MVTL LABORATORIES, Inc.
P.O. BOX 1873, 1411 S. 12th STREET
BISMARCK, ND 58502
PHONE (701) 258-9720 WATS (800) 279-6885 FAX (701) 258-9724

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Sample Number: 99-C2256

Report Date: 10/18/99

Work Order #: 89-769
P.O. #: 2178
Date Collected: 9/28/99

Otter Tail Power Company
Coyote Station
Beulah ND 58523

Sample Description: Lignite
Sample Site: Coal Feeder No. 5-12
Sample Location: 11:30-14:00

*** PROXIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	35.23 wt. %	
Ash	7.19 wt. %	11.10 wt. %
BTU/lb, Dry Ash-free	N/A	12464 BTU/lb
BTU/lb	7177 BTU/lb	11080 BTU/lb
Total Sulfur	0.86 wt. %	1.33 wt. %

*** ULTIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	35.23 wt. %	
Ash	7.19 wt. %	11.10 wt. %
Total Sulfur	0.86 wt. %	1.33 wt. %
Chlorine	< 0.01 wt. %	< 0.02 wt. %

*** SULFUR FORMS ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Sulfur	0.86 wt. %	1.33 wt. %

*** ASH FUSION ***

ANALYTE	REDUCING	OXIDIZING

*** MINERAL ANALYSIS OF ASH ***

ANALYTE	DRY BASIS
Sodium Oxide	3.90 wt. %

*** MISCELLANEOUS ***

ANALYTE	AS RECEIVED	DRY BASIS
Mercury, Trace ug/g	0.057 ug/g	0.088 ug/g

Approved By: D. Zarda

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MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Sample Number: 99-C2257

Report Date: 10/18/99

Work Order #: 89-769
P.O. #: 2178
Date Collected: 9/29/99

Otter Tail Power Company
Coyote Station
Beulah ND 58523

Sample Description: Lignite
Sample Site: Coal Feeder No. 5-12
Sample Location: 8:30-10:50

*** PROXIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	35.12 wt. %	
Ash	8.60 wt. %	13.26 wt. %
BTU/lb, Dry Ash-free	N/A	12304 BTU/lb
BTU/lb	6925 BTU/lb	10673 BTU/lb
Total Sulfur	1.34 wt. %	2.07 wt. %

*** ULTIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	35.12 wt. %	
Ash	8.60 wt. %	13.26 wt. %
Total Sulfur	1.34 wt. %	2.07 wt. %
Chlorine	< 0.01 wt. %	< 0.02 wt. %

*** SULFUR FORMS ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Sulfur	1.34 wt. %	2.07 wt. %

*** ASH FUSION ***

ANALYTE	REDUCING	OXIDIZING

*** MINERAL ANALYSIS OF ASH ***

ANALYTE	DRY BASIS
Sodium Oxide	2.40 wt. %

*** MISCELLANEOUS ***

ANALYTE	AS RECEIVED	DRY BASIS
Mercury, Trace ug/g	0.097 ug/g	0.150 ug/g

Approved By: D. Zander

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MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Sample Number: 99-C2258

Report Date: 10/18/99

Work Order #: 89-769
P.O. #: 2178
Date Collected: 9/29/99

Otter Tail Power Company
Coyote Station
Beulah ND 58523

Sample Description: Lignite
Sample Site: Coal Feeder No. 5-12
Sample Location: 12:00-14:20

*** PROXIMATE ***

ANALYTE	AS RECEIVED		DRY BASIS	
Total Moisture	35.11	wt. %		
Ash	8.23	wt. %	12.68	wt. %
BTU/lb, Dry Ash-free	N/A		12488	BTU/lb
BTU/lb	7076	BTU/lb	10904	BTU/lb
Total Sulfur	1.14	wt. %	1.76	wt. %

*** ULTIMATE ***

ANALYTE	AS RECEIVED		DRY BASIS	
Total Moisture	35.11	wt. %		
Ash	8.23	wt. %	12.68	wt. %
Total Sulfur	1.14	wt. %	1.76	wt. %
Chlorine	< 0.01	wt. %	< 0.02	wt. %

*** SULFUR FORMS ***

ANALYTE	AS RECEIVED		DRY BASIS	
Total Sulfur	1.14	wt. %	1.76	wt. %

*** ASH FUSION ***

ANALYTE	REDUCING	OXIDIZING

*** MINERAL ANALYSIS OF ASH ***

ANALYTE	DRY BASIS	
Sodium Oxide	2.90	wt. %

*** MISCELLANEOUS ***

ANALYTE	AS RECEIVED		DRY BASIS	
Mercury, Trace ug/g	0.061	ug/g	0.094	ug/g

Approved By: D. Zander

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MEMBER ACIL

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Sample Number: 99-C2259

Report Date: 10/18/99

Work Order #: 89-770
P.O. #: 2178
Date Collected: 9/28/99

Otter Tail Power Company
Coyote Station
Beulah ND 58523

Sample Description: Fly Ash
Sample Site: System 2 Row A
Sample Location: 11:30-14:20

*** PROXIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	2.05 wt. %	
Ash	94.92 wt. %	96.91 wt. %

*** ULTIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	2.05 wt. %	
Ash	94.92 wt. %	96.91 wt. %
Chlorine	0.03 wt. %	0.03 wt. %

*** SULFUR FORMS ***

ANALYTE	AS RECEIVED	DRY BASIS

*** ASH FUSION ***

ANALYTE	REDUCING	OXIDIZING

*** MINERAL ANALYSIS OF ASH ***

ANALYTE	DRY BASIS

*** MISCELLANEOUS ***

ANALYTE	AS RECEIVED	DRY BASIS
Mercury, Trace ug/g	0.161 ug/g	0.164 ug/g
Loss on Ignition		3.03 wt. %

Approved By: D. Zandy

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PHONE (701) 258-9720 WATS (800) 279-6885 FAX (701) 258-9724

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Sample Number: 99-C2260

Report Date: 10/18/99

Work Order #: 89-770
P.O. #: 2178
Date Collected:

Otter Tail Power Company
Coyote Station
Beulah ND 58523

Sample Description: Fly Ash
Sample Site: System 2 Row A
Sample Location: 8:30-10:50

*** PROXIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	3.06 wt. %	
Ash	94.23 wt. %	97.20 wt. %

*** ULTIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	3.06 wt. %	
Ash	94.23 wt. %	97.20 wt. %
Chlorine	< 0.01 wt. %	< 0.01 wt. %

*** SULFUR FORMS ***

ANALYTE	AS RECEIVED	DRY BASIS

*** ASH FUSION ***

ANALYTE	REDUCING	OXIDIZING

*** MINERAL ANALYSIS OF ASH ***

ANALYTE	DRY BASIS

*** MISCELLANEOUS ***

ANALYTE	AS RECEIVED	DRY BASIS
Mercury, Trace ug/g	0.450 ug/g	0.464 ug/g
Loss on Ignition		2.71 wt. %

Approved By: D. Zordy

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MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Sample Number: 99-C2261

Report Date: 10/18/99

Work Order #: 89-770
P.O. #: 2178
Date Collected:

Otter Tail Power Company
Coyote Station
Beulah ND 58523

Sample Description: Fly Ash
Sample Site: System 2 Row A
Sample Location: 12:00-14:20

*** PROXIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	2.85 wt. %	
Ash	94.28 wt. %	97.05 wt. %

*** ULTIMATE ***

ANALYTE	AS RECEIVED	DRY BASIS
Total Moisture	2.85 wt. %	
Ash	94.28 wt. %	97.05 wt. %
Chlorine	< 0.01 wt. %	< 0.01 wt. %

*** SULFUR FORMS ***

ANALYTE	AS RECEIVED	DRY BASIS

*** ASH FUSION ***

ANALYTE	REDUCING	OXIDIZING

*** MINERAL ANALYSIS OF ASH ***

ANALYTE	DRY BASIS

*** MISCELLANEOUS ***

ANALYTE	AS RECEIVED	DRY BASIS
Mercury, Trace ug/g	0.281 ug/g	0.289 ug/g
Loss on Ignition		2.87 wt. %

Approved By: D. Zander

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CHAIN OF CUSTODY RECORD

PROJECT PO:

MVTL WO#: 89-769

PROJECT NAME or LOCATION: Coyote Station

NAME OF SAMPLER:

REPORT TO: Terry Grausman, Otter Tail Power Co., P.O. Box 496, Fergus Falls, MN 56538-0496

BILL TO: Coyote Station

MVTL LAB #	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	H_2O	SOIL	MISC	SAMPLE SITE	ANALYSIS REQUESTED	COMMENTS OF SAMPLE: G	C	PY	PN	COMMENTS
C2256	Lignite	9/28/99	11:30 to 14:00				Coal feeder No. 5 & 12	moisture, ash, Btu Mercury, Chlorine, Sulfur		✓			Composite
C2257	Lignite	9/29/99	8:30 to 10:50				(as above)	(as above)		✓			
C2258	Lignite	9/29/99	12:00 to 14:20				(as above)	as (above)		✓			
C2259	Fly Ash	9/28/99	11:30 to 14:00				System 2 Row A	Mercury, chlorine & LOI		✓			Composite
C2260	Fly Ash	9/29/99	8:30 to 10:50				(as above)	(as above)		✓			
C2261	Fly Ash	9/29/99	12:00 to 14:20				(as above)	as above		✓			

REMARKS ON SITE/COMMENTS ON SAMPLES:

*G = Grab Sample *C = Composite Sample *P = Preserved Sample *Y = Yes *N = No

SAMPLES RELINQUISHED BY:	DATE (mo/day/yr)	TIME	COMMENTS	SAMPLES RECEIVED BY:	DATE (mo/day/yr)	TIME
Terry Grausman	9/29/99	15:00		Brad Zimmerman	9/29/99	15:00
Brad Zimmerman	10/1/99	9:00		Shipping	10/1/99	9:00
				nkunts	10/4/99	10:00

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Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Coyote Station	Bws(assumed):	0.13	Meter Box #:	80664
Sample Loc:	Dryer Inlet	MWs(assumed):	27.75	dH@i:	2.014
Run #:	1	MWd(assumed):	28	Gamma:	0.998
Date:	9/28/99	Pstatic ("H2O):	-17.00	Pitot #:	001
Pbar ("Hg):	28.40	Probe Mat:	Teflon	Cp:	0.84
Ps ("Hg):	27.15	Nozzle Mat:	SS/Teflon	X-Factor:	3.679
Sample time/pt:	5.0	Dn (in.):	0.255	# of Ports:	6

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	11	30	319	0.21	83	82	5.0	247	246	64	723.025	0.54		0.41	723.025
3	11	35	320	0.39	86	82	6.0	247	246	58		1.00		0.56	725.079
2	11	40	321	0.38	89	83	6.0	247	246	57		0.98		0.56	727.892
1	11	45	310	0.60	93	84	5.0	246	246	58		1.59		0.71	730.682
	11	50									735.970				734.239
Run Time:		20	318	0.40	88	83	5.5	247	246	59	12.945	1.03	115.4		11.214

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	11	52	318	0.50	88	85	5.0	245	246	63	735.970	1.30		0.64	735.97
3	11	57	324	0.49	96	86	5.0	244	246	58		1.28		0.64	739.171
2	12	2	322	0.52	98	87	6.0	246	246	58		1.37		0.66	742.374
1	12	7	320	0.54	100	88	6.0	244	246	58		1.43		0.68	745.689
	12	12									748.504				749.084
Run Time:		20	321	0.51	96	87	5.5	245	246	59	12.534	1.34	95.6		13.114

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	12	14	319	0.48	94	89	6.0	248	246	63	748.504	1.26		0.63	748.504
3	12	19	331	0.49	103	91	6.0	247	247	60		1.28		0.65	751.673
2	12	24	323	0.61	105	92	7.0	246	246	60		1.62		0.73	754.901
1	12	29	324	0.58	107	93	7.0	248	246	61		1.54		0.71	758.535
	12	34									761.413				762.088
Run Time:		20	324	0.54	102	91	6.5	247	246	61	12.909	1.43	95.0		13.584

CHANGE OUT FILTER

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	13	0	323	0.41	100	98	5.0	248	246	65	762.256	1.08		0.59	762.256
3	13	5	334	0.42	107	99	5.0	247	246	61		1.10		0.60	765.209
2	13	10	327	0.45	109	100	5.0	247	246	62		1.20		0.63	768.213
1	13	15	330	0.41	112	101	5.0	247	246	62		1.09		0.60	771.348
	13	20									773.848				774.351
Run Time:		20	329	0.42	107	100	5.0	247	246	63	11.592	1.12	95.8		12.095

Analytical Results

Plant:	Coyote Station	Tstd:	68	MWw:	28.53	
Sample Loc:	Dryer Inlet	Pstd:	29.92	An:	0.0004	sq. ft.
Date:	9/28/99	Vmstd:	64.504	%ISO:	101.1	
Run #:	1					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	882.9	731.0	151.9
Modified Greenberg Smith	100 ml 0.1N KCl	790.8	754.6	36.2
Greenberg Smith	100 ml 0.1N KCl	739.5	731.0	8.5
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	766.1	759.9	6.2
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	733.4	732.1	1.3
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	743.6	743.7	-0.1
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	741.3	741.2	0.1
Modified Greenberg Smith	Silica Gel	815.9	801.7	14.2
			TOTAL	218.3

Fixed Gas Analysis	
%CO2:	11.8
%O2:	8.2
%C0:	0.0
%N2	80.0
Fo	1.076
Bws:	0.138
DSCFM	169850

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized-Bound Mercury**		**Elemental Mercury**	
Sample Front-Half:	0.89 ug	Sample KCl:	2.1 ug	Sample HNO3/H2O2:	0.77 ug
Blank Front-Half:	ND ug	Blank KCl:	< 0.10 ug	Blank HNO3/H2O2:	< 0.25 ug
Net Front-Half:	0.89 ug	Net KCl:	2.10 ug	Net HNO3/H2O2:	0.77 ug
Detection Limit:	0.010 ug	Det. Limit:	0.030 ug	Det. Limit:	0.010 ug
				Sample KMnO4:	17 ug
				Blank KMnO4:	< 0.10 ug
				Net KMnO4	17 ug
				Det. Limit:	0.030 ug
Total Mercury:	20.76 ug			Total Elemental:	17.77 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)
Particle Bound Hg	0.488	1.054
Oxidzed Hg	1.150	2.488
Elemental Hg	9.735	21.054
Total Hg	11.372	24.597

Stack Flow Rate: 1477000 SCFM

Stack Flow Rate @ inlet moisture: 1273749 DSCFM

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant: Coyote Station
Sample Location: Dryer Inlet
Test Date: 9/28/99

Sample Time:

Run #: 1

DUCT DIMENSIONS
Width: 192 inches
Depth: 85 inches
Area: 113.33 sq. feet

Pbar: 28.40 "Hg
Ps: 27.15 "Hg
Bws: 0.1376
MWw: 28.53 g/g-mole
Tstd: 68 "deg F
Pstd: 29.92 "Hg
Cp: 0.84

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
A4	10.6	319	0.21	33.0
A3	31.9	320	0.39	45.0
A2	53.2	321	0.38	44.5
A1	74.4	310	0.60	55.5
B4	10.6	318	0.50	50.9
B3	31.9	324	0.49	50.6
B2	53.2	322	0.52	52.0
B1	74.4	320	0.54	53.0
C4	10.6	319	0.48	49.9
C3	31.9	331	0.49	50.8
C2	53.2	323	0.61	56.4
C1	74.4	324	0.58	55.0
D4	10.6	323	0.41	46.2
D3	31.9	334	0.42	47.1
D2	53.2	327	0.45	48.6
D1	74.4	330	0.41	46.4
E4	10.6	328	0.35	42.9
E3	31.9	335	0.34	42.4
E2	53.2	330	0.43	47.6
E1	74.4	328	0.40	45.8
F4	10.6	326	0.37	44.0
F3	31.9	334	0.35	43.0
F2	53.2	328	0.37	44.1
F1	74.4	328	0.38	44.7
Average		325	0.44	47.5

Results:
Average Velocity: 47.46 fps @ 325 g. F a 27.15 "Hg

Q:	322.73	x 1000	ACFM	19,363.68	KACFH
Q (std):	196.95	x 1000	SCFM	11,817.19	KSCFH
Q (std dry):	169.85	x 1000	DSCFM	10,191.02	KDSCFH

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Coyote Station	Bws(assumed):	0.13	Meter Box #:	80664
Sample Loc:	Dryer Inlet	MWs(assumed):	27.75	dH@i:	2.014
Run #:	2	MWd(assumed):	28	Gamma:	0.998
Date:	9/29/99	Pstatic ("H2O):	-17	Pitot #:	001
Pbar ("Hg):	28.17	Probe Mat:	Teflon	Cp:	0.84
Ps ("Hg):	26.92	Nozzle Mat:	SS/Teflon	X-Factor:	3.679
Sample time/pt:	5.0	Dn (in.):	0.255	# of Ports:	6

PORT:	A		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	8	30	341	0.32	83	82	5.0	247	247	66	796.376	0.80		0.50	796.376
3	8	35	341	0.29	85	82	5.0	246	246	55		0.73		0.48	798.887
2	8	40	338	0.66	86	83	6.0	245	246	54		1.66		0.73	801.286
1	8	45	339	0.69	91	84	6.0	246	246	55		1.75		0.75	804.919
	8	50									808.054				808.665
Run Time:		20	340	0.49	86	83	5.5	246	246	58	11.678	1.23	95.0		12.289

PORT:	B		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	8	51	336	0.47	89	85	6.0	246	246	62	808.054	1.19		0.62	808.054
3	8	56	344	0.48	94	85	6.0	247	246	60		1.22		0.63	811.140
2	9	1	336	0.58	97	87	6.0	244	246	60		1.49		0.70	814.272
1	9	6	343	0.56	100	88	7.0	246	246	60		1.44		0.68	817.750
	9	11									820.425				821.171
Run Time:		20	340	0.52	95	86	6.3	246	246	61	12.371	1.33	94.3		13.117

PORT:	C		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	9	13	338	0.44	95	90	6.0	247	246	63	820.425	1.13		0.60	820.425
3	9	18	350	0.44	102	91	6.0	246	246	62		1.12		0.61	823.440
2	9	23	344	0.59	104	92	7.0	247	246	62		1.52		0.71	826.470
1	9	28	342	0.62	106	93	8.0	246	246	63		1.61		0.73	830.005
	9	33									833.049				833.646
Run Time:		20	344	0.52	102	92	6.8	247	246	63	12.624	1.35	95.5		13.221

CHANGE OUT FILTER

PORT:	D		Duct Data		Meter Data			Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	9	47	343	0.47	96	94	5.0	247	246	65	833.279	1.20		0.62	833.279
3	9	52	354	0.45	104	96	5.0	246	247	62		1.15		0.61	836.391
2	9	57	348	0.48	107	96	6.0	246	246	62		1.24		0.64	839.459
1	10	2	354	0.50	108	97	6.0	246	246	62		1.28		0.65	842.656
	10	7									845.387				845.913
Run Time:		20	350	0.48	104	96	5.5	246	246	63	12.108	1.22	95.8		12.634

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Coyote Station	Bws(assumed):	0.13	Meter Box #:	80664
Sample Loc:	Dryer Inlet	MWs(assumed):	27.75	dH@i:	2.014
Run #:	2	MWd(assumed):	28	Gamma:	0.998
Date:	9/29/99	Pstatic ("H2O):	-17	Pitot #:	001
Pbar ("Hg):	28.17	Probe Mat:	Teflon	Cp:	0.84
Ps ("Hg):	26.92	Nozzle Mat:	SS/Teflon	X-Factor:	3.679
Sample time/pt:	5	Dn (in.):	0.255	# of Ports:	6

PORT:	E		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	10	9	350	0.38	102	98	6.0	249	246	65	845.387	0.97		0.56	845.387
3	10	14	360	0.37	107	98	6.0	248	246	63		0.94		0.56	848.203
2	10	19	357	0.44	108	99	6.0	245	246	62		1.13		0.61	850.989
1	10	24	358	0.41	109	99	6.0	247	246	62		1.05		0.59	854.039
	10	29									856.428				856.986
Run Time:		20	356	0.40	107	99	6.0	247	246	63	11.041	1.02	95.2		11.599

PORT:	F		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	10	32	348	0.37	103	99	6.0	249	246	65	856.428	0.95		0.56	856.428
3	10	37	360	0.35	107	99	6.0	247	246	62		0.89		0.54	859.215
2	10	42	358	0.50	107	99	7.0	247	246	62		1.28		0.65	861.925
1	10	47	359	0.48	109	100	7.0	247	246	62		1.23		0.64	865.168
	10	52									867.851				868.355
Run Time:		20	356	0.43	107	99	6.5	248	246	63	11.423	1.09	95.8		11.927

Post Test Leak Rate: 0.004 CFM @ 9 "Hg

Summary	120	348		100	92	6	247	246	62	71.245	1.21		#VALUE!	#VALUE!

Analytical Results

Plant:	Coyote Station	Tstd:	68	MWw:	28.53	
Sample Loc:	Dryer Inlet	Pstd:	29.92	An:	0.0004	sq. ft.
Date:	9/29/99	Vmstd:	63.756	%ISO:	97.7	
Run #:	2					

IMPINGER ANALYSIS

TYPE	CONTENTS	W (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	862.5	740.1	122.4
Modified Greenberg Smith	100 ml 0.1N KCl	784.0	728.9	55.1
Greenberg Smith	100 ml 0.1N KCl	756.5	739.8	16.7
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	738.0	728.9	9.1
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	733.1	730.2	2.9
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	725.0	724.4	0.6
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	726.0	725.2	0.8
Modified Greenberg Smith	Silica Gel	907.6	900.7	6.9
			TOTAL	214.5

Fixed Gas Analysis	
%CO2:	11.7
%O2:	8.3
%C0:	0.0
%N2	80.0
Fo	1.077
Bws:	0.137
DSCFM:	173700

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized-Bound Mercury**		**Elemental Mercury**	
Sample Front-Half:	1.5 ug	Sample KCl:	3.8 ug	Sample HNO3/H2O2:	0.71 ug
Blank Front-Half:	ND ug	Blank KCl:	< 0.10 ug	Blank HNO3/H2O2:	< 0.25 ug
Net Front-Half:	1.5 ug	Net KCl:	3.80 ug	Net HNO3/H2O2:	0.71 ug
Detection Limit:	0.010 ug	Det. Limit:	0.030 ug	Det. Limit:	0.010 ug
				Sample KMnO4:	17 ug
				Blank KMnO4:	< 0.10 ug
				Net KMnO4	17 ug
				Det. Limit:	0.030 ug
Total Mercury:	23.01 ug			Total Elemental:	17.71 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)
Particle Bound Hg	0.831	1.819
Oxidzed Hg	2.106	4.608
Elemental Hg	9.815	21.477
Total Hg	12.753	27.904

Stack Flow Rate: 1493000 SCFM

Stack Flow Rate @ inlet moisture: 1288590 DSCFM

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Coyote Station	Sample Time:	08:30-10:52
Sample Location:	Dryer Inlet		
Test Date:	9/29/99	Run #:	2

DUCT DIMENSIONS

Width:	192	inches
Depth:	85	inches
Area:	113.33	sq. feet

Pbar:	28.17	"Hg
Ps:	26.92	"Hg
Bws:	0.1369	
MWw:	28.53	g/g-mole
Tstd:	68	"deg F
Pstd:	29.92	"Hg
Cp:	0.84	

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
A4	10.6	341	0.32	41.5
A3	31.9	341	0.29	39.5
A2	53.2	338	0.66	59.5
A1	74.4	339	0.69	60.8
B4	10.6	336	0.47	50.1
B3	31.9	344	0.48	50.9
B2	53.2	336	0.58	55.7
B1	74.4	343	0.56	55.0
C4	10.6	338	0.44	48.6
C3	31.9	350	0.44	48.9
C2	53.2	344	0.59	56.4
C1	74.4	342	0.62	57.8
D4	10.6	343	0.47	50.3
D3	31.9	354	0.45	49.6
D2	53.2	348	0.48	51.0
D1	74.4	354	0.50	52.3
E4	10.6	350	0.38	45.5
E3	31.9	360	0.37	45.1
E2	53.2	357	0.44	49.1
E1	74.4	358	0.41	47.5
F4	10.6	348	0.37	44.8
F3	31.9	360	0.35	43.9
F2	53.2	358	0.50	52.4
F1	74.4	359	0.48	51.4
Average		348	0.47	50.3

Results:

Average Velocity: 50.31 fps @ 348 g. F a 26.92 "Hg

Q:	342.11	x 1000	ACFM	20,526.48	KACFH
Q (std):	201.25	x 1000	SCFM	12,075.27	KSCFH
Q (std dry):	173.70	x 1000	DSCFM	10,422.02	KDSCFH

Reduced Isokinetic Field Data (page 1 of 2)

Plant:	Coyote Station	Bws(assumed):	0.13	Meter Box #:	80664
Sample Loc:	Dryer Inlet	MWs(assumed):	27.75	dH@i:	2.014
Run #:	3	MWd(assumed):	28	Gamma:	0.998
Date:	9/29/99	Pstatic ("H2O):	-17.00	Pitot #:	001
Pbar ("Hg):	28.17	Probe Mat:	Teflon	Cp:	0.84
Ps ("Hg):	26.92	Nozzle Mat:	SS/Teflon	X-Factor:	3.679
Sample time/pt:	5.0	Dn (in.):	0.255	# of Ports:	6

PORT:	F		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	12	0	353	0.40	90	90	5.0	249	247	64	869.233	1.00		0.56	869.233
3	12	5	354	0.39	91	90	5.0	249	247	57		0.97		0.56	872.055
2	12	10	351	0.54	93	90	5.0	248	247	56		1.35		0.66	874.846
1	12	15	354	0.57	96	90	6.0	248	247	57		1.43		0.68	878.147
	12	20									881.065				881.551
Run Time:		20	353	0.48	93	90	5.3	249	247	59	11.832	1.19	96.1		12.318

PORT:	E		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	12	22	352	0.32	94	92	5.0	247	246	62	881.065	0.80		0.51	881.065
3	12	27	354	0.33	99	92	5.0	248	246	59		0.83		0.52	883.609
2	12	32	351	0.43	101	93	6.0	247	246	59		1.09		0.60	886.213
1	12	37	355	0.44	102	94	6.0	248	246	59		1.12		0.60	889.202
	12	42									891.706				892.223
Run Time:		20	353	0.38	99	93	5.5	248	246	60	10.641	0.96	95.4		11.158

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	12	45	352	0.46	97	94	6.0	247	246	65	891.706	1.16		0.61	891.706
3	12	50	355	0.45	103	95	6.0	247	246	60		1.14		0.61	894.773
2	12	55	355	0.51	105	95	6.0	247	246	60		1.30		0.65	897.834
1	13	0	344	0.50	106	96	6.0	247	246	61		1.29		0.65	901.103
	13	5									903.773				904.369
Run Time:		20	352	0.48	103	95	6.0	247	246	62	12.067	1.23	95.3		12.663

CHANGE OUT FILTER

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	13	16	347	0.45	99	97	5.0	249	246	64	903.932	1.15		0.61	903.932
3	13	21	357	0.45	107	99	5.0	247	247	62		1.15		0.62	906.986
2	13	26	357	0.65	110	100	6.0	247	247	61		1.67		0.74	910.064
1	13	31	344	0.62	113	101	6.0	248	247	62		1.63		0.74	913.784
	13	36									916.754				917.465
Run Time:		20	351	0.54	107	99	5.5	248	247	62	12.822	1.40	94.7		13.533

Reduced Isokinetic Field Data (page 2 of 2)

Plant:	Coyote Station	Bws(assumed):	0.13	Meter Box #:	80664
Sample Loc:	Dryer Inlet	MWs(assumed):	27.75	dH@i:	2.014
Run #:	3	MWd(assumed):	28	Gamma:	0.998
Date:	9/29/99	Pstatic ("H2O):	-17	Pitot #:	001
Pbar ("Hg):	28.17	Probe Mat:	Teflon	Cp:	0.84
Ps ("Hg):	26.92	Nozzle Mat:	SS/Teflon	X-Factor:	3.679
Sample time/pt:	5	Dn (in.):	0.255	# of Ports:	6

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	13	39	346	0.49	106	101	6.0	247	246	66	916.754	1.27		0.65	916.754
3	13	44	354	0.49	113	103	6.0	245	246	62		1.27		0.65	919.983
2	13	49	349	0.57	115	103	6.0	247	247	62		1.49		0.71	923.235
1	13	54	350	0.59	116	104	7.0	247	247	63		1.54		0.72	926.766
	13	59									929.693				930.362
Run Time:		20	350	0.54	113	103	6.3	247	247	63	12.939	1.39	95.1		13.608

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Line	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
4	14	2	348	0.40	109	105	6.0	247	246	66	929.693	1.04		0.59	929.693
3	14	7	353	0.41	115	106	6.0	247	246	64		1.07		0.60	932.622
2	14	12	346	0.61	116	106	7.0	246	246	64		1.60		0.73	935.609
1	14	17	347	0.62	117	107	7.0	247	246	65		1.63		0.74	939.275
	14	22									942.414				942.975
Run Time:		20	349	0.51	114	106	6.5	247	246	65	12.721	1.33	95.8		13.282

Post Test Leak Rate: 0.004 CFM @ 12 "Hg

Summary	120	351	105	98	6	247	246	62	73.022	1.25		########	########

Analytical Results

Plant:	Coyote Station	Tstd:	68	MWw:	28.51	
Sample Loc:	Dryer Inlet	Pstd:	29.92	An:	0.0004	sq. ft.
Date:	9/29/99	Vmstd:	64.769	%ISO:	98.1	
Run #:	3					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	864.7	740.3	124.4
Modified Greenberg Smith	100 ml 0.1N KCl	827.8	754.5	73.3
Greenberg Smith	100 ml 0.1N KCl	742.7	738.8	3.9
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	736.4	728.6	7.8
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	728.8	728.0	0.8
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	752.3	751.8	0.5
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	733.5	733.8	-0.3
Modified Greenberg Smith	Silica Gel	828.0	815.6	12.4
			TOTAL	222.85

Fixed Gas Analysis	
%CO2:	11.8
%O2:	8.2
%C0:	0.0
%N2	80.0
Fo	1.076
Bws:	0.140
DSCFM	175747

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized-Bound Mercury**		**Elemental Mercury**	
Sample Front-Half:	2.2 ug	Sample KCl:	4.0 ug	Sample HNO3/H2O2:	0.44 ug
Blank Front-Half:	ND ug	Blank KCl:	< 0.10 ug	Blank HNO3/H2O2:	< 0.25 ug
Net Front-Half:	2.2 ug	Net KCl:	4.0 ug	Net HNO3/H2O2:	0.44 ug
Detection Limit:	0.010 ug	Det. Limit:	0.030 ug	Det. Limit:	0.010 ug
				Sample KMnO4:	19 ug
				Blank KMnO4:	< 0.10 ug
				Net KMnO4	19 ug
				Det. Limit:	0.030 ug
Total Mercury:	25.64 ug			Total Elemental:	19.44 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)
Particle Bound Hg	1.200	2.583
Oxidzed Hg	2.182	4.696
Elemental Hg	10.606	22.821
Total Hg	13.988	30.099

Stack Flow Rate: 1472800 SCFM

Stack Flow Rate @ inlet moisture: 1267220 DSCFM

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Coyote Station	Sample Time:	
Sample Location:	Dryer Inlet		
Test Date:	9/29/99	Run #:	3

DUCT DIMENSIONS

Width:	192	inches
Depth:	85	inches
Area:	113.33	sq. feet

Pbar:	28.17	"Hg
Ps:	26.92	"Hg
Bws:	0.1396	
MWw:	28.51	g/g-mole
Tstd:	68	"deg F
Pstd:	29.92	"Hg
Cp:	0.84	

	Traverse Data			
Traverse Point #	In. From Edge	Td (deg. F)	dP ("H2O)	Vd (ft/sec)
F4	10.6	353	0.40	46.7
F3	31.9	354	0.39	46.2
F2	53.2	351	0.54	54.2
F1	74.4	354	0.57	55.8
E4	10.6	352	0.32	41.8
E3	31.9	354	0.33	42.5
E2	53.2	351	0.43	48.4
E1	74.4	355	0.44	49.1
D4	10.6	352	0.46	50.1
D3	31.9	355	0.45	49.6
D2	53.2	355	0.51	52.9
D1	74.4	344	0.50	52.0
C4	10.6	347	0.45	49.4
C3	31.9	357	0.45	49.7
C2	53.2	357	0.65	59.7
C1	74.4	344	0.62	57.9
B4	10.6	346	0.49	51.5
B3	31.9	354	0.49	51.8
B2	53.2	349	0.57	55.7
B1	74.4	350	0.59	56.7
A4	10.6	348	0.40	46.6
A3	31.9	353	0.41	47.3
A2	53.2	346	0.61	57.5
A1	74.4	347	0.62	58.0
Average		351	0.49	51.3

Results:

Average Velocity: 51.29 fps @ 351 g. F a 26.92 "Hg

Q:	348.77	x 1000	ACFM	20,926.32	KACFH
Q (std):	204.26	x 1000	SCFM	12,255.48	KSCFH
Q (std dry):	175.75	x 1000	DSCFM	10,544.80	KDSCFH

Reduced Isokinetic Field Data

Plant:	Coyote Station	Bws(assumed):	0.16	Meter Box #:	81231
Sample Loc:	Main Stack	MWs(assumed):	27.75	dH@i:	1.815
Run #:	1	MWd(assumed):	28	Gamma:	0.999
Date:	9/28/99	Pstatic ("H2O):	-1.90	Pitot #:	M-2
Pbar ("Hg):	28.40	Probe Mat:	Glass	Cp:	0.84
Ps ("Hg):	28.26	Nozzle Mat:	Glass	X-Factor:	0.571
Sample time/pt:	10.0	Dn (in.):	0.165	# of Ports:	4

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	11	30	227	2.00	54	54	3.0	249	256	46	664.599	0.85		0.53	664.599
2	11	40	228	1.90	57	55	3.0	246	248	46		0.82		0.52	669.903
1	11	50	227	1.70	59	55	3.0	254	254	46		0.73		0.49	675.098
	12	0									679.365				680.036
Run Time:		30	227	1.87	57	55	3.0	250	253	46	14.766	0.80	95.7		15.437

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	12	0	229	2.90	57	57	3.0	249	251	47	679.365	1.24		0.64	679.365
2	12	10	229	2.30	61	57	3.0	248	240	47		0.99		0.58	685.779
1	12	20	228	2.00	61	58	3.0	241	260	48		0.86		0.54	691.536
	12	30									696.167				696.908
Run Time:		30	229	2.40	60	57	3.0	246	250	47	16.802	1.03	95.8		17.543

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	13	0	230	2.20	61	58	3.0	248	261	49	696.167	0.95		0.56	696.167
2	13	10	229	2.50	60	58	3.0	244	262	49		1.08		0.60	701.793
1	13	20	229	2.00	61	58	3.0	250	260	49		0.86		0.54	707.783
	13	30									712.244				713.151
Run Time:		30	229	2.23	61	58	3.0	247	261	49	16.077	0.96	94.7		16.984

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	13	34	229	2.30	60	58	3.0	241	250	50	712.244	0.99		0.57	712.244
2	13	44	227	2.20	62	59	3.0	247	248	50		0.95	-	0.56	717.990
1	13	54	229	2.05	63	59	3.0	250	255	50		0.89		0.55	723.639
	14	4									728.369				729.094
Run Time:		30	228	2.18	62	59	3.0	- 246	251	50	16.125	0.94	95.7	-	16.850
Post Test Leak Rate:				0.008 CFM @		6 "Hg									
Summary		120	228		60	57	3	247	254	48	63.770	0.94	#VALUE!	0	########

Analytical Results

Plant:	Coyote Station	Tstd:	68	MWw:	28.20	
Sample Loc:	Main Stack	Pstd:	29.92	An:	0.0001	sq. ft.
Date:	9/28/99	Vmstd:	61.737	%ISO:	95.9	
Run #:	1					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	935.1	738.4	196.7
Modified Greenberg Smith	100 ml 0.1N KCl	752.2	731.1	21.1
Greenberg Smith	100 ml 0.1N KCl	735.4	732.0	3.4
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	746.1	743.2	2.9
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	730.6	731.2	-0.6
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	734.2	734.3	-0.1
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	737.2	737.1	0.1
Modified Greenberg Smith	Silica Gel	866.1	854.1	12.0
			TOTAL	235.5

Fixed Gas Analysis	
%CO2:	10.3
%O2:	9.8
%C0:	0.0
%N2	79.9
Fo	1.078
Bws:	0.152
DSCFM	0

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized-Bound Mercury**		**Elemental Mercury**	
Sample Front-Half:	0.091 ug	Sample KCl:	N/A ug	Sample HNO3/H2O2:	1.2 ug
Blank Front-Half:	ND ug	Blank KCl:	< 0.10 ug	Blank HNO3/H2O2:	< 0.25 ug
Net Front-Half:	0.091 ug	Net KCl:	0.1 ug	Net HNO3/H2O2:	1.2 ug
Detection Limit:	0.010 ug	Det. Limit:	0.030 ug	Det. Limit:	0.010 ug
				Sample KMnO4:	14 ug
				Blank KMnO4:	< 0.10 ug
				Net KMnO4	14 ug
				Det. Limit:	0.030 ug
Total Mercury:	15.39 ug			Total Elemental:	15.2 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)
Particle Bound Hg	0.052	0.111
Oxidzed Hg	0.010	0.012
Elemental Hg	8.700	18.493
Total Hg	8.809	18.725

Flow Rate: 1251862

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Coyote Station	Time:	11:30-14:04
Sample Location:	Main Stack		
Date:	9/28/99	Run #:	1

Duct Diameter (in.):	252.0	Ps ("Hg):	28.26
Rectangular Duct:	0.0	Bws:	0.152
Area (sq.ft.):	346.4	MWw:	28.20
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.84

		Port: A			Port: B			Port: C			Port: D		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
3	74.6	2.00	227	94.3	2.90	229	113.7	2.20	230	99.1	2.30	229	101.3
2	36.8	1.90	228	92.0	2.30	229	101.3	2.50	229	105.6	2.20	227	98.9
1	11.1	1.70	227	86.9	2.00	228	94.4	2.00	229	94.4	2.05	229	95.6

RESULTS:

Average Duct Velocity = 98.1 at 228 deg. F and 28.26 "Hg

Q	=	2038.9	x1000	ACFM
Qstd	=	1477.0	x1000	SCFM
Qstd(dry)	=	1251.9	x1000	DSCFM

Reduced Isokinetic Field Data

Plant:	Coyote Station	Bws(assumed):	0.16	Meter Box #:	81231
Sample Loc:	Main Stack	MWs(assumed):	27.75	dH@i:	1.815
Run #:	2	MWd(assumed):	28	Gamma:	0.999
Date:	9/29/99	Pstatic ("H2O):	-1.90	Pitot #:	M-2
Pbar ("Hg):	28.17	Probe Mat:	Glass	Cp:	0.84
Ps ("Hg):	28.03	Nozzle Mat:	Glass	X-Factor:	0.571
Sample time/pt:	10.0	Dn (in.):	0.165	# of Ports:	4

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	8	30	207	2.10	53	53	4.0	248	249	42	728.684	0.92		0.55	728.684
2	8	40	205	1.90	55	54	4.0	242	246	42	728.811	0.84		0.53	734.211
1	8	50	205	2.00	57	55	4.0	251	240	42	729.375	0.89		0.54	739.497
	9	0									745.114				744.941
Run Time:		30	206	2.00	55	54	4.0	247	245	42	15.866	0.88	97.6		16.257

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	9	14	203	2.20	57	55	4.0	248	244	43	745.114	0.98		0.57	745.114
2	9	24	203	2.00	61	57	4.0	243	244	43		0.90		0.55	750.833
1	9	34	204	1.90	61	57	4.0	243	240	43		0.85		0.54	756.327
	9	44									760.985				761.678
Run Time:		30	203	2.03	60	56	4.0	245	243	43	15.871	0.91	95.8		16.564

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	9	54	205	2.30	58	58	4.0	244	250	45	760.985	1.02		0.58	760.985
2	10	4	206	2.40	58	57	4.0	254	251	44		1.07		0.60	766.835
1	10	14	206	2.20	59	57	4.0	249	245	45		0.98		0.57	772.805
	10	24									777.833				778.533
Run Time:		30	206	2.30	58	57	4.0	249	249	45	16.848	1.02	96.0		17.548

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	10	27	206	2.40	58	57	4.0	250	244	45	777.833	1.07		0.60	777.833
2	10	37	206	2.10	60	57	4.0	257	240	46		0.94		0.56	783.804
1	10	47	208	2.20	61	57	4.0	247	246	46		0.98		0.57	789.411
	10	57									794.429				795.152
Run Time:		30	207	2.23	60	57	4.0	251	243	46	16.596	0.99	95.8	-	- 17.319
Post Test Leak Rate:				0.002 CFM @		7 "Hg									
Summary		120	205		58	56	4	248	245	44	65.181	0.95	#VALUE!	0	########

Analytical Results

Plant:	Coyote Station	Tstd:	68	MWw:	28.03	
Sample Loc:	Main Stack	Pstd:	29.92	An:	0.0001	sq. ft.
Date:	9/29/99	Vmstd:	62.747	%ISO:	98.1	
Run #:	2					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	948.4	746.6	201.8
Modified Greenberg Smith	100 ml 0.1N KCl	763.2	725.5	37.7
Greenberg Smith	100 ml 0.1N KCl	743.3	734.4	8.9
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	740.3	735.2	5.1
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	749.2	748.5	0.7
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	738.6	738.0	0.6
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	744.3	743.3	1.0
Modified Greenberg Smith	Silica Gel	805.0	792.9	12.1
			TOTAL	267.9

Fixed Gas Analysis	
%CO2:	10.4
%O2:	9.7
%C0:	0.0
%N2	79.9
Fo	1.077
Bws:	0.168
DSCFM	0

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Mercury**	
Sample Front-Half:	0.16 ug	Sample KCl:	0.27 ug	Sample HNO3/H2O2	< 0.25 ug
Blank Front-Half:	ND ug	Blank KCl:	< 0.10 ug	Blank HNO3/H2O2:	< 0.25 ug
Net Front-Half:	0.16 ug	Net KCl:	0.27 ug	Net HNO3/H2O2:	< 0.25 ug
Detection Limit:	0.010 ug	Det. Limit:	0.030 ug	Det. Limit:	0.010 ug
				Sample KMnO4:	N/A ug
				Blank KMnO4:	< 0.10 ug
				Net KMnO4	0 ug
				Det. Limit:	0.030 ug
Total Mercury:	0.68 ug			Total Elemental:	< 0.25 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)
Particle Bound Hg	0.090	0.190
Oxidzed Hg	0.152	0.321
Elemental Hg	0.141	0.297
Total Hg	0.383	0.808

Flow Rate: 1242836

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Coyote Station	Time:	08:30-10:57
Sample Location:	Main Stack		
Date:	9/29/99	Run #:	2

Duct Diameter (in.):	252.0	Ps ("Hg):	28.03
Rectangular Duct:	0.0	Bws:	0.168
Area (sq.ft.):	346.4	MWw:	28.03
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.84

		Port: A			Port: B			Port: C			Port: D		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
3	74.6	2.10	207	95.9	2.20	203	97.8	2.30	205	100.2	2.40	206	102.4
2	36.8	1.90	205	91.1	2.00	203	93.3	2.40	206	102.4	2.10	206	95.8
1	11.1	2.00	205	93.4	1.90	204	91.0	2.20	206	98.1	2.20	208	98.2

RESULTS:

Average Duct Velocity = 96.6 at 205 deg. F and 28.03 "Hg

Q	=	2008.2	x1000	ACFM
Qstd	=	1493.0	x1000	SCFM
Qstd(dry)	=	1242.8	x1000	DSCFM

Reduced Isokinetic Field Data

Plant:	Coyote Station	Bws(assumed):	0.16	Meter Box #:	81231
Sample Loc:	Main Stack	MWs(assumed):	27.75	dH@i:	1.815
Run #:	3	MWd(assumed):	28	Gamma:	0.999
Date:	9/29/99	Pstatic ("H2O):	-1.90	Pitot #:	M-2
Pbar ("Hg):	28.17	Probe Mat:	Glass	Cp:	0.84
Ps ("Hg):	28.03	Nozzle Mat:	Glass	X-Factor:	0.571
Sample time/pt:	10.0	Dn (in.):	0.165	# of Ports:	4

PORT:	A		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	12	0	214	2.10	57	58	3.0	250	253	51	794.855	0.92		0.55	794.855
2	12	10	215	2.00	60	57	3.0	243	248	46		0.88		0.54	800.396
1	12	20	214	1.90	61	58	3.0	240	240	46		0.84		0.53	805.831
	12	30									810.856				811.143
Run Time:		30	214	2.00	59	58	3.0	244	247	48	16.001	0.88	98.2		16.288

PORT:	B		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	12	34	214	1.80	61	59	3.0	252	256	51	810.856	0.79		0.52	810.856
2	12	44	214	1.90	63	60	3.0	247	257	51		0.84		0.53	816.026
1	12	54	216	2.00	65	61	3.0	246	256	51		0.89		0.55	821.358
	13	4									826.199				826.841
Run Time:		30	215	1.90	63	60	3.0	248	256	51	15.343	0.84	96.0		15.985

PORT:	C		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	13	18	215	2.40	61	61	3.0	245	251	58	826.199	1.06		0.60	826.199
2	13	28	216	2.30	64	62	3.0	240	252	54		1.02		0.59	832.164
1	13	38	216	2.20	66	62	3.0	253	254	54		0.98		0.58	838.033
	13	48									842.993				843.795
Run Time:		30	216	2.30	64	62	3.0	246	252	55	16.794	1.02	95.4		17.596

PORT:	D		Duct Data			Meter Data		Heater Data		Impinge	Meter	Theo.	Quick	Qm	Theo.
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH			Vm
#	hr	min	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso	(CFM)	(CF)
3	13	52	215	2.50	65	63	4.0	250	250	60	842.993	1.11		0.61	842.993
2	14	2	215	2.20	68	63	3.0	247	256	55		0.98	-	0.58	849.128
1	14	12	214	2.10	69	63	3.0	256	254	55		0.94		0.57	854.916
	14	22									859.908				860.586
Run Time:		30	215	2.27	67	63	3.3	251	253	57	16.915	1.01	96.1	-	17.593
Post Test Leak Rate:				0.01 CFM @		6 "Hg					2				
Summary		120	215		63	61	3	247	252	53	65.053	0.94		0	########

Analytical Results

Plant:	Coyote Station	Tstd:	68	MWw:	28.05	
Sample Loc:	Main Stack	Pstd:	29.92	An:	0.0001	sq. ft.
Date:	9/29/99	Vmstd:	62.047	%ISO:	98.4	
Run #:	3					

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Modified Greenberg Smith	100 ml 0.1N KCl	961.1	727.1	234.0
Modified Greenberg Smith	100 ml 0.1N KCl	753.3	737.6	15.7
Greenberg Smith	100 ml 0.1N KCl	742.0	740.5	1.5
Modified Greenberg Smith	100ml 5%HNO3/10%H2O2	747.2	744.3	2.9
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	732.3	732.6	-0.3
Modified Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	735.1	735.3	-0.2
Greenberg Smith	100 ml 4% KMnO4/10% H2SO4	749.2	748.9	0.3
Modified Greenberg Smith	Silica Gel	876.4	865.6	10.8
			TOTAL	264.7

Fixed Gas Analysis	
%CO2:	10.5
%O2:	9.7
%C0:	0.0
%N2	79.8
Fo	1.067
Bws:	0.167
DSCFM	0

Concentration and Emission Rate Data

Particle-Bound Mercury		**Oxidized Mercury**		**Elemental Mercury**	
Sample Front-Half:	0.086 ug	Sample KCl:	0.49 ug	Sample HNO3/H2O2:	0.92 ug
Blank Front-Half:	ND ug	Blank KCl:	< 0.10 ug	Blank HNO3/H2O2:	< 0.25 ug
Net Front-Half:	0.086 ug	Net KCl:	0.49 ug	Net HNO3/H2O2:	0.92 ug
Detection Limit:	0.010 ug	Det. Limit:	0.030 ug	Det. Limit:	0.010 ug
				Sample KMnO4:	19 ug
				Blank KMnO4:	< 0.10 ug
				Net KMnO4	19 ug
				Det. Limit:	0.030 ug
Total Mercury:	20.50 ug			Total Elemental:	19.92 ug

	Concentration (ug/dscm)	Mass Flow Rate (gram/hr)
Particle Bound Hg	0.049	0.102
Oxidzed Hg	0.279	0.581
Elemental Hg	11.345	23.620
Total Hg	11.673	24.303

Flow Rate: 1226186

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Coyote Station	Time:	08:30-10:57
Sample Location:	Main Stack		
Date:	9/29/99	Run #:	3

Duct Diameter (in.):	252.0	Ps ("Hg):	28.03
Rectangular Duct:	0.0	Bws:	0.167
Area (sq.ft.):	346.36	MWw:	28.05
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.84

		Port: A			Port: B			Port: C			Port: D		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
3	74.6	2.10	214	96.4	1.80	214	89.2	2.40	215	103.1	2.50	215	105.2
2	36.8	2.00	215	94.1	1.90	214	91.7	2.30	216	101.0	2.20	215	98.7
1	11.1	1.90	214	91.7	2.00	216	94.2	2.20	216	98.8	2.10	214	96.4

RESULTS:

Average Duct Velocity = 96.7 at 215 deg. F and 28.03 "Hg

Q	=	2009.3	x1000	ACFM
Qstd	=	1472.8	x1000	SCFM
Qstd(dry)	=	1226.2	x1000	DSCFM

C

PHILIP SERVICES

INORGANIC DATA PACKAGE
FOR
BRAUN INTERTEC

Project #: ***CMXX-99-0259***

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

Submission #9K0212

Prepared by: Janice Joseph - CSR Initial : _____

Approved by : Dr. Ron McLeod - Principal Scientist Initial : _____

1. CASE NARRATIVE

PROJECT NARRATIVE

PHILIP Analytical Services (Burlington ON)
Philip Project: AN991011
Philip Submission #:9K0212

Client: Braun Intertec
Client Project: CMXX-99-0259

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Philip ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Run Date
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- Front Half					
066553 99	Method Blank	99/09/29	99/11/04	99/12/17	99/12/17
066554 99	Reagent Blank	99/09/29	99/11/04	99/12/17	99/12/17
066555 99	OHHG Stack-Blank	99/09/28	99/11/04	99/12/17	99/12/17
066556 99	OHHG Stack-R1	99/09/28	99/11/04	99/12/19	99/12/19
066557 99	OHHG Stack-R2	99/09/29	99/11/04	99/12/17	99/12/17
066558 99	OHHG Stack-R3	99/09/29	99/11/04	99/12/17	99/12/17
066559 99	OHHG Inlet-Blank	99/09/28	99/11/04	99/12/17	99/12/17
066560 99	OHHG Inlet-R1	99/09/28	99/11/04	99/12/17	99/12/17
066561 99	OHHG Inlet-R2	99/09/29	99/11/04	99/12/17	99/12/17
066562 99	OHHG Inlet-R3	99/09/29	99/11/04	99/12/17	99/12/17
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- Hydroxylamine					
066553 99	Method Blank	99/09/29	99/11/04	99/11/18	99/11/18
066554 99	Reagent Blank	99/09/29	99/11/04	99/11/18	99/11/18
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- KCl Impingers/Rinses					
066553 99	Method Blank	99/09/29	99/11/04	99/11/25	99/11/25
066554 99	Reagent Blank	99/09/29	99/11/04	99/11/25	99/11/25
066555 99	OHHG Stack-Blank	99/09/28	99/11/04	99/11/25	99/11/25
066557 99	OHHG Stack-R2	99/09/29	99/11/04	99/11/25	99/11/25
066558 99	OHHG Stack-R3	99/09/29	99/11/04	99/11/25	99/11/25
066559 99	OHHG Inlet-Blank	99/09/28	99/11/04	99/11/25	99/11/25
066560 99	OHHG Inlet-R1	99/09/28	99/11/04	99/11/25	99/11/25
066561 99	OHHG Inlet-R2	99/09/29	99/11/04	99/11/25	99/11/25
066562 99	OHHG Inlet-R3	99/09/29	99/11/04	99/11/25	99/11/25
Draft ASTM Mercury Speciation Method (September1, 1999 Revision)- KMNO4 Impingers/Rinses					
066553 99	Method Blank	99/09/29	99/11/04	99/11/25	99/11/25
066554 99	Reagent Blank	99/09/29	99/11/04	99/11/25	99/11/25
066555 99	OHHG Stack-Blank	99/09/28	99/11/04	99/11/25	99/11/25
066556 99	OHHG Stack-R1	99/09/28	99/11/04	99/11/25	99/11/25

066558 99	OHHG Stack-R3	99/09/29	99/11/04	99/11/25	99/11/25
066559 99	OHHG Inlet-Blank	99/09/28	99/11/04	99/11/25	99/11/25
066560 99	OHHG Inlet-R1	99/09/28	99/11/04	99/11/25	99/11/25
066561 99	OHHG Inlet-R2	99/09/29	99/11/04	99/11/25	99/11/25
066562 99	OHHG Inlet-R3	99/09/29	99/11/04	99/11/25	99/11/25

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

066553 99	Method Blank	99/09/29	99/11/04	99/11/16	99/11/16
066554 99	Reagent Blank	99/09/29	99/11/04	99/11/16	99/11/16
066555 99	OHHG Stack-Blank	99/09/28	99/11/04	99/11/16	99/11/16
066556 99	OHHG Stack-R1	99/09/28	99/11/04	99/11/16	99/11/16
066557 99	OHHG Stack-R2	99/09/29	99/11/04	99/11/16	99/11/16
066558 99	OHHG Stack-R3	99/09/29	99/11/04	99/11/16	99/11/16
066559 99	OHHG Inlet-Blank	99/09/28	99/11/04	99/11/16	99/11/16
066560 99	OHHG Inlet-R1	99/09/28	99/11/04	99/11/16	99/11/16
066561 99.	OHHG Inlet-R2	99/09/29	99/11/04	99/11/16	99/11/16
066562 99	OHHG Inlet-R3	99/09/29	99/11/04	99/11/16	99/11/16

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

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis.

a) Hold Times:
Samples were received at Philip some 30 days following sampling.

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

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

KCl Impinger

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

KMnO4 Impinger

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

b) Instrument Calibration: all within control limits

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

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

Date

2. ANALYTICAL DATA REPORT

PHILIP SERVICES

Certificate of Analysis

CLIENT INFORMATION		LABORATORY INFORMATION	
Attention:	Bruce Randall	**Contact:**	Ron McLeod
Client Name:	Braun Intertec	**Project:**	AN991011
Project:	CMXX-99-0259	**Date Received:**	99/11/04
Project Desc:	Stack Emissions	**Date Reported:**	99/12/20
Address:	P.O. Box 39108 Minneapolis, MN 55439	**Submission No.:**	9K0212
		Sample No.:	066553-066562
Fax Number:	612-946-6001		
Phone Number:	612-833-4653		

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

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

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

COMMENTS:

Certified by: _____

PASC - Certificate of Analysis

	Client ID:		Method Blank	Blank Spike #1	Blank Spike #1	Blank Spike #2	Blank Spike #2	Reagent Blank	OHHG Stack-Blank	OHHG Stack-R1	OHHG Stack-R1
	Lab No.:		066553 99	066553 99	066553 99	066553 99	066553 99	066554 99	066555 99	066556 99	066556 99
	Date Sampled:		-	-	-	-	-	99/09/29	99/09/28	99/09/28	99/09/28
Component	**MDL**	**Units**			% Recoveries		% Recoveries				Duplicate
Mercury - FH (Outlet)	0.010	ug	<	0.10	100	0.10	100	<	0.029	0.091	0.089
Mercury - FH (Inlet)	0.010	"	-	-	-	-	-	-	-	-	-
Mercury - hydroxylamine	0.010	"	<	0.096	96	0.094	94	<	-	-	-
Mercury - KCl	0.030	"	<	0.30	100	0.29	95	<0.10	<0.10	-	-
Mercury - KMnO4	0.030	"	<	0.31	100	0.30	100	<0.10	<0.10	14	-
Mercury - H202	0.010	"	<	0.10	100	0.10	100	<0.25	<0.25	1.2	1.4

PASC - Certificate of Analysis

	Client ID:		OHHG Stack-R1	OHHG Stack-R1	OHHG Stack-R1	OHHG Stack-R1	OHHG Stack-R2	OHHG Stack-R3	OHHG Inlet-Blank	OHHG Inlet-R1	OHHG Inlet-R1
	Lab No.:		066556 99	066556 99	066556 99	066556 99	066557 99	066558 99	066559 99	066560 99	066560 99
	Date Sampled:		99/09/28	99/09/28	99/09/28	99/09/28	99/09/29	99/09/29	99/09/28	99/09/28	99/09/28
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.					Duplicate
Mercury - FH (Outlet)	0.010	ug	0.18	92	0.18	94	0.16	0.086	-	-	-
Mercury - FH (Inlet)	0.010	"	-	-	-	-	-	-	<0.060	0.89	0.88
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-	-	-	-
Mercury - KCl	0.030	"	-	-	-	-	0.27	0.49	0.52	2.1	2.0
Mercury - KMnO4	0.030	"	-	-	-	-	-	19	0.14	17	17
Mercury - H202	0.010	"	3.7	98	3.6	95	<0.25	0.92	<0.25	0.77	-

00308

PASC - Certificate of Analysis

	Client ID:		OHHG Inlet-R1	OHHG Inlet-R1	OHHG Inlet-R1	OHHG Inlet-R1	OHHG Inlet-R2	OHHG Inlet-R3
	Lab No.:		066560 99	066560 99	066560 99	066560 99	066561 99	066562 99
	Date Sampled:		99/09/28	99/09/28	99/09/28	99/09/28	99/09/29	99/09/29
Component	**MDL**	**Units**	M. Spike	MS % Rec.	MS Dup	MSD % Rec.		
Mercury - FH (Outlet)	0.010	ug	-	-	-	-	-	-
Mercury - FH (Inlet)	0.010	"	3.0	97	3.0	97	1.5	2.2
Mercury - hydroxylamine	0.010	"	-	-	-	-	-	-
Mercury - KCl	0.030	"	3.1	100	3.1	100	3.8	4.0
Mercury - KMnO4	0.030	"	37	100	38	100	17	19
Mercury - H202	0.010	"	-	-	-	-	0.71	0.44

00009

Batch Code:	**12171NFT**	**12191GFT**
Mercury - FH (Outlet)	066553 99	066556 99
	066554 99	
	066555 99	
	066557 99	
	066558 99	
Run Date:	99/12/17	99/12/19
Date of Sample Prep:	99/12/17	99/12/19

Batch Code:	**12176NFB**
Mercury - FH (Inlet)	066559 99
	066560 99
	066561 99
	066562 99
Run Date:	99/12/17
Date of Sample Prep:	99/12/17

Batch Code:	**11181BHY**
Mercury - hydroxylamine	066553 99
	066554 99
Run Date:	99/11/18
Date of Sample Prep:	99/11/18

Batch Code:	**11252BKC**
Mercury - KCl	066553 99
	066554 99
	066555 99
	066557 99
	066558 99
	066559 99
	066560 99
	066561 99
	066562 99
Run Date:	99/11/25
Date of Sample Prep:	99/11/25

Batch Code:	**11251BMN**
Mercury - KMnO4	066553 99
	066554 99
	066555 99
	066556 99
	066558 99
	066559 99
	066560 99
	066561 99
	066562 99
Run Date:	99/11/25
Date of Sample Prep:	99/11/25

Batch Code:	**11161NPO**
Mercury - H202	066553 99
	066554 99
	066555 99
	066556 99
	066557 99
	066558 99
	066559 99
	066560 99
	066561 99
	066562 99
Run Date:	99/11/16
Date of Sample Prep:	99/11/16

3. RAW DATA

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

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

00013

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.18(W4) Run Code: MG03 Matrix: ~~DW~~ MP.

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

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

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

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

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			B			
22			D4			
23			64899			
24			"			
25			64900			
26			"			
27			64676	KCl/HD.		
28			"			
29			64679	KCl/D		
30			"			
31			BL1118	1BMN		
32			"			
33			BL1118 S			
34			"			
35			BL1118 DS			
36			"			
37		1/8	64883			
38		↓	"			
39			64883 D			
40			"			
41		1/8	64883 S			
42		↓	"			
43			CCV			
44			B			
45			D4			
46		1/8	64883 DS			
47		↓	"			
48			64881			
49			"			
50			64882			
51			"			
52		1/8	64884			
53		↓	"			
54			64885			
55			"			
56			64886			
57			"			
58			64887			
59			"			
60		1/5	64888			
61		↓	"			
62		1/4	64889			
63		↓	"			
64			64890			
65			"			
66			CCV			
67			B			
68			D4			
69			BL1118	2BMN		
70			"			
71			BL1118 S			
72			"			
73			BL1118 DS			
74			"			
75			64894			
76			"			
77			64894 D			
78			"			
79			64894 S			
80			"			

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

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

[illegible] 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.18(WA) Run Code: MG03 Matrix: IMP./WATER.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
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						
41 ~~21~~			64894 DS			
22			"			
23			64891			
24			"			
25			64892			
26			"			
27			64893			
28			"			
29			CCV			
30			B			
31			D4			
32		1/5	64895			
33		↓	"			
34			64896			
35		↓	"			
36			64897			
37			"			
38		1/4	64898			
39		↓	"			
40		↓	64899			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41		1/4	64899			
42		↓	64900			
43		↓	"			
44			BL1118	3BMN		
45			"			
46			BL1118 S			
47			"			
48			BL1118 DS			
49			"			
50			64701			
51			"			
52			CCV			
53			B			
54			D4			
55			64701 D			
56			"			
57			64701 S			
58			"			
59			64701 DS			
60			"			
61			64702			
62			"			
63			64703			
64			"			
65			64705			
66			"			
67			BL1118	1BHY		
68			"			
69			BL1118 S			
70			"			
71			BL1118 DS			
72			"			
73	1.5		64670			
74			"			
75			CCV			
76			B			
77			D4			
78	1.5		64881			
79		↓	"			
80		↓	64892			

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

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

Blank Spike = 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

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

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21	1.5		64892			
22			65654			
23			"			
24			65764			
25			"			
26			65693			
27			"			
28			CCV			
29			B			
30			D4			
31			BL1118	STBL		
32			BL1118 S			
33			68153			
34			53 D			
35			53 S			
36			51			
37			51 S			
38			68003			
39			020			
40			319			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			68324			
42			26			
43			28			
44			30			
45			32			
46			CCV			
47			B			
48			D4			
49			BL1118	STBL		
50			BL1118 S			
51			68318			
52			18 D			
53			18 S			
54			68871			
55			872			
56			WS 378			
57			ORG. REF			
58			CCV			
59			B			
60			D4			
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80						

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

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

Blank Spike = 1.0 mg/kg for solid samples.

00018

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

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

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

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

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

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

HNO3 Lot No. 119810 | H2SO4 Lot No. 318060 | Bath Temp. 195 °C

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

00019

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

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

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

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Ini. Calib. Verif.)	IN KC	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1118	"	"	"	"	(Processed Blank) 64880 MB
	11	BL 1118 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	64881	"	"	"	"	IMPV KCL 1000 mL
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64883	"	"	"	"	
3	17	83	"	"	"	"	FULL QC
4	18	84	"	"	"	"	
5	19	85	"	"	"	"	
6	20	86	"	"	"	"	
7	21	87	"	"	"	"	
8	22	88	"	"	"	"	
9	23	89	"	"	"	"	
10	24	90	"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	ZNKC	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1118	"	"	"	"	(Processed Blank)
	27	BL 1118 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	64891	"	"	"	"	IMPV KCL 1000 mL
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	92	"	"	"	"	
3	33	93	"	"	"	"	
4	34	94	"	"	"	"	FULL QC
5	35	95	"	"	"	"	
6	36	96	"	"	"	"	
7	37	97	"	"	"	"	
8	38	98	"	"	"	"	
9	39	99	"	"	"	"	
10	40	64900	"	"	"	"	

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

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

HNO3 Lot No. 87962 | H2SO4 Lot No. 95060 | Bath Temps. 1 195 °C

Prepared By: [illegible] Date: 9/1/18 Checked by: [illegible]

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

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

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

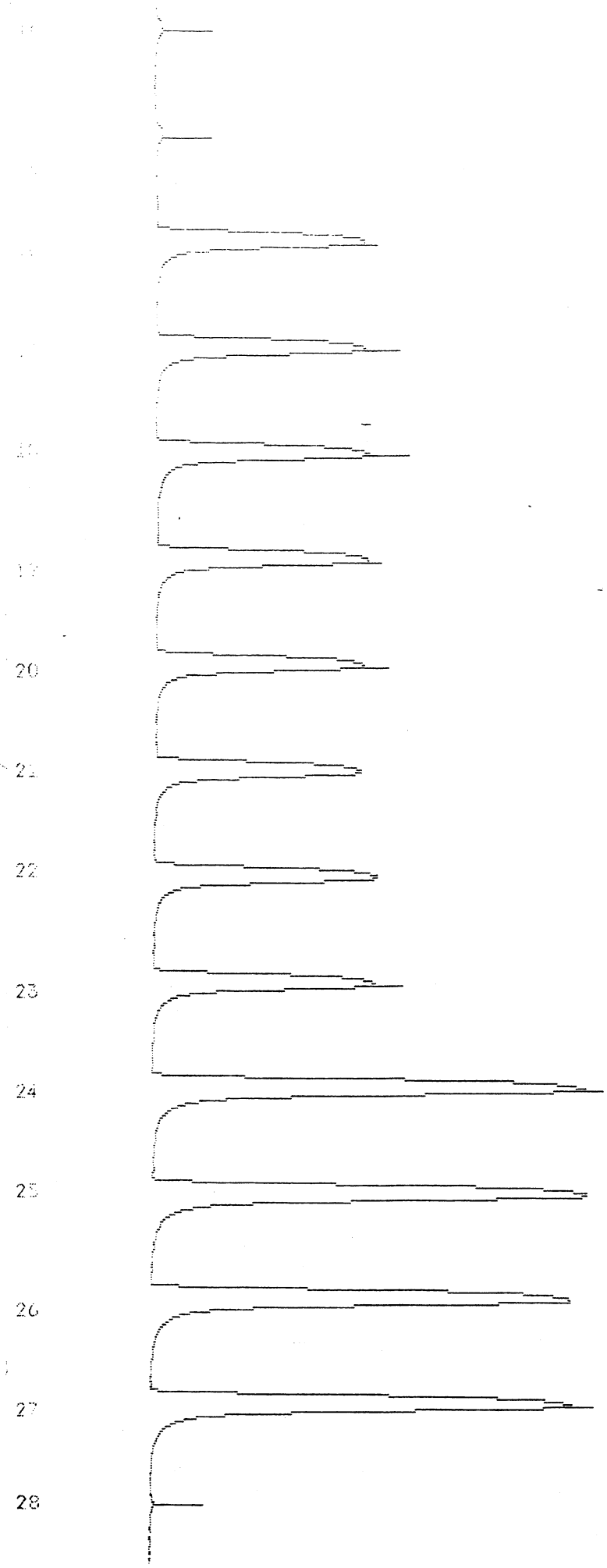
	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verf.)	1BHY	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL	"	"	"	"	(Processed Blank) 64669, 64880, 65763, 65692
	11	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm. 65830
1	12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

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

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

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

Prepared By: AG | Date: 09-11-18 | Checked by: AG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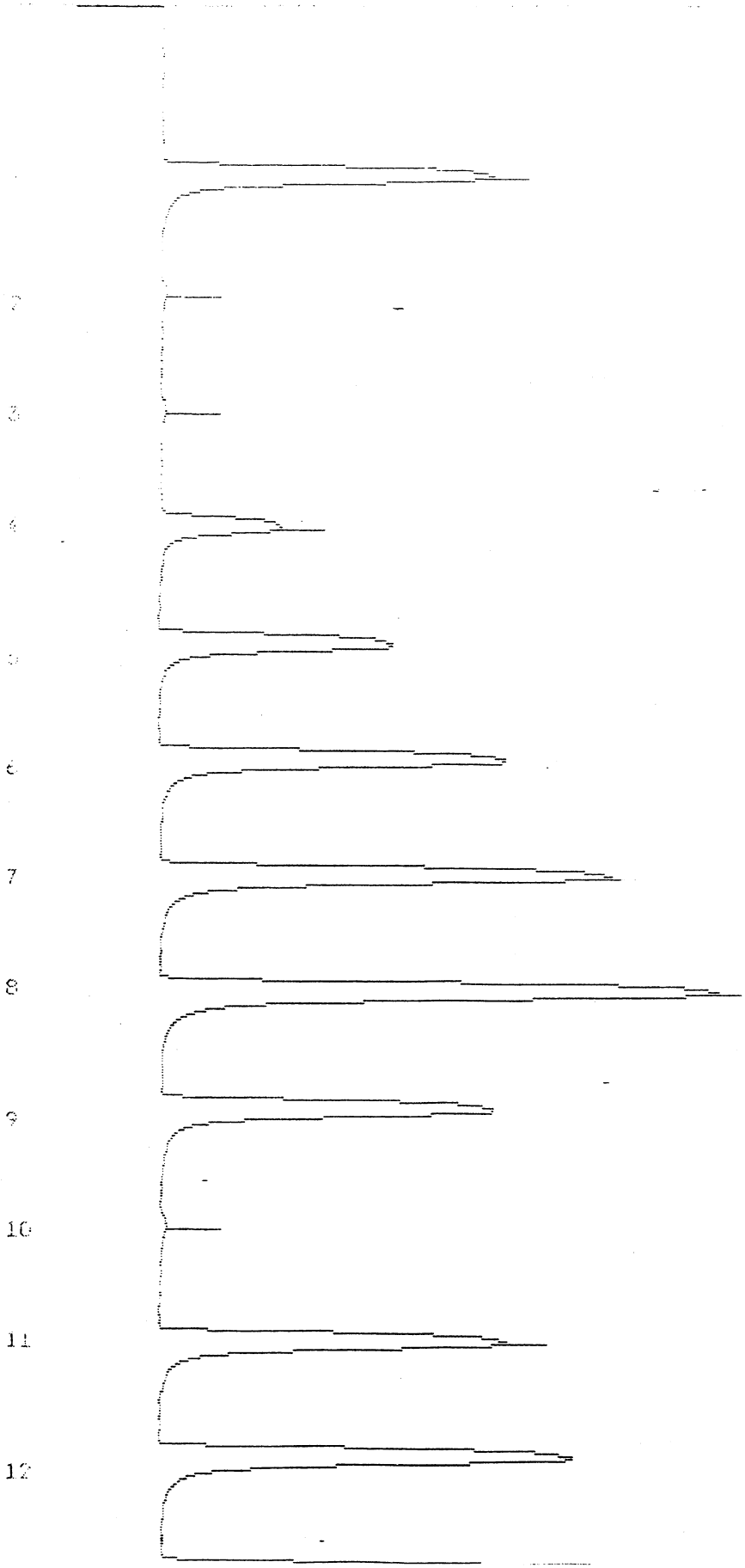

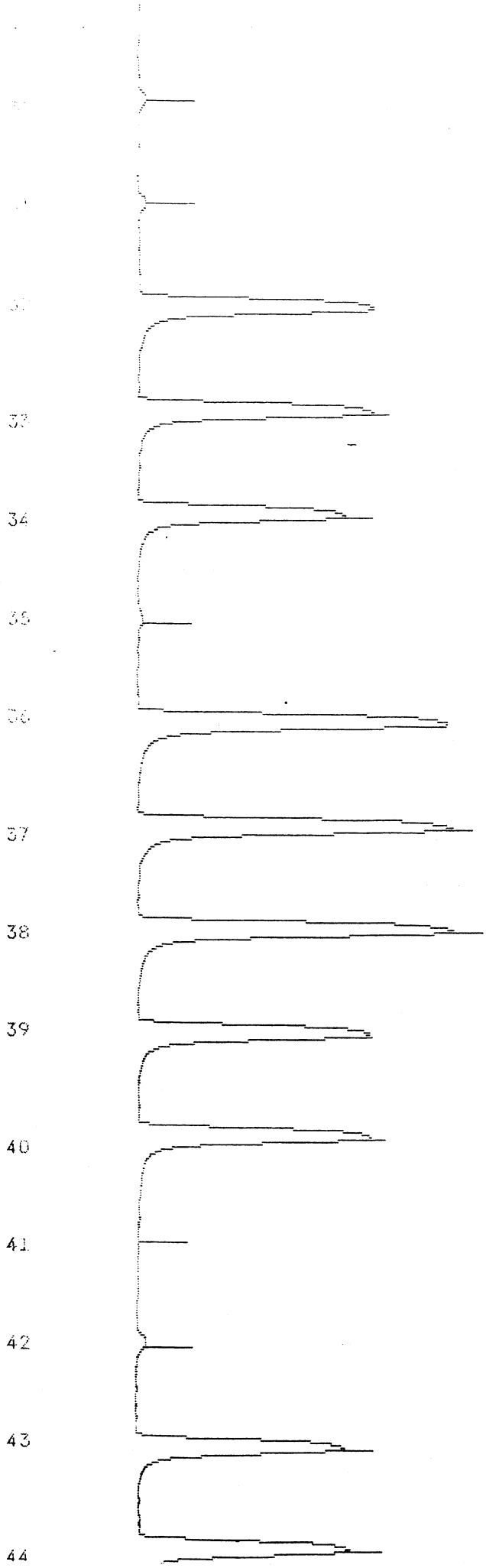
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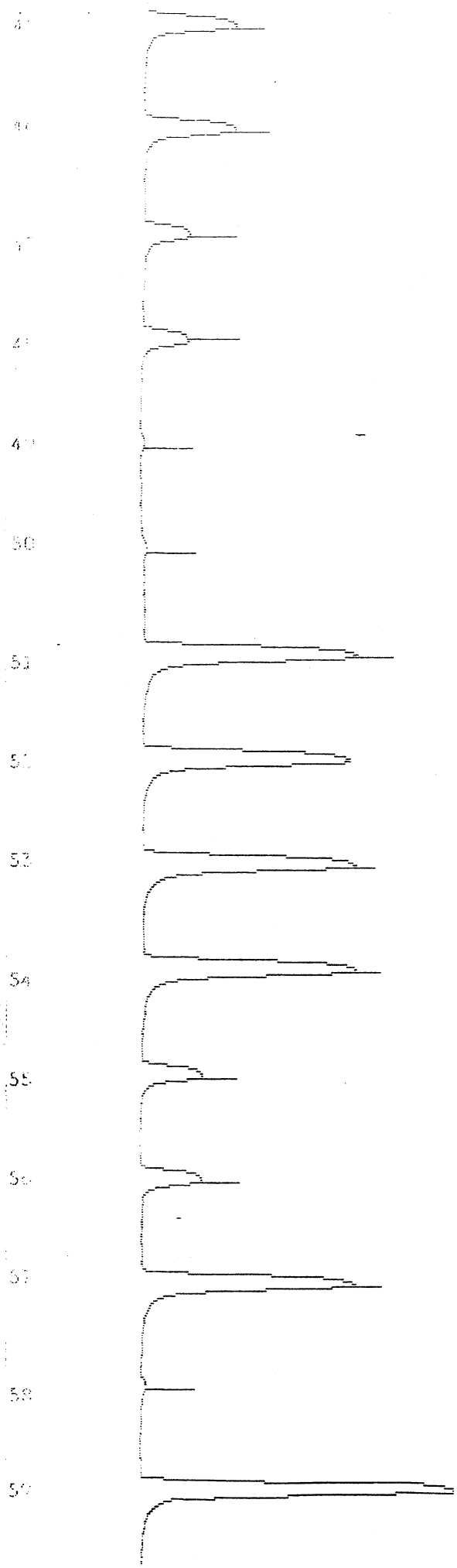
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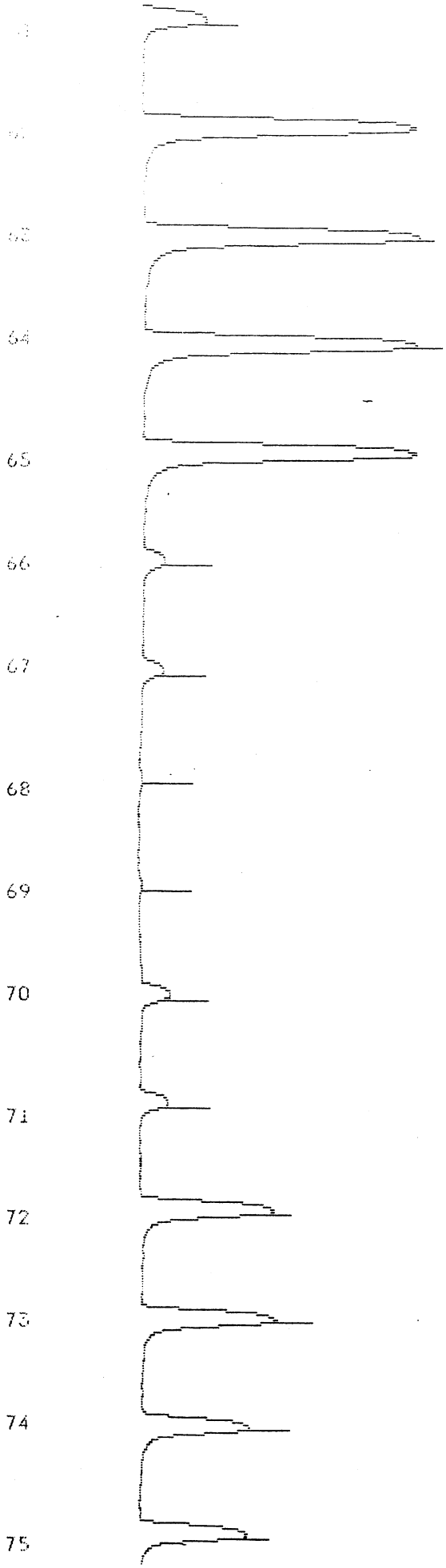
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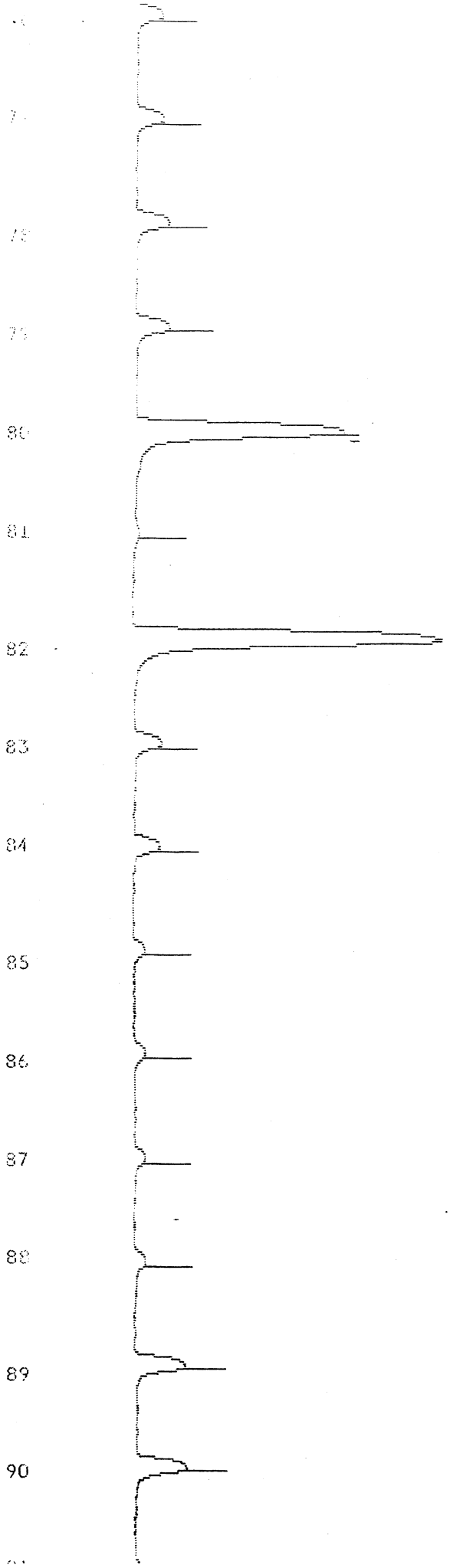
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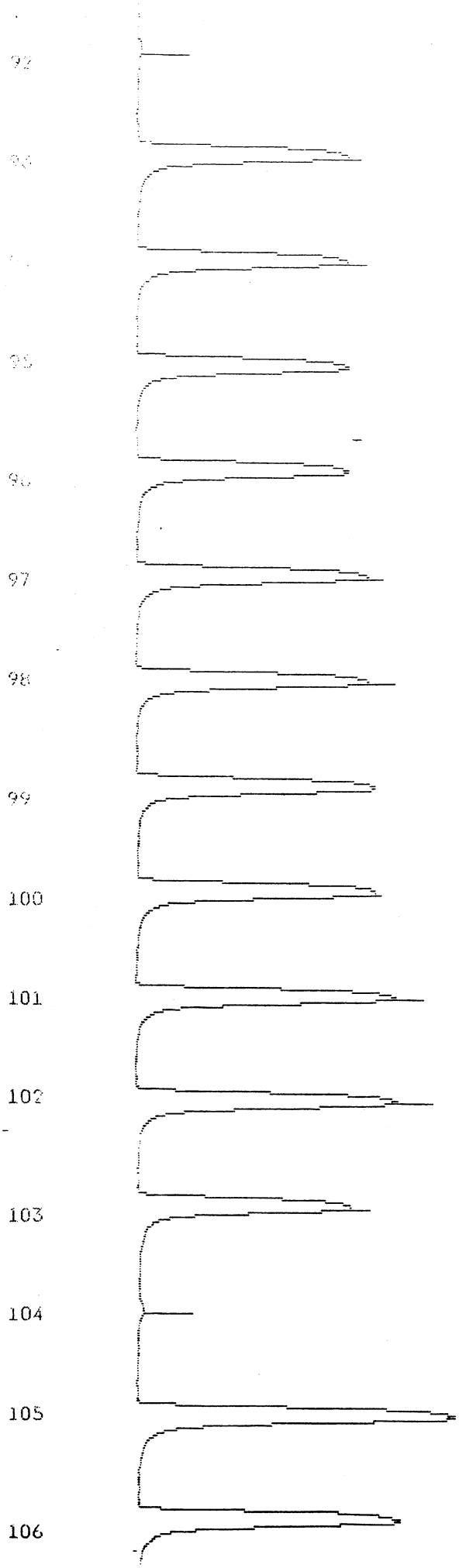
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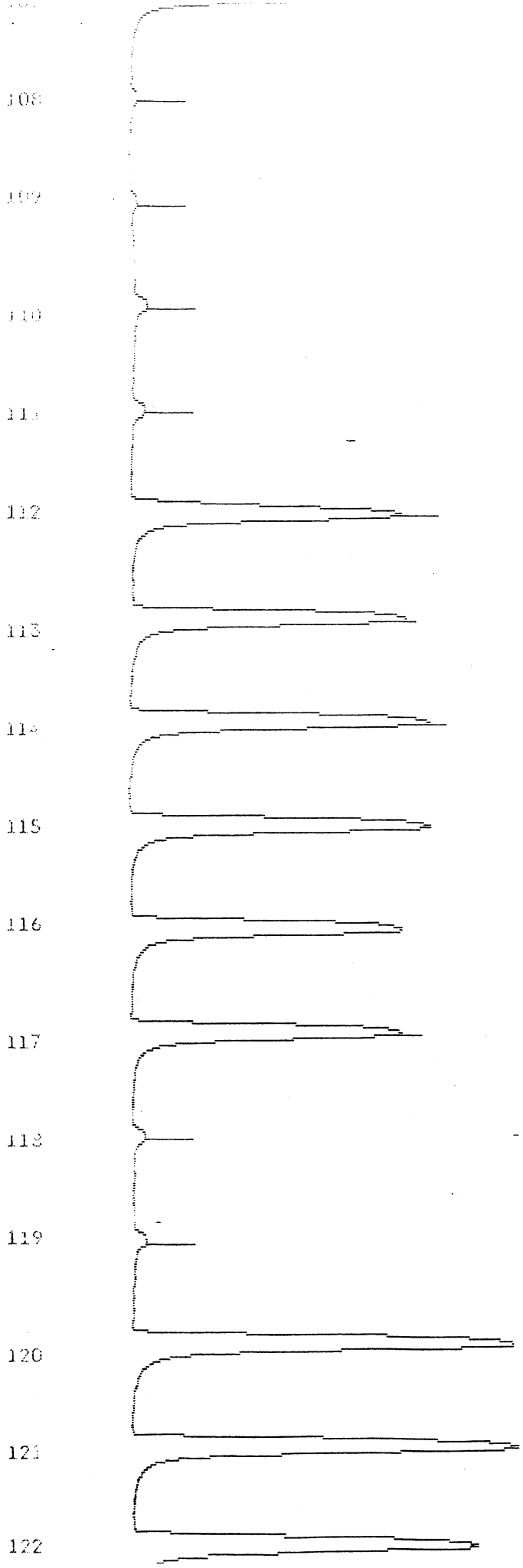
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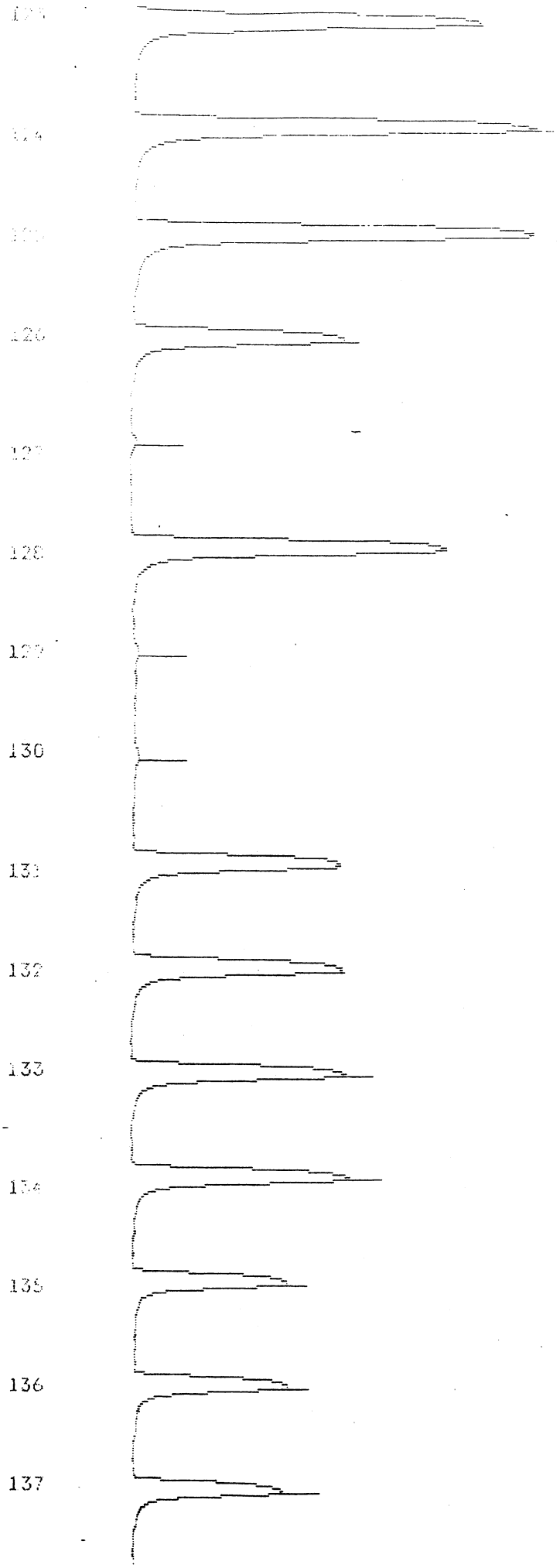
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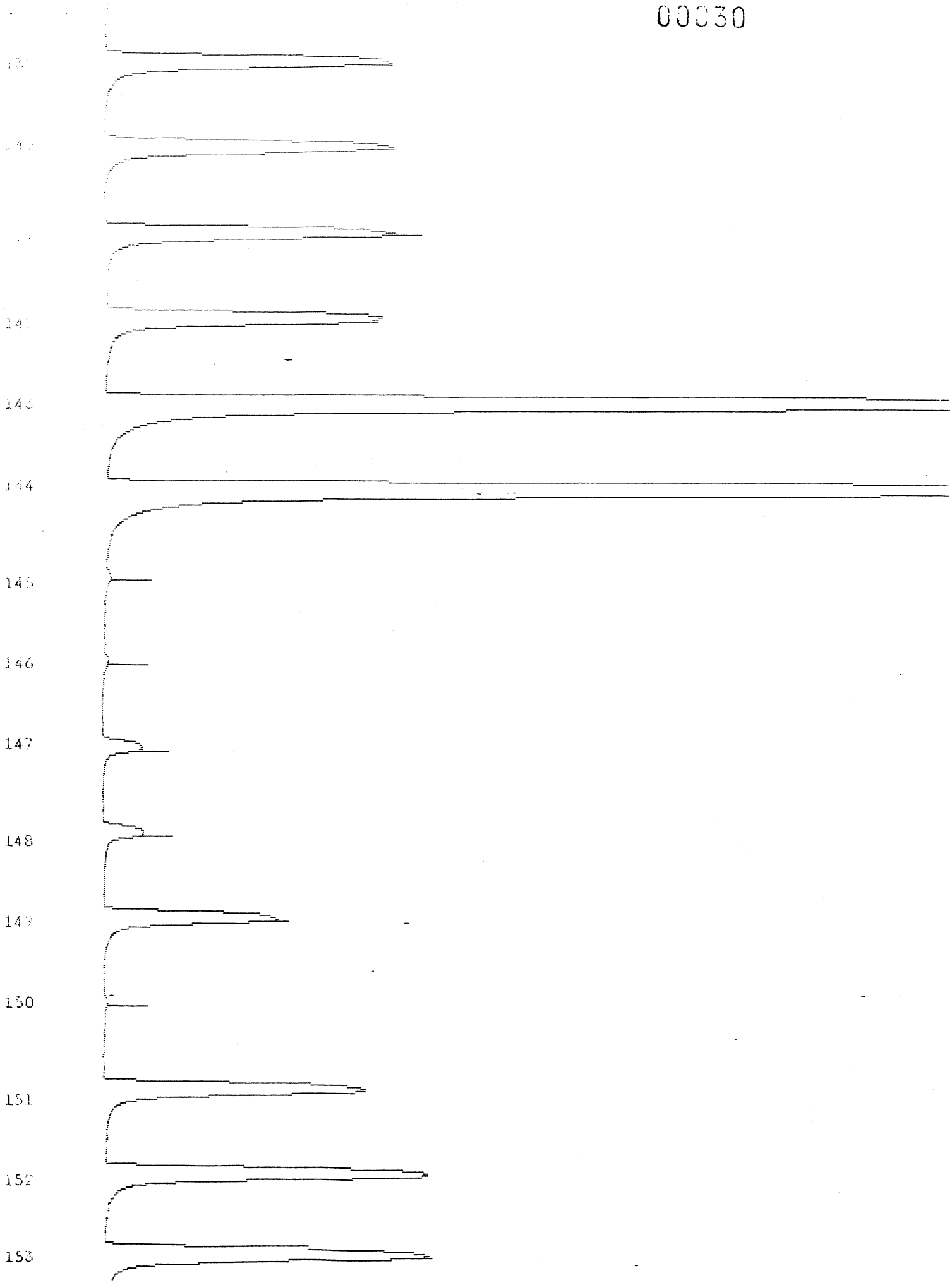
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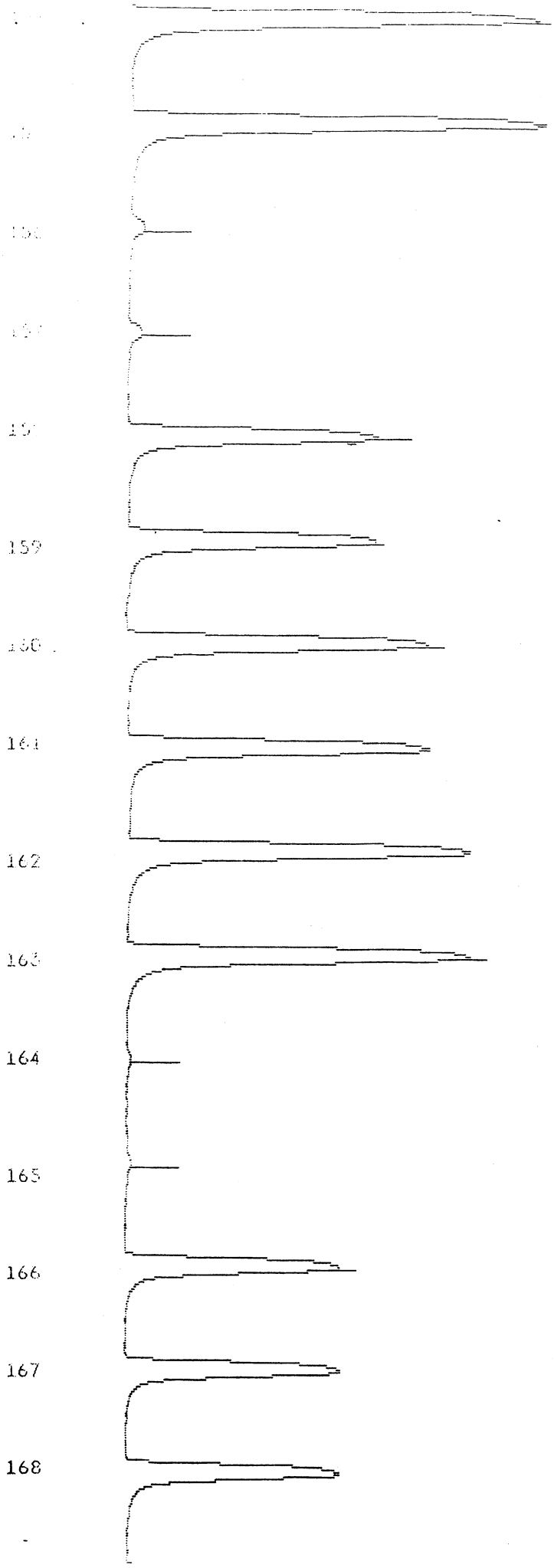
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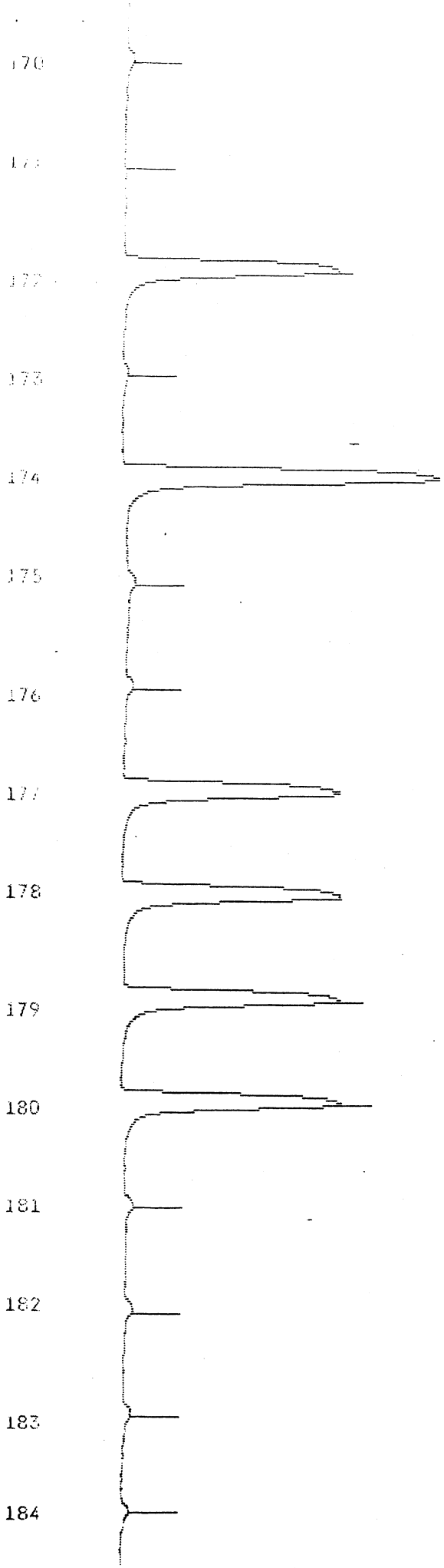
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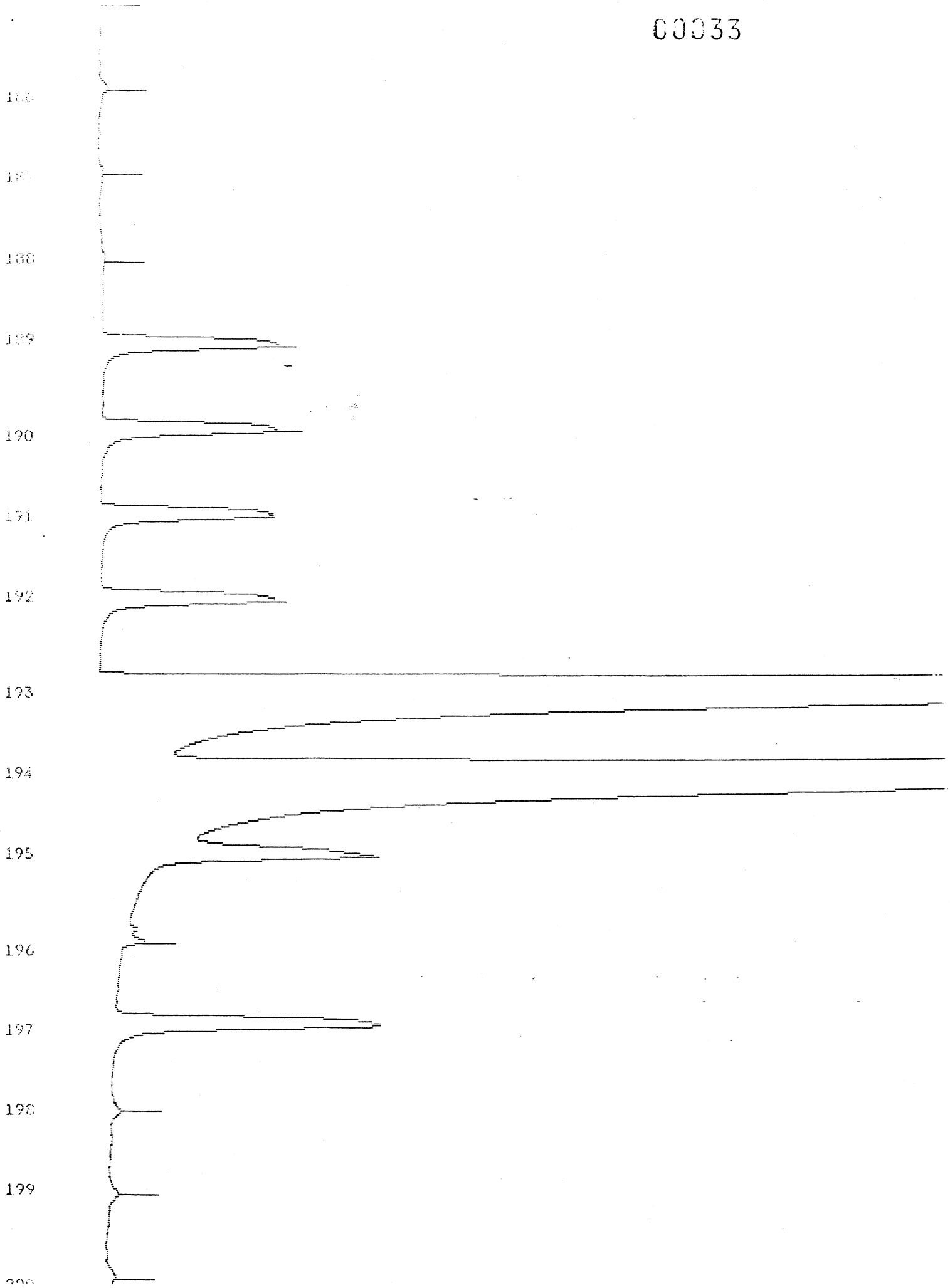
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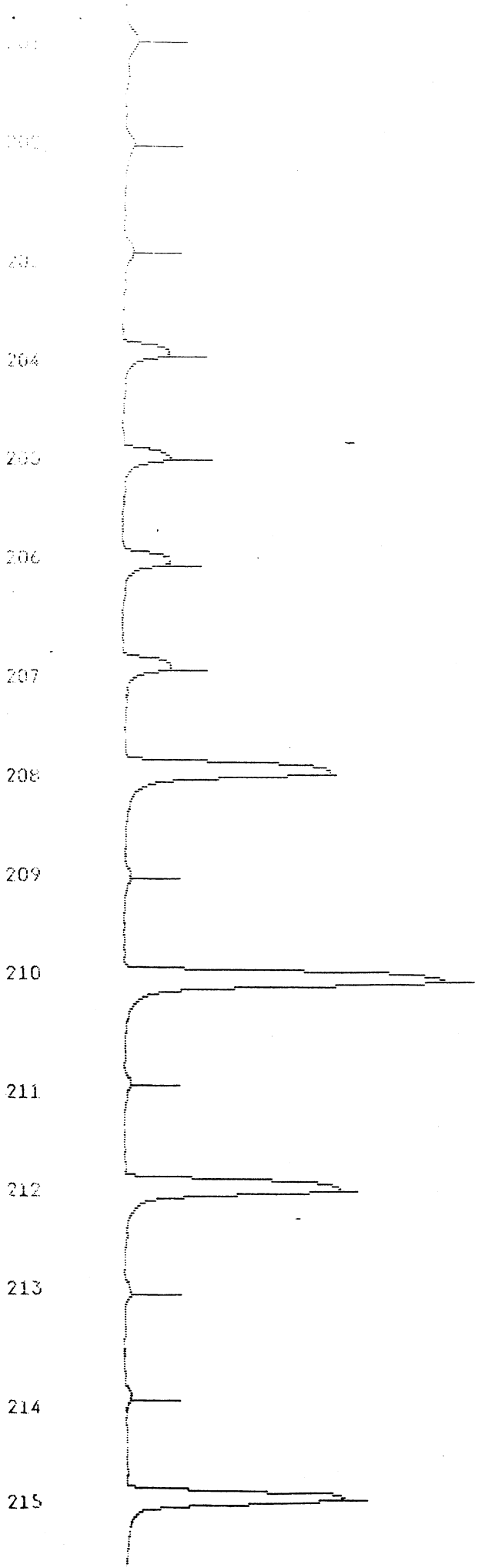
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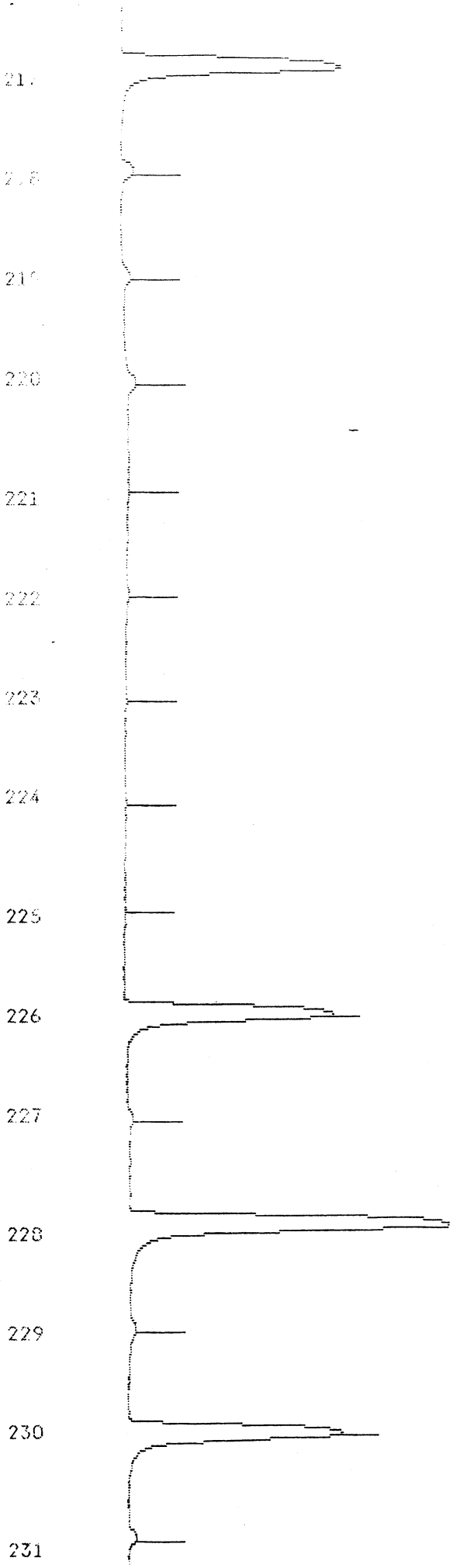
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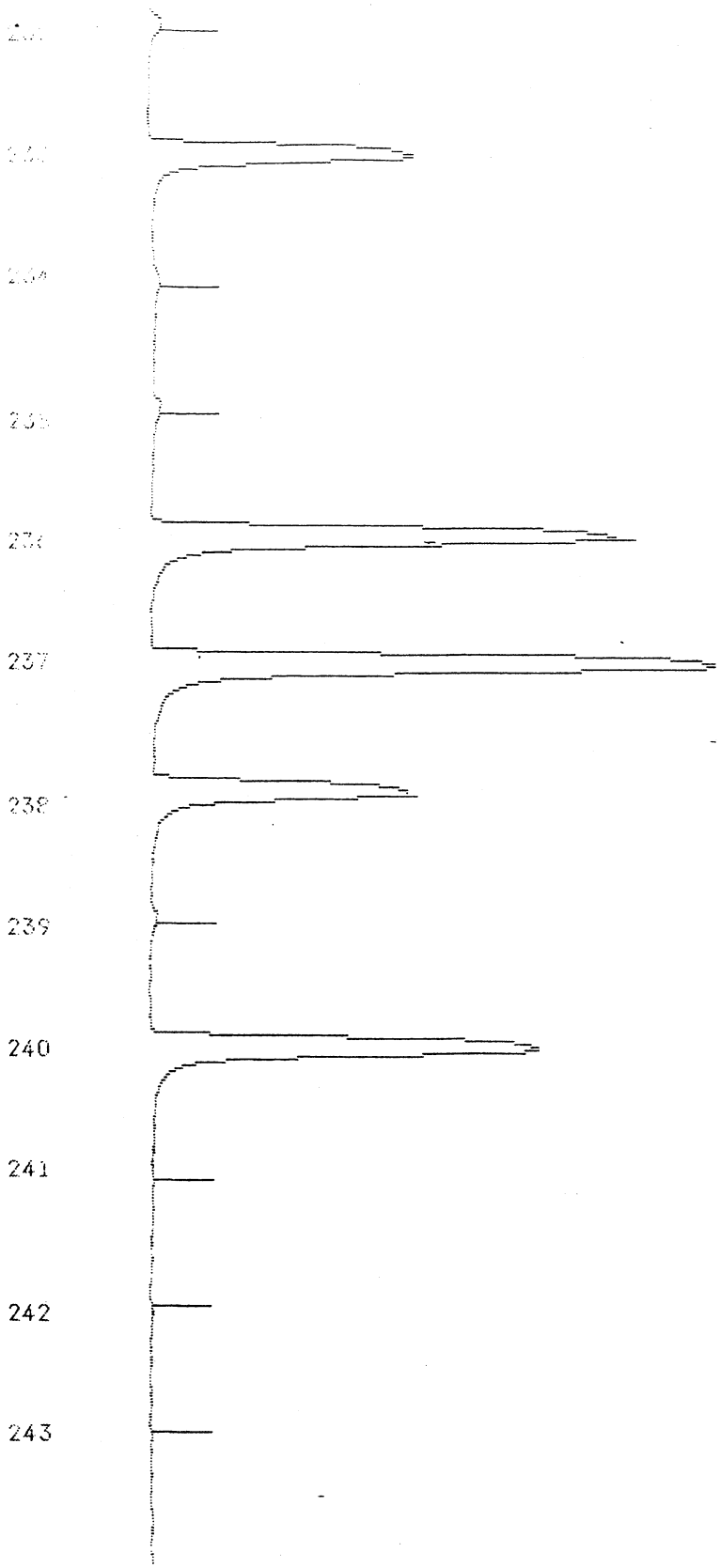
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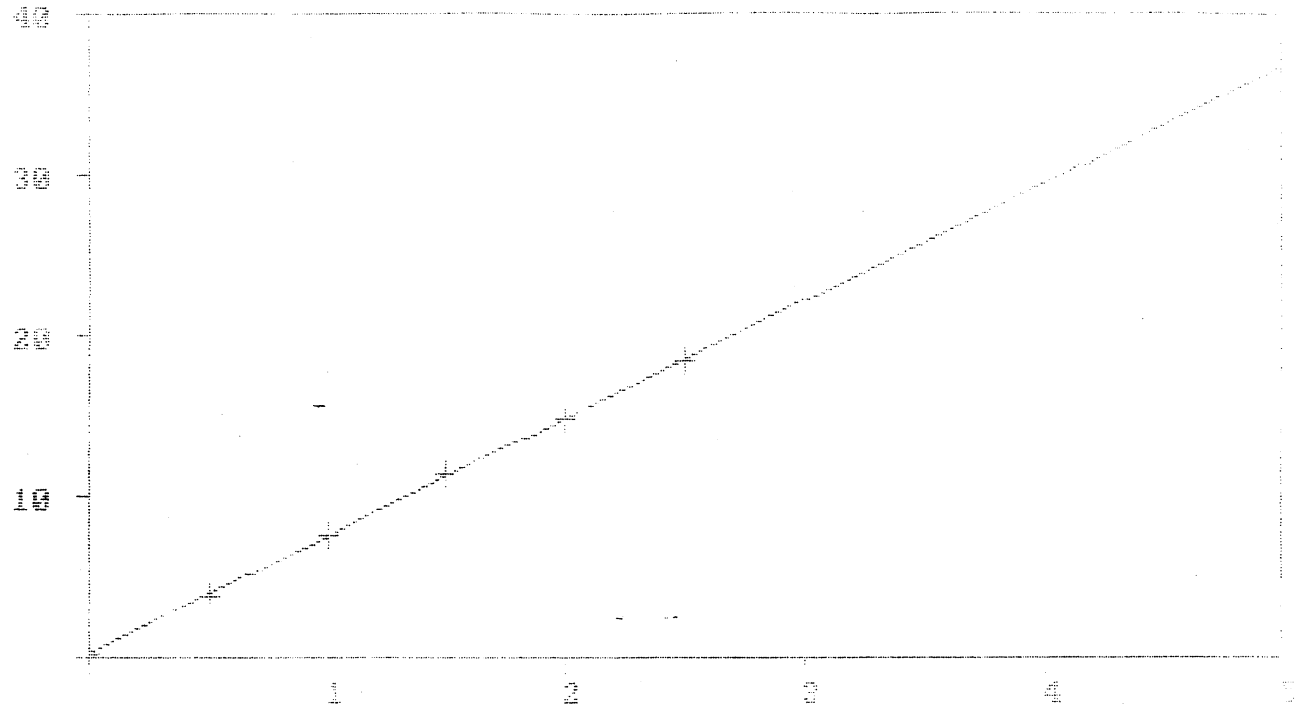
CHANNEL NAME: LDC
RUN NAME: 991118WA



DATE TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = 0.25 SLOPE = 7.272931

CORRELATION: .9998085

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

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	TUG	CONCENTRATION µg/L	EF
1	PRIMER	1	1	11.0		1.473	a
2	DUMMY	1	1	0.1		-0.021	
3	S1: 0	1	1	0.1		-0.015	
4	S2: .5	1	1	3.9		0.499	
5	S3: 1	1		7.1		1.006	
6	S4: 1.5	1	1	11.4		1.533	
7	S5: 2	1		14.7		1.993	
8	S6: 2.5	1	1	17.8		2.483	
9	ICV	1	1	10.9		1.469	98%
10	B	1	1	0.0		-0.035	b
11	D4	1	1	11.4		1.533	c
12	WS 378	1	1	13.6		1.835	92%
13	ORG REF	1	1	16.7		2.265	113%
14	BL1118-1NKC 64880	1	1	0.1	<0.03	0.015	1
15	BL1118-1NKC	1	1	0.2		-0.011	1
16	BL111803	1	1	7.4	0.298	0.989	99%
17	BL111803	1	1	7.5		0.996	
18	BL111803S	1	1	7.6	0.303	1.016	101%
19	BL111803S	1	1	7.5		1.003	
20	64883	1	1	7.4	0.981	0.986	
21	64883	1	1	7.4		0.976	
22	64883D	1	1	8.0		1.063	

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[illegible]	[illegible]		[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]		[illegible]	[illegible]	2.047	[illegible]	103%	
[illegible]	648[illegible]	1	1	[illegible]		[illegible].044		
[illegible]	6[illegible]881		1	0.0	<0.100	[illegible].035	I	
29	[illegible]887		1	0.0		-0.035	I	
30	[illegible]	1	1	0.1	<0.100	[illegible].018	I	
[illegible]	64[illegible]	1	1	[illegible]		[illegible].015	[illegible]	
32	[illegible]884	4	1	8.5	4.568	[illegible]		
33	64886	4	1	8.[illegible]		4.575		
34	CCV	1	1	7.[illegible]		0.993	99%	
35	B	1	1	0.0		-0.035	b	
36	D4	1	1	11.4		1.533	d	
37	648[illegible]	2	1	11.5	3.097	3.0[illegible]		
38	64885	2	1	11.5		3.100		
39	64886	4	1	8.4	4.481	4.454		
40	64886	4	1	8.4		4.508		
41	64887	1	1	0.0	<0.100	0.035	I	
42	64887	1	1	0.2		0.008	I	
43	64888	1	1	7.4	0.991	0.983		
44	64888	1	1	7.5		0.999		
45	64889	1	1	3.2	0.405	0.402		
46	64889	1	1	3.2		0.409	s	
47	64890	1	1	1.5	0.170	0.173		
48	64890	1	1	1.5		0.167		
49	BL1118-2NKC	1	1	-0.0	<0.03	-0.035	I	
50	BL1118-2NKC	1	1	0.0		-0.035	I	
51	BL1118S	1	1	7.6	0.298	1.006	99%	
52	BL1118S	1	1	7.4		0.983		
53	BL1118DS	1	1	7.5	0.300	1.003	100%	
54	BL1118DS	1	1	7.5		0.996		
55	64894	1	1	2.1	0.249	0.251		
56	64894	1	1	2.1		0.247		
57	CCV	1	1	7.6		1.006	101%	
58	B	1	1	0.0		-0.035	b	
59	D4	1	1	11.4		1.533	d	
60	64894D	1	1	2.1	0.259	0.257		
61	64894D	1	1	2.1		0.261	s	
62	64894S	1	1	9.6	1.292	1.288	103%	
63	64894S	1	1	9.7		1.295		
64	64894DS	1	1	9.5	1.283	1.275	103%	
65	64894DS	1	1	9.6		1.291		
66	64891	1	1	0.6	<0.100	0.049	I	
67	64891	1	1	0.6		0.049		
68	64892	1	1	0.0	<0.100	-0.035	I	
69	64892	1	1	0.0		-0.035	I	
70	64893	1	1	1.0	<0.100	0.096		
71	64893	1	1	0.8		0.076		
72	64893	1	1	4.5	0.590	0.586		
73	64895	1	1	4.6		0.593		
74	64896	1	1	3.6	0.465	0.465		
75	64896	1	1	3.6		0.465		
76	64897	1	1	0.9	<0.100	0.083	s	
77	64897	1	1	0.9		0.083		
78	64898	1	1	1.1	0.115	0.113		
79	64898	1	1	1.1		0.116		
80	CCV	1	1	7.6		1.009	101%	
81	B	1	1	0.0		-0.035	b	
82	D4	1	1	11.4		1.533	d	
83	64899	1	1	0.8	<0.100	0.076		
84	64899	1	1	0.8		0.073		
85	64900	1	1	0.2	<0.100	-0.001	I	
86	64900	1	1	0.2		-0.001	I	
87	64676-UD	1	1	0.2	<0.100	-0.005	I	
88	64676-UD	1	1	0.3		0.002	I	

91	BL1118-18MN 64880	1	1	[illegible]	<0.03	0.0039		
92	BL1118-18MN	1		0.0		[illegible]		
93	BL1118D	1	1	7.7	0.305	1.0[illegible]	101%	
94	BL1118D	1	1	7.6		1.013		
95	BL1118DS	1	1	7.6	0.304	1.01[illegible]	101%	
96	BL1118DS	1	1	7.[illegible]		[illegible]		
97	64883	8	1	8.4	8.908	8.90[illegible]		
98	64883	8	1	8.4		8.908		
99	648830	8	1	8.6	9.244	9.28[illegible]		
100	648830	8	1	8.7		9.[illegible]		
101	648830	8	1	7.4	10.050	10.[illegible]	97%	
102	648830	8	1	7.4				
103	CCV	1	1	7.6			101%	
104	B	1	1	0.0				
105	D4	1	1	11.4				
106	648830S	8	1		9.996		91%	
107	648830S	8						
108	64881	1			<0.100			
109	64881							
110	64882				<0.100			
111	64882							
112	64884				10.600			
113	[illegible]					[illegible]		
114	[illegible]				11.796	11.809		
						11.782		
				[illegible]	10.560	10.654		
				[illegible]		10.466		
				0.3	<0.100	0.005	I	
			1	0.3		0.012	I	
			1	13.9	9.446	9.395		
	[illegible]	5	1	14.1		9.496	s	
	[illegible]	4	1	12.6	6.757	6.777		
	[illegible]	4	1	12.5		6.737		
	[illegible]	4	1	14.4	8.330	7.879		
125	64890	4	1	14.5		7.838		
126	CCV	1	1	7.5		0.996	100%	
127	B	1	1	0.0		-0.035	b	
128	D4	1	1	11.4		1.533	d	
129	BL1118-28MN	1	1	0.0	<0.03	-0.035	I	
130	BL1118-28MN	1	1	0.0		-0.031	I	
131	BL1118S	1	1	7.4	MS 0.295	0.976	98%	
132	BL1118S	1	1	7.4		0.989		
133	BL1118DS	1	1	7.6	0.303	1.006	101%	
134	BL1118DS	1	1	7.6		1.016		
135	64894	1	1	5.4	0.706	0.707		
136	64894	1	1	5.4		0.704	s	
137	64894D	1	1	5.2	0.666	0.674		
138	64894D	1	1	5.0		0.657		
139	64894S	1	1	12.7	1.721	1.714	103%	
140	64894S	1	1	12.8		1.728		
141	64894DS	1	1	12.9	1.690	1.735	100%	
142	64894DS	1	1	12.2		1.644		
143	64891	1	1	51.7		7.080	R	VOID; RERUN ON 4X DIL.
144	64891	1	1	53.7		7.349	R	
145	64892	1	1	0.0	<0.100	-0.031	I	
146	64892	1	1	0.0		-0.028	I	
147	64893	1	1	1.6	0.182	0.180		
148	64893	1	1	1.6		0.183		
149	CCV	1	1	7.5		1.003	100%	
150	B	1	1	0.0		-0.035	b	
151	D4	1	1	11.4		1.533	s	
152	64895	5	1	14.1	9.563	9.546		
153	64895	5	1	14.2		9.580		
154	64896	5	1	14.2		[illegible] 10.050		

00040

157	64897	1	1	0.0	<0.100	[illegible]		
158	64898	4	1	[illegible]	4.830	4.816		
159	64898	4	1	[illegible]		4.816		
160	64899	4	1	[illegible]	5.918	[illegible]		
161	64899	4	1	11.		[illegible]		
162	64900	4	1	[illegible]	6.724	[illegible]		
163	64900	4	1	[illegible]		6.7[illegible]		
164	BL1118-30MN	1	1	[illegible]	<0.03	0.03[illegible]	I	
165	BL1118-30MN	1	1	0.0		-0.03[illegible]	I	
166	BL1118S	1	1	7.6	0.303	1.00[illegible]		101%
167	BL1118S	1	1	7.6		1.01[illegible]		
168	BL1118DS	1	1	[illegible]	0.300	1.00[illegible]		100%
169	BL1118DS	1	1	7.5		0.99[illegible]		
170	64701	1	1	0.1	<0.05	-0.021	I	
171	64701	1	1	0.0		-0.035	I	
172	CCV	1	1	7.7		1.019		101%
173	B	1	1	0.0		-0.035	b	
174	D4	1	1	11.4		1.533	d	
175	64701D	1	1	0.1	<0.05	-0.021	I	
176	64701D	1	1	0.0		-0.035	I	
177	64701S	1	1	7.6	0.509	1.013		101%
178	64701S	1	1	7.7		1.023		
179	64701DS	1	1	7.5	0.504	1.003		101%
180	64701DS	1	1	7.6		1.013		
181	64702	1	1	0.0	<0.05	-0.035	I	
182	64702	1	1	0.0		-0.035	I	
183	64703	1	1	0.0	<0.05	-0.035	I	
184	64703	1	1	0.0		-0.035	I	
185	64705	1	1	0.0	<0.05	-0.035	I	
186	64705	1	1	0.0		-0.035	I	
187	BL1118-18HY 64880, 65692.	1	1	0.0	<0.05	-0.035	I	
188	BL1118-18HY 65763, 65850, 66553	1	1	0.0		-0.035	I	
189	BL1118S	1	1	7.2	0.096	0.959		96%
190	BL1118S	1	1	7.2		0.956		
191	BL1118DS	1	1	7.0	0.094	0.932		94%
192	BL1118DS	1	1	7.1		0.942		
193	64670	1.5	1	97.2	Oil: 2		O	
194	64670	1.5	1	94.1	Oil: 2		O	
195	CCV	1	1	8.1		1.073		107%
196	B	1	1	0.0		-0.035	b	
197	D4	1	1	11.4		1.533	d	
198	64881	1.5	1	0.0	<0.01	-0.052	I	
199	64881	1.5	1	0.0		-0.052	I	
200	64892	1.5	1	0.0	<0.01	-0.052	I	
201	64892	1.5	1	0.0		-0.052	I	
202	66554	1.5	1	0.0	<0.01	-0.052	I	
203	66554	1.5	1	0.0		-0.052	I	
204	65764	1.5	1	1.3	0.022	0.210		
205	65764	1.5	1	1.4		0.230		
206	65693	1.5	1	1.4	0.024	0.230		
207	65693	1.5	1	1.4		0.245		
208	CCV	1	1	7.3		0.962		96%
209	B	1	1	0.0		-0.035	b	
210	D4	1	1	11.4		1.533	d	
211	BL1118-STB1	1	1	0.0		-0.031	[illegible]	
212	BL1118S	1	1	7.5		1.003		100%
213	68153	1	1	0.1		-0.025	I	
214	681530	1	1	0.0		-0.035	I	
215	68153S	1	1	7.6		1.009		101%
216	68151, 67993, 68009, 68310	1	1	0.0		-0.031	I	
217	68151S	1	1	7.6		1.013		101%
218	68003	1	1	0.3		0.009	I	
219	68020	1	1	0.1		-0.018	I	
220	68319	1	1	0.1		-0.013	I	

00041

223	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
224	[illegible]	[illegible]	[illegible]	0.0	[illegible]	
225	68332	1	1	0.0	-0.035	I
226	CCV	1	1	7.[illegible]	0.9[illegible]	96%
227	B	1	1	0.0	-0.035	b
228	04	1	1	11.4	1.533	d
229	8L11183-0100	1	1	0.0	-0.02[illegible]	I
230	8L11183	1	1	7.4	0.9[illegible]	98%
231	683[illegible]	1	1	0.1	-0.021	[illegible]
232	683180	1	1	0.2	-0.008	I
233	683180	1	1	7.6	1.000	101%
234	68871	1	1	0.0	-0.031	[illegible]
235	68872	1	1	0.0	-0.028	I
236	WS 378	1	1	13.7	1.842	
237	ORG REF	1	1	16.6	2.232	
238	CCV	1	1	7.4	0.999	98%
239	B	1	1	0.0	-0.035	b
240	04	1	1	11.4	1.533	d
241	0	1	1	0.0	-0.035	s
242	0	1	1	0.0	-0.03[illegible]	I

INTERCEPT: 0.25 LINEAR COEF: 7.272981

CORRELATION COEF: .9993085

non mber	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
6553	BRAUN-MN	MB R456	Mercury -	PV	-0.010	-99999.0	0.104	104.	0.100	100.	99/12/17	1NFT	99/12/17	MG02	79.	43.	*BLKIMP*
6554	BRAUN-MN	Reagent Blank	Mercury -	PV	-0.010						99/12/17	1NFT	99/12/17	MG02	79.	43.	
6555	BRAUN-MN	OHHG Stack-Blank	Mercury -	PV	0.029						99/12/17	1NFT	99/12/17	MG02	80.	43.	
6557	BRAUN-MN	OHHG Stack-R2	Mercury -	PV	0.156						99/12/17	1NFT	99/12/17	MG02	79.	43.	
6558	BRAUN-MN	OHHG Stack-R3	Mercury -	PV	0.086						99/12/17	1NFT	99/12/17	MG02	79.	43.	
1217	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.104	104.	0.100	100.	99/12/17	1NFT	99/12/17	MG02	$$$	$$$	*BLKIMP*

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

00042

non nber	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
6559	BRAUN-MN	OHHG Inlet-Blank	Mercury -	PV	-0.060						99/12/17	6NFB	99/12/17	MG02	80.	43.	
6560	BRAUN-MN	OHHG Inlet-R1	Mercury -	PV	0.889	0.880	3.021	97.	3.035	97.	99/12/17	6NFB	99/12/17	MG02	80.	43.	
6561	BRAUN-MN	OHHG Inlet-R2	Mercury -	PV	1.481						99/12/17	6NFB	99/12/17	MG02	79.	43.	
6562	BRAUN-MN	OHHG Inlet-R3	Mercury -	PV	2.164						99/12/17	6NFB	99/12/17	MG02	79.	43.	
1217	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.103	103.	0.105	105.	99/12/17	6NFB	99/12/17	MG02	$$$	$$$	*BLKIMP*

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

00045

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.17 Run Code: MGD2 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL1217	ANFB		
13			"			
14			BL1217 S			
15			"			
16			BL1217 DS			
17			"			
18			65767			
19			"			
20			65767 D			
21			"			
22			65767 S			
23			"			
24			65767 DS			
25			"			
26			65763			
27			"			
28			65764			
29			"			
30			65765			
31			"			
32			CCV			
33			B			
34			D4			
35			65766			
36			"			
37			65768			
38			"			
39			65769			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			65770			
42			"			
43			65772			
44			"			
45			BL1217	5NFB		
46			"			
47			BL1217 S			
48			"			
49			BL1217 DS			
50			"			
51			65771			
52			"			
53			65771 D			
54			"			
55			CCV			
56			B			
57			D4			
58			65771 S			
59			"			
60			65771 DS			
61			"			
62			65773			
63			"			
64			65781			
65			"			
66			65782			
67			"			
68			65783			
69			"			
70			65784			
71			"			
72			65785			
73			"			
74			65786			
75			"			
76			65787			
77			"			
78			CCV			
79			B			
80			D4			

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

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

Blank Spike = 1.0 mg/kg for solid samples.

00045

2/

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.17 Run Code: M602 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			65788			
22			"			
23			65789			
24			"			
25			65790			
26			"			
27			BL1217	6NFB		
28			"			
29			BL1217 S			
30			"			
31			BL1217 DS			
32			"			
33			66560			
34			"			
35			66560 D			
36			"			
37			66560 S			
38			"			
39			66560 DS			
40			"			

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

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

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

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

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.17 Run Code: MG02 Matrix: Imp.

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

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

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

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

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

Blank Spike = 1.0 mg/kg for solid samples.

00047 4/

LDC AUTOSAMPLER RUN LOG (MERCURY)

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

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			69915			
22			69916			
23			"			
24			69917			
25			"			
26			CCV			
27			B			
28			D4			
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
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80						

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

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

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

EPA 7470 WATER PREPARATION LOG - MERCURY

00548

DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

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

Check List

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

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	INFT	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1217	"	"	"	"	(Processed Blank)
	11	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	66556	"	"	"	"	100
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	66553	"	"	"	"	100
3	17	54	"	"	"	"	100
4	18	55	"	"	"	"	100 RINSE ALONE FILTER LOST
5	19	57	"	"	"	"	100
6	20	58	"	"	"	"	100
7	21	66554	"	"	"	"	THIMBLE
8	22	66554	"	"	"	"	PROBE
9	23		"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	INFT	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1217	"	"	"	"	(Processed Blank)
	27	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	67909	"	"	"	"	100
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	67904	"	"	"	"	
3	33	05	"	"	"	"	
4	34	07	"	"	"	"	
5	35	08	"	"	"	"	
6	36	06	"	"	"	"	
7	37	10	"	"	"	"	
8	38	11	"	"	"	"	
9	39	13	"	"	"	"	2300
10	40	14	"	"	"	"	1900

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

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

Prepare 0.05 ppm standards daily

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

Prepared By: [illegible] Date: 99/2/7 Checked by: [illegible]

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

Comments

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

*** group of several Method 29 testcodes

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

Procedure/Methodology:

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

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

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

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

All reagents used are of a grade suitable for mercury analyses

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

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

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

SEE PREVIOUS DIGEST SHEET

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	4NFB	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1217	"	"	"	"	(Processed Blank)
	11	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	65761	"	"	"	"	700
1	13	D	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	64892	"	"	"	"	
3	17	65763/65781	"	"	"	"	100 ml
4	18	64	"	"	"	"	700
5	19	65	"	"	"	"	700 NO F.HRINSE SUBMITTED
6	20	66	"	"	"	"	700
7	21	68	"	"	"	"	800
8	22	69	"	"	"	"	800
9	23	70	"	"	"	"	700
10	24	72	"	"	"	"	700
	25	CCV (Cont. Calib. Verif.)	5NFB	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1217	"	"	"	"	(Processed Blank)
	27	BL 1217 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	65771	"	"	"	"	800 ml
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	73	"	"	"	"	700
3	33	65782	"	"	"	"	600
4	34	83	"	"	"	"	600
5	35	84	"	"	"	"	700
6	36	85	"	"	"	"	800 NO FH RINSE SUBMITTED
7	37	86	"	"	"	"	800
8	38	87	"	"	"	"	600
9	39	88	"	"	"	"	700
10	40	89	"	"	"	"	800
		90					800

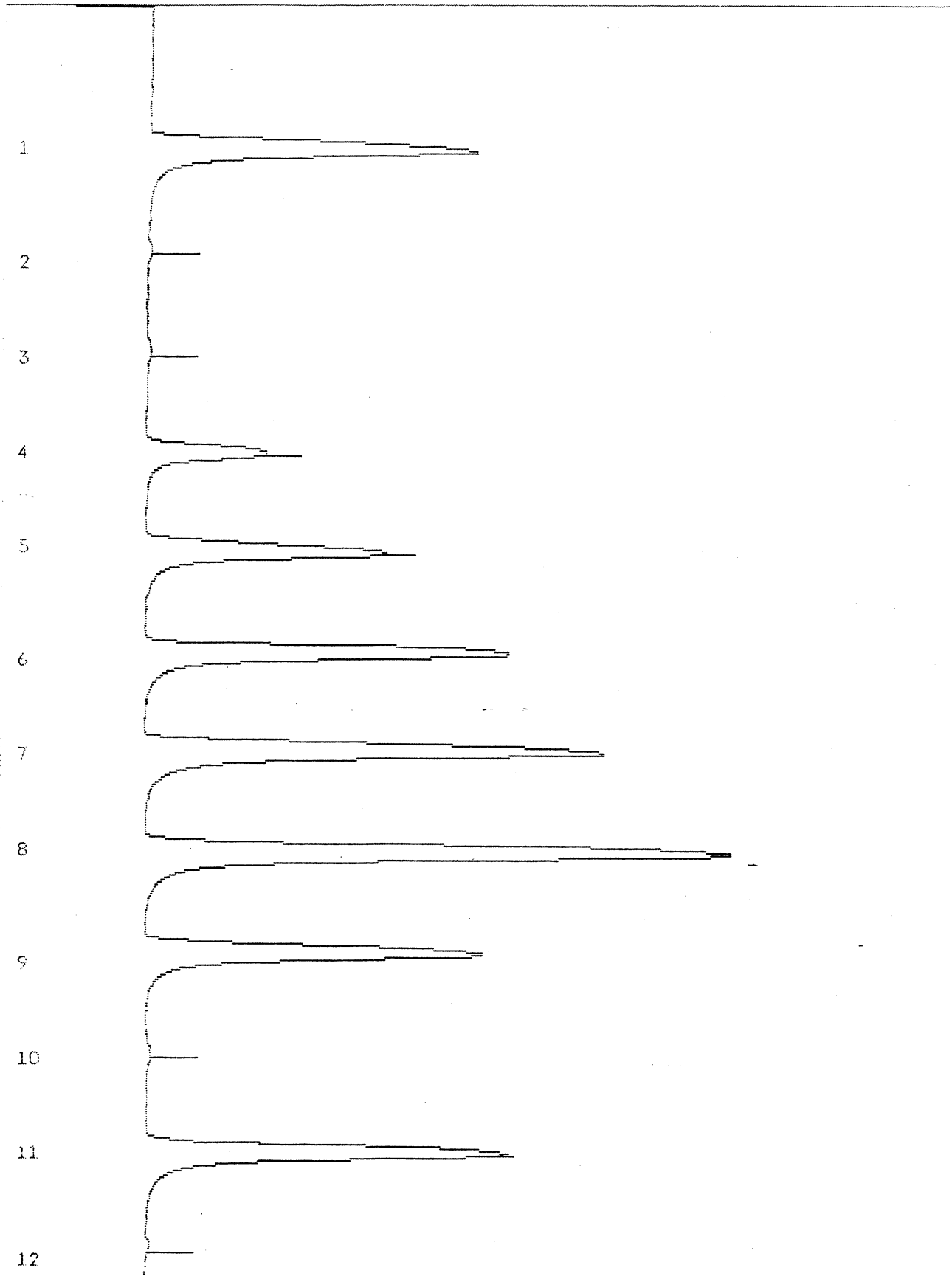
Notes: Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C
DG29HGI, DG29HGF, DG101AA1, DG101AA2

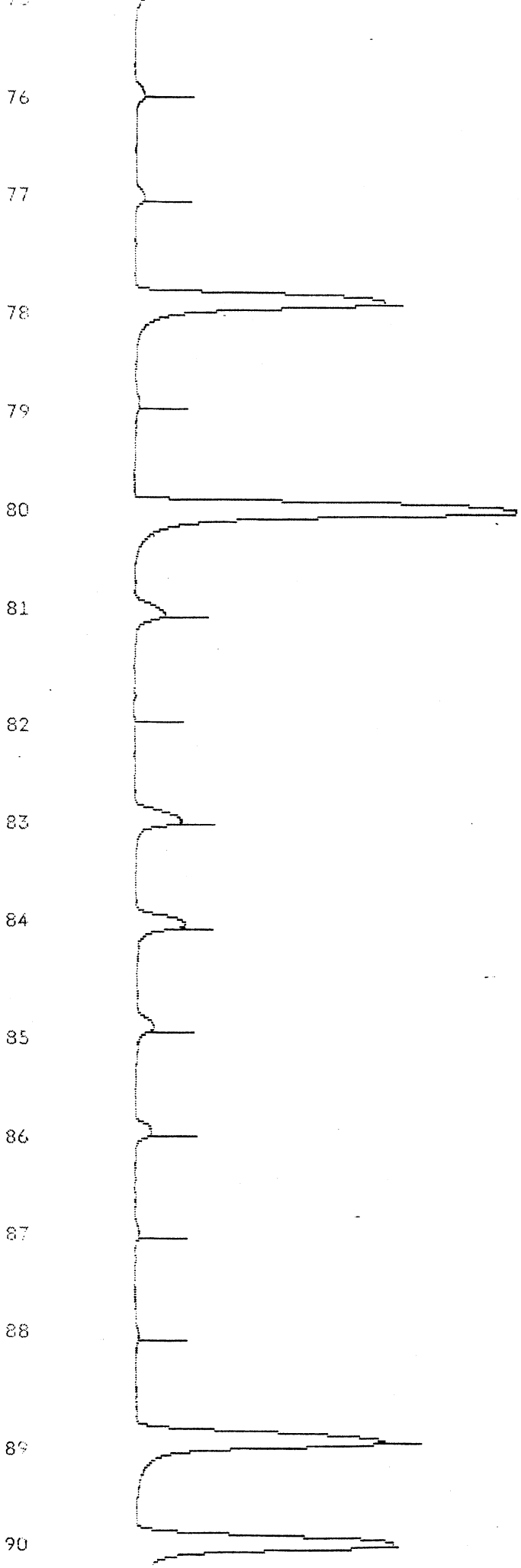
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run — Prepare 0.05 ppm standards daily

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

Prepared By: M. Chapman Date: 9/9/17 Checked by: M. Chapman

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

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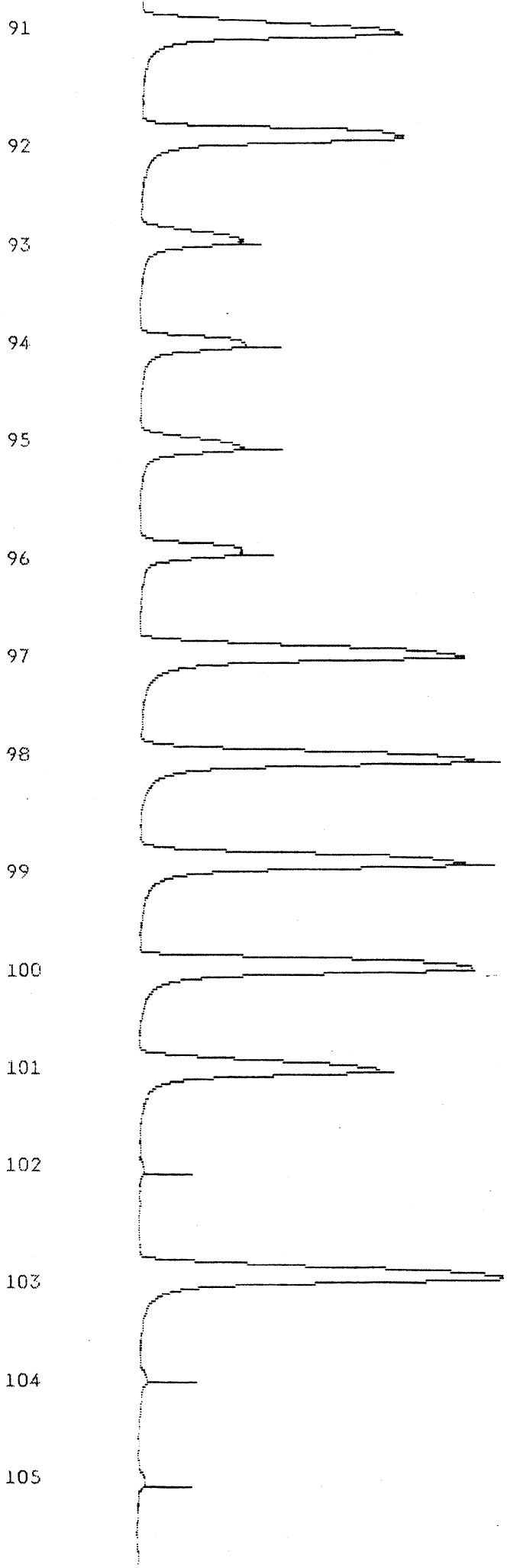
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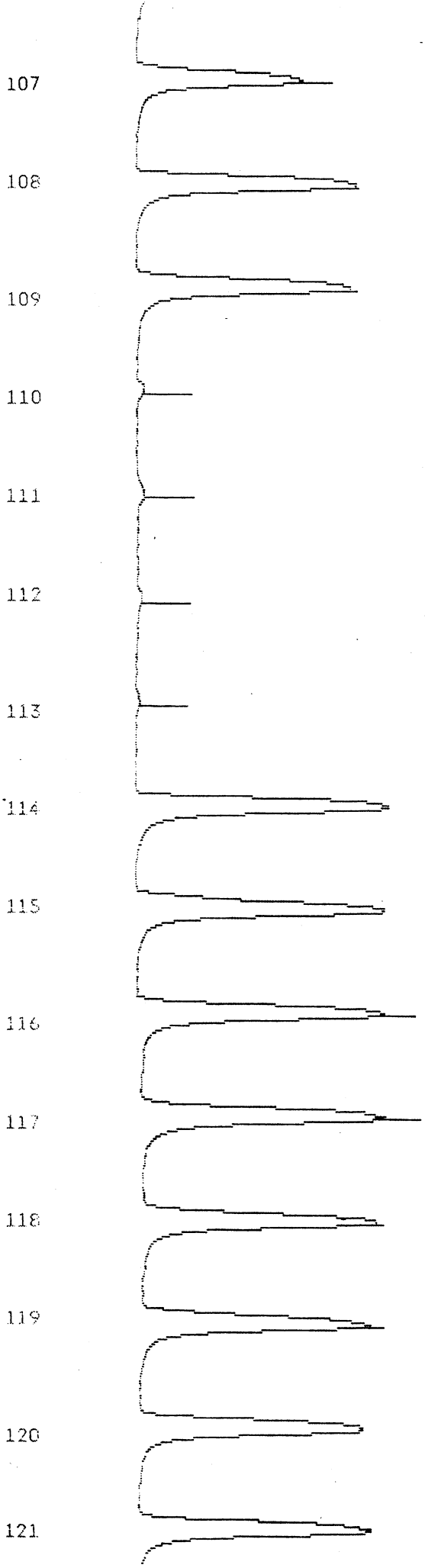
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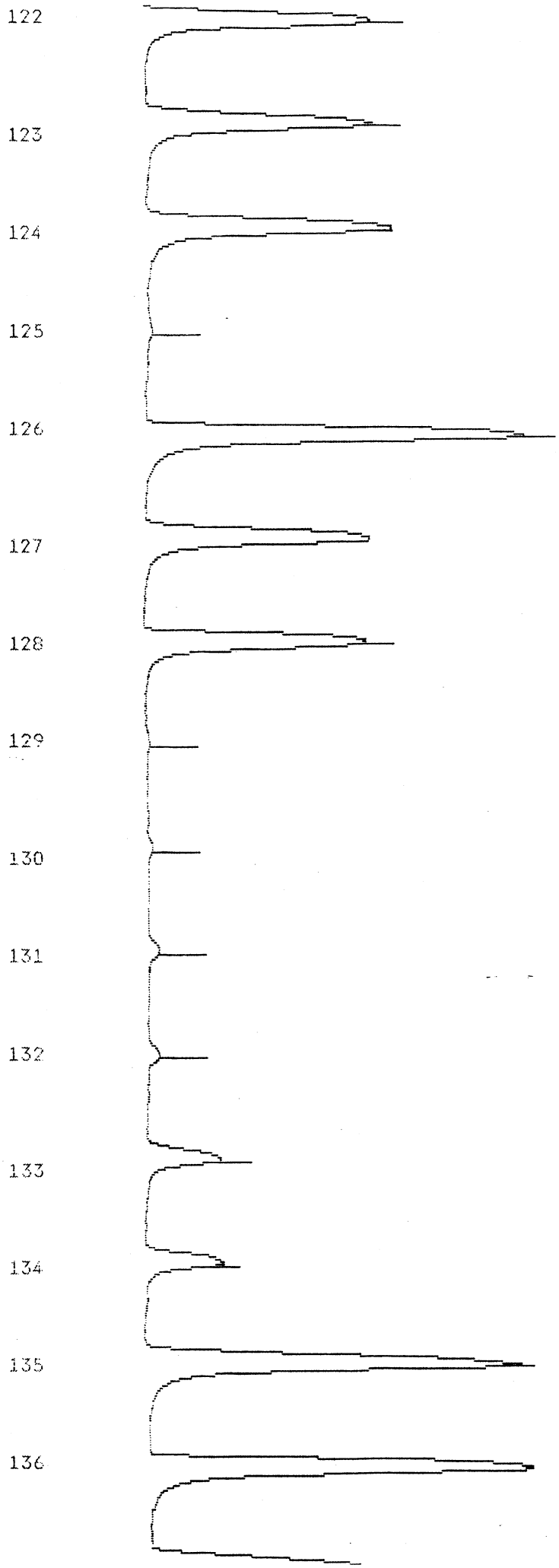
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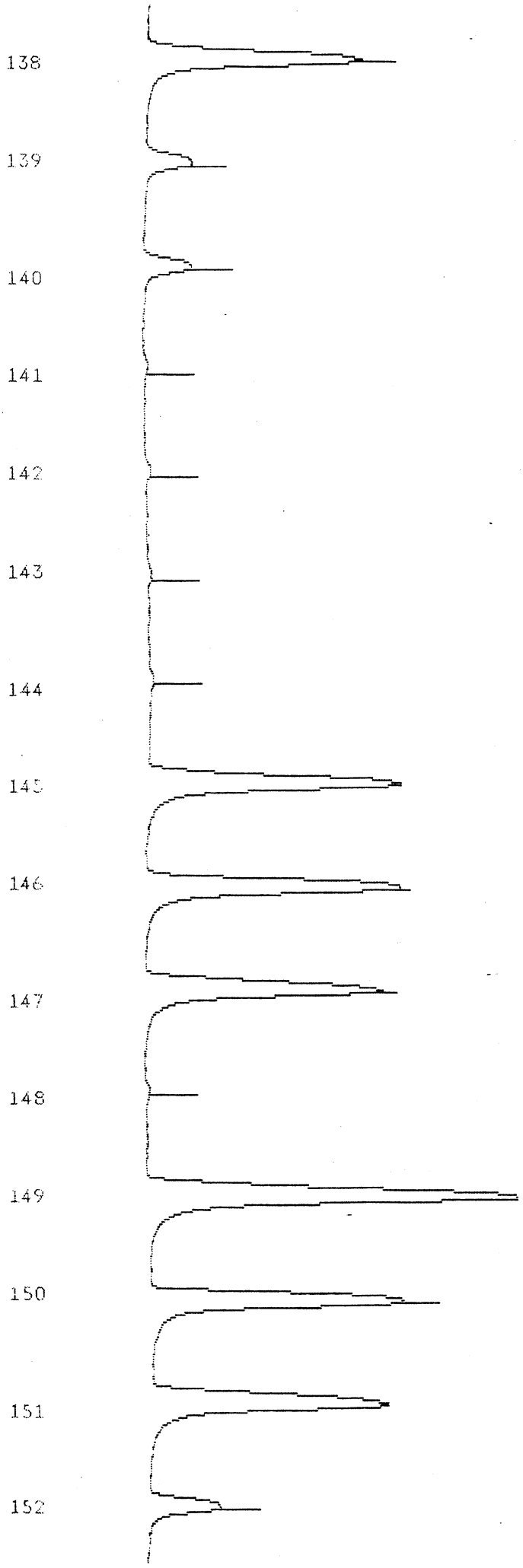
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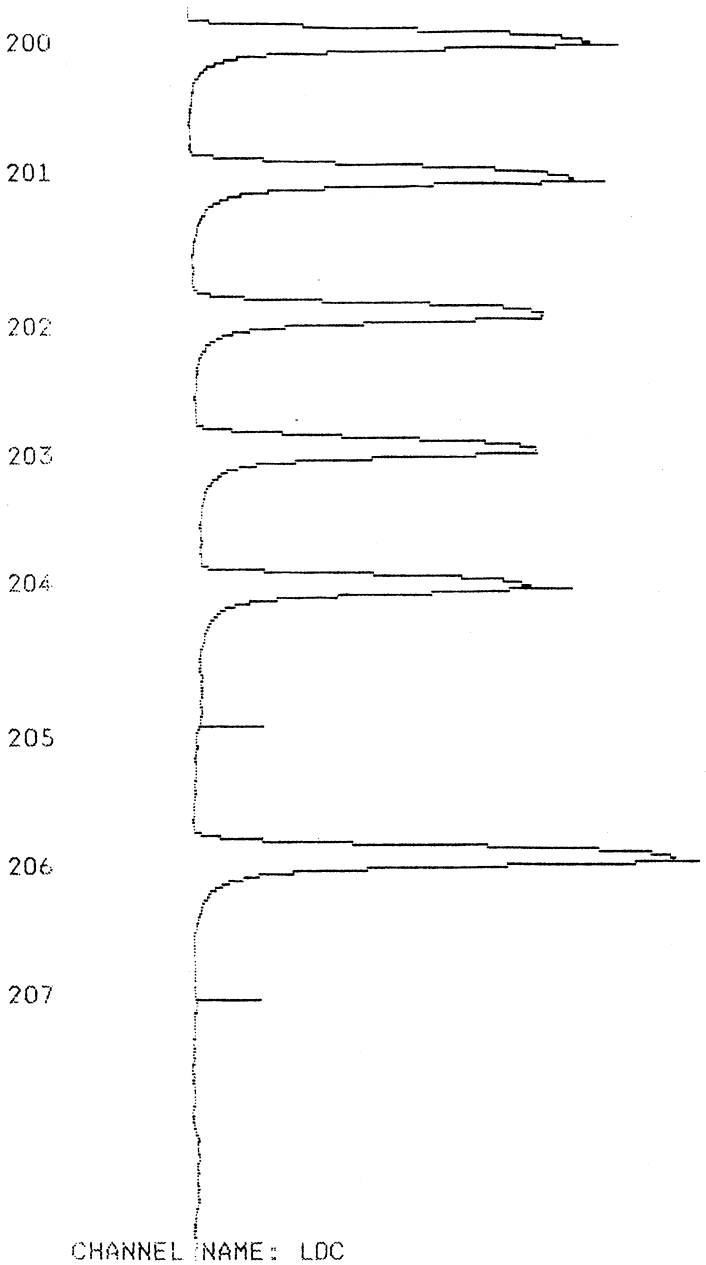
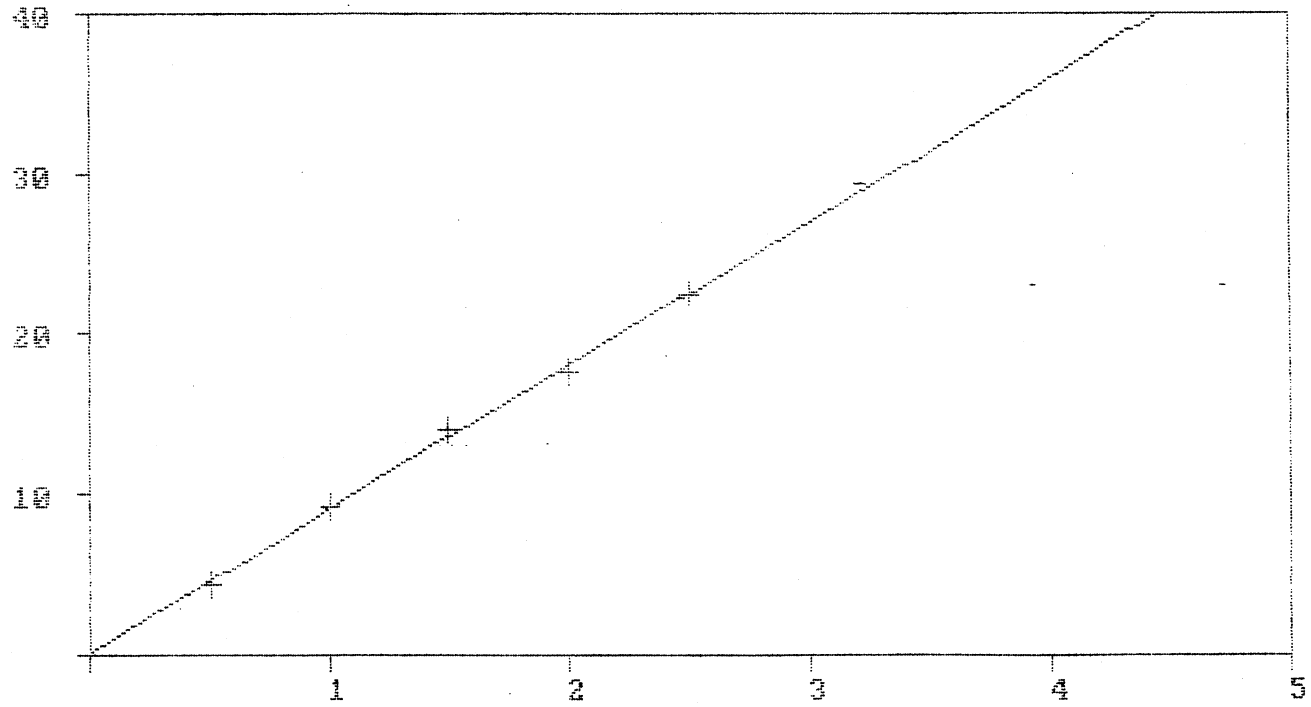


CHANNEL NAME: LDC
RUN NAME: 991217W



INTERCEPT = 0.12 SLOPE = 0.955545

CORRELATION: .999613

00058

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

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	TLG	CONCENTRATION (ppb)	EF
1	PRIMER	1	1	12.5		1.389	s
2	DUMMY	1	1	0.1		-0.005	I
3	S1: 0	1	1	0.0		-0.007	I
4	S2: .5	1	1	4.5		0.490	
5	S3: 1	1	1	9.1		1.007	
6	S4: 1.5	1	1	13.9		1.545	
7	S5: 2	1	1	17.7		1.966	
8	S6: 2.5	1	1	22.4		2.499	
9	ICV	1	1	12.9		1.433	95%
10	B	1	1	0.0		-0.013	b
11	D4	1	1	13.9		1.545	d
12	BL1217-4NFB 65763,65781	1	1	0.0	<0.01	-0.013	I
13	BL1217-4NFB	1	1	0.0		-0.013	I
14	BL1217S	1	1	8.9	0.099	0.982	99%
15	BL1217S	1	1	9.0		0.996	
16	BL1217DS	1	1	9.3	0.101	1.031	101%
17	BL1217DS	1	1	9.1		1.001	
18	65767	1	1	0.2	<0.07	0.012	I
19	65767	1	1	0.2		0.012	I
20	65767D	1	1	0.3	<0.07	0.017	I
21	65767D	1	1	0.2		0.012	I
22	65767S	1	1	9.2	0.701	1.015	99%
23	65767S	1	1	8.9		0.988	
24	65767DS	1	1	9.1	0.689	1.001	97%
25	65767DS	1	1	8.8		0.968	
26	65763	1	1	0.0	<0.01	-0.010	I
27	65763	1	1	0.0		-0.013	I
28	65764	1	1	0.3	<0.07	0.017	I
29	65764	1	1	0.3		0.017	I
30	65765	1	1	0.3	<0.07	0.020	I
31	65765	1	1	0.3		0.023	s
32	CCV	1	1	9.0		0.996	100%
33	B	1	1	0.0		-0.013	b
34	D4	1	1	13.9		1.545	d
35	65766	1	1	0.4	<0.07	0.028	I
36	65766	1	1	0.5		0.039	I
37	65768	1	1	1.4	0.115	0.140	
38	65768	1	1	1.4		0.148	
39	65769	1	1	1.9	0.164	0.200	
40	65769	1	1	2.0		0.211	
41	65770	1	1	0.2	<0.07	0.009	I
42	65770	1	1	0.2		0.012	I
43	65772	1	1	0.2	<0.07	0.012	I
44	65772	1	1	0.2		0.012	I
45	BL1217-5NFB 65781	1	1	0.0	<0.01	-0.013	I
46	BL1217-5NFB	1	1	0.0		-0.010	s
47	BL1217S	1	1	9.4	0.106	1.042	106%
48	BL1217S	1	1	9.7		1.075	
49	BL1217DS	1	1	9.2	0.099	1.012	99%
50	BL1217DS	1	1	8.8		0.974	
51	65771	1	1	0.2	<0.07	0.012	I
52	65771	1	1	0.3		0.017	I
53	65771D	1	1	0.2		0.012	I

56	B	1	1	0.0		-0.013	b	
57	D4	1	1	13.9		1.545	d	
58	65771S	1	1	9.3	0.699	1.026		99%
59	65771S	1	1	8.8		0.971		
60	65771DS	1	1	9.6	0.734	1.064		103%
61	65771DS	1	1	9.4		1.034	s	
62	65773	1	1	0.2	<0.07	0.009	I	
63	65773	1	1	0.2		0.012	I	
64	65781	1	1	0.0	<0.01	-0.013	I	
65	65781	1	1	0.0		-0.013	I	
66	65782	1	1	0.6	<0.06	0.058	I	
67	65782	1	1	0.6		0.050	I	
68	65783	1	1	1.5	0.095	0.157		
69	65783	1	1	1.5		0.159		
70	65784	1	1	2.1	0.154	0.222		
71	65784	1	1	2.1		0.219		
72	65785	1	1	0.2	<0.08	0.014	I	
73	65785	1	1	0.2		0.009	I	
74	65786	1	1	1.1	0.098	0.113		
75	65786	1	1	1.3		0.132		
76	65787	1	1	0.3	<0.06	0.020	s	
77	65787	1	1	0.3		0.017	I	
78	CCV	1	1	9.1		1.001		100%
79	B	1	1	0.0		-0.013	b	
80	D4	1	1	13.9		1.545	d	
81	65788	1	1	1.0	<0.07	0.099		
82	65788	1	1	0.0		-0.013	(CUP MISSED; INJECTED IMPROPERLY)	
83	65789	1	1	1.6	0.138	0.168		
84	65789	1	1	1.7		0.176		
85	65790	1	1	0.5	<0.08	0.047	I	
86	65790	1	1	0.5		0.042	I	
87	BL1217-6NFB	1	1	0.0	<0.01	-0.007	I	
88	BL1217-6NFB	1	1	0.0		-0.007	I	
89	BL1217S	1	1	9.2	0.103	1.018		103%
90	BL1217S	1	1	9.5		1.048		
91	BL1217DS	1	1	9.4	0.105	1.042		105%
92	BL1217DS	1	1	9.6		1.064		
93	66560	1	1	3.7	0.889	0.397		
94	66560	1	1	3.8		0.411		
95	66560D	1	1	3.7	0.880	0.403		
96	66560D	1	1	3.7		0.397		
97	66560S	1	1	12.2	3.021	1.354		97%
98	66560S	1	1	12.6		1.392		
99	66560DS	1	1	12.3	3.035	1.359		97%
100	66560DS	1	1	12.6		1.400		
101	CCV	1	1	9.1		1.001		100%
102	B	1	1	0.0		-0.013	b	
103	D4	1	1	13.9		1.545	d	
104	66559	1	1	0.1	<0.06	0.001	I	
105	66559	1	1	0.1		0.004	I	
106	66561	1	1	6.1	1.481	0.673	s	
107	66561	1	1	6.1		0.673		
108	66562	1	1	8.3	2.164	0.914		
109	66562	1	1	8.1		0.889		
110	64892	1	1	0.1		-0.002	I	
111	64892	1	1	0.1		0.001	I	
112	BL1217-1NFT 66553, ~~69904~~	1	1	0.0	<0.01	-0.007	I	
113	BL1217-1NFT	1	1	0.0		-0.010	I	
114	BL1217S	1	1	9.5	0.104	1.045		104%
115	BL1217S	1	1	9.3		1.026		
116	BL1217DS	1	1	9.1	0.100	1.004		100%
117	BL1217DS	1	1	9.0		0.996		
118	66556	1	1	8.6	0.094	0.949		
119	66556	1	1	8.4		0.933		

121	66556L	1	1	8.3		0.944	s	
122	66556S	1	1	8.2		0.906		NOT SPIKED, RERUN
123	66556S	1	1	8.2		0.908		
124	CCV	1	1	9.0		0.990	99%	
125	B	1	1	0.0		-0.013	b	
126	D4	1	1	13.9		1.545	d	
127	66556DS	1	1	8.3		0.911		NOT SPIKED, RERUN
128	66556DS	1	1	8.1		0.889		
129	66553	1	1	0.0	<0.01	-0.013	I	
130	66553	1	1	0.0		-0.013	I	
131	66554	1	1	0.2	<0.01	0.014	I	
132	66554	1	1	0.3		0.017	I	
133	66555	1	1	2.6	0.029	0.280		
134	66555	1	1	2.7		0.291		
135	66557	1	1	14.0	0.156	1.551		
136	66557	1	1	14.2		1.575	s	
137	66558	1	1	7.7	0.086	0.851		
138	66558	1	1	7.9		0.870		
139	66554-THIMBL	1	1	1.6	0.017	0.165		
140	66554-THIMBL	1	1	1.7		0.173		
141	66554-PROBE	1	1	0.0		-0.010	I	
142	66554-PROBE	1	1	0.1		-0.005	I	
143	BL1217-2NFT	1	1	0.0	<0.01	-0.007	I	
144	BL1217-2NFT	1	1	0.0		-0.007	I	
145	BL1217S 69904	1	1	9.4	0.105	1.040	105%	
146	BL1217S	1	1	9.5		1.053		
147	CCV	1	1	8.8		0.977	97%	
148	B	1	1	0.0		-0.013	b	
149	D4	1	1	13.9		1.545	d	
150	BL1217DS	1	1	9.4	0.101	1.042	101%	
151	BL1217DS	1	1	8.9		0.985	s	
152	69909	1	1	2.5	0.027	0.269		
153	69909	1	1	2.6		0.274		
154	69909D	1	1	2.4	0.026	0.258		
155	69909D	1	1	2.5		0.269		
156	69909S	1	1	11.6	0.127	1.288	101%	
157	69909S	1	1	11.4		1.258		
158	69909DS	1	1	11.0	0.123	1.223	96%	
159	69909DS	1	1	11.1		1.231		
160	69904	1	1	0.0	<0.01	-0.013	I	
161	69904	1	1	0.0		-0.010	I	
162	69905	1	1	17.0	0.189	1.895		
163	69905	1	1	16.9		1.876		
164	69906	2	1	12.3	0.272	2.724		
165	69906	2	1	12.2		2.713		
166	69907	2	1	14.8	0.331	3.298	s	
167	69907	2	1	14.9		3.315		
168	69908	1	1	17.2	0.188	1.909		
169	69908	1	1	16.6		1.849		
170	CCV	1	1	8.8		0.974	97%	
171	B	1	1	0.0		-0.013	b	
172	D4	1	1	13.9		1.545	d	
173	69910	1	1	1.7	0.020	0.181		
174	69910	1	1	2.0		0.211		
175	69911	1	1	2.2	0.024	0.233		
176	69911	1	1	2.3		0.244		
177	69913	1	1	6.5	1.651	0.714		
178	69913	1	1	6.6		0.722		
179	69914	1	1	3.0	0.612	0.326		
180	69914	1	1	3.0		0.318		
181	BL1217-3NFT	1	1	0.0	<0.01	-0.013	s	
182	BL1217-3NFT	1	1	0.0		-0.013	I	
183	BL1217S	1	1	9.3	0.101	1.023	101%	
184	BL1217S	1	1	9.2		1.015		
185	BL1217DS	1	1	9.2		1.020	[illegible]	

ıon ıber	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
›556	BRAUN-MN	OHHG Stack-R1	Mercury -	PV	0.091	0.089	0.182	92.	0.184	94.	99/12/19	1GFT	99/12/19	MG01	82.	45.	
219	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.100	100.	0.100	100.	99/12/19	1GFT	99/12/19	MG01	$$$	$$$	*BLKIMP*

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

00061

00362

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG
DGHGLEACH, DG29HG***

Calibration Solutions:

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

Check List
- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Acids added Tmd HF + Smd Aqua Regia
- ✓ Reagents added
- ✓ Samples spiked
- ✓ Bath at 95 degrees C 8 hrs in 85°C oven
- ✓ 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.)	1918	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1219	" /1617	"	"	"	(Processed Blank)
	11	BL 1219 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	66356	"	"	"	"	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	65788	"	"	"	"	700 ml
3	17		"	"	"	"	
4	18		"	"	"	"	
5	19		"	"	"	"	
6	20		"	"	"	"	
7	21		"	"	"	"	
8	22		"	"	"	"	
9	23		"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)		20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL	"	"	"	"	(Processed Blank)
	27	BL S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28		"	"	"	"	
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32		"	"	"	"	
3	33		"	"	"	"	
4	34		"	"	"	"	
5	35		"	"	"	"	
6	36		"	"	"	"	
7	37		"	"	"	"	
8	38		"	"	"	"	
9	39		"	"	"	"	
10	40		"	"	"	"	

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

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

HNO3 Lot No. HCL# 51907 — H2SO4 Lot No. — Bath Temps / / °C

Prepared By: MG — Date: 11/12/19 — Checked by: CMJ

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.12.19 Run Code: MG01 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			BL1219	1GFB		
13			"			
14			BL1219 S			
15			"			
16			BL1219 DS			
17			"			
18			66556			
19			"			
20			66556 D			
21			"			
22			66556 S			
23			"			
24			66556 DS			
25			"			
26			65788			
27			"			
28			CCV			
29			B			
30			D4			
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
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42						
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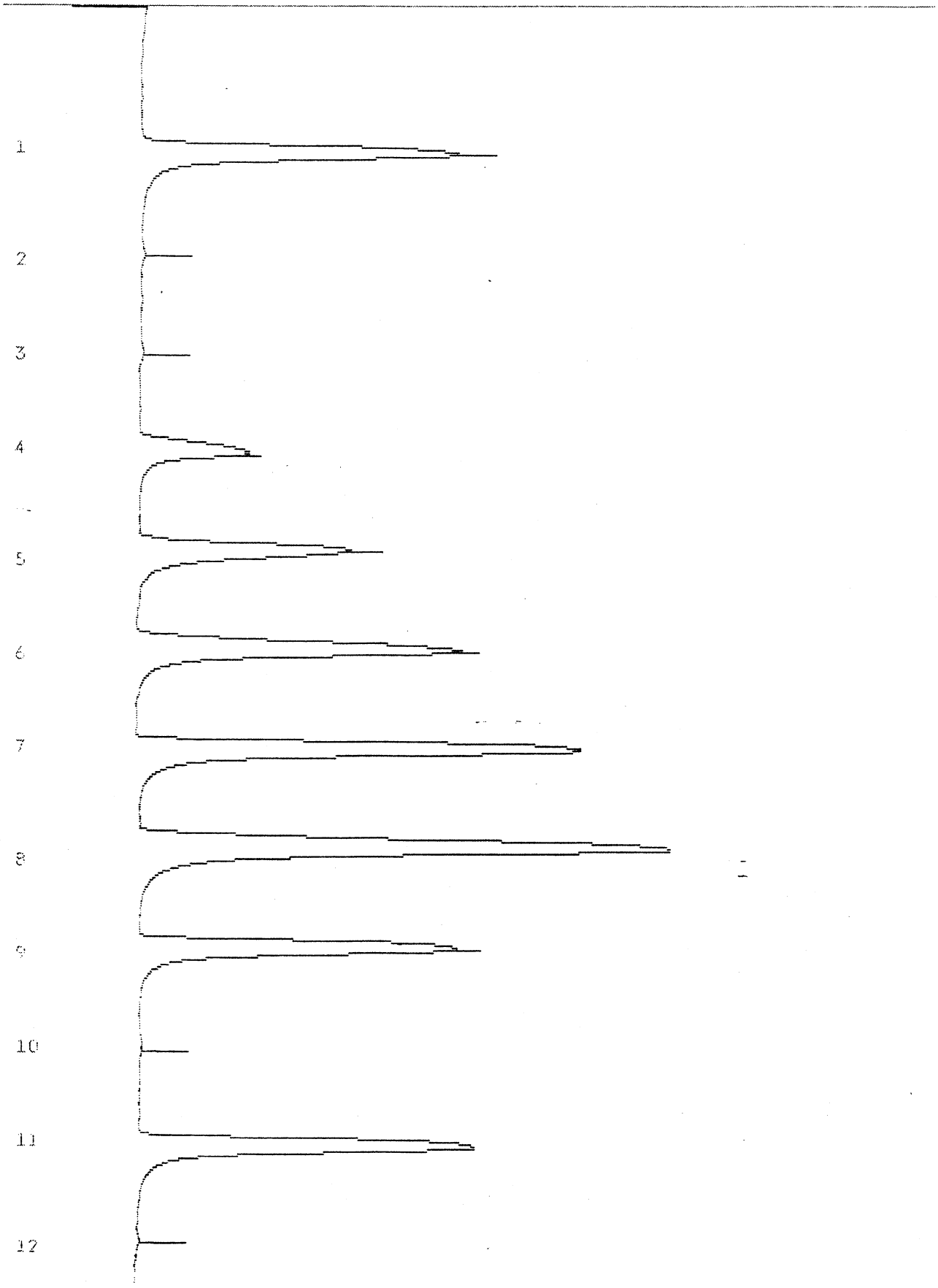
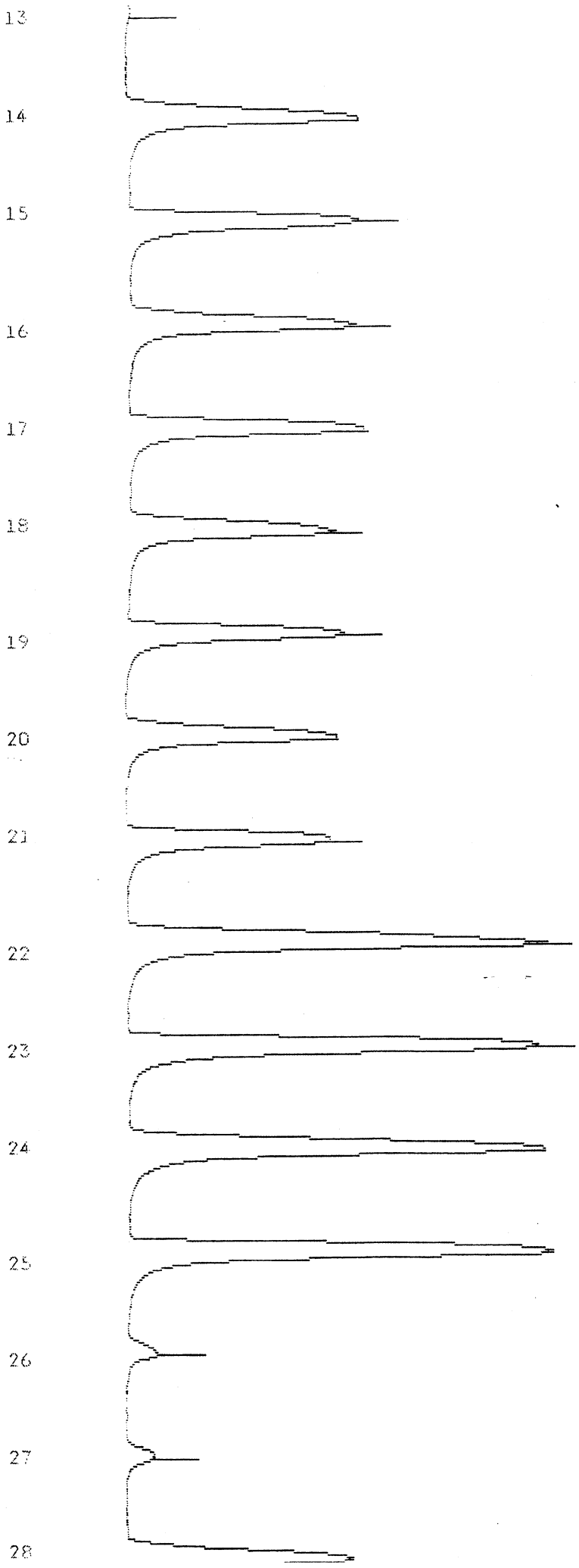
Comments: *** "HG-347" and "MISA12" units are expressed in mg/L not ug/L

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

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

RUN DATE: 12-19-1999 CHART DATE: 12-19-1999
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\991219W.DAT

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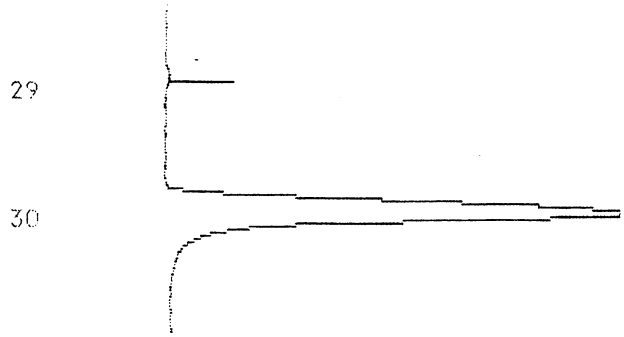
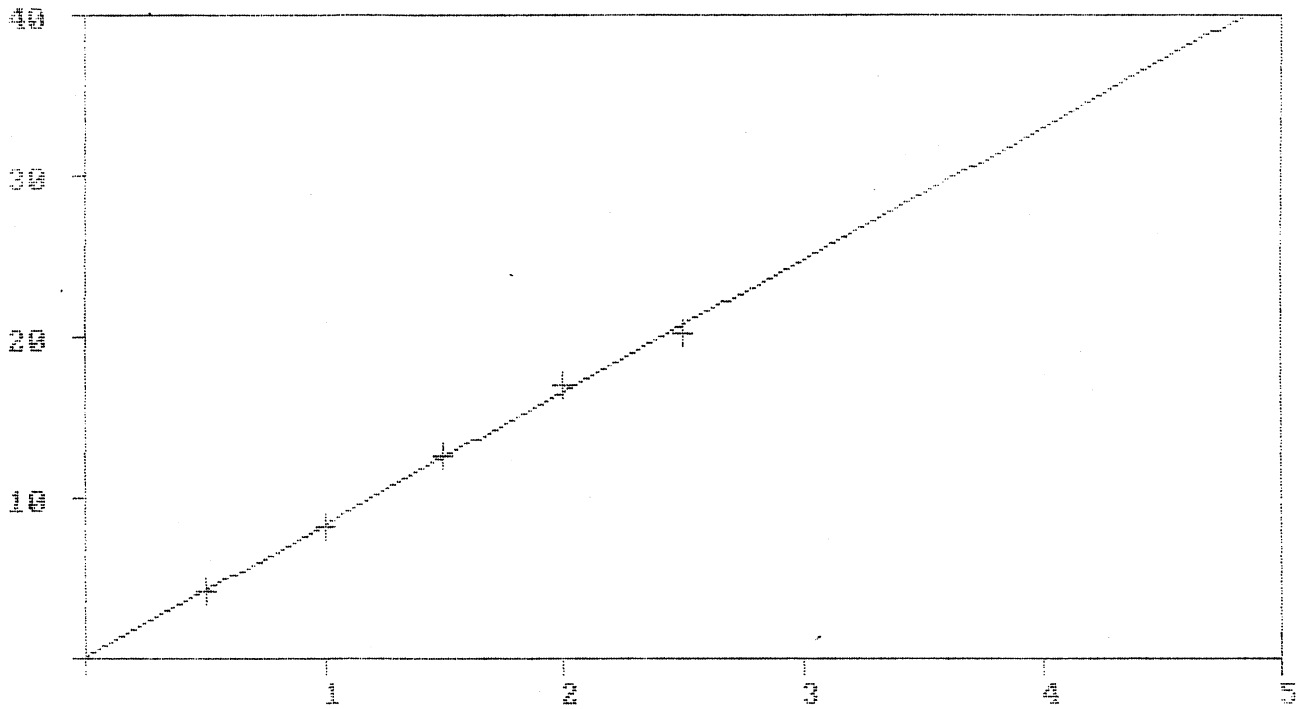


CHANNEL NAME: LDC
RUN NAME: 991219W



DATA TYPE: FIA CALIBRATION ORDER: 1
INTERCEPT = -9.65 SLOPE = 8.219083

CORRELATION: .9993289

CHANNEL NAME: LDC
RUN DATE: 12-19-1999
SAMPLE TABLE NAME: 991219W
METHOD NAME: HG-W-20

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION (ppb)	EF
1	PRIMER	1	1	12.3	1.483	s
2	DUMMY	1	1	0.1	0.003	I
3	S1: 0	1	1	0.1	-0.003	I
4	S2: .5	1	1	4.2	0.496	
5	S3: 1	1	1	8.2	0.981	
6	S4: 1.5	1	1	12.6	1.515	
7	S5: 2	1	1	17.0	2.056	
8	S6: 2.5	1	1	20.3	2.454	
9	ICV	1	1	12.0	1.444	96%
10	B	1	1	0.0	-0.012	b
11	D4	1	1	12.6	1.515	d
12	BL1219-1GFB /1GFT	1	1	0.0	<0.01 -0.006	I
13	BL1219-1GFB "	1	1	0.0	-0.006	I
14	BL1219S	1	1	8.4	0.100 1.004	100%
15	BL1219S	1	1	8.2	0.987	

TuG

18	66556	1	1	7.4	0.091	0.389	
19	66556	1	1	7.7		0.990	
20	66556D	1	1	7.6	0.089	0.909	
21	66556D	1	1	7.3		0.877	
22	66556S	1	1	15.3	0.182	1.348	92%
23	66556S	1	1	14.8		1.795	
24	66556DS	1	1	15.1	0.184	1.821	94%
25	66556DS	1	1	15.4		1.860	
26	65788	1	1	0.9	<0.07	0.098	I
27	65788	1	1	0.8		0.083	
28	CCV	1	1	8.1		0.972	97%
29	B	1	1	0.0		-0.012	b
30	04	1	1	12.6		1.515	d

INTERCEPT: 0.10 LINEAR COEF: 8.219083

CORRELATION COEF: .9993289

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
066553	BRAUN-MN	MB R456	Mercury -	P	-0.030	-99999.0	0.308	103.	0.303	101.	99/11/25	1BMN	99/11/25	MG02	57.	21.	
066554	BRAUN-MN	Reagent Blank	Mercury -	P	-0.100						99/11/25	1BMN	99/11/25	MG02	57.	21.	
066555	BRAUN-MN	OHHG Stack-Blank	Mercury -	P	-0.100						99/11/25	1BMN	99/11/25	MG02	58.	21.	
066556	BRAUN-MN	OHHG Stack-R1	Mercury -	P	13.996						99/11/25	1BMN	99/11/25	MG02	58.	21.	
066558	BRAUN-MN	OHHG Stack-R3	Mercury -	P	18.928						99/11/25	1BMN	99/11/25	MG02	57.	21.	
066559	BRAUN-MN	OHHG Inlet-Blank	Mercury -	P	0.137						99/11/25	1BMN	99/11/25	MG02	58.	21.	
066560	BRAUN-MN	OHHG Inlet-R1	Mercury -	P	17.139	17.343	37.144	100.	37.510	101.	99/11/25	1BMN	99/11/25	MG02	58.	21.	*PDS*
066561	BRAUN-MN	OHHG Inlet-R2	Mercury -	P	17.098						99/11/25	1BMN	99/11/25	MG02	57.	21.	
066562	BRAUN-MN	OHHG Inlet-R3	Mercury -	P	19.497						99/11/25	1BMN	99/11/25	MG02	57.	21.	
BL1125	INTERNAL		Mercury -	P	-0.030	-99999.0	0.308	103.	0.303	101.	99/11/25	1BMN	99/11/25	MG02	$$$	$$$	

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

00068

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
066553	BRAUN-MN	MB R456	Mercury -	P	-0.030	-99999.0	0.301	100.	0.286	95.	99/11/25	2BKC	99/11/25	MG02	57.	21.	
066554	BRAUN-MN	Reagent Blank	Mercury -	P	-0.100						99/11/25	2BKC	99/11/25	MG02	57.	21.	
066555	BRAUN-MN	OHHG Stack-Blank	Mercury -	P	-0.100						99/11/25	2BKC	99/11/25	MG02	58.	21.	
066557	BRAUN-MN	OHHG Stack-R2	Mercury -	P	0.268						99/11/25	2BKC	99/11/25	MG02	57.	21.	
066558	BRAUN-MN	OHHG Stack-R3	Mercury -	P	0.485						99/11/25	2BKC	99/11/25	MG02	57.	21.	
066559	BRAUN-MN	OHHG Inlet-Blank	Mercury -	P	0.522						99/11/25	2BKC	99/11/25	MG02	58.	21.	
066560	BRAUN-MN	OHHG Inlet-R1	Mercury -	P	2.092	2.035	3.060	100.	3.088	102.	99/11/25	2BKC	99/11/25	MG02	58.	21.	
066561	BRAUN-MN	OHHG Inlet-R2	Mercury -	P	3.786						99/11/25	2BKC	99/11/25	MG02	57.	21.	
066562	BRAUN-MN	OHHG Inlet-R3	Mercury -	P	4.046						99/11/25	2BKC	99/11/25	MG02	57.	21.	
BL1125	INTERNAL		Mercury -	P	-0.030	-99999.0	0.301	100.	0.286	95.	99/11/25	2BKC	99/11/25	MG02	$$$	$$$	

10 Tests for OHKCL with an MDL of 0.030 ug Validated By CMB Control Chart Updated N/A IQ Requirements met N/A

00069

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.25 Run Code: MG01 Matrix: IMP.

Analyst: MG Units: ug/g (see comments) MDL: _____

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 6 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			WS 378			
13			ORG. REF.			
14			BL1125	INKC.		
15			"			
16			BL1125 S			
17			"			
18			BL1125 DS			
19			"			
20			65832			
21			"			
22			65832 D			
23			"			
24			65832 S			
25			"			
26			65832 DS			
27			"			
28			65831			
29			"			
30			65833			
31			"			
32			65834			
33			"			
34			CCV			
35			B			
36			D4			
37			65835			
38			"			
39		1/2	65836			
40		↓	"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			65837			
42			"			
43			65838			
44			"			
45		NA	~~65839~~ BL1125-2NMN			
46			BL1125-2NMN			
47			BL1125 S			
48			"			
49			BL1125 DS			
50			"			
51		1/10	65832			
52		↓	"			
53			65832 D			
54			"			
55			65832 S			
56			"			
57			CCV			
58			B			
59			D4			
60		1/10	65832 DS			
61		↓	"			
62			65831			
63			"			
64		1/5	65833			
65		↓	"			
66		1/5	65834			
67		↓	"			
68			65835			
69			"			
70		1/4	65836			
71		↓	"			
72		1/5	65837			
73		↓	"			
74			65838			
75			"			
76			BL1125	3N FT		
77			"			
78			BL1125 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: 99.11.25 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)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			B			
22			D4			
23			BL1125 DS			
24	2		65836			
25			"			
26			65836 D			
27			"			
28			65836 S			
29			"			
30			65836 DS			
31			"			
32			65830			
33			"			
34			65831			
35			"			
36	2		65832			
37			"			
38			65833			
39			"			
40			6584			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			65834			
42			CCV			
43			B			
44			D4			
45			65835			
46			"			
47			65837			
48			"			
49			65838			
50			"			
51			BL1125	IBMN		
52			"			
53			BL1125 S			
54			"			
55			BL1125 DS			
56			"			
57		1/20	66560			
58			"			
59			66560 D			
60			"			
61			66560 S			
62			"			
63			66560 DS			
64			"			
65			CCV			
66			B			
67			D4			
68			66554			
69			"			
70			66555			
71			"			
72		1/8	66556			
73			"			
74		1/20	66558			
75			"			
76			66559			
77		1/20	"			
78			66561			
79			"			
80			66562			

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 = 1.6 mg/kg, CCV = 1.0 mg/kg, Blank Spike = 1.0 mg/kg for solid samples.

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 98/11/25 Run Code: MG02 Matrix: IMP

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21		1/20	66562			
22			BL1125	2.5KC		
23			"			
24			BL1125 S			
25			"			
26			BL1125 DS			
27			"			
28			CCV			
29			B			
30			D4			
31		1/2	66560			
32			"			
33			66560 D			
34			"			
35			66560 S			
36			"			
37			66560 DS			
38			"			
39			66554			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			66555			
42			"			
43			66557			
44			"			
45			66558			
46			"			
47			66559			
48			"			
49		1/4	66561			
50		↓	"			
51			CCV			
52			B			
53			D4			
54		1/4	66562			
55		↓	"			
56			1633 a	Digested		
57			"			
58			1633 a	undigested.		
59			"			
60			NS378			
61			ORG. REF			
62			CCV			
63			B			
64			D4			
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						

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

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

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

EPA 7470 WATER PREPARATION LOG - MERCURY

00073
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
- [x] Digest Code/labels
- [x] Samples poured out
- [x] Acids added
- [x] Reagents added
- [x] Samples spiked
- [x] Bath at 95 degrees C
- [x] Samples digested
- [x] Hydroxylamine HCl added
- [x] Samples bulked and mixed
- [x] Rack order checked

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	9	ICV (Init. Calib. Verif.)	1BMN	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1125	"	"	"	"	(Processed Blank)
	11	BL 1125 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	66560	"	"	"	"	FV=1000ml
1	13	O	"	"	"	"	(Duplicate sample)
1	14	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	15	DS	"	"	"	"	(Duplicate Spiked sample)
2	16	66554	"	"	"	"	
3	17	55	"	"	"	"	
4	18	56	"	"	"	"	
5	19	58	"	"	"	"	
6	20	59	"	"	"	"	
7	21	61	"	"	"	"	
8	22	62	"	"	"	"	
9	23		"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	2BKC	20 ml	30 ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1125	"	"	"	"	(Processed Blank)
	27	BL 1125 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	66560	"	"	"	"	FV=1000ml
1	29	D	"	"	"	"	(Duplicate sample)
1	30	S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	31	DS	"	"	"	"	(Duplicate Spiked sample)
2	32	66554	"	"	"	"	
3	33	55	"	"	"	"	
4	34	57	"	"	"	"	
5	35	58	"	"	"	"	
6	36	59	"	"	"	"	
7	37	61	"	"	"	"	
8	38	62	"	"	"	"	
9	39		"	"	"	"	
10	40		"	"	"	"	

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

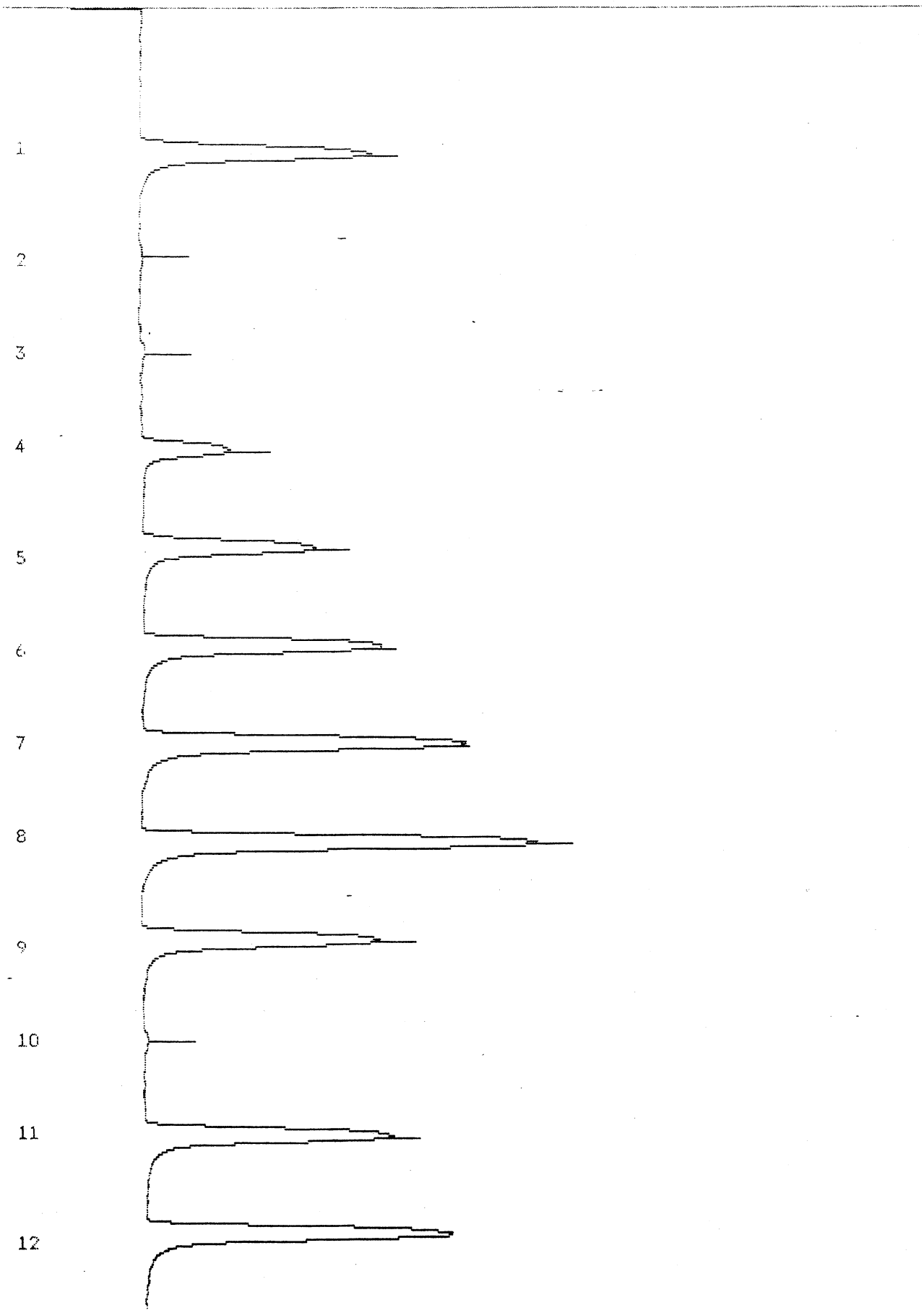
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

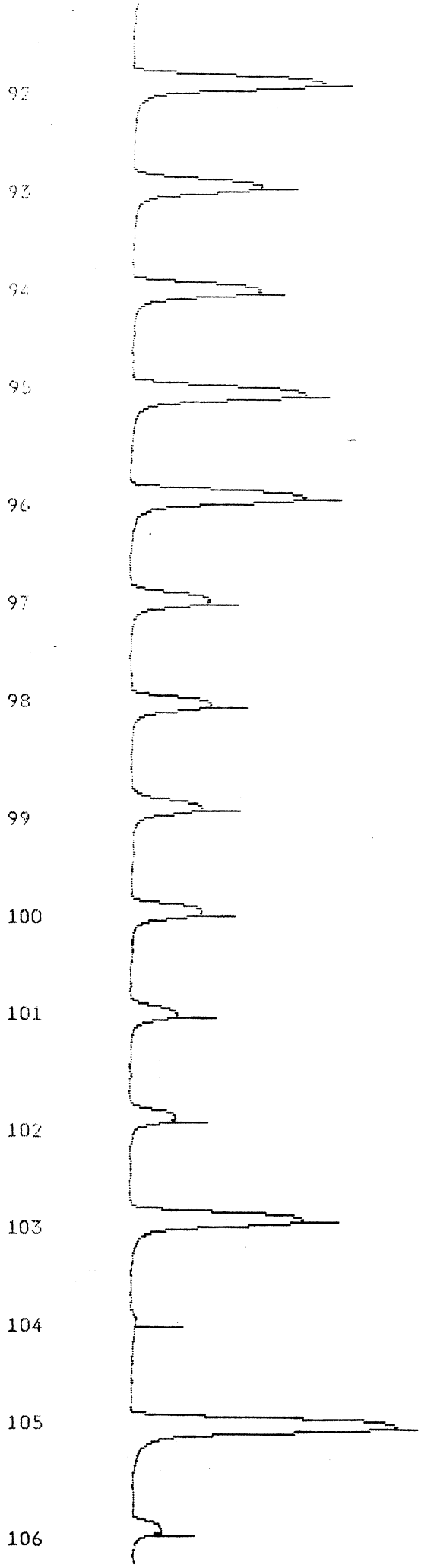
Prepare 0.05 ppm standards daily

HNO3 Lot No: 11906 | H2SO4 Lot No: 318060 | Bath Temp: 95.1 °C

Prepared By: AB | Date: 99/11/23 | Checked by: AB

RUN DATE. 11-26-1999 CHART DATE: 11-26-1999
CHART SPEED: 30
DATA FILE NAME: C:\DP4\DATA\991125W.DAT

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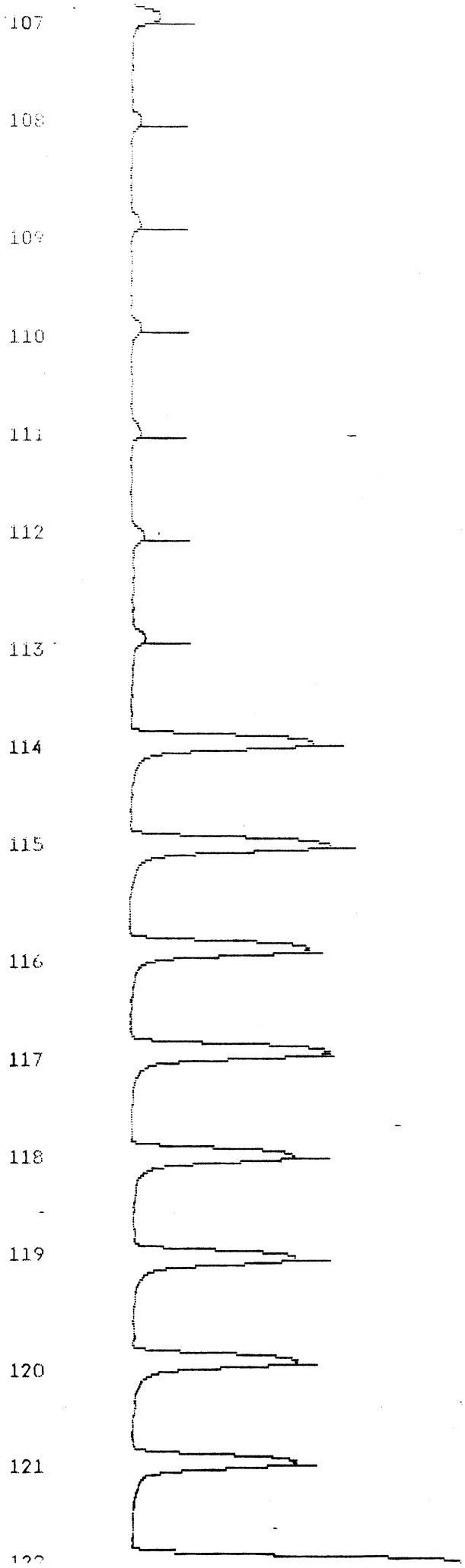
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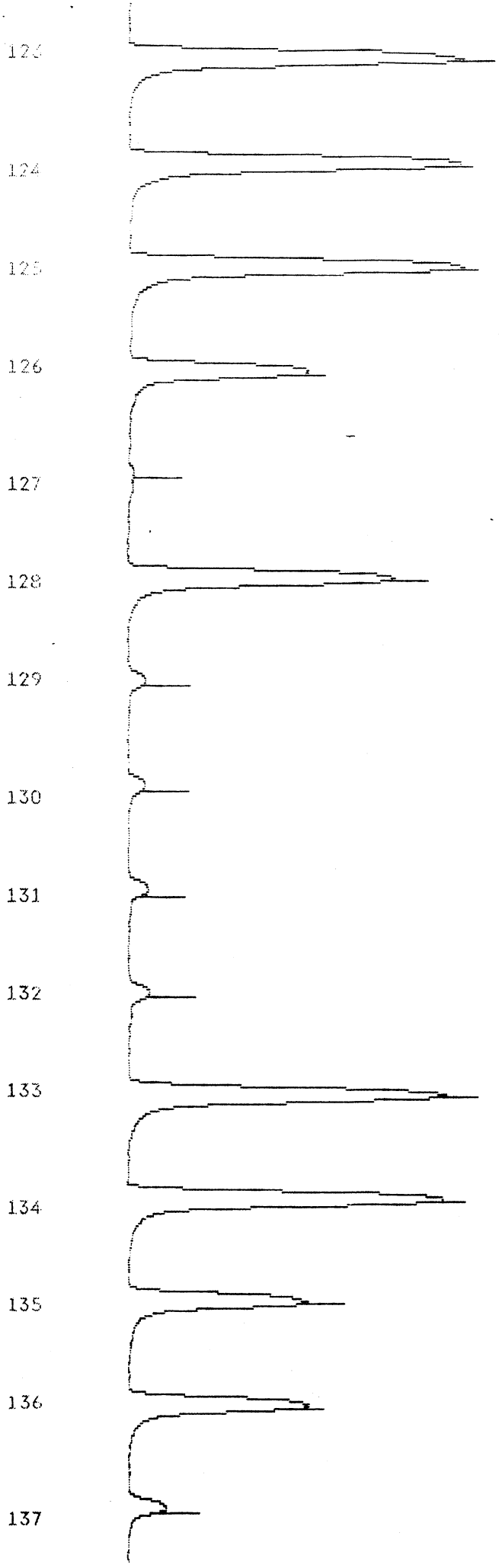

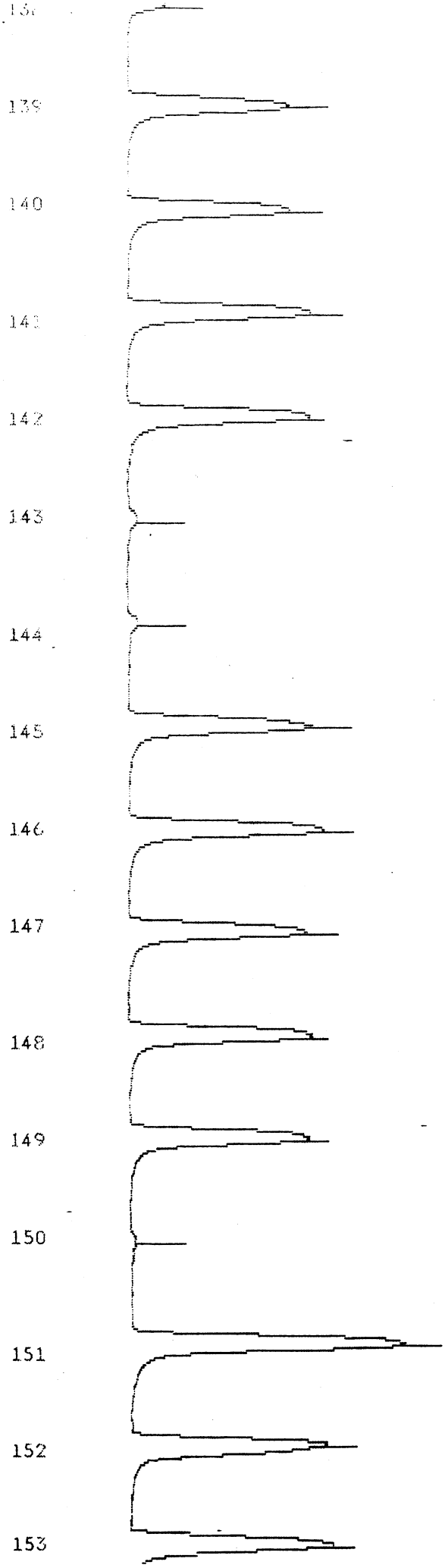
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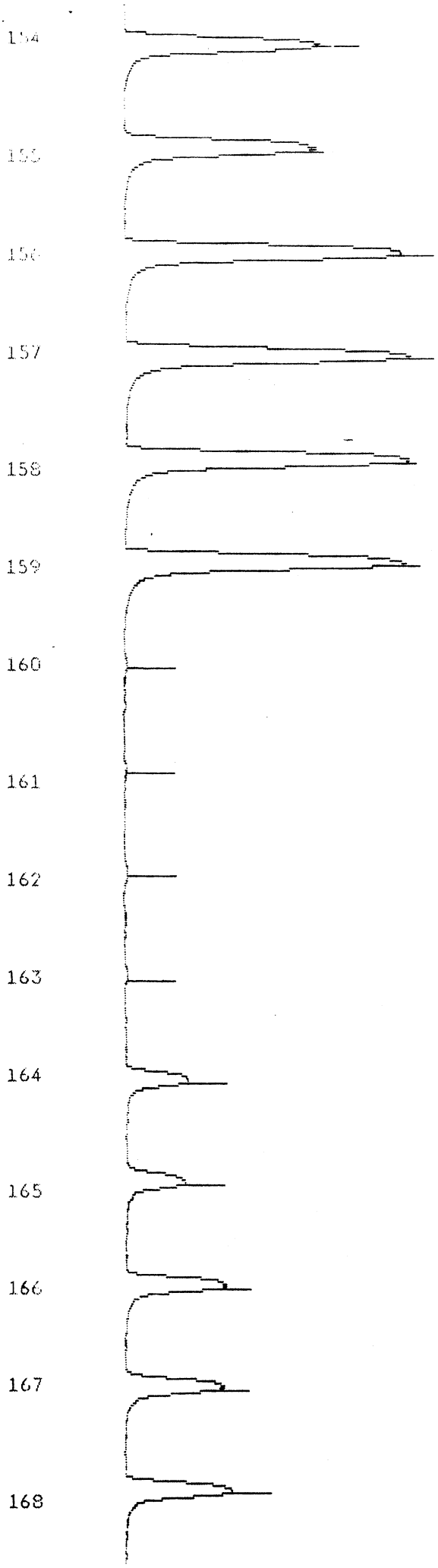
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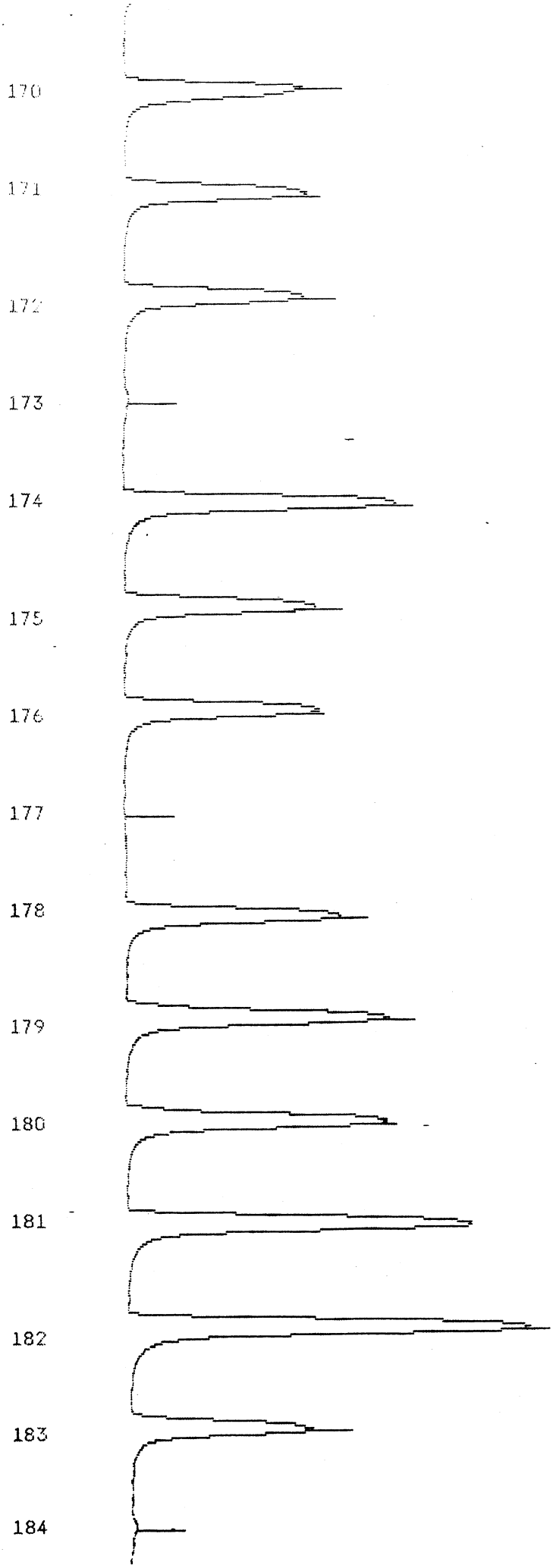
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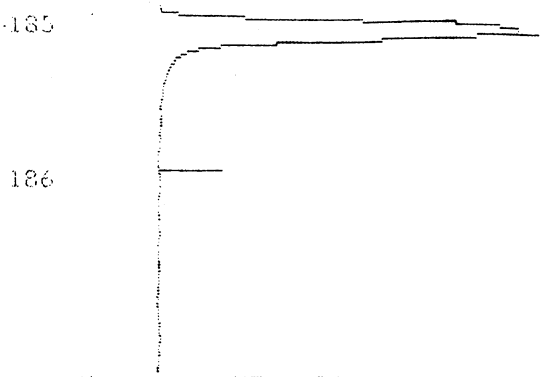
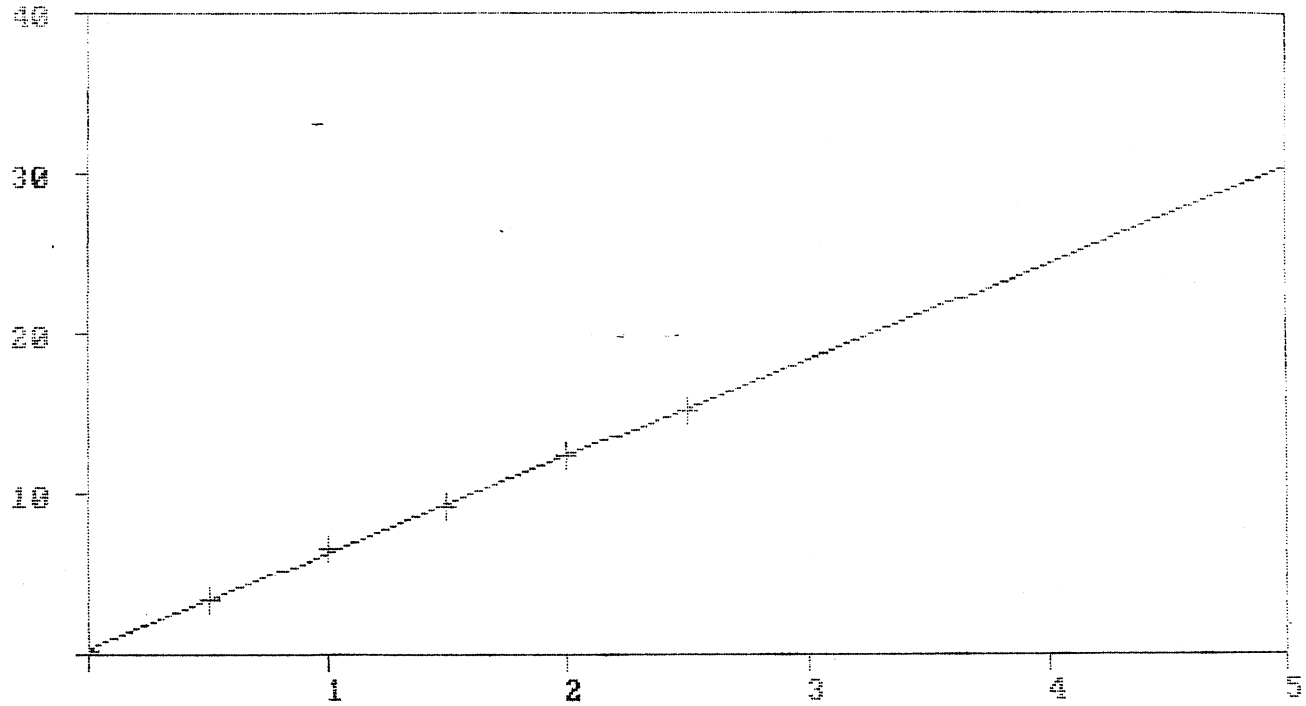


CHANNEL NAME: LDC
RUN NAME: 991125W



DATA TYPE: FIA
CALIBRATION ORDER: 1
INTERCEPT = 0.30
SLOPE = 6.00593

CORRELATION: .9994397

CHANNEL NAME: LDC
RUN DATE: 11-25-1999
SAMPLE TABLE NAME: 991125W
METHOD NAME: HGWATER

CUP#	SAMPLE ID	DIL	WGT	HEIGHT/AREA		CONCENTRATION (ppb)	EF
1	PRIMER	1	1	9.0		1.447	$
2	DUMMY	1	1	0.1		-0.038	I
3	S1: 0	1	1	0.1		-0.029	I
4	S2: .5	1	1	3.3		0.507	
5	S3: 1	1	1	6.6		1.044	
6	S4: 1.5	1	1	9.2		1.479	
7	S5: 2	1	1	12.5		2.028	
8	S6: 2.5	1	1	15.1		2.471	
9	ICV	1	1	9.0		1.442 96%	
10	B	1	1	0.0		-0.050	b
11	D4	1	1	9.2		1.479	d
12	WS 378	1	1	11.5	TUG	1.861 93%	
13	ORG REF	1	1	13.1		2.130 107%	
14	BL1125-1NKO	1	1	0.0		-0.042	I

82	D4	1	1	[illegible]		[illegible]	d	
83	BL1125DS	1	1	6.3	0.100	0.929		99%
84	BL1125DS	1	1	6.3		0.938		
85	65836	2	1	0.1	<0.080	-0.075	I	
86	65836	2	1	0.1		-0.067	I	
87	65836D	2	1	0.1	<0.080	-0.059	I	
88	65836D	2	1	0.1		-0.075	I	
89	65836S	2	1	6.7	1.696	2.145		106%
90	65836S	2	1	6.6		2.096		
91	65836DS	2	1	6.7	1.693	2.121		105%
92	65836DS	2	1	6.6		2.112		
93	65830	1	1	4.3	0.067	0.674		
94	65830	1	1	4.3		0.666		
95	65831	1	1	5.9	0.094	0.938		
96	65831	1	1	6.0		0.942		
97	65832	2x 2 mA	1	2.6	0.078	~~0.389~~ 0.778 mA		
98	65832	2x 2 mA	1	2.7		~~0.393~~ 0.786 mA		
99	65833	1	1	2.3	0.034	0.332		
100	65833	1	1	2.3		0.337		
101	65834	1	1	1.4	0.019	0.190		
102	65834	1	1	1.4		0.186		
103	CCV	1	1	5.8		0.918		91%
104	B	1	1	0.0		-0.050	b	
105	D4	1	1	9.2		1.479	d	
106	65835	1	1	0.8	<0.080	0.084	s	
107	65835	1	1	0.8		0.080		
108	65837	1	1	0.2	<0.080	-0.021	I	
109	65837	1	1	0.2		-0.017	I	
110	65838	1	1	0.2	<0.080	-0.021	I	
111	65838	1	1	0.2		-0.013	I	
112	BL1125-1BMN 66553	1	1	0.3	<0.03	-0.005	I	
113	BL1125-1BMN	1	1	0.3		-0.005	I	
114	BL1125S	1	1	6.2	0.308	0.975		103%
115	BL1125S	1	1	6.8		1.081		
116	BL1125DS	1	1	6.0	0.303	0.955		101%
117	BL1125DS	1	1	6.7		1.064		
118	66560	20	1	5.4	17.139	17.139		
119	66560	20	1	5.4		17.139		
120	66560D	20	1	5.5	17.343	17.383		
121	66560D	20	1	5.5		17.302	s	
122	66560S	20	1	11.3	37.144	36.575		100%
123	66560S	20	1	11.6		37.713		
124	66560DS	20	1	11.5	37.510	37.306		101%
125	66560DS	20	1	11.6		37.713		
126	CCV	1	1	6.0		0.946		95%
127	B	1	1	0.0		-0.050	b	
128	D4	1	1	9.2		1.479	d	
129	66554	1	1	0.5	<0.100	0.027	I	
130	66554	1	1	0.4		0.019	I	
131	66555	1	1	0.5	<0.100	0.040		
132	66555	1	1	0.6		0.044	I	
133	66556	8	1	10.9	13.996	14.077		
134	66556	8	1	10.7		13.914		
135	66558	20	1	6.0	18.928	18.928		
136	66558	20	1	6.0		18.928	s	
137	66559	1	1	1.1	0.137	0.133		
138	66559	1	1	1.1		0.141		
139	66561	20	1	5.4	17.098	16.976		
140	66561	20	1	5.5		17.220		
141	66562	20	1	6.2	19.497	19.497		
142	66562	20	1	6.2		19.497		
143	BL1125-2BKC 66553	1	1	0.1	<0.01	-0.025	I	
144	BL1125-2BKC	1	1	0.1		-0.025	I	
145	BL1125S	1	1	6.2	0.301	0.975		100%

148	80117505	1	1	5.7		0.975	
149	CCV	1	1	5.9		0.938 93%	
150	B	1	1	0.0		-0.050	b
151	D4	1	1	9.2		1.479	s
152	66560	2	1	6.4	2.092	2.047	
153	66560	2	1	6.7		2.137	
154	66560D	2	1	6.4	2.035	2.047	
155	66560D	2	1	6.4		2.023	
156	66560S	2	1	9.3	3.060	2.999 100%	
157	66560S	2	1	9.7		3.121	
158	66560DS	2	1	9.6	3.088	3.096 102%	
159	66560DS	2	1	9.5		3.080	
160	66554	1	1	0.0	<0.100	-0.050	I
161	66554	1	1	0.0		-0.050	I
162	66555	1	1	0.0	<0.100	-0.050	I
163	66555	1	1	0.0		-0.050	I
164	66557	1	1	2.0	0.268	0.276	
165	66557	1	1	1.9		0.259	
166	66558	1	1	3.2	0.485	0.491	s
167	66558	1	1	3.2		0.479	
168	66559	1	1	3.4	0.522	0.519	
169	66559	1	1	3.4		0.524	
170	66561	4	1	5.9	3.786	3.737	
171	66561	4	1	6.1		3.834	
172	CCV	1	1	6.0		0.942 94%	
173	B	1	1	0.0		-0.050	b
174	D4	1	1	9.2		1.479	d
175	66562	4	1	6.3	4.046	4.013	
176	66562	4	1	6.4		4.078	
177	1633A-DIGEST	1	1	0.0		~~-0.050~~ VOID, CUP MISSED MB	
178	1633A-DIGEST	1	1	7.1		1.133	
179	1633A-UNDIG.	1	1	8.8		1.418	
180	1633A-UNDIG.	1	1	8.7		1.402	
181	WS 378	1	1	11.6		1.878 94%	
182	ORG REF	1	1	13.4		2.187 109%	
183	CCV	1	1	5.9		0.930 93%	
184	B	1	1	0.0		-0.050	b
185	D4	1	1	9.2		1.479	d

INTERCEPT: 0.30 LINEAR COEF: 6.00593

CORRELATION COEF: .9994397

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
066553	BRAUN-MN	MB R456	Mercury -	PV	-0.0100	-99999.0	0.1040	104.	0.1040	104.	99/11/16	1NPO	99/11/16	MG01	48.	12.	*BLKIMP*
066554	BRAUN-MN	Reagent Blank	Mercury -	PV	-0.2500						99/11/16	1NPO	99/11/16	MG01	48.	12.	*DDL*
066555	BRAUN-MN	OHHG Stack-Blank	Mercury -	PV	-0.2500						99/11/16	1NPO	99/11/16	MG01	49.	12.	*DDL*
066556	BRAUN-MN	OHHG Stack-R1	Mercury -	PV	1.2040	1.3540	3.7250	98.	3.6420	95.	99/11/16	1NPO	99/11/16	MG01	49.	12.	
066557	BRAUN-MN	OHHG Stack-R2	Mercury -	PV	-0.2500						99/11/16	1NPO	99/11/16	MG01	48.	12.	*DDL*
066558	BRAUN-MN	OHHG Stack-R3	Mercury -	PV	0.9150						99/11/16	1NPO	99/11/16	MG01	48.	12.	
066559	BRAUN-MN	OHHG Inlet-Blank	Mercury -	PV	-0.2500						99/11/16	1NPO	99/11/16	MG01	49.	12.	*DDL*
066560	BRAUN-MN	OHHG Inlet-R1	Mercury -	PV	0.7700						99/11/16	1NPO	99/11/16	MG01	49.	12.	
066561	BRAUN-MN	OHHG Inlet-R2	Mercury -	PV	0.7090						99/11/16	1NPO	99/11/16	MG01	48.	12.	
066562	BRAUN-MN	OHHG Inlet-R3	Mercury -	PV	0.4370						99/11/16	1NPO	99/11/16	MG01	48.	12.	
BL1116	INTERNAL		Mercury -	PV	-0.0100	-99999.0	0.1040	104.	0.1040	104.	99/11/16	1NPO	99/11/16	MG01	$$$	$$$	*BLKIMP*

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

00083

LDC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.16 Run Code: MG01 Matrix: IMP

Analyst: MG Units: µg (see comments) MDL: 0.03/0.01

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.6		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.6		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.6		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12			WS 378			
13			ORG-REF			
14			BL1116	IBIB		
15			"			
16			BL1116 S			
17			"			
18			BL1116 DS			
19			"			
20	2		65527			
21			"			
22			65527 D			
23			"			
24			65527 S			
25			"			
26			65527 DS			
27			"			
28			65524			
29			"			
30			65525			
31			"			
32			65526			
33			"			
34			CCV			
35			B			
36			D4			
37			65528			
38			"			
39			65529			
40			"			

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
41			65530			
42			"			
43		½	65531			
44			"			
45			65532			
46			"			
47			BL 11.16	INPO		
48			"			
49			BL1116 S			
50			"			
51			BL1116 DS			
52			"			
53	10		66556			
54			"			
55			66556 D			
56			"			
57			CCV			
58			B			
59			D4			
60	10		66556 S			
61			"			
62			66556 DS			
63			"			
64			66554			
65			"			
66			66555			
67			"			
68			66557			
69			"			
70			66558			
71			"			
72			66559			
73			66559			
74			66560			
75			"			
76			66561			
77			"			
78			66562			
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.

_DC AUTOSAMPLER RUN LOG (MERCURY)

Date: 99.11.16 Run Code: MG01 Matrix: IMP.

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

Cup	Dig. F.	Dil. F.	Zenon ID	Init. Conc.	F. Conc.	% R
1			Primer (ICV)			
2			Dummy (Blk)			
3			Std 1 (S1)	0.0		
4			Std 2 (S2)	0.5		
5			Std 3 (S3)	1.0		
6			Std 4 (S4)	1.5		
7			Std 5 (S5)	2.0		
8			Std 6 (S6)	2.5		
9			ICV			
10			B (Std 1)			
11			D4 (Std 4)			
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			B			
22			D4			
23			BL1116			
24			"			
25			BL1116 S			
26			"			
27			BL1116 DS			
28			"			
29	1.5	1/5	64672			
30			"			
31			64672 D			
32			"			
33			64672 S			
34			"			
35			64672 DS			
36			"			
37			64670			
38			"			
39			67671			
40			"			
41	1.5	1/2	64673			
42			"			
43			CCV			
44			B			
45			D4			
46	1.5	1/4	64674			
47			"			
48			64675			
49			"			
50			64676			
51			"			
52			64677			
53			"			
54			64678			
55			"			
56			64679			
57			"			
58			64680			
59			"			
60			CCV			
61			B			
62			D4			
63			BL1116	ABA		
64			BL1116 S			
65	10		66815			
66			66815 D			
67			66815 S			
68			818			
69			818 PDS			
70			66756			
71			757			
72			757 PDS			
73			758			
74			758 PDS			
75			759			
76			759 PDS			
77			763			
78			763 PDS			
79			CCV			
80			B			

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

00386
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.)	INPO	20 ml	30 ml	1 X	1.5 ppb = 600 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	10	BL 1116	"	"	"	"	(Processed Blank)
	11	BL 1116 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	12	~~66556~~ 66556	"	1 ml	15 ml	10X	=FV POX 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	66554	"	"	"	"	
3	17	66555	"	"	"	"	
4	18	66557	"	"	"	"	
5	19	58	"	"	"	"	
6	20	59	"	"	"	"	
7	21	60	"	"	"	"	
8	22	61	"	"	"	"	
9	23	62	"	"	"	"	
10	24		"	"	"	"	
	25	CCV (Cont. Calib. Verif.)	2-NMC	20 ml	~~30~~ ml	1 X	1.0 ppb = 400 ul. of 0.05 ppm HP MESS-ZENO 30/QCA Std.
	26	BL 1116	"	"	"	"	(Processed Blank)
	27	BL 1116 S	"	"	"	"	1 ppb = 400 ul. of 0.05 ppm Inorganic Ventures Std Interm.
1	28	64670	"	"	"	"	*UNDIGESTED* 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	64670	"	"	"	"	
3	33	71	"	"	"	"	
4	34	73	"	"	"	"	
5	35	74	"	"	"	"	
6	36	75	"	"	"	"	
7	37	76	"	"	"	"	
8	38	77	"	"	"	"	
9	39	78	"	"	"	"	
10	40	79 80	"	"	"	"	

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

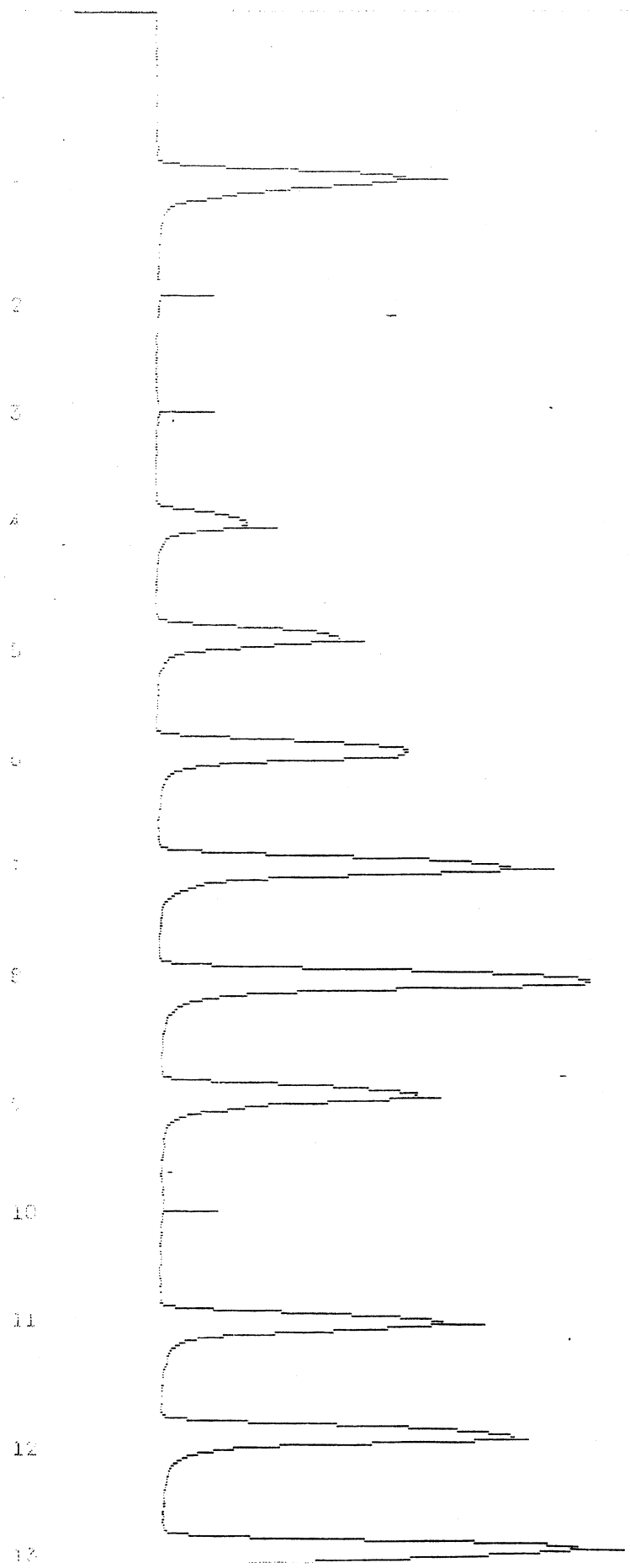
Include External Reference Material (EPA WS 378 or SPEX CertiPrep TM - WS) per run

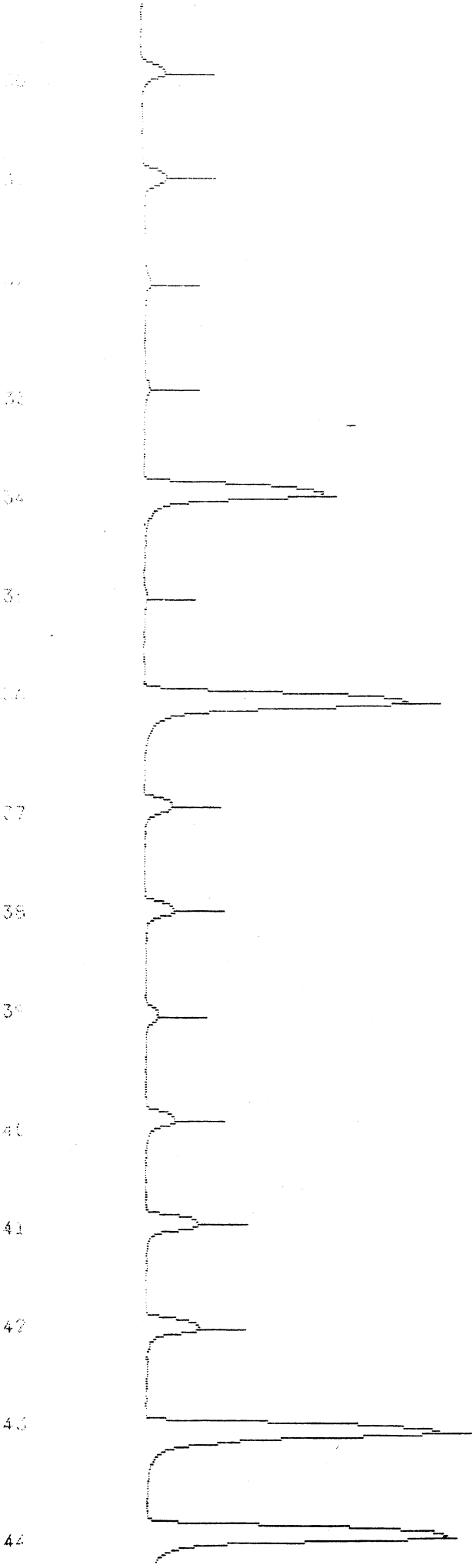
Prepare 0.05 ppm standards daily

HNO3 Lot No. 227060 | H2SO4 Lot No. 318060 | Bath Temp: 1 196°C

Prepared By: [illegible] Date: 99/1/26 Checked by: [illegible]

RUN DATE: [illegible]
CHART SPEED: 30
DATA FILE NAME: C:\GRAM\DATA\POLLTOW.DAT

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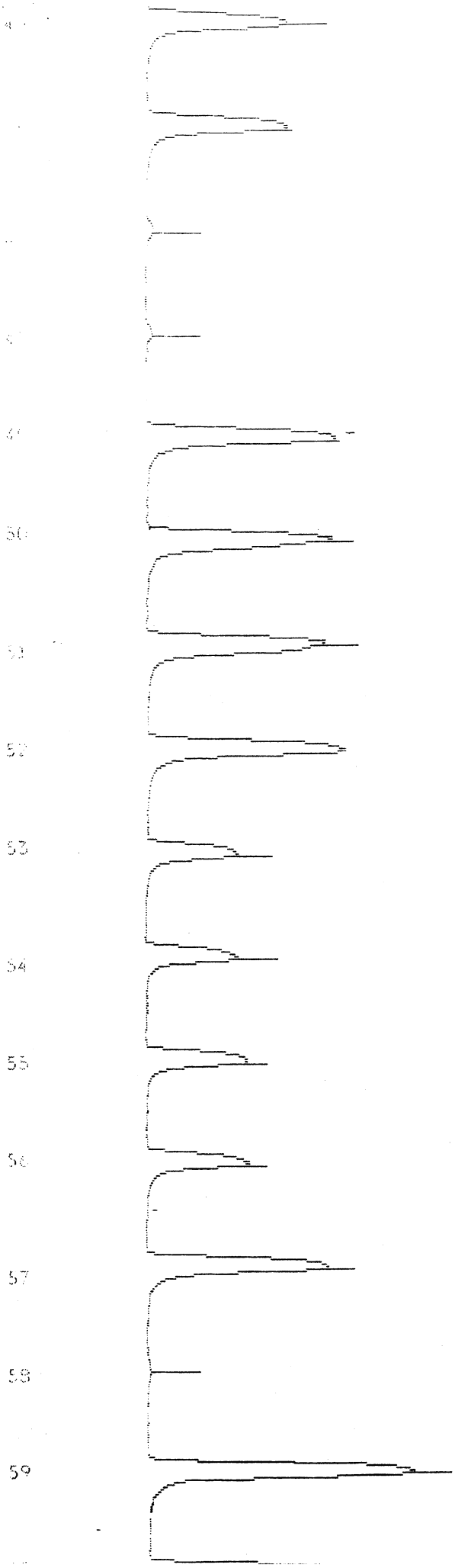
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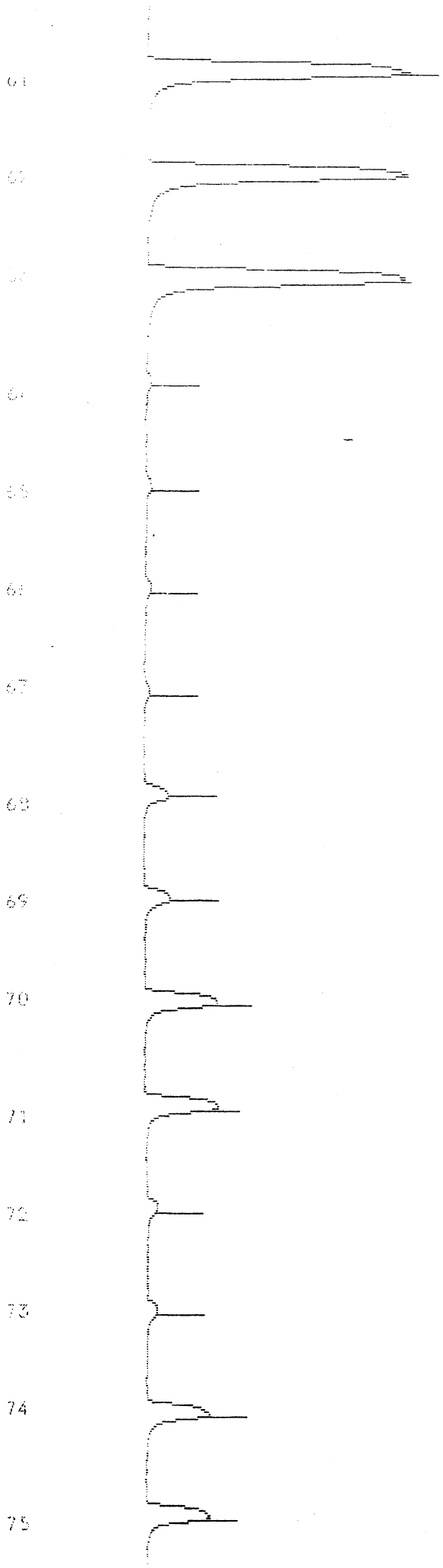
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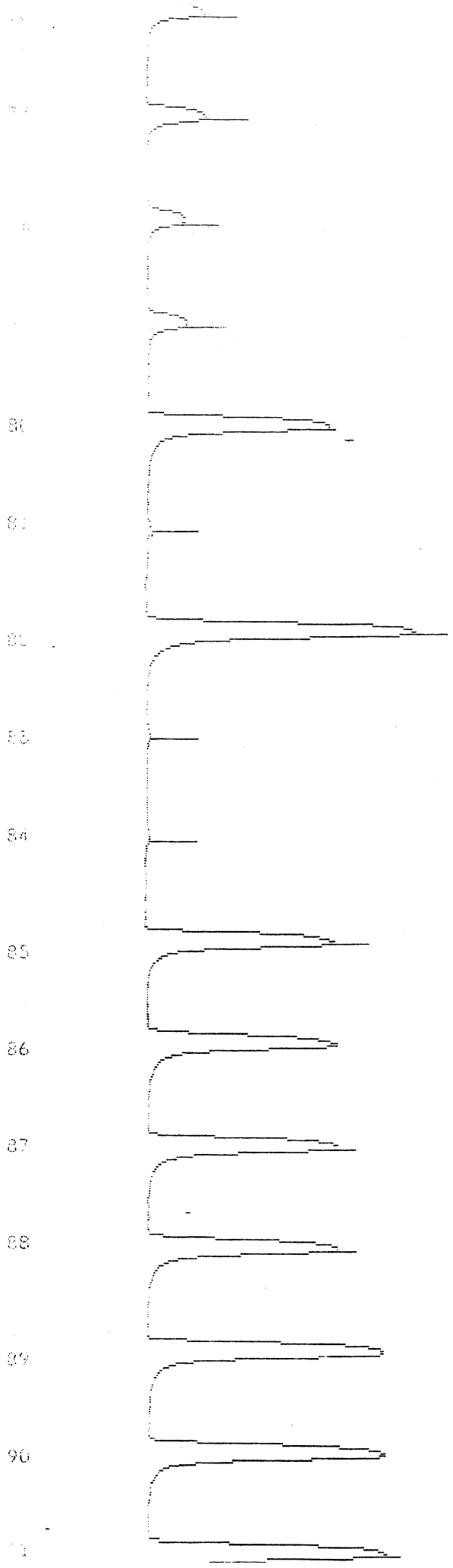
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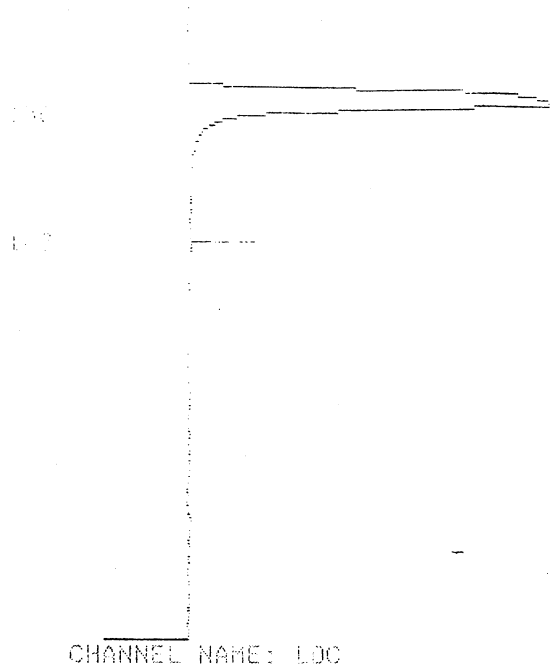
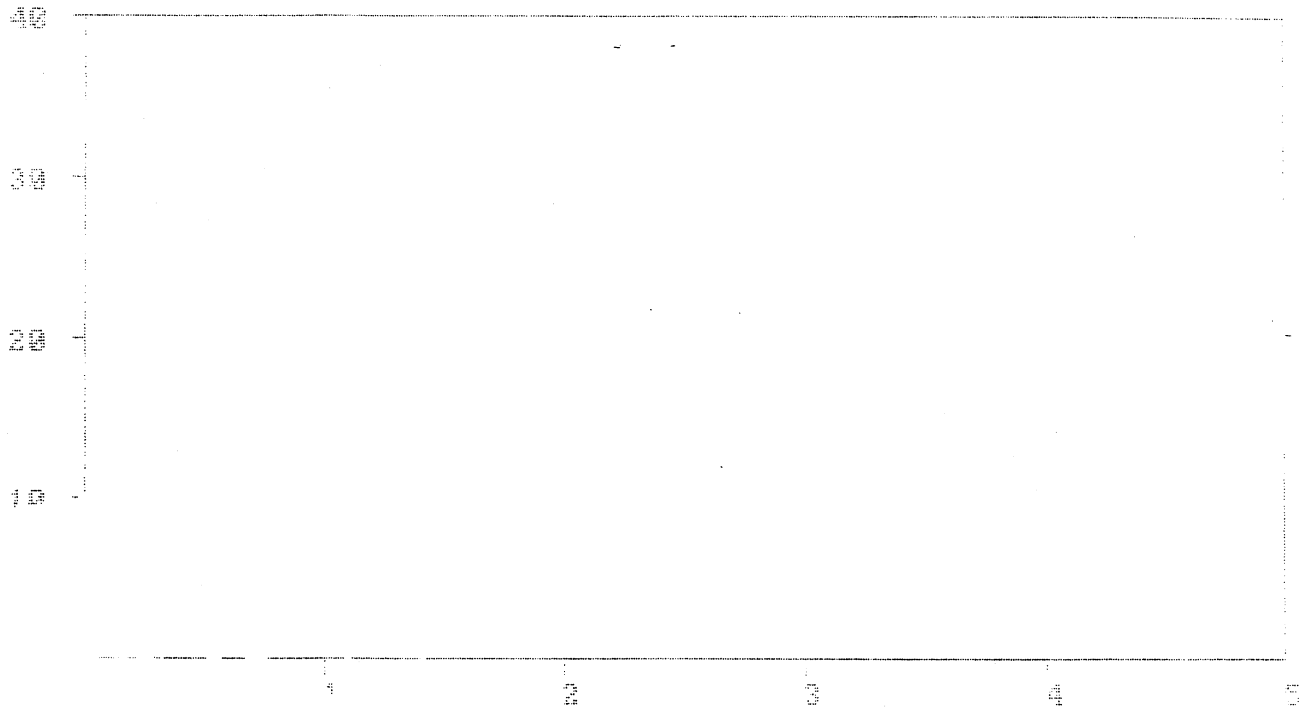


CHANNEL NAME: LOC
RUN NAME: 991116W



CALIBRATION ORDER: 1
SLOPE = 0.496598

CALIBRATION: 99064778

CHANNEL NAME: LOC
DATE: 11-16-1999
SAMPLE TABLE NAME: 991116W
METHOD NAME: NCWATER

CHAN#	SAMPLE ID	DIL	WGT	HEIGHT/AREA	CONCENTRATION ppb	EF
1	PRIMER	1	1	8.2	1.474	S
2	DUMMY	1	1	0.0	-0.027	I
3	S1: 0	1	1	0.0	-0.027	I
4	STD2	1	1	2.9	0.497	

00393

					TUG		
9	[illegible]	1	1	[illegible]		[illegible]	93%
10	[illegible]	1	1	[illegible]		[illegible]	
11	[illegible]	1	1	[illegible]		[illegible]	
12	[illegible]	1	1	[illegible]		[illegible]	110%
13	[illegible] 65524	1	1	[illegible]	<0.03	[illegible]	
14	[illegible]	1	1	[illegible]		[illegible]	
15	[illegible]	1	1	[illegible]	0.290	[illegible]	97%
16	[illegible]	1	1	[illegible]		[illegible]	
17	[illegible]	1	1	[illegible]	0.297	[illegible]	99%
18	[illegible]	1	1	[illegible]		[illegible]	
19	[illegible]	1	1	[illegible]	0.032	[illegible]	
20	[illegible]	1	1	[illegible]		0.105	
21	[illegible]	1	1	[illegible]	0.030	[illegible]	
22	[illegible]	1	1	[illegible]		0.105	
23	65527D	1	1	[illegible]	0.669	[illegible]	106%
24	65527S	1	1	[illegible]		2.211	
25	65527S	1	1	[illegible]	0.662	2.202	105%
26	65527DS	1	1	[illegible]		2.211	
27	65527DS	1	1	[illegible]	<0.03	[illegible]	
28	65524	1	1	[illegible]		[illegible]	
29	65524	1	1	[illegible]	<0.03	0.084	
30	65525	1	1	[illegible]		[illegible]	
31	65525	1	1	[illegible]	<0.03	-0.010	
32	65526	1	1	[illegible]		-0.010	
33	65526	1	1	[illegible]		0.936	99%
34	CCV	1	1	[illegible]		-0.027	
35	B	1	1	[illegible]		1.438	
36	D4	1	1	[illegible]	0.032	0.110	
37	65528	1	1	0.8		0.106	
38	65528	1	1	0.7		0.013	RERUN ON 11/17. NOT SAMPLED PROPERLY
39	65529	1	1	[illegible]		[illegible]	
40	65529	1	1	0.3	0.073	0.24[illegible]	
41	65530	1	1	[illegible]		0.244	
42	65530	1	1	1.5	0.999	3.295	
43	65531	2	1	9.1		3.366	
44	65531	2	1	9.4	0.230	0.759	
45	65532	1	1	4.3		0.777	
46	65532	1	1	4.4	<0.01	-0.005	
47	BL1116-1NPO 66553	1	1	0.1		-0.010	
48	BL1116-1NPO	1	1	0.1	0.104	1.048	104%
49	BL1116S	1	1	5.9		1.030	
50	BL1116S	1	1	5.8	0.104	0.986	104%
51	BL1116DS	1	1	5.6		[illegible]	
52	BL1116DS	1	1	6.2	1.204	4.8[illegible]	
53	66556	10	1	2.9		4.772	
54	66556	10	1	2.3	1.354	5.414	
55	66556D	10	1	3.1		5.4[illegible]4	
56	66556D	10	1	3.1		0.995	100%
57	CCV	1	1	5.6		-0.027	
58	B	1	1	0.0		1.488	
59	D4	1	1	5.3	3.725	11.832	98%
60	66556S	10	1	3.3		14.960	
61	66556S	10	1	3.4	3.642	14.744	95%
62	66556DS	10	1	[illegible]		14.388	
63	66556DS	10	1	3.1	<0.250	-0.140	
64	66554	10	1	0.1		-0.095	
65	66554	10	1	0.1	<0.250	-0.095	
66	66555	10	1	0.1		-0.140	
67	66555	10	1	0.1	2 0.250	0.882	
68	66557	10	1	0.6		0.882	
69	66557	10	1	0.6	0.915	3.637	
70	66558	10	1	2.1		[illegible]	

43 A

75	[illegible]	[illegible]	[illegible]	[illegible]		0.770	[illegible]	
76	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
77	[illegible]	10	1	[illegible]		0.709	[illegible]	
78	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
79	[illegible]	[illegible]	[illegible]	[illegible]		0.437	[illegible]	
80	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
81	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	97%
82	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
83	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
84	[illegible] KC	[illegible]	[illegible]	[illegible]		<0.03	[illegible]	
85	[illegible] KC	[illegible]	[illegible]	[illegible]			[illegible]	
86	[illegible]	[illegible]	[illegible]	[illegible]		0.304	[illegible]	101%
87	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
88	[illegible]	[illegible]	[illegible]	[illegible]		0.304	[illegible]	101%
89	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
90	[illegible]	[illegible]	1	[illegible]		9.609	[illegible]	
91	646720	[illegible]	1	[illegible]		9.642	[illegible]	
92	646720	[illegible]	1	[illegible]			[illegible]	
93	646720	[illegible]	1	[illegible]		17.006	[illegible]	98%
94	646720	[illegible]	1	[illegible]			[illegible]	
95	646720S	[illegible]	1	[illegible]		16.789	[illegible]	96%
96	646720S	[illegible]	1	[illegible]			[illegible]	
97	64670	[illegible]	1	[illegible]		<0.100	-0.041	I
98	64670	[illegible]	1	[illegible]			-0.041	I
99	64671	[illegible]	1	0.0		<0.100	-0.028	I
100	64671	[illegible]	1	0.0			-0.041	I
101	64673	3	1	[illegible]		5.190	[illegible]	
102	64673	[illegible]	[illegible]	[illegible]			[illegible]	
103	CCV	1	1	5.5			0.97[illegible]	98%
104	B	1	1	0.0			-0.027	I
105	D4	1	[illegible]	[illegible]			1.488	[illegible]
106	64674	6	1	[illegible]		6.354	[illegible]	
107	64674	[illegible]	1	6.0			6.420	
108	64675	6	1	6.3		6.767	6.740	
109	64675	6	1	6.4			6.794	
110	64676	1.5	1	0.2		<0.100	0.012	I
111	64676	1.5	1	0.2			0.006	I
112	64677	1.5	1	1.6		0.392	0.392	
113	64677	1.5	1	1.6			0.392	
114	64678	1.5	1	1.1		0.269	0.266	
115	64678	1.5	1	1.1			0.272	
116	64679	1.5	1	2.0			1.045	RERUN ON NOV.18th. MA
117	64679	1.5	1	2.0			0.506	
118	64680	1.5	1	2.2		0.493	0.486	
119	64680	1.5		2.0			0.499	
120	CCV	1	1	5.6			0.986	99%
121	B	1	1	0.0			-0.027	b
122	D4	1	1	3.3			1.488	d
123	BL116-A881	66814,66755 1	1	0.0			-0.027	I
124	BL11163	1	1	5.8			1.021	102%
125	66815	10	1	0.4		Tot. µg	0.438	I
126	663150	10	1	0.4			0.482	I
127	66815S	10	1	6.2			10.967	105%
128	66818	10	1	0.5		<0.590	-0.184	I
129	66818-POS	10	1	5.6		5.868	9.945	99%
130	66756	10	1	1.1		0.200	1.815	
131	66757	10	1	0.4		<0.110	0.394	I
132	66757-POS	10	1	6.2		1.211	11.012	106%
133	66758	10	1	0.2		<0.110	0.038	I
134	66758-POS	10	1	6.1		1.192	10.834	107%
135	66759	10	1	0.1		<0.110	-0.140	I
136	66759-POS	10	1	5.8		1.138	10.345	103%

4. SHIPPING/RECEIVING DOCUMENTS

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

_____
_____
_____
_____
_____
_____
_____

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

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

REQUEST FOR LABORATORY ANALYTICAL SERVICES

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

For Braun Intertec Use Only
Braun Intertec Project No.

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

Project ID/Project Name: CMXX-99-0263
P.O. #:

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

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)
Ontario - Hydro Hg MD-16553

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

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

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH Hg										FOR LAB USE ONLY
1	SBC01	990128		filter	✓			X		[illegible]								16555
2	~~SB~~ SR1C01	990128		↓	✓			X		↓								16556
3	SR2C01	990129		↓	✓			X		↓								16557
4	SR3C01	990129		↓	✓			X		↓								16558
5	C12B (Stack filter blank)	990129		↓	✓			X		↓								16554
6	C12A (rinsed filter blank)			↓	✓			X		[illegible]								16534
7	SBC2 (0.1N HNO3 rinse)			LTG	✓			X		[illegible]								16535
8	SR1C2			↓	✓			X		↓								16536
9	SR2C02			↓	✓			X		↓								16537
10	SR3C02			↓	✓			X		↓								16538
11	C07 (0.1N HNO3 Blank)			↓	✓			X		↓								16534
12	SBC03 (0.1N KCl)			↓	✓			X		[illegible]								16535
13	SR1C03 * 1L broken in transfer.			↓				X										16536
14	SR2C03			↓	✓			X		[illegible]								16537
15	SR3C03			↓	✓			X		↓								16538

CHAIN OF CUSTODY
Collected by: (Print) Bruce Randall
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 10/21/99 10:10
Received by: [signature] - PASC Date/Time 99/11/04 11:45
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

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

Comments:

00095

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

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

REQUEST FOR LABORATORY ANALYTICAL SERVICES

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

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Tryba
Project ID/Project Name: CMXX-99-0263
P.O. #
Company
Mailing Address
City, State, Zip
Telephone #
Fax #

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

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

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

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

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH-Hg									FOR LAB USE ONLY
1	C08 (KCl Blank)			ltq	✓												66534
2	SBC4 (HNO3-H2O2)				✓												66535
3	SR1C04				✓												66536
4	SR2C04				✓												66537
5	SR3C04				✓												66538
6	C09				✓												66534
7	SBC05 (KMnO4-H2SO4)				✓												66535
8	SR1C05				✓												66536
9	SR2C05 * 1L broken in transfer																66537
10	SR3C05				✓												66538
11	C10				✓												66534
12	C11 (Hydroxylamine blank)				✓												66534
13	Nothing Below this line																
14																	
15																	

CHAIN OF CUSTODY
Collected by: (Print) Bruce Randall
Collector's Signature:
Relinquished by: [signature] Date/Time 10/21/99 10:10
Received by: [signature] Date/Time 991104 11:45
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time
Evidence Tape Intact ☐ Yes ☐ No ☐ N/A
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other _____
Temperature _____ °C ☐ Received on Ice
Matrix Spike Samples Received: ☐ Yes ☐ No ☐ N/A
Comments:

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

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

REQUEST FOR LABORATORY ANALYTICAL SERVICES

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

For Braun Intertec Use Only
Braun Intertec Project No.

REPORT RESULTS TO
Contact Name: James Tryba
Company: Braun Intertec Corp.
Mailing Address: P.O. Box 39168
City, State, Zip: Minneapolis MN 55439
Telephone #: (612) 833-4654 Fax #: (612) 946-6001

Project ID/Project Name: CMXX-99-0263
P.O. #

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

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

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

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

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH-Hg										FOR LAB USE ONLY
1	1BC1 (Filters)	99/04/29		Filter	✓			X		SLIGHT								66559
2	1R1C1	"			✓			X		SLIGHT								66560
3	1R2C01	99/04/29			✓			X		LIGHT								66561
4	1R3C01	"			✓			X		"								66562
5	1BC2 (0.1N HNO3)			Liq	✓			X		SLIGHT								66559
6	1R1C2				✓			X										66560
7	1R2C02				✓			X										66561
8	1R3C02				✓			X										66562
9	1BC04 (HNO3-H2O2)				✓			X		SLIGHT								~~66563~~ 66559
10	1R1C04				✓			X										~~66564~~ 66560
11	1R2C04				✓			X										~~66565~~ 66561
12	1R3C04				✓			X										66562
13	1BC03 (0.1N HCl)				✓			X		LIGHT								66559
14	1R1C03				✓			X										66560
15	1R2C03				✓			X										66561

CHAIN OF CUSTODY
Collected by: (Print) Bruce Randall
Collector's Signature:
Relinquished by: [signature] Date/Time 12/4/99 10:30
Received by: [signature] Date/Time 99/10/4 11:45
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

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

Comments:

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

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

REQUEST FOR LABORATORY ANALYTICAL SERVICES

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

For Braun Intertec Use Only
Braun Intertec Project No.

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

Project ID/Project Name: CMX-99-0263
P.O. #

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

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

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

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

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	OH-Hg										FOR LAB USE ONLY
1	1R3C03 (0.1N KCl)			Hg	✓			X		HG								66562
2	1RC05 (KMnO4-H2SO4)				✓			X										66569
3	1R1C05				✓			X										66560
4	1R2C05				✓			X										66561
5	1R3C05				✓			X										66562
6	NOTHING BELOW THIS LINE																	
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

CHAIN OF CUSTODY
Collected by: (Print) Bruce Randall
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 10/21/99 10:30
Received by: [signature] PASL Date/Time 99/10/21 1145
Relinquished by: Date/Time
Received Contents Not Verified: Date/Time
Received Contents Verified: Date/Time

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

Comments:

00098

Page ___ of ___

US SAMPLE LOG IN SHEET

BRAUN

Lab Name: Philip Analytical Services Corporation, Burlington Laboratory

Received By (Print Name): Cmare

Received By (Signature):

Client Project ID:

REMARKS:		Condition of Samples/Sample Shipment:
Custody Seal(s)	Present ___ Absent ___	Samples Rec'd intact.
Chain of Custody Records	Present ✓ Absent ___	
Airbill	Present ✓ Absent ___	
Airbill No.	1 2 5 5 2 0 6 5 0 3 1 6 1 1 6 8 1 4	
	6805	
Does Information on Custody Records and Samples Agree?	Yes ✓ No ___	
Date Received at Lab	4 11 99	
Time Received	11:45am	

Temperature of Coolers

Cooler ID:	Temperature
2 Coolers	16°C 16°C

Relinquished By: E Jones

Date: 4 11 99

Logbook No: ___

Logbook Page No. ___

PHILIP ANALYTICAL

	DATE	TIME	TO FROM	MODE	MIN/SEC	PGS	JOB#	STATUS
22	11/08	10:51	16129466001	EC--S	00'22"	001	060	OK

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Bruce Randall
Client: Braun Intertec
Re Client Project: CMXX-99-0263
FAX #: 612-946-6001
Phone #: 612-833-4653

Samples for: 'DH' Hg Trains
were received in good condition unless indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
066554	Reagent Blank	99/09/29	99/11/04
066555	OHHG Stack-Blank	99/09/28	99/11/04
066556	OHHG Stack-R1	99/09/28	99/11/04
066557	OHHG Stack-R2	99/09/29	99/11/04
066558	OHHG Stack-R3	99/09/29	99/11/04
066559	OHHG Inlet-Blank	99/09/28	99/11/04
066560	OHHG Inlet-R1	99/09/28	99/11/04
066561	OHHG Inlet-R2	99/09/29	99/11/04
066562	OHHG Inlet-R3	99/09/29	99/11/04

Comments: _____

Date 99/11/08

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Bruce Randall
Client: Braun Intertec
Re Client Project: CMXX-99-0263
FAX #: 612-946-6001
Phone #: 612-833-4653

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

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
066554	Reagent Blank	99/09/29	99/11/04
066555	OHHG Stack-Blank	99/09/28	99/11/04
066556	OHHG Stack-R1	99/09/28	99/11/04
066557	OHHG Stack-R2	99/09/29	99/11/04
066558	OHHG Stack-R3	99/09/29	99/11/04
066559	OHHG Inlet-Blank	99/09/28	99/11/04
066560	OHHG Inlet-R1	99/09/28	99/11/04
066561	OHHG Inlet-R2	99/09/29	99/11/04
066562	OHHG Inlet-R3	99/09/29	99/11/04

Comments: _____

_____

_____

Date 99/11/08

D

BRAUN[SM] INTERTEC

Description: Cayote Hg Field Notes

Project No: CMXX-99-0259

Date: By: B. Randall

9-27 On-site 1630 park trailer, plug in, offsite 1720

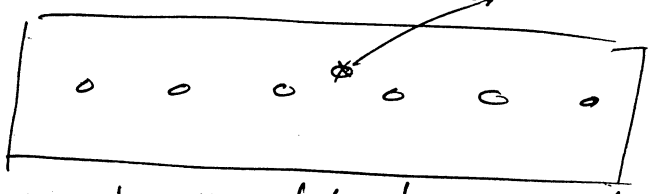
9-28 Onsite 0720 Pbar=28.40

Stack - T=233 Ps=-1.9"H2O ΔP=2.15

STACK X=~~0.165~~ 0.571 Dn=0.165

Inlet Port config:

blocked, can't use



use 6 ports, 4 points/port, 5 mm/pt

Inlet to Dryer to be sampled.

Inlet -T=300 ΔP=0.45 PSTATIC=-17

Inlet X=3.679 Inlet nozzle=0.255 (#8)

Stack orifice check Vc=656.201 Vf=663.612 wet=7.411

Tmavg=508 Pbar=28.40 γ=0.999

$$Yc = \frac{10}{7.411}\left(\frac{0.0319 \times 508}{28.4}\right)^{0.5} = 1.0193$$

0.9603 < 1.0193 < 1.029 check OK

Inlet orifice check (run for 15 rather than 10 min)

#80664 ΔHc=2.014 γ=0.998

Vc=711.286 Vf=722.894 wet=11.608

Tmavg=539.5 Pbar=28.4

$$Yc = \frac{15}{11.608}\left(\frac{0.0319 \times 539.5}{28.4}\right) = 1.0059$$

0.97(0.998)=0.9681

1.03 (0.998)=1.02799

Start run #1 @ 11:30

0.9681 < 1.0059 < ~~0.9~~ 1.0279

check OK!

BRAUN INTERTEC

Description: Coyote Field Notes

Project No: CMXX-99-0259

Date: By: B. Rowda V

9-29 Onsite 0720

Pbar = 28.17

Sample Recovery Log

ID	Recovered	stored
SR3C01	9-29	9-29
SR3C02	9-29	9-29
SR3C03	9-29	9-29
SR3C04	9-29	9-29
SR3C05	9-29	9-29
IR3C01	9-29	9-29
IR3C02	9-29	9-29
IR3C03	9-29	9-29
IR3C04	9-29	9-29
IR3C05	9-29	9-29
C07	9-29	9-29
C08	9-29	9-29
C09	9-29	9-29
C10	9-29	9-29
C11	9-29	9-29
C12A	9-29	9-29
C12B	9-29	9-29

1420

BRAUN[SM]
INTERTEC

Description: Coyote Field Notes

Project No: CMXX-99-0259

Date: By: B. Randall

Sample Recovery Log

ID	Recovered	Stored
SR1C01	9-28	9-28
SR1C02	9-28	9-28
SR1C03	9-28	9-28
SR1C04	9-28	9/28
SR1C05	9-28	9-28
IR1C01	9-28	9/28
IR1C02		9-28
IR1C03		9-28
IR1C04		9-28
IR1C05		9/28
~~SBR1C~~ SBC01	9-28	9-28
SBC02		9-28
SBC03		9-28
SBC04		9-28
SBC05		9-28
IBC01		9-28
IBC02		9/28
IBC03		9/28
IBC04		9/28
IBC05		
SR2C01	9-28	9/29
SR2C02	9-28	9/29
SR2C03	9-28	9/29
SR2C04	9-28	9/29
SR2C05	9-28	9/29
~~SR2C~~	~~9~~	
IR2C01	9-28	9/29
IR2C02	9-28	9/29
IR2C03	9-28	9/29
IR2C04	9-28	9/29
IR2C05	9-28	9/29

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OMPC Coyote
Sample Location: Inlet
Run #: 1 Mercury
Date: 9-28-99
Ambient Temp.(°F):
Pbar ("Hg): 28.40
Pstatic ("H2O): -17
Pre-test Leak Rate: 0.006@9

Bws (assumed):
MWwet (assumed):
Ps ("Hg):
Probe Material: Teflon
Probe Heater Setting: 250
Filter Heater Setting: N/A
Nozzle #: #8
Post-test Leak Rate: 0.002@10

Meter Box #: 80664
ΔH@i: 2.014
Y: 0.998
Pitot #: M-1
Cp: 0.84
Nozzle Material: teflon/ss
Nozzle Diameter: 0.255
X-Factor: 3.679 5mm/pt

POINT	TIME	DUCT DATA Temp (°F)	DUCT DATA ΔP ("H20)	METER DATA Temp i (°F)	METER DATA Temp o (°F)	METER DATA ΔH ("H2O)	METER DATA Vac ("Hg)	HEATER DATA Probe (°F)	HEATER DATA Filter (°F)	HEATER DATA Sample Line (°F)	Impinger Outlet (°F)	Dry Test Meter Vol. (CF)
A4	11:30	319	0.21	83	82	0.54	5	247		246	64	723.025
3	11:35	320	0.39	86	82	1.00	6	247		246	58	
2	11:40	321	0.58	89	83	0.98	6	247		246	57	
1	11:45	320	0.60	93	84	1.59	5	246		246	58	
												735.976
B4	11:52	318	0.50	88	85	1.30	5	245		246	63	
3	11:57	324	0.49	96	86	1.28	5	244		246	58	
2	12:02	322	0.52	98	87	1.37	6	246		246	58	
1	12:07	320	0.54	100	88	1.43	6	244		246	58	
												748.504
C4	12:14	319	0.48	94	89	1.26	6	248		246	63	
3	12:19	331	0.49	103	91	1.28	6	247		247	60	
2	12:24	323	0.61	105	92	1.62	7	246		246	60	
1	12:29	324	0.58	107	93	1.54	7	248		246	61	
												761.413
D4	13:00	323	0.41	100	98	1.08	5	248		246	65	762.256
3	13:05	334	0.42	107	99	1.10	5	247		246	61	
2	13:10	327	0.45	109	100	1.20	5	247		246	62	
1	13:15	330	0.41	112	101	1.09	5	247		246	62	
												773.848
E4	13:22	328	0.35	106	102	0.92	5	248		246	64	
3	13:27	335	0.34	113	103	0.90	5	247		246	63	
2	13:32	330	0.43	114	104	1.15	6	247		246	62	
1	13:37	328	0.40	115	104	1.07	6	248		246	63	
												784.851
F4	13:45	326	0.37	108	105	0.98	6	247		246	65	
3	13:50	334	0.35	115	105	0.93	6	247		246	64	
2	13:55	328	0.37	115	106	0.99	6	247		247	64	
1	14:00	328	0.38	117	107	1.02	6	247		247	65	
												795.736

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OPPC Coyote
Date: 9-28-99
Sample Location: Inlet
Run #:
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	882.9	731.0	
Mod. G.S. 2	100 ml 1N KCl	790.8	754.6	
G.S. 3	100 ml 1N KCl	739.5	731.0	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	Velev1	759.9	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	733.4	732.1	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	743.6	743.7	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	741.3	741.2	
Mod. G.S. 8	Silica Gel	815.9	801.7	
			TOTAL	

Δlte¿= 2.014
10:05 - 1020
Vi - 711.286
Vf 722.894
Tmi 78 84 86 86
Tmo 74 75 76 77

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	8.2	11.8	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC Cayotte
Sample Location: Inlet
Run #: Blank Train
Date: 9-28-99
Ambient Temp. (°F):
Pbar ("Hg):
Pstatic ("H2O):

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

Meter Box #: 82664
ΔH@i:
Y:
Pitot #:
Cp:
Nozzle Material:
Nozzle Diameter:

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

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

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC Coyote
Date: Blank Train
Sample Location: Inlet
Run #:
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	744.5	745.0	
Mod. G.S. 2	100 ml 1N KCl	735.4	735.6	
G.S. 3	100 ml 1N KCl	733.9	733.9	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2	729.2	729.3	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4	730.7	730.8	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4	727.1	727.1	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4	725.4	725.5	
Mod. G.S. 8	Silica Gel	900.7	900.8	
			TOTAL	

ORSAT ANALYSIS

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

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC COYOTE
Sample Location: Inlet
Run #: 2
Date: 9-29-99
Ambient Temp.(°F):
Pbar ("Hg): 28.17
Pstatic ("H2O): -17

Bws (assumed):
MWwet (assumed):
Ps ("Hg):
Probe Material: Teflon
Probe Heater Setting: 250
Filter Heater Setting: N/A
Nozzle #: 8

Meter Box #: 806604
ΔH@i: 2.014
Y: 0.998
Pitot #: M-1
Cp: 0.84
Nozzle Material: Teflon/SS
Nozzle Diameter: 0.255

Pre-test Leak Rate: 0.004@10
Post-test Leak Rate: 0.004@9
X-Factor: 3.679

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA			Impinger Outlet (°F)	Dry Test Meter Vol. (CF)
		Temp (°F)	ΔP ("H20)	Temp i (°F)	Temp o (°F)	ΔH ("H2O)	Vac ("Hg)	Probe (°F)	Filter (°F)	Sample Line (°F)		
A4	08:30	341	0.32	83	82	0.80	5	247		247	66	796.376
3	08:35	341	0.29	85	82	0.73	5	246		246	55	
2	08:40	338	0.66	86	83	1.66	6	245		246	54	
1	08:45	339	0.69	91	84	1.75	6	246		246	55	
												808.054
B4	08:51	336	0.47	89	85	1.19	6	246		246	62	
3	08:56	344	0.48	94	85	1.22	6	247		246	60	
2	09:01	336	0.58	97	87	1.49	6	244		246	60	
1	09:06	343	0.56	100	88	1.44	7	246		246	60	
												820.425
C4	09:13	338	0.44	95	90	1.13	6	247		246	63	
3	09:18	350	0.44	102	91	1.12	6	246		246	62	
2	09:23	344	0.59	104	92	1.52	7	247		246	62	
1	09:28	342	0.62	106	93	1.61	8	246		246	63	
												833.049
D4	09:47	343	0.47	96	94	1.20	5	247		246	65	833.279
3	09:52	354	0.45	104	96	1.15	5	246		247	62	
2	09:57	348	0.48	107	96	1.24	6	246		246	62	
1	10:02	354	0.50	108	97	1.28	6	246		246	62	
												845.387
E4	10:09	350	0.38	102	98	0.97	6	249		246	65	
3	10:14	360	0.37	107	98	0.94	6	248		246	63	
2	10:19	357	0.44	108	99	1.13	6	245		246	62	
1	10:24	358	0.41	109	99	1.05	6	247		246	62	
												856.428
F4	10:32	348	0.37	103	99	0.95	6	249		246	65	
3	10:37	360	0.35	107	99	0.89	6	247		246	62	
2	10:42	358	0.50	107	99	1.28	7	247		246	62	
1	10:47	359	0.48	109	100	1.23	7	247		246	62	
												867.851

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC COYOTE
Date: 9-29-99
Sample Location: Inlet
Run #: 2
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	862.5	740.1	
Mod. G.S. 2	100 ml 1N KCl	784.0	728.9	
G.S. 3	100 ml 1N KCl	786.5	739.8	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	738.0	728.9	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	733.1	730.2	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	725.0	724.4	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	726.8	725.2	
Mod. G.S. 8	Silica Gel	907.6	900.7	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	8.3	11.7	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC COYOTE
Sample Location: Inlet
Run #: 3
Date: 9-29-99
Ambient Temp.(°F):
Pbar ("Hg): 28.17
Pstatic ("H2O): -17

Bws (assumed): 0.13
MWwet (assumed):
Ps ("Hg):
Probe Material: Teflon
Probe Heater Setting: 250
Filter Heater Setting: N/A
Nozzle #: #8

Meter Box #: 800664
ΔH@i: 2.014
Y: 0.998
Pitot #: M-1
Cp: 0.84
Nozzle Material: Teflon/SS
Nozzle Diameter: 0.255 5mm/PA

Pre-test Leak Rate: 0.010@9
Post-test Leak Rate: 0.004@12
X-Factor: 3.679

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA			Impinger Outlet (°F)	Dry Test Meter Vol. (CF)
		Temp (°F)	ΔP ("H20)	Temp i (°F)	Temp o (°F)	ΔH ("H2O)	Vac ("Hg)	Probe (°F)	Filter (°F)	Sample Line (°F)		
F4	12:00	353	0.40	90	90	1.00	5	249		247	64	869.233
3	12:05	354	0.39	91	90	0.97	5	249		247	57	
2	12:10	351	0.54	93	90	1.35	5	248		247	56	
1	12:15	354	0.57	96	90	1.43	6	248		247	57	
												881.065
E4	12:22	352	0.32	94	92	0.80	5	247		246	62	
3	12:27	354	0.33	99	92	0.83	5	248		246	59	
2	12:32	351	0.43	101	93	1.09	6	247		246	59	
1	12:37	355	0.44	102	94	1.12	6	248		246	59	
												891.706
D4	12:45	352	0.46	97	94	1.16	6	247		246	65	
3	12:50	355	0.45	103	95	1.14	6	247		246	60	
2	12:55	355	0.51	105	95	1.30	6	247		246	60	
1	13:00	344	0.50	106	96	1.30	6	247		246	61	
												903.773
C4	13:16	347	0.45	99	97	1.15	5	249		246	64	903.932
3	13:21	357	0.45	107	99	1.15	5	247		247	62	
2	13:26	357	0.65	110	100	1.67	6	247		247	61	
1	13:31	344	0.62	113	101	1.63	6	248		247	62	
												916.754
B4	13:39	346	0.49	106	101	1.27	6	247		246	66	
3	13:44	354	0.49	113	103	1.27	6	245		246	62	
2	13:49	349	0.57	115	103	1.49	6	247		247	62	
1	13:54	350	0.59	116	104	1.54	7	247		247	63	
												929.693
A4	14:02	348	0.40	109	105	1.04	6	247		246	66	
3	14:07	353	0.41	115	106	1.07	6	247		246	64	
2	14:12	346	0.61	116	106	1.60	7	246		246	64	
1	14:17	347	0.62	117	107	1.63	7	247		246	65	
												942.414

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTAC COYOTE
Date: 9-29-99
Sample Location: Inlet
Run #: 3
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	864.7	740.3	
Mod. G.S. 2	100 ml 1N KCl	827.8	754.4	
G.S. 3	100 ml 1N KCl	742.7	738.0	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	736.4	728.6	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	728.8	728.0	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	752.3	751.8	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	733.5	733.8	
Mod. G.S. 8	Silica Gel	828.0	815.6	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	8.2	11.8	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: ~~[illegible]~~ OTPC Coyote
Sample Location: Stack
Run #:
Date: 9-28-99
Ambient Temp.(°F):
Pbar ("Hg): 28.40
Pstatic ("H2O): -1.9
Pre-test Leak Rate: 0.016 @ 10

Bws (assumed):
MWwet (assumed):
Ps ("Hg):
Probe Material: Glass
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #:
Post-test Leak Rate: 0.008 @ 6

Meter Box #: E1231
ΔH@i: 1.815
Y: 0.999
Pitot #: M-2
Cp: 0.84
Nozzle Material: Glass
Nozzle Diameter: 0.165
X-Factor: .571 10 mm/pt

POINT	TIME	DUCT DATA Temp (°F)	DUCT DATA ΔP ("H2O)	METER DATA Temp i (°F)	METER DATA Temp o (°F)	METER DATA ΔH ("H2O)	METER DATA Vac ("Hg)	HEATER DATA Probe (°F)	HEATER DATA Filter (°F)	Impinger Outlet (°F)	Dry Test Meter Vol. (CF)
A 3	11:30	227	2.0	54	54	0.85	3	249	256	46	664.599
2	11:40	228	1.90	57	55	0.81	3	246	248	46	
1	11:50	227	1.70	59	55	0.73	3	254	254	46	
	12:00										679.365
B 3	12:09	229	2.90	57	57	1.24	3	249	251	47	
2	12:19	229	2.30	61	57	0.99	3	248	240	47	
1	12:29	228	2.0	61	58	0.86	3	241	260	48	
	12:39										696.167
C 3	13:00	230	2.20	61	58	0.94	3	248	261	49	
2	13.10	229	2.50	60	58	1.07	3	244	262	49	
1	13.20	229	2.0	61	58	0.86	3	250	260	49	
	13:30										712.244
D 3	13.34	229	2.30	60	58	0.99	3	241	250	50	
2	13.44	227	2.20	62	59	0.95	3	247	248	50	
1	13:54	229	2.05	63	59	0.88	3	250	255	50	
	14:04										728.369

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC Coyote
Date: 9-28-99
Sample Location: Stack
Run #:
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	935.1	738.4	
Mod. G.S. 2	100 ml 1N KCl	752.2	731.1	
G.S. 3	100 ml 1N KCl	735.4	732.0	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	746.1	743.2	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	730.6	731.2	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	734.2	734.3	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	737.2	737.1	
Mod. G.S. 8	Silica Gel	866.1	854.1	
			TOTAL	

orifice Check
V_{i} =
V_{f} =
T_{mo} =
T_{mo} =

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	9.8	10.3	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC Coyote
Sample Location: Stack
Run #: Blank Train
Date: 9-28-99
Ambient Temp.(°F):
Pbar ("Hg):
Pstatic ("H2O):

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

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

Pre-test Leak Rate: 0.008
Post-test Leak Rate:
X-Factor:

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

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC Coyote
Date: 9-28-99
Sample Location: Stack
Run #: Blank train
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	748.8	748.8	
Mod. G.S. 2	100 ml 1N KCl	730.1	730.4	
G.S. 3	100 ml 1N KCl	738.5	738.5	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2	731.1	731.0	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4	749.6	749.9	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4	734.8	734.8	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4	739.1	739.4	
Mod. G.S. 8	Silica Gel	792.9	792.8	
			TOTAL	

ORSAT ANALYSIS

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

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC COYOTE
Sample Location: Stack
Run #: 2
Date: 9-29-99
Ambient Temp.(°F):
Pbar ("Hg): 28.17
Pstatic ("H2O): -1.9

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

Meter Box #: 8123/
ΔH@i: 1.815
Y: 0.999
Pitot #: M-2
Cp: 0.84
Nozzle Material: Glass
Nozzle Diameter: 0.165

Pre-test Leak Rate: 0.00266
Post-test Leak Rate: 0.00267
X-Factor: 0.571

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA		Impinger Outlet (°F)	Dry Test Meter Vol. (CF)
		Temp (°F)	ΔP ("H20)	Temp i (°F)	Temp o (°F)	ΔH ("H2O)	Vac ("Hg)	Probe (°F)	Filter (°F)		
A 3	08:30	207	2.10	53	53	0.92	4	248	249	42	728.684 Start
2	08.40	205	1.90	55	54	0.84	4	242	246	42	728.811 Stop
1	08.50	205	2.0	57	55	0.88	4	251	240	42	729.375 Start
	09.00										745.114 End
B 3	09.14	203	2.20	57	55	0.97	4	248	244	43	
2	09.24	203	2.00	61	57	0.89	4	243	244	43	
1	09.34	204	1.90	61	57	0.85	4	243	240	43	
	09.44		~~2.3~~								760.985
C 3	09.54	205	2.30	58	58	1.02	4	244	250	45	
2	10.04	206	2.40	58	57	1.06	4	254	251	44	
1	10.14	206	2.20	59	57	0.97	4	249	245	45	
	10.24										777.833
D 3	10.27	206	2.40	58	57	1.06	4	250	244	45	
2	10:37	206	2.10	60	57	0.93	4	257	240	46	
1	10.47	208	2.20	61	57	0.97	4	247	246	46	
	10:57										794.429

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC COYOTE
Date: 9-29-99
Sample Location: Stack
Run #: 2
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	948.4	746.6	
Mod. G.S. 2	100 ml 1N KCl	763.2	725.5	
G.S. 3	100 ml 1N KCl	743.3	734.4	
Mod. G.S. 4	100 ml 5%HNO_3/15%H_2O_2	740.3	735.2	
Mod. G.S. 5	100 ml 4%$KMnO_4$/10%H_2SO_4	749.2	748.5	
Mod. G.S. 6	100 ml 4%$KMnO_4$/10%H_2SO_4	738.6	738.0	
G.S. 7	100 ml 4%$KMnO_4$/10%H_2SO_4	744.3	743.3	
Mod. G.S. 8	Silica Gel	805.0	792.9	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	9.7	10.4	
Run 2			
Run 3			
Average			
Air Audit			

Comments :

PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC COYOTE
Sample Location: Stack
Run #: 3
Date: 9-29-99
Ambient Temp.(°F):
Pbar ("Hg): 28.17
Pstatic ("H2O): -1.9
Pre-test Leak Rate: 0.0088

Bws (assumed): 0.15
MWwet (assumed):
Ps ("Hg):
Probe Material: Glass
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #:
Post-test Leak Rate: 0.0100

Meter Box #: 81231
ΔH@i: 1.815
Y: 0.999
Pitot #: M-2
Cp: 0.84
Nozzle Material: Glass
Nozzle Diameter: 0.165 10mm/pt
X-Factor: 0.571

POINT	TIME	DUCT DATA		METER DATA				HEATER DATA		Impinger Outlet (°F)	Dry Test Meter Vol. (CF)
		Temp (°F)	ΔP ("H20)	Temp i (°F)	Temp o (°F)	ΔH ("H2O)	Vac ("Hg)	Probe (°F)	Filter (°F)		
A3	12:00	214	2.10	57	58	0.91	3	250	253	51	794.855
2	12:10	215	2.00	60	57	0.87	3	243	248	46	
1	12:20	214	1.90	61	58	0.83	3	240	240	46	
	12:30										810.856
B3	12:34	214	1.80	61	59	0.79	3	252	256	51	
2	12:44	214	1.90	63	60	0.84	3	247	257	51	
1	12:54	216	2.00	65	61	0.88	3	246	256	51	
	13:04										826.199
C3	13:18	215	2.40	61	61	1.05	3	245	251	58	
2	13:28	216	2.30	64	62	1.01	3	240	252	54	
1	13:38	216	2.20	66	62	0.97	3	253	254	54	
	13:48										842.993
D3	13:52	215	2.50	65	63	1.11	4	250	250	60	
2	14:02	215	2.20	68	63	0.98	3	247	256	55	
1	14:12	214	2.10	69	63	0.94	3	256	254	55	
	14:22										859.908

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 99 - 0259

Plant: OTPC COYOTE
Date: 9-29-99
Sample Location: Stack
Run #: 3
Run Time:

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
Mod. G.S. 1	100 ml 1N KCl	901.1	727.1	
Mod. G.S. 2	100 ml 1N KCl	753.3	737.6	
G.S. 3	100 ml 1N KCl	742.0	740.5	
Mod. G.S. 4	100 ml 5%HNO3/15%H2O2	747.2 ~~732.3~~	744.3	
Mod. G.S. 5	100 ml 4%KMnO4/10%H2SO4	732.3 ~~735.1~~	732.6	
Mod. G.S. 6	100 ml 4%KMnO4/10%H2SO4	735.1	735.3	
G.S. 7	100 ml 4%KMnO4/10%H2SO4	749.2	748.9	
Mod. G.S. 8	Silica Gel	876.4	865.6	
			TOTAL	

ORSAT ANALYSIS

	O_2	CO_2	N_2
Run 1	9.7	10.5	
Run 2			
Run 3			
Average			
Air Audit			

Comments :