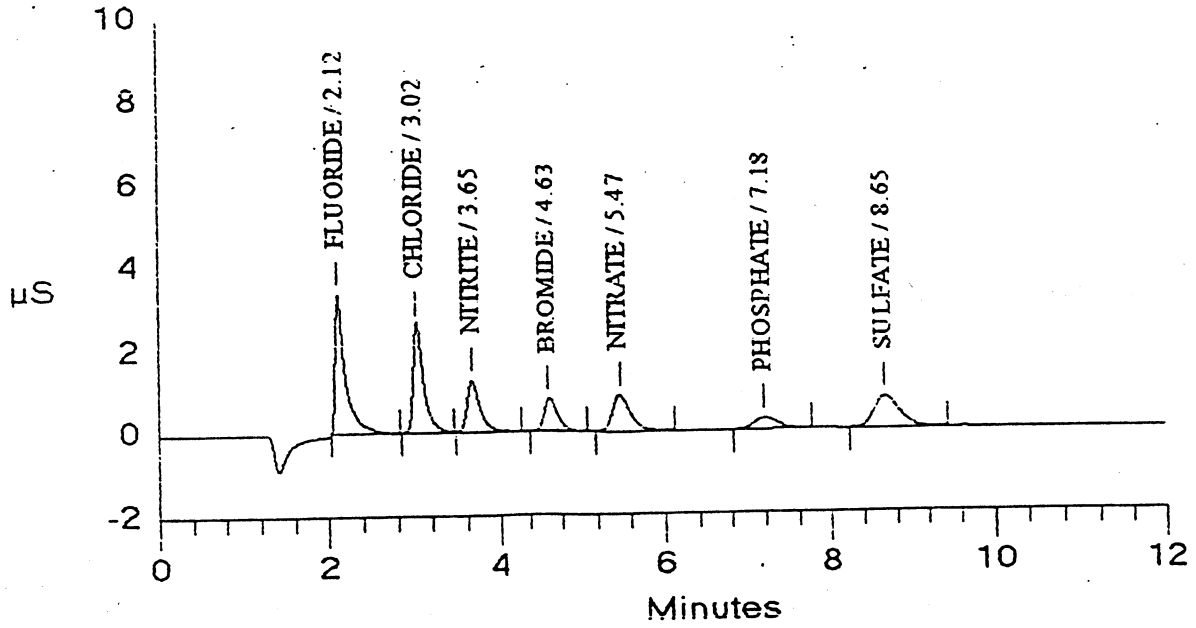
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	2.000	33257	276991	1	0.79
3.02	CHLORIDE	2.000	25616	221509	2	0.56
3.65	NITRITE	2.000	12537	136565	2	0.46
4.63	BROMIDE	2.000	7676	92616	2	0.00
5.47	NITRATE	2.000	8650	128822	2	0.31
7.18	PHOSPHATE	2.000	2586	52647	1	0.23
8.65	SULFATE	2.000	7443	163894	1	0.00
	Totals	14.000	97765	1073043		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079003.DXD Sample AUTOCAL2R - A02



********** AUTOMATIC CALIBRATION UPDATE **********

File :	C:\PEAKNET\DATA\12079004.DXD	Report Date:	12/7/99 10:08:57 AM
e Name:	AUTOCAL3R - A03	Collected :	12/7/99 9:56:50 AM
t # :	4	Vial # :	A03
d File:	c:\peaknet\method\acidscan.met	Last Update:	12/7/99 9:55:21 AM
m Name:	ANIONS	Detector :	CD20
Level :	3	Analyst :	

********** COMPONENTS FOUND IN THIS RUN **********

COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
ORIDE	2.12	2.12	2.12	7.016e+005	7.205e+005	7.205e+005
LORIDE	3.02	3.02	3.02	5.373e+005	5.450e+005	5.450e+005
TRITE	3.65	3.65	3.65	3.226e+005	3.329e+005	3.329e+005
MIDE	4.63	4.63	4.63	2.272e+005	2.274e+005	2.274e+005
TRATE	5.47	5.43	5.43	2.901e+005	2.951e+005	2.951e+005
OSPHATE	7.18	7.18	7.18	1.257e+005	1.332e+005	1.332e+005
LFATE	8.65	8.65	8.65	4.117e+005	3.919e+005	3.919e+005

File :	C:\PEAKNET\DATA\12079004.DXD	Report Date:	12/7/99 10:08:57 AM
e Name:	AUTOCAL3R - A03	Collected :	12/7/99 9:56:50 AM
t # :	4	Vial # :	A03
d File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:08:57 AM
m Name:	ANIONS	Detector :	CD20
n Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
e Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	5.000	93109	720514	1	0.00
3.02	CHLORIDE	5.000	65895	544963	2	0.00
3.65	NITRITE	5.000	31609	332877	2	0.00
4.63	BROMIDE	5.000	19224	227403	2	0.00
5.43	NITRATE	5.000	20370	295056	2	-0.61
7.18	PHOSPHATE	5.000	6676	133180	1	0.00
8.65	SULFATE	5.000	18004	391850	1	0.00
	Totals	35.000	254887	2645842		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

3.65 NITRITE	5.000	31609	332877	2	0.00
4.63 BROMIDE	5.000	19224	227403	2	0.00
5.43 NITRATE	5.000	20370	295056	2	-0.61
7.18 PHOSPHATE	5.000	6676	133180	1	0.00
8.65 SULFATE	5.000	18004	391850	1	0.00
Totals	35.000	254887	2645842		

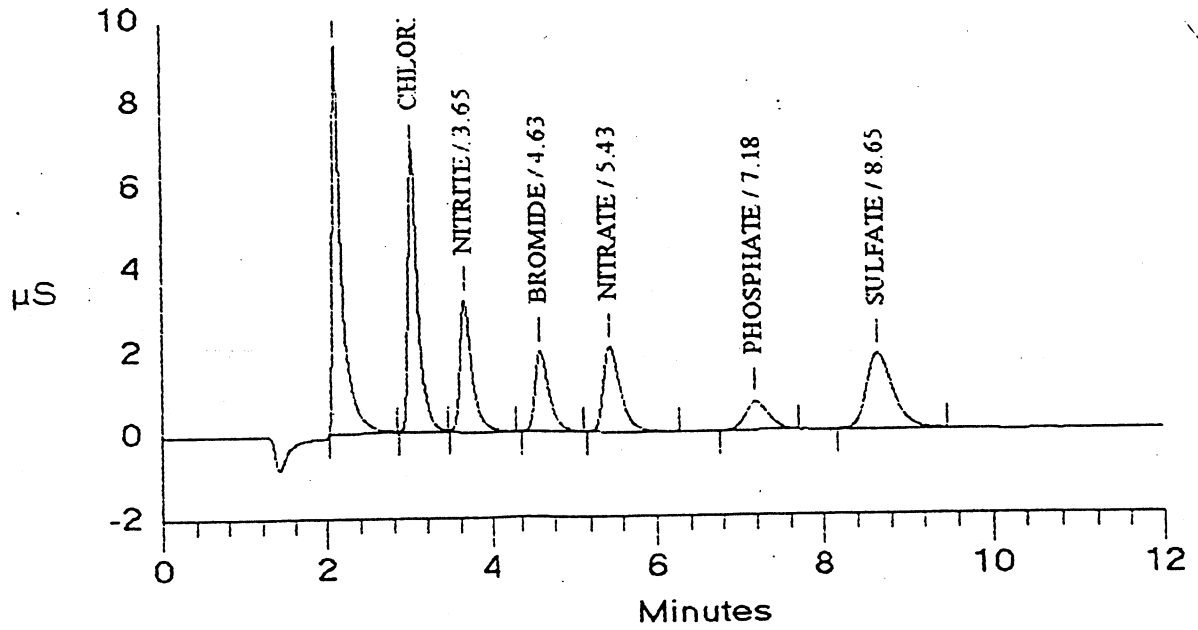
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	5.000	93109	720514	1	0.00
3.02	CHLORIDE	5.000	65895	544963	2	0.00
3.65	NITRITE	5.000	31609	332877	2	0.00
4.63	BROMIDE	5.000	19224	227403	2	0.00
5.43	NITRATE	5.000	20370	295056	2	-0.61
7.18	PHOSPHATE	5.000	6676	133180	1	0.00
8.65	SULFATE	5.000	18004	391850	1	0.00
	Totals	35.000	254887	2645842		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079004.DXD Sample AUTOCAL3R - A03



File :	C:\PEAKNET\DATA\12079005.DXD	Report Date:	12/7/99 10:22:40 AM
e Name:	AUTOCAL4R - A04	Collected :	12/7/99 10:10:32 AM
t # :	5	Vial # :	A04
d File:	c:\peaknet\method\acidscan.met	Last Update:	12/7/99 10:08:57 AM
m Name:	ANIONS	Detector :	CD20
Level :	4	Analyst :	

********** COMPONENTS FOUND IN THIS RUN **********

COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
UORIDE	2.12	2.13	2.13	1.522e+006	1.572e+006	1.572e+006
LORIDE	3.02	3.03	3.03	1.150e+006	1.195e+006	1.195e+006
TRITE	3.65	3.65	3.65	6.713e+005	6.717e+005	6.717e+005
OMIDE	4.63	4.62	4.62	4.625e+005	4.606e+005	4.606e+005
TRATE	5.43	5.42	5.42	6.142e+005	6.126e+005	6.126e+005
OSPHATE	7.18	7.18	7.18	2.695e+005	2.898e+005	2.898e+005
LFATE	8.65	8.63	8.63	8.073e+005	8.111e+005	8.111e+005

File :	C:\PEAKNET\DATA\12079005.DXD	Report Date:	12/7/99 10:22:40 AM
e Name:	AUTOCAL4R - A04	Collected :	12/7/99 10:10:32 AM
t # :	5	Vial # :	A04
d File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:22:40 AM
m Name:	ANIONS	Detector :	CD20
n Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
e Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.13	FLUORIDE	10.000	212248	1571884	1	0.79
3.03	CHLORIDE	10.000	153048	1194619	2	0.55
3.65	NITRITE	10.000	64260	671671	2	0.00
4.62	BROMIDE	10.000	39062	460634	2	-0.36
5.42	NITRATE	10.000	42933	612578	2	-0.31
7.18	PHOSPHATE	10.000	14233	289753	2	0.00
8.63	SULFATE	10.000	37136	811061	2	-0.19
	Totals	70.000	562920	5612200		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

FLUORIDE 10.000 212248 1571884 1 0.79

4.62	BROMIDE	10.000	39062	460634	2	-0.36
5.42	NITRATE	10.000	42933	612578	2	-0.31
7.18	PHOSPHATE	10.000	14233	289753	2	0.00
8.63	SULFATE	10.000	37136	811061	2	-0.19
	Totals	70.000	562920	5612200		

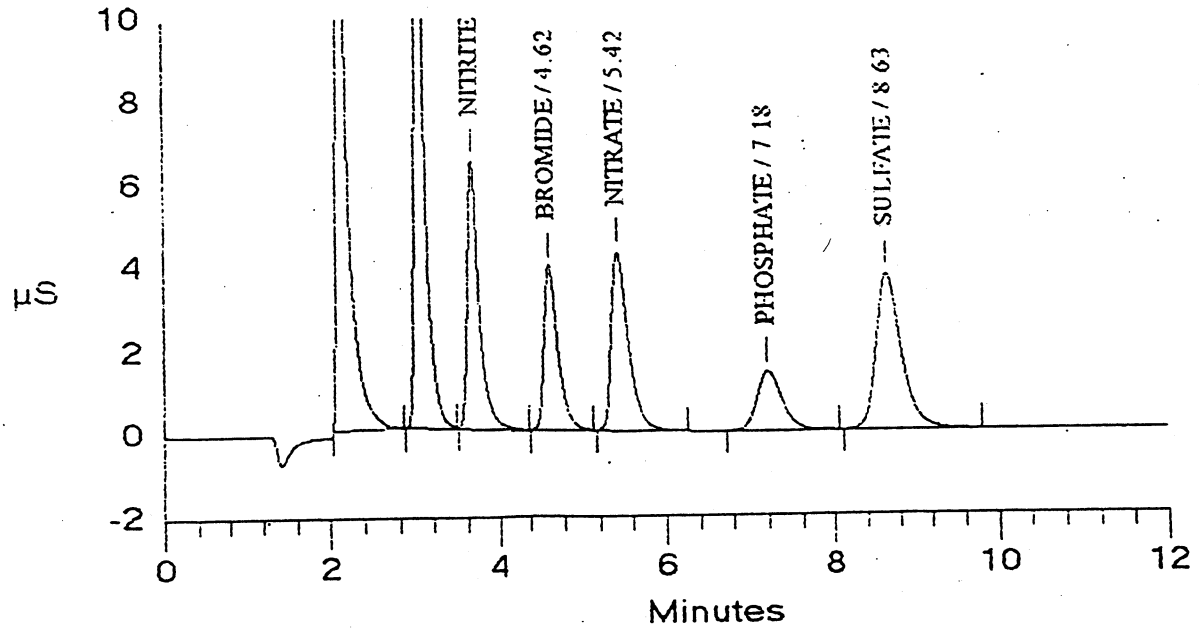
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.13	FLUORIDE	10.000	212248	1571884	1	0.79
3.03	CHLORIDE	10.000	153048	1194619	2	0.55
3.65	NITRITE	10.000	64260	671671	2	0.00
4.62	BROMIDE	10.000	39062	460634	2	-0.36
5.42	NITRATE	10.000	42933	612578	2	-0.31
7.18	PHOSPHATE	10.000	14233	289753	2	0.00
8.63	SULFATE	10.000	37136	811061	2	-0.19
	Totals	70.000	562920	5612200		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079005.DXD Sample AUTOCAL4R - A04



AUTOMATIC CALIBRATION UPDATE **********

File : C:\PEAKNET\DATA\12079006.DXD Report Date: 12/7/99 10:36:15 AM
le Name: AUTOCAL5R - A05 Collected : 12/7/99 10:24:08 AM
:t # : 6 Vial # : A05
:d File: c:\peaknet\method\acidscan.met Last Update: 12/7/99 10:22:40 AM
em Name: ANIONS Detector : CD20
Level : 5 Analyst :

************ COMPONENTS FOUND IN THIS RUN **********

COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
LUORIDE	2.13	2.10	2.10	2.428e+006	2.516e+006	2.516e+006
HLORIDE	3.03	3.02	3.02	1.831e+006	1.857e+006	1.857e+006
ITRITE	3.65	3.62	3.62	1.033e+006	1.049e+006	1.049e+006
ROMIDE	4.62	4.58	4.58	7.156e+005	7.150e+005	7.150e+005
ITRATE	5.42	5.37	5.37	9.270e+005	9.384e+005	9.384e+005
HOSPHATE	7.18	7.15	7.15	4.307e+005	4.504e+005	4.504e+005
JLFATE	8.63	8.60	8.60	1.222e+006	1.250e+006	1.250e+006

File : C:\PEAKNET\DATA\12079006.DXD Report Date: 12/7/99 10:36:16 AM
.e Name: AUTOCAL5R - A05 Collected : 12/7/99 10:24:08 AM
:t # : 6 Vial # : A05
:d File: c:\peaknet\method\acidscan.met Calibrated : 12/7/99 10:36:15 AM
:m Name: ANIONS Detector : CD20
:n Type: Operator : DK
Points: 3600 Rate : 5.00 Hz
.e Name: S/N 96020568 ID:24 Of 15 Moduleware : 1.17

:ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
:al	50	1	0.00	12.00	10	10.00	0.94

: type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	15.000	313818	2516075	1	-1.56
3.02	CHLORIDE	15.000	245022	1856987	2	-0.55
3.62	NITRITE	15.000	101786	1048676	2	-0.91
4.58	BROMIDE	15.000	62651	715001	2	-0.72
5.37	NITRATE	15.000	66396	938356	2	-0.92
7.15	PHOSPHATE	15.000	22518	450367	2	-0.46
8.60	SULFATE	15.000	58441	1249812	2	-0.39
	Totals	105.000	870632	8775273		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

:eaknet\schedule\12079901.sch
4.8 Page 1 of 2 12/7/99 10:38:18 AM

.10	FLUORIDE	15.000	313818	2516075	1	-1.56
2	CHLORIDE	15.000	245022	1856987	2	-0.55

7.15	PHOSPHATE	15.000	22518	450367	2	-0.46
8.60	SULFATE	15.000	58441	1249812	2	-0.39
	Totals	105.000	870632	8775273		

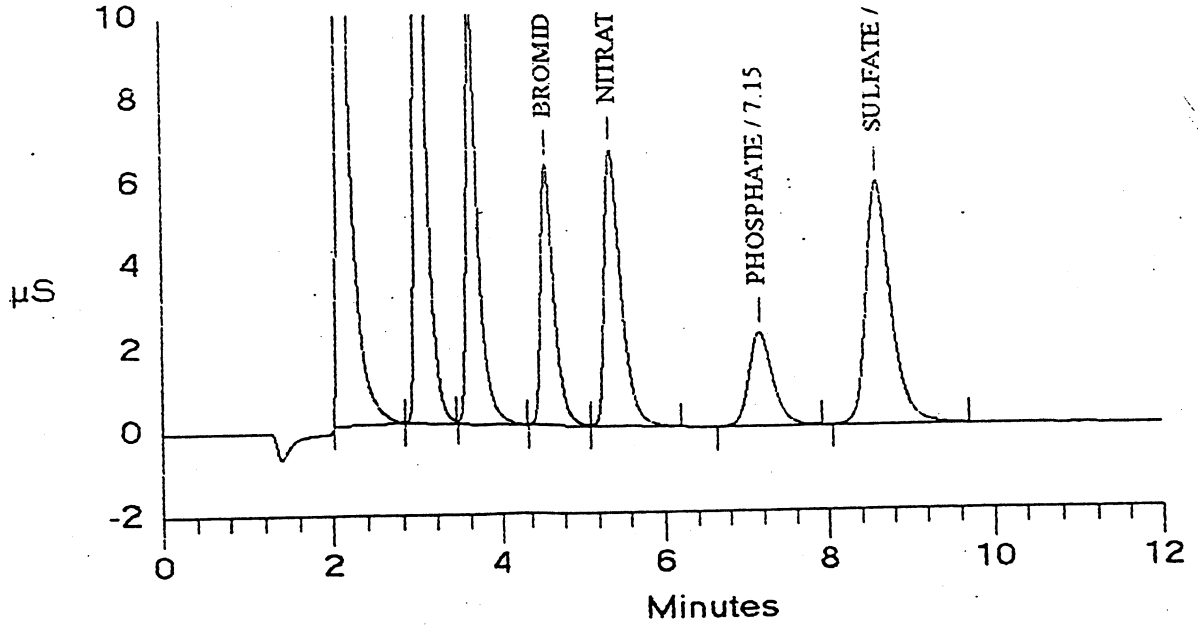
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	15.000	313818	2516075	1	-1.56
3.02	CHLORIDE	15.000	245022	1856987	2	-0.55
3.62	NITRITE	15.000	101786	1048676	2	-0.91
4.58	BROMIDE	15.000	62651	715001	2	-0.72
5.37	NITRATE	15.000	66396	938356	2	-0.92
7.15	PHOSPHATE	15.000	22518	450367	2	-0.46
8.60	SULFATE	15.000	58441	1249812	2	-0.39
	Totals	105.000	870632	8775273		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079006.DXD Sample AUTOCAL5R - A05



********** AUTOMATIC CALIBRATION UPDATE **********

ct #	: 7	Vial #	: A06
od File	: c:\peaknet\method\acidscan.met	Last Update	: 12/7/99 10:36:15 AM
em Name	: ANIONS	Detector	: CD20
Level	: 6	Analyst	:

********** COMPONENTS FOUND IN THIS RUN **********

COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
.UORIDE	2.10	2.12	2.12	3.304e+006	3.429e+006	3.429e+006
ILORIDE	3.02	3.02	3.02	2.523e+006	2.577e+006	2.577e+006
.TRITE	3.62	3.62	3.62	1.397e+006	1.428e+006	1.428e+006
ROMIDE	4.58	4.57	4.57	9.631e+005	9.825e+005	9.825e+005
.TRATE	5.37	5.33	5.33	1.266e+006	1.288e+006	1.288e+006
HOSPHATE	7.15	7.13	7.13	5.849e+005	6.162e+005	6.162e+005
JLFATE	8.60	8.57	8.57	1.652e+006	1.701e+006	1.701e+006

File	: C:\PEAKNET\DATA\12079007.DXD	Report Date	: 12/7/99 10:49:52 AM
.e Name	: AUTOCAL6R - A06	Collected	: 12/7/99 10:37:44 AM
t #	: 7	Vial #	: A06
d File	: c:\peaknet\method\acidscan.met	Calibrated	: 12/7/99 10:49:52 AM
m Name	: ANIONS	Detector	: CD20
m Type	:	Operator	: DK
Points	: 3600	Rate	: 5.00 Hz
.e Name	: S/N 96020568 ID:24 Of 15	Moduleware	: 1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
.al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	20.000	459921	3428963	1	0.79
3.02	CHLORIDE	20.000	342825	2577248	2	0.00
3.62	NITRITE	20.000	141512	1428101	2	0.00
4.57	BROMIDE	20.000	86657	982542	2	-0.36
5.33	NITRATE	20.000	91247	1288053	2	-0.62
7.13	PHOSPHATE	20.000	31032	616247	2	-0.23
8.57	SULFATE	20.000	79815	1701489	2	-0.39
	Totals	140.000	1233008	12022644		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

.12	FLUORIDE	20.000	459921	3428963	1	0.79
.02	CHLORIDE	20.000	342825	2577248	2	0.00
.62	NITRITE	20.000	141512	1428101	2	0.00
.57	BROMIDE	20.000	86657	982542	2	-0.36

8.57	SULFATE	20.000	[illegible]	[illegible]
	Totals	140.000	1233008	12022644

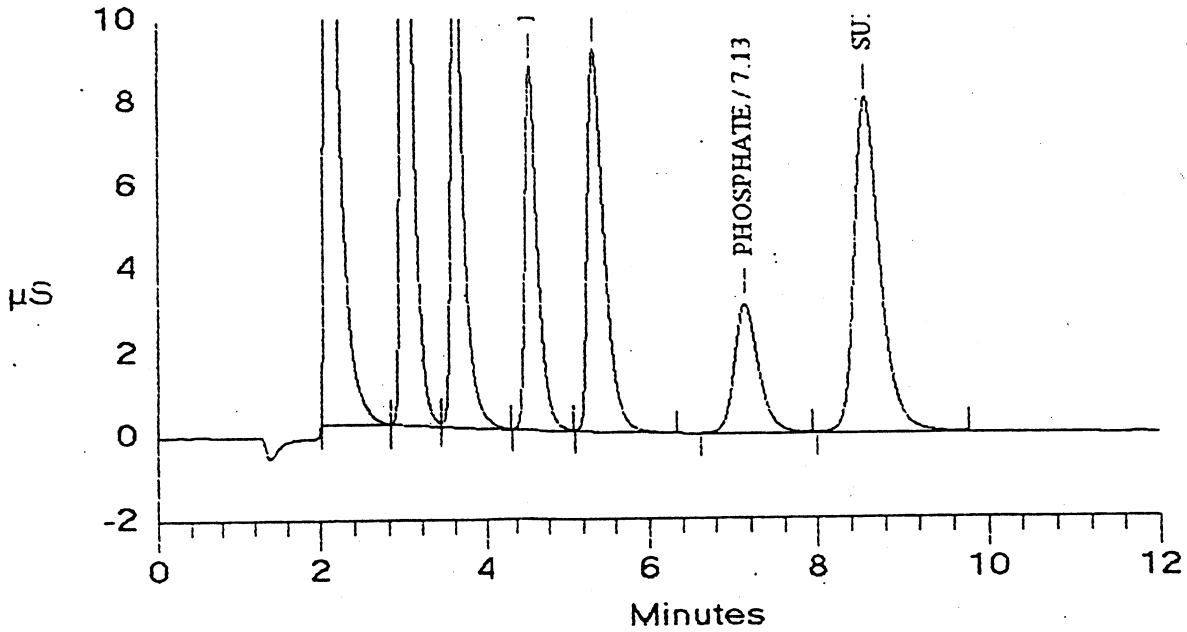
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	20.000	459921	3428963	1	0.79
3.02	CHLORIDE	20.000	342825	2577248	2	0.00
3.62	NITRITE	20.000	141512	1428101	2	0.00
4.57	BROMIDE	20.000	86657	982542	2	-0.36
5.33	NITRATE	20.000	91247	1288053	2	-0.62
7.13	PHOSPHATE	20.000	31032	616247	2	-0.23
8.57	SULFATE	20.000	79815	1701489	2	-0.39
	Totals	140.000	1233008	12022644		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079007.DXD Sample AUTOCAL6R - A06



File : C:\PEAKNET\DATA\12079008.DXD Report Date: 12/7/99 11:03:27 AM
Name: METH BLK - B01 Collected : 12/7/99 10:51:20 AM
: 8 Vial # : B01

n Type: Operator : DK
Points: 3600 Rate : 5.00 Hz
e Name: S/N 96020568 ID:24 Of 15 Moduleware : 1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

************ Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
0.00	FLUORIDE	0.000	0	0	0	0.00
3.03	CHLORIDE	0.243	2441	23021	1	0.55
0.00	NITRITE	0.000	0	0	0	0.00
0.00	BROMIDE	0.000	0	0	0	0.00
0.00	NITRATE	0.000	0	0	0	0.00
0.00	PHOSPHATE	0.000	0	0	0	0.00
8.68	SULFATE	0.170	1185	23736	1	1.36
	Totals	0.413	3626	46757		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
3.03	CHLORIDE	0.243	2441	23021	1	0.55
8.68	SULFATE	0.170	1185	23736	1	1.36
	Totals	0.413	3626	46757		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
DE	2.12	0
E	3.62	0
E	4.57	0
E	5.33	0
ATE	7.13	0

********** Peak Report: All Peaks **********

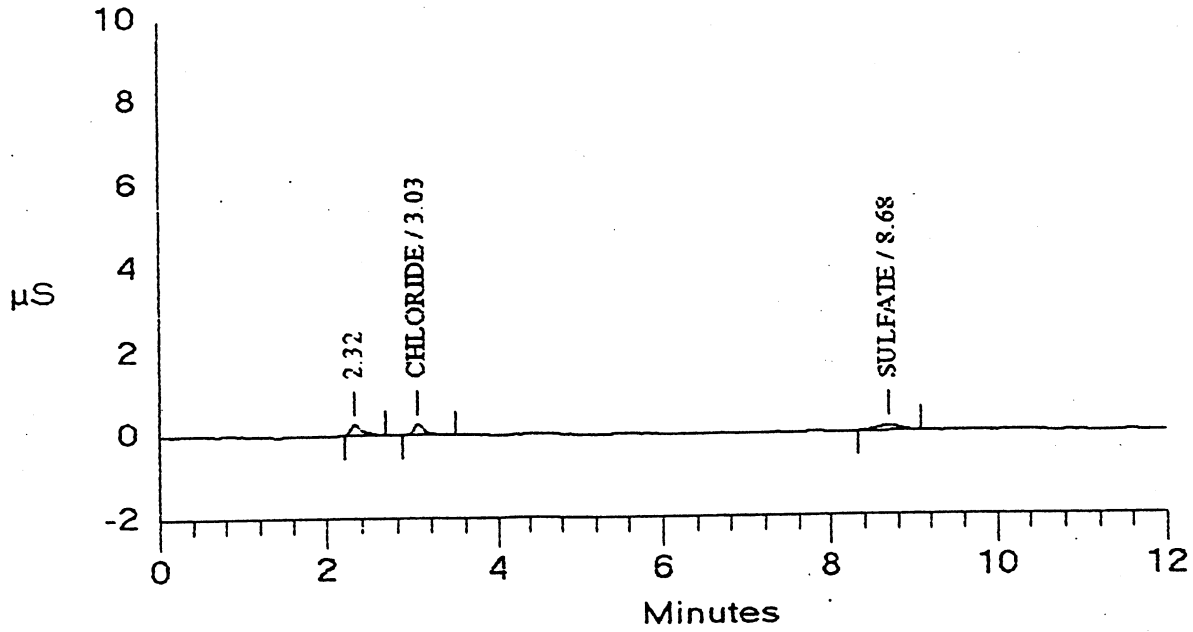
Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

le: \peaknet\schedule\12079901.sch
e 4.30 Page 1 of 2 12/7/99 11:03:27 AM

[illegible]		0.000	2420	23756	1	
3.[illegible]	CHLORIDE	0.243	2441	23021	1	0.55
[illegible]	SULFATE	0.170	1185	23736	1	1.36
	Totals	0.413	6046	70513		

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.32		0.000	2420	23756	1	
	Totals	0.000	2420	23756		

File: 12079008.DXD Sample METH BLK - B01



File :	C:\PEAKNET\DATA\12079009.DXD	Report Date:	12/7/99 11:17:03 AM
Name:	IPC - B02	Collected :	12/7/99 11:04:55 AM
# :	9	Vial # :	B02
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name:	ANIONS	Detector :	CD20

e Name: S/N 96020568 ID:24 Of 15 Moduleware : 1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	4.812	92195	723501	1	-0.79
3.00	CHLORIDE	4.791	65291	545063	2	-0.55
3.63	NITRITE	4.952	31304	331216	2	0.46
4.60	BROMIDE	5.013	18842	227977	2	0.73
5.42	NITRATE	4.941	20589	297912	2	1.56
7.17	PHOSPHATE	4.918	6767	136132	1	0.47
8.63	SULFATE	5.031	18167	402948	1	0.78
	Totals	34.457	253155	2664749		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	4.812	92195	723501	1	-0.79
3.00	CHLORIDE	4.791	65291	545063	2	-0.55
3.63	NITRITE	4.952	31304	331216	2	0.46
4.60	BROMIDE	5.013	18842	227977	2	0.73
5.42	NITRATE	4.941	20589	297912	2	1.56
7.17	PHOSPHATE	4.918	6767	136132	1	0.47
8.63	SULFATE	5.031	18167	402948	1	0.78
	Totals	34.457	253155	2664749		

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	4.812	92195	723501	1	-0.79
3.00	CHLORIDE	4.791	65291	545063	2	-0.55
3.63	NITRITE	4.952	31304	331216	2	0.46
4.60	BROMIDE	5.013	18842	227977	2	0.73
5.42	NITRATE	4.941	20589	297912	2	1.56
7.17	PHOSPHATE	4.918	6767	136132	1	0.47

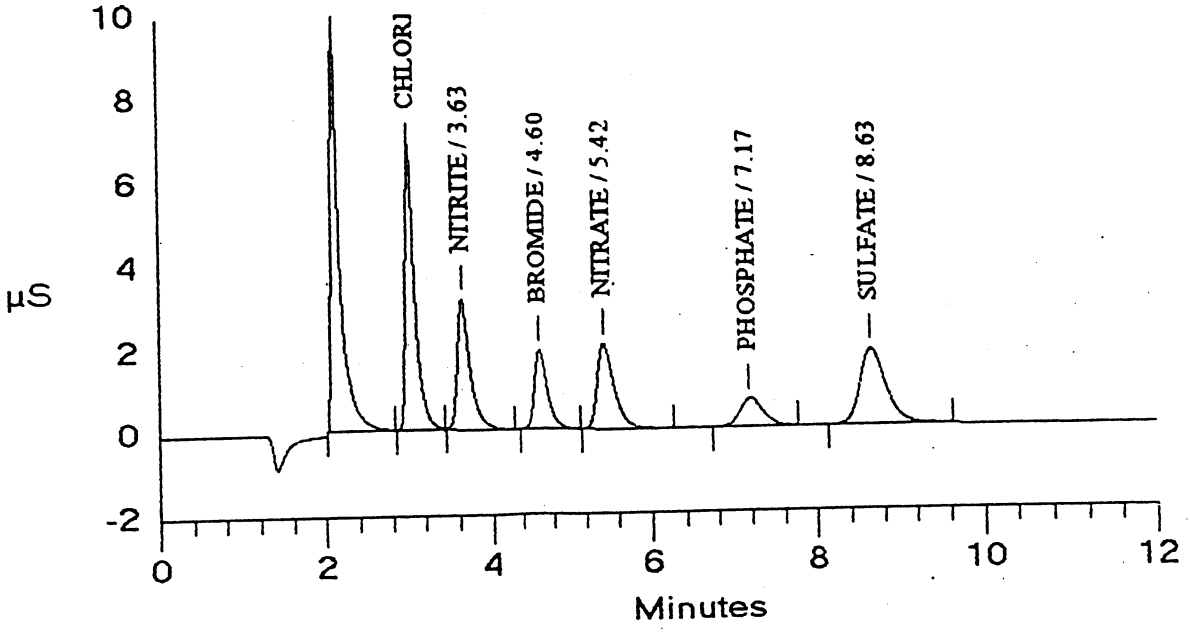
le: \peaknet\schedule\12079901.sch
e 4.30 Page 1 of 2 12/7/99 11:17:03 AM

8.63	SULFATE	5.031	18167	402948	1	0.78
	Totals	34.457	253155	2664749		

********** Peak Report: Unknown Peaks **********

Totals	0.000	0	0

File: 12079009.DXD Sample IPC - B02



File :	C:\PEAKNET\DATA\12079010.DXD	Report Date:	12/7/99 11:30:45 AM
e Name:	QC3 - B03	Collected :	12/7/99 11:18:38 AM
# :	10	Vial # :	B03
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name:	ANIONS	Detector :	CD20
		Operator :	DK

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	9.999	200982	1581578	1	0.00
3.03	CHLORIDE	9.907	151044	1172536	2	0.55
3.65	NITRITE	10.034	65292	678944	2	0.92
4.62	BROMIDE	10.141	40182	469006	2	1.09
5.40	NITRATE	10.040	42344	612451	2	1.25
7.18	PHOSPHATE	9.694	14170	279077	1	0.70
8.63	SULFATE	10.004	37323	810593	1	0.78
	Totals	69.818	551336	5604185		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	9.999	200982	1581578	1	0.00
3.03	CHLORIDE	9.907	151044	1172536	2	0.55
3.65	NITRITE	10.034	65292	678944	2	0.92
4.62	BROMIDE	10.141	40182	469006	2	1.09
5.40	NITRATE	10.040	42344	612451	2	1.25
7.18	PHOSPHATE	9.694	14170	279077	1	0.70
8.63	SULFATE	10.004	37323	810593	1	0.78
	Totals	69.818	551336	5604185		

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.12	FLUORIDE	9.999	200982	1581578	1	0.00
3.03	CHLORIDE	9.907	151044	1172536	2	0.55
3.65	NITRITE	10.034	65292	678944	2	0.92
4.62	BROMIDE	10.141	40182	469006	2	1.09
5.40	NITRATE	10.040	42344	612451	2	1.25
7.18	PHOSPHATE	9.694	14170	279077	1	0.70

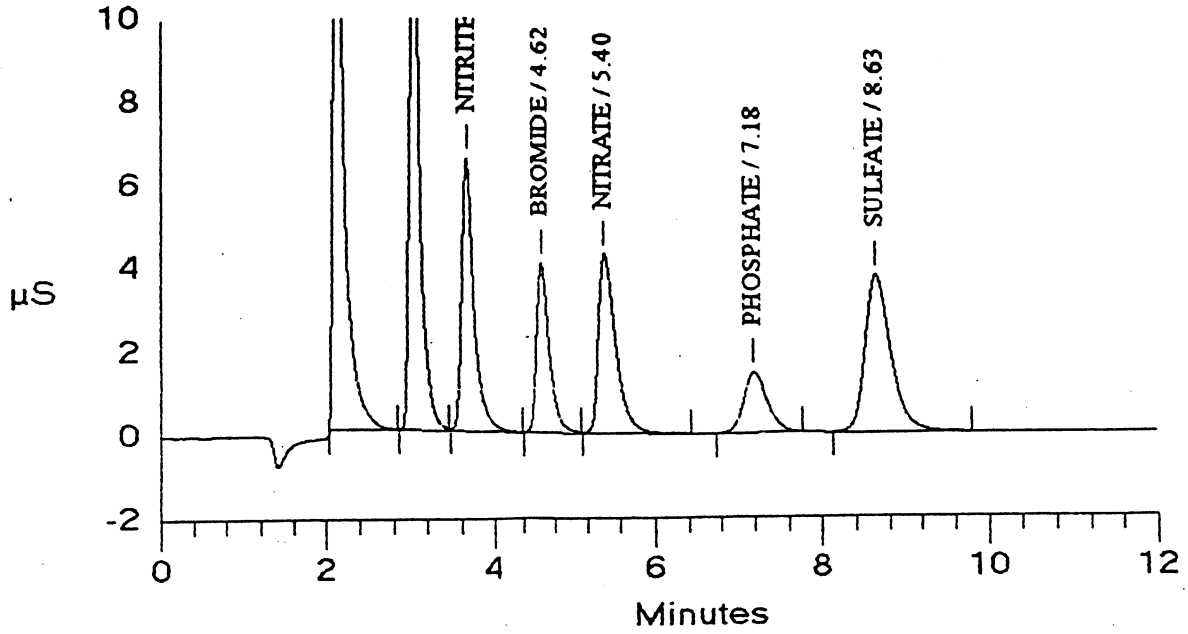
8.63	SULFATE	10.004	37323	810593	1	0.78
	Totals	69.818	551336	5604185		

********** Peak Report: Unknown Peaks **********

Ret	Component	Concentration	Height	Area	Bl. Code	%Delta

Totals	0.000	0	0

File: 12079010.DXD Sample QCS - B03



File :	C:\PEAKNET\DATA\12079011.DXD	Report Date:	12/7/99 11:44:26 AM
Name:	LCS - B04	Collected :	12/7/99 11:32:19 AM
# :	11	Vial # :	B04
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name:	ANIONS	Detector :	CD20
Type:		Operator :	DK
Inter:	3200	Rate :	5.00 Hz

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	9.893	211369	1563400	1	-0.79
3.00	CHLORIDE	9.772	149640	1155309	2	-0.55
3.60	NITRITE	9.957	62908	673482	2	-0.46
4.57	BROMIDE	9.948	39085	459664	2	0.00
5.37	NITRATE	9.873	42299	601874	2	0.63
7.15	PHOSPHATE	10.021	14267	289149	1	0.23
8.60	SULFATE	9.878	37045	800015	1	0.39
	Totals	69.341	556612	5542893		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	9.893	211369	1563400	1	-0.79
3.00	CHLORIDE	9.772	149640	1155309	2	-0.55
3.60	NITRITE	9.957	62908	673482	2	-0.46
4.57	BROMIDE	9.948	39085	459664	2	0.00
5.37	NITRATE	9.873	42299	601874	2	0.63
7.15	PHOSPHATE	10.021	14267	289149	1	0.23
8.60	SULFATE	9.878	37045	800015	1	0.39
	Totals	69.341	556612	5542893		

********** Peak Report: All Peaks **********

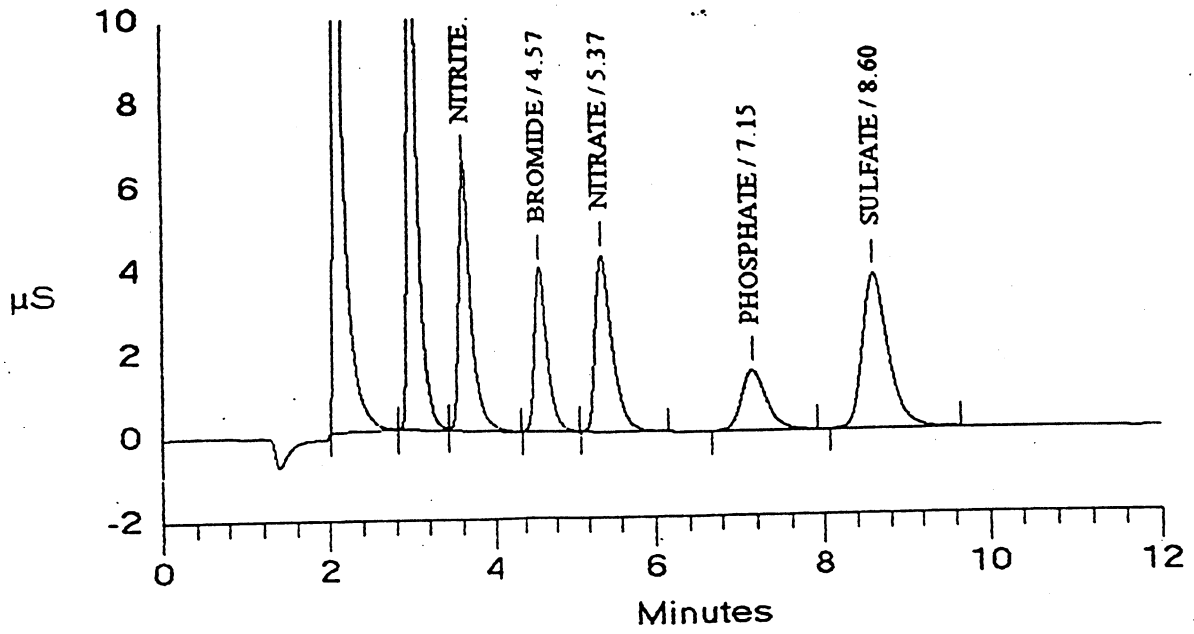
Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	9.893	211369	1563400	1	-0.79
3.00	CHLORIDE	9.772	149640	1155309	2	-0.55
3.60	NITRITE	9.957	62908	673482	2	-0.46
4.57	BROMIDE	9.948	39085	459664	2	0.00
5.37	NITRATE	9.873	42299	601874	2	0.63
7.15	PHOSPHATE	10.021	14267	289149	1	0.23

8.60	SULFATE	9.878	37045	800015	1	0.39
	Totals	69.341	556612	5542893		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

File: 12079011.DXD Sample LCS - B04



File :	C:\PEAKNET\DATA\12079012.DXD	Report Date:	12/7/99 11:58:09 AM
e Name:	WEEKLY LFB - B05	Collected :	12/7/99 11:46:01 AM
e # :	12	Vial # :	B05
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name:	ANIONS	Detector :	CD20
Type:		Operator :	DK
Date:	3600	Rate :	5.00 Hz
Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

l	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	1.147	17041	151336	1	-0.79
3.00	CHLORIDE	1.139	14098	123553	2	-0.55
3.63	NITRITE	1.102	7408	80640	2	0.46
4.62	BROMIDE	0.952	4046	47059	1	1.09
5.43	NITRATE	0.975	4647	65125	1	1.88
7.18	PHOSPHATE	1.091	1336	26734	1	0.70
8.67	SULFATE	1.004	4120	87568	1	1.17
	Totals	7.411	52696	582016		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	1.147	17041	151336	1	-0.79
3.00	CHLORIDE	1.139	14098	123553	2	-0.55
3.63	NITRITE	1.102	7408	80640	2	0.46
4.62	BROMIDE	0.952	4046	47059	1	1.09
5.43	NITRATE	0.975	4647	65125	1	1.88
7.18	PHOSPHATE	1.091	1336	26734	1	0.70
8.67	SULFATE	1.004	4120	87568	1	1.17
	Totals	7.411	52696	582016		

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	1.147	17041	151336	1	-0.79
3.00	CHLORIDE	1.139	14098	123553	2	-0.55
3.63	NITRITE	1.102	7408	80640	2	0.46
4.62	BROMIDE	0.952	4046	47059	1	1.09
5.43	NITRATE	0.975	4647	65125	1	1.88
7.18	PHOSPHATE	1.091	1336	26734	1	0.70

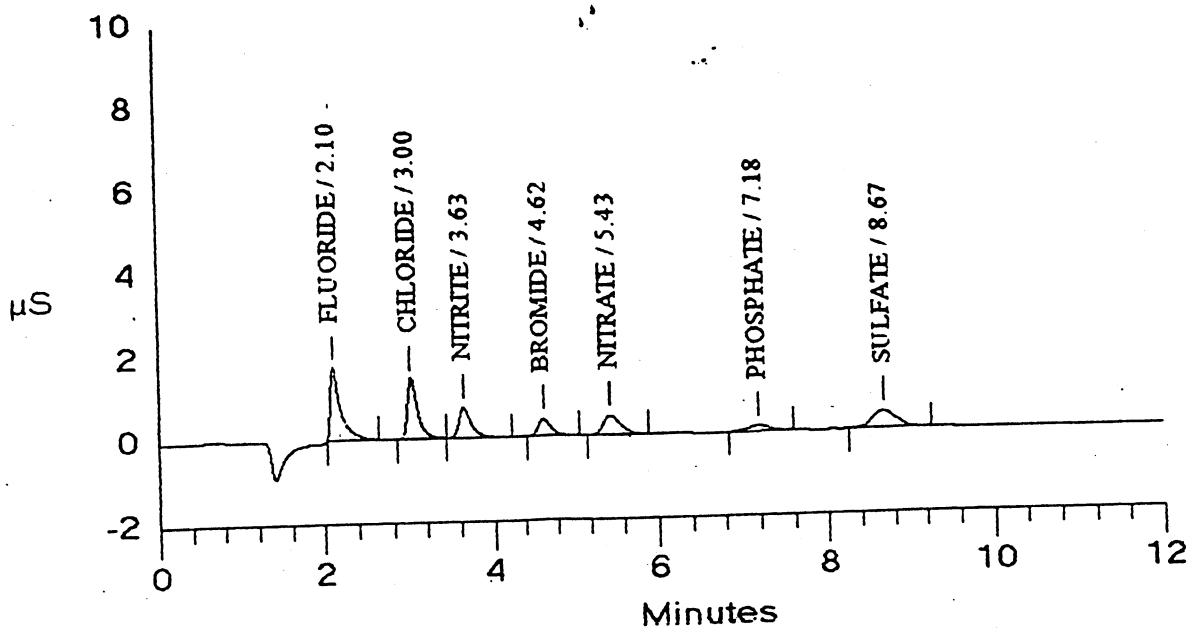
le: \peaknet\schedule\12079901.sch
e 4.30 Page 1 of 2 12/7/99 11:58:09 AM

8.67	SULFATE	1.004	4120	87568	1	1.17
	Totals	7.411	52696	582016		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079012.DXD Sample WEEKLY LFB - B05



File :	C:\PEAKNET\DATA\12079013.DXD	Report Date:	12/7/99 12:11:50 PM
le Name:	METH BLK - B01	Collected :	12/7/99 11:59:43 AM
# :	13	Vial # :	B01
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name:	ANIONS	Detector :	CD20
Type:		Operator :	DK
Inta:	3600	Rate :	5.00 Hz
Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.30	FLUORIDE	0.331	2547	27336	1	8.66
3.00	CHLORIDE	0.226	2425	21191	1	-0.55
0.00	NITRITE	0.000	0	0	0	0.00
0.00	BROMIDE	0.000	0	0	0	0.00
0.00	NITRATE	0.000	0	0	0	0.00
0.00	PHOSPHATE	0.000	0	0	0	0.00
8.65	SULFATE	0.169	1138	23672	1	0.97
	Totals	0.726	6110	72199		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.30	FLUORIDE	0.331	2547	27336	1	8.66
3.00	CHLORIDE	0.226	2425	21191	1	-0.55
8.65	SULFATE	0.169	1138	23672	1	0.97
	Totals	0.726	6110	72199		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
E	3.62	0
E	4.57	0
E	5.33	0
ATE	7.13	0

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

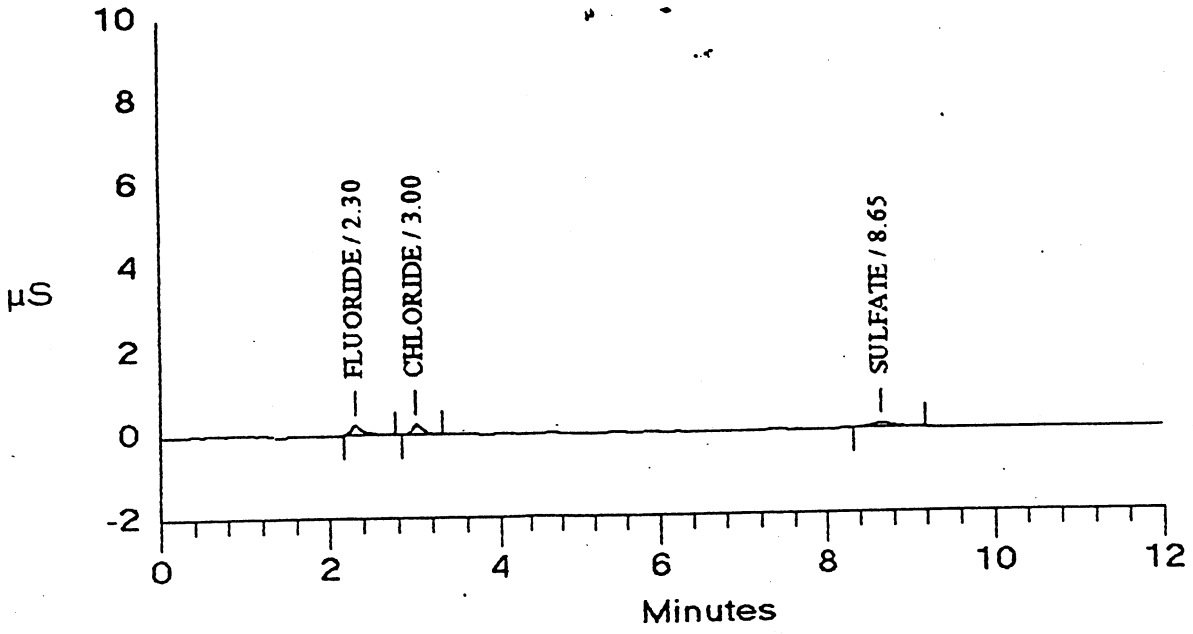
le: \peaknet\schedule\12079901.sch
e 4.30 Page 1 of 2 12/7/99 12:11:50 PM

2.30	FLUORIDE	0.331	2547	27336	1	8.66
3.00	CHLORIDE	0.226	2425	21191	1	-0.55
8.65	SULFATE	0.169	1138	23672	1	0.97
	Totals	0.726	6110	72199		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

File: 12079013.DXD Sample METH BLK - B01



File :	C:\PEAKNET\DATA\12079014.DXD	Report Date:	12/7/99 12:25:25 PM
e Name:	1384256 F - B06	Collected :	12/7/99 12:13:18 PM
# :	14	Vial # :	B06
d File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
m Name:	ANIONS	Detector :	CD20
m Type:		Operator :	DK
	3600	Rate :	5.00 Hz
Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold

File: c:\peaknet\method\acidscan.met
Name: ANIONS
Type:
Points: 3600
Name: S/N 96020568 ID:24 Of 15

Calibrated : 12/7/99 10:49:52 AM
Detector : CD20
Operator : DK
Rate : 5.00 Hz
Moduleware : 1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.220	1588	10544	1	3.15
3.10	CHLORIDE	15.998	210521	1990441	2	2.76
3.73	NITRITE	3.864	14186	259366	3	3.23
4.72	BROMIDE	0.384	1382	22361	4	3.28
5.17	NITRATE	-5789.213	4295284	68244796	3	-3.13
7.25	PHOSPHATE	1.353	1130	34079	4	1.64
8.52	SULFATE	-2.545	788662	16933116	2	-0.58
	Totals	-5769.940	5312754	87494704		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.220	1588	10544	1	3.15
3.10	CHLORIDE	15.998	210521	1990441	2	2.76
3.73	NITRITE	3.864	14186	259366	3	3.23
4.72	BROMIDE	0.384	1382	22361	4	3.28
5.17	NITRATE	-5789.213	4295284	68244796	3	-3.13
7.25	PHOSPHATE	1.353	1130	34079	4	1.64
8.52	SULFATE	-2.545	788662	16933116	2	-0.58
	Totals	-5769.940	5312754	87494704		

********** Peak Report: All Peaks **********

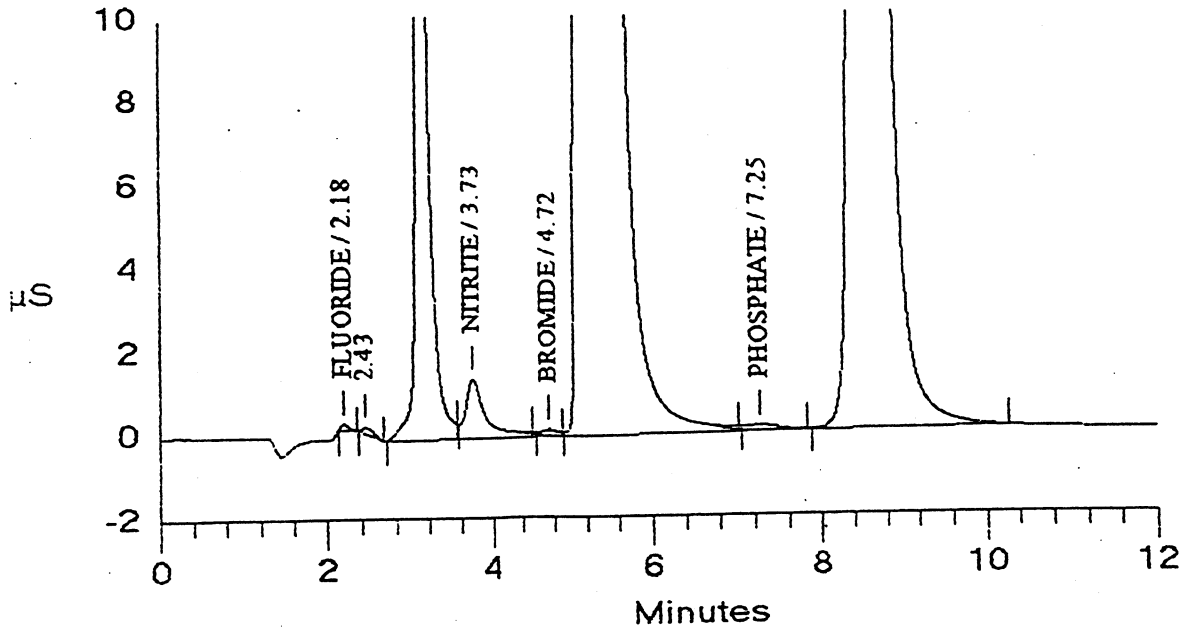
Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.220	1588	10544	1	3.15
2.43		0.000	1313	13416	1	
3.10	CHLORIDE	15.998	210521	1990441	2	2.76
3.73	NITRITE	3.864	14186	259366	3	3.23
4.72	BROMIDE	0.384	1382	22361	4	3.28
5.17	NITRATE	-5789.213	4295284	68244796	3	-3.13

.18 PHOSPHATE 1.353 1130 34079 4 1.64
.52 SULFATE -2.545 788662 16933116 2 -0.58

********** Peak Report: Unknown Peaks **********

Ret. Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.43		0.000	1313	13416	1	
	Totals	0.000	1313	13416		

File: 12079049.DXD Sample 1384186 - B37



CHLORIDE $\frac{15.998\ mg/L \times 0.050\ L}{0.0005386} = 1,485\ mg/kg \times 0.0001 = 0.15\%$

File : C:\PEAKNET\DATA\12079050.DXD Report Date: 12/7/99 8:35:49 PM
Collected : 12/7/99 8:23:42 PM

n Name: ANIONS
n Type:
Points: 3600
e Name: S/N 96020568

Detector : CD20
Operator : DK
Rate : 5.00 Hz
ID:24 Of 15 Moduleware : 1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
0.00	FLUORIDE	0.000	0	0	0	0.00
3.12	CHLORIDE	18.460	246755	2348490	2	3.31
3.75	NITRITE	3.857	14327	258895	3	3.69
4.75	BROMIDE	0.199	1043	14352	4	4.01
5.18	NITRATE	-7831.054	5003194	78334227	2	-2.81
0.00	PHOSPHATE	0.000	0	0	0	0.00
8.52	SULFATE	-26.466	854796	18558882	1	-0.58
	Totals	-7835.005	6120115	99514846		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
3.12	CHLORIDE	18.460	246755	2348490	2	3.31
3.75	NITRITE	3.857	14327	258895	3	3.69
4.75	BROMIDE	0.199	1043	14352	4	4.01
5.18	NITRATE	-7831.054	5003194	78334227	2	-2.81
8.52	SULFATE	-26.466	854796	18558882	1	-0.58
	Totals	-7835.005	6120115	99514846		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
IE	2.12	0
ATE	7.13	0

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

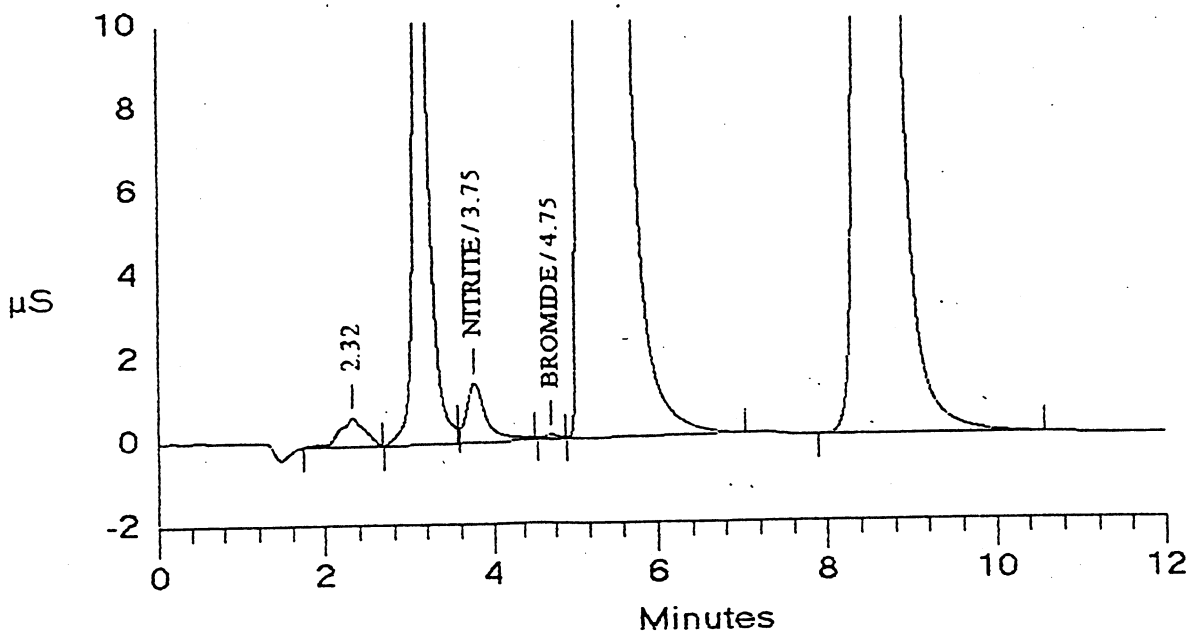
	0.000	7904	143946	1	
CHLORIDE	18.460	246755	2348490	2	3.31
NITRITE	3.857	14327	258895	3	3.69
BROMIDE	0.199	1043	14352	4	4.01

Totals	-7835.005	6127120	99658792

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.32		0.000	7004	143946	1	
	Totals	0.000	7004	143946		

File: 12079050.DXD Sample 1384186 DUP - B38



CHLORIDE $\frac{18.460\ mg/L \times 0.050\ L}{0.0006021} = 1,533\ mg/kg \times 0.0001 = 0.15\%$

File : C:\PEAKNET\DATA\12079051.DXD Report Date: 12/7/99 8:49:25 PM
Name: 1384186 MS - B39 Collected : 12/7/99 8:37:18 PM
Vial # : B39

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.220	1541	10570	1	3.15
3.12	CHLORIDE	25.560	390965	3505981	2	3.31
3.73	NITRITE	3.969	14066	266302	3	3.23
4.73	BROMIDE	0.397	1450	22962	4	3.65
5.17	NITRATE	-5651.585	4218734	67505355	3	-3.13
7.30	PHOSPHATE	1.568	1272	40131	4	2.34
8.53	SULFATE	-1.207	784373	16832986	2	-0.39
	Totals	-5621.077	5412401	88184288		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.220	1541	10570	1	3.15
3.12	CHLORIDE	25.560	390965	3505981	2	3.31
3.73	NITRITE	3.969	14066	266302	3	3.23
4.73	BROMIDE	0.397	1450	22962	4	3.65
5.17	NITRATE	-5651.585	4218734	67505355	3	-3.13
7.30	PHOSPHATE	1.568	1272	40131	4	2.34
8.53	SULFATE	-1.207	784373	16832986	2	-0.39
	Totals	-5621.077	5412401	88184288		

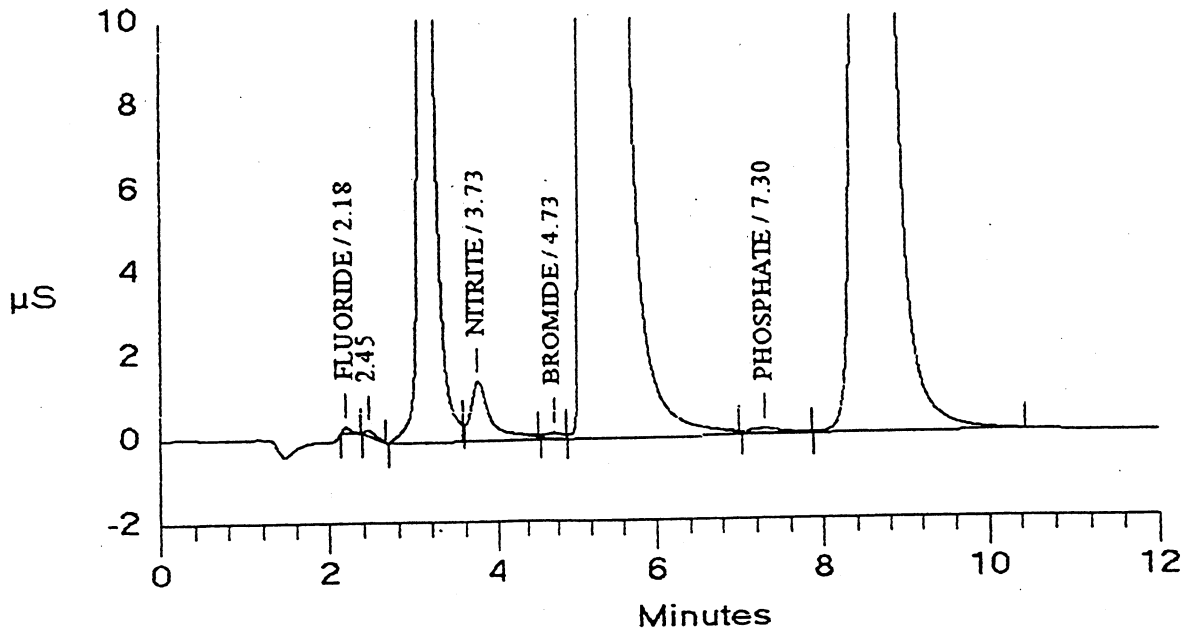
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.220	1541	10570	1	3.15
2.45		0.000	1330	12285	1	
3.12	CHLORIDE	25.560	390965	3505981	2	3.31
3.73	NITRITE	3.969	14066	266302	3	3.23
4.73	BROMIDE	0.397	1450	22962	4	3.65
5.17	NITRATE	-5651.585	4218734	67505355	3	-3.13

7.30	PHOSPHATE	1.568	1272	40131	4	2.34
8.53	SULFATE	-1.207	784373	16832986	2	-0.39
	Totals	-5621.077	5413731	88196573		

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.45		0.000	1330	12285	1	
	Totals	0.000	1330	12285		

File: 12079051.DXD Sample 1384186 MS - B39



T.V. SPIKE = 928 mg/kg

CHLORIDE $\frac{25.560 \text{ mg/L} \times 0.050 \text{ L}}{0.0005386} = 2{,}373 \text{ mg/kg}$

$\frac{2{,}373 \text{ mg/kg} - 1{,}485 \text{ mg/kg}}{928 \text{ mg/kg}} \times 100 = 96\%$ RECOVERY

File :	C:\PEAKNET\DATA\12079052.DXD	Report Date:	12/7/99 9:03:01 PM
Name:	1384186 MSD - B40	Collected :	12/7/99 8:50:54 PM
:	52	Vial = :	B40
:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM

e Name: S/N 96020568 ID:24 Of 15 Moduleware : 1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.223	1628	11009	1	3.15
3.12	CHLORIDE	25.689	400356	3529163	2	3.31
3.73	NITRITE	2.963	13227	200504	2	3.23
4.73	BROMIDE	0.006	626	6030	1	3.65
5.17	NITRATE	-5656.295	4244297	67530810	3	-3.13
7.28	PHOSPHATE	0.933	929	22282	4	2.10
8.53	SULFATE	-1.196	784393	16832092	1	-0.39
	Totals	-5627.677	5445457	88131890		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.223	1628	11009	1	3.15
3.12	CHLORIDE	25.689	400356	3529163	2	3.31
3.73	NITRITE	2.963	13227	200504	2	3.23
4.73	BROMIDE	0.006	626	6030	1	3.65
5.17	NITRATE	-5656.295	4244297	67530810	3	-3.13
7.28	PHOSPHATE	0.933	929	22282	4	2.10
8.53	SULFATE	-1.196	784393	16832092	1	-0.39
	Totals	-5627.677	5445457	88131890		

********** Peak Report: All Peaks **********

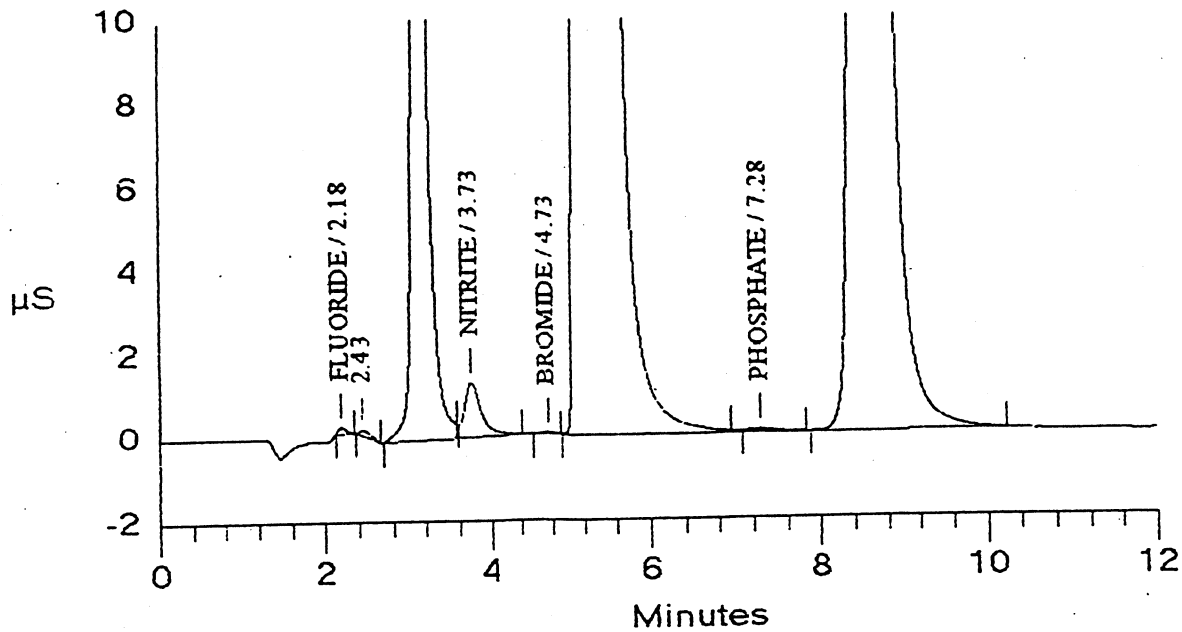
Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.18	FLUORIDE	0.223	1628	11009	1	3.15
2.43		0.000	1339	13769	1	
3.12	CHLORIDE	25.689	400356	3529163	2	3.31
3.73	NITRITE	2.963	13227	200504	2	3.23
4.73	BROMIDE	0.006	626	6030	1	3.65
5.17	NITRATE	-5656.295	4244297	67530810	3	-3.13

7.28	PHOSPHATE	0.933	929	22282	4	2.10
8.53	SULFATE	-1.196	784393	16832092	1	-0.39
	Totals	-5627.677	5448796	88145659		

********** Peak Report: Unknown Peaks **********

2.43	0.000	1339	13769	1
Totals	0.000	1339	13769	

File: 12079052.DXD Sample 1384186 MSD - B40



T.V. SPIKE = 928 mg/kg

CHLORIDE $\frac{25.689 \text{ mg/L} \times 0.050 \text{ L}}{0.0005386} = 2{,}385 \text{ mg/kg}$

$\frac{2{,}385 \text{ mg/kg} - 1{,}485 \text{ mg/kg}}{928 \text{ mg/kg}} \times 100 = 97\%$ RECOVERY

File :	C:\PEAKNET\DATA\12078053.DXD	Report Date:	12/7/99 9:16:44 PM
Sample :	1384187 - 001	Collected :	12/7/99 9:04:36 PM
Vial :	53	Vial # :	001
Method :	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name :	ANIONS	Detector :	CD20
		Operator :	DK

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
0.00	FLUORIDE	0.000	0	0	0	0.00
3.12	CHLORIDE	22.732	321040	3018986	2	3.31
3.75	NITRITE	3.876	13865	260162	3	3.69
4.73	BROMIDE	0.255	1213	16805	4	3.65
5.17	NITRATE	-8146.554	5016416	79770476	2	-3.13
0.00	PHOSPHATE	0.000	0	0	0	0.00
8.50	SULFATE	-40.821	890752	19420191	1	-0.78
	Totals	-8160.511	6243286	102486620		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
3.12	CHLORIDE	22.732	321040	3018986	2	3.31
3.75	NITRITE	3.876	13865	260162	3	3.69
4.73	BROMIDE	0.255	1213	16805	4	3.65
5.17	NITRATE	-8146.554	5016416	79770476	2	-3.13
8.50	SULFATE	-40.821	890752	19420191	1	-0.78
	Totals	-8160.511	6243286	102486620		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
DE	2.12	0
ATE	7.13	0

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

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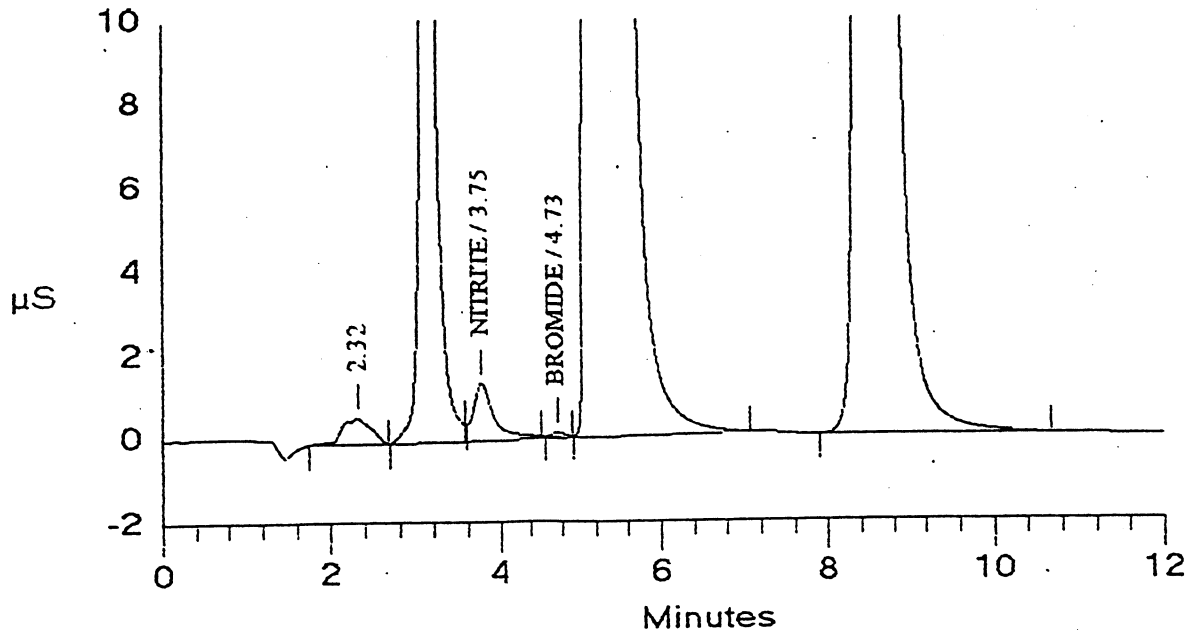
2.32		0.000	6310	147544	1	
3.12	CHLORIDE	22.732	321040	3018986	2	3.31
3.75	NITRITE	3.876	13865	260162	3	3.69
4.73	BROMIDE	0.255	1213	16805	4	3.65
5.17	NITRATE	-8146.554	5016416	79770476	2	-3.13
8.50	SULFATE	-40.821	890752	19420191	1	-0.78
	Totals	-8160.511	6249596	102634165		

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.32		0.000	6310	147544	1	
	Totals	0.000	6310	147544		

File: 12079053.DXD Sample 1384187 - C01



CHLORIDE $\frac{22.732\ mg/L \times 0.050L}{0.0006630} = 1,714\ mg/kg \times 0.0001 = 0.17\%$

File :	C:\PEAKNET\DATA\12079054.DXD	Report Date:	12/7/99 9:30:26 PM
Name:	1384188 - C02	Collected :	12/7/99 9:18:19 PM
# :	54	Vial # :	C02
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:48:52 AM
Name:	ANIONS	Detector :	CD20
Type:		Operator :	DK
Time:	3600	Rate :	5.00 Hz
[illegible]	[illegible]	Moduleware :	1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
0.00	FLUORIDE	0.000	0	0	0	0.00
3.10	CHLORIDE	18.881	258957	2411686	2	2.76
3.73	NITRITE	2.935	11382	198668	3	3.23
4.73	BROMIDE	0.148	908	12167	4	3.65
5.17	NITRATE	-5101.318	4036567	64455757	2	-3.13
0.00	PHOSPHATE	0.000	0	0	0	0.00
8.53	SULFATE	19.840	708726	15062839	1	-0.39
	Totals	-5059.515	5016540	82141118		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
3.10	CHLORIDE	18.881	258957	2411686	2	2.76
3.73	NITRITE	2.935	11382	198668	3	3.23
4.73	BROMIDE	0.148	908	12167	4	3.65
5.17	NITRATE	-5101.318	4036567	64455757	2	-3.13
8.53	SULFATE	19.840	708726	15062839	1	-0.39
	Totals	-5059.515	5016540	82141118		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
DE	2.12	0
ATE	7.13	0

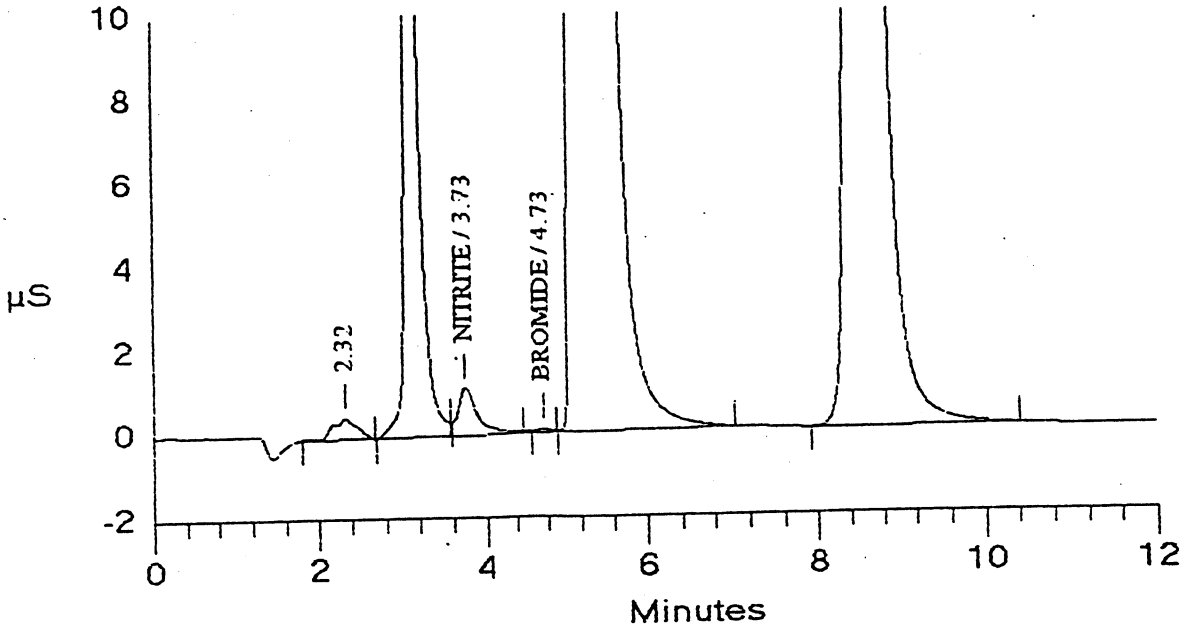
********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

2.32		0.000	5078	105351	1	
3.10	CHLORIDE	18.881	258957	2411686	2	2.76
3.73	NITRITE	2.935	11382	198668	3	3.23
4.73	BROMIDE	0.148	908	12167	4	3.65
5.17	NITRATE	-5101.318	4036567	64455757	2	-3.13
8.53	SULFATE	19.840	708726	15062839	1	-0.39
	Totals	-5059.515	5021618	82246469		

Time	Name	MG/L			Code
2.32		0.000	5078	105351	1
	Totals	0.000	5078	105351	

File: 12079054.DXD Sample 1384188 - C02



CHLORIDE $\frac{18.881\ mg/L \times 0.050L}{0.0005915} = 1{,}810\ mg/kg \times 0.0001 = 0.18$

File :	C:\PEAKNET\DATA\12079055.DXD	Report Date:	12/7/99 9:44:08 PM
Name:	1384189 - C03	Collected :	12/7/99 9:32:01 PM
# :	55	Vial # :	C03
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name:	ANIONS	Detector :	CD20
Time:		Operator :	DK
Time:	3600	Rate :	5.00 Hz
Name:	S/N 98020588 ID:24 Of 15	Moduleware :	1.17

al 50 1 0.00 12.00 10 10.00 0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.17	FLUORIDE	1.017	9391	131575	2	2.36
3.08	CHLORIDE	2.419	18561	268935	2	2.21
3.72	NITRITE	2.765	14296	187647	2	2.76
0.00	BROMIDE	0.000	0	0	0	0.00
5.17	NITRATE	-2668.507	2946794	48431076	2	-3.13
7.28	PHOSPHATE	1.656	1675	42613	2	2.10
8.52	SULFATE	26.198	678419	14427105	1	-0.58
	Totals	-2634.452	3669136	63488951		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.17	FLUORIDE	1.017	9391	131575	2	2.36
3.08	CHLORIDE	2.419	18561	268935	2	2.21
3.72	NITRITE	2.765	14296	187647	2	2.76
5.17	NITRATE	-2668.507	2946794	48431076	2	-3.13
7.28	PHOSPHATE	1.656	1675	42613	2	2.10
8.52	SULFATE	26.198	678419	14427105	1	-0.58
	Totals	-2634.452	3669136	63488951		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
E	4.57	0

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

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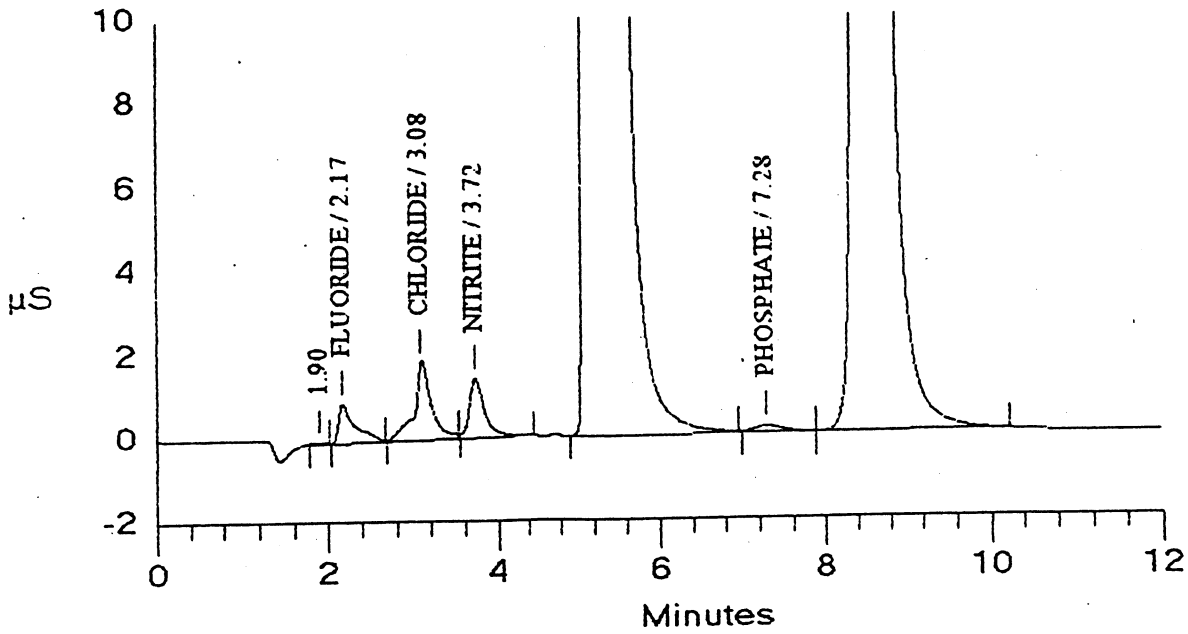
1.90		0.000	289	2405	1	
2.17	FLUORIDE	1.017	9391	131575	2	2.36
3.08	CHLORIDE	2.419	18561	268935	2	2.21
3.72	NITRITE	2.765	14296	187647	2	2.76
5.17	NITRATE	-2668.507	2946794	48431076	2	-3.13
7.28	PHOSPHATE	1.656	1675	42613	2	2.10
8.52	SULFATE	26.198	678419	14427105	1	-0.58
	Totals	-2634.452	3669425	63491356		

********** Peak Report: Unknown Peaks **********

Time	Name	mg/L			Code
1.90		0.000	289	2405	1
	Totals	0.000	289	2405	

File: 12079055.DXD Sample 1384189 - C03



CHLORIDE $\frac{2.419\ mg/L \times 0.050L}{0.0004678} = 259\ mg/kg \times 0.0001 = 0.03\%$

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e 4.30 Page 2 of 2 12/7/99 9:44:08 PM

File :	C:\PEAKNET\DATA\12079056.DXD	Report Date:	12/7/99 9:57:51 PM
e Name:	1384189 DUP - C04	Collected :	12/7/99 9:45:43 PM
# :	56	Vial # :	C04
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
Name:	ANIONS	Detector :	CD20
Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

Volume Dilution Grant Peak Area Reject Pk. Width Threshold

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.22	FLUORIDE	1.426	10308	194034	2	4.72
3.12	CHLORIDE	4.603	39526	522847	2	3.31
3.75	NITRITE	3.930	14869	263700	3	3.69
4.75	BROMIDE	0.403	1467	23216	4	4.01
5.18	NITRATE	-7575.798	4880881	77151055	3	-2.81
7.30	PHOSPHATE	3.949	3551	108030	4	2.34
8.50	SULFATE	-154.082	1096979	24692499	2	-0.78
	Totals	-7715.568	6047581	102955379		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.22	FLUORIDE	1.426	10308	194034	2	4.72
3.12	CHLORIDE	4.603	39526	522847	2	3.31
3.75	NITRITE	3.930	14869	263700	3	3.69
4.75	BROMIDE	0.403	1467	23216	4	4.01
5.18	NITRATE	-7575.798	4880881	77151055	3	-2.81
7.30	PHOSPHATE	3.949	3551	108030	4	2.34
8.50	SULFATE	-154.082	1096979	24692499	2	-0.78
	Totals	-7715.568	6047581	102955379		

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
1.88		0.000	327	2731	1	
2.22	FLUORIDE	1.426	10308	194034	2	4.72
3.12	CHLORIDE	4.603	39526	522847	2	3.31
3.75	NITRITE	3.930	14869	263700	3	3.69
4.75	BROMIDE	0.403	1467	23216	4	4.01
5.18	NITRATE	-7575.798	4880881	77151055	3	-2.81

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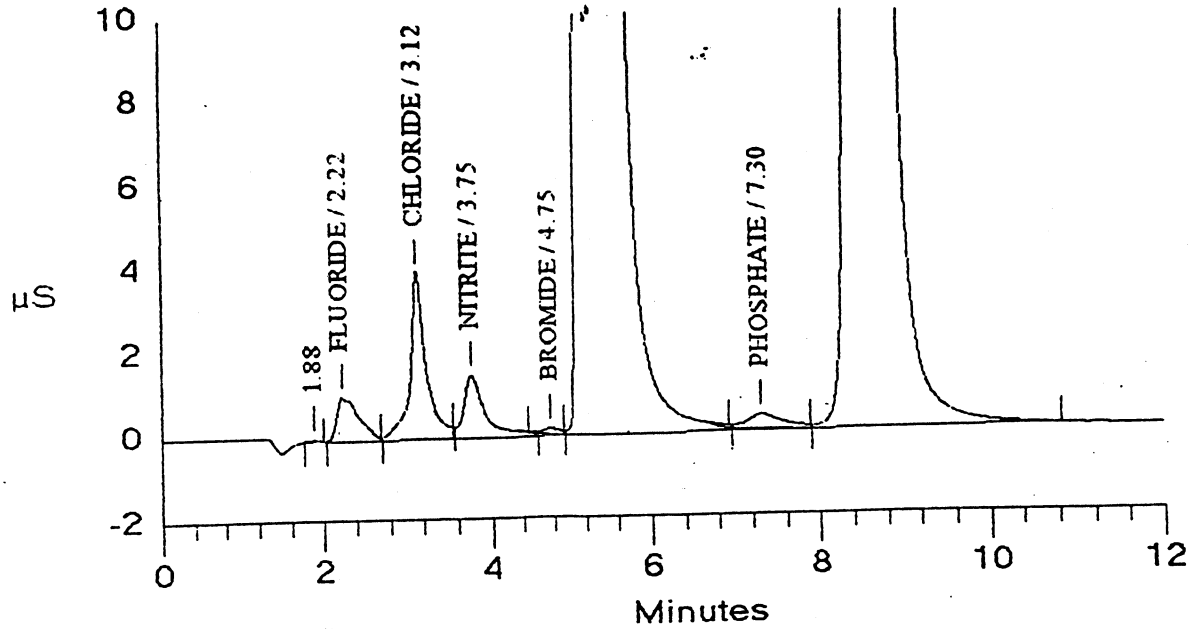
7.30	PHOSPHATE	3.949	3551	108030	4	2.34
8.50	SULFATE	-154.082	1096979	24692499	2	-0.78
	Totals	-7715.568	6047908	102958110		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
1.88		0.000	327	2731	1	
	Totals	0.000	327	2731		

File: 12079056.DXD Sample 1384189 DUP - C04



CHLORIDE $\frac{4.603\ mg/L \times 0.050L}{0.0006803} = 337\ mg/kg \times 0.0001 = 0.03\%$

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= 4.30

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File :	C:\PEAKNET\DATA\12079057.DXD	Report Date:	12/7/99 10:11:33 PM
e Name:	1384190 - C05	Collected :	12/7/99 9:59:26 PM
# :	57	Vial # :	C05
a File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
m Name:	ANIONS	Detector :	CD20
m Type:		Operator :	DK
Date:	3600	Rate :	5.00 Hz
Name:	S/N 98020568 ID:24 Of 15	Moduleware :	1.17

Volume	Dilution	Start	Stop	Area	Reject	Pk. Width	Threshold
						10.00	0.94

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.17	FLUORIDE	1.274	11937	170817	2	2.36
3.10	CHLORIDE	3.013	25371	337314	2	2.76
3.72	NITRITE	2.959	14501	200260	2	2.76
0.00	BROMIDE	0.000	0	0	0	0.00
5.18	NITRATE	-3245.533	3225597	52730142	2	-2.81
7.27	PHOSPHATE	2.273	2227	60060	2	1.87
8.48	SULFATE	-61.450	937948	20551730	2	-0.97
	Totals	-3297.464	4217580	74050322		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.17	FLUORIDE	1.274	11937	170817	2	2.36
3.10	CHLORIDE	3.013	25371	337314	2	2.76
3.72	NITRITE	2.959	14501	200260	2	2.76
5.18	NITRATE	-3245.533	3225597	52730142	2	-2.81
7.27	PHOSPHATE	2.273	2227	60060	2	1.87
8.48	SULFATE	-61.450	937948	20551730	2	-0.97
	Totals	-3297.464	4217580	74050322		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
DE	4.57	0

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

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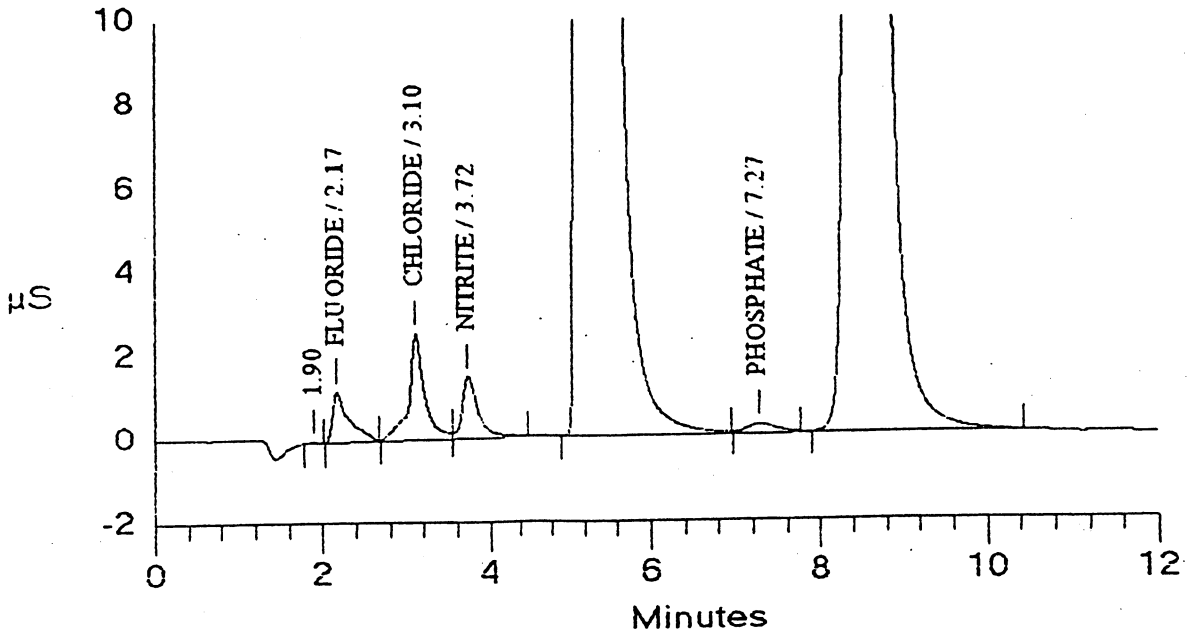
1.90		0.000	262	2158	1	
2.17	FLUORIDE	1.274	11937	170817	2	2.36
3.10	CHLORIDE	3.013	25371	337314	2	2.76
3.72	NITRITE	2.959	14501	200260	2	2.76
5.18	NITRATE	-3245.533	3225597	52730142	2	-2.81
7.27	PHOSPHATE	2.273	2227	60060	2	1.87
8.48	SULFATE	-61.450	937948	20551730	2	-0.97
	Totals	-3297.464	4217843	74052480		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

Totals	0.000	262	2158

File: 12079057.DXD Sample 1384190 - C05



CHLORIDE $\frac{3.013\ mg/L \times 0.050L}{0.0005348} = 282\ mg/kg \times 0.0001 = 0.03\%$

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e 4.30 Page 2 of 2 12/7/99 10:11:33 PM

File :	C:\PEAKNET\DATA\12079058.DXD	Report Date:	12/7/99 10:25:09 PM
e Name:	1384191 - C06	Collected :	12/7/99 10:13:02 PM
# :	58	Vial # :	C06
File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
m Name:	ANIONS	Detector :	CD20
n Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
e Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

	Volume	Dilution	Start	Stop	Area	Reject	Pk. Width	Threshold
	50	1	0.00	12.00		10	10.00	0.94

********** Component Report: All Components **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.20	FLUORIDE	1.377	11735	186450	2	3.94
3.12	CHLORIDE	5.336	52903	609744	2	3.31
3.75	NITRITE	3.095	14317	209093	2	3.69
0.00	BROMIDE	0.000	0	0	0	0.00
5.18	NITRATE	-6135.042	4409944	70065276	2	-2.81
7.30	PHOSPHATE	3.134	3238	84605	2	2.34
8.48	SULFATE	-136.604	1071232	23995457	2	-0.97
	Totals	-6258.704	5563369	95150624		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.20	FLUORIDE	1.377	11735	186450	2	3.94
3.12	CHLORIDE	5.336	52903	609744	2	3.31
3.75	NITRITE	3.095	14317	209093	2	3.69
5.18	NITRATE	-6135.042	4409944	70065276	2	-2.81
7.30	PHOSPHATE	3.134	3238	84605	2	2.34
8.48	SULFATE	-136.604	1071232	23995457	2	-0.97
	Totals	-6258.704	5563369	95150624		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
DE	4.57	0

********** Peak Report: All Peaks **********

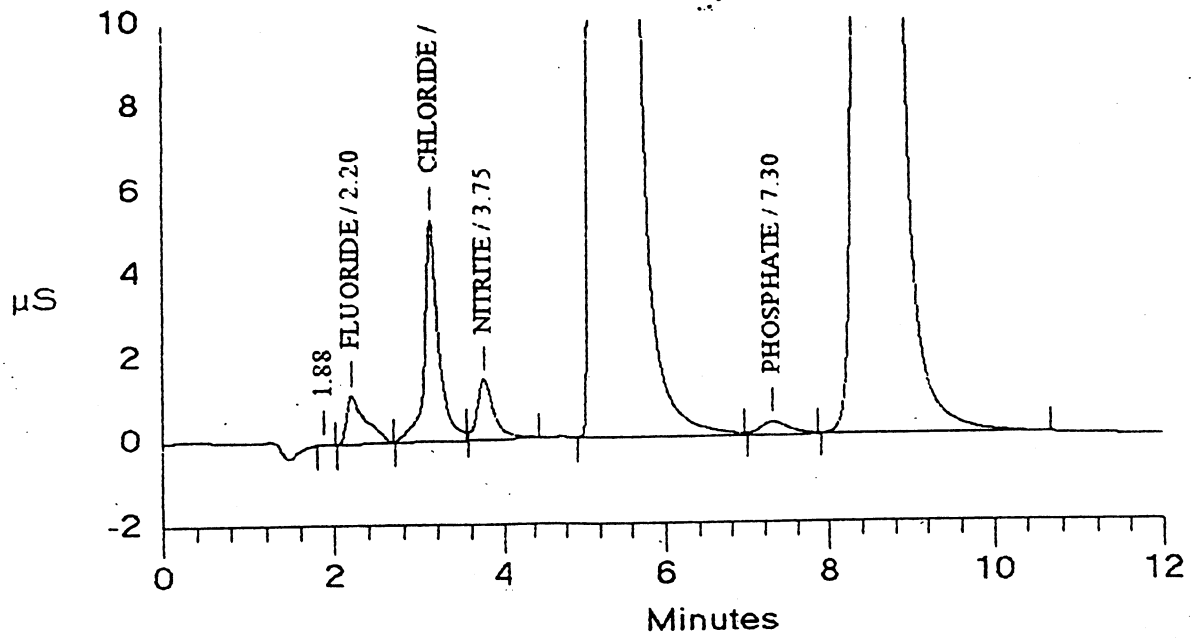
Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

1.88		0.000	218	1638	1	
2.20	FLUORIDE	1.377	11735	186450	2	3.94
3.12	CHLORIDE	5.336	52903	609744	2	3.31
3.75	NITRITE	3.095	14317	209093	2	3.69
5.18	NITRATE	-6135.042	4409944	70065276	2	-2.81
7.30	PHOSPHATE	3.134	3238	84605	2	2.34
8.48	SULFATE	-136.604	1071232	23995457	2	-0.97
	Totals	-6258.704	5563586	95152262		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
		[illegible]	218	1638	1	

File: 12079058.DXD Sample 1384191 - C06



CHLORIDE $\frac{5.336\ mg/L \times 0.050L}{0.0007169} = 372\ mg/kg \times 0.0001 = 0.04\%$

le: \peaknet\schedule\12079901.sch
e 4.30 Page 2 of 2 12/7/99 10:25:09 PM

File :	C:\PEAKNET\DATA\12079059.DXD	Report Date:	12/7/99 10:38:45 PM
e Name:	METH BLK - B01	Collected :	12/7/99 10:26:38 PM
# :	59	Vial # :	B01
d File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
m Name:	ANIONS	Detector :	CD20
n Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
e Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

ssign	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
	50	1	0.00	12.00	10	10.00	0.94

ype: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.30	FLUORIDE	0.293	2291	21696	1	8.66
3.03	CHLORIDE	0.216	2412	20035	1	0.55
0.00	NITRITE	0.000	0	0	0	0.00
0.00	BROMIDE	0.000	0	0	0	0.00
5.53	NITRATE	-0.019	664	8216	1	3.75
0.00	PHOSPHATE	0.000	0	0	0	0.00
8.63	SULFATE	0.695	2956	63900	1	0.78
	Totals	1.186	8323	113846		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.30	FLUORIDE	0.293	2291	21696	1	8.66
3.03	CHLORIDE	0.216	2412	20035	1	0.55
5.53	NITRATE	-0.019	664	8216	1	3.75
8.63	SULFATE	0.695	2956	63900	1	0.78
	Totals	1.186	8323	113846		

********** Components Not Found In This Run **********

	Adjusted Ret Time	Reference Peak
E	3.62	0
E	4.57	0
ATE	7.13	0

********** Peak Report: All Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta

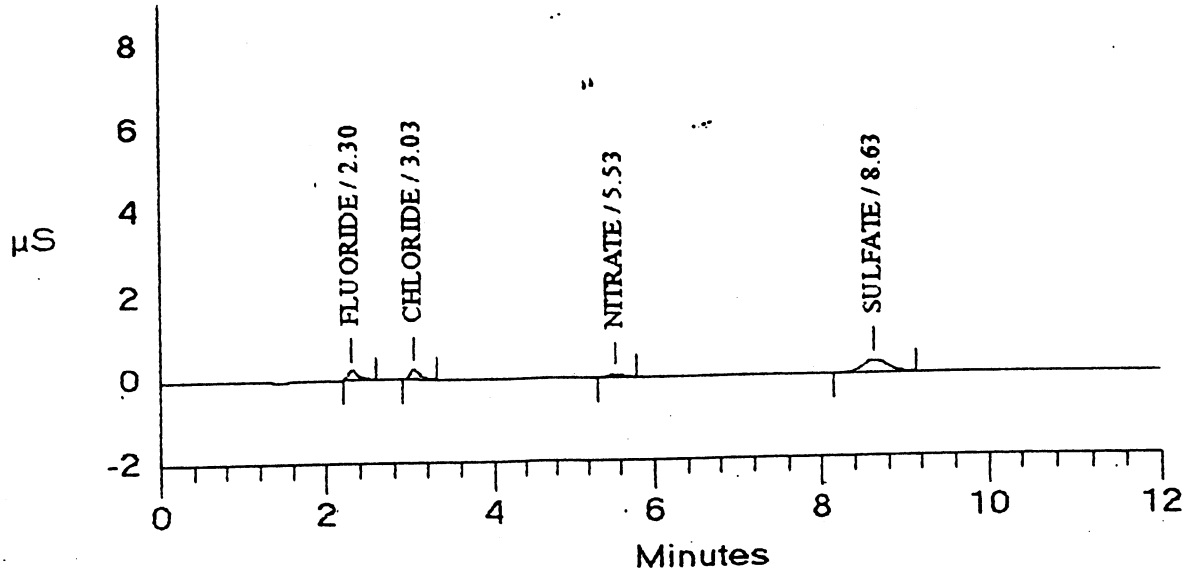
le: \peaknet\schedule\12079901.sch
e 4.30 Page 1 of 2 12/7/99 10:38:45 PM

2.30	FLUORIDE	0.293	2291	21696	1	8.66
3.03	CHLORIDE	0.216	2412	20035	1	0.55
5.53	NITRATE	-0.019	664	8216	1	3.75
8.63	SULFATE	0.695	2956	63900	1	0.78
	Totals	1.186	8323	113846		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079059.DXD Sample METH BLK - B01



File :	C:\PEAKNET\DATA\12079060.DXD	Report Date:	12/7/99 10:52:20 PM
e Name:	IPC - B02	Collected :	12/7/99 10:40:13 PM
t # :	60	Vial # :	B02
d File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
m Name:	ANIONS	Detector :	CD20
n Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
e Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
	50	1	0.00	12.00	10	10.00	0.94

type: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

..... Component Report: All Components **********

Time	Name	MG/L				
2.10	FLUORIDE	4.782	84931	718673	1	-0.79
3.02	CHLORIDE	4.821	65730	548543	2	0.00
3.65	NITRITE	4.995	30410	334093	2	0.92
4.65	BROMIDE	5.023	18843	228424	2	1.82
5.47	NITRATE	4.972	20334	299782	2	2.50
7.20	PHOSPHATE	4.912	6311	135969	1	0.93
8.60	SULFATE	4.966	18154	397755	1	0.39
	Totals	34.470	244713	2663240		

********** Component Report: Components Found **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	4.782	84931	718673	1	-0.79
3.02	CHLORIDE	4.821	65730	548543	2	0.00
3.65	NITRITE	4.995	30410	334093	2	0.92
4.65	BROMIDE	5.023	18843	228424	2	1.82
5.47	NITRATE	4.972	20334	299782	2	2.50
7.20	PHOSPHATE	4.912	6311	135969	1	0.93
8.60	SULFATE	4.966	18154	397755	1	0.39
	Totals	34.470	244713	2663240		

********** Peak Report: All Peaks **********

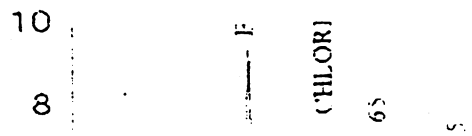
Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
2.10	FLUORIDE	4.782	84931	718673	1	-0.79
3.02	CHLORIDE	4.821	65730	548543	2	0.00
3.65	NITRITE	4.995	30410	334093	2	0.92
4.65	BROMIDE	5.023	18843	228424	2	1.82
5.47	NITRATE	4.972	20334	299782	2	2.50
7.20	PHOSPHATE	4.912	6311	135969	1	0.93

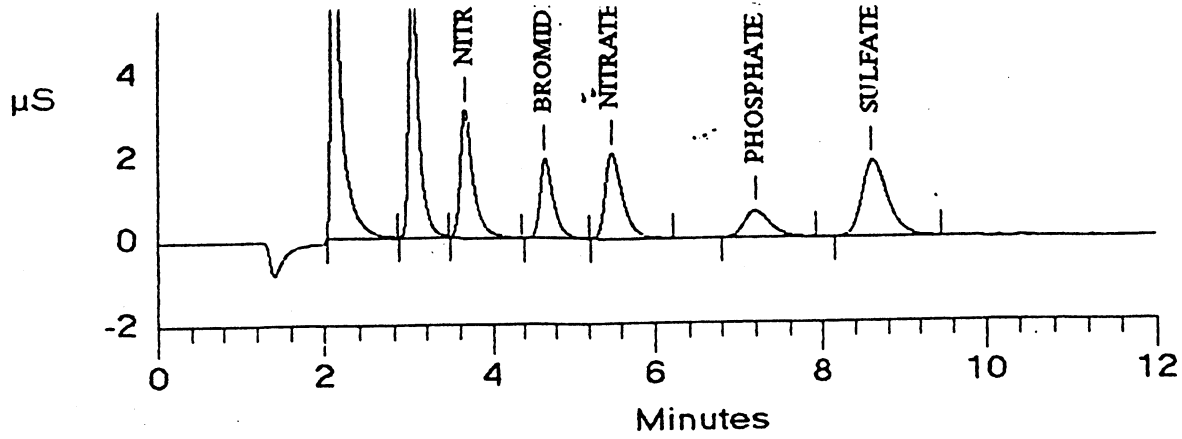
8.60	SULFATE	4.966	18154	397755	1	0.39
	Totals	34.470	244713	2663240		

********** Peak Report: Unknown Peaks **********

Ret Time	Component Name	Concentration MG/L	Height	Area	Bl. Code	%Delta
	Totals	0.000	0	0		

File: 12079060.DXD Sample IPC - B02





le: \peaknet\schedule\12079901.sch
e, 4.30 Page 2 of 2 12/7/99 10:52:21 PM

File :	C:\PEAKNET\DATA\12079061.DXD	Report Date:	12/7/99 11:06:02 PM
e Name:	1384286 - C07	Collected :	12/7/99 10:53:55 PM
t # :	61	Vial # :	C07
d File:	c:\peaknet\method\acidscan.met	Calibrated :	12/7/99 10:49:52 AM
m Name:	ANIONS	Detector :	CD20
n Type:		Operator :	DK
Points:	3600	Rate :	5.00 Hz
e Name:	S/N 96020568 ID:24 Of 15	Moduleware :	1.17

ation	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
al	50	1	0.00	12.00	10	10.00	0.94

ype: Savitsky-Golay Size:5 points (1.0 sec) 1 iteration(s)

Component Report: All Components

- Component	Concentration	Height	Area	Bl.	%Delta

ONTARIO HYDRO SAMPLES ANALYTICAL REPORT

PHILIP
ANALYTICAL SERVICES

INDUSTRIAL HYGIENE **ENVIRONMENTAL TESTING**

• EPA/NVLAP 101262-0
• AIHA ACCREDITATION NO. 100439
• NY DOH 10903
• PA DER 06-353
• NJ DEP 77678

January 27, 2000

Jack Mills
Roy F. Weston, Inc.
Weston Way
West Chester PA 19380-1499

Laboratory Project: 188322
Client Reference: Cogentrix, Rocky Mount
WO #12257.001.001 Ontario Hydro Method

Dear Mr. Mills:

The samples which were logged in on 24-NOV-99 have been analyzed as requested. The analytical results are enclosed in the attached report.

Please note that any unused portion of the samples will be disposed after 05-JAN-00, unless you have requested otherwise.

Thank you for the opportunity to provide these services to you. If you have any questions concerning this report, please contact a Client Services representative at 610/921-8833.

Sincerely,

Fred Usbeck, CIH
Director, Laboratory Services

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

PHILIP ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

• EPA/NVLAP 101262-0 • NY DOH 10903 • NJ DEP 77678
• AIHA ACCREDITATION NO. 100439 • PA DER 06-353

ANALYTICAL REPORT

Client: Roy F. Weston, Inc.

Report to: Jack Mills
Roy F. Weston, Inc.
Weston Way
West Chester PA 19380-1499

Project: 188322
Received: 22-NOV-99
Reported: 04-FEB-00

PURCHASE ORDER: 0008272

Project Description: Cogentrix, Rocky Mount
WO #12257.001.001 Ontario Hydro Method

	RESULT	UNITS	METHOD	DATE	ANALYST
CORM-FGD-IN-1-OHM-16NOV1999-FILT (W132)					
Lab Sample: 1384089					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	< 0.02	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-FGD-IN-2-OHM-16NOV1999-FILT (W272, W274)					
Lab Sample: 1384095					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	0.120	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-FGD-IN-3-OHM-16NOV1999-FILT (W276)					
Lab Sample: 1384101					
sampled: 18-NOV-99					
Hg by Ont. Hydro Method, Draft	< 0.02	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-FGD-IN-BT-OHM-16NOV1999-FILT					
Lab Sample: 1384107					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	< 0.02	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-BH-OUT-1-OHM-16NOV1999-FILT (W133)					
Lab Sample: 1384113					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	0.022	ug/sample	Ont Hydro	30-NOV-99	JLP

PHILIP ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

• EPA/NVLAP 101262-0
• AIHA ACCREDITATION NO. 100439
• NY DOH 10903
• PA DER 06-353
• NJ DEP 77678

Client: Roy F. Weston, Inc.
Project: 188322

	RESULT	UNITS	METHOD	DATE	ANALYST
CORM-BH-OUT-2-OHM-16NOV1999-FILT (W273)					
Lab Sample: 1384118					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	0.023	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-BH-OUT-3-OHM-16NOV1999-FILT (W275)					
Lab Sample: 1384123					
sampled: 18-NOV-99					
Hg by Ont. Hydro Method, Draft	< 0.02	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-BH-OUT-SB-OHM-16NOV1999-FILT					
Lab Sample: 1384128					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	< 0.02	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-BH-OUT-BT-OHM-16NOV1999-FILT					
Lab Sample: 1384133					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	< 0.02	ug/sample	Ont Hydro	30-NOV-99	JLP
CORM-BH-OUT-SB-OHM-16NOV1999-Thimble					
Lab Sample: 1384138					
sampled: 17-NOV-99					
Hg by Ont. Hydro Method, Draft	< 0.02	ug/sample	Ont Hydro	30-NOV-99	JLP

< Indicates less than the limit of quantitation.

Cogentrix 188322

Lab Tracking Number

Chain-of-Custody Record/Lab Work Request

WESTON

Client	Cogentrix, Rocky Mount		
Work Order Number	12257.001.001	Phone Number	610-701-7245
Contact Person	Jack Mills	Turn Around Time	Standard

Lab ID	Field Sample ID	Sample Collection Date	Analysis		Filter or Thimble ID		Sample Check-off
	CORM - FGD - IN - 1 - OHM - 16NOV1999 - FHHNO3	11/17/99	OHM			<	
	CORM - FGD - IN - 1 - OHM - 16NOV1999 - FILT		OHM		W132	4.1	
	CORM - FGD - IN - 1 - OHM - 16NOV1999 - BHKCL		OHM			<.10	
	CORM - FGD - IN - 1 - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - FGD - IN - 1 - OHM - 16NOV1999 - BHKMNO4		OHM			<.10	
	CORM - FGD - IN - 2 - OHM - 16NOV1999 - FHHNO3		OHM	2 of 2			
	CORM - FGD - IN - 2 - OHM - 16NOV1999 - FILT		OHM		W272+W274	3.9	
	CORM - FGD - IN - 2 - OHM - 16NOV1999 - BHKCL		OHM			.34	
	CORM - FGD - IN - 2 - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - FGD - IN - 2 - OHM - 16NOV1999 - BHKMNO4		OHM			.78	
	CORM - FGD - IN - 3 - OHM - 16NOV1999 - FHHNO3	11/18/99	OHM				
	CORM - FGD - IN - 3 - OHM - 16NOV1999 - FILT		OHM		W276	3.3	
	CORM - FGD - IN - 3 - OHM - 16NOV1999 - BHKCL		OHM			<.10	
	CORM - FGD - IN - 3 - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - FGD - IN - 3 - OHM - 16NOV1999 - BHKMNO4		OHM			<.10	
jn	~~CORM - FGD - IN - SB - OHM - 16NOV1999 - KCl~~	~~11/17/99~~	OHM				
jn	~~CORM - FGD - IN - SB - OHM - 16NOV1999 - FILT~~		OHM				
jn	~~CORM - FGD - IN - SB - OHM - 16NOV1999 - BHKMNO4~~		OHM				
jn	~~CORM - FGD - IN - SB - OHM - 16NOV1999 - HNO3/H2O2~~		OHM				
jn	~~CORM - FGD - IN - SB - OHM - 16NOV1999 - HNO3~~		OHM				
	CORM - FGD - IN - BT - OHM - 16NOV1999 - FHHNO3	11/17/99	OHM				
	CORM - FGD - IN - BT - OHM - 16NOV1999 - FILT		OHM			<.070	
	CORM - FGD - IN - BT - OHM - 16NOV1999 - BHKCL		OHM			<.10	
	CORM - FGD - IN - BT - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - FGD - IN - BT - OHM - 16NOV1999 - BHKMNO4		OHM			<.10	
	Corm-FGD-IN-1-OHM-16NOV1999-Thimble	11/17/99	OHM		W14+W15+W16+W20		
	Corm-FGD-IN-2-OHM-16NOV1999-Thimble		OHM		W21+W22+W24+W25		
	Corm-FGD-IN-3-OHM-16NOV1999-Thimble	11/18/99	OHM		W26+W27		
	Corm-FGD-IN-BT-OHM-16NOV1999-Thimble	11/17/99	OHM				

Notes: OHM - Speciated Mercury Analysis per Ontario Hydro Method

Note: multiple thimbles and a filter collected at Inlet for each test run. Representative portion of each thimble must be obtained and combined with filter for ea

Relinquished By	Received By	Date	Time
Jack Mills	[illegible]	11/22/99	11:15
A.S.	[illegible]	11/22/99	1500

Lab Use Only			
Shipper PAS	Air Bill #	ea	
Opened By NAG	Date/Time		
Temp °C 22	Condition	intact	
Custody Seals: (Yes) No None N/A			

Laboratory Comments: packing tape secure on each top and each sample jar. [illegible] 11/22/99

Copyright Roy F Weston Inc Jan 1999PV

Lab Tracking Number

Cogentrix 188322

Chain-of-Custody Record/Lab Work Request

WESTON

Client	Cogentrix, Rocky Mount		
Work Order Number	12257.001.001	Phone Number	610-701-7245
Contact Person	Jack Mills	Turn Around Time	Standard

Lab ID	Field Sample ID	Sample Collection Date	Analysis		Filter ID #		Sample Check-off
	CORM - BH - OUT - 1 - OHM - 16NOV1999 - FHHNO3	11/17/99	OHM			.1093	
	CORM - BH - OUT - 1 - OHM - 16NOV1999 - FILT		OHM		W133	Jen	
	CORM - BH - OUT - 1 - OHM - 16NOV1999 - BHKCL		OHM			<.10	
	CORM - BH - OUT - 1 - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - BH - OUT - 1 - OHM - 16NOV1999 - BHKMNO4		OHM			<.10	
	CORM - BH - OUT - 2 - OHM - 16NOV1999 - FHHNO3		OHM			.033	
	CORM - BH - OUT - 2 - OHM - 16NOV1999 - FILT		OHM		W273		
	CORM - BH - OUT - 2 - OHM - 16NOV1999 - BHKCL		OHM			<.10	
	CORM - BH - OUT - 2 - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - BH - OUT - 2 - OHM - 16NOV1999 - BHKMNO4		OHM			<.10	
	CORM - BH - OUT - 3 - OHM - 16NOV1999 - FHHNO3	11/18/99	OHM			<.010	
	CORM - BH - OUT - 3 - OHM - 16NOV1999 - FILT		OHM		W275		
	CORM - BH - OUT - 3 - OHM - 16NOV1999 - BHKCL		OHM			<.10	
	CORM - BH - OUT - 3 - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - BH - OUT - 3 - OHM - 16NOV1999 - BHKMNO4		OHM			<.10	
	CORM - BH - OUT - SB - OHM - 16NOV1999 - KCl	11/17/99	OHM			<.10	
	CORM - BH - OUT - SB - OHM - 16NOV1999 - FILT		OHM				
	CORM - BH - OUT - SB - OHM - 16NOV1999 - KMNO4		OHM			<.10	
	CORM - BH - OUT - SB - OHM - 16NOV1999 - HNO3/H2O2		OHM			<.25	
	CORM - BH - OUT - SB - OHM - 16NOV1999 - HNO3 0.1N		OHM			.075	
	CORM - BH - OUT - BT - OHM - 16NOV1999 - FHHNO3		OHM			.043	
	CORM - BH - OUT - BT - OHM - 16NOV1999 - FILT		OHM				
	CORM - BH - OUT - BT - OHM - 16NOV1999 - BHKCL		OHM			<.10	
	CORM - BH - OUT - BT - OHM - 16NOV1999 - BHHNO3		OHM			<.25	
	CORM - BH - OUT - BT - OHM - 16NOV1999 - BHKMNO4		OHM			<.10	
	CORM - BH - OUT - SB - OHM - 16NOV1999 - HNO3 10%		OHM				
	CORM - BH - OUT - SB - OHM - 16NOV1999 - Thimble		OHM				

Notes: OHM - Speciated Mercury Analysis per Ontario Hydro Method

Relinquished By	Received By	Date	Time	Lab Use Only	
[signature]	[signature]	11/22/99	11:15	Shipper PAS	Air Bill #
AS	[signature]	11/22/99	1500	Opened By NAG	Date/Time
				Temp °C 22	Condition intact
				Custody Seals: Yes No None N/A	

Laboratory Comments: packing tape secure on each box and each sample jar. [signature] 11/22/99

Copyright Roy F Weston Inc Jan 1999PV

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Bottle Type (G P IH)											
# of Containers											
Preserved? (Y/N)											

Report Results To:

PO # 5002-188322 Job ID Weston, Inc.
Name Pam Peters
Company PAS/Reading
Mailing Address see above
City State ZIP
Telephone # Fax #

Sub: PAS/Burlington

Send Invoice To:

Name Telephone #
Company SAIC Pept.
Mailing Address
City State ZIP
Credit Card # Exp. Date

Analysis Requested ⇨ Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 1 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	~~Air Vol (l or min)~~	Matrix Type	Date Sampled	Time Sampled		Comments/Hazards/ Location Details
1	1384088-188322	FH, HNO3	liquid	11/17/99	Inlet one	X	Rslts due 12/6/99 (or ASAP)
2	1384090-	BH, KCL				X	
3	1384091-	BH, HNO3				X	
4	1384092-	BH, KMnO4				X	#W14, W15, W16 + W20
5	1384093-	Thimbles				X	
6	1384094-	FH, HNO3			Inlet 2	X	
7	1384096-	BH, KCL				X	
8	1384097-	BH, HNO3				X	
9	1384098-	BH, KMnO4				X	#W21, W22, W24, W25
10	1384099-	Thimbles				X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt Date 12/6/99 Time PM
Samples received by: Date Time

Samples Relinquished by: Samples Relinquished to: Date Time
Samples Relinquished by: Samples Relinquished to Laboratory: Date Time

Method of Shipment/Delivery: UPS (RED-EX) PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading
phone: (610) 921-8833 fax: (610) 921-9667

PO # 5002 – 188322	Job ID Weston, Inc.
Report Results To: Name	Pam Peters
Company	PAS/Reading
Mailing Address	See above
City	State ZIP
Telephone #	Fax #
Send Invoice To: Name	Telephone #
Company	SMM Dept.
Mailing Address	
City	State ZIP
Credit Card #	Exp. Date

Sub: PAS/Burlington

Analysis Requested

Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 2 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	~~Air Vol (L or min)~~	Matrix Type	Date Sampled	Time Sampled	(G P H) # of Containers / Preserved? (Y/N)	Comments/Hazards/ Location Details
1	1384100 – 188322	11/18/99	liquid	FHHNO3		X	Rslts due 12/6/99 (or ASAP)
2	-102-			BHKCl	Inlet	X	
3	-103-			BHHNO3		X	
4	-104-			BHKMNO4	3	X	# W26, W-27
5	-105-			Thimbles		X	
6	-106-	11/17/99		FHHNO3		X	
7	-108-			BHKCl	Inlet "BT"	X	
8	-109-			BHHNO3		X	
9	-110-			BHKMNO4		X	
10	-111-			Thimble		X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time PM	
Samples received by:	Date	Time	

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA
phone: (610) 921-8833 fax: (610) 921-9667

Report Results To:	PO # 5002-188322 Job ID Weston, Inc.
	Name Pam Peters
	Company PAS/Reading
	Mailing Address See above
	City State ZIP
	Telephone # Fax #
Send Invoice To:	Name Telephone #
	Company SMT Dept.
	Mailing Address
	City State ZIP
	Credit Card # Exp. Date

Sub: PAS/Burlington

Analysis Requested

Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 3 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled		Comments/Hazards/ Location Details
1	1384112-188322	FHHNO3	liquid	11/17/99		X	Rslts due 12/6/99 (or ASAP)
2	-114-	BHKCl			OUT 1	X	
3	-115-	BHHNO3				X	
4	-116-	BHKMNO4				X	
5	-117-	FHHNO3			OUT 2	X	
6	-119-	BHKCl				X	
7	-120-	BHHNO3				X	
8	-121-	BHKMNO4				X	
9	-122-	FHHNO3		11/18/99	OUT 3	X	
10	-124-	BHKCl				X	

(G P IH)
# of Containers
Preserved? (Y/N)

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time P.M.	Samples Relinquished by: / Samples Relinquished to:	Date	Time
Samples received by:	Date	Time	Samples Relinquished by: / Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS (RED-EX) PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike
phone: (610) 921-8833 fax: (610) 921-9667

PO # 5002-188322	Job ID Weston, Inc.
Report Results To: Name	Pam Peters
Company	PAS/Reading
Mailing Address	See above
City	State ZIP
Telephone #	Fax #
Send Invoice To: Name	Telephone #
Company	SMM Dept.
Mailing Address	
City	State ZIP
Credit Card #	Exp. Date

Sub: PAS/Burlington

Analysis Requested

	Mercury by Ontario Hydro Method
# of Containers	
Preserved? (Y/N)	

Prj # 188322 + 188323

Page 4 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384125-188322	BH HNO3	liquid	11/18/99	OUT 3	X	Rslts due 12/6/99 (or ASAP)
2	-126-	BH KMNO4				X	
3	-127-	KCL		11/17/99		X	
4	-129-	KMNO4			OUT-SB	X	
5	-130-	HNO3/H2O2				X	
6	-131-	01 N HNO3				X	
7	-132-	FH HNO3			OUT-BT	X	
8	-134-	BH KCl				X	
9	-135-	BH HNO3				X	
10	-136-	BH KMNO4				X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time PM	
Samples received by:	Date	Time	

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____

Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)

VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA
phone: (610) 921-8833 fax: (610) 921-9667

PO # 5002-188322	Job ID Weston, Inc.
Report Results To: Name	Pam Peters
Company	PAS/Reading
Mailing Address	see above
City	State ZIP
Telephone #	Fax #
Send Invoice To: Name	Telephone #
Company	SMM Dept.
Mailing Address	
City	State ZIP
Credit Card #	Exp. Date

Sub: PAS/Burlington

Analysis Requested

Proj # 188322 + 188323

Page 5 of 9

PAS Quote#

	SAMPLE DESCRIPTION (Sampled by:)	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384137-188322	10% HNO3	liquid	11/17/99	OUT-SB	X	Rslts due 12/6/99 (or ASAP)
2	1384139-188323	FHHNO3		11/10/99		X	#W7+W8
3	-140-	filters			IN-1	X	
4	-141-	BHKCl				X	
5	-142-	BHHNO3				X	
6	-143-	BHKMNO4				X	
7	-144-	FHHNO3		11/11/99		X	#W9, W10, W11
8	-145-	filters			IN-2	X	
9	-146-	BHKCl				X	
10	-147-	BHHNO3				X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time P.M	
Samples received by:	Date	Time	
Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS RED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA
phone: (610) 921-8833 fax: (610) 921-9667

(G P H)	
# of Containers	
Preserved? (Y/N)	

Report Results To:

PO # 5002 - 188322 Job ID Weston, Inc.
Name Pam Peters
Company PAS/Reading
Mailing Address see above
City State ZIP
Telephone # Fax #

Sub: PAS/Burlington

Send Invoice To:

Name Telephone #
Company SMT Dept.
Mailing Address
City State ZIP
Credit Card # Exp. Date

Analysis Requested ⇨ Mercury by Ontario Hydro Method

Prj # 188322 + 188323

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PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384148 - 188323	BHKMN04	liquid	11/11/99	IN-2	X	Rslts due 12/6/99 (or ASAP)
2	-149-	FHHNO3				X	#W12, W13
3	-150-	filters			IN-3	X	
4	-151-	BHKCl				X	
5	-152-	BHHNO3				X	
6	-153-	BHKMNO4				X	
7	-154-	KCl				X	
8	-155-	Thimble			IN-5B	X	
9	-156-	KMNO4				X	
10	-157-	HNO3/H2O2				X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "Oi" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time P.M.	
Samples received by:	Date	Time	

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS (FED-EX) PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes:

ANALYTICAL SERVICES

4418 Pottsville Pike
phone: (610) 921-8833 fax: (610) 921-9667

PO # 5002-188322	Job ID Weston, Inc.
Report Results To: Name	Pam Peters
Company	PAS/Reading
Mailing Address	see above
City	State ZIP
Telephone #	Fax #
Send Invoice To: Name	Telephone #
Company	SAIC Pept.
Mailing Address	
City	State ZIP
Credit Card #	Exp. Date

Sub: PAS/Burlington

Analysis Requested

	(G P IH)																
	# of Containers																
	Preserved? (Y/N)																
Sampled by:																	
SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method												Comments/Hazards/ Location Details
1 1384158-188323	HNO3	liquid	11/11/99	IN-SB	X												Rslts due 12/6/99 (or ASAP)
2 -159-	10% HNO3				X												
3 -161-	FH HNO3				X												
4 -162-	GlkR			IN-BT	X												
5 -163-	BHKCl				X												
6 -164-	BHHNO3				X												
7 -165-	BHKMNO4		11/11/99		X												
8 -166-	FH HNO3		11/10/99	ESPO-STK-1	X												
9 -168-	BHKCl				X												
10 -169-	BHHNO3				X												

Prj # 188322 + 188323

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PAS Quote#

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Freemanzel	Date 12/6/99	Time P.M.	
Samples received by:	Date	Time	

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS (FED-EX) PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____

Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)

VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA
phone: (610) 921-8833 fax: (610) 921-9667

PO # 5022-188322	Job ID Weston, Inc.
Report Results To: Name	Pam Peters
Company	PAS/Reading
Mailing Address	See above
City	State ZIP
Telephone #	Fax #
Send Invoice To: Name	Telephone #
Company	SAIC Pept.
Mailing Address	
City	State ZIP
Credit Card #	Exp. Date

Sub: PAS/Burlington

Prj # 188322 + 188323

Page 8 of 9

PAS Quote#

Analysis Requested

	(G P H)	
	# of Containers	
	Preserved? (Y/N)	

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384170-188323	BHKMN04	liquid	11/10/99	STK-1	X	Rslts due 12/6/99 (or ASAP)
2	-171-	PHHNO3		11/11/99		X	
3	-173-	BHKCl				X	
4	-174-	BHHNO3			STK-2	X	
5	-175-	BHKMN04				X	
6	-176-	PHHNO3				X	
7	-178-	BHKCl			STK3	X	
8	-179-	BHHNO3				X	
9	-180-	BHKMN04		11/11/99		X	
10	-181-	PHHNO3		11/10/99	STK-BT	X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time P.M.	
Samples received by:	Date	Time	

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time

Method of Shipment/Delivery: UPS (RED-EX) PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Bottle Type (G P H)											
# of Containers											
Preserved? (Y/N)											

Report Results To:

PO # 5002-188322 Job ID Weston, Inc.
Name Pam Peters
Company PAS/Reading
Mailing Address see above
City State ZIP
Telephone # Fax #

Sub: PAS/Burlington

Send Invoice To:

Name Telephone #
Company SAMP Dept.
Mailing Address
City State ZIP
Credit Card # Exp. Date

Analysis Requested: Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 9 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384183-188323	BHKCl	liquid	11/10/99	STK-BT	X	Rslts due 12/6/99 (or ASAP)
2	-184-	BHHNO3				X	
3	-185-	BHKMNO4				X	
4							
5							
6							
7							
8							
9							
10							

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenauer	Date 12/6/99	Time PM
Samples received by:	Date	Time

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory: PASL	991207	12:00

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

PHILIP
ANALYTICAL SERVICES

Certificate of Analysis

CLIENT INFORMATION

Attention: Pamela Peters
Client Name: Philip Analytical Services Inc
Project: Misc.
Project Desc:

Address: 4418 Pottsville Pike
Reading, Pennsylvania
19605
Fax Number: 610 921-8407
Phone Number: 610 921-8833

LABORATORY INFORMATION

Contact: Ada Blythe, B.Sc., C.Chem.
Project: AN970416
Date Received: 99/12/07
Date Reported: 00/01/17

Submission No.: 9L0253
Sample No.: 073507-073515

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

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

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

COMMENTS:

Certified by: _____

4418 Pottsville Pike, Reading, PA 19605 (610) 921-8833 (610) 921-9667 fax

PASC - Certificate of Analysis

	Client ID:		Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	RM FGD Inlet-BT	RM FGD Inlet-R1	RM FGD Inlet-R1	RM FGD Inlet-R1
	Lab No.:		073483 99	073483 99	073483 99	073483 99	073483 99	073507 99	073508 99	073508 99	073508 99
	Date Sampled:		-	-	-	-	-	99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**			% Recoveries		% Recoveries			Duplicate	M. Spike
Mercury - filter	0.010	ug	<	0.10	100	0.10	100	<0.070	4.1	4.1	7.4
Mercury - KCl	0.030	"	<0.10	0.31	100	0.31	100	<0.10	<0.10	<0.10	1.0
Mercury - KMnO4	0.030	"	<	0.29	97	0.29	97	<0.10	<0.10	<0.10	0.98
Mercury - H202	0.010	"	<	0.10	100	0.10	100	<0.25	<0.25	<0.25	2.6
Mercury - probe rinse	0.010	"	<	0.10	100	0.10	100	-	-	-	-

PASC - Certificate of Analysis

	Client ID:		RM FGD Inlet-R1	RM FGD Inlet-R1	RM FGD Inlet-R1	RM FGD Inlet-R2	RM FGD Inlet-R3
	Lab No.:		073508 99	073508 99	073508 99	073509 99	073510 99
	Date Sampled:		99/11/17	99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - filter	0.010	ug	95	7.4	93	3.9	3.3
Mercury - KCl	0.030	"	95	1.0	95	0.34	<0.10
Mercury - KMnO4	0.030	"	96	0.97	96	0.78	<0.10
Mercury - H202	0.010	"	100	2.4	97	<0.25	<0.25
Mercury - probe rinse	0.010	"	-	-	-	-	-

PASC - Certificate of Analysis

	Client ID:		RM BH Outlet-SB	RM BH Outlet-BT	RM BH Outlet-R1	RM BH Outlet-R1
	Lab No.:		073484 99	073485 99	073486 99	073486 99
	Date Sampled:		99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**				Duplicate
Mercury - KCl	0.030	ug	<0.10	<0.10	<0.10	<0.10
Mercury - KMnO4	0.030	"	<0.10	<0.10	<0.10	<0.10
Mercury - H202	0.010	"	<0.25	<0.25	<0.25	<0.25
Mercury - probe rinse	0.010	"	0.075	0.043	0.093	0.092

PASC - Certificate of Analysis

	Client ID:		RM BH Outlet-R1	RM BH Outlet-R1	RM BH Outlet-R1	RM BH Outlet-R1	RMbHH Outlet R2	RM BH Outlet-R3
	Lab No.:		073486 99	073486 99	073486 99	073486 99	073487 99	073488 99
	Date Sampled:		99/11/17	99/11/17	99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - KCl	0.030	ug	1.1	110	1.1	110	<0.10	<0.10
Mercury - KMnO4	0.030	"	0.89	89	0.92	92	<0.10	<0.10
Mercury - H202	0.010	"	2.6	110	2.6	100	<0.25	<0.25
Mercury - probe rinse	0.010	"	0.19	92	0.19	92	0.033	<

PASC - Summary of Analysis Pre. Dates

Batch Code:	**01171NFT**	
Mercury - filter	073507 99	
	073508 99	
	073509 99	
	073510 99	
	073512 99	
	073513 99	
	073514 99	
	073515 99	
Run Date:	00/01/17	
Date of Sample Prep:	00/01/17	
Batch Code:	**01072NKC**	
Mercury - KCl	073507 99	
	073508 99	
	073509 99	
	073510 99	
	073511 99	
	073512 99	
	073513 99	
	073514 99	
	073515 99	
Run Date:	00/01/07	
Date of Sample Prep:	00/01/07	
Batch Code:	**01092NMN**	**01092NMN**
Mercury - KMnO4	073507 99	073514 99
	073508 99	
	073509 99	
	073510 99	
	073511 99	
	073512 99	
	073513 99	
	073515 99	
Run Date:	00/01/09	00/01/10
Date of Sample Prep:	00/01/09	00/01/09
Batch Code:	**01072GPO**	
Mercury - H202	073507 99	
	073508 99	
	073509 99	
	073510 99	
	073511 99	
	073512 99	
	073513 99	
	073514 99	
	073515 99	
Run Date:	00/01/07	

PASC - Summary of Analysis Pre. Dates

Date of Sample Prep:	00/01/07
Batch Code:	**01171N1B**
Mercury - probe rinse	073511 99
Run Date:	00/01/17
Date of Sample Prep:	00/01/17

Tupstone

PHILIP SERVICES

DATA PACKAGE
FOR
Philip Analytical
Project # 188322

Philip Analytical Services
5555 North Service Road
Burlington, Ontario
L7L 5H7
905-332-8788

Submission # 9LC23

Approved by : Ada Blythe – Project Manager

Initial:

1.0 CASE NARRATIVE

PROJECT NARRATIVE

PHILIP Analytical Services (Burlington ON)
Philip Project: 188322
Philip Submission #:9L0253

Client: **Philip Analytical Services Inc**
Client Project:

I. SAMPLE RECEIPT/ANALYSIS
a) Sample Listing

Philip ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Run Date
Mercury - Ontario - Front Half					
73507 99	RM FGD Inlet-BT	99/11/17	99/12/07	00/01/17	00/01/17
73508 99	RM FGD Inlet-R1	99/11/17	99/12/07	00/01/17	00/01/17
73509 99	RM FGD Inlet-R2	99/11/17	99/12/07	00/01/17	00/01/17
73510 99	RM FGD Inlet-R3	99/11/17	99/12/07	00/01/17	00/01/17
Mercury - Ontario Hydro - KCL					
73484 99	RM BH Outlet-SB	99/11/17	99/12/07	00/01/07	00/01/07
73485 99	RM BH Outlet-BT	99/11/17	99/12/07	00/01/07	00/01/07
73486 99	RM BH Outlet-R1	99/11/17	99/12/07	00/01/07	00/01/07
73487 99	RM BH Outlet-R2	99/11/17	99/12/07	00/01/07	00/01/07
73488 99	RM BH Outlet-R3	99/11/17	99/12/07	00/01/07	00/01/07
73507 99	RM FGD Inlet-BT	99/11/17	99/12/07	00/01/07	00/01/07
73508 99	RM FGD Inlet-R1	99/11/17	99/12/07	00/01/07	00/01/07
73509 99	RM FGD Inlet-R2	99/11/17	99/12/07	00/01/07	00/01/07
73510 99	RM FGD Inlet-R3	99/11/17	99/12/07	00/01/07	00/01/07
Mercury - Ontario Hydro - Permangnate					
73484 99	RM BH Outlet-SB	99/11/17	99/12/07	00/01/09	00/01/10
73485 99	RM BH Outlet-BT	99/11/17	99/12/07	00/01/09	00/01/10
73486 99	RM BH Outlet-R1	99/11/17	99/12/07	00/01/09	00/01/10
73487 99	RM BH Outlet-R2	99/11/17	99/12/07	00/01/09	00/01/10
73488 99	RM BH Outlet-R3	99/11/17	99/12/07	00/01/09	00/01/09
73507 99	RM FGD Inlet-BT	99/11/17	99/12/07	00/01/09	00/01/09
73508 99	RM FGD Inlet-R1	99/11/17	99/12/07	00/01/09	00/01/09
73509 99	RM FGD Inlet-R2	99/11/17	99/12/07	00/01/09	00/01/09
73510 99	RM FGD Inlet-R3	99/11/17	99/12/07	00/01/09	00/01/09

Mercury - Ontario Hydro - Nitric/Peroxide

73484 99	RM BH Outlet-SB	99/11/17	99/12/07	00/01/07	00/01/07
73485 99	RM BH Outlet-BT	99/11/17	99/12/07	00/01/07	00/01/07
73486 99	RM BH Outlet-R1	99/11/17	99/12/07	00/01/07	00/01/07
73487 99	RM BH Outlet-R2	99/11/17	99/12/07	00/01/07	00/01/07
73488 99	RM BH Outlet-R3	99/11/17	99/12/07	00/01/07	00/01/07
73507 99	RM FGD Inlet-BT	99/11/17	99/12/07	00/01/07	00/01/07
73508 99	RM FGD Inlet-R1	99/11/17	99/12/07	00/01/07	00/01/07
73509 99	RM FGD Inlet-R2	99/11/17	99/12/07	00/01/07	00/01/07
73510 99	RM FGD Inlet-R3	99/11/17	99/12/07	00/01/07	00/01/07

Mercury - Ontario Hydro - Probe Rinse

73484 99	RM BH Outlet-SB	99/11/17	99/12/07	00/01/10	00/01/10
73485 99	RM BH Outlet-BT	99/11/17	99/12/07	00/01/10	00/01/10
73486 99	RM BH Outlet-R1	99/11/17	99/12/07	00/01/10	00/01/10
73487 99	RM BH Outlet-R2	99/11/17	99/12/07	00/01/10	00/01/10
73488 99	RM BH Outlet-R3	99/11/17	99/12/07	00/01/10	00/01/10

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis.

a) Hold Times:

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

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

KCl Impinger

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

KMnO4 Impinger

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

b) Instrument Calibration: all within control limits

c) Surrogate/Internal Recoveries: except where noted otherwise, 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.

Ada Blythe, Project Manager

00/01/26
Date

2.0 RAW DATA
a) DATA SUMMARY

- Method blank
- Surrogate recoveries
- Date analysed and prepped

PHILIP SERVICES

Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Pamela Peters	**Contact:**	Ada Blythe, B.Sc., C.Chem.
Client Name:	Philip Analytical Services Inc	**Project:**	AN970416
Project:	Misc.	**Date Received:**	99/12/07
Project Desc:		**Date Reported:**	00/01/11
Address:	4418 Pottsville Pike Reading, Pennsylvania 19605	**Submission No.:**	9L0253
		Sample No.:	073483-073492
Fax Number:	610 921-8407		
Phone Number:	610 921-8833		

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

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

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

COMMENTS:

Certified by:

Philip Analytical Services
5555 North Service Road Burlington Ontario Canada L7L 5H7 Tel: (905) 332-8788 Fax: (905) 332-9169

PASC - Certificate of Analysis

	Client ID:		Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	RM FGD Inlet-BT	RM FGD Inlet-R1	RM FGD Inlet-R1	RM FGD Inlet-R1
	Lab No.:		073483 99	073483 99	073483 99	073483 99	073483 99	073507 99	073508 99	073508 99	073508 99
	Date Sampled:		-	-	-	-	-	99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**			% Recoveries		% Recoveries			Duplicate	M. Spike
Mercury - filter	0.010	ug	<	0.10	100	0.10	100	<0.070	4.1	4.1	7.4
Mercury - KCl	0.030	"	<0.10	0.31	100	0.31	100	<0.10	<0.10	<0.10	1.0
Mercury - KMnO4	0.030	"	<	0.29	97	0.29	97	<0.10	<0.10	<0.10	0.98
Mercury - H202	0.010	"	<	0.10	100	0.10	100	<0.25	<0.25	<0.25	2.6
Mercury - probe rinse	0.010	"	<	0.10	100	0.10	100	-	-	-	-

00004

PASC - Certificate of Analysis

	Client ID:		RM FGD Inlet-R1	RM FGD Inlet-R1	RM FGD Inlet-R1	RM FGD Inlet-R2	RM FGD Inlet-R3
	Lab No.:		073508 99	073508 99	073508 99	073509 99	073510 99
	Date Sampled:		99/11/17	99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - filter	0.010	ug	95	7.4	93	3.9	3.3
Mercury - KCl	0.030	"	95	1.0	95	0.34	<0.10
Mercury - KMnO4	0.030	"	96	0.97	96	0.78	<0.10
Mercury - H202	0.010	"	100	2.4	97	<0.25	<0.25
Mercury - probe rinse	0.010	"	-	-	-	-	-

00005

PASC - Certificate of Analysis

	Client ID:		RM BH Outlet-SB	RM BH Outlet-BT	RM BH Outlet-R1	RM BH Outlet-R1
	Lab No.:		073484 99	073485 99	073486 99	073486 99
	Date Sampled:		99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**				Duplicate
Mercury - KCl	0.030	ug	<0.10	<0.10	<0.10	<0.10
Mercury - KMnO4	0.030	"	<0.10	<0.10	<0.10	<0.10
Mercury - H202	0.010	"	<0.25	<0.25	<0.25	<0.25
Mercury - probe rinse	0.010	"	0.075	0.043	0.093	0.092

00006

PASC - Certificate of Analysis

	Client ID:		RM BH Outlet-R1	RM BH Outlet-R1	RM BH Outlet-R1	RM BH Outlet-R1	RMbHH Outlet R2	RM BH Outlet-R3
	Lab No.:		073486 99	073486 99	073486 99	073486 99	073487 99	073488 99
	Date Sampled:		99/11/17	99/11/17	99/11/17	99/11/17	99/11/17	99/11/17
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - KCl	0.030	ug	1.1	110	1.1	110	<0.10	<0.10
Mercury - KMnO4	0.030	"	0.89	89	0.92	92	<0.10	<0.10
Mercury - H202	0.010	"	2.6	110	2.6	100	<0.25	<0.25
Mercury - probe rinse	0.010	"	0.19	92	0.19	92	0.033	<

3.0 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
073483	PHIL-PAR	MB R456	Mercury -	PV	-0.010	-99999.0	0.101	101.	0.101	101.	00/01/17	1NFT	00/01/17	MG01	61.	41.	
073507	PHIL-PAR	RM FGD Inlet-BT	Mercury -	PV	-0.070						00/01/17	1NFT	00/01/17	MG01	61.	41.	
073508	PHIL-PAR	RM FGD Inlet-R1	Mercury -	PV	4.076	4.121	7.417	95.	7.387	93.	00/01/17	1NFT	00/01/17	MG01	61.	41.	*PDS*
073509	PHIL-PAR	RM FGD Inlet-R2	Mercury -	PV	3.905						00/01/17	1NFT	00/01/17	MG01	61.	41.	
073510	PHIL-PAR	RM FGD Inlet-R3	Mercury -	PV	3.326						00/01/17	1NFT	00/01/17	MG01	61.	41.	
[redacted]																	
BL0117	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.101	101.	0.101	101.	00/01/17	1NFT	00/01/17	MG01	$$$	$$$	

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

00008

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.17 W Run Code: MG01 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			8L0117	INP		
13			"			
14			8L0117 S			
15			"			
16			8L0117 DS			
17			"			
18			73508			
19			"			
20			73508 D			
21			"			
22			73508 S			
23			"			
24			73508 DS			
25			"			
26			73507			
27			"			
28			73509			
29			"			
30			73510			
31			"			
32			CCV			
33			B			
34			D4			
35			73511			
36			"			
37			73512			
38			"			
39			73513			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			73514			
42			"			
43			73515			
44			"			
45			CCV			
46			B			
47			D4			
48						
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Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

ICV 60000 CCV = 1.0 ug/L, Blank Spike = 1.0 ug/L for liquid samples.

Blank Spike = 1.0 mg/kg for solid samples.

EPA 7470 WATER PREPARATION LOG - MERCURY

00010

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~~ THIMBLE & RINSE COMBINE
- ✓ ~~Acids added~~ 7ml HF & 5ml AQUAREGIA.
- ✓ ~~Reagents added~~ SIT OVERNIGHT
- ✓ ~~Samples spiked~~ SAMPLES BULKED &
- ✓ ~~Bath at 95 degrees C~~ SUBMITTED.
- ✓ ~~Samples digested~~
- ✓ ~~Hydroxylamine HCl added~~
- ✓ ~~Samples bulked and mixed~~
- ✓ Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	INIT	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 0117	"	"	"	"	(Processed Blank)
	11	BL 0117 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	73508	"	"	"	"	FINALVOL 3500 ml
1	13	73508 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	73507	"	"	"	"	700 ml
3	17	73509	"	"	"	"	3400 ml
4	18	73510	"	"	"	"	1800 ml
5	19	73511	"	"	"	"	NO THIMBLE SUBMIT. ONLY RINSE PROCESSED 100 ml
6	20	73512	"	"	"	"	700 ml
7	21	73513	"	"	"	"	7200 ml
8	22	73514	"	"	"	"	8000 ml
9	23	73515	"	"	"	"	7000 ml
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		"	"	"	"	

* 7ml HF & 5ml AQUA REGIA ADDED TO EVERY 5g OF PART WEIGHT * STANDARDS MATRIX MATCHED WITH HF & AQUA REGIA *

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

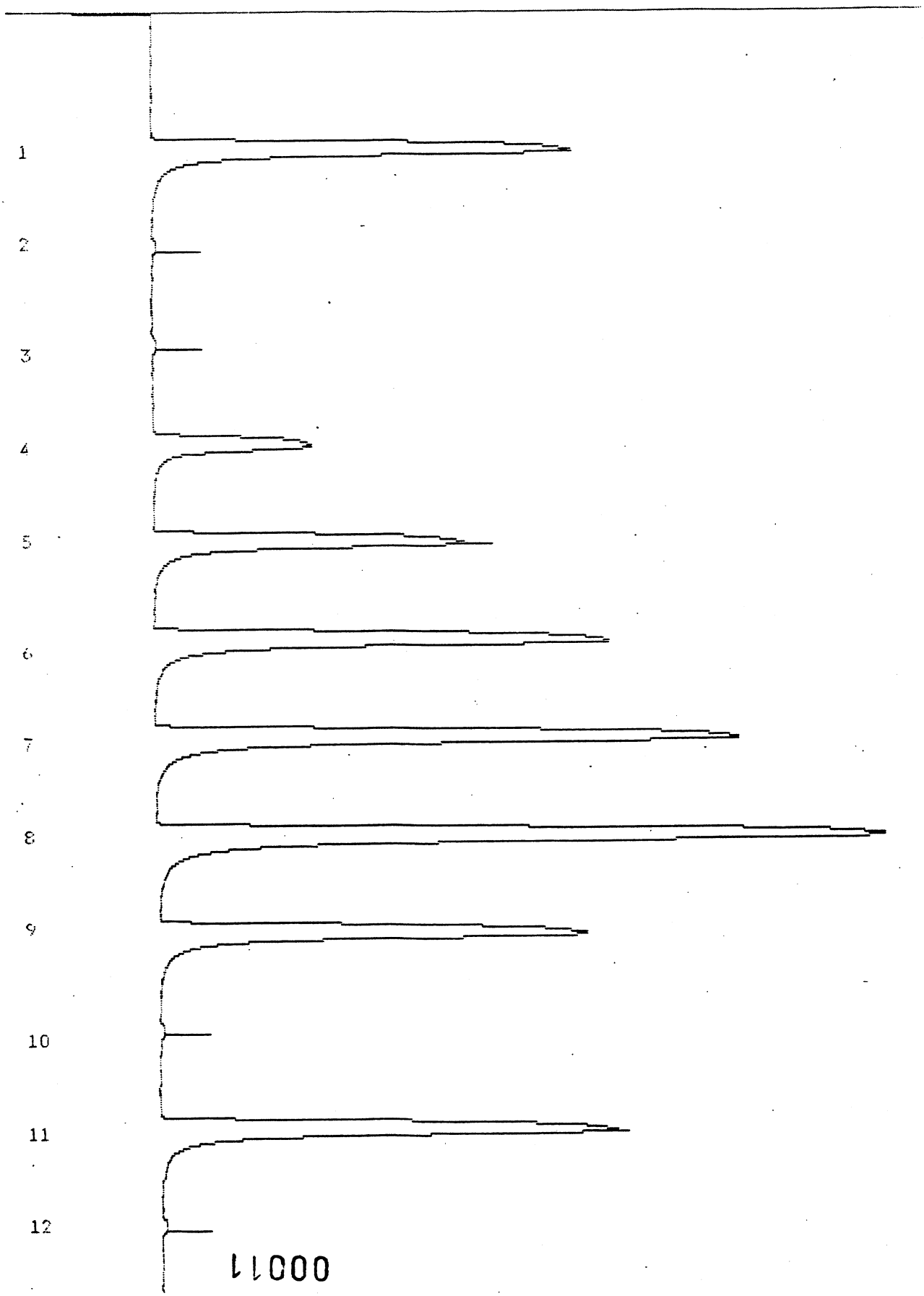
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

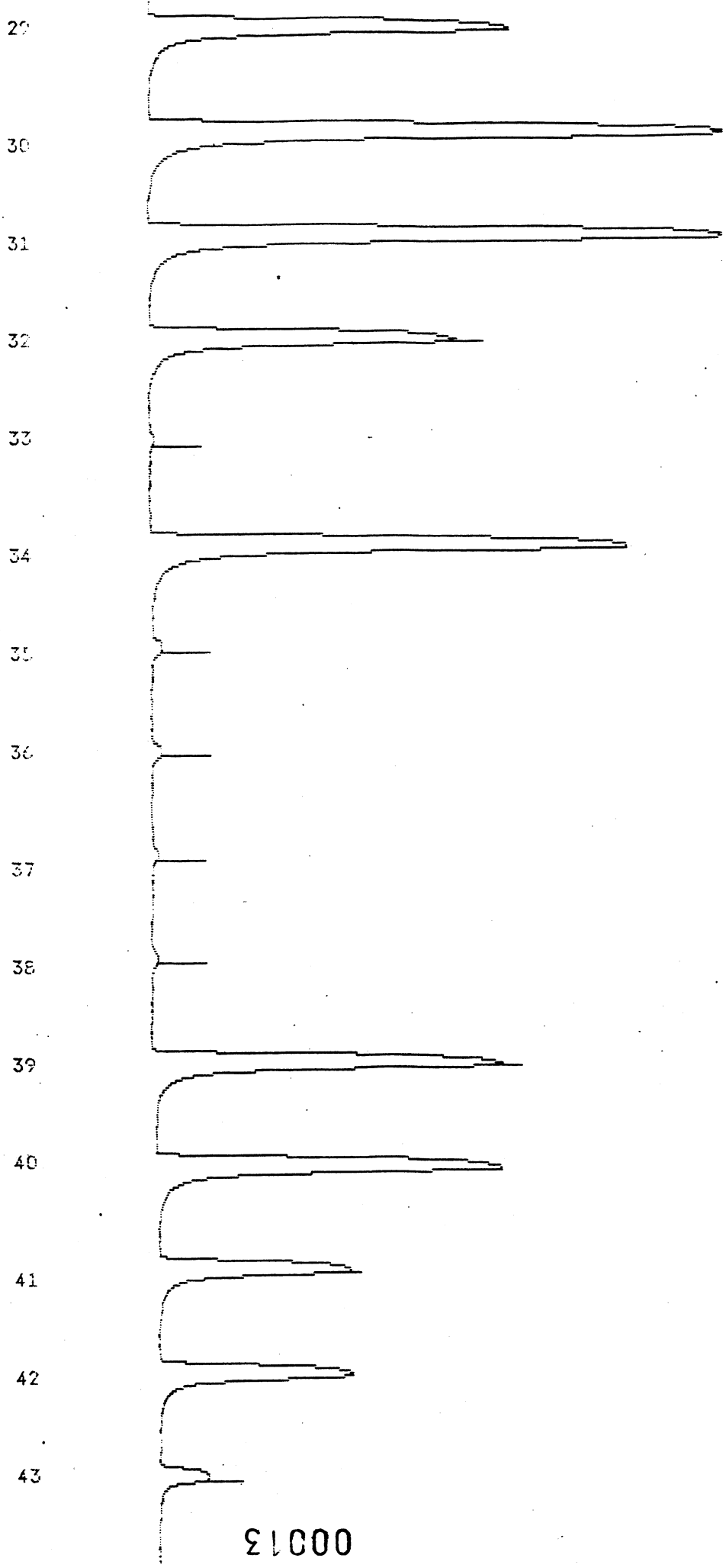
Prepare 0.05 ppm standards daily

HF. HNO3 Lot No. 59027D | H2SO4 Lot No. | Bath Temps / / °C

Prepared By: [illegible] Date: 000/13 Checked By: [illegible]

RUN DATE: 01-17-2000 CHART DATE: 01-17-2000
CHART SPEED: 30
DATA FILE NAME: C:\OP4\DATA\000117W.DAT

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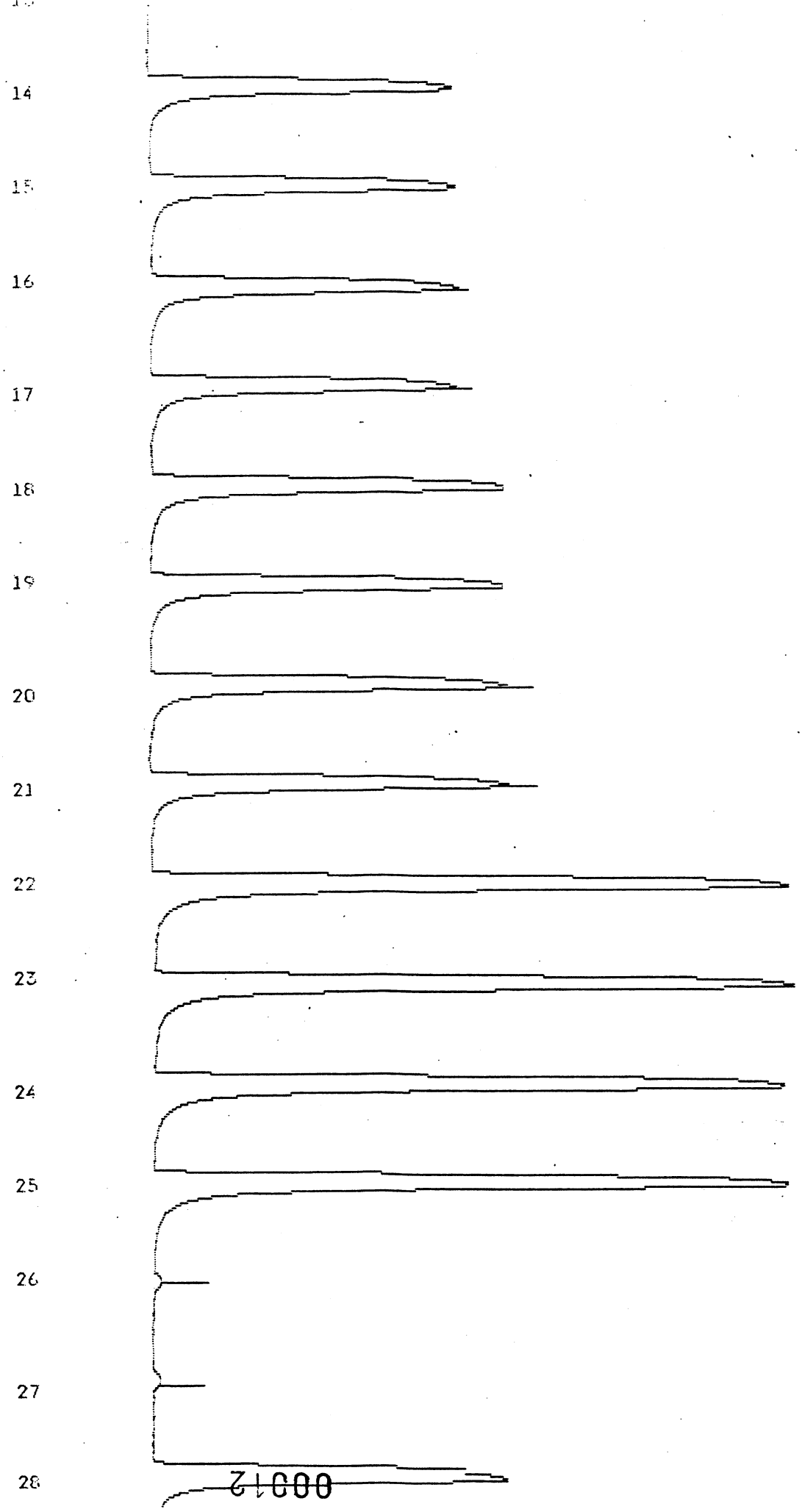
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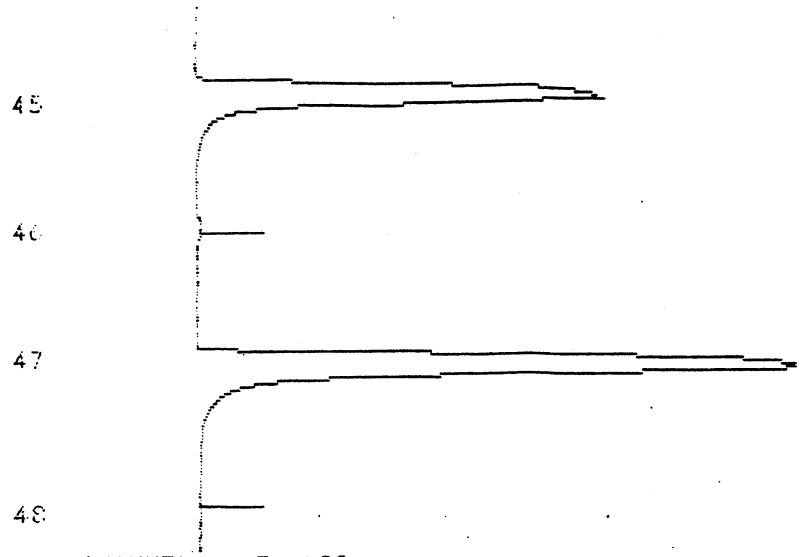
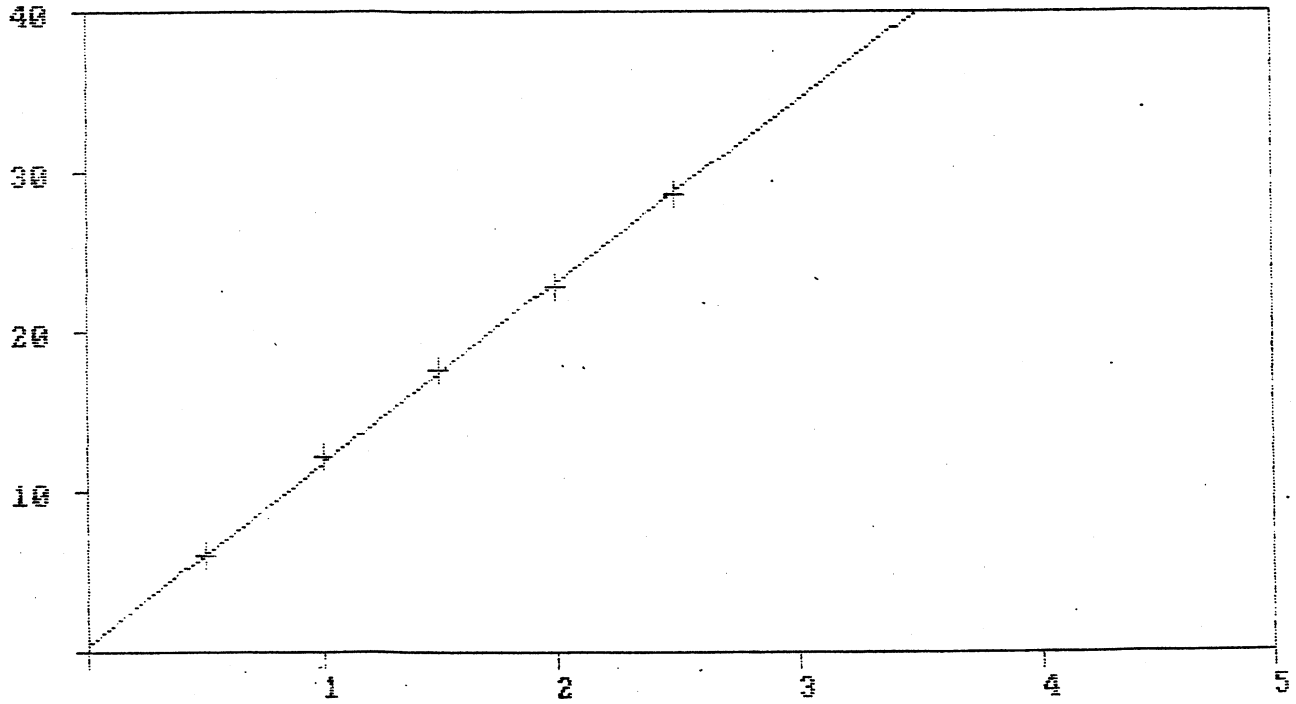
11	D4	1	1	17.6		1.522	d	13A
12	BL0117-1N1B	1	1	0.0	<0.01	-0.031	I	
13	BL0117-1N1B	1	1	0.0		-0.029	I	
14	BL0117S	1	1	11.8	0.101	1.009	101%	
15	BL0117S	1	1	11.8		1.009		
16	BL0117DS	1	1	11.9	0.101	1.014	101%	
17	BL0117DS	1	1	11.8		1.009		
18	73508	1	1	13.6	4.076	1.167		
19	73508	1	1	13.6		1.162		
20	73508D	1	1	13.7	4.121	1.175		
21	73508D	1	1	13.7		1.180		
22	73508S	1	1	24.4	7.417	2.117	95%	
23	73508S	1	1	24.4		2.121		
24	73508DS	1	1	24.2	7.387	2.104	93%	
25	73508DS	1	1	24.4		2.117		
26	73507	1	1	0.1	<0.07	-0.027	I	
27	73507	1	1	0.1		-0.021	I	
28	73509	1	1	13.5	3.905	1.154		
29	73509	1	1	13.3		1.143		
30	73510	1	1	21.2	3.326	1.839		
31	73510	1	1	21.4		1.856	s	
32	CCV	1	1	11.4		0.971	97%	
33	B	1	1	0.0		-0.033	b	
34	D4	1	1	17.6		1.522	d	
35	73511	1	1	0.2	<0.01	-0.018	I	
36	73511	1	1	0.2		-0.018	I	
37	73512	1	1	0.0	<0.07	-0.029	I	
38	73512	1	1	0.0		-0.029	I	
39	73513	1	1	13.0	8.014	1.117		
40	73513	1	1	12.9		1.109		
41	73514	1	1	7.0	4.688	0.583		
42	73514	1	1	7.1		0.589		
43	73515	1	1	1.7	0.791	0.113		
44	73515	1	1	1.7		0.113		
45	CCV	1	1	11.7		1.003	100%	
46	B	1	1	0.0		-0.033	b	
47	D4	1	1	17.6		1.522	d	

INTERCEPT: 0.38 LINEAR COEF: 11.33368

CORRELATION COEF: .9996292



CHANNEL NAME: LDC
RUN NAME: 000117W



DATA TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = 0.38 SLOPE = 11.33368

CORRELATION: .9996292

CHANNEL NAME: LDC
RUN DATE: 01-17-2000
SAMPLE TABLE NAME: 000117W
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION	EF
1	PRIMER	1	1	16.3	1.406	s
2	DUMMY	1	1	0.1	-0.023	I
3	S1: 0	1	1	0.1	-0.025	I
4	S2: .5	1	1	6.1	0.501	
5	S3: 1	1	1	12.1	1.035	
6	S4: 1.5	1	1	17.6	1.522	
7	S5: 2	1	1	22.7	1.970	
8	S6: 2.5	1	1	28.7	2.496	

000114

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
073483	PHIL-PAR	MB R456	Mercury -	PV	-0.010	-99999.0	0.101	101.	0.101	101.	00/01/10	MNF1	00/01/10	MG02	54.	34.	*BLKIMP*
073484	PHIL-PAR	RM BH Outlet-SB	Mercury -	PV	0.075						00/01/10	MNF1	00/01/10	MG02	54.	34.	
073485	PHIL-PAR	RM BH Outlet-BT	Mercury -	PV	0.043						00/01/10	MNF1	00/01/10	MG02	54.	34.	
073486	PHIL-PAR	RM BH Outlet-R1	Mercury -	PV	0.093	0.092	0.185	92.	0.185	92.	00/01/10	MNF1	00/01/10	MG02	54.	34.	
073487	PHIL-PAR	RM BH Outlet-R2	Mercury -	PV	0.033						00/01/10	MNF1	00/01/10	MG02	54.	34.	
073488	PHIL-PAR	RM BH Outlet-R3	Mercury -	PV	-0.010						00/01/10	MNF1	00/01/10	MG02	54.	34.	
[redacted]																	
BL0110	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.101	101.	0.101	101.	00/01/10	MNF1	00/01/10	MG02	$$$	$$$	*BLKIMP*

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

00015

1/2

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.10(WA) Run Code: MG02 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV	S2		
10			B (Std 1)			
11			D4 (Std 4)			
12			BL0110	MNF1.		
13			"			
14			BL0110 S			
15			"			
16			BL0110 DS			
17			"			
18			73486			
19			"			
20			73486 D			
21			"			
22			73486 S			
23			"			
24			73486 DS			
25			"			
26			73483			
27			"			
28			73484			
29			"			
30			73485			
31			"			
32			CCV			
33			B			
34			D4			
35			73487			
36			"			
37			73488			
38			"			
39			73489			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			73490			
42			"			
43			73491			
44			"			
45			73492			
46			"			
47		*	BL0110	MNF3		
48			"			
49			BL0110 S			
50			"			
51			BL0110 DS			
52			"			
53			74134			
54			"			
55			CCV			
56			B			
57			D4			
58			74134 D			
59			"			
60			74134 S			
61			"			
62			74134 DS			
63			"			
64			74131			
65			"			
66			74132			
67			"			
68			74133			
69			"			
70			74135			
71			"			
72			74136			
73			"			
74			74137			
75			"			
76			74138			
77			"			
78			CCV			
79			B			
80			D4			

* SAMPLE MISSED; RERUN ON 0111 RESULT WAS <0.01.

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.

~~9~~ 000 CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

7/2

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.10(WA) Run Code: MG02 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
81			74139			
22			"			
23			74140			
24			"			
25			CCV			
26			B			
27			D4			
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
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74						
75						
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77						
78						
79						
80						

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

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

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

L1000

EPA 7470 WATER PREPARATION LOG - MERCURY

000 18 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~~ BLANKS 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.)	MNF1	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 0110	"	"	"	"	(Processed Blank)
	11	BL 0110 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	73484	"	"	"	"	DGOH PRO FINALVOL 100 mL
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	93	"	"	"	"	
3	17	95	"	"	"	"	
4	18	96	"	"	"	"	
5	19	97	"	"	"	"	
6	20	98	"	"	"	"	
7	21	99	"	"	"	"	
8	22	90	"	"	"	"	
9	23	91	"	"	"	"	
10	24	92	"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	MNF3	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 0110	"	"	"	"	(Processed Blank)
	27	BL 0110 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	74194	"	"	"	"	DGOH FLT FINALVOL 100 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	31	"	"	"	"	
3	33	32	"	"	"	"	
4	34	33	"	"	"	"	
5	35	35	"	"	"	"	
6	36	36	"	"	"	"	
7	37	37	"	"	"	"	
8	38	38	"	"	"	"	
9	39	39	"	"	"	"	
10	40	40	"	"	"	"	

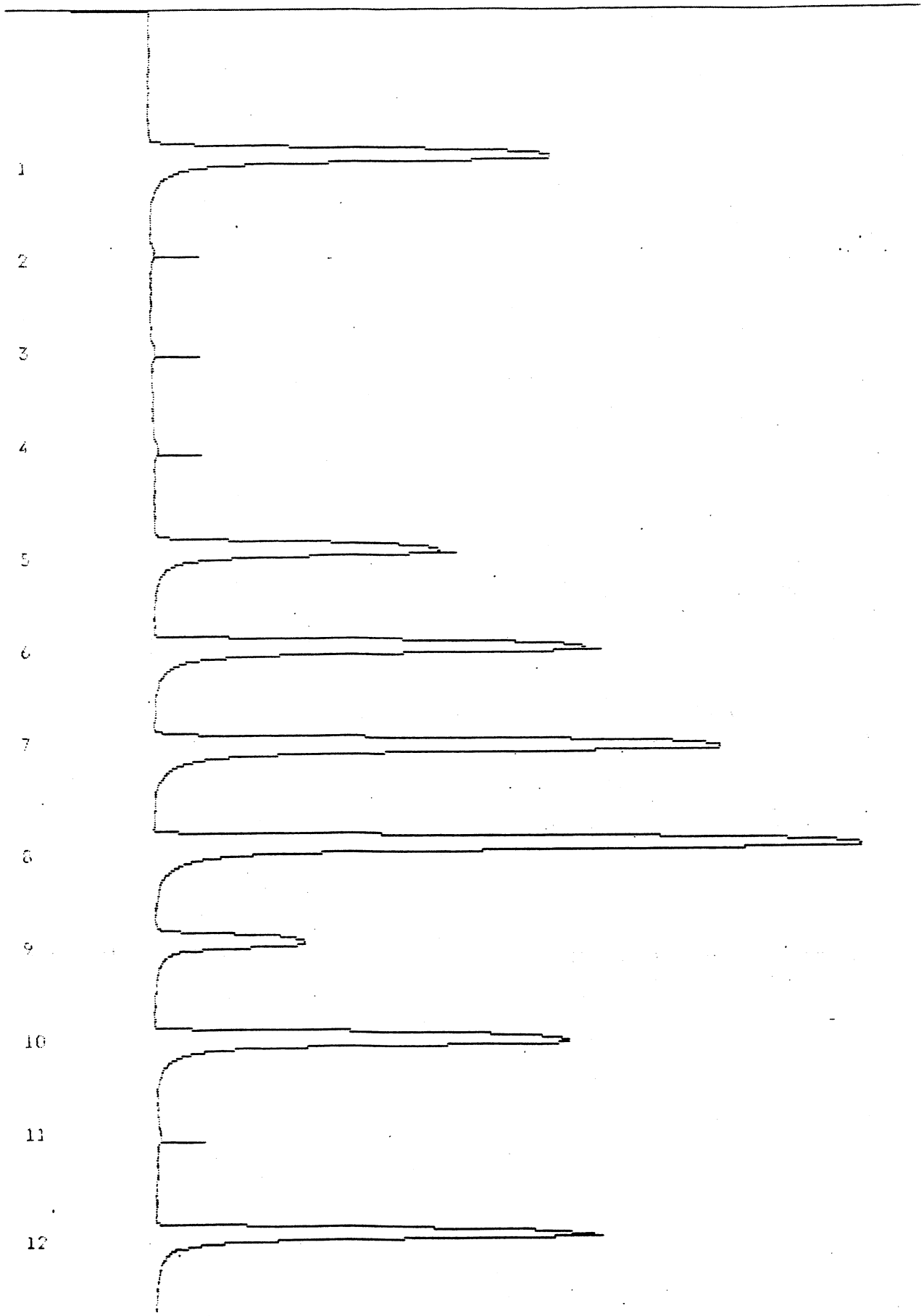
Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C STANDARDS UNDIGESTED +
DG29HGI, DG29HGF, DG101AA1, DG101AA2 MATRIX MATCHED WITH +

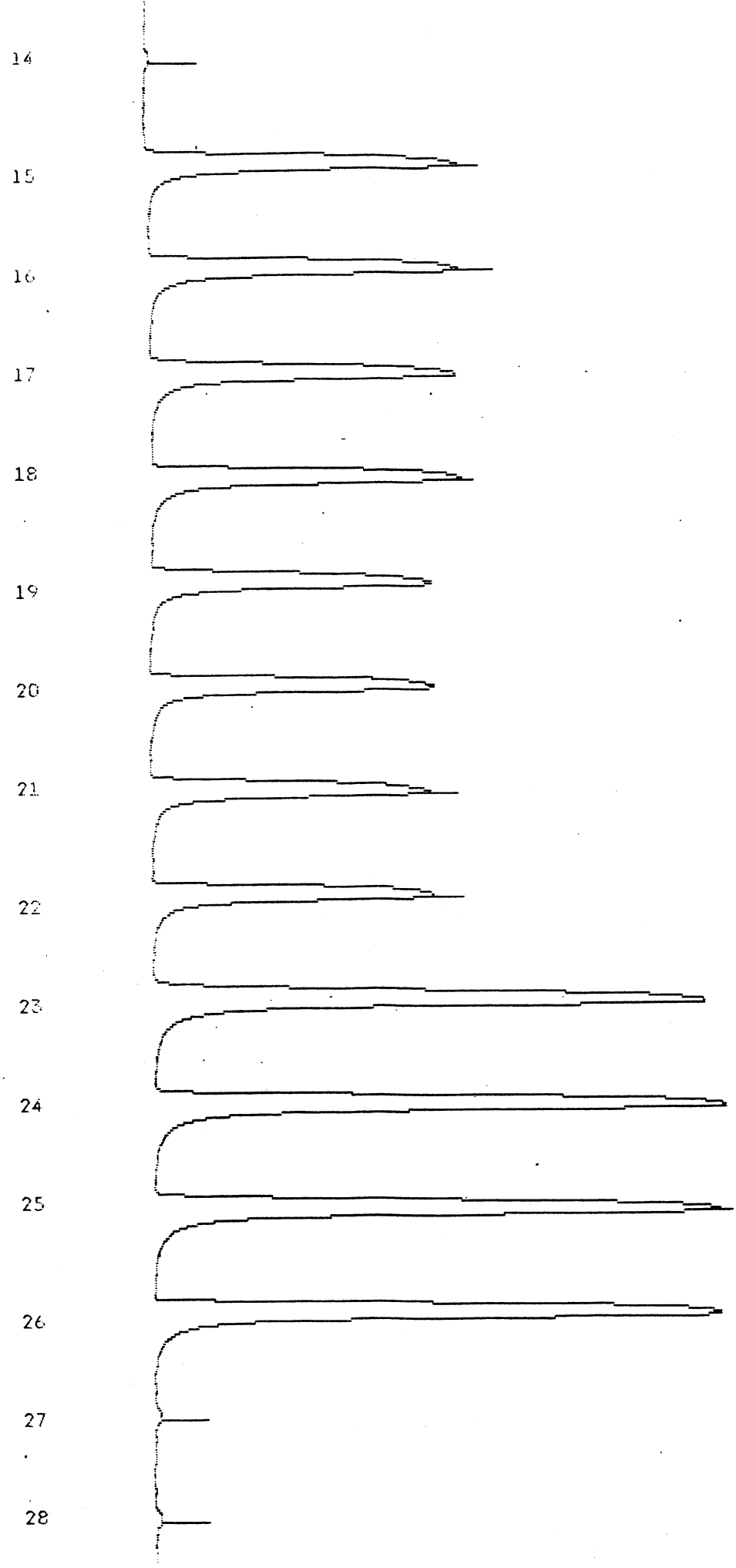
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run Prepare 0.05 ppm standards daily

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

Prepared By: [illegible] Date: 08 01 10 Checked by: [illegible]

RUN DATE: 01-10-2000 CHART DATE: 01-11-2000
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\000110WA.DAT

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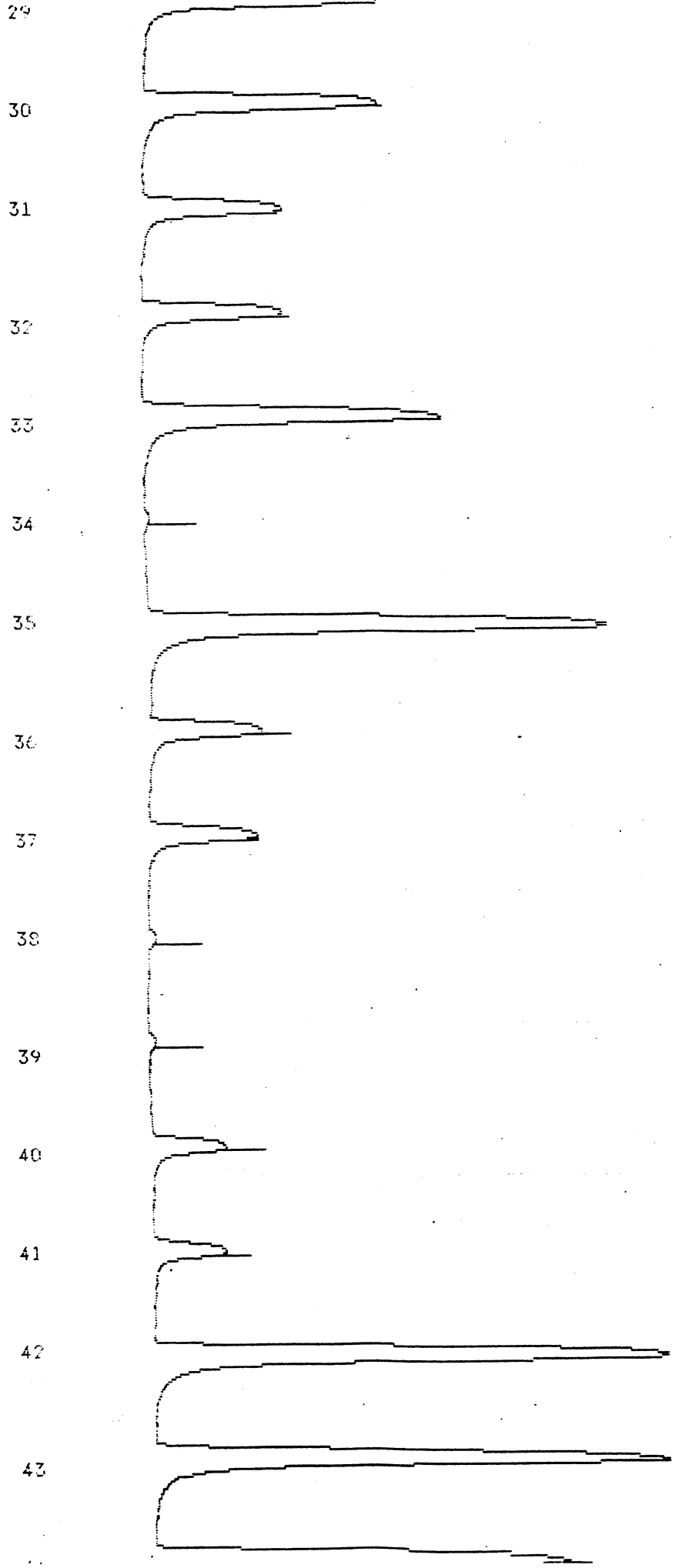
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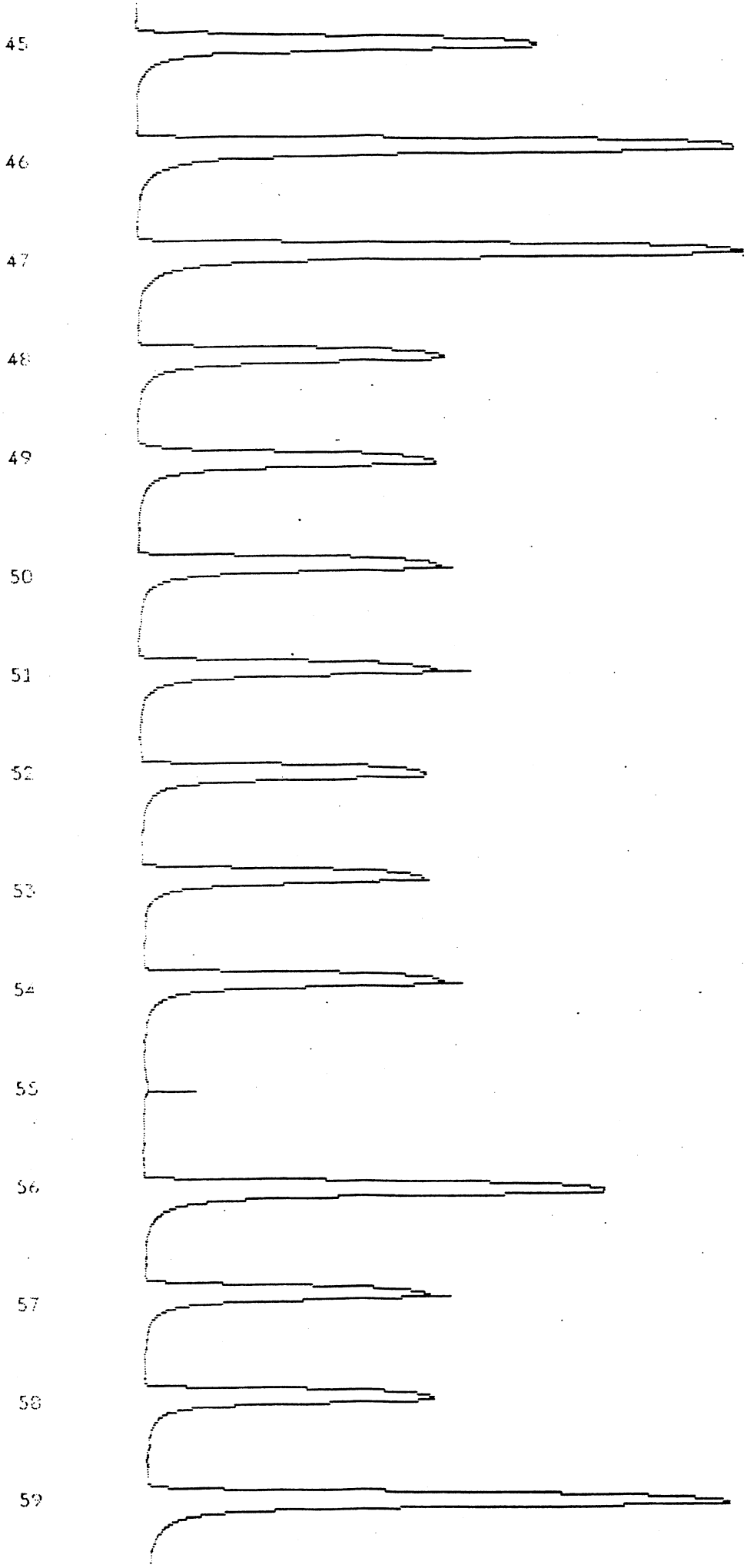
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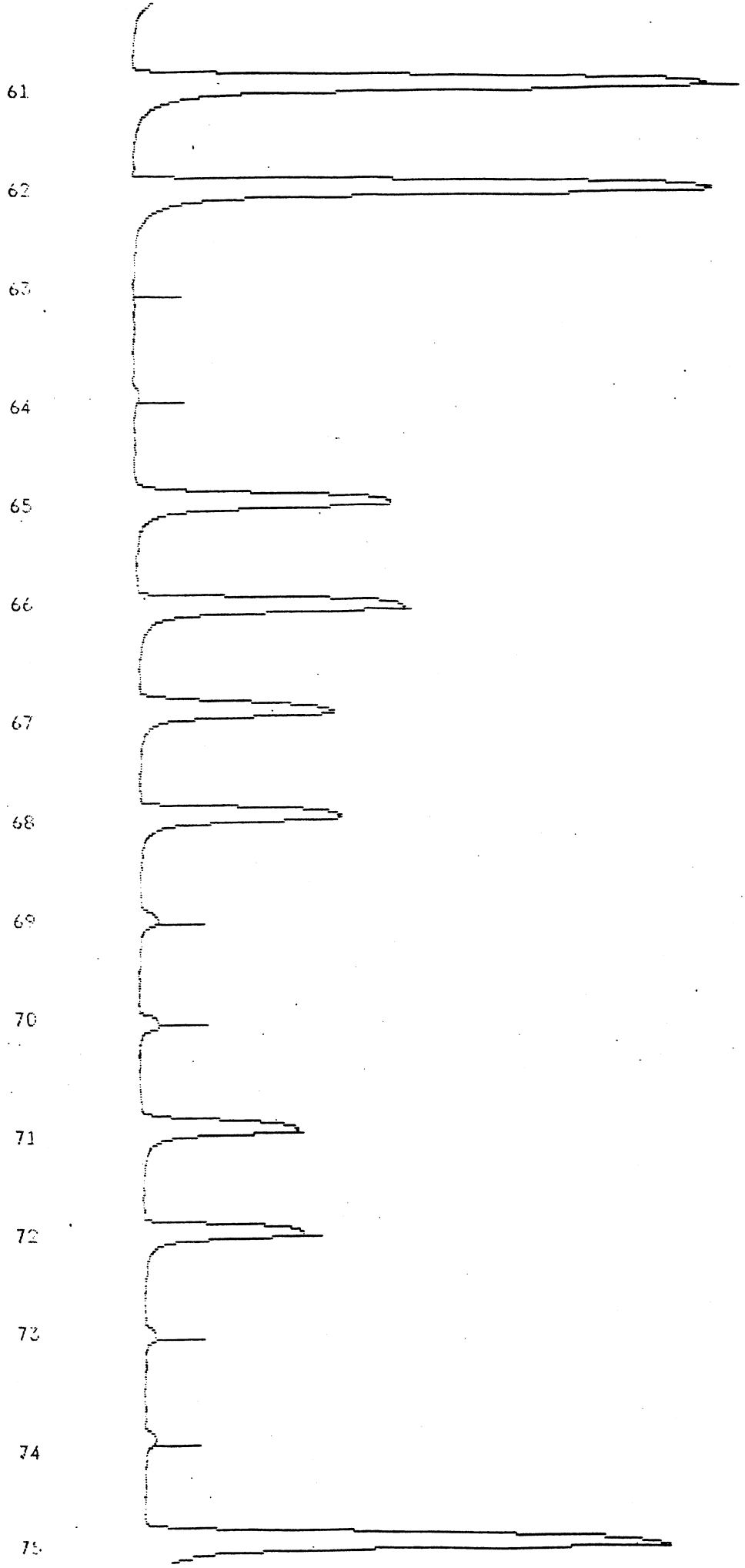
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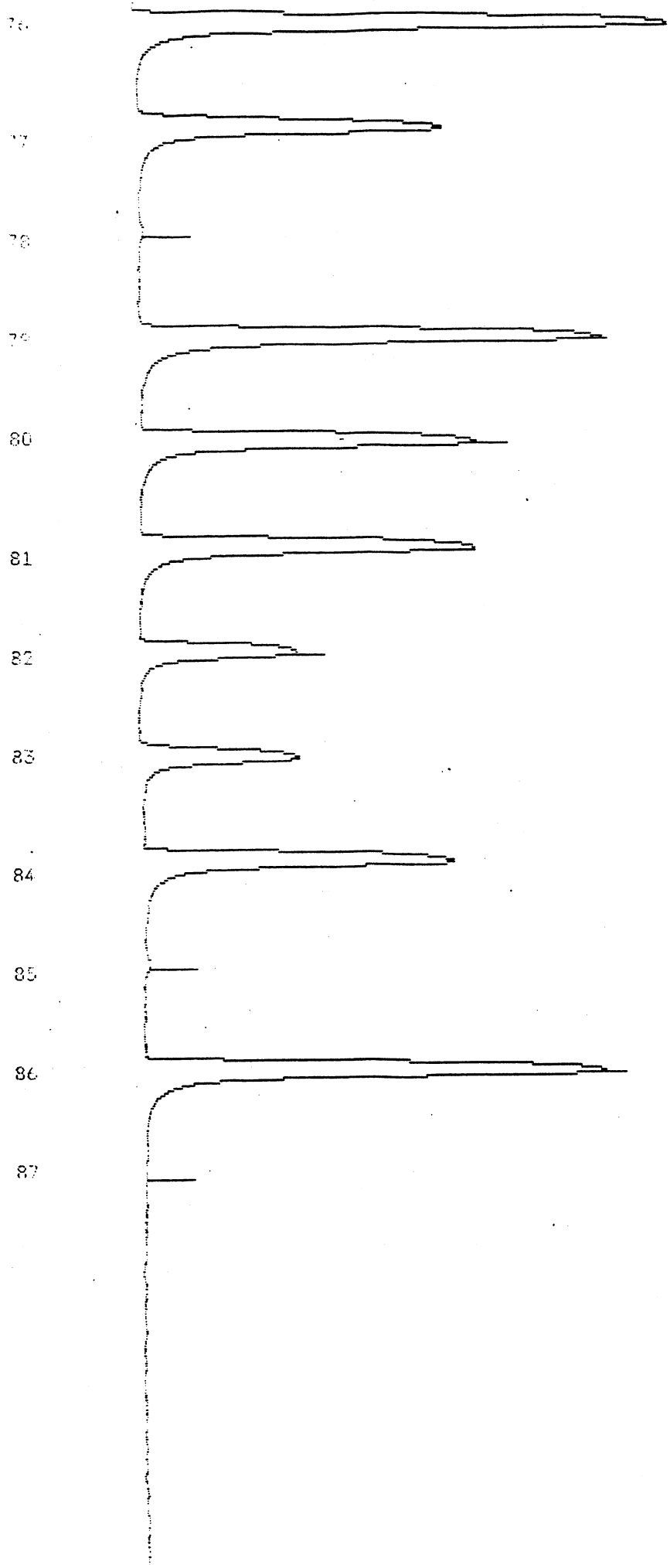
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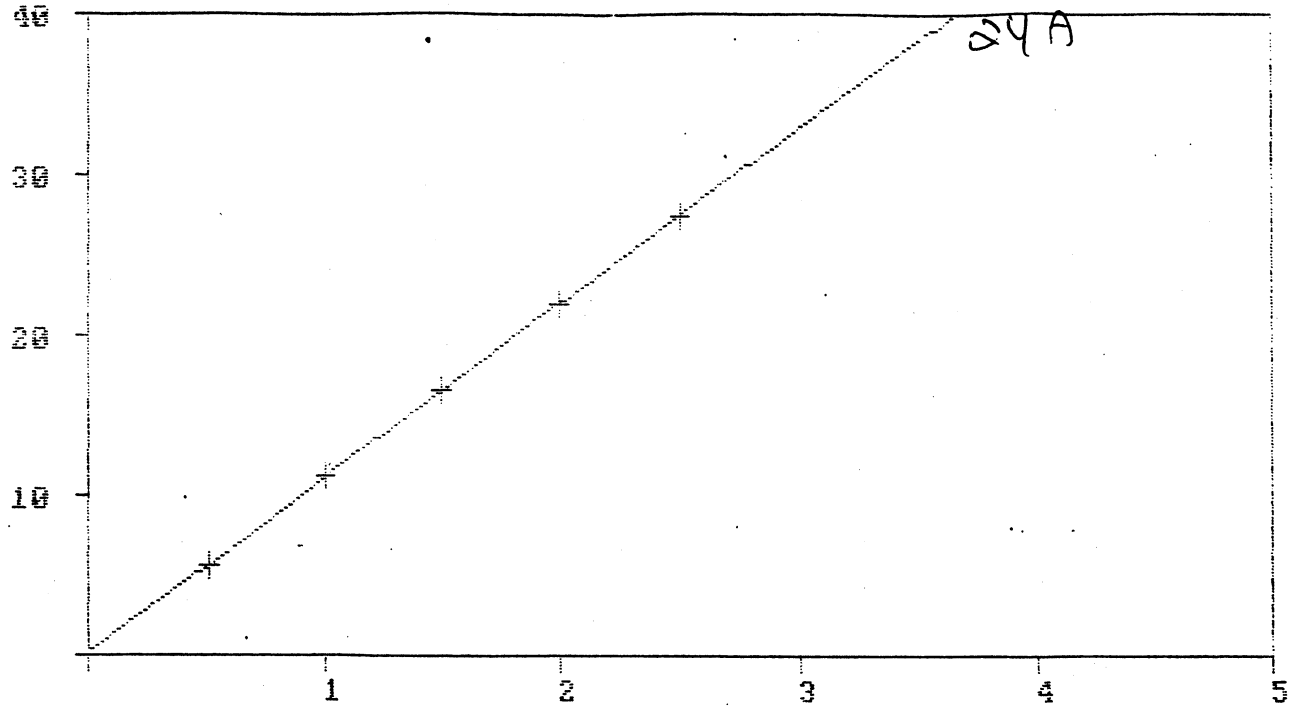

DATA TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = 0.18 SLOPE = 10.90668

CORRELATION: .9999581

CHANNEL NAME: LDC
RUN DATE: 01-10-2000
SAMPLE TABLE NAME: 000110WA
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	TMG	CONCENTRATION (PPb)	EF
1	PRIMER	1	1	15.8		1.428	s
2	DUMMY	1	1	0.1		-0.008	I
3	S1: 0	1	1	0.1		-0.010	I
4	NO CUP	1	1	0.1		-0.003	I
5	S3: 1	1	1	11.1		1.004	
6	S4: 1.5	1	1	16.7		1.513	
7	S5: 2	1	1	22.0		1.999	
8	S6: 2.5	1	1	27.4		2.491	
9	S2: .5	1	1	5.7		0.503	
10	ICV	1	1	15.9		1.441	96%
11	B	1	1	0.0		-0.017	b
12	D4	1	1	16.7		1.513	d
13	BL0110-MNF1 73483	1	1	0.0	<0.01	-0.012	I
14	BL0110-MNF1	1	1	0.0		-0.012	I
15	BL0110S	1	1	11.3	0.101	1.020	101%
16	BL0110S	1	1	11.2		1.013	s
17	BL0110DS	1	1	11.1	0.101	1.002	101%
18	BL0110DS	1	1	11.2		1.009	
19	73486	1	1	10.3	0.093	0.924	
20	73486	1	1	10.3		0.926	
21	73486D	1	1	10.2	0.092	0.919	
22	73486D	1	1	10.2		0.922	
23	73486S	1	1	20.0	0.185	1.819	92%
24	73486S	1	1	20.6		1.875	
25	73486DS	1	1	20.3	0.185	1.849	92%
26	73486DS	1	1	20.4		1.858	

29	73484	1	1	8.4	0.075	0.756		
30	73484	1	1	8.4		0.751		
31	73485	1	1	4.8	0.043	0.427	s	
32	73485	1	1	4.8		0.427		
33	CCV	1	1	10.8		0.975	98%	
34	B	1	1	0.0		-0.017	b	
35	D4	1	1	16.7		1.513	d	
36	73487	1	1	3.8	0.033	0.333		
37	73487	1	1	3.7		0.324		
38	73488	1	1	0.0	<0.01	-0.012	I	
39	73488	1	1	0.1		-0.003	I	
40	73489	1	1	2.5	0.021	0.216		
41	73489	1	1	2.4		0.207		
42	73490	1	1	18.5	0.168	1.681		
43	73490	1	1	18.5		1.678		
44	73491	1	1	14.8	0.134	1.345		
45	73491	1	1	14.7		1.334		
46	73492	1	1	21.7	0.199	1.976	s	
47	73492	1	1	22.0		2.001		
48	BL0110S-MNF3	1	1	11.2	0.100	1.007	100%	
49	BL0110S-MNF3	1	1	10.9		0.987		
50	BL0110DS	1	1	11.1	0.099	1.004	99.1	
51	BL0110DS	1	1	10.9		0.984		
52	74134	1	1	10.4	0.093	0.940		
53	74134	1	1	10.2		0.919		
54	CCV	1	1	10.9		0.980	98	
55	B	1	1	0.0		-0.017	b	
56	D4	1	1	16.7		1.513	d	
57	74134D	1	1	10.3	0.094	0.931		
58	74134D	1	1	10.5		0.942		
59	74134S	1	1	21.1	0.190	1.918	97%	
60	74134S	1	1	20.8		1.889		
61	74134DS	1	1	20.6	0.189	1.869	95%	
62	74134DS	1	1	20.9		1.902		
63	74131	1	1	0.0	<0.01	-0.017	I	
64	74131	1	1	0.0		-0.012	I	
65	74132	1	1	9.4	0.086	0.841		
66	74132	1	1	9.7		0.872		
67	74133	1	1	6.9	0.063	0.617		
68	74133	1	1	7.2		0.640		
69	74135	1	1	0.5	<0.01	0.030	I	
70	74135	1	1	0.5		0.030		
71	74136	1	1	5.6	0.050	0.498		
72	74136	1	1	5.6		0.501		
73	74137	1	1	0.3	<0.01	0.010	I	
74	74137	1	1	0.2		0.006	I	
75	74138	1	1	18.9	0.173	1.719		
76	74138	1	1	19.2		1.741	s	
77	CCV	1	1	10.9		0.987	99%	
78	B	1	1	0.0		-0.017	b	
79	D4	1	1	16.7		1.513	d	
80	74139	1	1	12.1	0.110	1.092		
81	74139	1	1	12.2		1.103		
82	74140	1	1	5.6	0.049	0.494		
83	74140	1	1	5.6		0.494		
84	CCV	1	1	11.2		1.009	101%	
85	B	1	1	0.0		-0.017	b	
86	D4	1	1	16.7		1.513	d	

0.0025

INTERCEPT: 0.18 LINEAR COEF: 10.90668

CORRELATION COEF: .9999581

00/01/09 15:54:54 Printed by MGAS LDCA DATA TO BE VALIDATED (METVAL') Analyzed by MGAS

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
073483	PHIL-PAR	CD R	Mercury -	PV	-0.100	-99999.0	0.311	103.	0.308	103.	00/01/07	1NKC	00/01/07	MG02	51.	31.	
073484	PHIL-PAR	RM BH Outlet-SB	Mercury -	PV	-0.100						00/01/07	1NKC	00/01/07	MG02	51.	31.	
073485	PHIL-PAR	RM BH Outlet-BT	Mercury -	PV	-0.100						00/01/07	1NKC	00/01/07	MG02	51.	31.	
073486	PHIL-PAR	RM BH Outlet-R1	Mercury -	PV	-0.100	-0.100	1.116	107.	1.125	107.	00/01/07	1NKC	00/01/07	MG02	51.	31.	
073487	PHIL-PAR	RM BH Outlet-R2	Mercury -	PV	-0.100						00/01/07	1NKC	00/01/07	MG02	51.	31.	
073488	PHIL-PAR	RM BH Outlet-R3	Mercury -	PV	-0.100						00/01/07	1NKC	00/01/07	MG02	51.	31.	
[redacted]																	
BL0107	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.311	103.	0.308	103.	00/01/07	1NKC	00/01/07	MG02	$$$	$$$	
073507	PHIL-PAR	RM FGD Inlet-BT	Mercury -	PV	-0.100												
073508	PHIL-PAR	RM FGD Inlet-R1	Mercury -	PV	-0.100	-0.100	1.028	95.	1.021	95.	00/01/07	2NKC	00/01/07	MG02	51.	31.	
073509	PHIL-PAR	RM FGD Inlet-R2	Mercury -	PV	0.344						00/01/07	2NKC	00/01/07	MG02	51.	31.	
073510	PHIL-PAR	RM FGD Inlet-R3	Mercury -	PV	-0.100						00/01/07	2NKC	00/01/07	MG02	51.	31.	
[redacted]																	
BL0107	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.305	101.	0.309	103.	00/01/07	2NKC	00/01/07	MG02	$$$	$$$	
[redacted]																	
BL0107	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.315	105.	0.313	105.	00/01/07	3NKC	00/01/07	MG02	$$$	$$$	

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

00026

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.07(WA) 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			WS 378			
13			ORG. REF.			
14			BL0107	4NIB		
15			"			
16			BL0107 S			
17			"			
18			BL0107 DS			
19			"			
20	2		69886			
21			"			
22			69886 D			
23			"			
24			69886 S			
25			"			
26			69886 DS			
27			"			
28			69885			
29			"			
30		1/2	69887			
31			"			
32		1/4	69888			
33			"			
34			CCV			
35			B			
36			D4			
37			70235			
38			"			
39		1/4	70236			
40			"			
41			70237			
42			"			
43		1/5	70238			
44			"			
45			BL0107	5NKC		
46			"			
47			BL0107 S			
48			"			
49			BL0107 DS			
50			"			
51		1/4	65836			
52			"			
53			65836 D			
54			"			
55			65836 S			
56			"			
57			CCV			
58			B			
59			D4			
60		1/4	65836 DS			
61			"			
62			65835			
63			"			
64			65837			
65			"			
66			65838			
67			"			
68			BL0107	1NKC		
69			"			
70			BL0107 S			
71			"			
72			BL0107 DS			
73			"			
74			73486			
75			"			
76			73486 D			
77			"			
78			73486 S			
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: 00.01.07 (WA) Run Code: MG02 Matrix: HP

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			73486 DS			
24			"			
25			73484			
26			"			
27			73485			
28			"			
29			73487			
30			"			
31			73488			
32			"			
33			73489			
34			"			
35		1/10	73490			
36			"			
37			73491			
38			"			
39			73492			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			BL0107	2NKC		
42			"			
43			CCV			
44			B			
45			D4			
46			BL0107 S			
47			"			
48			BL0107 DS			
49			"			
50			73508			
51			"			
52			73508 D			
53			"			
54			73508 S			
55			"			
56			73508 DS			
57			"			
58			73507			
59			"			
60			73509			
61			"			
62			73510			
63			"			
64			73511			
65			"			
66			CCV			
67			B			
68			D4			
69			73512			
70			"			
71			73513			
72			"			
73			73514			
74			"			
75		1/10	73515			
76		↓	"			
77			BL0107	3NKC		
78			"			
79			BL0107S			
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: 99.01.07 Run Code: MG02 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			BL0107 DS			
22			"			
23			74134			
24			"			
25			74134 D			
26			"			
27			74134 S			
28			"			
29			CCV			
30			B			
31			D4			
32			74134 DS			
33			"			
34			74132			
35			"			
36			74133			
37			"			
38			74135			
39			"			
40			74136			
41			74136			
42			74137			
43			"			
44		1/10	74138			
45			"			
46			74139			
47			"			
48			74140			
49			"			
50		1/10	73485			
51			"			
52			WS 378			
53			ORG. REF			
54			CCV			
55			B			
56			D4			
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79						
80						

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

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

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

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	41	CCV (Cont. Calib. Verif.)	3N KC	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	42	BL 0107	"	"	"	"	(Processed Blank) 74131
	43	BL 0107 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	44	74124	"	"	"	"	1MPVKCl 1000 mL
1	45	D	"	"	"	"	(Duplicate sample)
1	46	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	47	DS	"	"	"	"	(Duplicate Spiked sample)
2	48	74122	"	"	"	"	
3	49	33	"	"	"	"	
4	50	35	"	"	"	"	
5	51	36	"	"	"	"	
6	52	37	"	"	"	"	
7	53	38	"	"	"	"	
8	54	39	"	"	"	"	
9	55	94	"	"	"	"	
10	56		"	"	"	"	

Comments

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

*** group of several Method 29 testcodes

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

Procedure/Methodology:

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

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

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

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

All reagents used are of a grade suitable for mercury analyses

EPA 7470 WATER PREPARATION LOG - MERCURY

0003 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.)	ZNFC	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 0707	"	"	"	"	(Processed Blank)
	11	BL 0707 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	72456	"	"	"	"	MPVKCl 1000 mL
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	72454	"	"	"	"	
3	17	55	"	"	"	"	
4	18	57	"	"	"	"	
5	19	58	"	"	"	"	
6	20	59	"	"	"	"	
7	21	90	"	"	"	"	
8	22	91	"	"	"	"	
9	23	92	"	"	"	"	
10	24	93 NN	"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	ZNFC	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL QC2	"	"	"	"	(Processed Blank)
	27	BL 0707 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	72500X	"	"	"	"	MPVKCl 1000 mL
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	72507	"	"	"	"	
3	33	509	"	"	"	"	
4	34	510	"	"	"	"	
5	35	511	"	"	"	"	
6	36	512	"	"	"	"	
7	37	513	"	"	"	"	
8	38	514	"	"	"	"	
9	39	515	"	"	"	"	
10	40		"	"	"	"	

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

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

HNO3 Lot No: [illegible] | H2SO4 Lot No: [illegible] | Bath Temp: 1 195°C

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

EPA 7470 WATER PREPARATION LOG - MERCURY

00032 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.)	4/1/16	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 0107	"	"	"	"	(Processed Blank)
	11	BL 0107 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	69986	"	"	"	"	FINALVOL 300 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	69985	"	"	"	"	
3	17	87	"	"	"	"	
4	18	86	"	"	"	"	
5	19	70335	"	"	"	"	
6	20	36	"	"	"	"	
7	21	37	"	"	"	"	
8	22	38	"	"	"	"	
9	23	69984	"	"	"	"	
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. 112091 | H2SO4 Lot No. 3750 LO | Bath Temp. 1 195°C

Prepared By: [illegible] Date: 4/4/07 Checked by: [illegible]

RUN DATE: 01-07-2000 CHART DATE: 01-08-2000
CHART SPEED: 30
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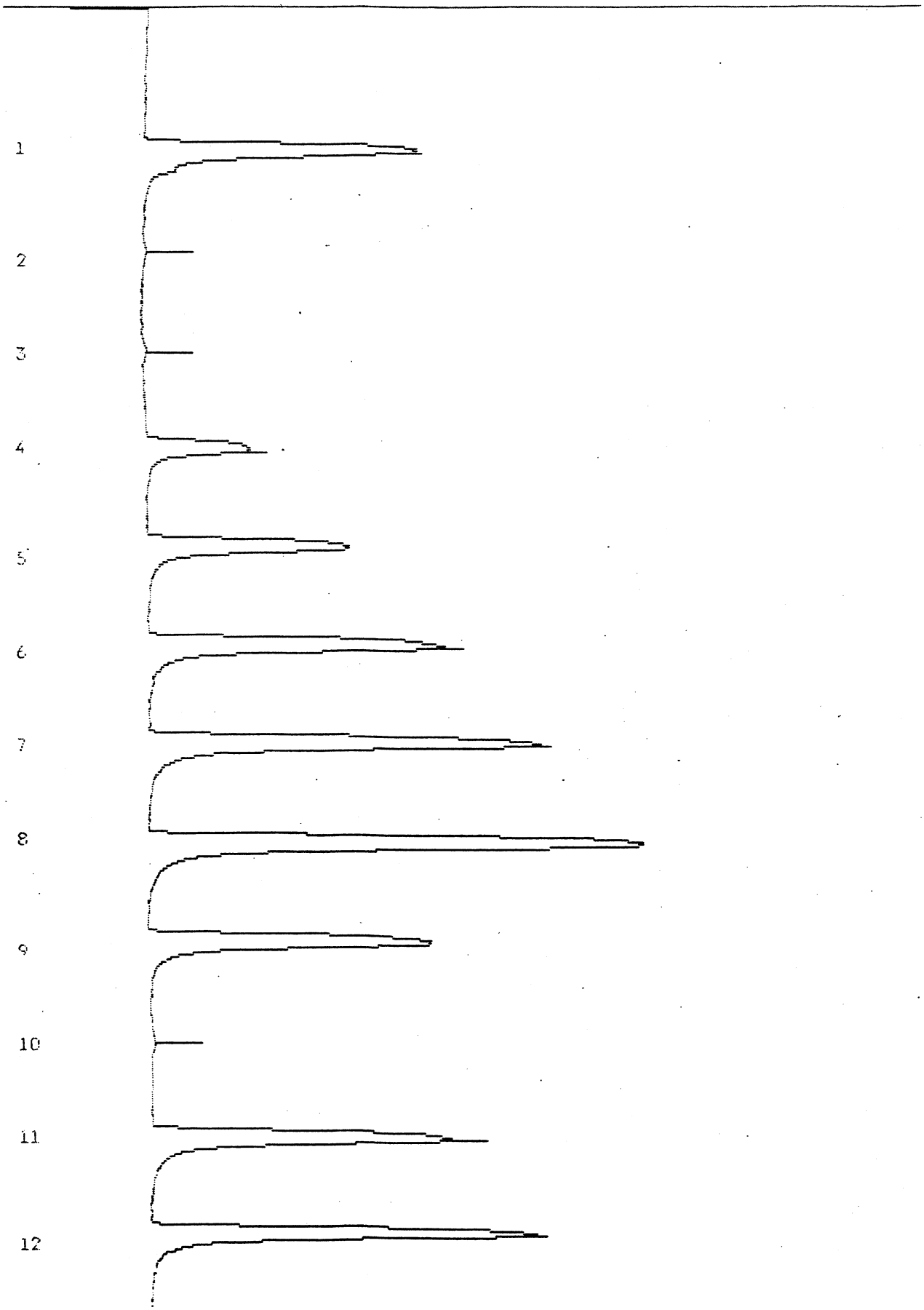

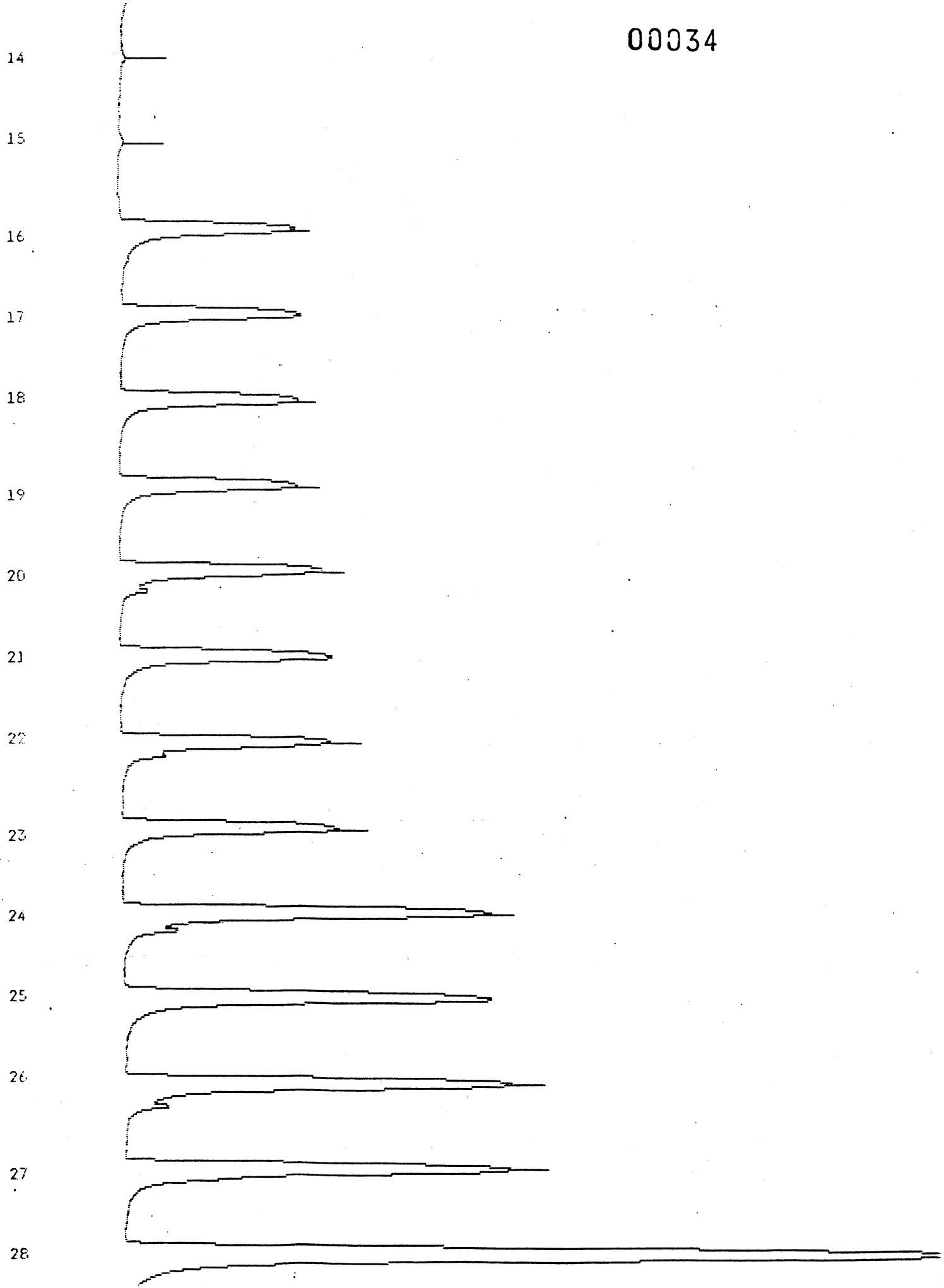
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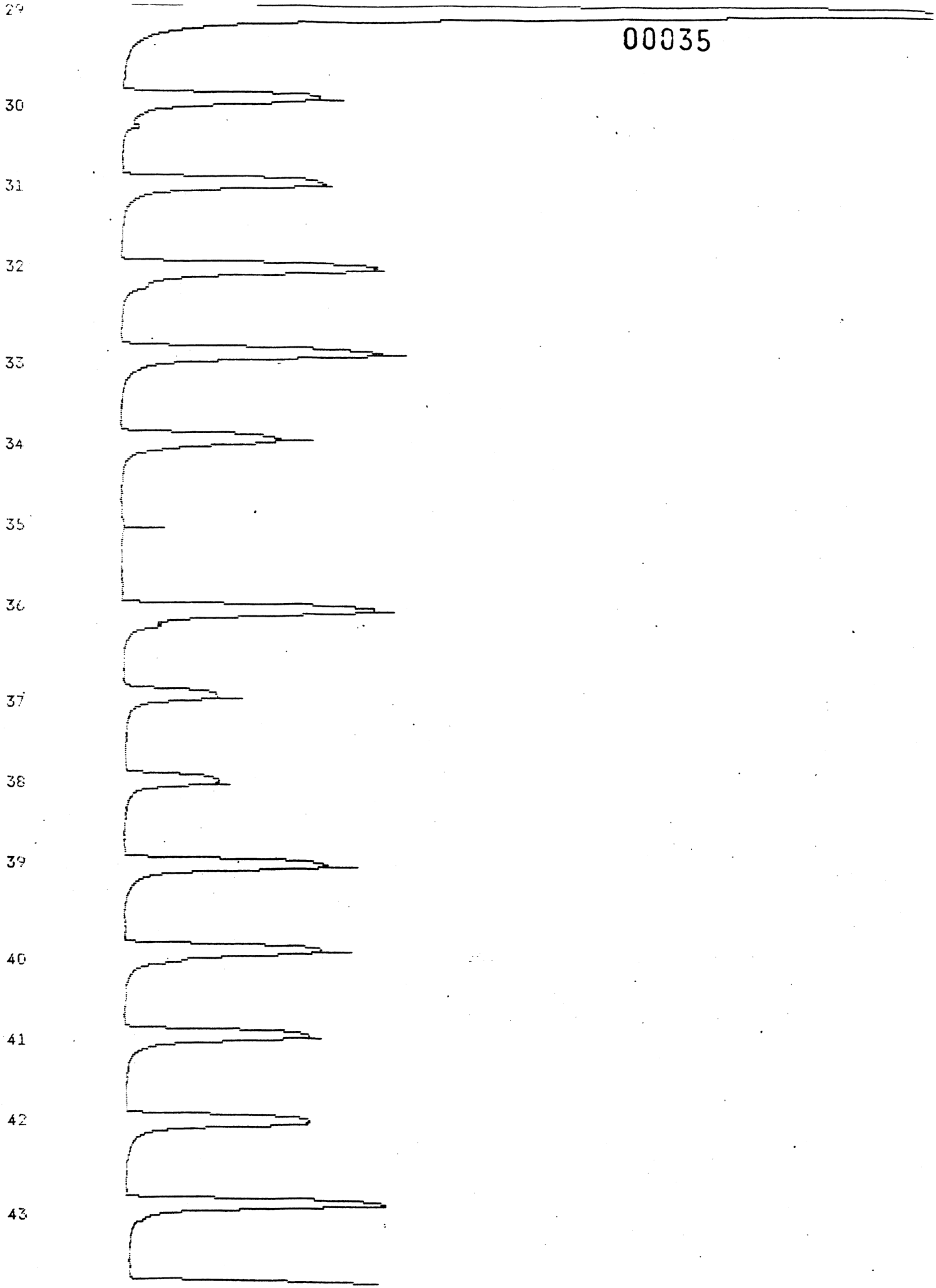
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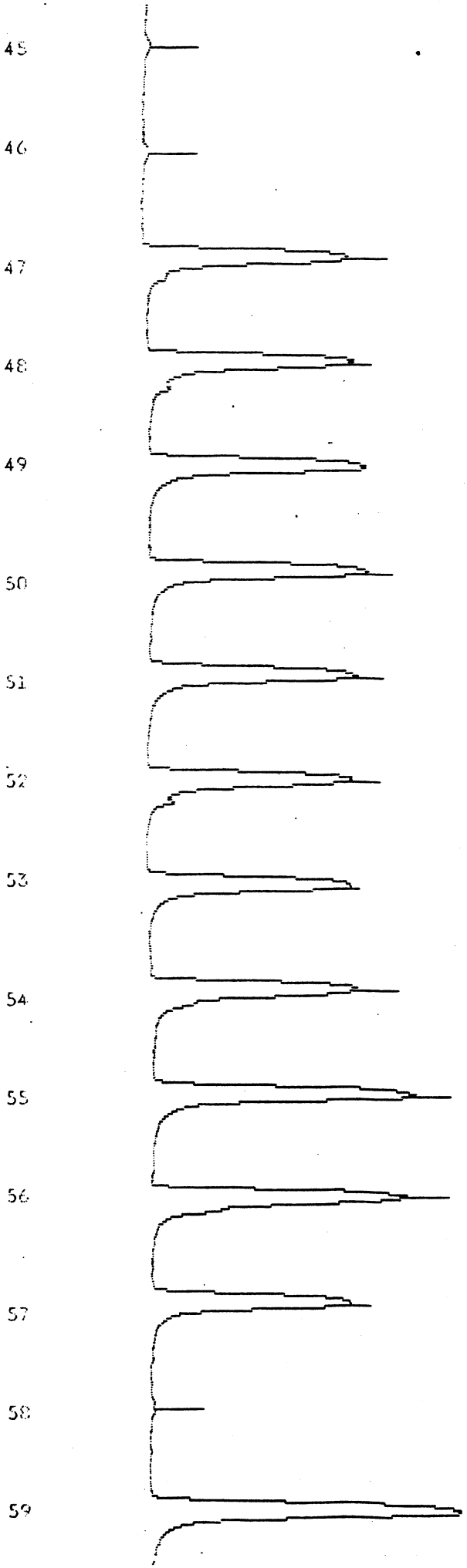
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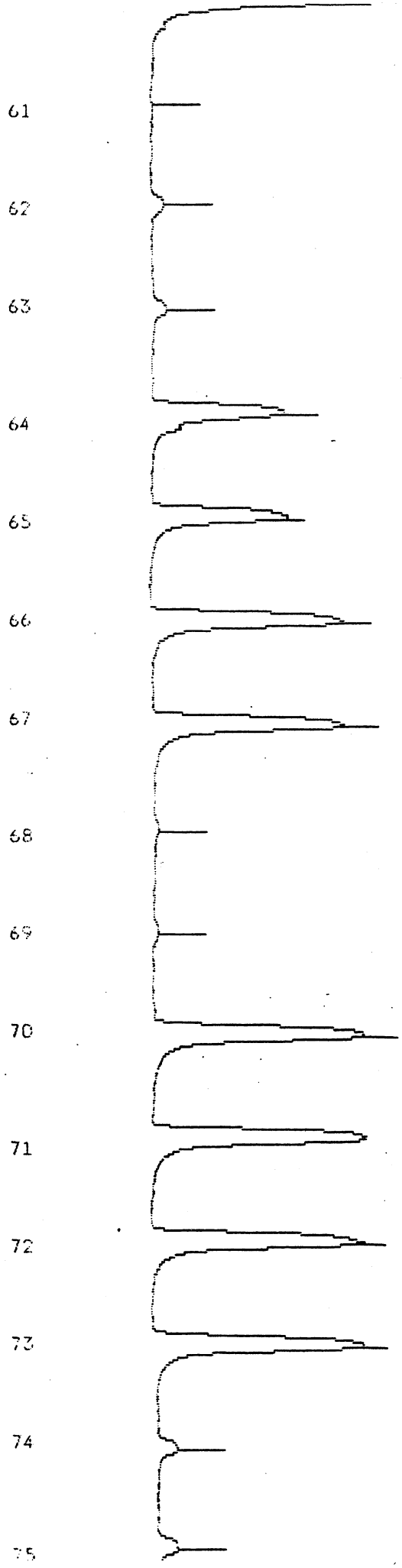
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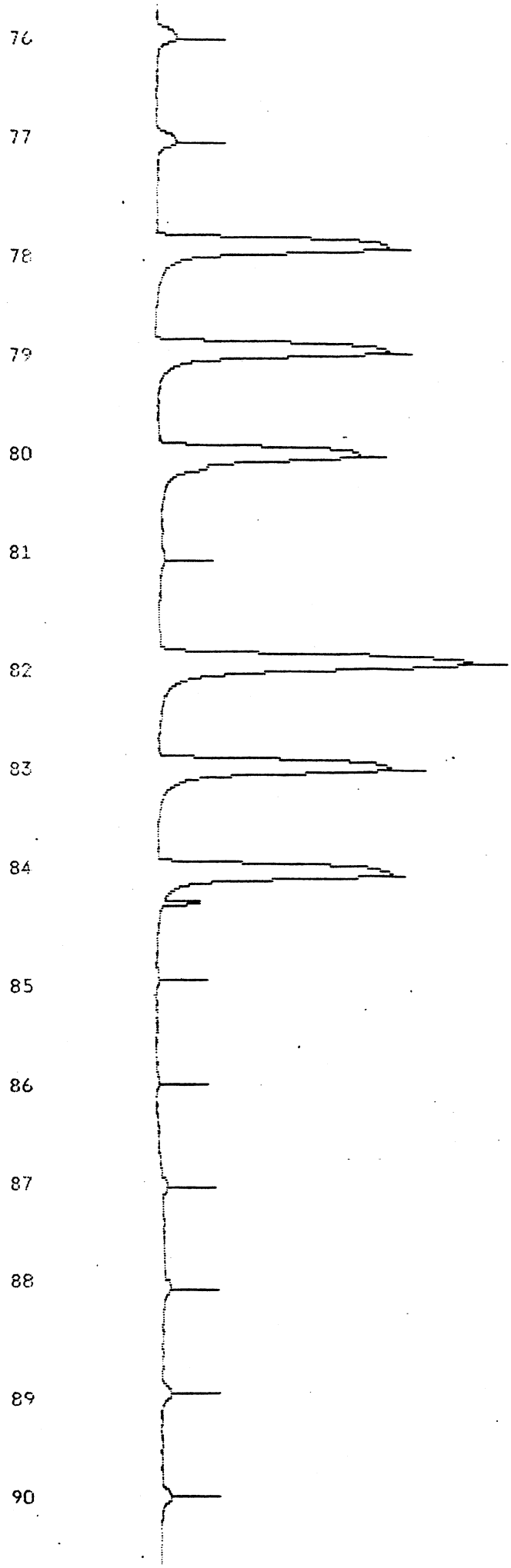
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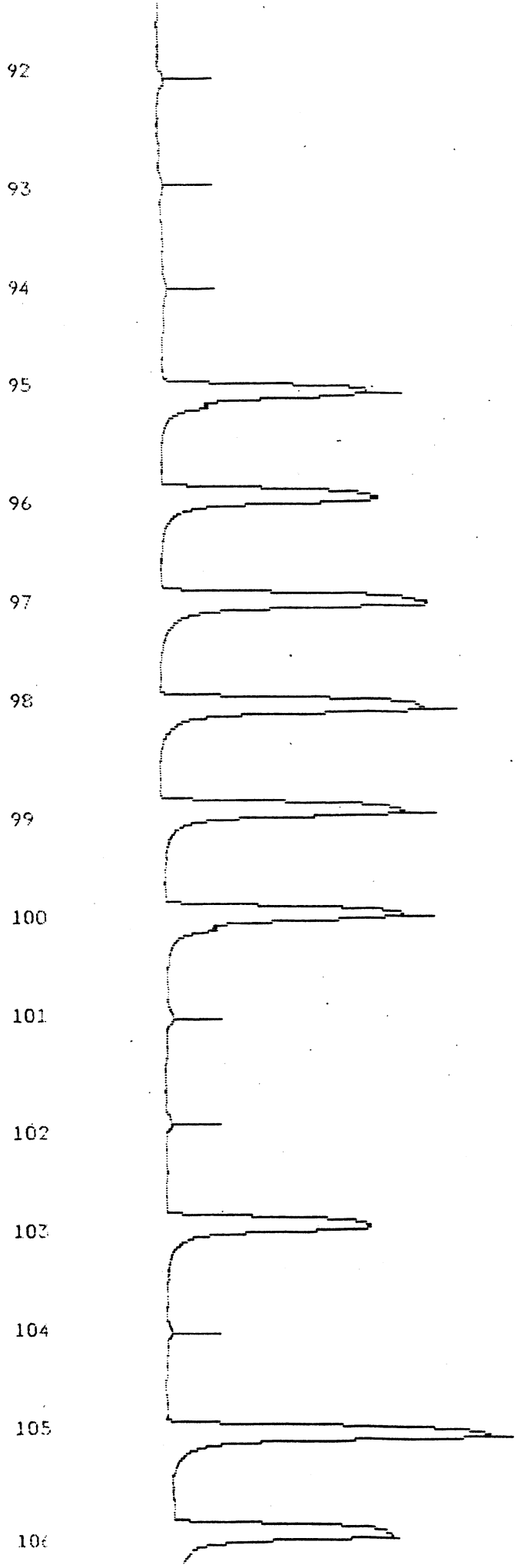
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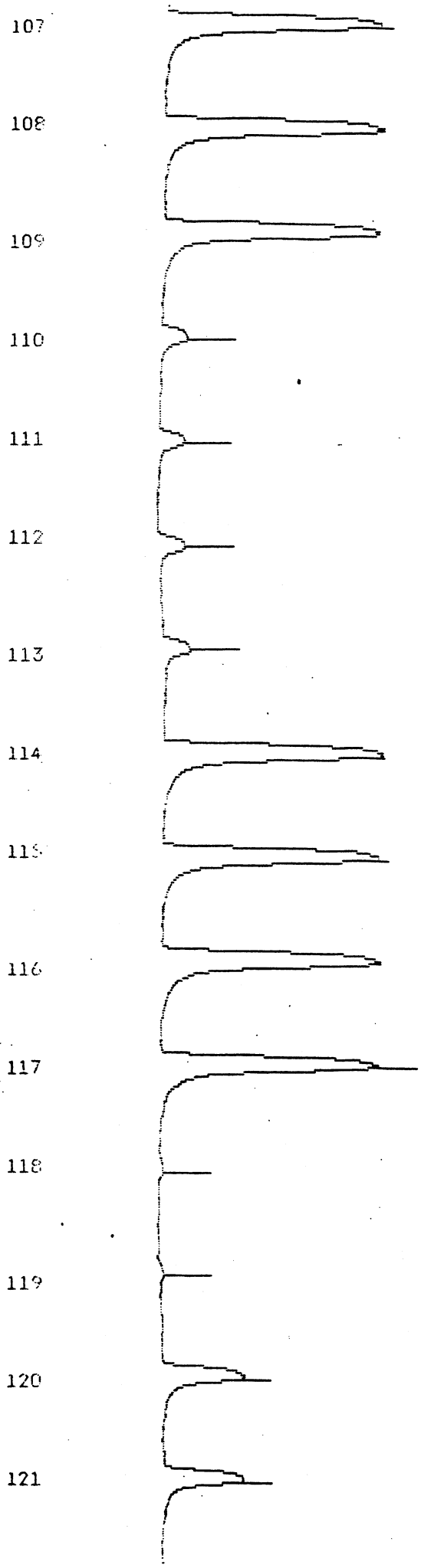
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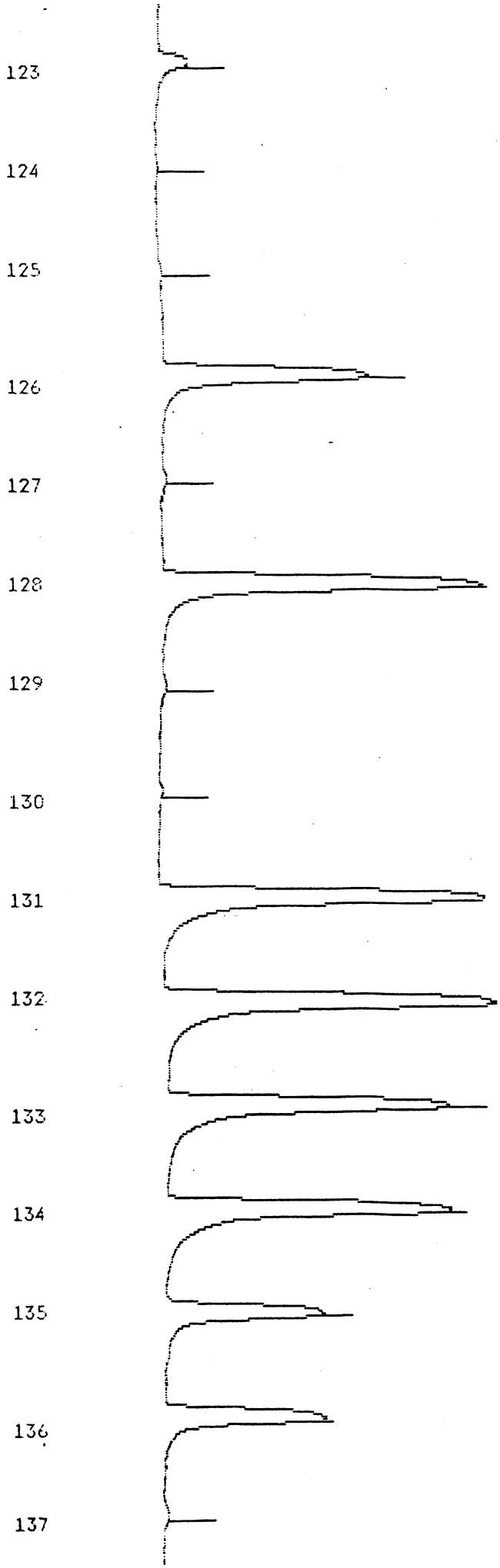
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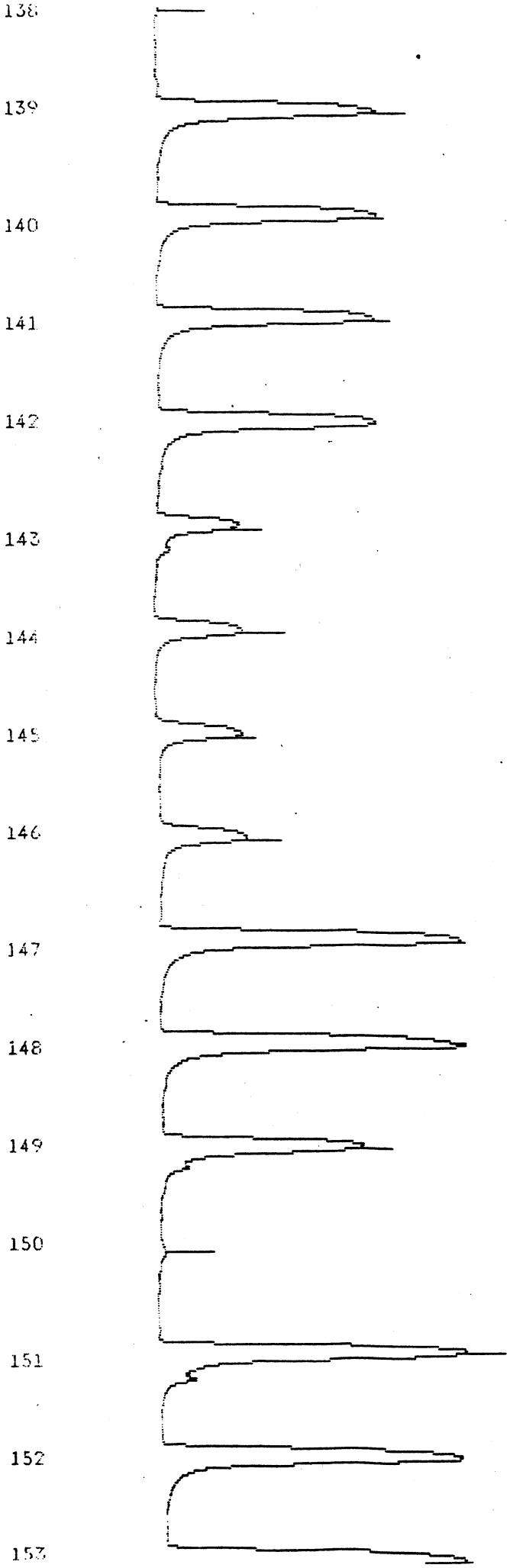
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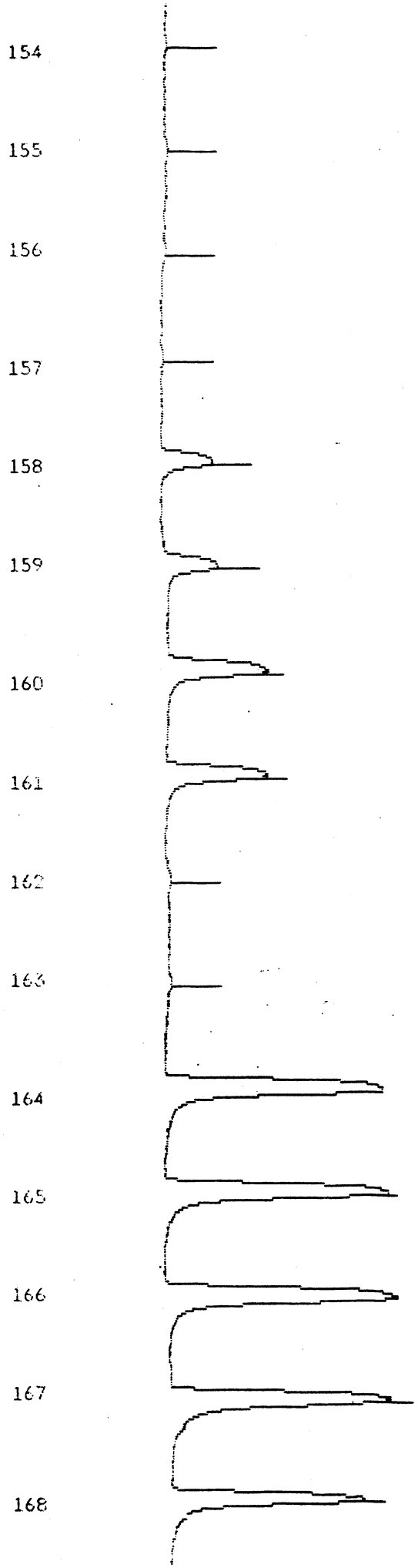
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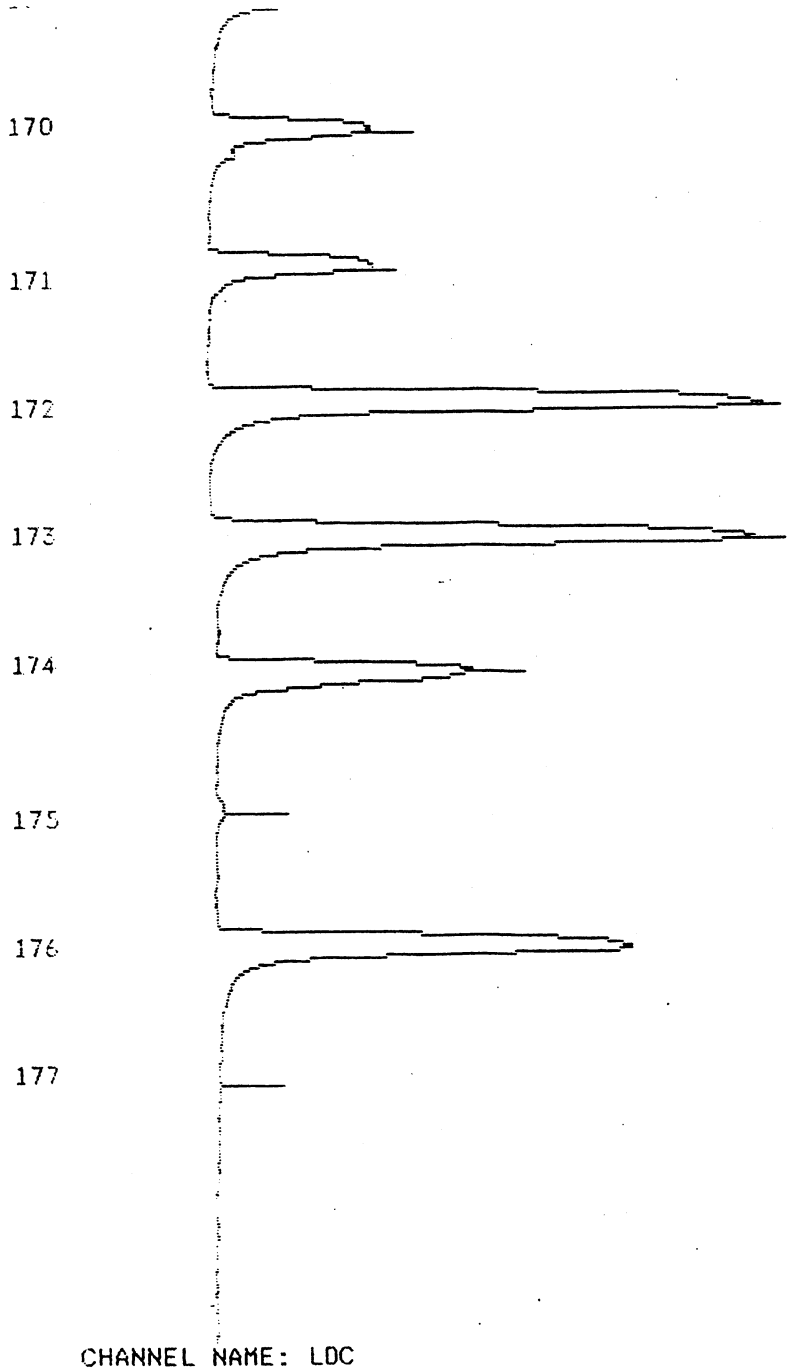

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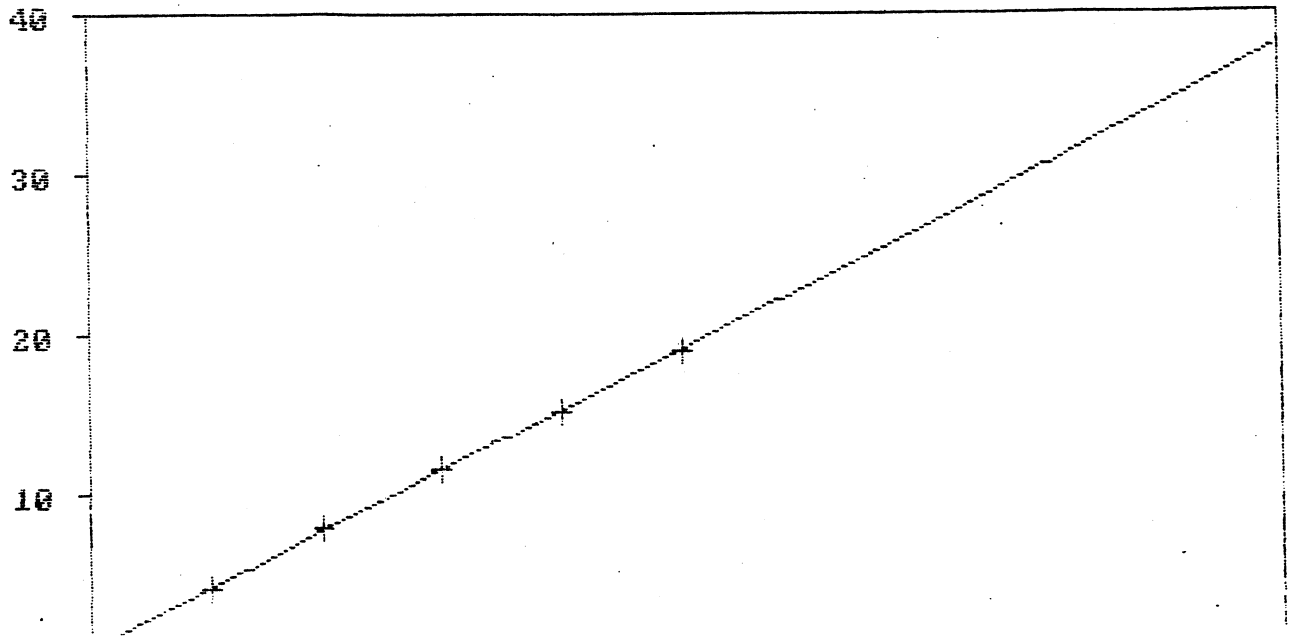
RUN NAME: 000107WA



DATA TYPE: FIA
INTERCEPT = 0.19

CALIBRATION ORDER: 1 00045
SLOPE = 7.539508

CORRELATION: .9999012

CHANNEL NAME: LOC
RUN DATE: 01-07-2000
SAMPLE TABLE NAME: 000107WA
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	Total µg	CONCENTRATION (ppb)	EF	
1	PRIMER	1	1	10.8		1.406	s	
2	DUMMY	1	1	0.1		-0.013	I	
3	S1: 0	1	1	0.1		-0.013	I	
4	S2: .5	1	1	4.0		0.502		
5	S3: 1	1	1	7.9		1.017		
6	S4: 1.5	1	1	11.6		1.510		
7	S5: 2	1	1	15.1		1.983		
8	S6: 2.5	1	1	19.0		2.501		
9	ICV	1	1	10.9		1.425		95%
10	B	1	1	0.0		-0.026	b	
11	D4	1	1	11.6		1.510	d	
12	WS 378	1	1	15.1		1.976		99%
13	ORG REF	1	1	15.0		1.963		98%
14	BL0107-4N1B 69884	1	1	0.1	<0.03	-0.016	I	
15	BL0107-4N1B	1	1	0.1		-0.016	I	
16	BL0107S	1	1	7.7	0.302	0.998		109%
17	BL0107S	1	1	7.8		1.014		
18	BL0107DS	1	1	7.8	0.304	1.014		101%
19	BL0107DS	1	1	7.8		1.011		
20	69886	2	1	9.0	0.721	2.346	M	
21	69886	2	1	9.5		2.462		
22	69886D	2	1	9.4	0.744	2.430		
23	69886D	2	1	9.7		2.527		
24	69886S	2	1	16.5	1.295	4.315		93%
25	69886S	2	1	16.5		4.315		
26	69886DS	2	1	17.3	1.362	4.529		105%
27	69886DS	2	1	17.3		4.548		
28	69885	1	1	39.4		5.202	R	RERUN @ END MA
29	69885	1	1	39.6		5.221	R	
30	69887	2	1	8.9	0.706	2.307		
31	69887	2	1	9.2		2.397	s	
32	69888	4	1	11.8	1.858	6.142		
33	69888	4	1	12.0		6.246		
34	CCV	1	1	7.2		0.930		93%
35	B	1	1	0.0		-0.026	b	
36	D4	1	1	11.6		1.510	d	
37	70235	1	1	4.1	MA 0.155 ~~0.155~~	0.519		
38	70235	1	1	4.1		0.515		
39	70236	4	1	9.3	1.423	4.821		
40	70236	4	1	9.0		4.665		
41	70237	1	1	8.4	0.323	1.089		
42	70237	1	1	8.2		1.066		
43	70238	5	1	11.8	2.289	7.726		
44	70238	5	1	11.6		7.532	M	
45	BL0107-5NKC	1	1	0.0	<0.03	-0.026	I	
46	BL0107-5NKC	1	1	0.0		-0.022	s	
47	BL0107S	1	1	7.6	0.295	0.978		99%
48	BL0107S	1	1	7.7		0.991		
49	BL0107DS	1	1	8.1	0.317	1.053		105%

52	65836	4	1	7.6		3.927		
53	65836D	4	1	7.6	3.931	3.927		
54	65836D	4	1	7.6		3.940		
55	65836S	4	1	9.8	5.035	5.106	107%	
56	65836S	4	1	9.5		4.963		
57	CCV	1	1	7.4		0.949	95%	
58	B	1	1	0.0		-0.026	b	
59	D4	1	1	11.6		1.510	d	
60	65836DS	4	1	9.7	5.067	5.067	110%	
61	65836DS	4	1	0.0		-0.102	CLIP MISSED	RERUN ON 010S
62	65835	1	1	0.3	<0.100	0.010	I	
63	65835	1	1	0.3		0.020	I	
64	65837	1	1	4.8	0.627	0.612		
65	65837	1	1	5.0		0.642		
66	65838	1	1	7.2	0.925	0.930		
67	65838	1	1	7.1		0.920		
68	BL0107-1NKC 73483	1	1	0.0	<0.03	-0.019	I	
69	BL0107-1NKC	1	1	0.0		-0.022	I	
70	BL0107S	1	1	7.9	0.311	1.021	103%	
71	BL0107S	1	1	8.1		1.050		
72	BL0107DS	1	1	8.0	0.308	1.040	103%	
73	BL0107DS	1	1	7.8		1.014		
74	73486	1	1	0.5	<0.100	0.039		
75	73486	1	1	0.6		0.049		
76	73486D	1	1	0.6	<0.100	0.059	s	
77	73486D	1	1	0.6		0.049		
78	73486S	1	1	8.6	1.116	1.111	107%	
79	73486S	1	1	8.6		1.121		
80	CCV	1	1	7.4		0.959	96%	
81	B	1	1	0.0		-0.026	b	
82	D4	1	1	11.6		1.510	d	
83	73486DS	1	1	8.6	1.125	1.118	107%	
84	73486DS	1	1	8.7		1.131		
85	73484	1	1	0.0	<0.100	-0.026	I	
86	73484	1	1	0.0		-0.026	I	
87	73485	1	1	0.1	<0.100	-0.013	I	
88	73485	1	1	0.1		-0.006	I	
89	73487	1	1	0.2	<0.100	0.004	I	
90	73487	1	1	0.3		0.010	I	
91	73488	1	1	0.1	<0.100	-0.009	s	
92	73488	1	1	0.1		-0.013	I	
93	73489	1	1	0.0	<0.100	-0.026	I	
94	73489	1	1	0.0		-0.026	I	
95	73490	10	1	7.5	9.931	9.720		
96	73490	10	1	7.8		10.141		
97	73491	10	1	9.8	12.635	12.765		
98	73491	10	1	9.6		12.505		
99	73492	10	1	8.8	11.323	11.469		
100	73492	10	1	8.6		11.177		
101	BL0107-2NKC	1	1	0.1	<0.03	-0.016	I	
102	BL0107-2NKC	1	1	0.0		-0.019	I	
103	CCV	1	1	7.4		0.953	95%	
104	B	1	1	0.0		-0.026	b	
105	D4	1	1	11.6		1.510	d	
106	BL0107S	1	1	7.8	0.305	1.014	101%	
107	BL0107S	1	1	7.9		1.017		
108	BL0107DS	1	1	8.0	0.309	1.037	103%	
109	BL0107DS	1	1	7.9		1.021		
110	73508	1	1	0.8	<0.100	0.081		
111	73508	1	1	0.7		0.072		
112	73508D	1	1	0.7	<0.100	0.065		
113	73508D	1	1	0.8		0.075		
114	73508S	1	1	8.0	1.028	1.034	95%	
115	73508S	1	1	7.9		1.021		

00347

118	73507	1	1	0.0	<0.100	-0.026	I	
119	73507	1	1	0.0		-0.026	I	
120	73509	1	1	2.8	0.344	0.347		
121	73509	1	1	2.8		0.340	s	
122	73510	1	1	0.9	<0.100	0.097		
123	73510	1	1	0.9		0.097		
124	73511	1	1	0.0	<0.100	-0.026	I	
125	73511	1	1	0.0		-0.026	I	
126	CCV	1	1	7.5		0.969		97%
127	B	1	1	0.0		-0.026	b	
128	D4	1	1	11.6		1.510	d	
129	73512	1	1	0.0	<0.100	-0.026	I	
130	73512	1	1	0.0		-0.026	I	
131	73513	1	1	11.8	1.557	1.539		
132	73513	1	1	12.1		1.574		
133	73514	1	1	10.2	1.338	1.328		
134	73514	1	1	10.4		1.348		
135	73515	10	1	5.7	7.372	7.355		
136	73515	10	1	5.8		7.388	s	
137	BL0107-3NKC 74131	1	1	0.0	<0.03	-0.026	I	
138	BL0107-3NKC	1	1	0.0		-0.026	I	
139	BL0107S	1	1	8.1	0.315	1.046		105%
140	BL0107S	1	1	8.1		1.053		
141	BL0107DS	1	1	8.0	0.313	1.040		104%
142	BL0107DS	1	1	8.1		1.046		
143	74134	1	1	2.9	0.370	0.357		
144	74134	1	1	3.1		0.383		
145	74134D	1	1	3.1	0.383	0.379		
146	74134D	1	1	3.1		0.386		
147	74134S	1	1	11.3	1.492	1.477		111%
148	74134S	1	1	11.6		1.506		
149	CCV	1	1	7.6		0.978		98%
150	B	1	1	0.0		-0.026	b	
151	D4	1	1	11.6		1.510	M	
152	74134DS	1	1	11.3	1.466	1.471		109%
153	74134DS	1	1	11.2		1.461		
154	74132	1	1	0.0	<0.100	-0.026	I	
155	74132	1	1	0.0		-0.026	I	
156	74133	1	1	0.0	<0.100	-0.026	I	
157	74133	1	1	0.0		-0.026	I	
158	74135	1	1	1.6	0.200	0.191		
159	74135	1	1	1.8		0.208		
160	74136	1	1	3.5	0.434	0.434		
161	74136	1	1	3.5		0.434		
162	74137	1	1	0.0	<0.100	-0.026	I	
163	74137	1	1	0.0		-0.026	I	
164	74138	10	1	7.9	10.335	10.238		
165	74138	10	1	8.1		10.432		
166	74139	10	1	8.3	10.465	10.789	s	
167	74139	10	1	7.8		10.141		
168	74140	10	1	6.9	8.846	8.943		
169	74140	10	1	6.8		8.748		
170	73485	10	1	4.2	1.629 ~~5.429~~ MS	5.315		1.629 mg
171	73485	10	1	4.4		5.542		
172	WS 378	1	1	15.6		2.041		102%
173	ORG REF	1	1	15.1		1.983		99%
174	CCV	1	1	7.1		0.910		91%
175	B	1	1	0.0		-0.026	b	
176	D4	1	1	11.6		1.510	d	

INTERCEPT: 0.19 LINEAR COEF: 7.539508
CORRELATION COEF: .9999012

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
073488	PHIL-PAR	RM BH Outlet-R3	Mercury -	PV	-0.100						00/01/09	1NMN	00/01/09	MG01	53.	33.	
[redacted]																	
073507	PHIL-PAR	RM FGD Inlet-BT	Mercury -	PV	-0.100						00/01/09	2NMN	00/01/09	MG01	53.	33.	
073508	PHIL-PAR	RM FGD Inlet-R1	Mercury -	PV	-0.100	-0.100	0.981	96.	0.974	96.	00/01/09	2NMN	00/01/09	MG01	53.	33.	
073509	PHIL-PAR	RM FGD Inlet-R2	Mercury -	PV	0.779						00/01/09	2NMN	00/01/09	MG01	53.	33.	
073510	PHIL-PAR	RM FGD Inlet-R3	Mercury -	PV	-0.100						00/01/09	2NMN	00/01/09	MG01	53.	33.	
[redacted]																	
BL0109	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.304	101.	0.304	101.	00/01/09	2NMN	00/01/09	MG01	$$$	$$$	
074131	PHIL-PAR	MB R456	Mercury -	PV	-0.030	-99999.0	0.300	100.	0.300	100.	00/01/09	3NMN	00/01/09	MG01	38.	32.	
[redacted]																	
BL0109	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.300	100.	0.300	100.	00/01/09	3NMN	00/01/09	MG01	$$$	$$$	

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

00048

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.09 Run Code: MG01 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL0109	INMN		
13			"			
14			BL0109 S			
15			"			
16			BL0109 DS			
17			"			
18			73486			
19			"			
20			73486 D			
21			"			
22			73486 S			
23			"			
24			73486 DS			
25			"			
26			73484			
27			"			
28			73485			
29			"			
30			73487			
31			"			
32			CCV			
33			B			
34			D4			
35			73488			
36			"			
37			73489			
38			"			
39		1/2	73490			
40		↓	"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41		1/2	73491			
42		↓	"			
43			73492			
44		↓	"			
45			BL0109	2NMN		
46			"			
47			BL0109 S			
48			"			
49			BL0109 DS			
50			"			
51			73508			
52			"			
53			73508 D			
54			"			
55			CCV			
56			B			
57			D4			
58			73508 S			
59			"			
60			73508 DS			
61			"			
62			73507			
63			"			
64			73509			
65			"			
66			73510			
67			"			
68			73511			
69			"			
70			73512			
71			"			
72		1/2	73513			
73		↓	"			
74			73514			
75			"			
76			73515			
77		↓	"			
78			CCV			
79			B			
80			D4			

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.09 Run Code: MG01 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			BL0109	3NMN		
22			"			
23			BL0109 S			
24			"			
25			BL0109 DS			
26			"			
27		1/4	74134			
28			"			
29			74134 D			
30			"			
31			74134 S			
32			"			
33			74134 DS			
34			"			
35			74132			
36			"			
37			74133			
38			"			
39		1/2	74135			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
44			74136			
45			"			
46			74137			
47			"			
48		1/2	74138			
49			"			
50			74139			
51			"			
52			74140			
53			"			
54			BL0109 S			
55			"			
56			73486 DS			
57			"			
58		1/4	73491			
59			"			
60						
61						
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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.

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CHART SPEED: 30
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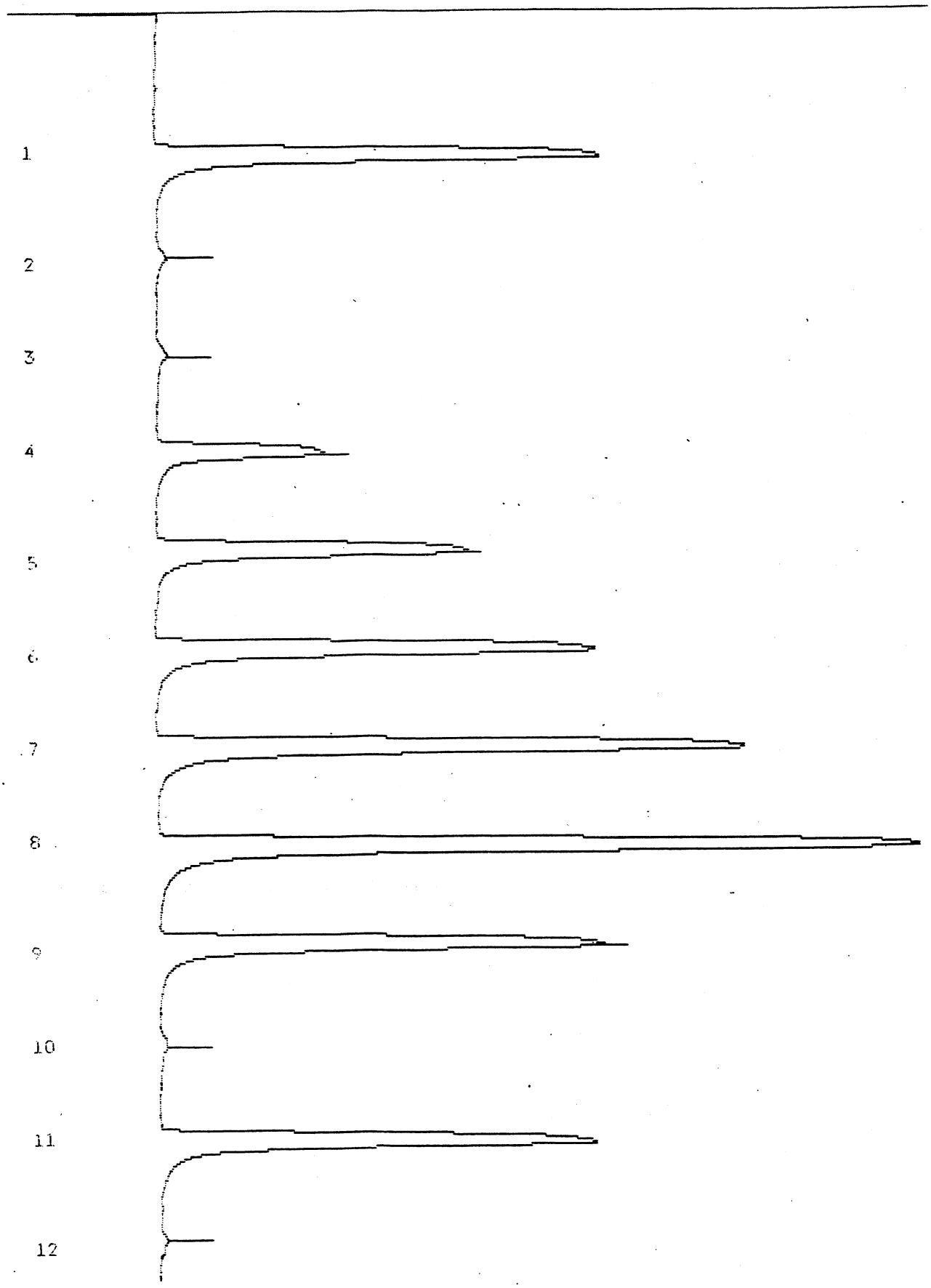

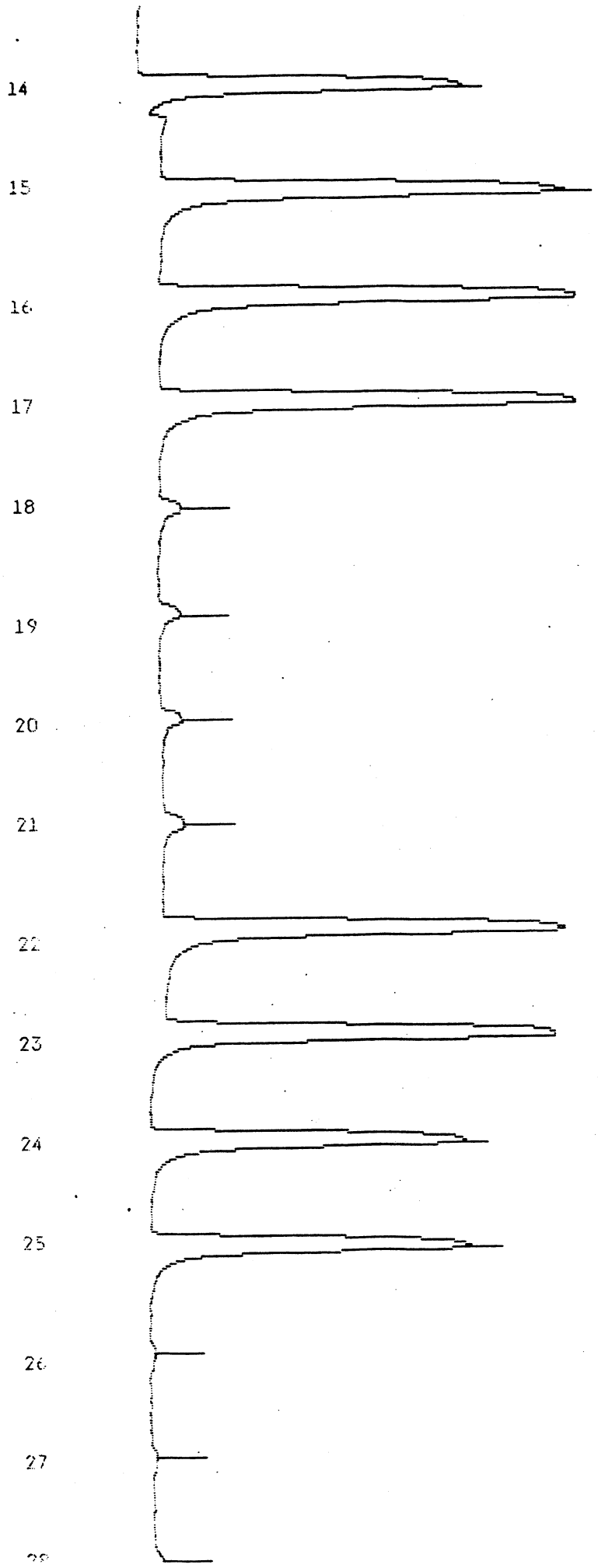
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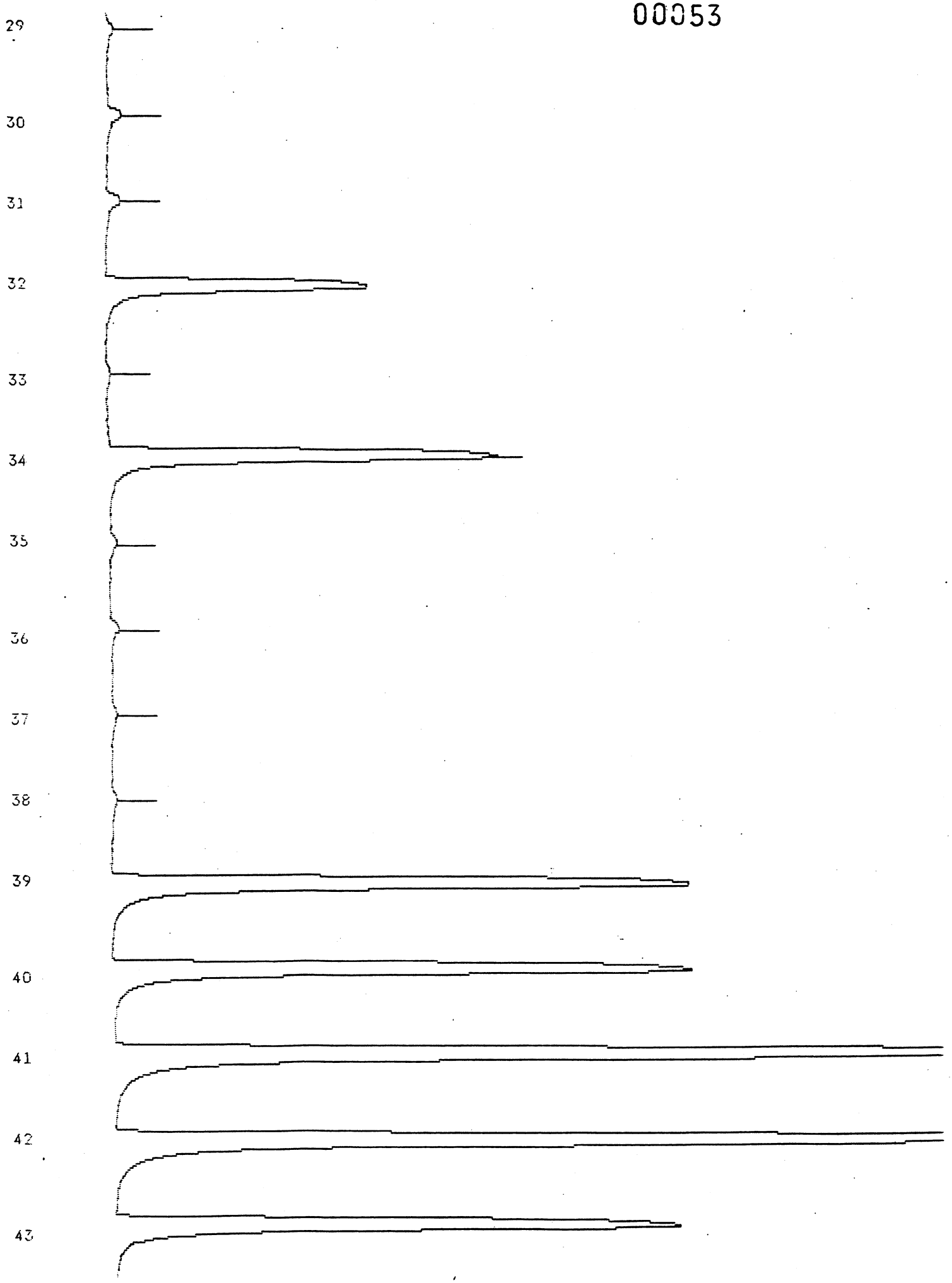
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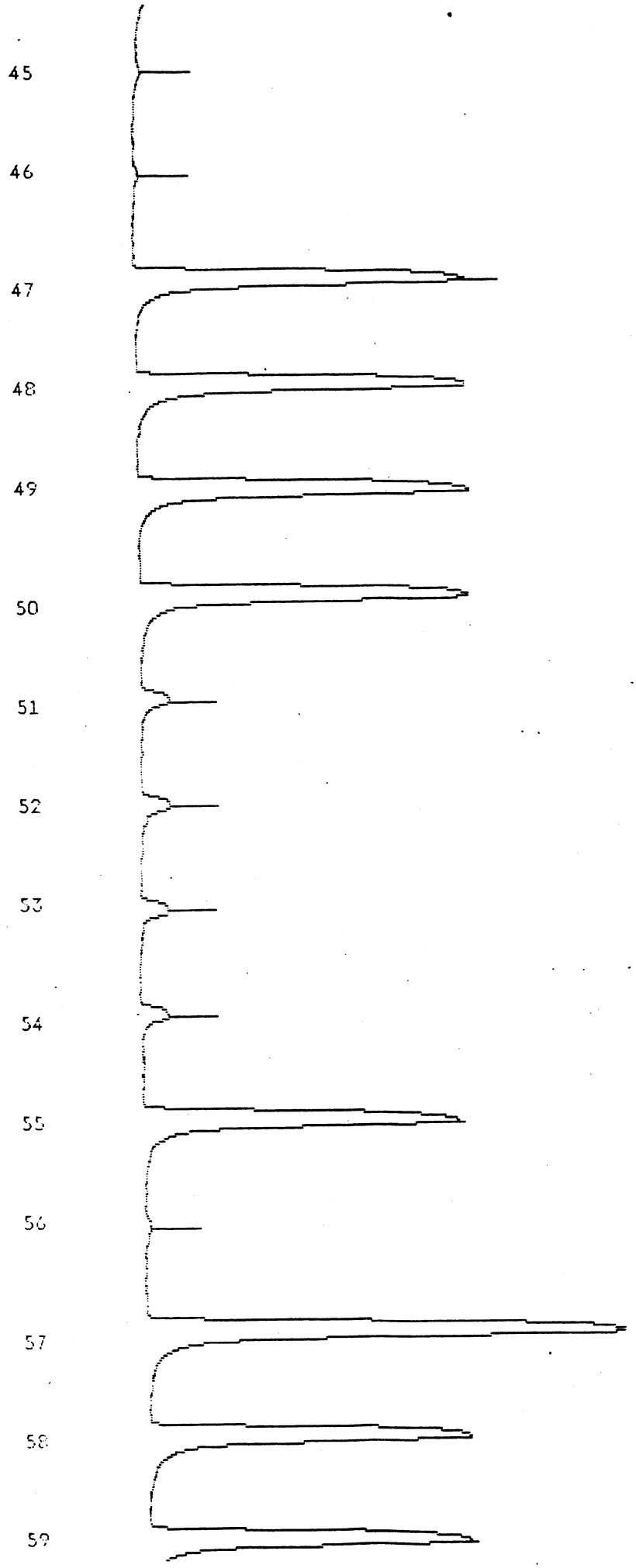
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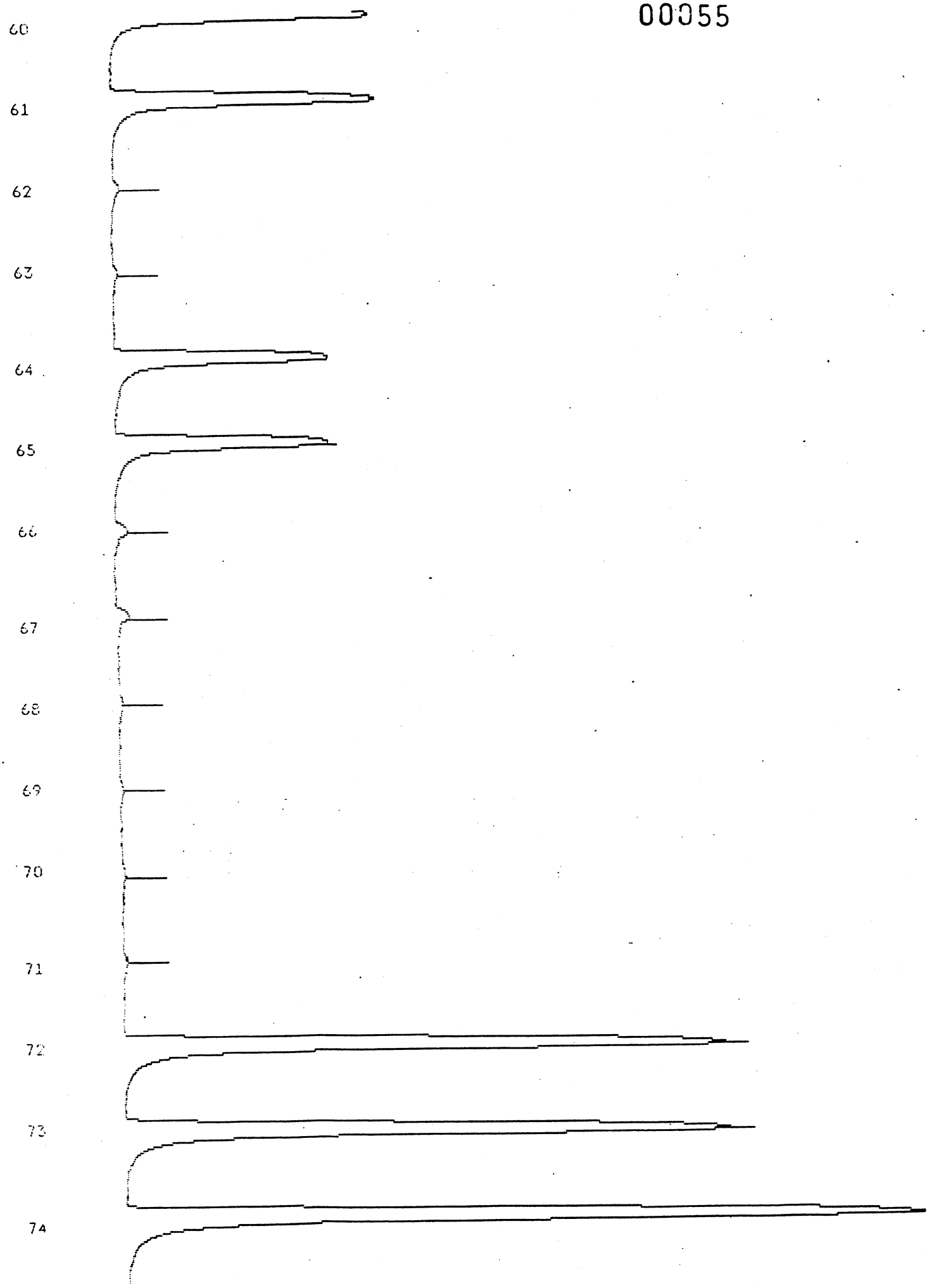
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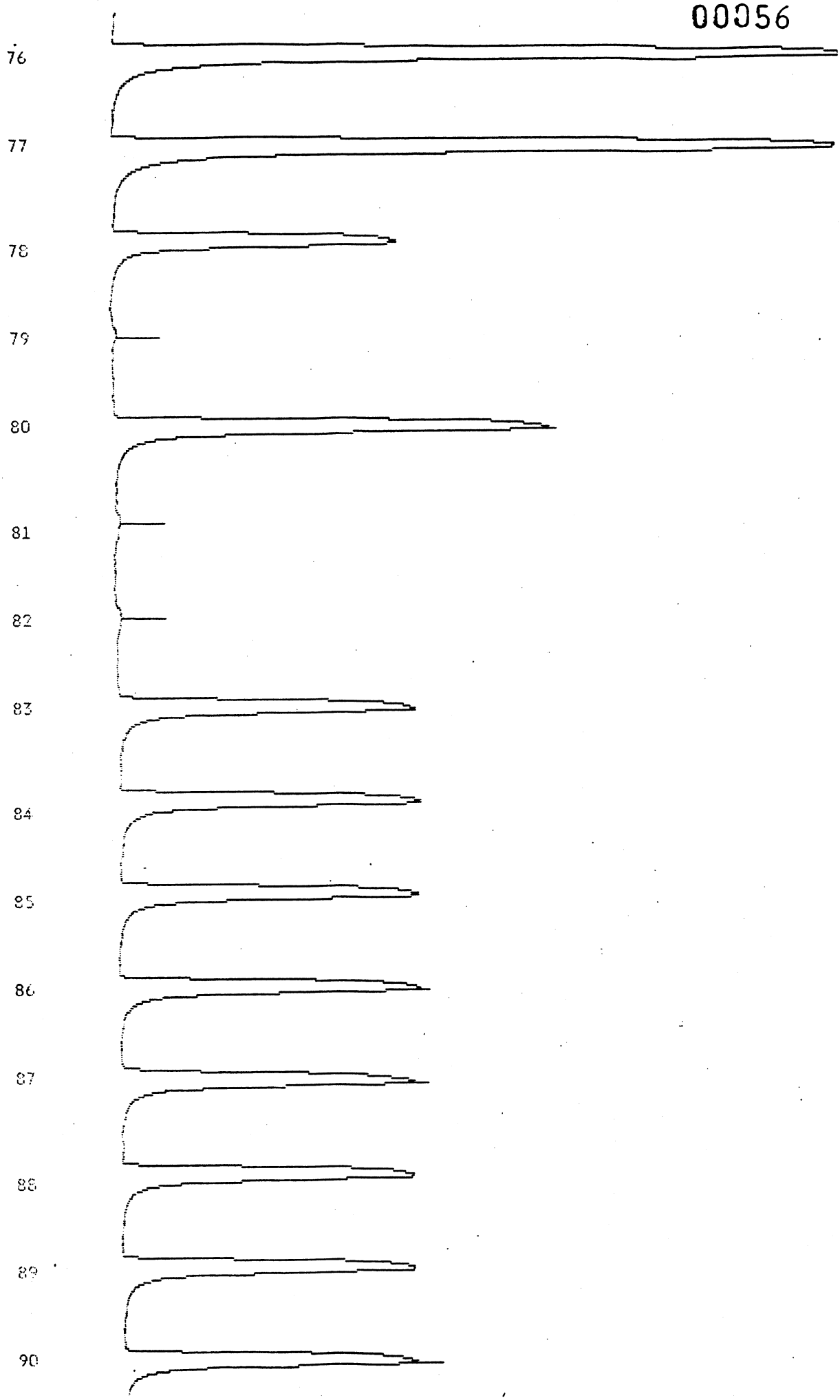
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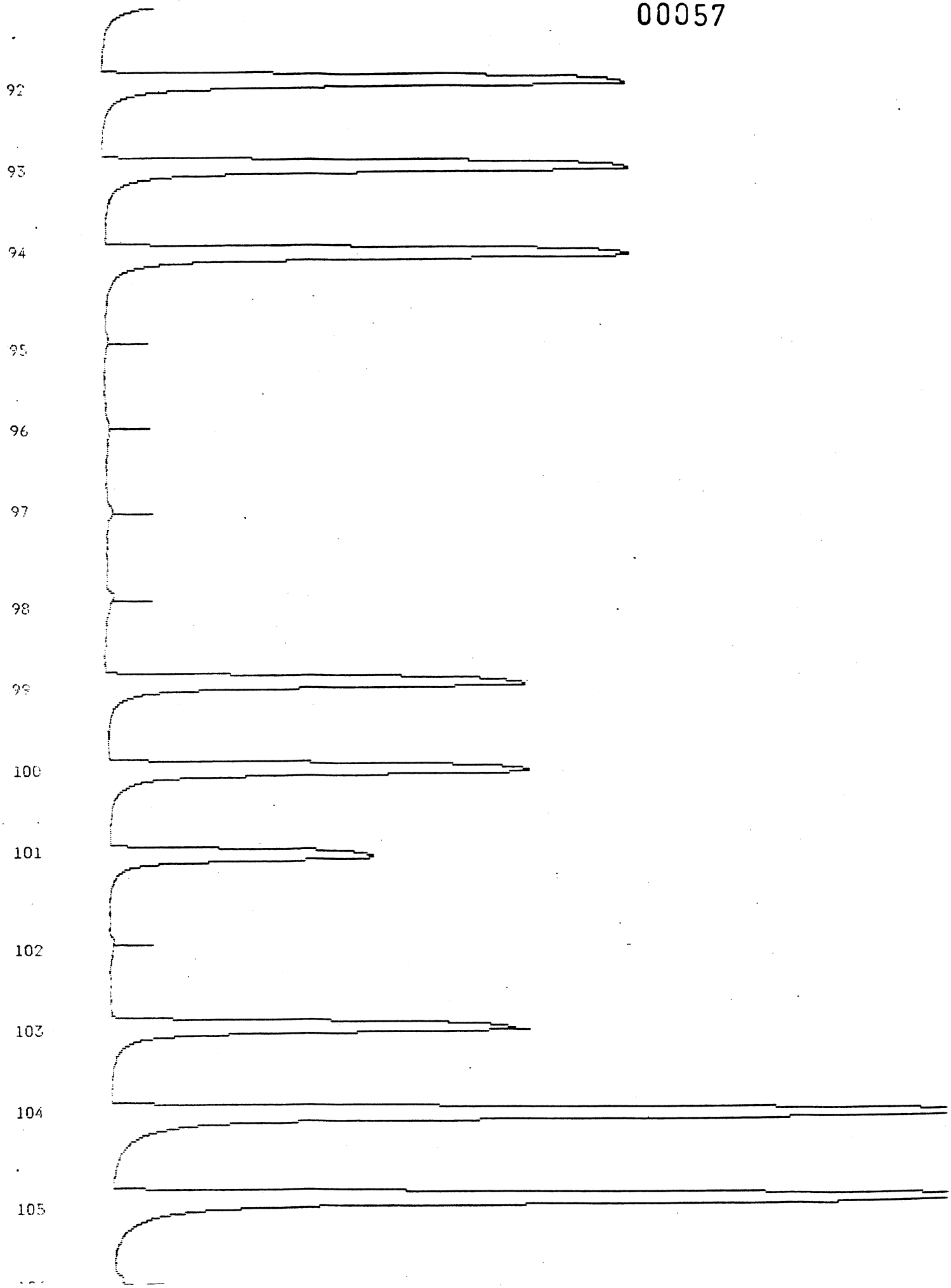
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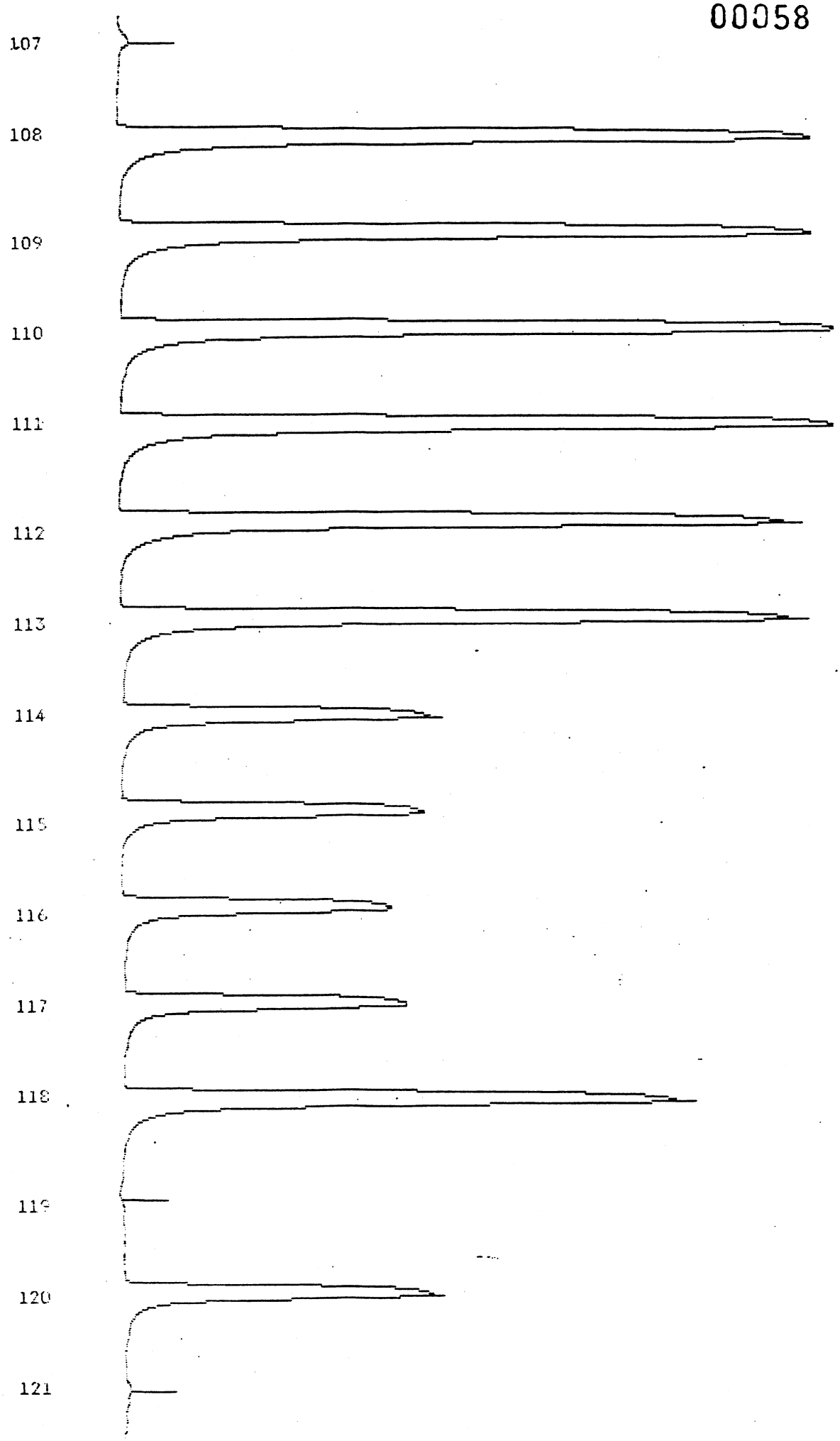
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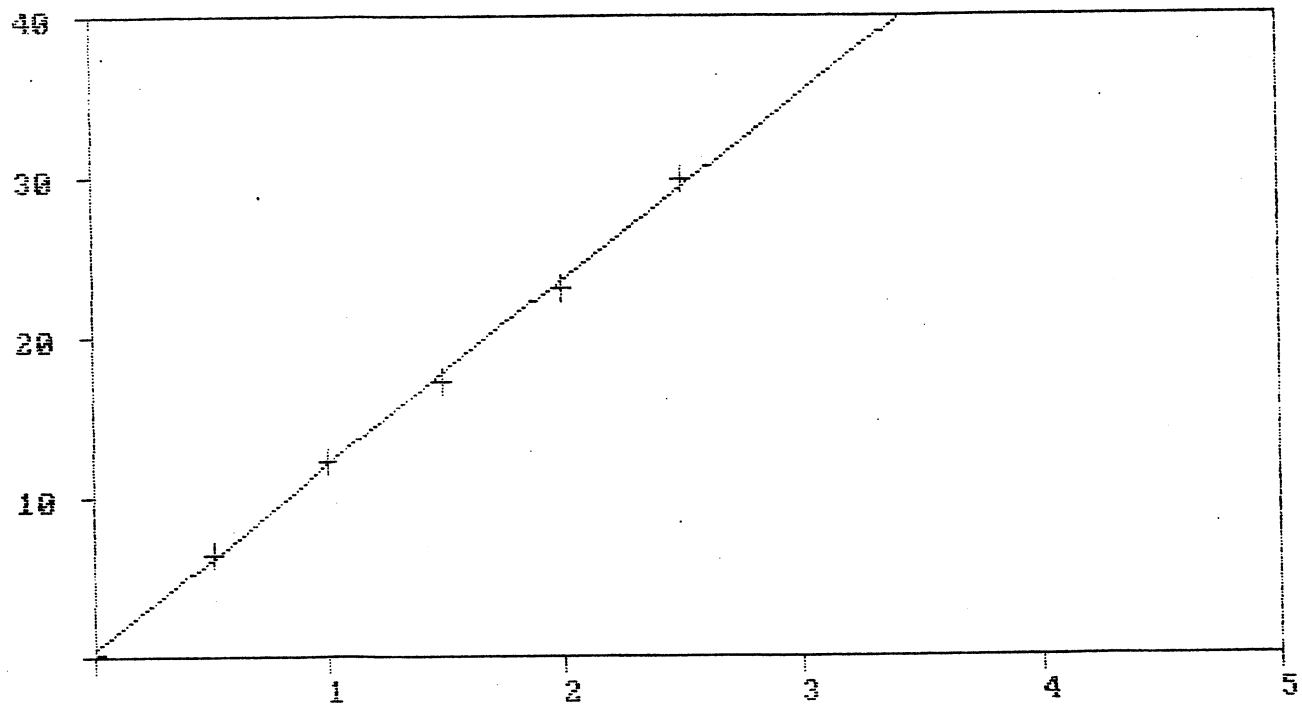
CHANNEL NAME: LDC
RUN NAME: 000109W



DATA TYPE: FIA
INTERCEPT = 0.44

CALIBRATION ORDER: 1
SLOPE = 11.51788

CORRELATION: .9991786

CHANNEL NAME: LDC
RUN DATE: 01-09-2000
SAMPLE TABLE NAME: 000109W
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION (ppb)	EF
1	PRIMER	1	1	17.6		1.496	s
2	DUMMY	1	1	0.3		-0.012	I
3	S1: 0	1	1	0.3		-0.017	I
4	S2: .5	1	1	6.5		0.525	
5	S3: 1	1	1	12.3		1.031	
6	S4: 1.5	1	1	17.3		1.468	
7	S5: 2	1	1	22.9		1.954	
8	S6: 2.5	1	1	29.5		2.539	
9	ICV	1	1	17.3		1.466 98%	
10	8	1	1	0.0	Total µg	-0.042	b
11	STD4	1	1	17.0		1.442	
12	BL0109-1NMN VOID MB	1	1	0.0	<0.03	-0.042	I
13	BL0109-1NMN 1	1	1	0.0		-0.042	I

00360

17	BL0109DS	1	1	14.9				RERWN ON 0110. MB
18	73486	1	1	0.5		0.001		
19	73486	1	1	0.5		0.005	I	
20	73486D	1	1	0.4		-0.004	I	
21	73486D	1	1	0.5		0.001		
22	73486S	1	1	14.4		1.212		
23	73486S	1	1	14.2		1.199		
24	73486DS	1	1	11.3		0.945		
25	73486DS	1	1	11.5		0.965		
26	73484	1	1	0.0		-0.042	I	
27	73484	1	1	0.0		-0.042	I	
28	73485	1	1	0.1		-0.036	I	
29	73485	1	1	0.1		-0.031	I	
30	73487	1	1	0.4		-0.008	I	
31	73487	1	1	0.4		-0.006	s	
32	CCV	1	1	11.6		0.969		97%
33	B	1	1	0.0		-0.042	b	
34	STD4	1	1	17.1		1.453		
35	73488	1	1	0.2	<0.100	-0.027	I	
36	73488	1	1	0.2		-0.025	I	
37	73489	1	1	0.1	<0.100	-0.034	I	
38	73489	1	1	0.0		-0.040	I	
39	73490	2	1	25.6	4.387	4.395		
40	73490	2	1	25.5		4.378		
41	73491	2	1	41.3		7.125	R	OFF SCALE RERUN
42	73491	2	1	41.4		7.155	R	
43	73492	2	1	24.9	4.265	4.271		
44	73492	2	1	24.9		4.258		
45	BL0109-2NMN	1	1	0.0	<0.03	-0.042	I	
46	BL0109-2NMN	1	1	0.0		-0.042	s	
47	BL0109S	1	1	12.1	0.304	1.011		101%
48	BL0109S	1	1	12.1		1.014		
49	BL0109DS	1	1	12.1	0.304	1.018		101%
50	BL0109DS	1	1	12.0		1.005		
51	73508	1	1	0.7	<0.100	0.020		
52	73508	1	1	0.8		0.024		
53	73508D	1	1	0.6	<0.100	0.013		
54	73508D	1	1	0.7		0.018		
55	CCV	1	1	11.4		0.954		95%
56	B	1	1	0.0		-0.042	b	
57	D4	1	1	17.3		1.468	d	
58	73508S	1	1	11.7	0.981	0.984		96%
59	73508S	1	1	11.7		0.977		
60	73508DS	1	1	11.6	0.974	0.973		96%
61	73508DS	1	1	11.6		0.975	s	
62	73507	1	1	0.1	<0.100	-0.036	I	
63	73507	1	1	0.0		-0.042	I	
64	73509	1	1	9.4	0.779	0.779		
65	73509	1	1	9.4		0.779		
66	73510	1	1	0.4	<0.100	-0.010	I	
67	73510	1	1	0.4		-0.010	I	
68	73511	1	1	0.0	<0.100	-0.042	I	
69	73511	1	1	0.0		-0.042	I	
70	73512	1	1	0.0	<0.100	-0.042	I	
71	73512	1	1	0.0		-0.040	I	
72	73513	2	1	26.3	4.514	4.510		
73	73513	2	1	26.3		4.518		
74	73514	2	1	34.9		6.007	R	OFF SCALE RERUN
75	73514	2	1	34.6		5.960	R	
76	73515	2	1	29.3	5.005	5.026	s	
77	73515	2	1	29.0		4.983		
78	CCV	1	1	11.4		0.954		95%
79	B	1	1	0.0		-0.042	b	

36C A

83	BL0109S	1	1	11.9	0.300	0.994	100%	
84	BL0109S	1	1	12.0		1.005		
85	BL0109DS	1	1	11.9	0.300	0.999	100%	
86	BL0109DS	1	1	12.0		1.005		
87	74134	4	1	11.6	3.923	3.901		
88	74134	4	1	11.8		3.944		
89	74134D	4	1	11.7	3.914	3.909		
90	74134D	4	1	11.7		3.918		
91	74134S	4	1	22.8	7.770	7.791	98%	
92	74134S	4	1	22.7		7.749		
93	74134DS	4	1	22.7	7.762	7.749	96%	
94	74134DS	4	1	22.7		7.774		
95	74132	1	1	0.0	<0.100	-0.042	I	
96	74132	1	1	0.0		-0.042	I	
97	74133	1	1	0.1	<0.100	-0.036	I	
98	74133	1	1	0.1		-0.031	I	
99	74135	2	1	18.0	3.056	3.060		
100	74135	2	1	17.9		3.051		
101	CCV	1	1	11.3		0.945	95%	
102	B	1	1	0.0		-0.042	b	
103	D4	1	1	17.3		1.468	d	
104	74136	1	1	37.8		3.262	R	OFF SCALE RERUN
105	74136	1	1	38.0		3.274	R	
106	74137	1	1	0.2	<0.100	-0.027	s	
107	74137	1	1	0.2		-0.025	I	
108	74138	2	1	26.7	4.568	4.574		
109	74138	2	1	26.6		4.561		
110	74139	2	1	27.5	4.727	4.727		
111	74139	2	1	27.5		4.727		
112	74140	2	1	25.6	4.390	4.390		
113	74140	2	1	25.6		4.390		
114	BL0109S	1	1	11.8		0.988		
115	BL0109S	1	1	11.6		0.969		
116	73486DS	1	1	10.2		0.849		
117	73486DS	1	1	10.7		0.894		
118	73491	4	1	21.1		7.203		
119	73491	4	1	0.0		-0.169	I	
120	CCV	1	1	11.7		0.977	98%	
121	B	1	1	0.0		-0.042	b	
122	D4	1	1	17.3		1.468	d	

INTERCEPT: 0.48 LINEAR COEF: 11.4495

CORRELATION COEF: .9992617

00/01/08 15:08:56 Printed by MGAS LDCA DATA TO BE VALIDATED (METVAL') Analyzed by MGAS

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
073483	PHIL-PAR	CD R	Mercury -	PV	-0.0100	-99999.0	0.1000	100.	0.1000	100.	00/01/07	1GPO	00/01/07	MG01	51.	31.	*BLKIMP*
073484	PHIL-PAR	RM BH Outlet-SB	Mercury -	PV	-0.2500						00/01/07	1GPO	00/01/07	MG01	51.	31.	*DDL*
073485	PHIL-PAR	RM BH Outlet-BT	Mercury -	PV	-0.2500						00/01/07	1GPO	00/01/07	MG01	51.	31.	*DDL*
073486	PHIL-PAR	RM BH Outlet-R1	Mercury -	PV	-0.2500	-0.2500	2.6120	105.	2.6040	104.	00/01/07	1GPO	00/01/07	MG01	51.	31.	*DDL*
073487	PHIL-PAR	RM BH Outlet-R2	Mercury -	PV	-0.2500						00/01/07	1GPO	00/01/07	MG01	51.	31.	*DDL*
073488	PHIL-PAR	RM BH Outlet-R3	Mercury -	PV	-0.2500						00/01/07	1GPO	00/01/07	MG01	51.	31.	*DDL*
[redacted]																	
BL0107	INTERNAL		Mercury -	PV	-0.0100	-99999.0	0.1000	100.	0.1000	100.	00/01/07	1GPO	00/01/07	MG01	$$$	$$$	*BLKIMP*
073507	PHIL-PAR	RM FGD Inlet-BT	Mercury -	PV	-0.2500						00/01/07	2GPO	00/01/07	MG01	51.	31.	*DDL*
073508	PHIL-PAR	RM FGD Inlet-R1	Mercury -	PV	-0.2500	-0.2500	2.5540	102.	2.4300	97.	00/01/07	2GPO	00/01/07	MG01	51.	31.	*DDL*
073509	PHIL-PAR	RM FGD Inlet-R2	Mercury -	PV	-0.2500						00/01/07	2GPO	00/01/07	MG01	51.	31.	*DDL*
073510	PHIL-PAR	RM FGD Inlet-R3	Mercury -	PV	-0.2500						00/01/07	2GPO	00/01/07	MG01	51.	31.	*DDL*
[redacted]																	
BL0107	INTERNAL		Mercury -	PV	-0.0100	-99999.0	0.1020	102.	0.1010	101.	00/01/07	2GPO	00/01/07	MG01	$$$	$$$	*BLKIMP*
074131	PHIL-PAR	MB R456	Mercury -	PV	-0.0100	-99999.0	0.1000	100.	0.1010	101.	00/01/07	3GPO	00/01/07	MG01	36.	30.	*BLKIMP*
[redacted]																	
BL0107	INTERNAL		Mercury -	PV	-0.0100	-99999.0	0.1000	100.	0.1010	101.	00/01/07	3GPO	00/01/07	MG01	$$$	$$$	*BLKIMP*

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

00061

UTOSAMPLER RUN LOG (MERCURY)

00.01.07 Run Code: MG01 Matrix: IMP

: BT/MG Units: µg (see comments) MDL: 0.01

F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
		Primer (ICV)			
		Dummy (Blk)			
		Std 1 (S1)	0.0		
		Std 2 (S2)	0.6		
		Std 3 (S3)	1.0		
		Std 4 (S4)	1.6		
		Std 5 (S5)	2.0		
		Std 6 (S6)	2.6		
		ICV			
		B (Std 1)			
		D4 (Std 4)			
		BL0107	1GPO		
		"			
		BL0107 S			
		"			
		BL0107 DS			
		"			
	10X	073486			
		"			
		073486D			
		"			
		0734865			
		"			
		073486DS			
		"			
		073484			
		"			
		073485			
		"			
		073487			
		"			
		CCV			
		B			
		D4			
	10x	073488			
		"			
		073489			
		"			
		073490			
		"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41		10X	073491			
42			"			
43			073492			
44			"			
45	5x		0734865			
46			"			
47			BL0107	2GPO		
48			"			
49			BL0107S			
50			"			
51			BL0107DS			
52			"			
53		10X	073508			
54			"			
55			CCV			
56			B			
57			D4			
58		10X	073508D			
59			"			
60			073508S			
61			"			
62			073508DS			
63			"			
64			073507			
65			"			
66			073509			
67			"			
68			073510			
69			"			
70			073511			
71			"			
72			073512			
73			"			
74			073513			
75			"			
76			073514			
77			"			
78			CCV			
79			B			
80			D4			

ments: *** "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.

00063

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.07 Run Code: MG01 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
31 ~~21~~		10X	073515			
22		↓	"			
23			BL0107	36PD		
24			"			
25			BL0107S			
26			"			
27			BL0107DS			
28		10X	"			
29			074134			
30			"			
31			074134D			
32			"			
33			074134S			
34			"			
35			074134DS			
36			"			
37			074132			
38			"			
39			074133			
40		V	"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			CCV			
42			B			
43			D4			
44		10X	074135			
45			"			
46			074136			
47			"			
48			074137			
49			"			
50			074138			
51			"			
52			074139			
53			"			
54			074140			
55		V	"			
56			CCV			
57			B			
58			D4			
59						
60						
61						
62						
63						
64			~~CCV~~ MA			
65			~~B~~			
66			~~D4~~			
67						
68						
69						
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78						
79						
80						

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

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

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

EPA 7470 WATER PREPARATION LOG - MERCURY

00264

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.)	1690	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 0101	"	"	"	"	(Processed Blank)
	11	BL 0101 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	73486	"	1ml	15ml	10X	Final Volume = 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	73484	"				
3	17	85	"				
4	18	87	"				
5	19	88	"				
6	20	89	"				
7	21	90	"				
8	22	91	"				
9	23	92	"				
10	24		"				

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	25	CCV (Cont. Calib. Verif.)	2690	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 0101	"	"	"	"	(Processed Blank) ~~250 ml~~
	27	BL 0101 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	73502	"	1ml	15ml	10X	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	73501	"				
3	33	09	"				
4	34	10	"				
5	35	11	"				
6	36	12	"				
7	37	13	"				
8	38	14	"				
9	39	15	"				
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: 14091 | H2SO4 Lot No: 5170220 | Bath Temp: 95 °C

Prepared By: DD 01-07 Date: 00/01/01 Checked by: CMP

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	41	CCV (Cont. Calib. Verif.)	26PO	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	42	BL 0107	"	"	"	"	(Processed Blank) 74131
	43	BL 0107 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	44	74134	"	1ml	15ml	10x	F.V. = 250 ml
1	45	D	"	↓	↓	↓	(Duplicate sample)
1	46	S	"	↓	↓	↓	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	47	DS	"	↓	↓	↓	(Duplicate Spiked sample)
2	48	74132	"	↓	↓	↓	
3	49	33	"	↓	↓	↓	
4	50	34	"	↓	↓	↓	
5	51	36	"	↓	↓	↓	
6	52	37	"	↓	↓	↓	
7	53	38	"	↓	↓	↓	
8	54	39	"	↓	↓	↓	
9	55	40	"	↓	↓	↓	
10	56		"	"	"	"	

Comments

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

*** group of several Method 29 testcodes

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

Procedure/Methodology:

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

REFERENCE STANDARDS/SPIKING SOLUTIONS:

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

ICV/CCV STANDARDS:

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

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

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

All reagents used are of a grade suitable for mercury analyses

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CHART SPEED: 30
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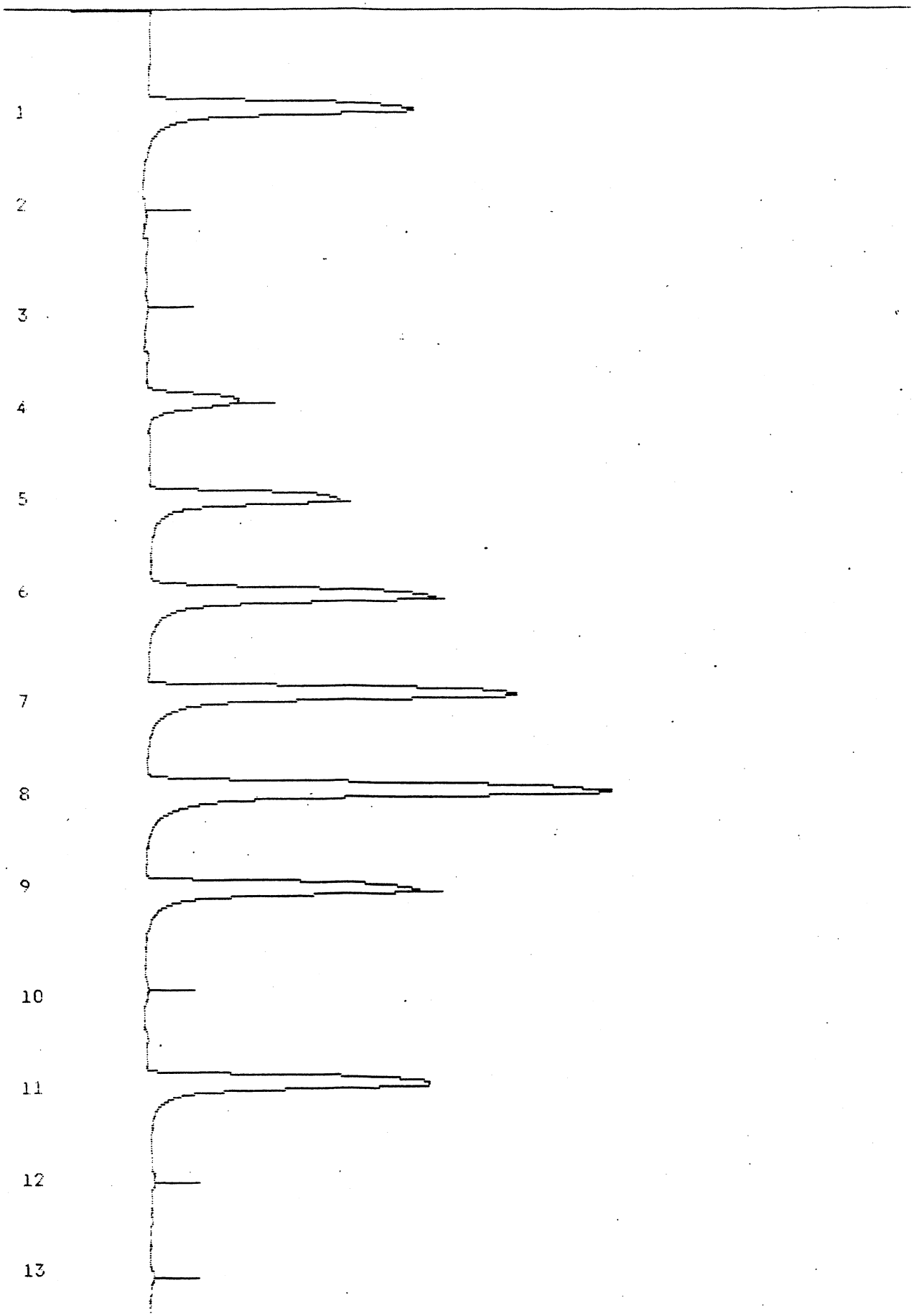

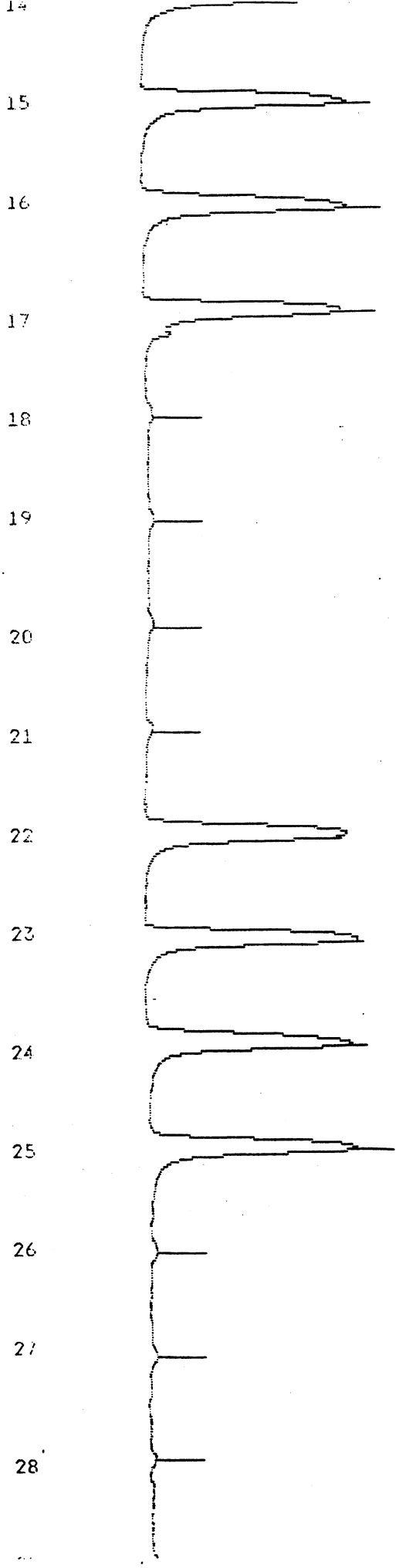
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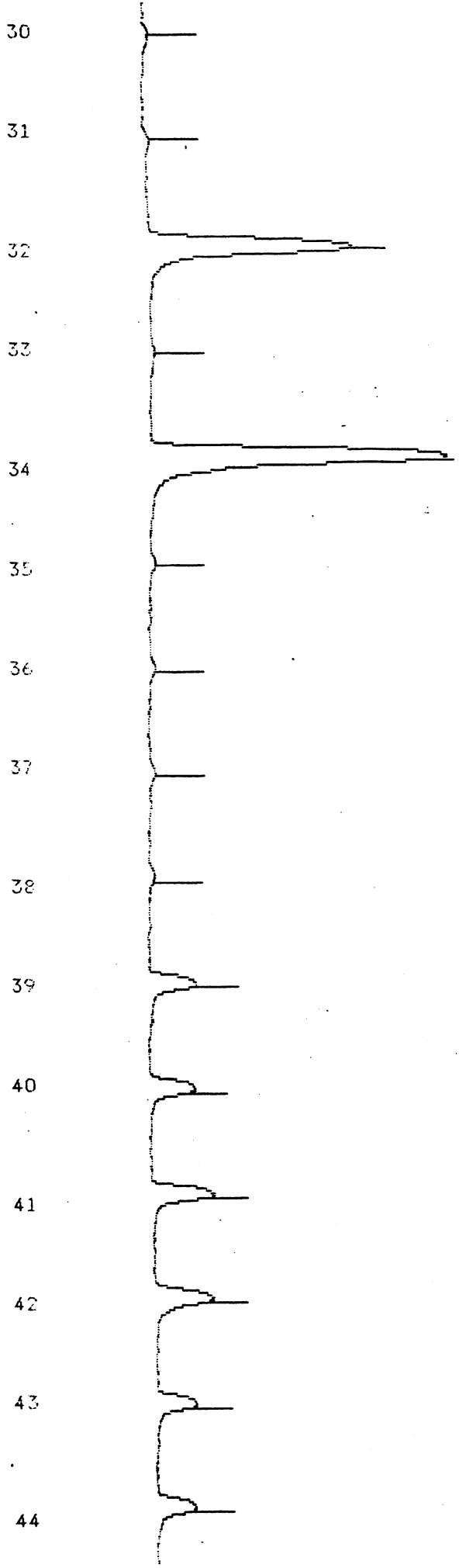
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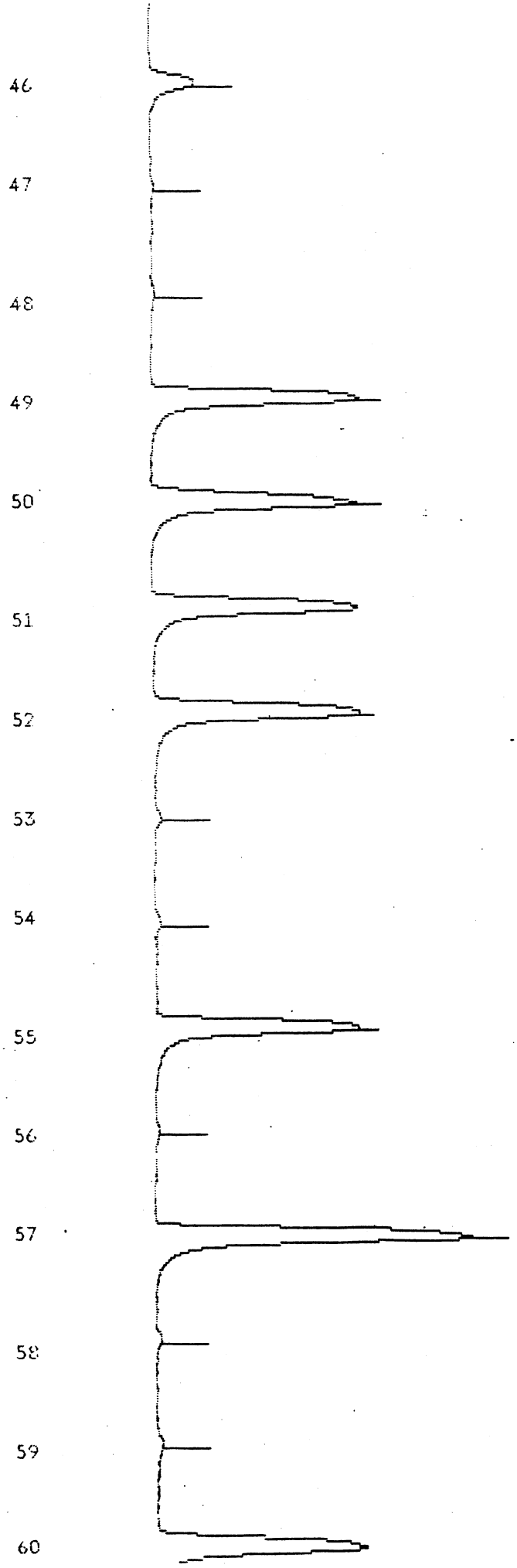
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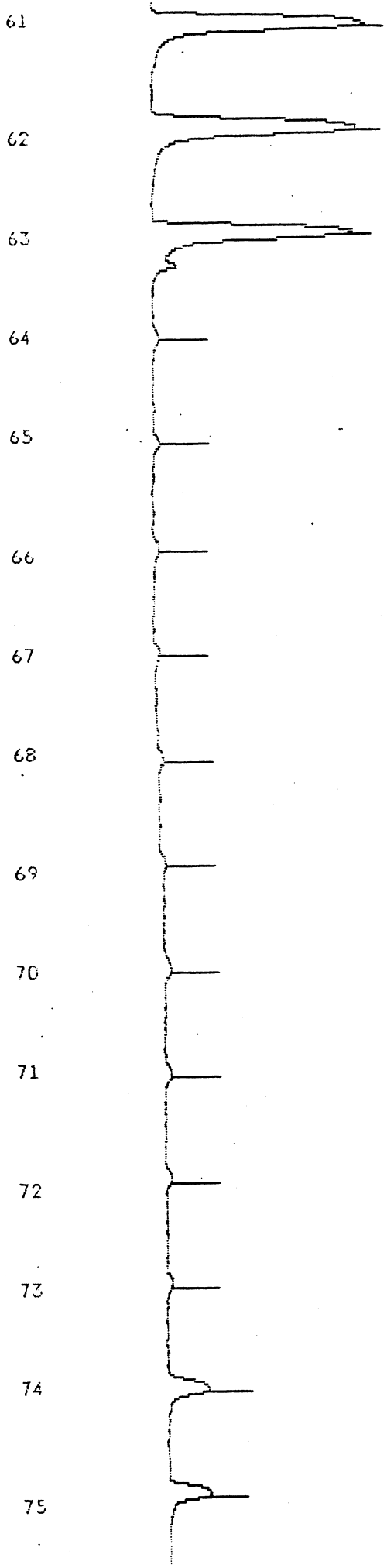
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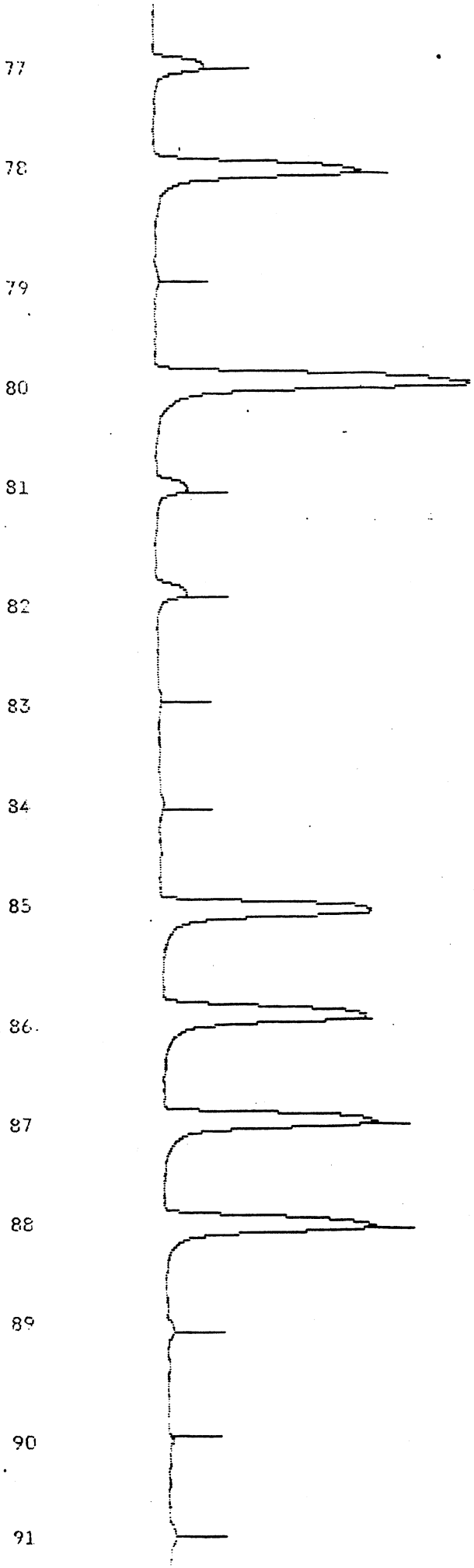
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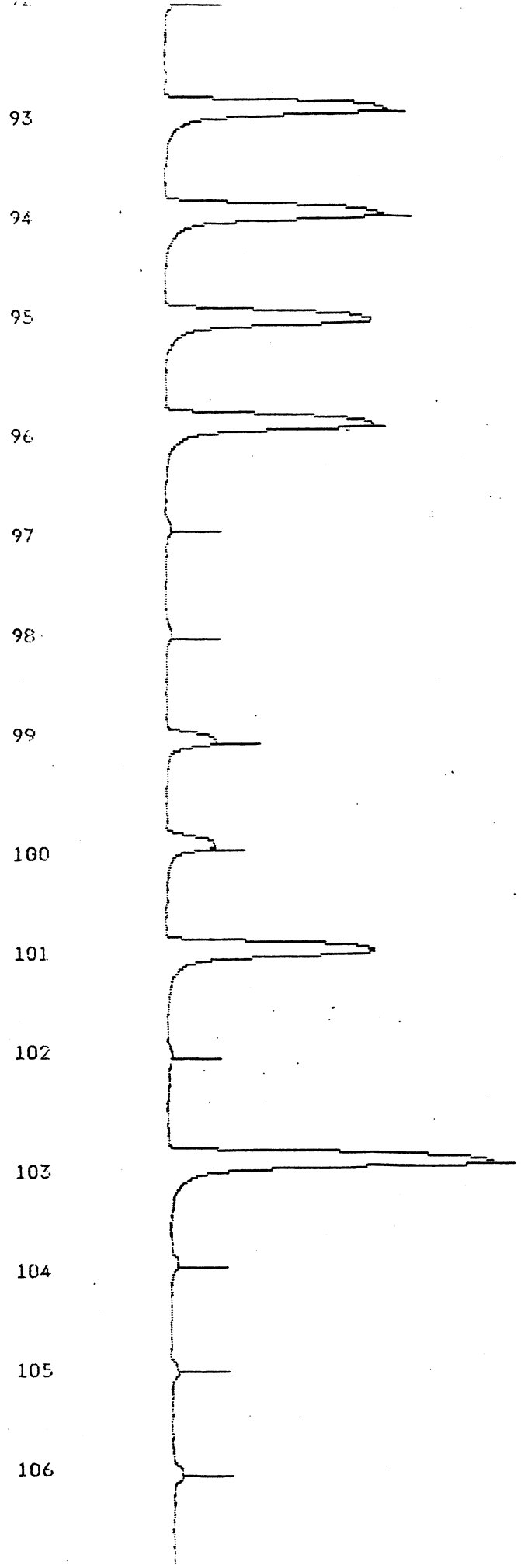
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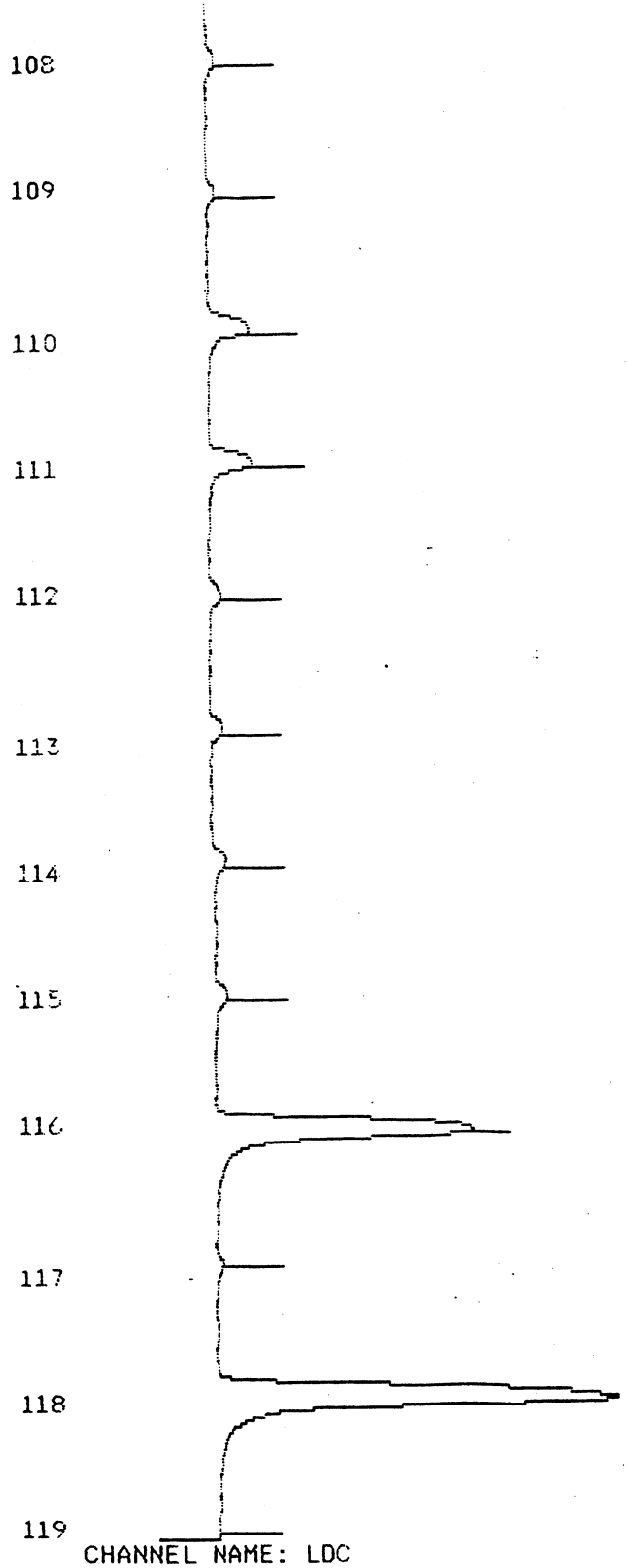
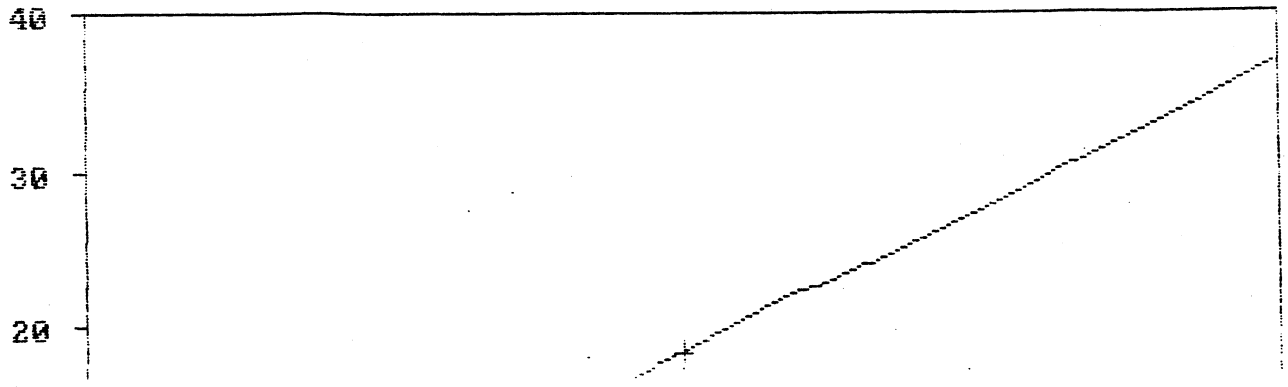
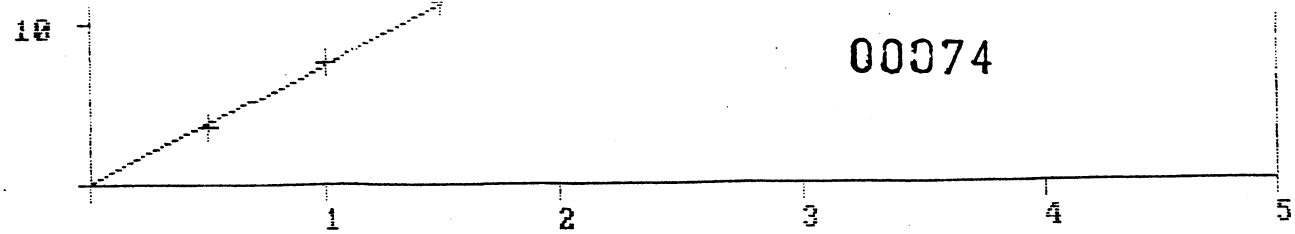


CHANNEL NAME: LDC
RUN NAME: 000107W





00074

DATA TYPE: FIA
INTERCEPT = -6.05

CALIBRATION ORDER: 1
SLOPE = 7.362288

CORRELATION: .9997364

CHANNEL NAME: LDC
RUN DATE: 01-07-2000
SAMPLE TABLE NAME: 000107W
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	Total µg	CONCENTRATION (ppb)		EF
1	PRIMER	1	1	10.8		1.455		s
2	DUMMY	1	1	0.1		0.012		I
3	S1: 0	1	1	0.0		-0.002		I
4	S2: .5	1	1	3.6		0.476		
5	S3: 1	1	1	7.6		1.020		
6	S4: 1.5	1	1	11.3		1.531		
7	S5: 2	1	1	14.7		1.982		
8	S6: 2.5	1	1	18.4		2.493		
9	ICV	1	1	11.0		1.484	99%	
10	B	1	1	0.0		-0.008		b
11	D4	1	1	11.3		1.531		d
12	BL0107-1GPO 73483	1	1	0.0	<0.01	-0.008		I
13	BL0107-1GPO	1	1	0.0		-0.008		I
14	BL0107S	1	1	7.3	0.100	0.980	100%	
15	BL0107S	1	1	7.5		1.017		
16	BL0107DS	1	1	7.6	0.100	1.027	100%	
17	BL0107DS	1	1	7.3		0.980		
18	73486	10	1	0.0	<0.2500	-0.016		I
19	73486	10	1	0.0		-0.016		I
20	73486D	10	1	0.0	<0.2500	-0.016		I
21	73486D	10	1	0.1		0.017		I
22	73486S	10	1	7.5	2.612	10.101	105%	
23	73486S	10	1	8.0		10.797		
24	73486DS	10	1	7.7	2.604	10.366	104%	
25	73486DS	10	1	7.8		10.466		
26	73484	10	1	0.1	<0.2500	0.017		I
27	73484	10	1	0.1		0.051		I
28	73485	10	1	0.1	<0.250	0.017		I
29	73485	10	1	0.0		-0.016		I
30	73487	10	1	0.1	<0.250	0.084		I
31	73487	10	1	0.1		0.017		s
32	CCV	1	1	7.7		1.033	103%	
33	B	1	1	0.0		-0.008		b
34	D4	1	1	11.3		1.531		d
35	73488	10	1	0.1	<0.250	0.017		I
36	73488	10	1	0.1		0.051		I
37	73489	10	1	0.1	<0.250	0.051		I
38	73489	10	1	0.1		0.017		I
39	73490	10	1	1.6	0.523	2.107		
40	73490	10	1	1.6		2.074		
41	73491	10	1	2.2	0.701	2.903		

45	73486S Dil check	50	1	1.5	2.510	10.038		100%
46	73486S	50	1	1.5		10.038	s	
47	BL0107-2GPO	1	1	0.0	<0.01	0.008		
48	BL0107-2GPO	1	1	0.0		-0.008	I	
49	BL0107S	1	1	7.6	0.102	1.027		102%
50	BL0107S	1	1	7.5		1.010		
51	BL0107DS	1	1	7.5	0.101	1.010		101%
52	BL0107DS	1	1	7.5		1.010		
53	73508	10	1	0.1	<0.250	0.017	I	
54	73508	10	1	0.1		0.051	I	
55	CCV	1	1	7.4		0.990		99%
56	B	1	1	0.0		-0.008	b	
57	D4	1	1	11.3		1.531	d	
58	73508D	10	1	0.1	<0.250	0.017	I	
59	73508D	10	1	0.0		-0.016	I	
60	73508S	10	1	7.5	2.554	10.068		102%
61	73508S	10	1	7.7		10.366	s	
62	73408DS	10	1	7.3	2.430	9.802		97%
63	73408DS	10	1	7.2		9.636		
64	73407	10	1	0.1	<0.250	0.051	I	
65	73407	10	1	0.1		0.051	I	
66	73509	10	1	0.1	<0.250	0.017	I	
67	73509	10	1	0.1		0.017	I	
68	73410	10	1	0.0	<0.250	-0.016	I	
69	73410	10	1	0.0		-0.016	I	
70	73411	10	1	0.1	<0.250	0.084	I	
71	73411	10	1	0.1		0.084	I	
72	73412	10	1	0.1	<0.250	0.017	I	
73	73412	10	1	0.1		0.017	I	
74	73413	10	1	1.3	0.444	1.742		
75	73413	10	1	1.4		1.809		
76	73414	10	1	1.6	0.514	2.074	s	
77	73414	10	1	1.6		2.041		
78	CCV	1	1	7.4		0.990		99%
79	B	1	1	0.0		-0.008	b	
80	D4	1	1	11.3		1.531	d	
81	73415	10	1	1.0	0.320	1.311		
82	73415	10	1	1.0		1.245		
83	BL0107-3GPO 74131	1	1	0.0	<0.100	-0.008	I	
84	BL0107-3GPO	1	1	0.0		-0.008	I	
85	BL0107S	1	1	7.6	0.100	1.020		100%
86	BL0107S	1	1	7.2		0.970		
87	BL0107DS	1	1	7.5	0.101	1.017		101%
88	BL0107DS	1	1	7.4		1.000		
89	74134	10	1	0.1	<0.250	0.051	I	
90	74134	10	1	0.0		-0.016	I	
91	74134D	10	1	0.1	<0.250	0.051	s	
92	74134D	10	1	0.1		0.017	I	
93	74034S	10	1	7.8	2.612	10.565		105%
94	74034S	10	1	7.7		10.333		
95	74134DS	10	1	7.3	2.446	9.769		98%
96	74134DS	10	1	7.3		9.802		
97	74132	10	1	0.1	<0.250	0.017	I	
98	74132	10	1	0.0		-0.049	I	
99	74133	10	1	1.6	0.502	2.041		
100	74133	10	1	1.5		1.974		
101	CCV	1	1	7.2		0.974		97%
102	B	1	1	0.0		-0.008	b	
103	D4	1	1	11.3		1.531	d	
104	74135	10	1	0.1	<0.250	0.051	I	
105	74135	10	1	0.1		0.084	I	
106	74136	10	1	0.2	<0.250	0.183	s	
107	74136	10	1	0.2		0.250	I	

00375

111	74138	10	1	1.1	1.410	
112	74139	10	1	0.2	<0.250 0.187	I
113	74139	10	1	0.2	0.183	I
114	74140	10	1	0.2	<0.250 0.216	I
115	74140	10	1	0.2	0.150	I
116	CCV	1	1	7.2	0.970 97%	
117	B	1	1	0.0	-0.008	b
118	D4	1	1	11.3	1.531	d

INTERCEPT: 0.06 LINEAR COEF: 7.362288

CORRELATION COEF: .9997364

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
073483	PHIL-PAR	~~CD-R~~ Method Blank	Mercury -	PV	-0.030	-99999.0	0.291	97.	0.291	97.	00/01/09	1NMN	00/01/10	MG01	53.	33.	
073484	PHIL-PAR	RM BH Outlet-SB	Mercury -	PV	-0.100						00/01/09	1NMN	00/01/10	MG01	53.	33.	
073485	PHIL-PAR	RM BH Outlet-BT	Mercury -	PV	-0.100						00/01/09	1NMN	00/01/10	MG01	53.	33.	
073486	PHIL-PAR	RM BH Outlet-R1	Mercury -	PV	-0.100	-0.100	0.894	89.	0.919	92.	00/01/09	1NMN	00/01/10	MG01	53.	33.	
073487	PHIL-PAR	RM BH Outlet-R2	Mercury -	PV	-0.100						00/01/09	1NMN	00/01/10	MG01	53.	33.	
[redacted]																	
BL0109	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.291	97.	0.291	97.	00/01/09	1NMN	00/01/10	MG01	$$$	$$$	
[redacted]																	
[redacted]																	

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

00077

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 00.01.10W Run Code: MG01 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL0109	INKAN		
13			"			
14			BL0109 S			
15			"			
16			BL0109 DS			
17			"			
18			73486			
19			"			
20			73486 D			
21			"			
22			73486 S			
23			"			
24			73486 DS			
25			"			
26			73484			
27			"			
28			73485			
29			"			
30			73487			
31			"			
32			CCV			
33			B			
34			D4			
35		1/4	73491			
36		↓	"			
37			73514			
38			"			
39		1/2	74136			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41						
42						
43						
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47						
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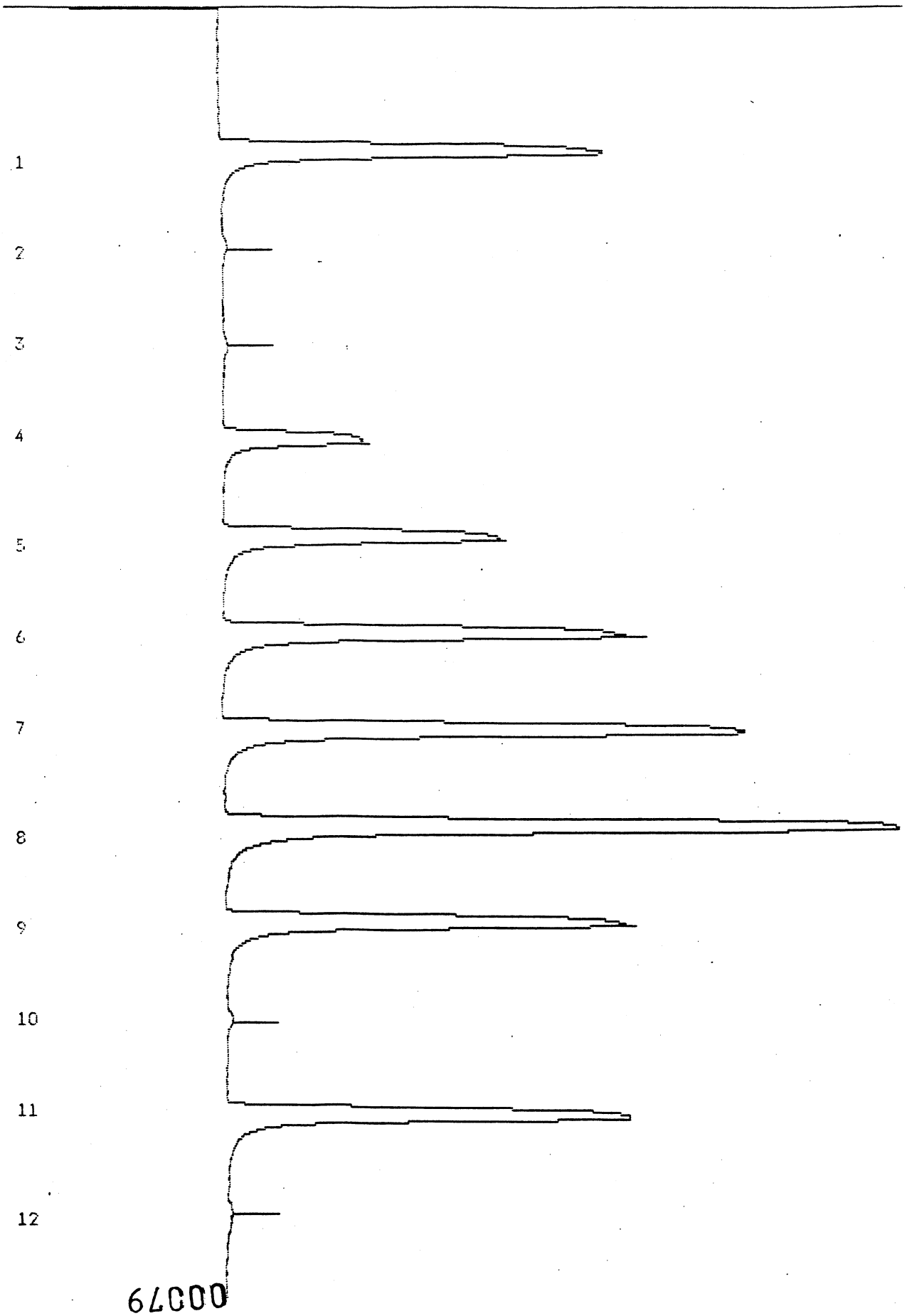
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

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

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

8L000

RUN DATE: 01-10-2000 CHART DATE: 01-10-2000
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\000110W.DAT



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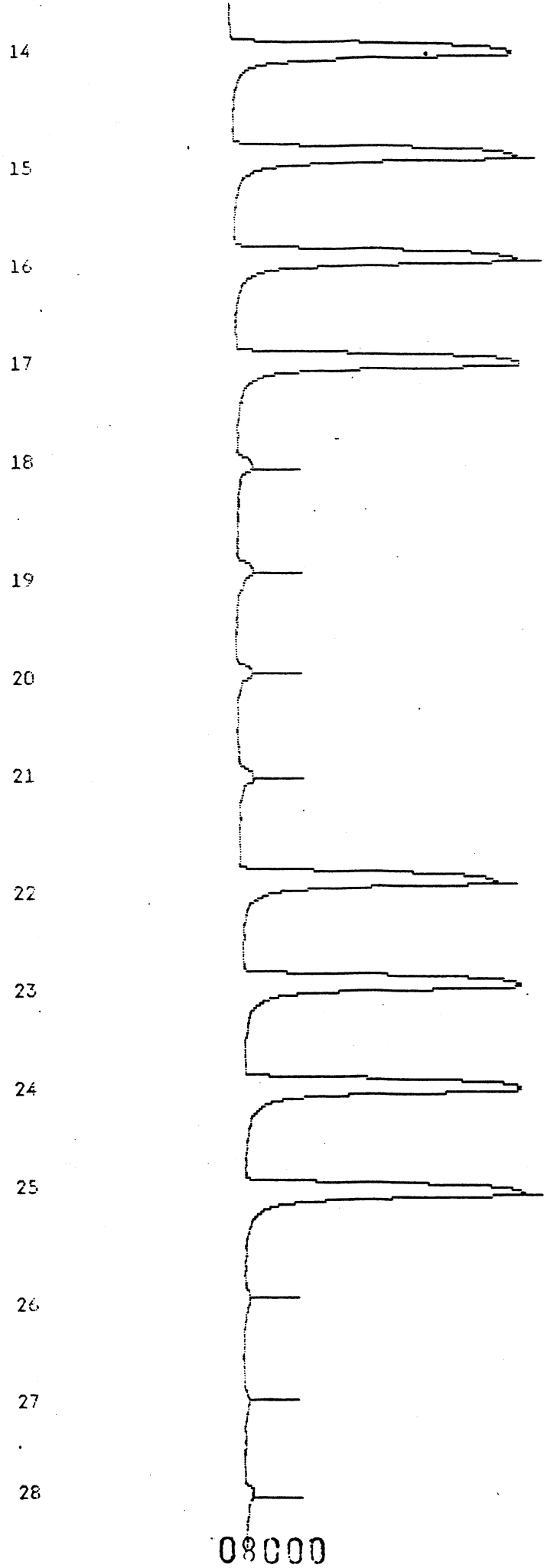
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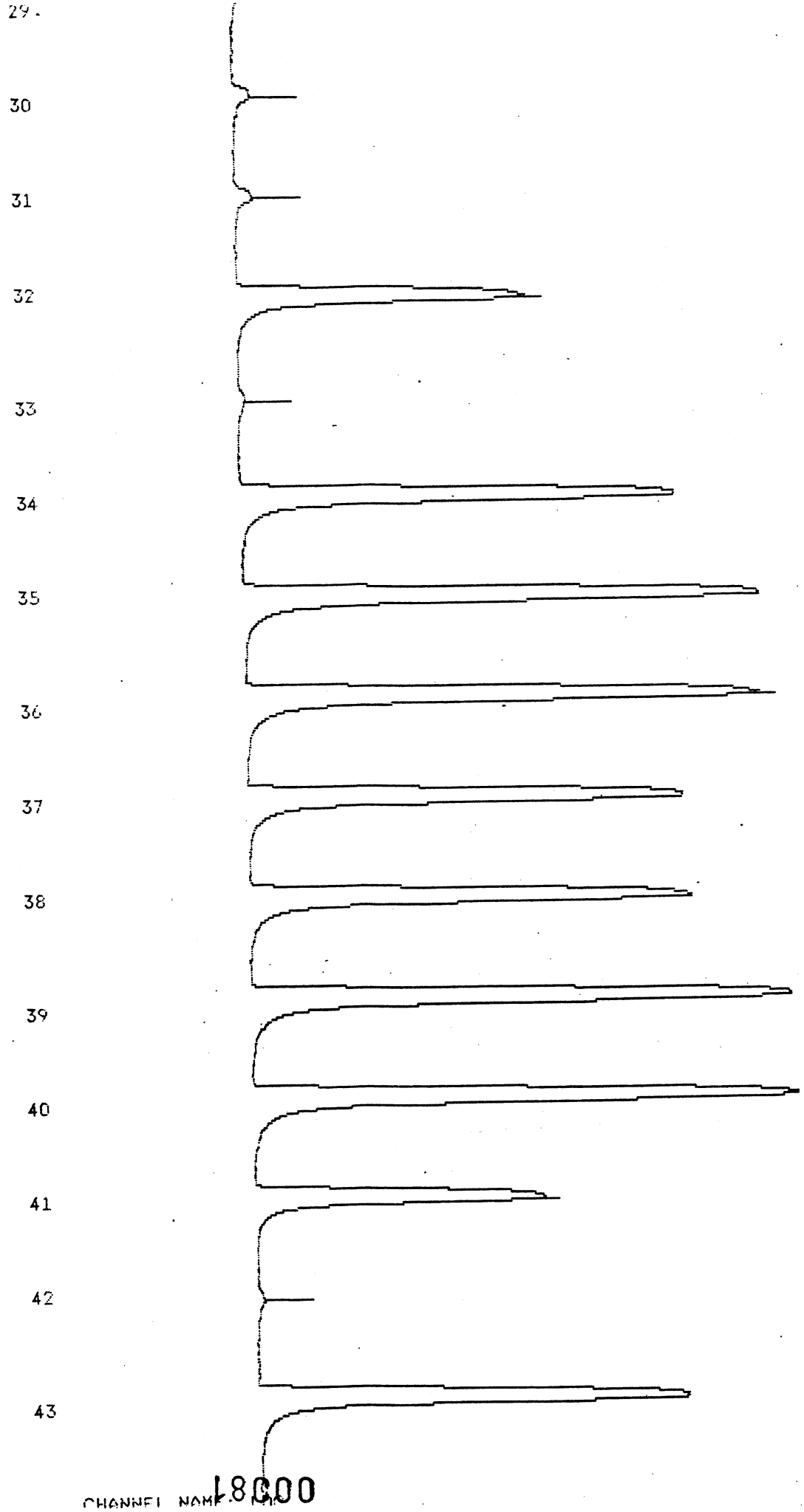
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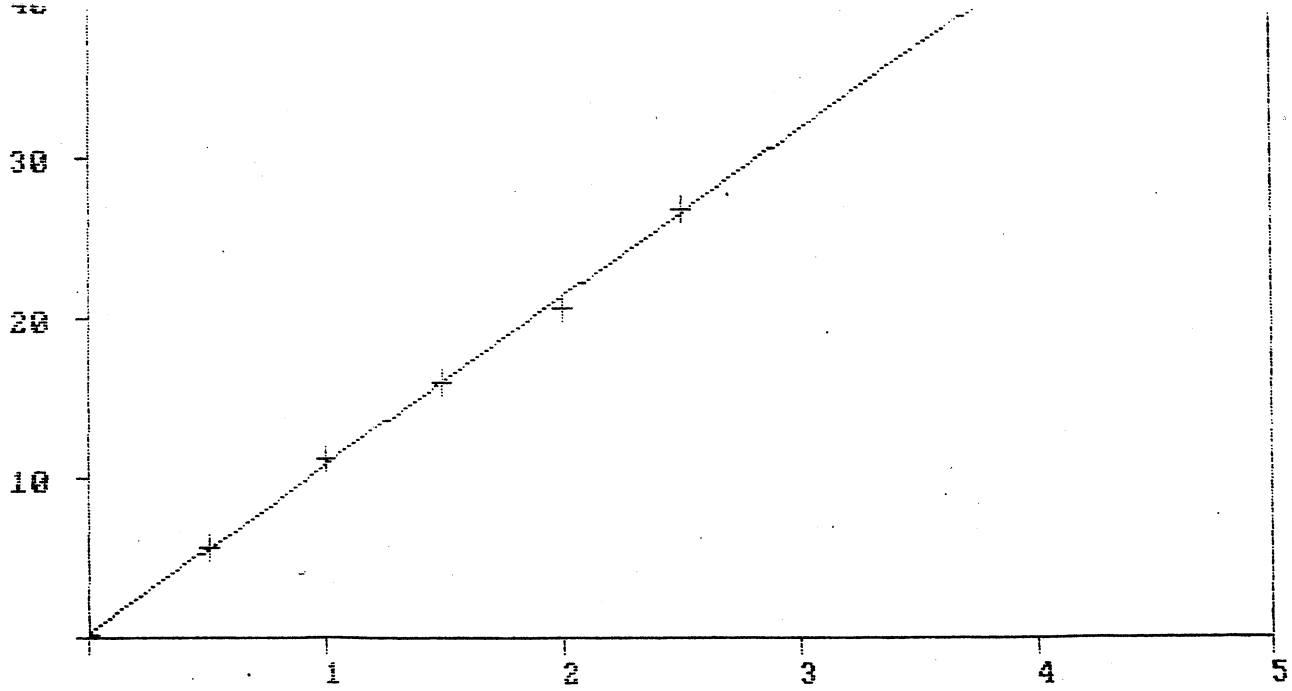
CHANNEL NAME: MAC
18000



DATA TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = 0.29 SLOPE = 10.49084

CORRELATION: .9992992

CHANNEL NAME: LDC
RUN DATE: 01-10-2000
SAMPLE TABLE NAME: 000110W
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	TUG	CONCENTRATION (ppb)		EF
1	PRIMER	1	1	15.5		1.448		s
2	DUMMY	1	1	0.1		-0.016		I
3	S1: 0	1	1	0.1		-0.016		I
4	S2: .5	1	1	5.7		0.514		
5	S3: 1	1	1	11.1		1.031		
6	S4: 1.5	1	1	16.0		1.494		
7	S5: 2	1	1	20.7		1.941		
8	S6: 2.5	1	1	26.9		2.535		
9	ICV	1	1	15.8		1.473	98%	
10	B	1	1	0.0		-0.028		b
11	D4	1	1	16.0		1.494		d
12	BL0109-1NMN 73483	1	1	0.0	<0.300	-0.028		I
13	BL0109-1NMN	1	1	0.0		-0.028		I
14	BL0109S	1	1	10.5	0.291	0.971	97%	
15	BL0109S	1	1	10.5		0.971		
16	BL0109DS	1	1	10.4	0.291	0.966	97%	
17	BL0109DS	1	1	10.5		0.971		
18	73486	1	1	0.3	<0.100	0.005		I
19	73486	1	1	0.4		0.012		I
20	73486D	1	1	0.2	<0.100	-0.005		I
21	73486D	1	1	0.3		0.000		I
22	73486S	1	1	9.3	0.894	0.857	89%	
23	73486S	1	1	10.1		0.931		
24	73486DS	1	1	9.9	0.919	0.915	92%	
25	73486DS	1	1	10.0		0.922		
26	73484	1	1	0.0	<0.100	-0.028		I
27	73484	1	1	0.0		-0.028		I
28	73485	1	1	0.0		-0.028		I

000082

31	73487	1	1	0.4		0.012	s
32	CCV	1	1	10.5		0.973	97%
33	B	1	1	0.0		-0.028	b
34	D4	1	1	16.0		1.494	d
35	73491	4	1	18.9	7.086	7.104	
36	73491	4	1	18.8		7.067	
37	73514	4	1	15.9	6.015	5.968	
38	73514	4	1	16.2		6.061	
39	74136	2	1	19.7	3.725	3.701	
40	74136	2	1	20.0		3.748	
41	CCV	1	1	10.6		0.980	98%
42	B	1	1	0.0		-0.028	b
43	D4	1	1	16.0		1.494	d

INTERCEPT: 0.29 LINEAR COEF: 10.49084
CORRELATION COEF: .9992992

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
073483	PHIL-PAR	~~CD R~~ Method Blank	Mercury -	PV	-0.030	-99999.0	0.291	97.	0.291	97.	00/01/09	1NMN	00/01/10	MG01	53.	33.	
073484	PHIL-PAR	RM BH Outlet-SB	Mercury -	PV	-0.100						00/01/09	1NMN	00/01/10	MG01	53.	33.	
073485	PHIL-PAR	RM BH Outlet-BT	Mercury -	PV	-0.100						00/01/09	1NMN	00/01/10	MG01	53.	33.	
073486	PHIL-PAR	RM BH Outlet-R1	Mercury -	PV	-0.100	-0.100	0.894	89.	0.919	92.	00/01/09	1NMN	00/01/10	MG01	53.	33.	
073487	PHIL-PAR	RM BH Outlet-R2	Mercury -	PV	-0.100						00/01/09	1NMN	00/01/10	MG01	53.	33.	
073491	PHIL-PAR	GEG ESP Stack-R2	Mercury -	PV	7.086						00/01/09	1NMN	00/01/10	MG01	53.	33.	
BL0109	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.291	97.	0.291	97.	00/01/09	1NMN	00/01/10	MG01	$$$	$$$	
073514	PHIL-PAR	GEG ESP Inlet-R2	Mercury -	PV	6.015						00/01/09	2NMN	00/01/10	MG01	53.	33.	
074136	PHIL-PAR	Unit 3 Stack-R3	Mercury -	PV	3.725						00/01/09	3NMN	00/01/10	MG01	39.	32.	

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

Original

00084

5.0 SHIPPING/RECEIVING DOCUMENTS

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

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Page ___ of ___

US SAMPLE LOG IN SHEET

PHILIP

Lab Name: Philip Analytical Services Corporation, Burlington Laboratory

Received By (Print Name): K. Caraway READING

Received By (Signature):

Client Project ID:

REMARKS:	Condition of:
Custody Seal(s) Present ___ Absent ✓	
Chain of Custody Records Present ✓ Absent ___	
Airbill Present ✓ Absent ___	

Airbill No

12/6/99	FedEx Tracking Number	816978711065	14°
12/6/99	FedEx Tracking Number	816978711113	14°
12/6/99	FedEx Tracking Number	816978711087	
12/6/99	FedEx Tracking Number	816978711098	
12/6/99	FedEx Tracking Number	816978711124	

Company's SA Phone 610 921-8833

Does Internal Address 4418 PHILIPS ANALYTICAL SERVICES

Records a READING State PA ZIP 19605

Internal Billing Reference M29-HG

Date Received at Lab 12 06 99

Time Received 12:00

Temperature of Coolers

Cooler ID:	Temperature
2 COOLERS	14°, 14°

Relinquished By: 12-07-99

Logbook No:

12/6/99	FedEx Tracking Number	816978711076	610 921-8833
12/6/99	FedEx Tracking Number	816978711102	610 921-8833

This portion can be removed for recipients records.

Company PHILIP ANALYTICAL SERVICES

Address 4418 POTTSVILLE PIKE Dept/Floor/Suite/Room

State PA ZIP 19605

READING

Internal Billing Reference M29-HG

PHILIP ANALYTICAL SERVICES

Chain of Custody Record

4418 Pottsville Pike Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Bottle Type (G P IH)												
# of Containers												
Preserved? (Y/N)												

Report Results To:
PO # 5002-188322 Job ID Weston, Inc.
Name: Pam Peters
Company: PAS/Reading
Mailing Address: see above
City / State / ZIP
Telephone # / Fax #

Sub: PAS/Burlington

Send Invoice To:
Name / Telephone #
Company: SAIC Dept.
Mailing Address
City / State / ZIP
Credit Card # / Exp. Date

Analysis Requested: Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 5 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384137-188322	10% HNO3	liquid	11/17/99	OUT-SB	X	Rslts due 12/6/99 (or ASAP)
2	1384139-188323	FHHNO3		11/10/99		X	
3	-140-	Filters				X	#W7+W8
4	-141-	BHKCl			IN-1	X	
5	-142-	BHHNO3				X	
6	-143-	BHKMNO4				X	
7	-144-	FHHNO3		11/11/99		X	
8	-145-	Filters			IN-2	X	#W9, W10, W11
9	-146-	BHKCl				X	
10	-147-	BHHNO3				X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time PM
Samples received by:	Date	Time

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory: PASC	Date 19912071	Time 12:00

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike . Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Bottle Type (G P IH)												
# of Containers												
Preserved? (Y/N)												

Report Results To:

PO # 5002 – 188322 Job ID Weston, Inc.
Name Pam Peters
Company PAS/Reading
Mailing Address see above
City State ZIP
Telephone # Fax #

Sub: PAS/Burlington

Send Invoice To:

Name Telephone #
Company SMT Dept.
Mailing Address
City State ZIP
Credit Card # Exp. Date

Analysis Requested

Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 6 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384148 – 188323	BHKMN04	liquid	11/11/99	IN-2	X	Rslts due 12/6/99 (c- ASAP)
2	-149-	FHHN03				X	
3	-150-	filters			IN-3	X	#W12, W13
4	-151-	BHKCl				X	
5	-152-	BHHN03				X	
6	-153-	BHKMN04				X	
7	-154-	KCl				X	
8	-155-	Thimble			IN-SB	X	
9	-156-	KMN04				X	
10	-157-	HN03/H2O2				X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by: N Greenawalt	Date 12/6/99	Time P.M.
Samples received by:	Date	Time

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date 9/11/2071	Time 12:00

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Bottle Type (G P IH)											
# of Containers											
Preserved? (Y/N)											

Report Results To:

PO # 5002 — 188322 Job ID Weston, Inc.
Name Pam Peters
Company PAS/Reading
Mailing Address see above
City State ZIP
Telephone # Fax #

Send Invoice To:

Name Telephone #
Company SAIC Dept.
Mailing Address
City State ZIP
Credit Card # Exp. Date

Sub: PAS/Burlington

Analysis Requested

Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 2 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384158 - 188323	HNO3	liquid	11/11/99	IN-SB	X	Rslts due 12/6/99 (or ASAP)
2	-159-	10% HNO3				X	
3	-161-	FH HNO3				X	
4	-162-	FIKR			IN-BT	X	
5	-163-	BHKCl				X	
6	-164-	BHHNO3				X	
7	-165-	BHKMNO4		11/11/99		X	
8	-166-	FH HNO3		11/10/99	ESPO-STK-1	X	
9	-168-	BHKCl				X	
10	-169-	BHHNO3				X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by:	N Greenawalt	Date 12/6/99	Time PM
Samples received by:		Date	Time

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	11/17/01	12:30

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA 19605
phone: (610) 921-8833 fax: (610) 921-9667

Bottle Type (G P H)												
# of Containers												
Preserved? (Y/N)												

Report Results To:

PO # 5002-188322 Job ID Weston, Inc.
Name Pam Peters
Company PAS/Reading
Mailing Address see above
City State ZIP
Telephone # Fax #

Sub: PAS/Burlington

Send Invoice To:

Name Telephone #
Company SAMP Dept.
Mailing Address
City State ZIP
Credit Card # Exp. Date

Analysis Requested

Mercury by Ontario Hydro Method

Prj # 188322 + 188323

Page 8 of 9

PAS Quote#

Sampled by:

	SAMPLE DESCRIPTION	Air Vol. (L or min)	Matrix Type	Date Sampled	Time Sampled	Mercury by Ontario Hydro Method	Comments/Hazards/ Location Details
1	1384170-188323	BHKMNO4	liquid	11/10/99	STK-1	X	Rsits due 12/6/99 (c- ASAP)
2	-171-	FHHNO3		11/11/99		X	
3	-173-	BHKCl				X	
4	-174-	BHHNO3			STK-2	X	
5	-175-	BHKMNO4				X	
6	-176-	FHHNO3				X	
7	-178-	BHKCl			STK3	X	
8	-179-	BHHNO3				X	
9	-180-	BHKMNO4		11/11/99		X	
10	-181-	FHHNO3		11/10/99	STK-15T	X	

Special Instructions (including Data Deliverables and Turn Around Time): Include all Raw Data and "01" Summary Form.

Samples relinquished to shipper or courier by:	Date	Time
N Greenawalt	12/6/99	PM
Samples received by:	Date	Time

Samples Relinquished by:	Samples Relinquished to:	Date	Time
Samples Relinquished by:	Samples Relinquished to Laboratory:	Date	Time
		11/9/2071	2:00

Method of Shipment/Delivery: UPS FED-EX PAS Courier Client drop off Other _____

Samples Rec'd. on Ice? (Y N n/a) Temp. Blank _____ Sample Temp. _____
Samples rec'd intact?(Y N) Custody seals intact?(Y N n/a) ID on samples match COC?(Y N)
VOC Samples have zero headspace?(Y N n/a) Samples properly preserved? (Y N n/a)

Notes :

187900-04
187901-04
188322-04
188323-04

Data Package Cover Sheet for Atomic Absorption Spectroscopy by Automated Cold Vapor Analysis

Date of Analysis: 11/30/99	Element: HG - Ontario Hydro method
Analyst: JAP	Time of Analysis: 1015
Data Validated by: V. O'Neill 12/2/99	Instrument: Leeman PS 200

Calibration Standard Preparation Records

Preparation Record is in Notebook #	Date of Preparation
360 - 30 - 5 to 10	10/29/99

Quality Control Sample Preparation Records

Name	Preparation is in Notebook #	Date of Preparation
QCS/ICV	360-30-12	11/29/99
IPC/CCV	360-30-11	11/29/99

- All samples analyzed in this set were either thimble portions or filters. The samples were digested as Ontario Hydro method (10/27/99 Draft) States. The final volume was brought up to 0.100L.
- Calculations: $\mu g/L_{Hg} \times 0.100L_{\text{final vol.}} = \mu g$ Hg present in sample

D.L = 0.02µg
- The Linear Dynamic Range for Hg is 25.0 µg/L.

I Certify that all QA/QC results were acceptable and that there were no problems except as noted.

Jennifer L. Paris 12/1/99
Signature of Analyst and Date

```
RunProt: ONTARIO
RunFold: 113099MB Seq: 0     Batch:
                  Fmt: R/T On
                  Rev: 4.0    09:36:36 30 Nov 1999 Xmit: Off  Gas:    0.30 LPM
  Idle                                              User:             A/S: On
```

```
 AUTOSAMPLER:  Rack entry   Rack RACK#1   Range  1-44 Clear seQ Undo eXit
cup ID          Extended id          Weight Volume Macro
 1 OCS          11/29 5.00UG/L       1.0000 1.0000
 2 LRB-ASH      11/29 DIH2O          1.0000 1.0000
 3 LFB-ASH      11/29 DIH2O          1.0000 1.0000
 4 NIST         COAL FLY ASH #1633B  1.0000 1.0000
 5 1382194      INLET SB             1.0000 1.0000
 6 1382186      INLET SB             1.0000 1.0000
 7 1382224      STACK SB             1.0000 1.0000
 8 1382157      OUTLET #1            1.0000 1.0000
 9 1382161      OUTLET #2            1.0000 1.0000
10 1382165      OUTLET #3            1.0000 1.0000
11 1382169      OUTLET ST            1.0000 1.0000
12 1382173      INLET #1             1.0000 1.0000
13 1382177      INLET #2             1.0000 1.0000
14 1382177      INLET #2             1.0000 1.0000
15 1382177 MS   INLET #2             1.0000 1.0000
                                                                    PgDn
```

```
                                                Full column entry Ins to switch
```

```
RunProt: ONTARIO
RunFold: 113099HB Seq: 0     Batch:
                  Prnt: R/T On
                  Rev: 4.0    09:36:37 30 Nov 1999 Xmit: Off  Gas:    0.30 LPM
  Idle                                             User:              A/S: On
```

```
 AUTOSAMPLER:  Rack entry   Rack RACK#1   Range  1-44 Clear seQ Undo eXit   PgUp
cup ID         Extended id          Weight Volume Macro
16 1382181     INLET #3             1.0000 1.0000
17 1382190     INLET BT             1.0000 1.0000
18 1382211     STACK #1             1.0000 1.0000
19 1382215     STACK #2             1.0000 1.0000
20 1382219     STACK #3             1.0000 1.0000
21 1382228     STACK BT             1.0000 1.0000
22 LFB-ASH     11/29 FILTERS/THIMB.1.0000 1.0000
23 LFB-ASH     11/29 FILTERS/THIMB.1.0000 1.0000
24 NIST        COAL FLY ASH #1633B 1.0000 1.0000
25 1384069     FGD-1 INLET          1.0000 1.0000
26 1384069     FGD-1 INLET          1.0000 1.0000
27 1384069 MS  FGD-1 INLET          1.0000 1.0000
28 1384075     FGD-2 INLET          1.0000 1.0000
29 1384101     FGD-3 INLET          1.0000 1.0000
30 1384107     FGD-BT INLET         1.0000 1.0000
                                                                            PgDn
```

```
                                                Full column entry Ins to switch
```

```
RunProt: ONTARIO
RunFold: 113099HD Seq: 0     Batch:
                  Prnt: R/T On
                  Rev: 4.0    09:36:40 30 Nov 1999 Xmit: Off  Gas:    0.30 LPM
  Idle                                             User:             A/S: On
```

AUTOSAMPLER: Rack entry Rack RACK#1 Range 1-44 Clear seQ Unco eXit PgUp

cup	ID	Extended id	Weight	Volume	Macro
31	1384138	BH OUT SB	1.0000	1.0000	
32	1384128	BH OUT SB	1.0000	1.0000	
33	1384113	BH #1	1.0000	1.0000	
34	1384118	BH #2	1.0000	1.0000	
35	1384123	BH #3	1.0000	1.0000	
36	1384133	BH BT	1.0000	1.0000	
37	ESP.STACK	SB THIMBLE	1.0000	1.0000	
38	ESP.STACK	SB THIMBLE	1.0000	1.0000	
39	ESP.STACK	SB THIMBLE MS	1.0000	1.0000	
40	ESP INLET	SB FILTER	1.0000	1.0000	
41	1384167	ESPO#1	1.0000	1.0000	
42	1384172	ESPO#2	1.0000	1.0000	
43	1384177	ESPO#3	1.0000	1.0000	
44	1384182	ESPO ~~#4~~ 12MM90 BT	1.0000	1.0000	

#1384160

PgDn

Full column entry Ins to switch

Reagents, QC, Standards Preparation Log #360

Date/Time	Initials	Exp. Date	Solution	Vol/Wt of Reagents #	Vol/Wt of Reagents Units	Reagent SSM ID #	Reagent SSM ID # Conc.	Final Volume #	Final Volume Units	Dilution Matrix	Remarks
1) 11/23/99 1330	SMW		IPC/CCV 5.0ug/l	500	ul	360-29-18	1.00mg/l	100	ml		
2) ↓	↓		ICV/QCS 5.0ug/l	↓	↓	360-29-19	↓	↓	↓		
3) "/29/99 0900	JH	11/30/99	1.00mg/l Hg Stock std	100	ul	Hg-9951185019	1000mg/l	100	ml	0.15% HNO_3	
4) ↓	↓	↓	1.00mg/l Hg QCS std	100	↓	Hg-995123001	↓	↓	↓	↓	
5) 11/29/99 1500	SMW		Cal Blk	—	—	—	—	100	ml	10% HCl	Ontario Method
6)			0.20ug/l Hg Std	20	ul	360-30-3	1.00mg/l				
7)			0.50	50							
8)			2.00	200							
9)			5.00	500							
10)			10.0	1000							
11)			IPC/CCV ~~2.0~~ 5.0ug/l	500							
12)			ICV/QCS 5.0ug/l	500		360-30-4					
13)											
14)											
15)											
16)											
17)											
18)											
19)											
20)											
21)											
22)											
23)											
24)											
25)											

Book #118

Ontario Hydro Method (10/27/99 Draft)

187901 – 187900

Analyst, Date, Time	Sample ID	Initial sample wt (g)	Final sample wt (g)	Total volume of sample digested (ml)	Vol. of 1 mol H_2SO_4 (ml)	Vol. of 1 mol H_2SO_4 (ml)	Vol. of 5% $KMnO_4$ added (ml)	Vol. of 1 mol HCl (ml)	Vol. added of 5% H_2SO_4 (ml)	Vol. of 10% H_2O_2 (ml)	Analyst, Date
11/19/99 GHP 1300	1382166	0.750 l	0.750 l	30 ml	1.5 ml	0.75 ml	4.5 ml	—	2.25 ml	3.0 ml	11/25/99
	2170	0.480 l	0.500 l					—			
	2174	0.950 l	0.950 l					—			
	2178	0.900 l	0.900 l					—			
	2182	0.840 l	0.840 l					—			
	2191	0.550 l	0.550 l					—			
	2212	0.695 l	0.695 l					—			
	2216	0.787 l	0.787 l					—			
	2220	0.800 l	0.800 l					—			
	2229	0.480 l	0.500 l					—			
11/22/99 0710 GHP	LRB-KMnO4	—	—	30 ml	—	1.5 ml	4.5 ml	—	2.25 ml	3.0 ml	
	LFB-KMnO4 clear rec	—	—		—		4.5 ml	—			
	1382235	0.250 l	0.500 l		—		4.5 ml	—			
	client Blk 1382187	0.350 l			—		4.5 ~~3.0~~ ml	—			
	1382160	0.480 l			—		4.5 ~~3.0~~ ml	—			
	2164	0.545 l	0.545 l		—		4.5 ml	—			
	2168	0.600 l	0.600 l		—		4.5 ~~3.0~~ ml	—			
	2172	0.495 l	0.500 l		—		4.5 ~~3.0~~ ml	—			
	2176	0.470 l			—		4.5 ml	—			
	2180	0.480 l			—		5.0 ml	—			
	2184	0.440 l			—		7.5 ml	—			
	2193	0.514 l	0.514		—		4.5 ml	—			
	2214	0.430 l	0.500		—		4.5 ~~3.0~~ ml	—			
	2218	0.435 l	0.500 l		—		4.5 ml	—			
	2222	0.520 l	0.530 l		—		4.5 ~~3.0~~ ml	—			
	2231	0.430 l	0.500 l		—		10.5 ml	—			
11/29/99 0800 GHP	LRB-Ash	—	0.100 l	~~30 ml~~	—	1.25 ml	—	3.75 ml	—	—	
	LFB-Ash	—	0.100 l	~~30 ml~~	—		—		—	—	
	NIST-Coal Fly Ash-Std #1633B	—	0.100 l	0.50 g	—		—		—	—	
	1382194	3.0906 g		whole thimble			—		—	—	
	1382186	0.3908 g		filter	—		—		—	—	
	1382224	3.2878 g		whole thimble	—		—		—	—	
	1382157	0.3965 g		filter	—		—		—	—	
	1382161	0.3928 g			—		—		—	—	
	1382165	0.3973 g			—		—		—	—	
	1382169	0.3790 g			—		—		—	—	
	1382223	3.0145 g		whole thimble	—		—		—	—	
	1382177	3.2872 g			—		—		—	—	
	1382181	3.3983 g			—		—		—	—	
	1382190	3.1694 g			—		—		—	—	

Kmno4 portion Discard day of analysis

ash portion

4 spk w/ blank

Book #118 Orbital Hydro Method (11/27/99 W.J.C.) 187901 + 188322

Aliquot Date + Time	Sample ID	Initial Sample Rec'd (Lbs or Gr)	Final Sample Rec'd (Lbs or Gr)	Total Vol. of Sample Digested (ml)	Vol. of Trace metal H_2SO_4 (ml)	Vol. of trace metal HNO_3 (ml)	50% KMnO4 (ml)	Vol. of HCl (ml)	Vol. of 6% $K_2S_2O_8$ (ml)	Vol. of 10% Hydroxylamine (ml)	Comments
11/29/99 1210 GHP	1382221	3.4387g	0.100 l	whole thimble	—	1.25ml	—	3.75ml	—	—	Stack #1
	1382225	3.6549g			—		—		—	—	Stack #2
add portion	1382219	3.2602g			—		—		—	—	Stack #3
	1382228	3.5245g			—		—		—	—	Stack BT
11/29/99 1210 GHP	LRB-Ash filter/thimble	N/A		-	—		—		-	—	—
	LFB-Ash filter/thimble			-	—		—		—	—	5ml of 25 mg/L Hg
	RST-Coal Fly Ash-Lot #16228			0.5329g 11/29/99 GHP	—		—		—	—	—
	1384089 Filter			whole filter	—		—		—	—	FGD-1 Inlet
	1384095 2 Filters			2 filters	—		—		—	—	FGD-2 Inlet
	1384101 Filter			whole filter	—		—		—	—	FGD-3 Inlet
	1384107 Filter				—		—		—	—	FGD-BT Ex.
	1384138 Thimble			whole thimble	—		—		—	—	BH out SB
	1384128 Filter			whole filter	—		—		—	—	BH out SB
	1384113 filter				—		—		—	—	BH #1
	1384118 filter				—		—		—	—	BH #2
	1384123 filter				—		—		—	—	BH #3
	1384133 Thimble			whole thimble	—		—		—	—	BH BT
	Esp. Stack-SB 1384160 Filter			whole filter	—		—		—	—	ESP Stack SB
	ESP-Inlet-SB 1384167 filter				—		—		—	—	ESP Inlet
	1384172 filter				—		—		—	—	ESP #1
	1384177 filter				—		—		—	—	ESP #2
	1384182				—		—		—	—	ESP #3
											ESP BT

Notes: Samples & QC prepared on 11/29/99 were placed in a 95°C water bath for 8 hours. After cooling, 3.5g of boric acid was added. GHP

11/22/99 Water (11)

1382157 Sample wt. = 0.3965 g

1382173 Sample wt. = 3.0145 g W-1 ← wt. = 0.0538 g

1382165 Sample wt. = 0.3973

1382186 Sample wt = 0.3908

1382190 sample wt. = 3.1694

1382177 Sample wt = 3.2812 W-3 ← wt. = 0.0539 g

1382224 Sample wt = 3.2878

1382161 Sample wt. = 0.3928

1382211 Sample wt. = 3.4387 W-4 ← wt. = .0014 g

1382219 Sample wt = 3.2602 W-6 ← wt. = ~~.0004~~ .0023 g

1382194 Sample wt. = 3.0906

1382169 Sample wt = 0.3790

1382215 Sample wt. = 3.6599 W-5 ← wt. = .0028 g

1382181 Sample wt. = 3.3983 W-2 ← wt. ~~0.1356~~ 0.0356 g

1382228 Sample wt. = 3.5245

```
RunProt: ONTARIO
RunFeld: 113099HG Seq: 0    Batch:
                  Prnt: R/T On
                  Rev: 4.0    09:38:15 30 Nov 1999 Xmit: Off  Gas:    0.30 LPM
  Idle                                             User:              A/S: On
```

```
UTILITY:  Diagnostics  Tip X      0 1   28
Aper test              Tip Y      0 1    1
Test sotic             Tip Z     95 1    0
Tip home               Gas      322
Out port
In port
Run code
Cal A/S
```

aperture 21

acceptable Range = -100 to +100

```
Sensors on solenoid Enter for test Ins for motor More tests
Pcode halt ?      @ 344
```

```
RunProt: ONTARIO
RunFold: 113099-6 Seq: 0    Batch:
                  Prnt: R/T On
                  Rev: 4.0    09:38:23 30 Nov 1999 Xmit: Off  Gas:    0.30 LPM
  Idle                                              User:             A/G: On
```

```
UTILITY:  Diagnostics  Tip X      0 1   28
Aper test              Tip Y      0 1    1
Test optic             Tip Z     95 1    0
Tip home               Gas      322
Out port                                      Smpl. intensity    1104637
In port                                       Ref. intensity     1100677
Run scode
Cal A/S
```

} <10% difference

```
Sensors on solenoid Enter for test Ins for motor More tests
Probe halt 4      @ 142
```

```
RunProt: ONTARIO
RunFold: 113099HG Seq: 0    Batch:
                  Print: R/T On
                  Rev: 4.0    09:38:48 30 Nov 1999 Xmit: Off  Gas:    0.30 LPM
  Idle                                               User:            A/S: On
```

INSTRUMENT: Scheduled Maintenance

		Uses left	Last service	Next service
replace:	Pump tubing	600	29-Nov-99	09-Dec-99
	Waste drain tubing	1748	12-Nov-99	27-Oct-00
	Liquid/gas separator	959	07-Sep-99	11-Oct-00
	pump head	10000	N/A	N/A
	Hg lamp	N/A	30-Aug-99	27-Jan-00
	Reductant bottle	16	22-Nov-99	20-May-00
	process tubing	959	N/A	N/A
Clean optical cell		600	N/A	N/A

* - needs maintenance

```
For help on <hotkey> press Shift <hotkey>
```

RunProt: ONTARIO
RunFold: 113099HG Sec: 152 Batch:
Prnt: R/T On
Rev: 4.0 15:48:48 30 Nov 1999 Xmit: Off Gas: 0.30 LPM
Idle User: A/S: On

INSTRUMENT: Scheduled Maintenance

		Uses left	Last service	Next service
replace:	Pump tubing	447	29-Nov-99	09-Dec-99
	Waste drain tubing	1595	12-Nov-99	27-Oct-00
	Liquid/gas separator	866	07-Sep-99	11-Oct-00
	pump head	100000	N/A	N/A
	Hg lamp	N/A	30-Aug-99	27-Jan-00
	Reductant bottle	400	30-Nov-99	29-May-00
	process tubing	866	N/A	N/A
Clean optical cell		600	N/A	N/A

* - needs maintenance

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq:	3	10:04:25 30 Nov 1999 HG		
Hg	.000	ug/l	269					
*** Standard: 1 Rep: 1				Seq:	4	10:15:14 30 Nov 1999 HG		
Hg	.000	ug/l	-49					
*** Standard: 1 Rep: 2				Seq:	5	10:17:24 30 Nov 1999 HG		
Hg	.000	ug/l	450					
*** Standard: 2 Rep: 1				Seq:	6	10:19:37 30 Nov 1999 HG		
Hg	.200	ug/l	18925					
*** Standard: 2 Rep: 2				Seq:	7	10:21:46 30 Nov 1999 HG		
Hg	.200	ug/l	19457					
*** Standard: 3 Rep: 1				Seq:	8	10:23:57 30 Nov 1999 HG		
Hg	.500	ug/l	49954					
*** Standard: 3 Rep: 2				Seq:	9	10:26:07 30 Nov 1999 HG		
Hg	.500	ug/l	49633					
*** Standard: 4 Rep: 1				Seq:	10	10:28:17 30 Nov 1999 HG		
Hg	2.00	ug/l	204003					
*** Standard: 4 Rep: 2				Seq:	11	10:30:31 30 Nov 1999 HG		
Hg	2.00	ug/l	203494					
*** Standard: 5 Rep: 1				Seq:	12	10:32:44 30 Nov 1999 HG		
Hg	5.00	ug/l	504553					
*** Standard: 5 Rep: 2				Seq:	13	10:35:08 30 Nov 1999 HG		
Hg	5.00	ug/l	509513					
*** Standard: 6 Rep: 1				Seq:	14	10:37:32 30 Nov 1999 HG		
Hg	10.0	ug/l	986885					

11/30/99
gp

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

*** Standard: 6 Rep: 2 Seq: 15 10:40:02 30 Nov 1999 HG

Hg	10.0	ug/l	999073

RunProt: ONTARIO

RunFold: 113099HG Seq: 16 Batch:

Prnt: R/T On

Rev: 4.0 10:40:18 30 Nov 1999 Xmit: Off Gas: 0.30 LPM

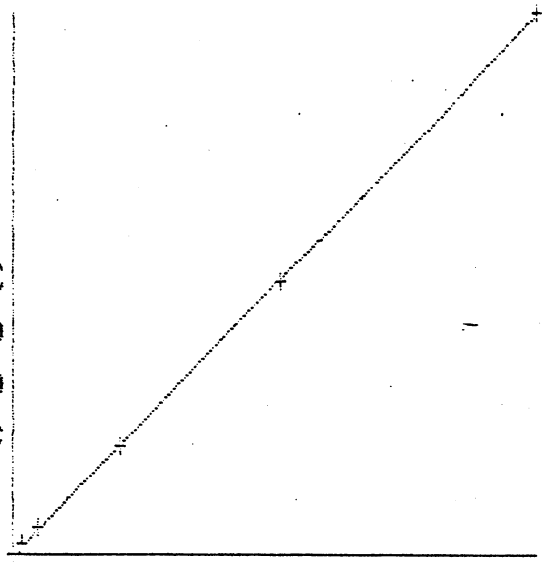
Idle User: A/S: On

CALIBRATION: Line proto: ONTARIO

	Hg Conc.	Calc.	Dev.	Accepted ->linear
S1	.000	-.017	-.017	Quadratic
S2	.200	.174	-.026	Wtdlinear
S3	.500	.481	-.019	C
S4	2.00	2.03	.029	Accept ✓ o
S5	5.00	5.08	.077	n
S6	10.0	9.96	-.044	c

A .0000000 r .999935

B 1.00511e-5 C -1.92614e-2



	Mean	%RSD		Relative Absorbance
S1	200	175.98	-49	450
S2	19221	1.74	18985	19457
S3	49816	0.38	49954	49683
S4	203748	0.18	204003	203494
S5	507034	0.69	504555	509513
S6	992479	0.8	986885	998073

✓ New cal coefficients stored

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

*** Check Standard: 4 Ck4IPC/CCV Seq: 16 10:43:20 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.	5.11	5.00	ug/l	.000

$\bar{x}$ = 5.09 ug/l (102%R)

*** Check Standard: 3 Ck3IPC/CCV Seq: 17 10:45:48 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		101.	5.07	5.00	ug/l	.000

*** Check Standard: 2 Ck2ICB/CCB Seq: 18 10:48:10 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		-32400	-.032	.000	ug/l	.000

$\bar{x}$ = <0.2 ug/l

*** Check Standard: 1 Ck1ICB/CCB Seq: 19 10:50:16 30 Nov 1999 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.021	.200	ug/l	.000

*** Sample ID: QCS Seq: 20 10:52:22 30 Nov 1999 HG

11/29 5.00UG/L

Hg	5.00	ug/l	.000	5.00

$\bar{x}$ = 5.00 ug/l (100%R)

*** Sample ID: QCS Seq: 21 10:54:47 30 Nov 1999 HG

11/29 5.00UG/L

Hg	5.00	ug/l	.000	5.00

*** Sample ID: LRB-ASH Seq: 22 10:57:11 30 Nov 1999 HG

<0.2 11/29 DIH2O

Hg	.031	ug/l	.000	.031

$\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: LRB-ASH Seq: 23 10:59:15 30 Nov 1999 HG

<0.2 11/29 DIH2O

Hg	.037	ug/l	.000	.037

*** Sample ID: LFB-ASH Seq: 24 11:01:20 30 Nov 1999 HG

11/29 DIH2O

Hg	2.01	ug/l	.000	2.01

LFB T.V. = 2.00 ug/l x 0.100 l = 0.200 ug

$\bar{x}$ = 2.03 ug/l x 0.100 l = 0.203 ug (101%R)

*** Sample ID: LFB-ASH Seq: 25 11:03:36 30 Nov 1999 HG

11/29 DIH2O

Hg	2.04	ug/l	.000	2.04

*** Sample ID: NIST Seq: 26 11:05:57 30 Nov 1999 HG

COAL FLY ASH #1633B

Hg	.750	ug/l	.000	.750

T.V. = 0.141 ± 0.019 ug/g

$\bar{x}$ = 0.749 ug/l x 0.100 l / 0.50 g = 0.150 ug/g

*** Sample ID: NIST Seq: 27 11:07:58 30 Nov 1999 HG

COAL FLY ASH #1633B

Hg	.747	ug/l	.000	.747

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

*** Sample ID: 1382194 Seq: 28 11:10:03 30 Nov 1999 HG

	<0.2		INLET SB		
Hg	.130	ug/l	.000	.130	

$\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382194 Seq: 29 11:12:07 30 Nov 1999 HG

	<0.2		INLET SB		
Hg	.135	ug/l	.000	.135	

*** Check Standard: 4 Ck4IPC/CCV Seq: 30 11:14:13 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		104.	5.18	5.00	ug/l	.000

$\bar{x}$ = 5.15ug/l 104 %R

*** Check Standard: 3 Ck3IPC/CCV Seq: 31 11:16:30 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.	5.13	5.00	ug/l	.000

*** Check Standard: 2 Ck2ICB/CCB Seq: 32 11:18:52 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		-283000	-.028	.000	ug/l	.000

$\bar{x}$ = <0.2ug/l

*** Check Standard: 1 Ck1ICB/CCB Seq: 33 11:20:58 30 Nov 1999 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.023	.200	ug/l	.000

*** Sample ID: 1382186 Seq: 34 11:23:04 30 Nov 1999 HG

	<0.2		INLET SB		
Hg	.081	ug/l	.000	.081	

$\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382186 Seq: 35 11:25:06 30 Nov 1999 HG

	<0.2		INLET SB		
Hg	.079	ug/l	.000	.079	

*** Sample ID: 1382224 Seq: 36 11:27:13 30 Nov 1999 HG

	<0.2		STACK SB		
Hg	.099	ug/l	.000	.099	

$\bar{x}$ = <0.2 ug/l x 0.100l = <0.02ug

*** Sample ID: 1382224 Seq: 37 11:29:19 30 Nov 1999 HG

	<0.2		STACK SB		
Hg	.100	ug/l	.000	.100	

*** Sample ID: 1382157 Seq: 38 11:31:24 30 Nov 1999 HG

	<0.2		OUTLET #1		
Hg	.051	ug/l	.000	.051	

$\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382157 Seq: 39 11:33:29 30 Nov 1999 HG

	<0.2		OUTLET #1		
Hg	.049	ug/l	.000	.049	

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

*** Sample ID: 1382161 Seq: 40 11:35:33 30 Nov 1999 HG

<0.2 OUTLET #2

Hg .052 ug/l .000 .052 $\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1382161 Seq: 41 11:37:39 30 Nov 1999 HG

<0.2 OUTLET #2

Hg .054 ug/l .000 .054

*** Sample ID: 1382165 Seq: 42 11:39:44 30 Nov 1999 HG

<0.2 OUTLET #3

Hg .019 ug/l .000 .019 $\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1382165 Seq: 43 11:41:50 30 Nov 1999 HG

<0.2 OUTLET #3

Hg .020 ug/l .000 .020

*** Check Standard: 4 Ck4IPC/CCV Seq: 44 11:43:55 30 Nov 1999 HG 6% difference

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		92.1	4.60	5.00	ug/l	.000

$\bar{x}$ = 4.75 ug/l 95%R

*** Check Standard: 3 Ck3IPC/CCV Seq: 45 11:46:40 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		97.8	4.89	5.00	ug/l	.000

*** Check Standard: 2 Ck2ICB/CCB Seq: 46 11:48:57 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		-32200	-.032	.000	ug/l	.000

$\bar{x}$ = <0.2 ug/l

*** Check Standard: 1 Ck1ICB/CCB Seq: 47 11:51:03 30 Nov 1999 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.024	.200	ug/l	.000

*** Sample ID: 1382169 Seq: 48 11:53:09 30 Nov 1999 HG

<0.2 OUTLET BT

Hg .016 ug/l .000 .016 $\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1382169 Seq: 49 11:55:15 30 Nov 1999 HG

<0.2 OUTLET BT

Hg .019 ug/l .000 .019

*** Sample ID: 1382173 Seq: 50 11:57:19 30 Nov 1999 HG

<0.2 INLET #1

Hg .096 ug/l .000 .096 $\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1382173 Seq: 51 11:59:21 30 Nov 1999 HG

<0.2 INLET #1

Hg .096 ug/l .000 .096

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

quintuplicate replicates

*** Sample ID: 1382177 Seq: 52 12:01:26 30 Nov 1999 HG
<0.2 INLET #2
Hg .149 ug/l .000 .149 $\bar{X}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1382177 Seq: 53 12:03:30 30 Nov 1999 HG
<0.2 INLET #2
Hg .151 ug/l .000 .151

*** Sample ID: 1382177 Seq: 54 12:05:34 30 Nov 1999 HG
<0.2 INLET #2
Hg .136 ug/l .000 .136

*** Sample ID: 1382177 Seq: 55 12:07:39 30 Nov 1999 HG
11/30/99 gp. INLET #2
Hg .132 ug/l .000 .132

*** Sample ID: 1382177 MS matrix Spk Seq: 56 12:09:46 30 Nov 1999 HG
INLET #2 matrix Spk T.V. = 2.00 ug/l x 0.100 l = 0.200 ug
Hg 1.96 ug/l .000 1.96 $\bar{X}$ = 1.94 ug/l x 0.100 l = 0.194 ug 97%R

*** Sample ID: 1382177 MS Seq: 57 12:11:59 30 Nov 1999 HG
INLET #2
Hg 1.93 ug/l .000 1.93

*** Check Standard: 4 Ck4IPC/CCV Seq: 58 12:14:15 30 Nov 1999 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 94.8 4.74 ✓ 5.00 ✓ ug/l .000 $\bar{X}$ = 4.83 ug/l 97%R 6% difference

*** Check Standard: 3 Ck3IPC/CCV Seq: 59 12:16:43 30 Nov 1999 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 98.1 4.91 ✓ 5.00 ug/l .000

*** Check Standard: 2 Ck2ICB/CCB Seq: 60 12:19:07 30 Nov 1999 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg -29700 -.030 ✓ .000 ug/l .000 $\bar{X}$ = <0.2 ug/l

*** Check Standard: 1 Ck1ICB/CCB Seq: 61 12:21:14 30 Nov 1999 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.022 ✓ .200 ug/l .000

*** Sample ID: 1382181 Seq: 62 12:23:20 30 Nov 1999 HG
<0.2 INLET #3
Hg .041 ug/l .000 .041 $\bar{X}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1382181 Seq: 63 12:25:23 30 Nov 1999 HG
<0.2 INLET #3
Hg .042 ug/l .000 .042

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

*** Sample ID: 1382190 Seq: 64 12:27:29 30 Nov 1999 HB
<0.2 INLET BT
Hg .071 ug/l .000 .071 $\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382190 Seq: 65 12:29:33 30 Nov 1999 HB
<0.2 INLET BT
Hg .068 ug/l .000 .068

*** Sample ID: 1382211 Seq: 66 12:31:37 30 Nov 1999 HB
<0.2 STACK #1
Hg .048 ug/l .000 .048 $\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382211 Seq: 67 12:33:41 30 Nov 1999 HB
<0.2 STACK #1
Hg .052 ug/l .000 .052

*** Sample ID: 1382215 Seq: 68 12:35:46 30 Nov 1999 HB
<0.2 STACK #2
Hg .176 ug/l .000 .176 $\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382215 Seq: 69 12:37:50 30 Nov 1999 HB
<0.2 STACK #2
Hg .176 ug/l .000 .176

*** Sample ID: 1382219 Seq: 70 12:39:55 30 Nov 1999 HB
<0.2 STACK #3
Hg .067 ug/l .000 .067 $\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382219 Seq: 71 12:42:00 30 Nov 1999 HB
<0.2 STACK #3
Hg .066 ug/l .000 .066

*** Check Standard: 4 CK4IPC/CCV Seq: 72 12:44:06 30 Nov 1999 HB
Line Flag %Rcv. Found True Units SD/RSD $\bar{x}$ = 4.95ug/l 99 %R
Hg 99.6 4.98 ✓ 5.00 ug/l .000
(recal: ~ JPC into cup)

*** Check Standard: 3 CK3IPC/CCV Seq: 73 12:46:28 30 Nov 1999 HB
Line Flag %Rcv. Found True Units SD/RSD
Hg 98.7 4.93 ✓ 5.00 ug/l .000

*** Check Standard: 2 CK2ICB/CCB Seq: 74 12:48:47 30 Nov 1999 HB
Line Flag %Rcv. Found True Units SD/RSD
Hg -29200 -.029 .000 ug/l .000 $\bar{x}$ = <0.2ug/l

*** Check Standard: 1 CK1ICB/CCB Seq: 75 12:50:54 30 Nov 1999 HB
Line Flag Found Range(+/-) Units SD/RSD
Hg -.021 .200 ug/l .000

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

*** Sample ID: 1382229 Seq: 76 12:53:00 30 Nov 1999 HG
<0.2 STACK BT
Hg .064 ug/l .000 .064 $\bar{X}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1382228 Seq: 77 12:55:05 30 Nov 1999 HG
<0.2 STACK BT
Hg .063 ug/l .000 .063

*** Sample ID: LRB-ASH For PJ# 188323 + 188322 Seq: 78 12:57:12 30 Nov 1999 HG
<0.2 11/29 FILTERS/THIMB.
Hg .024 ug/l .000 .024 $\bar{X}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: LRB-ASH Seq: 79 12:59:18 30 Nov 1999 HG
<0.2 11/29 FILTERS/THIMB.
Hg .025 ug/l .000 .025

*** Sample ID: LFB-ASH Seq: 80 13:01:23 30 Nov 1999 HG
11/29 FILTERS/THIMB. LFB T.V. = 2.00ug/l x 0.100l = 0.200ug
Hg 1.97 ug/l .000 1.97 $\bar{X}$ = 1.98ug/l x 0.100l = 0.198ug 99%R

*** Sample ID: LFB-ASH Seq: 81 13:03:40 30 Nov 1999 HG
11/29 FILTERS/THIMB.
Hg 1.98 ug/l .000 1.98

See Recheck pg. #602

*** Sample ID: NIST Seq: 82 13:05:55 30 Nov 1999 HG
COAL FLY ASH #1633B T.V. = 0.141ug/g ± 0.019ug/g
Hg .847 ug/l .000 .847 $\bar{X}$ = 0.850ug/l x $\frac{0.100l}{0.500g}$ = 0.163ug/g

11/29/99 gh

*** Sample ID: NIST Seq: 83 13:08:00 30 Nov 1999 HG
COAL FLY ASH #1633B
Hg .853 ug/l .000 .853

*** Sample ID: 1384089 Seq: 84 13:10:06 30 Nov 1999 HG
<0.2 FED-1 INLET
Hg .063 ug/l .000 .063 $\bar{X}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1384089 Seq: 85 13:12:11 30 Nov 1999 HG
<0.2 FED-1 INLET
Hg .059 ug/l .000 .059

*** Check Standard: 4 CK4IPC/DCV Seq: 86 13:14:19 30 Nov 1999 HG
Line Flag %Rev. Found True Units SD/RSD
Hg 98.2 4.91 ✓ 5.00 ug/l .000 $\bar{X}$ = 4.91ug/l 98%R

*** Check Standard: 3 CK3IPC/DCV Seq: 87 13:16:41 30 Nov 1999 HG
Line Flag %Rev. Found True Units SD/RSD
Hg 98.0 4.90 ✓ 5.00 ug/l .000

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

*** Check Standard: 2 CK2ICB/CCB Seq: 88 13:19:01 30 Nov 1999 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg -10200 -.030 .000 ug/l .000 $\bar{x}$ = <0.2ug/l

*** Check Standard: 1 CK1ICB/CCB Seq: 89 13:21:09 30 Nov 1999 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.024 .200 ug/l .000

*** Sample ID: 1384089 Seq: 90 13:23:15 30 Nov 1999 HG
<0.2 FED-1 INLET
Hg .021 ug/l .000 .021 $\bar{x}$ = <0.2ug/l x 0.100 = <0.02ug

*** Sample ID: 1384089 Seq: 91 13:25:20 30 Nov 1999 HG
<0.2 FED-1 INLET
Hg .023 ug/l .000 .023

*** Sample ID: 1384089 MS matrix Spk Seq: 92 13:27:25 30 Nov 1999 HG
FED-1 INLET matrix Spk T.V. = 2.00ug/l x 0.100l = 0.200ug
Hg 1.90 ug/l .000 1.90 $\bar{x}$ = 1.88ug/l x 0.100l = 0.188ug 94%R

*** Sample ID: 1384089 MS Seq: 93 13:29:36 30 Nov 1999 HG
FED-1 INLET
Hg 1.87 ug/l .000 1.87

*** Sample ID: 1384095 Seq: 94 13:31:46 30 Nov 1999 HG
FED-2 INLET
Hg 1.19 ug/l .000 1.19 $\bar{x}$ = 1.20ug/l x 0.100l = 0.120ug

(Data was continued on pg. #602)

*** Sample ID: 1384095 Seq: 95 13:33:54 30 Nov 1999 HG
FED-2 INLET
Hg 1.21 ug/l .000 1.21

*** Sample ID: 1384101 Seq: 96 13:36:02 30 Nov 1999 HG
<0.2 FED-3 INLET
Hg .015 ug/l .000 .015 $\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1384101 Seq: 97 13:38:08 30 Nov 1999 HG
<0.2 FED-3 INLET
Hg .018 ug/l .000 .018

*** Sample ID: 1384107 Seq: 98 13:40:12 30 Nov 1999 HG
<0.2 FED-ET INLET
Hg .111 ug/l .000 .111 $\bar{x}$ = <0.2ug/l x 0.100l = <0.02ug

*** Sample ID: 1384107 Seq: 99 13:42:20 30 Nov 1999 HG
<0.2 FED-ET INLET
Hg .105 ug/l .000 .105

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

*** Check Standard: 4 CK4IPC/CCV Seq: 100 13:44:27 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		101.	5.03	5.00	ug/l	.000

$\bar{X}$ = 4.98 ug/l 100 %R

*** Check Standard: 3 CK3IPC/CCV Seq: 101 13:46:47 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		98.6	4.92	5.00	ug/l	.000

*** Check Standard: 2 CK2ICB/CCB Seq: 102 13:49:07 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		[illegible]	-.029 ✓	.000	ug/l	.000

$\bar{X}$ = <0.2 ug/l

*** Check Standard: 1 CK1ICB/CCB Seq: 103 13:51:14 30 Nov 1999 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.015 ✓	.200	ug/l	.000

*** Sample ID: 1384132 Seq: 104 13:53:19 30 Nov 1999 HG

<0.2

BH OUT SB

Hg .047 ug/l .000 .047

$\bar{X}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1384138 Seq: 105 13:55:25 30 Nov 1999 HG

<0.2

BH OUT SB

Hg .047 ug/l .000 .047

*** Sample ID: 1384128 Seq: 106 13:57:31 30 Nov 1999 HG

<0.2

BH OUT SB

Hg .106 ug/l .000 .106

$\bar{X}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1384128 Seq: 107 13:59:37 30 Nov 1999 HG

<0.2

BH OUT SB

Hg .111 ug/l .000 .111

*** Sample ID: 1384113 Seq: 108 14:01:43 30 Nov 1999 HG

BH #1

Hg .218 ug/l .000 .218

$\bar{X}$ = 0.218 ug/l x 0.100 l = 0.0218 ug

*** Sample ID: 1384113 Seq: 109 14:03:48 30 Nov 1999 HG

BH #1

Hg .217 ug/l .000 .217

*** Sample ID: 1384118 Seq: 110 14:05:55 30 Nov 1999 HG

BH #2

Hg .233 ug/l .000 .233

$\bar{X}$ = 0.234 ug/l x 0.100 l = 0.0234 ug

*** Sample ID: 1384118 Seq: 111 14:08:01 30 Nov 1999 HG

BH #2

Hg .236 ug/l .000 .236

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

*** Sample ID: 1384123 Seq: 112 14:10:08 30 Nov 1999 HG

BH #3

	<0.2			
Hg	.095	ug/l	.000	.095

$\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1384123 Seq: 113 14:12:15 30 Nov 1999 HG

BH #3

	<0.2			
Hg	.093	ug/l	.000	.093

*** Check Standard: 4 Ck4IBC/CCV Seq: 114 14:14:21 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		100.	5.01 ✓	5.00	ug/l	.000

$\bar{x}$ = 4.98 ug/l 99%R

*** Check Standard: 3 Ck3IPC/CCV Seq: 115 14:16:39 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		98.8	4.94 ✓	5.00	ug/l	.000

*** Check Standard: 2 Ck2ICB/CCB Seq: 116 14:18:58 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		-29000	-.029 ✓	.000	ug/l	.000

$\bar{x}$ = <0.2 ug/l

*** Check Standard: 1 Ck1ICB/CCB Seq: 117 14:21:05 30 Nov 1999 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.019 ✓	.200	ug/l	.000

*** Sample ID: 1384133 Seq: 118 14:23:11 30 Nov 1999 HG

BH BT

	<0.2			
Hg	.046	ug/l	.000	.046

$\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: 1384133 Seq: 119 14:25:18 30 Nov 1999 HG

BH BT

	<0.2			
Hg	.049	ug/l	.000	.049

need elute analysis.

*** Sample ID: ESP.STACK Seq: 120 14:27:25 30 Nov 1999 HG

SB THIMBLE

	<0.2			
Hg	.041	ug/l	.000	.041

$\bar{x}$ = <0.2 ug/l x 0.100 l = <0.02 ug

*** Sample ID: ESP.STACK Seq: 121 14:29:33 30 Nov 1999 HG

SB THIMBLE

	<0.2			
Hg	.032	ug/l	.000	.032

*** Sample ID: ESP.STACK Seq: 122 14:31:40 30 Nov 1999 HG

SB THIMBLE

	<0.2			
Hg	.036	ug/l	.000	.036

*** Sample ID: ESP.STACK Seq: 123 14:33:47 30 Nov 1999 HG

SB THIMBLE

Hg	.037	ug/l	.000	.037

11/30/99 JR

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

*** Sample ID: ESP.STACK Matrix Spk. Seq: 124 14:35:54 30 Nov 1999 HG
SB THIMBLE MS Matrix Spike T.V. = 2.00ug/l x 0.100 l = 0.200 u
Hg 1.69 ug/l .000 1.69 $\bar{x}$ = 1.69ug/l x 0.100 l = 0.169ug 85%R

*** Sample ID: ESP.STACK Seq: 125 14:38:03 30 Nov 1999 HG
SB THIMBLE MS
Hg 1.68 ug/l .000 1.68

*** Sample ID: ESP INLET #1384160 Seq: 126 14:40:13 30 Nov 1999 HG
<0.2 SB FILTER $\bar{x}$ = <0.2ug/l x 0.100 l = <0.02ug
Hg .008 ug/l .000 .008

*** Sample ID: ESP INLET Seq: 127 14:42:20 30 Nov 1999 HG
<0.2 SB FILTER
Hg .009 ug/l .000 .009

*** Check Standard: 4 Ck4IPC/CCV Seq: 128 14:44:28 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		100.	5.01 ✓	5.00	ug/l	.000

$\bar{x}$ = 4.96ug/l 99%R

*** Check Standard: 3 Ck3IPC/CCV Seq: 129 14:46:45 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		98.2	4.91 ✓	5.00	ug/l	.000

*** Check Standard: 2 Ck2ICB/CCB Seq: 130 14:49:02 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		-30000	-.030	.000	ug/l	.000

$\bar{x}$ = <0.2ug/l

*** Check Standard: 1 Ck1ICB/CCB Seq: 131 14:51:09 30 Nov 1999 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.020	.200	ug/l	.000

*** Sample ID: 1384167 Seq: 132 14:53:15 30 Nov 1999 HG
ESP0#1 $\bar{x}$ = 13.9ug/l x 0.100 l = 1.39ug
Hg 13.8 ug/l .000 13.8

*** Sample ID: 1384167 Seq: 133 14:55:42 30 Nov 1999 HG
ESP0#1
Hg 13.9 ug/l .000 13.9

*** Sample ID: 1384172 Seq: 134 14:58:10 30 Nov 1999 HG
ESP0#2 $\bar{x}$ = 7.68ug/l x 0.100 l = 0.768ug
Hg 7.67 ug/l .000 7.67

*** Sample ID: 1384172 Seq: 135 15:00:30 30 Nov 1999 HG
ESP0#2
Hg 7.70 ug/l .000 7.70

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 1384177					Seq: 136	15:02:48 30 Nov 1999 HG		
				ESFO #3				
Hg	21.3	ug/l	.000	21.3				
11/30/99 gl								
*** Sample ID: 1384177					Seq: 137	15:05:18 30 Nov 1999 HG		
				ESFO #3				
Hg	21.6	ug/l	.000	21.6				
*** Sample ID: 1384182					Seq: 138	15:08:00 30 Nov 1999 HG		
<0.2				ESFO ~~#4~~ BT gl				
Hg	-.002	ug/l	.000	-.002				
*** Sample ID: 1384182					Seq: 139	15:10:07 30 Nov 1999 HG		
<0.2				ESFO ~~#4~~ BT gl				
Hg	.006	ug/l	.000	.006				
*** Sample ID: NIST					Seq: 140	15:14:23 30 Nov 1999 HG		
				COAL FLY ASH #1633B				
Hg	.641	ug/l	.000	.641				
*** Sample ID: NIST					Seq: 141	15:16:28 30 Nov 1999 HG		
				COAL FLY ASH #1633B				
Hg	.646	ug/l	.000	.646				
*** Sample ID: NIST Refiltered 0.53g/100ml					Seq: 142	15:22:40 30 Nov 1999 HG		
				COAL FLY ASH #1633B				
Hg	.742	ug/l	.000	.742				
*** Sample ID: NIST					Seq: 143	15:24:45 30 Nov 1999 HG		
				COAL FLY ASH #1633B				
Hg	.728	ug/l	.000	.728				
*** Sample ID: 1384095					Seq: 144	15:28:15 30 Nov 1999 HG		
				FGD-2 INLET				
Hg	1.17	ug/l	.000	1.17				
*** Sample ID: 1384095					Seq: 145	15:30:21 30 Nov 1999 HG		
				FGD-2 INLET				
Hg	1.16	ug/l	.000	1.16				
*** Sample ID: 1384177					Seq: 146	15:32:45 30 Nov 1999 HG		
				esp #3 1:10 dilution				
Hg	2.47	ug/l	.000	2.47				
*** Sample ID: 1384177					Seq: 147	15:34:57 30 Nov 1999 HG		
				esp #3 1:10				
Hg	2.47	ug/l	.000	2.47				

e
elution
below.

Acid washed filter before analysis. – forgot to dump acid water before filtering. 11/30/99 gl

$\bar{x}$ = <0.2 ug/l × 0.100 l = <0.02 ug

$\bar{x}$ = 0.735 ug/l × 0.100 l / 0.53 g = 0.141 ug/g

2 % difference

T.V. = 0.141 ± 0.019 ug/g

Contamination only

$\bar{x}$ = 1.17 ug/l × 0.100 l = 0.117 ug

$\bar{x}$ = 2.47 ug/l × 0.100 l × 10 = 2.47 ug

Folder: 113099HG
15:37:07 30 Nov 1999 Protocol: ONTARIO

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

*** Check Standard: 4 CK4IPC/CCV Seq: 148 15:37:09 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		96.9	4.85	5.00	ug/l	.000

$\bar{x}$ = 4.87 ug/l 97% R

*** Check Standard: 3 CK3IPC/CCV Seq: 149 15:39:31 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		97.7	4.89	5.00	ug/l	.000

*** Check Standard: 2 CK2ICS/CCB Seq: 150 15:41:53 30 Nov 1999 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		-3110.00	-.031	.000	ug/l	.000

$\bar{x}$ = <0.2 ug/l

*** Check Standard: 1 CK1ICB/CCB Seq: 151 15:44:02 30 Nov 1999 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.019	.200	ug/l	.000

ojects #
87900
187901

Calculations for Total Amount of Particle-Bound Mercury (Hg_{tp}) by: (Eq. #7)

$$Hg_{(particle)}, \mu g = (Hg_{ash}) - Hg_{fb} + Hg_{pr}$$

where: Hg_{ash} = Mercury present in ash (thimble or filter), µg

Hg_{fb} = Client blk of Probe Rinse portion, µg - See 11/22/99 Data. All client blanks were below D.L.

Hg_{pr} = Probe Rinse, 0.1N HNO_3 result performed on 11/22/99, µg

The Hg_{ash} and Hg_{pr} portions were logged in as different sample ID # for some samples. Client rates were placed in LIMS.

(1) #1382186 (thimble) + 1382189 (Hg pr blk) (Inlet SB)

<0.02 µg $Hg_{(ash)}$ + <0.084 µg Hg_{pr} = <0.08 µg Hg particle

(2) #1382224 thimble + 1382227 Probe Rinse (Stack SB)

<0.02 µg Hg_{ash} + <0.046 µg Hg_{pr} = <0.05 µg Hg particle

(3) #1382157 (ID for thimble + Probe Rinse) (Outlet #1)

<0.02 µg + <0.076 µg = <0.08 µg Hg particle

(4) #1382161 (ID for thimble + Probe Rinse) (Outlet #2)

<0.02 µg + <0.048 µg = <0.048 µg Hg

(5) #1382165 (ID for thimble + Probe Rinse) (Outlet #3)

<0.02 µg + <0.051 µg = <0.051 µg Hg particle

(6) 1382169 (ID for Thimble + Probe Rinse) (Outlet BT)

<0.02 µg + <0.021 µg = <0.02 µg

Total Particle-Bound Mercury con't.

(7) # 1382173 (Inlet #1)

<0.02 ug Hg_{ash} + 0.089 ug Hg_{pr} = 0.089 ug Hg_{part}

(8) 1382177 (Inlet #2)

<0.02 ug Hg_{ash} + <0.025 ug Hg_{pr} = <0.025 ug Hg_{part}.

(9) 1382181 (Inlet #3)

<0.02 ug Hg_{ash} + <0.031 ug Hg_{pr} = <0.031 ug Hg_{part}.

(10) 1382190 (Inlet BT)

<0.02 ug Hg_{ash} + <0.027 ug Hg_{pr} = <0.027 ug Hg_{part}.

(11) 1382211 (Stack #1)

<0.02 ug Hg_{ash} + <0.015 ug Hg_{pr} = <0.02 ug Hg_{part}

(12) 1382215 (Stack #2)

<0.02 ug Hg_{ash} + <0.024 ug Hg_{pr} = <0.02 ug Hg_{part}

(13) 1382219 (Stack #3)

<0.02 ug Hg_{ash} + <0.018 ug Hg_{pr} = <0.02 ug Hg_{part}

(14) 1382228 (Stack BT)

<0.02 ug Hg_{ash} + <0.024 ug Hg_{pr} = <0.02 ug Hg_{part}

188322
& 188323

2A

Initial and Continuing Calibration Verification

Lab Name: *Philip Analytical Services*

File Name: *HG-113099*

Concentration Units: ug/l

Analyte	QCS			IPC/CCV				
	True	Found	%R	True	Found	%R	Found	%R
Mercury	5.00	5.00	100.0	5.00	5.09	101.8	5.15	103.0

rms 2/25/98 rev. 1
rms 5/20/98 rev. 2

Initial and Continuing Calibration Verification Continued

Lab Name: *Philip Analytical Services*

File Name: HG-113099

Analyte	IPC/CCV						
	True	Found	%R	Found	%R	Found	%R
Mercury	5.00	4.75	95.0	4.83	96.6	4.95	99.0

rms 2/25/98 rev. 1
rms 5/20/98 rev. 2

Initial and Continuing Calibration Verification Continued

Lab Name: *Philip Analytical Services*

File Name: HG-113099

Analyte	IPC/CCV						
	True	Found	%R	Found	%R	Found	%R
Mercury	5.00	4.91	98.2	4.98	99.6	4.98	99.6

rms 2/25/98 rev. 1
rms 5/20/98 rev. 2

Initial and Continuing Calibration Verification Continued

Lab Name: *Philip Analytical Services*

File Name: HG-113099

Analyte	IPC/CCV						
	True	Found	%R	Found	%R	Found	%R
Mercury	5.00	4.87	97.4		#VALUE!		

rms 2/25/98

rms 5/20/98

Initial & Continuing Calibration Blanks

Lab Name: *Philip Analytical Services*

File Name: *HG-113099*

Concentration Units: ug/l

Parameter	Initial Calibration Blank (ug/l)	c	Continuing Calibration Blanks (ug/l) #1	c	#2	c	#3	c	#4	c
Mercury	< 0.20		< 0.20		< 0.20		< 0.20		< 0.20	

5/19/98 rms

Initial & Continuing Calibration Blanks

Lab Name *Philip Analytical Services*

File Name *HG-113099*

Concentration Units: ug/l

	Continuing Calibration Blanks (ug/l)									
Parameter	#5		#6	c	#7	c	#8	c	#9	c
Mercury	< 0.20		< 0.20		< 0.20		< 0.20		< 0.20	

5/19/98 rms

3A
Method Blank

Lab Name: *Philip Analytical Services*
File Name: *HG-113099*
Batch: 112999B ASH

	1384155
	Method Blank
	(ug)
Mercury	< 0.02

3A
Method Blank

Lab Name: *Philip Analytical Services*
File Name: *HG-113099*
Batch: *112999B ASH*

	1384160
	Method Blank
	(ug)
Mercury	< 0.02

5B

SPIKE RECOVERY

Lab Name: *Philip Analytical Services*

File Name: *HG-113099* Batch: 112999B ASH

Sample Number: *1384155*

Concentration Unit: ug Hg

		MATRIX SPIKE									
	Sample	Spike	Matrix Spike								
Parameter	Conc.	Conc.	Conc.	% Recovery	c						c
Mercury	< 0.02	0.200	0.169	85.0							

5/20/98 rms

TRIPLICATE ANALYSIS

Lab Name: *Philip Analytical Services*

File Name: *HG-113099* Batch: 112999B ASH

Sample Number: *1384155*

Concentration Units: ug

Parameter	Sample Concentration	Sample Duplicate Concentration	Sample Triplicate Concentration	
Mercury	< 0.02	< 0.02	< 0.02	

Must be within 10 % difference

rms 5/20/1998

Metal PQLS

Lab Name: *Philip Analytical Services*
File Name: *HG-113099*

Element	Water PQL (ug/l)	Soil PQL (ug/g)
Mercury	< 0.20	< 0.04

PQLs
rms 5/21/98

APPENDIX E
SAMPLE CALCULATIONS

SAMPLE CALCULATIONS FOR FLOW, MOISTURE AND ISO

Client: COGENTRIX
Test Number: Run 1
Test Location: Unit No. 2B Outlet

Plant: ROCKY MOUNT, NC
Test Date: 11/17/99
Test Period: 0815-1055

1. Volume of dry gas sampled at standard conditions (68 deg F, 29.92 in. Hg), dscf.

$$Vm(std) = \frac{17.64 \times Y \times Vm \times \left(Pb + \frac{delta\ H}{13.6} \right)}{(Tm + 460)}$$

$$Vm(std) = \frac{17.64 \times 1.0098 \times 77.675 \times \left(30.03 + \frac{1.426}{13.6} \right)}{53.70 + 460} = 81.166$$

Where:

Vm(std) =	Volume of gas sample measured by the dry gas meter, corrected to standard conditions, dscf.
Vm =	Volume of gas sample measured by the dry gas meter at meter conditions, dcf.
Pb =	Barometric Pressure, in Hg.
delt H =	Average pressure drop across the orifice meter, in H_2O
Tm =	Average dry gas meter temperature , deg F.
Y =	Dry gas meter calibration factor.
17.64 =	Factor that includes ratio of standard temperature (528 deg R) to standard pressure (29.92 in. Hg), deg R/in. Hg.
13.6 =	Specific gravity of mercury.

2. Volume of water vapor in the gas sample corrected to standard conditions, scf.

Vw(std) = (0.04707 x Vwc) + (0.04715 x Wwsg)

Vw(std) = (0.04707 x 213.4) + (0.04715 x 13.1) = 10.7

Where:

Vw(std) =	Volume of water vapor in the gas sample corrected to standard conditions, scf.
Vwc =	Volume of liquid condensed in impingers, ml.
Wwsg =	Weight of water vapor collected in silica gel, g.
0.04707 =	Factor which includes the density of water (0.002201 lb/ml), the molecular weight of water (18.0 lb/lb-mole), the ideal gas constant 21.85 (in. Hg) (ft^3)/lb-mole)(deg R); absolute temperature at standard conditions (528 deg R), absolute pressure at standard conditions (29.92 in. Hg), ft^3/ml.
0.04715 =	Factor which includes the molecular weight of water (18.0 lb/lb-mole), the ideal gas constant 21.85 (in. Hg) (ft^3)/lb-mole)(deg R); absolute temperature at standard conditions (528 deg R), absolute pressure at standard conditions (29.92 in. Hg), and 453.6 g/lb, ft^3/g.

3. Moisture content

$$bws = \frac{Vw(std)}{Vw(std) + Vm(std)}$$

$$bws = \frac{10.662}{10.662 + 81.166} = 0.116$$

Where:

bws =	Proportion of water vapor, by volume, in the gas stream, dimensionless.

4. Mole fraction of dry gas.

Md = 1 - bws

Md = 1 - 0.116 = 0.884

Where:

Md = Mole fraction of dry gas, dimensionless.

5. Dry molecular weight of gas stream, lb/lb-mole.

MWd = (0.440 x % CO_2) + (0.320 x % O_2) + (0.280 x (% N_2 + % CO))

MWd = (0.440 x 13.3) + (0.320 x 5.0) + (0.280 x (81.7 + 0.00))

= 30.33

Where:

MWd =	Dry molecular weight , lb/lb-mole.
% CO2 =	Percent carbon dioxide by volume, dry basis.
% O_2 =	Percent oxygen by volume, dry basis.
% N_2 =	Percent nitrogen by volume, dry basis.
% CO =	Percent carbon monoxide by volume, dry basis.
0.440 =	Molecular weight of carbon dioxide, divided by 100.
0.320 =	Molecular weight of oxygen, divided by 100.
0.280 =	Molecular weight of nitrogen or carbon monoxide, divided by 100.

6. Actual molecular weight of gas stream (wet basis), lb/lb-mole.

MWs = (MWd x Md) + (18 x (1 - Md))

MWs = (30.33 x 0.884) +(18 (1 - 0.884)) = 28.90

Where:

MWs =	Molecular weight of wet gas, lb/lb-mole.
18 =	Molecular weight of water, lb/lb-mole.

7. Average velocity of gas stream at actual conditions, ft/sec.

$$Vs = 85.49 \times Cp \times ((delt\ p)^{1/2})avg \times \left(\frac{Ts\ (avg)}{Ps \times MWs} \right)^{1/2}$$

$$Vs = 85.49 \times 0.84 \times 1.170936 \times \left(\frac{645}{28.12 \times 28.90} \right)^{\wedge}1/2 = 74.9$$

Where:

Vs =	Average gas stream velocity, ft/sec.
85.49 =	Pitot tube constant, ft/sec x $\frac{(lb/lb\text{-}mole)(in.\ Hg)^{1/2}}{(deg\ R)(in\ H_2O)}$
Cp =	Pitot tube coefficient, dimensionless.
Ts =	Absolute gas stream temperature, deg R = Ts, deg F + 460.
Ps =	Absolute gas stack pressure, in. Hg. = Pb + $\frac{P(static)}{13.6}$
delt p =	Velocity head of stack, in. H_2O

8. Average gas stream volumetric flowrate at actual conditions, wacf/min.

Qs(act) = 60 x Vs x As

Qs(act) = 60 x 74.90 x 26.03 = 116969

Where:

Qs(act) =	Volumetric flowrate of wet stack gas at actual conditions, wacf/min.
As =	Cross-sectional area of stack, ft^2.
60 =	Conversion factor from seconds to minutes.

9. Average gas stream dry volumetric flowrate at standard conditions, dscf/min.

$$Qs(std) = 17.64 \times Md \times \frac{Ps}{Ts} \times Qs(act)$$

$$Qs(std) = 17.64 \times 0.884 \times \frac{28.12}{645} \times 116969$$

$$= 79534$$

Where:

Qs(std) = Volumetric flowrate of dry stack gas at standard conditions, dscf/min.

10. Isokinetic variation calculated from intermediate values, percent.

$$I = \frac{17.327 \times Ts \times Vm(std)}{Vs \times O \times Ps \times Md \times (Dn)^2}$$

$$I = \frac{17.327 \times 645 \times 81.166}{74.90 \times 125 \times 28.12 \times 0.884 \times (0.190)^2} = 107.9$$

Where:

I = Percent of isokinetic sampling.
O = Total sampling time, minutes.
Dn = Diameter of nozzle, inches.
17.327 = Factor which includes standard temperature (528 deg R), standard pressure (29.92 in. Hg), the formula for calculating area of circle $D^{2/4}$, conversion of square feet to square inches (144), conversion of seconds to minutes (60), and conversion to percent (100), $\frac{(in.\ Hg)(in^2)(min)}{(deg\ R)(ft^2)(sec)}$

SAMPLE CALCULATIONS FOR MERCURY

Client: COGENTRIX
Test Number: Run 1
Test Location: Unit No. 2B Outlet

Plant: ROCKY MOUNT, NC
Test Date: 11/17/99
Test Period: 0815-1055

1. Total Mercury concentration, lb/dscf.

$$C_1 = \frac{W \times 2.2046 \times 10E\text{-}9}{Vm_{(std)}}$$

$$C_1 = \frac{0.57 \times 2.2046 \times 10E\text{-}9}{81.166}$$

$$= 1.53E\text{-}11$$

Where:

W = Weight of Total Mercury collected in sample in ug.
C_1 = Total Mercury concentration, lb/dscf.
2.2046×10^{-9} = Conversion factor from ug to pounds.

2. Total Mercury concentration, ug/dscm

$$C_2 = \frac{W}{Vm_{(std)} \times 0.02832}$$

$$C_2 = \frac{0.565}{81.166 \times 0.02832}$$

$$= 0.25$$

Where:

C_2 = Total Mercury concentration, µg/dscm.
W = Total Mercury catch, µg.
0.02832 = Conversion factor from cubic feet to cubic meters.

3. Total Mercury concentration, ug/Nm3

$$C_3 = \frac{W}{Vm_{(std)} \times 0.02832 \times (16.44/17.64)}$$

$$C_3 = \frac{0.565}{81.166 \times 0.02832 \times (16.44/17.64)}$$

$$C_3 = 0.26$$

Where:

C_3 = Total Mercury concentration, ug/Nm^3
W = Total Mercury catch, µg.
0.02832 = Conversion factor from cubic feet to cubic meters.
16.44/17.64 = Ratio of conversion factors for standard temperature and pressure and normal temperature.

4. Total Mercury mass emission rate, lbs/hr.

MR1 = C_1 x Qs(std) x 60

MR1 = 1.53E-11 x 79534 x 60

MR1 = 7.32E-05

Where:

MR1 = Total Mercury mass emission rate, lbs/hr.
60 = Conversion factor from minutes to hours.

5. Total Mercury mass emission rate, lbs/10E+12 Btu.

MR2 = MR1/Heat Input

MR2 = 7.32E-05 / 379

MR2 = 0.19

Where:

MR2 = Total Mercury mass emission rate, lbs/10E+12 Btu.
Heat Input = 379 x 10E+6 Btu/hr

APPENDIX F
EQUIPMENT CALIBRATION RECORDS

WESTON

LONG/PRE DRY GAS METER CALIBRATION DATA FORM

Calibrator P. Mack

Date 3/30/99 Meter Box Number 14 Plant

Barometric pressure, P_b = 29.83 in. Hg Dry Gas Meter Number 6848169 Comments

Setting	Gas volume		Temperatures						
Orifice manometer	Wet test meter	Dry gas meter	Wet test meter	Dry gas meter					
(Δ H) in. H_2O	(V_w) ft^3	(V_d) ft^3	(t_w) °F	Inlet (td_i) °F	Outlet (td_o) °F	Avg (t_d) °F	Time (θ), min	Y_i	ΔH @$_i$ in. H_2O
0.5	5	938.464 / 933.448	69	77, 79	74, 75	76	13.0	1.0089	1.8753
1.0	5	943.481 / 938.464	69	80, 82	76, 76	78.5	9.2	1.0130	1.8697
1.5	10	953.563 / 943.481	69.5	82, 87	76, 78	81	15.7	1.0097	2.0362
2.0	10	963.635 / 953.563	69.5	85, 89	79, 80	83	13.4	1.0102	1.9705
3.0	10	973.740 / 963.635	69.5	85, 90	80, 81	84	10.9	1.0082	1.9521
							Avg	Y 1.0088	ΔH@ 1.9408

If there is only one thermometer on the dry gas meter, record the temperature under td_o.

(ΔH) in. H_2O	$\frac{\Delta H}{13.6}$	$Y_i = \frac{V_w P_b (t_d + 460)}{V_d \left(P_b + \frac{\Delta H}{13.6}\right)(t_w + 460)}$	$\Delta H@i = \frac{0.0317 \Delta H}{P_b (t_d + 460)} \left[\frac{(t_w + 460)\Theta}{V_w}\right]^2$
0.5	0.0368	$\frac{(5)(29.83)(76+460)}{(5.015)(29.83+.0368)(69+460)}$	$\frac{(.0317)(.5)}{(29.83)(76+460)}\left[\frac{(69+460)(13.0)}{5}\right]^2$
1.0	0.0735	$\frac{(5)(29.83)(78.5+460)}{(5.017)(29.83+.0735)(69+460)}$	$\frac{(.0317)(1.0)}{(29.83)(78.5+460)}\left[\frac{(69+460)(9.2)}{5}\right]^2$
1.5	0.110	$\frac{(10)(29.83)(81+460)}{(10.082)(29.83+.110)(69.5+460)}$	$\frac{(.0317)(1.5)}{(29.83)(81+460)}\left[\frac{(69.5+460)(15.7)}{10}\right]^2$
2.0	0.147	$\frac{(10)(29.83)(83+460)}{(10.102)(29.83+.147)(69.5+460)}$	$\frac{(.0317)(2.0)}{(29.83)(83+460)}\left[\frac{(69.5+460)(13.4)}{10}\right]^2$
3.0	0.221	$\frac{(10)(29.83)(84+460)}{(10.115)(29.83+.221)(69.5+460)}$	$\frac{(.0317)(3.0)}{(29.83)(84+460)}\left[\frac{(69.5+460)(10.9)}{10}\right]^2$

WESTON

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM

DATE 23 FEB 99
AMBIENT TEMPERATURE [illegible]
CALIBRATION GP

POTENTIOMETER NUMBER NUTECH #14
BAROMETRIC PRESSURE 29.94
REFERENCE: THERMOCOUPLE SIMULATOR
(ACCURACY ± 1°F)

REFERENCE TEMPERATURE °C	°F	TEMPERATURE READING FROM THERMOCOUPLE CHANNEL INPUT NUMBER 1	2	3	4	5	AVERAGE TEMPERATURE READING ①	TEMPERATURE DIFFERENCE ② (%)
0	32	34	34	34	34	34	34	2° - .41
100	212	214	214	214	214	214	214	2° - .30%
500	932	934	934	934	934	93~~3~~4 GP	934	2° - .14%
1000	1832	1831	1831	1831	1831	183~~1~~1 GP	1831	1° - .04%

COMMENTS

① AVERAGE TEMPERATURE READING = MEAN OF THE TEMPERATURE READINGS FOR THE THERMOCOUPLE CHANNELS

② THE CHANNEL READINGS MUST AGREE WITHIN ± 5°F OR 3°C

ACCEPTABLE TEMPERATURE DIFFERNCE ≤ 1.5 = $\left(\frac{(\text{REF TEMP}^{\circ}\text{F} + 460) - (\text{TEST TEMP}^{\circ}\text{F} + 460)}{(\text{REF TEMP}^{\circ}\text{F} + 460)}\right) \times 100$

Y Factor Calibration Check Calculation

Baghouse Outlet Box 14

MWd	= Dry molecular weight source gas, lb/lb-mole.	
0.32	= Molecular weight of oxygen, divided by 100.	
0.44	= Molecular weight of carbon dioxide, divided by 100.	
0.28	= Molecular weight of nitrogen or carbon monoxide, divided by 100.	
% CO_2	= Percent carbon dioxide by volume, dry basis.	13.7
% O_2	= Percent oxygen by volume, dry basis.	5.3

$$MWd = (0.32 * O_2) + (0.44 * CO_2) + (0.28 * (100 - (CO_2 + O_2)))$$

$$MWd = (0.32 * 5.3) + (0.44 * 13.7) + (0.28 * (100 - (13.7 + 5.3)))$$

$$MWd = (1.70) + (6.03) + (22.68)$$

MWd = 30.40

Tma	= Source Temperature, absolute(°R)	
Tm	= Average dry gas meter temperature , deg F.	56.9

Tma = Ts + 460

Tma = 56.9 + 460

Tma = 516.9

Ps	= Absolute meter pressure, inches Hg.	
13.6	= Specific gravity of mercury.	
delta H	= Avg pressure drop across the orifice meter during sampling, in H2O	1.221
Pb	= Barometric Pressure, in Hg.	30.21

Pm = Pb + (delta H / 13.6)

Pm = 30.21 + (1.221 / 13.6)

Pm = 30.30

Yqa	= dry gas meter calibration check value, dimensionless.	
0.0319	= (29.92/528)(0.75)2 (in. Hg/°/R) cfm2.	
29	= dry molecular weight of air, lb/lb-mole.	
Vm	= Volume of gas sample measured by the dry gas meter at meter conditions, dcf.	71.679
Y	= Dry gas meter calibration factor (based on full calibration)	1.0098
Delta H@	= Dry Gas meter orifice calibration coefficient, in. H2O.	1.94
avg√Delta H	= Avg SQRT press. drop across the orifice meter during sampling , in. H_2O	1.105
O	= Total sampling time, minutes.	125

$$Yqa = (O / Vm) * \sqrt{(0.0319 * Tma * 29) / (Delta H@ * Pm * MWd)} * avg\sqrt{Delta H}$$

$$Yqa = (125 / 71.679) * \sqrt{(0.0319 * 516.9 * 29) / (1.94 * 30.30 * 30.404)} * 1.105$$

$$Yqa = 1.744 * \sqrt{478.184 / 1,787.208} * 1.105$$

Yqa = 0.997

Diff	= Absolute difference between Yqa and Y	

Diff = ((Y - Yqa) / Y) * 100

Diff = ((1.0098 - 0.997) / 1.0098) * 100

Diff = 1.27

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LONG/PRE DRY GAS METER CALIBRATION DATA FORM

Calibrator P. Mack

Date 9/27/99 Meter Box Number 15 pm Plant

Barometric pressure, P_b = 29.63 in. Hg Dry Gas Meter Number ~~13,713,075~~ 1348735 Comments

Setting	Gas volume		Temperatures						
Orifice manometer	Wet test meter	Dry gas meter	Wet test meter	Dry gas meter					
(Δ H) in. H_2O	(V_w) ft^3	(V_d) ft^3	(t_w) °F	Inlet (td_i) °F	Outlet (td_o) °F	Avg (t_d) °F	Time (θ), min	Y_i	ΔH @$_i$ in. H_2O
0.5	5	302.253 297.222	71.5	78,79,79	76,76,77	77.5	13.0	1.004	1.8914
1.0	5	307.329 302.253	71.5	79,80,81	76,77,77	78.5	9.4	.9955	1.9836
1.5	10	317.504 307.329	71.5	81,83,84	78,78,79	80.5	15.8	.9957	2.0938
2.0	10	327.721 317.504	71.5	83,84,86	79,79,80	82	13.8	.9932	2.1238
3.0	10	337.990 327.721	71.5	86,91,92	80,81,82	85.5	11.2	.9921	2.0849
							Avg	Y .9961	ΔH @ 2.0355

If there is only one thermometer on the dry gas meter, record the temperature under td_o.

(ΔH) in. H_2O	$\frac{\Delta H}{13.6}$	$Y_i = \frac{V_w P_b (t_d + 460)}{V_d \left(P_b + \frac{\Delta H}{13.6}\right)(t_w + 460)}$	$\Delta H@i = \frac{0.0317 \Delta H}{P_b (t_d + 460)} \left[\frac{(t_w + 460)\theta}{V_w}\right]^2$
0.5	0.0368	$\frac{(5)(29.63)(77.5+460)}{(5.031)(29.63+.0368)(71.5+460)}$	$\frac{(.0317)(.5)}{(29.63)(77.5+460)}\left[\frac{(71.5+460)(13.0)}{5}\right]^2$
1.0	0.0735	$\frac{(5)(29.63)(78.5+460)}{(5.076)(29.63+.0735)(71.5+460)}$	$\frac{(.0317)(1.0)}{(29.63)(78.5+460)}\left[\frac{(71.5+460)(9.4)}{5}\right]^2$
1.5	0.110	$\frac{(10)(29.63)(80.5+460)}{(10.175)(29.63+.110)(71.5+460)}$	$\frac{(.0317)(1.5)}{(29.63)(80.5+460)}\left[\frac{(71.5+460)(15.8)}{10}\right]^2$
2.0	0.147	$\frac{(10)(29.63)(82+460)}{(10.217)(29.63+.147)(71.5+460)}$	$\frac{(.0317)(2.0)}{(29.63)(82+460)}\left[\frac{(71.5+460)(13.8)}{10}\right]^2$
3.0	0.221	$\frac{(10)(29.63)(85.5+460)}{(10.269)(29.63+.221)(71.5+460)}$	$\frac{(.0317)(3.0)}{(29.63)(85.5+460)}\left[\frac{(71.5+460)(11.2)}{10}\right]^2$

WESTON

STACK TEMPERATURE SENSOR CALIBRATION DATA FORM

DATE 7/24/99
AMBIENT TEMPERATURE 72
CALIBRATION [illegible]

POTENTIOMETER NUMBER 2010 # 15
BAROMETRIC PRESSURE 29.27
REFERENCE: THERMOCOUPLE SIMULATOR
(ACCURACY ± 1°F)

REFERENCE TEMPERATURE °C	REFERENCE TEMPERATURE °F	TEMPERATURE READING FROM THERMOCOUPLE CHANNEL INPUT NUMBER 1	2	3	4	5	AVERAGE TEMPERATURE READING ①	TEMPERATURE DIFFERENCE ② (%)
0	32	31	31	31	31	31	31	1° - .20%
100	212	212	212	212	212	212	212	0° - 0%
500	932	933	933	933	933	933	933	1° - ~~[illegible]~~ .07%
1000	1832	1830	1830	1830	1830	1830	1830	2° - .09%

COMMENTS

① AVERAGE TEMPERATURE READING = MEAN OF THE TEMPERATURE READINGS FOR THE THERMOCOUPLE CHANNELS

② THE CHANNEL READINGS MUST AGREE WITHIN ± 5°F OR 3°C

ACCEPTABLE TEMPERATURE DIFFERNCE ≤ 1.5 = $\left(\frac{(\text{REF TEMP}^{\circ}\text{F} + 460) - (\text{TEST TEMP}^{\circ}\text{F} + 460)}{(\text{REF TEMP}^{\circ}\text{F} + 460)}\right) \times 100$

Y Factor Calibration Check Calculation

FGD Inlet Box 15

MWd =	Dry molecular weight source gas, lb/lb-mole.	
0.32 =	Molecular weight of oxygen, divided by 100.	
0.44 =	Molecular weight of carbon dioxide, divided by 100.	
0.28 =	Molecular weight of nitrogen or carbon monoxide, divided by 100.	
% CO_2 =	Percent carbon dioxide by volume, dry basis.	14.2
% O_2 =	Percent oxygen by volume, dry basis.	4.3

$$MWd = (0.32 * O_2) + (0.44 * CO_2) + (0.28 * (100 - (CO_2 + O_2)))$$

$$MWd = (0.32 * 4.3) + (0.44 * 14.2) + (0.28 * (100 - (14.2 + 4.3)))$$

$$MWd = (1.38) + (6.25) + (22.82)$$

MWd = 30.44

Tma =	Source Temperature, absolute(°R)	
Tm =	Average dry gas meter temperature , deg F.	54

Tma = Ts + 460

Tma = 54 + 460

Tma = 514

Ps =	Absolute meter pressure, inches Hg.	
13.6 =	Specific gravity of mercury.	
delta H =	Avg pressure drop across the orifice meter during sampling, in H2O	0.8944
Pb =	Barometric Pressure, in Hg.	30.21

Pm = Pb + (delta H / 13.6)

Pm = 30.21 + (0.8944 / 13.6)

Pm = 30.28

Yqa =	dry gas meter calibration check value, dimensionless.	
0.0319 =	(29.92/528)(0.75)2 (in. Hg/°/R) cfm2.	
29 =	dry molecular weight of air, lb/lb-mole.	
Vm =	Volume of gas sample measured by the dry gas meter at meter conditions, dcf.	60.721
Y =	Dry gas meter calibration factor (based on full calibration)	0.9961
Delta H@ =	Dry Gas meter orifice calibration coefficient, in. H2O.	2.035
avg$\sqrt{\text{Delta H}}$ =	Avg SQRT press. drop across the orifice meter during sampling , in. H_2O	0.9457
O =	Total sampling time, minutes.	125

$$Yqa = (O / Vm) * \sqrt{(0.0319 * Tma * 29) / (Delta H@ * Pm * MWd)} * avg\sqrt{Delta H}$$

$$Yqa = (125 / 60.721) * \sqrt{(0.0319 * 514 * 29) / (2.035 * 30.28 * 30.444)} * 0.9457$$

$$Yqa = 2.059 * \sqrt{475.501 / 1,875.953} * 0.9457$$

Yqa = 0.980

Diff =	Absolute difference between Yqa and Y	

Diff = ((Y - Yqa) / Y) * 100

Diff = ((0.9961 - 0.980) / 0.9961) * 100

Diff = 1.62

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MANAGERS DESIGNERS/CONSULTANTS

PITOT TUBE IDENTIFICATION NUMBER: P112

TYPE S PITOT TUBE INSPECTION DATA FORM

PITOT TUBE ASSEMBLY LEVEL? ✓ (YES) ____ (NO)

PITOT TUBE OPENINGS DAMAGED? ____ (YES-EXPLAIN BELOW) ✓ (NO)

α_1 = 1° (<10) α_2 = 1° (<10)

β_1 = 0° (<5) β_2 = 0° (<5)

γ = 1° θ = 2° A = .95 in.

z = A sin γ = .02 in.; (< 1/8 in.),

w = A sin θ = .03 in.; (< 1/32 in.),

P_a = .475 in. P_b = .475 in.

D_t = .38 in. $P_a = P_b$? ✓ (YES) ____ (NO)

COMMENTS ____

CALIBRATION REQUIRED? ____ (YES) ✓ (NO)

INSPECTOR [signature] DATE 12-22-98

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WESTON
MANAGERS DESIGNERS/CONSULTANTS

PITOT TUBE IDENTIFICATION NUMBER: P180

TYPE S PITOT TUBE INSPECTION DATA FORM

PITOT TUBE ASSEMBLY LEVEL? ✓ (YES) ____ (NO)

PITOT TUBE OPENINGS DAMAGED? ____ (YES-EXPLAIN BELOW) ✓ (NO)

α_1 = 0° (<10) α_2 = 0° (<10)

β_1 = 0° (<5) β_2 = 0° (<5)

γ = 1° θ = 0° A = .95 in.

z = A sin γ = .01 in.; (<1/8 in.),

w = A sin θ = 0 in.; (<1/32 in.),

P_a = .475 in. P_b = .475 in.

D_t = .375 in. $P_a = P_b$? ____ (YES) ✓ (NO)

COMMENTS NEW PITOT HEAD 12-20-96

CALIBRATION REQUIRED? ____ (YES) ✓ (NO)

INSPECTOR ~~12-20-96~~ Tom Burgess DATE 12-20-96

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WESTON

PITOT TUBE IDENTIFICATION NUMBER: P-301

TYPE S PITOT TUBE INSPECTION DATA FORM

PITOT TUBE ASSEMBLY LEVEL? ✓ (YES) ____ (NO)

PITOT TUBE OPENINGS DAMAGED? ____ (YES-EXPLAIN BELOW) ✓ (NO)

α_1 = 0° (<10) α_2 = 0° (<10)

β_1 = 0 (<5) β_2 = 0° (<5)

γ = 1° θ = 0 A = .83 in.

[illegible] = .01 in. (< .8 in.)

w = A sinθ = 0 in. (< 1/32 in.)

D_t = .465 in P_t = .465 in.

D_s = .38 in $P_s = P_b$? ____ (YES) ____ (NO)

COMMENTS 17 inch head

CALIBRATION REQUIRED? ____ (YES) ✓ (NO)

[illegible] DATE 2-10-95

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WESTON

NOZZLE CALIBRATION DATA FORM

Date 11/17/89 Calibrated by Mills

Nozzle Identification Number	Nozzle Diameter, Inches[1]			ΔD,[2]	D_{avg}[3]
	D_1	D_2	D_3		
OUTLET	0.190	0.190	0.191	.001	0.190
INLET	0.228	0.230	0.230	.002	0.229
~~OUTLET~~ INLET	.211	.212	.212	.001	0.212

Where:

[1] $D_{1,2,3}$ = Three different nozzle diameters, inches; each diameter must be measured to nearest 0.001 in.

[2] ΔD = Maximum difference between any two diameters, inches. ΔD must be $\leq$0.004 in.

[3] D_{avg} = Nozzle diameter = average of D_1, D_2, and D_3.

nozzle.frm

APPENDIX G
TECHNICAL SYSTEM AUDIT

PROCEDURAL CHECKLIST
FOR EPA METHODS 1, 2, 3 AND 4

METHOD 1 DETERMINATIONS

Date 11/17/99 Time _____ Operator Phil Grant, Tom Briggs Observer Mills

Stack diameter properly determined? yes
Distance to nearest upstream disturbance properly determined? yes

Number of stack diameters? OUTLET ~1 INLET ~1

Distance of nearest downstream disturbance properly determined? yes

Number of sampling points properly selected? yes
Points properly marked on pitot tube? yes
Verification of cyclonic flow acceptable? yes

METHOD 2 SAMPLING

Date 11/17/99 Time _____ Operator _____ Observer _____

Equipment identity matches pretest calibration list? yes

Pitot tube, lines, and manometer assembled correctly? yes

Pitot tube and components mounted interference-free manner? yes
Differential pressure gauge has correct sensitivity? yes

Differential pressure gauge leveled and zeroed? yes

Pretest leak check? yes Cyclonic flow checked? yes
Orientation of pitot tube correct during traverse? yes
Sampling port adequately sealed around pitot tube? yes
Process operating at correct conditions? yes
Stable reading taken at each traverse point? yes
Static pressure measured? yes Method used? PBT 90° from Flow and remove 1 leg.
Moisture content determined? yes Method used? Method 4
Orsat samples taken? yes If not, explain why: _____

Post-test leak-check performed? yes Leak check results: 1.02 cfm
Data recorded properly? yes Calculations correct? yes

PROCEDURAL CHECKLIST
FOR EPA METHODS 1, 2, 3 AND 4

METHOD 3 SAMPLING

Date 11/17-11/18/95 Time _____ Operator Paul Green ~~Tom Biggs~~ Observer Mills

Method: Single-point grab no Single-point integrated no
Multi-point integrated yes
Is a filter used to remove particulate matter? no
Sampling train leak checked? yes
Sampling train purged with stack gas prior to collecting the sample? yes

Sampling port properly sealed? yes

Sampling rate held constant? yes

METHOD 3 ANALYSIS

Molecular weight determination by Orsat: yes

Reagents at the proper level? yes Analyzer level? yes
Analyzer leak checked? yes Analyzed within 8 hours? yes
Sample line purged? yes Complete absorption of gases? yes
The analysis repeated until following analysis criteria met? yes

CO_2 - Any three analyses differ by:

a. $\leq$ 0.3% when CO_2 $\geq$ 4.0% yes

b. $\leq$ 0.2% when CO_2 $\leq$ 4.0% _____

O_2 - Any three analyses differ by:

a. $\leq$ 0.3% when O_2 $\leq$ 15.0% yes

b. $\leq$ 0.2% when O_2 $\geq$ 14.0% _____

All readings averaged and reported to nearest 0.1% yes

TECHNICAL SYSTEM AUDIT CHECKLIST
~~TRACE METALS~~ OHM Mercury SAMPLING

Date 11/17 + 11/18 Time _____ Operator Paul Greer / Tom Bribbs Observer Mills

Equipment Setup

Equipment identity matches pretest calibration list? yes

Probe nozzle: _____ Glass yes

Button-hook yes Elbow _____ Size _____

Cleaned according to sampling protocol? yes

Probe Liner: Borosilicate yes Quartz _____ Other _____

Cleaned according to sampling protocol? yes

Probe heating system: yes

Checked? _____ Temperature _____ Stable? yes

Pitot Tube: Type S yes Other _____

Properly attached to probe (no interference to nozzle)? yes

Modifications: _____

Pitot tube coefficient 0.84

Differential Pressure Gauge: Inclined manometers yes

Magnehelics no Ranges 0-10"

Thimble ~~Cyclone~~ (inlet only): Borosilicate Glass yes Other _____

Cleaned according to sampling protocol? yes

Filter Holder: Borosilicate Glass yes Other _____

Frit material: Borosilicate Glass _____ Stainless _____

Teflon yes Other _____

Gasket Material: Silicone _____ Other Viton

Cleaned according to sampling protocol? yes

Filter Type(s): Quartz Fiber Thimble - Quartz Fiber

Impinger train: Number of impingers 8

Cleaned according to sampling protocol? yes

Contents: 1st -3 1N KCl ~~2nd~~ 4th -5% HNO_3/10% H_2O_2 ~~3rd~~ 5th 7th 10% H_2SO_4 4% KMnO4

~~4th~~ 8th Silica Gel 5th _____ 6th _____

Impinger Weights recorded? yes

Cooling System Ice Bath

Proper connections? yes

Modifications _____

Silica Gel: Type Indicating 3-8 mesh New? _____ Used? yes

Barometer: Mercury _____ Aneroid _____ Other Electronic

Gas Density Determination: Temperature sensor yes

Pressure gauge _____

Temperature sensor properly attached to probe? yes

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TECHNICAL SYSTEM AUDIT CHECKLIST
OHM Mercury ~~TRACE~~ METALS SAMPLING

Date 11/17-11/18/99 Time _____ Operator Paul Green, Tom Bribes Observer Mills

Test Procedures

Recent Calibrations: Pitot tubes Yes
Meter Box Yes Thermocouples/thermometers Yes
Filters checked visually for irregularities? Yes
Filters properly centered? Yes Labeled? _____
Nozzle size properly selected? Yes
All openings of sampling train plugged (pre-test and post-test) Yes Glass Balls + Caps
Impingers properly assembled? Yes
Pitot lines checked for leaks and plugging? Yes
Meter box leveled? Yes Manometers zeroed? Yes
Delta H from most recent calibration Yes
Calculator ~~Nomograph~~ setup correctly? Yes K factor OT ~1 IN ~1.9
Pretest leak check conducted? Yes Leakage rate? _____
Care taken to avoid scraping port or stack wall? Yes
Effective seal around probe when in-stack? Yes
Probe moved to traverse points at proper time? Yes
Leak check conducted during port change? Before Yes After? Yes
Nozzle and pitot tubes kept parallel to stack at all times? Yes
Thimbles ~~Filter~~(s) changed during run? Yes
Any particulate lost during filter change? NO
Data forms completed and data recorded properly? Yes
Calculator ~~Nomograph~~ setting changed with significant change in the stack temperature? Yes
Velocity pressure and orifice pressure recorded accurately? Yes
Post-test leak check conducted? Yes Leakage rate <.02 CFM
at inches of mercury _____
Orsat analysis? Yes Stack _____ Integrated Yes
Approximate stack temperature IN ~330 OT ~190 Gas sample volume _____
Percent isokinetic calculated All Between 90 + 110 %

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OHM

TECHNICAL SYSTEM AUDIT CHECKLIST
Mercury ~~TRACE~~ METALS SAMPLING

Date 11/17 - 11/18/89 Time _____ Operator _____ Observer MILLS

Sample Recovery

Brushes: Nylon bristle _____ Other Teflon
Cleaned according to sampling protocol? yes
Wash Bottles: Glass _____ Polyethylene _____ Other Teflon
Cleaned according to sampling protocol? yes
Storage containers: Borosilicate glass yes Other _____
Cleaned according to sampling protocol? yes
Cap material Teflon Leak free? yes
Petri dishes: Borosilicate glass yes Other _____
Cleaned according to sampling protocol? yes
Graduated cylinder: Borosilicate glass yes Other _____
Subdivisions of graduated cylinder ≤ 2 ml? yes
Cleaned according to sampling protocol? yes
Balance type Electronic Calibrated? yes
Probe allowed to cool sufficiently? yes
Probe and sample train openings covered? yes
Clean-up area(s) used Wooston Trailer
Silica gel: Color? Blue Condition? Good
Probe handling: ~~Acetone rinse~~ _____ 0.1 N Nitric rinse yes
Particulate recovery: Probe nozzle yes Probe fitting yes
Probe liner yes Front half of filter holder yes
Blanks collected: Reagent(s) All required for OHM
0.1 N Nitric _____ Acetone _____
Impinger rinses: 0.1 N Nitric _____ Other rinses All required for OHM
Recovery efficiency samples collected from this train? no
Sample numbers: _____
Samples labeled and stored properly? yes
Liquid levels marked? yes
Filter handling: tweezers used? yes Surgical gloves? yes
Any particulate lost? no
NOTE: The above TSA would also be applied to the EPA ~~Method 12~~ OHM test train.

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